



**UNIVERSITY of INFORMATION
TECHNOLOGY and MANAGEMENT**
in Rzeszow, POLAND

FACULTY of MEDICINE

University of
Information Technology
and Management
in Rzeszow

ORGANIZATIONAL STRUCTURE |
DESCRIPTIONS of FIELDS of STUDY |
RESEARCH | PUBLICATIONS |
IMPLEMENTATION AND SERVICE CENTRE |
TEACHING LABORATORIES |

FACULTY of MEDICINE

of the University of Information Technology
and Management in Rzeszow

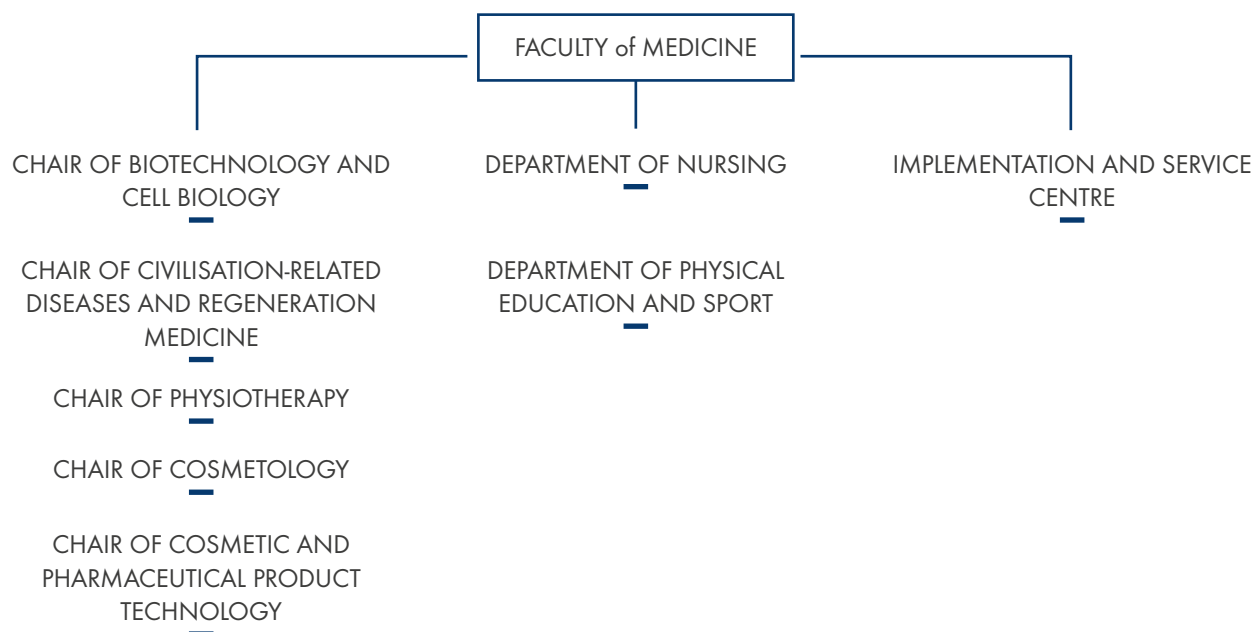
EVALUATION OF SCIENTIFIC ACTIVITIES FOR 2017-2021

Medical Science - scientific **category B+**

The right to confer doctoral and postdoctoral degrees starting in 2022

ORGANIZATIONAL STRUCTURE of the FACULTY of MEDICINE

The structure of the Faculty of Medicine includes research and didactic units (chairs). Strictly didactic units (departments) and a service centre.





DESCRIPTIONS of FIELDS of STUDY

DIETETICS

In modern society, an increasing interest in diet, healthy lifestyle and food production technology is observed. Dietetics is a scientific discipline that you can discover throughout your life. Knowledge of nutrition is constantly developed and modified, as more and more new reports from the world of science appear. A dietitian combines within one profession the competences of a therapist and a food technologist, acquiring qualifications to work in various places, both in healthcare or hospital management as well as in classic gastronomy.

