

Research and Development ^[1]

In 2019, Novartis invested USD 3.9 billion in US-based research and development (R&D), representing more than 41% of our global R&D spend of USD 9.4 billion. This significant commitment is a key pillar of our strategy to build a leading, focused medicines company powered by advanced therapy platforms and data science.

Nearly 5 500 US-based scientists, physicians and other R&D professionals at Novartis are designing and developing new treatments with the potential to have a significant impact on lives. Together with R&D colleagues across the globe, they are contributing to our industry-leading pipeline for serious diseases affecting millions of people.

We are pursuing drug targets that seem intractable and working on difficult-to-treat diseases. Novartis has a strong record of pioneering innovation in multiple therapeutic areas, including:

- Cardiovascular, Renal and Metabolism
- Hematology
- Immunology, Hepatology and Dermatology
- Neuroscience
- Oncology
- Ophthalmology
- Respiratory

Ninety percent of our treatments in development are anticipated to be first in class or first in a specific medical indication.

We constantly challenge convention, including by questioning the very definition of a medicine. Most pills and injections contain small molecules or proteins. We're exploring new ingredients such as genes and therapeutic viruses, fundamentally rethinking the tools in a drug hunter's arsenal. This work centers around advanced therapy platforms – broadly applicable tools with the potential to become therapeutic staples and game-changers for patients.

The latest data and digital technologies greatly aid our R&D teams as well. We are harnessing advances in machine learning and predictive analytics to transform the way we work. We have collected approximately 2 million patient-years of data through our clinical trials alone and are taking steps to make the most of this strategic asset, applying emerging tools to scale so we can bring treatments to patients faster while reducing costs.

Clinical trials are the linchpin of our R&D strategy to bring innovative medicines to patients. In 2019 Novartis had 250 clinical trials underway in the US, involving more than 17 000 randomized patients.

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