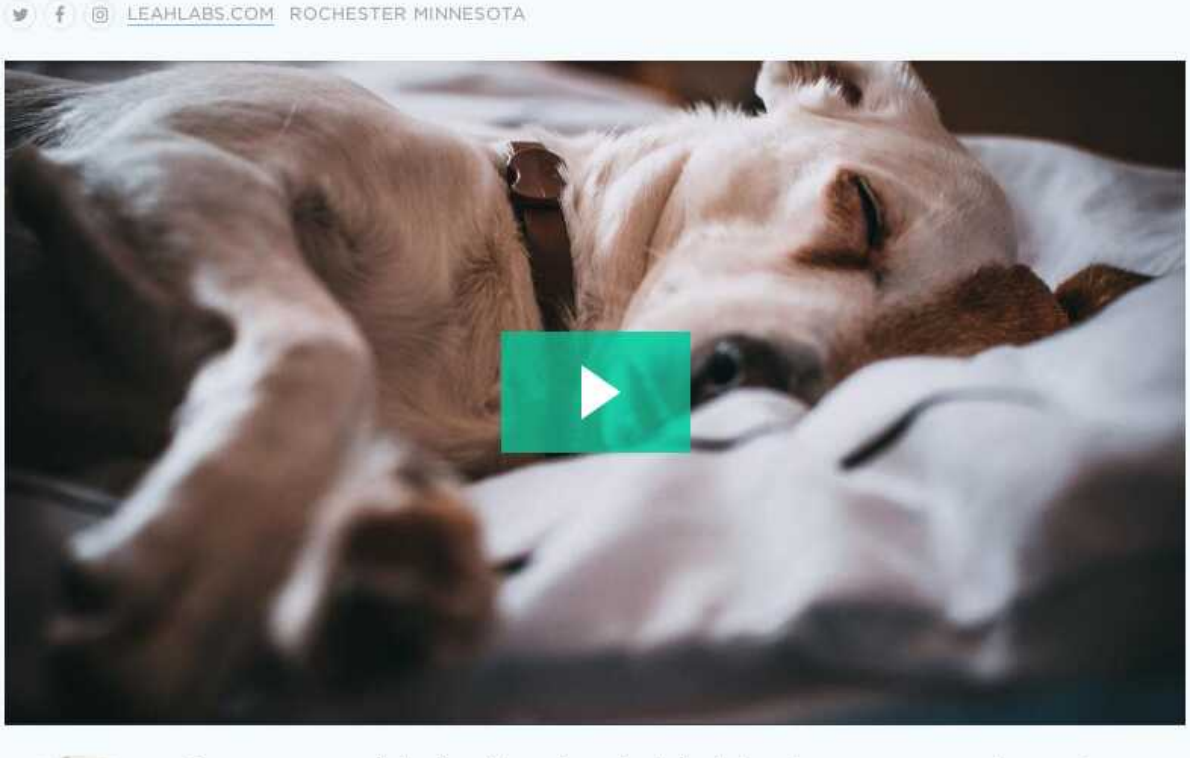
Technology Bio Tech Y Combinator R and D Healthcare

LEAH Labs

Curing Cancer in Dogs

LEAHLABS.COM ROCHESTER MINNESOTA



Dogs are part of the family and we don't feel that the current care they get is up to par; they deserve the same technological advances in healthcare that their humans get. Using our expertise in gene editing, we can bring innovation to the veterinary market that has never before been possible.

Wesley Wierson Chief Executive Officer @ LEAH Labs

Why you may want to support us...

1. We're developing the first cure for lymphoma in dogs.
2. We've killed cancer in a test tube with our therapeutic; a CAR-T cell specific for B cell lymphoma.
3. We use CRISPR to genetically engineer T cells, making them cancer fighting machines.
4. We're a team of world leading experts in gene editing, immunotherapy, and veterinary oncology.
5. CAR-T is the hottest area of cancer research today and is curing human patients with lymphoma.
6. The total market for our product is over $1.5B.
7. We've closed $163,000+ via Reg D since launching on Wefunder, and received a $35k non-dilutive grant on 1/31/2020.
8. We're backed by Y Combinator. Other alumni include Ginkgo Bioworks, Atomwise, Science Exchange

Why investors ❤ us

WE'VE RAISED $917,538 SINCE OUR FOUNDING

LEAH Labs is doing real breakthrough science. CAR-T therapy is the biggest breakthrough in cancer care in many years, and LEAH labs is the only company taking this technology that has cured many people and bringing it to the veterinary world. There are very few people in the world who have the right scientific experience needed to do this, and the LEAH labs team has some of the top scientists in the field working with them.

