**Position:** PhD Student – scientific scholarship

**NCN competition type:** MAESTRO – NZ

**Number of positions:** 1

**Name of unit:** Adam Mickiewicz University in Poznań

**Requirements and qualifications:**

* The successful candidate must have a Ms. degree in biology, biochemistry, chemistry, genetics, computational biology or related life science field and must have the status of a doctoral student of the Doctoral School;
* Very good results from graduate studies;
* The candidate is expected to have passion for science, ability to work independently as well as collaboratively, strong organizational and communication skills, and a record of productive research;
* Required languages: Polish or English (level good or better);
* Experience in human molecular genetics, molecular and cellular biology;
* An ideal position for candidates who have already come into contact with experiments related to biochemistry and RNA biology or whole transcriptome research techniques.

**Task & project description:**

Project leader: Prof. Krzysztof Sobczak

Project title: Pathogenesis driven by RNAs with expansion of trinucleotide repeats: mechanisms and therapeutic strategies

Position for PhD student available at the Department of Gene Expression, Institute of Molecular Biology and Biotechnology, Faculty of Biology, Adam Mickiewicz University Adam Mickiewicz in Poznań, which is the largest academic center in Poznań and one of the best centers in Poland (ID-UB status).

We are looking for people interested in research work in a team dealing with research related to human molecular genetics, under the direction of Professor Krzysztof Sobczak. The team's interests focus primarily on the study of the molecular basis and the development of experimental therapy for selected neurodegenerative diseases associated with the occurrence of trinucleotide repeat expansion (myotonic dystrophies - DM, and fragile X syndromes - FXS and FXTAS).

DM1 is an autosomal dominant disorder caused by CTG repeat expansion in the 3'-UTR of the DMPK gene. The DMPK transcript contains extended CUG repeats (CUGexp) and is retained in the nucleus in the form of nucleoprotein clusters (foci). This nuclear retention of the DMPK transcript is in part a consequence of the interaction of CUGexp RNA with CUGexp binding proteins, such as splicing factors belonging to the Muscleblind-like protein (MBNL) family. The binding of hundreds of MBNL proteins to a single CUGexp RNA results in their functional deficiency and disruption of alternative splicing, a process normally regulated by these proteins.

In our research, we focus on a deeper understanding of some aspects of the molecular basis of DM and FXTAS, especially those related to RNA metabolism, the functions of individual splicing factors, and disturbances in non-canonical translation occurring directly on the sequence of trinucleotide repeats (the so-called RAN translation). We also focus on the development of therapeutic approaches using antisense oligonucleotides (ASOs) and low molecular weight compounds that prevent the interaction of CUGexp (DM) and CGGexp (FXTAS) transcripts with proteins.

In our laboratory we use a wide range of experimental techniques such as microarrays, deep RNA/DNA sequencing, fluorescence in situ hybridization (FISH); DNA/RNA purification, cloning, genotyping, sequencing and hybridization; western blot, immunoprecipitation, immunohistochemistry; cell cultures, transfection and transduction of mammalian cells, confocal microscopy, single-molecule microscopy and experiments on animal disease models.

**Basic duties:**

* Conducting experiments explaining the mechanisms of RAN translation of CGG repeats in the 5'UTR of the FMR1 gene - whole transcriptome approach.
* Experimental therapy of DM1 and FXTAS with the use of ASO and low molecular compounds; in vitro and in animal models of these diseases.
* Participation in the preparation of publications.

**Terms of employment:**

Scholarship 1 000 PLN from 2024.06.01 to 2024.09.30, with the possibility of extension.

scientific scholarship for a participant of the Doctoral School.

If you have any questions, please contact: prof. Krzysztof Sobczak: phone no. 61 829 5766, e-mail: krzysztof.sobczak@amu.edu.pl

Workplace location: Department of Gene Expression, Institute of Molecular Biology and Biotechnology, Faculty of Biology, Adam Mickiewicz University in Poznań, ul. Uniwersytetu Poznańskiego 6, 61-614 Poznań

**Required documents:**

* CV including scientific achievements;
* Letter summarizing previous work experience and future interests;
* Contact details for supervisors;
* The candidate must meet the following requirements in accordance with the regulations of granting NCN research scholarships for the Maestro 12 call: https://www.ncn.gov.pl/sites/default/files/pliki/uchwaly-rady/2019/uchwala25\_2019-zal1.pdf
* Candidates will be selected through an open competition.

Please include the following statement in your CV: *“Pursuant to Article 6 (1) of the General Regulation on the Protection of Personal Data of 27 April 2016 (Journal of Laws EU L 119/1 of 4 May 2016) I agree on the processing of personal data such as: name, (names) and surname, parents' names, date of birth, place of residence (correspondence address), education, course of previous employment, included in my job offer for the needs of current recruitment.”*

**The required documents should be sent to:** **praca-ibmib@amu.edu.pl** **Application deadline: 2024.05.20, 23:59.**

The competition may be extended until a suitable candidate is found who meets all the requirements.