NOVARTIS

Senior Expert - Science & Technology Upstream Process Modeling & Simulation

Job ID
REQ-10074590
Mar 23, 2026
LOC_CH

About the Role

Your responsibilities include, but are not limited to:

- Design, develop and deploy advanced modeling and simulation strategies for upstream cell culture processes, including:
  - Mechanistic, data-driven, and hybrid models
  - In silico process optimization and scenario analysis
  - Digital Twins with integration of Model Predictive Control (MPC) and Process Analytical Technology (PAT)
- Identify and implement solutions, incl. generative AI (genAI), to extract and process data from structured and unstructured sources (e.g., ELNs, LIMS, scientific publications) and to derive bioprocess insights.
- Collaborate with global stakeholders and peers to align modeling strategies, share best practices, and contribute to the development of modeling standards and platforms.
- Support cross-functional digitalization initiatives within the global Upstream Process Development network, including data infrastructure and digital workflows.
- Train peer scientists on modelling tools and solutions for streamlined upstream process development
- Ensure compliance with data integrity, quality, and regulatory standards in all modeling and digitalization activities.

What you'll bring to the role:

- Education / Experience:
  - MSc in Biotechnology, Biochemical Engineering, Bioinformatics, Data Science, Mathematics or similar with a strong background in (bio-)process modelling (mechanistic, data-driven and hybrid models) or data analytical methods in the field of bioprocessing. Relevant professional experience in process modeling and digitalization.
- Technical Expertise:
  - Demonstrated experience in data analytics and/or modeling & simulation of industrial cell culture processes.
  - Demonstrated programming skills (R, Python or MATLAB), and knowledge of Machine Learning algorithms.
  - Deep knowledge in one or more of the following areas:
    - Machine learning and data analytical methods
    - Mechanistic modeling (e.g., mass balances, kinetic models or hybrid modelling)
    - Digital twin development and real-time process control
  - Experience with generative AI (e.g. LLMs, diffusion models) for knowledge extraction, process design, or automation is a strong plus.
  - Proficiency in relevant modelling tools and platforms, e.g:
    - Programming languages: Python, R, MATLAB
    - Modeling software: gPROMS, Aspen Plus, Simulink
    - AI/ML frameworks: TensorFlow, PyTorch, scikit-learn
  - Understanding of bioprocessing principles and unit operations is advantageous.

- Languages:
  - Fluency in English, oral and written; German is a plus.

Commitment to Diversity and Inclusion: Novartis is committed to building an outstanding, inclusive work environment and diverse teams' representative of the patients and communities we serve.

Accessibility and accommodation
Novartis is committed to working with and providing reasonable accommodation to all individuals. If, because of a medical condition or disability, you need a reasonable accommodation for any part of the recruitment process, or in order to receive more detailed information about the essential functions of a position, please send an e-mail to inclusion.switzerland@novartis.com and let us know the nature of your request and your contact information. Please include the job requisition number in your message.

Role Requirements

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)

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LOC_CH
Site
Basel (City)
Company / Legal Entity
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