iSPECIMEN

Transforming Biospecimen Procurement

An online marketplace for human biospecimens

2023 Annual Report

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2023

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from to

Commission file number: 001-40501

iSpecimen Inc.

(Exact name of registrant as specified in its charter)

Delaware	**27-0480143**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
450 Bedford Street, Lexington, Massachusetts	**02420**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: (781) 301-6700

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.0001 per share	**ISPC**	**The Nasdaq Stock Market LLC**

Securities registered pursuant to Section 12(g) of the Act: **None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.
Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐ Accelerated filer ☐ Non-accelerated filer ☒ Smaller reporting company ☒ Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☐

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

Based on the closing price as reported on the Nasdaq Capital Market, the aggregate market value of the registrant's common stock held by non-affiliates on June 30, 2023 (the last business day of the Registrant's most recently completed second fiscal quarter) was approximately $10,362,059. Shares of common stock held by each executive officer and director and by each stockholder affiliated with a director or an executive officer have been excluded from this calculation because such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of March 11, 2024, there were 9,087,467 shares of common stock, par value $0.0001 per share, of the registrant issued and outstanding.

Documents Incorporated by Reference
Not applicable.

TABLE OF CONTENTS

SPECIAL NOTE

As used in this Annual Report on Form 10-K ("Annual Report"), unless the context otherwise requires, the terms the "Company," "iSpecimen," "we," "us," and "our" refer to iSpecimen Inc., a Delaware corporation. Each reference to a fiscal year in this Annual Report refers to the fiscal year ending in the calendar year indicated (for example, fiscal 2023 refers to the fiscal year ended December 31, 2023).

CAUTIONARY STATEMENT

This Annual Report contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). These forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from the results projected in any forward-looking statement. In addition to the factors specifically noted in the forward-looking statements, other important factors, risks and uncertainties that could result in those differences include, but are not limited to, those discussed under Item 1A to Part I "Risk Factors" in this Annual Report. The forward-looking statements are made as of the date of this Annual Report, and we assume no obligation to update the forward-looking statements, or to update the reasons why actual results could differ from those projected in the forward-looking statements. You should consult all of the information set forth in this Annual Report and the other information set forth from time to time in our reports filed with the Securities and Exchange Commission (the "SEC") pursuant to the Securities Act and the Exchange Act, including our reports on Forms 10-Q and 8-K.

You can identify some of these forward-looking statements by words or phrases such as "may," "will," "expect," "anticipate," "aim," "estimate," "intend," "plan," "believe," "is/are likely to," "potential," "continue" or other similar expressions. We have based these forward-looking statements largely on our current expectations and projections about future events that we believe may affect our financial condition, results of operations, business strategy and financial needs. These forward-looking statements include statements relating to:

- our ability to enter into contracts with healthcare providers to gain access to specimens, subjects, and data on favorable terms;
- our ability to obtain new customers and keep existing customers;
- development of our technology to adequately keep pace to support expansion of our existing line of business or our entry into new lines of businesses;
- market adoption rate of our marketplace technology;
- our ability to continue to expand outside of the United States in compliance with local laws and regulations;
- acceptance of the products and services that we market;
- the viability of our current intellectual property;
- government regulations and our ability to comply with government regulations;
- our ability to retain key employees;
- adverse changes in general market conditions for biospecimens;
- our ability to generate cash flow and profitability and continue as a going concern;
- our future financing plans; and
- our ability to adapt to changes in market conditions which could impair our operations and financial performance.

These forward-looking statements involve numerous risks and uncertainties. Although we believe that our expectations expressed in these forward-looking statements are reasonable, our expectations may later be found to be incorrect. Our actual results of operations or the results of other matters that we anticipate could be materially different from our expectations. You should not place undue reliance on forward-looking statements because they involve known and unknown risks, uncertainties, and other factors, which are, in some cases, beyond our control and which could materially affect results. Factors that may cause actual results to differ materially from current expectations include, among other things, those listed under the section titled "Risk Factors" and elsewhere in this Annual Report. If

one or more of these risks or uncertainties occur, or if our underlying assumptions prove to be incorrect, actual events or results may vary significantly from those implied or projected by the forward-looking statements. No forward-looking statement is a guarantee of future performance. You should read this Annual Report and the documents that we reference in this Annual Report and have filed with the SEC thereto completely and with the understanding that our actual future results may be materially different from any future results expressed or implied by these forward-looking statements. We do not assume any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

Our business, operating results or financial condition could be materially adversely affected by any of the following risks associated with any one of our businesses, as well as the other risks highlighted elsewhere in this Annual Report. The trading price of our common stock could decline due to any of these risks.

Our business is subject to numerous risks as described in this section. Some of these risks include:

Risks Related to Our Business

- We have incurred losses since inception and anticipate that we will continue to incur losses for the foreseeable future. We are not currently profitable, and we may never achieve or sustain profitability;
- There is substantial doubt about our ability to continue as a going concern;
- During the year ended December 31, 2023, we identified a material weakness in our internal control over financial reporting, and we may identify material weaknesses in the future that may cause us to fail to meet our reporting obligations or result in material misstatements of our financial statements. If we fail to remediate this material weakness or if we otherwise fail to establish and maintain effective control over financial reporting, our ability to accurately and timely report our financial results could be adversely affected;
- We may likely require additional capital in the future and an inability to meet future capital needs could adversely impact our ability to operate;
- Our revenue trend is not predictive which can lead to difficulty in accurately forecasting future results;
- Sustainable future revenue growth is dependent upon the development of technology solutions that enable scale and address new markets;
- If our security measures are breached, or if our services are subject to attacks that degrade or deny the ability of users to access our platforms, our platforms and applications may be perceived as not being secure, customers and suppliers may curtail or stop using our services, and we may incur significant legal and financial exposure;
- Our growth strategy may not prove viable and we may not realize expected results;
- We rely upon relatively few customers for a significant portion of revenue and do not have a recurring revenue business model. A loss of large customers could affect our ability to operate;
- Customers and customer prospects may be averse to using a self-service marketplace to procure specimens and may continue to require iSpecimen personnel in the procurement process, impacting our scalability and profitability;
- We have entered into contracts with U.S. government agencies and contractors which subjects us to federal contract and audit risk;
- Potential adverse effects from changes in the healthcare industry, including consolidations and regulatory changes, could affect access to subjects, samples, and data and affect our growth;

- Our supply chain may not provide adequate resources to quickly respond to requests for specimens and delays in the procurement process can affect our reputation, revenue, and profitability;

- Reliance of relatively few supply partners for significant supplies and services could affect our ability to operate and grow;

- Specimen collection from human subjects, including the possible occurrence of adverse events during or after tissue collection, could provide exposure to claims and litigation;

- Our senior management team has limited experience managing a public company;

- We may lose business to competitors which have or develop their own biorepositories and/or collection centers that can meet customers' needs; and

- We have incurred losses from sales tax obligations owed to various jurisdictions by us because we did not collect taxes on taxable sales in prior years, and we may never be able to recover the prior sales taxes from the customers.

Risks Related to Regulatory Environment

- Failure to comply with federal and state data protection regulations could result in fines, penalties, and litigation, and have a material adverse effect upon our business;

- Failure to comply with international laws related to data protection, such as the General Data Protection Regulation ("GDPR") could result in fines, penalties, and litigation, and have a material adverse effect upon the Company's business;

- Failure to comply with laws and regulations related to the protection of research subjects could result in fines, penalties, and litigation, and have a material adverse effect upon our business;

- Product safety and product liability, including bio-hazard risks, could provide exposure to claims and litigation;

- Failure to comply with federal and state laws around environmental, health and safety, biohazards and dangerous goods, and imports/exports could result in fines, penalties, and litigation, and have a material adverse effect upon our business; and

- Failure to comply with other international laws around environmental, health and safety, biohazards and dangerous goods, imports/exports, and other regulations could result in fines, penalties, and litigation, and have a material adverse effect upon our business.

Risks Related to Our Securities

- If we are not able to comply with the applicable continued listing requirements or standards of The Nasdaq Stock Market LLC, our common stock could be delisted from Nasdaq;

- The sale of substantial shares of our common stock may depress our stock price;

- Our directors, officers and principal stockholders have significant voting power and may take actions that may not be in the best interests of our other stockholders;

- Our bylaws, as amended, designate certain courts as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees; and

- Limitations on director and officer liability and indemnification of our officers and directors by us may discourage stockholders from bringing suit against an officer or director.

PART I

Item 1. Business

Our Mission, Vision, and Core Values

iSpecimen's mission is to accelerate life science research, discovery and development with a global marketplace platform that connects researchers to subjects, specimens, and associated data. Our vision is to create an "Amazon-like" global Marketplace of patients, biospecimens, and data for research to improve the quality of human life. We implement employee programs that foster a company culture predicated on the core values of corporate and individual growth, results and accountability, team before self; a can-do positive attitude, and the perseverance to succeed.

Overview

iSpecimen is technology-driven company founded to address a critical challenge: how to connect life science researchers who need human biospecimens for their research, with the billions of biospecimens available (but not easily accessible) in healthcare provider organizations worldwide. Our ground-breaking iSpecimen Marketplace platform was designed to solve this problem and transform the biospecimen procurement process to accelerate medical discovery.

The iSpecimen Marketplace brings new capabilities to a highly fragmented and inefficient biospecimen procurement market. Our technology consolidates the biospecimen buying experience in a single, online marketplace that brings together healthcare providers who have biospecimens and researchers across industry, academia, and government institutions who need them. We are seeking to be transformative in the world of biospecimen procurement.

The iSpecimen Marketplace offers single-source access to millions of human biospecimens and patients across a diverse network of specimen providers quickly and compliantly, saving researchers time and money in their specimen procurement process while making it easier and more efficient for providers to get their specimens in the hands of researchers who need them. We have adopted many of the same ease-of-use characteristics of these business to consumer, or B2C marketplaces, from simple guided searches, to the ability to refine search criteria with sliders and checkboxes, to the ability to add chosen items to a cart in order to purchase them, to online order management. Our two-sided marketplace platform makes it easy for researchers and healthcare providers to connect and transact, introducing efficiencies into what is otherwise a very time-consuming and manual process.

The platform is built upon a robust healthcare data set comprised of information about available specimens and research subjects, which then enables the search and matchmaking process. It receives de-identified specimen and patient data from electronic medical records, laboratory information systems, biobank inventory systems, and other healthcare data sources (either in real time via data feeds or regularly via file extracts) and harmonizes this "big data" across all participating organizations into a common dataset, which now incorporates external clinical content to further optimize and standardize the biospecimen data on iSpecimen's proprietary Marketplace platform. The data is then easily searchable by researchers using our intuitive, web-based user interface. Researchers can use their unique study inclusion and exclusion criteria as selection filters to search the de-identified healthcare data to find matching specimens currently available in laboratories and biobanks in our network. Researchers can then select the specific specimens they need for their studies, add them to a cart, request quotes, place orders, and track and manage their specimen requests and associated data across projects. When specimens are not available that meet their research criteria, researchers can, with a click of a button, request a quote for a custom specimen collection and this custom specimen request will be distributed across our network of biospecimen providers.

Biospecimen providers also gain efficiencies using the iSpecimen Marketplace, not only by giving providers instant access to a large researcher base, but because the technology orchestrates the bioprocurement workflow from specimen request to fulfilment. Specimen providers gain access to intuitive dashboards to view requests, create proposals, and track and manage their orders.

In addition to providing the technology platform to connect researchers and healthcare providers, iSpecimen handles all marketing, sales, contracting, and compliance functions across both sides of the marketplace.

We market to and develop relationships with researchers and specimen providers alike to bring them together into a single platform. We contract once with each participating customer and with each supplier organization and a single agreement then enables all users in that

organization to instantly connect and work with all other organizations in the iSpecimen network. We also audit our suppliers to confirm they have proper Institutional Review Board ("IRB") (or equivalent) protocols in place where required by law.

As of December 31, 2023, we had more than 7,428 external registered users on the iSpecimen Marketplace platform, representing more than 2,817 unique internet domains. Collectively, these users logged into the iSpecimen Marketplace more than 161,565 times and performed nearly 18,700 specimen searches yielding more than 2,475 quote requests since its launch.

Our iSpecimen Marketplace platform has compiled de-identified healthcare data provided by our healthcare supply partners' approximately 18 million patient records, 101 million clinical specimen records, 1.3 million banked specimen records, 730 million laboratory test results, and 1,100,000 medical conditions as of December 31, 2023 — to allow researchers to easily search for and select research subjects, specimens, and associated data they need to drive their research programs. It then orchestrates and manages the biospecimen procurement workflows of both researchers and suppliers to bring efficiency to the entire buying process. Through the iSpecimen Marketplace, researchers gain instant access to millions of specimens anytime, anywhere, while participating supply organizations gain an opportunity to contribute compliantly to medical research while increasing their revenue and sustainability.

Planned Developments of our Marketplace

While the iSpecimen Marketplace currently supports our business model of providing access to search, find, and acquire human biospecimens and associated data from "inquiry to invoice" and positions us for future expanded business model exploration, there are a number of areas in which the iSpecimen Marketplace functionality could be enhanced to better support our stakeholders, including our prospects and customers, iSpecimen sales and operations staff, and our supply partners. We believe with additional investment in technology development resources, we could make significant progress in scaling our iSpecimen Marketplace and, in addition to increased patient and specimen data integration, we expect to continue to improve the matchmaking across the platform and have capabilities such as more direct support for our prospective collections, deeper search and workflow capabilities, increased automation, and direct pricing availability in the platform.

As investment allows, we plan to continue to better connect healthcare researchers with our network of suppliers to enable the acquisition of human biospecimens and data to help accelerate research and expand the impact of our iSpecimen Marketplace platform from "inquiry to invoice" through the following key approaches:

- *Enhance the customer experience*. By working with our prospects and customers to understand their needs, we strive to provide a platform that more easily enables them to specify and find human biospecimens and data that meet the requirements of their research.

- *Increase our supplier engagement*. By continuing to engage with our supply partners to deliver solutions that make their interactions with us more fulfilling, we become more seamlessly integrated into their workflows and daily operations.

- *Improve operational efficiency*. By measuring the results of our operational workflows, we endeavor to reduce the friction and manual efforts in our processes and systems.

We continue to prioritize and release updated versions of the iSpecimen Marketplace platform in alignment with these areas and believe that continuing to focus on these approaches will enable us to scale our business model more effectively. As part of this continued platform evolution, iSpecimen continues to explore adjacencies that leverage the platform including a data as a product model.

Our Technology

Technology Components

The iSpecimen Marketplace technology is comprised of four major functional areas: search, workflow, data, administrative, compliance and reporting. We continue to invest in the evolution of these areas to improve customer and supplier engagement with the platform; provide operational efficiencies for our suppliers, our customers, and our internal operations; and increase the liquidity of products and services obtained through the platform. Our core business objective is to retain and grow both researcher and supplier engagement with iSpecimen and usage of our platform to support biospecimen procurement, as well as to position our Company to explore other adjacent business opportunities that can benefit from the use of the iSpecimen Marketplace.

- *Search*. The primary purpose of the iSpecimen Marketplace is to matchmake between those with access to subjects, specimens, and data, and those with a need for them to power their research.

By entering subject and sample selection requests through the iSpecimen Marketplace, researchers can instantly search across the available medical records of large populations within iSpecimen's healthcare provider network to create customized patient and specimen cohorts. Researchers can specify their criteria and either refine and review results to select specific specimens instantly, or they can request that iSpecimen find patients, specimens, and associated data to satisfy their needs when specimens do not currently exist in our network. Using our own proprietary algorithms, we enable researchers to explore both what is currently available and what is likely to be available based on historic statistical analysis of data. This allows researchers to quickly and easily determine how we can fulfill their requirements, which is especially useful for project planning and budgeting.

Our search capabilities are what most notably distinguishes the iSpecimen Marketplace from other business-to-business, or B2B bioprocurement marketplaces. Whereas some other bioprocurement marketplaces support a search that generates a list of *service providers* that the researcher must then contact to inquire about specimen availability, the iSpecimen Marketplace goes a step further and returns a list of available *specimens and data* that actually meet the researcher's specific requirements. Researchers can then select the individual specimens, add them to a cart, and request a quote for these exact specimens. By incorporating user experiences that researchers are accustomed to from their online consumer shopping experiences, such as faceted searches and the ability to add items to a cart, the iSpecimen Marketplace brings B2C ease of use to the B2B space.

- *Workflow.* Our workflow engine supports the unique bioprocurement workflows of our suppliers, customers, and internal iSpecimen operations users. For our suppliers, our ability to easily integrate into their environments and automate key parts of their bioprocurement workflow enables us to maintain a level of engagement and responsiveness necessary to successfully deliver on specimen requests from our research customers. We make it easy for suppliers to list their specimens in our iSpecimen Marketplace by receiving their data in the most commonly used data transmission formats for healthcare data, such as HL7 feeds (a healthcare data interchange standard), JSON files (a standard data interchange format), and CSV files (a comma separated values file used for tabular data), and then by harmonizing this data into standard terminology sets that allows their specimens to be searchable by our research customers. We provide these onboarding services at no charge to our supply partners. Additionally, our marketplace technology enables suppliers to track and manage all their specimen requests from feasibility assessment through the ordering and fulfillment process in a single web application, thereby streamlining their bioprocurement workflow. Because the work that we do with our suppliers is often a secondary concern to their primary mission of providing patient care, we believe that seamlessly integrating into their workflow is critical to its use and ongoing success.

In addition to supporting our suppliers' workflow requirements, our workflow engine orchestrates customers' bioprocurement workflows from specimen requests through fulfillment. Customers can not only search for and select specimens, but they can track and manage their specimen quote requests, place orders, track the progress of orders as they are fulfilled and shipped, and download packing lists, data sheets, and other accompanying data.

Finally, the Marketplace technology acts as the command and control center for internal iSpecimen operations users and allows them to easily federate and manage the sourcing of specimens and data for all requested projects across a large and growing supply chain. The technology tracks and manages requests for specimens from inquiry-to-invoice and provides a single place for internal users to manage all specimen requests, orders, shipments, and data. Additionally, because our technology easily scales to support a growing supply network and customer base, we have satisfied projects of all types and sizes — from small specimen requests to projects with more than a thousand samples from specific patient cohorts. As of December 31, 2023, we had delivered more than 210,000 specimens in support of nearly 3,000 unique projects since inception.

- *Data.* We power search and orchestrate the procurement workflow through our ability to acquire, ingest, generate, and use big data from our healthcare provider partners. Working with a global, centralized set of healthcare providers, we receive this data in a variety of different formats and quality levels. We de-identify, normalize, and harmonize our supplier network's data for usage in our iSpecimen Marketplace, ensuring the highest level of patient privacy and compliance with HIPAA (as defined below) and all other applicable regulations that govern the research use of patient specimens and data. As of December 31, 2023, the iSpecimen Marketplace had ingested and harmonized data on approximately 18 million patients, 101 million clinical specimens, 1.3 million banked specimens, 730,000 million laboratory test results, and 1.1 million medical conditions.

In addition, our platform gathers usage data that enables us to granularly understand supply and demand as well as provide value-added insights to our business partners. For example, our biobanking partners often have access to more samples than they can economically store.

Understanding which samples are likely to be the most useful to researchers helps guide the biobanks' operational practices to optimize their supply chain (for example, providing them with information on the medical conditions and specimen types that are in highest demand can help guide their collection practices). Our ability to deliver relevant insights further increases the engagement with our platform and positions us as a valuable partner. Additional inventory and capabilities data collected in the year ended December 31, 2023 as part of our data initiatives has dramatically reduced, or entirely eliminated the need to perform a feasibility assessment, increasing conversion rates and decreasing sales and fulfillment time leading to increased revenue.

As we continue to ingest and generate more data, there are additional business opportunities to leverage our platform and continue to evolve the iSpecimen Marketplace using modern approaches such as robotic process automation and artificial intelligence/machine learning techniques to further improve the efficiency and effectiveness of the platform and enhance the value of the data. Our ability to leverage network effects will enable us to realize increasing returns from our investments and expand into adjacent markets such as clinical trial patient recruitment, data as a product, software-as-a-service ("SaaS"), and Next Generation Sequencing (an initiative launched in late 2023). With additional data comes additional security risks we worked to mitigate through shoring up existing security processes and protocols and the addition of a 24x7 managed risk vendor.

- *Administrative, Compliance, and Reporting.* Administrative, compliance, and reporting functions are critical components to enable users to properly evaluate and manage the bioprocurement process. Our administrative capabilities include functions such as user management to assign users and roles and password management to ensure passwords are updated regularly, among other capabilities. Compliance management includes manual and technology-based processes that allow iSpecimen to track and manage unique regulatory and legal requirements across customers and suppliers (such as consent requirements versus consents granted, required specimen and data uses versus allowable specimen and data uses, resale or distribution requirements versus resale or distribution rights) to make sure that customer requirements and supplier requirements match before transferring specimens and data. Additionally, we conduct regular audits of supply sites capabilities and confirm that supply sites have IRB (or equivalent) protocols in place where required by law. Our reporting tools turn operational data into useful information by enabling users to view operational data in tables and other visualizations. Together, they help manage and streamline administrative, compliance, and reporting functions.

Our Products and Services

The iSpecimen Marketplace currently supports the supply chain management and bioprocurement process for specimens and associated data. We derive our revenue by procuring specimens from our healthcare provider network and then distributing these annotated biospecimens to our research client base. Revenue flows from the researchers who pay our Company to provide the specimens and we share that revenue back with the healthcare providers who supplied them. Revenue share back to the supplying organization is generally 20% to 50%, depending upon the sample type, collection requirements, and data provided. We are flexible and allow our suppliers to work with us using a number of revenue share constructs, including a fixed percent revenue share arrangement (whereby we share a fixed percentage of the revenue back with them), a fixed pricing schedule (whereby they set their pricing per specimen type), or on a project-based pricing (whereby the supply site sets fees on a per project basis). We have derived substantially all of our revenue from annotated biospecimen procurement and to date, have not charged our customers or suppliers fees for the use of the iSpecimen Marketplace platform, or for marketing, sales, contracting, or compliance functions that we provide as part of the specimen procurement process.

We generally operate in a "just in time" fashion, meaning we procure specimens from our suppliers and distribute specimens to our customers after we obtain an order for specimens from a research client. Generally, we do not speculatively purchase and bank samples in anticipation of future, unspecified needs. We believe our approach offers many advantages over a more traditional inventory-based supplier business model where biorepositories take inventory risks, and where turnover and cash conversion cycles can be lengthy, depending on market demand for certain specimen types.

Currently, we provide access to the following types of human biospecimens from healthy and diseased-state subjects:

- Biofluids — such as whole blood, plasma, serum, urine, saliva, sputum, nasopharyngeal material, and cerebral spinal fluid;

- Solid tissue — such as fresh, fixed, and cryopreserved tissue; and formalin-fixed paraffin embedded blocks, slides, and curls; and

- Hematopoietic stem and immune cells — such as bone marrow, cord blood, whole blood, or sub-components of these tissues such as peripheral blood mononuclear cells (including normal or mobilized leukapheresis collections) and other isolated cell types ($CD34^+$,T cells, NK cells, B cells, and monocytes).

For each of the biospecimen types, we offer:

- Remnant specimens — specimens collected originally for clinical testing purposes but are no longer needed for clinical care of that patient. These samples typically are sourced from clinical laboratories and pathology laboratories prior to their disposal; and

- Research use only specimens — specimens collected specifically for research via a direct intervention with a research subject, under a protocol that has been reviewed and approved by an ethics committee such as an IRB and with such research subject's consent. These samples are typically sourced at healthcare providers or commercial partners that are a part of our supply network.

The cross product of all these categories (i.e. remnant or research use only and biofluids, tissues, or hematopoietic stem or immune cells) describes the product types we use to track and manage the business. These groupings include:

- Remnant biofluids — These leftover clinical samples are procured from our clinical lab partners and are typically available days after specimen collection. They are generally priced to the researcher per specimen, depending upon specimen type, rarity, and requested data. These specimens contributed to approximately 13% and 15% of our revenue in 2023 and 2022, respectively.

- Remnant tissue — These leftover anatomic pathology samples are procured from our pathology lab partners and typically are available years after they were first collected for clinical care. They are generally priced depending upon specimen type, rarity, and requested data.

- Remnant hematopoietic stem and immune cells — Remnant hematopoietic stem and immune cells includes bone marrow, cord blood, whole blood, or their viable cellular components, that are left over from a clinical testing process. These samples may be obtained from clinical and anatomic pathology labs.

- Next generation sequenced ("NGS") tissues – NGS tissues include various cancer types that have been fully DNA/RNA sequenced to identify specific biomarkers of interest. The tissues screened are tumor only FFPE specimens. Results are analyzed and paired with clinical annotation to create a robust data package that has some utility even without the need for the specimen itself. Tissues used for the program are a combination of remnant waiver of consent tissue blocks along with RUO fully consented blocks.

- Research use only biofluids — Research use only biofluids are collected directly from subjects, with their consent, and under an IRB (or equivalent) protocol. We obtain these samples via a variety of sources, including our biorepository and clinical research center partners. They are generally priced to the researcher per collection, depending upon specimen type, rarity, and requested data. These specimens contributed to approximately 39% and 38% of our revenue in 2023 and 2022, respectively.

- Research use only tissue — Research use only tissues are collected directly from subjects, with their consent, and under an IRB (or equivalent) protocol. They are typically collected during a clinically required surgical procedure. We obtain these specimens from our biorepository partners, anatomic pathology laboratories, or clinical research centers that have relationships with surgical facilities. These samples are priced to the researcher per sample, depending upon specimen type, rarity, and requested data. These specimens contributed to approximately 47% and 43% of our revenue in 2023 and 2022, respectively.

- Research use only hematopoietic stem and immune cells — Research use only hematopoietic stem and immune cells includes bone marrow, cord blood, whole blood, or their cellular components, which are collected from subjects with their consent and under an IRB (or equivalent) protocol. Some of the aforementioned products are collected from healthy subjects or diagnosed (diseased) subjects and may be offered to researchers in fresh or cryopreserved format. They are prospectively collected

primarily from our blood donor center partners or picked from banked inventory maintained by our supply site partners. The collection of these samples may require subjects to undergo apheresis procedures, bone marrow extraction procedures, and/or hematopoietic stem cell (HSC) mobilization therapies. These products are generally priced to the researcher per collection depending upon collection type, specimen type, rarity (subject phenotype or attributes selected), required procedures, and requested data. Research use only hematopoietic stem and immune cells were a relatively new product to us in 2019. These specimens accounted for approximately 1% and 2% of our revenue in 2023 and 2022, respectively.

For each of these product types, biospecimens may already exist in laboratory archives or banked in our network of biorepositories ("banked") or may be collected in the future from our network of healthcare providers and commercial specimen providers ("prospectively-collected" or "custom collections").

Our Supply Partners

Critical to the success of the iSpecimen Marketplace is the network of healthcare providers who make their patients, samples, and data available to researchers. This supply network was built over a ten-year period and as of December 31, 2023, our supply network consisted of approximately 234 unique healthcare organizations and biospecimen providers under agreement, including healthcare systems, community hospitals, clinics, private practice groups, commercial laboratories, blood centers, commercial biobanks, clinical research sites, and cadaveric donation centers.

Our suppliers are located in 19 countries across the Americas, Europe, and Asia and our cost of revenue for the years ended December 31, 2023 and 2022, break out as follows geographically:

	December 31,	
	2023	2022
Americas	64.87 %	90.52 %
Europe, Middle East and Africa	23.08 %	6.91 %
Asia Pacific	12.05 %	2.57 %

There was one supplier that accounted for 12.7% of our total cost of revenue during the year ended December 31, 2023. There was one supplier that accounted for 12.3% of our total cost of revenue during the year ended December 31, 2022.

Each supplier organization may give us access to one or more of the following environments within their organization where specimens may be obtained:

- Clinical labs — This environment provides access to remnant biofluids and is typically found in hospitals, commercial laboratories, clinics, and private practice groups. As of December 31, 2023, approximately 34 of our healthcare supply sites provided us with access to remnant biofluids originating in clinical labs;

- Pathology labs — This environment provides access to remnant tissue and remnant hematopoietic stem and immune cells and typically exists within hospitals or commercial laboratories. As of December 31, 2023, approximately three of our healthcare supply sites provided us with access to remnant tissue or cells originating in pathology labs;

- Biorepositories — These organizations typically reside within larger healthcare systems or commercial organizations. Generally, they collect and store specimens for unspecified future research purposes. As of December 31, 2023, approximately 34 of our supply sites provided us with access to specimens stored in biorepositories;

- Blood donor centers — These organizations typically collect large volumes of blood and derivatives for therapeutic or research purposes. They own and operate donor centers and may manufacture broad selection of isolated cell types (fresh or cryopreserved) from consented donors for research use. As of December 31, 2023, eight of our supply sites provided us with access to large volume blood products;

- Cadaveric donation centers — These organizations receive whole cadavers and provide access to cadaveric tissues, biofluids, and stem cells, specifically for research purposes. As of December 31, 2023, two of our supply sites provided us with cadaveric tissues and biofluids; and

- Clinical research centers — These organizations generally reside within healthcare facilities such as hospitals or clinics, or they operate as standalone entities providing access to subjects for research programs. Subjects may be approached and consented to provide specimens when they are in for healthcare appointments (i.e. patient encounters) or may be called in to specifically participate in research projects. As of December 31, 2023, approximately 153 of our healthcare supply sites provided us with access to patients directly from over 1,000 hospitals and thousands of clinics and practice groups.

Supply sites may provide specimens from one or all these environments, depending on their practices and capabilities. Each supply site can select how it will work with our Company.

In addition to obtaining specimens and data directly from healthcare organizations, we work with several commercial biobanks and biospecimen brokers who have their own network of healthcare provider supply partners and wish to make their samples available to our research clients as well. While these organizations are generally considered our competitors, they are willing to work with us because we provide value by acting as both a distribution channel for them and a supply partner to them to increase their revenues. Moreover, the inclusion of competitors' specimens in our iSpecimen Marketplace platform further strengthens our competitive position and value to our customers by further de-fragmenting our customers' buying experience.

Our Customers

Our customer base is primarily comprised of three main segments: biopharmaceutical companies, in vitro diagnostic companies, and government/academic institutions. As of December 31, 2023, we had distributed our specimens to approximately 709 customers, such as the Centers for Disease Control and Prevention. Since entering the regenerative medicine market late 2019, we have acquired 33 customers representing 4% of our total revenue in 2022, and 0.7% in 2023.

From our inception through December 31, 2023, we had distributed more than 210,000 specimens to 23 countries and our geographical revenues distribution for the years ended December 31, 2023 and 2022 were as follows:

	December 31,	
	2023	2022
Americas	89.93 %	89.54 %
Europe, Middle East and Africa	9.10 %	7.68 %
Asia Pacific	0.97 %	2.78 %

During the year ended December 31, 2023, there was one customer that accounted for approximately 25% of our total revenue generated. During the year ended December 31, 2022, there were two customers that accounted for approximately 14% and 12% of our total revenue generated, respectively. We continuously engage with all customers when we receive inbound requests from them, whether they are within or outside of the Americas. Year-over-year, our top customers have been different because their specimen needs tend to be project-based and depending upon where they are in their research and development cycle, they may not need large numbers of specimens each year. Regardless, our customer retention rates are high, with 22 of our top 25 customers (88%) in the year ended December 31, 2022 also procuring specimens in the year ended December 31, 2023.

Biospecimens have broad utility within the healthcare and life science industries, as they are collected and used throughout nearly every stage of diagnostic and therapeutic product discovery and development. For diagnostic products, they are used consistently for preclinical discovery, clinical validation, and post-market validation, as well as surveillance. For therapeutic products, these samples are most often used during preclinical research involving drug target identification and validation, compound screening, lead optimization, predictive toxicology, and pharmacokinetic studies. They are also used for biomarker companion diagnostic discovery and development, which has been shown to reduce the costs of drug clinical trials by 30 to 60% according to Ark Research. In the case of regenerative medicine applications, hematologic samples are used for research and development of engineered cell therapies (e.g. CAR-T, CAR-NK), stem cell therapies (e.g. hematopoietic stem cells, mesenchymal stem cells), exosome therapies, identification of cell immunophenotypes for allogeneic therapies, and for developing and scaling-up cell therapy manufacturing processes.

Given recent advances in technology that now allow for the identification of molecular determinants of disease, the role of the patient's biospecimen has become even more important in all these endeavors and is essential to the development of precision medicine. This pursuit of precision medicine by the healthcare and life science industries has further increased the already high demand for human biospecimens and the clinical data that describe them.

Our Competitors

We compete with a highly fragmented landscape of organizations who have access to human biospecimens. The competitive organizations, including:

- Healthcare providers, who may offer access to clinical laboratory specimens, pathology laboratory specimens, biorepository specimens, or patients directly for research;

- Commercial biobanks, who purchase and maintain inventories of specimens from healthcare providers in anticipation of future requests from researchers. Some of these organizations offer online catalogs that can be searched for specimens within their own biobanks;

- Specimen brokers, who act as a middleman between healthcare providers and researchers on a transaction-by-transaction basis;

- Commercial specimen providers who operate their own donor centers, specimen procurement groups, and cell manufacturing facilities. Some of these organizations offer online catalogs that can be searched for specimens within their own biobanks; and

- Research services marketplaces that provide access to a list of biospecimen providers but not a list of available biospecimens. These organizations allow a researcher to fill out a specimen request form online which then gets distributed to the biospecimen providers in their marketplace. They do not support searches for precise specimens in the services marketplace.

In each of these cases, the landscape is extraordinarily fragmented, and our management estimates that most biospecimen providers have less than 5% market share each, and no single biospecimen provider has more than a 20% market share. Most competitors are smaller organizations with limited specimen procurement abilities. However, there are several larger biospecimen providers who are consolidating the industry by acquiring smaller specimen providers to enable them to provide broader access to specimens and research subjects. These organizations are well-capitalized by private equity and while they still lack a technology-based approach that enables them to search the inventories across their biospecimen provider network, because of their broad specimen access, banked inventory, and available cash, they currently represent our biggest competitive threat.

Specimen providers (e.g. Discovery Life Sciences and StemExpress) maintain internal biobanks and enable researchers to search online for specimens that reside within their own biobanks. Other research services marketplaces (e.g. Science Exchange) allow researchers to describe a specimen request which then gets broadcast to a network of specimen providers (i.e. no searching for specimens, but rather the identification of specimen providers who may or may not have matching specimens and the distribution of the specimen request to them). As such, we believe that there are no other online human biospecimen marketplaces that operate in a manner similar to our business. In addition, we believe that over the long term, the iSpecimen technology-based approach will allow us to scale faster than our competitors who rely upon manual efforts to procure specimens. Nonetheless, we believe we will continue to face competition from: healthcare providers that have their own inventory of biospecimens and thus offer lower prices by eliminating us and others as middlemen; commercial biobanks that have their own inventory of biospecimens and thus may deliver samples more quickly when a researcher's needs align with their existing inventory; specimen brokers with a specific niche (e.g. infectious disease); and commercial specimen providers with their own donor centers who may more predictably collect and deliver specimens.

Our Intellectual Property

Intellectual property rights are an important component of our business. While we currently do not have any patents protecting our intellectual property, we rely on a combination of copyright, trademark, and trade secret laws in the United States and other jurisdictions, as well as confidentiality and non-disclosure agreements and other contractual protections with employees and third parties to protect our intellectual property rights, including our proprietary technology, brand, and know-how. We believe factors such as the technological and creative skills of our people; our existing and evolving partnerships; the creation of new features, functionality, and services; and the frequent enhancements to our platform have helped us to establish and will help us maintain our technology leadership position.

Regulations

iSpecimen works with the healthcare industry and with clinical researchers, both highly regulated environments in the United States and other countries. Government departments and agencies, at the federal, state, and local levels have regulations related to research activities

that involve human subject research as well as regulations about the collection, storage, and dissemination of personal and healthcare data related to individuals. To support compliance with regulations, we have both internal personnel and external resources who provide us with expertise in various areas of compliance including a Chief Information Security Officer, Chief Privacy Officer, contracts manager, biospecimen and data privacy counsel (external), general counsel (external), IRB (external), and other employees with expertise and oversight of site compliance, lab compliance, and operational compliance.

The following is a general overview of the major laws and regulations pertaining to our business in the United States:

- 45 CFR Part 46 — Federal Policy for the Protection of Human Subjects
- HIPAA and 45 CFR Parts 160, 162, and 164 — HIPAA Privacy Rule, Security Rule, and Breach Notification Rule
- 21 CFR Part 11 — Food and Drug Regulations — Electronic Records, Electronic Signatures
- 21 CFR Part 50 — FDA Regulations — Protection of Human Subjects
- 21 CFR Part 56 — FDA Regulations — Institutional Review Boards
- Other Information Laws and Regulations
- Other Applicable Laws

Most countries have their own corresponding rules that we are also required to follow.

45 CFR Part 46 — Federal Policy for the Protection of Human Subjects — "The Common Rule"

The Common Rule refers to regulations issued by the U.S. Department of Health and Human Services ("HHS") and other federal agencies that fund or participate in research, which regulations protect individuals participating in research. The Common Rule defines "Human Subjects Research" as research involving a living individual about whom an investigator is conducting research when information or biospecimens are obtained through intervention or interaction with the individual, or where the research uses, studies, analyzes, or generates identifiable private information or identifiable biospecimens. For this type of research, the Common Rule stipulates: (i) when this research must be reviewed and approved by an IRB (as well as when it may be exempt from IRB review and approval); (ii) the requirements for an IRB's membership, authority, review procedures, record keeping, and approval criteria; (iii) when informed consent must be obtained from a research subject for participation in research and the elements that must be communicated in an informed consent form (as well as when consent may be waived by an IRB); and (iv) rules related to special requirements for vulnerable populations (such as prisoners and pregnant women).

iSpecimen is involved with both Human Subject Research and non-Human Subject Research. The collection of Research Use Only ("RUO") specimens (i.e., samples collected specifically for research via a direct intervention with the research subject and not collected as part of routine clinical care) is considered Human Subject Research. In those cases, iSpecimen and our suppliers are subject to the Common Rule. Therefore, all research use only specimens collected in the United States need to be collected under an IRB-approved protocol, with informed consent (unless an IRB waives consent under appropriate regulatory standards).

