FreeNovation – A funding program of the Novartis Research Foundation

FreeNovation 2025: Can your project idea change biomedical research?

- Glycobiology
- Therapeutic future of epigenetics
- *In vivo* biology: the power of the whole organism

Submit your application by 16th March 2025!

Exploring New Avenues in Research Funding

Many scientific breakthroughs have occurred not because success was predictable, but thanks to the pioneering spirit of people who gave free rein to their creativity. But there is little room for free creativity and bold, untried ideas these days. This is why the Novartis Research Foundation *(Novartis Forschungsstiftung)* promotes offbeat project proposals with its FreeNovation program. It calls on researchers in Switzerland to submit proposals that are hard to fund by conventional programs.

This kind of research funding by a Swiss foundation is unique in the field of life sciences in Switzerland. With this program, the Novartis Research Foundation encourages unconventional thinking and further enhances the attractiveness of Switzerland as a research location.

An opportunity for people and ideas

Researchers with a doctorate or equivalent that are employed at a reputable healthcare or healthcare-related organization, university, university hospital, or university of applied sciences are eligible to apply. The projects will be selected by a top-class review panel under the leadership of Prof. em. Gerd Folkers, ETH Zürich, Chairman of the Board of the Novartis Research Foundation.

To ensure that both unusual ideas as well as younger scientists without a research track-record have a place in this funding program, the selection process is anonymized: What counts is the originality of the research approach and its potential to achieve something new. Ideas that involve interdisciplinary research are encouraged. Results from preliminary studies are not a prerequisite. Scientific risk-taking is encouraged.

The results of the funded projects shall be published and made available to the public without patent protection. FreeNovation is all about exploring new avenues, venturing into new dimensions, and further strengthening Switzerland's research landscape.

For the 2025 call for proposals, the Novartis Research Foundation is making available up to a total of CHF 2.7 million for a maximum of 12 projects. Each project can be funded with up to CHF 220,000. This will allow the researchers to pursue their objectives over a period of 18 months.

Guidelines for Applicants and the link to submit proposal are available on www.freenovation.ch

Glycobiology

Glycobiology is the study of the structure, biosynthesis, and biology of carbohydrates that decorate numerous proteins, notably transmembrane and secreted proteins. Dysregulated glycosylation contributes to an array of diseases. Glycans have emerged as essential components of homeostatic circuits, acting as fine tuners of immunological responses and aberrant glycosylation is involved in autoimmune disorders, cancer, inflammation, and neurodegenerative diseases. But the precise mechanisms by which aberrant glycosylation leads to disease mechanisms remain unclear. How can we better correlate glycan alterations with disease progression and outcomes? What are the precise mechanisms by which glycosylation variations exert these pathophysiological effects? The biosynthesis of glycans involves a complex interplay of glycosyltransferases and glycosidases. However, predicting the glycome of a cell based on enzyme activity remains challenging. How can we better understand the specificity and regulation of these enzymes to predict glycan structures accurately? What are the best methods to systematically identify glycan-binding partners, especially in complex biological systems? What new technologies or methodologies can be developed to improve the accuracy and efficiency of glycan analysis?

Are you inspired to submit a proposal? - We are very much looking forward to it!

Therapeutic future of epigenetics

Epigenetics is the study of heritable traits, a stable change of cell function, that happens without alterations in the DNA sequence. DNA methylation, microRNAs, histone modifications, and chromatin remodeling are important examples of epigenetic control of cellular function. Nearly 90% of all phenotype-associated SNPs identified by genome-wide association studies lie within non-coding regions, which include intronic or promoter regions, small and long ncRNAs, antisense, and enhancer or insulator regions. Epigenetic therapies include inhibitors of DNA methyltransferases, histone deacetylases, and histone methyltransferases, and newer adaptations of CRISPR modifying the epigenome by methylation of DNA or histones. Epigenetic therapies hold great promise, but challenges remain. How can we ensure that epigenetic therapies specifically target the intended genes without affecting others? Are epigenetic therapies more effective as stand-alone treatments, or do they work better in combination with other therapies? How do tumors develop resistance to epigenetic therapies? What biomarkers can predict which patients will respond to epigenetic therapies? How long do the effects of epigenetic therapies last? How can we optimize the dosing of epigenetic therapies to achieve the desired effects without toxicity?

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***In vivo* biology: the power of the whole organism**

Biological systems exhibit a high degree of complexity. To fully understand how different organs and systems interact and drive disease progression, it is essential to study physiological responses in whole organisms, usually animal models, or humans. These *in vivo* approaches are crucial for understanding biological processes that cannot be replicated in simpler systems using isolated proteins, tissues, or even advanced 3D models such as organoids. Examples include clinical trials where new medications are tested on human to evaluate safety and effectiveness, animal models where animals are used to study diseases and test treatments and genetic studies investigating the effects of genetic modifications in organisms to understand gene function and disease mechanisms. *In vivo* studies are vital for preclinical testing of new drugs and therapies. What are the mechanisms of communication between different organs in a living organism? What are the stages of disease development, and how do they manifest in different tissues? Can researchers balance the need for animal testing with ethical considerations regarding animal welfare? What strategies can be employed to enhance the relevance of animal studies to human biology? What is the scientific value of genetically modified animal models? What are the limitations of current *in vivo* models?

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