

CV

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Department of Biometry and Bioinformatics

Biometry and Bioinformatics Team

Specialisation statistics, biometry, bioinformatics

Research profile

- Head of the Department of Biometry and Bioinformatics IPG PAS.
- Coordinator of the Consortium for Applied Genetics and Genomics POLAPGEN (www.polapgen.pl).
- Currently PI in 3 EU projects (EPITRAITS, FLOWPLAST, TRANSPLANT) and 2 Polish projects (SEGENMAS, GENSEK).
- Carries research on statistical, informatic and bioinformatic methods applicable in the analysis and integration of results of biological experiments, with special attention to experiments performed in genetics, genomics and plant breeding, and research on database structures and tools for storage and processing of plant biology data.
- Works on software development and its implementation in breeding and food processing companies (Eksplan, Sergen), participation in patent application PCT/PL2010/050003.

Methods:

- analysis of linear mixed models,
- functional data modeling,
- multivariate analysis,
- relational databases,
- standardization of experimental information,
- analysis of DNA sequencing data,
- interpretation and integration of data obtained by DNA sequencing.

National and international grants

- **National Centre for Research and Development (NCRD)**

Grant no: **PBS1/A8/12/2012**

Project title: **GENSEK** Molecular markers for effective selection of *Secale cereale* L. forms with increased resistance to pre-harvest sprouting

Coordinator: Faculty of Horticulture, Biotechnology and Landscape Architecture,
Warsaw University of Life Sciences
Partners: IHAR-PIB, IUNG-PIB, IGR PAN, DANKO Plant Breeding Ltd.
Duration: 1.10.2012-30.09.2015

- **International grants**

EU Project **transPLANT** "Trans-national infrastructure for plant genomic science"

Project type: Capacities-Infrastructures-2011-2

Grant no: 283496

Duration: 1.09.2011-31.08.2015

Project coordinator: P. Kersey, EMBL-EBI, Hinxton, W. Brytania

IPG PAS coordinator: P. Krajewski

No of consortium members: 11

Project acronym: **EpiTraits**

Project title: Epigenetic regulation of economically important traits

Project type: Marie Curie Action Initial Training Network

Grant no: 316965

Duration: 1.10.2012-30.09.2016

Project coordinator: M. Stam, Amsterdam University

IPG PAS coordinator: P. Krajewski

No of consortium members: 15

Project acronym: **FLOWPLAST**

Project title: Plasticity of flowering time in response to environmental signals in
Arabidopsis thaliana

Project type: ERA-CAPS

Grant no: ERA-CAPS-I/1/2014

Duration: 1.09.2014-31.08.2017

Project coordinator: M. Schmid, Max Planck Institute for Developmental Biology

IPG PAS coordinator: P. Krajewski

No of consortium members: 5

Some recent papers

Kaufmann K., Muino J.M., Jauregui R., Airoidi C.A., Smaczniak C., Krajewski P., Angenent G.C. (2009). Target genes of the MADS transcription factor SEPALLATA3: Integration of developmental and hormonal pathways in the *Arabidopsis* flower. *PLOS Biology* 7 (4): e1000090.

Kaufmann K., Wellmer F., Muiño J.M., Ferrier T., Wuest S.E., Kumar V., Serrano-Mislata A., Madueño F., Krajewski P., Meyerowitz E.M., Angenent G.C., Riechmann J.L. (2010). Orchestration of Floral Initiation by APETALA1. *Science* 328: 85-89.

Kaufmann K., Muiño J.M., Østerås M., Farinelli L., Krajewski P., Angenent G.C. (2010). Chromatin immunoprecipitation (ChIP) of plant transcription factors followed by sequencing (ChIP-SEQ) or hybridization to whole genome arrays (ChIP-CHIP). *Nature Protocols* 5: 457-472.

Muiño J.M., Kaufmann K., van Ham R.C.H.J., Angenent G.C., Krajewski P. (2011). ChIP-seq Analysis in R (CSAR): An R package for the statistical detection of protein-bound genomic regions. *Plant Methods* 7:11.

Madrigal P., Krajewski P. (2012). Current bioinformatic approaches to identify DNase I hypersensitive sites and genomic footprints from DNase-seq data. *Frontiers in Genetics* 3: 230.

Bailey T., Krajewski P., Ladunga I., Lefebvre C., Li Q., Liu T., Madrigal., Taslim C., Zhang J. (2013). Practical Guidelines for the Comprehensive Analysis of ChIP-seq Data. *PLoS Computational Biology* 9 (11): e1003326.

Krajewski P., Chen D., Ćwiek H., van Dijk A.D.J., Fiorani F., Kersey P., Klukas C., Lange M., Markiewicz A., Nap J.P., van Oeveren J., Pommier C., Scholz U., van Schriek M., Usadel B., Weise S. (2015). Towards recommendations for metadata and data handling in plant phenotyping. *J. Exp. Bot.* 66 (18): 5417-5427.

Mateos J.L., Madrigal P., Tsuda K., Rawat V., Richter R., Romera-Branchat M., Fornara F., Schneeberger K., Krajewski P., Coupland G. (2015). Combinatorial activities of SHORT VEGETATIVE PHASE and FLOWERING LOCUS C define distinct modes of flowering regulation in *Arabidopsis*. *Genome Biology* 16: 31.

Madrigal, P., Krajewski, P. (2015). Uncovering correlated variability in epigenomic datasets using the Karhunen-Loeve transform. *Biodata Mining* 8: 20.

Awards

Silver Cross of Merit, 2005.

Polish Academy of Sciences, Department of Agricultural, Forest and Veterinary Sciences, team award for scientific achievements 2010

Interests / Hobby

Music