



CeNT-46-2023

Director of Centre of New Technologies of the University of Warsaw, with the Project Leader, announces opening of the position of Ph.D. Student in the Laboratory of Stem Cells, Development and Tissue Regeneration - Centre of New Technologies of the University of Warsaw.

JOB OFFER

Position in the project:	Ph.D. Student
Laboratory:	Laboratory of Stem Cells, Development and Tissue Regeneration
Scientific discipline:	Life sciences (Molecular and Cell Biology of Stem Cells)
Keywords:	hair follicle Stem Cells, dermal papillae Stem Cells, hair follicle niche, single-cell RNA-seq, single-cell ATAC-seq, spatial transcriptomics of hair niche, hair regeneration
Job type (employment contract/stipend):	PhD Student fellowship/ civil law agreement
Part-time/full-time:	Full-time
Number of job offers:	1
Remuneration/stipend amount/month	4 500 PLN gross gross
Position starts on:	01.10.2023 or as soon as possible afterwards
Maximum period of contract/stipend agreement:	12 months (with the possibility of extension up to 36 months)
Institution:	Centre of New Technologies, University of Warsaw
Project leader:	Krzysztof Kobiela, MD, PhD, Associate Professor
Project title:	Deciphering single-cell niche composition and their effect on hair follicle and dermal papillae Stem Cells regulation during the hair regeneration cycle.
Competition type;	OPUS-23
Financing institution:	NCN
Project description:	<p>There is a great interest in understanding basic processes that allow the regeneration of tissues in the human body. Most of the organs in mammalian organisms, including humans, must be supported to maintain their function by the existence of a vital pool of multipotent cells called adult stem cells (SCs), which are essential not only for physiological tissue renewal but also to regenerate tissues after injury. Thus, understanding adult SCs regulators that tightly govern the tricky balance of signaling pathways that either activate or inhibit SCs stability is an important question in basic biology and regenerative medicine. Recently, my laboratory discovered the intrinsic molecular mechanism of a competitive balance of BMP/WNT signaling as the fundamental axis to regulate hair follicle Stem Cells (HFSCs) rest and stimulation. Primarily, in this proposal,</p>



	<p>we focus on the question of how the intrinsic fluctuation of gene networks in hair follicle Stem Cells (hfSCs) affects the surrounding niche environment for proper hair regeneration. Here, we will use in vivo approaches combined with single-cell technology to address the changes in the whole composition of niche cells neighboring hair follicle Stem Cells along with molecular changes in each individual cell during rest and regeneration.</p>
Key responsibilities include:	<p>A Ph.D. student will work with different genetically modified mice models to investigate molecular signaling between hair follicle Stem Cells (HFSCs) and niche components during hair follicles regeneration cycle. Thus, a Ph.D. student will be responsible to perform experiments on mice to induce HFSCs activation or quiescence. He/she will be able to investigate changes in surrounding niche components during hair cycle changes on the level of single-cell as well as address their molecular characteristics. Therefore, he/she will be involved in FACS sorting of "live" single-cell from whole skin (including stem cells), with subsequent single-cell isolation for barcoding for single-cell transcriptomics (scRNA-seq) with samples sequencing by next-generation sequencing (NGS). He/she will be also involved in building a proper platform for in situ single-cell assay. As a part of the regeneration assay, he/she will also perform grafting experiments of HFSCs with different niche components. He/she will be involved in tissue analysis (e.g. immunofluorescent staining) with the use of microscopy techniques.</p>
Profile of candidates/requirements:	<ul style="list-style-type: none">• M.Sc. in Biology, Biotechnology or M.D. in Medicine• Good knowledge of English,• Knowledge of Adobe Photoshop, Adobe Illustrator, PowerPoint,• Teamwork skills,• Experience or knowledge in laboratory work (gel electrophoresis, PCR, RT-PCR, q-PCR, DNA/RNA/Protein extraction/purification, DNA cloning, western blot, cryo- and paraffin- sectionings, cell culture, FACS sorting, immunofluorescent /immunohistochemistry staining, in situ hybridization, mouse breeding/numbering/genotyping, some basic mouse surgeries, microscope techniques);• PhD student status (on the day of starting work in the project)
Required documents:	<ol style="list-style-type: none">1. Cover letter describing Candidate's motivation2. Current curriculum vitae (CV), including information on known and used molecular biology techniques, a list of attended conferences (with titles and authors of the scientific presentations), publications, patents, scholarships, prizes and awards, or other relevant documents demonstrating the excellence of Candidate, Candidate's qualifications for the biology3. Master degree certificate (or equivalent)4. Document confirming PhD Student status (to be provided before starting work in the project);5. Letter of recommendation (LoR) from a scientist who is familiar with the Candidate (submitted directly to email address below)6. Information on the processing of personal data - the form is available at the CeNT UW webpage: https://cent.uw.edu.pl/en/wp-content/uploads/sites/5/2020/07/Information-clause_personal-data-processing.pdf
We offer:	<ul style="list-style-type: none">• We offer an interesting work in a young, dynamically developing team,



	<ul style="list-style-type: none">• Access to state-of-the-art equipment and data• Opportunities for interdisciplinary and international collaborations• Opportunities and support to grow
Please submit the following documents to:	k.kobielak@cent.uw.edu.pl with the title " Ph.D. Student Application OPUS-23 "
Application deadline:	24.09.2023
Date of announcing the results:	29.09.2023
Method of notification about the results:	e-mail, CeNT website: https://cent.uw.edu.pl/en/career/