

List of supervisors of the Bio-Med-Chem Doctoral School of the University of Lodz and Lodz Institutes of the Polish Academy of Sciences in the academic year 2022/2023 for each discipline

First and Last Name of the researcher	Scientific and research topics	Proposed topic of the doctoral dissertation
<p>Agnieszka Robaszkiewicz, PhD, DSC, Assoc. Prof.</p> <p>✉ agnieszka.robaszkiewicz@biol.uni.lodz.pl</p> <p>University of Lodz, Faculty of Biology and Environmental Protection ☎ 42 635 41 44 ORCID: 0000-0002-6265-5585 <i>Main discipline - biological sciences</i></p>	<p>Regulation of gene transcription, epigenetics, genetics, bioinformatics, cell differentiation and malignancies, DNA damage and repair, PARP1, chemotherapy and epigenetic inhibitors in anticancer approaches, cancerimmune cells interaction.</p>	<p>Molecular basis of poly(aneu)ploidy in cancer cells resistant to chemotherapy.</p>
<p>Agnieszka Grzelak, PhD.</p> <p>✉ agnieszka.grzelak@biol.uni.lodz.pl</p> <p>University of Lodz, Faculty of Biology and Environmental Protection ☎ 42 665 50 74 ORCID: 0000-0002-9695-6693 <i>Main discipline - biological sciences</i></p>	<p>Nanotoxicology, cellular and molecular biology.</p>	<p>Molecular basis of interaction of nanomaterials with organisms (at the cellular and organismal level).</p>

<p>Magdalena Urbaniak, PhD, DSC, Assoc. Prof.</p> <p>✉ magdalena.urbaniak@biol.uni.lodz.pl</p> <p>UNESCO Chair in Ecohydrology and Applied Ecology</p> <p>☎ +42 635 44 38</p> <p>ORCID: 0000-0001-5118-4530</p> <p><i>Main discipline - biological sciences</i></p>	<p>Brief description of the planned research:</p> <p>Plants from cucurbits family are known for their abilities to take up a variety of Persistent Organic Pollutants (POPs) from soil and translocate them to leaves and fruits. The POPs uptake process in cucurbits is controlled by major latex-like protein (MLP) genes. MLP genes can be regulated (induced or suppressed) by fungicides having indole- and quinazoline-like structures, leading to enhance or decrease the pollutant' accumulation in plants.</p> <p>With this in mind, the research aim is to control the process of bioaccumulation of selected POPs in cucurbits to either accelerate the cucurbits' phytoremediation abilities (induction of the expression of the MLP genes) or produce POP-free crops (suppression of the expression of the MLP genes). Selected fungicides will be used as regulator of the expression of the MLP genes.</p> <p>The study's results will increase the knowledge in MLP-regulated POPs translocation and will prove value in designing the strategies for cucurbits use: production of safe crops (genes suppression) or enhanced phytoremediation of contaminated soil (genes induction).</p>	<p>Control of bioaccumulation of Persistent Organic Pollutants in cucurbits - production of safe food vs. bioremediation of contaminated lands.</p>
<p>Aneta Sitek, PhD, DSC, Assoc. Prof.</p> <p>✉ aneta.sitek@biol.uni.lodz.pl</p> <p>University of Lodz, Department of Anthropology</p> <p>☎ +42 635 44 54</p> <p>ORCID: 0000-0002-6802-1997</p> <p><i>Main discipline - biological sciences</i></p>	<p>Biological anthropology, medical anthropology, determinants of human ontogenesis, the influence of the prenatal environment affects the health and biological condition of a human in postnatal life.</p>	<p>Prenatal determinants of human hormonal disorders.</p>

