

## Lectures in biochemistry and molecular biology 2022/2023

### From molecule to cell

9-10 am, Wednesdays

#### I. Integrative cellular physiology

##### 1. Cellular structure, signaling and function

- Cellular proteostasis network in health and disease (P. Brągoszewski) **October 12, 2022**
- Protein synthesis (M. Dziembowska) **October 19, 2022**
- Posttranslational modifications of proteins and their functional significance (A. Filipek) **October 26, 2022**
- Structure and function of cellular membranes (K. Kwiatkowska) **November 9, 2022**
- Transport across biological membranes (A. Szewczyk) **November 16, 2022**
- Mitochondrial ion channels - from structure to function (B. Kulawiak) **November 23, 2022**
- Bioenergetics (K. Zabłocki) **November 30, 2022**
- Principles of intracellular calcium signaling (K. Zabłocki) **December 7, 2022**
- Dysfunction of mitochondria and their effects for the cell (J. Szczepanowska) **December 14, 2022**
- Exocytosis (A. Strzelecka-Kiliszek) **December 21, 2022**
- Endocytosis (M. Międzyńska) **January 11, 2023**
- Microtubules and microtubule-based structures (D. Włoga) **January 18, 2023**
- Actin-based cytoskeleton and molecular motors (J. Rędownicz) **January 25, 2023**
- Mechanisms of cell migration (J. Rędownicz) **February 1, 2023**

**Exam February 8, 2023**

**Break**

##### 2. Cell cycle and cell fate

- Cellular senescence – the mechanism and the role in organismal aging and age-related diseases (G. Mosieniak) **March 1, 2023**
- Autophagy and cell death – molecular mechanisms and function (I. Ciechomska) **March 8, 2023**
- Molecular mechanisms of cancerogenesis – the current view (K. Piwocka) **March 15, 2023**

#### II. Genetic information

- Nuclear organization of the genome – from structure to function (A. Magalska) **March 22, 2023**
- Regulatory mechanisms of transcription (B. Kamińska) **March 29, 2023**
- Epigenetic mechanisms of regulation of gene expression (B. Kamińska) **April 5, 2023**
- Genome evolution (A. Pękowska) **April 12, 2023**

#### III. From cell signaling to the system

- Signal transduction and regulation of metabolism (G. Sumara) **April 19, 2023**
- From cell senescence to ageing of the body (E. Sikora) **April 26, 2023**
- Cellular stress response and leukemia microenvironment (K. Piwocka) **May 10, 2023**
- The influence of the microbiota on immunity (T. Wypych) **May 17, 2023**
- Regulation of cell signaling by microRNAs (U. Wojda) **May 24, 2023**

#### IV. Methods in cell biology, tissue engineering

- Imaging of structures and processes in cells and tissues (A. Magalska) **May 31, 2023**
- Imaging of intracellular dynamics (J. Szymański) **June 7, 2023**
- Organisation of cellular biochemistry through biomolecular condensates (A. Kłósin) **June 14, 2023**
- Regulatory genomics/bioinformatics (M. Dąbrowski) **June 21, 2023**

**Exam June 28, 2023**