

CeNT-21-2020

Director of Centre of New Technologies of the University of Warsaw, with the Project Leader, announce opening of the competition for the position of PhD Student in Biomolecular Modelling Group – Centre of New Technologies of the University of Warsaw.

PhD Student in Biomolecular Modelling Group Centre of New Technologies, University of Warsaw

Project title:

Interaction of influenza virus fusion peptides with lipid bilayers (OPUS 15, NCN)

Job type: scholarship, 4000 PLN net/month

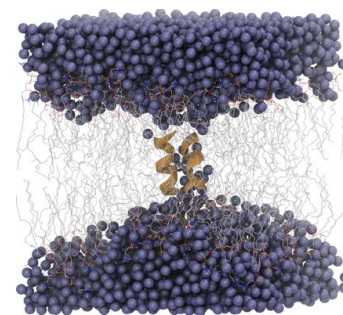
Position starts on **01.01.2021** with the possibility for **paid internship starting on 01.06.2020**

Position ends on 31.12.2022

Project leader: Piotr Setny, PhD, DSc

Project Description

Influenza is one of the five most lethal infectious diseases faced by humans. One of viable therapeutic strategies is targeting virus entry into host cells, in particular its stage involving the fusion of viral and cellular membranes. In the case of influenza virus, membrane fusion is mediated by a hemagglutinin (HA) protein. It inserts its N-terminal fragments, known as fusion peptides (HAFp), into the target membrane and initiates lipid mixing. Intriguingly, HAFps in the form of synthetic 20 – 23 amino acid long peptides are already able to fuse liposomes without the aid of the entire HA structure. Atomistic details of this process, while crucial for understanding HA-mediated fusion, remain elusive. In this project we will conduct extensive computer simulations of HAFp-membrane systems in fully atomistic resolution coupled to experimental studies. We will characterize HAFp behavior within lipid bilayers and will attempt to capture early stages of the fusion process. Aside from giving the opportunity to tackle fascinating scientific problems, the project will allow mastering state of the art simulation approaches, including enhanced sampling techniques and free energy methods, providing as well ample room for creative work on novel analysis tools.



Fusion peptide (gold)
within lipid bilayer (grey).

Key responsibilities

- Mastering simulation techniques and analysis methods
- Conducting and analysing computer simulations of peptide-membrane systems
- Presenting the results on seminars & conferences

Profile of candidates/requirements:

- MSc degree (or equivalent) in physics, chemistry, biology, computer science, or related discipline
- Confirmed status of PhD student on the day of starting work in the project (01.01.2021)
- Good oral and written command of English
- Basic knowledge of Linux operating system and scripting language (e.g. Python, Perl)
- Previous experience with molecular modelling would be welcome, although it is not strictly necessary

Required documents, to be sent till 30.04.2020 to p.setny@cent.uw.edu.pl

- Motivation letter
- CV with the list of scientific activities undertaken to date
- Contact details of the former supervisor or a recommendation letter send directly to the project leader (email: p.setny@cent.uw.edu.pl)
- signed information on the personal data processing, available at: <http://bsp.adm.uw.edu.pl/bsp/druki-i-formularze/>

We offer:

- Work in a friendly atmosphere, in a modern and well equipped institute
- Extensive training in computational modelling of complex biomolecular systems
- Opportunity to participate in courses and conferences
- Access to state of the art computing equipment

Results of the competition will be announced by 15.05.2020.

Candidates will be informed about the results by email.

