**PhD STUDENT – SCIENTIFIC SCHOLARSHIP**

Human Molecular Genetics Research Unit, Institute of Molecular Biology and Biotechnology, Faculty of Biology, Adam Mickiewicz University in Poznań, invites applications for a PhD student/scientific scholarship, in the NCN OPUS project:

**“The novel role of STAT1 in Vascular Smooth Muscle Cell and Macrophage common and –specific transcriptional responses that reflect onset and progression of atherosclerosis”**

Project description:

Atherosclerosis is a chronic inflammatory disease of the blood vessels, characterized by atherosclerotic lesion formation. Early onset of atherosclerosis is represented by recruitment of blood leukocytes to the injured vascular endothelium and altered contractility of Vascular Smooth Muscle Cells (VSMC) modulated by multiple inflammatory mediators. Advanced plaques are loaded with macrophages (MQ), T lymphocytes, dendritic cells (DC), VSMCs, lipids, and cholesterol. As a result of apoptosis they may rupture and lead to myocardial infarction. Unraveling the details of inflammatory pathways controlling the process of lesion onset and progression, especially in VSMC and MQ that are instrumental in atherosclerosis, should aid the development of novel monitoring and treatment strategies.

The pro-inflammatory cytokine interferon (IFN)gamma(g) is vital for both innate and adaptive immunity and is also expressed at high levels in atherosclerotic lesions. As such IFNg plays a crucial role in the pathology of atherosclerosis through activation of signal transducer and activator of transcription (STAT) 1. Thus, STAT1 homodimers [also known as Gamma Activating Factor (GAF)] activate genes containing the IFNg activation site (GAS). Our preliminary results identified a second IFNg induced pathway commonly used in VSMC and MQ, in which STAT1-STAT2 heterodimers in association with interferon regulatory factor (IRF) 9 [known as ISGF3], promotes expression of ISRE driven genes. At the same time VSMC and MQ-specific IFNg-activated transcriptional responses were recognized that relied on collaborations of STAT1 homodimers with lineage determining transcription factors (LDTF). Thus, in

MQ STAT1 collaborated with PU.1 on closely located binding sites, in cell-type specific as well as cell-type common responses, which correlated with the presence of “activating” histone acetylation and methylation marks. With the identification of a number of candidate VSMC-LDTF, it is tempting to speculate that a similar STAT1-LDTF collaborative transcriptional mechanism is active in VSMC.

Hypothesis: IFNg induced VSMC and MQ common and specific transcriptional responses depend on STAT1together with LDTF and associated epigenetic changes and can serve to monitor “plaque-specific” progression of atherosclerosis.

Objectives:

1. To further characterize the role of ISGF3 and GAF in timely IFNg-induced VSMC and MQ common and -specific transcriptional responses, chromatin interactions and epigenetic changes.
2. To further characterize the role of PU.1-STAT1 collaborations in timely IFNg-induced MQ-specific and VSMC and MQ common transcriptional responses and chromatin interactions.
3. To identify and characterize VSMC-LDTF-STAT1 collaborations in timely IFNg-induced VSMC-specific and VSMC and MQ common transcriptional responses and chromatin interactions.
4. To select STAT1-dependent gene expression signatures that reflect VSMC and MQ-common and specific inflammatory responses and characterize their expression during experimental atherosclerosis.

**The candidate for this position should have:**

* Master's degree in biology, microbiology, biotechnology or related fields
* Active PhD student status, be a participant in a Doctoral Study Program or Doctoral School
* Proficiency in English - ability to communicate clearly and concisely
* Possible laboratory experience with any of the following techniques: cell culture of primary cells, RNA isolation, PCR, Real-Time PCR, gene expression profiling (RNAseq), protein analysis, chromatin isolation, ChIP-seq, ChIP-PCR, ATAC-seq, CRISPR-Cas9
* Curiosity, ability of solving problems, working in a team, and general strong motivation towards scientific work and learning new skills
* Affinity with NGS experimentation and data analysis will be a strong advantage
* Experience in writing articles and presenting at international conferences
* Ability to work independently, but also as a team member

**The application should include:**

* Curriculum Vitae (CV)
* Cover letter, describing Candidates motivation
* Master's degree diploma
* Contact information for a reference to one or more scientists familiar with the Candidate
* Information about scientific publications, scholarships, prizes and awards or other relevant documents demonstrating the excellence of the Candidate
* A list of attended conferences with titles and authors of presentations Candidate's
* A declaration enabling the processing of personal data (consent clause) in accordance with the Personal Data Protection Act 1997.

**The employment as a PhD student with a salary of 5.000 PLN (gross) for 7 months. Starting date of employment: March 2025.**

Documents should be submitted by **15.02.2025** to the following address: h.bluyss@amu.edu.pl

**INFORMATION ON PERSONAL DATA PROCESSING**

**Information clause**

Pursuant to Article 13 of Regulation (EU) No. 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of individuals with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46/EC - General Regulation on data protection (Official Journal of the European Union L 119/1 of 04.05.2016) I hereby inform you that.

1. The Controller of your personal data is Adam Mickiewicz University in Poznań with its registered office at 1, Henryka Wieniawskiego Street, 61-712 Poznań.

2. The controller of personal data has appointed a Data Protection Inspector to supervise the correctness of personal data processing, who can be contacted via e-mail address: iod@amu.edu.pl.

3. The purpose of the processing of your personal data is to carry out the recruitment process for the indicated position.

4. The legal basis for the processing of your personal data is Article 6(1)(a) of the General Data Protection Regulation of 27 April 2016 and the Labour Code of 26 June 1974 (Journal of Laws of 1998, N21, item 94, as amended).

5. Your personal data will be stored for a period of 6 months from the end of the recruitment process.

6. Your personal data will not be made available to other entities, except for entities authorized by law. Access to your data will be granted to persons authorized by the Controller to process them within the scope of their professional duties.

7. You have the right to access your data and, subject to the provisions of law, the right to rectify, delete, restrict the processing, the right to transfer data, the right to object to the processing, the right to withdraw consent at any time.

8. You have the right to lodge a complaint to the supervisory authority - the President of the Office for Personal Data Protection, ul. Stawki 2, 00-193 Warszawa.

9. Provision of personal data is obligatory on the basis of legal regulations, in the remaining scope it is voluntary.

10. With regard to your personal data, decisions will not be taken automatically, in accordance with Article 22 RODO.

**Consent clause**

In accordance with Article 6(1)(a) of the General Data Protection Regulation of 27 April 2016 (Journal of Laws of the EU L 119/1 of 4 May 2016) I agree to the processing of personal data other than those indicated in Article 221 of the Labour Code (name(s) and surname; parents' names; date of birth; place of residence; address for correspondence; education; previous employment), included in my job offer for the purpose of current recruitment.

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*(place and date) (signature of the person taking part in the recruitment process)*