Professor Robert Hasterok, the principal investigator in the project “CDKG/Ph1: is there a common process that regulates genomic stability in grasses?” announces an open call for a PhD student

- **Place:** University of Silesia in Katowice, Faculty of Biology and Environmental Protection, Department of Plant Anatomy and Cytology, Katowice, Poland
- **Call opens:** June 2015
- **Deadline for applications:** 15 September 2015
- **Project type:** HARMONIA international research project funded by the Polish National Science Centre ([http://www.ncn.gov.pl/finansowanie-nauki/konkursyotypy/4?language=en](http://www.ncn.gov.pl/finansowanie-nauki/konkursyotypy/4?language=en))
- **Length of employment in the project:** up to 30 months, starting in October/November 2015
- **Conditions:** a PhD student stipend funded from the project at 3 000 PLN/month. Obtaining this stipend does not rule out the possibilities for applying for other stipends that are applicable to PhD students. We also offer office work space, University computer and the possibility of research visits and training courses abroad that are linked with this project
- **Note:** According to normal procedure for PhD studies, the successful candidate will be required to take the course “Advanced methods in biotechnology and biodiversity” that is conducted in English at the Faculty of Biology and Environmental Protection, Department of Plant Anatomy and Cytology, Katowice, Poland. More details about this can be found at: [http://www.wbios.us.edu.pl/studia-w-jezyku-angielskim-advanced-methods-in-biotechnology-and-biodiversity.html](http://www.wbios.us.edu.pl/studia-w-jezyku-angielskim-advanced-methods-in-biotechnology-and-biodiversity.html)

**Qualifications and criteria:**

- A MSc or equivalent experience in biological sciences with specialisation in plant molecular cytogenetics, plant genetics, plant molecular biology or related discipline (essential criterion)
- Motivation and enthusiasm to undertake challenging research work, and a willingness to further scientific development (essential criterion)
- Ability to work independently, plan and conduct experiments, analyse results (essential criterion)
- Effective operational proficiency in English (will be verified by the recruiting panel during the interview; essential criterion)
- Mobility – this is an international research collaboration project with Aberystwyth University, UK at which some of the research will be conducted by the appointee (essential criterion)
Demonstrable experience in routine plant molecular cytogenetics methodology, e.g. fluorescence in situ hybridisation, immunostaining techniques or ability to articulate the willingness to acquire such expertise (essential criterion)

Scientific achievements of the young researcher as defined by the relevant statue of the Polish National Science Centre, including publications in a relevant area and conference papers with particular attention to oral presentations given in person (desirable criterion)

Distinctions resulted from the past research activity, fellowships, stipends, awards, research experience acquired in other research institution in Poland or/and abroad, workshops, training courses, participation in research grants, etc. (desirable criterion)

**Project description:**

Nuclear genome integrity is a key prerequisite for the evolutionary success of any eukaryote. In plants, which often are allopolyploids, it is particularly important in terms of maintaining correct pairing and recombination of homologues and suppressing pairing of homoeologues which could have a deleterious effect on meiosis and fertility. In common bread wheat, the restriction of recombination to homologues only is controlled by a single dominant locus (Ph1) which contains several copies of cyclin-dependent kinase-like (CDK) genes that are both structurally and functionally related to the phylogenetically conserved CDKG/CDK11 class. Since CDKG was recently found to be involved into chromosome pairing in Arabidopsis, the strong suggestion is that the structurally related Ph1 kinase modulates this process in grasses, and thereby promotes genome stability.

The aim of this project is to determine whether or not grasses have a genome stabilisation mechanism based upon the activity of these CDKs. In order to answer this question, the relatively simple and tractable allotetraploid species *Brachypodium hybridum* (2n=30) has been chosen as a comparator. It has numerous ‘model’ attributes, such as a very small (~600 Mb), sequenced nuclear genome, well-studied phylogeny identifying its putative evolutionary ancestors, and an ever-growing repertoire of experimental resources providing unique opportunities to address many novel and important areas of molecular cytogenetics and biology. It is a fully fertile allotetraploid with 15 bivalents at metaphase I. Such regularity implies that this species suppresses homoeologous pairing and recombination to maintain its diploid-like status.

In terms of the fundamental research, comprehending the basis of such control is important for our better understanding of the processes that govern genetic stability in allopolyploids as they are a key source of evolutionary innovation. The discovery of similar or different mechanisms in other grass allopolyploids would have important implications in terms of our understanding of the functional constraints upon the evolution of genome stabilising mechanisms, and in informing our strategies for exploiting and stabilising new polyploids. In the long-term, it may also have some practical impact for the creation of novel and stable interspecific and intergeneric hybrids in advanced breeding programmes, and the genetic improvement of crops such as wheat and oats through introgression from wild relatives. The project will also allow us to develop the technology and skills to address the role of other genes, such as the *Brachypodium* Ph1-like kinases (a much larger multi-gene family), in future projects.
How to apply: (deadline 15 September 2015)

Applications consisting of a supporting statement, CV, two reference letters (the principal investigator may contact those providing a reference to obtain more detailed information concerning the applicants) and all other attachments that document the qualifications and achievements should be sent by email to Professor Robert Hasterok (robert.hasterok@us.edu.pl) as a single PDF file with the title “HARMONIA 2015 – PhD student”. In the email body please include the following statement, which is formally required to process your application:

“I hereby agree for processing my personal data, included in my job offer, for the purpose of recruitment (as defined in the Act of August 29, 1997 on the Protection of Personal Data (Journal of Laws of 2002, No. 101, item 926, with amendments).

Shortlisted candidates will receive by email an invitation for an interview. The interview will include a 20 minute presentation by the candidates of their research interests, academic records and the skills they would bring to this project.

We invite candidates to apply but reserve the right to reply only to shortlisted candidates, who will receive individually the dates of interviews.