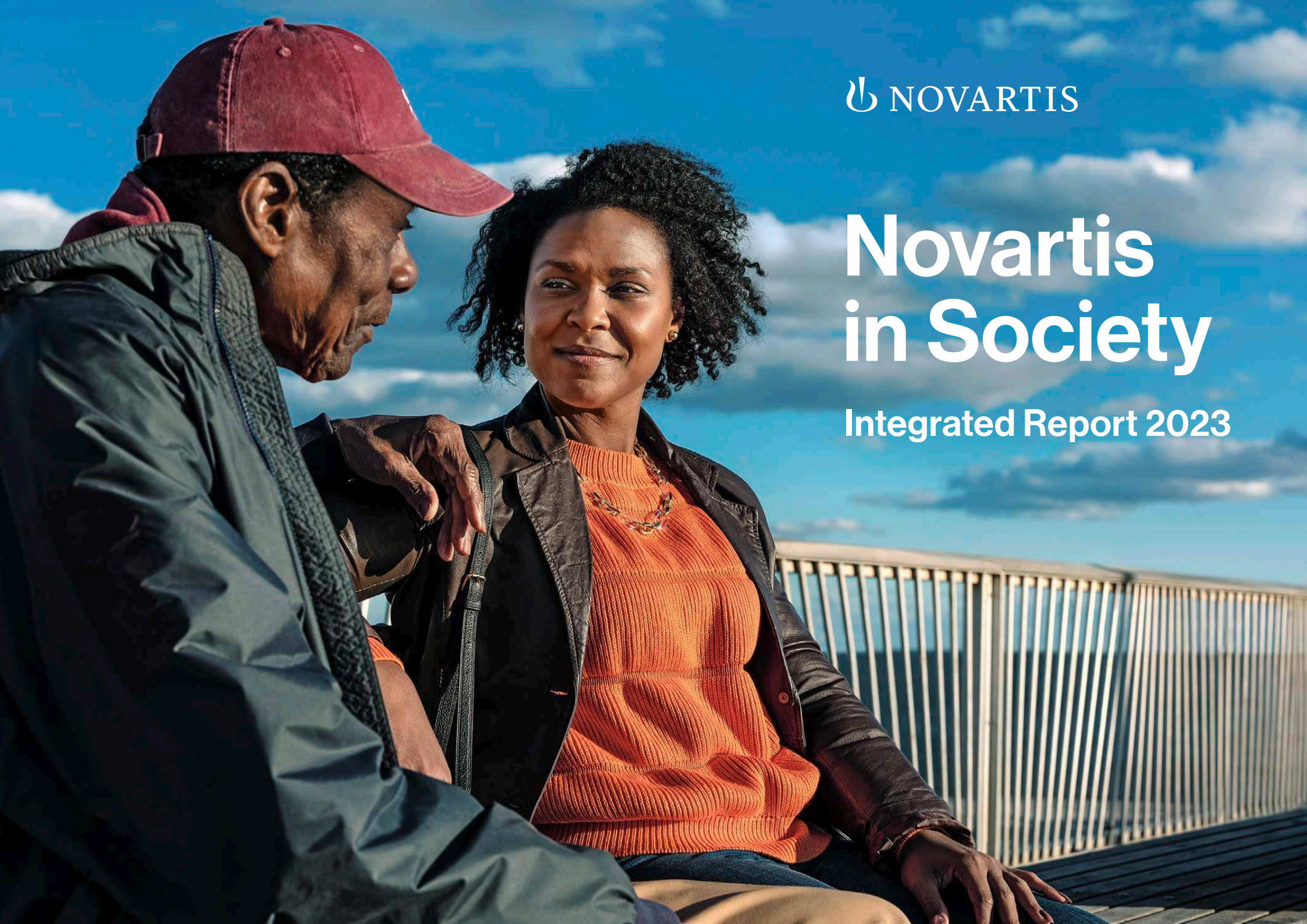

NOVARTIS

Novartis in Society

Integrated Report 2023

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This page: Shanelle Gabriel was diagnosed with lupus, a chronic autoimmune disease, while she was at college. Today, as a poet and patient advocate, she uses her voice to highlight challenges faced by people living with this complex and often misunderstood condition. Read the photo story online.

Cover: Shanelle Gabriel spends time with her father

Our approach to reporting

The Novartis in Society Integrated Report provides an overview of our business, strategy and performance, and describes how we create sustainable value for stakeholders and society.

The Novartis in Society Integrated Report is aimed at all Novartis stakeholders, but will primarily be of interest to shareholders, investors and ESG analysts. It is our main vehicle for disclosing nonfinancial information. It contains information that is required under current reporting obligations or commitments, and that is material or decision-relevant to the company and/or its stakeholders. Selection of content was based primarily on our corporate strategy and materiality assessment.

The content in this report has been prepared in accordance with Art. 964*b* of the Swiss Code of Obligations, and in alignment with recommendations and standards issued by the Integrated Reporting Framework, the Sustainability Accounting Standards Board (SASB), the Global Reporting Initiative (GRI), and the Task Force on Climate-related Financial Disclosures (TCFD).

Details of how our reporting aligns with GRI, including a mapping of our activities against the UN Sustainable Development Goals, can be found on page 86. Our SASB index is on page 89. Our TCFD disclosure is on page 90.

This report was subject to approval by the Novartis Board of Directors prior to publication. It is published in conjunction with our Annual Report and Form 20-F, which are filed with the SIX Swiss Exchange and US Securities & Exchange Commission (SEC), respectively. All Novartis annual reports are available on our corporate website.

Scope, reporting boundaries and data

This report covers all business and consolidated entities (in line with the Novartis Annual Report and Form 20-F). Annual performance data relates to the company's financial year (from January 1 to December 31, 2023). All information in this report reflects the continuing operations of Novartis (including any changes to the company's portfolio of activities).

Unless stated otherwise, data for 2023 takes into account the spin-off of our Sandoz generics and biosimilars business. Figures for 2022 and 2021 have been restated to reflect the Sandoz spin-off (with the exception of the people performance indicators on page 81 and data related to political engagement on page 84).

Environmental data for 2023 is based on actual January-September performance data, plus estimates for October-December (exceptions are indicated).

Data on financial performance has been taken from the Novartis Annual Report, prepared in accordance with the International Financial Reporting Standards (IFRS®) Accounting Standards, as issued by the International Accounting Standards Board (IASB®). Novartis financial data is presented in US dollars (USD).

Some figures in this report have been rounded. Percentages may have been calculated using rounded numbers. An overview of definitions and methodologies for ESG performance indicators in this report is available on our corporate website.

References, abbreviations and trademarks

Where third-party sources are used, this is indicated in the text. A list of abbreviations can be found on page 100.

Please note that all product names printed in italics in this report refer to trademarks owned by, or licensed to, Novartis.

Note on the Swiss Code of Obligations

On page 85, we summarize how this report complies with the requirements of Art. 964*b* of the Swiss Code of Obligations, which became mandatory for Swiss companies of public interest from 2023.

We also adhere to the requirements of Art. 964*j-l* of the Swiss Code of Obligations (Ordinance on Due Diligence and Transparency in relation to Minerals and Metals from Conflict-Affected Areas and Child Labour). We have determined that we are exempt from the obligations of due diligence and reporting on conflict minerals (see page 57). Our disclosure relating to due diligence on child labor can be found in a separate report available on our corporate website.

External assurance

KPMG provided limited assurance in accordance with ISAE 3000 (Revised) and ISAE 3410 on the performance indicators marked with 'Δ' on pages 80-84. KPMG's independent assurance report is on page 98.

2023 at a glance

8.6 bn

Invested in research and development (USD)

(core R&D spend from continuing operations; vs. USD 8.3 bn in 2022)

22

Approvals for new medicines in the US, EU, Japan and China

(vs. 23 in 2022)

98.4 m

Invested in R&D for malaria and neglected tropical diseases (USD)

(vs. USD 77.2 m in 2022)

48%

Female representation in management, meeting aspiration for gender balance globally by end-2023

(vs. 47% in 2022)

63%

Reduction in greenhouse gas emissions in our own operations

(Scope 1 and Scope 2; vs. 2016 baseline)

97%

Of employees trained and certified in the Novartis Code of Ethics

(vs. 98% in 2022)

45.4 bn

Net sales from continuing operations (USD)

(vs. USD 42.2 bn in 2022)

16.4 bn

Core operating income from continuing operations (USD)

(vs. USD 14.8 bn in 2022)

7.3 bn

Paid in dividends to shareholders (USD)

(vs. USD 7.5 bn in 2022)

Chair's letter

In 2023, Novartis made another substantial step in transforming from a diversified healthcare player into a focused innovative medicines company. With the successful spin-off and listing of our generics and biosimilars division Sandoz on the SIX Swiss Exchange in October, we concluded a major part of the portfolio transformation, which started 10 years ago and entailed the divestiture of several non-core businesses as well as the establishment of new therapy and technology platforms.

The portfolio changes are integral to our strategy, which aims to position Novartis in highly innovative and fast-growing areas of healthcare, while focusing our organizational and operational structure. The shift from taking a broad market approach to going deep into select medical areas to achieve category leadership is set to guide our strategy in the future and is designed to spur sales and profit growth and create sustainable shareholder value.

> " The shift from taking a broad market approach to going deep into select medical areas to achieve category leadership is set to guide our strategy in the future."

We are confident that our strategic direction and our operational setup allow us to navigate the current market environment, which is characterized by a challenging macroeconomic and geopolitical situation that is putting pressure on healthcare systems and is leading to major policy shifts. Our ability to adapt demonstrates the resilience of our business and our capacity to seize emerging opportunities.

Having introduced more than 40 new molecular entities into the market over the last two decades, we are among the world's most innovative pharmaceutical companies. By strengthening our expertise in specialized sectors, such as radioligand and RNA-based therapies, we can stay at the forefront of the rapid technological advances in our industry and differentiate ourselves from our competitors.

To maintain this momentum, we will continue to invest substantial funds into research and development to create breakthrough therapies. Our executive leadership team has set in place a robust structure to fast-track our activities across our therapeutic areas and enable smooth project transitions between units.

We also continue to make progress on our environmental, social and governance (ESG) priorities. We made substantial investments to reduce our environmental footprint and renewed our commitment toward the creation of more equitable healthcare systems. We also made significant investments to advance our portfolio of potential treatments for neglected tropical diseases.

At the same time, we continued efforts to reinforce integrity across our organization and foster a business culture in which ethics and compliance take center stage. The Board of Directors will continue to focus on this area as we recognize that trust, in addition to leadership in innovation and further performance improvement, is vital for building stronger partnerships with healthcare stakeholders around the world and helping to create more resilient and equitable healthcare systems.

I thank you for the confidence you have placed in our company and am pleased to be able to propose a dividend increase of 3% to CHF 3.30 at the next Annual General Meeting.

Sincerely,

Joerg Reinhardt
Chair of the Board of Directors

CEO's letter

"Our very strong financial and R&D performance underscores the benefits of our focused strategy and the progress we are making in creating value for shareholders and society."

2023 was a historic year for Novartis. With the Sandoz spin-off largely completing the multiyear transformation of our company, we are now completely dedicated to bringing innovative medicines to the world.

As we enter this new era, our very strong financial and research and development (R&D) performance in 2023 underscores the benefits of our focused strategy and the progress we are making in creating value for shareholders and society.

We continued to show leadership in oncology, with strong growth for *Kisqali* and *Pluvicto* and important data readouts that show the potential to bring these medicines to broader patient populations in early breast cancer and in earlier lines of treatment for advanced prostate cancer, respectively.

Other standout performers include *Entresto*, our treatment for heart failure and hypertension that has now reached more than 2 million patients in the US, and *Kesimpta*, our treatment for multiple sclerosis that almost doubled in sales from the previous year and has now reached more than 85 000 patients across 87 countries.

At the same time, we are investing to meet rising demand for our medicines and ensure we can deliver our treatments to people who need them. During the year, we opened a new radioligand therapy (RLT) facility in the US that helped us more than double weekly production capacity of *Pluvicto* in the market. We also opened an RLT facility in Spain and announced plans for new facilities in China and Japan.

We also achieved major innovation milestones that show the strength of our R&D pipeline and potential for future growth. One major highlight was the approval of iptacopan to treat a rare blood disorder—the first of what we hope to be many approved indications for this molecule, which was discovered and developed by Novartis.

Our pipeline was further strengthened by the acquisition of Chinook Therapeutics, which added two promising Phase III assets for IgA nephropathy. Together with iptacopan, these assets give us the potential to offer a trio of differentiated therapies for this rare, complement-mediated kidney disease.

Going forward, we're continuing to focus on improving our R&D performance and prioritization by fostering more streamlined collaboration between our research, development and commercial teams. We're also investing in artificial intelligence to accelerate R&D while putting in place guardrails for the ethical use of this rapidly developing technology.

Alongside these achievements, we continued to deliver on our environmental, social and governance (ESG) commitments to broaden access to our innovative medicines, tackle major global health challenges, advance gender equity, and reduce our impact on the environment. More details on these areas can be found in this report.

Culture continues to be foundational to our work, and I'm grateful for the ongoing commitment of our employees whose passion and dedication are driving our performance. This year, we largely completed the organizational transformation announced in 2022, helping to set a simpler structure for Novartis with streamlined processes and more agile decision-making.

Our strong financial performance gives us confidence that our renewed strategy and simplified structure are enabling results, with 10% growth in sales (cc) and 18% growth in core operating income (cc).

I'm filled with optimism for what's to come. The past year has shown the strength of our company and set a robust foundation for growth. Looking ahead, we aim to build on this momentum and bring the same dedication to innovation and excellence to create value for patients, for society, and for our shareholders.

Sincerely,

Vas Narasimhan
Chief Executive Officer

We are Novartis

Novartis is an innovative medicines company. Every day, we work to reimagine medicine to improve and extend people's lives.
In 2023, our medicines reached 284 million patients around the world.

PURPOSE, VISION AND ORGANIZATION

Purpose

Our purpose is to reimagine medicine to improve and extend people's lives.

Vision

Our vision is to become the most valued and trusted medicines company in the world.

Our company

Novartis organizational units represent parts of the research, development, production and commercialization value chain.

Research and development

At the heart of our company is research and development (R&D):

- **Biomedical Research** is our innovation engine, focused on creating new ways of fighting disease and turning scientific breakthroughs into new medicines with the potential to change lives.
- **Development** oversees the development of potential new medicines, running large clinical trials to confirm their safety and efficacy, and steering the way to regulatory approval for use for patients.

Operations and global functions

Operations manufactures and delivers our medicines to customers, while also overseeing IT, procurement, real estate and other support services that we need to run our business. Novartis operates 33 production sites worldwide.

Global functions provide support in areas such as finance; human resources; legal; ethics, risk and compliance; corporate affairs; and strategy and growth. Novartis Global Health and Sustainability focuses on improving health in low- and middle-income countries (LMICs) and works to embed material sustainability and ESG topics into our business.

Commercial

US and **International** are our two commercial units, focused on their respective geographic areas. They work with customers to provide innovative medicines and services that improve treatment options and raise the quality of care for patients. Novartis sells products in approximately 130 countries worldwide.

Our transformation

In October 2023, we spun off our Sandoz generics and biosimilars business, concluding a major part of our transformation from a diversified healthcare conglomerate into an innovative medicines company.

Our predecessor companies trace their roots back more than 250 years, with a history of developing innovative products in dyes, chemicals and medicines. Over the years, we have transformed our business multiple times as progress in science and technology has created new opportunities to benefit people and society.

Since 2015, we have made targeted acquisitions and divested non-core businesses to focus on our purpose to reimagine medicine to improve and extend people's lives, including strengthening our capabilities in radioligand therapy, RNA-based therapy, and gene and cell therapy.

In this next era for Novartis, our capital allocation and management attention are now fully focused on innovative medicines. We are well positioned for sustained top- and bottom-line growth, and dedicated to bringing forward the next generation of medicines to benefit human health.

Our medicines

Our medicines help restore possibility for people living with serious diseases — from cancer and heart disease to neurological conditions and rare genetic illnesses.

Top 10 medicines

(by 2023 net sales, USD millions)

Promacta/Revolade
Oral treatment for certain blood disorders
2 269

Cosentyx
Injectable treatment for inflammatory conditions
4 980

Kesimpta
Injectable treatment for relapsing multiple sclerosis
2 171

Entresto
Oral medicine for heart failure and hypertension
6 035

Kisqali
Oral treatment for a type of breast cancer
2 080

Xolair
Injectable medicine for certain respiratory and immunological conditions, including severe allergic asthma
1 463

Tafinlar + Mekinist
Oral combination therapy for certain skin, thyroid and lung cancers
1 922

Lucentis
Injectable medicine for certain conditions of the retina
1 475

Jakavi
Oral treatment for certain rare blood disorders
1 720

Tasigna
Oral treatment for a type of chronic myeloid leukemia
1 848

CORE THERAPEUTIC AREAS 〉 **TOP 10 MEDICINES**

- Cardiovascular, renal and metabolic
- Immunology
- Neuroscience
- Oncology

In addition, we have research and in-market programs in:

- Ophthalmology
- Respiratory
- Global health

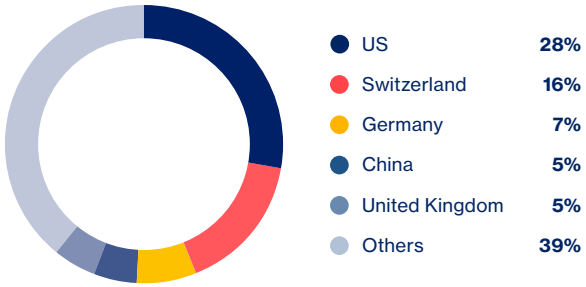
Our global operations

Novartis headquarters are in Basel, Switzerland. In addition, we have over 250 operating sites worldwide, including manufacturing plants, R&D facilities and corporate offices.

SUPPLY CHAIN

Novartis global supply chain[1]

(% of total supply chain spend by supplier country, 2023)



Novartis works with thousands of business partners — from suppliers to our R&D organization to wholesalers and distributors who help ensure our medicines reach patients. To reduce supply risk, we maintain multiple sources for key inputs and raw materials. Our partners are required to comply with applicable laws and regulations, as well as Novartis standards, including those for quality, ethics, environmental sustainability and human rights (see page 56).

[1] Data includes Sandoz for January to September 2023

MAJOR FACILITIES

Novartis major facilities and locations

(by size of site and/or number of employees)

Europe

Switzerland

Basel
Global headquarters of Novartis; research and development

Stein
Production of a range of medicines, including gene and cell therapies; production of active pharmaceutical ingredients

Schweizerhalle
Manufacture of small-interfering RNA drug substance for cholesterol-lowering treatment *Leqvio*

France

Huningue
Production of drug substances for clinical and commercial supply

Slovenia

Menges / Ljubljana
Production of drug substances and drug intermediates; R&D for biologics

Austria

Kundl and Schaftenau
Production of biotechnological products, active drug substances and nucleic acids, drug products, and finished products; product development

Italy

Ivrea
Manufacture of *Pluvicto* and *Lutathera* radioligand therapies

North America

US

East Hanover, NJ
US headquarters; research and development

Indianapolis, IN
Manufacture of *Pluvicto* radioligand therapy for US and Canada

Cambridge, MA
Research and development

Durham, NC
Manufacture of gene therapy *Zolgensma*

Asia

China

Shanghai
China headquarters; research and development

India

Hyderabad
The largest of our six Novartis Corporate Centers, which provide services to all Novartis units and functions

Our people, culture and values

Our people bring our purpose to life. Their diversity, energy and creativity enable us to reimagine medicine to improve and extend people's lives. We are a community of more than 78 000 people[1] who inspire and encourage each other every day.

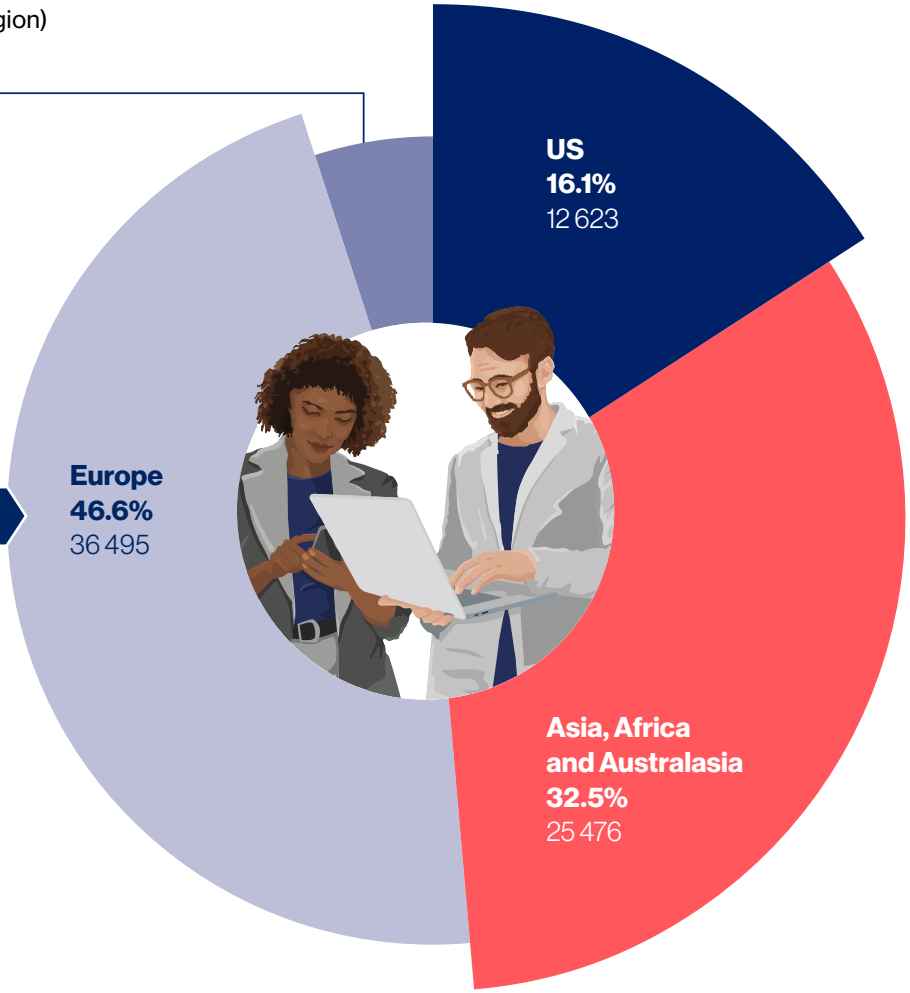
Our culture is based on core values and behaviors

Novartis employees are encouraged to be inspired, curious, unbossed and to act always with integrity.

Inspired	• Engaging our people • Striving for patients • Living our purpose as a company
Curious	• Learning • Being open • Being self-aware
Unbossed	• Creating clarity • Serving others • Owning your actions
Integrity	• Being honest • Having courage • Doing what is right

Novartis employees

(headcount by region)



143
Nationalities

48%
Women in management

[1] 76 057 full-time equivalent positions (FTEs)

Our operating environment and strategy

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Our operating environment

Progress in science and technology raises the possibility of new types of medicines and more efficient drug discovery. At the same time, healthcare inequities remain entrenched around the world, while aging populations are putting pressure on healthcare systems in many countries. In this section, we set out key trends shaping our industry.

Scientific progress is opening new paths to treat disease

Rapid progress in medical science is creating opportunities for new types of treatments. These advances highlight the importance of investment in R&D, including in next-generation technologies such as radioligand therapies and gene and cell therapies. R&D spending by pharmaceutical companies is expected to increase by 2.6% per year through 2028, according to Evaluate Pharma.

3 951

As of the fourth quarter of 2023, the number of gene, cell and RNA therapies in development was 3 951. More than half of these — 53% — were gene therapies.

Source: Gene, Cell & RNA Therapy Landscape, 2023

Demand for high-quality healthcare continues to rise

Demand for medicines in areas such as cancer, cardiovascular disease and immunology continues to grow in key markets. The US and EU markets are expanding. China is growing rapidly, while spending in Japan is forecast to remain stable. To meet demand and maintain growth, companies are investing in developing new, innovative treatments.

3–6%

The global medicine market — using invoice price levels — is expected to grow at 3–6% compound annual growth rate through 2027 to approximately USD 1.9 trillion.

Source: IQVIA, 2023

Healthcare systems are under strain

In many countries, healthcare systems are under pressure. Healthcare professionals often feel overwhelmed and under-resourced. Staff shortages have occurred in both the US and Europe. Part of the explanation for this is COVID-19. But there are longer-term factors as well — aging and changes to lifestyle have led to a significant rise in noncommunicable illnesses such as cancer, diabetes and heart disease.

10 m

By 2030, the worldwide shortfall in healthcare workers will reach an estimated 10 million, mainly impacting low- and middle-income countries.

Source: World Health Organization (WHO)

The policy landscape is changing

New legislation and/or regulations in the US, EU and China may change how governments pay for medicines. In the US, for example, the Inflation Reduction Act will limit price increases in Medicare to inflation and impose price controls on select drugs in the Medicare program beginning in 2026. The EU is revising the legislative framework for medicines, trying to balance access and affordability, while China has rolled out a volume-based procurement program to reduce prices for eligible medicines.

2026

The US Inflation Reduction Act will limit price increases in Medicare to inflation and impose price controls on select drugs in the Medicare program beginning in 2026.

Patients want more say over their treatment

Increasingly, patients want their voice to be heard in the process of developing new medicines, so that the treatments address the outcomes that matter most to them. Patients also want more say over policies that affect their access to medicines and are becoming more important as data owners. As a result, companies are building patient engagement into their approaches — from research and clinical trials to commercialization and access programs.

13%

Only 13% of people believe the responsibility for good health lies with medical experts alone. The rest believe that responsibility lies with individuals or is a shared responsibility with medical providers.

Source: EY Global Consumer Health Survey, 2023

Health inequities remain entrenched

Billions of people around the world struggle to get the medicines and healthcare services they need. Many of the issues are in low- and middle-income countries (LMICs), where people face the dual burden of infectious and non-communicable diseases, as well as fragile and under-resourced health systems. Health inequities also affect people in higher-income countries, however, where causes are often linked to structural health system issues as well as demographic, social and economic challenges.

25%

In the US, death rates for cardiovascular disease (CVD) remain at least 25% higher for non-Hispanic Black adults relative to other racial and ethnic groups, despite CVD death rates declining for all groups between 1999 and 2017.

Source: National Center for Health Statistics

AI is poised to reshape the industry

Across the biopharmaceutical industry, we are beginning to realize the benefits of new technologies such as AI in automating processes and generating insights that could help us design new compounds, predict drug safety or speed up drug discovery. According to Morgan Stanley, AI in healthcare could become a USD 50 billion market over the next decade. The extent to which companies can harness this potential will depend on their ability to aggregate and analyze large volumes of anonymized health data.

7.1 years

It takes over seven years to bring a new drug from initial clinical trials to the end of Phase III. The average cost for pharmaceutical companies to develop and bring a new medicine to market is USD 2.3 billion.

Source: Deloitte, 2023

Climate change threatens to widen health inequity

Climate change and nature loss continue to have an adverse effect on human health, with people in LMICs disproportionately impacted. The World Health Organization forecasts approximately 250 000 additional deaths per year between 2030 and 2050 due to climate change, mainly from malnutrition, malaria, diarrhea and heat stress. Respiratory illnesses are also on the rise due to air pollution. At the same time, health systems are aiming to build climate resilience — with 29 countries committing to net-zero carbon emissions in their health systems by 2050, according to the WHO.

4.2 m

Worldwide, air pollution causes more than four million premature deaths every year — the vast majority of these are in LMICs.

Source: WHO, 2022

Our strategy

Our strategy is to deliver high-value medicines that alleviate society's greatest disease burdens through technology leadership in R&D and novel access approaches.

The aim of our strategy is to create long-term value — to contribute to continued advances in human health, to deliver returns to shareholders and to benefit society.

We focus on four core therapeutic areas with strong growth potential and high unmet patient needs: cardiovascular, renal and metabolic; immunology; neuroscience; and oncology. A focused approach enables us to build depth in these areas to find new ways to treat and cure disease, intervene earlier in chronic illnesses, and improve quality of life for patients.

We focus on technology platforms where we have the depth and scale to discover, develop and commercialize therapies.

Our focus areas

Core therapeutic areas:
Cardiovascular, renal and metabolic; immunology; neuroscience; oncology

Technology platforms:
Chemistry; biotherapeutics; xRNA therapy; radioligand therapy; gene and cell therapy

Priority markets:
US; Germany; China; Japan

Our priorities

Accelerate growth
Deliver high-value medicines

Deliver returns
Embed operational excellence

Strengthen foundations
- Unleash the power of our people
- Scale data science and technology
- Build trust with society

These are two established platforms (chemistry and biotherapeutics) plus three newer platforms (xRNA, radioligand therapy (RLT), and gene and cell therapy) that represent key sources of future growth.

We focus on our priority markets — US, Germany, China and Japan — which together account for most of the expected growth in global healthcare spending over the next five years.

In the US, our ambition is to become a top-five player. In Germany we aim to retain our current position as market leader, while in China and Japan we aim to be in third position in each market. Although these are our priority geographies, we maintain a strong presence in other markets worldwide.

To support our focus areas, we have three strategic priorities:

Deliver high-value medicines

We aim to increase sales by 5% compound annual growth rate (CAGR) from 2023 to 2028, driven by continued strong momentum in our existing portfolio of medicines — including *Entresto, Kisqali*, *Kesimpta*, *Cosentyx*, *Scemblix*, *Pluvicto* and *Leqvio* — and key upcoming launches.

Over the longer term, we aim to achieve mid-single-digit growth through delivering high-value medicines that sustain and replace our existing growth drivers.

Embed operational excellence

In an increasingly competitive environment, we are simplifying processes and reducing costs to become more efficient and effective in our decision-making and to free up resources for investment in new medicines. We aim to increase our core margins to the 40%+ range by 2027. Our goal is to continue making attractive returns to shareholders while creating value for patients, healthcare systems and society.

Strengthen the foundations of our business

We continue to invest to strengthen the foundations of our long-term success. We have made progress in strengthening our culture to attract and retain talent, while developing artificial intelligence capabilities in R&D and building stronger trust with stakeholders and society.

We aim to be a sector leader for our most material ESG topics, with a focus on the areas where we can have the most impact through our core business (see page 16).

Our material issues

We regularly carry out a detailed analysis of our operating environment to identify our most material issues — those where we have the most impact on people, society and the environment and that present the most significant potential impact on our business.

Results from this assessment inform both our strategy and our approach to reporting. The assessment sits alongside our annual risk analysis (see page 72). Our most recent materiality assessment, conducted in 2021, reflects the input of more than 500 external and 12 000 internal stakeholders.

Based on interactions with our stakeholders (see page 20), we believe this assessment continues to reflect our material topic areas. However, considering the fast-moving external environment, we plan to complete a double materiality assessment in accordance with the requirements of the EU's Corporate Sustainability Reporting Directive in 2024.

Methodology

Our 2021 assessment was based on a survey of both internal and external stakeholders, with respondents asked to estimate the impact of Novartis on eight separate topic areas. Results are shown in the chart opposite.

External stakeholders were drawn from our main stakeholder groups, including patients, customers, partners and shareholders. Internal stakeholders were drawn from senior management, as well as units and functions.

For full details of our materiality assessment, see www.novartis.com/reportinghub

Ranking of topic areas

Patient health and safety → page 61
Trust in the safety of our medicines is fundamental to our business. We focus on three areas: product quality, pharmacovigilance, and combating falsified medicines.

Innovation → page 31
Innovation is at the heart of what we do. We invest in R&D for new medicines in areas with significant unmet patient needs.

Access to medicines → page 39
Ensuring our medicines are widely available is core to our purpose. We work to bring our medicines to more people and places, faster and more efficiently.

Ethical business practices → page 54
We strive to uphold high ethical standards throughout our business and work with suppliers and other partners to ensure they do the same.

People and culture → page 45
People are the key to our success. Our corporate culture, based on clear values, drives performance and innovation.

Good governance → page 66
Strong corporate governance ensures we take decisions and allocate resources effectively, while complying with applicable laws and regulations.

Sustainable financial performance → page 26
A sustainable financial performance allows us to deliver returns to shareholders and invest in innovative medicines for patients and society.

Environmental sustainability → page 50
We work to become environmentally sustainable by reducing emissions, water use and waste.

Our ESG strategy

Building trust with society is a key part of the Novartis corporate strategy and is critical to delivering on our purpose of reimagining medicine to improve and extend people's lives.

Our environmental, social and governance (ESG) efforts, which we integrate across our company and also apply to our supply chain, are key to driving long-term value for our stakeholders.

We aim to be a sector leader in the areas where we can have the most impact on people and society. We aim to embed our most material topics into our core business through innovation to tackle serious diseases and broadening access to our medicines.

Maintaining the quality and safety of our medicines is fundamental to these efforts and is part of our core business.

In addition, we aim to perform well as a responsible business with respect to our corporate culture and opportunities for employees, environmental sustainability, and standards of ethics and governance. We are also focused on advancing our ESG reporting capabilities to meet evolving requirements in the markets in which we operate.

Our performance against ESG criteria is reflected in various third-party ratings, including our five priority ESG ratings shown in the table opposite and summarized on our corporate website.

Our ESG framework

Our biggest impact is on our most material topics, driving equity in health

while performing well as a responsible business.

Innovation and access to medicines

- Pipeline of new medicines addressing unmet medical and social needs
- Broad access to our medicines, including underserved populations
- Dedicated global health focus

Human capital

- Diversity, equity and inclusion (DEI)
- Culture
- Talent

Environmental sustainability

- Climate
- Water
- Waste

Ethical standards

- Ethics
- Compliance
- Human rights

Reaching more patients with innovative medicines

Creating sustainable social and economic impact

Building trust with society

ESG ratings

Access to Medicine Index

Novartis has ranked in the leadership group for more than 10 years.

CDP

Novartis achieved Double A List status in Climate Change and Water Security (based on latest available results from 2022)

ISS ESG

With a Corporate Rating B, Novartis maintained its Prime status for industry leadership.

MSCI

Novartis maintained its AA rating in the 2023 MSCI ESG Ratings assessment.

Sustainalytics

With an ESG Risk Rating score of 15.8, Novartis was assessed as Low Risk.

Our ESG targets

Our ESG targets are linked to our strategic priorities and help us improve equity in healthcare while creating sustainable social and environmental impact.
For commentary on our performance against these targets, please see pages 31-64.

ESG strategic pillar	Link to strategic priorities	Targets	Performance against targets in 2023
Innovation and access to medicines	**Deliver high-value medicines** **Build trust with society**	• Invest USD 250 million to advance R&D for neglected tropical diseases (NTDs) and malaria over five years (2021-2025)	• On track: Cumulative total of USD 227.1 million invested since 2021 (91% of USD 250 million investment); invested USD 98.4 million in 2023, with progress in key R&D milestones for malaria and NTDs
		• Implement a global access strategy for all new medicines launched	• Achieved: All new launches in 2023 had a global access strategy
		• Increase the number of patients reached with strategic innovative medicines in LMICs[1] by at least 200% by 2025 (compared with 2019 baseline)	• On track: Number of patients reached increased 186% since 2019, with 1.6 million patients reached in 2023 (up 31% compared with 2022)
		• Increase the number of patients reached with Novartis Global Health flagship programs[2] in LMICs by at least 50% by 2025 (compared with 2019 baseline)	• On track: Number of patients reached increased 91% since 2019, with 28.7 million patients reached in 2023 (down 8% compared with 2022)
Human capital	**Unleash the power of our people**	• Close the gender pay gap by 2023	• Achieved: -0.9% mean pay gap globally as of Dec. 31, 2022 [3]
		• Achieve gender balance in management by 2023	• Achieved: Increased women in management globally to 48% (from 44% in 2019)
		• Remove bias from the system by eliminating the use of historical salary data by 2023 [4]	• Achieved: 100% of recruitment no longer undertaken using historical salary data
		• Create pay transparency for employees by 2023 [5]	• Achieved: 98% of total headcount with pay transparency to external and/or internal benchmarks, where available (100% when considering exclusions mainly due to contractual or legal constraints and the ongoing integration of acquired businesses)
Ethical standards	**Build trust with society**	• Conduct risk assessments for all new eligible suppliers	• Achieved: 100% (conducted via External Partner Risk Management process)

Notes

1 Low- and middle-income countries as defined in Novartis sustainability-linked bond Final Listing Prospectus Annex A

2 Malaria, leprosy, Chagas disease, sickle cell disease

3 Calculation uses prior year salary data

4 Where legally possible

5 Where legally possible and where data and cohort size are sufficient

Our ESG targets (continued)

ESG strategic pillar	Link to strategic priorities	Targets	Performance against targets in 2023
Environmental sustainability	**Embed operational excellence** **Build trust with society**	• Become carbon neutral in our own operations (Scopes 1 and 2) by 2025 [6]	• On track: 63% reduction vs. 2016 baseline [7]
		• Include environmental criteria in all supplier contracts by 2025	• On track: 57% of supplier emissions covered by contracts that include environmental sustainability criteria [8]
		• Become carbon neutral across our value chain (Scopes 1, 2 and 3) by 2030 and achieve net-zero carbon emissions across our value chain by 2040 [9]	• Progress made: Resubmitted our updated near-term 2030 target and submitted our net-zero target to the Science Based Targets initiative (SBTi) for validation (expected in 2024). Working on increasing the share of primary emissions data collected from suppliers (vs. spend proxy)
		• Reduce water consumption in our own operations by half by 2025	• On track: 50% reduction vs. 2016 baseline [7]
		• No water quality impacts from manufacturing effluents by 2025	• On track: 97% of Novartis manufacturing sites and 88% of high-risk suppliers can demonstrate that they meet internal water quality standards [10]
		• Become water neutral in our own operations by 2030 [11]	• On track: Physical water risk assessment completed for all Novartis sites and locations
		• Enhance water quality wherever we operate by 2030 [12]	• On track: Plan in place to expand internal water quality standards to Novartis non-manufacturing sites and to remaining suppliers in scope
		• Eliminate polyvinyl chloride (PVC) in packaging by 2025 [13]	• On track: Eliminated PVC in packaging at 78% of our sites
		• Reduce the amount of waste sent for disposal by half by 2025	• Achieved: 66% reduction vs. 2016 baseline [7]
		• Become plastic neutral by 2030 [14]	• On track: Established baseline for reducing plastics in packaging and devices. Continued to remove single-use plastics in workplaces
		• All new products meet sustainable design principles by 2030	• On track: 51% of new projects in scope[15] have incorporated sustainable design principles

Notes

6 Scope 1 and 2 from energy

7 Restated in 2023 to exclude Sandoz

8 Calculation uses 2022 actual Scope 3 supplier emissions data

9 In accordance with the Science Based Targets initiative (SBTi) Corporate Net-Zero Standard

10 Water quality was assessed for compliance to water standard levels 1, 2, and 3 (training and legal compliance, quantification and risk assessment, PEC/PNEC <1 ("predicted environmental concentration" and "predicted no effect concentration"))

11 All Novartis sites to reduce water consumption in all areas and to be water neutral in water-stressed regions by not depleting local water reserves. Water-stressed regions are determined using the WWF Water Risk Filter

12 100% of manufacturing effluents released comply with all permit regulations related to water quality and meet our water quality requirements. This applies to Novartis manufacturing operations and high-risk suppliers manufacturing sites that can potentially have an impact on water quality due to the discharge of active pharmaceutical ingredients (APIs)

13 From Novartis owned and operated sites that are involved in packaging; defined as secondary and tertiary packaging. In addition, this is supported by efforts to eliminate PVC from primary packaging where feasible

14 Plastic neutral is achieved when the weight of plastic packaging entering the environment for disposal is approximately the same as the weight being recovered for recycling

15 In-scope projects in development governed by the Innovation Management Board (IMB). Product development projects are defined at an indication level and relate to either a new molecular entity or a new indication of an already commercially available brand

Our approach to stakeholder engagement

Working with stakeholders — including healthcare professionals, patients and caregivers, employees, investors, policymakers and regulators — helps us to understand their needs and expectations and to pursue common goals.

