



Post-doc position is available in NCN funded project (OPUS grant) to study molecular plant-microbe interactions.

Project title: *“Isolation of resistance genes to PVY infection, useful in potato (*Solanum tuberosum* L) breeding and its functional analysis”*

Institution: Laboratory of Plant Pathogenesis, Institute of Biochemistry and Biophysics, PAS, Warsaw

Maximum period of position agreement: 36 months

Position starts on: July 2018

In this project, we will attempt to isolate genes, from various potato genomes, that confer an extreme resistance (ER) trait to potato virus Y (PVY) infection. To this end we will apply a modified RenSeq technology that combines enrichment of targets (i.e. sequences encoding proteins of the R super family) and large-scale sequencing of the third generation PacBio SMRT (Pacific Biosciences Single-Molecule Real Time Sequencing). This approach has allowed us previously to isolate the genomic sequence of the *Ry_{sto}* gene from *S. tuberosum* from the Polish cultivar Alicja. In parallel, to confirm an involvement of the previously isolated *Ry_{sto}* gene from Alicja cultivar, in the ER response, we will generate mutants, that are unable to synthesize a functional protein using the CRISPR-Cas9 technology. Using the transgenic potato plant model, we will be able to give a precise answer as to whether the *Ry_{sto}* gene product is dominant (epistatic) to the Ny-1 gene, which determines the temperature-dependent defense response of the potato to PVY infections with programmed cell death characteristics (PCD). In addition, using the *Ry_{sto}*: DsRed fusion protein, we will examine its subcellular localization and possible translocation during defense response and we will ascribe a role to a protein pool with a given localization in the defense response.

The project is performed in the tight collaboration with The Sainsbury Laboratory in Norwich, UK and Plant Breeding and Acclimatization Institute in Młochów, Poland.

Candidates Profile:

- candidates should hold a PhD with relevant experience in the field of molecular cloning protein purification and in particular practical experience in plant biology
- practical knowledge of Gene Enrichment- and SMRT-technologies and bioinformatics tools is crucial
- scientific achievements
- willingness to collaborate with other scientists and foreign laboratories
- good proficiency in English and good presentation skills

Applicants should provide the following documents:

- curriculum vitae incl. a list of publications and expertise
- a motivation letter
- a copy of PhD diploma
- a reference letter

Applications in English or in Polish should be sent to Prof. Jacek Hennig, jacekh@ibb.waw.pl

Closing date: 30.06.2018