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List of potential promoters for the BioMedChem Doctoral School

Name of academic staff member	Area of scientific and research interests / <u>Proposed topics for the doctoral thesis</u>
Dr hab. Aneta Balcerczyk, prof. UŁ ✉ aneta.balcerczyk@biol.uni.lodz.pl **University of Lodz, Faculty of Biology and Environmental Protection** ☎ **+ 48 42 635 44 76** **ORCID orcid.org/0000-0001-8544-5778** ***Leading discipline - biological sciences***	Epigenetic mechanisms in metabolic regulation, endothelial biology, cancer growth and development. <u>Proposed topics for the doctoral thesis</u> Histone code/communication within post-translational modifications of histones, epigenetic basis of metabolic disorders.
Prof. dr hab. Janusz Błasiak ✉ janusz.blasiak@biol.uni.lodz.pl **University of Lodz, Faculty of Biology and Environmental Protection** ☎ **+ 48 42 635 43 34** **ORCID orcid.org/0000-0001-9539-9584** ***Leading discipline - biological sciences***	Molecular genetics, molecular basis of the pathogenesis of human diseases <u>Proposed topics for the doctoral thesis</u> Genetics and epigenetics of migraine. Autophagy in eye diseases.
Dr Francesco Galassi, prof. UŁ **University of Lodz, Faculty of Biology and Environmental Protection** ✉ francesco.galassi@biol.uni.lodz.pl ☎ **+ 48 42 635 44 55** **ORCID orcid.org/0000-0001-8902-3142** ***Leading discipline - biological sciences***	Biological sciences: physical antropology and palaeoradiology, human anatomy, anatomical variation, mummy studies <u>Proposed topics for the doctoral thesis</u> <u>Morphology of past diseases and palaeopathology</u> <u>Anatomical variation</u> <u>Mummy studies</u>

Prof. dr hab. Maksim Ionov ✉ maksim.ionov@biol.uni.lodz.pl **University of Lodz, Faculty of Biology and Environmental Protection** ☎ **+48 42 635 43 80** **ORCID orcid.org/0000-0001-7227-6864** ***Leading discipline* - *biological sciences***	Nanotechnology; Medical biophysics; Drug and nucleic acid delivery to target cells; Gene therapy; Anti-cancer biosystems; Cytotoxicity; Polymer and lipid nanoparticles as drug and siRNA carriers. Proposed topics for the doctoral thesis Biodegradable dendrimers as drug and nucleic acid carriers for the treatment of lung diseases - Biophysical and therapeutic evaluation. Biophysical characterisation and evaluation of biological properties of polymeric nanoparticles.
Dr hab. Katarzyna Izydorczyk, prof. ERCE PAS ✉ k.izydorczyk@erce.unesco.lodz.pl **ERCE PAS** ☎ **+ 48 42 681 70 07** **ORCID orcid.org/0000-0003-2056-2513** ***Leading discipline* - *biological sciences***	*Ecohydrological water management at the catchment scale, nature-based solutions in agricultural catchments, multi-stakeholder collaboration in the local water management.* Proposed topics for the doctoral thesis Analysis of the dynamics of nutrient pollution transformations in the catchment-river-reservoir system to reduce water eutrophication. Evaluation of the effectiveness of nature-based solutions in mitigating pollution of agricultural origin. Selection of nature-based solutions and optimisation of their location at the catchment scale to increase water retention in agricultural landscapes.
dr hab. Anna Janaszewska, prof. UŁ ✉ anna.janaszewska@biol.uni.lodz.pl **University of Lodz, Faculty of Biology and Environmental Protection** ☎ **+ 48 509 620 140** **ORCID 0000-0002-8872-8092** ***Leading discipline* - *biological sciences***	My research interests revolve around the biological properties and biomedical applications of polymeric nanosystems. My interests also include some two cats and one dog. Proposed topics for the doctoral thesis Polymeric gels as carriers of antifungal drugs in the new role of anticancer drugs. Doctoral thesis carried out in cooperation with the Cross-linked Materials Group of the Functional Polymers and Polymeric Materials Division, Centre for Molecular and Macromolecular Studies, Polish Academy of Sciences.
Prof. dr hab. Joanna Mankiewicz-Boczek ✉ joanna.mankiewicz@biol.uni.lodz.pl	Biomonitoring and ecotoxicology of waters, including genetic ecotoxicology; Toxicity and genotoxicity of cyanobacteria and cyanotoxins - health aspects; Interaction of cyanobacteria and other microorganisms in water blooms; Microorganisms in biodegradation; Biotechnology for ecology. Proposed topics for the doctoral thesis