Results from engagement inform our strategy, risk management and reporting. We have policies governing our engagement with stakeholders, including the Novartis Commitment to Patients and Caregivers, Lobbying Guidelines, and our Third Party Code.

The table opposite summarizes our approach to engagement with key stakeholder groups.

Stakeholder group	Purpose of engagement	Means of engagement	Issues discussed
Patients	Identify unmet needs; understand patient and caregiver expectations; ensure safety and efficacy of medicines; incorporate patient perspectives in research, development and commercialization	Dedicated patient engagement teams; partnerships with patient organizations; post-trial, managed access and patient assistance programs	Integrating patient views earlier into research and commercial strategies; further integrating patient views into decision-making
Healthcare professionals (HCPs) and systems	Understand expectations, needs and potential constraints; remove barriers to access; ensure regular supply of medicines to patients; enhance our commercial strategy	Regular contact with HCPs; dedicated online platforms; scientific and medical conferences; training for healthcare providers, educators and patients; health system strengthening initiatives	Sharing results from our clinical trials; efforts to optimize disease management; innovative commercial partnerships; collaborations to improve patient access
Employees	Understand and remove potential barriers to recruitment and retention of diverse talent; improve performance and productivity; create safer, healthier, more inclusive working environment	Meetings and events; quarterly engagement surveys; regular evaluations, training and feedback; discussions with employee representative groups and trade unions	Completion of Sandoz spin-off; our strategy as an innovative medicines company; updates to our organizational structure
Shareholders and investors	Explain our strategy, performance, risk management and approach to ESG; maintain engagement with international capital markets	Regular meetings with portfolio managers, stewardship teams and analysts; conferences, roadshows and presentations; focus on 100 largest investors representing around 60% of shares	Financial performance and sustainable shareholder value creation; pipeline progress; mergers and acquisitions (M&A); capital allocation; ESG performance; impact of Sandoz spin-off on our access strategy; executive compensation and board diversity
External partners	Collaborate to accelerate the R&D cycle and support business growth; obtain supplies for manufacturing; increase access to healthcare for underserved populations	Network of alliances within industry, academia and nongovernmental organizations; regular contact with suppliers and other business partners (including through risk assessments)	R&D partnering across our therapeutic areas and technology platforms; business development and licensing opportunities; standards on quality, ethics, environmental management and human rights in our supply chain
Policymakers and regulators	Build corporate image as a trusted partner; support business growth and mitigate risks; foster an environment conducive to innovation; expand access to medicines	Dedicated public affairs teams; membership of trade associations; regular meetings with regulators, governments, legislators and other policymakers	Value-based healthcare; measures to support innovation in biopharmaceuticals; constraints on healthcare spending and implications for innovation

Creating value with the patient community

Patients and caregivers know better than anyone what it means to live with a disease every day. We must prioritize the outcomes that matter most to them to bring forward innovative medicines that create value for patients, health systems and our business.

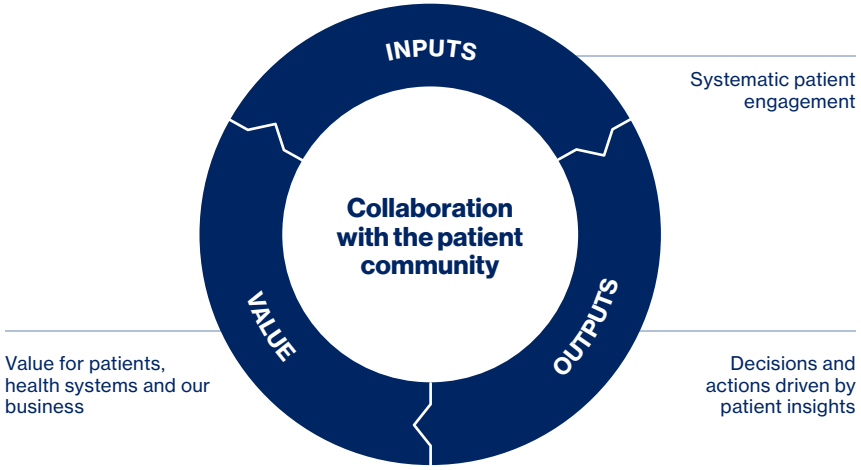
By working with patient organizations, we build patients' perspectives into key decisions throughout a medicine's life cycle — from initial research through to development and commercialization. By reflecting lived experience, our medicines are more likely to address outcomes that matter most to people living with a disease.

This systematic, integrated approach supports our strategy: it allows us to set clearer priorities for R&D, supports enrollment, retention and protocol adherence in our clinical trials, and enables us to bring our medicines to patients faster.

From involving the perspective of those living with a condition at an early stage through to co-creating clinical endpoints, trial protocols, and patient support programs, we are applying this approach to more than 100 investigational medicines at different stages of the life cycle. These include potential treatments for chronic myeloid leukemia (CML), psoriasis, hidradenitis suppurativa and Sjögren's syndrome.

In addition, we measure the impact of our approach to improve the quality of our engagement over time and ensure we generate effective outcomes that create value for patients, health systems and Novartis (see diagram below).

Patient engagement impact measurement framework



Case study **Listening to the CML patient community**

Patient insights helped us remove a potential barrier to participation in Phase III clinical trials for *Scemblix* as a potential first-line treatment for chronic myeloid leukemia (CML), a type of cancer that develops in the blood-forming cells of the bone marrow.

Input: An advisory board of patient advocates reviewed the participation and screening criteria for two Phase III clinical trials in adults and children. To help to reduce the burden on patients and caregivers, they recommended removing the need for a bone marrow aspiration test as a requirement to enter the trial.

A bone marrow aspiration test is a painful and invasive procedure for patients. It's also an emotional burden for caregivers to see loved ones, especially children, undergo the procedure. Requiring a confirmatory test during trial screening was recognized as an unnecessary barrier for participation in the trial, since people living with CML typically already have the results of such a test on file.

Output: Based on the input from CML patient advocates, and following a discussion with regulatory authorities, we removed the requirement for a bone marrow aspiration test from the trial screening process and logged the results of patients' previous tests instead.

Value: In addition to an improved experience for patients and caregivers, qualitative feedback from investigators suggested a relatively easier patient recruitment experience. Enrollment for both trials was completed 10 months ahead of schedule.

Assessing our impact

Businesses have both positive and negative impacts on society and the environment. We are committed to assessing and understanding our impacts, and are pioneering an approach that focuses on social, environmental and economic (SEE) dimensions.

Our SEE analysis indicates that our most significant impact is through the positive social impact of our medicines (see pages 31-44). It also indicates a significant positive impact on gross domestic product (GDP) and employment in the countries in which we operate, as well as further positive impacts on living wages (see page 47) and employee development (see page 46) in our own operations.[1]

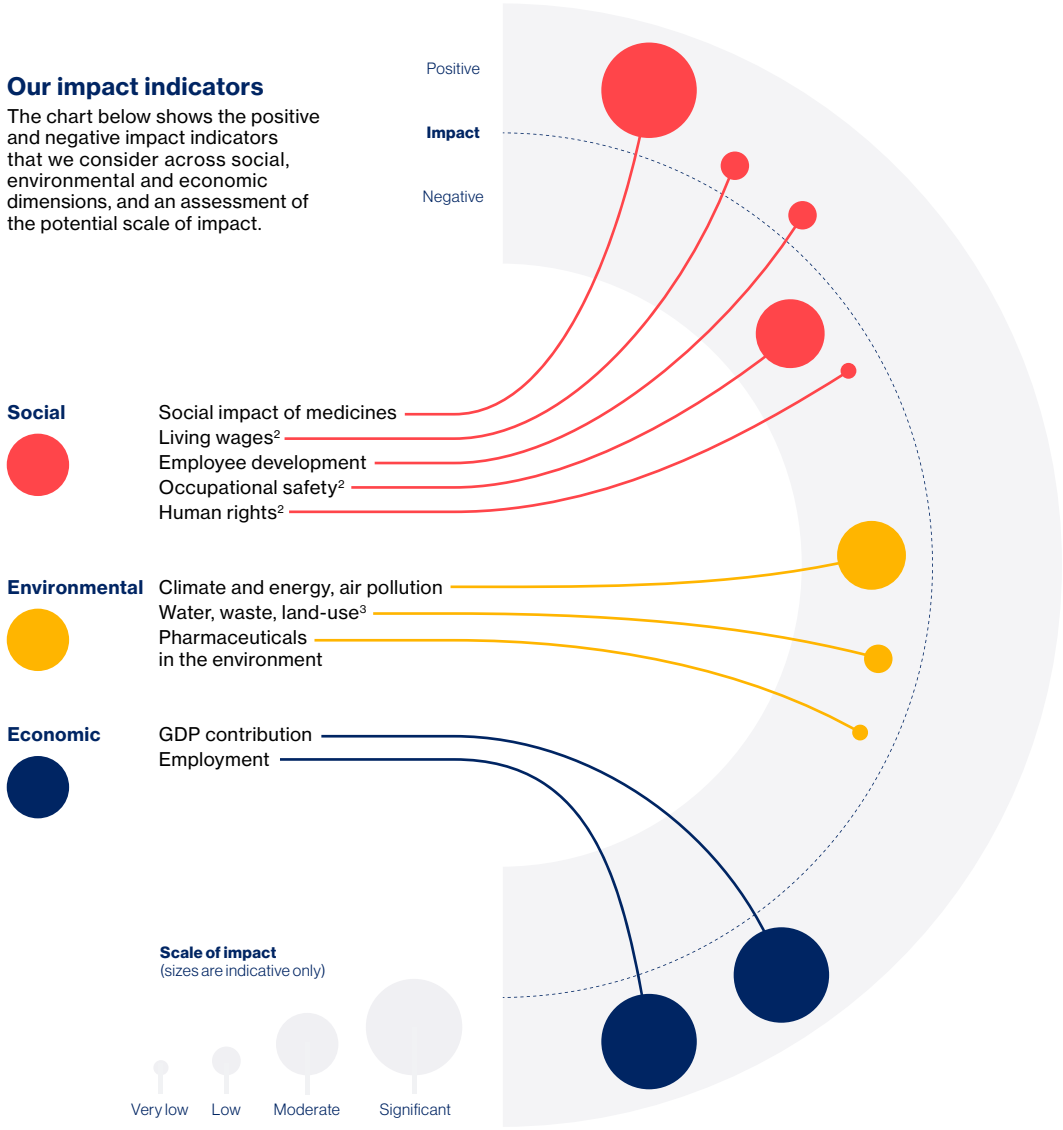
At the same time, the analysis indicates some negative impacts – both in our own operations and across our supply chain[2] – on occupational safety and the environment.[3] The analysis helps us focus our efforts to reduce or prevent these exposures. Minimizing exposures associated with external partners in our supply chain, and improving occupational safety and environmental sustainability are key parts of our strategy and operating model (see page 56, page 47 and page 50). For more details on how we determine our material topics, see page 16.

We have used SEE information to engage stakeholders on the impact of our business. For example, several countries have used social impact forecasts together with the health benefits demonstrated in clinical trials in submissions to health authorities for product registration, access and reimbursement.

Our SEE analysis is aligned with the methodology of the Value Balancing Alliance (VBA), a nonprofit organization working on how to measure the impact of companies.[4] Novartis is a founding member of VBA. We use Novartis and third-party data — particularly sector averages — to conduct our analysis, and we express impacts in monetary terms[5] to make them transparent and comparable for the benefit of internal management.

Our impact indicators

The chart below shows the positive and negative impact indicators that we consider across social, environmental and economic dimensions, and an assessment of the potential scale of impact.



1 Own operations impacts included in SEE impact valuation are comprehensive estimates based on own data combined with external assumptions and parameters
2 The supply chain impacts included in the SEE impact valuation are comprehensive estimates along the full supply chain based on statistics concerning sector interdependencies. They express a general exposure to potential risks, but do not imply specific violations of laws or regulations by Novartis. Novartis monitors and mitigates supply chain risks through its External Partner Risk Management (EPRM) program and has expanded its due diligence efforts to selected areas within the broader value chain.
3 Land use is included in this category as a driver of biodiversity loss. Other drivers of biodiversity loss – climate change, resource use, and pollution – are included in other environmental impact indicators, while invasive species is not covered by any known impact methodology currently and is therefore not included.
4 Variation to VBA methodology is applied for industry-specific indicators (social impact of medicines, pharmaceuticals in the environment). For further information on our impact valuation methodology, please contact investor.relations@novartis.com.
5 Except for employment, which is measured in terms of number of jobs

How we create value

Novartis medicines improve and extend the lives of millions of people around the world. Through our business, we also create jobs and pay salaries, taxes and dividends, while striving to reduce our impact on the environment.

8.6 bn
invested in research and development (USD; core R&D spend from continuing operations)

41
ongoing Phase III programs

22
approvals in the US, EU, Japan and China, including one new molecular entity approval

33
production sites worldwide

19.8 bn
treatments sold to third parties

63%
reduction in greenhouse gas emissions in our own operations (Scope 1 and Scope 2) since 2016

100%
new eligible suppliers risk assessed

INNOVATION › **OPERATIONS AND SUPPLY CHAIN**

Research

To discover new medicines, we make significant investments in research. Our scientists work together and with external partners to uncover biological insights into the origins and pathogenesis of disease to drive the discovery and early development of the next generation of medicines.

Development

Investigational medicines undergo several stages of clinical trials to help determine whether they are effective and safe before they are approved for general use for patients.

Phase III is the final stage of clinical development. These are large-scale studies designed to establish the safety and efficacy of the medicine in specific indications for regulatory approval.

Submission and approval

Not all investigational medicines succeed. Those that do succeed are submitted for approval to regulators. Once approved, we generally have certain exclusive rights to market and sell the medicine for a defined period.[1]

[1] Patents and exclusivity rights vary by country.

Manufacturing

Novartis has production sites across the world. We apply strict quality and safety standards, and work to make our business activities environmentally sustainable.

Supply chain

Novartis works with thousands of suppliers and business partners — from suppliers to our R&D organization to wholesalers and distributors who help ensure our medicines reach patients. We contractually oblige third parties to follow our standards on quality, ethics, environmental sustainability and human rights.

How we create value (continued)

100%
of new product launches in 2023 had a global access strategy

45.4 bn
in net sales from continuing operations (USD)

33.2 m
patients reached through access approaches

284 m
patients reached worldwide

7.3 bn
in dividends paid to shareholders in 2023 (USD)

COMMERCIAL AND ACCESS FOR PATIENTS

VALUE CREATION

Reaching customers and patients

Although distribution patterns vary by country, we sell our medicines primarily to wholesale and retail drug distributors, hospitals, clinics, government agencies and managed healthcare providers.

To ensure our medicines are widely available, we aim to implement a global access strategy for all new medicines launched. These approaches include innovative pricing and commercial models, earlier launches in LMICs, and approaches to strengthen healthcare systems.

Creating sustainable social and economic impact

Through our medicines, we improve and extend the lives of millions of people around the world. We focus on some of society's most challenging healthcare issues, including cardiovascular disease and cancer.

Our business creates sustainable value for shareholders, provides salaries and career opportunities for employees, and creates wider economic value through taxes and relationships with suppliers and other business partners.

Our performance in 2023

Business review 26
Innovation 31
Access to medicines 39
Unleash the power of our people 45
Environmental sustainability 50
Maintain high ethical standards 54
Product quality and patient safety 61

Business review

Novartis delivered a very strong performance in 2023, supported by sales of key products across our core therapeutic areas and growth in core operating income, underscoring the progress we are making in advancing our strategy.

Financial performance
→ page 27

Therapeutic areas
→ page 28

Operations
→ page 30

2023 highlights

45.4 bn
Net sales from continuing operations (USD)
compared with
USD 42.2 billion in 2022

9.8 bn
Operating income from continuing operations (USD)
compared with
USD 7.9 billion in 2022

8.6 bn
Net income from continuing operations (USD)
compared with
USD 6.0 billion in 2022

16.4 bn
Core operating income from continuing operations (USD)
compared with
USD 14.8 billion in 2022

Novartis employees Kenneth Kargbo (left) and Diana Bartolotto labeling doses of radioligand therapy packed in radiation-proof containers in Millburn, NJ, US.

Financial performance[1]

Novartis full-year net sales were USD 45.4 billion, an increase of 8% in USD reported terms and up 10% measured in constant currencies (cc) to remove the impact of exchange rate movements.

Growth in sales of key products continued to underpin our financial performance. Sales of our heart failure medicine *Entresto* grew 31% (cc) to USD 6.0 billion, driven by sustained growth and increased patient share across all geographies.

Kesimpta, our treatment for relapsing multiple sclerosis, continued to show strong momentum with sales of USD 2.2 billion, up 99% (cc) from the prior year, with growth across all regions.

Kisqali, our treatment for breast cancer, grew strongly across all regions with sales growth of 75% (cc) to USD 2.1 billion. *Pluvicto*, our radioligand therapy for progressive metastatic castration-resistant prostate cancer, registered sales of USD 1.0 billion, up 261% (cc).

Novartis sales in the US grew by 13%. Sales in Europe grew by 4%. Sales in emerging growth markets grew 17% (cc), including a 17% (cc) increase in China.

Operating income was USD 9.8 billion, up 39% (cc) from the prior year, mainly driven by higher net sales, lower restructuring costs and income from legal matters, partly offset by higher impairments and higher investments.

Net income was USD 8.6 billion, increasing by 62% (cc) from the prior year mainly due to higher operating income and nonrecurring favorable tax impacts. Earnings per share were USD 4.13, up 70% (cc), growing faster than net income due to the lower weighted-average number of shares outstanding.

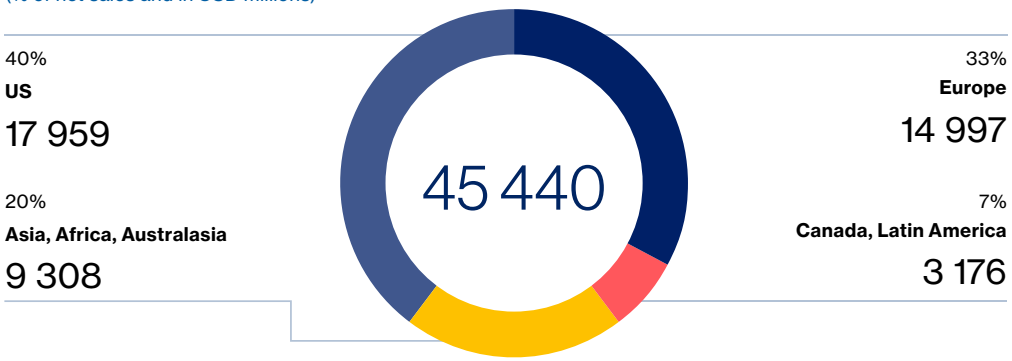
To help stakeholders better understand our underlying performance, we also present our core results, which exclude the impact of amortization, restructurings, acquisitions and other significant items.

Core operating income of USD 16.4 billion rose 18% (cc). Core operating income margin was 36.0% of net sales, increasing by 2.4 percentage points (cc). Core net income of USD 13.4 billion rose 19% (cc). Core earnings per share were USD 6.47, up 25% (cc). Free cash flow of USD 13.2 billion was up 9%, driven by higher net cash flows from operating activities.

For detailed information on our financial performance see the Annual Report 2023.

2023 net sales from continuing operations by geographical region

(% of net sales and in USD millions)



[1] All figures in the commentary refer to continuing operations (i.e. excluding Sandoz).

Key figures[1]

(in USD millions, unless indicated otherwise)	2023	2022	% Change USD	% Change Constant currencies
Net sales from continuing operations	**45 440**	42 206	**8**	**10**
Operating income from continuing operations	**9 769**	7 946	**23**	**39**
% of net sales from continuing operations	**21.5**	18.8		
Net income from continuing operations	**8 572**	6 049	**42**	**62**
Net income from discontinued operations	**6 282**	906	**nm**	**nm**
Net income	**14 854**	6 955	**nm**	**nm**
Basic earnings per share[2] (USD) from continuing operations	**4.13**	2.77	**49**	**70**
Basic earnings per share[2] (USD) from discontinued operations	**3.02**	0.42	**nm**	**nm**
Total basic earnings per share[2] (USD)	**7.15**	3.19	**nm**	**nm**
Core operating income from continuing operations	**16 372**	14 794	**11**	**18**
% of net sales from continuing operations	**36.0**	35.1		
Core net income from continuing operations	**13 446**	11 946	**13**	**19**
Core basic earnings per share[1] from continuing operations (USD)	**6.47**	5.48	**18**	**25**
Free cash flow from continuing operations	**13 160**	12 123	**9**	

Share information

	2023	2022	% Change
Share price at year-end (CHF)	**84.87**	83.59	**2**
ADR price at year-end (USD)	**100.97**	90.72	**11**
Dividend[3] (CHF)	**3.30**	3.20	**3**

[1] This Novartis in Society Integrated Report 2023 includes non-IFRS financial measures such as core results, constant currencies and free cash flow. Novartis believes that investor understanding of the company's performance is enhanced by disclosing these non-IFRS measures. A definition of non-IFRS measures used by Novartis, and further details, including reconciliation tables, can be found in "Item 5. Operating and Financial Review and Prospects" of the Novartis Annual Report 2023.
[2] 2023 weighted average number of shares outstanding: 2 077 million (2022: 2 181 million)
[3] Dividend 2023: proposal to shareholders for approval at the Annual General Meeting on March 5, 2024

Therapeutic areas

In each of our four core therapeutic areas, we have key medicines with substantial growth potential that address high unmet patient needs. For information on key innovation milestones in 2023, see page 35.

Cardiovascular, renal and metabolic

Key medicines: *Entresto*, *Leqvio*

Cardiovascular disease (CVD) is the world's leading cause of death and one of society's biggest health concerns. It includes chronic conditions affecting the heart and blood vessels such as heart failure, heart attacks and strokes. Many CVD-related deaths are preventable through management of risk factors including high cholesterol.

Our cardiovascular portfolio comprises therapies to treat heart failure and reduce low-density lipoprotein (LDL) cholesterol (also known as 'bad cholesterol'), a key contributor to the build-up of fat deposits in arteries (atherosclerosis).

Entresto, our medicine for heart failure and hypertension, registered sales of USD 6.0 billion, up 31% (cc). We estimate *Entresto* to be treating approximately 10 million patients worldwide, including approximately 2 million in the US.

In the US and Europe, *Entresto* increased its market penetration through the adoption of guideline-directed medical therapy in heart failure. In China and Japan, growth was fueled by prescriptions for heart failure as well as increased penetration of the market for hypertension treatments. Highlights of the year also included the approval of a pediatric indication and formulation in Europe and the inclusion of *Entresto* in the 2023 China Hypertension Treatment Guideline.

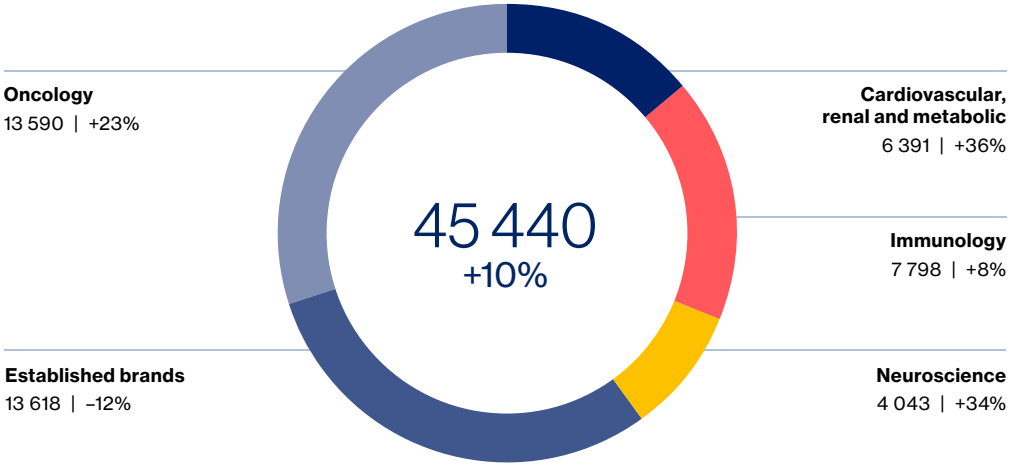
Our cholesterol-lowering treatment *Leqvio* is the first and only small interfering RNA (siRNA) therapy to lower LDL cholesterol approved in the US. In 2023, *Leqvio* was approved in China and Japan and is now approved in 94 countries. Launch of *Leqvio* in the US and other markets is ongoing, with a focus on patient onboarding, removing access hurdles and enhancing medical education. *Leqvio* registered sales of USD 355 million in 2023, up 217% (cc).

Leqvio was approved in China and Japan and is now approved in 94 countries

We are also working to meet the needs of health systems and patients through innovative access approaches that work in tandem with our medicines to reduce the impact of CVD equitably and at scale. In Japan, for example, Novartis is working with local governments and other partners to launch the first-ever digitalized regional clinical pathway for people who have experienced a heart attack or stroke. The aim is to simplify and encourage adherence to national cholesterol guidance for high-risk patients, thereby reducing the risk of a second cardiovascular event.

2023 net sales by therapeutic area

(in USD millions, % growth in constant currencies, and therapeutic area share of net sales)



Immunology

Key medicine: *Cosentyx*

Immunological diseases cover a broad spectrum of conditions, including chronic skin diseases that can cause emotional distress and debilitating physical symptoms. Our focus is on helping people with immunological conditions where there are few, or inadequate, treatment options.

Since initial approval in 2015, *Cosentyx* has been used to treat more than 1 million people across six systemic inflammatory conditions, and it continues to show benefit in new disease areas where there is high unmet need. In 2023, *Cosentyx* was approved in the US and Europe for the treatment of adults with hidradenitis suppurativa (HS), a chronic inflammatory skin disease impacting about 1 in 100 people worldwide. *Cosentyx* is the first new biologic therapy for HS in nearly a decade. It is now approved for HS in adults in more than 60 countries worldwide.

Sales of *Cosentyx* increased 5% (cc) to USD 5.0 billion in 2023, driven by continued demand growth across key regions. Sales outside the US grew 19% (cc).

Neuroscience

Key medicine: *Kesimpta*

Diseases of the nervous system have a dramatic impact on patients and their families. We aim to restore possibility for people living with severe neurological conditions through innovative medicines by changing the course of disease progression.

Kesimpta has now been approved in 87 countries with more than 85 000 patients treated

People with multiple sclerosis (MS), a chronic inflammatory disease of the central nervous system, experience a wide range of life-limiting symptoms, ranging from problems with vision, movement and sensation to fatigue, pain and issues with memory and thinking.

Kesimpta, our treatment for relapsing forms of MS, has been shown to reduce the risk of worsening disability from MS for up to five years. The medicine, which patients can self-administer at home, has now been approved in 87 countries with more than 85 000 patients treated. In 2023, *Kesimpta* sales grew 99% (cc) to USD 2.2 billion.

Oncology

Key medicines: *Kisqali*, *Pluvicto*, *Scemblix*

Cancer is the second leading cause of death worldwide and is a growing health issue in low- and middle-income countries (LMICs). The World Health Organization (WHO) estimates there will be 50% more new cancer cases in 2040 than there are today.

Sales of *Kisqali* (ribociclib) grew 75% (cc) to USD 2.1 billion, growing strongly across all regions, based on increasing recognition of its consistently reported overall survival benefits in HR+/HER2- advanced breast cancer, the most common subtype of breast cancer.

In 2023, we reported results from a global Phase III clinical trial of ribociclib in early breast cancer, which showed ribociclib significantly reduced the risk of recurrence by 25% across a broad population of patients with stage II and stage III HR+/HER2- early breast cancer (see page 36).

Submissions for approval in early breast cancer were completed in August to the EMA and in December to the FDA. Submissions to other regulatory authorities are ongoing.

Prostate cancer is the most frequently diagnosed cancer in men. *Pluvicto*, our radioligand therapy (RLT) for metastatic castration-resistant prostate cancer (mCRPC), an advanced form of prostate cancer that currently has few treatment options, saw continued growth with USD 1.0 billion in sales, up 261% (cc), driven by US growth.

Pluvicto is the first and only radioligand therapy approved in the US for the treatment of adult patients with progressive, PSMA-positive metastatic castration-resistant prostate cancer, who have already been treated with other anticancer treatments (ARPI and taxane-based chemotherapy).

To support growing demand for *Pluvicto* and our wider RLT platform, we have expanded our global RLT production capabilities (see 'Operations').

To support growing demand for *Pluvicto* and our wider radioligand therapy platform, we have expanded our global RLT production capabilities

Around 500 000 new cases of leukemia are recorded globally every year. Approximately 15% of all cases are chronic myeloid leukemia, or CML, most common in adults over 65.

Significant advances in recent years have led to improved survival rates, enabling more patients to live with the disease. Even so, many patients remain at risk of disease progression, and are resistant to, or intolerant of, many available treatments.

Our CML treatment *Scemblix* registered sales of USD 413 million, up 179% (cc), with growth across all regions demonstrating the high unmet need for effective and tolerable treatment options for CML patients who have been treated with two or more tyrosine kinase inhibitors (TKIs) or who have the T315I mutation.

Scemblix has now been approved in more than 60 countries for patients with Philadelphia chromosome-positive CML in chronic phase who have been treated with two or more TKIs

Scemblix has now been approved in more than 60 countries for patients with Philadelphia chromosome-positive CML in chronic phase who have been treated with two or more TKIs.

Operations

Our Operations unit supports and enables our strategy as an innovative medicines company. Its primary goal is to ensure an uninterrupted and timely supply of medicines that meet all product specifications and quality standards, and that are produced in the most cost-effective and sustainable manner. Operations also supports the company with IT, procurement, real estate and other support services we need to run our business.

Manufacturing

Novartis operates 33 production sites worldwide. With the spin-off of our Sandoz generics and biosimilars business, our sites are now fully focused on producing innovative medicines across our priority technology platforms. Overall, we produced approximately 19.8 billion treatments sold to third parties in 2023, ensuring a continuous and reliable supply of our medicines to patients.

We produced approximately 19.8 billion treatments sold to third parties in 2023, ensuring a continuous and reliable supply of our medicines to patients

We are expanding capacity in strategic focus areas such as biopharmaceuticals and advanced technology platforms. For example, we are investing to expand our platform for radioligand therapies (RLT), a type of precision nuclear medicine that requires quick delivery to patients, since the activity of the radioisotope it contains diminishes over time.

In 2023, our facilities in Millburn, NJ, US, and Zaragoza, Spain, received approval from the FDA and European Medicines Agency, respectively, to produce *Pluvicto* — our RLT for advanced prostate cancer. The expanded capacity helped resolve supply limitations due to high demand after launch. Between May and October, we more than doubled the weekly production capacity of *Pluvicto* in the US.

A new state-of-the-art RLT facility in Indianapolis, IN, started clinical production of *Pluvicto* in 2023 and received FDA approval to manufacture commercial doses in early 2024. In addition, we announced plans to build a new RLT production facility in China and expand our site in Sasayama, Japan, to manufacture RLTs.

We opened a new state-of-the-art facility in Schweizerhalle, Switzerland, for the manufacture of RNA therapies, which have the potential to treat or cure some illnesses by using ribonucleic acids (RNA) to modify biological pathways in the body. The facility produces the active ingredient of *Leqvio*, our cholesterol-lowering RNA therapy.

In addition, we produced the first doses of CAR-T therapies for clinical trials of our experimental T-Charge technology, which shortens the time it takes to genetically engineer T cells during the CAR-T manufacturing process so they can be administered to patients faster.

During the year, we also stepped up our contract manufacturing business, through which we leverage our manufacturing facilities and expertise to produce medicines for third-party customers alongside our own. This enables us to increase capacity utilization at our sites while giving customers access to high-quality manufacturing expertise.

To ensure product quality, we maintain a robust quality management system for our medicines in full compliance with requirements from health authorities and other regulators (see page 62). We are also switching more of our production to cleaner energy and improving the environmental performance of our sites (see page 52).

Data science and digital technology

We are investing to build a strong data, digital and IT foundation for our own systems and processes. As part of our overall strategy, we focus on priority projects that can be scaled globally and have the highest impact.

We focus on priority projects that can be scaled globally and have the highest impact

For example, our Lean Digital Core (LDC) program will standardize, simplify and automate almost 700 end-to-end business processes, and consolidate existing data through a single enterprise resource planning system at its core. We anticipate cost savings of approximately USD 360 million from the rollout of the program, which we expect to fully complete by 2028.

Alongside LDC, we are investing in new technology for human capital management, built around Workday, a third-party software platform. This new approach will replace more than 15 global and local systems. With this change, we will be able to further improve how we recruit, manage and develop our employees, as well as simplify and speed up our HR processes. We expect to complete the initial rollout in the first half of 2024.

For information on how we use data science and digital technology in research and development, see page 33.

Innovation

In a world where many diseases don't have a treatment option, how can we bring possibility to people living with serious illnesses every day? It starts with our research and development teams, who push the boundaries of scientific discovery and turn breakthroughs into medicines that change lives.

Our approach
→ page 32

Clinical trials
→ page 33

Our performance in 2023
→ page 35

2023 highlights

22

Approvals in the US, EU, Japan and China
for new medicines and new indications for existing medicines

18

Submissions in the US, EU, Japan and China
for regulatory approval of new medicines and new indications for existing medicines

8.6 bn

Invested in research and development (USD)
(core R&D spend from continuing operations)

41

Ongoing Phase III programs
in our development pipeline

Laurie Brunner, a breast cancer survivor who participated in a Novartis clinical trial, is seen in her home city of Boston, MA, US. Read the photo story online.

Our approach

Improving human health is more critical than ever. Globally, people live for an average of 10 years with a disease or disability. Noncommunicable conditions make up an increasing share of the disease burden as populations age, with cardiovascular disease and cancer together responsible for 28 million deaths annually.

Changing this for the better is what drives us at Novartis. As we begin a new era as an innovative medicines company, we remain committed to working together and with partners in industry and academia to discover and develop new medicines for serious diseases.

Our research and development (R&D) strategy is based on an end-to-end approach across the research, development and commercial continuum. From the inception of a potential therapeutic, through to its clinical development and in-market adoption, our research, development and commercial teams collaborate in support of our purpose to improve and extend people's lives.

Researchers and clinicians in our Biomedical Research unit work across therapeutic areas to uncover biological insights into the origins and pathogenesis of disease to drive the discovery and development of the next generation of candidate medicines.

Our Development unit leads the advanced clinical development of potential new medicines, running large clinical trials and steering the way to regulatory approval and access for patients.

Our US and International commercial units have a direct voice in helping to shape end-to-end product strategy across our core therapeutic areas. Our Strategy & Growth function drives strategic planning for our therapeutic areas in close collaboration with our other units.

To ensure our medicines are more likely to address outcomes that matter most to people living with a particular disease, we systematically integrate patient insights into the R&D life cycle — from initial research through to development and commercialization (see page 21).

The Innovation Management Board (IMB), chaired by our Chief Executive Officer, drives our R&D portfolio strategy. The IMB endorses new early- and late-stage development projects, strategic plans and portfolio-related priorities. It oversees our drug development budget; approves major project phase transitions; and makes key decisions, such as when to submit regulatory applications to health authorities or when to discontinue projects.

IMB members include representatives from Novartis senior management with expertise in different fields across the research, development and commercial continuum.

We continue to make significant investments to support our R&D strategy. In 2023, our core R&D spend from continuing operations was USD 8.6 billion, compared with USD 8.3 billion in the prior year.

Focused strategy

We have clear strategic priorities to focus our R&D work in areas where we believe we can have the most impact for patients.

We focus on four core therapeutic areas where there are high unmet patient needs — cardiovascular, renal and metabolic; immunology; neuroscience; and oncology. This approach enables us to build depth in these areas, leveraging our scientific expertise to find new ways to treat and cure disease, intervene earlier in chronic illnesses, and improve quality of life for patients.