Jared Friedman
Y Combinator Partner
INVESTOR

I love dogs.
Edel Otero

I believe in this product
Mer Rodriguez

SEE MORE

Our team

AND OUR MAJOR ACCOMPLISHMENTS

Wesley Wierson
Chief Executive Officer
Genome hacker. Layla the mutt's dad. PhD in Molecular, Cellular, and Developmental Biology.

Zachary C WareJoncas
Chief Operations Officer
Biotech focused entrepreneur and genetic engineer! BA in Biology and Genetics.

Stephen Carl Ekker
Scientific Founder - Translational Medicine
Entrepreneur with 1 exit. Dean, Grad School of Biomed Sciences. PhD, Molecular Biology & Genetics.

Jonathan Mochel
Scientific Founder - Veterinary Pharmacology
Veterinary pharmacologist. Founded Animal Health Modeling & Simulation Society. PhD, Pharmacology.

Saad Kenderian
Scientific Founder - Immunotherapy
Physician scientist, hematologist, Expert/inventor in CAR T cell therapy. Assistant Professor, Medicine, Oncology.

In the news

Downloads

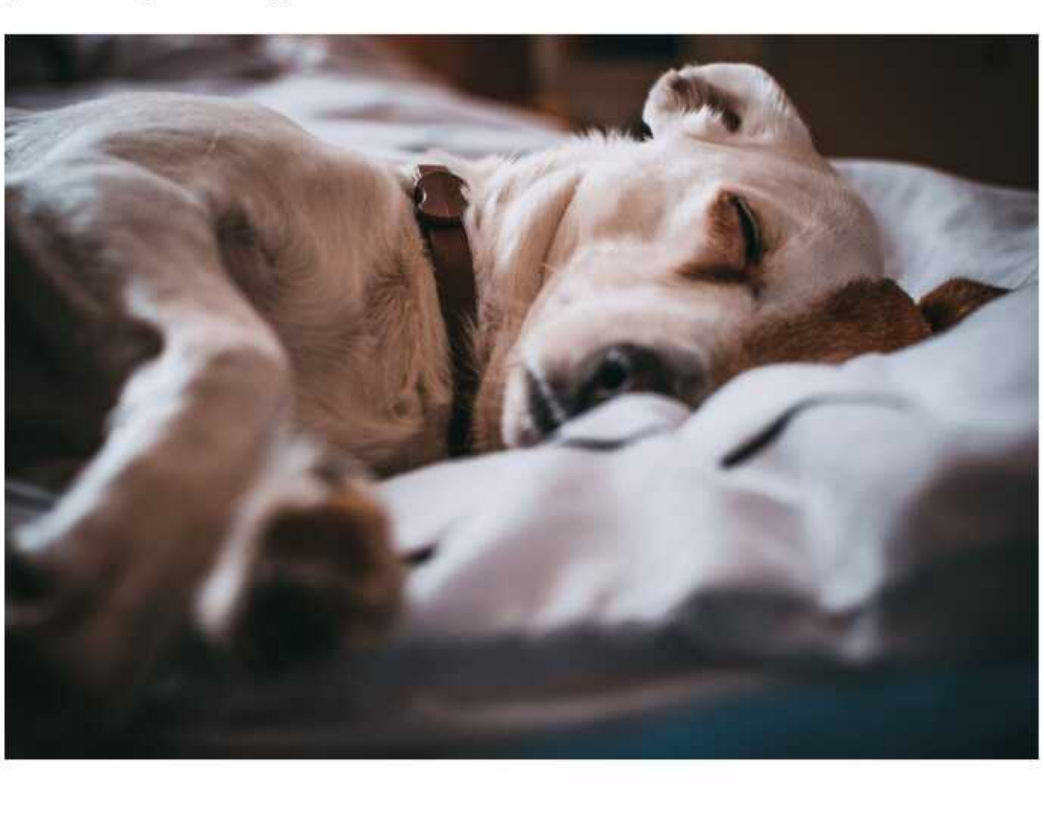
LEAH Labs Wefunder Deck .pdf

We're the first in the world using gene-editing to make a cure for cancer in dogs.

We're building the first cure for canine cancer. It's called CAR-T cell therapy, and we know it works.

CAR-T cells are FDA-approved and already saving human patients from their deathbeds in clinics today.

This advance can only be made affordable for dogs because of our company's expertise in gene-editing technology.

