

A postdoctoral researcher in microfluidics and/or optical imaging

We seek a talented post-doctoral researcher to contribute to the project “Transition from genetic to phenotypic antibiotic resistance in *de novo* bacterial mutants”.

The project will involve creating a microfluidic device suitable for live imaging of 10^9 bacterial cells, tracking antibiotic-resistant spontaneous mutants that evolve in the device, and measuring their growth rate over several generations. This will be complemented with DNA sequencing and *in situ* visualisation of mutations using a CRISPR/Cas9-based technique developed by another post-doc.

Other team members will use mathematical modelling to interpret the data and predict the effect of the genotype-to-phenotype transition on the dynamics of bacterial infections.

Main responsibilities:

1. Planning and execution of specific elements of the research program, acting under general guidance of the supervisor. This will involve deciding (with the supervisor) on the detailed direction of the research, formulating a strategy for day-to-day research work, implementing the strategy (without close supervision), interpreting obtained data, drawing conclusions, and reporting progress to the supervisor.
2. Communicating research results to team members and collaborators at IPC and other institutions through talks and discussions, as well as learning about others' research through seminars and journal clubs.
3. Assisting with supervision of junior researchers (Master and PhD students), where appropriate.
4. Writing reports and scientific papers.
5. Attending and presenting at workshops and conferences.
6. Keeping up-to-date with relevant scientific developments through literature review.

Person Specification (Knowledge, Skills and Experience Needed for the Job)

Essential

- PhD in physics, biology or physical chemistry, held or to be obtained before the job start date.
- Experience in at least one of the following: optical imaging (wide-field or confocal microscopy), microfluidics, image analysis (ImageJ, Python, or Matlab).
- Very good academic achievements as evidenced by peer-reviewed publications and talks/poster presentations at international conferences.
- Ability to draft (in English) scientific papers for academic journals.
- Ability to communicate (in English) complex information clearly, orally and in writing.
- Ability to think creatively, propose and develop new ideas.
- Capability of working without close supervision, exercising a high degree of initiative and demonstrating a pro-active approach to work.

Desirable

- Experience with Micromanager (software for controlling microscopes).
- Experience with cross-disciplinary research projects.
- Ability to work hard and organise work so as to perform multiple tasks simultaneously.
- Ability to maintain a clean and well-organised laboratory environment and to set up and maintain a well-organised digital repository of experimental data and protocols.



- Potential for career advancement as an independent researcher.

Candidates who possess these additional skills will be prioritized.

Career perspectives

The position is initially for 1 year, after which it may be extended for another 2 years (maximum total duration 3 years) subject to satisfactory performance. The successful candidate will benefit from working in an international, interdisciplinary research group, a modern lab and office space. The candidate will work closely with other experimentalists and modellers from the Dioscuri Centre. The candidate will have the opportunity to visit collaborating research groups and to participate in international workshops and conferences.

Salary. Gross salary 11000 PLN/month (net salary approx. 8700 PLN, approximately 1800 EUR).

Line manager/supervisor. Dr Bartłomiej Waclaw, Dioscuri Centre Leader.

Application procedure.

A complete application should include the following items:

- motivation letter
- professional curriculum vitae
- list of publications
- personal data processing consent
- in addition, two reference letters should be arranged to be sent to rekrutacja@ichf.edu.pl. Please do not attach the letters to your application.

All documents (including the reference letters) should be emailed to rekrutacja@ichf.edu.pl quoting "Rekrutacja nr 19/2023" in the subject line.

Short-listed candidates will be invited for an in-person interview or a conference call (Zoom or Skype) in June 2023.

Application deadline: 09 June 2023, 17:00 CET.

Job start date: 1 July 2023 or later at a mutually agreed date.

About the Dioscuri Centre

The Centre researches bacterial growth and evolution using experiments, computer simulations and mathematical theory. Our goal is to better understand bacterial infections and the evolution of antimicrobial resistance in animal and human hosts, which will help to find novel ways of combatting infections. The Centre collaborates with research institutions in Germany, the UK and the US. The Centre is co-funded by the Polish Ministry of Science and Higher Education and the German Federal Ministry of Education and Research, with additional support from NAWA. The Centre is located in the Institute of Physical Chemistry (IPC, Polish: IChF), Polish Academy of Sciences, Warsaw, Poland.

About IPC

IPC (established in 1954) is one of the top research institutes in Poland, ranked A+ by the Ministry of Science and Higher Education (top 5% of research units in PL). IPC publishes ~200 papers/year which generate over 7500 citation/year. 30% of papers are published in journals with $IF > 5$: Nature Chemistry, Nature Physics, Science, Phys. Rev. Letters, JACS, Ang. Chemie Int. Ed., Nucl. Acid Research, and



Jointly sponsored by





many others. IPC employs ~340 staff (physicists, chemists, biologists, biotechnologists) and is strongly committed to interdisciplinary research. IPC attracts talented students and experienced researchers from Poland and beyond (30% PhDs and 20% of PIs come from abroad). In acknowledgment of its efforts to enhance working conditions for researchers, the European Commission has awarded IPC the “HR Excellence in Research Award”.

IPC has been very successful in attracting external funding from Polish and European funding agencies (>100 projects), for example the CREATE project (H2020; 2.5 M€), interdisciplinary International PhD studies (NaMeS project, CO-FUND, H2020; 2.3 M€) and the postdoctoral fellowship programme PD2PI (CO-FUND, H2020, 1.4 M€), the International Center for Translational Eye Research (ICTER, ~10M€), and the Dioscuri Centre (~2M€). IPC has a strong record of collaboration with industry, developed culture of fostering spin-off companies, and international patents.

External links:

<https://dioscuricentrebacteria.com/>

<https://bartekwaclaw.wordpress.com>

http://ichf.edu.pl/home_en.html

Personal data protection

By submitting the application, you give the Institute of Physical Chemistry consent to process your personal data for the purpose of the recruitment process.

The controller of your personal data is the Institute of Physical Chemistry of the Polish Academy of Sciences with its registered office in Warsaw, NIP: 5250008755 (the "Institute"). The Institute will process your data for the purpose of carrying out scientific and research activities, providing services and contact with the Institute, on the basis of a contract (in connection with the performance of the contract or in order to take action on your request before the contract is concluded – Article 6, paragraph 1, letter b) of GDPR), the legitimate interest of the Institute (Article 6, paragraph 1, letter f) of the GDPR) and legal provisions (Article 6, paragraph 1, letter c) of the GDPR) - depending on the circumstances.

You have the right to: request access to your data, receive a copy of it; rectify (correct) it; delete it; limit its processing; transfer it; lodge a complaint to the supervisory body; withdraw your consent for processing at any time (withdrawal of consent does not affect the lawfulness of the processing carried out prior to its withdrawal) or to lodge an objection to data processing. More information is available on the Institute's website:

http://ichf.edu.pl/gen_inf/gen_en/GDPR%20-%20General%20Information%20Clause.pdf



Jointly sponsored by