First-cycle studies in Dietetics last 6 semesters and end with obtaining a Bachelor's degree. Education in this field of study has been conducted since the 2014/15 academic year.

The mission of education in Dietetics is teaching in accordance with EBM (evidence-based medicine). It consists in the ability to use reliable scientific evidence in clinical proceedings. Classes are conducted by renowned scientists, as well as specialists with many years of professional experience: practitioners, clinical dietitians, food technologists and personal trainers.

The University also places emphasis on acquiring solid practical skills within nutrition of healthy and sick people. The courses at first-cycle Dietetics are divided into two blocks: the main one, which is obligatory for all, and an optional one (focused on field-related and specialty areas), within which students have the opportunity to choose courses and specialties.

The following specialties are offered:

DIETETIC COUNSELING

The purpose of this specialty is to educate professional staff prepared to give dietary and nutrition advice. The graduate will be able to solve specific problems including providing nutritional advice, also in the area of nutritionally-dependent diseases. They will acquire qualifications to skillfully cooperate with doctors and other professional healthcare workers, manage the staff of mass catering establishments, and conduct marketing and managerial activities in this area. They will be able to competently assess the functioning of the food and nutrition market in Poland.

Graduates will be prepared to work in various catering facilities, including mass catering establishments, tourist enterprises, as well as in other catering services. They will also be prepared to start their own business within consulting services related to healthy nutrition. In addition, they can be competent partners for personal trainers and coaches.

DIETETICS IN LIFESTYLE DISEASES

The specialty focuses on the relationship between nutrition and civilisation (lifestyle) diseases (obesity, diabetes, neoplasms, cardiovascular diseases, digestive system diseases, arterial hypertension, osteoporosis) in two perspectives: how nutrition and lifestyle affect the development of civilisation diseases, and thus how to minimise the risk of civilisation diseases at individual and community level; and nutrition for those suffering from such diseases. It includes e.g. issues of the influence of the environment and other factors on the development of civilisation diseases, the role of nutrition and lifestyle in the prevention of such diseases, designing diets in civilisation diseases.

In many diseases, as subject literature suggests, a properly selected and targeted diet can often compete with pharmacotherapy, and is often the better choice. The condition for successful treatment is adaptation to the dietary regime and correct selection of the right foods during and at different stages of the development or duration of the disease.

Graduates are prepared to work with patients from risk groups and those suffering from civilisation diseases (both within their own counselling and within work in hospitals and other health care units), and to conduct health education.

DIETETICS IN SPORTS AND FITNESS

The aim of this specialty is to prepare dietitians specialising in nutrition and dietary support for people practicing sports at amateur and competitive levels, as well as people using fitness clubs and biological regeneration centres. Students improve their practical skills in a professionally equipped Exercise Test Laboratory, which has advanced equipment for examining athletes (including a calorimeter, cycloergometer, cardiological treadmill, spirometer). A professional programme for composing menus, DietetykPro, helps students to further develop their skills.

Graduates of Dietetics, specialty: Dietetics in sport and fitness, have the knowledge and skills to purposefully plan meals for physically active people at various levels of advancement.

A graduate of the specialty can prepare a correct menu with the energy and nutritional value necessary for the body, use professional equipment to perform exercise tests and determine the body's efficiency, consciously support the development of strength and endurance, control the content of muscle and fat tissue in patients, provide professional advice on proper hydration of the body and supplementation adapted to a specific sports discipline.

PHYSIOTHERAPY

Physiotherapy is a medical field recognised as one of five most evolutionary ones in the world. The demand for specialists in the field is constantly growing both in Poland and abroad. Early introduction of physiotherapeutic interventions in the case of existing disorders of body functions and structures as well as widespread implementation of preventive measures ensures better health of the general society and significant savings for the state.

Currently, in the field of Physiotherapy there is parallel education in the first-cycle and second-cycle studies and from the 2017/2018 academic year – in connection with the entry into force of the Act of September 25, 2015 on the profession of physiotherapist, there is also education at uniform master's studies.

