Institute of Biochemistry and Biophysics
Polish Academy of Sciences

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Institute of Biochemistry and Biophysics PAS, Laboratory of Mass Spectrometry is opening a call for a Post Doc position in the project funded by the Polish National Science Centre "A proteomic approach to define interactors of Zika Virus with the host cell nucleolus."

Project leader: Prof. Michał Dadlez
Maximum duration of the project: 6 months
Position: post-doc (full-time contract)
Position starts on: 01.02.2020
Salary: 7600 PLN/mth (brutto brutto)

Project description: Zika virus (ZIKV) is a rapidly spreading, neuroteratogenic virus from the *Flaviviridae* family that has been linked to microcephaly and other brain malformations. As disrupted proliferation and apoptosis of neuroprogenitor cells (NPCs), and excessive apoptosis of maturing neurons (which are major contributors to microcephaly) are both observed in response to ZIKV infection, it is highly likely that ZIKV is neuroteratogenic due to such cytotoxic effects. However, a question remains what are the mechanisms of ZIKV-induced cell cycle arrest and apoptosis. Preliminary experiments suggest that in ZIKV-infected human- and rat NPCs as well as rat embryonic neurons disruption of the nucleolus precedes apoptosis. The nucleolus is a center of ribosomal biogenesis, hosting substrates as well as critical regulators of that process. Perturbation of ribosomal biogenesis triggers ribosomal stress (RS), characterized by suppressed growth and/or apoptosis in a p53-dependent or p53-independent manner. Interestingly, preliminary data revealed that the overexpressed ZIKV capsid protein (ZIKV-C) localized to the nucleoli, disrupted their structure and induced RS-mediated neuronal apoptosis. Our previous experiments revealed enrichment of a set of proteins known to be linked to microcephaly in the nucleoli of the developing brain cells. Therefore, preliminary data suggest that RS may play a crucial role in pathogenesis of ZIKV-induced brain malformations. While neither extent nor mechanism of ZIKV-induced RS are known, we propose that nucleolar proteins of ZIKV including ZIKV-C and a predicted nucleolar protein ZIKV-NS5 interact with cellular ribosomal biogenesis factors reducing their activity and inducing RS. We plan to test this hypothesis by investigating the anti-nucleolar mechanisms of ZIKV-C and/or ZIKV-NS5 by determining their interactions with host cell proteins.

The co-investigator recruited to the project will be developing and propagating HEK and hNPC cell cultures transfected with ZIKA proteins. He/she will also optimize the co-IP conditions and perform interactomic experiments.

Requirements:

- working knowledge on cell cultures, co-IP and molecular biology methods (transient transfection), perferably documented with publications
- at least 6 years of hands-on experience in the MS core facility
- at least 10 publications in peer-reviewed journals

- PhD in life sciences (chemistry, biology) obtained before starting the position.
- fluent communication in English (required for collaboration with American conterparts)
- good teamwork and communication skills

Required documents:

- copy of PhD diploma
- CD including scientific achievements and list of methods known/used by the applicant
- list of publications
- motivation letter (max 1 page, 12 pts)

Application:

Please sent the aforementioned documents by email to michald@ibb.waw.pl and esme@ibb.waw.pl. If you have any questions, please contact the Mass Spectrometry Lab.

Closing date: 31.12.2020