<p>Michał Błażej Ponczek, PhD, DSC, Assistant Professor</p> <p>✉ michal.ponczek@biol.uni.lodz.pl</p> <p>University of Lodz, Faculty of Biology and Environmental Protection ☎ +42 635 44 83 ORCID: 0000-0002-0839-8004 <i>Main discipline - biological sciences</i></p>	<p>Biochemistry, molecular evolution, bioinformatics and structural biology of hemostatic proteins, relationships between hemostatic proteins within the blood coagulation cascade network and related protein networks such as the kininogenesis contact system or the complement system. Application of bioinformatics tools for the study of blood coagulation proteins, study of protein functions in association with the physiology and pathology of blood clotting. Structural biology of proteins of the contact system and kininogenesis using the CryoEM technique - studying the structure of kininogens. Docking ligands in search of new medicines and learning about the function of proteins.</p>	<ol style="list-style-type: none"> 1. Structural biology of proteins of the contact system and kininogenesis using the technique of cryoelectron microscopy (CryoEM) - studying the structure of kininogens. 2. Docking ligands to find new drugs and broaden the knowledge of blood-clotting proteins.
<p>Łukasz Pułaski, PhD, DSC, Assoc. Prof.</p> <p>✉ lpulaski@cbm.pan.pl</p> <p>Polish Academy of Sciences, IMB ☎ +42 209 33 76 ORCID: 0000-0001-8063-801X <i>Main discipline - medical sciences</i></p>	<p>Medical biology: molecular genetics, immunology, ecotoxicology.</p>	<p>Cellular effects of flame retardant exposure in immune cells; synergy and antagonism with other immunomodulatory stimuli. (within the NCN project no. 2020/37/B/NZ7/04199)</p>
<p>Marta Dudek, PhD, DSC, Assoc. Prof. at CMMS</p> <p>✉ mdudek@cbmm.lodz.pl</p> <p>Polish Academy of Sciences, CMMS ☎ 42 680 32 39 ORCID: 0000-0003-3412-0177 <i>Main discipline - chemical sciences</i></p>	<p>Solid-state NMR spectroscopy, crystal structure prediction (CSP) calculations, solid-state and crystalline structure of organic compounds, polymorphism, pharmaceutical cocrystals, understanding of crystallization processes.</p>	<p>Understanding of crystallization preferences of pharmacologically active compound using crystal structure prediction calculations (negotiable).</p>

<p>Prof. Barbara Nawrot, PhD, DSC</p> <p>✉ bnawrot@cbmm.lodz.pl</p> <p>Polish Academy of Sciences, CMMS ☎ 42 680 3248, 604-783945 ORCID: 0000-0002-4084-4334 <i>Main discipline - chemical sciences</i></p>	<p>Chemistry and biology of modified nucleosides in transfer RNAs Epitranscriptomics of tRNA Proteins in the process of tRNA maturation Modified oligonucleotides as therapeutics.</p>	<p>Modified seleno-nucleosides in transfer RNAs of higher organisms, identification, structural characteristics, enzymes responsible for biosynthesis.</p>
<p>Prof. Arkadiusz Chworos, PhD, DSC</p> <p>✉ achworos@cbmm.lodz.pl</p> <p>Polish Academy of Sciences, CMMS ☎ 42 680 32 20 ORCID: 0000-0001-9924-0503 <i>Main discipline - chemical sciences</i></p>	<p>Structured DNA/RNA nanoparticles and their application for the gene expression regulations using nucleic acids analogs. Structural analysis of protein - ligands, protein - RNA and peptide - surface interactions using computational chemistry.</p>	<p>Negotiable</p>
<p>Agnieszka Krakowiak, Ph.D</p> <p>✉ akrakow@cbmm.lodz.pl</p> <p>Polish Academy of Sciences, CMMS ☎ 42 680 32 72 ORCID: 0000-0002-0273-2972 <i>Main discipline - chemical sciences</i></p>	<p>Biochemistry of modified nucleic acids, enzymology, including properties of selected nucleic acid-specific nucleases, enzyme kinetics; in particular:</p> <ol style="list-style-type: none"> 1. Study of the properties of the HIT superfamily proteins: <ul style="list-style-type: none"> - Hint3: expression, enzymatic activity and binding affinity for various substrates. - Study of autoproteolytic activity of Hint2 protein. 2. Nucleosideselenophosphates in the study of reductive stress and their influence on cellular redox balance. 	<p>Negotiable</p>



IMB PAN – Institute of Medical Biology of Polish Academy of Sciences

CMMS PAN – Centre of Molecular and Macromolecular Studies Polish Academy of Sciences