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Scientific specialization:

plant molecular genetics, comparative genomics

Research area:

- Comparative analysis of structure and organisation the *Brassica oleracea* and *Arabidopsis thaliana* genomes. This aspect research is realized by construction comparative genetic map for *B. oleracea* by using EST clones from the *A. thaliana* genome.
- Functional analysis of genes resistance to biotic and abiotic stresses in the *Brassica* species
- The role of ABI1 gene homologs in the plasticity and dynamics of the induction of ABA signaling pathway in oilseed rape (*Brassica napus* var. *oleifera* L.) – identification of differences in the activity promoters of ABI1 gene homologs

Local co-operation:

- Department of Biotechnology, Institute of Molecular Biology and Biotechnology, Adam Mickiewicz University, Poznan
- Laboratory of Resistance Genetics, Institute of plant genetics, Polish Academy of Sciences, Poznań

International co-operation

CNRS (Perpignan, France),
University of California (USA)
Rothamsted Research Institute, Harpenden, GB

Training abroad:

- France, CIRAD, Montpellier (2004 r., 2 weeks)
- Great Britain, John Innes Centre, Norwich, (2005r., 3 months)
- Great Britain, Warwick_HRI, Wellesbourne (2006 r., 4 weeks)

List of significant publications:

BABULA D., KACZMAREK M., ZIÓŁKOWSKI P.A. AND SADOWSKI J. (1999). Application of chromosomal map and gene probes of *Arabidopsis* in studies on *Brassica* genomes. NATO Science series, Series A: Life Sciences, edited by Geza Hrazdina, 319: 70-75.

BABULA D., KACZMARK M., DELSENY M., QUIROS C.F. AND SADOWSKI J. (2000). Construction of a genetic map for *Brassica oleracea* based on ESTs from the *Arabidopsis thaliana* genome. Acta Horticulture, 539: 95-99.

BABULA D., KACZMAREK M., BARAKAT A., DELSENY M., QUIROS C.F., SADOWSKI J. (2003). Chromosomal mapping of *B. oleracea* based on *Arabidopsis thaliana* ESTs: complexity of the comparative map. Mol. Genet. Genomics 268: 656-65

BABULA D., JAKUBOWICZ M., LUDWIKÓW A., STAŃKO A., SADOWSKI J. (2003). Genetic and bioinformatic analysis of genes involved in *A. thaliana* and *B. oleracea* response to abiotic stresses. International Proceedings Division, XII International Congress on Genes, Gene Families, and Isozymes, 165-170

KACZMAREK M., BABULA D., SADOWSKI J. (2004). Application of the *Arabidopsis thaliana* sequence data in understanding the *Brassica* genome. In: Understanding the plant genome; ed. J. Sadowski, 133-122

Babula D., Misztal L.H., Jakubowicz M., Kaczmarek M., Nowak W., Sadowski J. (2006). Gene homologues involved in biosynthesis and signalization of ethylene in *Brassica oleracea* and *Arabidopsis thaliana*: identification and genome mapping. Theor. Appl. Genet. 112: 410-420

ZIÓŁKOWSKI P.A., KACZMAREK M., BABULA D., SADOWSKI J. (2006). Genome evolution in *Arabidopsis/Brassica*: conservation and divergence of ancient rearranged segments and their breakpoints. Plant J. 47: 63-74

BABULA D., KACZMAREK M., ZIÓŁKOWSKI P.A., SADOWSKI J. (2007). *Brassica oleracea*. In: Kole C (ed) Genome Mapping & Molecular Breeding. Vol. 5: 227-285. Springer, Heidelberg, Berlin, New York. ISBN-13 978-3-540-34535-0

BARANOWSKI P., MAZUREK W., JĘDRYCZKA M., BABULA-SKOWROŃSKA D. (2009). Zmiany temperatury liści rzepaku (*Brassica napus*) pod wpływem porażenia przez grzyby rodzaju *Alternaria*. Rośliny Oleiste 30: 21-33.

BABULA-SKOWROŃSKA D., CIEŚLA A., SADOWSKI J. (2011) Molecular linkage maps: strategies resources and achievements. In Vegetable *Brassica*. In Genetics, Genomics and Breeding of Vegetable Brassicas. Series editors: Prof. C. Kole and Prof. A.G. Abbott. Ed. Sadowski J. Publishers: Science Publishers, Inc., New Hampshire, Jersey, Plymouth.

Participation national projects:

Project of the State Committee for Scientific Research no. 5 P06A 016 11.: „*Brassica oleracea* L. genome mapping based on DNA markers from *Arabidopsis thaliana* chromosome fourth”, 1996-1999

Project of the State Committee for Scientific Research no. 6 P06A 009 21. „Analysis of organization of *Brassica oleracea* L. chromosomes based on known *Arabidopsis thaliana* genetic probes and genome map.”, 2001-2003

Project of the State Committee for Scientific Research no. 029/P06/0.10. „Chromosome mapping of genes resistant to abiotic and biotic stresses in *Brassica* crop species.”, 2001-2004

Project of the Ministry of Sciences and Higher Education no. 2 P06A 035 28: „Consolidation of genetic map for genome C of the *Brassica* crop species (*Brassica oleracea* L.)”, 2005-2007

Project of the Ministry of Sciences and Higher Education no. PBZ-MNiSW-2/3/2006/19, New molecular genetics and genomics methods to improve crop species, Evaluation and modification of drought stress adaptative properties of winter rape (*Brassica napus* var. *oleifera* L.) using functional genomic methods, 2007-2011

Project of the Ministry of Sciences and Higher Education no. N N303 568339. Functioning of the duplicated gene copies in paleopoliploids: contribution of the ABI1 gene homologues in the ABA signaling pathway in oilseed rape (*Brassica napus* var. *oleifera* L.), 2010-2013