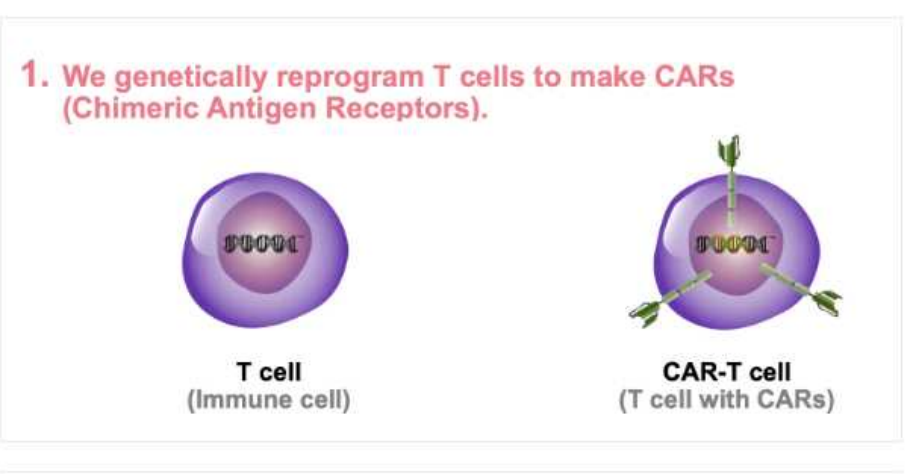


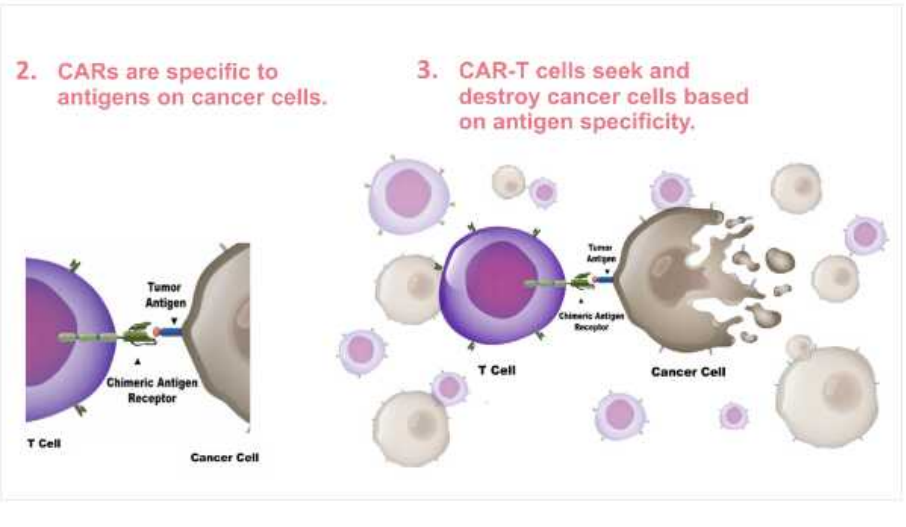
We have already used CAR-T cell therapy to kill canine B cell lymphoma in a test tube.

CAR-T cell therapy relies on reprogramming living cells, called T cells, with chimeric antigen receptors (CARs).

CARs are engineered to find and bind to antigens found on cancer, but not other cells.

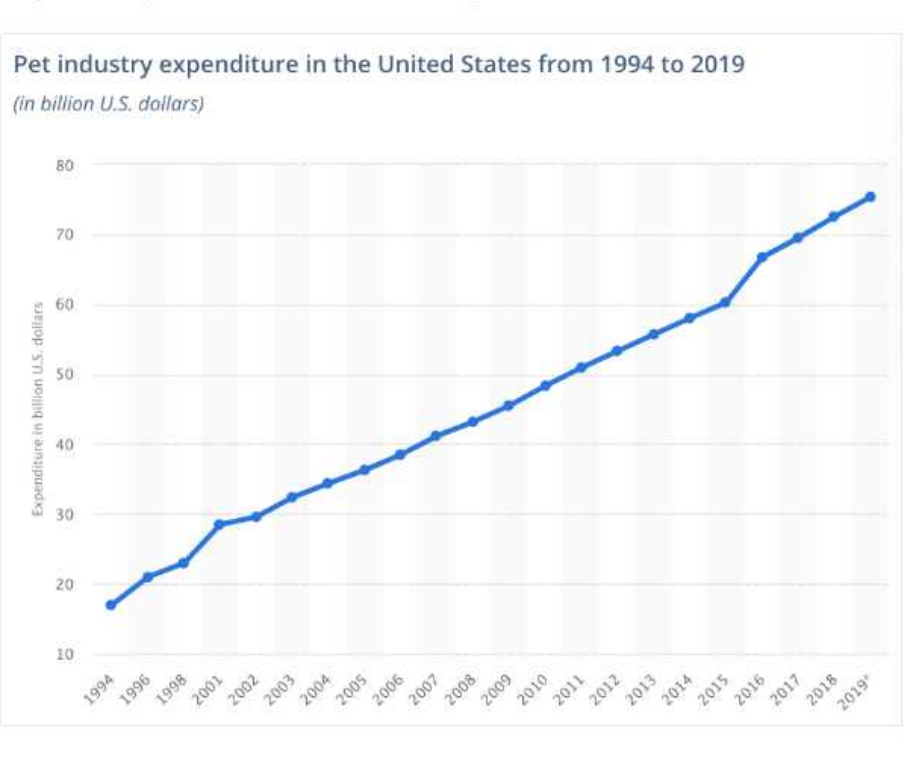
In this way, CAR-T cells seek and destroy cancer in a way no other cancer therapy ever has.