Currently, the physiotherapy degree at UITM is taught as a uniform Master's degree. The Act of 25th September 2015 on the profession of physiotherapist regulates the qualifications necessary to practice the profession of a physiotherapist and specifies the principles for practising it, including obtaining the right to practice the profession, vocational training, postgraduate training and professional liability. It also specifies in detail the requirements that must be met by a person who is entitled to practice as a physiotherapist. Graduates of Master's degree studies have the right to provide all types of services: qualify patients for rehabilitation treatments, commission medical devices and orthopaedic supplies, give opinions on the functional state of patients and on the course of the rehabilitation process.

Graduates of Physiotherapy acquire comprehensive knowledge in physiotherapy and related medical disciplines, which allows them to prepare for independent professional practice and to function in a therapeutic team. Practical classes (classes, laboratories, practical courses and vocational training) are conducted in specialist laboratories and health care facilities medical entity under the guidance of teachers of practical classes and supervisors of vocational training. Their aim is to verify the obtained theoretical knowledge and acquire professional skills in working with patients with various dysfunctions. UITM Physiotherapy students have the opportunity to use the University's scientific and teaching premises at the UITM Campus in Kielnarowa, which include: educational premises, specialised laboratories, practical classrooms and laboratories, recreational and sports facilities, Spa & wellness facilities, tourist sites, playing fields and sports halls. Thanks to extensive cooperation with hospitals in Rzeszów and nearby rehabilitation facilities, the resorts of Rymanów S.A. and Horyniec Sp. z o.o., and with the Reh-Mediq Rehabilitation and Medical Centre in Kielnarowa, students can have their vocational training and practical classes in health care units of various profiles.

Strategic partners in the field of Physiotherapy are:

- MEDYK Medical Centre in Rzeszów
- Non-public "RUDEK" Medical Rehabilitation Centre
- Health resort HORYNIEC Ltd.

COSMETOLOGY

Increased public awareness in the area of care for beauty, correcting its imperfections, and selection of cosmetic preparations contributed to a rapidly growing demand for professional cosmetology services and, in effect, for competent, comprehensively educated cosmetologists.

Cosmetology is a profession that a graduate has after completing their first-cycle studies, but second-cycle studies allow them to fully shape their professional profile by acquiring advanced and interdisciplinary general medical knowledge, professional knowledge and practical skills. UITM offers comprehensive training of cosmetologists by offering both first-cycle and second-cycle studies.

Cosmetology is an interdisciplinary field of study combining knowledge and skills in the field of medical sciences, pharmaceutical sciences and health sciences.

Cosmetology is an interdisciplinary field of study combining knowledge and skills in the area of medical sciences, pharmaceutical sciences and health sciences, with a practical profile. Classes are conducted in specialised laboratories, including Laboratories of Cosmetology, Visage and Stylistation, Cosmetic Chemistry, Immunology and Biochemistry, General Biology, and Massage. That ensures acquisition of manual skills in the area of care, beauty and therapeutic procedures.

First-cycle in Cosmetology studies last 6 semesters, full time or part time. The studies include such courses as: Dermatology, Cosmetic Chemistry, Human Anatomy and Physiology, Care Cosmetology, Beauty Cosmetology, Aesthetics, and Cosmetic Formulation. Students have the option of choosing courses according to their own interests complementing the block of basic and core courses (Flexible Study System – FSS). The curriculum includes 960 hours of vocational training.

The following specialties are offered at first-cycle Cosmetology studies:

AESTHETIC COSMETOLOGY

The specialty is a perfect complement to practical skills in basic podological procedures, nail stylization and nail decoration, as well as makeup in camouflaging face and skin imperfections. The specialty prepares students for work in beauty salons, independently planning and performing care and beauty treatments according to the client's needs.