We recognize that cultivating a robust pipeline and remaining on the leading edge of scientific discovery requires a slightly wider aperture in early research, which is

Related links and disclosures

- → Novartis Pipeline
- → Position on Responsible Clinical Trials
- → Commitment to Diversity in Clinical Trials
- → Clinical Study Transparency
- → Commitment to Patients and Caregivers
- → Position on Medicines for Patients with Rare Diseases

'Two plus three' — our key technology platforms

Chemistry
Chemistry is the discovery of low molecular weight synthetic molecules that can be optimized as medicines.

Biotherapeutics
Biotherapeutics, or biologics, are medicines derived from the molecules of life, carefully engineered to treat specific diseases.

RNA therapy
RNA therapies use various forms of ribonucleic acids (RNA) to modify biological pathways in the body to treat or cure specific illnesses.

Radioligand therapy
Radioligand therapy delivers precision-targeted radiation to cancer cells in the body with the goal of limiting damage to surrounding tissue.

Gene and cell therapy
Gene therapies modify part of a patient's genetic makeup to help treat genetic or inherited diseases. Cell therapies treat diseases by restoring or altering certain sets of cells or by using cells to carry a therapy through the body.

why we also conduct some exploratory research work beyond these core therapeutic areas.

In parallel, we are investing in technology platforms that we expect will deliver future medicines. We focus on two established platforms (chemistry and biotherapeutics) plus three more advanced platforms (radioligand therapy (RLT), xRNA, and gene and cell therapy) that will play an increasingly important role in delivering new medicines.

Within this 'two plus three' approach, we focus our development resources on our priority assets to maximize high potential early programs and ensure effective execution of late-stage pipeline programs, in addition to supporting life-cycle management by growing the evidence base for key in-market assets.

Delivering high-value medicines requires a focus on productivity and prioritization to increase our returns on R&D investment — for example by building on our disease and scientific expertise, or by moving quickly to expand projects with high potential for success and stop or out-license non-core programs.

We increase our chances of discovering new medicines by collaborating with outside researchers and biotech companies. Our network consists of more than 300 academics and 100 industry alliances working on joint research and drug discovery.

Artificial intelligence in innovation

To support our R&D strategy, we are investing in artificial intelligence (AI) and other technologies that have the potential to enhance and accelerate the delivery of innovative medicines to patients.

We are working with partners on scalable projects in early-stage research and in clinical development to help improve our decision-making and generate actionable insights across our core therapeutic areas — from designing new compounds to predicting drug safety and conducting clinical trials.

For example, our Generative Chemistry (GenChem) initiative with Microsoft is expanding the way we discover new small molecule drug candidates. Using generative AI approaches, our GenChem teams can design molecule structures and identify compounds with relevant properties that may develop into new medicines. GenChem has the potential to help our teams discover higher quality molecules more rapidly and increase our probability of success in subsequent development stages.

More than 250 specialist data scientists are embedded within research project teams to help optimize and accelerate key aspects of our research — from target identification and dose modeling to refining predictive biomarkers. For instance, in preclinical and early clinical work, data scientists have created a neural network model to assess brain penetration potential for several neurological drug candidates. Using biodistribution data, they have also developed a method to accurately predict how doses of an investigational radioligand therapy would be absorbed by key radiosensitive organs.

Innovation for global health challenges

In 2023, we continued our decades-long efforts to discover and develop new medicines for neglected tropical diseases (NTDs) and other diseases such as malaria that predominantly affect populations in low- and middle-income countries (LMICs). Our global health pipeline spans seven new chemical entities in human trials across six disease areas.

We have pledged USD 250 million over five years (2021- 2025) to help advance new treatments for NTDs and malaria. See page 36 for an update on our progress.

Risk management

Our ability to advance our pipeline and grow our business depends on the success of our R&D efforts. For our stakeholders, our R&D activities help bring forward medicines that address diseases with significant unmet patient need — including for diseases that disproportionately affect people in low-income settings.

For information about enterprise risk management related to innovation, see page 71. For a summary of our material topics, see page 16.

Clinical trials

Clinical trials play a critical role in delivering high-value medicines. They help determine whether our investigational medicines are safe and effective before approval by regulatory authorities for general use for patients.

The traditional model of clinical development consists of three phases:

Phase I: The first clinical trials of a new compound, which are generally performed in a small number of healthy human volunteers / patients (e.g., in oncology) to assess the drug's safety profile, including the safe dosage range.

Our pipeline projects at a glance

	Phase I/II	Phase III	Registration	Total
Cardiovascular, renal and metabolic	6	10	0	16
Immunology	17	10	1	28
Neuroscience	5	5	0	10
Oncology	25	12	3	40
Others	11	4	0	15
Total	64	41	4	109

These trials also determine how a drug is absorbed, distributed, metabolized and excreted, and the duration of its action.

Phase II: Studies performed with patients who have the target disease, with the aim of continuing the Phase I safety assessment in a larger group, assessing the efficacy of the drug in the patient population, and determining the appropriate doses for further evaluation.

Phase III: Large-scale studies with up to several thousand patients that aim to establish the safety and efficacy of the drug in specific indications for regulatory approval. Phase III trials may also be used to compare a new drug against a current standard of care to evaluate the overall benefit-risk relationship of the new medicine.

In each of these phases, physicians monitor consenting volunteers or patients closely to assess the safety and efficacy of a potential new drug or indication.

Although we follow the traditional model, we have tailored it to be simpler, more flexible and more efficient. This design ensures close collaboration across R&D, enabling development teams to initiate later-stage planning in parallel with early evaluations, and research teams to better support later stage activities.

Our development process consists of two stages:

Early development consists of Phase I studies in healthy volunteers as well as Phase Ib and Phase II studies in patients. The aim is to build confidence in the overall properties of the compound to increase the chance of success in later stage development. This work includes a careful review of safety and tolerability, understanding of whether the drug is modulating the target of interest, and understanding of dose response and early evidence of disease efficacy.

If the early development evaluation is positive, the drug candidate then moves to the confirmatory development stage. This includes larger Phase II and Phase III testing and includes trials aimed at confirming the safety and efficacy of the drug in the given indication, before submission to health authorities for approval. Additional post-approval studies may be required by regulatory authorities to continue to gather data to further support approval.

For every clinical trial, our primary responsibility is to protect the safety, wellbeing and legal rights of participants and ensure adherence to the highest ethical standards for clinical research.

For all our clinical trials, we follow international guidelines including the Declaration of Helsinki and the Belmont Report, the Council for International Organizations of Medical Sciences, and the International Conference on Harmonization of Good Clinical Practice (ICH GCP) guidelines. Employees, investigators and contract research organizations involved in our clinical trials must undergo training in ICH GCP guidelines, including on the process of informed consent.

Every clinical trial must be approved by national and/or regional regulatory authorities, as well as by independent local ethics committees or institutional review boards in the countries where the trial takes place. We have robust quality processes and conduct audits and inspections to ensure compliance with regulatory requirements and guidelines. After launch, we monitor the use of our medicines to identify possible adverse events to minimize risks to patients (see page 62).

As part of the Novartis Commitment to Patients and Caregivers, we are committed to seeking patient input into the design of our clinical trials, helping us to develop medicines that address patient needs (see page 21).

Diversity in clinical trials

Diverse representation of patients in clinical trials is critical to our R&D work. It helps us understand how patients who are most likely to be treated for a disease will respond to a medicine — ultimately improving the quality of care for every patient, while also helping to foster health equity.

We include diversity, equity and inclusion (DEI) principles in all Phase III studies with US participation, in line with draft FDA guidance. This means that during feasibility planning and recruitment, our teams set appropriate enrolment targets in line with disease prevalence based on race, ethnicity, sex and age to recruit a representative US population into Novartis trials.

In 2023, we launched a 'Diversity Action Plan' template in the US to help teams integrate DEI principles into trial design in a systematic and consistent way.
We also train employees on steps to ensure inclusion of underrepresented populations in clinical trials.

Making progress on diversity in clinical trials also requires us to work with partners in the broader healthcare system. In 2023, we explored expanding our network of diverse investigators and site staff, including expanding our Beacon of Hope initiative to include additional partners (see page 43).

We have improved clinical trial diversity by implementing strategies that make a tangible impact in enrolling underrepresented patients. For example, collaboration with a US patient advocacy group increased the enrolment of Black or African American men in a key prostate cancer trial. In another instance, we increased diversity in a large cardiovascular trial through strategic site selection, setting up a diverse HCP advisory panel and appointing a DEI HCP lead for the trial in the US.

In the EU, we are working with the Innovative Health Initiative on a cross-sector, public-private partnership that aims to establish a common framework to address barriers associated with recruitment and retention of underserved patient populations in clinical studies in the region.

Our performance in 2023

In 2023, Novartis continued to deliver high-value medicines to patients. We received 22 approvals in the US, EU, Japan and China, including for paroxysmal nocturnal hemoglobinuria, a rare blood disorder, in the US, and hidradenitis suppurativa, a chronic skin disease, in the US and EU. We also made 18 submissions for regulatory approval in our key markets and presented several late-stage data readouts that pave the way for further launches in 2024 and beyond.

However, some investigational compounds did not meet their desired outcomes. These included a potential gene therapy for geographic atrophy and a novel therapeutic approach in gastrointestinal cancers.

Key innovation developments in our therapeutic areas during 2023 are summarized below.

Cardiovascular, renal and metabolic

We received approval for our cholesterol-lowering treatment *Leqvio* in China and Japan, where aging populations are driving higher rates of cardiovascular disease. *Leqvio*, which has now been approved for use in 94 countries worldwide, is a subcutaneous injection given by a healthcare provider every six months (after an initial dose and another dose after three months). In conjunction with a healthy diet and statins, *Leqvio* may help those who have difficulty sticking to medicines that are self-administered and have greater dosing frequency.

We also continue to strengthen the position of *Entresto*, our medicine for heart failure and hypertension. In 2023, we received approval in the EU for pediatric heart failure, which is an important cause of morbidity and mortality in childhood. Up to 33% of all pediatric cardiac admissions are related to heart failure. *Entresto* is becoming available to children with a new age-appropriate formulation to enable accurate and convenient administration for these patients and their caregivers.

We announced positive results from two Phase III studies of iptacopan in patients with immunoglobulin A nephropathy (IgAN) and C3 glomerulopathy (C3G). Both are rare kidney diseases that mostly affect children or young adults. Patients living with IgAN or C3G face the risk of kidney failure and need targeted therapies that slow or prevent their disease progression. We plan to review the results of both studies with health authorities to enable potential submissions in 2024.

> The work we are doing in the renal space was further strengthened by our acquisition of Chinook Therapeutics

Iptacopan, which was discovered and developed by Novartis, is an oral factor B inhibitor that acts proximally in the alternative complement pathway — part of the immune system involved in triggering inflammation and fighting infection. In 2023, we also received regulatory approval in the US for iptacopan to treat paroxysmal nocturnal hemoglobinuria (see 'Oncology').

The work we are doing in the renal space was further strengthened by our acquisition of Chinook Therapeutics, Inc., a biopharmaceutical company focused on precision medicines for kidney diseases. The acquisition added two late-stage investigational assets for IgAN, atrasentan and zigakibart, to our pipeline.

In 2023, we announced top-line results from an interim analysis of a Phase III study of atrasentan, which demonstrated a clinically meaningful and highly statistically significant reduction in protein in urine in patients with IgAN receiving supportive care. Based on the interim analysis, Novartis plans to submit an application in 2024 for possible accelerated approval in the US.

Immunology

We received approval for *Cosentyx* in the US and EU to treat hidradenitis suppurativa (HS), a chronic, systemic and often painful skin disease that causes recurring boil-like lumps that may burst into open wounds and cause irreversible scarring, often in the most intimate parts of the body. *Cosentyx* is the first new biologic treatment for HS in nearly a decade.

HS can have a significant impact on patients' quality of life, and people living with HS often experience comorbidities such as obesity, diabetes, arthritis and depression. It can take up to 10 years on average to get a diagnosis, even though HS affects approximately 1 in 100 people globally.

We also reported positive results from two Phase III studies of remibrutinib (LOU064) for chronic spontaneous urticaria (CSU). Approximately 40 million people globally live with CSU (also known as chronic hives), an immunological disease that can severely impact quality of life.

We intend to submit remibrutinib to global health authorities starting in 2024. If approved, remibrutinib has the potential to become the first of a new class of CSU treatment in a decade, offering an effective

Innovation performance indicators

	2023	2022	2021
Projects entering development pipeline [1]	**10**	5	7
Ongoing Phase III programs [2]	**41**	42	52
US FDA breakthrough therapy designations	**1**	1	3
Submissions (US, EU, Japan, China) [3]	**18**	24	34
Approvals (US, EU, Japan, China) [3]	**22**	23	21
New molecular entity (NME) approvals [4]	**1**	1	2
Investment in R&D for malaria and NTDs (USD millions)	**98.4**	77.2	51.5

[1] Includes projects that have achieved first patient, first visit (FPFV) in confirmatory development (including projects entering confirmatory development from an acquisition or in-licensing). For 2021 data the previous methodology was applied i.e., projects entering confirmatory development from internal R&D activities only and FPFV has occurred in post-proof-of-concept stage after Biomedical Research
[2] Includes projects that have achieved FPFV in a Phase III study but not yet filed in the US, EU, Japan or China
[3] Includes small molecules or biologics; new fixed-dose combinations of existing active pharmaceutical ingredients (APIs); and new target indications, defined as new disease or new line of treatment (e.g., first line vs. second line)
[4] Includes NMEs such as small molecules, biologics; in the EU, new fixed-dose combinations of existing APIs

oral treatment option for the 60% of patients uncontrolled by H1-antihistamines.

Remibrutinib, which was discovered and developed by Novartis, is a potential multi-indication investigational treatment for a variety of autoimmune and chronic inflammatory diseases.

Oncology

Significant oncology milestones in 2023 included positive results from a global Phase III study of ribociclib in early breast cancer. The trial showed ribociclib significantly reduced the risk of recurrence by 25% across a broad population of patients with stage II and stage III HR+/HER2- early breast cancer. Breast cancer is one of the most prevalent types of cancer, with HR+/HER2- the most common subtype.

Ribociclib, which is commercialized under the brand name *Kisqali*, has already demonstrated survival benefit for patients with HR+/HER2- advanced (metastatic) breast cancer across three Phase III clinical trials. Submissions for approval in early breast cancer were completed in August to the EMA and in December to the FDA. Submissions to other regulatory authorities are ongoing.

During the year, we also presented data from a Phase III study evaluating our radioligand therapy *Pluvicto* for patients with a type of advanced prostate cancer called PSMA-positive metastatic castration-resistant prostate cancer in the pre-chemotherapy setting.

The trial met its primary endpoint with a clinically meaningful and statistically significant benefit in radiographic progression-free survival and demonstrated improved quality of life, underscoring the opportunity to expand the promise of *Pluvicto* to help more patients with prostate cancer. Prostate cancer is the most frequently diagnosed cancer in men in 112 countries, and metastatic prostate cancer has a five-year survival rate of less than 30%.

In hematology, we reported positive results from the primary analysis of a Phase III trial comparing *Scemblix* with standard-of-care tyrosine kinase inhibitor (TKI) treatments in newly diagnosed patients with chronic Philadelphia chromosome-positive chronic myeloid leukemia (Ph+ CML), a cancer that starts in the blood-forming cells of bone marrow. *Scemblix* is already approved in more than 60 countries to treat adults with Ph+ CML who have previously been treated with two or more TKIs.

Significant advances in CML treatment in recent years have led to improved survival rates, enabling more patients to live with the disease. Even so, many patients remain at risk of disease progression, and are resistant to, or intolerant of, many available treatments.

We also received regulatory approval in the US for *Fabhalta* (iptacopan) to treat paroxysmal nocturnal hemoglobinuria (PNH), a rare and serious blood disorder. The disease has a significant unmet need as a large proportion of people with PNH remain anemic and dependent on blood transfusions despite existing treatments. Phase III trials confirmed the efficacy of *Fabhalta*, with the trial populations showing sustained increases of hemoglobin levels and a reduced need for blood transfusions.

Progress against ESG targets
Innovation

Target	Progress
• Invest USD 250 million to advance R&D for neglected tropical diseases (NTDs) and malaria over five years (2021-2025)	• On track: Cumulative total of USD 227.1 million invested since 2021 (91% of USD 250 million investment); invested USD 98.4 million in 2023, with progress in key R&D milestones for malaria and NTDs

Global health

We invested USD 98.4 million in R&D for neglected tropical diseases and malaria in 2023, helping to advance our efforts to develop novel medicines for diseases that predominantly affect underserved populations in LMICs.

Our malaria R&D strategy focuses on addressing the growing threat of drug resistant strains of the disease, pursuing a single-dose cure for uncomplicated malaria, improving the drug regimen for infants and addressing the severe form of malaria.

We invested USD 98.4 million in R&D for neglected tropical diseases and malaria in 2023

A Phase III clinical trial for ganaplacide/lumefantrine (KLU156) for the treatment of patients with acute uncomplicated malaria is expected to begin treating patients in early 2024, and will be conducted in 14 countries in sub-Saharan Africa and India. Ganaplacide/lumefantrine is being developed in partnership with the WANECAM2 (West African Network for Clinical Trials of Antimalarial drugs) Consortium as well as the Medicines for Malaria Venture and their partners.

In partnership with the Drugs for Neglected Diseases Initiative, we launched Phase II studies of LXE408, a potential oral treatment for visceral leishmaniasis, in India and plan to expand to Ethiopia in 2024. A Phase II study of a potential new treatment for dengue fever is planned to start in Singapore in the first quarter of 2024 and expand to other countries during the year.

In 2023, we removed *Adakveo* (crizanlizumab), our advanced treatment for sickle cell disease, from the European market in accordance with the European Commission's (EC) decision to revoke its conditional marketing authorization. The EC initiated a review of crizanlizumab after results of a Phase III confirmatory study did not demonstrate a statistically significant difference between crizanlizumab and placebo. These results were not consistent with earlier clinical trials. The study results did not suggest new safety concerns with crizanlizumab.

Adakveo remains approved by the US Food and Drug Administration (FDA) for use for the reduction in frequency of vaso-occlusive crises (pain crises) in adults and pediatric patients aged 16 years or older with sickle cell disease.

Key assets in our R&D pipeline

The table below shows select R&D programs across our core therapeutic areas as well as select programs linked to our global health priorities. Please note that some assets are in development across multiple therapeutic areas. For more information on our R&D pipeline, see the Novartis corporate website.

Phase I ●○○ Phase II ●●○ Phase III ●●● Submitted for regulatory approval S

Product / compound name	Platform	Description	Potential indication(s)	Current phase
Cardiovascular, renal and metabolic				
EXV811 atrasentan	Chemistry	Potential oral therapy in development for IgA nephropathy and other rare kidney diseases. Added to the Novartis pipeline through the acquisition of Chinook Therapeutics.	**IgA nephropathy**	●●●
FUB523 zigakibart	Biotherapeutics	Potential subcutaneously administered therapy in development for IgA nephropathy. Added to the Novartis pipeline through the acquisition of Chinook Therapeutics.	**IgA nephropathy**	●●●
Leqvio inclisiran	RNA therapy	Approved in 94 countries to treat 'bad cholesterol' in conjunction with a healthy diet and statins. In development for other potential indications.	**Secondary prevention of cardiovascular events in patients with elevated levels of low-density lipoprotein cholesterol**	●●●
Fabhalta iptacopan	Chemistry	Potential multi-indication treatment targeting part of the immune system involved in triggering inflammation and fighting infection (see also 'Oncology').	**IgA nephropathy**	●●●
			C3 glomerulopathy	●●●
TQJ230 pelacarsen	RNA therapy	Potential, first-of-its-kind investigational treatment for cardiovascular events in patients with elevated levels of lipoprotein(a), an inherited risk factor that cannot be effectively addressed by diet or other lifestyle changes.	**Secondary prevention of cardiovascular events in patients with elevated levels of lipoprotein(a)**	●●●
XXB750	Biotherapeutics	Building on our strengths in heart failure research, Novartis is innovating in natriuretic peptide biology for refractory heart failure and resistant hypertension with XXB750.	**Hypertension**	●●○
Immunology				
Cosentyx secukinumab	Biotherapeutics	Treatment for various autoimmune and inflammatory diseases. Approved in the US and EU in 2023 to treat hidradenitis suppurativa.	**Giant cell arteritis**	●●●
			Polymyalgia rheumatica	●●●
			Rotator cuff tendinopathy	●●●
LOU064 remibrutinib	Chemistry	Potential multi-indication investigational treatment for a variety of autoimmune and chronic inflammatory diseases. Also being studied in multiple sclerosis (see 'Neuroscience').	**Chronic spontaneous urticaria**	●●●
VAY736 ianalumab	Biotherapeutics	Investigational therapy with unique, dual action being studied for the treatment of certain autoimmune and hematological conditions (see also 'Oncology').	**Autoimmune hepatitis**	●●○
			Lupus nephritis	●●●
			Sjögren's syndrome	●●●
			Systemic lupus erythematosus	●●●
YTB323 rapcabtagene autoleucel	Cell therapy	Novel, autologous CAR-T cell therapy that has shown preserved T cell stemness and enhanced CAR-T cell efficacy in hematological malignancies as well as potential to reset immunity in severe refractory autoimmune diseases.	**Severe refractory lupus nephritis / systemic lupus erythematosus**	●●○
Neuroscience				
OAV-101 onasemnogene abeparvovec	Gene therapy	Investigational gene therapy for patients between 2 and 18 years of age with Type 2 spinal muscular atrophy (SMA). Potential to be first one-time treatment for this population.	**Spinal muscular atrophy (intrathecal formulation)**	●●●
LOU064 remibrutinib	Chemistry	Potential multi-indication investigational treatment for variety of autoimmune and chronic inflammatory diseases (see also 'Immunology').	**Multiple sclerosis**	●●●

Key assets in our R&D pipeline (continued)

Phase I ●○○ Phase II ●●○ Phase III ●●● Submitted for regulatory approval S

Product / compound name	Platform	Description	Potential indication(s)	Current phase
Oncology				
Kisqali ribociclib	Chemistry	We continue to study ribociclib in breast cancer. Submitted for regulatory approval in the US and EU as a treatment for stage II and III HR+/HER2- early breast cancer as an adjuvant therapy.	**Hormone receptor-positive (HR+)/ human epidermal growth factor receptor 2-negative (HER2-) early breast cancer (adjuvant)**	S
Pluvicto lutetium (^{177}Lu) vipivotide tetraxetan	Radioligand therapy	Approved for treatment of a progressive, deadly form of prostate cancer known as mCRPC. Development is ongoing in several indications for certain other types of prostate cancer.	**Metastatic castration-resistant prostate cancer, pre-taxane**	●●●
			Metastatic hormone-sensitive prostate cancer	●●●
JDQ443 opnurasib	Chemistry	Investigational oral therapy for KRAS-mutated tumors, which make up around 25% of all cancers.	**Non-small cell lung cancer (monotherapy and/or combination therapy)**	●●●
Scemblix asciminib	Chemistry	Approved for patients with Philadelphia chromosome–positive chronic myeloid leukemia (CML) in chronic phase. Being studied for possible use in patients newly diagnosed with chronic CML.	**Chronic myeloid leukemia, 1st line**	●●●
Fabhalta iptacopan	Chemistry	Potential multi-indication treatment targeting part of the immune system involved in triggering inflammation and fighting infection (see also 'Cardiovascular, renal and metabolic').	**Atypical hemolytic uremic syndrome**	●●●
Lutathera lutetium Lu 177 dotatate/ lutetium (^{177}Lu) oxodotreotide	Radioligand therapy	Approved to treat somatostatin receptor-positive gastroenteropancreatic neuroendocrine tumors, which are rare tumors found in the digestive tract.	**Gastroenteropancreatic neuroendocrine tumors**	●●●
VAY736 ianalumab	Biotherapeutics	Investigational therapy with unique, dual action being studied for the treatment of certain autoimmune and hematological conditions (see also 'Immunology').	**Immune thrombocytopenia**	●●●
			Warm autoimmune hemolytic anemia (wAIHA)	●●●
YTB323 rapcabtagene autoleucel	Cell and gene therapy	Novel, autologous CAR-T cell therapy that has shown preserved T cell stemness and enhanced CAR-T cell efficacy in hematological malignancies as well as potential to reset immunity in severe refractory autoimmune diseases.	**High-risk large B-cell lymphoma, 1st line**	●●○
Global health				
KLU156 ganaplacide + lumefantrine	Chemistry	Antimalarial combination therapy with novel mechanism of action to address threat of artemisinin resistance and potentially block disease transmission. Phase III trial expected to start in early 2024.	**Malaria, uncomplicated**	●●○
Coartem artemether + lumefantrine	Chemistry	New optimized formulation of artemisinin-based antimalarial treatment developed for infants weighing less than 5kg, for whom there is currently no approved treatment.	**Malaria, uncomplicated (<5kg patients)**	●●●
LXE408	Chemistry	Potential new treatment for visceral leishmaniasis, a neglected tropical disease spread by sand flies that is typically fatal without treatment.	**Visceral leishmaniasis**	●●○

Access to medicines

The best medicines are those that reach the people who need them. We work together with partners to find new ways to bring our medicines to more people and places faster.

Our approach
→ page 40

Our performance in 2023
→ page 44

2023 highlights

31%

Increase in patients reached
with strategic innovative therapies in low- and middle-income countries (vs. 2022)

100%

New medicines launched
with a global access strategy

Sister Martine (left) and nurse Agnès Ngayina outside the health center at the Catholic mission in Ntui, Cameroon. Read the photo story online.

Our approach

Ensuring equitable access to innovative medicines is core to our business and our purpose. We believe everyone should be able to benefit from our medicines, regardless of where they live or their socioeconomic situation.

Access strategy and targets

We commit to implement a global access strategy for every new medicine launched. Our strategy is based on the Novartis Access Principles (see infographic), through which we employ a combination of approaches to reach underserved patients that reflect the size and complexity of the world's healthcare challenges. These include innovative pricing and access models, earlier launches in low- and middle-income countries (LMICs), and approaches to strengthen healthcare systems.

Related links and disclosures

- → Novartis Access Principles
- → Position on Access to Medicines
- → Position on Value-Based Healthcare
- → Position on Post-trial Access
- → Position on Pre-Approval Access through MAPs
- → Position on Intellectual Property
- → The Novartis Foundation

In 2020, we issued a EUR 1.85 billion sustainability-linked bond to reinforce our commitment to expanding access to our medicines in LMICs. Bondholders are entitled to receive a higher amount of interest if Novartis does not meet specific access targets.

Our targets are to increase patient reach with our strategic innovative therapies[1] in LMICs by at least 200% by 2025 (vs. 2019) and to increase patient reach of our four key global health programs in LMICs by at least 50% over the same period. See page 44 for our performance against these targets in 2023.

Novartis Global Health

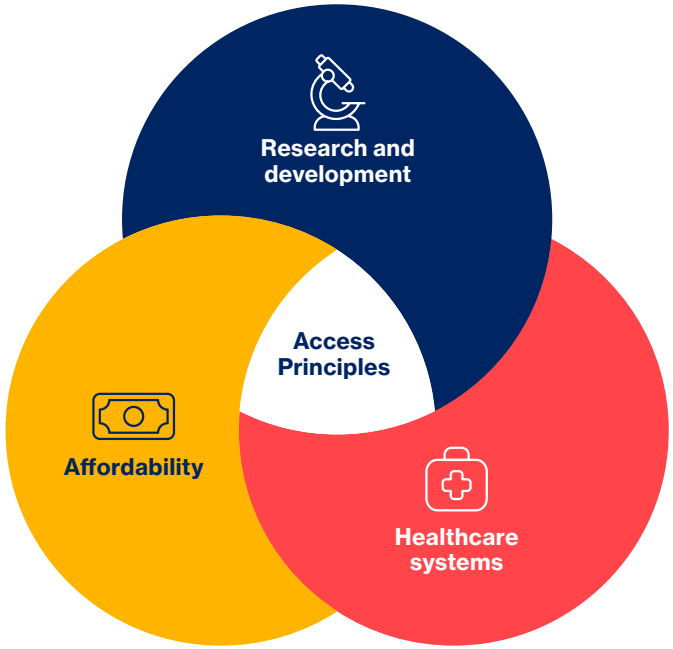
Our work in global health is aligned with our overall efforts to expand access to our medicines. Our ambition is to ensure everyone can benefit from our innovation, regardless of where they live or of their socioeconomic situation, and to maximize our social impact as a sustainable business.

We do this by combining global health and business capabilities to tackle unresolved global health challenges, such as malaria, sickle cell disease, Chagas disease and leprosy (see box on the following page), as well as noncommunicable diseases such as cardiovascular disease and cancer.

Our research and development teams bring forward novel compounds to address diseases with high unmet need that predominantly affect people in LMICs — including malaria, dengue, sickle cell disease, cryptosporidiosis and others

Novartis Access Principles

We take a systematic approach to increase equitable access to innovative medicines.



Research and development:
We systematically assess our product portfolio against the unmet needs of underserved populations and integrate these needs, as appropriate, into our discovery and development strategy.

Affordability:
We aim to price our medicines based on the value they deliver to patients, healthcare systems and society. We also use innovative access and pricing models, taking into account local income levels, affordability barriers and economic realities.

Strengthening healthcare systems:
We work with governments and other partners to overcome barriers to healthcare delivery and support quality patient care in disease areas and geographies where we can make a unique contribution.

[1] Strategic innovative therapies include *Entresto, Lucentis, Cosentyx, Jakavi, Promacta* and others. New therapies may be added to the list subject to management approval. See the sustainability-linked bond Final Listing Prospectus for more information.

(see page 36). In parallel, the Novartis Global Health organization employs a range of strategies and sustainable business models to reach patients beyond the scope of our US and International commercial activities.

With the spin-off of our Sandoz generics and biosimilars business, Novartis Global Health is focused on addressing barriers to access for our innovative medicines. Novartis retains ownership of our antimalarial treatment *Coartem* and holds the rights of the relevant marketing authorizations for hydroxyurea for sickle cell disease. In addition, supply agreements with Sandoz enable us to continue distribution of multidrug therapy for leprosy.

Access principle 1: Research and development

We systematically assess our R&D portfolio against the unmet needs of underserved populations, including in LMICs. We aim to integrate access considerations and assess the need to generate evidence for diverse population groups early into the development process. We begin to anticipate potential access barriers and enablers for our investigational medicines by the end of Phase II development.

For example, our eye medicine *Beovu* was launched in both pre-filled syringe and vial formulations to enable rapid and sustainable access for patients in LMICs.

We also adapt existing medicines for different patient groups or for diverse environments. For example, in 2023 we completed recruitment for a clinical trial of our heart failure medicine *Entresto* for patients with chronic Chagas cardiomyopathy, a complication of Chagas disease.

As part of the PAMAfrica consortium, which is funded by the European & Developing Countries Clinical Trials Partnership, Novartis and the Medicines for Malaria Venture are developing a formulation of our antimalarial treatment *Coartem* optimized for infants under 5 kg, for whom there is currently no approved treatment. Closing this treatment gap is important to ensure the medicine is available for all patients at risk. In many endemic countries, small babies are treated for malaria with tablets intended for children above 5 kg, adjusted for weight. Yet this could lead to potential toxicity as small babies metabolize drugs differently.

Access principle 2: Affordability

We use a variety of approaches to improve the affordability of our medicines — taking into account income levels, affordability barriers and economic realities, while maintaining the sustainability of our business.

Value-based and tiered pricing

Many healthcare systems in higher-income countries base their payment models on volume of procedures, such as number of visits to the doctor or medicines delivered, which can result in suboptimal allocation of resources. We believe a value-based approach to pricing ensures patient access to innovative medicines while incentivizing health systems to focus on interventions that deliver the most effective, efficient and sustainable outcomes.

We work with payers to expand this approach, including through system-level mechanisms that align payments with outcomes and help reduce ineffective spending. For more information, see the Novartis Position on Value-based Healthcare.

Where feasible, we also use tiered pricing in LMICs to drive faster and broader access to our innovative medicines. As part of this strategy, we continue to expand our emerging market brands (EMB) program. For instance, the EMB of *Entresto* reached approximately 656 000 patients in 43 countries in 2023, compared with approximately 1.2 million patients reached with the originator brand.

Novartis Global Health programs

Malaria

Novartis has been involved in the fight against malaria for decades. Since 1999, we have delivered more than one billion treatments of our artemisinin-based combination therapy (ACT) *Coartem* to endemic countries, including a pediatric formulation. We are developing a new optimized dose of ACT for use in infants of less than 5 kg. We expect to start Phase III clinical trials for our lead malaria pipeline program in early 2024 (see page 38).

Sickle cell disease

The Novartis Africa Sickle Cell Disease program is a holistic approach to diagnose, treat and manage sickle cell disease in sub-Saharan Africa (SSA). We have signed partnership agreements with four countries in SSA. Novartis is also a founding member of the World Coalition on Sickle Cell Disease.

Chagas disease

Chagas disease is a parasitic disease that can cause debilitating long-term complications, including chronic heart disorders in up to 30% of patients. We are conducting a Phase IV study in patients with the cardiac form of Chagas disease (with heart failure with reduced ejection fraction) in collaboration with the Brazilian Clinical Research Institute, and we are working to strengthen health care systems in Brazil, Mexico and Bolivia. Novartis is also a member of the Global Chagas Disease Coalition.

Leprosy

Leprosy affects an estimated 2-3 million people worldwide. Over the past 30 years, great strides have been made in treating the disease through multidrug therapy (MDT). In 2020, we renewed our pledge to continue donations of MDT packs for another five years. We are also working with the WHO on a process to reliably replenish the stocks of medicines used to treat leprosy, including at local health facilities.

Innovative business models

To drive access in sub-Saharan Africa (SSA), we created a dedicated unit in 2019 to focus on reaching more patients in the region across several therapeutic areas while maintaining the sustainability of our business. We deliver our portfolio of medicines to countries in SSA, and have established an ecosystem of local partners to drive impact.

We have evolved our Novartis Access program to focus on increasing access to our innovative medicines in LMICs for populations not reached through our International and US commercial teams. The program currently focuses on medicines in our cardiovascular, renal and metabolic, ophthalmology, and neuroscience therapeutic areas. In addition to offering our medicines at lower prices, we work with partners to address health system needs that may inhibit access to these treatments.

Patient support programs

In both higher-income countries and LMICs, we provide support programs to help patients facing financial hardship or other barriers to access, as well as to support education on disease awareness and adherence to medication. Overall, we have around 800 active patient support programs in 80 countries. These include Novartis Patient Assistant in the US and Novartis Oncology Access (NOA) for patients across Asia and the Middle East.

Donation partnerships

Through our donation partnership programs, we seek to expand access to our innovative medicines for patients in lower-income countries who face serious or life-threatening illnesses.

In 2023, patients in nine countries received their first doses of *Kisqali* for breast cancer and *Scemblix* for chronic myeloid leukemia (CML) through our CancerPath to Care™ program in collaboration with the Max Foundation.

This initiative, which we expanded in 2022 to incorporate some of our most innovative medicines, extends a lifeline to patients in lower-income regions without access to reimbursement or funding mechanisms, as well as to individuals who cannot afford their treatment. CancerPath to Care™ reached approximately 33 000 patients across 70 countries in 2023.

For over 30 years, Novartis has been working with partners around the world to eliminate leprosy. Since 2000, through the WHO, Novartis has donated more than 70 million blister packs of multidrug therapy (MDT) valued at approximately USD 124 million, which has helped to treat more than 7.5 million leprosy patients worldwide.

Our agreement with the WHO also covers donations of triclabendazole for the treatment of fascioliasis, a disease caused by parasites known as liver fluke. Novartis has been donating the medicine to the WHO since 2005.

Case study **Integrated access in action – Vietnam**

Our strategy to support the Vietnamese government's goal of improving the prevention, early detection and management of cardiovascular disease is an example of a holistic approach to access that addresses both the availability of medicines and health system strengthening.

Our Global Health program is expanding access to innovative medicines at lower tiers of the health system and to more remote provinces, while partnering with the government to strengthen the primary healthcare system to deliver hypertension and diabetes care. The program has reached close to 2 million people across 37 provinces since its inception.

This sustainable model is now being further scaled with support from the World Bank, which has committed USD 10 million to expand the model to include testing and treatment for dyslipidemia, a condition in which people have chronically high levels of unhealthy cholesterol.

At the same time, our commercial team is focused on supporting access to our innovative cardiovascular medicines in the main tertiary and provincial hospitals throughout the country.

Managed access and post-trial access programs

Our managed access programs (MAPs), also known as compassionate use or expanded access, provide eligible patients living with a serious or life-threatening illness who have exhausted available treatment options with access to medicines not yet approved or available in their home countries.

In 2023, we reviewed 6 431 MAP requests from physicians from 72 countries covering 50 compounds. We approved 95% of these requests. By the end of the year, 13 360 patients were on treatment under Novartis MAPs. See the Novartis Position on Pre-Approval Access to Novartis Products through Novartis Managed Access Programs for more information.

Our post-trial access (PTA) policy applies to all confirmatory clinical trials and trials for serious and/or life-threatening conditions at any stage of development. It ensures patients who have derived clinical benefit from an investigational treatment can continue to receive it, free of charge, until it is commercially available and accessible in accordance with local laws and regulations. Our PTA policy applies regardless of the severity of the disease, the availability of alternative therapies, or the location of the clinical trial. PTA plans were incorporated in all in-scope trials approved in 2023. See the Novartis Position on Post-Trial Access for more information.

Access principle 3: Strengthening healthcare systems

Barriers to healthcare are often caused by complex and interrelated issues, including poverty, underfunded and inefficient healthcare systems, lack of health education, shortage of healthcare workers, stigma surrounding disease, and mistrust of healthcare services.

In both high-income countries and LMICs, we work with governments and other partners to tackle these issues through an approach we call health system strengthening (HSS). We are integrating HSS throughout our core business planning processes. Below, we provide examples of current programs.

Addressing the factors behind cardiovascular disease in the US

Almost a quarter of deaths in the US are due to cardiovascular disease (CVD). Many are preventable through management of risk factors such as high cholesterol, living conditions and diet, which are often exacerbated by social issues such as poverty and racial inequity.

In 2023, we launched public-private partnerships with Rush University Medical Center and Indiana University Health that aim to address upstream social determinants of heart health in vulnerable neighborhoods in Chicago, IL, and Indianapolis, IN, respectively.