1. We genetically reprogram T cells to make CARs (Chimeric Antigen Receptors).
T cell
(Immune cell)
CAR-T cell
(T cell with CARs)


2. CARs are specific to antigens on cancer cells.
Tumor Antigen
Chimeric Antigen Receptor
T Cell
Cancer Cell
3. CAR-T cells seek and destroy cancer cells based on antigen specificity.
Tumor Antigen
Chimeric Antigen Receptor
T Cell
Cancer Cell

This is a $1.5 billion opportunity.

Our total addressable market is huge. $72B is spent every single year in the companion animal market. $18B is spent yearly on companion animal healthcare. 10% of millennials say they would spend over $10k on their dogs.



How we're aiming to disrupt the standard of care

300,000 pet dogs in the US could be candidates for our therapy. The current standard of care might only buy a year of life, costs $10,000, and takes up to 16 trips to the vet over the span of 5+ months.

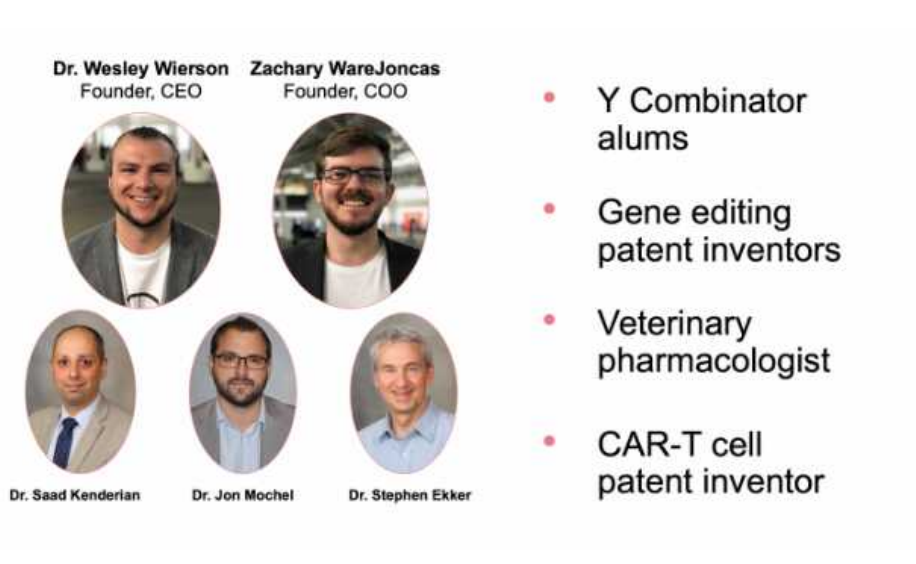
Our treatment can potentially cure dogs of cancer, is about half the price at $5K, and takes only 3 trips to the vet.

What makes us special

CEO Dr. Wesley Wierson developed a patent-pending gene-editing CRISPR technology during his PhD that LEAH Labs uses to engineer T cells into CAR-T cells. LEAH Labs was the FIRST (and only to date) company to be based on gene-editing technology accepted into Y Combinator.

Our immunobiology co-founder Dr. Saad Kenderian is an inventor on an FDA approved CAR-T cell therapy patent licensed to Novartis. Our translational medicine co-founder Dr. Stephen Ekker has been editing genomes for 20 years. And our veterinary co-founder Dr. Jon Mochel has worked years in industry at Roche and Novartis modeling pharmacodynamics.