University of Lodz, Faculty of Biology and Environmental Protection ☎ **+ 48 42 635 44 38** **ORCID orcid.org/0000-0001-7358-0673** ***Leading discipline* - *biological sciences***	Assessing the influence of the composition and function of the microbiome in the cyanosphere on the increased threat from water blooms. The research will address the identification of microbial interactions that increase the probability of blooms of selected types of cyanobacteria and pose a threat to the environment and human health. An important component of the research will be the molecular qualitative and quantitative analysis of microorganisms that may be involved in greenhouse gas emissions and the transmission of antibiotic resistance.
Dr hab. Katarzyna Miłowska, prof. UŁ ✉ katarzyna.milowska@biol.uni.lodz.pl **University of Lodz, Faculty of Biology and Environmental Protection** ☎ **+ 48 42 635 44 78** **ORCID orcid.org/0000-0002-4050-2756** ***Leading discipline* - *biological sciences***	My research interests focus on the evaluation of the biological properties of nanomaterials (including dendrimers, gold and silver nanoparticles and chitosan nanocomposites) and their potential application in medicine. Proposed topics for the doctoral thesis Conjugates of bimetallic nanoparticles with polyphenols as wound healing agents.
Dr hab. Michał Błażej Ponczek ✉ michal.ponczek@biol.uni.lodz.pl **University of Lodz, Faculty of Biology and Environmental Protection** ☎ **+ 48 42 635 44 83** **ORCID orcid.org/0000-0002-0839-8004** ***Leading discipline* - *biological sciences***	Biochemistry, structural biology, and molecular evolution of hemostasis proteins, evolutionary relationships among hemostasis proteins within the blood coagulation cascade network, and related protein networks such as the contact system and kinin system, or the complement system. Application of bioinformatics tools to study blood coagulation proteins, investigation of protein functions in relation to the physiology and pathology of blood coagulation. Structural biology of hemostasis proteins using cryogenic electron microscopy (cryo-EM) techniques. Proposed topics for the doctoral thesis Study of the molecular structure of kininogen using cryo-EM technique - determining the shape of high-molecular-weight kininogen as an indicator of its role in thrombotic complications. Evolution and function of vertebrate paralogs and orthologs, as well as structural studies proteins of contact and kinin system in human hemostatic disorders - thrombotic diseases and hemophilia (in collaboration with the Department of Pathology, Microbiology and Immunology, Vanderbilt University Medical Center, Nashville, United States of America; Nottingham Biodiscovery Institute, School of Pharmacy, University of Nottingham, United Kingdom; Department of Biochemistry & Molecular Biology, Saint Louis University, Saint Louis, United States of America; Doisy Research Center, Department of Biochemistry, Saint Louis University, United States of America).

