



Position: PhD position in the project: “The function of SWI/SNF- type chromatin remodeling complexes in control of metabolic processes”

Number of positions: 3

Institution: Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Warsaw

Maximum period of position agreement: 9 months

Positions start on: October 1, 2016

Salary (contract of specified task) amount: 1600 PLN/ month (brutto)

Three PhD positions are available to work on a project within the framework of a OPUS grant awarded by the Polish National Science Centre.

The project:

Chromatin remodeling complexes (CRCs) of the SWI/SNF family are implicated in numerous regulatory processes in eukaryotes, including growth, differentiation and development. The multiplicity of genes encoding SNF2-type ATPase and SWI3-type SWI/SNF CRC subunits in Arabidopsis suggests that plant CRCs carry different combinations of these core components. Using yeast two-hybrid screens, we identified potential auxiliary proteins of Arabidopsis SWI/SNF CRCs and analyzed their *in vivo* interactions with CRC core components by FRET assays. We also determined subcellular localization of core CRC subunits by *in vivo* imaging and established a powerful technology for purification of SWI/SNF complexes. Furthermore, we characterized genetic interactions of *swi3c* mutation with known mutations that affect the functions of key genes controlling physiological and developmental responses to different hormones, and biotic and abiotic stresses. We also identified metabolomic aberrations caused by inactivation of the SWI/SNF complex in Arabidopsis. Our preliminary data strongly suggest biologically important and evolutionary conserved relationships between the SWI/SNF chromatin remodeling complex and main metabolome-related TOR kinase signaling pathway. The proposed project is based on a focused multidisciplinary approach aiming at precise definition of the evolutionary conserved relationships between SWI/SNF CRCs and TOR kinase signaling pathway in plants and human, using the model plant Arabidopsis thaliana and human cell lines.

To carry out this interdisciplinary, cutting edge project we will use modern and highly advanced molecular biology methods which were successfully implemented and are routinely used in our Laboratory. They include heat inducible gene inactivation using CRE-lox system, deep transcriptomic analysis using DNA microarrays, proteomic analyses employing mass-spectrometry, as well as chromatin immunoprecipitation, Illumina paired-end deep sequencing, and construction of human cell lines with amiRNA silenced genes or expressing modified proteins.

Profile of candidates:

- Master's degree in life science discipline or related (the degree must be achieved before the start of the contract)
- **good knowledge of plant molecular biology methods including Arabidopsis phenotyping, native protein purification, analysis of protein-protein interaction *in vivo* and plant transformation and/or experience with human cell lines workup, cell line transfection, stable cell lines construction**



- scientific achievements
- experience gained in foreign laboratories
- experience in work with chromatin/DNA (cloning, chromatin immunoprecipitation)
- independent thinking in experiment designing
- high capability in managing parallelly several projects
- willingness to collaborate with other scientists and foreign laboratories
- good written and verbal English

The project is executed in young, motivated team in tight collaboration with foreign partner institutions: Max-Planck Institute for Plant Breeding Research in Cologne and Max-Planck Institute for Plant Molecular Physiology in Potsdam- Golm.

Required documents:

1. Motivation letter addressed to the Director of the Institute of Biochemistry and Biophysics PAS.
2. CV containing description of scientific achievements
3. A copy of the master's degree certificate.

Application in English should be sent to Dr. hab. Tomasz Sarnowski <tsarn@ibb.waw.pl>. Please include the required documentation and a contact of at least one potential reference. Important: All applications must contain the following statement to allow us process your data: "I hereby give consent for my personal data included in the job offer to be processed for the purposed of recruitment under the Data Protection Act 1997 (Dz. U. 2002 no. 101, item 926 with subs. changes)."

Principal Investigator: Dr. hab. Tomasz Sarnowski

Address for applications: tsarn@ibb.waw.pl The granting institution may seek to contact the best candidates only

Closing date: 21.09.2016