The model for these partnerships is our ‘Closing the Gap’ initiative in Philadelphia, PA, with Thomas Jefferson University and Jefferson Health, which is now in its second year. Dedicated clinical personnel and community health workers conduct screenings and connect people with resources such as food, health, education or housing assistance.

Beacon of Hope

Our Beacon of Hope program in the US is a 10-year commitment by Novartis and the Novartis US Foundation that seeks to address health and education inequities and create greater diversity, equity, inclusion and trust across the R&D ecosystem.

Six new organizations joined Beacon of Hope in 2023. They were selected to provide tools and expertise to help Centers of Excellence at Historically Black Medical Schools accelerate progress on increasing diversity, equity and inclusion in clinical trials, to support new research into healthcare disparities, and to help break down economic and education barriers that often stand in the way of career opportunities for students of color.

The new organizations include companies with expertise in data science and artificial intelligence, as well as pharmaceutical companies that have committed to host clinical trials through the Centers of Excellence. For more information, see our corporate website.

Taking a data-driven approach to heart health

The Novartis Foundation focuses on cardiovascular disease and growing health inequities in urban environments. Its CARDIO4Cities initiative uses data-driven insights and multisector partnerships to support the early detection and adequate treatment of cardiovascular risks. The program supports city authorities to assess the impact and cost-effectiveness of interventions before they are implemented.

CARDIO4Cities rapidly improved blood pressure control rates within one to two years of implementation, resulting in a reduction of stroke and heart attack rates

The approach has been validated in three cities (Sao Paolo, Brazil; Dakar, Senegal; and Ulaanbaatar, Mongolia). In 2023, the Foundation published a peer-reviewed paper showing that CARDIO4Cities rapidly improved blood pressure control rates within one to two years of implementation, resulting in a reduction of stroke and heart attack rates.

On the back of this success, the Foundation launched the CARDIO4Cities Accelerator, together with IntraHealth International — a nonprofit organization that works to improve public health capabilities in developing countries — with the aim of replicating CARDIO4Cities in 30 cities within three years.

Intellectual property

Novartis recognizes the unique socio-economic challenges faced by the world’s poorest countries, including challenges that may interfere with the proper functioning of market-based incentives such as intellectual property rights. Accordingly, we do not seek or enforce patents in least-developed countries

(LDCs, as designated by the United Nations), low-income countries (LICs, as designated by the World Bank), or in around 80% of LMICs (as designated by the World Bank).

In the small number of LMICs where we do seek or enforce patents, we aim to limit them to those patent applications covering new molecular entities. In addition, we are committed to granting nonexclusive licenses to qualified third parties for the supply of our patented products exclusively to LDCs or to LICs.

In 2023, for example, the Medicines Patent Pool (MPP) signed sublicense agreements with four generic medicine companies — three from India and one from Indonesia — for nilotinib, a Novartis treatment for chronic myeloid leukemia in children and adults that is on the WHO's essential medicines list. This came after Novartis granted the MPP a nonexclusive license for nilotinib in 2022 through the Access to Oncology Medicines Coalition, becoming the first member company to sign a nonexclusive voluntary license for an innovative cancer medicine.

The sublicense agreements permit the companies to manufacture generic versions of nilotinib in eight countries and supply it in 44, subject to regulatory authorization. The approach has been tested successfully with communicable diseases such as HIV and COVID-19, but never with cancer. We hope this will provide a new model for the sector to increase access to life-changing medicines for noncommunicable diseases.

Risk management

Ensuring our medicines are widely available is core to our purpose and our business. If we are unable to meet our access commitments, we may experience negative impacts on our reputation and business. Pressure on the pricing of our medicines may also affect the availability of our products and negatively impact the long-term ecosystem for innovation. For our stakeholders, our access activities help to address barriers that may prevent, restrict, or delay treatment availability for patients.

For information about enterprise risk management related to access, see page 71. For a summary of our material topics, see page 16.

Our performance in 2023

We implemented global access strategies for all new medicines launched in 2023. For example, our global access strategy for *Fabhalta* (iptacopan) explores ways to partner with health systems in both higher-income countries and LMICs to expand access to this novel treatment for patients with paroxysmal nocturnal hemoglobinuria.

We achieved a 31% increase in patients reached with our strategic innovative therapies in LMICs compared with the previous year, representing an increase of 186% since 2019. This was driven primarily by strong growth in patient reach for *Entresto*, *Cosentyx*, *Promacta*, *Kisqali* and other brands.

Access to healthcare performance indicators	**2023**	2022	2021
Global access strategy for all new medicines launched (%)	**100**	100	100
Patients reached (millions)			
Patients reached through access approaches [1]	**33.2**	35.6	37.3
Sustainability-linked bond (September 23, 2020 – September 23, 2028)			
Patients reached with strategic innovative therapies in LMICs	**1 568 574**	1 197 352	947 699
Patients reached through flagship programs	**28 722 966**	31 157 087	32 695 224

[1] Includes patients reached with medicines through Novartis Global Health, as well as patients reached through support programs, emerging market brands and donations

Progress against ESG targets

Access and global health

Target	Progress
• Implement a global access strategy for all new medicines launched	• Achieved: All new launches in 2023 had a global access strategy
• Increase the number of patients reached with strategic innovative medicines in LMICs[1] by at least 200% by **2025** (compared with 2019 baseline)	• On track: Number of patients reached increased 186% since 2019, with 1.6 million patients reached in 2023 (up 31% compared with 2022)
• Increase the number of patients reached with Novartis Global Health flagship programs[2] in LMICs by at least 50% by **2025** (compared with 2019 baseline)	• On track: Number of patients reached increased 91% since 2019, with 28.7 million patients reached in 2023 (down 8% compared with 2022)

[1] Low- and middle-income countries as defined in Novartis sustainability-linked bond Final Listing Prospectus Annex A
[2] Malaria, leprosy, Chagas disease, sickle cell disease

Patients reached through our global health flagship programs declined by 8% from the prior year, mainly due to adverse macroeconomic conditions in some malaria-endemic countries and the continued easing of COVID 19-related supply disruptions in the wider industry. We remain on track to meet our target, however, as the latest figure represents an increase of 91% from 2019.

Overall, we reached 33.2 million patients through access approaches in 2023, compared with 35.6 million in the prior year, driven mainly by the decline in patients reached through our global health programs.

Unleash the power of our people

Helping people living with disease takes more than innovative science and new technologies. It takes a community of people who challenge and inspire each other to push the limits of what's possible.

Our approach
→ page 46

Our performance in 2023
→ page 48

2023 highlights

48%

Female representation in management
realizing our aspiration for gender balance by the end of 2023

100%

Employees covered
by regular pay equity study

-0.9%

Mean pay gap
meaning the difference between men's and women's earnings are on average less than one percent globally

99%

Employees covered
by our internal health, safety and environment system

Novartis employees Christina Kim (left) and Ravina Cerreta at the Novartis campus in East Hanover, NJ, US.

Our approach

The success of our business depends on our ability to attract, grow and retain talented individuals who reflect and understand the diverse perspectives of our customers, patients and other stakeholders. It also depends on our capacity to create a shared culture that fosters belonging and drives long-term performance.

We continue to nurture our inspired, curious and unbossed culture and to build a global community. We inspire by connecting our people to our purpose and fuel our curiosity through learning, growth and openness to different perspectives. Leading our people the unbossed way, our leaders provide clarity, drive accountability and empower our teams to do their best work possible and to create impact together for patients.

Guided by global principles, we also seek to create a fair, equitable and inclusive workplace that welcomes employees as they are, empowers them to reach their potential, and encourages them to look after their own and each other's wellbeing.

Developing our people

We are committed to investing in our people and empowering them to drive their career growth and development.

Our approach to managing performance includes frequent check-ins between managers and employees on goals, career development, feedback and wellbeing. It also ensures teams are focused on where they can create the greatest near- and long-term impact. Our process is designed to create agility and accountability by emphasizing focus, collaboration and development, and to ensure timely recognition so employees are celebrated for their achievements.

We recognize that preparing for the future requires a workforce with a depth and breadth of skills. We invest in the development and training of our people for current and future skills, offering access to business-critical, personal and professional development training. Employees can also use internal AI-based platforms to manage how they learn, find new roles, and develop their skills and experiences through new projects, job rotations, mentoring or volunteering. Our Giving and Volunteering Program works with civil society partners across more than 60 causes and beneficiary areas aligned with our strategy and purpose.

We invest in our leaders to strengthen their ability to deliver growth and impact through our people, by removing barriers and guiding outcomes. Development of our leaders includes foundational leadership interventions, such as tailored programs during times of transition, as well as solutions supporting collective development and team effectiveness. In addition, we use executive coaching, leadership forums, targeted communications, and development conversations to advance our leadership practice and sustain performance.

Assessing effectiveness

To assess the effectiveness of our approach, we measure employee engagement every quarter through a voluntary and anonymous survey. It is sent to all employees and carried out by an external vendor to ensure independence.

In the fourth quarter of 2023, 71% of employees took part in the survey. The engagement score increased 2 percentage points from a year earlier. Results are used on an aggregated basis to identify potential risks and make improvements to working conditions, training and development, access to support programs and other areas where necessary.

We expect employees to act with integrity in all circumstances, as laid out in our Code of Ethics. Employees are required to take training on the Code every year and to report actual or suspected incidents of misconduct (see page 55).

Supporting mental health and wellbeing

Our ambition is to take care of our people to help them thrive in an ever-changing environment. We offer support and learning tools to help employees care for themselves and others by prioritizing their mental health and wellbeing. We believe that having the confidence to talk openly about mental health, recognizing the signs that people may need support, and knowing where to find that support are all key drivers for the growth and development of employees.

We maintain a Wellbeing Index, based on our quarterly employee engagement survey, which monitors perceptions of work-life balance and our commitment to wellbeing. This data is used to customize our mental health and wellbeing offerings. This includes a training program for Mental Health First Aiders, who are equipped with the skills and confidence to have supportive confidential conversations with coworkers and peers, and guide them to the appropriate professional support if needed.

Fostering diversity, equity and inclusion

We focus on creating a work environment in which all employees feel they belong. We believe it is the right thing to do, and that it promotes innovation as well as understanding for the diverse perspectives of customers, patients and other stakeholders. To support this approach, we embed appropriate diversity, equity and inclusion (DEI) principles into

Related links and disclosures

- → Code of Ethics
- → Our Equal Pay International Coalition (EPIC) commitments
- → Global Non-Discrimination, Non-Harassment and Civility Policy
- → Global Guideline on P&O Principles and Labor Rights Practices
- → Culture, Benefits and Rewards Handbook
- → Talent Selection Principles
- → Global Parental Leave Guideline
- → Health, Safety and Environment Policy

objectives for managers, including the Executive Committee of Novartis (ECN), and in internal policies and controls, including our Code of Ethics.

Gender equity is an important part of our DEI strategy. This is exemplified by the commitments we made with the Equal Pay International Coalition (EPIC) in 2018 to help close the gender pay gap. These included monitoring pay equity in a consistent way globally, removing potential bias from the system, creating pay transparency, and achieving gender balance in management, all by the end of 2023 (see **page 49**).

We renewed our Equal Pay International Coalition pledge with three commitments to achieve by 2027

To sustain our progress, we renewed our EPIC pledge in 2023 with three commitments to achieve by 2027. These are: to maintain gender-balanced representation in management; to review our human resources practices beyond base pay to eliminate any further potential sources of bias from the system; and to make the requirements of the new EU Pay Transparency Directive our global minimum standard for internal pay equity and pay transparency reporting.

Novartis is a member of the International Labour Organization Global Business and Disability Network and the Valuable 500, promoting equity and inclusion for people with disabilities in the workplace. We also collaborate with international partners, such as Disability:IN, Purple Space and Business Disability Forum, to identify and develop best practice solutions to enable people with disabilities to participate as equal members of our organization. This includes working to increase physical and digital accessibility while integrating disability perspectives in relevant standards and practices.

In accordance with the UN Standards of Conduct for Business, we also strive to tackle discrimination against employees who are lesbian, gay, bisexual, transgender, queer and intersex (LGBTQI).

More than 70 employee resource groups for business-related and cultural topics, which are open to all employees, create a sense of belonging while offering members an opportunity for personal growth and development. Their activities are catalysts and multipliers for our DEI efforts, ensuring diverse voices are heard.

Offering equal pay and benefits

Pay equity is a fundamental principle of our employment policies, reflecting a commitment in our Code of Ethics to treat all employees fairly and respectfully. In addition to our EPIC pledge, we are committed to paying employees a living wage that meets or exceeds the amount for basic living needs, in line with our UN Global Compact commitment.

We offer a range of local and global benefits. Our local Novartis retirement, health and welfare plans protect employees against the financial consequences of disability or death, and provide attractive retirement benefits aligned with local social security requirements.

Our Employee Share Purchase Plan (ESPP) enables permanent employees to voluntarily purchase Novartis shares at a 15% discount. The plan currently covers employees in North America, 27 countries in Europe, and 11 countries in Asia and the Middle East. A rollout to employees in other countries is scheduled over the next several years.

We provide a flexible, hybrid work environment that allows employees to balance their professional and personal responsibilities. Our goal is to enhance wellbeing and collaboration, while fostering connectedness, developing talent, stimulating creativity and driving innovation. The diversity of roles across our organization allows for different levels of flexibility. As a result, we have provided specific guidance for our field, office, lab and manufacturing employees.

Parental leave is available to all employees regardless of gender or sexual orientation. Under our program introduced in 2019, new parents get a minimum of 14 weeks paid leave following the birth or adoption of a child, ensuring equity and greater flexibility for birthing and nonbirthing parents.

Our global recognition program, Spark, encourages employees to recognize colleagues who have demonstrated behavior consistent with our culture and values. Achievements are celebrated via an internal social platform that helps create a sense of connectedness.

Providing a safe and secure working environment

We are committed to occupational health and safety and have built this into our Code of Ethics. We have an integrated health, safety and environment (HSE) management system that ensures that strict health and safety controls that go beyond legal requirements are implemented across our sites.

We carry out comprehensive assessments to ensure compliance with relevant laws, regulations and internal standards. We also have an extensive health and safety program that covers the work-related hazards inherent in our business.

To monitor progress, we set annual HSE targets and program goals, and investigate safety incidents and near misses. We actively encourage all employees to report incidents, near misses and safety improvement opportunities. Novartis sites are subject to inspection by HSE regulators. In addition, we require sites to carry out annual self-assessments of their implementation of the HSE management system and a dedicated team conducts more focused audits on a four-year cycle.

We are also committed to protecting the safety of third-party personnel. We assess outside contractors and make sure they have the right resources and procedures in place to be working at our sites. Supplier contracts include specific occupational health and safety criteria.

Risk management

To execute our strategy, we need to attract, develop and retain qualified people. If we are unable to do so, our ability to achieve our business objectives may be affected. For our employees and other stakeholders, our activities contribute to employment, training, efforts to increase DEI, ensuring fair working conditions, promoting wellbeing, and other areas. At the same time, our business may have a negative impact on occupational safety, which we aim to mitigate through effective HSE management.

For information about enterprise risk management related to people, see page 71. For a summary of our material topics, see page 16.

Our performance in 2023

In 2023, we successfully completed the information and consultation process of our Transforming for Growth initiative, and its execution is on schedule. The initiative was designed to simplify and increase the agility of our organization to support innovation, growth and productivity. However, it also resulted in a reduction in our workforce.

We also spun off our Sandoz generics and biosimilars unit as we completed a major part of our transformation into an innovative medicines company.

Following these pivotal changes, Novartis employed 78 407 people at the end of 2023, compared with 105 533 a year earlier.

Progress against ESG targets

People

Target	Progress
• Close the gender pay gap by **2023**	• Achieved: -0.9% mean pay gap globally as of Dec. 31, 2022 [1]
• Achieve gender balance in management by **2023**	• Achieved: Increased women in management globally to 48% (from 44% in 2019)
• Remove bias from the system by eliminating the use of historical salary data by **2023** [2]	• Achieved: 100% of recruitment no longer undertaken using historical salary data
• Create pay transparency for employees by **2023** [3]	• Achieved: 98% of total headcount with pay transparency to external and/or internal benchmarks, where available (100% when considering exclusions mainly due to contractual or legal constraints and the ongoing integration of acquired businesses)

[1] Calculation uses prior year salary data
[2] Where legally possible
[3] Where legally possible and where data and cohort size are sufficient

People performance indicators [1]

	2023	2022	2021
Headcount [2]	**78 407**	105 533	108 514
Full-time equivalent positions [2]	**76 057**	101 703	104 323
Turnover: voluntary / overall (%)	**7 / 17**	9 / 15	8 / 13
Annual learning hours per employee	**38**	42	52
Nationalities: overall / management	**143 / 113**	147 / 118	143 / 115
Employees represented by an employee representative body or covered by a collective bargaining agreement (%) [3]	**53**	48	47
Gender representation (% female / % male) [4]			
Overall headcount	**51 / 49**	51 / 49	51 / 49
Board of Directors	**31 / 69**	31 / 69	31 / 69
Executive Committee of Novartis	**18 / 82**	27 / 73	25 / 75
Novartis Top Leaders [5]	**40 / 60**	39 / 61	38 / 62
Senior management	**43 / 57**	41 / 59	39 / 61
Overall management	**48 / 52**	47 / 53	46 / 54
Revenue-producing roles [6]	**50 / 50**	51 / 49	51 / 49
STEM roles [7]	**47 / 53**	46 / 54	46 / 54
Pay equity (EPIC) %			
Employees covered by regular pay equity study [8]	**100**	82	76
Mean pay gap [9]	**– 0.9**	+3.1	+3.3
Recruitment without using historical salary data	**100**	84	80
Employees with pay transparency to external benchmarks [10]	**98**	45	38
Health and safety			
Lost-time injury and illness rate (per 200 000 hours worked): Novartis employees / third-party personnel	**0.13 / 0.18**	0.16 / 0.20	0.14 / 0.05
Total recordable case rate (per 200 000 hours worked): Novartis employees / third-party personnel [11]	**0.33 / 0.28**	0.31 / 0.28	0.25 / 0.13
Fatalities: Novartis employees / third-party personnel / contractors	**0 / 0 / 0**	0 / 0 / 0	0 / 0 / 0
Employees covered by an internally validated HSE system (%)	**99**	n/r	n/r

n/r: previous years comparative data not presented

[1] The term "employees" refers to headcount data presented in the table. Comparative figures for 2022 and 2021 include Sandoz data
[2] "Headcount" reflects the total number of employees in payroll systems. "Full-time equivalent positions" adjusts headcount for employees employed for less than 100%
[3] Scope generally considers non-management employees only
[4] Fewer than 0.5% of employees have unknown classification in our system and some indicators therefore do not add up to 100% or to the total headcount absolute figure
[5] Novartis Top Leaders comprise the senior managers at Novartis, including the Executive Committee of Novartis
[6] Revenue-producing roles defined as the following Novartis job families: BD&L and strategic planning; commercial and general management; market access; marketing and sales
[7] STEM ("Science, technology, engineering and mathematics") roles defined as the following Novartis job families: R&D; Technical Operations; Information Technology & Technology Transformation
[8] Regular pay equity study performed using an internal calculation methodology or by external counsel in the US and Canada
[9] Calculation uses prior year salary data
[10] Headcount with pay transparency to external and/or internal benchmarks where available
[11] Data includes all work-related injuries and illnesses, whether leading to lost time or not

In 2023, employee turnover stood at 17%, up from 15% a year earlier. Voluntary turnover was 7%, compared with 9% in the previous year.

The proportion of employees represented by an employee representative body or covered by a collective bargaining agreement was 53% in 2023.

The Transforming for Growth initiative also contributed to a continued decline in learning hours, with an average 38 hours per employee in 2023, declining from 42 in 2022. We continue to support learning by employees and anticipate that learning hours will increase in 2024.

Pay and gender equity

We realized our 2023 aspirations for pay and gender equity. Employees are covered by a robust pay equity validation methodology, and by the end of 2023, 100% of recruitment was undertaken without using historical salary data. We implemented pay transparency functionality in our systems,[1] meaning employees will have access to the data during regular annual pay discussions in February 2024.

We also achieved gender balance in management, with women representing 48% of our overall management globally at the end of 2023.

Based on the latest data available as of December 31, 2022, women's earnings at Novartis are within one percent of men's, with a global mean pay gap of -0.9% and a global median pay gap of -4.1%. This compares with gaps of +3.1% and -3.0%, respectively, in 2021. Companies in the benchmark Bloomberg Gender-Equality Index had a mean pay gap of +19% for the same period. (See the case study opposite for more on pay and gender equity.)

Health, safety and environment

The lost-time incident rate for employees and third-party personnel showed an improvement in 2023. Our internal HSE management system and the associated controls contributed to the improvement. In the last 12 months, the HSE system's implementation has been reviewed at site level via our internal controls process and this assessment covered more than 99% of Novartis employees.

Novartis employees Melina Toffol (left) and Vanessa Hofmann at our site in Schweizerhalle, Switzerland.

Case study **Achieving pay and gender equity**

In 2018, Novartis became the first pharmaceutical company to join the United Nations' Equal Pay International Coalition (EPIC). We set four goals for the end of 2023 (see page 48) to positively influence the gender pay gap.

Recognizing that an overall gender pay gap is often caused by unequal representation of one gender in traditionally higher paid skill sectors and/or senior leadership levels, we set gender aspirations and established leadership and training programs to realize the full potential of our diverse talents, as well as diverse hiring panels supported by annual unconscious-bias training for recruiters.

Novartis policy requires that all employment decisions must be based solely on the skills, qualifications, and experience of the candidates for the role, without regard to race, gender or any other characteristics protected by law.

We removed historical salary comparisons from our internal and external job offer process to remove possible bias, focusing instead on a candidate's relevant experience, education and competency. We also established a consistent pay equity analysis and implemented pay transparency in our systems[1] in time for annual pay discussions in February 2024. This will enable employees to compare their pay with internal and/or external benchmarks.

In addition, as the gender pay gap can also be influenced by extended time off for maternity leave and childcare, we made work arrangements more flexible and offered parental leave for birthing and nonbirthing parents.

[1] Where legally possible and where data and cohort size are sufficient

Environmental sustainability

Planetary health and human health are inextricably linked, making it imperative to look after the health of the planet in our efforts to treat illness and cure disease.

Our approach
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Our performance in 2023
→ page 52

2023 highlights

63%
Reduction in greenhouse gas emissions
in our own operations (Scopes 1 and 2) vs. 2016

66%
Reduction in waste sent for disposal
in our own operations vs. 2016

100%
Renewable electricity
Purchased in our own operations in US, Canada and EU

50%
Reduction in water consumption
in our own operations vs. 2016

Children wash their hands at a school in Imam Nagar, near Hyderabad, India. Drinking water and sanitation facilities have been installed at the school as part of a project instigated by Novartis to address water scarcity in the area. Read the photo story online.

Our approach

Improving our environmental footprint contributes to mitigating the impacts of climate change on the planet and on human health. It also allows us to increase the efficiency of our operations. As such, it is integral to our business strategy, spanning two of our strategic priorities: embed operational excellence and build trust with society.

We aim for improvements at every stage of our value chain: among our suppliers; in our own R&D operations, production facilities and offices; and in the distribution and use of our products. Our environmental sustainability strategy lays out four priorities to achieve this:

- Planet: achieve net-zero carbon emissions by 2040, as well as carbon, plastic and water neutrality by 2030
- Patients: focus on delivering sustainable products to patients
- People: transform the sustainability mindset across our organization
- Policy: collaborate with industry partners to influence change in our sector

Our net-zero target, set in 2021, is consistent with the goal of the Paris Agreement to limit the global temperature increase to 1.5ºC compared with pre-industrial levels. Our strategy covers all greenhouse gas emissions, in alignment with the Science Based Targets initiative (SBTi) Corporate Net-Zero Standard.

We have submitted, and are in the process of validating, our net-zero target and an updated near-term target for 2030, in accordance with the latest SBTi Corporate Net-Zero Standard. We expect to have validated targets in 2024.

More than 90% of carbon emissions associated with our business are generated outside our own operations. In line with our commitment to decarbonize our entire value chain, we have introduced environmental sustainability criteria into suppliers' contracts.

We regularly measure air and water quality to make sure we remain within safe limits. Sites with established regulatory limits, conditions or specific limitations on discharges are responsible for collecting data on a monthly basis. Sites also do an annual self-assessment of their controls, and the assessments of a representative sample of sites are tested by an independent governance team each year. Conformance reviews and legal compliance audits are conducted at least every four years.

We are in the process of validating our net-zero target, and an updated near-term target for 2030, in accordance with the latest SBTi Corporate Net-Zero Standard

We set minimum, mandatory requirements for waste management, water and wastewater management, and management of pharmaceuticals in the environment. Each part of the organization is required to protect the environment by reducing risks; to ensure individuals are appropriately skilled, competent and fit for performing their tasks properly; and to comply with environmental regulation.

By 2030, we aim to apply sustainable design principles to all new products — including drug components, devices and packaging — in order to reduce their environmental impact over their life cycle. We will integrate life-cycle assessment (LCA) methods in our business to calculate the environmental impact of our products.

In 2023, we launched our Sustainable Product Design Guidance for R&D. We also integrated guidance for reducing waste and emissions into our operational plan for clinical trials, which are a key stage in our value chain.

In addition, we began assessing and evaluating biodiversity risks and opportunities in our operations and supply chain using an approach developed by the Taskforce on Nature-related Financial Disclosures (TNFD). We are assessing the role of biodiversity in our environmental sustainability strategy.

Besides reducing our impact on the environment, we are assessing the effects of climate change on global health and the potential implications for Novartis. In 2023, we conducted a review of our medicines on the market and in development. This showed that we are well-positioned to address diseases that climate change is increasingly impacting.

Related links and disclosures

- → **Environmental Sustainability Strategy**
- → **Environmental Sustainability Criteria for Suppliers**
- → **Pharmaceuticals in the Environment**
- → **Health, Safety and Environment Policy**

To accelerate progress across the pharmaceutical sector and other industries, we work closely with organizations such as the World Business Council for Sustainable Development (WBCSD), the Sustainable Markets Initiative (SMI), the Pharmaceutical Environmental Group (PEG), and the Pharmaceutical Supply Chain Initiative (PSCI).

Risk management

The production of medicines relies on the sustainable management of natural resources. The unsustainable use of energy, water or other resources can have negative long-term impacts on the environment and society, and carries business, regulatory and reputational risk.

For information about enterprise risk management related to environmental sustainability and climate change, see page 71 and the section Task Force on Climate-related Financial Disclosures (TCFD) on page 90. For a summary of our material topics, see page 16.

Our performance in 2023

We have restated the 2016 baselines for our environmental sustainability targets, as well as the performance data, to exclude the Sandoz business that was spun off in 2023. We are on track to achieve our targets.

Climate

In 2023, we reduced our own emissions and those from purchased energy (Scope 1 and 2 emissions) by 19% from the prior year. Emissions are down 63% compared with our 2016 baseline, mainly through energy efficiency, increased use of renewables, and new manufacturing technologies.

In 2023, 92% of our purchased electricity consumption was renewable, compared with 84% a year earlier, after sourcing renewable electricity for Novartis sites that are not included in the scope of our power purchase agreements in Europe and North America. We remain committed to using 100% renewable electricity across our operations by 2025, and have already achieved this goal in the US, Canada and the EU.

We have been integrating environmental sustainability criteria in supply contracts since 2022 and aim to complete this by 2025. Contracts that include these criteria now cover 57% of supplier emissions from our value chain (Scope 3 emissions).

We are also engaging with suppliers on defining the actions needed to achieve emissions reductions in our supply chain. We have initiated the development of sustainability roadmaps with select suppliers, with plans to extend this effort to other suppliers as we progress.

Furthermore, in 2023, we introduced the Environmental Sustainability Supplier Playbook, which is designed to provide comprehensive guidance to our suppliers on transitioning to sustainable business models. Available in English and Chinese, it is also being integrated into the PSCI's standard supplier learning plans. In addition, we are participating in the development of the WBCSD Partnership for Carbon Transparency Pathfinder Framework, a catalyst for primary data exchange across value chains.

We continue to encourage our suppliers to participate in Energize, a pharmaceutical industry initiative aimed at enhancing capability and facilitating market access for renewable electricity procurement. Several of our suppliers have joined the cohorts formed as a result of the program and have gone to the market to procure renewable electricity through additional generation capacity development.

Our Scope 3 emissions decreased by 3.4% from the prior year. The calculation for categories that account for more than 84% of Scope 3 emissions (purchased goods and services, and capital goods) is still largely based on proxy data (spending) and statistical modelling. Over the next few years, we plan to move to a calculation using primary activity data to improve the accuracy of our supply chain emissions and demonstrate engagement with our suppliers on environmental sustainability.

Environment performance indicators [1]	**2023**	2022	2021
New products meeting sustainable product design criteria (%) [2,3]	**51**	46	38
Supplier emissions covered by contracts that include environmental criteria (%) [2,4]	**57**	46	n/r
Energy use (million GJ)			
Energy use – on site and purchased	**6.2**	6.8	7.0
Greenhouse gas (GHG) emissions (1 000 tCO_2e) [5]			
Total Scope 1 emissions	**248.7**	263.2	276.8
Total Scope 2 emissions (market-based)	**49.4**	106.6	195.7
Total Scope 2 emissions (location-based)	**200.8**	259.7	303.1
Total Scope 1 and Scope 2 emissions	**298.1**	369.8	472.5
Total Scope 3 emissions	**4 707.9**	4 872.4	4 657.4
Total Scope 1, Scope 2 and Scope 3 emissions	**5 006.0**	5 242.2	5 129.9
Water quality (%)			
Manufacturing sites meeting water quality standards [2,6]	**97**	97	94
High-risk suppliers assessed against water quality standards [2,7]	**88**	26	n/r
Water usage (million m^3)			
Total water withdrawal [8]	**34.6**	35.7	33.5
Total water discharged [9]	**34.7**	34.9	32.7
Total water consumption [10]	**5.2**	5.6	5.5
Packaging (%)			
Sites that have eliminated PVC in packaging [2,11]	**78**	93	93
Operational waste (1 000 t)			
Total waste generated	**34.9**	44.0	47.4
Total waste recycled	**16.5**	24.0	26.7
Total waste not recycled	**18.4**	20.2	20.8

n/r: previous years comparative data not presented

[1] Environmental data for the current year is based on actuals from January to September, with estimates for October to December, unless indicated otherwise. Any significant deviations from actuals data against these estimates will be restated for 2023 in the Novartis in Society Integrated Report the following year. 2021 and 2022 reflect full year actuals data
[2] The indicator is calculated using 12-month actual data
[3] In-scope projects in development governed by the Innovation Management Board (IMB); products relate to either a new molecular entity or a new indication of an already commercially available brand
[4] Calculation uses 2022 actual Scope 3 supplier emissions data
[5] Novartis follows the GHG Protocol for calculating the greenhouse gas emissions
[6] Water quality was assessed for compliance to water standard levels 1, 2, and 3 (training and legal compliance, quantification and risk assessment, PEC/PNEC <1 ("predicted environmental concentration" and "predicted no effect concentration"))
[7] For the purposes of this indicator, the term 'suppliers' within the indicator title reflects 'supplier manufacturing sites'
[8] Water withdrawal includes water used for cooling and returned to the environment without the need for additional treatment
[9] Water consumption and non-contact water withdrawn from the environment for cooling and returned directly to the environment after use
[10] Water discharged via treatment and water lost
[11] Decrease in performance driven by the inclusion of additional sites, brought into scope in 2023

Water

In 2023, we reduced our water consumption by 7% from the prior year, bringing the reduction to 50% since 2016. We have continued to reduce consumption by using more recycled water (where local regulations allow) and adopting less water-intensive production techniques.

We are classifying our facilities based on whether they are in areas affected by water scarcity. Novartis uses the WWF Water Risk Filter tool to assess water risks linked to the nature and condition of the basins in which sites are located (basin risk) and how the sites depend on and impact water (operational risk). The basin-risk assessment conducted in 2023 identified 28 sites (representing 16% of our water consumption) in areas of high or very high water stress. We are developing detailed plans to become water neutral at these locations. We aim to be water neutral at all our locations by 2030.

In one water-stressed area in which we operate in India, we have established two integrated watershed development projects. Managed jointly with a nonprofit organization, the projects near the city of Hyderabad help the local community use watershed management techniques to balance water consumption. Key achievements include building 65 000 m^3 of water storage capacity.

Further, we increased engagement with our manufacturing suppliers around their maturity in managing their impact on aquatic environments, particularly concerning effluents containing active pharmaceutical ingredients (APIs). As a result, 88% of our high-risk suppliers met our water quality standards in 2023, compared with 26% in 2022. These assessments are conducted in alignment with the framework to tackle antimicrobial resistance (AMR) laid out by the AMR Industry Alliance.

Waste

In 2023, we reduced the amount of waste sent for disposal by 8% from the prior year, bringing the reduction to 66% since 2016 (and exceeding our 50% target for 2025). We continue to be committed to waste reduction, with a focus on process efficiencies and the incorporation of recycled materials in packaging and devices. In 2023, we continued to reduce waste and increase recycling, with improved material and process efficiencies, greater use of recycled plastics, and reusable shipping boxes all instrumental to our efforts.

We aim to eliminate polyvinyl chloride (PVC), a long-lasting plastic, in secondary and tertiary packaging at Novartis sites by 2025. In 2023, we expanded the scope of our target to include radioligand therapy and cell and gene therapy sites that have been added into our manufacturing network for environmental indicators, bringing the total number of sites in scope to 23 from 15 a year earlier. This caused the percentage of sites that have eliminated PVC in packaging to decline to 78% in 2023 from 93% a year earlier. However, we remain on track to meet our 2025 target.

We seek to minimize discharge of APIs into water systems, and do not dispose of waste containing APIs in landfill.

Progress against ESG targets
Environmental sustainability

Target	Progress
Climate	
• Become carbon neutral in our own operations (Scopes 1 and 2) by **2025** [1]	• On track: 63% reduction vs. 2016 baseline [2]
• Include environmental criteria in all supplier contracts by **2025**	• On track: 57% of supplier emissions covered by contracts that include environmental sustainability criteria [3]
• Become carbon neutral across our value chain (Scopes 1, 2 and 3) by **2030** and achieve net-zero carbon emissions across our value chain by **2040** [4]	• Progress made: Resubmitted our updated near-term 2030 target and submitted our net-zero target to the Science Based Targets initiative (SBTi) for validation (expected in 2024). Working on improving the share of primary emissions data collected from suppliers (vs. spend proxy)
Water	
• Reduce water consumption in our own operations by half by **2025**	• On track: 50% reduction vs. 2016 baseline [2]
• No water quality impacts from manufacturing effluents by **2025**	• On track: 97% of Novartis manufacturing sites and 88% of high-risk suppliers can demonstrate that they meet internal water quality standards[5]
• Become water neutral in our own operations by **2030** [6]	• On track: Physical water risk assessment completed for all Novartis sites and locations
• Enhance water quality wherever we operate by **2030** [7]	• On track: Plan in place to expand internal water quality standards to Novartis nonmanufacturing sites and to remaining suppliers in scope
Waste	
• Eliminate polyvinyl chloride (PVC) in packaging by **2025** [8]	• On track: Eliminated PVC in packaging at 78% of our sites
• Reduce the amount of waste sent for disposal by half by **2025**	• Achieved: 66% reduction vs. 2016 baseline [2]
• Become plastic neutral by **2030** [9]	• On track: Established baseline for reducing plastics in packaging and devices. Continued to remove single-use plastics in workplaces
• All new products meet sustainable design principles by **2030**	• On track: 51% of new projects in scope[10] have incorporated sustainable design principles

[1] Scope 1 and 2 from energy
[2] Restated in 2023 to exclude Sandoz
[3] Calculation uses 2022 actual Scope 3 supplier emissions data
[4] In accordance with the Science Based Targets initiative (SBTi) Corporate Net-Zero Standard
[5] Water quality was assessed for compliance to water standard levels 1, 2, and 3 (training and legal compliance, quantification and risk assessment, PEC/PNEC <1 ("predicted environmental concentration" and "predicted no effect concentration"))
[6] All Novartis sites to reduce water consumption in all areas and to be water neutral in water-stressed regions by not depleting local water reserves. Water-stressed regions are determined using the WWF Water Risk Filter
[7] 100% of manufacturing effluents released comply with all permit regulations related to water quality and meet our water quality requirements. This applies to Novartis manufacturing operations and high-risk suppliers manufacturing sites that can potentially have an impact on water quality due to the discharge of APIs
[8] From Novartis owned and operated sites that are involved in packaging; defined as secondary and tertiary packaging. In addition, this is supported by efforts to eliminate PVC from primary packaging where feasible
[9] Plastic neutral is achieved when the weight of plastic packaging entering the environment for disposal is approximately the same as the weight being recovered for recycling
[10] In-scope projects in development governed by the Innovation Management Board (IMB). Product development projects are defined at an indication level and relate to either a new molecular entity or a new indication of an already commercially available brand

Maintain high ethical standards

We strive to maintain high ethical standards, uphold human rights, and reduce social and environmental risks throughout our value chain — all while meeting the expectations society has of our industry.

Our approach
→ page 55

Our performance in 2023
→ page 59

2023 highlights

97%

Employees trained
on our Code of Ethics

100%

New eligible suppliers risk-assessed
using our External Partner Risk Management framework

A team of specialists at a Novartis production site for RNA therapies in Schweizerhalle, Switzerland.

Our approach

The healthcare industry deals with ethical questions every day — for example on affordability and access to medicines, protecting patients' sensitive personal data, or using new technology such as artificial intelligence (AI). Many of these issues go to the heart of our strategy as an innovative medicines company.

We encourage employees to take personal accountability for their decisions while helping them navigate ethical dilemmas and manage risks in their activities.

Strengthening our ethical culture

Our approach to managing ethical decisions is based on our Code of Ethics, which was developed together with our employees and is anchored in behavioral, data and decision science. The Code sets out commitments that are applicable across our business. It applies to all employees, and we further clarify our expectations through a suite of internal policies and controls.

