**LIST OF SUPERVISIORS AND TOPICS**

**Recruitment 2019/2020**

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| DISCIPLINE: **PHARMACEUTICAL SCIENCES** | | | |
| **No.** | **Unit** | **Supervisor** | **Title of the project** |
| 1. | [Department of Pharmacodynamics and Molecular Pharmacology](https://www.wf.cm.umk.pl/kfifm/zwierzetarnia/) | dr hab. Barbara Bojko, prof. UMK | Evaluation of the effectiveness of a selected pharmacotherapy for glioblastomas on the basis of metabolomic and lipidomic profiling of cell lines derived from patients as a step towards personalizing therapy |
| 2. | [Department of Microbiology](https://www.wf.cm.umk.pl/kizmikrob/) | prof. dr hab. Eugenia Gospodarek-Komkowska | The impact of gentamicin and quorum sensing inhibitors on dual-species biofilm of *Pseudomonas aeruginosa* and *Proteus mirabilis.* |
| DISCIPLINE: **MEDICAL SCIENCES** | | | |
| **No.** | **Unit** | **Supervisor** | **Title of the project** |
| 1. | [Department of Ophthalmology](https://www.wl.cm.umk.pl/kikco/) | prof. dr hab. Bartłomiej Kałużny | Morphometric and biomechanical assessment of the anterior segment in eyes with ketatoconus |
| 2. | [Department of Urology and Andrology](https://www.wl.cm.umk.pl/ku/) | dr hab. Anna Bajek, prof. UMK | Tumor microenvironment as a target of personalized therapy. Developing novel therapeutic strategies |
| 3. | [Department of Histology and Embryology](https://www.wl.cm.umk.pl/kizhie/) | prof. dr hab. Alina Grzanka | Characteristics, mechanism of formation, and biological functions of extracellular vesicles in the inflammatory response of human coronary artery vascular endothelium |
| 4. | [Department of Paediatrics, Haematology and Oncology](https://www.wl.cm.umk.pl/kphio/) | prof. dr hab. Jan Styczyński | Iron overload in children with acute leukemia or undergoing hematopoetic cell transplantation |
| 5. | [Department of Urology and Andrology](https://www.wl.cm.umk.pl/ku/) | prof. dr hab. Marta Pokrywczyńska | Optimization of isolation and culture methods of human pancreatic islets |
| DISCIPLINE: **HEALTH SCIENCES** | | | |
| **No.** | **Unit** | **Supervisor** | **Title of the project** |
| 1. | [Department of Vascular and Internal Diseases](https://www.wnoz.cm.umk.pl/kchnichw/) | prof. dr hab. Jacek Budzyński | Clinical effectiveness and safety of computed tomography imaging using protocols with low radiation dose and contrast agent in the diagnosis of selected vascular diseases |