When iSpecimen is the study sponsor (i.e. specimens are collected under our IRB protocol), we work with a commercial IRB (currently Advarra) to approve our protocol, informed consent forms, subject recruitment material, and collection sites. These protocols and associated material are reviewed regularly by our IRB in accordance with the Common Rule. When iSpecimen is not the study sponsor (i.e., when research use only specimens are collected at participating healthcare providers under their own IRB-approved protocols), we audit the site before we start procuring specimens to ensure that appropriate IRB approvals are in place.

For international specimen collection sites, we rely on those sites to ensure they are collecting specimens in accordance with the laws in their own jurisdictions, in addition to following basic U.S. rules related to Human Subjects Research.

Finally, iSpecimen participates in Non-Human Subject Research, specifically when we collect clinical remnant samples (i.e., those specimens that were collected originally as part of clinical care). According to the Common Rule, as long as the physical sample and

any associated dataset is de-identified before being used for research, the use of clinical remnant samples is not considered Human Subject Research and therefore does not need IRB review and approval, nor does it require patient consent. For these samples, iSpecimen leaves it up to each supplier to determine whether the supplier seeks patients' consent or whether the supplier will inform its patients about the supplier's use of remnant samples, or allows its patients to opt-out of their use. In all cases, we track any use limitations that attached to a particular specimen. For researchers who only want samples from patients who have consented to allow use in research, we only distribute specimens meeting that criteria to those researchers.

Health Insurance Portability and Accountability Act, as amended by the Health Information Technology for Economic and Clinical Health ("HITECH") Act, all as implemented by 45 CFR Part 160, 162 and 164 (collectively, "HIPAA").

HIPAA includes several applicable rules, including the *Standards for Privacy of Individually Identifiable Health Information* ("Privacy Rule"), the *Security Standards for the Protection of Electronic Protected Health Information* ("Security Rule"), and the *Breach Notification Rule* ("Breach Notification Rule").

The Privacy Rule addresses the allowable uses and disclosures of an individual's PHI by Covered Entities, defined by HHS as (1) health plans, (2) healthcare clearinghouses, and (3) healthcare providers who electronically transmit any health information in connection with transactions for which HHS has adopted standards (such as electronic billing). The Privacy Rule also applies to Business Associates, which include persons or entities that performs certain functions or activities that involve the use or disclosure of PHI on behalf of, or provide certain services to, a Covered Entity. HIPAA requires Covered Entities to obtain HIPAA Business Associate Agreements with their Business Associates.

The Security Rule establishes a national security standard for protecting ePHI. The Security Rule requires Covered Entities and Business Associates to implement physical, administrative, and technical safeguards to protect ePHI.

The Breach Notification Rule pertains to Covered Entities and Business Associates that have access to PHI and requires them to provide notification following a use or disclosure of PHI that does not comply with the Privacy Rule that compromises the security or privacy of the PHI (a "Breach").

Covered Entities and Business Associates that fail to comply with the HIPAA standards may be subject to civil money penalties or criminal prosecution.

iSpecimen has implemented many protocols and processes to comply with HIPAA and other data privacy and related laws and regulations. First, to reduce the likelihood of any Breach, iSpecimen removes all ePHI prior to storing information in our datacenter so that we do not possess PHI that is subject to HIPAA. Secondly, to the extent any PHI inadvertently remains in our datacenter, we have implemented physical, administrative, and technical safeguards to comply with the HIPAA Security Rule. We have implemented more than eighty HIPAA privacy and security policies at the Company to help ensure compliance with HIPAA Privacy, Security and Breach Notice rules. Thirdly, we regularly undergo HIPAA gap analyses and security testing using external, independent firms to find weaknesses and vulnerabilities in our technology and our data protection policies and procedures and remediate as needed. Finally, iSpecimen executes Business Associate Agreements or Data Use Agreements with our healthcare provider partners if they might share ePHI with us. To date, iSpecimen has never had a Breach of PHI and has never been investigated by HHS nor found to be out of compliance with HIPAA.

21 CFR — FDA Regulations

The Food and Drug Administration ("FDA") is an HHS agency that regulates clinical investigations of products under its jurisdiction, such as drugs, biological products, and medical devices. The FDA has its own set of rules related to the protection of human subjects in research which may differ from the Common Rule. However, FDA does harmonize its regulations with the Common Rule whenever permitted by law (see section 1002 of the 21st Century Cures Act, Public Law 114-255). iSpecimen follows the FDA regulations related to the protection of research subjects, so that its customers may submit data to the FDA resulting from research performed using data and specimens provided to the researcher by iSpecimen.

21 CFR Part 11 Electronic Records; Electronic Signatures

21 CFR Part 11 is relevant when submissions to the FDA include records in electronic form that are created, modified, maintained, archived, retrieved, or transmitted under any records requirements set forth in FDA regulations. At a high level, Part 11 requires organizations to implement good business practices by defining the criteria under which electronic records and signatures are considered to be accurate, authentic, trustworthy, reliable, confidential, and generally equivalent to paper records and handwritten signatures on paper. These rules stipulate a range of features that must be in place in computer systems that handle electronic data; standard operating procedures relating to information technology systems and processes; system validation processes and procedures to ensure that electronic systems operate as intended.

Although iSpecimen defines and implements many relevant policies, processes, and technical controls, the iSpecimen Marketplace has not been certified or audited for 21 CFR Part 11 compliance. In addition, we do not require the originating systems from whom we receive data to be 21 CFR Part 11 compliant. While we do not represent to customers or suppliers that our systems are 21 CFR Part 11 compliant, our clients may still submit data to the FDA that was received, stored, and transmitted in our systems.

The vast majority of the specimens used by our customers are for projects that do not require 21 CFR Part 11 compliance, and our customers are responsible for determining whether they require Part 11-compliant data for the particular use. For specimens that are collected with informed consent, we audit informed consent differently for supply sites that use their own IRB or ethics committee and those supply sites that use the IRB we contract. In the event we are required to contact a client about a shipped specimen that is not supported by informed consent, which had not happened as of December 31, 2023, the client would then determine whether it could use the specimen without informed consent. In addition, we contract with an outside IRB for IRB services, which agrees to perform the services in accordance with all applicable laws and regulations governing independent institutional review boards, and to indemnify us for its failure to comply with applicable laws, rules, and regulations. The failure of our Company or our supply sites to comply with international, federal, state, and local laws and regulations could subject us to denial of the right to conduct business, fines, criminal penalties, and/or other enforcement actions which could have a material adverse effect on our business.

21 CFR Part 50 — Protection of Human Subjects

21 CFR Part 50 contains the general standards for obtaining informed consent and for human participation in clinical investigations as well as additional safeguards for children involved in clinical investigations, when the investigations are regulated by the FDA. The regulations specify the requirements for informed consent, exceptions to these requirements, elements of informed consent, and documentation of informed consent. Additionally, the requirements detail additional regulations for investigations involving children. Informed consent is not required to use de-identified specimens and data for certain FDA-regulated research, as set forth in guidance documents issued by the FDA.

To the extent our suppliers seek informed consent from individuals to use specimens and data for research, we will provide our clients, upon request, with copies of our or our suppliers' template informed consent forms and IRB approval prior to obtaining samples from us. However, gaps may exist in our or our suppliers' protocols and informed consent forms that make them incompatible with this regulation and we may fail to properly audit and identify these gaps.

21 CFR 56 Institutional Review Boards

21 CFR Part 56 contains the general standards for the composition, operation, and responsibility of an IRB that reviews clinical investigations regulated by the FDA. These regulations are intended to protect the rights and welfare of human subjects involved in such investigations and indicate the required organization and membership of an IRB; the IRB's function and operations; record-keeping and reporting; and administrative actions for non-compliance.

iSpecimen utilizes an outside IRB to review the iSpecimen specimen collection protocol. While we believe the IRB composition and operations to be 21 CFR Part 56 compliant, there may be gaps that make them incompatible with this regulation.

Other Information Laws and Regulations

Other information laws and regulations include all applicable laws concerning the privacy and/or security of personal information including, but not limited to, state data breach notification laws; personal data protection laws such as the California Consumer Privacy

Act of 2018, Nevada Senate Bill 220 (an amendment to the state's existing online privacy policy statute) and Maine's Act to Protect the Privacy of Online Consumer Information; and all applicable Payment Card Industry Security Standards with respect to account data protection.

Currently, iSpecimen collects personal data on customers, suppliers, investors, employees, research subjects, Marketplace registrants, and other individuals who interact with iSpecimen personnel or our websites. We believe we are in compliance with these data protection rules but there remains inherent risk of a data breach of iSpecimen's systems or any of our technology service and SaaS providers (such as those organizations who provide us with customer relationship management software, marketing automation software, online file storage, web services, email systems, accounting systems, and data aggregation and visualization services).

Other Applicable Laws

In addition to the above-described regulation by United States federal and state government related to Human Subject Research and data privacy and security, there are many other U.S. and international rules that are applicable to iSpecimen. The following list contains some of the other federal and state laws and regulations that could directly or indirectly affect our ability to operate the business:

- Occupational Safety and Health regulations and requirements;
- Centers for Disease Control Import Permit Program rules related to biological agents;
- Shipping rules such as IATA Dangerous Goods regulations;
- State and local laws and regulations for the disposal and handling of medical waste and biohazardous material;
- Export laws such as the U.S. Department of Commerce's Bureau of Industry and Security Export Administration Regulations, U.S. State Department's Directorate of Defense Trade Controls, and the U.S. Department of the Treasury's Office of Foreign Assets Control in export licensing;
- Import laws such as the Customs and Border Protection Trade Act of 2002 and the Customs Modernization Act;
- The federal Anti-Kickback Statute, which prohibits, among other things, any person from knowingly and willfully offering, soliciting, receiving or providing remuneration, directly or indirectly, in exchange for or to induce either the referral of an individual for, or the purchase, order or recommendation of, any good or service for which payment may be made under federal healthcare programs;
- Federal, state, and local tax and tariff rules;
- Other laws and regulations administered by the FDA;
- Other laws and regulations administered by HHS;
- State and local laws and regulations governing human subject research and clinical trials; and
- Other laws and regulations of which we are unaware.

These laws cover areas where we may not have expertise and, in many areas, these laws are actively evolving. We, or our other third-party customers, suppliers and/or distribution partners, may not be able to maintain regulatory compliance in such countries or may incur significant costs in obtaining or maintaining our foreign regulatory compliance.

International Regulatory Environment

Because iSpecimen procures specimens from and distributes specimens to countries outside of the United States, we are subject to international rules related to the protection of human subjects in research, data privacy and security, import and export regulations, tariffs, and foreign rules similar to any of the aforementioned U.S. rules, as well as those of which we are unaware.

One of the more prominent international regulations is the General Data Protection Regulation ("GDPR') which took effect in May 2018. The GDPR regulates the collection, use, disclosure, transfer, and/or other processing of personal data of identified or identifiable individuals located in the European Economic Areas, including the European Union ("EU"). This data specifically includes personal health data that generally is provided as part of biospecimen collection studies. The GDPR imposes numerous requirements on companies that process personal data, including requirements relating to processing health and other sensitive data, obtaining consent of the individuals to whom the personal data relates for processing (with some exceptions), allowing individuals to revoke consents granted, enabling individuals the right to have their data erased (with some exceptions), amended, or transferred to another data controller (known as "data portability"), providing information to individuals regarding data processing activities, implementing safeguards to protect the security and confidentiality of personal data, limiting the transfer of data to countries outside of the EU, providing notification of data breaches, and taking certain measures when engaging third-parties who may also use or process the data.

In addition, EU member states may make their own further laws and regulations limiting the processing of personal data, including biometric, genetic, or health data.

The GDPR increases our obligations with respect to data collected by our EU suppliers. We generally rely upon our contractual terms with these organizations as a means for obligating them to provide us data in accordance with the GDPR regulations. In addition to utilizing contractual terms to obligate specimen suppliers to conform with GDPR, we generally request the international supplier fills out a pre-contract questionnaire to understand their GDPR compliance before engaging in the contracting process and then perform a post-contract audit that also asks about GDPR applicability and the site's conformance to the GDPR. Audit questionnaires are distributed every two years after the initial site audit.

Employees

As of December 31, 2023, we had fifty-three employees (not including co-ops or summer interns), ten of whom were engaged in research and development activities, eleven of whom were engaged in sales and marketing activities, eighteen of whom were engaged in operations and fulfillment activities, five of whom were engaged in supply development and management activities, and nine of whom were engaged in general and administrative functions. Our employees are primarily located in Lexington, Massachusetts with sixteen remote sales, marketing, and supply development personnel located elsewhere in the U.S.

Item 1A. Risk Factors

In analyzing our Company, you should consider carefully the following risk factors, together with all of the other information included in this Annual Report. Factors that could cause or contribute to differences in our actual results include those discussed in the following subsection, as well as those discussed above in "Management's Discussion and Analysis of Financial Condition and Results of Operations" and elsewhere throughout this Annual Report. Each of the following risk factors, either alone or taken together, could adversely affect our business, operating results and financial condition, as well as adversely affect the value of an investment in our Company. The risks and uncertainties described below are not the only ones we face. Additional risks not currently known to us or other factors not perceived by us to present significant risks to our business at this time also may impair our business operations.

Risks Related to Our Business

We have incurred losses since inception and anticipate that we will continue to incur losses for the foreseeable future. We are not currently profitable, and we may never achieve or sustain profitability.

We were founded in 2009 and completed our first commercial sale in 2012. We did not start generating revenues until 2016. We are not profitable and have incurred losses in each period since our inception in 2009. For the years ended December 31, 2023 and 2022, we reported net losses of $11,099,488 and $10,245,922, respectively. We had an accumulated deficit of $59,364,812 as of December 31, 2023.

We expect to continue to incur losses for the foreseeable future, and we expect these losses to increase as we continue to invest in the growth of our business. We may encounter unforeseen expenses, difficulties, complications, delays, and other unknown factors that may adversely affect our business. The magnitude of our future net losses will depend, in part, on the rate of future growth of our expenses and our ability to generate and grow revenue. Even if we achieve profitability in a future period, we may not be able to sustain

profitability in subsequent periods. Our prior losses and expected future losses have had and will continue to have adverse effects on our stockholders' equity (deficit) and working capital.

There is substantial doubt about our ability to continue as a going concern.

Our audited financial statements included in this Annual Report include an explanatory paragraph that indicates that they were prepared assuming that we would continue as a going concern. We have suffered recurring net losses and accumulated deficits as of December 31, 2023. These conditions raise substantial doubts about our ability to continue as a going concern. Our plan for continuing as a going concern included improving our profitability and obtaining additional financing, including public and private placements of capital stock for additional funding to meet our operating needs. There can be no assurance that we will be successful in our plans described above or in attracting equity or alternative financing on acceptable terms, or if at all. These consolidated financial statements do not include any adjustments to the recoverability and classification of recorded asset amounts and classification of liabilities that might be necessary should we be unable to continue as a going concern.

During the year ended December 31, 2023, we identified a material weakness in our internal control over financial reporting that may cause us to fail to meet our reporting obligations or result in material misstatements of our financial statements. If we fail to remediate this material weakness or if we otherwise fail to establish and maintain effective control over financial reporting, our ability to accurately and timely report our financial results could be adversely affected.

We are required to comply with the SEC's rules implementing Sections 302 and 404 of the Sarbanes-Oxley Act of 2002 (the "Sarbanes-Oxley Act"), which requires management to certify financial and other information in our quarterly and annual reports and provide an annual management report on the effectiveness of our controls over financial reporting. We are also required to make assessment of our internal controls over financial reporting pursuant to Section 404. We have included in this Annual Report management's assessment disclosure of any material weaknesses in our internal control over financial reporting. Our independent registered public accounting firm will not be required to attest to the effectiveness of our internal control over financial reporting until our first annual report required to be filed with the SEC, following the later of the date we are deemed to be an "accelerated filer" or a "large accelerated filer," each as defined in the Exchange Act, or the date we are no longer an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"). We could be an emerging growth company for up to five years after the date of our initial public offering ("IPO").

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our financial statements will not be prevented or detected on a timely basis.

As described elsewhere in this Annual Report, we identified a material weakness in our internal control over financial reporting related to a failure to design and maintain adequate controls to maintain appropriate documentation for the tax exempt status of its customers, calculate and collect sales tax at point of sale, and subsequently report and remit in a timely manner to the relevant tax jurisdictions sales tax obligations.

We initiated and implemented several remediation measures including, but not limited to, (i) engaging external tax advisors to complement internal resources and efforts and provide support in assessing the appropriate sales tax treatment associated with the Company's products for all prior years in which the Company had generated revenue, (ii) obtaining sales tax exemption letters, representation letters or proof of payments of compensating use tax from our customers and we have started a collection effort of these sales taxes from certain customers who have notified the Company that they do not have a sales tax exemption letter, (iii) implementing a sales tax software platform solution for the calculation, communication, collection, and remittance of sales tax for all non-exempt future sales, and assisting with the collection and tracking of Voluntary Disclosure Agreements received from states where a potential sales tax liability may exist, (iv) designing and implementing enhanced policies, procedures and controls related to the calculation, communication, collection, and remittance of sales tax to relevant jurisdictions, and (v) training appropriate personnel in the effective design and execution of our enhanced policies, procedures, and controls, including the importance of the ongoing, consistent effective execution of such procedures and controls.

We believe the measures described above should address the material weakness identified and strengthen our internal control over financial reporting. These measures are expected to result in future costs for us. While we continue the process to implement our plan to remediate the material weakness, we cannot predict the success of such plan or the outcome of our assessment of this plan until the remediation initiatives have been completed and have been operating effectively for a sufficient period of time. We can give no assurance

that these measures will remediate the deficiencies in internal control or that additional material weaknesses or significant deficiencies in our internal control over financial reporting will not be identified in the future. Our failure to implement and maintain effective internal control over financial reporting could result in errors in our financial statements that may lead to a restatement of our financial statements or cause us to fail to meet our reporting obligations for the year ended December 31, 2023, any of which could diminish investor confidence in us and cause a decline in our stock price.

We may identify future material weaknesses in our internal controls over financial reporting or fail to meet the demands that will be placed upon us as a public company, including the requirements of the Sarbanes-Oxley Act, and we may be unable to accurately report our financial results, or report them within the timeframes required by law or stock exchange regulations. We cannot assure that additional material weaknesses will not exist or otherwise be discovered, any of which could adversely affect our reputation, financial condition and results of operations.

We may likely require additional capital in the future and an inability to meet future capital needs could adversely impact our ability to operate.

We require substantial capital to fund our business growth and we will likely need additional capital in the future to fund our operations. In addition to investing in personnel growth commensurate with business growth, we believe we must continue to invest in the development of our iSpecimen Marketplace platform to enhance and improve its performance, functionality, ease of use, and reliability to carry out our business strategies. New industry standards, the availability of alternative products, and evolving life science research needs could render our products and services obsolete and/or new third-party marketplace technology may be introduced that makes it easier for our competitors to create their own marketplace platforms. Our success will depend, in part, on our ability to develop new products and services and make corresponding technology enhancements that address the increasingly sophisticated and varied needs of our suppliers and customers and respond to technological advances and emerging industry standards and practices on a cost-effective and timely basis. We cannot be certain that additional financing will be available to us if required on favorable terms or at all. To the extent that we cannot raise capital if needed, we may not be able to continue operations.

Our revenue trend is not predictive which can lead to difficulty in accurately forecasting future results.

Our revenue trend is not predictive and our ability to accurately forecast future results is limited and is impacted by a number of factors, including:

- Our revenue is transactional and not recurring. Researchers pay us to provide specimens when they have a need for specimens. We do not currently charge our customer or supply chain for access to the iSpecimen Marketplace;

- Our revenue is significantly concentrated and varies by customer year-over-year. There was one customer that accounted for approximately 25% of our revenue in 2023. In 2022, there were two customers that represented approximately 14% and 12% of our revenue, respectively;

- Researcher needs may change over the lifetime of a project, based on the stage of the project. A research customer in one time period may not have a need for specimens again in the next;

- Research projects get terminated or suspended for a variety of reasons, including funding issues or unexpected results. Any termination or suspension of a project may cause a corresponding cancellation or delay in purchase orders we have received for specimens; and

- Suppliers may not accurately estimate how long it will take them to fulfill specimen requests, making it more difficult to accurately forecast when we will recognize revenue on these specimen requests.

Many of these are outside of our control and all of which may change from time to time. Our historical revenue results should not be taken as predictive of future performance. There are many risks that could impact future performance resulting in variations in expected results which could lead to a negative business impact.

Our growth strategy may not prove viable and we may not realize expected results.

Our business strategy is to grow by improving and expanding iSpecimen's Marketplace platform. This growth is expected to come through: (i) expansion of our platform capabilities to drive increased acquisition of annotated biospecimens through the platform, (ii) further expansion of our customer and supplier base in and outside the United States, and (iii) expansion into new lines of business such as patient recruitment and data licensing. Expansion of our existing business and entry into new lines of business will require a significant investment in technology development, supply development, operations, and marketing and sales. We may not achieve market expansion and acceptance and we may incur problems introducing new solutions and services. We may experience losses related to these investments, which could have a material adverse effect on our results of operations.

Our growth strategy involves a number of risks and uncertainties, including:

- We may not successfully enter into contracts with healthcare providers to gain access to specimens, subjects, and data on terms favorable to us or at all. This can limit our ability to grow in existing lines of business and expand into new lines of business;

- We may not obtain new customers or may lose existing customers if we cannot offer products and services that they need on a timely basis or at all;

- We may fail in the development of our technology and it may not adequately keep pace to support an expansion of our existing line of business or our entry into new lines of businesses;

- The market adoption rate of our marketplace technology may be too slow, and we may fail to get our customers and suppliers to transact for products and services using our technology;

- We may fail to continue to expand outside of the United States, especially if we are required to comply with laws and regulations that differ from geographies in which we currently operate;

- We may fail to gain market acceptance for new products or services; and/or

- We may lose to competitors, some of whom may have greater resources than we do. This competition may intensify due to the ongoing consolidation in the biospecimen industry, which may increase our costs to pursue opportunities.

If we fail to properly evaluate and execute existing and new business opportunities properly, we may not achieve anticipated benefits and may incur increased costs. There can be no assurance that we will be able to successfully capitalize on growth opportunities, which may adversely impact our business model, revenues, results of operations, and financial condition.

International operation expansion could expose us to additional risks which could harm our business, prospects, results of operation, and financial condition.

We operate internationally and expect to expand internationally. For example, we procure specimens from sites outside of the United States and we also distribute samples to organizations located around the world. As of December 31, 2023, we had customers in 23 countries, supply sites in 19 countries, and two international distributors. International expansion exposes us to additional risks, including:

- changes in local political, economic, social, and labor conditions, which may adversely affect our business;

- risks associated with trade restrictions and foreign import requirements, including the importation and exportation of our solutions, as well as changes in trade, tariffs, restrictions or requirements;

- heightened risks of unethical, unfair or corrupt business practices, actual or claimed, in certain geographies;

- fluctuations in currency exchange rates, which may make doing business with us less appealing as our contracts are generally denominated in U.S. dollars;
- greater difficulty in enforcing contracts;
- lack of brand awareness that can make commercializing our products more difficult and expensive;
- management communication and integration problems resulting from cultural differences and geographic dispersion;
- the uncertainty and limitation of protection for intellectual property rights in some countries;
- increased financial accounting and reporting burdens and complexities as a result of being a public company;
- lack of familiarity with local laws, customs and practices, and laws and business practices favoring local competitors or partners;
- potentially different pricing environments, longer payment cycles in some countries, increased credit risk, and higher levels of payment fraud;
- uncertainty regarding liability for products and services, including uncertainty as a result of local laws and lack of legal precedent;
- different employee/employer relationships, existence of workers' councils and labor unions, and other challenges caused by distance, language, and cultural differences, making it harder to do business in certain jurisdictions;
- compliance with complex foreign and U.S. laws and regulations applicable to international operations may increase the cost of doing business in international jurisdictions. These numerous and sometimes conflicting laws and regulations include internal control and disclosure rules, data privacy requirements, research ethics and compliance laws, anti-corruption laws, and anti-competition regulations, among others. Violations of these laws and regulations could result in fines and penalties, criminal sanctions against us, our officers, or our employees, prohibitions on the conduct of our business and on our ability to offer our products and services in one or more countries, and could also materially affect our brand, our international expansion efforts, our ability to attract and retain employees, our business, and our operating results; and
- instability, disruption or destruction in a significant geographic region, regardless of cause, including war, terrorism, riot, civil insurrection or social unrest; and natural or man-made disasters, including famine, flood, fire, earthquake, storm or disease, including without limitation, the war between Russia and Ukraine which started in February 2022, regions from which we obtain specimen supplies.

The occurrence of any one of these risks could harm our international business and, consequently, our results of operations. Additionally, operating in international markets requires significant management attention and financial resources. We cannot be certain that the investment and additional resources required to operate in other countries will produce desired levels of revenue or profitability.

We, or the third parties who provide services for us, may be adversely affected by external events for which our business continuity plans may not adequately prepare us.

The occurrence of severe weather, natural disasters, health epidemics, acts of war or terrorism, military conflicts such as the war between Russia and Ukraine, and other adverse external events or conditions that impact us or the operations of third parties who provide services for us have the potential to significantly impact our ability to conduct business. Although we have business continuity plans in place, including an emergency succession plan, there is no guarantee that our plans can be successfully implemented. Even if we were to successfully implement our continuity plans, we may incur substantial expenses and there is no guarantee that our business, financial condition, and results of operations will not be materially impacted.

We rely upon our technology solution for the operation of our business and if our technology platform contains defects or fails to perform as expected, we may need to suspend its availability and divert development resources, and our business and reputation may be harmed.

Technology as complex as ours may contain unknown and undetected errors or performance problems. There could be numerous reasons for performance and quality issues including new and updated features, defects in integrated commercial and open source technologies, outages and disruptions in the cloud infrastructure on which our platform relies, human error or malfeasance, scale constraints, design flaws, and bad actions by external factors including security and performance related incidents. Many serious defects are frequently found during the period immediately following introduction and initial release of new capabilities or enhancements to existing platforms. Although we attempt to resolve errors that we believe would be considered serious by our users before making our platforms available to them, our products are not error-free. If a significant failure occurs that prevents our customers, suppliers, or our Company from using the iSpecimen Marketplace, our operations may be disrupted, and it may be difficult or, in certain cases, impossible for us to continue our business for a period of time until the failure is corrected. Any performance or quality problem could result in lost revenues or delays in user acceptance that would be detrimental to our business and reputation. We may not be able to detect and correct errors before releasing our product commercially. Undetected errors or performance problems in our existing or future products may be discovered in the future and known errors, considered minor by us, may be considered serious by our customers, resulting in a loss of customers and a decrease in our revenues.

Sustainable future revenue growth is dependent upon the development of technology solutions that enable scale and address new markets.

Our iSpecimen Marketplace technology consists of four major functional areas: data ingestion and harmonization, search, workflow management, and administration, compliance and reporting. Each of these functional areas need continual development to both enable our current business to scale and to enable us to enter new markets. As financial resources become available, our intention is to focus most of our engineering resources on the development of the iSpecimen Marketplace platform for the foreseeable future. In fiscal year 2023, we incurred $5,386,165 in technology expenses, and capitalized $3,767,332 for internally developed software. While we have spent a significant amount of time and resources on the development of this platform, we cannot provide any assurances of our iSpecimen Marketplace's short or long-term success or growth and there is no assurance that the resources being allocated for the platform will be sufficient to complete planned additional capabilities, or that such completion will result in significant revenues or profit for us. If our customers or suppliers do not perceive this platform to be of high value and quality, we may not be able to retain them or acquire new customers or suppliers.

Our platform may become technologically obsolete or commoditized.

We must continue to enhance and improve the performance, functionality, ease of use, and reliability of our iSpecimen Marketplace platform or it may become obsolete or commoditized. New industry standards, the availability of alternative products, and evolving life science research needs could render our products and services obsolete and/or new third-party marketplace technology may be introduced that makes it easier for our competitors to create their own marketplace platforms. Our success will depend, in part, on our ability to develop new products and services that address the increasingly sophisticated and varied needs of our suppliers and customers and respond to technological advances and emerging industry standards and practices on a cost-effective and timely basis. The development of our technology involves significant technical and business risks. We may fail to use new technologies effectively or to adapt our proprietary technology and systems to user requirements or emerging industry standards. If we are unable to adapt to changing market conditions, user requirements, or emerging industry standards, we may not be able to increase our revenue and expand our business. Additionally, if existing or future competitors develop or offer products or services that provide significant performance, price, creative or other advantages over this platform, demand for our services through the iSpecimen Marketplace may decrease and our business, prospects, results of operations and financial condition could be adversely affected.

If our security measures are breached, or if our services are subject to attacks that degrade or deny the ability of users to access our platforms, our platforms and applications may be perceived as not being secure, customers and suppliers may curtail or stop using our services, and we may incur significant legal and financial exposure.

Our platforms and the network infrastructure that are hosted by third-party providers involve the storage and transmission of healthcare data as well as proprietary information about organizations and programs, and security breaches could expose us to a risk of loss of this information, litigation, and potential liability. Our security measures may be breached due to the actions of outside parties, employee

error, malfeasance, security flaws in the third party hosting service that we rely upon, or any number of other reasons and, as a result, an unauthorized party may obtain access to our suppliers' or customers' data. Although we have never had any breach of data in our third-party provider's environment, any future breach or unauthorized access could result in significant legal and financial exposure, damage to our reputation, and a loss of confidence in the security of our platforms and applications that could potentially have an adverse effect on our business. Because the techniques used to obtain unauthorized access, disable or degrade service, or sabotage systems change frequently and often are not recognized until launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures on a timely basis. If an actual or perceived breach of our security occurs, the market perception of the effectiveness of our security measures could be harmed and we could lose suppliers and customers and we may have difficulty obtaining merchant processors or insurance coverage essential for our operations.

We, and the third-party providers upon which we rely, have experienced, and may in the future experience, cybersecurity threats, including threats or attempts to disrupt our information technology infrastructure and unauthorized attempts to gain access to sensitive or confidential information. Our and our third-party vendors' technology systems may be damaged or compromised by malicious events, such as cyberattacks (including computer viruses, malicious and destructive code, phishing attacks, and denial of service attacks), physical or electronic security breaches, natural disasters, fire, power loss, telecommunications failures, personnel misconduct, and human error. Such attacks or security breaches may be perpetrated by internal bad actors, such as employees or contractors, or by third parties (including traditional computer hackers, persons involved with organized crime, or foreign state or foreign state-supported actors). Cybersecurity threats can employ a wide variety of methods and techniques, which may include the use of social engineering techniques, are constantly evolving, and have become increasingly complex and sophisticated; all of which increase the difficulty of detecting and successfully defending against them. Furthermore, because the techniques used to obtain unauthorized access or sabotage systems change frequently and generally are not identified until after they are launched against a target, we and our third-party providers may be unable to anticipate these techniques or implement adequate preventative measures. Although prior cyberattacks directed at us have not had a material impact on our financial results, and we are continuing to bolster our threat detection and mitigation processes and procedures, we cannot guarantee that future cyberattacks, if successful, will not have a material impact on our business or financial results. While we have security measures in place to protect our information and our customers' and suppliers' information and to prevent data loss and other security breaches, there can be no assurance that in the future we will be able to anticipate or prevent security breaches or unauthorized access of our information technology systems or the information technology systems of the third-party providers upon which we rely. Despite our implementation of network security measures and internal information security policies, data stored on personnel computer systems is also vulnerable to similar security breaches, unauthorized tampering or human error.

Many governments and other regulatory bodies including the SEC have enacted laws requiring companies to provide notice of data security incidents involving certain types of data, including personal data. If an actual or perceived breach of security measures, unauthorized access to our system or the systems of the third-party providers that we rely upon, or any other cybersecurity threat occurs, we may face direct or indirect liability, costs, or damages, contract termination, our reputation in the industry and with current and potential customers may be compromised, our ability to attract new customers could be negatively affected, and our business, financial condition, and results of operations could be materially and adversely affected.

We maintain cybersecurity insurance and other types of insurance, subject to applicable deductibles and policy limits, but our insurance may not be sufficient to cover all costs associated with a potential data security incident. We also cannot be sure that our existing general liability insurance coverage and coverage for cyber liability or errors or omissions will continue to be available on acceptable terms or will be available in sufficient amounts to cover one or more large claims or that the insurer will not deny coverage as to any future claim. The successful assertion of one or more large claims against us that exceed available insurance coverage, or the occurrence of changes in our insurance policies, including premium increases or the imposition of large deductible or co-insurance requirements, could harm our financial condition.

Changes in demand for our products and services could affect profitability.

We are fundamentally a matchmaking service provider between researchers who have needs for access to subjects, samples, and data, and healthcare providers and other organizations that have them. Any change that either reduces the demand for our services or changes the composition of the demand could adversely impact our financial results.

Overall customer demand could change for many reasons outside of our control, reducing demand or making it more difficult to match up to our supply chain's capabilities. These reasons include:

- general economic downturn that impacts the research and development budgets of biopharma;
- changes in the disease landscape, like COVID-19, that affect the types of products and services needed;
- changes in drugs and therapies and the desire to study subjects on these drugs and therapies;
- changes in diagnostic tests performed (like genomic sequencing) that drive the need for subjects and samples with these new or novel test results;
- changes in data requirements, such as the need to know specific outcomes data;
- overall changes in biomarker research, such as emerging liquid biopsy or cell therapy research, that drives the need for different products and services;
- leadership changes within our customers resulting in loss of sponsorship;
- new (alternative) products introduced by competitors and/or developed by customers, which may have potential to reduce or replace the need for certain types of biospecimens that we provide;
- competitive forces, which make it easier for customers to find products and services elsewhere; and/or
- cancellation or delay of research programs, due to funding issues or preliminary research result issues.

If we fail to address these factors in a timely manner or at all, our financial results could be adversely affected.

Additionally, overall customer demand could decrease if we fail to:

- provide high quality products and services;
- provide products and services at a competitive price;
- deliver products and services in a reasonable amount of time;
- offer high levels of customer service;
- offer adjacent services that researchers want to procure along with our existing products and services;
- adequately invest in sales and marketing programs and teams to drive demand or operational support to fulfill requests;
- develop a large and diverse supply network to satisfy demand; or
- provide a technology solution that simplifies the biospecimen procurement process for researchers and specimen providers alike.

Challenges or unanticipated costs in establishing the sales, marketing, and distribution capabilities necessary to successfully commercialize our products globally could affect profitability.

To generate revenue, we need to expand our sales, marketing, and distribution capabilities to support our operations in North America, Europe, and Asia Pacific and proceeds raised in our initial public and in our private placement offering closed in December 2021 has

allowed to enhance our sales, marketing, and distribution capabilities. It may be expensive and difficult for us to develop a global sales and marketing presence and therefore, we will likely seek distributors to the life sciences industry to market and sell some of our products and services outside of the United States. We have started the process of identifying potential distributors to market and sell our products and services to key geographic areas outside the United States. We may not be able to provide adequate compensation to these distributors for them to spend time and resources marketing and selling our products and some of our products may be too complex for them to adequately represent them. In addition, any third-party distributors with whom we work may not successfully sell our products and services, thereby exposing us to potential expenses in exiting such distribution agreements. We, and any distributors, must also market our services in compliance with federal, state, local and international laws relating to the provision of incentives and inducements. Violation of these laws can result in substantial penalties.

We incur credit risk with our customers, and we may provide them with products and services for which we do not get paid.

Our customers generally place orders for our products and services using a purchase order and we invoice our customers after they have received the products or services from us. During this procurement process, we become obligated to pay our suppliers for any products or services we procure from them on behalf of our customers regardless of whether our customers ultimately pay us for these products or services. Therefore, we bear the responsibility for the credit risk of our customers. We mitigate this credit risk through procedures that evaluate the creditworthiness of customers prior to accepting a purchase order from them. However, our procedures may not successfully identify all those who ultimately fail to pay us for our products and services and any non-payments may negatively impact our revenues, results of operations, and financial condition.

Our customer mix increases the risk of customers not paying our invoices.

We derive, and believe that we may continue to derive, a significant portion of our revenues from privately held, investor-backed biopharma companies that are not profitable and have little operating history. These organizations may be at a higher risk of not paying for provided products and services on a timely basis or at all. If these companies fail to pay our invoices, our profitability will be adversely impacted.

We rely upon relatively few customers for a significant portion of revenue and do not have a recurring revenue business model. A loss of large customers could affect our ability to operate.

We have derived, and believe that we may continue to derive, a significant portion of our revenue from a limited number of customers that vary each year. During the year ended December 31, 2023, one customer represented 25% of the Company's revenues, and during the year ended December 31, 2022, two customers represented 14% and 12% of our revenue, respectively. We do not have a recurring revenue model and our customers may buy less of our products or services depending on their research and development cycles, internal budget cycles, product and service requirements, and competitive offerings. A major customer in one year may not purchase any of our products or services in another year, which may adversely affect our financial performance.

Customers and customer prospects may be averse to using a self-service marketplace to procure specimens and may continue to require iSpecimen personnel in the procurement process, impacting our scalability and profitability.

