

The Institute of Molecular Biotechnology (IMBA) is a leading European biomedical research institute focused on functional genomics and stem cell technologies. Located at the Vienna BioCenter, Austria's hub for life sciences, IMBA is part of the Austrian Academy of Sciences. It offers world-class infrastructure, competitive salaries, full benefits, and on-campus childcare. Join the de Groot Lab as a

Master's Student / Research Intern in Computational Biology and Theoretical Modelling

to develop a Bayesian method for comparing single-cell datasets by explicitly modelling measurement noise to bring out true biological variability. The method will support the lab's research on cell fate decisions during early development.

The de Groot Lab is a new computational lab at the Vienna BioCenter that was established at IMBA in June 2026. The lab studies how single cells make robust fate decisions in the face of noise, using Bayesian trajectory reconstruction, omics data analysis and theoretical modelling. During development, individual cells must continuously make decisions based on sparse and noisy local information; the lab aims to uncover the gene regulatory logic that organizes these decisions.

Research project and role

While studying fate decisions in development, we often want to compare different datasets: to study the variability in developmental trajectories across individual organisms, to assess the effect of a genetic perturbation, or to compare in vivo development with in vitro models (organoids). This gives a challenging statistical problem because two problems need to be solved simultaneously: first, we need to map cells from one dataset to their most similar counterpart in the other dataset, and second, learn the systematic differences between the datasets. We will use Bayesian approaches to approach this problem.

As an MSc student or research intern in our group, you will gain experience with:

- Single-cell omics analysis: Using various collections of single-cell omics datasets, we will explore the possible differences that different datasets can show.
- Method development: Rather than taking off-the-shelf methods, we will carefully define the inference problem, and create a new computational method to address it.
- Biological interpretation: Using our close collaborations with experimental research groups, we can directly validate our results with their extensive biological knowledge.

Note: This is a purely theoretical/computational lab. You will develop methods and theory and apply them to high-quality datasets from our collaborators within the Vienna BioCenter and beyond.

Your profile

- MSc student or research intern with a strong theoretical or quantitative background in physics, mathematics, computer science, computational biology or a related field.
- Strong quantitative mindset and deep motivation to learn the biological context; no prior knowledge of biology is required.

- Strong analytical skills, excitement about joining a new lab as one of its first members and enjoyment of working in an international, English-speaking environment.
- Availability for a minimum of 6 months to allow for a deep and meaningful analysis.
- Experience in scientific programming, for example Python, R, Julia or C++, is a plus.

What we offer

- A paid MSc position with an annual gross salary of EUR 15,260, based on a gross monthly salary of EUR 1,090 (approximately EUR 922 net), paid 14 times per year.
- Close mentorship by Group Leader Daan de Groot and Senior Computational Manager Nick Pullen, combining high-level scientific guidance with deep technical support.
- A small research group of 4-6 members.
- Broad exposure to state-of-the-art research at the Vienna BioCenter, including weekly institute-wide seminars and opportunities for interdisciplinary exchange.
- The option to travel to conferences and workshops.
- State-of-the-art computational infrastructure.
- A vibrant social and scientific community in Vienna, consistently ranked as one of the world's most livable cities.

Please apply via our **job portal** by 18 September 2026. Your application should include **CV** and **letter of motivation**, and **one letter of recommendation from a reference who can evaluate your skills in computational science..**

Apply Now

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www.imba.oeaw.ac.at; www.viennabiocenter.org