We conduct mandatory annual training for all employees on our Code of Ethics. Internal online tools, such as our Ethical Decision Explorer, have been designed to help employees navigate ethical dilemmas.

In addition, we conduct a global Ethics Survey on a regular basis to measure our progress in embedding our Code across the organization and strengthening our ethical culture. In 2023, we received nearly 27 000 responses to our survey. We use insights it provides to drive conversations at global and local levels and take action where needed.

In 2023, we combined our Professional Practices and Anti-Bribery policies into one policy framework called Doing Business Ethically. The new policy reinforces our commitment to maintain high standards of ethical business conduct and to not tolerate any form of bribery or corruption. The policy and its supporting handbooks comprise a new risk framework covering four requirements: (a) define clear objectives; (b) identify and assess the risk; (c) act appropriately; and (d) monitor, reconcile and learn.

To support implementation across our organization, the process requirements outlined in the supporting activity handbooks have been embedded within our BeSure system platform. The platform was launched together with the policy in November 2023 to ensure an approach in which policy, processes and systems are integrated.

The use of novel technology, such as AI, is paramount to driving innovation. We believe that any development, application or use of AI systems should be governed within ethical principles that are fully aligned to our Code of Ethics and our commitment to the ethical and responsible use of AI.

To safeguard us from risks stemming from novel technology applications, we introduced a new AI Risk & Compliance Management Framework in 2023, and its further evolution and full implementation are planned for 2024.

Complying with laws, regulations and controls

We operate in a highly regulated industry. Making sure we comply with applicable laws and regulations is important to secure the trust of our stakeholders and society.

We adhere to industry codes, including the Code on Interactions with Health Care Professionals published by the Pharmaceutical Research and Manufacturers of America (PhRMA) and the Code on Pharmaceutical Marketing Practices published by the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA). We also work through regional and local industry associations.

Our policies and programs are informed by the United Nations (UN) Convention Against Corruption and the Organisation for Economic Co-operation and Development (OECD) Convention on Combating Bribery of Foreign Public Officers. We are a signatory to the UN Global Compact (UNGC).

We are committed to respecting and implementing human rights approaches in our own operations and supply chain in accordance with the UN Guiding Principles on Business and Human Rights (UNGPs).

The Chief Ethics, Risk & Compliance (ERC) Officer of Novartis is also a member of the Anti-Corruption Leaders Hub, a leading group of senior executives from global enterprises established by the OECD and the US State Department. The Hub promotes anti-corruption efforts through the exchange of strategic insights and the implementation of multistakeholder actions.

We have a comprehensive compliance management system. It is aligned with recognized international standards and best practices (e.g., those issued by the OECD and the US Department of Justice), and is designed to prevent, detect and correct systemic misconduct.

The aim of this system is to ensure compliance not only with applicable laws and regulations, but also with our internal policies, controls, and the expectations of employees to do what is right. A core objective of our compliance management system is to maintain a culture of integrity designed to promote and enable ethical behavior.

Related links and disclosures

- → Code of Ethics
- → Doing Business Ethically policy
- → Third Party Code
- → Non-Retaliation Policy
- → Data Privacy Policy
- → Commitment to Ethical and Responsible Use of AI Systems
- → Human Rights Commitment Statement
- → Conflicts of Interest Guideline
- → Commitment to Patients and Caregivers
- → Position on Animal Research
- → Anti-Bribery Report

We continuously evolve this system based on many factors, including insights from internal and external sources and changes in the risk landscape. To measure the maturity and effectiveness of our compliance management system, we conduct an annual evaluation of our program across more than 270 leading indicators. In 2023, this evaluation confirmed the compliance management system to be mature and well designed.

Our processes, such as Compliance Risk Assessment and Monitoring; Review, Monitoring and Remediation visits; Internal Audit; and SpeakUp are designed to detect and prevent misconduct. Where evidence of misconduct is detected, we take swift and appropriate action. Breaches of the Code of Ethics, policies, guidelines or local laws result in remedial, corrective or disciplinary action up to and including termination of employment.

We follow a model for managing our risks developed by the Institute of Internal Auditors that describes three lines of assurance. Employees addressing potential risks that might arise through their business activities represent the first line. Second-line roles provide expertise, support, monitoring and challenge on risk-related matters. In the third line, our Internal Audit function provides assurance that other lines are operating effectively.

As a second-line assurance function, our central Review, Monitoring and Remediation team collaborates with Country ERC and business teams to conduct compliance reviews. It also collaborates with Internal Audit and aligns annual compliance monitoring plans with them, to avoid overlaps. The alignment ensures that every commercial unit is either audited or monitored.

As a third-line assurance function, Internal Audit assists the Board of Directors and the Executive Committee of Novartis (ECN) by providing independent assurance and advice on the effectiveness, efficiency and adequacy of processes and controls that support Novartis in achieving its strategy, managing major risks, and ensuring compliance with applicable policies, laws and regulations.

Internal Audit works according to an audit plan approved by the Board's Audit and Compliance Committee. During 2023, Internal Audit carried out 44 audits, reviews and advisories. These include the review of ethical standards.

Not tolerating any form of bribery

Novartis does not tolerate any form of bribery, undue influence and/or corruption. Our Doing Business Ethically and Conflict of Interest policies outline these expectations for all employees. We also clearly set out our standards in our Code of Ethics.

Bribery and corruption risks in our supply chain are addressed by our Anti-Bribery Third Party Guideline and Third Party Code. The Code was updated in 2023 and is an integral part of every supplier contract. Our suppliers are regularly surveyed through audits that we commission from external companies, applying a risk-based approach.

Working with Norges Bank Investment Management, we helped develop an anti-bribery reporting standard for the pharmaceuticals industry that was issued in 2022. We report against this standard, which is based on principles such as the UN Global Compact and the OECD Guidelines for Multinational Enterprises. Our second anti-bribery report was published in early 2024.

Due to investigations into historical conduct, Novartis entered a deferred prosecution agreement with the US Department of Justice (DOJ) in 2020. This included certain obligations for reporting and compliance, which were fulfilled over a three-year period. A United States federal court dismissed the deferred indictment at the request of the DOJ in December 2023, and this matter is now concluded.

Managing our supply chain responsibly

We work with thousands of external partners worldwide, from suppliers in our R&D organization to the wholesalers and distributors who help ensure our medicines reach patients. The diversity and geographic spread of our supply chain make it highly resilient, even in times of economic shocks.

The external partner risk management (EPRM) framework enables risk assessments to be managed through a risk-based approach in a single, mandatory process and system. Applying an effective risk-management governance process allows us to focus on suppliers with a medium- and high-risk profile.

We carry out regular risk assessments and audits among third parties in risk areas including health, safety and environment, labor rights, information security, and anti-bribery and corruption. Over the past four years, we have assessed 99% of our tier one suppliers in operations that play a critical role in our supply chain. Of these, around 1% were considered high risk. (See table 'Supply chain performance indicators' on page 60.)

Over the past four years we have assessed 99% of our tier one suppliers in operations that play a critical role in our supply chain

In 2023, we redesigned and automated our process to gain speed, improve quality and cover additional risk areas (e.g., HSE risks). The new approach was introduced in January 2024.

Our EPRM framework is supported by our Third Party Code, which sets out the standards we oblige third-party suppliers to comply with, such as human rights due diligence and environmental sustainability. Our Third Party Code is consistent with the Pharmaceutical Supply Chain Initiative (PSCI) principles for responsible supply-chain management. It is also in line with the UNGPs, as well as the OECD due diligence guidance for responsible business conduct.

We established a process to periodically assess our obligations under Switzerland's new provisions on minerals and metals

Human rights priorities and key topics

Right to health Access to medicine; clinical trials; product quality; falsified medicines	→ Novartis Access Principles → Commitment to Diversity in Clinical Trials → Quality Policy → Position on Falsified Medical Products
Labor rights Freedom of association and collective bargaining; nondiscrimination and equal treatment in employment; occupational health and safety; living wages; child labor; modern slavery, including forced labor and human trafficking	→ Global Guideline on P&O Principles and Labor Rights Practices → Our Equal Pay International Coalition (EPIC) commitments → Third Party Code → UK and Australia Joint Modern Slavery Statement 2022 → Health, Safety and Environment Policy
Human rights and the environment Environmental impact of our operations and products over their life cycle	→ Environmental Sustainability Strategy
Technology and human rights Responsible use of personal information; ethical use of artificial intelligence (AI)	→ Data Privacy Policy → Commitment to Ethical and Responsible Use of AI Systems

from conflict-affected areas. Our assessment conducted for 2023 established that Novartis falls below the quantitative thresholds stipulated by the Swiss Code of Obligations Art. 964*j-l*. Novartis is thus exempt from the Swiss due diligence and reporting obligations on minerals and metals from conflict-affected areas.

Upholding our commitment to human rights

Novartis maintains a strong commitment to upholding and respecting human rights. In our Code of Ethics, we commit to "conduct our business in a manner that respects the rights and dignity of all people." This is reflected in our updated Human Rights Commitment Statement, which establishes our foundational commitment to the International Bill of Human Rights, the International Labour Organization's core labor conventions and the UNGPs.

Our priorities are areas with the most severe actual or potential negative human rights impacts. We have identified four priorities, shown in the table above together with links to key policies and commitments relevant to each.

We manage our program through three pillars, aligned with the UNGPs: due diligence, internal empowerment, and engagement.

Due diligence: We conduct ongoing human rights due diligence across our business and ensure that we have policies and management systems in place to support our commitments. Our suppliers and partners are regularly assessed and monitored against our Third Party Code.

> We conduct ongoing human rights due diligence across our business and ensure that we have policies and management systems in place to support our commitments

We have a monitoring system in place that tracks incidents of noncompliance with human and labor rights at third-party sites, and their successful resolution through time-bound corrective action plans. We collaborate with industry partners such as the PSCI on topic-specific supply-chain projects — for instance conflict minerals and child labor.

In 2023, key activities included refreshing our human rights strategy, conducting cross-functional training on human rights risk, and further embedding human rights considerations into our operations in high-risk countries. We also continued working with our Global Health teams to include human rights considerations in strategies to broaden access to medicines.

To further expand capability and oversight into labor rights at our third parties, and to remain focused on the highest-risk suppliers and high-impact solutions, we integrated our Third Party Labor Rights team into our global Human Rights team. We are piloting direct engagement with third-party workers through a digital platform, and have completed an initial mapping of the migrant workforce in our supply chain.

Internal empowerment: We work to provide access to effective grievance mechanisms for those who may have been affected by human rights abuses, primarily through our SpeakUp office (see page 58).

In 2023, we continued to provide human rights training for employees in high-risk functions and locations, and to all new hires at our global headquarters. Our internal Human Rights Ambassador Network continued to expand in its fourth year, with over 150 participants meeting on a quarterly basis to learn more about human rights and our approach.

Engagement: We engage across industries, listen to stakeholder concerns, and take individual or collective action where it makes sense, and regularly report our performance on human rights.

In 2023, we engaged in several collaborative efforts with stakeholders from civil society, investor communities and international institutions (e.g., PSCI and Business for Social Responsibility's Human Rights Working Group) on our approach to human rights. We maintain a 100% response rate to inquiries received

from the Business and Human Rights Resource Centre.

We published a report on our efforts to address modern slavery under UK and Australian legislation, as well as reports on child labor and conflict minerals in our supply chain under Swiss and US legislation, respectively. We also published our first human rights report under the 2023 Norwegian Transparency Act.

Animal welfare

Animal research continues to be key to medical advances for conditions as varied as cancer, neurological diseases (e.g., multiple sclerosis), widespread diseases with high mortality rates around the world (e.g., high blood pressure, diabetes and malaria), and more. In addition, animal research is important for the development of new treatments such as radioligand, cell and gene therapies. Novartis fully supports the replacement of animals with alternatives wherever feasible, while meeting our obligations to patients and the expectations of regulatory agencies.

Our animal research is governed by our Animal Welfare Policy, which applies to all Novartis-sponsored studies, whether internal or external. The policy commits us to applying the 3Rs principles – to replace animals with other methods where possible; to reduce the number of animals needed in our studies; and to refine study methods to minimize animals' distress. See **page 83** for our 2023 animal welfare indicators.

We have a grant program to prospectively fund 3Rs research projects to validate alternatives to animal research, reduce animal numbers, and improve the animals' experience. In 2023, we recognized several projects that significantly advanced the 3Rs at Novartis, including one that replaced mice with human cells for pathogenesis studies of gout.

Encouraging employees to speak up

Our compliance management system is supported by our SpeakUp Office grievance mechanism. Employees are required to report actual or suspected incidents of misconduct and can do so in confidence while being protected against retaliation. The mechanism is also open to external parties. Regular surveys (Employee Engagement Survey and Ethics Survey) provide insights on how comfortable Novartis employees feel to speak up.

> Employees are required to report actual or suspected incidents of misconduct and can do so in confidence while being protected against retaliation

Grievances can be filed via webform or telephone with an independent external service, which is available 24/7. Complaints can also be raised with any manager or Country President, any employee of our ERC, People & Organization, Legal or Global Security teams, or any representative of the local workers council. Our process helps ensure that complaints are swiftly received, risk-assessed, prioritized, investigated and resolved.

Allegations that represent a higher risk to Novartis from a reputational, business, financial, legal, and/or quality or safety perspective are investigated centrally by dedicated investigators. Lower-risk cases are investigated or addressed locally.

> Our process helps ensure that complaints are swiftly received, risk-assessed, prioritized, investigated and resolved

After closure of an investigation, we have a remediation process that allows for both the allegation and the root cause to be addressed. Higher-risk cases that are substantiated undergo a central remediation process managed in close collaboration with our second line of assurance, the central Review, Monitoring and Remediation team. This creates focus on ensuring that any remediation resulting from investigations is prompt, addresses the root cause, and is subject to rigorous follow-up.

The SpeakUp Office provides regular updates to the Executive Committee and to the Board's Audit and Compliance Committee.

In 2023, we updated our SpeakUp policy and launched a new reporting tool. The new SpeakUp reporting tool enables both employees and external parties to raise complaints more easily. It will also make case management and reporting more efficient, and increase oversight of human rights grievances.

Transparency and disclosure

We attach great importance to being transparent about our activities and performance. In addition to our Annual Report and this Novartis in Society Integrated Report, we publish many of our internal policies, codes, guidelines and commitments, and provide quarterly updates on our financial and ESG performance.

We disclose our payments to healthcare professionals and patient organizations as mandated by law or industry commitments, as well as our annual update on progress in implementing the 10 principles of the UN Global Compact.

Novartis has also been informing the public about the results of clinical trials since 2005, which made us one of the first companies to do so. These are accessible through the clinical trials transparency page on our website. The information includes trial summaries in nontechnical language to ensure the public, trial participants and other people living with disease have easy access to information about what was learned from each trial.

For further details, see the Reporting and Transparency hub on our corporate website.

Political engagement

We engage in dialogue with policymakers and other external stakeholders on relevant policy topics, including conditions for innovation in the life sciences and getting treatments to more people and places. Our aim is to represent the Novartis perspective by providing data and insights that enable informed decision-making.

We assess political, legislative and regulatory decisions that have a potential impact on patients and our industry. Furthermore, we participate in policy discussions with partners through various stakeholder dialogues and industry platforms. Engaging with trade associations also facilitates a collaborative approach to highlighting and solving issues that affect people with disease, and to ensuring an environment conducive to biopharmaceutical innovation. Our focus is on jointly creating solutions that help communities and society tackle the burden of disease.

We engage in dialogue with policymakers and other external stakeholders on relevant policy topics, including conditions for innovation in the life sciences and getting treatments to more people and places

The respective Novartis global guideline outlines the ethical standards that we follow in our engagements with policymakers, and applies to employees as well as third parties working on our behalf. Third parties are also subject to our anti-bribery due-diligence process before they can be engaged. Appropriate training is provided to employees.

For detail of our spending on political engagement and trade associations, see page 84.

Risk management

Meeting ethical standards and keeping pace with changing regulatory requirements are critical to maintaining the trust of stakeholders in Novartis. In addition, we rely on third-party suppliers and other partners for key business functions and services, which poses certain risks to both Novartis and our stakeholders — for example when third parties fail to comply with internal controls or external requirements related to environmental sustainability, human rights and other matters.

For information about enterprise risk management related to ethics, see page 71. For a summary of our material topics, see page 16.

Our performance in 2023

Strengthening our ethical culture

Our annual global compliance e-learning provides content to enable employees to make the right choices in the course of their work, and to perform with integrity. It addresses identified and relevant company risks, and helps to ensure employees are aware and educated on new and updated policies and guidelines.

Global mandatory compliance e-learnings are rolled out to employees, including the ECN, and to the Board of Directors. External contractors, who are hired through a temporary staff agency and supervised day-to-day by a Novartis employee, are also required to take these trainings. We mandate external parties who pose a risk classified higher than 'low risk' to complete an anti-bribery training.

In 2023, the annual Code of Ethics training achieved a completion rate of 97%.

Encouraging employees to speak up

In 2023, a total of 2 628 complaints of alleged misconduct were made, compared with 2 126 in 2022. Of the total cases, 594 (23%) were classified as higher-risk cases, with 717 allegations warranting investigation by a central team. Of these, 447 allegations have been substantiated. Lower-risk cases are addressed or investigated locally. The investigations of higher-risk allegations resulted in 83 dismissals or resignations. Other remedial actions such as written warnings, training, coaching and new controls were also taken.

The increase in cases from the prior year was primarily due to matters related to data security as a result of enhanced protective measures and monitoring systems the company put in place in mid-2022. Data security cases are classified as high risk, and also have a high substantiation rate due to the automated detection measures.

These cases rarely resulted in dismissals or resignations, as most of the affected employees were leavers. The number of substantiated cases indicates the detection measures were effective at identifying security breaches. In addition, regular mandatory training on information management, data privacy and data use is in place to raise awareness.

Our annual global compliance e-learning provides content to enable employees to make the right choices. In 2023, the annual Code of Ethics training achieved a completion rate of 97%

Through our continued efforts to improve compliance and to detect potential violations of antitrust or competition laws, internal investigations substantiated three misconduct instances, and we implemented comprehensive remediation plans accordingly. While these cases were not confirmed to violate any laws, the conduct violated company policies, including the Novartis Code of Ethics.

Managing our supply chain responsibly

In 2023, we assessed 7 756 suppliers as part of our EPRM process, including all new eligible suppliers, compared with 10 346 the prior year. The decline was due to a consolidation of suppliers, and a smaller number of assessments for information security and data privacy risks following a decision to focus on medium- and high-risk third parties and to cease assessments of certain low risks for existing suppliers and new suppliers that are not eligible. The number of suppliers assessed for information security and data privacy risks was 3 788, a decline of 40% compared with 2022.

In 2023, we assessed 7 756 suppliers as part of our external partner risk management process, including all new eligible suppliers

We assessed 1 130 suppliers for anti-bribery risks and 4 362 for labor rights risks, including child labor. In 2023, we started disclosing the outcome of risk assessments for labor rights and identified 136 instances of noncompliance with our human and labor rights standards, for which our external partners put in place corrective and preventive actions (CAPAs).

A given supplier may have multiple noncompliance cases. At the end of 2023, 65% of agreed CAPAs had been remediated. The remainder are being monitored in line with their future due dates.

Of the external partners assessed, 56 were audited, compared with 80 in 2022. Remediation actions relating to 190 external partners were identified, a decline of 47% compared with 2022. The reductions reflect a decline in the number of new suppliers onboarded as a result of a preferred supplier program, supplier consolidation and a new procurement system. We identified eight external partners as not having effective risk management, and terminated our business relations with them.

Progress against ESG targets
Supply chain

Target	Progress
• Conduct risk assessments for all new eligible suppliers	• Achieved: 100% (conducted via External Partner Risk Management process)

Ethical business practices performance indicators

	2023	2022	2021
Code of Ethics (%)			
Employees trained and certified	**97**	98	98
Grievance indicators: SpeakUp Office [1,2]			
Total cases	**2 628**	2 126	1 712
Higher-risk cases [3]	**594**	342	155
Higher-risk allegations [4]	**717**	533	281
Higher-risk allegations substantiated	**447**	239	116
Dismissals and resignations related to misconduct	**83**	98	52

[1] Grievance indicators may change retroactively as cases may be reassessed in the course of the case life cycle. As a result, we may restate data from previous years
[2] "Higher-risk allegations substantiated" may include allegations from previous years. "Higher-risk cases" and "Higher-risk allegations" refer to allegations reported within each calendar year
[3] A higher-risk case applies where a senior leader or manager is involved and/or where there is a high level of severity of the allegation
[4] The number of allegations is higher than the number of cases as a case can have more than one allegation

Supply chain performance indicators

	2023	2022	2021
Suppliers risk assessed [1]	**7 756**	10 346	11 248
Actions taken			
Suppliers audited	**56**	80	79
Suppliers with remediation action agreed	**190**	359	853
Supplier engagements stopped due to risk assessment outcomes	**8**	17	37
Human and labor rights			
Non compliance cases	**136**	n/r	n/r
Corrective and preventive actions remediated (%)	**65**	n/r	n/r

n/r: previous years comparative data not presented

[1] Assessments are undertaken on new suppliers, existing suppliers providing new products or services (including those from additional supplier locations), or periodically. Not all suppliers trigger risk assessments and one supplier can trigger more than one assessment depending on the risk areas involved

Product quality and patient safety

We can only improve and extend people's lives if we provide safe, high-quality medicines. Ensuring high standards of quality in the production of our medicines and monitoring for potential adverse events are fundamental to our business.

Our approach
→ page 62

Our performance in 2023
→ page 63

2023 highlights

99%

Regulatory inspections
of our clinical and manufacturing operations found to be acceptable

926

Product quality (GxP) audits
conducted at suppliers and in our own facilities

Novartis employees Marc Wohler (left) and Giuseppe Ingui oversee production at our site in Wehr, Germany.

Our approach

We prioritize quality and safety at each stage of a medicine's life cycle. In the production phase, we ensure product quality from raw material sampling and testing to packaging, testing and distribution of finished goods. During clinical trials and after launch, we monitor the use of our medicines to identify possible adverse events to minimize risks to patients. We also work to identify and combat falsified medicines, which can pose a serious threat to human health.

Product quality

To ensure product quality, we maintain a robust quality management system for our medicines in full compliance with requirements from health authorities and other regulators. We have licenses and relevant ISO and Good Manufacturing Practice (GMP) certificates for all our activities, including clinical trials, manufacturing, medical devices, supply, warehouse and distribution operations. The licenses are typically issued after inspections by regulators such as the US Food and Drug Administration (FDA), the European Medicines Agency (EMA), Swissmedic, the Japanese Pharmaceuticals and Medical Devices Agency (PMDA) and the World Health Organization (WHO).

Health authorities regularly inspect our facilities to ensure we are complying with all relevant laws and standards. We conduct thorough investigations whenever there is any evidence of deviation from these standards, or if we detect failures in our processes. We take corrective and other measures where applicable, including proactively notifying health authorities.

All employees and third parties working in our facilities take part in comprehensive quality and safety training. We require all employees involved in manufacturing, supply and distribution to attend annual training sessions on quality standards. All third parties providing services or goods manufactured to good-practice standards are required to have their own quality assurance and formal training process.

> All employees and third parties working in our facilities take part in comprehensive quality and safety training

In 2023, we obtained ISO 9001:2015 certification — an internationally recognized benchmark for quality management systems — for our manufacturing facilities globally. The certification underscores our commitment to rigorous standards, best practices and processes in the delivery of safe, effective and high-quality medicines to our patients.

Following regulatory guidance (including FDA and EMA recommendations), we monitor chemical and biological medicines for impurities, including those classified as "probable human carcinogens" (e.g., nitrosamines). Any product identified with a potential risk undergoes further evaluation and risk management, with results submitted to the relevant health authorities as required.

We also routinely audit our own operations and those of suppliers and other partners to ensure quality standards are maintained. Furthermore, we are regularly audited on our training procedures, and training is also included in our audits of third parties.

Pharmacovigilance

Pharmacovigilance involves monitoring the safety of medicines. Our approach to achieve effective pharmacovigilance relies on monitoring both during drug development and in the commercial setting, as well as the timely assessment and reporting of adverse events.

This enables us to detect and manage risks that may emerge at any stage of a drug's life cycle. In accordance with international regulations, we share periodic safety reports with the relevant health authorities. We also maintain current benefit-risk analyses for our medicines to ensure their benefits continue to outweigh the risks.

We are compliant with regulatory requirements for both individual case safety reports and periodic benefit-risk assessments. Reports of adverse events from various sources — including clinical studies, literature and spontaneous reports — are used to evaluate and optimize risk management actions for the proper use of our medicines.

We also support education programs for patients, providers and pharmacists, and provide regular training to employees in adverse-event reporting. For some medicines, post-approval studies may be conducted to collect more data on possible long-term adverse effects.

Related links and disclosures

→ **Quality Policy**

→ **Position on Falsified Medical Products**

Falsified medicines

The illicit trade in falsified medicines continues to be a threat to patient safety, and represents an increasingly significant global health challenge that impacts health systems around the world. The Pharmaceutical Security Institute reported a 10% increase[1] in pharmaceutical crime incidents worldwide in 2022 — to the highest number of incidents recorded in a single year.

Our strategy is focused on greatly accelerating the timely authentication and reporting of falsified medicines, and working with partners to strengthen society's ability to address the issue.

Risk management

Trust in the safety of our medicines is fundamental to our business. If we are unable to ensure the quality and safety of our medicines, we may negatively impact patient health and face product recalls or other consequences.

For information about enterprise risk management related to product quality and patient safety, see page 71. For a summary of our material topics, see page 16.

[1] Incident Trends | PSI (psi-inc.org)

Our performance in 2023

Product quality

During the year, we had 10 recalls of defective products, broadly in line with previous years. One of the recalls in 2023 was related to defects that could have resulted in serious health problems (Class I recalls). The recall concerned one batch of a medicine in the US, and there was no recorded patient safety impact. Defects with lesser risks led to eight Class II and one Class III recalls. Recalls are carried out in agreement with the relevant health authorities.

In 2023, health authorities including the EMA, Swissmedic and FDA carried out a total of 113 inspections of Novartis clinical and manufacturing operations. One of these, an inspection of clinical operations, required further improvement, and actions are being taken to address the issues and strengthen systems around our clinical processes. The remaining 99.1% of inspections were found to be acceptable, compared with 100% in 2022.

We conducted 926 audits in 2023, compared with 1 034 in 2022. External suppliers accounted for 91% of the audits. The majority of audits identified gaps, which the audited entities have committed to address through corrective and preventive actions (CAPAs). We monitor these and track adherence to the commitments to drive continuous improvement among suppliers.

Pharmacovigilance

In 2023, we continued to run 20 post-approval safety studies. No new ones were initiated. Regulators conducted 10 inspections related to clinical trial safety management and/or pharmacovigilance, none of which resulted in material findings.

We conducted 926 audits in 2023, with external suppliers accounting for 91% of the audits

Furthermore, we continued to support education programs for patients, providers and pharmacists to further strengthen monitoring of the safety of our drugs. Among them was an academic course in Serbia to raise awareness around pharmacovigilance among pharmacists, doctors and dentists. They also included a two-year postgraduate diploma course at the University of Hertfordshire, UK, that has now trained more than 1 000 experts in pharmacovigilance since 1995.

Product quality and patient safety performance indicators	2023	2022	2021
GxP audits			
Total audits executed	**926**	1 034	886
Internal [1]	**81**	106	88
External [2]	**845**	928	798
Regulatory authorities			
Total inspections	**113**	106	89
Inspections found to be acceptable (%)	**99.1**	100.0	98.9
Recalls			
Total recalls	**10**	7	9
Class I recalls	**1**	0	0
Class II recalls	**8**	6	6
Class III recalls	**1**	1	2

[1] Total number of audits performed on facilities owned by Novartis
[2] Total number of audits performed on GxP suppliers to Novartis

Falsified medicines

In 2023, we investigated 185 confirmed incidents of falsified medicines in 42 countries. We worked closely with law enforcement on 35 enforcement actions, which led to the seizure of approximately 2.9 million units of falsified medicines. Our quality and supply chain teams each implemented an internal operating procedure designed to ensure the timely reporting of falsified medicines. In addition to reporting incidents as required to local health authorities, we also voluntarily reported 100% of reportable incidents to the WHO, all within the recommended 10-day timeframe.

To accelerate the authentication of suspected counterfeit drug products, we equipped local teams with *Authentifield* sensors in 2023 (for more details, see the case study opposite). Meanwhile, our MoVe internal mobile application, which enables employees to quickly verify the authenticity of secondary packaging of any Novartis product, is now active in 49 countries.

We worked closely with law enforcement on 35 enforcement actions, which led to the seizure of approx. 2.9 million units of falsified medicines

While counterfeits remain a major incident category in 2023, we see higher risks in two areas — product theft and illegal diversion, where products intended for one market are illegally intercepted and sold to another. For each of these, we developed strategies to tackle and better mitigate patient safety risks locally.

To address illegal diversion, we developed toolkits focused on risk mapping, monitoring, and the regulatory and policy landscape. These were developed for both the priority source and destination countries. As for product theft, we are responding by strengthening our supply chain security through enhanced security standards, internal capacity building, systematic risk assessments, and analysis of the root causes of incidents.

In 2023, Novartis also participated in 95 capacity-building, policy and public awareness activities across 32 countries. Through these measures, we reached more than 4 500 key stakeholders in law enforcement, customs and health authorities.

A sample can quickly be checked against a database of Novartis medicines

Case Study **Accelerating the fight against falsified medicines**

Trade in falsified medicines harms people around the world.[1] To accelerate the local detection of falsified medicines and strengthen the integrity of our supply chain, we have developed the *Authentifield* solution together with a technology partner.

The backbone of the solution is a secure, cloud-based database containing details of the composition of Novartis medicines. Data science and AI have been used to build prediction models to capture the manufacturing variability of solid drugs produced in different dosages, raw materials and locations.

In the field, a sample can be authenticated using a pocket-sized device containing a sensor that transmits the results to the database via a smartphone. The solution allows any trained Novartis employee to verify a sample's authenticity within minutes.

Until now, suspect drugs have had to be shipped to one of four Novartis testing centers worldwide. Transportation, customs and other delays meant that, on average, six weeks were needed between receiving and authenticating a sample. The *Authentifield* initiative has cut the authentication time to a matter of days.

In the fourth quarter of 2023, we distributed 75 devices in 15 priority countries, with 25 solid drugs most at risk of being falsified available for testing in the database. By the end of 2024, we plan to empower Novartis employees in 71 countries with 250 devices, with 100 solid drugs available for testing.

[1] Counterfeit medicines in legitimate supply chains SDCP & PSI Study – IFPMA

Governance, risk management and compensation

Corporate governance 66
Risk management 71
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Corporate governance

Strong corporate governance is essential for the effective management of our business and is the cornerstone of trust in Novartis. Our system of governance, along with our internal policies and controls, also ensures we comply with applicable laws, rules and industry regulations, and helps us maintain high ethical standards. It is intended to support sustainable financial performance and long-term value creation for our shareholders, patients, employees and other stakeholders.

For more detailed information on corporate governance at Novartis, see our Annual Report 2023.

Our governance structure

Our governance is based on a system of effective checks and balances. Our primary governance bodies are the Annual General Meeting of shareholders (AGM), our Board of Directors, and the Executive Committee of Novartis (ECN). Each has different roles and responsibilities within our overall governance system:

At the **AGM**, shareholders approve dividend payments, maximum aggregate compensation for members of the Board and ECN, as well as financial statements, the nonfinancial report and other disclosures. They also elect the Board Chair, members of the Board of Directors, members of the Board's Compensation Committee, the Independent Proxy, and external auditor. Shareholders meet at least once a year, usually in February or March. In 2023, shareholders approved amendments to align the Novartis Articles of Incorporation with the recent reform of Swiss corporate law.

Our **Board of Directors** has ultimate decision-making authority (for those decisions not reserved for shareholders). The Board operates through five permanent committees: Audit and Compliance (ACC); Compensation; Governance, Sustainability and Nomination (GSNC); Risk; and Science & Technology. The Board represents the interests of all stakeholders and oversees the work of the ECN. It is in regular contact with the ECN through meetings and monthly CEO reporting.

Led by our CEO, the **ECN** is responsible for operational management, including financial performance, as well as fulfillment of the company's purpose, strategic priorities and targets. The ECN has 11 members, including the CEO and Chief Financial Officer, the leaders of our organizational units — Biomedical Research, Development, Operations, US and International — as well as those of other functions (see page 70).

In addition, our external auditor provides regular opinions to management and shareholders on the company's compliance with applicable laws, standards and reporting requirements.

Composition of the Board

All Board members are independent and nonexecutive (as defined under the Board regulations). Members are elected at the AGM for one year only; they may serve a maximum of 12 years.

During 2023, all Board members were re-elected at the AGM for a further year, including the Chair Joerg Reinhardt. John D. Young was elected for his first term, succeeding Andreas von Planta, who stepped down. Shareholders also re-elected all members of the Compensation Committee. The Board redesignated Simon Moroney as chair of the Compensation Committee for a further year.

When choosing new members to propose to the AGM, the Board aims for a balance of skills, expertise and experience. All 13 current Board members have experience in leadership and management. In addition, seven have experience in medicine, healthcare or R&D, and four in environmental, social and governance topics. The Board also aims for diversity in terms of gender, experience, nationality, ethnicity, professional background and expertise — so that it is able to reflect the views of stakeholders and society.

The Board of Directors is subject to an annual self-assessment; every third year, this assessment is carried out by an external consultant. Board members also receive regular briefings and training. In 2023, these focused on ESG, information management, our new Doing Business Ethically policy, and Fit to Commit training on anti-bribery, insider trading and procurement behaviors.

Board highlights for 2023

During 2023, the Board of Directors discussed strategic, operational and financial issues. These included:

- The company's strategy to become a fully focused medicines company with leading technology in key therapeutic and geographic areas
- The setup and functioning of the ECN in the context of the company's organizational structure
- A deep dive on the US market and our priorities to accelerate growth and become a top player in the market, including a briefing on market access
- Updates from all organizational units
- Strategic considerations around mergers and acquisitions (including the acquisition of Chinook Therapeutics), and the company's larger strategic moves to drive sustainable growth
- The structure of Sandoz post spin-off, including the designated Sandoz board (and its committees) and the designated leadership team
- The Sandoz separation through a 100% spin-off, including shareholder approval at the extraordinary general meeting held on September 15, 2023
- The environmental, social and governance (ESG) strategy, plans and developments, including participation in an ESG session jointly organized by the ACC and GSNC
- The upcoming nonfinancial disclosure regulations and Novartis nonfinancial reporting governance
- Longer-term Board succession planning and required profiles
- The annual Board self-evaluation

Changes to the ECN

Marie-France Tschudin, President of the Innovative Medicines International unit and Chief Commercial Officer since 2022, stepped down from her role effective September 15, 2023. The unit, which separately was renamed International, was led by Mukul Mehta, its chief financial officer, ad interim from September 16, 2023, to November 30, 2023. He was not a member of the ECN during this period. Patrick Horber, M.D., became President of the International unit and a member of the ECN effective December 1, 2023.

Novartis shares

Novartis AG, the holding company, is a corporation organized under Swiss law, with its registered office in Basel. Our shares are listed on the SIX Swiss Exchange (using the symbol: NOVN) and on the New York Stock Exchange (NYSE) (symbol: NVS) in the form of American Depositary Receipts (ADRs), representing Novartis depositary shares.

Shareholder rights are guaranteed under Swiss law and our Articles of Incorporation. All shares have equal voting rights and carry an equal entitlement to dividends.

At general meetings, shareholders may vote in person, or nominate a representative of choice or the Independent Proxy to vote on their behalf. The next Novartis AGM is scheduled to be on March 5, 2024.

ESG governance

Board

Ultimate responsibility for our ESG strategy lies with the Novartis Board of Directors. The Board has delegated certain duties and responsibilities related to ESG to some of its committees.

The primary responsibility for the oversight of the ESG strategy and governance is held by the Governance, Sustainability and Nomination Committee (GSNC). The GSNC oversees the company's strategy, governance and progress on sustainability, including access to medicine and healthcare, global health, environmental sustainability, human capital management and other material ESG topics. The GSNC also discusses emerging trends and regularly advises the Board on ESG matters.

The ACC is responsible for internal controls over financial and nonfinancial information, and reviews all performance indicators included in this report. The Risk Committee oversees the company's risk management, including risks related to ESG.

The Science & Technology Committee is responsible for the oversight and evaluation of the company's scientific, technological and R&D activities, which are relevant to our material topic of innovation.

In addition, the Compensation Committee determines performance measures

Website information

Share capital	→ Articles of Incorporation of Novartis AG → Share data and analysis
Annual General Meeting of Shareholders	→ Annual General Meeting of Shareholders
Regulations (Board of Directors)	→ Board Regulations
Novartis code for senior financial officers	→ Ethical Conduct Requirements for CEO, ECN and Senior Financial Officers of Novartis
Financial performance data	→ Novartis financial data
Media releases	→ Media releases and featured news → Email update service

(including those related to ESG) for executive compensation and, together with the Risk Committee, reviews Novartis compensation systems to ensure they encourage behaviors that support sustainable value creation.

Management

The ECN is responsible for operational management of ESG matters. The ECN-level ESG Committee, chaired by the CEO, meets every two months to review the company's ESG performance and strategy.

Our Sustainability and ESG Office, which is part of the Corporate Affairs function, is responsible for embedding ESG into management decisions across the business. ESG issues are integrated into our Enterprise Risk Management (ERM) approach. In addition, we have internal policies and controls to minimize risks in areas such as human rights, health and safety, anti-bribery/corruption and environmental sustainability (see page 55).

For more information on the governance of environmental sustainability at Novartis, see our TCFD disclosure on page 90.

Stakeholder engagement also plays an important role in helping identify ESG risks and opportunities (see page 20). For example, Novartis has an independent Bioethics Advisory Committee, which advises management on ethical issues related to scientific research, drug development and access programs.

The table opposite provides an overview of the governance of ESG topics identified as part of our materiality assessment (see page 16).