We have the expertise to get this done.



The bigger picture

One in three dogs dies of cancer. After B cell lymphoma, we plan to save more dogs' lives by curing T cell lymphoma, mast cell disease, and glioblastoma.

By the numbers

90,000,000 Pet dogs in the USA in 2018	33% Percentage of dogs that die of cancer	50% Percentage of dogs over 10-years-old that die of cancer
$72B Growing companion animal market in the USA	$7,000-12,000 Cost for non-curative standard of care for B cell lymphoma	50,000 Dogs treated for B cell lymphoma
$500,000,000 Market for B cell lymphoma treatment	$18B Spent on animal health yearly in the USA	85% Percentage of shared genes between dogs and humans

Investor Q&A

– COLLAPSE ALL

What does your company do?

LEAH Labs uses next generation technology to reprogram immune cells into cancer fighting machines.

Where will your company be in 5 years?

In 5 years, LEAH Labs has the only treatment in canine oncology that can CURE cancer. We have diversified our portfolio and now treat multiple cancer types. The data we have generated and the platform we have built are licensed to a leading human immuno-oncology company. Life is good, and dogs are living the best lives they have ever had!

Why did you choose this idea?

Dogs are part of the family and we don't feel that the current care they get is up to par; they deserve the same technological advances in healthcare that their humans get. Using our expertise in gene editing, we can bring innovation to the veterinary market that has never before been possible.

What's new about what you're making? How is it different?

In principle, our technology is the same as what has proven to be curative in humans; chimeric antigen receptor (CAR) T cell therapy. However, current FDA approved CAR T cell therapy is made using expensive and inefficient methods reliant upon a virus to infect T cells in order to reprogram them. LEAH Labs uses gene editing to create CAR T cells, a technology that is proven to be more efficient and less expensive.

How big is the market?

The companion animal market is exploding. There are over 90,000,000 pet dogs in the USA and growing, and right now, over $72B is spent in the companion animal market annually.

Every year, $18B is spent on companion animal veterinary care, and by 2026, the vet care market is estimated to be worth over $26B. Even still, 6,000,000 dogs die of cancer every year.

Millennials are the fastest growing population of dog owners, and in a recent survey of millennial pet owners, 36% would be willing to pay $1000-$9999 on veterinary procedures, and 11% would be willing to pay over $10,000. The market is ripe for disruption, with more affordable therapeutics that promise more than a year of life.

What do you understand about your business that others don't get?

There are a few current competitors who offer adoptive T cell transfer in order to fight different cancer in dogs. However, this is not CAR T cell therapy, as their products are not genetically engineered to fight cancer specifically. This is where our key value proposition comes in: we use gene editing to specifically reprogram T cell genomes, making them cancer fighting machines. Others do not understand the power of gene editing or do not have the expertise to apply it towards solving this type of problem. We do.

Genetic engineering? Are you making GMO dogs?

Simple answer: NO! We use gene editing to reprogram immune cells. By definition, those cells are genetically modified - but, we are not making an organism from them. We are not making any dog GMO and there is no scientifically plausible way that any of our therapeutic could ever get into the environment.

Do you use CRISPR? I read that CRISPR can cause cancer.

CRISPR is a cornerstone of how LEAH Labs creates our therapy. CRISPR has revolutionized the way scientists are able to control cells and their DNA. With the proper experimental design, CRISPR can be effective, safe, and precise. LEAH Labs scientists take the utmost caution to be sure that our therapy is engineered safely and properly.

What aspect of LEAH Labs keeps your team up at night?

Creating new therapies is not an easy task, and some of our first furry pet patients may suffer from toxicities due to our therapy. Pet owners will trust LEAH Labs to help their dog, not make them suffer. The reality is that some of the early tests may result in much needed moments of learning at the ultimate sacrifice of some of our patients. Some of the hardest moments may teach us the most, and we will always be learning how to limit these events.

How will you make money?

LEAH Labs will make money by selling our line of therapies directly to veterinary oncologists when they need to treat a sick animal. We also have opportunities to partner with human pharmaceutical companies in order to test new strategies in dogs that inform human trials, and can license our technology to other companies aiming to use our platform of gene editing.

Right now, at least $500,000,000 is spent on a $10,000 non-curative chemotherapy for dogs with just one type of cancer, B cell lymphoma.

Our therapy brings many value propositions: it can be curative, it will only take 3 trips to the vet (as opposed to 16 for the current standard), and it will be more affordable.