The iSpecimen Marketplace functions as a lead generation system to capture customer requests for specimens and as a workflow engine to allow customers, suppliers, and our Company to track and manage specimen requests. Currently, it does not fully support self-service eCommerce because key capabilities required to satisfy these transactions across all of our product lines, such as a pricing engine and patient-level search, have yet to be incorporated. Therefore, currently all customer requests for specimens require assistance from iSpecimen sales personnel. At a minimum, our sales personnel are involved in the generation of customer quotes, but they often also act in a consulting role to help develop specimen request specifications on more complex projects or to perform searches on the customer or customer prospect's behalf.

While we continue to invest in capabilities to support customer self-service in the iSpecimen Marketplace, we do not know when we will consider these capabilities to be fully developed. Additionally, we do not know if researchers will utilize the iSpecimen Marketplace to transact without the intervention of iSpecimen personnel which could limit our scalability. We may continue to invest in software which may never provide a return on its investment and diverts resources from the development of software that drives other parts of our procurement workflow.

Our business may be materially and adversely impacted by the reduction, delay or cancellation of orders from our customers.

Our contracts with our customers generally allow them to reduce, delay, or cancel the unfulfilled portion of their specimen order with a two-week notice. Customers may reduce, delay, or cancel their unfulfilled orders due to a variety of reasons including they make changes to project requirements and the open request no longer meets their needs; their budgets change or projects get cancelled; they place orders with multiple specimen providers and cancel open orders when they have procured sufficient quantity of samples across all their sources; or we are unable to fulfill the entire order before the project deadline. For orders received in 2023 and 2022, we fulfilled approximately 77% and 76%, respectively, of the total value of these orders. These percentages do not take into consideration long term or open-ended projects that are not intended to be completely fulfilled at year end. Our business, financial condition, results of operations and cash flows may be materially and adversely impacted by the reduction, delay or cancellation of orders.

We have entered into contracts with U.S. government agencies and contractors which subjects us to federal contract and audit risks.

We entered into contracts with U.S. government agencies and contractors, representing approximately 1.0% and 8.3% of our total revenue for 2023 and 2022, respectively, that may contain unfavorable termination provisions and are subject to audit and modification by the government at its sole discretion, which subjects us to additional risks. These risks include the ability of the U.S. government to unilaterally:

- suspend or prevent us for a set period of time from receiving new contracts or extending existing contracts;
- terminate our existing contracts;
- reduce the scope and value of our existing contracts;
- audit and object to our contract-related costs and fees, including allocated indirect costs; and
- change certain terms and conditions in our contracts.

The U.S. government may terminate any of its contracts with us either for its convenience or if we default by failing to perform in accordance with the contract schedule and terms. Termination for convenience provisions may enable us to recover only our costs incurred or committed, and settlement expenses and profit on the work completed prior to termination. Termination for default provisions may not permit these recoveries and make us liable for excess costs incurred by the U.S. government in procuring undelivered items from another source.

As a U.S. government contractor and subcontractor, we may become subject to periodic audits and reviews. Based on the results of these audits, the U.S. government may adjust our contract-related costs and fees, including allocated indirect costs. As part of any such audit or review, the U.S. government may review the adequacy of, and our compliance with, our internal control systems and policies, including those relating to our purchasing, property, compensation, and/or management information systems. In addition, if an audit or review uncovers any improper or illegal activity, we may be subject to civil and criminal penalties and administrative sanctions, including termination of our contracts, forfeiture of profits, suspension of payments, fines and suspension or prohibition from doing business with the U.S. government.

We could also suffer serious harm to our reputation if allegations of impropriety were made against us. Although we have not had any government audits and reviews to date, future audits and reviews could cause adverse effects.

Sustainable future revenue growth is dependent on growth in the capabilities of our supply network which we may not be able to achieve.

Our business is fundamentally a match-making business between healthcare providers who have access to subjects, samples, and data and life science researchers who need them. Currently, we receive more requests for our products and services than we have access to in our supply network and we are therefore supply constrained. Although we continue to allocate resources to supply development and commensurately grow our supply network capabilities to keep pace with demand, this supply-demand imbalance could increase in the future if we do not continue or increase our investment in this area.

Additionally, demand for specimens we receive is becoming more specific, requiring access to a greater population of subjects, samples, and data to find those that meet a researcher's inclusion and exclusion criteria. It takes a larger network of subjects, samples, and data to access a wide enough population of subjects to meet a growing number of requests with more stringent criteria. Delays, difficulties, or unanticipated costs in developing our supply network capabilities necessary to successfully procure products and services could adversely affect revenue and profitability.

Sustainable future revenue growth is dependent upon gaining access to more healthcare data from our supply network and a failure to obtain this data may adversely affect our growth.

Key to our growth strategy is the accessibility and availability of deep medical record data from our healthcare provider supply sites. This data is used to automate the process of matching researchers to subjects, samples, and data, and also used to automate the procurement workflow. Currently, we have gained access to laboratory data to support the distribution of clinical lab specimens as well as biorepository data to support the distribution of banked specimens. However, we have not gained access to deeper medical record data sets from a broad set of healthcare providers to support custom specimen collections, clinical trial recruitment, or data licensing. Should we fail in our ability to access deeper healthcare data, we may not be able to effectively compete in our served markets or grow as anticipated and our business may suffer.

The adoption cycle of our supply network tends to be very lengthy, which may adversely affect our ability to scale rapidly and increase revenues.

The business development cycle for the adoption of our technology solution at healthcare provider supply partners can take up to 18 months or more from initial contact with the prospect through execution of a contract. We may spend significant resources to attempt to secure a new supply partner without successfully engaging the supply partner. Even if we are successful in securing a new supply partner, once a contract is executed, implementation of our technology in the supply partner's environment can take another several months to a year or more. Because of the lengthy adoption cycle, we may fail to expand our supply network quickly enough to reach our revenue growth targets.

Potential adverse effects from changes in the healthcare industry, including consolidations and regulatory changes, could affect access to subjects, samples, and data and affect our growth.

Changing healthcare-related legislation and regulation may impact the fiscal stability and sustainability of our supply partners. Additionally, many healthcare providers are consolidating to create larger healthcare systems and/or integrated healthcare delivery systems. These changes can divert resources at our healthcare provider supply sites away from the evaluation or implementation of the iSpecimen solution to the adoption of new infrastructure, policies, and procedures to support the changes, thereby extending their timeline to adopt the iSpecimen solution. We cannot predict whether or when future healthcare reform initiatives at the international, federal, or state level, consolidations, or other initiatives affecting healthcare providers' businesses will be proposed, enacted, or implemented or what impact those initiatives may have on our business, results of operations, and financial condition.

Our supply chain may not provide adequate resources to quickly respond to requests for specimens and delays in the procurement process can affect our reputation, revenue, and profitability.

Many of the healthcare providers in our supply network are not-for-profit organizations whose primary business is to provide clinical care to patients. Supporting biospecimen research may be an adjunct activity for them. These organizations may lack adequate resources to quickly respond to our requests for specimens now and into the future. Should we and our customers experience slow turnaround times on specimen requests, our reputation may be damaged and there may be an adverse impact on our revenue and profitability.

We do not control the end-to-end quality of specimens and data collected in our supply chain and quality issues can affect our reputation, revenue, and profitability.

We rely upon our supply sites and their quality control processes to provide us with products and services that meet order specifications. In certain situations, products are shipped directly from the supply sites to our customers. When we receive products from our supply sites, we perform a visual inspection of the products, but we do not perform an in-depth quality control check to ensure that products meet all specifications.

Instead, we rely upon our customers to perform quality checks themselves and offer refunds or replacements for products that do not meet specification. We receive products from supply sites and ship them to our customers. In 2023, the percent of specimens that met specifications was 99% for clinical remnant specimens, 97% for banked research specimens and 99% for custom research collections. In 2022, the percent of specimens that met specifications was 99% for clinical remnant specimens, 99% for banked research specimens and 99% for custom research collections. Percentage of specimens that met specifications decreased year over year from 2022. Following feedback from our customers, we implemented a robust return and exchange program to better meet customer needs. iSpecimen is also terminating contracts with suppliers with lower quality specimens. Any issues with quality from our supply sites can adversely affect our reputation, revenue, and profitability.

Reliance on relatively few supply partners for significant supplies and services could affect our ability to operate and grow.

We have derived, and believe that we may continue to derive, a significant portion of our revenues from products we procure from a limited number of supply sites. For the year ended December 31, 2023, there was one supplier who accounted for 13% of our total cost of revenue and three other suppliers who, together, accounted for an additional 23% of our total cost of revenue. For the year ended December 31, 2022, there were two suppliers who each accounted for 12% of our total cost of revenue and two other suppliers who, together, accounted for an additional 16% of our total cost of revenue. Any change in the ability of a major supply site to provide us with products and services (such as financial health of the supply site, key leadership, research focus, information technology, competitive demand for specimens from third-parties, pricing structures, contract status and changes in the general economy) may adversely affect our financial performance.

Our supply partners' inventories may become obsolete, which could have a material adverse effect upon our ability to generate revenue.

During the year ended December 31, 2023, approximately 52% of our revenue was derived from specimens that were procured from our supply partners' existing sample inventories in their biobanks. These inventories may become obsolete due to changes in regulatory requirements such as a requirement for new consent form disclosures; changes in researcher requirements for the types of specimens, subjects, and data they need for their studies; and/or general degradation in the quality of stored specimens. Any change in regulations, researcher needs, or specimen quality could render our supply partners' inventories obsolete and may adversely affect our financial performance.

Specimen collection from human subjects, including the possible occurrence of adverse events during or after tissue collection, could provide exposure to claims and litigation.

There are inherent risks associated with collecting specimens from human subjects. Although specimen collections are completed by certified staff according to established industry standards, specimen donors vary in their ability to tolerate specimen collection protocols and such donors may potentially have an adverse health reaction either during or following a specimen collection. Research subjects or their legally authorized representative may file claims related to a specimen collection and these claims could result in litigation that could be expensive, and time consuming to defend or result in judgements that exceed the resources of the Company and its insurance coverage.

We procure specimens and data from organizations outside of the U.S. and as such, we rely upon these organizations to collect and distribute specimens and data in accordance with their local regulations as well as our contractual requirements. A failure by our sites to comply with both applicable regulations and our contractual requirements could introduce us to compliance risk.

Some of the organizations from which we procure specimens and data reside outside of the U.S. in jurisdictions that may have data protection rules, human research protection rules, and other pertinent rules that relate to the collection and distribution of specimens and data that vary from U.S. regulations. We, as an organization are not knowledgeable about all the pertinent rules and regulations of all of the jurisdictions in which these sites operate, and therefore we rely upon our contractual relationships with supply sites to ensure that they have legal responsibility for compliance with their own jurisdiction-specific regulations.

Should any site fail to comply with the applicable regulations, we may suffer reputational risks if we have distributed specimens and data from that site. Additionally, any compliance failure on the part of our supply sites that impacts our research customers' ability to utilize specimens and data they previously obtained from us, as well as utilize any research results, they derived from these specimens and data, may subject us to claims by these customers. These claims could result in litigation that could be expensive to defend or result

in judgements that exceed our resources and our insurance coverage. Any such litigations and judgement could adversely affect our business, financial condition, and results of operations.

We may experience delays or interruption in the shipments of our specimens due to factors outside of our control, and such disruption could lead to lost revenue and customer satisfaction issues.

We distribute biological specimens to customers around the world. These specimens need to be delivered over a range of temperatures from ambient to cryogenic and delivery timeframes that can be as quick as hours. We rely on third-party shipping materials (such as thermal containers) as well as shipping services (such as FedEx) to transport specimens to our customers. Shipping materials may be defective and third-party shipping services, including international shipping services, could become disrupted by adverse weather conditions, natural disasters, military conflicts, flight cancellations, ground logistics issues, customs delays, and other service interruptions. Any defect in our shipping materials or delays in shipping service times could cause damage to these specimens and render them unusable by our customers. If we are unable to deliver our specimens in a timely matter and without damage, our revenue could be negatively impacted and our reputation with our customers could suffer, resulting in material harm to our business.

The Company's business was negatively impacted during the first half of 2022 by the ongoing war between Russia and Ukraine. At the start of the war, the Company had approximately $1 million of purchase orders that were slated to be fulfilled by the Company's supply network in Ukraine and Russia. This supply network shut down quickly at the start of the war. Ukrainian suppliers were disabled due to war conditions and evacuations and some of the Company's Russian suppliers were disabled by sanctions. While the Company mobilized to shift these purchase orders to other suppliers in the network, the process of getting specimen collections from other supply sites took time, which caused a delay in the fulfillment of such purchase orders.

As of December 31, 2023, the Company's supply sites in Russia that had not been under sanctions were now accessible and the Company's supply sites in Ukraine had mostly reopened. However, due to the uncertainty caused by the ongoing war, Ukraine suppliers may again become inaccessible to the Company. Therefore, as long as the uncertainty continues, the Company does not use them as sole specimen sources at a purchase order level. Alternate suppliers do not have the same favorable unit economics or specimen collection rates. The short and long-term implications of the war are difficult to predict at this time. The imposition of more sanctions and counter sanctions may have an adverse effect on the economic markets generally and could impact the Company's business and the businesses of the Company's supply partners, especially those in Ukraine and Russia. Because of the highly uncertain and dynamic nature of these events, it is not currently possible to estimate the impact of the war on the Company's business and the companies from which the Company obtains supplies and distributes specimens.

Our future success depends on our ability to retain our key personnel and to attract, retain and motivate qualified personnel.

Our future success will depend upon our ability to retain our key management and other personnel and will also depend in large part on our ability to attract and retain additional qualified software developers, bioinformaticists, operations personnel, sales and marketing personnel, and business development personnel. Competition for these types of employees is intense due to the limited number of qualified professionals and the high demand for them, particularly in the Boston, Massachusetts area where our headquarters are located. We have in the past experienced difficulty in recruiting qualified personnel, especially in the area of sales. Failure to attract, assimilate, and retain personnel would have a material adverse effect on our business and potential growth.

Our senior management team has limited experience managing a public company.

Our senior management team has limited experience managing a public company, and regulatory compliance may divert its attention from the day-to-day management of our business. Our management team may not successfully or efficiently manage our continued transition to a public company that will be subject to significant regulatory oversight and reporting obligations under the federal securities laws. In particular, these obligations will require substantial attention from our senior management and could divert their attention away from the day-to-day management of our business, which could materially and adversely impact our business operations.

Our competitors may have greater resources than us and may outspend us to grow more quickly.

Our competitors are highly fragmented and comprise of thousands of biobanks, healthcare providers, and commercial biospecimen organizations. We expect to continue to experience significant and increasing levels of competition in the future, especially from several larger biospecimen providers who have consolidated via mergers and acquisitions and who are well-capitalized by private equity. These

organizations are currently acquiring smaller biospecimen businesses and have larger customer bases, their own collection centers, biospecimen inventories, larger marketing and sales budgets, and an international presence. They may also be developing their own technology solution that could be better or less costly to develop than our own iSpecimen Marketplace, thereby eliminating one of our key competitive advantages. They may continue to outspend us to grow more quickly and we may not be able to successfully compete with a competitor that has greater resources; hence such competition may adversely affect our business.

We may lose business to competitors which have or develop their own biorepositories and/or collection centers that can meet customers' needs.

Many of our competitors have their own biorepository of specimens that they have collected or procured over time. These inventories, when they meet a customer's needs for product, almost always provide our competitors with a time-to-delivery advantage because they can directly fulfill requests from their own inventories, whereas we must procure products through our supply network after an order has been received from our customers. Additionally, some competitors have their own collection facilities and direct access to eligible research subjects which also provides a time-to-delivery advantage. We have lost and will continue to lose business to competitors when they can provide samples more quickly than we can from our supply network.

We may face pricing pressure from competitors who may lower prices to reduce biorepository inventories or because they have more favorable specimen acquisition costs.

Many competitors invest in biorepositories of specimens and data. These competitors may be incented to drop prices in order to more quickly recoup their inventory carrying costs, especially when they have held inventory for longer periods of time. This may cause downward pricing pressure on us. Additionally, some competitors may have cost advantages on some types of collections either because of more favorable supply relationships or because they have their own collection centers, and they can likewise exert pricing pressure in the market. Lower prices will adversely impact our revenue and gross margins.

Our overall business results may suffer from an economic downturn.

We rely upon researchers from biopharma companies as the primary source of our revenue. During an economic downturn, the biopharma industry typically experiences a drop in the annual growth rate of research and development spending and allocates fewer resources towards it. An economic downturn could adversely affect the demand for our products and services and have a corresponding impact on our revenue and profitability. A prolonged economic downturn may cause us to reduce investment in the longer-term growth of our Company in order to reduce short term costs.

Our operations and performance depend on economic conditions in the United States and other countries where we do business. Deterioration in general economic conditions, whether due to COVID-19 or otherwise, could negatively affect our and our customers' purchasing power.

Our results of operations and financial condition may be adversely impacted from high inflation rates.

We have experienced negative effects from inflation in certain areas of our business due to the recent high rates of inflation in the U.S. and around the world. Inflation is causing the cost of employee salaries to rise and our salaries account for a significant portion of our overall operating costs. Additionally, costs of supplies and other sales, marketing and general and administrative costs have increased due to inflation.

Inflation has not had a significant adverse impact on the cost of specimens due to our long-term contracts maintained with vendors, which include revenue sharing plans. However, if inflation continues, it may have an adverse impact on the costs of our samples in the future.

Our timely fulfillment of customer orders may be adversely impacted due to constraints in the supply chain.

Our operations are heavily reliant on specimen availability and delays or shortages in obtaining specimens caused by constraints in the supply chain, may adversely impact the timing and extent of our ability to fulfill our customer orders which could adversely impact our results of operations and financial condition.

We may have difficulty managing growth in our business, which could adversely affect our financial condition and results of operations.

Significant growth in the size and scope of our operations could place a strain on our financial, technical, operational, and management resources. The failure to continue to upgrade our technical, administrative, operating and financial control systems, or the occurrences of unexpected expansion difficulties, could have a material adverse effect on our financial condition and our ability to timely execute our business plans.

We have incurred losses from sales tax obligations owed to various jurisdictions by us because we did not collect taxes on taxable sales in prior years, and we may never be able to recover the prior sales taxes from the customers.

States and other jurisdictions have varying policies regarding when a company has a taxable presence in their locale. We are required to collect taxes on taxable sales in prior years but we failed to do so and thus have incurred losses from sales tax obligations owed to various jurisdictions. We are in discussions with those tax jurisdictions to rectify and have made tax payments to some of those jurisdictions. We have also reached out to our customers who owe sales taxes and recovered partial tax payments from certain customers. However, we may never be able to recover the prior sales taxes from all the customers, which could have a material adverse effect on our financial condition.

Our ability to utilize net operating loss carryforwards may be limited, resulting in income taxes sooner than currently anticipated.

As of December 31, 2023, we had federal net operating loss carryforwards ("NOLs") of approximately $50.8 million for federal income tax purposes of which approximately $13 million expires at various periods through 2037 and approximately $37.8 million can be carried forward indefinitely. These NOLs may be used to offset future taxable income, to the extent we generate any taxable income, and thereby reduce or eliminate our future federal income taxes otherwise payable. Section 382 of the Internal Revenue Code of 1986, as amended, or the Code, imposes limitations on a corporation's ability to utilize NOLs if it experiences an ownership change as defined in Section 382. In general terms, an ownership change may result from transactions increasing the ownership of certain stockholders in the stock of a corporation by more than 50% over a three-year period. In the event that an ownership change has occurred, or were to occur, utilization of our NOLs would be subject to an annual limitation under Section 382 determined by multiplying the value of our stock at the time of the ownership change by the applicable long-term tax-exempt rate as defined in the Code. Any unused annual limitation may be carried over to later years. We may be found to have experienced an ownership change under Section 382 as a result of events in the past or the issuance of shares of common stock in the future. If so, the use of our NOLs, or a portion thereof, against our future taxable income may be subject to an annual limitation under Section 382, which may result in expiration of a portion of our NOLs before utilization.

We may acquire other businesses, products, or technologies that could disrupt our business, reduce our financial resources, or cause dilution to our stockholders.

Although we have not identified such an opportunity, as part of our business strategy, we may, in the future, pursue acquisitions of businesses and assets or pursue strategic alliances and joint ventures that leverage our core technology and industry experience to expand our offerings, increase our customer base, or increase our supply base. We have no experience with acquiring other companies and limited experience with forming strategic alliances and joint ventures. We may not be able to find suitable partners or acquisition candidates, and we may not be able to complete such transactions on favorable terms, if at all. If we make any acquisitions, we may not be able to integrate these acquisitions successfully into our existing business, and we could assume unknown or contingent liabilities. Any future acquisitions also could result in significant write-offs or the incurrence of debt and contingent liabilities, any of which could have a material adverse effect on our financial condition, results of operations, and cash flows. Integration of an acquired company also may disrupt ongoing operations and require management resources that would otherwise focus on developing our existing business. We may experience losses related to acquisitions of other companies, which could have a material adverse effect on our results of operations. We may not identify or complete these transactions in a timely manner, on a cost-effective basis, or at all, and we may not realize the anticipated benefits of any acquisition, technology license, strategic alliance, or joint venture.

To finance any acquisitions or joint ventures, we may choose to issue shares of our common stock as consideration, which would dilute the ownership of our stockholders. If the price of our common stock is low or volatile, we may not be able to acquire other companies or fund a joint venture project using our stock as consideration. Alternatively, it may be necessary for us to raise additional funds for acquisitions through public or private financings. Additional funds may not be available on terms that are favorable to us, or at all.

Risks Related to Intellectual Property

We use third-party technology licenses as part of our technology solution.

The iSpecimen Marketplace uses third parties for certain technology to support development, delivery, and operations of the platform including product management, software development, cloud hosting, data processing, content mapping, and security services and may need to license additional technology in the future for use in the ongoing operations as part of our technology solution. Most of the software (including source code) and other materials we use are distributed under a "free," "open source," or similar licensing model. We also use software and services from commercial providers. However, we believe all of them are generally commercially available to us from other parties. We continue to evaluate partners whose capabilities can help us deliver our iSpecimen Marketplace solution in areas such as functionality, efficiency, and security and expect to continue to leverage and consider additional third-party capabilities in our ongoing Marketplace development. However, there is no assurance that these third-party technology licenses will continue to be available to us on acceptable commercial terms or at all which could significantly harm our business, financial condition, and operating results.

We use open source licenses as part of our technology solution, which may subject us to claims from third parties claiming ownership and unauthorized use.

We use open source software in our software solutions and technology-enabled services. We may encounter claims from third parties claiming ownership and unauthorized use of the software purported to be licensed under the open source terms, demanding release of derivative works of open source software that could include our proprietary source code, or otherwise seeking to enforce the terms of the applicable open source licenses. These claims could result in litigation that could be expensive to defend. If we become liable to third parties for such claims, we could be required to make our software source code available under the applicable open source license, utilize or develop alternative technology, or cease using, selling, offering for sale, licensing, implementing or supporting the applicable solutions or technology-enabled services. In addition, use of certain open source software may pose greater risks than use of third-party commercial software, as most open source licensors and distributors do not provide commercial warranties or indemnities or controls on the origin of the software.

We may become subject to third parties' claims alleging infringement of their patents and proprietary rights, which could be costly, time consuming, and prevent the use of our technology solution.

We cannot assure you that third parties will not claim our current or future products or services infringe their intellectual property rights. Any such claims, with or without merit, could cause costly litigation that could consume significant management time. As the number of product and services offerings in our market increases and functionalities increasingly overlap, companies such as ours may become increasingly subject to infringement claims. These claims also might require us to enter into royalty or license agreements. If required, we may not be able to obtain such royalty or license agreements or obtain them on terms acceptable to us.

We do not have any patents protecting our intellectual property and if we are unable to protect the confidentiality of our trade secrets, know-how and other proprietary and internally developed technology, our business could be adversely affected.

Our success depends upon our proprietary technology. We do not have registered patents on any of our technology because we do not believe that we could obtain blocking patents and that the costs of patent monitoring and prosecution outweigh the benefits. Instead, we rely upon software copyright laws, service marks, trade secret laws, confidentiality procedures, and contractual provisions to establish and protect our proprietary rights as well as the skills, knowledge and experience of our technical and operational personnel, our consultants and advisors, and contractors. Because we operate in a highly competitive industry, we rely in part on trade secrets to protect our proprietary technology and processes. However, trade secrets are difficult to protect.

We enter into confidentiality or non-disclosure agreements with our corporate partners, employees, consultants, collaborators, and other advisors. These agreements generally require that the receiving party keep confidential and not disclose to third-parties confidential information developed by the receiving party or made known to the receiving party by us during the course of the receiving party's relationship with us. These agreements also generally provide that inventions conceived by the receiving party in the course of rendering services to us will be our exclusive property, and we enter into assignment agreements to protect our rights. These confidentiality, inventions and assignment agreements may be breached and may not effectively assign intellectual property rights to us. Our trade secrets also could be independently discovered by competitors, in which case we may not be able to prevent the use of such trade secrets

by our competitors. The enforcement of a claim alleging that a party illegally obtained and was using our trade secrets could be difficult, expensive and time consuming and the outcome would be unpredictable. In addition, effective protection of intellectual property rights is unavailable or limited in certain foreign countries. The failure to obtain or maintain meaningful trade secret protection could adversely affect our competitive position.

Risks Related to Regulatory Environment

Failure to comply with federal and state data protection regulations could result in fines, penalties, and litigation, and have a material adverse effect upon our business.

Because we may gain access to protected healthcare or personal data, we must comply with various data protection regulations worldwide, including the Health Insurance Portability and Accountability Act of 1996, as amended by HITECH, and their implementing regulations at 45 CFR Parts 160-164 (collectively, "HIPAA"). As part of the operation of our business, we act in the capacity of a HIPAA business associate with respect to protected health information ("PHI"), we receive from our healthcare provider partners. As a HIPAA business associate, we are required to protect the privacy and confidentiality of PHI, and we are required to comply with HIPAA security regulations requiring certain administrative, physical, and technical safeguards to ensure the confidentiality, integrity, and availability of electronic PHI ("ePHI"). To comply with our regulatory and contractual obligations, which may change over time, we may have to reorganize processes and invest in new technologies. We also are required to train personnel regarding data protection requirements. If we, or any of our employees or agents, are unable to maintain the privacy, confidentiality, and security of the PHI that is entrusted to us, we could be subject to civil and criminal fines and sanctions imposed by the HHS or state regulatory authorities, and we could be found to have breached our HIPAA business associate agreements with our healthcare provider suppliers. In addition to the HIPAA requirements that we are subject to, we may be subject to similar state laws and regulations, which regulate the collection, handling, processing, and storage of sensitive personal information. While we have never had a data breach, we cannot guarantee that it will not happen in the future nor can we guarantee that we will always be in compliance with these regulations. Failure to comply with federal, state and local laws and regulations could subject the Company to denial of the right to conduct business, fines, criminal penalties, and/or other enforcement actions which would have a material adverse effect on its business. In addition, compliance with future legislation could impose additional requirements on the Company which may be costly.

Failure to comply with international laws related to data protection, such as the General Data Protection Regulation ("GDPR") could result in fines, penalties, and litigation, and have a material adverse effect upon the Company's business.

We may be required to comply with international laws, such as the GDPR. The GDPR took effect in May 2018 and regulates the collection, storage, use, disclosure, transfer, and/or other processing of personal data of identified or identifiable individuals located in the European Economic Area ("EEA"), including the EU. This data specifically includes personal health data that generally is provided as part of biospecimen collection studies. The GDPR imposes numerous requirements on companies that process personal data, including requirements relating to processing health and other sensitive data, obtaining consent of the individuals to whom the personal data relates for processing (with some exceptions), allowing individuals to revoke consents granted, enabling individuals the right to have their data erased (with some exceptions), amended, or transferred to another data controller (known as "data portability"), providing information to individuals regarding data processing activities, implementing safeguards to protect the security and confidentiality of personal data, limiting the transfer of data to countries outside of the EU, providing notification of data breaches, and taking certain measures when engaging third-parties who may also use or process the data. In addition, EU member states may make their own further laws and regulations limiting the processing of personal data, including biometric, genetic or health data.

The GDPR covers areas where we may not have expertise and the GDPR and the regulatory guidance enforcing GDPR may be actively evolving. We, or our other third-party customers, suppliers and/or distribution partners, may not be able to maintain regulatory compliance with the GDPR or may incur significant costs in obtaining or maintaining regulatory compliance. Any action brought against us for violations of this law, even if successfully defended, could cause us to incur significant legal expenses, reputational risks, and divert our management's attention from the operation of our business. In addition, compliance with future legislation could impose additional requirements on the Company which may be costly.

Failure to comply with federal and state laws around environmental, health and safety, biohazards and dangerous goods, and imports/exports could result in fines, penalties, and litigation, and have a material adverse effect upon our business.

Because we receive, store, and ship specimens, we are subject to regulation under federal, state, and local laws and regulations relating to the protection of the environment and human health and safety, including laws and regulations relating to the handling, transportation, and disposal of specimens and infectious and hazardous waste materials, as well as regulations relating to the safety and health of laboratory employees. Our laboratory is subject to applicable federal and state laws and regulations relating to biohazard disposal of all laboratory specimens, and we utilize outside vendors for disposal of such specimens. In addition, the federal Occupational Safety and Health Administration has established extensive requirements relating to workplace safety for healthcare employers whose workers may be exposed to blood-borne pathogens such as HIV, COVID-19, and the hepatitis B virus. These requirements, among other things, require work practice controls, protective clothing and equipment, training, medical follow-up, vaccinations, and other measures designed to minimize exposure to, and transmission of, blood-borne pathogens. There are also federal laws related to import and export of biospecimens and related data.

Failure to comply with federal, state and local laws and regulations could subject us to denial of the right to conduct business, fines, criminal penalties, and/or other enforcement actions which would have a material adverse effect on our business. In addition, compliance with future legislation could impose additional requirements on us which may be costly.

Failure to comply with other international laws around environmental, health and safety, biohazards and dangerous goods, imports/exports, and other regulations could result in fines, penalties, and litigation, and have a material adverse effect upon our business.

Because we procure specimens from and distribute specimens to countries outside of the United States, we are subject to international and foreign rules similar to any of the aforementioned U.S. rules, including those related to environmental, health and safety, biohazards, and imports/exports. We may be unaware of those international and foreign rules.

These laws cover areas where we may not have expertise and, in many areas, these laws are actively evolving. We, or our other third-party customers, suppliers and/or distribution partners, may not be able to maintain regulatory compliance in such countries or may incur significant costs in obtaining or maintaining our foreign regulatory compliance. Any action brought against us for violations of these laws or regulations, even if successfully defended, could cause us to incur significant legal expenses, reputational risks, and divert our management's attention from the operation of our business. In addition, compliance with future legislation could impose additional requirements on us which may be costly.

Failure to comply with laws and regulations related to the protection of research subjects could result in fines, penalties, and litigation, and have a material adverse effect upon our business.

We are subject to regulation under international, federal, state, and local laws and regulations relating to the protection of research subjects. Federally-funded human-subject research in the United States, including the collection of identifiable human biospecimens, is governed by 45 CFR Part 46, also known as the Health and Human Services Policy for Protection of Human Research Subjects or the "Common Rule." Use of biospecimens in certain other research is subject to FDA regulations for the Protection of Human Subjects and Institutional Review Boards at 21 CFR Parts 50 and 56. Research funded by the National Institutes of Health ("NIH") may be subject to grant or contract requirements, as well as NIH Certificates of Confidentiality. When collecting specimens for research in the United States, iSpecimen and its collection sites are responsible for ensuring that specimens are collected in accordance with these regulations. In addition, other countries have their own regulations around the ethical collection of human specimens for research. While we believe that we are in compliance with these laws, we may not be aware of all such laws or may fail to properly audit and identify gaps in compliance. Similarly, we may find errors in our technology and processes and may fail to properly match the compliance requirements of our researchers to the compliance requirements of our suppliers. Failure of our Company or our suppliers to comply with international, federal, state, and local laws and regulations could subject us to denial of the right to conduct business, fines, criminal penalties, and/or other enforcement actions which could have a material adverse effect on our business.

Our failure to comply with other laws and regulations related to our business operations also have a material adverse effect upon our business.

In addition to the above-described laws and regulations, there are many other federal, state and international laws and regulations applicable to iSpecimen. The following list contains some of the other laws and regulations that could directly or indirectly affect our ability to operate the business:

- Occupational Safety and Health regulations and requirements;
- Centers for Disease Control Import Permit Program rules related to biological agents;
- Shipping rules such as IATA Dangerous Goods regulations;
- State and local laws and regulations for the disposal and handling of medical waste and biohazardous material;
- Export laws such as the U.S. Department of Commerce's Bureau of Industry and Security Export Administration Regulations, U.S. State Department's Directorate of Defense Trade Controls, and the U.S. Department of the Treasury's Office of Foreign Assets Control in export licensing;
- Import laws such as the Customs and Border Protection Trade Act of 2002 and the Customs Modernization Act;
- The federal Anti-Kickback Statute, which prohibits, among other things, any person from knowingly and willfully offering, soliciting, receiving or providing remuneration, directly or indirectly, in exchange for or to induce either the referral of an individual for, or the purchase, order or recommendation of, any good or service for which payment may be made under federal healthcare programs;
- Federal, state, and local tax and tariff rules;
- Other laws and regulations administered by the FDA;
- Other laws and regulations administered by HHS; and
- State and local laws and regulations governing human subject research and clinical trials.

These laws cover several areas of our business and are actively evolving. We, or our other third-party customers, suppliers and/or distribution partners, may not be able to maintain regulatory compliance or may incur significant costs in obtaining or maintaining regulatory compliance. Any action brought against us for violations of these laws or regulations, even if successfully defended, could cause us to incur significant legal expenses, reputational risks, and divert our management's attention from the operation of our business. In addition, compliance with future legislation could impose additional requirements on us which may be costly.

Failure to comply with governmental export and import regulations could result in fines, penalties, and litigation, and have a material adverse effect upon the Company's business.

Our products and services are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls. Exports of our products and services must be made in compliance with these laws and regulations. If we fail to comply with these laws and regulations, we and certain of our employees could be subject to substantial civil or criminal penalties, including the possible loss of export or import privileges; fines, which may be imposed on us and responsible employees or managers; and, in extreme cases, the incarceration of responsible employees or managers.

In addition, changes in our products and services or changes in applicable export or import laws and regulations may create delays in the introduction and sale of our products and services to international markets, prevent our customers from procuring our products and

services or, in some cases, prevent the export or import of our products and services to certain countries, governments or persons altogether. Any change in export or import laws and regulations, shift in the enforcement or scope of existing laws and regulations, or change in the countries, governments, persons or technologies targeted by such laws and regulations could also result in decreased use of our products and services, or in our decreased ability to export or sell our products and services to existing or potential customers. Any decreased use of our products and services or limitation on our ability to export or sell our products and services could adversely affect our business, financial condition and results of operations.

Product safety and product liability, including bio-hazard risks, could provide exposure to claims and litigation.

Specimens may have hazardous properties and may carry transmissible infectious agents. There are inherent risks in connection with the handling, storage, disposal, distribution, and/or use of the specimens.

Although we believe that our safety procedures for handling and disposing of such materials comply with the standards prescribed by federal, state and local regulation and regulations of foreign jurisdictions, the risk of accidental contamination or injury from these materials cannot be completely eliminated. Individuals who use or come in contact with the specimens may file claims related to their use and these claims could result in litigation that could be expensive to defend or result in judgements that exceed our resources and our insurance coverage. Any such litigations and judgement could adversely affect our business, financial condition and results of operations.

Risks Related to the Our Securities

If we are not able to comply with the applicable continued listing requirements or standards of The Nasdaq Stock Market LLC, our common stock could be delisted from Nasdaq.

Our common stock is currently listed on Nasdaq. In order to maintain that listing, we must satisfy minimum financial and other continued listing requirements and standards, including those regarding director independence and independent committee requirements, minimum stockholders' equity, minimum share price, and certain corporate governance requirements. There can be no assurances that we will be able to comply with the applicable listing standards of The Nasdaq Stock Market LLC.

On October 9, 2023, we received a deficiency notice from Nasdaq informing us that our common stock fails to comply with the $1 minimum bid price required for continued listing on The Nasdaq Capital Market under Nasdaq Listing Rule 5550(a)(2) based upon the closing bid price of our common stock for the 30 consecutive business days prior to the date of the notice from Nasdaq. Nasdaq's notice has no immediate effect on the listing of the common stock on The Nasdaq Capital Market. Pursuant to Nasdaq Listing Rule 5810(c)(3)(A), we have been provided an initial compliance period of 180 calendar days, or until April 8, 2024, to regain compliance with the minimum bid price requirement. To regain compliance, the closing bid price of the common stock must meet or exceed $1.00 per share for a minimum of ten consecutive business days prior to April 8, 2024. If we are unable to regain compliance by April 8, 2024, we may be eligible for an additional 180 calendar day compliance period to demonstrate compliance with the bid price requirement. We intend to submit a plan of compliance to Nasdaq, by April 8, 2024, explaining how we plan to regain compliance with the minimum bid price requirement, including effecting a reverse stock split of our common stock on the Nasdaq Capital Market. If we do not qualify for the second compliance period or fail to regain compliance during the second 180-day period, Nasdaq will notify us of its determination to delist our common stock, at which point we would have an opportunity to appeal the delisting determination to a Hearings Panel. However, there is no assurance that we would be able to appeal the delisting determination to the Hearings Panel or such appeal will be successful.

