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Postdoc position: quantitative biology of non-growing bacteria

What do bacterial cells do when they are not growing? Although bacteria in the wild likely spend the majority of their time in non-growing states, surprisingly little is known about cell physiology and gene expression in such states, especially at the single-cell level. However, recently developed experimental approaches that combine microfluidics with fluorescent time-lapse microscopy and automated image analysis are now making it possible to study with high quantitative accuracy the behavior of single cells in non-growing states, such as stationary phase.

Are you fascinated by this topic? Then consider applying to the open postdoctoral position in our group at the Biozentrum (Basel, Switzerland). This research project is spearheaded by Dr. Thomas Julou, in the group of Prof. Erik van Nimwegen.

In our lab, we have developed novel approaches to quantitatively track growth and gene expression dynamics across many independent lineages of single bacterial cells while they are being exposed to controlled environmental changes [1, 2]. We are using these methods to study questions about both physiological and evolutionary aspects of stationary phase, including: What is the extent and dynamics of single-cell heterogeneity during stationary phase, and how does this heterogeneity affect survival, stress-resistance, and the ability of cells to regrow when exposed to new nutrients? How do the physiological states of the cells depend on their previous growth state or on the type of nutrient that is depleted? Are there evolutionary trade-off(s) between optimization of growth, survival during starvation, and efficient regrowth upon encountering new nutrients?

Your responsibilities

You will combine experimental techniques from molecular biology, genetics, light microscopy, microfluidics, with cutting-edge data analysis and modelling techniques. Notably, depending on your expertise, the analysis and modeling may be done in collaboration with theoretical researchers in the lab. The project will be tailored to the interests and skills of the successful candidate, and will take several recent results obtained in our group as a starting point [3].

Your profile

Applicants should have completed a PhD in a relevant field such as biophysics, quantitative biology, microbiology, or evolution. Previous experience with microscopy and microfluidics is of value. The candidate should have at least some experience with programming for data analysis, and/or with mathematical modelling.

We offer

The position is initially for two years, but may be extended upon mutual agreement. The position is available immediately and priority will be given to candidates that can start relatively soon.

Application / Contact

The application should include a brief personal statement, explaining how your qualifications and experience make you a good fit for this position, together with a full, up-to-date CV and contact details of at least 2 references. Applications will be reviewed until the position is filled. Note that only online applications via this portal will be accepted.

For general inquiries please send an email to: thomas.julou@unibas.ch

The van Nimwegen Lab [4] at Basel University's Biozentrum is a highly international and multidisciplinary team with extensive expertise in the field of transcription regulation, single-cell dynamics, genome evolution, and probabilistic data analysis techniques. A special feature of our group is that it includes both experimental and theoretical researchers which work together to combine cutting edge statistical and computational tools with quantitative experiments. A list of our group's publications can be found on Google Scholar [5].

[1] 1. M. Kaiser, et al., Nat Commun. 9, 212 (2018). <https://doi.org/10.1038/s41467-017-02505-0> [2] T. Julou, et al., PLoS Biol. 18, e3000952 (2020). <https://doi.org/10.1371/journal.pbio.3000952> [3] T. Gervais, et al. bioRxiv (2024). <https://www.biorxiv.org/content/10.1101/2024.02.29.582700> [4] <http://www.biozentrum.unibas.ch/nimwegen/> [5] <http://scholar.google.ch/citations?user=N24KB1wAAAAJ>

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Data privacy policy

Privacy policy

Preamble

The University of Basel attaches great importance to the protection of personal data. Personal data is all data that can be related to you personally, e.g. name, address, e-mail, telephone number, photo, user behavior, IP address, etc.

With this privacy policy, we would like to inform you which data the Department Biozentrum of the University of Basel collects from you as a user of the website biped2.biozentrum.unibas.ch, processes, discloses, and for what purpose, and which measures the University of Basel takes to ensure the security of this data. In addition, we inform you about your rights by means of this privacy policy.

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Personal data is always processed in compliance with the Information and Data Protection Act of the Canton of Basel-Stadt (IDG) applicable to the University of Basel and, if applicable, the Swiss Federal Data Protection Act (DSG). In addition, the University of Basel complies with the European Data Protection Regulation (DSGVO), which may be applicable, and states the relevant legal basis for this case in each case, in accordance with Art. 13 Para. 1 lit c DSGVO.

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- to protect vital interests of you or another natural person (Art. 6 para. 1 lit. d DSGVO).

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If you would like us to delete your personal data completely, please contact: researchit-biozentrum@unibas.ch.

Why are cookies set?

Cookies are small text files that are transferred from our server or the server of a third party to the user's browser and stored on your terminal device. Through this, we automatically receive certain data such as the IP address, browser used, operating system and your connection to the Internet. The use of cookies increases the user-friendliness and security of the website. Via the settings of your browser, you can see which cookies have been set by the website biped2.biozentrum.unibas.ch and can delete them if necessary.

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The following access data is collected:

- website visited
- time of day at the time of access
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Does the biped2.biozentrum.unibas.ch website use web analytics tools?

No.

What third party services does the biped2.biozentrum.unibas.ch website use?