Cybersecurity

Cybersecurity and data privacy risks are among the core enterprise risks evaluated through our annual enterprise risk management assessment. We have a cybersecurity risk management program designed to respond to the threat of security breaches, the threat of cyberattacks, and to protect and preserve the confidentiality, integrity, and continued availability of information owned by, or in the care of Novartis.

We follow industry best practices to manage information security. Novartis has risk-based services continuity and systems recovery plans in place for key business processes, which are tested periodically. We also conduct ongoing internal vulnerability analyses (including simulated hacking), as well as external testing via a third-party to ensure the effectiveness of our cybersecurity controls.

Novartis has not experienced any material cybersecurity incidents in the three years through 2023.

As part of its enterprise risk management oversight, the Risk Committee of our Board is responsible for ensuring that Novartis has implemented an appropriate and effective risk management system and process, including annually reviewing updates on cybersecurity with the Chief Security Officer. For more information, see our Annual Report 2023.

Primary governance and oversight of ESG topics

ESG material topic	Board committee(s)	ECN/management
Innovation	• Science & Technology	• President, Biomedical Research • President, Development, and Chief Medical Officer • Innovation Management Board
Access to medicines	• Governance, Sustainability and Nomination	• President, US • President, International • Head, Corporate Affairs • President, Global Health and Sustainability • ESG Committee
People and culture	• Governance, Sustainability and Nomination • Compensation	• Chief People & Organization Officer • ESG Committee
Environmental sustainability	• Governance, Sustainability and Nomination	• President, Operations • Head, Corporate Affairs • President, Global Health and Sustainability • ESG Committee
Ethical business practices	• Audit and Compliance • Risk	• Chief Ethics, Risk & Compliance Officer • ESG Committee
Patient health and safety	• Audit and Compliance	• President, Operations • President, Development, and Chief Medical Officer

Our Board of Directors

Joerg Reinhardt, Ph.D.
Board Chair

Nationality: German
Year of birth: 1956
Board member since: 2013
Committees: 5

Simon Moroney, D.Phil.
Vice-Chair

Nationality: German/New Zealander
Year of birth: 1959
Board member since: 2020
Committees: 2 5

Patrice Bula
Lead Independent Director

Nationality: Swiss
Year of birth: 1956
Board member since: 2019
Committees: 2 3

Nancy C. Andrews, M.D., Ph.D.

Nationality: American/Swiss
Year of birth: 1958
Board member since: 2015
Committees: 4 5

Ton Buechner

Nationality: Dutch/Swiss
Year of birth: 1965
Board member since: 2016
Committees: 1 4

Elizabeth (Liz) Doherty

Nationality: British/Irish
Year of birth: 1957
Board member since: 2016
Committees: 1 4

Bridgette Heller

Nationality: American
Year of birth: 1961
Board member since: 2020
Committees: 1 2 3

Daniel Hochstrasser

Nationality: Swiss
Year of birth: 1960
Board member since: 2022
Committees: 1 3

Frans van Houten

Nationality: Dutch
Year of birth: 1960
Board member since: 2017
Committees: 1 5

Ana de Pro Gonzalo

Nationality: Spanish
Year of birth: 1967
Board member since: 2022
Committees: 1 4

Charles L. Sawyers, M.D.

Nationality: American
Year of birth: 1959
Board member since: 2013
Committees: 3 5

William T. Winters

Nationality: British/American
Year of birth: 1961
Board member since: 2013
Committees: 2 3

John D. Young

Nationality: British/American
Year of birth: 1964
Board member since: 2023
Committees: 4 5

Committees

1 Audit and Compliance Committee
2 Compensation Committee
3 Governance, Sustainability and Nomination Committee
4 Risk Committee
5 Science & Technology Committee

→ For CVs of our Board members, see www.novartis.com/about/board-directors

Our Executive Committee

Vasant (Vas) Narasimhan, M.D.
Chief Executive Officer

Nationality: American
Year of birth: 1976

Shreeram Aradhye, M.D.
President, Development, and Chief Medical Officer

Nationality: American
Year of birth: 1962

Victor Bulto
President, US

Nationality: Spanish
Year of birth: 1978

Aharon (Ronny) Gal, Ph. D.
Chief Strategy & Growth Officer

Nationality: Israeli/American
Year of birth: 1966

Karen L. Hale
Chief Legal Officer

Nationality: American
Year of birth: 1968

Patrick Horber, M.D.
President, International

Nationality: Swiss
Year of birth: 1970

Harry Kirsch
Chief Financial Officer

Nationality: German/Swiss
Year of birth: 1965

Rob Kowalski
Chief People & Organization Officer

Nationality: American
Year of birth: 1968

Steffen Lang, Ph.D.
President, Operations

Nationality: German/Swiss
Year of birth: 1967

Fiona H. Marshall, Ph.D.
President, Biomedical Research

Nationality: British
Year of birth: 1964

Klaus Moosmayer, Ph.D.
Chief Ethics, Risk & Compliance Officer

Nationality: German
Year of birth: 1968

→ For CVs of our ECN members and other members of senior management, see www.novartis.com/about/executive-committee

Risk management

Our approach

Our strategy as an innovative medicines company creates both opportunities and risks for our business. These stem from various sources, including our operating environment, the uncertainty inherent in research and development, our ability to achieve our commercial objectives, and increasing societal expectations of our industry.

Our Enterprise Risk Management (ERM) framework is designed to generate a holistic view of risks for our company and drive a culture of informed risk-taking that advances our strategy. The annual ERM process is based on three main steps:

- Understanding our strategy
- Identifying, assessing and analyzing potential risks to the success of our strategy
- Setting a clear risk appetite for each risk and taking actions to achieve our target risk exposure

Throughout the year, we hold risk workshops with business leaders from countries, organizational units and global functions. This ensures we integrate risk management into our activities and helps us better understand our risk exposure through transparency on how key risks and opportunities are evolving throughout the year.

The process results in the Novartis Risk Compass, which informs our Board of Directors and senior management on key risks to our strategy. Risks are grouped into three categories: strategic, operational and emerging. We also identify awareness topics that could develop into risks in the future.

Risk exposure is rated on a four-point scale — very high, high, medium, and low — based on likelihood and potential impact, using the 'most-probable worst-case' scenarios for each risk as reference points. We create mitigation plans and monitor each risk to achieve our target risk exposure.

Risk governance

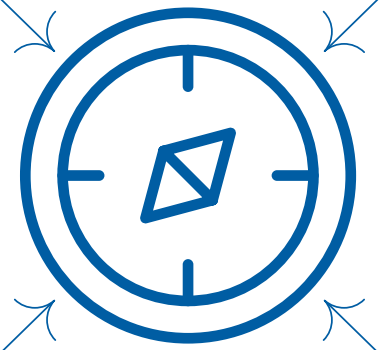
Risk management is integrated into our system of governance for effective oversight and to ensure we take risk into consideration when making decisions or setting strategic goals:

- The Board of Directors oversees risk management systems and processes through its Risk Committee. Alongside senior management, the Committee reviews our company's risk portfolio, its prioritization of risks, and actions taken to manage or mitigate risk. When necessary, the Committee carries out ad hoc reviews of our approach in key risk areas.
- The ECN regularly assesses risks and fosters a culture of risk awareness, in line with the Novartis Values and Behaviors and the Novartis Code of Ethics. The overall ERM process is the responsibility of the Chief Ethics, Risk & Compliance (ERC) Officer. The CEO reviews and validates the annual Novartis risk portfolio, with members of the ECN appointed as risk owners for relevant strategic risks.
- Our ERM process is managed by our internal Risk and Resilience organization, which is part of the ERC function, with support from risk leaders within our key markets, organizational units and functions.

Novartis Risk Compass

Strategic risks
are the most consequential to our ability to execute our strategy or achieve our business objectives

Operational risks
relate to internal processes or systems, employee errors or external events



Emerging risks
require close monitoring and have the potential to become strategic or operational risks

Awareness topics
are longer-term trending topics that have the potential to become new risks

External partner risk management

In addition to our ERM process, we have an external partner risk management (EPRM) framework to help identify and manage risk when interacting with outside parties, including suppliers, vendors, distributors, wholesalers and other business partners (see page 56).

Risks in 2023

We continued to make progress in managing our risk exposure in 2023, despite continued volatility in our business environment. The following are key changes to our risks in 2023:

Five risks were assessed as having reduced impact or likelihood compared with the previous year, with two reducing their overall risk exposure as a result:

- Cybersecurity and data protection:[1] assessed as having reduced impact (with risk exposure moving to high from very high) mainly due to our efforts to further strengthen cyber defenses in our Development and Operations units (see page 68).
- External partner risk management and human rights:[2] assessed as having reduced impact (with risk exposure moving to medium from high) due to the completion of the assessment of 35 000 legacy third-party vendors and the development of our EPRM approach (see page 56).
- Key products and commercial priorities: assessed as having reduced likelihood (while retaining very high-risk exposure) due to improved focus and execution through our new operating model (see page 32).
- Strategic technology programs implementation:[3] assessed as having reduced impact (while retaining high-risk exposure) due to progress on multiyear programs to modernize our IT infrastructure (see page 30).
- Talent management: assessed as having reduced likelihood (while retaining high-risk exposure) due to progress in transforming our organization without significant increase in voluntary turnover of key employees (see page 48).

In addition, one risk — 'Strategic transformations' — was retired due to progress in our organizational transformation and the completed spin-off of our Sandoz business.

During the year, we continued to take mitigation measures to reduce our net risk exposure while also updating our ERM framework to reflect changes in our strategic priorities and business environment. We implemented a new methodology to better connect strategy and risk management, and updated our risk assessment criteria to align with our new strategy and the latest external risk management standards.

Novartis 2023 risk portfolio

See page 71 for more details on our strategic, operational and emerging risks.

Risk exposure:
- Very high
- High
- Medium
- Low

Strategic risks

Key products and commercial priorities
Failure to deliver key commercial priorities and successfully launch new products

Research and development
Failure to successfully prioritize, integrate and execute our research and development programs for new products or new indications for existing products

Pricing, reimbursement and access
Pricing and reimbursement pressure, including pricing transparency and access to healthcare

Alliances, acquisitions and divestments
Failure to identify, execute or realize the expected benefits from our external business opportunities

Environmental, social and governance matters
Failure to meet rapidly evolving environmental, social and governance expectations

Operational risks

Cybersecurity and data protection
Cybersecurity breaches, data loss and catastrophic loss of IT systems

Strategic technology programs implementation
Failure to successfully implement our IT strategy may disrupt our core business processes

Talent management
Inability to identify, attract, develop and retain qualified talent for critical roles

Legal, regulatory, ethics and compliance
Challenges posed by evolving regulatory requirements, innovative and disruptive technologies, and societal expectations regarding ethical behavior

External partner risk management and human rights
Failure to maintain adequate governance and risk oversight over external partner relationships, and failure of external partners to meet their contractual, regulatory or other obligations

Manufacturing and product quality
Inability to ensure proper controls in product development and product manufacturing, and failure to comply with applicable regulations and standards

Supply chain
Inability to maintain continuity of product supply

Falsified medicines
Impact of falsified medicines on patient safety, and reputational and financial harm to Novartis and our products

Emerging risks

Geopolitical developments
Impact of geo- and socio-political threats

Macroeconomic developments
Impact of macroeconomic developments

Climate change
Failure to manage physical and transition risks from climate change

[1] Formerly 'Cybersecurity and IT systems' in 2022
[2] Formerly 'Third-party management' in 2022
[3] Formerly 'Fragmented IT landscape and strategic technology programs implementation' in 2022

Strategic, operational and emerging risks in detail

The table below provides further details on our 2023 risk portfolio. Where relevant, risks are shown by strategic priority and ESG material topic. Further information on risks may be found in our Annual Report 2023.

Risk exposure:
- Very high
- High
- Medium
- Low

Risk	Context	Mitigation measures	ESG material topic
Strategic risks (by strategic priority)			
Deliver high-value medicines			
Key products and commercial priorities	Delivering on our growth targets requires us to focus on priority brands and markets to support new launches and overcome potential barriers to the uptake of new medicines. This could be impacted by several factors, including (but not limited to) competitive pressures, changes in the prescribing habits of healthcare professionals, and slower than expected adoption after launch. Furthermore, our commercial success depends, among other things, on clear internal processes, effective transition of assets from development to launch, and sufficient market insight in pipeline and commercialization decisions. An inability to successfully implement new organizational structures and operating models could have a material adverse effect on our results of operations and financial condition.	We have a clear strategic focus. We are aligning our research, development and commercial activities around priority assets in our core therapeutic areas. We are also focusing on priority geographies. Over the past year, we have made organizational changes to simplify our decision-making and resource allocation, including creating separate US and international commercial units and the spin-off of our Sandoz business.	• Sustainable financial performance
Research and development (R&D)	R&D is vital to our strategy. Our ability to grow our business and advance our product pipeline, as well as to take advantage of new technologies (including gene therapies and radioligand therapies), depends in significant part on the success of our R&D efforts. We have clear opportunities to enhance the efficiency and productivity of our R&D efforts by investing in new technologies such as artificial intelligence. However, there is a risk we will pursue new technologies unsuccessfully.	We are focusing our efforts on core therapeutic areas and shifting more of our portfolio to new technology platforms and biologics. To do this, we need to have clear strategic objectives, be efficient and set clear priorities, with a focus on projects that have the highest potential. We continue to invest in new technologies, including AI, to gain a competitive advantage in R&D and to reduce the time and expense associated with developing new medicines (see page 33).	• Innovation
Embed operational excellence			
Alliances, acquisitions and divestments	As part of our strategy, we may acquire and divest products or entire businesses and form strategic alliances and collaborations to strengthen our pipeline of new medicines and help us sustain long-term growth. M&A markets remain highly competitive and there is a risk we will miss out on opportunities or be unable to fully realize the strategic benefits of these transactions.	We have a clear strategic focus on innovative medicines. In addition, we have strengthened our internal organization to streamline decision-making by creating a new Strategy & Growth function, single business development teams, and leadership teams for each of our core therapeutic areas. We have also implemented a single framework for portfolio assessment and prioritization.	• Sustainable financial performance
Strengthen our foundations			
Pricing, reimbursement and access	We experience significant pressure on the pricing of our medicines. These have many sources, including increasing healthcare costs, funding restrictions and policy changes. A worldwide slowdown in economic growth following the COVID-19 pandemic and the onset of war in certain parts of the world has led to increased strain on budgets in many major economies. Legislative developments in the US, Europe and other countries may create further pressures on pricing and the availability of our products.	We seek to price our medicines based on the value they deliver to patients, health systems and society. We believe this incentivizes health systems to focus on interventions that deliver the most effective, efficient and sustainable outcomes. At the same time, we are establishing new commercial models for our medicines, such as population-health agreements. We also work through industry associations to advocate for policies that support a sustainable ecosystem for innovative medicines.	• Access to medicines
Environmental, social and governance matters	Increasingly, companies are being evaluated on their performance on environmental, social and governance (ESG) matters. Failing to meet our ESG commitments could adversely affect our reputation, business, operations and/or financial performance.	Building trust with society is part of our corporate strategy. We have developed an ESG strategic roadmap with clear targets on material ESG topics. We are also taking steps to further strengthen our approach to third-party ESG risk. We monitor changes to ESG regulations, particularly regarding new reporting and due diligence requirements. In addition, we have policies, controls and internal programs to ensure ESG is embedded in our decision-making.	• Access to medicines • Ethical business practices • Environmental sustainability • People and culture • Good governance

Strategic, operational and emerging risks in detail (continued)

Risk exposure:
- Very high
- High
- Medium
- Low

Risk	Context	Mitigation measures	ESG material topic
Operational risks			
Cybersecurity and data protection	Our business is dependent on critical, complex and interdependent IT systems. Significant parts of these systems are outsourced to third parties. We may experience cyberattacks that could potentially lead to the unavailability of critical systems causing a disruption of operations and/or the loss of sensitive information.	We took steps to further strengthen cyber defenses in our Development and Operations units by defining recovery and business continuity measures that enable us to respond to a catastrophic loss of IT and resume operations. We are modernizing our IT infrastructure and replacing end-of-life applications, as well as introducing tighter controls around the use of company devices. We have also expanded IT training for employees to include the secure use of AI technologies.	
Strategic technology programs implementation	Novartis operates various IT systems, platforms and applications. Some of these systems may be complex and fragmented or nearing the end of their useful life. This may lead to inefficiencies and an increased risk of disruption to our operational stability. We are implementing several companywide IT programs to replace and consolidate outdated IT systems. An inability to successfully implement these programs may prevent us from materializing expected benefits and could lead to disruptions.	We are modernizing our IT systems and processes. These foundational programs include our Lean Digital Core program to establish global end-to-end systems, and a program to update our human resources systems (see page 30). We are working to harmonize data management and improve IT processes in other areas, including supply chain management, compliance and patient safety.	
Talent management	To execute our strategy, we need to attract, develop and retain qualified people — including members of our scientific and management teams, R&D specialists and employees with key capabilities in key markets. If we are unable to do so, our ability to achieve our business objectives may be affected.	We use strategic workforce planning in key areas to ensure we have the right skills and capabilities for our strategy. We have extensive succession planning and targeted talent scouting. We also monitor turnover risk and employee engagement, and have a system of regular evaluations and quarterly check-ins. In recent years, we have adopted new ways of working and increasingly recruit from a global pool of talent.	• People and culture
External partner risk management and human rights	We rely on external partners for key business functions and services, including in manufacturing, R&D and distribution. This poses certain risks, for example when external partners fail to comply with internal controls and regulatory requirements, or fail to meet standards on environmental sustainability and human rights.	We contractually oblige suppliers to abide by our standards on quality, ethical business conduct, and human rights. We carry out regular risk assessments and audits in areas including health and safety, labor rights, information security, and anti-bribery and corruption. We also work with suppliers to reduce their environmental impact. We are phasing in a new risk-based approach to make our assessments more efficient. We are also further improving our approach to human rights, including stronger grievance reporting.	• Ethical business practices
Legal, regulatory, ethics and compliance	We work to maintain high ethical standards and comply with applicable laws and regulations. Trust in Novartis and its medicines may be eroded if we fail to meet these standards or do not keep pace with changing regulatory requirements. The laws and regulations relevant to the healthcare industry are broad in scope, are subject to change, and could require us to incur substantial costs associated with compliance, or to alter one or more of our business practices.	Novartis has an extensive system of internal controls and policies. These are enforced through regular monitoring and training. We are further strengthening our compliance management system, and have merged and updated our professional practices and anti-bribery policies to form a new Doing Business Ethically Policy Framework. We have developed new guardrails for commercial partnerships in the US, and have also begun work on a comprehensive AI Risk and Compliance Management Framework.	• Ethical business practices
Manufacturing and product quality	To maintain the quality of our medicines, we must ensure our manufacturing processes — and those of our business partners — meet all regulatory requirements, as well as our own strict quality standards. Failure to do so could result in product recalls or other measures, as well as harm to our reputation.	Novartis has extensive policies, systems and controls to ensure product quality. These include a companywide Quality Management System, as well as relevant ISO and Good Manufacturing Practice certificates. In addition, we have a remediation program to correct any shortcomings. Our facilities are also subject to regular, external inspections. See page 62 for further details.	• Patient health and safety

Strategic, operational and emerging risks in detail (continued)

Risk exposure:
- Very high
- High
- Medium
- Low

Risk	Context	Mitigation measures	ESG material topic
Operational risks			
Supply chain	Failure to maintain a reliable supply of our medicines may harm patient health and cause significant business disruption and a loss of reputation. Supply could be affected by various factors, including quality concerns, natural disasters or accidents, trade tensions, IT incidents, or failure to source key inputs or raw materials.	We apply minimum standards to suppliers through our Third Party Code. We assess climate and macroeconomic risks through regular risk assessments, and take mitigation measures where necessary. With suppliers, we diversify where possible, so that our business is not dependent on a single or limited number of supply sources.	• Patient health and safety
Falsified medicines	Falsified medicines pose patient safety risks and can affect patient confidence in medicines and in healthcare systems. They could cause us reputational and financial harm if an adverse event from a falsified medicine is mistakenly attributed to a genuine one. Stolen or illegally diverted medicines that are not properly stored and later sold through unauthorized channels, could adversely impact patient safety, our reputation and our business.	Our strategy focuses on the timely authentication and reporting of falsified medicines. We report incidents as required to local health authorities. We also voluntarily report incidents to the WHO. In 2023, to accelerate the authentication of suspected counterfeit drug products, we equipped local teams with sensors (see page 64).	• Patient health and safety
Emerging risks			
Geopolitical developments	Challenging political conditions and instability in parts of the world create uncertainty for our business. These include the ongoing wars in Ukraine and the Middle East; the potential consequences of international sanctions and territorial disputes between states; and the fragility of several emerging economies.	We have no direct control over geopolitical or macroeconomic developments. We can, however, partially mitigate the impact of geopolitical and macroeconomic developments by regularly monitoring of the external environment and regulatory landscape, in addition to establishing clear governance and processes to manage international sanctions and credit risk in relevant markets.	
Macroeconomic developments	A slow macroeconomic recovery creates uncertainty in our business environment. Low growth, high inflation and high interest rates create risks, including the ability of customers to pay for our products and increased counterparty credit risk. Weak macroeconomic conditions may also lead to further pressure on healthcare budgets and drug prices.		
Climate change	Novartis faces both physical and transition risks resulting from climate change. Natural disasters or longer-term climate patterns may adversely affect our production facilities or supply chain. At the same time, we may fail to adapt our business to net-zero expectations for healthcare systems, or to increasing prices for carbon and raw materials and other inputs. To comply with legislation, we may be required to increase our investment in technology to reduce our energy use, water use and greenhouse gas emissions. For more information, see our TCFD disclosure on page 90.	We aim to mitigate our impact on the environment through reducing our greenhouse gas emissions, water use and waste. Our targets include carbon neutrality in our own operations (Scopes 1 and 2) by 2025, and across our value chain (Scopes 1, 2 and 3) by 2030. We aim to achieve net-zero carbon emissions across our value chain by 2040. We are also taking steps to reduce water consumption and waste. To these ends, we are working closely with suppliers to maintain environmental standards.	• Environmental sustainability

Compensation

In 2023, we continued to make improvements to our compensation approach to enhance transparency and increase our market competitiveness. For more detailed information on ECN and Board compensation at Novartis, see our Annual Report 2023.

2023 company performance

Novartis delivered a very strong performance in 2023, with a robust strategic (Sandoz spin-off), financial (top- and bottom-line growth) and innovation (large number of positive Phase III readouts) performance. The performance of our product portfolio (including *Entresto*, *Kesimpta*, *Kisqali* and *Scemblix*) together with the optimization of our commercial and supporting functions contributed to sales growth of 10% (cc) and core operating income growth of 18% (cc) compared with the previous year.

On October 4, 2023, we successfully spun off our Sandoz generics and biosimilars business. Innovation highlights included positive results from several Phase III clinical trials for investigational medicines with significant sales potential, including *Pluvicto*, remibrutinib and iptacopan, as well as additional approval indications for *Entresto* (for pediatric heart failure) in the EU and *Cosentyx* (for hidradenitis suppurativa) in the EU and US. Regulatory submissions were completed for *Kisqali* (for early breast cancer) in the EU and US. Transactions provided further substance to the pipeline, notably with the acquisition of Chinook Therapeutics to strengthen our renal portfolio.

The company's very strong performance in 2023 resulted in an Annual Incentive payout of 185% for the CEO, and in a Long-Term Performance Plan (LTPP) 2021-2023 payout of 122%. These factors, together with an increase of 16% in the vesting price of the 2021-2023 LTPP (when adjusted for the Sandoz spin-off) resulted in the total realized CEO compensation of CHF 16 248 178 in 2023. These three outcomes contributed to the vast majority of the year-on-year increase in realized pay for the CEO. They also impacted the compensation outcome for the other members of the ECN, whose total aggregated compensation was CHF 47 205 005.

Changes to the executive compensation system in 2024

As part of our annual review, we identified that our existing CEO compensation practices placed us in the lowest quartile versus global healthcare peers. We engaged extensively with our largest shareholders and proxy advisors to collect feedback about our executive compensation framework, in particular the challenges that European companies face in the competition for talent. Following this engagement and the overall positive nature of the feedback received, the Compensation Committee and the Board of Directors agreed that it is necessary to take a global perspective to attract and retain the best talent at the top of the organization, and that the company could be more competitive in this regard. As a result, and while still mindful of the expectations of European-based investors and proxy advisors, we made some changes to our compensation system, effective January 1, 2024.

We aspire to continue growing our global business, with a particular focus on the US market. Aligned with this aspiration and our compensation philosophy, the Board of Directors decided to adjust the CEO target pay in a way that preserves alignment with shareholders. Specifically, we increased the LTPP target, which is fully performance driven based on three-year forward-looking targets, from 325% to 400% as a percentage of annual base salary. The additional two-year holding period for the CEO remains unchanged, thereby restricting the equities from sale for five years. The Compensation Committee will continue to set stretch targets, with a robust assessment at the end of the cycle. No changes were made to the CEO base salary (beyond ordinary salary increases received by other Swiss employees) or the Annual Incentive target. This is the first significant increase in CEO target pay since 2019 and places his target compensation just above the lowest quartile of global healthcare peers, based on the last disclosed proxy information.

The Compensation Committee agreed to replace operating income with core operating income in our ECN Annual Incentive. The Compensation Committee agreed that core operating income, which excludes certain one-time or non-recurring items, represents a better measure of the Company's underlying performance. Additionally, core-adjusted metrics are more commonly used by our global healthcare peers, which would enable easier peer performance comparisons.

The Compensation Committee strongly affirms a commitment to the principle of aligning the interests of executives with shareholders. To that end, we will continue to enforce an obligation that all ECN members become meaningful shareholders with a requirement to hold a multiple of their salary in Novartis shares. Currently, the Annual Incentive has a 50% mandatory deferral into equity, which is blocked for three years. The Compensation Committee decided that this aspect of the Annual Incentive should be more in line with relevant market practice. For this reason, once an ECN member has met their shareholding requirement, the portion of the Annual Incentive that is mandatorily deferred will be reduced to 30%. To reinforce strong shareholder alignment, the CEO's shareholding requirement will simultaneously be increased from 5x to 6x annual base salary.

Shareholder votes on compensation at the 2023 AGM

In line with the Swiss Code of Obligations and our Articles of Incorporation, at the 2024 AGM, shareholders will be asked to approve the maximum aggregate amount of compensation for the members of the Executive Committee of CHF 95 000 000. This is higher than the prior term due to the target pay increases to the CEO and selected Executive Committee members who are new to their roles and have demonstrated strong performance during their tenure. For the Board of Directors, the maximum aggregate amount proposed to shareholders is CHF 8 780 000, which is slightly higher than the amount requested in the prior term. This is due to the proposed appointment of John Young as Chair of the Science & Technology Committee from the 2024 AGM, thereby increasing his Board fee as per the approved Board compensation fee structure. Full details on compensation for the CEO, other ECN members and Board members can be found in the Compensation Report of our Annual Report 2023, and in the compensation votes at the 2024 AGM.

2023 Executive Committee compensation system

	2023 fixed pay and benefits		Performance-related variable pay	
	Annual base salary	**Pension and other benefits**	**2023 Annual Incentive**	**2023–2025 LTPP cycle[1]**
Purpose	Reflects responsibilities, experience and skill sets	Provide retirement and risk insurances (tailored to local market practices/ regulations)	Rewards performance against short-term financial and strategic objectives, and Values and Behaviors	Rewards long-term shareholder value creation and innovation in line with our strategy
Form of payment	Cash	Country/individual-specific and aligned with other employees	50% cash 50% equity[2] deferred for three years[3]	Equity, vesting following a three-year performance period
Performance measures	–	–	Balanced scorecard comprising: • Financial measures[4] (60%) • Strategic objectives[5] (40%)	• 3rd Party Sales CAGR[6] (25%) • Core operating income CAGR (25%) • Innovation (25%) • Relative TSR (25%)

[1] LTPP = Long-Term Performance Plan
[2] Executive Committee members may elect to receive more of their Annual Incentive in equity instead of cash
[3] The Annual Incentive deferred in equity is granted under the Deferred Share Bonus Plan (DSBP)
[4] Financial measures are 3rd party sales (24%), operating income (18%) and free cash flow (18%)
[5] Strategic objectives are aligned with the most important priorities in any performance year
[6] CAGR = compound annual growth rate

Executive Committee compensation governance

A summary of the compensation decision authorization levels within the parameters set by the AGM is shown below, along with an overview of the risk management principles.

Decision on	Decision-making authority
Compensation of CEO	Board of Directors
Compensation of other Executive Committee members	Compensation Committee

Executive Committee compensation risk management principles

- Rigorous performance management process, with approval of targets and evaluation of performance for the CEO by the Board of Directors
- Balanced mix of short-term and long-term variable compensation elements
- Novartis values and behaviors are a key component of the Annual Incentive and are embedded in our culture
- Clawback and malus principles apply to all elements of the variable compensation
- Performance-vesting Long-Term Incentives only, with three-year cycles
- All variable compensation is capped at 200% of target
- Contractual notice period of 12 months
- Post-contractual noncompete period is limited to a maximum of 12 months from the end of employment. Resulting compensation, if applicable, will not exceed the average annual compensation (annual base salary plus Annual Incentive) of the previous three financial years
- Good and bad leaver provisions apply to variable compensation of leavers
- No severance payments or change-of-control clauses
- Share ownership requirements; no hedging or pledging of Novartis share ownership
- No loans granted to current or former members of the Executive Committee and the Board of Directors or to “Persons closely linked” to them

2023 CEO pay for performance – outcomes

Measure	Target	Performance	Target achievement
2023 Annual Incentive			
Financial performance* – 60% of total Annual Incentive, comprising:			
Group 3rd Party Sales (cc) (24%)	USD 49 897 million	52 282	Significantly above
Group Operating Income (cc) (18%)	USD 9 833 million	10 673	Significantly above
Group Free Cash Flow as a % of sales (cc) (18%)	24.6%	26.8%	Significantly above
Overall assessment of Group financial targets in constant currencies			**Significantly above**

* Group 3rd Party Sales, Group Operating Income and Group Free Cash Flow as a % of 3rd party sales include the continuing operations' financial performance for the year ended December 31, 2023 and the Sandoz discontinued operations' financial performance for the nine months ended September 30, 2023.

Strategic objectives – 40% of total Annual Incentive, comprising:	
Advance our new focused strategy	Above
Maintain growth momentum and ensure successful launches	Significantly above
Deliver pipeline and drive R&D productivity	Above
Execute on operational excellence & productivity	Significantly above
Strengthen foundations (ESG/ Human Capital)	Above
Overall assessment of strategic objectives	**Above**
Overall assessment of CEO balanced scorecard	**Significantly above**
TOTAL Annual Incentive:	**185% of target (payout range 0% – 200%)**

2021-2023 Long-Term Incentive			
Long-Term Performance Plan (LTPP)			
3rd Party Sales CAGR (25%)	5.8%	5.9%	102%
Core Operating Income CAGR (25%)	8.4%	12.3%	158%
Innovation (25%)			108%
Relative TSR (25%)		6th position	120%
TOTAL 2021-2023 LTPP cycle payout:		**122% of target (payout range 0% – 200%)**	

2023 total realized compensation for the CEO

The 2023 total realized compensation for the CEO was CHF 16 248 178. It includes payouts of the Annual Incentive and LTPP based on actual performance assessed for cycles concluding in 2023.

	2023 fixed pay and benefits		Variable pay: performance-related		
CHF	Annual base salary	Pension and other benefits	2023 Annual Incentive	2021-2023[1] LTPP cycle	**Total realized compensation**
Vasant Narasimhan	1 822 334	429 043	5 075 255	8 921 546	16 248 178

[1] The shown amount represents the underlying share value of the total number of shares vested (including dividend equivalents of CHF 759 557) to the CEO for the 2021-2023 LTPP performance cycle.

2023 Board of Directors compensation

All fees to Board members are delivered at least 50% in equity and the remainder in cash. Board members receive no variable or performance-based compensation, no share options, and no additional fees for attending meetings. Board members do not receive any company pension or insurance benefits.

CHF 000	2023-2024 AGM, annual fee
Compensation of Chair	3 800
Board membership	280
Vice-Chair	50
Lead Independent Director	20
Chair of the Audit and Compliance Committee	130
Chair of the Compensation Committee	90
Chair of the following committees: • Governance, Sustainability and Nomination Committee • Science & Technology Committee • Risk Committee	70
Membership of the Audit and Compliance Committee	70
Membership of the following committees: • Compensation Committee • Governance, Sustainability and Nomination Committee • Science & Technology Committee • Risk Committee	40

Total actual compensation earned by Board members in the 2023 financial year was CHF 3 803 784 for the Board Chair and CHF 4 787 933 for the other members of the Board.

Appendix

Performance indicators 80
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Performance indicators

Commentary on the indicators is provided in the section 'Our performance in 2023' on pages 26-64. Data for 2023 takes into account the spin-off of our Sandoz generics and biosimilars business. Figures for 2022 and 2021 have been restated to reflect the Sandoz spin-off (with the exception of the people performance indicators on page 81 and data related to political engagement on page 84). To read more about the definitions, methodologies and assumptions for the indicators assured by KPMG, see Reporting Criteria for Novartis in Society Integrated Report 2023 on our website.