Dr hab. Mirosława Słaba, prof. UŁ ✉ miroslawa.slaba@biol.uni.lodz.pl **University of Lodz, Faculty of Biology and Environmental Protection** ☎ **+ 48 42 635 41 48** **ORCID orcid.org/ 0000-0002-1337-8905** ***Leading discipline* - *biological sciences***	Heavy metals and herbicides toxicity to filamentous fungi; plant growth-promoting fungi; herbicide biodegradation; biocontrol; Trichoderma-plant-phytopathogen interactions. Proposed topics for the doctoral thesis Effect of microplstic and heavy metals on the ability of Trichoderma spp. fungi to biocontrol, promote plant growth and degrade selected herbicides.
Dr hab. Paweł Stączek, prof. UŁ **pawel.staczek@biol.uni.lodz.pl** **Uniwersytet Łódzki, WBiOŚ** **+ 48 42 6354466** **ORCID orcid.org/0000-0003-4416-8289** ***Leading discipline* - *biological sciences***	1. organisation of the bacterial chromosome. 2. analysis of newly synthesised chemical compounds for their antimicrobial, antifungal and anticancer activity. 3. pathogenicity of keratinophilic fungi from the dermatophyte group. 4. the role of the microbiota in the induction and progression of gynaecological cancers. Proposed topics for the doctoral thesis Involvement of selected representatives of the microbiota of the female upper genital tract in the course of endometrial and ovarian cancers.
Graham Stone, PhD, Prof. ✉ graham.stone@ed.ac.uk **The University of Edinburgh** ☎ **+ 44 131 650 71 94** **ORCID orcid.org/0000-0002-2737-696X** ***Leading discipline* - *biological sciences***	Assembly of cynipid gallwasp communities on oaks and related Fagaceae. 2. The evolution of associations between herbivores and neotropical trees in the genus Inga. 3. Quantification of the floral resources available to pollinators in urban and arctic habitats. Proposed topics for the doctoral thesis Evolution and co-evolution in multi-species food webs: Phenotype developmental evolution in European Cynipid oak gall wasps and its influence on attack by parasitoid wasps.
Prof. dr hab. Tomasz Śliwiński ✉ tomasz.sliwinski@biol.uni.lodz.pl	My scientific interests are focused on research showing the possibility of using genetic and functional aspects of DNA repair in the diagnosis and therapy of various human diseases, including cancer and psychiatric diseases (Alzheimer's disease and depression). Proposed topics for the doctoral thesis

University of Lodz, Faculty of Biology and Environmental Protection **☎ + 48 42 635 44 86** **ORCID 0000-0001-8385-7744** ***Leading discipline - biological sciences***	1. DNA polymerase θ as a novel target in personalized anticancer therapy of solid tumors. 2. The role of CC chemokines and their receptors in the pathogenesis of depressive disorders.
Dr hab. Magdalena Urbaniak, prof. UŁ ✉ magdalena.urbaniak@biol.uni.lodz.pl **University of Lodz, Faculty of Biology and Environmental Protection** **☎ + 48 42 635 44 38** **ORCID orcid.org/ 0000-0001-5118-4530** ***Leading discipline - biological sciences***	Investigation of the sources and migration pathways of organic pollutants (e.g. pesticides, PAHs, dioxins, emerging compounds of concern including antibiotic resistance genes) in the environment; Identification of risks arising from the presence of pollutants in the environment; Development of effective and environmentally friendly methods (bio-, phytoremediation) to eliminate the above pollutants from the environment. Proposed topics for the doctoral thesis Transfer of antibiotic resistance determinants in the soil-plant system as a threat to human health. Regulation of bioaccumulation of organic pollutants in cucurbitaceous plants with a view to protecting human health.
Dr hab. Iwona Wagner, prof. UŁ ✉ iwona.wagner@biol.uni.lodz.pl **University of Lodz, Faculty of Biology and Environmental Protection** **☎ + 48 42 435 45 30** **ORCID orcid.org/ 0000-0002-7504-3027** ***Leading discipline - biological sciences***	Ecohydrology, blue-green infrastructure, cities adaptation to climate change. Proposed subject matter of the doctoral thesis The use of remote sensing to manage the blue-green infrastructure of cities in the process of adaptation to climate change. (The use of remote sensing to manage blue-green infrastructure of cities in the process of adaptation to climate change).

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Prof. dr hab. Piotr Zieliński ✉ piotr.zielinski@biol.uni.lodz.pl **The University of Lodz, Faculty of Biology and Environmental Protection** ☎ **+ 48 42 635 44 33** **ORCID orcid.org/ 0000-0002-9233-6235** ***Leading discipline** - **biological sciences***	Breeding ecology, population density, distribution, migration and behaviour of vertebrates. Proposed topics for the doctoral thesis The role of the microbiome in chemical communication in reptiles.

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ERCE PAS – European Regional Centre for Ecohydrology of the Polish Academy of Sciences