

**Postdoc position in single-cell gene regulation and its evolution in bacteria  
University of Basel, Switzerland**

The group of Prof. Erik van Nimwegen at the Biozentrum, University of Basel, is seeking a post-doc that is highly motivated to apply quantitative experimental approaches to study single-cell gene regulation and its evolution in bacteria.

The van Nimwegen group is a highly interdisciplinary group of researchers with backgrounds ranging from theoretical physics to molecular biology. The main research interests of the group concern the function and evolution of gene regulatory networks and quantitative laws in genome evolution (see our [google scholar page](#) for a list of our publications). Originally our group has focused on theoretical method development and computational modeling, where we use a wide-range of methods from Bayesian inference, statistical physics, information theory, dynamical systems theory, population genetics, and so on, to analyze large-scale biological data-sets. However, over the last 6 years the group has also incorporated a wet lab component where we use *E. coli* as a model organism to study gene regulation at the single-cell level as well as genome evolution (see [Wolf et al. Elife 2015](#) and [Kaiser et al. Nat Comm 2018](#) for recent examples of work from our wet lab).

We are looking for a post-doc to join the wet lab part of our group. Current interests in the lab revolve around single-cell gene regulation in bacteria, the evolution of gene regulation on short evolutionary time scales, the role of gene expression noise in the evolution of gene regulation, and the interplay between fluctuations in bacterial physiology and single-cell gene regulation. We focus on *E. coli* and methodologies used include FACS, time-lapse microscopy, fluorescent reporter constructs, micro-fluidic growth chambers, next-generation sequencing, and so on, to study single-cell gene regulation and evolution. The approach of our lab differs from those of most molecular biology labs in that it is highly quantitative and that there is a tight interaction between wet lab and theoretical and computational researchers. Many of the group members have backgrounds in more quantitative fields such as theoretical physics, applied math, and computer science. Consequently, most of the questions/projects we pursue are highly theoretically motivated. The lab is well funded and the Biozentrum offers a strong collection of core facilities (FACS, proteomics, genomics, imaging, biophysical techniques, etc.) that the lab has access to. The precise topic of the research project will be determined jointly with the candidate and candidates that display initiative and independence will be given priority.

We are looking for candidates with a relevant experimental background, e.g. in biophysics, molecular biology, or microbiology, that are interested in pursuing the topics described above using quantitative experimental approaches in combination with advanced computational and theoretical analysis. A good knowledge of English is required. German is helpful but not necessary. The salary is generous and is set according to the guidelines of the Swiss National Science Foundation. The start date will be by mutual arrangement, with a preference for candidates that want to start soon.

Basel is a very international city and a center of life science research, with over 900 life science research companies in the area, including Novartis and Roche. Several other academic institutions are also in the city, including the Friedrich Miescher Institute, the ETH Zurich Biosystems Science and Engineering Department, and the Swiss Tropical Institute. The city is less than 5km from both France and Germany and an hour and a half from the Swiss Alps.

To apply, please send a single pdf containing your application letter, CV, and the names of at least two references to

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Review of applications will begin immediately.