Innovation performance indicators	**2023**	2022	2021	
Projects entering development pipeline [1]	**10**	5	7	Δ
Ongoing Phase III programs [2]	**41**	42	52	Δ
US FDA breakthrough therapy designations	**1**	1	3	Δ
Submissions (US, EU, Japan, China) [3]	**18**	24	34	Δ
Approvals (US, EU, Japan, China) [3]	**22**	23	21	Δ
New molecular entity (NME) approvals [4]	**1**	1	2	Δ
Investment in R&D for malaria and NTDs (USD millions)	**98.4**	77.2	51.5	Δ

Access to healthcare performance indicators	**2023**	2022	2021	
Global access strategy for all new medicines launched (%)	**100**	100	100	Δ
Patients reached (millions)				
Patients reached through access approaches [5]	**33.2**	35.6	37.3	Δ
Sustainability-linked bond (September 23, 2020 – September 23, 2028)				
Patients reached with strategic innovative therapies in LMICs	**1 568 574**	1 197 352	947 699	Δ
Patients reached through flagship programs	**28 722 966**	31 157 087	32 695 224	Δ

Δ 2023 data has been externally assured | n/r: previous years comparative data not presented

[1] Includes projects that have achieved first patient, first visit (FPFV) in confirmatory development (including projects entering confirmatory development from an acquisition or in-licensing). For 2021 data the previous methodology was applied i.e., projects entering confirmatory development from internal R&D activities only and FPFV has occurred in post-proof-of-concept stage after Biomedical Research
[2] Includes projects that have achieved FPFV in a Phase III study but not yet filed in the US, EU, Japan or China
[3] Includes small molecules or biologics; new fixed-dose combinations of existing active pharmaceutical ingredients (APIs); and new target indications, defined as new disease or new line of treatment (e.g., first line vs. second line)
[4] Includes NMEs such as small molecules, biologics; in the EU, new fixed-dose combinations of existing APIs
[5] Includes patients reached with medicines through Novartis Global Health, as well as patients reached through support programs, emerging market brands and donations

People performance indicators [1]	2023	2022	2021	
Headcount [2]	**78 407**	105 533	108 514	Δ
Full-time equivalent positions [2]	**76 057**	101 703	104 323	Δ
Turnover: voluntary / overall (%)	**7 / 17**	9 / 15	8 / 13	Δ
Annual learning hours per employee	**38**	42	52	Δ
Nationalities: overall / management	**143 / 113**	147 / 118	143 / 115	Δ
Employees represented by an employee representative body or covered by a collective bargaining agreement (%) [3]	**53**	48	47	Δ
Gender representation (% female / % male) [4]				
Overall headcount	**51 / 49**	51 / 49	51 / 49	Δ
Board of Directors	**31 / 69**	31 / 69	31 / 69	Δ
Executive Committee of Novartis	**18 / 82**	27 / 73	25 / 75	Δ
Novartis Top Leaders [5]	**40 / 60**	39 / 61	38 / 62	Δ
Senior management	**43 / 57**	41 / 59	39 / 61	Δ
Overall management	**48 / 52**	47 / 53	46 / 54	Δ
Revenue-producing roles [6]	**50 / 50**	51 / 49	51 / 49	Δ
STEM roles [7]	**47 / 53**	46 / 54	46 / 54	Δ
Pay equity (EPIC) %				
Employees covered by regular pay equity study [8]	**100**	82	76	Δ
Mean pay gap [9]	**– 0.9**	+3.1	+3.3	Δ
Recruitment without using historical salary data	**100**	84	80	Δ
Employees with pay transparency to external benchmarks [10]	**98**	45	38	Δ
Health and safety				
Lost-time injury and illness rate (per 200 000 hours worked): Novartis employees / third-party personnel	**0.13 / 0.18**	0.16 / 0.20	0.14 / 0.05	Δ
Total recordable case rate (per 200 000 hours worked): Novartis employees / third-party personnel [11]	**0.33 / 0.28**	0.31 / 0.28	0.25 / 0.13	Δ
Fatalities: Novartis employees / third-party personnel / contractors	**0 / 0 / 0**	0 / 0 / 0	0 / 0 / 0	Δ
Employees covered by an internally validated HSE system (%)	**99**	n/r	n/r	Δ

People performance indicators [1]	2023	2022	2021	
Gender representation by contract type (female / male) [4]				
Permanent	**38 930 / 36 932**	52 311 / 49 549	53 509 / 51 497	Δ
Temporary	**1 295 / 1 213**	1 881 / 1 709	1 854 / 1 539	Δ
Full-time	**36 044 / 37 313**	47 631 / 50 084	48 618 / 51 904	Δ
Part-time	**4 190 / 833**	6 573 / 1 175	6 755 / 1 133	Δ
Employees by region, by contract type (permanent / temporary) [4]				
US	**12 574 / 49**	14 496 / 49	14 834 / 45	Δ
Canada and Latin America	**3 735 / 41**	5 381 / 112	6 601 / 173	Δ
Europe	**34 365 / 2 130**	50 849 / 2 856	50 759 / 2 671	Δ
Asia / Africa / Australasia	**25 188 / 288**	31 338 / 557	32 581 / 489	Δ
Employees by age breakdown (female / male) [4]				
Employees aged ≤ 30	**6 664 / 5 551**	9 162 / 7 479	8 114 / 6 452	Δ
Employees aged 31-50	**26 006 / 24 893**	35 215 / 33 368	36 448 / 34 974	Δ
Employees aged >50	**7 564 / 7 702**	9 866 / 10 478	10 624 / 11 487	Δ

Δ 2023 data has been externally assured | n/r: previous years comparative data not presented

[1] The term "employees" refers to headcount data presented in the table. Comparative figures for 2022 and 2021 include Sandoz data
[2] "Headcount" reflects the total number of employees in payroll systems. "Full-time equivalent positions" adjusts headcount for employees employed for less than 100%
[3] Scope generally considers non-management employees only
[4] Fewer than 0.5% of employees have unknown classification in our system and some indicators therefore do not add up to 100% or to the total headcount absolute figure
[5] Novartis Top Leaders comprise the senior managers at Novartis, including the Executive Committee of Novartis
[6] Revenue-producing roles defined as the following Novartis job families: BD&L and strategic planning; commercial and general management; market access; marketing and sales
[7] STEM ("Science, technology, engineering and mathematics") roles defined as the following Novartis job families: R&D; Technical Operations; Information Technology & Technology Transformation
[8] Regular pay equity study performed using an internal calculation methodology or by external counsel in the US and Canada
[9] Calculation uses prior year salary data
[10] Headcount with pay transparency to external and/or internal benchmarks where available
[11] Data includes all work-related injuries and illnesses, whether leading to lost time or not

Environment performance indicators [1]

	2023	2022	2021	
New products meeting sustainable product design criteria (%) [2,3]	**51**	46	38	Δ
Supplier emissions covered by contracts that include environmental criteria (%) [2,4]	**57**	46	n/r	Δ
Energy use (million GJ)				
Energy use – on site and purchased	**6.2**	6.8	7.0	Δ
Purchased renewable energy [5]	**2.7**	2.5	2.1	Δ
Renewable energy generated on site	**0.1**	0.0	0.1	Δ
Greenhouse gas (GHG) emissions (1 000 tCO_2e) [6]				
Total Scope 1 emissions	**248.7**	263.2	276.8	Δ
Combustion and process	**174.6**	187.4	204.7	
Vehicles	**74.1**	75.8	72.1	
Total Scope 2 emissions (market-based)	**49.4**	106.6	195.7	Δ
Total Scope 2 emissions (location-based)	**200.8**	259.7	303.1	Δ
Total Scope 1 and Scope 2 emissions	**298.1**	369.8	472.5	
Total Scope 3 emissions [7]	**4 707.9**	4 872.4	4 657.4	Δ
Purchased goods and services	**3 760.4**	4 113.2	3 914.7	
Capital goods	**207.7**	181.6	205.2	
Fuel and energy related activities	**174.2**	167.5	171.6	
Upstream transportation and distribution	**188.1**	125.5	141.5	
Waste generated in operations	**11.9**	19.1	17.8	
Business travel [2]	**116.5**	84.6	30.9	
Employee commute	**98.8**	106.7	103.1	
Downstream transportation and distribution	**73.9**	24.8	24.7	
Use of sold products	**0.0**	0.0	0.0	
End-of-life treatment of sold products	**76.4**	49.4	47.9	
Total Scope 1, Scope 2 and Scope 3 emissions	**5 006.0**	5 242.2	5 129.9	
Carbon offsets [8]	**27.9**	30.7	– 34.7	Δ
GHG emissions intensity (tCO_2e)				
Scope 1 and Scope 2 per million USD sales	**6.6**	9.0	11.3	
Scope 1 and Scope 2 per full-time equivalent position (FTE)	**3.9**	4.6	6.1	
Volatile organic compounds (t)				
Halogenated volatile organic compounds	**0.3**	0.7	0.7	Δ
Non-halogenated volatile organic compounds	**116.0**	167.7	144.7	Δ
Water quality (%)				
Manufacturing sites meeting water quality standards [2,9]	**97**	97	94	Δ
High-risk suppliers assessed against water quality standards [2,10]	**88**	26	n/r	Δ

Environment performance indicators [1]

	2023	2022	2021	
Water usage (million m^3)				
Total water withdrawal [11]	**34.6**	35.7	33.5	Δ
Surface water	**9.6**	7.1	6.4	
Groundwater	**20.7**	23.4	22.5	
Third-party water	**4.3**	5.2	4.6	
Water collected from rain	**0.0**	0.0	0.0	
Total water discharged [12]	**34.7**	34.9	32.7	Δ
Discharged directly to surface water	**29.5**	29.3	27.2	
Total water consumption [13]	**5.2**	5.6	5.5	Δ
Packaging (%)				
Sites that have eliminated PVC in packaging [2,14]	**78**	93	93	Δ
Operational waste (1 000 t)				
Total waste generated	**34.9**	44.0	47.4	Δ
Total non-hazardous waste	**18.9**	19.3	20.3	
Total hazardous waste	**16.0**	24.7	27.1	
Total waste recycled	**16.5**	24.0	26.7	Δ
Non-hazardous waste recycled	**12.4**	12.9	13.5	
Hazardous waste recycled	**4.1**	11.1	13.2	
Total waste not recycled	**18.4**	20.2	20.8	Δ
Non-hazardous waste not recycled	**6.5**	6.4	6.8	
Incineration	**4.5**	4.7	4.8	
Landfilling	**1.6**	1.5	1.8	
Other disposal options	**0.4**	0.2	0.2	
Hazardous waste not recycled	**11.9**	13.6	13.9	
Incineration	**11.8**	13.2	13.6	
Landfilling	**0.0**	0.0	0.0	
Other disposal options	**0.1**	0.4	0.3	

Δ 2023 data has been externally assured | n/r: previous years comparative data not presented

[1] Environmental data for the current year is based on actuals from January to September, with estimates for October to December, unless indicated otherwise. Any significant deviations from actuals data against these estimates will be restated for 2023 in the Novartis in Society Integrated Report the following year. 2021 and 2022 reflect full year actuals data
[2] The indicator is calculated using 12-month actual data
[3] In-scope projects in development governed by the Innovation Management Board (IMB); products relate to either a new molecular entity or a new indication of an already commercially available brand
[4] Calculation uses 2022 actual Scope 3 supplier emissions data
[5] Reflects the electricity consumption where the associated greenhouse gases have been balanced with energy attribute certificates in accordance with RE100 technical criteria
[6] Novartis follows the GHG Protocol for calculating the greenhouse gas emissions
[7] Novartis discloses Scope 3 emissions categories that are considered relevant in 2023
[8] Carbon offsets are based on an estimate provided by third parties, and are not deducted from our emissions totals
[9] Water quality was assessed for compliance to water standard levels 1, 2, and 3 (training and legal compliance, quantification and risk assessment, PEC/PNEC <1 ("predicted environmental concentration" and "predicted no effect concentration"))
[10] For the purposes of this indicator, the term 'suppliers' within the indicator title reflects 'supplier manufacturing sites'
[11] Water withdrawal includes water used for cooling and returned to the environment without the need for additional treatment
[12] Water consumption and non-contact water withdrawn from the environment for cooling and returned directly to the environment after use
[13] Water discharged via treatment and water lost
[14] Decrease in performance driven by the inclusion of additional sites, brought into scope in 2023

Ethical business practices performance indicators

	2023	2022	2021	
Code of Ethics (%)				
Employees trained and certified	**97**	98	98	Δ
Grievance indicators: SpeakUp Office [1,2]				
Total cases	**2 628**	2 126	1 712	Δ
Higher-risk cases [3]	**594**	342	155	
Higher-risk allegations [4]	**717**	533	281	Δ
Higher-risk allegations substantiated	**447**	239	116	Δ
Fraud / asset misappropriation	**6**	19	7	
Expense fraud	**5**	4	5	
Books and records, accounting irregularities	**0**	0	2	
Professional practices	**15**	32	26	
Bribery, kickbacks	**1**	0	1	
Discrimination and sexual harassment	**11**	5	7	
Retaliation	**2**	3	1	
Other employee relations issues	**10**	9	15	
Conflict of interest	**9**	13	16	
IT	**246**	99	9	
Quality assurance / data integrity	**6**	6	2	
Data privacy	**110**	28	5	
Competition	**3**	0	0	
Company confidential / trade secret information	**2**	2	1	
Other	**21**	19	19	
Dismissals and resignations related to misconduct	**83**	98	52	Δ

Supply chain performance indicators

	2023	2022	2021	
Suppliers risk assessed [5]	**7 756**	10 346	11 248	Δ
Anti-bribery	**1 130**	1 393	2 066	
Animal welfare	**9**	18	9	
Health, safety and environment	**188**	293	472	
Information security and data privacy	**3 788**	6 302	5 336	
Labor rights	**4 362**	4 982	6 256	
Quality GMP [6]	**260**	593	847	
Actions taken				
Suppliers audited	**56**	80	79	Δ
Suppliers with remediation action agreed	**190**	359	853	Δ
Supplier engagements stopped due to risk assessment outcomes	**8**	17	37	Δ
Human and labor rights				
Non compliance cases	**136**	n/r	n/r	Δ
Corrective and preventive actions remediated (%)	**65**	n/r	n/r	Δ

Animal welfare

	2023	2022	2021	
Total animals involved in research [7]	**320 691**	332 668	353 772	Δ
Rodents	**266 909**	261 256	265 111	
Zebrafish	**53 281**	70 826	88 229	
Other species	**501**	586	432	

Δ 2023 data has been externally assured | n/r: previous years comparative data not presented

[1] Grievance indicators may change retroactively as cases may be reassessed in the course of the case life cycle. As a result, we may restate data from previous years
[2] "Higher-risk allegations substantiated" may include allegations from previous years. "Higher-risk cases" and "Higher-risk allegations" refer to allegations reported within each calendar year
[3] A higher-risk case applies where a senior leader or manager is involved and/or where there is a high level of severity of the allegation
[4] The number of allegations is higher than the number of cases as a case can have more than one allegation
[5] Assessments are undertaken on new suppliers, existing suppliers providing new products or services (including those from additional supplier locations), or periodically. Not all suppliers trigger risk assessments and one supplier can trigger more than one assessment depending on the risk areas involved
[6] Risk area "Quality GMP" (good manufacturing practice) 2022 figure includes only January to October data
[7] Data refers to animals involved for internally conducted studies. For data on animals needed for externally conducted studies, please see our corporate website

Political engagement [1]

	2023	2022	2021	
Lobbying expenditure (USD thousands)				
US	**4 804**	4 820	6 580	Δ
EU	**2 259**	1 827	2 274	Δ
Political contributions (USD thousands)				
Global	**1 155**	1 150	1 131	Δ
US (Corporate)	**492**	478	498	
US (Political Action Committee) [2]	**263**	274	199	
Switzerland	**395**	346	388	
Australia	**0**	48	43	
Japan	**5**	4	3	
Memberships in trade associations (USD thousands)				
Global	**59 849**	60 600	64 700	Δ

Product quality and patient safety performance indicators

	2023	2022	2021	
GxP audits				
Total audits executed	**926**	1 034	886	Δ
Internal [3]	**81**	106	88	
External [4]	**845**	928	798	
Regulatory authorities				
Total inspections	**113**	106	89	Δ
Inspections found to be acceptable (%)	**99.1**	100.0	98.9	Δ
Recalls				
Total recalls	**10**	7	9	Δ
Class I recalls	**1**	0	0	
Class II recalls	**8**	6	6	
Class III recalls	**1**	1	2	

Δ 2023 data has been externally assured

[1] Data includes political engagement expenditure for Sandoz for the periods 2021, 2022 and January to September 2023
[2] The US Political Action Committee is a voluntary and nonpartisan organization
[3] Total number of audits performed on facilities owned by Novartis
[4] Total number of audits performed on GxP suppliers to Novartis

Disclosures in accordance with Art. 964*b* Swiss Code of Obligations

The following sections comprise the report on nonfinancial matters in accordance with Art. 964*b* of the Swiss Code of Obligations. The advisory vote on the report at the annual general meeting is limited to the content of these sections.

Art. 964*b* content requirement	**Section**	**Reference**
General information required to understand our business	**Our operating environment and strategy**	**p. 12**
Description of the business model	**We are Novartis**	**p. 7**
Environmental matters (incl. CO_2 goals)	**Environmental sustainability**	**p. 50**
Social issues	**Innovation**	**p. 31**
	Access to medicines	**p. 39**
	Product quality and patient safety	**p. 61**
	Maintain high ethical standards	**p. 54**
	Complying with laws, regulations and controls	p. 55
	Encouraging employees to speak up	p. 58
	Political engagement	p. 59
Employee-related issues	**Our people culture and values**	**p. 11**
	Unleash the power of our people	**p. 45**
Respect for human rights	**Maintain high ethical standards**	**p. 54**
	Managing our supply chain responsibly	p. 56
	Upholding our commitment to human rights	p. 57
	Encouraging employees to speak up	p. 58
Combating corruption	**Maintain high ethical standards**	**p. 54**
	Encouraging employees to speak up	p. 58
	Strengthening our ethical culture	p. 55
	Complying with laws, regulations and controls	p. 55
	Not tolerating any form of bribery	p. 56
Material risks	**Our material issues**	**p. 16**
	Risk management	**p. 71**
Main performance indicators	**Performance indicators**	**p. 80**
References to national, European or international regulations	**Our approach to reporting**	**p. 3**
Coverage of subsidiaries	**Our approach to reporting**	**p. 3**

Global Reporting Initiative (GRI) index

The Novartis GRI index aligns with the latest global standards for sustainability impacts (GRI Standards) that are relevant to our business. Data and information referenced are sourced from the Novartis 2023 annual reporting suite (Novartis in Society Integrated Report and Annual Report/Form 20-F), our corporate website, as well as Novartis public policies and positions. We also assess our contribution to the UN Sustainable Development Goals (SDGs) mapped against our activities (based on the latest GRI guidance).

Disclosure number	Disclosure title	UN SDG	Reference
GRI 1	**Foundation 2021**		
GRI 2	**General Disclosures 2021**		
The organization and its reporting practices			
2-1	Organization details		p. 7 p. 10
2-2	Entities included in the organization's sustainability reporting		p.3 Reporting Criteria
2-3	Reporting period, frequency and contact point		p.3
2-4	Restatements of information		p.3
2-5	External assurance		p.98–99
Activities and workers			
2-6	Activities, value chain and other business relationships		p. 7 p. 20 p. 23–24
2-7	Employees	8 10	p. 11 p. 45–49 p. 81
2-8	Workers who are not employees	8	p. 47–49 p. 81
Governance			
2-9	Governance structure and composition	5 16	p. 66–68
2-10	Nomination and selection of the highest governance body	5 16	p. 66 Annual Report
2-11	Chair of the highest governance body	16	p. 66 Annual Report
2-12	Role of the highest governance body in overseeing the management of impacts	16	p. 68
2-13	Delegation of responsibility for managing impacts		p. 68
2-14	Role of the highest governance body in sustainability reporting		p. 67–68
2-15	Conflicts of interest	16	Conflict of Interest Guideline
2-16	Communication of critical concerns		p. 59–60 p. 83
2-17	Collective knowledge of the highest governance body		p. 67, 91 Annual Report
2-18	Evaluation of the performance of the highest governance body		p. 68, 76 Annual Report
2-19	Remuneration policies		p. 76
2-20	Process to determine remuneration		p.77–78
2-21	Annual total compensation ratio		Confidentiality constraints: Novartis does not publicly disclose this data.
Strategy, policies and practices			
2-22	Statement on sustainable development strategy		p. 5–6
2-23	Policy commitments	16	p. 55–58
2-24	Embedding policy commitments		p. 55–58
2-25	Processes to remediate negative impacts		p. 48 p. 51 p. 57 p. 59–60
2-26	Mechanisms for seeking advice and raising concerns	16	p. 59 p. 83
2-27	Compliance with laws and regulations		p. 55–58
2-28	Membership associations		p. 55–58
Stakeholder engagement			
2-29	Approach to stakeholder engagement		p. 20
2-30	Collective bargaining agreements	8	p. 48–49
GRI 3	**Material Topics 2021**		
3-1	Process to determine material topics		p. 16
3-2	List of material topics		p. 16
3-3	Management of material topics		p. 26–65
GRI 201	**Economic Performance 2016**		
201-1	Direct economic value generated and distributed	8 9	p. 27–31
201-2	Financial implications and other risks and opportunities due to climate change	13	p. 90–97
201-3	Defined benefit plan obligations and other retirement plans		Annual Report

Disclosure number	Disclosure title	UN SDG	Reference
GRI 203	**Indirect Economic Impacts 2016**		
203-2	Significant indirect economic impacts	1 3 8	p. 22–24
GRI 205	**Anti-corruption 2016**		
205-1	Operations assessed for risks related to corruption	16	p. 56–57 p. 83
205-2	Communication and training about anti-corruption policies and procedures	16	p. 56–57
205-3	Confirmed incidents of corruptions and actions taken	16	p. 60
GRI 206	**Anti-competitive Behavior 2016**		
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	16	p. 59 Annual Report
GRI 207	**Tax 2019**		
207-1	Approach to tax		Novartis Tax Policy Statement
207-2	Tax governance, control, and risk management	1 10 17	Novartis Tax Policy Statement
207-3	Stakeholder engagement and management of concerns related to tax	1 10 17	Novartis Tax Policy Statement
207-4	Country-by-country reporting		Confidentiality constraints: Novartis does not publicly disclose this data.
GRI 301	**Materials 2016**		
301-1	Materials used by weight or volume	8 12	p. 82
301-2	Recycled input materials used	8 12	p. 53
301-3	Reclaimed products and their packaging materials	8 12	p. 53
GRI 302	**Energy 2016**		
302-1	Energy consumption within the organization	7 8 12 13	p. 52 p. 82
302-2	Energy consumption outside of the organization	7 8 12 13	p. 52 p. 82
302-3	Energy intensity	7 8 12 13	p. 82
302-4	Reduction of energy consumption	7 8 12 13	p. 82
302-5	Reductions in energy requirements of products and services	7 8 12 13	p. 52

Disclosure number	Disclosure title	UN SDG	Reference
GRI 303	**Water and Effluents 2018**		
303-1	Interactions with water as a shared resource	6 12	p. 52–53
303-2	Management of water discharge-related impacts	6	p. 52–53
303-3	Water withdrawal	6	p. 52–53, 82
303-4	Water discharge	6	p. 52–53, 82
303-5	Water consumption	6	p. 52–53, 82
GRI 305	**Emissions 2016**		
305-1	Direct (Scope 1) GHG emissions	3 12 13 14 15	p. 52 p. 82
305-2	Energy indirect (Scope 2) GHG emissions	3 12 13 14 15	p. 52 p. 82
305-3	Other indirect (Scope 3) GHG emissions	3 12 13 14 15	p. 52 p. 82
305-4	GHG emissions intensity	13 14 15	p. 82
305-5	Reduction of GHG emissions	13 14 15	p. 19 p. 53
305-6	Emissions of ozone-depleting substances (ODS)	3 12	Environmental performance indicators
305-7	Nitrogen oxides (Nox), sulfur oxides (Sox), and other significant air emissions	3 12 14 15	Environmental performance indicators
GRI 306	**Waste 2020**		
306-1	Waste generation and significant waste-related impacts	3 6 11 12	p. 53 p. 82
306-2	Management of significant waste-related impacts	3 6 8 11 12	p. 53 p. 82
306-3	Waste generated	3 6 11 12 15	p. 82
306-4	Waste diverted from disposal	3 11 12	p. 82
306-5	Waste directed to disposal	3 6 11 12 15	p. 82
GRI 308	**Supplier Environmental Assessment 2016**		
308-1	New suppliers that were screened using environmental criteria		p. 56 p. 83
308-2	Negative environmental impacts in the supply chain and actions taken		p. 51–52

Disclosure number	Disclosure title	UN SDG	Reference
GRI 401	**Employment 2016**		
401-1	New employee hires and employee turnover	5 8 10	p. 48
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	3 5 8	p. 46–47
401-3	Parental leave	5 8	p. 47
GRI 403	**Occupational Health & Safety 2018**		
403-1	Occupational health and safety management system	8	p. 47–48 p. 81
403-2	Hazard identification, risk assessment, and incident investigation	8	p. 47–48
403-3	Occupational health services		p. 47–48
403-4	Worker participation, consultation, and communication on occupational health and safety	8 16	HSE policy
403-5	Worker training on occupational health and safety	8	HSE policy
403-6	Promotion of worker health	3	p. 47–48
403–7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	8	p. 47–48
403-8	Workers covered by an occupational health and safety management system	8	p. 48
403-9	Work-related injuries	3 8 16	p. 48
403-10	Work-related ill health	3 8 16	p. 48
GRI 404	**Training and Education 2016**		
404-1	Average hours of training per year per employee	4 5 8 10	p. 48
404-2	Programs for upgrading employee skills and transition assistance programs	8	p. 46
404-3	Percentage of employees receiving regular performance and career development reviews	5 8 10	p. 46
GRI 405	**Diversity and Equal Opportunity 2016**		
405-1	Diversity of governance bodies and employees	5 8	p. 46–48 Annual Report
405-2	Ratio of basic salary and remuneration of women to men	5 8 10	p. 48
GRI 406	**Non-discrimination 2016**		
406-1	Incidents of discrimination and corrective actions taken	5 8	p. 83
GRI 407	**Freedom of Association and Collective Bargaining 2016**		
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	8	p. 48–49 p. 81

Disclosure number	Disclosure title	UN SDG	Reference
GRI 408	**Child Labor 2016**		
408-1	Operations and suppliers at significant risk for incidents of child labor	5 8 16	p. 60 Child Labor Due Diligence Report
GRI 409	**Forced or Compulsory Labor 2016**		
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	5 8	p. 57 UK and Australia Joint Modern Slavery Statement 2022
GRI 410	**Security Practices 2016**		
410-1	Security personnel trained in human rights policies or procedures	16	p. 57 UK and Australia Joint Modern Slavery Statement 2022
GRI 414	**Supplier Social Assessment 2016**		
414-1	New suppliers that were screened using social criteria	5 8 16	p. 56–57 p. 83
414-2	Negative social impacts in the supply chain and actions take	5 8 16	p. 60
GRI 415	**Public Policy 2016**		
415-1	Political contributions	16	p. 58–59 p. 84
GRI 416	**Customer Health and Safety 2016**		
416-1	Assessment of the health and safety impacts of product and service categories		p. 62–63
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	16	p. 62–63
GRI 417	**Marketing and Labeling 2016**		
417-1	Requirements for product and service information and labeling	12	p. 61–63
417-2	Incidents of non-compliance concerning product and service information and labeling	16	p. 61–63
417-3	Incidents of non-compliance concerning marketing communications	16	p. 83
GRI 418	**Customer Privacy 2016**		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	16	p. 83

Sustainability Accounting Standards Board (SASB) index

The Novartis SASB index aligns with the Biotechnology & Pharmaceuticals Sustainability Accounting Standard (industry standard | version 2023-06). Data and information referenced are sourced from the Novartis 2023 annual reporting suite (Novartis in Society Integrated Report and Annual Report/Form 20-F), our corporate website, Novartis public policies and positions, and public databases or selected materials from third parties where applicable.

SASB indicator		Reference
Safety of Clinical Trial Participants		
HC-BP-210a.1	Discussion, by world region, of management process for ensuring quality and patient safety during clinical trials	p. 33–34 p. 62 Novartis Commitment to Patients and Caregivers Human Rights Commitment Statement Ethics in Clinical Trials
HC-BP-210a.2	Number of FDA Sponsor Inspections related to clinical trial management and pharmacovigilance that resulted in: (1) Voluntary Action Indicated (VAI) and (2) Official Action Indicated (OAI)	p. 63 ESG Index
HC-BP-210a.3	Total amount of monetary losses as a result of legal proceedings associated with clinical trials in developing countries	All significant legal proceedings are disclosed within the Annual Report and accounts (Annual Report).
Access to Medicines		
HC-BP-240a.1	Description of actions and initiatives to promote access to health care products for priority diseases and in priority countries as defined by the Access to Medicine Index	p. 39 Access to Medicines Index
HC-BP-240a.2	List of products on the WHO List of Prequalified Medicinal Products as part of its Prequalification of Medicines Programme (PQP)	Novartis has malaria products on the WHO List of Prequalified Medicinal Products.
Affordability & Pricing		
HC-BP-240b.1	Number of settlements of Abbreviated New Drug Application (ANDA) litigation that involved payments and/or provisions to delay bringing an authorized generic product to market for a defined time period	not reported
HC-BP-240b.2	Percentage change in: (1) average list price and (2) average net price across U.S. product portfolio compared to previous year	not reported
HC-BP-240b.3	Percentage change in: (1) list price and (2) net price of product with largest increase compared to previous year	not reported
Drug Safety		
HC-BP-250a.1	List of products listed in the Food and Drug Administration's (FDA) MedWatch Safety Alerts for Human Medical Products database	Available via FDA Adverse Event Reporting website
HC-BP-250a.2	Number of fatalities associated with products as reported in the FDA Adverse Event Reporting System	Available via FDA Adverse Event Reporting website
HC-BP-250a.3	Number of recalls issued, total units recalled	p. 63
HC-BP-250a.4	Total amount of product accepted for takeback, reuse, or disposal	p. 53
HC-BP-250a.5	Number of FDA enforcement actions taken in response to violations of current Good Manufacturing Practices (cGMP), by type	p. 63

SASB indicator		Reference
Counterfeit Drugs		
HC-BP-260a.1	Description of methods and technologies used to maintain traceability of products throughout the supply chain and prevent counterfeiting	p. 64 Novartis Position on Falsified Medical Products
HC-BP-260a.2	Discussion of process for alerting customers and business partners of potential or known risks associated with counterfeit products	p. 64
HC-BP-260a.3	Number of actions that led to raids, seizure, arrests, and/or filing of criminal charges related to counterfeit products	p. 64
Ethical Marketing		
HC-BP-270a.1	Total amount of monetary losses as a result of legal proceedings associated with false marketing claims	Annual Report
HC-BP-270a.2	Description of code of ethics governing promotion of off-label use of products	p. 55 Code of Ethics Doing Business Ethically policy
Employee Recruitment, Development & Retention		
HC-BP-330a.1	Discussion of talent recruitment and retention efforts for scientists and research and development personnel	p. 46 Careers Research & Development US Biomedical Research Internship Programs
HC-BP-330a.2	(1) Voluntary and (2) involuntary turnover rate for: (a) executives/senior managers, (b) midlevel managers, (c) professionals, and (d) all others	p. 48 p. 81
Supply Chain Management		
HC-BP-430a.1	Percentage of (1) entity's facilities and (2) Tier I suppliers' facilities participating in the Rx-360 International Pharmaceutical Supply Chain Consortium audit program or equivalent third-party audit programs for integrity of supply chain and ingredients	p. 60 Novartis Quality Management System (QMS) External Partner Risk Management (EPRM)
Business Ethics		
HC-BP-510a.1	Total amount of monetary losses as a result of legal proceedings associated with corruption and bribery	Annual Report
HC-BP-510a.2	Description of code of ethics governing interactions with health care professionals	p. 55 Code of Ethics Doing Business Ethically policy
Activity Metrics		
HC-BP-000.A	Number of patients treated	p. 24 p. 44
HC-BP-000.B	Number of drugs (1) in portfolio and (2) in research and development (Phases 1-3)	(1) Novartis products (2) p. 33

Task Force on Climate-related Financial Disclosures (TCFD)

Novartis started implementing the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) in 2020, and reports on these annually.[1] We have established governance, strategy and risk management processes, as well as metrics, that align our approach to environmental sustainability to the TCFD recommendations.

In 2023, we further strengthened our quantitative assessment of climate-related risks and opportunities with additions, including medium emissions pathways, new risks and opportunities, and an analysis of the supply chain. We will continue to strengthen our disclosure on climate-related risks and opportunities in 2024, when the Swiss Climate Ordinance becomes effective.

Governance

Board oversight

Ultimate responsibility for our climate strategy lies with the Novartis Board of Directors. The Board has delegated certain duties and responsibilities related to climate change and environmental sustainability to some of its committees. The committees report back to the Board of Directors on their activities and findings.

The primary responsibility for the oversight of climate-related strategy and governance is held by the Governance, Sustainability and Nomination Committee (GSNC), which consists of five non-executive Board members. The GSNC's role with regards to sustainability is to:

- Oversee the company's strategy and governance on sustainability, including environmental sustainability
- Review and discuss the company's performance against relevant environmental, social and governance (ESG) reporting frameworks and indices at least once a year
- Review and discuss emerging trends with regards to sustainability
- Advise the Board and provide counsel to management on ESG matters (including climate)

In 2023, environmental topics, including climate, were brought to the attention of the GSNC four times, the Audit and Compliance Committee (ACC) four times, the Risk Committee once, and the full Board once. For the GSNC, this included an update from management on progress against targets (ESG scorecard, including climate-related targets) at each of its three regular meetings, and a discussion on the annual review of the environmental sustainability strategy. In addition, an education session was jointly organized by the GSNC and the ACC, with the full Board taking part, focusing on the evolving ESG regulatory landscape, including climate regulation.

In addition to the GSNC, several other Board committees have responsibilities that relate to environmental sustainability. The ACC is responsible for internal controls and all compliance processes and procedures, including those related to climate. The Risk Committee oversees the company's risk management (including both physical and transition climate risk). The Compensation Committee determines how ESG topics (including climate) are incorporated into compensation plans for members of the Executive Committee of Novartis (ECN).

Eight members of the Board (61%) have competencies on ESG (including climate-related skills). We assess Board-level competence through criteria that include: (a) whether the respective Board member has comprehensive/expert understanding of ESG- and climate-related topics (educational background and professional experience); and (b) whether the respective

Main governance and management bodies with climate-related responsibilities

[1] This disclosure is based on the report 'Recommendations of the Task Force on Climate-related Financial Disclosures' (June 2017) and the annex 'Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures' (October 2021), and follows both cross-sectoral and sector-specific recommendations, as well as the 'Guidance on Metrics, Targets, and Transition Plans' (October 2021)

Board member has led an organization to adopt ESG and climate goals or shape external sustainability leadership initiatives (personal achievements).

Management oversight

The Chief Executive Officer (CEO) leads the ECN and is responsible for implementing the environmental sustainability strategy and the company's climate, water and waste targets. The CEO chairs the ECN-level ESG Committee, which meets every two months to oversee ESG performance and make decisions in key ESG areas where needed. At each meeting, the ESG Committee is informed both on the progress against climate and other targets, and readiness for upcoming regulatory requirements (including climate regulation), in addition to receiving updates on selected topics. In 2023, topics discussed by the ESG Committee included our transition path to net zero, progress on our ESG performance, opportunities to optimize the implementation of our ESG strategy, and upcoming ESG-related regulatory requirements.

Reporting to the CEO, the President, Operations, is responsible for leading the delivery of environmental sustainability targets and for the operational aspects of reaching the companywide 2025, 2030 and 2040 climate targets.

Within our Operations organizational unit, the Environmental Sustainability Operations team handles the implementation of the strategy, including our pathway to net zero, through operational projects and corresponding budgeting.

The Chief Ethics, Risk & Compliance (ERC) Officer, who is also a member of the ECN, is responsible for ensuring climate risk is integrated into our Enterprise Risk Management (ERM) processes. The Chief ERC Officer reports quarterly to the Risk Committee, including on climate-related physical and transition risks as appropriate.

Additionally, the Head of Corporate Affairs, a permanent guest of the ECN and direct report to the CEO, oversees the company's Global Health and Sustainability team, which is responsible for integrating ESG matters into the overall business.

Within this team, the Sustainability and ESG Office (SEO) coordinates ESG initiatives across the company and oversees the development of the Novartis ESG strategy, including the environmental sustainability strategy, as well as the company's ESG-related external and internal engagement. It works across departments to address regulatory and ESG rating requirements, of which climate requirements represent a large part.

The SEO serves as the secretariat for the CEO-chaired ESG Committee and reports on a number of topics at each meeting. Climate-related topics were discussed at five of six meetings in 2023. Additionally, the SEO organizes quarterly meetings of the ESG Leaders Forum, whose members report to the ECN and are responsible for co-creating the ESG strategy. The SEO works on cross-functional projects to integrate climate actions within the organization.

Link to compensation

The CEO has five equally weighted strategic objectives across key priority areas, including targets related to ESG matters. Performance against these strategic objectives accounts for 40% of the CEO's total annual incentive (60% depend on financial performance measures related to the company). Environmental sustainability is included within the strategic objective 'Strengthen foundations (ESG/Human Capital)'. This includes performance against the company's absolute emissions reduction targets and other environmental sustainability targets. See page 78 for information on our 2023 performance and the related compensation outcomes.

Performance measures for other members of the ECN include emissions reduction targets where relevant for their area of responsibility. See the Annual Report 2023 for more details on the executive remuneration policy and 2023 compensation.

Strategy

Our governance structure is designed to integrate climate topics into our strategy, business model and financial planning process. Climate risks and opportunities are a core part of a five-year ESG strategy roadmap endorsed by the ESG Committee. Key 2023 projects include our net-zero transition plan (see page 97), strengthening our Scope 3 data accounting and reporting, evaluating our strategy for biodiversity, and implementing new regulatory requirements on climate reporting.

Financial planning

Novartis applies a carbon shadow price of USD 100/tCO_2e in decisions on strategic capital expenditure. This price is reviewed annually. In addition, all capital expenditure over USD 20 million requires an environmental sustainability assessment to determine its potential impact on the climate and/or the organization's exposure to climate risks. Some parts of the organization apply lower thresholds — for instance, USD 5 million for manufacturing capital expenditure.

Beyond the shadow price of carbon, we factor climate change risks and opportunities into our financial planning by means of budgeting to achieve our climate targets. In 2023, Novartis deployed capital expenditure of USD 25.5 million on environmental projects to reduce consumption of natural resources, improve energy efficiency, and adopt renewable energy solutions across our operations. This spending is aligned with our long-term target for net-zero emissions by 2040, and our short-term target for carbon neutrality in our own operations by 2025.

Climate resilience

We conduct an annual climate scenario analysis to assess climate-related risks and opportunities (CRROs). In 2023, we selected our CRROs (four physical risks, three transition risks and two transition opportunities) from a list of risks and opportunities based on: our previous assessments (comprising 50+ risks and opportunities selected following a review of scientific literature); benchmarking with other healthcare companies; and screening across both acute and chronic physical risks

using Munich Re's Location Risk Intelligence climate tool. The analysis was discussed in workshops with relevant internal stakeholders to ensure it is most relevant to our sites and day-to-day operations.

In 2023, we further strengthened the process in the following areas, in accordance with best practice guidance:

- **Medium emissions pathways**: We enhanced our analysis with the Intergovernmental Panel on Climate Change's (IPCC) SSP2-4.5 scenario for physical risk, and the International Energy Agency's (IEA) Announced Pledges Scenario for transition risk.

- **Site coverage**: For physical risks to our own operations, we expanded site coverage to all manufacturing sites, excluding only radioligand therapy manufacturing sites. We plan to further expand site coverage in future TCFD analyses. For transition risks and opportunities, the coverage also includes our R&D labs and commercial offices.

- **Suppliers**: For selected CRROs, we calculated how we may be affected by climate change through our upstream supply chain.[1] We expanded physical risk exposure assessments to our manufacturing suppliers, as the continuation of our production processes depends on the timely delivery of key materials. We included Scope 3 emissions in the assessment of our carbon pricing transition risk, as more than 90% of carbon emissions associated with our business are generated outside our own operations. Expanding the scope of our assessment to include suppliers allows us to build a more resilient supply chain and be aware of our suppliers' potential exposure to climate risks.

- **Abatement**: For selected CRROs, we modelled the exposure of our own operations and then compared this against a scenario in which we invest in risk mitigation actions in line with our targets.

- **Additional CRROs**: We added CRROs to our disclosure based on risk screening and peer benchmarking. Additional CRROs included wildfire, sea level rise[2], and changing demand for healthcare. When we modelled risk exposure to wildfire and sea-level rise, however, a very low number of sites were affected and the financial impact was deemed immaterial.[3]

To conduct our analysis, we used the scenarios listed on pages 93 and 95, based on data from the IPCC and the IEA.

We typically assess all risks and opportunities on a short-, medium- and long-term basis and define these as:

- Short-term: until 2025, covering our carbon-neutrality target for Scopes 1 and 2 from energy
- Medium-term: between 2026 and 2030, covering our near-term target across Scopes 1, 2 and 3
- Long-term: from 2031 to 2050, covering our long-term net-zero target (2040), as well as the upper end of our scenario analysis (2050)

For the quantitative scenario analysis, we assessed physical risks on a 2030 and 2050 time horizon, in line with IPCC scenarios, and transition risks and opportunities on a 2030, 2040 and 2050 horizon, in line with IEA scenarios.

Results from our 2023 scenario analysis show that: (a) climate change potentially presents both risks and opportunities for Novartis; and (b) the company's current strategy and financial position remain resilient to the possible impacts of climate change. The results also show that meeting our targets on emissions reductions, energy use and the circular economy can substantially lower our risks and increase our opportunities.

