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Małopolskie
Centrum
Biotechnologii

INFORMATION ABOUT THE COMPETITION

**Director of The
Małopolska Center of Biotechnology**
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Kraków, 07.11.2023

**Competition for the position of
Scholarship Holder (PhD student)**
at the Małopolska Center for Biotechnology
at the Dioscuri Center for Modelling of Posttranslational Modifications

The Dioscuri Center for Modelling of Posttranslational Modifications invites applications for the position of the Scholarship Holder (PhD student). The competition winner will focus on researching the molecular mechanisms of protein surface shielding by glycans using computer simulations, working at the intersection of computational biology, biophysics, and glycomics.

The Candidate will be involved in the following tasks:

- 1) Explore the impact of glycan heterogeneity on protein shielding, with a particular focus on atypical glycans present in cancer, key factors in cancer immunotherapy
- 2) The analysis of molecular mechanisms involved in the protein surface shielding processes
- 3) Close collaboration with experimental partners to stimulate new experiments and accurately replicate experimental systems in silico

The perfect Candidate should have:

- 1) MSc or equivalent degree in physics, chemistry, biophysics, computer science or similar
- 2) Interest in the physics of biological systems
- 3) Previous Experience in programming/scripting (Python, Bash, etc.) and handling biomolecular simulation software (GROMACS, NAMD, CHARMM, or others)
- 4) Excellent communication skills and strong working proficiency in English
- 5) The candidate must hold the status of a doctoral student at the Doctoral School of Biomedical Sciences at the Jagiellonian University

Required application documents:

- CV,
- Information about achievements and publications,
- Contact information of persons who can provide recommendations,
- Certificate of PhD student status at the Jagiellonian University,
- Statement with information on the processing of personal data with consent to their processing <https://cawp.uj.edu.pl/wynagrodzenia/stypendia>

Form of submission: by e-mail to the address: iwona1.duda@uj.edu.pl, title: "Competition for the position of Scholarship Holder (PhD student) – Dioscuri"

Position: Scholarship Holder (PhD student)

Unit: MCB UJ

Opening of the competition: 09.11.2023

Application submission deadline: 22.11.2023

Announcement of contest results planned date: 23.11.2023

Terms of Employment:

Scholarship Agreement

Planned start of work: 01.01.2024

The Scholarship Holder (PhD student) will be involved in a research project: Dioscuri Centre for Modelling of Posttranslational Modifications, funded by the Ministry of Education and Science (MeiN) and the German Federal Ministry of Education and Research under the direction of dr. Mateusz Sikora.

We offer:

- Work in a young and growing scientific team,
- The opportunity to gain experience,

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- Close collaboration and frequent research exchanges with the Max Planck Institute of Biophysics in Frankfurt,
- The opportunity to participate in scientific conferences,
- Support and nice work atmosphere.

Project description:

During protein biosynthesis, membrane and secreted proteins undergo modifications by the covalent addition of complex sugars, known as glycans. Typically, glycans do not strongly interact with the surface of the protein to which they are attached, remaining highly mobile and shielding the protein surface from direct contact with other proteins and ligands. As seen in the case of the protein enabling the SARS-CoV-2 virus to enter host cells, these glycan shields inhibit immune reactions and are a key factor in the success of coronaviruses. Most protein-protein interactions are influenced by the glycan shield, which is additionally adapted based on the cell type and its glycan composition. Despite their overall significance, glycan shields have only been studied for a very limited number of proteins, and we know little about their impact on structure and function. This project aims to change this status quo.

We cordially invite you to apply.

The Małopolska Centre of Biotechnology and the Dioscuri Centre strive to provide equal job opportunities. We celebrate diversity and aim to create an inclusive environment for all team members, regardless of gender, nationality, or disabilities.



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