We integrate services of third parties, paying attention to the principles of data protection (especially purpose limitation, data minimization and, if possible, without data transfer to unsafe third countries).

Google reCAPTCHA

- Purpose: Protection of data input forms against automated access
- URL: <https://www.google.com/recaptcha/about/>
- Privacy Policy: <https://policies.google.com/privacy>

Is your data secure at the University of Basel?

The University of Basel uses technical and organizational security measures to ensure that the data it collects and further processes via the website biped2.biozentrum.unibas.ch,

- remains confidential and is protected from accidental or unlawful access, alteration or disclosure, and from loss or destruction; and
- access to the data is granted exclusively on a need-to-know basis to those persons who need to access the personal data by virtue of their function and duties.

The measures to be taken depend on the type of information, the type and purpose of use and the respective state of the art.

Is the biped2.biozentrum.unibas.ch website encrypted?

Our website biped2.biozentrum.unibas.ch is offered encrypted.

Encryption ensures that the website accessed (the information requested) also comes from the server it claims to be. Unencrypted traffic can be manipulated by third parties.

Who is liable for links to websites of other providers?

The University of Basel or Department Biozentrum has not reviewed websites linked to the website biped2.biozentrum.unibas.ch via hyperlinks as well as displayed RSS feeds and assumes no liability for their content or for the products, services and other offers provided thereon.

What rights do you have as a data subject?

Users of the website biped2.biozentrum.unibas.ch, through which we process personal data, have the right, within the framework of the applicable legal provisions, to obtain at any time

- to receive free confirmation as to whether personal data is being processed by the University of Basel (§25 and §26 IDG),
- to information about any stored data,
- to restriction of the processing of the data,
- to data transfer, if and to the extent that the DSGVO is applicable,
- to correction, blocking or deletion of this data,
- to revocation of any consent given,
- to object to the processing of your personal data.
- In this regard, you can always contact us at our contact address: researchit-biozentrum@unibas.ch

Can the privacy policy change?

The University of Basel or Department Biozentrum reserves the right to modify this Privacy Policy at any time if necessary. The current status of this privacy policy is 08.09.2023.

Who is responsible for the biped2.biozentrum.unibas.ch website and who can you contact if you need help?

Responsible:

University of Basel
Department Biozentrum
Spitalstrasse 41
CH-4056 Basel
<https://biozentrum.unibas.ch>

If you have any questions about the processing of your personal data on the website biped2.biozentrum.unibas.ch, you can contact the following address: researchit-biozentrum@unibas.ch

Main Responsibility:

University of Basel
Petersplatz 1, P.O. Box
4001 Basel
Switzerland
<https://www.unibas.ch>

Data Protection Officer of the University of Basel:

Danielle Kaufmann lic. iur.
Schönbeinstrasse 18-20
4056 Basel

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The data you have submitted is being saved.

During saving, preview versions of the application documents are rendered. This can take up to 30 seconds, please be patient.

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Please enter your personal details

Firstname*:

Lastname*:

Date of birth*:

Place of birth*:

Nationality*:

Please select...

- Please select...
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- France
- Germany
- Italy
- Spain
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- United Kingdom
- United States
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- Other countries
- Afghanistan
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- Bouvet Island
- Brazil
- British Indian Ocean Territory
- Brunei Darussalam
- Bulgaria
- Burkina Faso
- Burundi
- Cambodia
- Cameroon
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- China
- Christmas Island
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- Colombia
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- East Timor
- Ecuador
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- El Salvador
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- Eritrea
- Estonia
- Ethiopia
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- Faroe Islands
- Fiji
- Finland
- France, Metropolitan
- French Guiana
- French Polynesia
- French Southern Territories
- Gabon
- Gambia
- Georgia
- Ghana
- Gibraltar
- Greece
- Greenland
- Grenada
- Guadeloupe
- Guam
- Guatemala
- Guernsey
- Guinea
- Guinea-Bissau
- Guyana
- Haiti
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- Indonesia
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Gender*:

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Country of residence*:

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Email (enter again)*:

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Degree

Institution

Date (expected)

Please select...

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- 2021
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- 2023
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- Fluent
- Very good
- Good
- Sufficient

Please select... 

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Letter of Motivation

Provide your cover letter here

Cover letter:


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2000 chars left

Professional experience

Please provide the **main highlights** of your CV here. You can upload your complete CV as a file in the end.

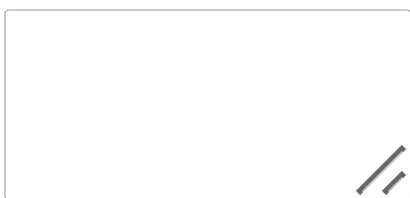
CV Highlights:

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What makes you unique for this position?

In a few words,... :

A rectangular text area for describing what makes the applicant unique. It is currently empty.

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References

Please provide contact information for up to 3 references

Name of reference

Email address

[Add line](#)

Additional information

Comments

Please include here any additional information you feel is relevant to your application (work permit, availability, etc.)

Further comments:

Outside interests and hobbies

Let us get to know you better:

Where did you hear about this position?

Source*:

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- Biozentrum Professors
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