In the event that our common stock is delisted from Nasdaq and is not eligible for quotation on another market or exchange, trading of our common stock could be conducted in the over-the-counter market or on an electronic bulletin board established for unlisted securities, such as the Pink Sheets or the OTC Markets. In such event, it could become more difficult to dispose of, or obtain accurate price quotations for, our common stock, and there would likely also be a reduction in our coverage by securities analysts and the news media, which could cause the price of our common stock to decline further. Also, it may be difficult for us to raise additional capital if we are not listed on a major exchange.

In the event that our common stock is delisted from Nasdaq, U.S. broker-dealers may be discouraged from effecting transactions in shares of our common stock because it may be considered a penny stock and thus be subject to the penny stock rules.

The SEC has adopted a number of rules to regulate a "penny stock" that restricts transactions involving stock which is deemed to be a penny stock. Such rules include Rules 3a51-1, 15g-1, 15g-2, 15g-3, 15g-4, 15g-5, 15g-6, 15g-7, and 15g-9 under the Exchange Act. These rules may have the effect of reducing the liquidity of penny stocks. "Penny stocks" generally are equity securities with a price of less than $5.00 per share (other than securities registered on certain national securities exchanges or traded on Nasdaq if current price and volume information with respect to transactions in such securities is provided by the exchange or system). Our shares of common stock may, in the future constitute, a "penny stock" within the meaning of the rules. The additional sales practice and disclosure requirements imposed upon U.S. broker-dealers may discourage such broker-dealers from effecting transactions in shares of our common stock, which could severely limit the market liquidity of such shares of common stock and impede their sale in the secondary market.

A U.S. broker-dealer selling a penny stock to anyone other than an established customer or "accredited investor" (generally, an individual with a net worth in excess of $1,000,000 or an annual income exceeding $200,000, or $300,000 together with his or her spouse) must make a special suitability determination for the purchaser and must receive the purchaser's written consent to the transaction prior to sale, unless the broker-dealer or the transaction is otherwise exempt. In addition, the "penny stock" regulations require the U.S. broker-dealer to deliver, prior to any transaction involving a "penny stock", a disclosure schedule prepared in accordance with SEC standards relating to the "penny stock" market, unless the broker-dealer or the transaction is otherwise exempt. A U.S. broker-dealer is also required to disclose commissions payable to the U.S. broker-dealer and the registered representative and current quotations for the securities. Finally, a U.S. broker-dealer is required to submit monthly statements disclosing recent price information with respect to any "penny stock" held in a customer's account and information with respect to the limited market in "penny stocks".

You should be aware that, according to the SEC, the market for "penny stocks" has suffered in recent years from patterns of fraud and abuse. Such patterns include (i) control of the market for the security by one or a few broker-dealers that are often related to the promoter or issuer; (ii) manipulation of prices through prearranged matching of purchases and sales and false and misleading press releases; (iii) "boiler room" practices involving high-pressure sales tactics and unrealistic price projections by inexperienced sales persons; (iv) excessive and undisclosed bid-ask differentials and markups by selling broker-dealers; and (v) the wholesale dumping of the same securities by promoters and broker-dealers after prices have been manipulated to a desired level, resulting in investor losses. Our management is aware of the abuses that have occurred historically in the penny stock market. Although we do not expect to be in a position to dictate the behavior of the market or of broker-dealers who participate in the market, management will strive within the confines of practical limitations to prevent the described patterns from being established with respect to our securities.

The sale of substantial shares of our common stock may depress our stock price.

As of December 31, 2023, we had 9,083,371 shares of common stock outstanding; outstanding stock options to purchase 296,268 shares of common stock at an average price of $2.17 per share; outstanding restricted stock units of 116,357 shares issuable upon vesting at an average price of $5.67; outstanding warrants to purchase 102,500 shares of common stock at an average price of $9.88 per share. Additionally, the number of shares of common stock that are outstanding after our IPO also includes up to an aggregate of 1,312,500 shares of common stock underlying the warrants to be offered and sold by the selling stockholders of the Company, all of which were subsequently repurchased by us on February 13, 2024, and are no longer outstanding. We have reserved 1,869,500 shares to issue stock options, restricted stock or other awards under our 2021 Stock Incentive Plan (as defined below). Sales of a substantial number of shares of our common stock could cause the price of our common stock to fall and could impair our ability to raise capital by selling additional securities.

Our directors, officers and principal stockholders have significant voting power and may take actions that may not be in the best interests of our other stockholders.

As of December 31, 2023, our officers, directors and principal stockholders each holding more than 5% of our common stock collectively controlled approximately 33.7% of our outstanding common stock. As a result, these stockholders, if they act together, will be able to control the management and affairs of our Company and most matters requiring stockholder approval, including the election of directors and approval of significant corporate transactions. This concentration of ownership may have the effect of delaying or preventing a change of control, impeding a merger, consolidation or other business combination transaction involving us and discouraging a potential

acquiror from making a tender offer or otherwise attempting to obtain control of the Company and might adversely affect the market price of our common stock. This concentration of ownership may not be in the best interests of our other stockholders.

Certain provisions of our certificate of incorporation, as amended, and our bylaws, as amended, may make it more difficult for a third party to affect a change-of-control.

Our certificate of incorporation, as amended, authorizes the board of directors (the "Board") to issue up to 50,000,000 shares of preferred stock. The preferred stock may be issued in one or more series, the terms of which may be determined at the time of issuance by the Board without further action by the stockholders.

These terms may include preferences as to dividends and liquidation, conversion rights, redemption rights and sinking fund provisions. The issuance of any preferred stock could diminish the rights of holders of our common stock, and therefore could reduce the value of such common stock. In addition, specific rights granted to future holders of preferred stock could be used to restrict our ability to merge with, or sell assets to, a third party. The ability of the Board to issue preferred stock could make it more difficult, delay, discourage, prevent or make it more costly to acquire or effect a change-in-control, which in turn could prevent our stockholders from recognizing a gain in the event that a favorable offer is extended and could materially and negatively affect the market price of our common stock. In addition, our certificate of incorporation, as amended, provides for a staggered Board. As a consequence, only a minority of the Board will be considered for election at every annual meeting of stockholders, which may make the removal of management more difficult and may discourage transactions that otherwise could involve payment of a premium over prevailing market prices for our securities. Additional provisions that may discourage unsolicited takeover proposals include (i) board vacancies may be filled by a majority of the remaining board members, (ii) the board may adopt, repeal, rescind, alter or amend our bylaws without stockholder approval, (iii) stockholders holding more than 15% of the outstanding shares may call a special meeting, (iv) a director may be removed from office only by the affirmative vote of a majority of the issued and outstanding stock entitled to vote; and (v) no cumulative voting in the election of directors, which would allow holders of less than a majority of the stock to elect some directors.

Our bylaws, as amended, designate certain courts as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees.

Our bylaws, as amended, provide that, unless we consent in writing to an alternative forum, the Court of Chancery of the State of Delaware (or, if the Court of Chancery does not have jurisdiction, the federal district court for the District of Delaware) will be the exclusive forum for: (i) any derivative action or proceeding brought on behalf of the Company; (ii) any action asserting a claim for breach of a fiduciary duty owed by any director, officer, employee, or agent of ours to us or our stockholders; (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, the certificate of incorporation, or the bylaws; and (iv) any action asserting a claim governed by the internal affairs doctrine (the "Delaware Forum Provision"). Our bylaws further provide that, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States of America shall be the sole and exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act (the "Federal Forum Provision"). In addition, our bylaws provide that any person or entity purchasing or otherwise acquiring any interest in shares of our common stock is deemed to have notice of and consented to the Delaware Forum Provision and the Federal Forum Provision.

Section 27 of the Exchange creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder. As a result, the Delaware Forum Provision will not apply to suits brought to enforce any duty or liability created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. We note, however, that there is uncertainty as to whether a court would enforce this provision and that investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder.

We recognize that the Delaware Forum Provision and the Federal Forum Provision in our bylaws may impose additional litigation costs on stockholders in pursuing any such claims, particularly if the stockholders do not reside in or near the State of Delaware. Additionally, the Delaware Forum Provision and the Federal Forum Provision may limit our stockholders' ability to bring a claim in a forum that they find favorable for disputes with us or our directors, officers or employees, which may discourage such lawsuits against us and our directors, officers and employees even though an action, if successful, might benefit our stockholders. In addition, while the Delaware Supreme Court ruled in March 2020 that federal forum selection provisions purporting to require claims under the Securities Act be brought in federal court were "facially valid" under Delaware law, there is uncertainty as to whether other courts will enforce the Federal Forum Provision. If the Federal Forum Provision is found to be unenforceable, we may incur additional costs associated with resolving

such matters. The Federal Forum Provision may also impose additional litigation costs on stockholders who assert that the provision is not enforceable or invalid. The Court of Chancery of the State of Delaware and the United States District Court may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments may be more or less favorable to us than our stockholders.

Limitations on director and officer liability and indemnification of our officers and directors by us may discourage stockholders from bringing suit against an officer or director.

Our certificate of incorporation, as amended, and bylaws, as amended, provide that, to the fullest extent permitted by Delaware law, as it presently exists or may be amended from time to time, a director shall not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty as a director. Under Delaware law, this limitation of liability does not extend to, among other things, acts or omissions which involve intentional misconduct, fraud or knowing violation of law, or unlawful payments of dividends. These provisions may discourage stockholders from bringing suit against a director or officer for breach of fiduciary duty and may reduce the likelihood of derivative litigation brought by stockholders on our behalf against a director or officer.

We are responsible for the indemnification of our officers and directors.

Should our officers and/or directors require us to contribute to their defense, we may be required to spend significant amounts of our capital. Our certificate of incorporation, as amended, and bylaws, as amended, also provide for the indemnification of our directors, officers, employees, and agents, under certain circumstances, against attorney's fees and other expenses incurred by them in any litigation to which they become a party arising from their association with or activities on behalf of our Company. This indemnification policy could result in substantial expenditures, which we may be unable to recoup. If these expenditures are significant or involve issues which result in significant liability for our key personnel, we may be unable to continue operating as a going concern.

We do not expect to pay dividends in the foreseeable future. Any return on investment may be limited to the value of our common stock.

We have never paid cash dividends on our common stock and do not anticipate doing so in the foreseeable future. The payment of dividends on our common stock will depend on earnings, financial condition and other business and economic factors affecting us at such time as our Board may consider relevant. If we do not pay dividends, our common stock may be less valuable because a return on an investment will only occur if our stock price appreciates.

We may need additional capital, and the sale of additional shares of common stock or other equity securities could result in additional dilution to our stockholders.

We may need to raise additional funds sooner than expected to fund our current operating plans. Until such time, if ever, we may finance our cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances, licensing arrangements, or other sources. Other than our current ATM, which provides for financing of up to $1.5 million in gross proceeds, we do not currently have any other committed external source of funds. In addition, we may seek additional capital due to favorable market conditions or strategic considerations, even if we believe that we have sufficient funds for our current or future operating plans.

To the extent that we raise additional capital through the sale of equity or convertible debt securities, ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect rights as a common stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional funds through collaborations, strategic alliances, or licensing arrangements with third parties, we may be required to relinquish valuable rights to our technologies or future revenue streams or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate technology development or future commercialization efforts.

Our quarterly revenue tends to fluctuate, making it harder to forecast and meet investor expectations.

Quarterly revenue has been difficult to predict, has historically fluctuated, and may vary from quarter to quarter due to a variety of factors, many of which are beyond our control. Accordingly, comparing our operating results on a period-to-period basis may not be

meaningful. Factors that may affect our quarterly revenue and operating results may include: any material changes in demand for our products and services; changes in our supply sites' ability to collect and ship specimens or our ability to retain them; changes in the number, availability, and quality of competing products; our ability to maintain a timely delivery of high quality products and services; the timing and amount of sales and marketing expenses incurred by us to attract new customers; changes in the economic or business prospects of our customers or the economy generally; changes in the pricing policies of our competitors; unforeseen defects in our technology; changes in the regulatory environment; and unforeseen costs necessary to improve and maintain our technology.

These factors affecting our future earnings are difficult to forecast and could harm our quarterly and/or annual operating results. The change in our earnings or general economic conditions may cause the market price of our common stock to fluctuate.

Our stock price may be volatile.

The market price of our common stock is likely to be highly volatile and could fluctuate widely in price in response to various risk factors, including the following:

- changes in our industry;
- ability to enhance our platform or to add new functionality;
- regulatory changes;
- competitive pricing or other pressures;
- failures of our suppliers to deliver product on time;
- loss of supply partners;
- additions or departures of key personnel;
- sales of our common stock;
- our ability to execute our business plan;
- operating results that fall below expectations;
- loss of any strategic relationship including customers, suppliers and channel partners; and/or
- economic and other external factors.

In addition, the securities markets have from time to time experienced significant price and volume fluctuations that are unrelated to the operating performance of particular companies. These market fluctuations may also materially and adversely affect the market price of our common stock.

General Risk Factors

Our status as an "emerging growth company" under the JOBS Act may make it more difficult to raise capital when we need to do it or make our common stock less attractive to investors.

Because of the exemptions from various reporting requirements provided to us as an "emerging growth company," and because we will have an extended transition period for complying with new or revised financial accounting standards, we may be less attractive to investors and it may be difficult for us to raise additional capital as and when we need it. Investors may be unable to compare our business with other companies in our industry if they believe that our financial accounting is not as transparent as other companies in

our industry. If we are unable to raise additional capital as and when we need it, our financial condition and results of operations may be materially and adversely affected.

We have limited insurance which may not cover claims by third parties against us or our officers and directors.

We have limited directors' and officers' liability insurance and commercial liability insurance policies. Claims by third parties against us may exceed policy amounts and we may not have amounts to cover these claims. Also, due to high self-insured retention costs and deductibles, we may incur significant costs from any claim made against us before insurance policies provide coverage. Any significant claims would have a material adverse effect on our business, financial condition, and results of operations. In addition, our limited directors' and officers' liability insurance may affect our ability to attract and retain directors and officers.

The requirements of being a U.S. public company may strain our resources and divert management's attention.

As a public company, we are subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (the "Dodd-Frank Act") and Nasdaq rules. The requirements of these rules and regulations result in significant legal and financial compliance costs, including costs associated with the employment of personnel, making some activities more difficult, time-consuming or costly, and may also place undue strain on our personnel, systems and resources and divert management's attention..

The Exchange Act requires, among other things, that we file annual, quarterly, and current reports with respect to our business and financial condition. The Sarbanes-Oxley Act requires, among other things, that we maintain disclosure controls and procedures and internal control over financial reporting. Ensuring that we have adequate internal financial and accounting controls and procedures in place, as well as maintaining these controls and procedures, is a costly and time-consuming effort that needs to be re-evaluated frequently.

Additionally, various rules and regulations applicable to public companies make it more difficult and more expensive for us to maintain directors' and officers' liability insurance, and we may be required to accept reduced coverage or higher deductibles or incur substantially higher costs to maintain coverage.

Evaluation of internal control and remediation of potential problems will be costly and time consuming and could expose weaknesses in financial reporting.

Section 404 of the Sarbanes-Oxley Act ("Section 404") requires that we evaluate our internal control over financial reporting to enable management to report on the effectiveness of those controls annually. In connection with the Section 404 requirements, we could, as part of that documentation, identify material weaknesses, significant deficiencies, or other areas for further attention or improvement.

Implementing any appropriate changes to our internal controls may require specific compliance training for our directors, officers, and employees, require the hiring of additional finance, accounting and other personnel, entail substantial costs to modify our existing accounting systems, and take a significant period of time to complete. Such changes may not, however, be effective in maintaining the adequacy of our internal controls, and any failure to maintain that adequacy, or consequent inability to produce accurate financial statements on a timely basis, could increase our operating costs and could materially impair our ability to operate our business. Moreover, adequate internal controls are necessary for us to produce reliable financial reports and are important to help prevent fraud. As a result, our failure to satisfy the requirements of Section 404 on a timely basis could result in the loss of investor confidence in the reliability of our financial statements, which in turn could cause the market value of our common stock to decline.

Public company compliance may make it more difficult to attract and retain officers and directors.

The Sarbanes-Oxley Act and new rules subsequently implemented by the SEC have required changes in corporate governance practices of public companies. As a public company, we are expected to follow Sarbanes-Oxley Act regulations and other public company rules, and these rules and regulations will increase our compliance costs and make certain activities more time consuming and costly. As a result, these rules and regulations may make it more difficult and expensive for us to obtain director and officer liability insurance and we may be required to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. As a result, it may be more difficult and costly for us to attract and retain qualified persons to serve on our Board or as executive officers.

Item 1B. Unresolved Staff Comments

Not Applicable.

Item 1C. Cybersecurity

Cybersecurity Risk Management and Strategy

iSpecimen maintains an Information Security Management Program ("ISMP") with a primary goal to reduce risks to iSpecimen by protecting and supporting the confidentiality, availability, and integrity of information assets including personally identifiable information. Our cross-functional Risk Management Committee, with direction and support from our Board including the Audit Committee, works to identify, assess, and manage material risks including those from cybersecurity threats. iSpecimen invests in administrative, technical, and physical safeguards, including support from external solution providers and auditors, to maintain information security protections of our data and to safeguard customers, suppliers, employees, and business partners.

Cybersecurity Governance

The Risk Management Committee meets on a quarterly basis to review the currently identified risks to the business and how they are being managed, identify and assess any new material risks, and recommend any changes to our risk management positions. The Risk Management Committee includes the Chief Executive Officer, the Chief Information Officer ("CIO"), and other members of our senior leadership team. The risks considered include those associated with the use of third-party service providers. As of the date of this filing, iSpecimen is not aware of any cybersecurity threats, including those from previous cybersecurity incidents, that have materially affected or are reasonably likely to materially affect the Company, including its business strategy, results of operations, or financial condition. For an expanded view of the risks regarding a cybersecurity incident, please see "If our security measures are breached, or if our services are subject to attacks that degrade or deny the ability of users to access our platforms, our platforms and applications may be perceived as not being secure, customers and suppliers may curtail or stop using our services, and we may incur significant legal and financial exposure" under the "Risk Factors" section of this Annual Report.

Our CIO, who also holds the role of Chief Information Security Officer ("CISO") for iSpecimen, reports annually and as needed to the Board on our ISMP. This reporting includes information on the current external cybersecurity risk landscape, specific threat categories driving this risk, how iSpecimen is working to manage these risks, relevant metrics, and details on annual improvements to the program. The CISO has served in various roles in information technology and information security over the last three decades including serving as CISO for several organizations.

Item 2. Properties

Our principal executive office is located in 450 Bedford Street, Lexington, Massachusetts.

We occupy approximately 8,835 square feet of office and laboratory space in Lexington, Massachusetts under a lease that expires on February 28, 2025. Our laboratory is subject to applicable federal and state laws and regulations relating to the safe handling of laboratory specimens along with biohazard disposal, and we utilize an outside medical and biohazard disposal company for disposal of such specimens. We believe our existing facilities meet our current needs. We will need additional office space in the future as we continue to build our development, commercial and support teams. We believe we can find suitable additional space in the future on commercially reasonable terms.

Item 3. Legal Proceedings

To the knowledge of our management team, there is no material litigation, arbitration or governmental proceeding currently pending against us or any members of our management team in their capacity as such. We may from time to time be involved in various legal proceedings and other matters arising in the normal course of business. We may in the future institute additional, legal proceedings to enforce our rights and seek remedies, such as monetary damages, injunctive relief and declaratory relief. We cannot predict the results of any such disputes, and despite the potential outcomes, the existence thereof may have an adverse material impact on us because of diversion of management time and attention as well as the financial costs related to resolving such disputes.

Item 4. Mine Safety Disclosures

Not Applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

Our common stock trades on the Nasdaq Capital Market under the symbol "ISPC." Trading commenced on the Nasdaq on June 17, 2021.

Holders

On March 11, 2024, there were 63 holders of record of our common stock.

Dividends

We currently intend to retain all available funds and any future earnings to fund the development, commercialization, and growth of our business, and therefore we do not anticipate declaring or paying any cash dividends on any class of our common stock in the foreseeable future. Any future determination as to the declaration and payment of dividends, if any, will be at the discretion of our Board, subject to compliance with contractual restrictions and covenants in the agreements governing our current and future indebtedness. Any such determination will also depend upon our business prospects, results of operations, financial condition, cash requirements and availability, and other factors that our Board may deem relevant.

Securities Authorized for Issuance under Equity Compensation Plans

The information required by Item 201(d) of Regulation S-K is set forth in Part III of this Annual Report on Form 10-K and is incorporated herein.

Purchases of Equity Securities by the Issuer and Affiliated Parties

None.

Item 6. Reserved

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis of the Company's financial condition and results of operations should be read in conjunction with the financial statements and the notes thereto contained elsewhere in this Annual Report. Certain information contained in the discussion and analysis set forth below includes forward-looking statements that involve risks and uncertainties.

Overview

We were incorporated in 2009 under the laws of the state of Delaware. Our mission is to accelerate life science research and development via a single global marketplace platform that connects researchers to subjects, specimens, and associated data. We are headquartered in Lexington, Massachusetts. We operate as one operating and reporting segment.

In addition to creating a single global platform where both specimen providers and researchers can connect, the platform automates the process of searching for and selecting specimens for research. The platform taps into healthcare provider data to gain insights into the

available samples in biobanks or laboratories, or to gain insights into the patient populations to support specimen collections directly from research subjects. The platform receives de-identified data from electronic medical records, laboratory information systems, and other healthcare data sources of available specimens and research subjects and harmonizes the data across all participating organizations.

Researchers can search this data using our intuitive, web-based user interface to obtain specimens more efficiently. They can instantly find the specific specimens they need for their studies, request quotes for these specimens or for custom collections directly from research subjects, place orders, and track and manage their specimens and associated data across projects.

Biospecimen providers also gain efficiencies using the iSpecimen Marketplace, not only because the platform provides instant access to a large researcher base, but because the technology orchestrates the bioprocurement workflow from specimen request to fulfilment. Specimen providers access intuitive dashboards to view requests, create proposals, and track and manage their orders.

Finally, the platform helps with administrative and reporting functions for researchers, suppliers, and our internal personnel, including user and compliance management.

The iSpecimen Marketplace is composed of four major functional areas: search, workflow, data, and administration and reporting. We continue to invest in the evolution of these areas to improve engagement with the platform and liquidity across it. Our core business objective is to retain and grow both researcher and supplier usage of our platform to support biospecimen procurement, as well as to position our Company to explore other adjacent business opportunities that can benefit from the use of the iSpecimen Marketplace.

The iSpecimen Marketplace currently supports the supply chain management and bioprocurement process for specimens and associated data. We generate revenue by procuring various specimens from hospitals, laboratories, and other supply sites comprising our network, and delivering them to its medical research customers using its proprietary software to identify and locate the required specimens. Costs paid to acquire specimens from hospitals and laboratories generally varies depending upon the sample type, collection requirements, and data provided. We generally operate in a "just in time" fashion, meaning we procure specimens from our suppliers and distribute specimens to our customers after we obtain an order for specimens from a research client. Generally, we do not speculatively purchase and bank samples in anticipation of future, unspecified needs. We believe our approach offers many advantages over a more traditional inventory-based supplier business model where biorepositories take inventory risks, and where inventory turnover and cash conversion cycles can be lengthy.

Term Loan

On August 13, 2021, we entered into a loan agreement (the "Term Loan") and as a result, received proceeds of $3,500,000. This funding was used to settle the remaining balance of $3,000,000 on the then outstanding bridge notes, as amended ("the Bridge Notes"). On November 3, 2022, the Company settled in cash the remaining principal balance plus accrued and unpaid interest of the Term Loan in the amount of $3.4 million. Upon repayment of the Term Loan, the Loan Facility was terminated and the security interest in the assets of the Company was released. As of December 31, 2023, no Bridge Notes remained outstanding.

Private Placement Offering

On December 1, 2021, we closed on a private placement offering ("PIPE") for gross proceeds of approximately $21 million, before deducting approximately $1.4 million for underwriting discounts and commissions and estimated offering expenses, for (i) an aggregate of 1,749,999 shares of common stock and (ii) warrants, which are exercisable for an aggregate of up to 1,312,500 shares of common stock, all of which were subsequently repurchased by us on February 13, 2024, and are no longer outstanding.

At the Market Offering

On March 5, 2024, we entered into an At the Market Offering Agreement (the "ATM Agreement") with Rodman & Renshaw LLC as agent (the "Sales Agent") pursuant to which we may issue and sell shares of our common stock, having an aggregate offering price of up to $1,500,000 (the "ATM Shares"), from time to time through the Sales Agent. The ATM Shares when issued will be registered pursuant to our shelf registration statement on Form S-3 (File No 333-265976), which became effective on July 12, 2022. We intend to sell Shares, from time to time, pursuant to the ATM Agreement, in transactions that are "at the market offerings" as defined in Rule 415(a)(4) promulgated under the Securities Act.

Impact of the Current Economy

The Company's financial performance is subject to global economic conditions and their impact on levels of spending by our customer research organizations, particularly discretionary spending for procurement of specimens used for research. Economic recessions may have adverse consequences across industries, including the health and biospecimen industries, which may adversely affect our business and financial condition. We increased our allowance for doubtful accounts in accounts receivables by $289,898 as of December 31, 2023 due to certain boutique life sciences customers either lack liquidity or have filed for bankruptcy. We have enhanced procedures related to our credit check process for new and existing customers in fiscal year 2023 to mitigate the risk to future collectability of receivables.

Changes in general market, economic and political conditions in domestic and foreign economies or financial markets, including fluctuation in stock markets resulting from, among other things, trends in the economy and inflation, as are being currently experienced, may result in a reduction in researchers' demand for specimens due to the research organization's inability to obtain funding.

To further address the current market conditions, we have taken steps, which include but are not limited to, reevaluating our pricing in order to be more competitive, creating campaigns to highlight and fast-track high demand items, enhancing internal team communications to accelerate the sales cycle, moving to a new line of business structure organized by our internal categorization of biospecimen suppliers capabilities to increase efficiency in operations, implementation of next day quotes to increase conversion ratios of quotes to purchase orders, and initiation of efforts to decrease expenditures through reductions in our workforce.

We believe that our business will continue to be resilient through a continued industry-wide economic slowdown in life science research, and that we will continue to work on improving our liquidity to address our financial obligations and alleviate possible adverse effects on our business, financial condition, results of operations or prospects.

Impact of the Russian-Ukrainian War on Our Operations

Our business was negatively impacted during the first half of 2022 by the ongoing war between Russia and Ukraine. At the start of the war, we had approximately $1 million of purchase orders that were slated to be fulfilled by our supply network in Ukraine and Russia. This supply network was shut down at the start of the war. Ukrainian suppliers were disabled due to war conditions and evacuations and some of our Russian suppliers were disabled by sanctions. While we mobilized to shift these purchase orders to other suppliers in the network, the process of specimen collections from other supply sites took time, which caused a delay in the fulfillment of such purchase orders. Alternate suppliers do not have the same favorable unit economics or specimen collection rates, and this also impacted our margins. Additionally, key resources were diverted from operations to resolving the re-fulfillment issues caused by the conflict.

As of December 31, 2023, our supply sites in Russia that had not been under sanctions were accessible and our supply sites in Ukraine were mostly reopened. However, logistics and transportation of specimens out of the country of Ukraine remains challenging and not as economically feasible as they were prior to the beginning of the war. Due to the uncertainty caused by the ongoing war, Ukrainian and Russian suppliers may again become inaccessible to us. Therefore, as long as the uncertainty continues, our policy is to ensure at a purchase order level that an order is not solely sourced from the two countries. The short and long-term implications of the war are difficult to predict as of the date of this Annual Report. The imposition of more sanctions and counter sanctions may have an adverse effect on the economic markets generally and could impact our business and the businesses of our supply partners, especially those in Ukraine and Russia. Because of the highly uncertain and dynamic nature of these events, it is not currently possible to estimate the impact of the war on our business and the companies from which we obtain supplies and distribute specimens.

Known Trends, Demands, Commitments, Events or Uncertainties Impacting Our Business

Chief Executive Officer Initiatives

The Company's mission remains to accelerate life sciences research and development, pursuant to a single global marketplace platform. Executive management of the Company continues to review the Company's structure, processes, and resources to evaluate and identify areas for improvement, and has been focused on creating and ensuring a runway for growth and scale for the business.

We have initiated efforts to decrease our capital and operational expenditures by cutting costs and right sizing the Company through reductions in our workforce. Throughout the year of 2023 and primarily on September 6, 2023, we executed a reduction in workforce,

resulting in an estimated reduction in monthly compensation costs of 29% and additional expenditure reductions estimated to be over 50% of monthly expenditures for the remainder of the year, after streamlining operations and rationalizing resources to focus on key market opportunities. As a result, we experienced a significant decrease in expenditures during the second half of 2023 compared to the first half of 2023.

One of our key new revenue enhancement initiatives is to identify, through sequencing, high value cancer patients which possess specific mutations in donor Formalin-Fixed Paraffin-Embedded ("FFPE") blocks. We have invested in active repetitive screening to create a virtual inventory of availability for our research customers in areas of high value. This initiative is extremely valuable, not only to our business, but we believe, for the entire industry. We have entered into contracts with qualified suppliers to provide specific high value FFPE blocks which, we believe, could result in significant revenue share options. The power of our supplier network makes this initiative possible and when paired with the search functionality of our proprietary iSpecimen Marketplace, it provides an easier solution than what currently exists in our industry. We formally launched this initiative towards the end of the third quarter of 2023 and have recognized a modest level of revenue since then. We now have opportunities and purchase orders, most of which are expected to be fulfilled in 2024. We own the data generated from sequencing of the FFPE blocks, and we are now creating a database of research content of our specific high value sequenced data that, we believe, will generate additional reiterative revenue by selling to researchers access to the database.

Our iSpecimen Marketplace Onsite Program, which offers additional support to our biospecimen supplier partners, is underway and we have begun to appoint iSpecimen Marketplace Onsite coordinators, whose responsibility is to field all requests made by the supplier partner and submit proposals on behalf of the supplier partner, resulting in the acceleration of fulfillment with streamlined sample-related management and reduced strain on existing supplier staff and product pipelines.

During the year ended December 31, 2023, we have had ongoing operational process improvement activities to increase collaboration within and between departments. In the second quarter of 2023, we moved to a line of business structure organized by our internal categorization of biospecimen suppliers capabilities, which has increased efficiency in our operations and throughout the Company. Previously, it took an extended number of days to complete a feasibility study in order to provide a customer quote, which negatively impacted the time to convert a quote to a purchase order. We completed the implementation of a next day quote system in the third quarter and we have already started to see positive results, as evidenced by increased conversion ratios of quotes to purchase orders which has contributed to the increased revenue results for the second half of 2023.

During the first half of 2023, technology projects were green-lighted to accelerate development timelines. We are committed to investing in and developing our technology. During the year ended December 31, 2023, we capitalized approximately $3,767,000 of internally developed software costs with plans to invest at significantly lower levels in 2024. These investments have already resulted in meaningful progress which includes an updated search functionality, improved user interface, increased automation, and an enhanced matchmaking function of the iSpecimen Marketplace platform. We anticipate that these investments will increase revenue opportunities and result in operational efficiencies, positively impacting our liquidity, capital resources and results of operations in the future.

During the year ended December 31, 2023, while still onboarding new suppliers, we shifted to the quality of our network. We have established business criteria that focus on supplier capabilities and revenue growth strategies as well as technology criteria for integrating onto our iSpecimen Marketplace platform and participating with us. We have been reengaging our suppliers in a more meaningful manner which assisted us in the implementation of our next day quote system. We now have a key supplier program whereby we proactively engage with the suppliers to promote our business through marketing campaigns and supplier organizations' offerings.

Components of Our Results of Operations

Revenue

We generate revenue by procuring various specimens from hospitals, laboratories, and other supply sites, for our medical research customers using our proprietary software, the iSpecimen Marketplace, to identify, locate, and ultimately validate the required specimens to our customers' requested specifications. The Company's performance obligation is to procure a specimen meeting the customer specification(s) from a supplier, on a "best efforts" basis, for our customer at the agreed price per specimen as indicated in the customer contract with the Company. We do not currently charge suppliers or customers for the use of our proprietary software. Each customer will execute a material and data use agreement with the Company or agree to online purchase terms, each of which includes terms such as specimen and data use, shipment terms, payment and cancellation terms. These are then supplemented by purchase orders that specify

specimen requirements including detailed inclusion/exclusion criteria, quantities to be collected, and pricing. Collectively, these customer agreements represent the Company's contracts with its customer. Generally, contracts have fixed unit pricing. For certain specimen orders, a refundable customer deposit may be required prior to order fulfillment depending on project set-up requirements, presented as deferred revenue. The Company expects to recognize the deferred revenue within the next twelve months.

We recognize revenue over time, as we have created an asset with no alternative use and we have an enforceable right to payment for performance completed to date. At contract inception, we review a contract and related order upon receipt to determine if the specimen ordered has an alternative use to us. Generally, specimens ordered do not have an alternative future use to us and our performance obligation is satisfied when the related specimens are accessioned. We use an output method to recognize revenue for specimens with no alternative future use. The output is measured based on the number of specimens accessioned.

Customers are typically invoiced upon shipment. Depending on the quantity of specimens ordered, it may take several accounting periods to completely fulfill a purchase order. In other words, there can be multiple invoices issued for a single purchase order, reflecting the specimens being accessioned over time. However, specimens are generally shipped as soon as possible after they have been accessioned.

Cost of Revenue

Cost of revenue primarily consists of the purchase price to acquire specimens from hospitals and laboratories, inbound and outbound shipping costs, supply costs related to samples, payment processing and related transaction costs, costs paid to the supply sites to support sample collections, amortization of capitalized sequenced data costs and other assets related to sequenced data. Shipping costs upon receipt of products from suppliers are recognized in cost of revenue.

Technology

Technology costs include consulting fees, payroll and related expenses for employees involved in the development and implementation of our technology; software license and system maintenance fees, outsourced data center costs, data management costs, amortization of internally developed software, and other expenses necessary to support technology initiatives. Collectively, these costs reflect the efforts we make to offer a wide variety of products and services to our customers. Technology and data costs are generally expensed as incurred.

A portion of technology costs are related to research and development. Costs incurred for research and development are expensed as incurred, except for software development costs that are eligible for capitalization. Research and development costs primarily include salaries and related expenses, in addition to the cost of external service providers.

Sales and Marketing

Sales and marketing costs primarily consist of payroll and related expenses for personnel engaged in marketing and selling activities, including salaries and sales commissions, travel expenses, public relations and social media costs, ispecimen.com website development and maintenance costs, search engine optimization fees, advertising costs; direct marketing costs, trade shows and events fees, marketing and customer relationship management software, and other marketing-related costs.

Supply Development

We have agreements with supply partners that allow us to procure specimens from them and distribute these samples to customers. Supply development costs primarily include payroll and related expenses for personnel engaged in the development and management of this supply network, related travel expenses, regulatory compliance costs to support the network, and other supply development and management costs.

Fulfillment

Fulfillment costs primarily consist of those costs incurred in operating and staffing operations and customer service teams, including costs attributable to assess the feasibility of specimen requests, creating and managing orders, picking, packaging, and preparing customer orders for shipment, responding to inquiries from customers, and laboratory equipment and supplies.

General and Administrative

General and administrative expenses primarily consist of costs for corporate functions, including payroll and related expenses for human resources, legal, finance, and executive teams, associated software licenses, facilities, and equipment expenses, such as depreciation and amortization expense and rent, outside legal expenses, insurance costs, and other general and administrative costs.

Financial Operations Overview and Analysis for the Years Ended December 31, 2023 and 2022

Comparison of the Years Ended December 31, 2023 and 2022

			Change	
	2023	2022	Dollars	Percentage
Revenue	$ 9,928,184	$ 10,402,303	$ (474,119)	(5)%
Operating expenses:				
Cost of revenue	4,820,268	4,756,965	63,303	1 %
Technology	3,566,917	2,656,287	910,630	34 %
Sales and marketing	3,955,974	3,445,344	510,630	15 %
Supply development	1,030,403	801,125	229,278	29 %
Fulfillment	1,788,879	1,995,937	(207,058)	(10)%
General and administrative	5,935,092	6,932,727	(997,635)	(14)%
Total operating expenses	21,097,533	20,588,385	509,148	2 %
Loss from operations	(11,169,349)	(10,186,082)	983,267	10 %
Other (income) expense, net				
Interest expense	(16,001)	(238,963)	222,962	93 %
Interest income	339,750	169,345	170,405	101 %
Interest and penalties on sales tax liability	(214,784)	—	(214,784)	(100)%
Other income (expense), net	(39,104)	9,778	(48,882)	(500)%
Total other income (expense), net	69,861	(59,840)	129,701	217 %
Net loss	$ (11,099,488)	$ (10,245,922)	(853,566)	(8)%

Revenue

Revenue decreased by approximately $474,000, or 5%, from approximately $10,402,000 for the year ended December 31, 2022 to approximately $9,928,000 for the year ended December 31, 2023. This was primarily due to a decrease of 2,938, or 11%, in specimen count from 27,503 specimens during the year ended December 31, 2022 to 24,565 specimens during the year ended December 31, 2023. The effect of the decrease in specimen count was partially offset by a change in the specimen mix which caused the average selling price per specimen to increase by $26, or 7%, from approximately $378 during the year ended December 31, 2022 to $404 during the year ended December 31, 2023.

Cost of Revenue

Cost of revenue increased by approximately $63,000, or 1%, from approximately $4,757,000 for the year ended December 31, 2022 to approximately $4,820,000 for the year ended December 31, 2023. Although there was an 11% decrease in the number of specimens accessioned during the year ended December 31, 2023, over the same prior year period, the average cost per specimen increased by 13% from $173 for the year ended December 31, 2022 to $196 for the year ended December 31, 2023.