**Recruitment 2020/2021**

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| DISCIPLINE: **PHARMACEUTICAL SCIENCES** | | | |
| **No.** | **Unit** | **Academic mentor** | **Title of the project** |
| 1. | [Department of Pharmacodynamics and Molecular Pharmacology](https://www.wf.cm.umk.pl/kfifm/zwierzetarnia/) | dr hab. Barbara Bojko, prof. UMK | Assessment of the glioblastoma phenotype based on targeted metabolomics and lipidomics analysis and development of a rapid method for determination of compounds of potential diagnostic importance |
| 2. | [Department of Pharmacodynamics and Molecular Pharmacology](https://www.wf.cm.umk.pl/kfifm/zwierzetarnia/) | dr hab. Barbara Bojko, prof. UMK | Metabolomic evaluation of the phenotype of pathogenic microorganisms of potential importance for a non-invasive diagnostic method of pneumonia |
| 3. | [Department of Clinical Biochemistry](https://www.wf.cm.umk.pl/kbk/) | dr hab. Daniel Gackowski, prof. UMK | Effect of oral supplementation of vitamin C on the epigenetic DNA modifications in patients with chronic lymphocytic leukemia |
| 4. | [Department of Pharmaceutical Botany and Pharmacognosy](https://www.wf.cm.umk.pl/kizf/) | dr hab. Daniel Załuski, prof. UMK | Plant – derived inhibitors of hyaluronidases and tyrosinase – a chemical and pharmacological aspect and industrial implementations |
| 5. | [Department of Clinical Biochemistry](https://www.wf.cm.umk.pl/kbk/) | dr hab. Marek Foksiński, prof. UMK | Investigation of the potential anti-cancer effect of vitamin C supplementation in patients with prostate cancer |
| DISCIPLINE: **MEDICAL SCIENCES** | | | |
| **No.** | **Unit** | **Academic mentor** | **Title of the project** |
| 1. | [Department of Cardiology and Internal Diseases](https://www.wl.cm.umk.pl/katedra-kardiologii-i-chorob-wewnetrznych/) | prof. dr hab. Jacek Kubica | Impact of morphine versus methoxyflurane on myocardial reperfusion in patients with ST-elevation myocardial infarction loaded with ticagrelor and aspirin, a randomized clinical trial |
| 2. | [Department of Cardiology and Internal Diseases](https://www.wl.cm.umk.pl/katedra-kardiologii-i-chorob-wewnetrznych/) | prof. dr hab. Jacek Kubica | Does adherence to treatment in patients after myocardial infarction depend on the strategy of antiplatelet treatment ? |
| 3. | [Department of Allergology, Clinical Immunology and Internal Diseases](https://www.wl.cm.umk.pl/kikaikicw/) | prof. dr hab. Zbigniew Bartuzi | The selected epithelial cytokines TSLP, IL 25 and IL 33 in patients with primary and secondary food allergy |
| 4. | [Department of Pathology](https://www.wl.cm.umk.pl/kizpk/) | prof. dr hab. Dariusz Grzanka | Expression of the selected genomic instability markers in pancreatic ductal adenocarcinoma: assessment of the prognostic value and mechanistic underpinnings of mitotic catastrophe in the context of the modulation of chemoresistance of cancer cells |
| 5. | [Department of Urology and Andrology](https://www.wl.cm.umk.pl/ku/) | prof. dr hab. Marta Pokrywczyńska | Influence of mesenchymal stem/stromal cell- derived extracellular vesicles on pancreatic islets in vitro |
| 6. | [Department of Cardiology and Clinical Pharmacology](https://www.wnoz.cm.umk.pl/2katkardio/) | prof. dr hab. Grzegorz Grześk | Apixaban dosage in patients with chronic kidneys disease - pharmacological analysis |
| DISCIPLINE: **HEALTH SCIENCES** | | | |
| **No.** | **Unit** | **Academic mentor** | **Title of the project** |
| 1. | [Department of Geriatrics](https://www.wnoz.cm.umk.pl/kikger/) | dr hab. Mariusz Kozakiewicz, prof. UMK | Evaluation of selected circulating miRNA molecules as diagnostic markers in neurodegenerative diseases |
| 2. | [Department of Cardiology and Clinical Pharmacology](https://www.wnoz.cm.umk.pl/2katkardio/) | prof. dr hab. Grzegorz Grześk | Prognostic value of ketastatin and thrombospondin in a group of patients with pulmonary arterial hypertension |

