

1. Institution

Institute of Bioorganic Chemistry of Polish Academy of Sciences, Laboratory of RNA Biochemistry, ul. Noskowskiego 12/14, 61-651 Poznań, Poland

2. Principal investigator and contact person

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3. Key personnel Name	Research Tasks	e-mail
Dorota Cieślak professor	Experimental embryology, IVF, molecular genetics	lechniak@jay.up.poznan.pl
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Dorota Kowalczykiewicz, Ph.D. student	piRNA isolation and sequencing, porcine Piwi proteins cloning	d.kowalcz@ibch.poznan.pl
Piotr Pawlak, Ph.D. student	Experimental embryology, IVF, molecular genetics	piotrekpawlak@onet.eu
Leszek Błaszczuk, Ph.D. student	RNA structure probing, piRNA-Piwi interactions	blaszcz@ibch.poznan.pl
Katarzyna Wiechetek graduate student	Analysis of gsRNAs and Piwi proteins tissue specificity	kasiaaawieeee@gmail.com

4. Research profile

Our efforts are focused on the following goals: 1. Identification of microRNA and small germinal RNAs (gsRNA) occurring in porcine oocytes and spermatocytes ; 2. Determination of the differences in small RNAs content during oocyte maturation process. 3. Sequencing and bioinformatic analysis of microRNA and gsRNA derived from pigs; 5. Cloning of proteins which interact with gsRNA , 6. Analysis of factors which influence the small RNA – protein complex formation, 7. Tissue specificity of piRNA and Piwi proteins

5. Key technologies and tools

The laboratory has strong background in RNA studies and a broad experience in the following techniques: RNA preparation, RT-PCR, protein cloning, RNA structure probing, RNA-ligand interactions.

6. Selected publications (max. 5)

1. Kowalczykiewicz, D., Wrzesinski, J. (2010) piRNA and Piwi proteins – a new mechanism in the regulation of germ cells development. *Postępy Biochemii* submitted
2. Podkowinski J, Zmienko A, Florek B, Wojciechowski P, Rybarczyk A, Wrzesinski J, Ciesiolka J, Blazewicz J, Kondorosi A, Crespi M, Legocki A. (2009) Translational and structural analysis of the shortest legume ENOD40 gene in *Lupinus luteus*. *Acta Biochim. Polon.* 56, 89-102.
3. Wrzesinski, J., Joźwiakowski, S.K. (2008) Structural basis for recognition of Co²⁺ by RNA aptamers. *FEBS J.* 275, 1651-1662.
4. Wrzesinski, J., Brzezowska, M., Szczepanik, W., Jeżowska-Bojczuk, M. Ciesiołka, J. (2006) Inhibition of the catalytic activity of *trans*-acting antigenomic δ ribozyme by selected antibiotics and their Cu²⁺ complexes. *Biochem Biophys Res Commun.* 349, 1394-1400.
5. Wrzesinski, J., Ciesiołka, J. (2005) Characterization of structure and metal ions specificity of Co²⁺ - binding RNA aptamers. *Biochemistry.* 44, 6257-6268.