

Lectures in biochemistry and molecular biology 2024/2025

From molecule to cell

The Conference Room of the Nencki Neurobiology Centre
9-10 a.m., Wednesdays

I. Integrative cellular physiology

1. Cellular structure, signaling and function

- **Inter-organelle crosstalk in coordination of cellular function** (D. Malińska) **October 16, 2024**
- **Protein synthesis** (M. Dziembowska) **October 23, 2024**
- **Posttranslational modifications of proteins and their functional significance** (A. Filipek) **October 30, 2024**
- **Structure and function of cellular membranes** (K. Kwiatkowska) **November 6, 2024**
- **Microtubules and microtubule-based structures** (D. Włoga) **November 13, 2024**
- **Cell motility and the cytoskeleton** (J. Rędownicz) **November 20, 2024**
- **Vesicular transport** (A. Strzelecka-Kiliszek) **November 27, 2024**
- **Transport across biological membranes** (P. Koprowski) **December 4, 2024**
- **Principles of cellular metabolism - bioenergetics** (K. Zabłocki) **December 11, 2024**
- **Mitochondrial stress response** (J. Szczepanowska) **December 18, 2024**

2. Cell cycle and cell fate

- **Cellular senescence – the mechanism and the role in organismal aging and age-related diseases** (G. Mosieniak) **January 8, 2025**
- **Autophagy and cell death – molecular mechanisms and function** (I. Ciechomska) **January 15, 2025**
- **Molecular mechanisms of cancerogenesis – the current view** (K. Piwocka) **January 22, 2025**

Exam January 29, 2025

Break

II. Genetic information

- **Nuclear organization of the genome – from structure to function** (A. Magalska) **February 19, 2025**
- **Regulatory mechanisms of transcription** (B. Kamińska) **February 26, 2025**
- **Epigenetic mechanisms of regulation of gene expression** (B. Kamińska) **March 5, 2025**
- **Genome evolution** (A. Pękowska) **March 5, 2025 (10:15 a.m.)**

III. From cell signaling to the system

- **Organisation of cellular biochemistry through biomolecular condensates** (A. Kłosin) **March 12, 2025**
- **Signal transduction and regulation of metabolism** (G. Sumara) **March 19, 2025**
- **Potassium channels in cellular signaling** (B. Kulawiak) **March 26, 2025**
- **Impaired homeostasis of lipid metabolism** (J. Janikiewicz) **April 2, 2025**
- **The influence of the microbiota on immunity** (T. Wypych) **April 9, 2025**
- **Regulation of cell signaling by microRNAs** (U. Wojda) **April 16, 2025**

IV. Technology driven research - Methods in biochemistry and cell biology

- **Imaging tissue structure and function - Light microscopy/ Current approaches in methods of light microscopy** (J. Szymański) **April 23, 2025**
- **Modern applications of cellular electrophysiology in cell biology** (T. Wójtowicz) **May 7, 2025**
- **Electron microscopy – a tool for ultrastructural analysis** (H. Nieznańska) **May 14, 2025**
- **Advanced flow and full spectrum cytometry in research discoveries** (K. Piwocka) **May 21, 2025**
- **Advances in high-throughput sequencing** (B. Wojtaś) **May 28, 2025**
- **Regulatory genomics/bioinformatics** (M. Dąbrowski) **June 4, 2025**

Exam June 11, 2025