We will disrupt the current standard of care market with a price point of $5,000. With at least 300,000 dogs dying of B cell lymphoma every year, the total addressable market at that price point is at least $1.5B.

Does pet insurance cover your product?

Yep! Most pet insurance companies cover cancer care as long as it's not a pre-existing condition. Though we're entering novel territory, there is a precedent for insurance covering cell therapy in dogs: the therapy of a company developing adoptive T cell transfer (not CAR T!) is covered by insurance.

How strong is your intellectual property?

We're in the final steps of getting our gene editing patent issued and will be able to defend the critical parts of that technology. This technology is licensed from Iowa State University and Mayo Clinic Ventures for single digit royalties. The funds from this campaign will help us add to our IP portfolio with provisional patents coming soon.

If your technology is such a great way of making CAR T cell therapy, why aren't you doing this in humans?

Some day we might! Right now, there is an urgent and pressing need for new therapy in dogs with cancer. The fact that we're regulated via the USDA-CVB and can be to market in 3 years for literally two orders of magnitude less than if we were in the human CAR T cell space is another great reason to make our therapies for dogs. Also, what we develop at LEAH Labs could be directly licensed to human pharma.

What types of dogs get cancer?

All dogs can get cancer, but our first indication, B cell lymphoma, has a much higher frequency in big breeds like boxers, labs, rottweilers, german shephards, and golden retrievers.

How does it work again?

The hottest area of cancer research today is called CAR T cell therapy. It's already saving human patients with lymphoma.

This therapy works by reprogramming immune cells called T cells such that they seek out and destroy cancer cells - not kill all dividing cells (i.e. hair cells) like chemotherapy does. In fact, our co-founder, Dr. Saad Kenderian, is treating human patients in the clinic today with CAR T cell therapy.

Dogs get the same types of cancers humans do. During his PhD, Wes pioneered gene editing technology that allows us to insert DNA into genomes - just like copying and pasting a sentence into a paragraph.

With your funding, we can use this gene editing technology to create CAR T cells at scale and quickly bring them to the veterinary market.

What's your exit strategy? How will I get a return on my investment?

LEAH Labs is at the intersection of three booming technologies and markets: CAR-T, canine/companion animal oncology, and gene editing. This positions us to have multiple exit strategies.

Our view, however, is that our capital needs to get to revenue are so low, we think we could maintain control of our company and end up in an IPO while we enter new companion animal segments, enabled by our gene editing platform.

That said, within the CAR-T and animal oncology space alone, there are untold billions in M&A activity within the last few years. The clinical data we amass in dogs will be valuable for human pharma companies, and the market for canine oncology alone is enough to exit to an animal pharma company once we enter the revenue stage.

Can this type of therapy work in cats? Or other animals?

This same type of therapy should definitely translate over to cats and other impactful animal species. That's on our 5-10 year plan after we solidify ourselves as a company in the canine oncology space. We would need a year or two of R&D for each new animal we target, and trials would be longer or different in different species, but the overall technology should be applicable across mammals.

Financials

LEAH Labs has financial statements ending December 31 2019. Our cash in hand is $517,500, as of May 2020. Over the three months prior, revenues averaged $0/month, cost of goods sold has averaged $0/month, and operational expenses have averaged $22,646.39/month.

At a Glance

January 1 to December 31

$0 Revenue	-$276,139 Net Loss	$0 Short Term Debt
$328,000 Raised in 2019	$517,500 Cash on Hand As of 05/ 1/20	

INCOME BALANCE NARRATIVE

Management's Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion and analysis of our financial condition and results of operations together with our financial statements and the related notes and other financial information included elsewhere in this offering. Some of the information contained in this discussion and analysis, including information regarding the strategy and plans for our business, includes forward-looking statements that involve risks and uncertainties. You should review the "Risk Factors" section for a discussion of important factors that could cause actual results to differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

LEAH Labs uses next generation technology to reprogram immune cells into cancer fighting machines.

In 5 years, LEAH Labs has the only treatment in canine oncology that can CURE cancer. We have diversified our portfolio and now treat multiple cancer types. The data we have generated and the platform we have built are licensed to a leading human immuno-oncology company. Life is good, and dogs are living the best lives they have ever had!

Given the Company's limited operating history, the Company cannot reliably estimate how much revenue it will receive in the future, if any.

Milestones

LifEngine Animal Health Laboratories Incorporated was incorporated in the State of Delaware in November 2018.