COSMETICS MANUFACTURING TECHNOLOGY

The specialty is an extension of practical skills within cosmetic chemistry and cosmetic recipes. It is a unique specialty on a national scale, giving the opportunity to acquire skills in developing recipes for basic forms of cosmetics and analysing their properties. The specialty prepares students for work in cosmetic and pharmaceutical laboratories, pharmacy cosmetics departments, and enterprises dealing in the production and distribution of care and coloured cosmetics.

BIOLOGICAL REGENERATION AND WELLNESS

The specialty prepares students for professional customer service in spa and wellness centres, beauty salons located in prestigious hotels, spa resorts within planning and performing care and therapeutic procedures, with massage and relaxation techniques.

MAKEUP AND CHARACTERIZATION

The specialization in makeup and makeup decoration is dedicated to makeup enthusiasts, creative and creative people, gives the opportunity to learn advanced makeup techniques and explore the secrets of theatrical and film makeup. During the classes, students will imitate wounds, burns and other aesthetic defects. This specialization prepares students to work on professional photo and film sessions, advertising campaigns and fashion shows.

For interested first-cycle students of Cosmetology, additional 10-hour workshops are organised as part of the "I want more" initiative, concerning: designing cosmetic preparations, cosmetic anti-cellulite treatments, professional colour analysis, regenerative medicine

Second-cycle Cosmetology studies last 4 semesters and are conducted part-time (weekends). The curriculum covers such courses as: Skin Physiology and Pathophysiology, Skin Oncology, Plastic, Posttraumatic and Aesthetic Surgery, Medical Cosmetology, Natural Cosmetic Raw Materials, Cosmetic Product Formulation, Phytocosmetics and Dermocosmetics, and Rehabilitation. Students have the option of choosing courses according to their own interests to complement the block of basic and core courses (Flexible Study System – FSS).

The following specialties are offered at second-cycle Cosmetology studies:

APPLIED COSMETOLOGY

The specialty prepares students for professional performance of advanced cosmetology treatments in line with the latest trends and for effective cooperation with a medical specialist. The programme includes e.g.: Trouble Skin Care, Make-Up in Dermatoses and Oncological Diseases, Male Skin Care.

COSMETIC PREPARATIONS DESIGN

The specialty is an extension of practical skills in formulation of cosmetic preparations, including cosmetics design in accordance with modern trends and production process design, as well as physicochemical analysis of individual cosmetic forms. The programme includes, among others: Biotechnology of Cosmetics, Cosmetics Technology and Design, as well as Industrial Cosmetics Production

COSMETICS BRAND MANAGER

The Cosmetics Brand Manager specialization includes knowledge and skills in the field of management and marketing of cosmetics products and services. Students are introduced to the specifics of the cosmetics industry, both in terms of promoting and managing a cosmetics brand, as well as beauty and personal care cosmetic services. The specialization prepares for the challenges connected with brand creation in the beauty industry and strengthening its image in the media and economic environment.

The curriculum includes 480 hours of vocational training.

Strategic partners of UITM Cosmetology are:

- Janssen Cosmetics
- Bielenda Professional

NURSING

The demand for educated nursing staff is caused, among others, by deteriorating health of the society, increased incidence of civilisation diseases which are a challenge for the health care system, and the aging of the society, often requiring long-term medical care.

A nurse is not only a member of medical staff in a hospital, but also in a clinic or a social welfare home. The shortage of nursing staff is also connected with the emigration of educated nurses aged 30–40 to work in foreign medical centres. Currently, a generational gap is observed in the nursing profession – the average age of nursing staff in Poland is 53. Both the civilisation diseases affecting a growing number of people, including the young, and technological advances in medicine require an increased investment in the education of specialised nursing staff which is a deficit profession not only in Poland, but also in the European Union. From March 2020, Nursing studies are offered at UITM as part of the Medical Faculty.

This year, UITM obtained the decision of the Ministry of Health to extend the accreditation of the Nursing faculty for the period of 5 years.

At present, the Nursing Department offers parallel studies in Polish and in English.



