

1. Institution

University of Warmia and Mazury in Olsztyn, Faculty of Biology, Department of Animal Physiology, Oczapowski Street 1A; 10-957 Olsztyn, Poland

2. Principal investigator and contact person

Genowefa Kotwica (gkotwica@uwm.edu.pl)

3. Key personnel

Name	Research Tasks	e-mail
Anita Franczak, assistant prof.	uterine endocrine functions – role of oxytocin, progesterone and cytokines	anitaf@uwm.edu.pl
Beata Kurowicka, assistant prof.	the role of environmental temperature in regulation of reproduction	beatak@uwm.edu.pl
Agata Pawłowska, Ph.D. student	cytokines and corpus luteum functions	agata.pawlowska683@op.pl

4. Research profile

The laboratory investigates the role of oxytocin, prostaglandins, cytokines and progesterone in luteolysis and early pregnancy in pigs and the influence of environmental temperature on reproduction. Currently we study the role of cytokines in maternal recognition of pregnancy in pigs. We focused on expression of oxytocin receptors and enzymes of prostaglandin and steroid synthesis in uterus during embryo-maternal interaction. We also have examined the influence of high environmental temperature during neonatal period in animals on morphology and endocrine activity of reproductive system.

5. Key technologies and tools

In vitro tissue and cell culture, animal models *in vivo*, gene and protein expression, analysis of protein and steroid hormones.

6. Selected publications (max. 5)

Franczak A., Ciereszko R., Kotwica G. 2005. Oxytocin (OT) action in uterine tissues of cyclic and early pregnant gilts: OT receptors concentration, prostaglandin F₂α secretion, and phosphoinositide hydrolysis. *Anim Reprod Sci* 88, 325-339.

Franczak A., G. Kotwica, B. Kurowicka, A. Oponowicz, BK Petroff 2006. Expression of enzymes cyclooxygenase pathway and secretion of prostaglandin E₂ and F₂α by porcine myometrium during luteolysis and early pregnancy. *Theriogenology* 66, 1049-1056

Franczak A., Kurowicka B, Oponowicz A., Petroff B.K., Kotwica G. 2006. The effect of progesterone on oxytocin-stimulated intracellular mobilization of Ca²⁺ and prostaglandin E₂ and F₂α secretion from porcine myometrial cells. *Prostaglandins and Other Lipid Med.* 81, 37-44.

Kurowicka B., Gajewska A, Amarowicz R., Kotwica G. 2007. Effect of warm-rearing and heat acclimation on pituitary-gonadal axis in male rats. *Int J Andr* 30, 1-9.

Franczak A, Kotwica G. 2008. Secretion of estradiol-17β by porcine endometrium and myometrium during early pregnancy and luteolysis. *Theriogenology* 69: 283-289.