

## **INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH (IARFR)**

Established in 1988, the Institute of Animal Reproduction and Food Research of the Polish Academy of Sciences in Olsztyn holds the prestigious status of a Leading National Science Centre safe the high A category awarded by the Ministry of Science and Higher Education, being recognized as the best in the areas of agriculture, forestry and veterinary, and with a strong position in life sciences. Furthermore, Institute is a member of a prestigious pan-European EIT-Food Knowledge and Innovation Community (KIC) that aims to build sustainable end-to-end food supply chains realized through transformative innovation and education initiatives, with a central role for the consumer. The Institute has the mission of carrying out interdisciplinary research investigating the mechanisms of environmental impact on the well-being of humans and animals. This objective is pursued through activities that include training young scientists, investing in modern technologies, disseminating research findings to society, and stimulating cooperation between science and business to foster socioeconomic development.

### **HUMAN RESOURCES**

In 1988, when the IARFR was established, it had no facilities, yet at the end of the first year of activity it was employing 32 research staff: 8 professors, 9 postdocs and 15 assistants. After 31 years of dynamic development it has quadrupled its human capital. In 2019, the Institute employed 197 persons, including 26 professors, 43 associate professors, 6 assistants, 74 qualified technicians, supported by maintenance service and administration including 1 in the Editorial Office, 47 in administration. The staff gender balance is 66% women and 34% men. search staff - all together 149 people plus 18 PhD students carries out basic and applied research focused on: quality of life with particular emphasis on the influence of environment, including food, on etiology of infertility, prophylaxis of type 2 diabetes, allergies and obesity, as well skin regeneration and development of diagnostic biosensors; mutual interactions between food components and the human body; identification, assessment and implementation of strategies for improving nutritive and pro-health values of food, identifying harmful reaction in humans to food ingredients, including intolerances, allergies and pathogenicity; identification of reproduction disturbances in animals and humans, introducing new therapeutic techniques and biotechnical methods of infertility prophylaxis and treatment, and designing new tools for protecting biodiversity of animal production and selected species threatened by extinction.

These scientific activities are conducted in IARFR in two divisions:

DIVISION OF FOOD SCIENCES and DIVISION OF REPRODUCTIVE BIOLOGY and within it in 13 RESEARCH DEPARTMENTS, all equipped with state-of-the-art infrastructure:

1. DPMD Department of Prophylaxis of Metabolic Diseases
2. DBFF Department of Biological Functions of Food
3. DB&PHR Department of Biology and Pathology of Human Reproduction
4. DC&BF Department of Chemistry and Biodynamics of Food
5. DB Department of Biosensors
6. DI&FM Department of Immunology and Microbiology of Food
7. DC&PPF Department of Chemical and Physical Properties of Food
8. DHAM Department of Hormonal Action Mechanisms

9. DG&EB Department of Gamete and Embryo Biology
10. DRI&P Department of Reproductive Immunology and Pathology
11. DBP Department of Biodiversity Protection
12. DLPR Department of Local Physiological Regulations
13. DP&TR Department of Physiology and Toxicology of Reproduction

All departments are supported by CORE FACILITIES:

1. Integrated Proteomics Laboratory,
2. Laboratory Molecular Biology,
3. Laboratory of Cell and Tissue Analysis and Imaging,
4. Laboratory of Metabolomics,
5. Laboratory of Microbiology,
6. Animal Laboratory,
7. Laboratory of Sensory Analysis.
8. Integrated Immunodiagnosics Laboratory
9. Reproduction Techniques and Biotechnology Laboratory
10. Molecular Microbiology and Virology Laboratory

IAR&FR is the highest quality research entity in the Region of Eastern Poland and the best Institute in the domain of agricultural research in the whole country. Division of Food Sciences conducts research on:

- determination of the effect of food and nutrition on the regulation of physiological processes in humans; o research on biologically-active components in food of plant origin;
- development of methodology for food evaluation, and for studying interactions between food components and their interactions with the human body.

Division of Reproductive Biology conducts research on:

- investigation of reproductive function, at level of central, local and cellular regulations of hormonal, neural and vascular systems;
- reproductive biochemistry and biotechnology of fish as well as mammal and bird males.
- analyses of immunoendocrine changes accompanying uteritis.

Despite the current administrative structure formally separating both Divisions they have common objectives:

- improvements of food and nutrition in order to sustain humans' well-beings;
- recognition of the apt course of processes proceeding in the reproductive system;
- identification of mechanisms of prophylactic effects of food in the prevention of pathologies;
- understanding the causes of pathological disorders in reproduction;
- elaboration and dissemination of practical solutions.

Furthermore, having recently incorporated into its structure the Research Station in Popielno, the Institute has considerably extended the scope of its research within the field of animal reproduction and food safety. Current activities of the Station focused on the protection of natural resources and implementation of Polish konik horses and local cattle breeding program, are complemented with the research on reproduction of wild animals and conservation biology, as well as the studies on traditional and ecological food as regard to its pro-health properties. Each year, on average, the Institute publishes over 150 peer-reviewed publications listed in Journal Citation Reports Reports. Institute's research staff has been increasingly successful in leveraging national funds, currently carrying out around 55 scientific projects, funded by i.a. National Science Centre and National Centre for Research and Development, focused on the pursuit of pioneering research and bolstering innovation. The subsidies connected with the status of the Leading National Science Centre allow the Institute to strengthen its research potential, facilitate career development of scientists and training of PhD students.

Post-graduate training is an integral part of the Institute's mission to provide the students with cross-disciplinary knowledge and transferable skills to be used both in commercial and academic centres. Institute is entitled to confer the degree of PhD (doctorate) in agricultural sciences in the field of animal husbandry and food technology and nutrition. Young researchers are actively engaged in research performed in Institute, being given the opportunity to participate in international studies involving short-term scientific missions and trainings. What is more, they are equipped with tools enabling them to develop and manage their own research endeavours with access to highly specialized scientific facilities. Institute unit Research Support Office was established in September 2010 thanks to EU RegPot Initiatives (acronym REFRESH). Initially, two staff members - project and financial managers were employed with a professional experience in participation in the EU and national programmes. Currently, the full list of RSO staff 3 members comprises 5 employees. Apart from the above-mentioned persons, the following members of the RSO are responsible for the management of scientific and non-scientific projects: financial accounting of the national research programmes, EU financial programmes and liaison officer, responsible for developing relations with industry. The presence of the RSO has a significant influence on the project funding. RSO coordinated the submission of new few projects from the Structural Funds the Institute's budget and two on European level - and FUSION2NIGHT). RSO applied for the EU Structural Funds for building a new Institute received over 21M euro for realization of the project Center for Environmental Research and Innovative Food Technologies for Quality of Life. This is the largest investment project in the region (in the perspective 2014- 2020). In addition, Institute runs wide scientific cooperation through partnerships established with world-renowned research centres, stimulation of joint projects, twinning agreements, organization of international conferences and participation in EU-wide actions. At present, it is coordinating or participating in several international programs (FP7, HORIZON 2020 - Curie Actions, COST Actions), fostering its interactions with leading scientific partners and reinforcing integration with the European Research Area. One of the strategic objectives of the Institute is to transfer its research results to boost industrial effectiveness, keeping its research priorities consistent with the socio-economic needs of the country and the region. It provides rapid, confidential consultancy and custom-tailored food, health and reproductive biology research services to the sectors of medicine, veterinary, animal breeding, and food processing, offering high-quality expertise, training and -business partnerships. The Institute publishes two scientific journals, both covered by Journal of Citation Reports: Polish Journal of Food and Nutrition Sciences (since 1991) and Reproductive Biology (since 2001).