DESCRIPTIONS of FIELDS of STUDY

The Nursing studies last 7 semesters. The university has received positive opinions from the National Accreditation Council for Schools of Nursing and Midwifery from and the Polish Accreditation Committee and obtained the right to offer education in Nursing.

Nursing is a profession which the graduate gains after completing first-cycle studies, by acquiring comprehensive medical and medicine-related knowledge, practical skills, as well as necessary social competences which are crucial when performing a nurse's professional activities. The study programme for Nursing was developed in accordance with the education standards specified in the regulation of the Minister of Science and Higher Education. It allows to develop the correct profile of a nursing graduate, capable of providing health services within recognising the health and care needs of patients, conscious planning and provision of care to the patient, and independent provision of preventive, diagnostic, therapeutic or rehabilitation services within a specified range. By going through particular blocks of courses (general, basic, social sciences, basic nursing and specialist care), the graduate is prepared to participate in the diagnostic and therapeutic process by professionally cooperating with doctors and other members of the therapeutic team.

Due to the practical profile of the Nursing studies, strong emphasis is put on the acquisition of knowledge, skills and social competences of a practical nature. Such nature of the studies is ensured by students' practical classes (total of 1 100 hours) and vocational training (total of 1 200 hours). A significant part of the classes is conducted in small groups (classes, laboratories, practical classes), which undoubtedly increases the effectiveness of the teaching process. A graduate of first-cycle Nursing studies has extensive medical, specialist and social knowledge as well as skills and competences entitling them to work in public and non-public healthcare facilities, such as: hospitals, medical clinics, palliative and hospice care centres, nursing homes, social welfare homes, sanatoriums and rescue system units.



SCIENTIFIC RESEARCH

SCIENTIFIC PROJECTS

Development of innovative natural cosmetics based on a synbiotic complex obtained in a fermentation process using the kombucha tea fungus

Project leader: **Zofia Nizioł-Łukaszewska, Assoc. Prof., Ph.D., Eng.** zniziol@wsiz.edu.pl

The purpose of the project is to develop an innovative series of natural cosmetics based on a synbiotic complex obtained in the fermentation process with the use of the kombucha tea fungus. The proposed line of cosmetics includes three multifunctional products: creamy face cleansing foam, soothing tonic mist and moisturizing probiotic essence.

Implementation period: **04.2022–09.2022**

Financing: **Podkarpackie Centrum Innowacji (PCI)**

*Extracting bioactive substances from *Inonotus obliquus* in a form applicable in food enrichment*

Project Manager: **Konrad Szychowski, Assoc. Prof., Ph.D.** kszychowski@wsiz.edu.pl

The wood parasite *Inonotus obliquus* is characterised by well-described pro-health properties, reported e.g. in subject literature and in folk medicine. Nowadays, cancers are the second most common cause of deaths. Therefore obtaining the active substances without losing their biological features from *I. obliquus*, and subsequently developing a food supplement based on the extract seem to be crucial, especially from the perspective of social needs. The objective of this project is to obtain an extract from sporophores of the *I. obliquus* and modify it to make it useful as a supporting supplement during the anticancer therapy or cancer prevention. The main aims of the project are 1) optimisation of the extraction process of active substances from *I. obliquus*; 2) obtaining a powder of such an extract, facilitating its application in diet supplements and determining its physicochemical properties; 3) evaluating the safeness and optimal dose of such extracts in in vitro cell models.

Implementation period: **02.2022–07.2022**

Financing: **Podkarpackie Centrum Innowacji (PCI)**

An innovative series of liquid crystal emulsions containing micellar dogwood extract

Project Manager: **Zofia Nizioł-Łukaszewska, Assoc. Prof., Ph.D., Eng.** zniziol@wsiz.edu.pl

The project concerns the development of recipes and technology for the production of multifunctional lines of natural cosmetics containing micellar extract of dogwood, maintained in the concept of the zero-waste trend. Research will include obtaining dogwood extracts and analysing their biochemical properties, as well as developing the composition and technology for cosmetics, including testing under real conditions. The result of the research will be ready-to-use technology for producing the extract and an entire line of natural cosmetics.