Technology

Technology expenses increased by approximately $911,000, or 34%, from approximately $2,656,000 for the year ended December 31, 2022 to approximately $3,567,000 for the year ended December 31, 2023. The increase was related to increases in amortization expense of internally developed software of approximately $765,000, payroll and related expenses of approximately $81,000, and professional fees of approximately $67,000, which were partially offset by a decrease in general operating expenses of approximately $2,000.

Sales and Marketing Expenses

Sales and marketing expenses increased by approximately $511,000, or 15%, from approximately $3,445,000 for the year ended December 31, 2022 to approximately $3,956,000 for the year ended December 31, 2023. The increase was primarily attributable to increases in payroll and related expenses of approximately $345,000, external marketing expense of approximately $201,000, and general operating expenses related to sales and marketing of approximately $6,000, which were partially offset by a decrease in advertising and promotions expense of approximately $41,000.

Supply Development

Supply development expenses increased by approximately $229,000, or 29%, from approximately $801,000 for the year ended December 31, 2022 to approximately $1,030,000 for the year ended December 31, 2023. The increase was primarily attributable to an increase in professional fees of approximately $372,000, which was partially offset by decreases in payroll and related expenses of approximately $141,000 and general supply development expenses of approximately $2,000.

Fulfillment

Fulfillment costs decreased by approximately $207,000, or 10%, from approximately $1,996,000 for the year ended December 31, 2022 to approximately $1,789,000 for the year ended December 31, 2023. The decrease was primarily attributable to a decrease in payroll and related expenses of approximately $369,000 for personnel engaged in pre-sales feasibility assessments and order fulfillment, which was partially offset by increases in professional fees of approximately $143,000 and general operating expenses related to fulfillment of approximately $19,000.

General and Administrative Expenses

General and administrative expenses decreased by approximately $998,000, or 14%, from approximately $6,933,000 for the year ended December 31, 2022 to approximately $5,935,000 for the year ended December 31, 2023. The decrease was attributable to decreases in severance costs of former executives of approximately $782,000, compensation costs of approximately $248,000, general operating expenses of approximately $156,000, professional fees of $69,000, and utilities and facilities expenses of approximately $47,000, which were partially offset by increases in bad debt expense of approximately $198,000, depreciation and amortization of approximately $95,000, and taxes and insurance of approximately $11,000.

Other Income (Expense), net

Other income (expense), net, increased by approximately $130,000, or 217%, from approximately $60,000 of other expense, net, for the year ended December 31, 2022 to approximately $70,000 of other income, net, for the year ended December 31, 2023. The increase in other income (expense), net, was attributable to a decrease in interest expense of $223,000 and an increase in interest income of approximately $170,000, partially offset by increases in interest and penalties on sales tax liability of approximately $215,000 and other expense of approximately $49,000.

Liquidity and Capital Resources

			Change	
	December 31, 2023	December 31, 2022	Dollars	Percentage
Balance Sheet Data:				
Cash and cash equivalents	$ 2,343,666	$ 15,308,710	$ (12,965,044)	(85)%
Available-for-sale securities	2,661,932	—	2,661,932	100 %
Working capital	2,189,673	15,394,634	(13,204,961)	(86)%
Total assets	15,819,137	24,617,653	(8,798,516)	(36)%
Total stockholders' equity	9,741,077	20,309,170	(10,568,093)	(52)%

	Year Ended December 31,		Change	
	2023	2022	Dollars	Percentage
Statement of Cash Flow Data:				
Net cash flows used in operating activities	$ (5,807,550)	$ (5,817,720)	$ 10,170	(0)%
Net cash flows used in investing activities	(7,228,383)	(3,191,190)	(4,037,193)	127 %
Net cash flows provided by financing activities	70,889	(3,421,359)	3,492,248	(102)%
Net decrease in cash and cash equivalents	$ (12,965,044)	$ (12,430,269)	$ (534,775)	

Capital Resources

We have had recurring losses since inception. As of December 31, 2023, our available cash and available-for-sale securities totaled approximately $5,006,000, which represented a decrease of approximately $10,303,000 from approximately $15,309,000, as of December 31, 2022. We had working capital of approximately $2,190,000, an accumulated deficit of approximately $59,365,000, cash and cash equivalents and short-term investments of approximately $5,006,000 and accounts payable and accrued expenses of approximately $5,466,000. Our continued viability is dependent on the ability to successfully obtain additional working capital and/or ultimately attain profitable operations. Throughout the year and primarily on September 6, 2023, we executed a reduction in workforce, resulting in an estimated reduction in monthly compensation costs of 29% and additional expenditures reductions estimated to be over 50% of monthly expenditures for the remainder of the year, after streamlining operations and rationalizing resources to focus on key market opportunities. We plan to add additional customers and suppliers to increase and add additional revenues through our new revenue enhancement projects as well as to reduce and manage expenditures to improve our financial position and ensure continued funding of operations. However, as certain elements of our operating plan are not within our control, we are unable to assess their probability. We may also seek to fund our operations through public equity or debt financing, as well as other sources, but we have not currently identified any specific source of financing except for the At the Market Offering Agreement (the "ATM Agreement") that was subsequently put in place on March 5, 2024 which may allow us to issue and sell shares of our common stock, having an aggregate offering price of up to $1,500,000 (the "ATM Shares"), from time to time through the Sales Agent. However, we may be unsuccessful in increasing our revenues from our new enhancement project or contain our operating expenses, or we may be unable to raise additional capital on commercially favorable terms. Our failure to generate additional revenues or contain operating costs would have a negative impact on our business, results of operations and financial condition and our ability to continue as a going concern. If we do not generate enough revenue to provide an adequate level of working capital, our business plan will be scaled down further.

These conditions raise substantial doubt regarding our ability to continue as a going concern for a period of one year after the date of this Annual Report. Management's plan to mitigate the conditions that raise substantial doubt includes generating additional revenues through its revenue enhancement projects, deferring certain projects and capital expenditures and eliminating certain future operating expenses for us to continue as a going concern. However, there can be no assurance that we will be successful in completing any of these options. As a result, management's plans cannot be considered probable and thus do not alleviate substantial doubt about our ability to continue as a going concern.

Cash Flows

Operating Activities

For the year ended December 31, 2023, net cash used in operating activities was approximately $5,808,000, which consisted of a net loss of approximately $11,099,000 offset by non-cash charges of approximately $2,703,000, which included approximately $1,948,000 related to amortization of internally developed software, approximately $460,000 in stock-based compensation, approximately $305,000 in bad debt expense, approximately $118,000 related to depreciation of property and equipment, and approximately $50,000 related to amortization of other intangible assets, which were offset by approximately $177,000 of accretion of discount on available-for-sale securities.

Total changes in assets and liabilities of approximately $2,589,000 were attributable to an approximately $1,466,000 increase in accounts payable, an approximately $564,000 decrease in accounts receivable, an approximately $283,000 increase in deferred revenue, an approximately $157,000 increase in operating lease right-of-use asset, an approximately $141,000 decrease in tax credit receivable, an approximately $115,000 decrease in accounts receivable-unbilled, an approximately $9,000 increase in accrued expenses, and an

approximately $8,000 decrease in prepaid expenses and other current assets, offset by an approximately $156,000 decrease in operating lease liability.

For the year ended December 31, 2022, net cash used in operating activities was approximately $5,818,000, which consisted of a net loss of approximately $10,246,000 offset by non-cash charges of approximately $2,074,000 which included approximately $1,183,000 related to amortization of internally developed software, approximately $679,000 in stock-based compensation, approximately $107,000 in bad debt expense, approximately $22,000 related to depreciation of property and equipment, approximately $77,000 of amortization of debt issuance costs on the Term Loan, and approximately $6,000 of proceeds from issuance of common stock in exchange for services.

Total changes in assets and liabilities of approximately $2,354,000 were primarily driven by an approximately $1,298,000 decrease in accounts receivable, an approximately $148,000 decrease in operating lease right-of-use asset, an approximately $27,000 decrease in prepaid expenses and other current assets, an approximately $1,626,000 increase in accounts payable, an approximately $521,000 increase in accrued expenses, offset by an approximately $589,000 increase in accounts receivable-unbilled, an approximately $522,000 decrease in deferred revenue, an approximately $147,000 decrease in operating lease liability and an approximately $8,000 decrease in accrued interest.

Investing Activities

During the year ended December 31, 2023, we invested approximately $3.8 million of cash in further developing our iSpecimen Marketplace technology with plans to invest at a lower level in 2024. We intend to continue to use our existing cash to grow our supply network, increase our marketing and sales presence, scale our operations, and for working capital and general corporate purposes.

Net cash used in investing activities was approximately $7,228,000 and $3,191,000 for the years ended December 31, 2023 and 2022, respectively. Net cash used in investing activities for the year ended December 31, 2023 consisted of approximately $13,040,000 of purchases of available-for-sale securities, approximately $3,767,000 of capitalization of internally developed software, approximately $958,000 of capitalization of other intangible assets and approximately $19,000 of purchases of property and equipment, which were offset by $10,556,000 of proceeds from sale and maturities of available-for-sale securities.

Net cash used in investing activities for the year ended December 31, 2022 consisted of approximately $2,976,000 of capitalization of internally developed software and approximately $216,000 for purchase of property and equipment.

Financing Activities

Net cash provided by financing activities was approximately $71,000 for the year ended December 31, 2023, which consisted of approximately $71,000 received from the exercise of stock options.

Net cash used in financing activities was approximately $3,421,000 for the year ended December 31, 2022, which consisted of $3,500,000 for the payoff of the Term Loan, which was offset by approximately $79,000 of proceeds from the exercise of stock options.

Effects of Inflation and Supply Chain Shortages

Our operations are heavily reliant on specimen availability, and as a result, we often receive more requests than we can fulfill. While the Company is subject to these types of supply chain constraints that are specific to the specimen industry, we have not been materially affected by the more common supply chain issues currently affecting the economy, specifically surrounding transportation. Due to the small size of the packages that we ship, our carriers were able to continue making timely deliveries during the year ended December 31, 2023. However, there had been an increase in our shipping costs period over period during the year ended December 31, 2023.

We have experienced negative effects of inflation in certain areas of our business due to the high rates of inflation in the world's current economy. This inflation is affecting employee salaries, which account for a significant portion of our operating costs. Additionally, the costs of supplies have been affected by inflation; however, these costs are not significant to the Company's results.

Inflation has not had a significant impact on the cost of specimens due to our long-term contracts maintained with vendors, which include revenue sharing plans.

Critical Accounting Policies and Estimates

We have chosen accounting policies that we believe are appropriate to accurately and fairly report our operating results and financial condition in conformity with GAAP. We apply these accounting policies in a consistent manner. Our significant accounting policies are discussed in Note 2 of our financial statements.

The application of critical accounting policies requires that we make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses and related disclosures. These estimates and assumptions are based on historical experience and other market-specific or other relevant assumptions that we believe to be reasonable under the circumstances. We evaluate these estimates and assumptions on an ongoing basis. If actual results ultimately differ from previous estimates, the revisions are included in results of operations in the period in which the actual amounts become known. The following accounting policies involve estimates that are considered critical due to the level of subjectivity and judgment involved, as well as the impact on our financial position and results of operations.

Internally Developed Software

We capitalize certain internal and external costs incurred during the application development stage of internal use software projects until the software is ready for its intended use. Amortization of the asset commences when the software is complete and placed into service and is recorded in operating expenses. We amortize completed internal-use software over its estimated useful life of five years on a straight-line basis. Costs incurred during the planning, training and post-implementation stages of the software development life cycle are classified as technology and expensed to operations as incurred. Costs that do not meet the capitalization criteria are expensed as incurred. We performed an impairment analysis of our internally developed software as of the measurement date of December 31, 2023 and concluded that the net book value of the asset is recoverable. There has been no material changes to our estimates as of December 31, 2023.

Sequenced Data Cost

We capitalize the purchase cost of sequenced data. The sequenced data is a new product, and its anticipated future gross revenues are currently yet to be fully quantifiable. Due to certain factors such as uncertainty related to technological advancement in precision medicine, which may limit the long term economic viability of the asset, we determined that an estimated useful life of five years would be appropriate for the asset. Therefore, the sequenced data will be amortized on a straight-line basis over an estimated useful life of five years. The costs paid to the third party sequencer are the only costs capitalized and all other costs are expensed as incurred.

Stock-based Compensation

We record stock-based compensation for options granted to employees, non-employees, and to members of the Board for their services on the Board based on the grant date fair value of awards issued, and the expense is recorded on a straight-line basis over the requisite service period. Forfeitures are recognized when they occur.

We use the Black-Scholes-Merton option pricing model to determine the fair value of stock options. The use of the Black-Scholes-Merton option-pricing model requires management to make assumptions with respect to the expected term of the option, the expected volatility of the common stock consistent with the expected life of the option, risk-free interest rates and expected dividend yields of the common stock. We have concluded that its historical share option exercise experience does not provide a reasonable basis upon which to estimate expected term. Therefore, the expected term was determined according to the simplified method, which is the average of the vesting tranche dates and the contractual term. Due to the lack of company specific historical and implied volatility data, the estimate of expected volatility is primarily based on the historical volatility of a group of similar companies that are publicly traded. For these analyses, companies with comparable characteristics are selected, including enterprise value and position within the industry, and with historical share price information sufficient to meet the expected life of the stock-based awards. We compute the historical volatility data using the daily closing prices for the selected companies' shares during the equivalent period of the calculated expected term of its stock-based awards. The risk-free interest rate is determined by reference to U.S. Treasury zero-coupon issues with remaining maturities similar to the expected term of the options. We have not paid, and do not anticipate paying, cash dividends on shares of our common stock. There were no material changes to our estimates as of December 31, 2023.

Recent Accounting Standards

For information on recent accounting standards, see Note 2 to our financial statements.

JOBS Act Transition Period

On April 5, 2012, the JOBS Act was enacted. Section 107 of the JOBS Act provides that an "emerging growth company" can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act for complying with new or revised accounting standards. In other words, an "emerging growth company" can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies.

We have elected not to "opt out" of such extended transition period, which means that when a standard is issued or revised and it has different application dates for public or private companies, we will adopt the new or revised standard at the time private companies adopt the new or revised standard and will do so until such time that we either (i) irrevocably elect to "opt out" of such extended transition period or (ii) no longer qualify as an emerging growth company.

We are in the process of evaluating the benefits of relying on other exemptions and reduced reporting requirements provided by the JOBS Act. Subject to certain conditions set forth in the JOBS Act, as an "emerging growth company," we intend to rely on certain of these exemptions, including without limitation, (i) providing an auditor's attestation report on our system of internal controls over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act and (ii) complying with any requirement that may be adopted by the PCAOB regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements, known as the auditor discussion and analysis. We will remain an "emerging growth company" until the earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of $1.235 billion or more; (ii) December 31, 2026; (iii) the date on which we have issued more than $1 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the SEC.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Not required for smaller reporting companies.

Item 8. Financial Statements and Supplementary Data

Index to Financial Statements
iSpecimen Inc.

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of iSpecimen Inc.:

Opinion on the Financial Statements

We have audited the accompanying balance sheets of iSpecimen Inc. (the "Company") as of December 31, 2023 and 2022, the related statements of operations and comprehensive loss, changes in stockholders' equity and cash flows for the years then ended, and the related notes to the financial statements (collectively, the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Emphasis of a Matter Regarding Going Concern

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company has suffered recurring losses and negative cash flows from operations and has a significant accumulated deficit. These conditions raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are described in Note 1. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Wolf & Company, P.C.
Boston, Massachusetts
March 13, 2024

We have served as the Company's auditor since 2014.

iSpecimen Inc.

Balance Sheets

	December 31, 2023	December 31, 2022
ASSETS		
Current assets:		
Cash and cash equivalents	$ 2,343,666	$ 15,308,710
Available-for-sale securities	2,661,932	—
Accounts receivable – unbilled	2,212,538	2,327,789
Accounts receivable, net of allowance for doubtful accounts of $520,897 and $230,999 at December 31, 2023 and 2022, respectively	728,388	1,597,915
Prepaid expenses and other current assets	292,079	300,434
Tax credit receivable	—	140,873
Total current assets	8,238,603	19,675,721
Property and equipment, net	127,787	225,852
Internally developed software, net	6,323,034	4,503,787
Other intangible assets, net	908,255	—
Operating lease right-of-use asset	193,857	184,692
Security deposits	27,601	27,601
Total assets	$ 15,819,137	$ 24,617,653
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 3,925,438	$ 2,459,063
Accrued expenses	1,540,607	1,531,238
Operating lease current obligation	167,114	158,451
Deferred revenue	415,771	132,335
Total current liabilities	6,048,930	4,281,087
Operating lease long-term obligation	29,130	27,396
Total liabilities	6,078,060	4,308,483
Commitments and contingencies (See Note 9)		
Stockholders' equity		
Common stock, $0.0001 par value, 200,000,000 shares authorized, 9,114,371 issued, and 9,083,371 outstanding at December 31, 2023 and 8,956,808 issued and 8,925,808 outstanding at December 31, 2022	908	892
Additional paid-in capital	69,104,313	68,573,774
Treasury stock, 31,000 shares at December 31, 2023 and 2022, at cost	(172)	(172)
Accumulated other comprehensive income	840	—
Accumulated deficit	(59,364,812)	(48,265,324)
Total stockholders' equity	9,741,077	20,309,170
Total liabilities and stockholders' equity	$ 15,819,137	$ 24,617,653

See accompanying report of independent registered public accounting firm and notes to the financial statements.

iSpecimen Inc.

Statements of Operations and Comprehensive Loss

	Years Ended December 31,	
	2023	2022
Revenue	$ 9,928,184	$ 10,402,303
Operating expenses:		
Cost of revenue	4,820,268	4,756,965
Technology	3,566,917	2,656,287
Sales and marketing	3,955,974	3,445,344
Supply development	1,030,403	801,125
Fulfillment	1,788,879	1,995,937
General and administrative	5,935,092	6,932,727
Total operating expenses	21,097,533	20,588,385
Loss from operations	(11,169,349)	(10,186,082)
Other income (expense), net		
Interest expense	(16,001)	(238,963)
Interest income	339,750	169,345
Interest and penalties on sales tax liability	(214,784)	—
Other income (expense), net	(39,104)	9,778
Total other income (expense), net	69,861	(59,840)
Net loss	$ (11,099,488)	$ (10,245,922)
Other comprehensive income:		
Net loss	$ (11,099,488)	$ (10,245,922)
Unrealized gain on available-for-sale securities	840	—
Total other comprehensive income	840	—
Comprehensive loss	$ (11,098,648)	$ (10,245,922)
Net loss per share - basic and diluted	$ (1.23)	$ (1.16)
Weighted average shares of common stock outstanding - basic and diluted	9,041,341	8,844,307

See accompanying report of independent registered public accounting firm and notes to the financial statements.

iSpecimen Inc.

Statements of Changes in Stockholders' Equity

	Common Stock		Treasury Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount				
Balance at December 31, 2021	8,733,479	$ 873	31,000	$ (172)	$ 67,810,289	$ —	$ (38,019,402)	$ 29,791,588
Stock-based compensation expense	—	—	—	—	642,077	—	—	642,077
Vesting of restricted stock	110,286	11	—	—	36,525	—	—	36,536
Issuance of common stock through exercise of stock options	81,043	8	—	—	78,633	—	—	78,641
Issuance of common stock in exchange for services	1,000	—	—	—	6,250	—	—	6,250
Net loss	—	—	—	—	—	—	(10,245,922)	(10,245,922)
Balance at December 31, 2022	8,925,808	892	31,000	(172)	68,573,774	—	(48,265,324)	20,309,170
Stock-based compensation expense	—	—	—	—	160,010	—	—	160,010
Vesting of restricted stock	86,674	9	—	—	299,647	—	—	299,656
Issuance of common stock through exercise of stock options	70,889	7	—	—	70,882	—	—	70,889
Unrealized gain on available-for-sale securities	—	—	—	—	—	840	—	840
Net loss	—	—	—	—	—	—	(11,099,488)	(11,099,488)
Balance at December 31, 2023	9,083,371	$ 908	31,000	$ (172)	$ 69,104,313	$ 840	$ (59,364,812)	$ 9,741,077

See accompanying report of independent registered public accounting firm and notes to the financial statements.

iSpecimen Inc.

Statements of Cash Flows

	Years Ended December 31,	
	2023	2022
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net loss	$ (11,099,488)	$ (10,245,922)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation expense	459,666	678,613
Proceeds from issuance of common stock in exchange for services	—	6,250
Amortization of internally developed software	1,948,085	1,182,766
Amortization of other intangible assets	49,520	—
Depreciation of property and equipment	117,543	22,433
Bad debt expense	305,039	106,581
Non-cash interest income related to accretion of discount on available-for-sale securities	(177,294)	—
Amortization of debt issuance costs on term loan	—	77,384
Change in operating assets and liabilities:		
Accounts receivable – unbilled	115,251	(588,769)
Accounts receivable	564,488	1,297,946
Prepaid expenses and other current assets	8,355	26,601
Operating lease right-of-use asset	157,192	148,431
Tax credit receivable	140,873	—
Accounts payable	1,466,375	1,626,385
Accrued expenses	9,369	521,435
Accrued interest	—	(8,167)
Operating lease liability	(155,960)	(147,276)
Deferred revenue	283,436	(522,411)
Net cash used in operating activities	(5,807,550)	(5,817,720)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Capitalization of internally developed software	(3,767,332)	(2,975,686)
Capitalization of other intangible assets	(957,775)	—
Purchase of property and equipment	(19,478)	(215,504)
Purchase of available-for-sale securities	(13,039,798)	—
Proceeds from maturities of available-for-sale securities	10,556,000	—
Net cash used in investing activities	(7,228,383)	(3,191,190)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from exercise of stock options	70,889	78,641
Payment of term loan	—	(3,500,000)
Net cash provided by (used in) financing activities	70,889	(3,421,359)
Net decreases in cash and cash equivalents	(12,965,044)	(12,430,269)
Cash and cash equivalents at beginning of period	15,308,710	27,738,979
Cash and cash equivalents at end of period	$ 2,343,666	$ 15,308,710
Supplemental disclosure of cash flow information:		
Cash paid for interest	$ 16,001	$ 161,579
Supplemental disclosure of non-cash investing and financing activities:		
Non-cash amounts of lease liabilities arising from obtaining right-of use-assets	$ 166,357	$ 333,123

See accompanying report of independent registered public accounting firm and notes to the financial statements.

iSpecimen Inc.

Notes to Financial Statements

1. NATURE OF BUSINESS

iSpecimen Inc. ("iSpecimen" or the "Company") was incorporated in 2009 under the laws of the state of Delaware. The Company has developed and launched a proprietary online marketplace platform that connects medical researchers who need access to subjects, samples, and data, with hospitals, laboratories, and other organizations who have access to them. iSpecimen is a technology-driven company founded to address a critical challenge: how to connect life science researchers who need human biofluids, tissues, and living cells ("biospecimens") for their research, with biospecimens available (but not easily accessible) in healthcare provider organizations worldwide. The iSpecimen Marketplace platform was designed to solve this problem and transform the biospecimen procurement process to accelerate medical discovery. The Company is headquartered in Lexington, Massachusetts and its principal market is North America. The Company operates as one operating and reporting segment.

Basis of Presentation

The Company's financial statements have been prepared in conformity with generally accepted accounting principles in the United States of America ("GAAP"). Any reference in these notes to applicable guidance is meant to refer to the authoritative GAAP as found in the Accounting Standards Codification ("ASC") and Accounting Standards Updates ("ASU") of the Financial Accounting Standards Board ("FASB").

Going Concern Uncertainty and Management's Plan

The Company has recognized recurring losses since inception. As of December 31, 2023, the Company had working capital of $2,189,673, an accumulated deficit of $59,364,812, cash and cash equivalents and short-term investments of $5,005,598, and accounts payable and accrued expenses of $5,466,045. Since inception, the Company has relied upon raising capital and its revenues to finance operations.

The future success of the Company is dependent on its ability to successfully obtain additional working capital and/or to ultimately attain profitable operations. The Company has initiated efforts to decrease its capital and operational expenditures by cutting costs and right sizing the Company through a reduction in workforce. Throughout the year and primarily on September 6, 2023, the Company executed a reduction in workforce, resulting in an estimated reduction in monthly compensation costs of 29% and additional expenditure reductions estimated to be over 50% of monthly expenditures for the remainder of the year, after streamlining operations and rationalizing resources to focus on key market opportunities. As a result, the Company experienced a significant decrease in expenditures during the second half of 2023 compared to the first half of 2023. In addition, the Company plans to add additional customers and suppliers to increase and add additional revenues through its new revenue enhancement projects as well as to reduce and manage expenditures to improve its financial position and fund operations. However, as certain elements of the Company's operating plan are not within the Company's control, the Company is unable to assess their probability of success. The Company may also seek to fund its operations through public equity or debt financing, as well as other sources, but it has not currently identified any specific source of funding except for the At the Market Offering Agreement (the "ATM Agreement") that was subsequently put in place on March 5, 2024 which may allow the Company to issue and sell shares of its common stock, having an aggregate offering price of up to $1,500,000 (the "ATM Shares"), from time to time through the Sales Agent. However, the Company may be unsuccessful in increasing its revenues from its new enhancement projects or contain its operating expenses, or it may be unable to raise additional capital on commercially favorable terms. The Company's failure to generate additional revenues or contain operating costs would have a negative impact on the Company's business, results of operations and financial condition and the Company's ability to continue as a going concern. If the Company does not generate enough revenue to provide an adequate level of working capital, its business plan will be scaled down further.

These conditions raise substantial doubt regarding the Company's ability to continue as a going concern for a period of one year from the date these financial statements are issued. Management's plan to mitigate the conditions that raise substantial doubt includes generating additional revenues through its revenue enhancement projects, deferring certain projects and capital expenditures and eliminating certain future operating expenses for the Company to continue as a going concern. However, there can be no assurance that

the Company will be successful in completing any of these options. As a result, management's plans cannot be considered probable and thus do not alleviate substantial doubt about the Company's ability to continue as a going concern.

The accompanying financial statements have been prepared on a going concern basis, which contemplates the realization of assets and satisfaction of liabilities in the ordinary course of business. The financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might result from the outcome of the uncertainties described above.

Impact of the Current Economy

The Company's financial performance is subject to global economic conditions and their impact on the levels of spending by its customer research organizations, particularly discretionary spending for procurement of specimens used for research. Economic recessions may have adverse consequences across industries, including the health and biospecimen industries, which may adversely affect the Company's business and financial condition. The Company increased its allowance for doubtful accounts in accounts receivables by $289,898 during the year ended December 31, 2023 due to certain boutique life sciences customers either lacking liquidity or having filed for bankruptcy. The Company has enhanced procedures related to its credit check process for new and existing customers in fiscal year 2023 to mitigate the risk to future collectability of receivables.

Changes in general market, economic and political conditions in domestic and foreign economies or financial markets, including fluctuation in stock markets resulting from, among other things, trends in the economy and inflation, as are being currently experienced, may result in a reduction in researchers' demand for specimens due to the research organization's inability to obtain funding.

To further address the current market conditions, the Company has taken steps, that include, but are not limited to, reevaluating its pricing in order to be more competitive, creating campaigns to highlight and fast-track high demand items, enhancing internal team communications to accelerate the sales cycle, moving to a new line of business structure organized by our internal categorization of biospecimen suppliers capabilities to increase efficiency in operations, implementation of next day quotes to increase conversion ratios of quotes to purchase orders, and initiation of efforts to decrease expenditures through reductions in workforce.

The Company believes that its business will continue to be resilient through a continued industry-wide economic slowdown in life science research, and that the Company has and will continue to work on improving liquidity to address its financial obligations and alleviate possible adverse effects on its business, financial condition, results of operations or prospects.

Impact of the Russian-Ukrainian War on the Company's Operations

The Company's business was negatively impacted during the first half of 2022 by the ongoing war between Russia and Ukraine. At the start of the war, the Company had approximately $1 million of purchase orders that were slated to be fulfilled by the Company's supply network in Ukraine and Russia. This supply network was shut down at the start of the war. Ukrainian suppliers were disabled due to war conditions and evacuations and some of the Company's Russian suppliers were disabled by sanctions. While the Company mobilized to shift these purchase orders to other suppliers in the network, the process of specimen collections from other supply sites took time, which caused a delay in the fulfillment of such purchase orders. Alternate suppliers do not have the same favorable unit economics or specimen collection rates, and this also impacted the Company's margins. Additionally, key resources were diverted from operations to resolving the re-fulfillment issues caused by the conflict.

As of December 31, 2023, the Company's supply sites in Russia that had not been under sanctions were accessible and the Company's supply sites in Ukraine were mostly reopened. However, logistics and transportation of specimens out of the country of Ukraine remains challenging and not as economically feasible as they were prior to the beginning of the war. Due to the uncertainty caused by the ongoing war, Ukrainian and Russian suppliers may again become inaccessible to the Company. Therefore, as long as the uncertainty continues, the Company's policy is to ensure at a purchase order level that an order is not solely sourced from the two countries. The short and long term implications of the war are difficult to predict as of the filing date of the Company's Annual Report on Form 10-K in which these financial statements are included (the "Annual Report"). The imposition of more sanctions and counter-sanctions may have an adverse effect on the economic markets generally and could impact the Company's business and the businesses of the Company's supply partners, especially those in Ukraine and Russia. Because of the highly uncertain and dynamic nature of these events, it is not currently possible to estimate the impact of the war on the Company's business and the companies from which the Company obtains supplies and distributes specimens.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Use of Estimates

The preparation of the Company's financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. The Company utilizes certain estimates in the determination of the deferred tax valuation allowances, revenue recognition, stock-based compensation, allowance for doubtful accounts, accrued expenses, and the useful lives of internally developed software and sequenced data. The Company bases its estimates on historical experience and other market-specific or other relevant assumptions that it believes to be reasonable under the circumstances. Actual results could differ from such estimates.

Off-Balance Sheet Risk and Concentrations of Credit Risk

The Company has no significant off-balance sheet risks, such as foreign exchange contracts, option contracts, or other foreign hedging arrangements. As of December 31, 2022, the Company maintained all of its cash with one financial institution which potentially subjected the Company to concentration of credit risk. To reduce this risk, the Company purchased treasury bills at a different financial institution in 2023. As of December 31, 2023, the Company maintained the remainder of its cash, which exceeds the federally insured limits, with a reputable financial institution and accordingly, the Company believes such funds are subject to minimal credit risk.

Concentration of credit risk with respect to accounts receivable is typically related to customers who account for a significant portion of revenue.

During the year ended December 31, 2023, one customer represented 25% of the Company's revenues. As of December 31, 2023, one customer represented approximately 27% of accounts receivable and one customer represented approximately 31% of accounts receivable-unbilled. During 2022, two customers represented 14% and 12% of the Company's revenues, respectively. As of December 31, 2022, one customer represented approximately 15% of accounts receivable and two customers represented approximately 13% and 11% of accounts receivable-unbilled.

During the years ended December 31, 2023 and 2022, revenue attributable to customers located in foreign countries was approximately 11% and 11% of revenue, respectively. As of December 31, 2023 and 2022, accounts receivable attributable to customers located in foreign countries was approximately 31% and 10% of accounts receivable, respectively.

As of December 31, 2023 and 2022, accounts receivable-unbilled attributable to customers located in foreign countries was approximately 20% and 18% of accounts receivable-unbilled, respectively.

Investments

The Company's investments are considered to be available-for-sale as defined under *ASC 320, Investments- Debt Securities,* and are recorded at fair value. Unrealized gains and losses are included in accumulated other comprehensive income. Purchases and sales of securities are reflected on a trade-date basis. Realized gains or losses are released from accumulated other comprehensive income and into earnings on the statement of operations, and amortization of premiums and accretion of discounts on the U.S treasury bills are recorded in interest expense or income, respectively.

The Company continually monitors the difference between its cost basis and the estimated fair value of its investments. The Company's accounting policy for impairment recognition requires other-than-temporary impairment charges to be recorded when it determines that it is more likely than not that it will be unable to collect all amounts due according to the contractual terms of the fixed maturity security or that the anticipated recovery in fair value of the equity security will not occur in a reasonable amount of time. Impairment charges on investments are recorded based on the fair value of the investments at the measurement date or based on the value calculated using a discounted cash flow model. Credit-related impairments on fixed maturity securities that the Company does not plan to sell, and for which it is not more likely than not to be required to sell, are recognized in net income. Any non-credit related impairment is recognized as a component of other comprehensive income. Factors considered in evaluating whether a decline in value is other-than-temporary include: the length of time and the extent to which fair value has been less than cost; the financial condition and near-term prospects of the issuer; its intention to hold the investment; and the likelihood that it will be required to sell the investment.

Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. To increase the comparability of fair value measures, the following hierarchy prioritizes the inputs to valuation methodologies used to measure fair value:

- Level 1 — Valuations based on quoted prices for identical assets and liabilities in active markets.

- Level 2 — Valuations based on observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets and liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data.

- Level 3 — Valuations based on unobservable inputs reflecting our own assumptions, consistent with reasonably available assumptions made by other market participants. These valuations require significant judgment.

For certain financial instruments, including cash and cash equivalents, accounts receivable, and accounts payable, the carrying amounts approximate their fair values as of December 31, 2023 and 2022, respectively because of their short-term nature. Available-for-sale securities are recorded at fair value and as level 1 investments.

Revenue Recognition and Accounts Receivable

The Company recognizes revenue using the five-step approach as follows: (1) identify the contract with the customer, (2) identify the performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price to the performance obligations in the contract and (5) recognize revenue when (or as) the Company satisfies the performance obligations.

The Company generates revenue by procuring various specimens from hospitals, laboratories, and other supply sites, for the Company's medical research customers using the Company's proprietary software, the iSpecimen Marketplace, to identify, locate, and ultimately validate the required specimens to the Company's customers' requested specifications. The Company's performance obligation is to procure a specimen meeting the customer's specification(s) from a supplier, on a "best efforts" basis, for the Company's customer at the agreed price per specimen as indicated in the customer's contract with the Company. The Company does not currently charge suppliers or customers for the use of the Company's proprietary software. Each customer will execute a material and data use agreement with the Company or agrees to online purchase terms, each of which includes terms such as specimen and data use, shipment terms, payment and cancellation terms. These are then supplemented by purchase orders that specify specimen requirements including detailed inclusion/exclusion criteria, quantities to be collected, and pricing. Collectively, these customer agreements represent the Company's contracts with its customer. Generally, contracts have fixed unit pricing. For certain specimen orders, a refundable customer deposit may be required prior to order fulfillment depending on project set-up requirements which is presented as deferred revenue. The Company expects to recognize the deferred revenue within the next twelve months.

Specimen collections occur at supply sites within the Company's network. "Collection" is when the specimen has been removed, or "collected" from the patient or donor. A specimen is often collected specifically for a particular Company order. Once collected, the specimen is assigned by the supplier to the Company and control of the specimen passes to the Company. "Accession" is the process whereby a collected specimen and associated data are registered and assigned in the iSpecimen Marketplace to a particular customer order, which can occur while a specimen is at the supplier site or while at the Company site and it is when control of the specimen passes to the customer. Suppliers may ship specimens to the Company or directly to the customer if specimens must be delivered within a short time period (less than 24 hours after collection) or shipping to the Company is not practical.

The Company has evaluated principal versus agent considerations as part of the Company's revenue recognition policy. The Company has concluded that it acts as principal in the arrangement as it manages the procurement process from beginning to end and determines which suppliers will be used to fulfill an order, usually takes physical possession of the specimens, sets prices for the specimens, and bears the responsibility for customer credit risk.

The Company recognizes revenue over time, as the Company has created an asset with no alternative use to the Company which has an enforceable right to payment for performance completed to date. At contract inception, the Company reviews a contract, and related

order upon receipt, to determine if the specimen ordered has an alternative use by the Company. Generally, specimens ordered do not have an alternative future use to the Company and the performance obligation is satisfied when the related specimens are accessioned. The Company uses an output method to recognize revenue for specimens with no alternative future use. The output is measured based on the number of specimens accessioned. In the rare circumstances where specimens do have an alternative future use, the Company's performance obligation is satisfied at the time of shipment.

Customers are typically invoiced upon shipment. Depending on the quantity of specimens ordered, it may take several accounting periods to completely fulfill a purchase order. In other words, there can be multiple invoices issued for a single purchase order, reflecting the specimens being accessioned over time. However, specimens are generally shipped as soon as possible after they have been accessioned.

Once a specimen that has no alternative future use, and for which the Company has an enforceable right to payment, has been accessioned, the Company records the offset to revenue in accounts receivable - unbilled. Once the specimen has been shipped and invoiced, a reclassification is made from accounts receivable - unbilled to accounts receivable.

Customers are generally given fourteen days from the receipt of specimens to inspect the specimens to ensure compliance with specifications set forth in the purchase order documentation. Customers are entitled to either receive replacement specimens or receive reimbursement of payments made for such specimens. The Company has a nominal history of returns for nonacceptance of specimens delivered. When this has occurred, the Company has given the customer a credit for the returns. The Company has not recorded a returns allowance.

The following table summarizes the Company’s revenue for the years ended December 31:

	Year ended December 31,	
	2023	2022
Specimens - contracts with customers	$ 9,361,721	$ 9,956,582
Shipping and other	566,463	445,721
Revenue	$ 9,928,184	$ 10,402,303

The Company carries its accounts receivable at the invoiced amount less an allowance for doubtful accounts. On a periodic basis, the Company evaluates its accounts receivable to determine if an allowance for doubtful accounts is necessary, based on economic conditions and each customer’s payment history. Receivables are written off when deemed uncollectible, with any future recoveries recorded as income when received. As of December 31, 2023, and 2022, the Company had an allowance for doubtful accounts of $520,897 and $230,999, respectively.

