NOVARTIS

Innovation Postdoctoral Fellow, Data Science & AI Vision Foundation Models for Cellular Imaging in AI Drug Discovery

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Сводка

The Novartis Biomedical Research Postdoctoral Fellowship Program offers a unique training opportunity for exceptional early-career scientists eager to advance AI-powered phenotypic drug discovery. As a Postdoctoral Research Fellow, you will join the Discovery Sciences (DSc) group in San Diego to develop foundation models for high-content cellular imaging, working alongside leading scientists in a highly collaborative, multidisciplinary environment while gaining exposure to the broader ecosystem that translates scientific discovery into medicines. This is a full-time training position of up to three years, starting October 1, 2026.

About the Role

Internal Job Title: Innovation Postdoctoral Fellow

Position Location: San Diego, CA, USA (Onsite)

* Novartis is unable to offer relocation support for this role: please only apply if this location is accessible for you.

* This position is not eligible for visa sponsorship. Please only apply if you are currently authorized to work in the US for the 3 year duration of the program.

* This is a full-time training position of up to three years in duration.

About the Role

We are excited to invite applications for the Novartis Biomedical Research Postdoctoral Fellowship Program, a unique training opportunity designed for exceptional early-career scientists eager to tackle some of the most challenging problems in biomedical research and drug discovery.

As a Postdoctoral Research Fellow, you will join the Discovery Sciences Data Science (DSc DS) group in Basel, Cambridge, or San Diego and pursue an innovative research project at the forefront of biomedical science and drug discovery. You will work alongside leading scientists in a highly collaborative, multidisciplinary environment while gaining exposure to the broader ecosystem that translates scientific discovery into medicines.

Our fellows are empowered to ask bold scientific questions, apply cutting-edge technologies, and develop approaches that have the potential to transform patient care.

Research Opportunity

This fellowship aims to advance representation learning for high-content cellular imaging to accelerate AI-powered phenotypic drug discovery across Novartis. The project will develop, benchmark, and deploy foundation models that generalize across assays, perturbations, cell types, and imaging modalities.

You will curate large-scale microscopy datasets, pretrain and adapt vision foundation models, and design rigorous evaluation protocols to assess model performance, robustness, and generalization on public and proprietary datasets. You will work closely with cross-functional scientists and engineers to apply these models to answer key scientific questions in the drug discovery pipeline. You will be connected to a large network of data scientists and postdoctoral researchers across the organization.

The project will deliver a unified platform for training, benchmarking, and deploying foundation models for high-content cellular imaging. The platform will support critical downstream applications and raise the accuracy, scalability, and reproducibility of phenotypic analysis across Novartis. Methods and results will be published in leading machine learning and biomedical venues.

Why Join the Program?

The Novartis Biomedical Research Postdoctoral Fellowship Program is designed to develop the next generation of scientific leaders and power the future of medicine through rigorous research, and immersive learning experiences, including the implementation of AI tools in biomedical research.

Postdoctoral Research Fellows benefit from:

- Guidance from accomplished scientific leaders and subject matter experts
- Access to advanced technologies, platforms, and research capabilities
- Collaboration across disciplines and organizational boundaries
- A global and diverse community of postdoctoral fellows
- Dedicated programming designed to help fellows thrive throughout their careers.
- Personalized experiential learning opportunities through a Postdoc Practicum that empower fellows to explore new scientific domains, build cross-functional expertise, and expand their impact beyond their primary research project.
- Opportunities to present research, publish in leading journals, and build an international scientific network

We are entering a new era of biomedical research breakthroughs through the convergence of biology, technology, and artificial intelligence tools, and fellows are also supported in engaging with these emerging approaches.

This is a full-time training position of up to three years in duration.

Reimagining Medicine Together

At Novartis, our purpose is to reimagine medicine to improve and extend people’s lives. Through this program, you will grow as a scientist and future leader while contributing to discoveries that may ultimately benefit patients worldwide.