Implementation period: **04.2021 – 12.2021**

Financing: **Podkarpackie Centrum Innowacji (PCI)**

Elastin-derived peptide VGVAPG as a carrier of cytostatic drugs into cancer cells

Project Manager: **Konrad Szychowski, Assoc. Prof., Ph.D.** kszychowski@wsiz.edu.pl

Elastin is one of the main proteins responsible for tissue elasticity. Studies have shown that a product of its proteolysis is an active peptide characterised by the conserved sequence Val-Gly-Val-Ala-Pro-Gly (VGVAPG). The sequence is easily released from elastin in both physiological and pathological conditions, demonstrating high affinity to the elastin binding protein of the surface receptor, allowing elastin to enter the cell. The aim of the project is to conjugate selected cytostatics with the peptide and assess the impact of the obtained complexes on lungs and breast cancer cells in vitro by investigating their mechanism, including determining the level of expression of selected genes or the level of protein biosynthesis. The obtained results of the project will allow to examine the effectiveness of using the elastin-derived peptide as a drug transporter in targeted anti-cancer therapy in comparison to conventional (unconjugated) cytostatic.

Implementation period: **02.2021 – 07.2021**

Financing: Podkarpackie **Centrum Innowacji (PCI)**

Extracts from Alcea rosea var. nigra with AHA acids as innovative ingredients of chemical peels

Project Manager: **Katarzyna Gawel-Bęben, Ph.D.** kagawel@wsiz.edu.pl

The aim of the project was to develop an innovative cosmetic raw material made from black mallow flowers (*Alcea rosea* var. *nigra*), rich in natural active ingredients with antioxidant, soothing and brightening properties for the skin, and using it in the formulation of a prototype cosmetic – chemical peeling with anti-hyperpigmentation properties, designed for all skin types. The unique technology of producing the cosmetic raw material will ensure the stability of its active substances. Both the raw material and the cosmetic prototype will undergo in vitro, apparatus and application tests confirming the safety and effectiveness of their use.

Implementation period: **02.2021 – 10.2021**

Financing: **Podkarpackie Centrum Innowacji (PCI)**

The use of a Mongolian herbal blend in comprehensive sun protection for the skin

Project Manager: **Timea Sulenta-Pluta, M.Sc.** tsulenta@wsiz.edu.pl

The aim of the project is to produce a prototype of a protective cosmetic formulation with a high sun protection factor (SPF 50) which beside providing direct protection of the skin against negative effects of UV radiation will inhibit the proliferation of skin cancer cells, such as melanoma or basal cell carcinoma cells. The active ingredient of the formulation with such effects is a glycol-aqueous extract from a Mongolian herbal mixture containing powdered fruits of gardenia (*Gardenia jasminoides*), chebulic myrobalan (*Terminalia chebula*) and beleric (*Terminalia bellirica*).

Implementation period: **12.2019–05.2020**

Financing: **Podkarpackie Centrum Innowacji (PCI)**

Cosmetic Valley – International Scientific and Implementation Cooperation at the Cosmetology Department

Project Manager: **Prof. Kazimierz Głowniak, Ph.D.** kglowniak@wsiz.edu.pl

The aim of the project is to establish international cooperation and joint implementation of a research project in the field of natural cosmetology. The research includes, among others, the possibility of using plant species growing in Kazakhstan as raw materials in cosmetic preparations, the use of state-of-the-art methods in analysis of biological activity and the safety of using the raw materials, as well as preparation of prototype cosmetic preparations. An important part of the project is also the preparation of innovative teaching materials, introducing students from partner universities to the secrets of natural cosmetology.

Project partners are: the National and Kapodistrian University of Athens [Greece]; the Asfendiyarov Kazakh National Medical University of the Ministry of Health of the Republic of Kazakhstan [Kazakhstan]; the University of Innsbruck, Institute of Analytical Chemistry and Radiochemistry [Austria].