The Company applies the practical expedient to account for shipping and handling activities as fulfillment cost rather than as a separate performance obligation. Shipping and handling costs incurred are included in cost of revenue.

Property and Equipment, net

Property and equipment are stated at cost, net of accumulated depreciation and amortization. When an item is sold or retired, the costs and related accumulated depreciation or amortization are eliminated, and the resulting gain or loss, if any, is credited or charged to income in the statement of operations. The Company provides for depreciation and amortization using the straight-line method over the estimated useful lives of the respective assets. A summary of estimated useful lives is as follows:

Asset category	Estimated Useful Life
Website	3 years
Computer equipment and purchased software	5 years
Equipment	5 years
Furniture and fixtures	5 years
Leasehold improvements	Shorter of useful life of asset or lease term

Major improvements are capitalized while replacement, maintenance and repairs which do not improve or extend the lives of the respective assets are expensed as incurred.

Internally Developed Software, net

The Company capitalizes certain internal and external costs incurred during the application development stage of internal-use software projects until the software is ready for its intended use. Amortization of the asset commences when the software is complete and placed into service and is recorded in operating expenses. The Company amortizes completed internal-use software over its estimated useful life of five years on a straight-line basis. Costs incurred during the planning, training and post-implementation stages of the software development life cycle are classified as technology and are expensed to operations as incurred.

Other Intangible Assets, Net

The Company procures data generated from sequencing of Formalin-Fixed Paraffin-Embedded ("FFPE") blocks from a third-party sequencer which the Company licenses to its customers with the sale of FFPE blocks at an additional cost. The sequenced data is also organized to form a database of research content that is available for sale through a subscription model. The Company determined that the sequenced data is an intangible asset and capitalizes the cost to procure the sequenced data. The sequenced data is amortized to cost of revenue over an estimated useful life of five years on a straight-line basis. The costs paid to the third-party sequencer are the only costs capitalized and all other related costs are expensed to operations as incurred.

Impairment of Long-Lived Assets

Management reviews long-lived assets for impairment when circumstances indicate the carrying amount of an asset may not be recoverable. An impairment loss is recognized when expected cash flows are less than the asset's carrying value. Long-lived assets consist of property and equipment, internal-use software and other intangible assets. No impairment charges were recorded for the years ended December 31, 2023 and 2022.

Cost of Revenue

Cost of revenue primarily consists of the purchase price to acquire specimens from hospitals and laboratories; inbound and outbound shipping costs; supply costs related to samples; payment processing and related transaction costs; costs paid to the supply sites to support sample collections; amortization of capitalized sequenced data costs and other assets related to sequenced data. Shipping costs upon receipt of products from suppliers are recognized in cost of revenue. For the year ended December 31, 2023, the Company acquired approximately 13% of specimens from one supplier. For the year ended December 31, 2022, the Company acquired approximately 12% of specimens from one supplier.

Technology

Technology costs include consulting fees; payroll and related expenses for employees involved in the development and implementation of iSpecimen's technology; software license and system maintenance fees; outsourced data center costs; data management costs; depreciation of property and equipment and amortization of internally developed software; and other expenses necessary to support technology initiatives. Collectively, these costs reflect the investments the Company makes in order to offer a wide variety of products and services to customers. Technology and data costs are generally expensed as incurred.

A portion of technology costs are related to research and development. Costs incurred for research and development are expensed as incurred, except for software development costs that are eligible for capitalization. Research and development costs primarily include salaries and related expenses, in addition to the cost of external service providers. For the years ended December 31, 2023 and 2022, research and development costs totaled $1,618,833 and $1,473,520, respectively.

Sales and Marketing

Sales and marketing costs primarily consist of payroll and related expenses for personnel engaged in marketing and selling activities, including salaries and sales commissions; travel expenses; public relations and social media costs; ispecimen.com website development and maintenance costs; search engine optimization fees; advertising costs; direct marketing costs; trade shows and events fees; marketing and customer relationship management software; and other marketing-related costs. Advertising expenses consist primarily of marketing, public relations, and promotional materials. Advertising costs are expensed as incurred and totaled $219,033 and $188,026 for the years ended December 31, 2023 and 2022, respectively.

Supply Development

The Company has agreements with supply partners that allow the Company to procure specimens from them and distribute these samples to customers. Supply development costs primarily include payroll and related expenses for personnel engaged in the development and management of this supply network; related travel expenses; regulatory compliance costs to support the network; and other supply development and management costs.

Fulfillment

Fulfillment costs primarily consist of those costs incurred in operating and staffing operations and customer service teams, including costs attributable to assess the feasibility of specimen requests; creating and managing orders; picking, packaging, and preparing customer orders for shipment; responding to inquiries from customers; and laboratory equipment and supplies.

General and Administrative

General and administrative expenses primarily consist of costs for corporate functions, including payroll and related expenses for human resources, legal, finance, and executive teams; associated software licenses; facilities and equipment expenses, such as depreciation and amortization expense and rent, outside legal expenses, insurance costs, and other general and administrative costs.

Stock-Based Compensation

The Company records stock-based compensation for options granted to employees, non-employees, and to members of the board of directors for their services to the Company based on the grant date fair value of awards issued, and the expense is recorded on a straight-line basis over the requisite service period. Forfeitures are recognized when they occur.

The Company uses the Black-Scholes-Merton option pricing model to determine the fair value of stock options. The use of the Black-Scholes-Merton option pricing model requires management to make assumptions with respect to the expected term of the option, the expected volatility of the common stock consistent with the expected life of the option, risk-free interest rates and expected dividend yields of the common stock. The Company has concluded that its historical share option exercise experience does not provide a reasonable basis upon which to estimate expected term. Therefore, the expected term was determined according to the simplified method, which is the average of the vesting tranche dates and the contractual term. Due to the lack of Company-specific historical and implied volatility data, the estimate of expected volatility is primarily based on the historical volatility of a group of similar companies that are publicly traded. For these analyses, companies with comparable characteristics are selected, including enterprise value and position within the industry, and with historical share price information sufficient to meet the expected life of the stock-based awards. The Company computes the historical volatility data using the daily closing prices for the selected companies' shares during the equivalent period of the calculated expected term of its stock-based awards.

The risk-free interest rate is determined by reference to U.S. Treasury zero-coupon issues with remaining maturities similar to the expected term of the options. The Company has not paid, and does not anticipate paying, cash dividends on shares of its common stock.

The fair value of the Company's common stock is equal to the closing price on the specified grant date.

Restricted Stock Units ("RSUs")

The Company recognizes stock-based compensation expense from RSUs ratably over the specified vesting period. The fair value of the RSUs is determined to be the closing share price of the Company's common stock on the grant date.

Common Stock Warrants

The Company accounts for common stock warrants as either equity instruments or liabilities, depending on the specific terms of the warrant agreement. The warrants shall be classified as a liability if (1) the underlying shares are classified as liabilities or (2) the entity can be required under any circumstances to settle the warrant by transferring cash or other assets. The measurement of equity-classified nonemployee stock-based payments is generally fixed on the grant date and are considered compensatory. For additional discussion on warrants, see Note 10.

Income Taxes

The Company provides for income taxes using the asset and liability method. The Company provides deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the Company's financial statement carrying amounts and the tax bases of assets and liabilities using enacted tax rates expected to be in effect in the years in which the differences are expected to reverse. A valuation allowance is provided to reduce the deferred tax assets to the amount that will more likely than not be realized.

The Company does not have any material uncertain tax positions for which reserves would be required. The Company will recognize interest and penalties related to uncertain tax positions, if any, in income tax expense.

Net Loss Per Share

Basic net loss per share is calculated by dividing net loss applicable to common stockholders by the weighted-average number of shares outstanding during the period, without consideration for common stock equivalents. Diluted net loss per share is calculated by adjusting the weighted-average number of shares outstanding for the dilutive effect of common stock equivalents outstanding for the period, determined using the treasury-stock method. Therefore, basic and diluted net loss per share applicable to common stockholders were the same for all periods presented.

The table below provides total shares outstanding, as of December 31:

	2023	2022
Shares issuable upon vesting of RSUs	116,357	267,505
Shares issuable upon exercise of stock options	296,268	297,559
Shares issuable upon exercise of PIPE Warrant (defined below) to purchase common stock	1,312,500	1,312,500
Shares issuable upon exercise of Lender Warrant (defined below) to purchase common stock	12,500	12,500
Shares issuable upon exercise of Underwriter Warrant (defined below) to purchase common stock	90,000	90,000

Recently Adopted Accounting Standards

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies and are adopted by the Company as of the specified effective date. Unless otherwise discussed, the Company believes that the impact of recently issued standards that are not yet effective will not have a material impact on its financial position or results of operations upon adoption.

The Company qualifies as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended (the "JOBS Act"). The JOBS Act permits an emerging growth company such as the Company to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies until those standards would otherwise apply to private companies. The Company has elected not to "opt out" of such extended transition period, which means that when a standard is issued or revised and it has different application dates for public or private companies, the Company will adopt the new or revised standard at the time private companies adopt the new or revised standard and will do so until such time that the Company either (i) irrevocably elect to "opt out" of such extended transition period or (ii) no longer qualify as an emerging growth company.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments — Credit Losses* (Topic 326): *Measurement of Credit Losses on Financial Instruments*, which changes the impairment model for most financial assets and certain other instruments. For receivables, loans and other instruments, entities will be required to use a new forward-looking "expected loss" model that generally will result in the earlier recognition of allowance for losses. In addition, an entity will have to disclose significantly more information about allowances and credit quality indicators. The new standard is effective for the Company for fiscal years beginning after December 15, 2022. The Company adopted this new standard as of January 1, 2023. ASU 2016-13 did not have a material impact on the Company's financial statements.

Accounting Standards Issued, Not Yet Adopted

In August 2020, the FASB issued ASU No. 2020-06, *Accounting for Convertible Instruments and Contracts in an Entity's Own Equity* ("ASU 2020-06"), which simplifies an issuer's accounting for convertible instruments by reducing the number of accounting models that require separate accounting for embedded conversion features. ASU 2020-06 also simplifies the settlement assessment that entities

are required to perform to determine whether a contract qualifies for equity classification and makes targeted improvements to the disclosures for convertible instruments and earnings-per-share (EPS) guidance. This update will be effective for the Company's fiscal years beginning after December 15, 2023, and interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020, and interim periods within those fiscal years. Entities can elect to adopt the new guidance through either a modified retrospective method of transition or a fully retrospective method of transition. The Company is currently evaluating the impact of the pending adoption of the new standard on its financial statements and intends to adopt the standard as of January 1, 2024.

3. AVAILABLE-FOR-SALE SECURITIES

The Company purchased U.S. Treasury bills during the year ended December 31, 2023 and has classified them as available-for-sale securities. The amortized cost, gross unrealized gains and losses, and fair value for available-for-sale securities as of December 31, 2023 are as follows:

	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value
Available-for-sale securities:				
U.S. Treasury Bills	$ 2,661,092	$ 36,138	$ (35,298)	$ 2,661,932
Total Available-for-sale securities	$ 2,661,092	$ 36,138	$ (35,298)	$ 2,661,932

The Company did not have any realized gains or losses for the year ended December 31, 2023. Maturities of the U.S. Treasury bills are all due within the current fiscal year. Marketable securities in an unrealized loss position as of December 31, 2023 were not deemed impaired at acquisition and subsequent declines in fair value are not deemed attributed to declines in credit quality. The Company believes that it is more likely than not that it will receive a full recovery of par value on the securities, although there can be no assurance that such recovery will occur. There were no available-for-sale securities as of December 31, 2022.

4. PROPERTY AND EQUIPMENT, NET

Property and equipment, net consisted of the following at December 31:

	2023	2022
Website	$ 285,377	$ 285,377
Computer equipment and purchased software	96,037	84,589
Equipment	35,449	35,449
Furniture and fixtures	87,184	87,184
Leasehold improvements	68,471	60,441
Total property and equipment	572,518	553,040
Accumulated depreciation	(444,731)	(327,188)
Total property and equipment, net	$ 127,787	$ 225,852

Depreciation expense for property and equipment was $117,543 and $22,433 for the years ended December 31, 2023 and 2022, respectively.

5. INTERNALLY DEVELOPED SOFTWARE, NET

During the years ended December 31, 2023 and 2022, the Company capitalized $3,767,332 and $2,975,686, respectively, of internally developed software costs in connection with the development and continued enhancement of the technology platform and web interfaces. Capitalized costs primarily consist of payroll and payroll-related costs for the Company's employees. The Company recognized $1,948,085 and $1,182,766 of amortization expense associated with capitalized internally developed software costs during the years ended December 31, 2023 and 2022, respectively. Accumulated amortization associated with capitalized internally developed software costs as of December 31, 2023 and 2022 was $6,964,755 and $5,016,670, respectively.

6. OTHER INTANGIBLE ASSETS, NET

During the year ended December 31, 2023, the Company $957,775 capitalized of sequenced data procured from a third-party sequencer as other intangible assets. The sequenced data is generated from sequencing of FFPE blocks. The Company licenses to its customers, at an additional cost, the sequenced data associated with the sequenced FFPE blocks with the sale of said FFPE blocks. The sequenced data is also organized to form a database of research content that is available for sale to the Company's customers through a subscription model. The Company recognized $49,520 of amortization expense associated with the capitalized sequenced data during the year ended December 31, 2023. Accumulated amortization associated with the capitalized sequenced data as of December 31, 2023 was $49,520.

7. SEVERANCE

Dr. Christopher Ianelli

On September 19, 2022, the Company received a notice of departure from Dr. Christopher Ianelli to vacate his position of Chief Executive Officer and President of the Company, effective as of October 24, 2022 (the "Ianelli Separation Date"), as a result of the non-renewal of his Executive Employment Agreement dated June 21, 2021. Dr. Ianelli continued to serve on the Company's board of directors until his resignation on July 7, 2023.

The Company entered into a Separation Agreement with Dr. Ianelli, dated October 24, 2022 (the "Ianelli Separation Agreement"). Pursuant to the Ianelli Separation Agreement, the Company shall pay severance equal to 12 months of base salary in effect as of the Ianelli Separation Date in the amount of $350,000. The severance payments shall be paid in equal installments commencing on the Company's first regular payroll date after the Ianelli Separation Date and ending on the 12-month anniversary of the Ianelli Separation Date. In the year ended December 31, 2022, the Company recognized a severance expense and corresponding liability in the amount of $376,400 for Dr. Ianelli's severance payment and COBRA benefits.

On January 1, 2023, the Company accrued an additional $23,580 in severance expense and liability which represents the employer's portion of the applicable taxes on the remaining severance payments. The severance and related payroll taxes was fully paid in October 2023. As of December 31, 2023, the balance of the COBRA benefits which is expected to be fully paid by April 2024 was $7,462 and is recorded on the balance sheet.

Jill Mullan

On September 20, 2022, the Company received a notice of departure from Jill Mullan to vacate the position of Chief Operating Officer of the Company, effective as of October 24, 2022. At the time the notice of departure was received from Ms. Mullan, she had received an executive employment agreement for the renewal of her employment with the Company. Ms. Mullan continued to serve on the Company's board of directors until May 24, 2023, the end of the term of her directorship.

The Company and Ms. Mullan executed a separation agreement on October 28, 2022 with an effective date of October 24, 2022. The Company recognized $325,000 in severance expense for Ms. Mullan on November 4, 2022, the date on which her separation agreement revocation period expired. The severance expense is recorded within general and administrative expense on the statement of operations and the corresponding liability is recorded in accrued liabilities on the balance sheet.

On January 1, 2023, the Company accrued an additional $21,896 in severance expense and liability which represents the employer's portion of the applicable taxes on the remaining severance payments. The balance of the severance and employer taxes liabilities was fully paid in October 2023.

8. FAIR VALUE MEASUREMENTS

The following table sets forth the Company's assets to be measured at fair value on a recurring basis and their respective classification within the fair value hierarchy as of December 31, 2023:

	Fair Value at December 31, 2023			
	Total	Level 1	Level 2	Level 3
Assets:				
Available-for-sale securities	$ 2,661,932	$ 2,661,932	$ —	$ —
Total Assets	$ 2,661,932	$ 2,661,932	$ —	$ —

As of December 31, 2023, the Company did not have any liabilities measured at fair value on a recurring basis.

9. COMMITMENTS AND CONTINGENCIES

Leases

The Company has one operating lease of office space in Lexington, Massachusetts, which was initially set to expire on February 28, 2024. The lease was renewed on September 27, 2023 to extend the lease term for a period of 12 months from February 29, 2024 through February 28, 2025. The lease renewal includes an option to terminate the lease before its expiration date if notice is provided to the lessor by June 30, 2024.

Leases with an initial term of twelve months or less are not recorded on the balance sheet date, and the Company does not separate lease and non-lease components of contracts. There are no material residual guarantees associated with any of the Company's leases, and there are no significant restrictions or covenants included in the Company's lease agreements.

The Company's lease agreement does not provide an implicit borrowing rate. Therefore, the Company used a benchmark approach to derive an appropriate imputed discount rate. The Company benchmarked itself against other companies of similar credit ratings and comparable quality and derived an imputed rate, which was used to discount its real estate lease liabilities.

There was no sublease rental income for the year ended December 31, 2023, and the Company is not the lessor in any lease arrangement, and there were no related-party lease agreements.

Lease Costs

The table below presents certain information related to the lease costs for the Company's operating lease for year ended December 31, 2023:

Operating lease expense	$ 166,486
Short-term lease expense	2,500
Total lease cost	$ 168,986

Lease Position as of December 31, 2023

Right-of-use lease assets and lease liabilities for the Company's operating lease were recorded in the balance sheet as follows:

Assets		
Operating lease right-of-use assets	$	193,857
Total lease assets	$	193,857
Liabilities		
Current liabilities:		
Operating lease liability – current portion	$	167,114
Non-current liabilities:		
Operating lease liability – net of current portion		29,130
Total lease liability	$	196,244

Lease Terms and Discount Rate

The table below presents certain information related to the weighted average remaining lease term and the weighted average discount rate for the Company's operating lease as of December 31, 2023:

Weighted average remaining lease term (in years) – operating lease	1.17
Weighted average discount rate – operating lease	5.96%

Undiscounted Cash Flows

Future lease payments included in the measurement of lease liabilities on the balance sheet are as follows:

2024	$	174,338
2025		29,348
Total future minimum lease payments		203,686
Less effect of discounting		(7,442)
Present value of future minimum lease payments	$	196,244

Rent expense for the years ended December 31, 2023 and 2022 amounted to $168,986 and $176,336, respectively.

Cash Flows

Supplemental cash flow information related to operating lease for the year ended December 31, 2023 was as follows:

Non-cash operating lease expense (operating cash flow)	$	157,192
Change in operating lease liabilities (operating cash flow)	$	(155,960)
Supplemental non-cash amounts of operating lease liabilities arising from obtaining right-of-use assets	$	166,357

Sales Tax Payable

The majority of the Company's customers are researchers, universities, hospitals, and not-for-profit entities that are believed by the Company to have a sales and use tax exemption that generally excludes them from paying sales taxes. The main types of specimens the Company sells are blood, blood plasma, human tissue, human parts, and human bodily fluids and only a few of these products are typically not taxable in some states regardless of the buyer's tax exemption status. The Company historically has not collected sales tax in states where it had sales. Had the Company contemporaneously collected and remitted sales tax for all customers and in all jurisdictions where it would have been required, there would have been no material impact on the Company's audited financial statements.

As a result of an entity-wide risk assessment process that commenced in the second quarter of 2023, the Company engaged external tax consultant advisors to complement internal resources and efforts to provide support in assessing the appropriate sales tax treatment associated with the Company's products for all prior years in which the Company had generated revenue, to assist with the facilitation and tracking of Voluntary Disclosure Agreements ("VDAs") in jurisdictions where a potential tax liability may exist and to assist with the implementation of a sales tax software platform solution for the calculation, communication, collection, and remittance of sales tax for all non-exempt future sales.

From the Company's inception through the filing date of this Annual Report, the Company now believes that an obligation to collect and remit sales tax existed for certain of its sales of products to certain of its customers. The Company has analyzed its product sales, on an invoice-by-invoice and customer-by-customer basis, to determine which products are subject to sales tax in each jurisdiction, and determining which of its customers are exempt from sales tax, and which customers who were not exempt from sales tax have already paid compensating use tax to the appropriate jurisdiction. Part of this process includes requesting and obtaining exemption letters or representations from its customers or proof of payment of their compensating use tax. As the Company continues to make progress on this project, certain customers have notified the Company that they are not exempt from the payment of sales tax and have not remitted use tax and the Company has started to invoice such customers for past sales tax due.

As of December 31, 2023, the Company has established and accrued a reliable point estimate with a maximum potential of the sales tax liability of approximately $707,000 and the related interests and penalties of approximately $215,000 in Accrued expenses on the Balance Sheet. The estimated liability represents the estimated tax liability for sales made to customers who have notified the Company that they are not exempt from sales taxes and customers who have not responded to Company's request to provide a sales exemption letter. As of December 31, 2023, the Company has also recovered approximately $359,000 of prior taxes from certain customers who do not have a sales tax exemption. The Company continues to pursue those non responsive customers and expects over time that further exemption letters or representations will be received that will reduce the lability. During the year ended December 31, 2023, the Company recognized a loss of approximately $564,000 in its Statement of Operations and Comprehensive Loss related to the sales tax liability. The Company is in the process of commencing its VDA filings with relevant taxing jurisdictions regarding its noncompliance, during which it will remit its sales tax obligations.

Legal Proceedings

From time to time the Company is involved in litigation, claims, and other proceedings arising in the ordinary course of business. Such litigation and other proceedings may include, but are not limited to, actions relating to employment law and misclassification, intellectual property, commercial or contractual claims, or other consumer protection statutes. Litigation and other disputes are inherently unpredictable and subject to substantial uncertainties and unfavorable resolutions could occur. As of December 31, 2023, there was no material litigation against the Company.

10. STOCKHOLDERS' EQUITY

Pursuant to the Company's fourth amended and restated certificate of incorporation dated June 17, 2021, the Company's authorized capital is 250,000,000 shares, of which (1) 200,000,000 shares are common stock, par value $0.0001 per share and (2) 50,000,000 are preferred stock, par value $0.0001 per share, which may, at the sole discretion of the Company's board of directors be issued in one or more series.

Common Stock

During the year ended December 31, 2022, the Company issued 1,000 shares of common stock in exchange for investor relations services. The shares of common stock had a fair value of $6.25 per share for a total aggregate value of $6,250.

During the years ended December 31, 2023 and 2022, the Company issued 70,889 and 81,043 shares of common stock for cash exercises of options totaling $70,889 and $78,641, respectively.

Warrants

Underwriter Warrants

In connection with the Company's underwriting agreement with ThinkEquity, a division of Fordham Financial Management, Inc. and the representative of the Company's IPO underwriters, the Company entered into a warrant agreement to purchase up to 90,000 shares of common stock, par value $0.0001 (the "Underwriter Warrant"). The Underwriter Warrant is exercisable at a per share exercise price of $10.00 and is exercisable at any time and from time to time, in whole or in part, during the four and one-half year period commencing 180 days from the effective date of the registration statement. The Warrant became exercisable on or after December 16, 2021 (six months from the effective date of the offering) and expires on June 15, 2026. Upon issuance of these warrants, as partial compensation for its services as an underwriter, the fair value of approximately $0.4 million was recorded as equity issuance costs in period ended December 31, 2021. As of December 31, 2023, the Underwriter Warrant had not been exercised, and had a weighted average exercise price of $10 per share and a remaining weighted average time to expiration of 2.46 years.

Lender Warrant

In connection with the Term Loan entered into on August 13, 2021, the Company issued a Lender Warrant to Lender to purchase 12,500 shares of common stock of the Company. The Lender Warrant is exercisable at a per share exercise price of $8.00 and is exercisable at any time on or after August 13, 2021 through August 12, 2031. The Company determined that the Lender Warrant was equity-classified. As of December 31, 2023, the Lender Warrant had not been exercised, and had a weighted average exercise price of $8 per share and a remaining weighted average time to expiration of 7.62 years.

PIPE Warrants

On December 1, 2021, the Company completed a private placement (the "PIPE") in which the Company issued warrants (the "PIPE Warrants") to purchase up to an aggregate of 1,312,500 shares of common stock. These PIPE Warrants have an exercise price of $13.00 per share and are immediately exercisable upon issuance and will expire on the five and one-half-year anniversary of the issuance date. As of December 31, 2023, the PIPE Warrants had not been exercised, and had a weighted average exercise price of $13 per share and a remaining weighted average time to expiration of 3.50 years.

A summary of total warrant activity during the years ended December 31, 2023 and 2022 is as follows:

	Warrants Outstanding	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term in Years
Balance at December 31, 2021	1,415,000	$ 9.76	5.34
Granted	—	—	—
Exercised	—	—	—
Cancelled/forfeited	—	—	—
Balance at December 31, 2022	1,415,000	$ 12.77	4.47
Granted	—	—	—
Exercised	—	—	—
Cancelled/forfeited	—	—	—
Balance at December 31, 2023	1,415,000	$ 12.77	3.47

11. STOCK-BASED COMPENSATION

Stock Incentive Plans

2021 Plan

In March 2021, the Company adopted the iSpecimen Inc. 2021 Stock Incentive Plan, which was subsequently amended in June 2021 and then on May 25, 2022 (the "2021 Plan"). The 2021 Plan was adopted to enhance the Company's ability to attract, retain and motivate employees, officers, directors, consultants, and advisors by providing such persons with equity ownership opportunities and performance-based incentives. The 2021 Plan authorizes options, restricted stock, RSUs and other stock-based awards. The Company's board of directors, or any committee to which the board of directors delegates such authority, has the sole discretion in administering, interpreting, amending, or accelerating the 2021 Plan. Awards may be made under the 2021 Plan for up to 608,000 shares of the Company's common stock, and the 2021 Plan was made effective with the completion of the IPO.

On May 24, 2023, at the Company's annual meeting of stockholders, the stockholders approved an amendment to the 2021 Plan to increase the number of shares under the 2021 Plan from 608,000 shares of common stock to 1,869,500 shares of common stock.

During the years ended December 31, 2023 and 2022, 182,919 and 187,569 equity awards were granted under the 2021 Plan, respectively. As of December 31, 2023, there were 1,363,464 shares of common stock available for future grants under the 2021 Plan.

2013 Plan

The iSpecimen Inc. 2013 Stock Incentive Plan (the "2013 Plan") was adopted on April 12, 2013 and subsequently amended on July 29, 2015. The aggregate number of shares of common stock that may be issued pursuant to the 2013 Plan was 1,713,570.

During the year ended December 31, 2022, 122,485 equity awards were granted under the 2013 Plan. No equity awards were granted under the 2013 Plan during the year ended December 31, 2023. According to the 2013 Plan, which was adopted by the Company's board of directors on April 12, 2013, no awards shall be granted under the 2013 Plan after the completion of ten years from the date on which the 2013 Plan was adopted by the Company's board of directors. Therefore, as of April 13, 2023, no further shares had been granted under the 2013 Plan.

Stock Options

During the year ended December 31, 2023 and 2022, the Company granted 182,172 and 131,668 stock options, respectively. The following assumptions were used to estimate the fair value of stock options granted using the Black-Scholes-Merton option pricing model during the years ended December 31:

	2023	2022
Assumptions:		
Risk-free interest rate	3.75% – 4.52%	4.27% – 4.76%
Expected term (in years)	0.61 – 4.00	1.09 – 3.64
Expected volatility	59.17% –59.95%	59.97%
Expected dividend yield	—	—

A summary of stock option activity under the 2021 and 2013 Plans is as follows:

	Options Outstanding	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term in Years	Aggregate Intrinsic Value
Balance at December 31, 2021	255,147	$ 2.32	7.75	$ 1,550,409
Granted	131,668	1.60	—	35,725
Exercised	(81,043)	1.00	—	216,626
Cancelled/forfeited	(8,213)	1.18	—	—
Balance at December 31, 2022	297,559	$ 2.69	6.96	$ 63,237
Granted	182,172	1.38	—	—
Exercised	(70,889)	1.00	—	48,494
Cancelled/forfeited	(112,574)	2.63	—	—
Balance at December 31, 2023	296,268	$ 2.17	8.53	$ —
Options exercisable at December 31, 2023	142,910	$ 2.61	8.05	$ —

The aggregate intrinsic value in the table above represents the difference between the Company's stock price as of the balance sheet date and the exercise price of each in-the-money option on the last day of the period. The aggregate intrinsic value of stock options exercised was approximately $48,494 and $216,626 during the years ended December 31, 2023 and 2022, respectively.

The weighted-average grant date fair value of stock options issued in the years ended December 31, 2023 and 2022 was $0.53 and $0.76, respectively. The following table sets forth the recorded stock options compensation expense of the Company during the years ended December 31:

Operating expenses:	2023	2022
Technology	$ 7,638	$ 8,900
Sales and marketing	2,640	3,915
Supply development	973	982
Fulfillment	2,781	2,442
General and administrative	101,123	63,265
Total stock options expense	$ 115,155	$ 79,504

As of December 31, 2023 and 2022, a total of $110,375 and $233,004 of unamortized compensation expense is being recognized over the remaining requisite service period of 2.72 years and 2.3 years, respectively.

During the years ended December 31, 2023 and 2022, the Company received proceeds of $70,889 and $78,641 from the exercise of stock options, respectively.

Restricted Stock Units

A summary of RSUs activity under the 2021 Plan and 2013 Plan is as follows:

	RSUs Outstanding	Weighted Average Grant Date Fair Value
Unvested Balane at December 31, 2021	279,720	$ 6.78
Granted	178,386	4.15
Vested	(110,286)	6.41
Forfeited	(80,315)	5.90
Unvested Balance at December 31, 2022	267,505	$ 5.43
Granted	747	1.62
Vested	(86,674)	5.38
Forfeited	(65,221)	5.00
Unvested Balance at December 31, 2023	116,357	$ 5.67

The Company recorded RSUs compensation expense during the year ended December 31, 2023 and 2022 as follows:

Operating expenses:	2023	2022
Technology	$ 134,126	$ 122,863
Sales and marketing	63,750	89,765
Supply development	6,035	33,677
Fulfillment	52,591	81,508
General and administrative	88,009	271,296
Total RSU expense	$ 344,511	$ 599,109

As of December 31, 2023 and 2022, the total unrecognized stock-based compensation expense related to unvested RSUs was $591,953 and $1,259,507, respectively, and it is expected to be recognized on a straight-line basis over a weighted average period of approximately 1.86 years and 2.87 years, respectively.

12. INCOME TAXES

There was no provision for income taxes for the years ended December 31, 2023 and 2022 due to the Company's operating losses and a full valuation allowance on deferred tax assets.

The Company completed research and development studies covering all tax years currently under the applicable statute of limitations. A tax method change was adopted for the year ended December 31, 2022, requiring amortization of research and experimentation expenses under Section 174. Management has reviewed its impact and has determined that any effect of the Company's financials would be immaterial.

Significant components of the Company's deferred tax assets and liabilities as of December 31 are as follows:

	2023	2022
Deferred tax assets:		
Operating loss carryforwards	$ 12,630,800	$ 10,164,000
Research and development tax credit	2,058,300	1,095,000
Other	749,000	542,000
Total deferred tax assets	15,438,100	11,801,000
Deferred tax liability:		
Other	(52,400)	(50,400)
Intangibles	(224,500)	(357,600)
Total deferred tax liabilities	(276,900)	(408,000)
Net deferred tax assets before valuation allowance	15,161,200	11,393,000
Valuation allowance	(15,161,200)	(11,393,000)
Net deferred tax asset	$ —	$ —

The Company has provided a valuation allowance against the deferred tax assets as it has incurred significant losses since its inception. Management currently believes that it is more likely than not that the deferred tax assets will not be realized in the future. The change in the valuation allowance during 2023 was an increase of $3,768,200.

At December 31, 2023, the Company had federal net operating loss ("NOL") carryforwards of approximately $50,800,000 of which approximately $13,000,000 expire at various periods through 2037 and approximately $37,800,000 can be carried forward indefinitely. The Company also had state NOL carryforwards of approximately $31,100,000 that expire at various periods through 2043. At December 31, 2023, the Company had federal and state tax credits of approximately $2,058,300 available for future periods that expire at various periods through 2043. Due to changes in ownership provisions of the Internal Revenue Code, the availability of the Company's NOL carryforwards may be subject to annual limitations under Section 382 of the Internal Revenue Code against taxable income in the future period, which could substantially limit the eventual utilization of such carryforwards.

The Company applies the standards on uncertainty in income taxes. The Company did not have any significant unrecognized tax benefits during the year ended December 31, 2023. The Company's U.S. federal operating losses have occurred since its inception and as such, tax years subject to potential tax examination could apply from that date because the utilization of net operating losses from prior years opens the relevant year to audit by the IRS and/or state taxing authorities.

The Company's income tax provision was computed using the federal statutory rate and average state statutory rates, net of related federal benefit. The following represents a reconciliation of the statutory income tax rates to the effective rates at December 31:

	2023	2022
Reconciliation to statutory rates		
Expected federal income taxes benefit at statutory rates	(21.0)%	(21.0)%
Expected state tax benefit at statutory rates, net of federal benefit	(6.4)	(6.3)
Change in valuation allowance	27.4	27.3
Income tax expense (benefit)	— %	— %

13. EMPLOYEE BENEFITS PLAN

The Company has established a defined contribution savings plan under Section 401(k) of the Internal Revenue Code (the "401(k) Plan"). The 401(k) Plan is available to all eligible employees. The 401(k) Plan allows participants to defer a portion of their annual compensation subject to certain Internal Revenue Service limitations. The Company may make matching contributions and additional profit-sharing contributions at its discretion. During the years ended December 31, 2023 and 2022, the Company made a matching contribution to the 401(k) Plan in amount of $48,772 and $0, respectively.

14. SUBSEQUENT EVENTS

PIPE Warrants

On February 13, 2024, the Company entered into certain warrant repurchase and termination agreements (the "Repurchase Agreements") with the holders of the PIPE Warrants to repurchase an aggregate of 1,312,500 shares of Common Stock exercisable under the PIPE Warrants. In connection with such repurchases all past, current and future obligations of the Company relating to the PIPE Warrants were released, discharged and are of no further force or effect.

At the Market Offering

On March 5, 2024, the Company entered into an At the Market Offering Agreement (the "ATM Agreement") with Rodman & Renshaw LLC as agent (the "Sales Agent") pursuant to which the Company may issue and sell shares of its common stock, having an aggregate offering price of up to $1,500,000 (the "ATM Shares"), from time to time through the Sales Agent. The ATM Shares when issued will be registered pursuant to the Company's "shelf" registration statement on Form S-3 (File No 333-265976), which became effective on July 12, 2022. The Company intends to sell Shares, from time to time, pursuant to the ATM Agreement, in transactions that are "at the market offerings" as defined in Rule 415(a)(4) promulgated under the Securities Act.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Disclosure controls and procedures are designed to ensure that information required to be disclosed by us in our Exchange Act reports is recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our disclosure controls and procedures as of December 31, 2023, as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act. These controls and procedures are designed to provide reasonable assurance that the information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms and that such information is accumulated and communicated to our management, including our principal executive officer and principal financial and accounting officer, in a manner to allow timely decisions regarding required disclosures. Based on this evaluation, management has concluded that our disclosure controls and procedures were not effective as of December 31, 2023 due to a material weakness in internal control over financial reporting. We discuss this material weakness and the steps we have taken to remedy such weakness in our discussion of internal control over financial reporting below.

Management's Annual Report on Internal Control Over Financial Reporting

Our management, with the participation of our principal executive officer and our principal financial officer, is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our management conducted an assessment of the effectiveness of our internal control over financial reporting based on the criteria set forth in "Internal Control–Integrated Framework (2013)" issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, management concluded that our internal control over financial reporting was not effective as of December 31, 2023 due to the following material weakness in internal control over financial reporting:

- The Company did not design and maintain adequate controls to maintain appropriate documentation for the tax exempt status of its customers, calculate and collect sales tax at point of sale, and subsequently report and remit in a timely manner to the relevant tax jurisdictions sales tax obligations.

Notwithstanding the existence of the material weakness described above, management believes that the audited financial statements included in this Annual Report fairly present, in all material respects, our financial position, results of operations and cash flows as of and for the periods presented, in conformity with GAAP.

Management's Plan for Remediation

The material weakness described above was identified as a result of an entity-wide risk assessment process that commenced in the quarter ended June 30, 2023. The Company is in the process of implementing a remediation plan to improve our internal control over financial reporting and to remediate the related control deficiencies that led to the material weakness. In response to these deficiencies, management, with the oversight of the Audit Committee of the Board of Directors, has identified and implemented steps to remediate the material weakness.

The Company began implementing the remediation plan during the second quarter of fiscal year 2023 and this remediation is ongoing as of the date of this Annual Report. The following remedial measures are designed to address the material weakness and to continue to improve our internal control over financial reporting.

- We have engaged external tax advisors to complement internal resources and efforts and provide support in assessing the appropriate sales tax treatment associated with the Company's products for all prior years in which the Company had generated revenue.

- We have begun obtaining sales tax exemption letters, representation letters or proof of payments of compensating use tax from our customers and we have started a collection effort of these sales taxes from certain customers who have notified the Company that they do not have a sales tax exemption letter.

- We have begun implementing a sales tax software platform solution for the calculation, collection, and remittance of sales tax for all non-exempt future sales, and assisting with the collection and tracking of Voluntary Disclosure Agreements received from states where a potential sales tax liability may exist.

- We have begun designing and implementing enhanced policies, procedures and controls related to the calculation, communication, collection, and remittance of sales tax to relevant jurisdictions.

- We have begun training appropriate personnel in the effective design and execution of our enhanced policies, procedures, and controls, including the importance of the ongoing, consistent effective execution of such procedures and controls.

