

II. FORM FOR EMPLOYERS

INSTITUTION: Institute of Plant Genetics, Polish Academy of Sciences (IPG PAS)

CITY: Poznań, Poland

POSITION: 1 scholarship position, PhD student type

DISCIPLINE: Molecular Biology, Fungal Genomics

POSTED: 5 October 2017

EXPIRES: 31 December 2017

SALARY: 3000 PLN ca. 750 Euro per month - scholarship

WEBSITE: <http://www.igr.poznan.pl/en/announcements/job>

KEY WORDS: secondary metabolism, molecular diagnostics of toxigenicity, genome assembly, gene annotation, phylogenomics

DESCRIPTION

Place of employment: Department of Biometrics and Bioinformatics

Supervisors: dr Grzegorz Koczyk

Goals of employment:

A three-year contract PhD student scholarship financed by National Science Centre, Poland in the frame of the OPUS11 project Reg. No 2016/21/B/NZ9/01875 entitled **“Origins and spread of the capacity towards synthesis of bioactive macrolactones in higher fungi”**.

The successful candidate will actively perform the following main tasks connected to the project:

- Molecular diagnostics of macrolactone biosynthetic genes (PCR-based amplification, preparation of samples for NGS and Sanger sequencing);
- Assembly of NGS (next generation sequencing) and Sanger sequencing data, structural and functional annotation of genomic sequences;
- Determination of environmental factor influence on the activity of biosynthetic genes and accumulation of select macrolactone compounds (Petri dish and liquid culture assays of fungi on different media, real-time PCR measurements of transcript expression)

Supplementary tasks: such as computational analysis of gene family histories or statistical modelling of results may arise depending on PhD student's progress, as part of preparation of the result papers and PhD thesis.

In addition to the above research tasks, the candidate will be required to register for PhD studies, participate in the activities related with the doctoral thesis (eg. inscription in the doctoral School, participation in seminars and workshops etc.) and other Institute, Department and Team activities and initiatives, in agreement with the rules of the Institute of Plant Genetics, Polish Academy of Sciences.

Research area:

The higher fungi are amongst the most prolific producers of bioactive compounds of considerable impact on human life. From the initial discovery of the first antibiotics and quantification of the harmful influence of mycotoxins on human and animal health, these mechanisms have been of significant interest to both researchers and professionals in the fields of biochemistry, genetics and applied biotechnology. Recently, strides have been made in regards to characterising the evolutionary basis of metabolic diversity associated with biosynthesis of secondary metabolites (mainly: polyketides, sesquiterpenoids, non-ribosomal peptides). In regards to biosynthesis of aromatic polyketides, both the comprehensive reviews of biochemical aspects of biosynthesis (Liu

et al., 2015; Throckmorton et al., 2015) and our own phylogenomic roadmap (Koczyk et al., 2015) have shown how the rich repertoire of metabolites is an effect of mechanistic diversification during early evolution of higher fungi.

Of the phenomena, only partially explained by recent reconstructions, the underlying sources of extant diversity of benzenediol (both resorcylic and dihydroxyphenylacetic acid) macrolactone biosynthesis remain particularly interesting. There is double evidence from recent studies of both biosynthetic and detoxification mechanisms, suggesting that both the capacity to biosynthesise the macrolactone molecules and the subsequent adaptations to the presence of these toxic compounds are likely ancient in the context of filamentous fungi. We aim to explore the validity and underpinnings of this evidence through bioinformatic, phylogenetic and molecular biology analyses (including next generation sequencing of select fungal strains and in vitro assays).

Qualifications:

To be considered for this position, the applicant should possess a Master's degree in the area of Life Sciences. Documented experience in (fungal) molecular biology, biotechnology or bioinformatics will be required. Candidates with additional expertise in expression analysis/molecular diagnostics on the laboratory side, or documented experience in phylogenomics will be preferred. Candidate must be willing to work both in the lab context and in silico. Fluent spoken and written English and ability to work in a collaborative environment are required..

Documents required:

- Detailed CV in English;
- Copy/ copies of the diploma(s);
- Motivation letter (self-presentation describing the academic/professional career of the candidate and documenting the fulfilment of skill requirements pertaining to the position);
- Name and address of two personal references (don't submit open recommendation letters).

The application must contain the following statement:

"I hereby give consent for my personal data included in my offer to be processed for the purposes of recruitment, in accordance with the Personal Data Protection Act dated August, 29,1997 (uniform text: Journal of Laws of the Republic of Poland 2014 item 1182 with further amendments)".

The application should contain the full set of documents (1 pdf or doc file), which should be sent by email entitled "OPUS LACTONES" to the HR Department :kadry@igr.poznan.pl with the copy to gkoc@igr.poznan.pl or by mail to the address: Institute of Plant Genetics PAS, Strzeszyńska str. 34, 60-479 Poznań. The selected candidates may be invited for an interview (at IPG PAS or through Skype).

Announcement of the results: Within one month from the deadline for applications.

General information

The city of Poznan has 550 thous. inhabitants. It is one of the biggest cities in Poland, with a large academic centre with numerous universities and research institutes. It is located 300 km westwards from Warszawa (Warsaw), the capital of Poland, and 300 km eastwards from Berlin, the capital of Germany. The city is visited by many foreigners participating in numerous fairs organized at the

Poznan International Fair Grounds, as well as students, researchers, businessmen, and tourists. The city is friendly and safe. A great number of students makes it lively and full of various events. The city is convenient to work in and to spend leisure time, due to its beautiful surroundings (Wielkopolski National Park with its forests and lakes). Poznan is the capital of a large agricultural plain.

Poznan is one of the largest life science centres in Poland with universities and numerous scientific institutes and research centres hosting annually over 130 thous. students. The Institute of Plant Genetics in Poznan has a strong tradition of research on theoretical and applied aspects of plant/fungal biology. Our scientific activity encompasses wide array of scientific disciplines like metabolomics, transcriptomics, molecular biology and bioinformatics.

The Institute of Plant Genetics PAS is located at Strzeszyńska 34, Poznań, Poland. To learn more about the Institute and its current departments please watch our promotion film: <http://tv.pionier.net.pl/Default.aspx?id=3012> and visit the website of the Institute: www.igr.poznan.pl/en/home

Contact address for supplementary information:

Dr. Grzegorz Koczyk, Principal Investigator gkoc@igr.poznan.pl

Institute of Plant Genetics, Polish Academy of Sciences
Strzeszyńska 34, 60-479, Poznań, Poland

Phone: +48-61-6550290 (Grzegorz Koczyk)

Fax: +48-61-6550301

Email: office@igr.poznan.pl

www.igr.poznan.pl