

Job offer - postdoctoral researcher at the International Centre for Cancer Vaccine Science, University of Gdańsk

**Project: Mechanisms for Establishment of Transcriptional Memory,
NCN SONATA, UMO-2022/47/D/NZ1/01883**

About the project:

This project aims to discover novel epigenetic mechanisms by understanding cellular, molecular and structural aspects of initiation of interferon-gamma (IFN γ) transcriptional memory.

Epigenetics is a process that describes a heritable phenotype resulting from changes in the cell without alterations in the DNA sequence. It is fundamental for multicellular life as it maintains gene expression during growth and in adulthood.

Transcription factor feedback loops can sustain active gene expression but are not always required. This suggests that other processes are involved in preserving active transcription. Strikingly, such mechanisms are largely unknown. This knowledge gap comes from the fact that uncoupling transcription from maintenance of active states is difficult to achieve experimentally. Due to this reason the field of epigenetics is almost exclusively focused on studying the mechanisms responsible for sustained gene silencing. To uncouple transcription from maintenance, and gain access to novel epigenetic mechanisms, I am exploring a phenomenon present in innate immunity: transcriptional memory. During this process, cells primed with a certain cue will show increased rates of gene expression after restimulation many days later.

In our previous work, we set up a robust transcriptional memory protocol using interferon gamma (IFN γ) stimulation. We discovered novel genes that show the effect and gained initial insights into the molecular mechanisms controlling initiation of the phenomenon. We discovered locally acting repressors and identified specific transcription factors involved in the establishment of transcriptional memory. Moreover, we showed that initiation of memory is not just a simple consequence of transcription as artificial activation of a memory gene does not lead to memory initiation. We are now in a unique position to understand this epigenetic problem in unprecedented detail. We have the necessary tools, expertise and preliminary data to uncover novel mechanisms of transcriptional memory.

In this project, we want to understand how IFN γ transcriptional memory is initiated on a cellular, molecular and structural levels; generalize the discoveries to maintenance of active transcription and translate the knowledge to macrophage biology. We have four major aims: (1) determine what factors are required for establishment of transcriptional memory; (2) reconstitute the memory initiation complex in vitro; (3) generalize the discoveries to maintenance of active transcription in other cell types; and (4) translate the knowledge to maintenance of macrophage identity, in cell lines and primary cells.

In summary, this project addresses a major knowledge gap and will lead to fundamental discoveries in epigenetics. It will bring about multidisciplinary training of future scientists. Insights from this research will uncover new avenues for manipulation of the innate immune system for the benefit of public health, with particular focus on macrophage based anti-cancer immunotherapies. This will pave the way for industrial collaboration and new jobs in the biotechnology sector.

About the Candidate:

Passionate about human molecular biology, mechanisms of gene expression, epigenetics and innate immunity. Goal oriented, kind, open-minded, team player, professional and well organized.

Experienced in cell culture and molecular biology techniques.

Fluent in English, as well as experienced in writing scientific manuscripts.

Requirements:

- 1) PhD degree in biotechnology/biology or similar discipline
- 2) PhD degree obtained maximum 7 years before the year of employment in the project. It can be extended beyond 7 years for the following properly documented circumstances:

Maternity - 18 months extension for each child born before or after the date of the successful defense of their PhD degree. If the applicant can document a longer total maternity leave, the eligibility period will be extended by the documented number of actual leave(s) for all children taken.

Paternity extension by the documented time of paternity leave taken for each child.

Long-term illness (>90 days): extension by the documented amount of leave.

- 3) PhD degree obtained in an entity other than University of Gdansk, or the candidate has completed a continuous and documented postdoctoral training of at least 10 months at an institution abroad.

Working conditions:

- Employment contract for up to 27 months (full time, "adjunct" position) with possibility of prolongation, after 3 months probation contract. Salary before tax & social insurance deductions approx. 8.700 PLN (gross). Additional yearly remuneration (so-called "13th salary") if eligible and according to binding provisions at the University
- Starting date to be discussed, not later than September 1st, 2024.
- Friendly and inspiring working atmosphere.
- Presentation of work at international and national conferences.
- Scientific connections at Harvard and Oxford Universities.
- Possibility of co-financing additional training e.g. bioinformatics or postgraduate studies in management.
- While employed in this project, the candidate shall not receive remuneration coming from direct costs of other NCN research projects as well as from another employment contract, including an employer from outside Poland.
- In case of questions, you are encouraged to contact dr hab. Wojciech Siwek wojciech.siwek@ug.edu.pl before submitting the application.

Application documents:

Application documents shall include (as one pdf document):

- a CV of the candidate including a list of publications and achievements
- copy of the PhD diploma
- a letter of motivation explaining your general interest in this position



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- name, affiliation, email, and phone number of at least two referees to contact for recommendation
- declaration of the applicant that his work is not financed by other projects of the National Science Center.

Please include the signed statement on the GDPR information clause for this recruitment downloaded from:
<https://iccv.ug.edu.pl/work-with-us/open-positions/>

Application in English shall be sent to: wojciech.siwek@ug.edu.pl with “TXN memory postdoc” in the email’s title **until 07 July 2024**, 23:59.

Selected candidates will be invited to an interview. The candidates will be selected by a competition committee appointed by the Rector of University of Gdansk.