

INSTITUTION: Institute of Plant Genetics, Polish Academy of Sciences (IPG PAS)
CITY: Poznań, Poland
POSITION: PhD student
DISCIPLINE: Plant Genetics, Biotechnology
POSTED: **March 5, 2018**
EXPIRES: **April 2, 2018**
SALARY: 2000 PLN ca. 470 Euro per month – contract work
WEBSITE: <http://www.igr.poznan.pl/en/announcements/job>
KEY WORDS: *Aegilops*, chromosome, fluorescence *in situ* hybridization, manipulation, molecular markers, resistance, triticale

DESCRIPTION

Place of employment: Department of Genomics, Cereal Genomics Team, Institute of Plant Genetic of the Polish Academy of Sciences

Supervisor: dr Michał Kwiatek

Goals of employment:

A three-year contract financed by National Centre for Research and Development, Poland in the frame of the LIDER VIII project Reg. No 0004/L-8/2016, SEG-CHROM-TRANS, entitled **“Chromosome engineering in effective transfer of chromosome segments of wild goatgrasses (*Aegilops* sp.) carrying genes responsible for resistance/tolerance against fungal diseases into triticale (× *Triticosecale* Wittmack)**

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

- Cytogenetic and molecular analysis of translocation forms of triticale hybrids;
- Analysis of the resistance genes expression;
- Cross-hybridizations;
- Preparation of articles for publication and presentation of results in seminars and other scientific meetings.

In addition to the above 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 and Department activities and initiatives, in agreement with the rules of the Institute of Plant Genetics, Polish Academy of Sciences.

Research area:

This project focuses on introduction of chromosome segments of goatgrasses (*Aegilops* spp.) carrying leaf rust and yellow rust resistance genes into cultivated triticale (× *Triticosecale* Wittmack) using chromosome engineering. This project will encompass three scientific stages. The aim of first stage is to develop three types of translocation plants carrying *Lr22a+Lr39* (from *Aegilops tauschii* Coss.), *Lr54+Yr37* (from *Ae. kotschyi* Boiss.) and *Lr59* (from *Ae. variabilis* Eig.). Those primary recombinants will be produced using induced hybridizations between triticale monosomic plants carrying a donor *Aegilops* chromosome and triticale bearing 2R telosomic chromosome as an acceptor. Second stage involves the production of secondary recombinants, carrying reduced segment of *Aegilops* chromatin on chromosome 2R of triticale. The consolidation of the resistance genes loci will be the last step of the project. This will be achieved by reciprocal hybridization of three crossing combinations. Genotyping and phenotyping will be conducted in purpose to rate the chromosome structure and to evaluate the expression resistance genes using

inoculation tests and plant-pathogen interaction analysis. The innovative character of this project is manifested by the precise chromosome manipulation and direct transfer of donor chromatin (*Aegilops*) carrying desirable genes or loci into acceptor chromosome (triticale). This kind of technology enables to introduce newly discovered and effective resistance in fairly short period of time. Moreover, it allows to omit the time-consuming classical breeding programs, that are based on intergeneric hybridization with resistant forms of wheat (*Triticum aestivum* L.), subsequent backcrossing and multi-year selection of recombinants. All triticale translocation forms obtained at each stage of this project will be deployed in the breeding programs, in purpose to produce improved and resistant triticale cultivars.

Qualifications:

To be considered for this position, the applicant should possess a Master degree in the area of Life Sciences. Candidates with experience in plant cytogenetics or genetic mapping or resistance breeding will be preferred.

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 "Doktorant LIDER SEG-CHROM-TRANS" to the HR Department kadry@igr.poznan.pl with the copy to mkwi@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 plant 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 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:

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