Start Date:

The start date for the 2026 Novartis BR Postdoctoral Fellowship Program cohort is**October 1, 2026**. Please confirm your availability to meet this date in your cover letter.

Key Responsibilities:

- Develop vision foundation models for high-content cellular imaging using state-of-the-art self-supervised learning techniques.
- Design robust evaluation protocols that measure how well models generalize to unseen assays, perturbations, cell types, and imaging conditions.
- Curate large-scale public and internal microscopy datasets and establish standards for data quality and reproducibility.
- Extend the models to multimodal settings by integrating imaging with other data modalities, such as compound data, for drug discovery applications, such as phenotypic profiling.
- Build scalable training and inference pipelines across high-performance computing and cloud infrastructure with clean, reproducible, and well-documented code.
- Propose innovative modeling and evaluation methods that advance the team's technical direction.
- Work independently and collaboratively with data scientists across disease area, platform, and AI research teams, and publish and present results.

Essential Requirements:

- PhD (or equivalent doctoral degree) in a relevant scientific discipline completed prior to the fellowship start date. The program is intended for scientists immediately following their PhD training (**PhD conferred in 2026 only**).
- Demonstrated record of scientific achievement (publications, presentations, patents, or equivalent)
- Strong commitment to learning, innovation, and professional development
- Ability to formulate and drive independent research questions
- Proficiency in Python and modern deep learning frameworks (e.g., PyTorch, TensorFlow, or JAX), with hands-on experience training models on GPUs.
- Experience training deep learning models on HPC or cloud infrastructure with reproducible code
- Working knowledge of vision foundation models, including self-supervised learning and vision transformers, with experience fine-tuning or adapting pretrained models to new tasks.
- Experience designing benchmarking and evaluation protocols for model generalization.
- Strong written and verbal communication skills

Desirable Requirements:

- Experience pretraining vision foundation models from scratch on large-scale imaging datasets.
- Expertise in high-content or biomedical imaging (e.g., Cell Painting, phenomics, digital pathology) and channel-adaptive or multimodal architectures.
- Experience with distributed training on HPC clusters, reproducible ML pipelines on cloud infrastructure, and model-tracking tools such as MLflow
- Publications at top ML venues (NeurIPS, ICML, ICLR, CVPR) or biomedical ML venues (MICCAI, etc.)

How to Apply:

Please submit your CV and cover letter by July 25, 2026.

In your cover letter, please describe your research interests, career aspirations, and how participation in the Novartis Biomedical Research Postdoctoral Fellowship Program will support your long-term development.

Compensation & Benefits:

The starting salary for this position is 87,000 USD per year.

US-based eligible employees will receive a comprehensive benefits package that includes health, life and disability benefits, a 401(k) with company contribution and match, and a variety of other benefits. In addition, employees are eligible for a generous time off package including vacation, personal days, holidays and other leaves.

To learn more about the culture, rewards and benefits we offer our people click here.

Why Novartis: Helping people with disease and their families takes more than innovative science. It takes a community of smart, passionate people like you. Collaborating, supporting and inspiring each other. Combining to achieve breakthroughs that change patients' lives. Ready to create a brighter future together? https://www.novartis.com/about/strategy/people-and-culture

Benefits and Rewards: Learn about all the ways we'll help you thrive personally and professionally.
Read our handbook (PDF 30 MB)

EEO Statement:

The Novartis Group of Companies are Equal Opportunity Employers. We do not discriminate in recruitment, hiring, training, promotion or other employment practices for reasons of race, color, religion, sex, national origin, age, sexual orientation, gender identity or expression, marital or veteran status, disability, or any other legally protected status.

Accessibility & Reasonable Accommodations

The Novartis Group of Companies are committed to working with and providing reasonable accommodation to individuals with disabilities. If, because of a medical condition or disability, you need a reasonable accommodation for any part of the application process, or to perform the essential functions of a position, please send an e-mail to us.reasonableaccommodations@novartis.com or call +1(877)395-2339 and let us know the nature of your request and your contact information. Please include the job requisition number in your message.

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