We are committed to the remediation of the material weakness and expect to successfully implement enhanced control processes. However, as we continue to evaluate, and work to improve our internal control over financial reporting, management may determine that additional measures to address control deficiencies or modifications to the remediation plan are necessary. Therefore, we cannot assure you when we will be able to fully remediate such weakness, nor can we be certain that additional actions will not be required or what the costs may be of any such additional actions. Moreover, we cannot assure you that additional material weaknesses will not arise in the future.

Changes in Internal Control Over Financial Reporting

We are in the process of implementing certain changes to our internal controls to remediate the material weakness described above. Except as noted above, there were no changes in the Company's internal control over financial reporting during the fourth quarter of the year ended December 31, 2023 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B. Other Information

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not Applicable.

Part III

Item 10. Directors, Executive Officers, and Corporate Governance

The following is a list of our directors and executive officers as of March 13, 2024, along with the specific information required by Rule 14a-3 of the Exchange Act:

Name	Age	Position
Tracy Curley	62	Chief Executive Office, Chief Financial Officer, Treasurer and Director
Benjamin Bielak	55	Chief Information Officer and Secretary
Andrew L. Ross	75	Director and Chairman of the Board
Steven Gullans	71	Director
John L. Brooks III	73	Director
Theresa Mock	60	Director

Tracy Curley has been serving as our Chief Executive Officer, since January 2023, our Chief Financial Officer since August 2020, as Treasurer since July 2021 and director since May 2023. Ms. Curley also served as our Interim Chief Executive Officer from September 2022 to January 2023. Ms. Curley is a Class II director and will serve for a three-year term that expires at our 2026 annual meeting of stockholders, or until the election and qualification of her successor in office, subject to an event or death, resignation, or removal. She was a partner at CohnReznick LLP, a national accounting firm, from September 2017 to June 2020. During her time at CohnReznick, LLP, Ms. Curley led the creation and development of an emerging markets commercial audit practice for the firm in their Boston, MA office. Her practice focused on recruiting and providing audit services to private and public emerging growth companies in the technology and life sciences industries. From November 2014 to August 2017, she also served as a partner at Marcum LLP, a national accounting firm. Ms. Curley led the northeast regional high-tech practice for the firm. She focused on expanding the client base to provide a full range of accounting, tax and advisory services for private and public emerging growth companies in high tech industries such as technology, life sciences and advanced manufacturing. From March 2010 to October 2014, Ms. Curley served as a partner at Moody, Famiglietti & Andronico, LLP ("MFA"), a proactive consulting firm in the greater Boston, MA area with national and global reach. During her time at MFA, Ms. Curley led the creation and development of a public company audit practice focused on recruiting and providing audit services to public emerging growth companies. Ms. Curley serves as Past President and a board member of the North Shore Technology Council and as a board member of Project Green Schools. Ms. Curley received her Master of Accountancy and Bachelor of Science in Business Administration with a concentration in accounting from Kansas State University. She also attended the United States Military Academy. She is a certified public accountant licensed in the Commonwealth of Massachusetts. Ms. Curley is well-qualified to serve on the Board due to her extensive experience in operations and finance.

Benjamin Bielak has been serving as our Chief Information Officer since June 2018 and our secretary since July 2023. He served as the Chief Information Officer at GNS Healthcare (now Aitia), a leading casual machine learning product and services company, from January 2017 to May 2018 and as Director of Academic Technology at Harvard University, from February 2015 to January 2017. Prior to his work at GNS and Harvard, Mr. Bielak was the Chief Information Officer at Dovetail Health, a high-growth product and services company focused on reducing costs through pharmacy-focused interventions, from November 2006 to April 2014. He previously held roles as Manager of Development and Integration at Boston Medical Center and Senior Manager of Technology at Sapient, a global services company, from December 1997 to July 2005. Mr. Bielak holds a Master of Business Administration degree from Bentley University, where his studies focused on change management, and a master's degree from Boston University in computer science. He maintains two certifications, the College of Healthcare Information Management Executives (CHIME) Certified Healthcare Chief Information Officer (CHCIO) and the Health Information Management System Society (HIMSS) Certified Professional in Healthcare Information and Management Systems (CPHIMS).

Andrew L. Ross has been serving as our director since 2012. Mr. Ross serves as a Class I Director and his current term will expire at our 2025 annual meeting of stockholders. He has been an entrepreneur and investor for 50 years. He developed, financed, owned and managed through controlled entities over two dozen start-ups and diverse commercial real estate assets. Since 2010, Mr. Ross has focused on angel and early-stage investments primarily in biotech and collaborative consumption businesses. He has invested in and advised multiple early-stage enterprises as a seed, angel or A-round investor. Mr. Ross served as a director on the board of Q-State Holdings, Inc., from 2013 to February 2020. He currently serves as a director of RallyPoint Networks, Inc. Mr. Ross is well-qualified to serve on the Board due to his extensive experience in investment.

Steven Gullans has been serving as our director since October 2020. Dr. Gullans serves as a Class I Director and his current term will expire at our 2025 annual meeting of stockholders. Dr. Gullans is the CEO of Thynk Inc., a digital health company, which he cofounded since May 2023. From May 2018 to December 2019, he served as President and Chief Executive Officer and Director of Gemphire Therapeutics, until it was acquired by NeuroBo Pharmaceuticals. While at Gemphire, he oversaw activities related to clinical trials, manufacturing, finances, business development, R&D and intellectual property. Prior to Gemphire, he was Managing Director at Excel Venture Management, LLC ("Excel"), a Boston-based venture capital firm which he co-founded, from March 2008 to May 2018. At Excel, he focused on investing in life science technology companies with a particular interest in disruptive platforms that can impact multiple industries. Prior to Excel, Dr. Gullans co-founded RxGen, Inc., a pharmaceutical services company, where he also served as Chief Executive Officer and a director from February 2004 to February 2008. Prior to that, he was the Chief Scientific Officer of US Genomics, Inc., a company that developed technology to analyze DNA for pathogen detection, from November 2002 to January 2004. Dr. Gullans currently serves as a director at Orionis Biosciences, Navigation Sciences, Alexis Bio and Thynk Inc. He was previously a board member of Activate Networks, Inc. which was acquired by Decision Resource Group, nanoMR Inc., which was acquired by DNA Electronics Ltd, Tetraphase Pharmaceuticals, Inc. which went public in 2013, and Molecular Templates, Inc. which was merged into a public entity in 2017, BioTrove which was acquired by Agilent, and NeuroBo Pharmaceuticals. Dr. Gullans was a faculty member at Harvard Medical School and Brigham and Women's Hospital for almost 20 years. Dr. Gullans holds a B.S. from Union College and a Ph.D. from Duke University. Dr. Gullans is well-qualified to serve on the Board due to his extensive experience in biopharmaceutical industries and his expertise in medical and pharmaceutical research.

John L. Brooks III has been serving as our director since June 2021. Mr. Brooks serves as a Class II Director and his current term will expire at our 2026 annual meeting of stockholders. He currently serves as a director of Hemoshear Therapeutics since November 2008, Noxilizer since March 2009, Hygieia since June 2016, Theromics since February 2021, AltrixBio since December 2021, Basys.ai since 2022, Alertgy since 2023, Sharp Tx since 2023, and Senscio since 2024. Mr. Brooks was the President of the NTT division of L-Nutra Inc., a company focused on nutrition and fasting mimicking technologies from March 2021 to May 2022. In January 2012, Mr. Brooks founded Ammonett Pharma and continues to serve on its board of directors since then. He is also a co-founder of Rocky Mountain Biphasic and serves as a director since April 2022. He has also served as the managing director of Healthcare Capital LLC since February 2007. Previously, Mr. Brooks served as the Chief Executive Officer, President and a director of NeuroBo Pharmaceuticals, Inc. from March 2018 to December 2019 and as the chairman of Cellnovo, Ltd. from 2012 to December 2019. Mr. Brooks is also involved with several non-profit organizations. He currently serves as the Chief Executive Officer and President of Worldwide Network for Innovation in Clinical Education and Research (WNICER) since January 2019 and serves as a director of T1D Exchange since March 2020, the ADA New England Chapter since January 2015, The Diabetes Link since January 2010, and the University of Massachusetts Amherst Foundation since January 2012. Mr. Brooks received his BBA and MSBA in Accounting from the University of Massachusetts Amherst. Mr. Brooks is well-qualified to serve on the Board due to his expertise in healthcare and life sciences.

Theresa L. Mock has been serving as our director since May 2023. Ms. Mock serves as a Class II Director and her current term will expire at our 2026 annual meeting of stockholders. Ms. Mock has extensive experience in the software and technology industries with expertise in market strategy, revenue growth, and commercial operations. Since September 2022, Ms. Mock has been an independent consultant for software and technology companies. From January 2020 to April 2022, she served as the Chief Strategy and Marketing Officer at Rave Mobile Safety, a SaaS mass notification and incident management company. From September 2017 to December 2019, Ms. Mock served as the Chief Operating Officer at Cybba, Inc., and from January 2015 to August 2017, she served as Chief Revenue Officer at Ve Interactive North America, both digital marketing and advertising agencies. She previously held senior management roles in global software and technology companies at Deltek from November 2011 to December 2014, and OpSec Security from June 2007 to October 2011. Ms. Mock served as a board director at G3 VRM

Acquisition Corp. (NASDAQ: GGGV) from April 2021 to July 2022. She currently serves on the non-profit boards of the Boston Chinatown Neighborhood Center since January 2018, and The Boston Club since January 2017. Ms. Mock received her BS and MS in Chemical Engineering from the Massachusetts Institute of Technology, and her MBA from the MIT Sloan School of Management. Ms. Mock is well-qualified to serve on the Board due to her extensive management experience in the software and technology industries.

Family Relationships

There are no family relationships among any of our executive officers or directors.

Composition of our Board of Directors

Our Board currently consists of five directors. Our certificate of incorporation, as amended, and bylaws, as amended, provide that our Board can consist of any number of directors as voted on and approved by the Board. Our Board is divided into three classes, designated as Class I, Class II and Class III directors, with only one class of directors being elected in each year and each class serving a three-year term. The term of office of the Class I directors, consisting of Messrs. Ross and Gullans, will expire at our 2025 annual meeting of stockholders. The term of office of the Class II directors, consisting of Mr. Brooks, Ms. Curley and Ms. Mock, will expire at our 2026 annual meeting of stockholders. As a result of the departure of two directors over the past year, there are currently no directors serving as Class III directors. We plan to take certain actions, in connection with our 2024 Annual Meeting of Stockholders to re-classify certain directors so that each class of directors consists of an equal amount of directors, or as close to as is possible, and as provided in the Company's bylaws. When considering whether directors have the experience, qualifications, attributes or skills, taken as a whole, to enable our Board to satisfy its oversight responsibilities effectively in light of our business and structure, the Board focuses primarily on each person's background and experience as reflected in the information discussed in each of the directors' individual biographies set forth above. We believe that our directors provide an appropriate mix of experience and skills relevant to the size and nature of our business.

Director Independence

As our common stock is listed on the Nasdaq Capital Market, our determination of the independence of directors is made using the definition of "independent director" contained in Nasdaq Listing Rule 5605(a)(2). Our Board has affirmatively determined that each of Mr. Ross, Dr. Gullans, Mr. Brooks and Ms. Mock are "independent directors," as that term is defined in the Nasdaq rules. Under the Nasdaq rules, our Board must be composed of a majority of "independent directors." Additionally, subject to certain limited exceptions, our Board's audit, compensation, and nominating and corporate governance committees also must be composed of all independent directors.

Audit committee members must also satisfy the independence criteria set forth in Rule 10A-3 under the Exchange Act. Under the rules of Nasdaq, a director will only qualify as an "independent director" if, in the opinion of that company's board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director.

To be considered to be independent for purposes of Rule 10A-3 of the Exchange Act, a member of an audit committee of a listed company may not, other than in his capacity as a member of our audit committee, our Board, or any other committee of our Board: (1) accept, directly or indirectly, any consulting, advisory, or other compensatory fee from the listed company or any of its subsidiaries; or (2) be an affiliated person of the listed company or any of its subsidiaries.

Committees of Our Board of Directors

Our Board directs the management of our business and affairs, as provided by Delaware law, and conducts its business through meetings of the Board and standing committees. We have a standing audit committee, compensation committee, and nominating and corporate governance committee. In addition, from time to time, special committees may be established under the direction of the Board when necessary to address specific issues.

Audit Committee

We have established an audit committee of the Board. Dr. Gullans, Mr. Brooks and Ms. Mock serve as members of our audit committee, and Mr. Brooks chairs the audit committee. Each member of the audit committee is financially literate, and our Board has determined that Mr. Brooks qualifies as an "audit committee financial expert" as defined in applicable SEC rules and has accounting or related financial management expertise.

We have adopted an audit committee charter that is available to stockholders on the Company's website at https://investors.ispecimen.com/governance-documents, which details the principal functions of the audit committee, including:

- reviewing and discussing with management and the independent auditor the annual audited financial statements, and recommending to the Board whether the audited financial statements should be included in our Form 10-K;
- discussing with management and the independent auditor significant financial reporting issues and judgments made in connection with the preparation of our financial statements;
- discussing with management major risk assessment and risk management policies;
- monitoring the independence of the independent auditor;
- verifying the rotation of the lead (or coordinating) audit partner having primary responsibility for the audit and the audit partner responsible for reviewing the audit as required by law;
- reviewing and approving all related-party transactions;
- inquiring and discussing with management our compliance with applicable laws and regulations;
- pre-approving all audit services and permitted non-audit services to be performed by our independent auditor, including the fees and terms of the services to be performed;
- appointing or replacing the independent auditor;
- determining the compensation and oversight of the work of the independent auditor (including resolution of disagreements between management and the independent auditor regarding financial reporting) for the purpose of preparing or issuing an audit report or related work;
- establishing procedures for the receipt, retention and treatment of complaints received by us regarding accounting, internal accounting controls or reports which raise material issues regarding our financial statements or accounting policies; and
- approving reimbursement of expenses incurred by our management team in identifying potential target businesses.

The Board reviews the Nasdaq listing standards definition of independence for audit committee members on an annual basis and has determined that all current members of our audit committee are independent (as independence is currently defined in Rule 5605(c)(2)(A)(i) and (ii) of the Nasdaq listing standards).

Compensation Committee

We have established a compensation committee of the Board. Mr. Brooks, Dr. Gullans and Ms. Mock serve as members of our compensation committee. Dr. Gullans chairs the compensation committee.

We have adopted a compensation committee charter that is available to stockholders on the Company's website at *https://investors.ispecimen.com/governance-documents*, which details the principal functions of the compensation committee, including:

- reviewing and approving on an annual basis the corporate goals and objectives relevant to our Chief Executive Officer's compensation, evaluating our Chief Executive Officer's performance in light of such goals and objectives and determining and approving the remuneration (if any) of our Chief Executive Officer based on such evaluation;
- reviewing and approving the compensation of all our other executive officers;
- reviewing our executive compensation policies and plans;
- implementing and administering our incentive compensation equity-based remuneration plans;
- assisting management in complying with our proxy statement and annual report disclosure requirements;
- approving all special perquisites, special cash payments and other special compensation and benefit arrangements for our executive officers and employees;
- if required, producing a report on executive compensation to be included in our annual proxy statement; and
- reviewing, evaluating and recommending changes, if appropriate, to the remuneration for directors.

Notwithstanding the foregoing, no compensation of any kind, including finders, consulting or other similar fees, will be paid to any of our existing stockholders, officers, directors or any of their respective affiliates, prior to, or for any services they render in order to effectuate the consummation of an initial business combination. Accordingly, it is likely that prior to the consummation of an initial business combination, the compensation committee will only be responsible for the review and recommendation of any compensation arrangements to be entered into in connection with such initial business combination.

The charter also provides that the compensation committee may, in its sole discretion, retain or obtain the advice of a compensation consultant, independent legal counsel or other adviser and will be directly responsible for the appointment, compensation and oversight of the work of any such adviser. However, before engaging or receiving advice from a compensation consultant, external legal counsel or any other adviser, the compensation committee will consider the independence of each such adviser, including the factors required by Nasdaq and the SEC.

Nominating and Corporate Governance Committee

We have established a nominating and corporate governance committee of the Board. Dr. Gullans and Ms. Mock serve as members of our nominating and corporate governance committee. Ms. Mock chairs the nominating and corporate governance committee.

We have adopted a nominating and corporate governance committee charter that is available to stockholders on the Company's website at https://investors.ispecimen.com/governance-documents, which details the principal functions of the nominating and corporate governance committee, and which provides that persons to be nominated to serve as directors:

- should have demonstrated notable or significant achievements in business, education or public service;
- should possess the requisite intelligence, education and experience to make a significant contribution to the Board and bring a range of skills, diverse perspectives and backgrounds to its deliberations; and
- should have the highest ethical standards, a strong sense of professionalism and intense dedication to serving the interests of the stockholders.

The nominating and corporate governance committee will consider several qualifications relating to management and leadership experience, background and integrity and professionalism in evaluating a person's candidacy for membership on the Board. The nominating committee may require certain skills or attributes, such as financial or accounting experience, to meet specific Board needs that arise from time to time and will also consider the overall experience and makeup of its members to obtain a broad and diverse mix of Board members. The nominating committee does not distinguish among nominees recommended by stockholders and other persons.

Compensation Committee Interlocks and Insider Participation

None of the members of our compensation committee is or has been an officer or employee of our company. None of our executive officers currently serves, or in the past year has served, as a member of the Board's compensation committee (or other board committee performing equivalent functions) of any entity that has one or more of its executive officers serving on our Board or compensation committee. See the section titled "*Item 13. Certain Relationships and Related Transactions, and Director Independence*" for information about related party transactions involving members of our compensation committee or their affiliates.

Code of Conduct and Ethics

We have adopted a written code of business conduct and ethics that applies to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. A copy of the code of business conduct and ethics has been posted on our website, www.ispecimen.com. In addition, we post on our website all disclosures that are required by law or the Nasdaq listing standards concerning any amendments to, or waivers from, any provision of the code. The information on or accessed through our website is deemed not to be incorporated in this Annual Report or to be part of this Annual Report.

Item 11. Executive Compensation

The following discussion of compensation arrangements should be read with the compensation tables and related disclosures set forth below. This discussion contains forward-looking statements that are based on our current plans and expectations regarding future compensation programs, see "Special Note Regarding Forward-Looking Statements." Actual compensation programs that we adopt may differ materially from the programs summarized in this discussion.

The discussion below includes a review of our compensation decisions with respect to fiscal years 2023 and 2022 for our "named executive officers," or NEOs, namely our principal executive officer, our two other most highly compensated executive officers and two additional persons for whom disclosure would have been provided but for the fact that they were not serving as our executive officers as of December 31, 2023.

In 2023 and 2022, we compensated our NEOs through base salary, as described below. Our officers are also eligible for the standard benefits programs we offer all employees.

Summary Compensation Table

The following table sets forth information regarding compensation awarded to, earned by or paid to each of our named executive officers for fiscal years 2023 and 2022.

Name and Principal Position	Year	Salary ($)	Bonus ($)	Stock awards ($)	Option awards ($)(1)	All other compensation ($)	Total ($)
Tracy Curley[2]	2023	$ 350,000	$ 87,500	$ —	$ —	$ —	$ 437,500
Chief Executive Officer, Chief Financial Officer, Treasurer and Director	2022	$ 313,385	$ —	$ —	$ 77,000 (4)	$ —	$ 390,385
Benjamin Bielak	2023	$ 326,000	$ 65,200	$ —	$ —	$ —	$ 391,200
Chief Information Officer	2022	$ 301,938	$ 6,000 (3)	$ —	$ 23,100 (5)	$ —	$ 331,038

1. The amounts reported in the "Option awards" column reflect the aggregate fair value of stock-based compensation awarded during the year computed in accordance with the provisions of FASB ASC Topic 718. See Note 11 to our financial statements included in this Annual Report regarding assumptions underlying the valuation of equity awards.
2. Tracy Curley has been serving as our Chief Financial Officer since August 2020, Treasurer since July 2021 and director since May 2023. She became the Interim Chief Executive Officer on September 21, 2022 and was appointed as the Company's full-time Chief Executive Officer on January 9, 2023.
3. Bonus paid in 2022 was paid as compensation for the executive officer's satisfaction of certain performance objectives in 2021.
4. Represents the fair value of 100,000 options granted to Tracy Curley on November 1, 2022.
5. Represents the fair value of 30,000 options granted to Benjamin Bielak on November 1, 2022.

Employment Agreements

We have entered into employment agreements with each of our Chief Executive Officer/Chief Financial Officer, and Chief Information Officer.

Tracy Curley

We entered into an employment agreement with Ms. Curley, effective as of June 21, 2021, which, by its terms, was to expire on June 21, 2022, but was extended until July 29, 2022. We subsequently entered into a First Amended and Restated Executive Employment Agreement on October 24, 2022 (the "Curley Amended Employment Agreement"), continuing her employment as our Chief Financial Officer and appointing her as Interim Chief Executive Officer until such date as her employment is either terminated by the Company or Ms. Curley, as provided under the terms of the Curley Amended Employment Agreement, and described in further detail below, or earlier terminated upon her death or disability. On January 9, 2023, the Board appointed Ms. Curley as our full-time Chief Executive Officer.

Under the terms of the Curley Amended Employment Agreement, Ms. Curley is paid an annual base salary of $350,000, which was applied retroactively from June 21, 2022. Additionally, Ms. Curley is eligible for an annual discretionary bonus, solely within the determination of the Board, with a target of 50% of her then current Base Salary, based on the Company's overall performance and her achieving certain measures described in the Curley Amended Employment Agreement (the "Curley Target Bonus"). The Curley Target Bonus for fiscal year 2022 was $87,500, based on a pro-rated target of 25% of her Base Salary.

In addition to the base salary and Curley Target Bonus described above, Ms. Curley was awarded stock options ("Options") for a term of 10 years and exercisable for up to 100,000 shares of common stock, under our Amended and Restated 2021 Equity Incentive Plan, as amended (the "2021 Plan"), at an exercise price equal to $1.61 per share. These Options vest over four years, vesting with respect to 25,000 shares of common stock on June 21, 2023 and for 2,083 shares of common stock monthly thereafter, until fully vested, subject to Ms. Curley continuing to be employed by the Company on each applicable vesting date. The Options also fully vest upon a Change of Control (as such term is defined in the 2021 Plan), as more fully described in the Curley Amended Employment Agreement. Furthermore, if Ms. Curley retires from the Company at or after the age of 66, all unvested equity awards she possesses, upon such retirement, will automatically vest.

The Curley Amended Employment Agreement may be terminated either by the Company or Ms. Curley, with the following termination provisions. If the Company terminates the Curley Amended Employment Agreement for just cause (as such term is defined in the Curley Amended Employment Agreement) or if Ms. Curley terminates the Curley Amended Employment Agreement by giving 30 days' advance notice (other than for Good Reason (as such term is defined in the Curley Amended Employment Agreement)), Ms. Curley will be entitled to (i) earned but unpaid salary and earned but unpaid bonus through the termination date, (ii) COBRA benefits for up to the applicable statutory period with premium payments made by Ms. Curley, and (iii) other payments which may be required by law (the "Standard Termination Benefits"). If Ms. Curley terminates the Curley Amended Employment Agreement for Good Reason or the Company terminates the Curley Amended Employment Agreement without just cause, Ms. Curley is entitled to, in addition to the Standard Termination Benefits, (x) severance equal to 18 months of her then Base Salary (which will be reduced to 12 months of her then Base Salary, if such termination occurs more than one year after the Company appoints a new Chief Executive Officer and Ms. Curley no longer serves as Interim Chief Executive Officer) and (y) COBRA benefits for the period during which she receives severance payments, with the Company providing Ms. Curley with continuation coverage upon the same terms and conditions as if she were still an active employee of the Company. Such severance payments will be made in bi-weekly installments and Ms. Curley's right to receive such payments is conditioned upon her executing and delivering to the Company a customary general release. In the event of a Change of Control (as such term is defined in the Curley Amended Employment Agreement), and a termination of Ms. Curley's employment without just cause or her resignation for Good Reason, in either case, within 12 months after such Change of Control, Ms. Curley will be entitled to the Standard Benefits and 18 months of severance payments. Ms. Curley's right to receive such payments is conditioned upon her executing and delivering to the Company a customary general release. In the event of the termination of the Curley Amended Employment Agreement, as a result of her death or disability, she will be entitled to the Standard Termination Benefits.

The Curley Amended Employment Agreement also contains customary noncompetition and non-solicitation covenants, provisions regarding the protection of confidential information and commitments to assign to use any inventions developed during Ms. Curley's employment, which are contained in a separate First Restated Noncompetition, Nonsolicitation, Nondisclosure and Inventions Agreement between Ms. Curley and the Company, also dated October 24, 2022.

Benjamin Bielak

We entered into an employment agreement with Mr. Bielak, effective as of June 21, 2021, which, by its terms, was to expire on June 21, 2022, but was extended until July 29, 2022. We subsequently entered into a First Amended and Restated Executive Employment Agreement with Mr. Bielak on October 24, 2022 (the "Bielak Amended Employment Agreement"), continuing his employment as our Chief Information Officer until such date as his employment is either terminated by the Company or Mr. Bielak, as provided under the terms of the Bielak Amended Employment Agreement, and described in further detail below, or earlier terminated upon his death or disability.

Under the terms of the Bielak Amended Employment Agreement, Mr. Bielak is paid an annual Base Salary of $326,000, which was applied retroactively from June 21, 2022. Additionally, Mr. Bielak is eligible for an annual discretionary bonus, solely within the determination of the Board, with a target of 40% of his then current Base Salary, based on the Company's overall performance and his achieving certain measures described in the Bielak Amended Employment Agreement (the "Bielak Target Bonus"). The Bielak Target Bonus for fiscal year 2022 was $65,200 based on a pro-rated target of 20% of his Base Salary.

In addition to the Base Salary and Bielak Target Bonus described above, Mr. Bielak was awarded Options for a term of 10 years and exercisable for up to 30,000 shares of common stock, under the 2021 Plan, at an exercise price of $1.61 per share. These Options vest over four years, vesting with respect to 7,500 shares on June 21, 2023 and for 625 shares of common stock monthly thereafter, until fully vested, subject to Mr. Bielak continuing to be employed by the Company on each applicable vesting date.

The Bielak Amended Employment Agreement may be terminated either by the Company or Mr. Bielak, with the following termination provisions. If the Company terminates the Bielak Amended Employment Agreement for just cause (as such term is defined in the Bielak Amended Employment Agreement") or if Mr. Bielak terminates the Bielak Amended Employment Agreement by giving 30 days' advance notice (other than for Good Reason (as such term is defined in the Bielak Amended Employment Agreement)), Mr. Bielak will be entitled to the Standard Termination Benefits. If Mr. Bielak terminates the Bielak Amended Employment Agreement for Good Reason or the Company terminates the Bielak Amended Employment Agreement without just cause, Mr. Bielak is entitled to, in addition to the Standard Termination Benefits, (x) severance equal to 12 months

of his then Base Salary, (y) a bonus payment equal to 40% of his then Base Salary, pro-rated based on the number of days Mr. Bielak was employed during the year of termination of his employment and (z) COBRA benefits for the period during which he receives severance payments, with the Company providing Mr. Bielak with continuation coverage upon the same terms and conditions as if he were still an active employee of the Company. Such severance payments will be made in bi-weekly installments and Mr. Bielak's right to receive such payments is conditioned upon his executing and delivering to the Company a customary general release.

The Bielak Amended Employment Agreement also contains customary noncompetition and non-solicitation covenants, provisions regarding the protection of confidential information and commitments to assign to use any inventions developed during Mr. Bielak's employment, which are contained in a separate First Restated Noncompetition, Nonsolicitation, Nondisclosure and Inventions Agreement between Mr. Bielak and the Company, also dated October 24, 2022.

Separation Agreements

Christopher Ianelli

On October 24, 2022, we entered into a Separation Agreement with Dr. Ianelli (the "Ianelli Separation Agreement"), in connection with his termination as our Chief Executive Officer and President. Under the terms of the Ianelli Separation Agreement, Dr. Ianelli was paid all accrued salary earned through October 24, 2022 (the "Ianelli Separation Date"). Dr. Ianelli is also receiving the following additional benefits under the terms of the Ianelli Separation Agreement:

(i) Severance equal to 12 months of his base salary for a total of $350,000, which is payable in 12 equal monthly payments after the Ianelli Separation Date through October 2024.

(ii) Payment by the Company for all COBRA health and dental insurance premiums for the entire period for which Dr. Ianelli is eligible for COBRA benefits; provided, however, that he is required to notify the Company if he becomes covered under another employer's group health plan or otherwise ceases to be eligible for COBRA benefits, upon which the Company shall no longer be required to pay for such COBRA benefits.

(iii) Vesting of Restricted Stock Units ("RSU's), for 13,021 shares of the 31,250 shares of common stock which were unvested as of the Ianelli Separation Date, was accelerated with Dr. Ianelli being issued 13,021 shares of common stock, for which he was required to pay all applicable taxes in connection with the vesting of those RSUs.

Pursuant to the Ianelli Separation Agreement, Dr. Ianelli shall continue to serve on the Board for as long as he continues to be elected to the Board, unless he resigns or is removed sooner. Dr. Ianelli resigned from the Board on July 7, 2023.

The Ianelli Separation Agreement also requires Dr. Ianelli to comply with his continuing obligations under the Noncompetition, Nonsolicitation, Nondisclosure and Inventions Agreement executed by Dr. Ianelli on June 21, 2021, the form of which was filed as an exhibit to the form of Dr. Ianelli's Executive Employment Agreement filed as Exhibit 10.25 to the Company's Registration Statement on Form S-1 (Reg. No. 333-250198), which was declared effective by the Commission on June 16, 2021. The Ianelli Separation Agreement also contains customary mutual releases by Dr. Ianelli and the Company.

Jill Mullan

On October 24, 2022, we entered into a Separation Agreement with Ms. Mullan (the "Mullan Separation Agreement"), in connection with her termination as our Chief Operating Officer. Under the terms of the Mullan Separation Agreement, Ms. Mullan was paid all accrued salary earned through October 24, 2022 (the "Mullan Separation Date"). Ms. Mullan is also receiving the following additional benefits under the terms of the Mullan Separation Agreement:

(i) Severance equal to 12 months of her base salary for a total of $325,000, which is payable in 12 equal monthly payments after the Separation Date through October 2024.

(ii) Payment by the Company for all COBRA health and dental insurance premiums for the entire period for which Ms. Mullan is eligible for COBRA benefits; provided, however, that she is required to notify the Company if she

becomes covered under another employer's group health plan or otherwise ceases to be eligible for COBRA benefits, upon which the Company shall no longer be required to pay for such COBRA benefits.

(iii) Vesting of Restricted Stock Units ("RSU's), for 13,021 shares of the 31,250 shares of common stock which were unvested as of the Mullan Separation Date, was accelerated with Ms. Mullan being issued 13,021 shares of common stock, for which she was required to pay all applicable taxes in connection with the vesting of those RSUs.

Ms. Mullan will continue to serve on the Board for as long as she continues to be elected to the Board, unless she resigns or is removed sooner. Pursuant to the Mullan Separation Agreement, Ms. Mullan continued to serve on the Company's Board until May 24, 2023, the end of the term of her directorship.

The Mullan Separation Agreement also requires Ms. Mullan to comply with her continuing obligations under the Noncompetition, Nonsolicitation, Nondisclosure and Inventions Agreement executed by Ms. Mullan on June 21, 2021, the form of which was filed as an exhibit to the form of Ms. Mullan's Executive Employment Agreement filed as Exhibit 10.26 to the Company's Registration Statement on Form S-1 (Reg. No. 333-250198), which was declared effective by the Commission on June 16, 2021. The Mullan Separation Agreement also contains customary mutual releases by Ms. Mullan and the Company, which will not become effective in the event that Ms. Mullan revokes her execution of the Mullan Separation Agreement, during the Mullan Revocation Period.

Non-Employee Director Compensation

The following table sets forth information regarding the total compensation paid to our current non-employee directors during 2023 for their service on our Board. Our directors who are employed by us do not receive any additional compensation for serving on our Board.

Name and Principal Position	Fees earned or paid in cash($)	Stock awards($)	Option awards ($)(10)	Non-equity incentive plan compensation ($)	Non qualified deferred compensation earnings ($)	All other compensation ($)	Total($)
Andrew L. Ross(1)							
Chairman of the Board	$ 27,500	$ 176 (6)	$ 3,500 (11)	—	—	—	$ 31,176
Steven Gullans(2)							
Director	$ 31,250	$ 176 (7)	$ 3,500 (12)	—	—	—	$ 34,926
John L. Brooks(3)							
Director	$ 31,250	$ 176 (8)	$ 3,500 (13)	—	—	—	$ 34,926
Joseph J. Basile(4)							
Director	$ 31,647	$ 89 (9)	$ 3,500 (14)	—	—	—	$ 35,236
Theresa Mock(5)							
Director	$ 16,576	$ —	$ 1,735 (15)	—	—	—	$ 18,311

1) Andrew L. Ross has been serving as our director since January 2012.
2) Steven Gullans has been serving as our director since October 2020.
3) John L. Brooks III has been serving as our director since June 2021.
4) Joseph J. Basile served as our director from November 28, 2022 to December 31, 2023.
5) Theresa Mock has been serving as our director since May 24, 2023.
6) The aggregate number of Restricted Stock Units ("RSUs") awarded in 2023 was 125. None was outstanding as of December 31, 2023.
7) The aggregate number of RSUs awarded in 2023 was 125. None was outstanding as of December 31, 2023.
8) The aggregate number of RSUs awarded in 2023 was 125. None was outstanding as of December 31, 2023.
9) The aggregate number of RSUs awarded in 2023 was 63. None was outstanding as of December 31, 2023.
10) The amounts reported in the "Option awards" column reflect the aggregate fair value of stock-based compensation awarded during the year computed in accordance with the provisions of FASB ASC Topic 718.
11) The aggregate number of stock options outstanding as of December 31, 2023 was 10,000.
12) The aggregate number of stock options outstanding as of December 31, 2023 was 10,000.
13) The aggregate number of stock options outstanding as of December 31, 2023 was 10,000.
14) The aggregate number of stock options outstanding as of December 31, 2023 was 10,000.
15) The aggregate number of stock options outstanding as of December 31, 2023 was 6,672.

On July 30, 2021, our Board adopted and approved a director compensation policy (the "Initial Non-Employee Director Compensation Policy"), which provided for each of the non-employee directors (i) an annual retainer of $20,000, payable quarterly, (ii) equity compensations (including NSOs with a vesting schedule of three years to purchase 13,525 shares of common stock at the fair market value and annual RSUs which vested in four equal quarterly tranches) under the 2021 Plan, and (iii) travel expense reimbursement. The Initial Non-Employee Director Compensation Policy was amended, as of November 30, 2022, in an Amended and Restated Non-Employee Director Compensation Policy. The Amended and Restated Non-Employee Director Compensation Policy provides for each of the non-employee directors:

(i) an initial non-qualified ten-year stock option grant upon commencement of service on the Board equal to (x) 834 shares multiplied by (y) the number of months (including the month of commencement of service on the Board) that such director will serve during his or her first calendar year at an exercise price equal to 100% of the fair market value of our common stock vesting in four equal quarterly installments and subject to certain adjustments;

(ii) an annual non-qualified ten-year stock option grant on each January 2nd equal to 10,000 shares of our common stock at an exercise price equal to 100% of the fair market value of our common stock vesting in four equal quarterly installments and subject to certain adjustments;

(iii) an annual cash retainer of $20,000 plus an additional (x) $7,500 for each Board committee on which a director serves as chair and (y) $3,500 for each Board committee on which a director serves, but is not chair, which cash retainer is payable in for equal quarterly payments; and

(iv) travel expense reimbursement.

Indemnification Agreements

We have entered into indemnification agreements with our directors and executive officers that require us to indemnify them against expenses, judgments, fines, settlements and other amounts that any such person becomes legally obligated to pay (including with respect to a derivative action) in connection with any proceeding, whether actual or threatened, to which such person may be made a party by reason of the fact that such person is or was a director or officer of us or any of our affiliates, provided such person acted in good faith and in a manner such person reasonably believed to be in, or not opposed to, our best interests. We maintain a directors' and officers' liability insurance policy. The policy insures directors and officers against unindemnified losses arising from certain wrongful acts in their capacities as directors and officers and reimburses us for those losses for which we have lawfully indemnified the directors and officers. The policy contains various exclusions.