Since then, we have:

- We're developing the first cure for lymphoma in dogs.
- We've killed cancer in a test tube with our therapeutic; a CAR-T cell specific for B cell lymphoma.
- We use CRISPR to genetically engineer T cells, making them cancer fighting machines.
- We're a team of world leading experts in gene editing, immunotherapy, and veterinary oncology.
- CAR-T is the hottest area of cancer research today and is curing human patients with lymphoma.
- The total market for our product is over $1.5B.
- We've closed $163,000+ via Reg D since launching on Wefunder, and received a $35k non-dilutive grant on 1/31/2020, and a $100k non-dilutive grant on 4/7/2020.

Historical Results of Operations

Our company was organized in November 2018 and has limited operations upon which prospective investors may base an evaluation of its performance.

- *Revenues & Gross Margin.* For the period ended December 31, 2019, the Company had revenues of $0 compared to the year ended December 31, 2018, when the Company had revenues of $0. Our gross margin was % in fiscal year 2019, compared to % in 2018.
- *Assets.* As of December 31, 2019, the Company had total assets of $228,643, including $228,643 in cash. As of December 31, 2018, the Company had $523 in total assets, including $523 in cash.
- *Net Loss.* The Company has had net losses of $276,139 and net losses of $627 for the fiscal years ended December 31, 2019 and December 31, 2018, respectively.
- *Liabilities.* The Company's liabilities totaled $0 for the fiscal year ended December 31, 2019 and $0 for the fiscal year ended December 31, 2018.

Liquidity & Capital Resources

To-date, the company has been financed with a total of $917,538 in SAFEs.

After the conclusion of this Offering, our projected runway is 8 months before we need to raise further capital.

We plan to use the proceeds as set forth in this Form C under "Use of Funds". We don't have any other sources of capital in the immediate future.

We will likely require additional financing in excess of the proceeds from the Offering in order to perform operations over the lifetime of the Company. We plan to raise capital in 8 months. Except as otherwise described in this Form C, we do not have additional sources of capital other than the proceeds from the offering. Because of the complexities and uncertainties in establishing a new business strategy, it is not possible to adequately project whether the proceeds of this offering will be sufficient to enable us to implement our strategy. This complexity and uncertainty will be increased if less than the maximum amount of securities offered in this offering is sold. The Company intends to raise additional capital in the future from investors. Although capital may be available for early-stage companies, there is no guarantee that the Company will receive any investments from investors.

Runway & Short/Mid Term Expenses

LifEngine Animal Health Laboratories Incorporated cash in hand is $517,500, as of May 2020. Over the last three months, revenues have averaged $0/month, cost of goods sold has averaged $0/month, and operational expenses have averaged $22,646.39/month, for an average burn rate of $22,646.39 per month. Our intent is to be profitable in 36 months.

We have closed our Wefunder campaign after raising a total of $479,538, and closed additional investments of $110,000 via Reg D 506(c). We are now entering R&D phase of our company and monthly burn will increase as such. We have also obtained a $100,000 grant from the State of Minnesota, bringing our total funding to date to over $1M.

Our revenues will not change, however our expenses will increase. That said, COVID-19 is currently impacting our ability to make projections for the next 3-6 months, as we may not be able to perform our planned R&D activities if we are under continued shelter-in-place orders. If the COVID-19 situation changes for the better, we plan to increase monthly burn as we hire and move into more full time R&D towards our company milestones of treating dog patients in the next year.

> **A note from Wefunder.** Unlike companies on the NASDAQ, early-stage startups have little operating history. Financial analysis is not as useful when there is limited data. It's more important to predict the size of the future market. If the founder achieves their vision, will enough customers pay the company enough money?
>
> It's also common for fast-growing startups to lose money even faster: they are investing in future growth. In these cases, it's often better to check if the Cost of User Acquisition (CAC) is lower than the Lifetime Value (LTV) of that customer. If one spends $1000 today to make $10,000 over the next five years, that may be a smart bet. Amazon is a famous example of re-investing potential profits to maximize growth over 20 years.