Financial quantification

The financial ranges that we apply to determine substantive impact for the aggregate climate risk are less than 1% (Insignificant), 1-1.5% (Minor), more than 1.5–2% (Moderate), more than 2–3% (Major) and more than 3% (Severe) of sales.[4] For the analysis of individual climate hazards in the scenario analysis, a substantive financial impact of more than 1% on the corresponding line item in the financial statement has been used.[5] Only carbon pricing was found to be over the 1% threshold in a worst-case scenario for 2050 (SSP5-8.5).[6]

Total potential physical and transition risk impact (own operations)

	2030	2050
Sales loss potential	USD 43 – 89 million	USD 93 – 149 million
Operating cost increase potential[7]	USD 26 – 69 million	USD 34 – 161 million
Asset value at risk	USD 2.8 – 2.9 million	USD 2.8 – 3.0 million

Total potential transition opportunity impact (own operations)

Sales increase potential[8]	USD -7 – 31 million	USD 33 – 240 million
Operating cost savings potential	USD 6 – 39 million	USD 29 – 59 million

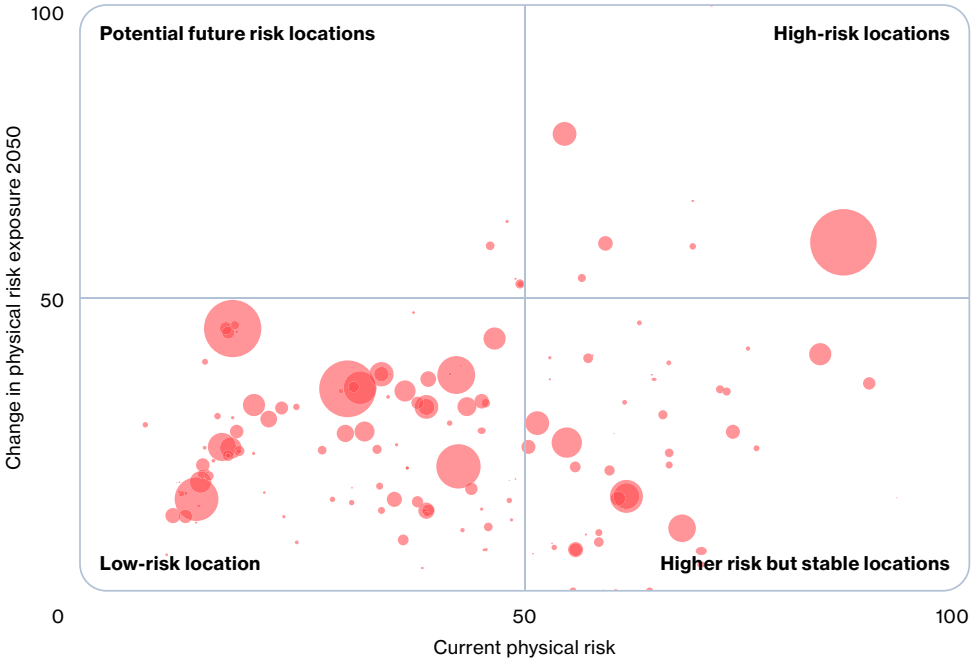
[1] In our first year of modelling the supply chain exposure to physical risks, we included all manufacturing suppliers (around 180 sites across 35 countries), and for the carbon pricing transition risk we focused on Scope 3 categories 1, 2 and 4.
[2] More frequent and severe wildfires may cause serious damage to infrastructure and equipment and block key access routes, while coastal flooding caused by sea level rise may submerge and damage infrastructure and equipment, as well as disrupt logistics.
[3] While the impact on our own sites was deemed immaterial overall, we found manufacturing suppliers for Novartis are partly exposed to these risks, which are included in the combined physical risk exposure of these suppliers (see graph page 94).
[4] To determine the overall risk classification, ERM also considers nonfinancial factors, such as reputational or regulatory impacts.
[5] Results of the financial quantification were assessed against net sales to third parties, cost of goods sold, and total property plant and equipment, as disclosed in our Annual Report/Form 20-F.
[6] Assuming no abatement measures are implemented related to operating cost impact potential. With abatement measures in place, in line with our environmental sustainability strategy, no substantive impact is observed.
[7] Assumes no abatement measures are in place (i.e., it excludes existing abatement measures in place, including measures to address the carbon pricing risk).
[8] Excluding impact from Global Health pipeline due to differences in methodology (impact per USD million of potential future sales). See page 96.

Physical risks

Scenarios for physical risk analysis[1]	Low emissions pathway:IPCC SSP1-2.6 (central estimate for temperature rise by 2100 +1.8°C)	Medium emissions pathway: IPCC SSP2-4.5 (central estimate for temperature rise by 2100 +2.7°C)	High emissions pathway: IPCC SSP5-8.5 (central estimate for temperature rise by 2100 +4.4°C)
Time horizon	2030, 2050		
Data sources	Intergovernmental Panel on Climate Change (IPCC), Munich Re's Location Risk Intelligence climate tool, Climate Impact Explorer, and internal data		
Coverage and assumptions	All manufacturing sites excluding those for radioligand therapy; around 180 Novartis manufacturing suppliers across 35 countries (supply chain exposure) – results show % supplier spend exposed to very high risk.[2] The model assumes no mitigation or adaptation measures are in place, except where otherwise indicated. For the supply chain, the model assumes supplier portfolio and spend remain unchanged. Acute risks refer to event-driven risks, while chronic risks refer to longer-term shifts in climate patterns.		

Physical risk	Description and approach	Potential financial impact in 2030	Potential financial impact in 2050	Risk treatment
Chronic				
Flood and precipitation	Increased flooding or heavy rainfall could lead to disruption or delays in manufacturing processes (e.g., through property and infrastructure damage or repairs, fresh-water availability etc.) and interruptions in the supply and distribution of products. To calculate potential financial impact to operations, we estimated the additional number of days of business interruption expected based on projected changes in maximum rainfall over five days in combination with flash flood hazard-zone mapping. For river flood risk we also applied annual Climate Expected Loss (CEL)[3] rates to net asset values for each site to estimate the expected loss per year due to physical damage to buildings (asset value at risk).	**Own operations (sales loss potential)** USD 19 – 39 million **Own operations (asset value at risk)**[4] USD 2.7 – 2.8 million **Manufacturing supply chain spend exposed to very high risk** Precipitation stress: 27.3 – 27.5% River flood: 25.4 – 25.6%	**Own operations (sales loss potential)** USD 53 – 78 million **Own operations (asset value at risk)**[4] USD 2.7 – 2.9 million **Manufacturing supply chain spend exposed to very high risk** Precipitation stress: 31.6 – 31.9% River flood: 25.3 – 25.4%	We are implementing water management practices to reduce the risk of flooding, such as constructing retention basins, installing rain gardens and improving stormwater drainage.
Water stress and drought	Water stress and drought could impact sales, should they lead to temporary site closures. Higher water costs, lower efficiency or a shutdown of water-intensive production processes caused by such events could also impact sales. We used Consecutive Dry Days (CDDs) sourced from the IPCC Working Group I (WGI) Atlas, and an estimate of daily revenue at site level. We assumed a number of business interruption days linked to the projected increase in CDDs, and calculated the financial impact by multiplying average daily site revenue by the additional number of days of business interruption expected.	**Own operations (sales loss potential)** USD 8 – 12 million **Manufacturing supply chain spend exposed to very high risk** 0.6 – 0.8%	**Own operations (sales loss potential)** USD 15 – 19 million **Manufacturing supply chain spend exposed to very high risk** 0.6 – 11.1%	Sites have water management programs that include measures for reusing, recycling and storing water. We have targets to reduce water consumption by half by 2025 and become water neutral in our own operations by 2030. Environmental sustainability criteria are being integrated into supply contracts (with the goal to cover all suppliers by 2025). Suppliers are expected to implement action plans with mechanisms to monitor and report on progress, mitigate risks and remediate failures. We aim to co-create sustainability roadmaps with key suppliers to understand their environmental sustainability plans.
Extreme heat	Extreme heat could increase operating costs by augmenting our cooling needs and energy consumption to ensure processes and equipment operate efficiently. Among other things, increases in heat waves may cause illnesses such as heatstroke, reduce labor productivity, and impact supply chains through increased stress on cold-chain logistics. To calculate the potential financial impact to operations, we used the change in cooling degree days as a proxy for the increased demand to cool an environment.	**Own operations (operational cost increase potential)** USD 7 – 8 million **Manufacturing supply chain spend exposed to very high risk** 6.3 – 6.4%	**Own operations (operational cost increase potential)** USD 10 – 19 million **Manufacturing supply chain spend exposed to very high risk** 6.4 – 7.9%	We have an active energy management system to optimize energy consumption based on site-specific requirements. We are also implementing energy-efficiency initiatives across our operations to reduce energy demand. Some of the key initiatives include optimizing heating, ventilation and air conditioning, proactive maintenance for chillers, upgrading to energy-efficient equipment, and improving building insulation. We are creating shaded areas using trees and other structures to provide relief from direct sunlight.
Acute				
Tropical cyclones	Tropical cyclones could cause interruptions at our sites (e.g., property damage, equipment repairs) or disruption in the supply chain such as across transport networks (e.g., delaying delivery of raw materials to sites or finished products). To calculate the potential financial impact to operations, we estimated the additional number of days of business interruption expected based on projected changes in annual damage from tropical cyclones. Separately, we also applied annual CEL[3] rates to net asset values for each site to estimate the expected loss per year due to physical damage to buildings (asset value at risk).	**Own operations (sales loss potential)** USD 12 – 25 million **Own operations (asset value at risk)**[4] USD 0.06 – 0.07 million **Manufacturing supply chain spend exposed to very high risk** 1.3 – 2.6%	**Own operations (sales loss potential)** USD 25 – 33 million **Own operations (asset value at risk)**[4] USD 0.06 – 0.07 million **Manufacturing supply chain spend exposed to very high risk** 1.3 – 2.7%	We have a resilient supply chain with a broad geographic footprint, dual supply for key products, and adequate inventory level / stock policies. Our sites have physical infrastructure mitigation in place (e.g., shelters, flood defenses, building insulation, back-up generators), supported by administrative procedures (e.g., emergency response / business continuity plans).

[1] Low emissions pathway, SSP1-2.6: Stays below 2.0°C warming relative to 1850-1900 (median) with implied net-zero greenhouse gas emissions in the second half of the century; Medium emissions pathway, SSP2-4.5: Scenario approximately in line with the upper end of aggregate Nationally Determined Contributions emissions levels by 2030; High emissions pathway, SSP5-8.5: A high reference scenario with no additional climate policy where greenhouse gas emissions roughly double from current levels by 2050.
[2] Calculation based on a total manufacturing supply chain spend of USD 2.6 billion. Risk scale ranged across five levels, from very low to very high.
[3] Climate Expected Loss (CEL), also known as average annual loss, is the expected loss per year due to physical damage to buildings and their contents due to specific natural hazard events. Data is sourced from Munich Re's tool, which combines its natural catastrophe models with asset vulnerability assumptions calibrated using historical losses.
[4] Based on net book values.



Physical risk exposure of our manufacturing suppliers (currently vs 2050 under the SSP5-8.5 scenario)

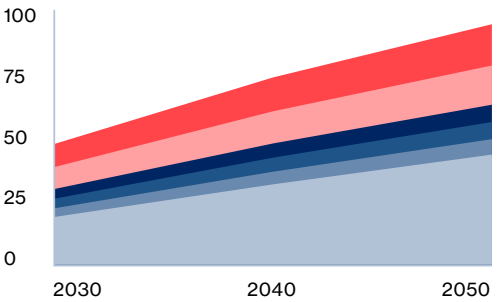
Exposure weighted by supplier spend
The graph shows how the physical risk exposure of around 180 Novartis manufacturing suppliers might change in a worst-case emissions scenario. Each supplier location has been assigned a physical risk score from 0 to 100. The horizontal (X) axis shows the current score, while the vertical (Y) axis shows the difference between the current score and the score in 2050 under a worst-case emissions scenario. The size of each bubble corresponds to the share of Novartis spending with the respective supplier.

Spotlight: Carbon pricing

Carbon pricing is one of our transition risks. The risk is concentrated in a few jurisdictions and can be substantially mitigated through emission reductions. As shown in the graph opposite, carbon costs from the five most important jurisdictions — the US, Austria, UK, Slovenia and Switzerland — are higher than from the rest of the world, which comprises 68 jurisdictions where we have Scope 1 and/or 2 emissions. Focusing on abatement in these jurisdictions can more than halve our costs, and abatement can generally lower our risks substantially. If we reduce Scope 1 and 2 emissions in line with our current targets, our global exposure to potential carbon costs under the high emissions pathway (IEA Stated Policies Scenario) is expected to decrease from USD 91 million to USD 7 million in 2050.

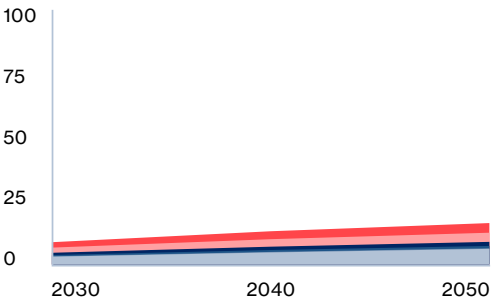
Unabated Scope 1+2 carbon costs under IEA Net Zero Emissions by 2050

USD millions



Abated Scope 1+2 carbon costs under IEA Net Zero Emissions by 2050

USD millions



United States · Austria · United Kingdom · Slovenia · Switzerland · Rest of world

Transition risks

Scenarios for transition risks and opportunities analysis[1]	Low emissions pathway: IEA Net Zero Emissions by 2050 (peak temperature rise +1.4°C)	Medium emissions pathway: IEA Announced Pledges Scenario (peak temperature rise +1.7°C)	High emissions pathway: IEA Stated Policies Scenario (peak temperature rise +2.5°C)
Time horizon	2030, 2040, 2050		
Data sources	IEA, IPCC WGI Interactive Atlas database, Climate Impact Explorer, Institute for Health Metrics and Evaluation's Global Burden of Disease database and other scientific literature, and internal data.		
Coverage and assumptions	Includes all sites for our own operations, and key suppliers contributing to Scope 3 emissions for category 1 (purchased goods and services), category 2 (capital goods) and category 4 (upstream transportation and distribution). The model assumes no mitigation or adaptation measures are in place, except where otherwise indicated.		

Transition risk	Description and approach	Potential financial impact in 2030	Potential financial impact in 2040	Potential financial impact in 2050	Risk treatment
Carbon pricing	Carbon prices — in the form of emissions trading or carbon taxes — are likely to increase further in major operating and supplier countries, which may increase operating costs. Carbon prices from the IEA were applied to our Scope 1, 2 and 3 emissions (see 'Coverage and assumptions' in table header). For Scope 2 and 3 emissions, an additional cost pass-through rate[2] was used to determine the share of carbon costs that could affect our profits.	**Own operations (operational cost increase potential without emission reductions)** USD 19 – 46 million	USD 21 – 71 million	USD 24 – 91 million	We have a target to achieve net-zero emissions by 2040 and a transition plan to reach this target. We plan to reduce our energy demand by adopting new and advanced manufacturing technologies. At the same time, we are transitioning to clean energy solutions. For example, we already source 100% of our electricity in the US, Canada and the EU from renewable sources. This risk would likely impact us indirectly through higher overall costs passed through from our upstream suppliers. We focus our engagement on emissions with suppliers on the reduction of our Scope 3 emissions.
		Own operations (operational cost increase potential with emission reductions in line with our targets) USD 2 – 4 million	USD 2 – 5 million	USD 2 – 7 million	
		Supply chain (operational cost increase potential without emission reductions) USD 25 – 92 million	USD 30 – 145 million	USD 36 – 182 million	
		Supply chain (operational cost increase potential with emission reductions in line with our targets) USD 13 – 46 million	USD 3 – 15 million	USD 4 – 18 million	
Net-zero healthcare	Many countries in which we operate have ambitious national net-zero targets. Failing to decarbonize in line with these targets may threaten our license to operate in these countries, potentially affecting our financial performance. To calculate this CRRO, we looked at countries accounting for ≥0.1% of 2022 sales (61 countries with combined sales of USD 40.6 billion) and identified those with net-zero targets in line with or more ambitious than our own. We multiplied current sales in these countries by percentage assumptions on the share affected by the regulation, which we assumed to become increasingly stringent over time (a lower range was used for countries with targets in line with our own).	**Own operations (sales loss potential)** USD 4 – 13 million	USD 13 – 59 million	USD 0 – 19 million	We have a target to achieve net-zero emissions by 2040 and a transition plan to reach this target. Currently, our risk exposure is to one jurisdiction. We continue to monitor the publication of national net-zero targets as part of our annual TCFD analysis.
Change in input material prices	Many materials face additional costs from increased regulation to reduce waste, pollution and energy consumption, particularly plastics. Projected dwindling supply of virgin plastics, together with targeted policy intervention, are expected to increase upward pressure on plastics prices. This could lead to an increase in input costs for Novartis in packaging operations. To calculate this CRRO, we assumed that plastics used for primary packaging are hit by a global plastic tax. Depending on the scenario, the tax starts at the level of the UK plastic tax and rises either (a) in line with carbon prices; or (b) to reach the societal costs of plastic by 2050 as estimated by the World Wide Fund for Nature (WWF). The model assumes that the use for primary packaging remains constant.	**Own operations (operational cost increase potential)** USD 0.2 – 15 million	USD 0.3 – 33 million	USD 0.4 – 51 million	Our 2025 target is to eliminate PVC in secondary and tertiary packaging. By 2030, we additionally aim to ensure all new products meet sustainable design principles.

[1] Low emissions pathway, IEA Net Zero by 2050 Scenario (NZE): Describes how energy demand and the energy mix will need to evolve if the world is to achieve net-zero emissions by 2050; Medium emissions pathway, IEA Announced Pledges Scenario (APS): Assumes that all climate commitments made by governments around the world, including Nationally Determined Contributions (NDCs) and longer-term net-zero targets, will be met in full and on time; High emissions pathway, IEA Stated Policies Scenario (STEPS): Reflects current policy settings based on a sector-by-sector assessment of the specific policies that are in place, as well as those that have been announced by governments around the world. For selected CRROs, such as change in input material prices and changing demand for healthcare, additional scenarios were constructed to supplement existing climate scenarios.

[2] The cost pass-through rate determines what share of carbon costs is passed through from the supplier to Novartis. A cost pass-through of 100% means that the supplier raises the price by exactly the amount of the carbon cost. A lower rate implies that the supplier absorbs some of the costs through a lower profit margin and only passes on a fraction of the carbon costs to Novartis.

Transition opportunities

Transition opportunity	Description and approach	Potential financial impact in 2030	Potential financial impact in 2040	Potential financial impact in 2050	Risk treatment
Energy cost reductions	Prices for electricity generated from renewable energy are lower than those from fossil-fuel energy, and are expected to fall further. This may result in lower operating costs from electricity use, either through lower market prices, cheaper Power Purchase Agreements (PPAs) or on-site renewable energy generation. To calculate this CRRO, changes in different electricity technology costs over time were applied to the respective electricity grid mix in each climate scenario. A separate scenario calculated the cost changes under a 100% renewable electricity mix, in line with our target. The changes over time were then applied to our current spend on electricity.	**Own operations (electricity cost decrease potential)** USD 6 – 39 million[1] In line with our plans, a switch to 100% renewable energy might shift the decrease potential to USD 63 – 64 million.	N/A N/A	USD 29 – 59 million[1] In line with our plans, a switch to 100% renewable energy might shift the decrease potential to USD 68 – 69 million.	We plan to transition to 100% renewable electricity by end-2025 in line with our RE100 commitment. We already reduced Scope 2 emissions by 89% between 2016 and 2023, and are currently using 100% renewable electricity in the US and Europe.
Changing demand for healthcare	Climate change is likely to impact the prevalence and level of severity of certain health conditions and diseases. To calculate this CRRO, we focused on health conditions affected by climate-related environmental factors (e.g., cardiovascular diseases, respiratory conditions, lung cancer or malaria). We estimated the potential impact on future sales attributable to climate-related factors, including temperature rise and air pollution. For this calculation, we assumed geographical distribution and market share remain constant over time. For products in the pipeline designed to address tropical diseases, including malaria and dengue, we modelled potential future sales impacts per USD 1 million of sales.	**Own operations (sales increase/decrease potential) – Commercial products[2]** USD -7 – 31 million **Own operations (sales increase/decrease potential) – Global Health pipeline** (per USD million of potential future global sales) Malaria USD 0.3 million Dengue USD -0.2 – 0.6 million	USD 52 – 180 million USD 0.5 – 0.6 million USD -0.3 – 1 million	USD 33 – 240 million USD 0.8 – 0.9 million USD -0.5 – 3 million	These results feed into an existing, strategy-led workstream that explores the potential implications of climate change for our current and potential future portfolio of medicines (see page 51).

[1] If the electricity mix resembles the electricity grid's energy supply mix.
[2] As a basis for the financial modelling, six commercial products were used as a proxy to assess the opportunity in future time periods.

Risk management

The results of our quantitative and qualitative scenario analyses feed directly into the 'Climate change' risk that is managed as part of our annual Enterprise Risk Management process (see page 71). It is an aggregate view of our individual physical and transition CRROs, assessed as likely to occur within the next five years and having a minor impact overall.

Climate change is also captured under 'Environmental, social and governance matters,' a strategic risk for Novartis. It is defined as a failure to meet ESG expectations, including, among others, the failure to comply with climate-related regulations.

We are taking action to mitigate our exposure to CRROs and our impact on the environment. Our actions are consistent with our ambition to limit global warming to 1.5°C. They are regularly monitored during the annual ERM cycle, and their effectiveness reviewed as part of the annual risk assessment process.

All risks, including climate change, are consolidated into the Novartis Risk Compass, where they are categorized as strategic, operational or emerging. Potential future risks are classified as awareness topics. Climate change is categorized as an emerging risk.

Metrics and targets

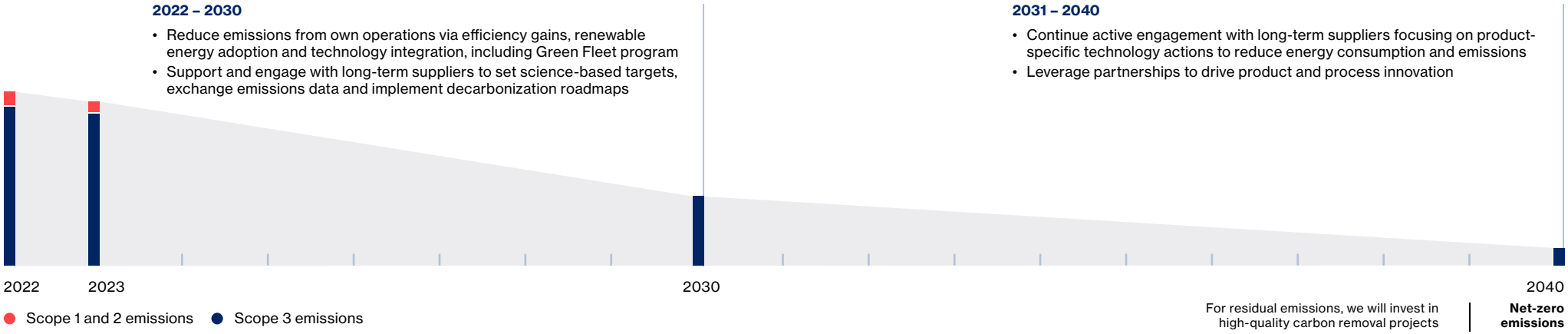
We have a long-term target to become net zero across our value chain by 2040, which is aligned with ambitions to limit the global rise in temperature to 1.5°C compared with the pre-industrial era. We have interim targets to mark progress toward our net-zero goal. We have a near-term target approved by the Science Based Targets initiative (SBTi).[1] Separately, we have committed to reach carbon neutrality by 2030 across Scopes 1, 2 and 3. Our 2025 target is to become carbon neutral in our own operations from energy (Scopes 1 and 2). For an overview of our targets, including those related to water and waste, see page 19.[2]

We measure progress against targets using changes in climate-related indicators such as Scope 1, 2, and 3 emissions, in line with 'Guidance on Metrics, Targets and Transition Plans' (October 2021 version). These indicators can be found in the environment performance indicators table on page 82, along with other indicators relevant to our climate-related risks and opportunities on water, waste and energy.

We have established a clear transition plan to achieve our long-term and interim targets, and are on course with its implementation. We have reduced our Scope 1 emissions by 30% since 2016 by implementing energy efficiency and other technology-based solutions. We have reduced Scope 2 emissions by 89% since 2016 by shifting to 100% renewable electricity in North America (US and Canada) and Europe (RE100 market boundary) through our virtual Power Purchase Agreements. We have defined the necessary activities to achieve net zero by 2040 (see illustration below). We plan to make limited use of high-quality carbon removal offsets to compensate unabated emissions in line with SBTi guidance.

Our path to net zero

In 2021, we committed to a target of net-zero greenhouse gas emissions across our value chain by 2040. We are also in the process of updating our near-term target for 2030, in accordance with the latest SBTi Corporate Net-Zero Standard. We have submitted the targets to SBTi and expect their validation in 2024.



[1] Approved by the SBTi in March 2019. In line with our commitment made in 2021 to achieve net-zero emissions by 2040, we have submitted, and are in the process of validating, an updated near-term carbon reduction target for 2030, in accordance with the latest SBTi Corporate Net-Zero Standard. We expect to have validated targets in 2024.

[2] For Scope 1 and 2 emissions, other air emissions, energy use, water use and waste where Novartis has operational control, we apply the operational control boundary as per the Greenhouse Gas Protocol. For other environmental, social and governance indicators, we use the same boundary as for the consolidated financial statements presented in our Annual Report 2023.

Independent practitioner's limited assurance report on selected Sustainability Information of Novartis AG

To the Board of Directors of Novartis AG

We have undertaken a limited assurance engagement on Novartis AG's (hereinafter "Novartis") Sustainability Information on pages 80 to 84 marked with the symbol Δ (hereinafter "Sustainability Information"), in the Novartis in Society Integrated Report for the year ended 31 December 2023 (the "Report").

Our assurance engagement does not extend to information in respect of earlier periods or to any other information included in the Report, the Novartis Annual Report, Form 20-F or displayed elsewhere on Novartis's website for the current year or for previous periods unless otherwise indicated, including any images, audio files or embedded videos.

Our Limited Assurance Conclusion

Based on the procedures we have performed as described under the *'Summary of the work we performed as the basis for our assurance conclusion'* and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Sustainability Information in the Report for the year ended 31 December 2023 is not prepared, in all material respects, in accordance with the reporting criteria as included here (Reporting Criteria).

Our conclusion is to be read in the context of the remainder of this report, in particular the "Inherent limitations in preparing the Sustainability Information" and "Intended use and distribution of our report" sections below.

We do not express an assurance conclusion on information in respect of earlier periods or to any other information included in the Report, Novartis Annual Report or Form 20-F, including any images, audio files or embedded videos.

Understanding how Novartis has Prepared the Sustainability Information

The Reporting Criteria have been used as criteria references for the disclosures. Consequently, the Sustainability Information needs to be read and understood together with the Reporting Criteria.

Inherent Limitations in Preparing the Sustainability Information

Due to the inherent limitations of any internal control structure, it is possible that errors or irregularities may occur in disclosures of the Sustainability Information and not be detected. Our engagement is not designed to detect all internal control weaknesses in the preparation of the Sustainability Information because the engagement was not performed on a continuous basis throughout the period and the assurance procedures performed were on a test basis.

The nature of non-financial information; the absence of a significant body of established practice on which to draw; and the methods and precision used to determine non-financial information, allow for different, but acceptable evaluation and measurement techniques and can result in materially different measurements, affecting comparability between entities and over time.

The Reporting Criteria have been developed by Novartis in its purpose in producing the Report. As a result, the Sustainability Information may not be suitable for another purpose.

The Report includes an amount for the year ended 31 December 2023 of 27.9 ('000 tCO_2e emissions) relating to carbon offsets. The offsets are derived from Novartis's forestry projects and Novartis has engaged an external provider to calculate the amount of CO_2 emissions sequestered. We have performed procedures as to whether these sequestered CO_2 emissions relate to the current period, and whether the description of them in the Report and Reporting Criteria is consistent with the related documentation and calculations from the external provider. We have not, however, performed any procedures regarding the assumptions used in the calculation methodology for these offsets by the external provider, and express no opinion about whether the offsets have resulted, or will result, in a reduction of 27.9 ('000 tCO_2e emissions).

Novartis's Responsibilities

The Board of Directors of Novartis is responsible for:

- Selecting or establishing suitable criteria for preparing the Sustainability Information, taking into account applicable law and regulations related to reporting the Sustainability Information;
- The preparation of the Sustainability Information that is free from material misstatement in accordance with the Reporting Criteria;
- Designing, implementing, and maintaining internal control over information relevant to the preparation of the Sustainability Information that is free from material misstatement, whether due to fraud or error; and
- The contents and statements contained within the Report and the Reporting Criteria.

Our Responsibilities

We are responsible for:

- Planning and performing the engagement to obtain limited assurance about whether the Sustainability Information is free from material misstatement, whether due to fraud or error;
- Forming an independent conclusion, based on the procedures we have performed and the evidence we have obtained; and
- Reporting our opinion to the Board of Directors of Novartis.

As we are engaged to form an independent conclusion on the Sustainability Information as prepared by management, we are not permitted to be involved in the preparation of

the Sustainability Information as doing so may compromise our independence.

Professional Standards Applied

We performed a limited assurance engagement in accordance with International Standard on Assurance Engagements 3000 (Revised) *Assurance Engagements other than Audits or Reviews of Historical Financial Information*, issued by the International Auditing and Assurance Standards Board and, in respect of the greenhouse gas emissions information included within the Sustainability Information, in accordance with International Standard on Assurance Engagements 3410 *Assurance Engagements on Greenhouse Gas Statements*, issued by the International Auditing and Assurance Standards Board.

Our Independence and Quality Control

We have complied with the independence and other ethical requirements of the International Ethics Standards Board for Accountants' International Code of Ethics for Professional Accountants (including International Independence Standards) (IESBA Code), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

Our firm applies International Standard on Quality Management 1, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Our work was carried out by an independent and multidisciplinary team including assurance practitioners and sustainability experts. We remain solely responsible for our assurance conclusion.

Summary of the Work we Performed as the Basis for our Assurance Conclusion

We are required to plan and perform our work to address the areas where we have identified that a material misstatement of the Sustainability Information is likely to arise. The procedures we performed were based on our professional judgment. Carrying out our limited assurance engagement on the Sustainability Information included, among others:

- Inquiries of employees responsible for the determination and consolidation as well as the implementation of internal control procedures regarding the Sustainability Information;
- Inspection of selected internal and external documents to determine whether qualitative and quantitative information is supported by sufficient evidence and presented in an accurate and balanced manner;
- Assessment of the data collection, validation and reporting processes as well as the reliability of the reported data on a test basis and through testing of selected calculations;
- Analytical assessment of the data and trends of the Sustainability Information included in the scope of the limited assurance engagement;
- Considering the appropriateness of the carbon conversion factor calculations and other unit conversion factor calculations used by reference to widely recognised and established conversion factors;
- Performing an assessment of the impact of the Sandoz spin-off, in relation to the reported ESG indicators;
- Reading the narrative within the Report with regard to the Reporting Criteria, and for consistency with our findings; and
- Evaluating whether Novartis's methods for developing key estimates are appropriate and had been consistently applied, except testing the data on which third party experts develop estimates.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement.

Intended Use and Distribution of our Report

Our report has been prepared for Novartis solely in accordance with the terms of our engagement. We have consented to the publication of our report within the Novartis in Society Integrated Report for the purpose of Novartis showing that it has obtained an independent assurance report in connection with the Sustainability Information.

Our report was designed to meet the agreed requirements of Novartis determined by Novartis's needs at the time. Our report should not therefore be regarded as suitable to be used or relied on by any party wishing to acquire rights against us other than Novartis for any purpose or in any context. Any party other than Novartis who obtains access to our report or a copy and chooses to rely on our report (or any part of it) will do so at its own risk. To the fullest extent permitted by law, KPMG AG will accept no responsibility or liability in respect of our report to any other party.

KPMG AG

Richard Broadbelt
Licensed audit expert

George Richards

Basel, January 30, 2024

Abbreviations

ACC	Audit and Compliance Committee
AGM	Annual General Meeting of shareholders
AI	Artificial intelligence
AMR	Antimicrobial resistance
API	Active pharmaceutical ingredient
C3G	C3 glomerulopathy
CAGR	Compound annual growth rate
CAPAs	Corrective and preventive actions
CC	Constant currencies
CEO	Chief Executive Officer
CHF	Swiss franc
CML	Chronic myeloid leukemia
CO_2e	Carbon dioxide equivalent
CSU	Chronic spontaneous urticaria
CVD	Cardiovascular disease
DEI	Diversity, equity and inclusion
D. Phil.	Doctor of Philosophy
ECN	Executive Committee of Novartis
EMA	European Medicines Agency
EMB	Emerging market brand
EPIC	Equal Pay International Coalition
ERC	Ethics, risk and compliance
EPRM	External partner risk management
ERM	Enterprise risk management
ESG	Environmental, social and governance
ESPP	Employee Share Purchase Plan
EU	European Union
EUR	Euro
FDA	Food and Drug Administration
FPFV	First patient/first visit
FTE	Full-time equivalent
GHG	Greenhouse gas
GDP	Gross domestic product
GMP	Good manufacturing practice
GRI	Global Reporting Initiative
GSNC	Governance, Sustainability and Nomination Committee
HCP	Healthcare professional
HS	Hidradenitis suppurativa
HSE	Health, safety and environment
HSS	Health system strengthening
IASB	International Accounting Standards Board
IEA	International Energy Agency
IFPMA	International Federation of Pharmaceutical Manufacturers and Associations
IFRS	International Financial Reporting Standards
IgAN	Immunoglobulin A nephropathy
IMB	Innovation Management Board
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
JP	Japan
LCA	Life-cycle assessment
LDC	Lean Digital Core
LDL	Low-density lipoprotein
LMIC	Low- and middle-income countries
MAP	Managed access program
M.D.	Doctor of medicine
MDT	Multidrug therapy
MPP	Medicines Patent Pool
MS	Multiple sclerosis
NCD	Noncommunicable disease
NME	New molecular entities
NTD	Neglected tropical disease
OECD	Organisation for Economic Co-operation and Development
PE	Patient engagement
Ph.D.	Doctor of philosophy
PhRMA	Pharmaceutical Research and Manufacturers of America
PSCI	Pharmaceutical Supply Chain Initiative
PSMA	Prostate-specific membrane antigen
PTA	Post-trial access
PVC	Polyvinyl chloride
R&D	Research and development
RLT	Radioligand therapy
RNA	Ribonucleic acid
SASB	Sustainability Accounting Standards Board
SBTi	Science Based Targets initiative
SEC	Securities and Exchange Commission
SEE	Social, environmental and economic
TCFD	Task Force on Climate-related Financial Disclosures
UN	United Nations
UNGC	United Nations Global Compact
USD	US dollar
VBA	Value Balancing Alliance
WHO	World Health Organization

Novartis reporting and transparency hub

www.novartis.com/reportinghub

Our annual reporting suite includes the Novartis in Society Integrated Report, the Annual Report (filed with the SIX Swiss Exchange in Switzerland) and the Form 20-F (filed with the Securities and Exchange Commission in the US). These and other documents — including regulatory disclosures; policies, codes and guidelines; and ESG disclosures — are available on our online reporting and transparency hub.

Follow us on

Forward-looking statements

This Novartis in Society Integrated Report contains certain forward-looking statements within the meaning of the United States Private Securities Litigation Reform Act of 1995, that can generally be identified by words or phrases such as "potential," "expect," "will," "plan," "pipeline," "may," "could," "going forward," "target," "believe," "goal," "estimate," "intend," or similar expressions, or by express or implied discussions regarding potential new products, potential new indications for existing products, potential product launches, or regarding potential future revenues from any such products or indications; regarding potential future sales or earnings; or by discussions of strategy, plans, expectations or intentions. Such forward-looking statements are based on the current beliefs and expectations of management regarding future events, and are subject to significant known and unknown risks and uncertainties. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those set forth in the forward-looking statements. You should not place undue reliance on these statements. In particular, our expectations could be affected by, among other things: uncertainties regarding the success of key products, commercial priorities and strategy; uncertainties in the research and development of new healthcare products and the use of new and disruptive technologies, including artificial intelligence (AI); global trends toward healthcare cost-containment, including new laws and regulations and ongoing government, payer and general public pricing and reimbursement pressures and requirements for increased pricing transparency;; our ability to realize the intended benefits of our separation Sandoz into a new publicly traded standalone company; our ability to obtain or maintain proprietary intellectual property protection, including the ultimate extent of the impact on Novartis of the loss of patent protection and exclusivity on key products that commenced in prior years and is expected to continue this year; the potential that the strategic benefits, operational efficiencies or opportunities expected from our recent transactions or our organizational, structural and cultural transformations may not be realized or may take longer to realize than expected; our performance on environmental, social and governance measures; uncertainties in the development or adoption of potentially transformational technologies and business models; uncertainties regarding potential significant breaches of information security or disruptions of our information technology systems; uncertainties surrounding the implementation of our new IT projects and systems; our reliance on outsourcing key business functions to third parties; uncertainties regarding actual or potential legal proceedings, including, among others, litigation and other legal disputes with respect to our recent transactions, product liability litigation, litigation and investigations regarding sales and marketing practices, intellectual property disputes and government investigations generally; safety, quality, data integrity or manufacturing issues; our ability to identify, attract, integrate, develop and retain key personnel and qualified individuals for critical roles; regulatory actions or delays or government regulation generally, including potential regulatory actions or delays with respect to the development of the products described in this Novartis in Society Integrated Report; our ability to comply with evolving regulatory requirements and meet societal expectations concerning environmental, social and governance matters; our ability to comply with cybersecurity and data privacy laws and regulations, and uncertainties regarding potential significant breaches of data privacy; our ability to adapt to major geopolitical and macroeconomic developments, including the effects of and efforts to mitigate pandemic diseases, and the impact of the war in certain parts of the world;; uncertainties involved in predicting shareholder returns; uncertainties regarding the effects of recent and anticipated future changes in tax laws and their application to us; uncertainties regarding future global exchange rates; uncertainties regarding future demand for our products; and other risks and factors referred to in Novartis AG's current Form 20-F on file with the US Securities and Exchange Commission. Novartis is providing the information in these materials as of this date and does not undertake any obligation to update any forward-looking statements as a result of new information, future events or otherwise.

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Bjoern Myhre

K. Balamani with her daughter at home in Sollakpally, near Hyderabad, India, where Novartis has instigated a watershed restoration project.