Outstanding Equity Awards at Fiscal Year End

The following table sets forth information regarding all outstanding stock options and restricted stock held by each of our named executive officers as of December 31, 2023:

	Option Awards				Stock awards	
Name	Number of securities underlying unexercised options (#) exercisable	Number of securities underlying unexercised options (#) unexercisable	Option exercise price ($)	Option expiration date	Number of shares of units of stock that have not vested (#)	Market value of shares of units of stock that have not vested ($) (3)
Tracy Curley	41,664	58,336	$ 1.61	October 31, 2032	15,152(1)	$ 7,576
Benjamin Bielak	12,500	17,500	$ 1.61	October 31, 2032	18,940(2)	$ 9,470
Benjamin Bielak	4,396	—	$ 1.00	July 27, 2028	—	—
Benjamin Bielak	1,409	—	$ 1.00	April 26, 2029	—	—

1) Represents the unvested portion of the 37,879 RSUs granted on June 21, 2021, which is to vest in equal installments on the first five anniversaries of the grant date, subject to the executive's continued service through each applicable vesting date.
2) Represents the unvested portion of the 47,341 RSUs granted on June 21, 2021, which is to vest in equal installments on the first five anniversaries of the grant date, subject to the executive's continued service through each applicable vesting date.
3) Valuations are based on $0.50 per share, which was the last trading price for a share of the Company's common stock on the Nasdaq on December 29, 2023.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Equity Incentive Plans

Our Board has adopted, and our stockholders have approved, the iSpecimen Inc. 2013 Stock Incentive Plan and 2021 Plan. The number of shares issued, number of shares reserved for issuance, number of shares underlying outstanding stock options and number of shares remaining available for future issuance under each plan, as of December 31, 2023, are as follows:

Plan	Number of Shares Reserved for Issuance	Number of Shares Issued	Number of Shares underlying Outstanding Options	Weighted Average Exercise Price of Outstanding Options	Number of Shares Remaining Available for Future Issuance
2013 Stock Incentive Plan	309,029	40,560	155,403	1.73	—
2021 Stock Incentive Plan	1,869,500	198,210	140,865	2.66	1,671,290

2013 Stock Incentive Plan

The 2013 Stock Incentive Plan was adopted by our Board and approved by our stockholders on April 12, 2013 to enhance our ability to attract, retain and motivate employees, officers, directors, consultants and advisors by providing such persons with equity ownership opportunities and performance-based incentives. The 2013 Stock Incentive Plan similarly authorizes options, restricted stock, restricted stock units and other stock-based awards and grants our Board, or any committee to which the Board delegates such authority, the sole discretion in administering, interpreting, amending or accelerating the 2013 Stock Incentive Plan. Further, our Board may delegate to one or more officers of the Company the power to grant awards and exercise such other powers under the 2013 Stock Incentive Plan as the Board may determine, provided, that the maximum number of awards to be granted and the maximum number of shares issuable to any one participant by such officer or officers are fixed by the Board. No officer may designate himself or herself as a recipient of any such awards.

Awards may be made under the 2013 Stock Incentive Plan for up to 309,029 shares of our common stock. The shares of common stock underlying any unexercised award shall again be available for the grant of awards under the 2013 Stock Incentive Plan, subject to any limitations under the Code. No participant may be granted awards, over the ten-year term of the 2013 Stock Incentive Plan, equating to more than an aggregate of 50% of the shares of common stock available under the 2013 Stock Incentive Plan.

Our Board may grant participants of the 2013 Stock Incentive Plan options to purchase our common stock and determine the terms of such options (including the number of shares of common stock to be covered by each option, the exercise price of each option and the conditions and limitations applicable to the exercise of each option). Incentive stock options and nonqualified stock options to purchase common stock may also be awarded under the 2013 Stock Incentive Plan. Any incentive stock options that, in the aggregate, become exercisable for the first time in any one calendar year for shares of common stock with an aggregate fair market value of more than $100,000 are deemed to be nonstatutory or nonqualified stock options. These options may not be granted at less than the fair market value of our common stock (or 110% of the fair market value if an incentive stock option is granted to any stockholder who owns beneficially more than 10% of the voting power of all classes of the issued and outstanding stock).

Our Board may also grant shares of restricted stock or restricted stock units. Participants holding shares of restricted stock are entitled to all ordinary cash dividends paid with respect to such shares unless otherwise provided by our Board. Further, within

120 days of the termination of a participant's employment, for any reason, the Company may purchase any shares of unvested restricted stock awards at the lower of the original purchase or issue price to the participant, or the fair market value.

In addition, other stock-based awards including stock appreciation rights, bonus stock, phantom stock awards and stock units may be issued, entitling recipients to receive shares of common stock to be delivered in the future. Such other stock-based awards may be available as a form of payment in the settlement of other awards granted under the 2013 Stock Incentive Plan or as payment in lieu of compensation to which a participant is otherwise entitled. The 2013 Stock Incentive Plan also provides for substitute awards (the "2013 Substitute Awards"), which may be issued in connection with a merger or acquisition. The 2013 Substitution Awards may substitute any options or other stock or stock-based awards granted by any merged or acquired entity or its affiliate on such terms as our Board deems appropriate.

In the event of any stock split, reverse stock split, reclassification of shares, spin-off or similar change in capitalization or any dividend or distribution other than an ordinary cash dividend, the number and class of securities, exercise price per share and the terms of each outstanding award are to be adjusted equitably by the Company as determined by our Board. In the event of a reorganization, merger liquidation or similar transaction, the Board as the discretion to provide that awards are assumed, substituted, terminated immediately prior to the consummation of such event, declare them exercisable or provide cash consideration for such award.

We have the right to repurchase awards in the event a participant is terminated or leaves the Company regardless of the reason or cause.

Amended and Restated 2021 Stock Incentive Plan

On June 16, 2021, our Board and stockholders approved the 2021 Plan. Our Board approved certain amendments to the 2021 Plan, which were approved by the stockholders on May 25, 2022 and on May 24, 2023, respectively. On May 25, 2022, the Company's stockholders approved amendments to the 2021 Plan to (i) set the maximum number of shares of the Company's common stock that may be awarded to participants under the 2021 Plan as incentive stock options at 608,000 shares of common stock, (ii) revise the language relating to annual increases in the number of shares reserved for issuances of awards under the 2021 Plan so that it more clearly reflects the intent of such adjustment and (iii) make certain other non-material changes to the 2021 Plan.

On May 24, 2023, the stockholders approved an amendment to the 2021 Plan to (i) remove the automatic annual increase in the number of shares of common stock reserved for issuance under the 2021 Plan on each anniversary date of the 2021 Plan, in the event that 5% of the number of shares of common stock issued and outstanding on that date is more than the number of shares of common stock then currently reserved for issuance under the 2021 Plan, (ii) provide for the recoupment or clawback of awards granted under the 2021 Plan and (iii) increase the number of shares of common stock reserved for issuance with respect to awards granted under the 2021 Plan from 608,000 shares of common stock to 1,869,500 shares of common stock. The following is summary of the principal features of the 2021 Plan.

The purpose of the 2021 Plan is to enable us to offer our employees, officers, directors and consultants whose past, present and/or potential future contributions to us have been, are, or will be important to its success, an opportunity to acquire a proprietary interest in our Company. The various types of incentive awards that may be provided under the plan are intended to enable our Company to respond to changes in compensation practices, tax laws, accounting regulations and the size and diversity of its business.

The 2021 Plan grants our Board, or any committee to which the Board delegates such authority the sole discretion in administering, interpreting, amending or accelerating the 2021 Plan. The committee is comprised solely of "non-employee" directors, as defined in Rule 16b-3 under the Exchange Act. Subject to the provisions of the 2021 Plan, the committee will determine, among other things, the persons to whom from time to time awards may be granted, the specific type of awards to be granted, the number of shares subject to each award, share prices, any restrictions or limitations on the awards, and any vesting, exchange, surrender, cancellation, acceleration, termination, exercise or forfeiture provisions related to the awards.

There are 1,869,500 shares of common stock available for issuance under the 2021 Plan. The maximum number of shares of common stock that may be awarded under the 2021 Plan as incentive stock options is 1,671,290 shares. Shares of common stock subject to other awards that are forfeited or terminated will be available for future award grants under the 2021 Plan. If a holder pays the exercise price of a stock option by surrendering any previously owned shares of common stock or arranges to have the appropriate number of shares otherwise issuable upon exercise withheld to cover the withholding tax liability associated with the stock option exercise, the number of shares available under the plan may be increased by the lesser of (i) the number of such surrendered shares and shares used to pay taxes; and (ii) the number of shares purchased under such stock option.

We may grant awards under the 2021 Plan to employees, officers, directors, and consultants who are deemed to have rendered, or to be able to render, significant services to us and who are deemed to have contributed, or to have the potential to contribute, to its success. An incentive stock option may be granted under the plan only to a person who, at the time of the grant, is an employee of our Company or our subsidiaries.

Options. The 2021 Plan provides both for "incentive" stock options as defined in Section 422 of the Code, and for options not qualifying as incentive options, both of which may be granted with any other stock-based award under the plan. The committee determines the exercise price per share of common stock purchasable under an incentive or non-qualified stock option, which may not be less than 100% of the fair market value on the day of the grant or, if greater, the par value of a share of common stock. However, the exercise price of an incentive stock option granted to a person possessing more than 10% of the total combined voting power of all classes of our stock may not be less than 110% of the fair market value on the date of grant. The aggregate fair market value of all shares of common stock with respect to which incentive stock options are exercisable by a participant for the first time during any calendar year (under all of the plans), measured at the date of the grant, may not exceed $100,000.

An incentive stock option may only be granted within 10 years from the effective date of the 2021 Plan. An incentive stock option may only be exercised within ten years from the date of the grant, or within five years in the case of an incentive stock option granted to a person who, at the time of the grant, owns common stock possessing more than 10% of the total combined voting power of all classes of our stock.

Stock Appreciation Rights. Under the 2021 Plan, we may grant stock appreciation rights to participants who have been, or are being, granted stock options under the plan as a means of allowing the participants to exercise their stock options without the need to pay the exercise price in cash, or we may grant them alone and unrelated to an option. In conjunction with non-qualified stock options, stock appreciation rights may be granted either at or after the time of the grant of the non-qualified stock options. In conjunction with incentive stock options, stock appreciation rights may be granted only at the time of the grant of the incentive stock options. A stock appreciation right entitles the holder to receive a number of shares of common stock having a fair market value equal to the excess fair market value of one share of common stock over the exercise price of the related stock option, multiplied by the number of shares subject to the stock appreciation rights. The granting of a stock appreciation right in tandem with a stock option will not affect the number of shares of common stock available for awards under the plan. In such event, the number of shares available for awards under the plan will, however, be reduced by the number of shares of common stock acquirable upon exercise of the stock option to which the stock appreciation right relates.

Restricted Stock. Under the 2021 Plan, we may award shares of restricted stock either alone or in addition to other awards granted under the plan. The committee determines the persons to whom grants of restricted stock are made, the number of shares to be awarded, the price (if any) to be paid for the restricted stock by the person receiving the stock from us, the time or times within which awards of restricted stock may be subject to forfeiture, the vesting schedule and rights to acceleration thereof, and all other terms and conditions of the restricted stock awards.

The 2021 Plan will require that all shares of restricted stock awarded to the holder remain in our physical custody until the restrictions have terminated and all vesting requirements with respect to the restricted stock have been fulfilled. We will retain custody of all dividends and distributions made or declared with respect to the restricted stock during the restriction period. A breach of any restriction regarding the restricted stock will cause a forfeiture of the restricted stock and any retained dividends

and distributions. Except for the foregoing restrictions, the holder will, even during the restriction period, have all of the rights of a stockholder, including the right to vote the shares.

Restricted Stock Units. Under the 2021 Plan, we may also award restricted stock units. Restricted stock units are the right to receive shares of common stock at a future date in accordance with the terms of such grant upon the attainment of certain conditions specified by the committee, which include substantial risk of forfeiture and restrictions on their sale or other transfer by the participant. Restrictions or conditions could also include, but are not limited to, the attainment of performance goals, continuous service with our Company, the passage of time or other restrictions or conditions. The committee determines the persons to whom grants of restricted stock units are made, the number of restricted stock units to be awarded, the time or times within which awards of restricted stock units may be subject to forfeiture, the vesting schedule and rights to acceleration thereof, and all other terms and conditions of the restricted stock units awards. The value of the restricted stock units may be paid in shares, cash, or a combination of both, as determined by the committee.

Other Stock-Based Awards. Under the 2021 Plan, we may grant other stock-based awards, subject to limitations under applicable law that are denominated or payable in, valued in whole or in part by reference to, or otherwise based on, or related to, shares of common stock, as deemed consistent with the purposes of the plan. These other stock-based awards may be in the form of purchase rights, shares of common stock awarded that are not subject to any restrictions or conditions, convertible or exchangeable debentures or other rights convertible into shares of common stock and awards valued by reference to the value of securities of, or the performance of, one of our subsidiaries. These other stock-based awards may include performance shares or options, whose award is tied to specific performance criteria. These other stock-based awards may be awarded either alone, in addition to, or in tandem with any other awards under the 2021 Plan or any of our other plans.

Beneficial Ownership of Our Common Stock

The following table sets forth certain information regarding the beneficial ownership of our outstanding shares of common stock, as of March 11, 2024 by: (i) each of our directors, (ii) each of our named executive officers (as defined by Item 402(a)(3) of Regulation S-K promulgated under the Exchange Act), (iii) all of our directors and named executive officers as a group, and (iv) each person known to us to beneficially own more than 5% of our outstanding shares of common stock.

Beneficial ownership has been determined in accordance with Rule 13d-3 under the Exchange Act. The percentages in the table have been calculated on the basis of treating as outstanding for a particular person, all shares of our common stock outstanding on that date and all shares of our common stock issuable to that holder in the event of exercise of outstanding options, warrants, rights or conversion privileges owned by that person at that date which are exercisable within sixty (60) days of that date. Except as otherwise indicated, the persons listed below have sole voting and investment power with respect to all shares of our common stock owned by them, except to the extent that power may be shared with a spouse.

Name and Address of Beneficial Owner[1]	Number of Shares of Common Stock Beneficially Owned	Approximate Percentage of Class[2]
Director and Executive Officers		
Andrew L. Ross	1,348,737 [3]	14.8%
Benjamin Bielak	84,963 [4]	*
Tracy Curley	80,221 [5]	*
Theresa Mock	6,672 [6]	*
Steven Gullans	26,775 [7]	*
John L. Brooks III	25,647 [8]	*
All Directors and Officers as a Group (6 persons)	1,573,015	17.0%
5% or Greater Stockholders		
OBF Investments	841,981 [9]	9.3%
James G. Wolf	790,730 [10]	8.7%

* Less than 1%

(1) Unless otherwise noted, the business address of each of the following entities or individuals is 450 Bedford St. Suite 1010, Lexington, MA 02420.

(2) The calculation of the percentage of beneficial ownership is based on 9,087,467 shares of common stock outstanding as of March 11, 2024.

(3) Includes 12,397 shares of common stock issuable upon exercise of vested stock options at an exercise price of $8.00 per share and 10,000 shares of common stock issuable upon exercise of vested stock options at an exercise price of $1.41 per share, which are exercisable within 60 days of March 11, 2024. Does not include 1,128 shares of common stock issuable upon exercise of vested stock options at an exercise price of $8.00 per share, none of which are exercisable within 60 days of March 11, 2024.

(4) Includes 5,805 shares of common stock issuable upon exercise of vested stock options at an exercise price of $1.00 per share and 13,750 shares of common Stock issuable upon exercise of vested stock options at an exercise price of $1.61 per share, all of which are exercisable within 60 days of March 11, 2024. Does not include 18,940 shares of common stock issuable upon vesting of RSUs, which do not vest within 60 days of March 11, 2024. Additionally, does not include 16,250 shares of common stock issuable upon exercise of vested stock options at an exercise price of $1.61 per share, none of which are exercisable within 60 days of March 11, 2024.

(5) Includes 45,832 shares of common stock issuable upon exercise of vested stock options at an exercise price of $1.61 per share, all of which are exercisable within 60 days of March 11, 2024. Does not include 15,152 shares of common stock issuable upon vesting of RSUs, which do not vest within 60 days of March 11, 2024. Additionally, does not include 54,168 shares of common stock issuable upon exercise of vested stock options at an exercise price of $1.61 per share, none of which are exercisable within 60 days of March 11, 2024.

(6) Includes 6,672 shares of common stock issuable upon exercise of vested stock options at an exercise price of $1.37 per share, all of which are exercisable within 60 days of March 11, 2024.

(7) Includes 13,525 shares of common stock issuable upon exercise of vested stock options at an exercise price of $3.83 per share and 10,000 shares of common stock issuable upon exercise of vested stock options at an exercise price of $1.41 per share, which are exercisable within 60 days of March 11, 2024.

(8) Includes 12,397 shares of common stock issuable upon exercise of vested stock options at an exercise price of $8.00 per share and 10,000 shares of common stock issuable upon exercise of vested stock options at an exercise price of $1.41 per share, which are exercisable within 60 days of March 11, 2024. Does not include 1,128 shares of common stock issuable upon exercise of vested stock options at an exercise price of $8.00 per share, none of which are exercisable within 60 days of March 11, 2024.

(9) According to the Amendment No. 2 to Schedule 13G filed by OBF Investments, LLC and George H. Scholl on February 13, 2024, Mr. Scholl is the President and Chief Executive Officer of OBF Investments, LLC. The business address of each of OBF Investments, LLC and George H. Scholl is c/o OBF Investments, LLC, 10100 Dr. Martin Luther King Jr. St. N., St. Petersburg, Florida 33716.

(10) According to the Amendment No. 1 to Schedule 13G filed by James G. Wolf on December 27, 2022, the business address of Mr. Wolf is 105, Flyway Drive, Kiawah Island, SC 29455.

Changes in Control

There are no arrangements, known to the Company, including any pledge by any person of securities of the Company, the operation of which may at a subsequent date result in a change in control of the Company.

Item 13. Certain Relationships and Related Transactions, and Director Independence

There have been no transactions, since January 1, 2022, to which we have been a party, in which the amount involved exceeds or will exceed $120,000 and in which any of our directors, executive officers, holders of more than 5% of our capital stock, or immediate family member thereof, had or will have a direct or indirect material interest.

Policies and Procedures for Related Transactions

We have not yet adopted a formal policy for the review, approval or ratification of related party transactions. Accordingly, the transactions discussed above were not reviewed, approved or ratified in accordance with any such policy.

We have adopted a code of business conduct and ethics requiring us to avoid, wherever possible, all conflicts of interests, except under guidelines or resolutions approved by our Board (or the appropriate committee of our Board) or as disclosed in our public filings with the SEC. Under our code of ethics, conflict of interest situations includes any financial transaction, arrangement or relationship (including any indebtedness or guarantee of indebtedness) involving the Company.

In addition, our audit committee, pursuant to a written charter, is responsible for reviewing and approving related party transactions to the extent that we enter into such transactions. An affirmative vote of a majority of the members of the audit committee present at a meeting at which a quorum is present is required in order to approve a related party transaction. A majority of the members of the entire audit committee will constitute a quorum. Without a meeting, the unanimous written consent of all of the members of the audit committee is required to approve a related party transaction. We also require each of our directors and executive officers to complete a directors' and officers' questionnaire that elicits information about related party transactions. These procedures are intended to determine whether any such related party transaction impairs the independence of a director or presents a conflict of interest on the part of a director, employee or officer.

Employee, Officer and Director Hedging

We maintain a policy on insider trading that applies to all shares of our capital stock held by any director, officer or employee. The policy requires that all directors, officers and employees receive our pre-clearance before engaging in any transactions involving our shares of capital stock and prohibits all directors, officers or employees from taking part in any hedging transactions.

Piggyback Registration Rights

We have granted certain parties piggyback registration rights under a certain investors' rights agreement, dated as of August 22, 2014, by and among us and certain investors, a certain Series A preferred stock subscription agreement, a certain registration rights agreement, dated as of November 28, 2021, by and among us and the selling stockholders in connection with our private placement offering in December 2021 (the "PIPE Stockholders"), and a certain underwriting agreement, dated June 16, 2021, by and between us and ThinkEquity, a division of Fordham Financial Management, Inc., subject to certain requirements and customary conditions. There is currently an effective registration statement registering the shares of common stock held by the PIPE Stockholders, if any.

Anti-Takeover Effects of Certain Provisions of Our Certificate of Incorporation and Bylaws

Provisions of our bylaws could make it more difficult to acquire us by means of a merger, tender offer, proxy contest, open market purchases, removal of incumbent directors and otherwise. These provisions, which are summarized below, are expected to discourage types of coercive takeover practices and inadequate takeover bids and to encourage persons seeking to acquire control of us to first negotiate with us. We believe that the benefits of increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging takeover or acquisition proposals because negotiation of these proposals could result in an improvement of their terms.

Vacancies. Newly created directorships resulting from any increase in the number of directors and any vacancies on the Board resulting from death, resignation, disqualification, removal or other cause shall be filled by a majority of the remaining directors on the Board.

Bylaws. Our certificate of incorporation and bylaws authorizes the Board to adopt, repeal, rescind, alter or amend our bylaws without stockholder approval.

Removal. Except as otherwise provided, a director may be removed from office only by the affirmative vote of the holders of not less than a majority of the voting power of the issued and outstanding stock entitled to vote.

Calling of Special Meetings of Stockholders. Our bylaws provide that special meetings of stockholders for any purpose or purposes may be called at any time only by the Board or by our Secretary following receipt of one or more written demands from stockholders of record who own, in the aggregate, at least 15% the voting power of our outstanding stock then entitled to vote on the matter or matters to be brought before the proposed special meeting.

Cumulative Voting. Our certificate of incorporation does not provide for cumulative voting in the election of directors, which would allow holders of less than a majority of the stock to elect some directors.

Staggered Board. Our bylaws provided that our Board is divided into three classes with only one class of directors being elected in each year and each class (except for those directors appointed prior to the Annual Meeting) serving a three-year term. As a result, only a minority of the Board will be considered for election at every annual meeting of stockholders, which may make the removal of management more difficult and may discourage transactions that otherwise could involve payment of a premium over prevailing market prices for our securities.

Choice of Forum

Our bylaws provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, if the Court of Chancery does not have jurisdiction, the federal district court for the District of Delaware) will be the exclusive forum for: (i) any derivative action or proceeding brought on behalf of the Company; (ii) any action asserting a claim for breach of a fiduciary duty owed by any director, officer, employee, or agent of ours to us or our stockholders; (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, the certificate of incorporation, or the bylaws; and (iv) any action asserting a claim governed by the internal affairs doctrine (the "Delaware Forum Provision"). The bylaws further provide that, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States of America shall be the sole and exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act (the "Federal Forum Provision"). In addition, the bylaws provide that any person or entity purchasing or otherwise acquiring any interest in shares of our common stock is deemed to have notice of and consented to the Delaware Forum Provision and the Federal Forum Provision.

Section 27 of the Exchange Act creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder. As a result, the Delaware Forum Provision will not apply to suits brought to enforce any duty or liability created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. We note, however, that there is uncertainty as to whether a court would enforce this provision and that investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder.

We recognize that the Delaware Forum Provision and the Federal Forum Provision in the bylaws may impose additional litigation costs on stockholders in pursuing any such claims, particularly if the stockholders do not reside in or near the State of Delaware. Additionally, the Delaware Forum Provision and the Federal Forum Provision may limit our stockholders' ability to bring a claim in a forum that they find favorable for disputes with us or our directors, officers or employees, which may discourage such lawsuits against us and our directors, officers and employees even though an action, if successful, might benefit our stockholders. In addition, while the Delaware Supreme Court ruled in March 2020 that federal forum selection provisions purporting to require claims under the Securities Act be brought in federal court were "facially valid" under Delaware law, there is uncertainty as to whether other courts will enforce the Federal Forum Provision. If the Federal Forum Provision is found to be unenforceable, we may incur additional costs associated with resolving such matters. The Federal Forum Provision may also impose additional litigation costs on stockholders who assert that the provision is not enforceable or invalid. The Court of Chancery of the State of Delaware and the United States District Court may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments may be more or less favorable to us than our stockholders.

Indemnification of Directors and Officers

We are incorporated in the State of Delaware. The certificate of incorporation and bylaws provide that, to the fullest extent permitted by Delaware law, as it presently exists or may be amended from time to time, a director shall not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty as a director. And under Delaware law, this limitation of liability does not extend to, among other things, acts or omissions which involve intentional misconduct, fraud or knowing violation of law, or unlawful payments of dividends. So these provisions may discourage stockholders from bringing suit against a director or officer for breach of fiduciary duty and may reduce the likelihood of derivative litigation brought by stockholders on our behalf against a director or officer.

The certificate of incorporation and bylaws also provide for the indemnification of our directors, officers, employees, and agents, under certain circumstances, against attorney's fees and other expenses incurred by them in any litigation to which they become

a party arising from their association with or activities on behalf of the Company. As such, should our officers and/or directors require us to contribute to their defense, we may be required to spend significant amounts of our capital. This indemnification policy could therefore result in substantial expenditures, which we may be unable to recoup. If these expenditures are significant or involve issues which result in significant liability for our key personnel, we may be unable to continue operating as a going concern.

Furthermore, we intend to enter into indemnification agreements with our directors and executive officers that require us to indemnify them against expenses, judgments, fines, settlements and other amounts that any such person becomes legally obligated to pay (including with respect to a derivative action) in connection with any proceeding, whether actual or threatened, to which such person may be made a party by reason of the fact that such person is or was a director or officer of us or any of our affiliates, provided such person acted in good faith and in a manner such person reasonably believed to be in, or not opposed to, our best interests. We maintain a directors' and officers' liability insurance policy. The policy insures directors and officers against unindemnified losses arising from certain wrongful acts in their capacities as directors and officers and reimburses us for those losses for which we have lawfully indemnified the directors and officers. The policy contains various exclusions.

Transfer Agent

The transfer agent and registrar for our common stock is Continental Stock Transfer & Trust. The transfer agent and registrar's address is 1 State Street, 30th Floor, New York, NY 10004 and its telephone number is 1-212-509-400.

Item 14. Principal Accountant Fees and Services

Audit, Audit-Related and All Other Fees

The table below shows the aggregate fees billed for professional services for the audits and audit-related fees of the Company's annual financial statements included in this Annual Report for the years ended December 31, 2023 and 2022, respectively, by Wolf & Company, P.C.

	2023	2022
Audit fees(1)	$ 202,525	$ 173,000
Audit-Related fees(2)	-	16,500
Total	$ 202,525	$ 189,500

(1) This category includes the audit of our annual financial statements, reviews of our financial statements included in our Form 10-Qs and services that are normally provided by our independent registered public accounting firm in connection with its engagements for those fiscal periods.

(2) This category consists of assurance and related services by our independent registered public accounting firm that are reasonably related to the performance of the audit or review of our financial statements and are not reported above under "Audit Fees." The services for the fees disclosed under this category include consents regarding equity issuance.

Part IV

Item 15. Exhibits and Financial Statement Schedules

1. ***Financial Statements -*** We have filed the following documents in Item 8 of this Annual Report:

2. ***Financial Statement Schedules -*** All other schedules are omitted because they are not required, or the required information is included in the financial statements or notes thereto.

3. ***Exhibits -*** For a list of exhibits filed with this Annual Report, refer to the exhibit index below. The exhibits listed in the Exhibit Index are filed or incorporated by reference as part of this Annual Report.

No.	Description of Exhibit
3.1	Fourth Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 of the Company's Form 8-K filed with the SEC on June 22, 2021).
3.2	Second Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 of the Company's Form 8-K filed with the SEC on June 22, 2021).
4.1	Form of Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.1 of the Company's Form 8-K filed with the SEC on November 29, 2021).
4.2	Warrant to Purchase Stock – Western Alliance Bank (incorporated by reference as Exhibit 10.2 to the Company's Form 8-K filed with the SEC on August 16, 2021).
4.3	Description of Securities (incorporated by reference to Exhibit 4.3 of the Company's Form 10-K filed with the SEC on March 22, 2022).
10.1	Loan and Security Agreement (incorporated by reference to Exhibit 10.1 of the Company's Form 8-K filed with the SEC on August 16, 2021).
10.2	Warrant to Purchase Common Stock issued to Western Alliance Bank on August 13, 2021 (incorporated by reference to Exhibit 10.2 of the Company's Form 8-K filed with the SEC on August 16, 2021).
10.3	Securities Purchase Agreement, dated November 28, 2021, by and between the Company and the purchasers named therein (incorporated by reference to Exhibit 10.1 of the Company's Form 8-K filed with the SEC on November 29, 2021).
10.4	Registration Rights Agreement, dated November 28, 2021, by and between the Company and the investors named therein (incorporated by reference to Exhibit 10.2 of the Company's Form 8-K filed with the SEC on November 29, 2021).
10.5	Placement Agency Agreement, dated November 28, 2021, by and between the Company and ThinkEquity LLC (incorporated by reference to Exhibit 10.3 of the Company's Form 8-K filed with the SEC on November 29, 2021).
10.6	iSpecimen Inc. 2010 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.7	iSpecimen Inc. 2013 Stock Incentive Plan (incorporated by reference to Exhibit 10.2 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.8	Form of Indemnification Agreement, by and between the Company and certain directors and executive officers (incorporated by reference to Exhibit 10.3 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.9	Form of Confidentiality, Non-Competition And Assignment Agreement, by and between iSpecimen Inc. and each of its employees (incorporated by reference to Exhibit 10.4 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.10	Lease between the Company and Bedford Street LLC (incorporated by reference to Exhibit 10.5 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.11	Form of Series A Preferred Stock Subscription Agreement (incorporated by reference to Exhibit 10.6 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.12	Capital Commitment Agreement, dated September 1, 2012 (incorporated by reference to Exhibit 10.7 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.13	Form of Series B Preferred Stock Purchase Agreement, dated August 22, 2014 (incorporated by reference to Exhibit 10.8 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.14	Form of Investors' Rights Agreement for Series A-1 Preferred Stock and Series B Preferred Stock Investors (incorporated by reference to Exhibit 10.9 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.15	Form of Convertible Note Subscription Agreement (incorporated by reference to Exhibit 10.10 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.16	Form of Unsecured Convertible Promissory Note (incorporated by reference to Exhibit 10.11 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.17	Unsecured Convertible Promissory Note, dated December 29, 2017, issued by the Company to Anna-Maria and Stephen Kellen Foundation, Inc. (incorporated by reference to Exhibit 10.12 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).

10.18	Omnibus Amendment to Unsecured Convertible Notes and Subscription Agreement, dated August 3, 2018, by and among the Company, Andrew L. Ross, Anna-Maria and Stephen Kellen Foundation, Inc., and OBF Investments, LLC (incorporated by reference to Exhibit 10.13 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.19	Second Omnibus Amendment to Unsecured Convertible Notes and Subscription Agreement, dated May 1, 2019, by and among iSpecimen Inc., Andrew L. Ross, Anna-Maria and Stephen Kellen Foundation, Inc., and OBF Investments, LLC (incorporated by reference to Exhibit 10.14 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.20	Third Omnibus Amendment to Unsecured Convertible Notes and Subscription Agreement, dated November 15, 2019, by and among iSpecimen Inc., Andrew L. Ross, Anna-Maria and Stephen Kellen Foundation, Inc., and OBF Investments, LLC (incorporated by reference to Exhibit 10.15 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.21	Fourth Omnibus Amendment to Unsecured Convertible Notes and Subscription Agreement, dated September 19, 2020, by and among iSpecimen Inc., Andrew L. Ross, Anna-Maria and Stephen Kellen Foundation, Inc., and OBF Investments, LLC (incorporated by reference to Exhibit 10.16 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.22	Form of Note Subscription Agreement for Secured Bridge Debt (incorporated by reference to Exhibit 10.17 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.23	Form of Secured Promissory Note for Secured Bridge Debt (incorporated by reference to Exhibit 10.18 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.24	First Amendment to Note Subscription Agreements and Secured Promissory Notes, dated May 1, 2019, by and among the Company and Note Investors (incorporated by reference to Exhibit 10.19 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.25	Second Amendment to Note Subscription Agreements and Secured Promissory Notes, dated November 15, 2019, by and among the Company and Note Investors (incorporated by reference to Exhibit 10.20 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.26	Third Amendment to Note Subscription Agreements and Secured Promissory Notes, dated June 15, 2020, by and among the Company and Note Investors (incorporated by reference to Exhibit 10.21 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.27	Fourth Amendment to Note Subscription Agreements and Secured Promissory Notes, dated October 1, 2020, by and among the Company and Note Investors (incorporated by reference to Exhibit 10.22 of the Company's Form S-1/A (File No. 333-250198) with the SEC on December 31, 2020).
10.28	Fifth Amendment to Note Subscription Agreements and Secured Promissory Notes, dated March 15, 2021, by and among the Company and Note Investors (incorporated by reference to Exhibit 10.23 of the Company's Form S-1/A3 (File No. 333-250198) with the SEC on April 2, 2021).
10.29	iSpecimen Inc. Second Amended and Restated 2021 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 of the Company's Form 8-K filed with the SEC on May 26, 2022).
10.30#	Executive Employment Agreement by and between the Company and Christopher lanelli (incorporated by reference to Exhibit 10.25 of the Company's Form S-1/A3 (File No. 333-250198) with the SEC on April 2, 2021).
10.31#	Executive Employment Agreement by and between the Company and Jill Mullan (incorporated by reference to Exhibit 10.26 of the Company's Form S-1/A3 (File No. 333-250198) with the SEC on April 2, 2021).
10.32#	Executive Employment Agreement by and between the Company and Tracy Curley (incorporated by reference to Exhibit 10.27 of the Company's Form S-1/A3 (File No. 333-250198) with the SEC on April 2, 2021).
10.33#	Employment Agreement by and between the Company and Benjamin Bielak (incorporated by reference to Exhibit 10.28 of the Company's Form S-1/A3 (File No. 333-250198) with the SEC on April 2, 2021).
10.34	Factoring Agreement, dated January 1, 2021, by and between iSpecimen Inc. and Versant Funding, LLC (incorporated by reference to Exhibit 10.29 of the Company's Form S-1/A4 (File No. 333-250198) filed with the SEC on April 27, 2021).
10.35	Waiver Agreement, dated April 29, 2022, by and between the Company and Western Alliance Bank (incorporated by reference to Exhibit 10.1 of the Company's Form 8-K filed with the SEC on April 29, 2022).
10.36#	First Amendment to Executive Employment Agreement, dated as of June 20, 2022, between the Company and Christopher Ianelli (incorporated by reference to Exhibit 10.1 of the Company's Form 8-K filed with the SEC on June 21, 2022).

10.37#	First Amendment to Executive Employment Agreement, dated as of June 20, 2022, between the Company and Jill Mullan (incorporated by reference to Exhibit 10.2 of the Company's Form 8-K filed with the SEC on June 21, 2022).
10.38#	First Amendment to Executive Employment Agreement, dated as of June 20, 2022, between the Company and Tracy Curley (incorporated by reference to Exhibit 10.3 of the Company's Form 8-K filed with the SEC on June 21, 2022).
10.39#	First Amendment to Executive Employment Agreement, dated as of June 20, 2022, between the Company and Benjamin Bielak (incorporated by reference to Exhibit 10.4 of the Company's Form 8-K filed with the SEC on June 21, 2022).
10.40+#	First Amended and Restated Executive Employment Agreement, dated October 24, 2022, by and between Tracy Wilson Curley and iSpecimen Inc. (incorporated by reference to Exhibit 10.1 of the Company's Form 8-K filed with the SEC on October 28, 2022).
10.41	First Restated Noncompetition, Nonsolicitation, Nondisclosure and Inventions Agreement, dated October 24, 2022, by and between Tracy Wilson Curley and iSpecimen Inc. (incorporated by reference to Exhibit 10.2 of the Company's Form 8-K filed with the SEC on October 28, 2022).
10.42+#	First Amended and Restated Executive Employment Agreement, dated October 24, 2022, by and between Benjamin Bielak and iSpecimen Inc. (incorporated by reference to Exhibit 10.3 of the Company's Form 8-K filed with the SEC on October 28, 2022).
10.43	First Restated Noncompetition, Nonsolicitation, Nondisclosure and Inventions Agreement, dated October 24, 2022, by and between Benjamin Bielak and iSpecimen Inc. (incorporated by reference to Exhibit 10.4 of the Company's Form 8-K filed with the SEC on October 28, 2022).
10.44+	Separation Agreement, dated October 24, 2022, by and between Christopher Ianelli and iSpecimen Inc. (incorporated by reference to Exhibit 10.5 of the Company's Form 8-K filed with the SEC on October 28, 2022).
10.45+	Separation Agreement effective October 24, 2022, by and between Jill Mullan and iSpecimen Inc. (incorporated by reference to Exhibit 10.6 of the Company's Form 8-K filed with the SEC on October 28, 2022).
14	Form of Code of Business Conduct and Ethics (incorporated by reference to Exhibit 14 of the Company's Form S-1/A4 (File No. 333-250198) filed with the SEC on April 27, 2021).
23.1*	Consent of Wolf & Company, P.C.
31.1*	Certification of Principal Executive Officer Pursuant to Securities Exchange Act Rules 13a-14(a) and 15(d)-14(a), as adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2*	Certification of Principal Financial Officer Pursuant to Securities Exchange Act Rules 13a-14(a) and 15(d)-14(a), as adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1*	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
97.1*	iSpecimen Inc. Executive Compensation Clawback Policy (Adopted on October 27, 2023).
101.INS*	Inline XBRL Instance Document
101.CAL*	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.SCH*	Inline XBRL Taxonomy Extension Schema Document
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB*	Inline XBRL Taxonomy Extension Labels Linkbase Document
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104*	Cover Page Interactive Data File—the cover page interactive data file does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.

* Filed herewith.
** Furnished herewith.
\+ Schedules and exhibits have been omitted pursuant to Items 601(a)(5) and 601(b)(2) of Regulation S-K. The Company agrees to furnish supplementally a copy of any omitted schedule or exhibit to the SEC upon request.
\# Indicates management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on March 13, 2024.

iSPECIMEN, INC.

By: /s/ Tracy Curley
Tracy Curley
Chief Executive Officer, Chief Financial Officer and Treasurer
(Principal Executive Officer and Principal Financial and Accounting Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below on March 13, 2024, by the following persons on behalf of the registrant and in the capacities indicated:

Signature	
/s/ Tracy Curley Tracy Curley	Chief Executive Officer, Chief Financial Officer, Treasurer and Director (Principal Executive Officer and Principal Financial and Accounting Officer)
/s/ Andrew L. Ross Andrew L. Ross	Director and Chairman of the Board
/s/ Theresa Mock Theresa Mock	Director
/s/ Steven Gullans Steven Gullans	Director
/s/ John L. Brooks III John L. Brooks III	Director


iSPECIMEN®