Department of Biochemistry // The Faculty of Biology. Belarussian State University. English Version.

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The Department of Biochemistry is a modern, research-intensive division of faculty of biology. Since its foundation in 1964, the Department has developed an international reputation for excellence in research and teaching. For a brief history of the Department, click HERE.

Currently, Department has 32 full-time academic staff members and is over 200 undergraduate students are engaged in training. There are Animal Resource Center and 2 fully-equipped research laboratories on site: Laboratory of biochemistry of metabolism and Laboratory of applied problems of biochemistry.

*The husbandry and veterinary care of all research animals are under the responsibility of Animal Resource Center. It is centrally managed by staff of trained animal caretakers and veterinarians. Animal facilities can accommodate multiple species of animals.*

The Department offers a highly qualified undergraduate curriculum on biochemistry with practical training, which exposes students to a wide range of modern experimental techniques. We provide a plethora of courses focusing on different special aspects of biochemistry. Our graduates hold faculty positions at outstanding academic institutions throughout the world or lead research teams in pharmaceutical or biotechnology industries.

The Department offers programs leading to M.Sc. and Ph.D. degrees. These research-intensive programs are complemented by courses on selected topics in biochemistry. Our Ph.D. graduates go on to successful post-doctoral fellowships and careers in research.

The Biochemistry Department provides many opportunities for undergraduate students to get involved in research. The research program allows students to participate in a faculty member's research project. In their 5th year, students can conduct a research project under the guidance of any of department members.

Biochemistry occupies a central place in science life and the research in the Department focuses on understanding the fundamental biochemical processes of biological systems, microbial, plant and animal. Department members have active research programs in signal transduction and regulation, molecular medicine, molecular cell biology and pathology, protein folding, biomolecular structure and function. The expertise and the research interests of Department members are used to integrate research with education.

The Department has modern research facilities for isolation of subcellular fractions; chromatographic separation and mass spectrometric identification of pharmaceuticals, xenobiotics, drug metabolites; chromatographic purification of products of biotechnology; spectrophotometric and fluorimetric analysis of enzyme activity; enzyme-linked immunoassay, two-dimensional gel electrophoresis, Western blot technique, as well as cell culture facilities.
Staff:

Igor V. Semak, Head of Department of biochemistry
Mikhail M. Filimonau  Associate professor
Nataliya M. Arol  Associate professor
Tatiana A. Kukulianskaya  Associate professor
Dzmitry A. Novikau  Associate professor
Aksana I. Hubich  Associate professor
Tatsiana N. Zyranava  Senior lecturer
Marya P. Shapchits  Associate professor
Elena O. Korik  Associate professor
Sviatlana M. Piatrova  Senior lecturer
Ana A. Bulatava  Assistant
Maria S. Chumachenko  Assistant
Kristina V. Pristupa  Assistant
Uladzislau Harbayets  Assistant
Darya I. Maksimovich  Assistant
Svetlana M. Zjarskaja  Head of research laboratory
Mikhail V. Sholukh  Head of research laboratory
E.S. Pyshko  Assistant
E.V. Bondaruk  Junior research workers

Undergraduate curriculum

- Biochemistry (associate professors N.M. Arol, T.A. Kukulianskaya).
- Biophysics (associate professors D.A. Novikau, M.M. Filimonau).
- Pharmaceutical Biotechnology (associate professor D.A.Novikau).
- Applied Biochemistry (associate professor D.A.Novikau).
- Radiobiology (associate professor M.M.Filimonau).
- Biotransformation of Substances (associate professor I.V.Semak).
- Enzyme Engineering (associate professor I.V.Semak).
- Isolation and purification of products of biotechnology (associate professor D.A.Novikau).
- Introduction in biochemistry as a profession. (associate professor O.I.Hubich).
- Enzymology (associate professor T.A.Kukulianskaya).
- Basics of toxicology (associate professor T.A.Kukulianskaya).
- Biochemistry of membranes (associate professor N.M.Arol).
- Basic Principles of Molecular Endocrinology (senior lecturer T.N.Zyranava).
- Enzyme Kinetics (associate professor I.V.Semak).
- Ecological Biochemistry (associate professor N.M.Arol).
- Bioenergetics (associate professor O.I.Hubich).
- Clinical Biochemistry (associate professor O.I.Hubich).
- Medical Biochemistry (associate professor O.I.Hubich).
- Basic Principles of Radiation Biochemistry (associate professor M.M.Filimonau).
- Bioinorganic Chemistry (senior lecturer S.M.Piatrova).
- Basic Principles of Neurochemistry (associate professor N.M.Arol).
- Biochemistry of Protein and Nucleic Acids (associate professor D.A.Novikau).
- Functional Biochemistry (senior lecturer T.N.Zyranava).
- Immunoenzymic Assay (associate professor I.V.Semak).
- Biochemistry of Vitamins (associate professor N.M.Arol).
- Biochemistry of Medicinal Plants (associate professor M.P.Shapchits).
- Evolutionary biochemistry (associate professor M.P.Shapchits).

**Research activity:**

- Molecular mechanisms of cytotoxic effects of xenobiotics; mechanisms of cell resistance to xenobiotics and physical environmental factors;
- Mechanisms of antioxidant/prooxidant action of natural compounds;
- Steroid and melatonin metabolism in various organs and tissues of mammals;
- Identification and structural analysis of bioactive substances and their metabolites by mass-spectrometry, gas- and high-performance liquid chromatography;
- Molecular mechanisms of liver diseases and their correction by natural compounds;
- Regulation of signal transduction by natural and synthetic prostaglandins;
- Generic drug bioavailability and bioequivalence.

**Selected peer-reviewed publications**