Implementation period: **2018–2021**

Financing: **Program of the Polish National Agency for Academic Exchange (NAWA)**

RESEARCH COMMISSIONS FOR ENTITIES OUTSIDE OF HIGHER EDUCATION

Year 2021

CIEPIELA TECHNOLOGY PROMOTION Sp. z o. o.

Research service consisting in the development of a new innovative product in the form of whitening fluid

Eplatformy.pl Sp. z o.o.

Research service consisting in the development of a new innovative product in the form of fruit peeling set for the body and feet

Estate Opakowania Sp. z o. o.

Research service consisting in the development of an innovative product in the form of natural two-phase washing cosmetic for men that removes difficult dirt

Stowarzyszenie Społeczno-Ekonomiczne ABSOLWENT

Research service consisting in the development of an innovative recipe for children soap which changes colour during handwashing

TKM-LAB Sp. z o.o.

Research service consisting in the development of an innovative series of organic, detoxifying liquid crystal emulsions with the addition of Moringa tree macerate

Sieć Badawcza Łukasiewicz - Instytut Ciężkiej Syntezy Organicznej
"Blachownia"

Safety assessment of model washing baths for fruit and vegetables in terms of their interaction with the skin

Year 2022

Landeo Sp. z o.o.

Research service consisting in the development of a new product in the form of a set for comprehensive skin and body care with significantly improved functional properties as well as definition of technological assumptions for the production process

TTD International Pty Ltd

Service consisting in analysis of cytotoxicity of maca root extracts against the human prostate cancer cell line

Stowarzyszenie Społeczno-Ekonomiczne ABSOLWENT

(Graduate – Socio-Economic Association)

Research service consisting in the development of a new product based on an innovative recipe of a cosmetic powder with washing properties in contact with water.

DQ ALETUS Sp. z o.o.

Research service consisting in the development of a new innovative product in the form of nourishing face cream

TTD International Pty Ltd

Research service consisting in comparative analysis of antioxidant properties of the supplied compound sample and melatonin and vitamin C preparations available in the market

SCIENTIFIC RESEARCH FINANCED WITH GRANTS OF THE MINISTRY OF SCIENCE AND HIGHER EDUCATION

Innovative raw materials for application in the medical, pharmaceutical
and cosmetic industries

Subject Manager: **Zofia Nizioł-Łukaszewska, Assoc. Prof., Ph.D., Eng.** znizioł@wsiz.edu.pl

The main aim of the project is to assess in detail the mechanisms of action of the tested substances, including their antioxidant, chelating and anti-inflammatory properties. Raw materials with the most desirable properties will be applied in pharmaceutical, cosmetic and medical preparations. The project involves the implementation of experimental research in the form of a series of laboratory experiments, followed by a detailed description of their results. The research aims to determine the mechanism of action of selected substances in cell-free and cellular systems. A range of raw materials will be analysed which may have practical application in the medical, pharmaceutical and cosmetic industries.

Implementation period: **2019 – 2022**

Impact of VGVAPG peptide on the process of cell differentiation and aging in human cell lines

Subject Manager: **Konrad Szychowski, Assoc. Prof., Ph.D.** kszychowski@wsiz.edu.pl

The aim of the project is to determine the effect of a short sequence elastin-derived peptide on the process of cell differentiation and aging in human cell lines. The results of the project will serve as preliminary research for the submitted grant applications and will allow to extend the current knowledge on the basis of the mechanism of neurodegenerative diseases at the level of metabolism and genome, due to the presence of an elastin- derived peptide – the amount of which increases significantly with age.

Implementation period: **2021-2025**

Effect of xenobiotics on the activity of endocrine cells

Subject Manager: **Anna Tabęcka-Łonczyńska, Assoc. Prof., Ph.D.** atabeck@wsiz.edu.pl

The aim of the study is to determine the effect of xenobiotics on the cells of the male reproductive and nervous system. Based on the preliminary analyses, a significant toxic effect of TBC xenobiotic (tris (2,3-dibromopropyl) isocyanurate) on spermatogenic cells was demonstrated – the standard parameters of metabolic activity, i.e. LDH and caspase 3, were altered. Preliminary studies on TBC mechanism of action on mouse spermatogenic cells have revealed the involvement of specific receptors in its toxicity mechanism at the proteomic level.