**Recruitment 2021/2022**

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| DISCIPLINE: **PHARMACEUTICAL SCIENCES** | | | |
| **No.** | **Unit** | **Academic mentor** | **Title of the project** |
| 1. | Department of Clinical Biochemistry | dr hab. Daniel Gackowski, prof. UMK | Molecular features of 5-hydroxymethyluracil and its role in chronic lymphocytic leukemia |
| 2. | Department of Medicinal Chemistry | prof. dr hab. Michał Marszałł | Synthesis and physicochemical characterization of synthetic porphyrinoids and boron–dipyromethane derivatives with potential photosensitzing and catalytic properties |
| 3. | [Department of Cardiology and Clinical Pharmacology](https://www.wnoz.cm.umk.pl/2katkardio/) | prof. dr hab. Grzegorz Grześk | Implementation of artificial intelligence methods for clinical decision-making in cardiology |
| DISCIPLINE: **MEDICAL SCIENCES** | | | |
| **No.** | **Unit** | **Academic mentor** | **Title of the project** |
| 1. | Department of Histology and Embryology | dr hab. Maciej Gagat, prof. UMK | Evaluation of the effect of transcription factor KLF11 expression on the inflammatory response of endothelial and smooth muscle cells of coronary arteries induced by TNFα and disruption of the TGFβ-SMAD signaling pathway |
| 2. | [Department of Urology and Andrology](https://www.wl.cm.umk.pl/ku/) | prof. dr hab. Marta Pokrywczyńska | The impact of genetically modified mesenchymal stem cells  overexpressing vascular endothelial growth factor on the angiogenesis of tissue engineered urinary bladder |
| 3. | [Department of Urology and Andrology](https://www.wl.cm.umk.pl/ku/) | prof. dr hab. Tomasz Drewa | Evaluation of the role of extraxellular vesicles in bladder cancer progression, an *in vitro* study |
| 4. | [Department of Urology and Andrology](https://www.wl.cm.umk.pl/ku/) | dr hab. Anna Bajek, prof. UMK | Innovative biomaterials for osteoarticular system regeneration |
| 5. | Department of Dermatology and Venereology | prof. dr hab. Rafał Czajkowski | Modulation of melanogenesis in vitiligo |
| 6. | [Department of Paediatrics, Haematology and Oncology](https://www.wl.cm.umk.pl/kphio/) | prof. dr hab. Jan Styczyński | Effectiveness of innovative therapies in pediatric oncology in the light of the results of anticancer treatment in the most common childhood malignancies |
| 7. | Department of General, Hepatobiliary and Transplant Surgery | dr hab. Maciej Słupski, prof. UMK | Prospective randomized controlled trial of impact of argon plasma coagulation of the surgical bed after total pancreatectomy on local recurrence in patients with resectable and borderline resectable pancreatic ductal adenocarcinoma (PDAC) |
| 8. | Department of Neurosurgery and Neurology | dr hab. Paweł Sokal, prof. UMK | Analysis of selected biochemical parameters of the cerebrospinal fluid and peripheral blood in treatment of neuropathic pain by the spinal cord stimulation. Assessment of treatment mechanism and potential of biochemical analysis in planning and monitoring of the therapy |
| DISCIPLINE: **HEALTH SCIENCES** | | | |
| **No.** | **Unit** | **Academic mentor** | **Title of the project** |
| 1. | Department of Sense Organ Research | prof. dr hab. Jakub Kałużny | Application of a super-fast human eye retinal movement tracking system in the diagnosis of the nervous and visual systems diseases |
| 2. | Department of Geriatrics | dr hab. Mariusz Kozakiewicz, prof. UMK | Endorcine function of adipose tissue in the course of the immune response in elderly patients with hyperuricemia |

