



Major studies and research projects

- **Neuropathic Pain and/or Epilepsy: Towards New Drugs.** Research is conducted in the Department of Bioorganic Chemistry in collaboration with the National Institutes of Health from the United States and with other departments of the Faculty. Research projects focus on design, synthesis, and multidisciplinary pre-clinical tests. The particles of new compounds that have been designed and pharmacologically tested are subject to patent in the European Union, the United States, Russia, China, Korea, India, Japan, Brazil and other countries. Commercialisation of the results is in progress.
- **In Vitro Cultures of Medicinal Plants and Fungi.** Research is conducted in the Chair of Pharmaceutical Botanic. It aims to demonstrate the use of *in vitro* cultures of plants and fungi as a source of crucial therapeutic compounds.
- **Modern Drug Forms: Biopharmaceutical Aspects.** Scientific research is conducted in the Chair of Pharmaceutical Technology and Biopharmaceutics. Scientists focus on paediatric drugs, multi-compartment drugs, and innovative solutions for the design of medical drugs using the rules of Quality by Design as well as the principles of Process Analysis Technology.
- **Sensitization and Toxicity of Drugs' and Cosmetics' Ingredients.** Analyses conducted at the Department of Experimental Dermatology and Cosmetology mainly focus on the phototoxicity of drugs and cosmetic products. The scope of the research includes *in vitro* experiments with cultured skin cells, starting with clinical observation, and ending with market and legal analyses of the cosmetic products available in Poland.
- **New Drug in the Treatment of Central Nervous System.** Departmental units, the ADAMED pharmaceutical company, Cracow University of Technology, and the Institute of Psychiatry and Neurology in Warsaw collaborated on a project called "Developing a Polish drug as therapy for central nervous system diseases: Schizophrenia, depression and anxiety – preclinical trials." Outcomes of the project include innovative compounds that demonstrate antipsychotic and anti-depressant activity, and have led to five international patent filings. Commercialisation of the results is in progress.

Collaboration

Research projects are carried out in collaboration with numerous international centres, such as the National Institutes of Health and the National Cancer Institute of the United States as well as pharmaceutical faculties and research institutes from France, Germany, Israel, the United Kingdom, Italy, Turkey, Finland, Portugal, and Canada. In relation to the conducted research, scientists at the Faculty work with Adamed, Apipol, Farmina, and other pharmaceutical companies in Poland.



Scholars

Prof. Barbara Filipek – her scientific interests include the discovery of new anti-inflammatory, analgesic, antiarrhythmic and hypotensive structures, and defining the mechanism of their action. She is the Chair of the Department of Pharmacodynamics at the Jagiellonian University Medical College, the Chair of the Postgraduate Education School, and a member of the Polish Pharmacological Society and the Polish Pharmaceutical Society. Her scientific achievements include 128 original articles, 50 monographs, and 26 patents. She collaborates extensively with the pharmaceutical industry, including the Apipol, Farmina and Adamed companies.

Prof. Renata Jachowicz – her research focuses on the development and assessment of high-quality, safe, modern forms of drugs. She is the Chair of the Department of Pharmaceutical Technology and Biopharmaceutics at Jagiellonian University Medical College. She is a member of the Executive Committee of the European Association of Faculties of Pharmacy and a WHO expert. She is also the Head of the Commission for Pharmaceutical Form and Biopharmacy in the Committee of Therapy and Drug Research of the Polish Academy of Sciences, as well as the Head of the Expert Group on Drug Formulation and Pharmacy Drugs of the Polish Pharmacopoeia Commission. She has authored 122 original and review articles

Prof. Katarzyna Kieć-Kononowicz – her research interests revolve around discovering new biologically active substances both through computer design and through chemical and biotechnological synthesis. She is the Chair of the Department of Technology and Biotechnology of Drugs at the Jagiellonian University Medical College and a Polish delegate to the European Federation for Medicinal Chemistry. She is a member of: the Commission for the Synthesis and Design of New Medical Drugs in the Committee on Therapy and Drug Research of the Polish Academy of Sciences; the European Histamine Research Society; the International Society of Heterocyclic Chemistry; the European Association of Pharma Biotech; the Paul Ehrlich MedChem Euro PhD Network; and other institutions. Her scientific achievements include 150 original and 15 review papers. She is the author of various chapters found in six course books and scripts.

Achievements

The ToxCmp computer system was developed at the Faculty. This system assesses the risk of drug cardiotoxicity as well as potential drug efficiency and safety. In 2013, a British company bought this technology.

International patent claims have also been obtained for a new method of solid-phase synthesis with the so-called pipercolic linker. This significantly expands the possibility of developing new biologically active compounds. This achievement is the result of large-scale studies conducted within Polish-French collaboration.

Some of the original projects undertaken by the Faculty are exhibitions that popularise science. Such exhibitions include, for example, "Edible and Poisonous Fungi," "100 Years of Nivea Crème," and "The Pharmaceutical Tradition of Preparing Medicinal Wines."



JAGIELLONIAN UNIVERSITY
IN KRAKÓW

Specialisation

- Medicinal chemistry
- Pharmacoeconomics and Drug Policy
- Pharmacology and Pharmacotherapy
- Pharmaceutical Biotechnology
- Functional Food
- Multi-compartment Drug Dosage Forms
- Neural Networks
- Medical Material

FACULTY OF PHARMACY

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