

PhD position in human induced pluripotent stem cell-based disease modeling

We are looking for highly motivated young scientist to join research team in the area of technology development of human stem cell based techniques and genome editing for neurological disease modeling and gene therapy.

The successful candidate holds a relevant degree in Biotechnology/Molecular/Cellular Biology, Biochemistry or a similar.

Detailed information:

Organization: Department of Medical Genetics, Center for Preclinical Technologies (CePT), Warsaw Medical University, Poland.

Research field: Human stem cell based disease modeling, Human gene editing, Human genome editing, Cell fate reprogramming, Somatic gene therapy; Neuronal differentiation; Neuroscience; Technology development.

Application deadline: February 28.

Location: Warsaw, Poland, CePT, WUM, Campus Ochota (the main working place) and Berlin, Germany, MDC Campus (visiting).

Job status: Full-time.

Research group: Human Genome Engineering Technology Development Research Unit of Assistant Prof. Dr. Hab. Eng. Pawel Lisowski at the Department of Medical Genetics, Center for Preclinical Technologies (CePT), Warsaw Medical University, Banacha 1B, 02-097 Warsaw, Poland.

Project:

The candidate will exploit new unknown and undiagnosed, ultra-rare human neurodevelopmental disease under the project “Functional study of the nonsense mutation in the IRF2BPL gene - an attempt to characterize a novel neurodegenerative human disease.” National Science Center OPUS project 2017/27/B/NZ1/02401. This includes:

- (1) CRISPR/Cas9 based engineering of human induced pluripotent stem cells (hiPSCs) to correct or to introduce gene variants recently discovered by our team as a causative mutations of newly described disorders of the nervous system;
- (2) Cell fate reprogramming and differentiation of engineered human induced pluripotent stem cells (hiPSCs) into patient-specific neurons of interest (2D modeling) and brain organoids (3D modeling):

(3) Extensive phenotyping of differentiating neurons along the neuronal lineage to unravel diseased phenotypes using functional genomics (RNA-seq, DNA methylation profiling), high content screening (CellInsight CX7), cellular bioenergetics (Seahorse XF).

Implemented technologies in the project may also cover: enhancing precise genome engineering for gene therapy by manipulation of DNA repair pathways, proteins and modifications of the repair templates delivery. This includes further identification of factors shifting DSB repairs towards HDR pathway, and searching for alternatives of HDR for in vivo genome editing in non-dividing cells as a tools for gene therapy.

More information about the research area could be found here:

<http://www.functionalgenomics.pl/>

What do we ask?

You have a master's degree in biotechnology, molecular biology, biochemistry, neuroscience, (or related) interest and experience in one or more of the following topics:

- (1) Standard cell culture and maintenance (stem cell experience welcome but not obligatory);
- (2) Molecular biology (PCR, Western blot, qPCR etc.), vector/plasmid molecular cloning or CRISPR/Cas9 based gene editing technologies are strong assets but not obligatory required;
- (3) Interest in functional genomics, bioinformatics and neuroscience (genome-wide RNA-seq, DNA methylation).

Good English communication skills are expected, good Polish language skills are welcome.

What do we expect – what we offer?

We expect high motivation and commitment in the field.

Position: scholarship position, PhD student type, 36 months, 4 500 PLN/month.

Moreover we offer interdisciplinary and patient-oriented translating molecular research into applications such as prevention, diagnosis, and treatment of the human diseases.

We are supported by high-throughput technology platforms and core facilities for DNA/RNA sequencing, mass spectrometry, flow cytometry, confocal, photon , and electron microscopy, along with bioinformatics services and advanced data modeling.

How to apply:

An application must be supported by the following documentation (all in one PDF file):

- (1) Cover letter stating the **reasons for applying**, description of research experience and motivation;
- (2) Curriculum vitae with a publication list;

Please send your PDF application to Dr. Pawel Lisowski at pawel.lisowski@wum.edu.pl; pawel.lisowski@mdc-berlin.de

Shortlisted candidates will be contacted for an interview.