Net Margin: N/A	**Gross Margin:** N/A	**Return on Assets:** -121%
Earnings per Share: -$0.06	**Revenue per Employee:** $0	**Cash to Assets:** 100%
Revenue to Receivables: ~	**Debt Ratio:** 0%	

LEAH Labs Inc - Reviewed Statements.pdf

Risks

1. Research and development in biotechnology is not a sure bet. Hypotheses can be null and proof of concepts can fail. There is no sure bet that LEAH Labs can generate a therapy that will rival the current standard of care.
2. We have performed "freedom to operate" scans, but there can be no guarantee that our portfolio of technology is free from being subjected to licensing fees, taking money out of our bottom dollar and the ability to grow revenue to the levels we aim for.
3. This Wefunder campaign raises us money to take our R&D to the next level and get towards proof of concept in sick animals. This campaign does not get us to market and does not guarantee we will ever get to market.
4. Immunotherapy like CAR T cell therapy can cause severe toxicities and even death in humans. We hypothesize the same toxicities are possible in our canine friends. Should managing these toxicities prove cost-prohibitive in dogs, our therapeutic strategy may fail.
5. The Company may never receive a future equity financing or elect to convert the Securities upon such future financing. In addition, the Company may never undergo a liquidity event such as a sale of the Company or an IPO. If neither the conversion of the Securities nor a liquidity event occurs, the Purchasers could be left holding the Securities in perpetuity. The Securities have numerous transfer restrictions and will likely be highly illiquid, with no secondary market on which to sell them. The Securities are not equity interests, have no ownership rights, have no rights to the Company's assets or profits and have no voting rights or ability to direct the Company or its actions.
6. CAR T cell therapy is the hottest area of cancer research today. Headlines, both positive and negative, will impact our business and veterinarians willingness to try our product during the experimental phase.
7. Our future success depends on the efforts of a small management team. The loss of services of the members of the management team may have an adverse effect on the company. There can be no assurance that we will be successful in attracting and retaining other personnel we require to successfully grow our business.

Details

The Board of Directors

DIRECTOR	OCCUPATION	JOINED
Franklyn G. Prendergast	Consultant @ Retired	2019
Wesley A Wierson	CEO @ LEAH Labs	2018
Stephen C. Ekker	Professor @ Mayo Clinic	2018

Officers

OFFICER	TITLE	JOINED
Wesley A Wierson	President CEO	2018

Voting Power

HOLDER	SECURITIES HELD	VOTING POWER
Wesley A Wierson	1,370,000 Common stock	26.2%

Past Equity Fundraises

DATE	AMOUNT	SECURITY
11/2019	$3,000	SAFE
02/2020	$100,000	SAFE
11/2019	$50,000	SAFE
03/2020	$10,000	SAFE
02/2020	$467,864	SAFE
04/2019	$10,000	SAFE
04/2019	$10,000	SAFE
03/2019	$55,000	SAFE
01/2019	$50,000	SAFE
01/2019	$150,000	SAFE

Outstanding Debts

None.

Related Party Transactions

None.

Use of Funds

$100,000	$30,000 towards research and development (optimization of our technology in vitro, involving purchase of research consumables, DNA sequencing, cell culture materials, and enzymes needed for molecular and cellular biology), $64,000 towards maintaining talent, $6,000 towards the Wefunder intermediary fee
$200,000	$86,000 towards research and development (optimization of our technology in vitro, involving purchase of research consumables, DNA sequencing, cell culture materials, and enzymes needed for molecular and cellular biology), $102,000 towards maintaining talent, $12,000 towards the Wefunder intermediary fee
$350,000	$150,000 towards research and development (optimization of our technology in vitro, involving purchase of research consumables, DNA sequencing, cell culture materials, and enzymes needed for molecular and cellular biology), $50,000 towards proof of concept studies, $104,000 towards maintaining and hiring talent, $25,000 towards business development, $21,000 towards the Wefunder intermediary fee
$500,000	$250,000 towards research and development (optimization of our technology in vitro, involving purchase of research consumables, DNA sequencing, cell culture materials, and enzymes needed for molecular and cellular biology), $50,000 towards in vivo studies, $164,000 towards hiring and maintaining talent, $15,000 towards business development, $21,000 towards the Wefunder intermediary fee
$1,070,000	$350,000 towards research and development (optimization of our technology in vitro, involving purchase of research consumables, DNA sequencing, cell culture materials, and enzymes needed for molecular and cellular biology), $300,000 towards proof of concept studies and USDA safety trials, $285,800 towards maintaining and hiring talent, $70,000 towards business development, $64,200 towards the Wefunder intermediary fee

Capital Structure

CLASS OF SECURITY	SECURITIES (OR AMOUNT) AUTHORIZED	SECURITIES (OR AMOUNT) OUTSTANDING	VOTING RIGHTS
Common Stock	10,000,000	4,863,250	Yes

Form C Filing on EDGAR

The Securities and Exchange Commission hosts the **official Form C** on their EDGAR web site.