**Recruitment 2022/2023**

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| DISCIPLINE: **PHARMACEUTICAL SCIENCES** | | | |
| **No.** | **Unit** | **Academic mentor** | **Title of the project** |
| 1. | Department of Chemical Technology of Pharmaceuticals | dr hab. Krzysztof Łączkowski, prof. UMK | New protein tyrosine phosphatase inhibitors and their anti-caner activity |
| 2. | Department of Organic Chemistry | dr hab. Alicja Nowaczyk, prof. UMK | In silico studies of selected compounds with antidysrhythmic activity in the circuratory system |
| 3. | Department of Clinical Biochemistry | dr hab. Rafał Różalski, prof. UMK | Active DNA demethylation products as potential biomarkers of multiple myeloma development |
| DISCIPLINE: **MEDICAL SCIENCES** | | | |
| **No.** | **Unit** | **Academic mentor** | **Title of the project** |
| 1. | Department of Histology and Embryology | dr hab. Maciej Gagat, prof. UMK | Mechanobiology of the endothelial cell migration as a basis for the use of biodegradable aliphatic poliester copolymers containing naturally bioactivated components in the design of cell scaffolds with increased angiogenic potential of regenerated tissues |
| 2. | [Department of Cardiology and Internal Diseases](https://www.wl.cm.umk.pl/katedra-kardiologii-i-chorob-wewnetrznych/) | prof. dr hab. Jacek Kubica | High plateled reactivity durning treatment with ticagrelor in patients with a history of acute coronary syndromes: the influence of the intestinal microbiota and the eubiotic effect of rifaximine. Comparative assessment of platalet function using two methods |
| 3. | [Department of Pathology](https://www.wl.cm.umk.pl/kizpk/) | prof. dr hab. Dariusz Grzanka | Deregulation of epigenetic mechanisms in urothelial carcinoma of the bladder |
| 4. | [Department of Urology and Andrology](https://www.wl.cm.umk.pl/ku/) | dr hab. Anna Bajek, prof. UMK | Application of new technologies in the evaluation of anti-cancer potential of natural origin compounds |
| 5. | [Department of Urology and Andrology](https://www.wl.cm.umk.pl/ku/) | dr hab. Małgorzata Maj, prof. UMK | The study of the role of extracellular vesicles in communication between normal and cancer cells |
| 6. | Department of Histology and Embryology | dr hab. Magdalena Izdebska, prof. UMK | Assessment of the metastatic potential of breast cancer cells in the context of the manipulation of cytoskeleton-related proteins – *in vitro* studies |
| 7. | [Department of Allergology, Clinical Immunology and Internal Diseases](https://www.wl.cm.umk.pl/kikaikicw/) | prof. dr hab. Zbigniew Bartuzi | Analysis of the allergy profile to species-specific and cross-reacting inhalation and food allergens, based on the results of determination of IgE specific concentration for extracts and allergen molecules using multiparameter platforms (ImmunoCap ISAC and ALEX Allergy Explorer Test) |
| 8. | Department of Neurosurgery and Neurology | dr hab. Paweł Sokal, prof. UMK | Deep Anterior Cerebellar Stimulation in Treatment of Poststroke Spasticity and Motor Function Impairment. A randomized, single-blinded clinical trial |
| 9. | Department of Vascular Surgery and Angiology | dr hab. Arkadiusz Migdalski, prof. UMK | The impact of tissue factor pathway coagulation cascade on angiogenesis process in atherosclerotic plaques of patients with critical carotid stenosis |
| DISCIPLINE: **HEALTH SCIENCES** | | | |
| **No.** | **Unit** | **Academic mentor** | **Title of the project** |
| 1. | Department of Clinical Biochemistry | dr hab. Marek Foksiński, prof. UMK | The influence of vitamin C supplemention on the effects of radiotherapy in prostatę cancer patients |
| 2. | Department of Oncological Surgery | dr hab. Wojciech Jóźwicki, prof. UMK | Investigation of the possibility of influencing the expression of selected genes related to fatty acid metabolism – in particular CD36 and TSP1 – and the risk of promoting the neoplastic proces. Molecular basis of malignancy formation of urothelial bladded cancer |
| 3. | Department of Preventive Nursing | dr hab. Józef Mierzwiński, prof..UMK | Analysys of inner ear malformations in pediatric patients with hearing loss – the role of diagnostic imaging and its effect on treatment |
| 4. | Department of Health Economics | dr hab. Błażej Łyszczarz, prof. UMK | Indirect costs of mortality in elderly population of European Union countries |