**„Effect of embryonic signals on methylome of the porcine endometrium as a novel mechanism contributing to pregnancy establishment"**

(NCN OPUS 24 project)

**PhD. supervisor/PI project:** Prof. Agnieszka Waclawik

Early pregnancy in mammals is a critical period with high mortality rate of embryos. Developing embryos signal their presence to the maternal organism by secretions of various factors and molecules which are recognized among others in uterine endometrium. Primary porcine embryonic signal is estradiol.

**Aim of the project** is to determine the complex changes in the porcine endometrial methylome during early pregnancy and these evoked by estradiol action and finding the answer whether these changes may affect the expression of particular genes. Because endometrium is a complex tissue, some changes could be characteristic only for specific type of cells. Thus, in our approach we are going to determine spatial and temporal profiles of porcine endometrial methylome during early pregnancy and in response to estradiol treatment *in vitro* and *in vivo*. To reach our goal we are going to use *ex vivo* approach together with advanced *in vitro* models and also innovative *in vivo* model in which the estradiol was administered locally into uterine lumen to mimic conceptus signaling. The next aim of proposed project is to determine the effect of DNA methylation on endometrial gene expression, endometrial secretory function, proliferation and migration of endometrial cells.

During the 4-year-long, fully funded scholarship PhD student will be expected to perform research, laboratory analysis, write scientific articles, present the results during the international scientific conferences and – consequently – defend her/his PhD thesis at the Institute of Animal Reproduction and Food Research of Polish Academy of Sciences. High-level mentoring, detailed research agenda as well as full financial support for the research planned will be ensured to PhD candidate. Appropriate training on epigenetics, transcriptomics, and molecular analysis will be provided with the use of high-end, modern research infrastructure

**Requirements for the candidate:**

1. Master thesis accomplishment – life science degree (biology, biotechnology, animal husbandry) or other related to the discipline of animal science;
2. Knowledge in the field of reproductive biology and animal physiology;
3. Knowledge in basic molecular biology methods (e.g. Real-Time PCR, Western blot) and/or cell culture methods, microscopic techniques as well as in statistical analyses;
4. Availability and willingness for gathering of the animal material for experiments; ability to work with animals;
5. Good command of English enabling communication, independent manuscript preparation and presentation at international conferences;
6. High motivation for scientific work, good analytical and work organization skills, both individual and team work skills, and excellent accuracy and attention to detail. Ability to perform lab work, independently plan and execute experiments and willingness to constantly deepen your knowledge based on the literature in the field.

Highly appreciated:

- Previous experience in using methods for studying epigenetic mechanisms;
- Previous experience in performing experiments on reproductive tract tissues of domestic animals and/or culture of cell lines in vitro.

**Conditions:**
1. Position: PhD student at the Interdisciplinary Doctoral School of Agricultural Sciences
2. PhD scholarship: 5000 PLN gross salary **(~** 3800 PLN net salary) per month
2. Maximum scholarship duration: 4 years;
3. Start of position: October 1st 2023 (beginning of the academic year 2023/2024 at the doctoral school);
5. Location: Institute of Animal Reproduction and Food Research of Polish Academy of Sciences in Olsztyn (Poland), Department of Hormonal Action Mechanisms;
6. Participation in international collaboration;
7. Work environment: scientific group focused on ambitious aims in supportive atmosphere
https://twitter.com/AgnieszkaWacla3
https://www.researchgate.net/profile/Agnieszka-Waclawik

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**Required documents:**
1. Scientific CV including information on: (1) education, (2) scientific records; publications, conference abstracts, etc..; (3) scientific achievements, such as awards, scholarships, workshop attendance and involvement in research projects (4) knowledge of methods and laboratory skills;
2. Motivation letter;
3. Master and Bachelor Thesis Certificates with information about final marks and study plan;
4. Recommendation letter by mentor/master's thesis supervisor with confirmation of skills useful for scientific career;
5. The abstract of MSc thesis.
6. Other documents that, according to the Candidate, are important in considering his/ her candidature.