Implementation period: **2021 – 2023**

Plant extracts as multifunctional ingredients in skin lightening preparations

Subject Manager: **Katarzyna Gawel-Bęben, Ph.D.** kagawel@wsiz.edu.pl

The contemporary cosmetic market seeks effective and safe-to-use hyperpigmentation reducing substances. A particularly interesting source of such substances are plant extracts, which due to the complex composition and synergism of the action of individual components can provide additional effects of the cosmetic preparation beside just lightening. The aim of the research planned in the project is to analyse plant extracts in terms of their possible use as multifunctional components of cosmetics against hyperpigmentation. The research is carried out in cooperation with employees of the Department of Pharmacognosy with Laboratory of Medicinal Plants at the Medical University of Lublin (Virginia Kukuła-Koch, Ph.D., Assoc. Prof.; Krystyna Skalicka-Woźniak, Ph.D., Assoc. Prof.).

Implementation period: **2019–2022**

New raw materials supporting skin microbiome and alternative preservatives with a high degree of safety for the skin

Project manager: **Tomasz Bujak, M.Sc.** tbujak@wsiz.edu.pl

The research conducted in the project will focus on the assessment of the impact of cosmetic raw materials (e.g. raw materials obtained from seeds of nettle, chicory, Jerusalem artichoke, dandelion) on human skin microorganisms, both pathogenic (e.g. *Propionibacterium acnes*) and the “beneficial” bacteria that build the skin microbiome (e.g. *Bifidobacterium*).

Raw materials with the most preferable properties will be applied in cosmetic products formulations (emulsions, gels, liquids) and assessed as to maintaining the desired properties in the finished cosmetic product.

The second direction of the works carried out during the project will be analyses aimed at searching for new, innovative, alternative preservatives of plant origin. The research will cover extracts and other plant preparations and their ferments.

Implementation period: **2022-2024**

Fermented plant extracts as a potential source of active ingredients in cosmetics with antioxidant and anti-discoloration properties

Project leader: **Uliana Hoian, M.Sc.** uhoian@wsiz.edu.pl

The aim of the project research is to develop innovative cosmetic feedstocks. The planned form of innovative ingredients are filtered plant extracts subjected to a fermentation process with lactic acid bacteria in order to obtain multifunctional active ingredients with antioxidant and anti-discoloration properties.

Implementation period: **2021-2022**

New hydrogel materials for dermatological and cosmetological applications - synthesis and structural, physicochemical and biological evaluation

Subject Manager: **Martyna Zagórska-Dziok, M.Sc.** mzagorska@wsiz.edu.pl

The main goal of the research is to obtain new hydrogels for dermatological and cosmetological applications. Those biomaterials can be used to treat hard-to-heal wounds, delay the aging process of the skin and support its repair processes after dermatological and cosmetological treatments. For this purpose, attempts are being made to develop hydrogels loaded with compounds of plant origin, i.e. cannabidiol and terpineol, as well as willow and hemp extracts.

Implementation period: **2019-2022**

Quality of life and assessment of postural stability of healthy and sick people under the influence of different factors

Subject Manager: **Marlena Krawczyk-Suszek, Ph.D.** mkraczk@wsiz.edu.pl

The main aim of the research is to assess the effectiveness of rehabilitation in patients with dysfunctions in the musculoskeletal system, using clinical tests, functional scales, standardised tools, as well as modern diagnostic and therapeutic devices.

Implementation period: **2017–2022**

Improving upper limb function in children with cerebral palsy in home-care setting

Subject Manager: **Weronika Cyganik, M.Sc.** wcyganik@wsiz.edu.pl

The main aim of the research is to characterise the effects of therapy based on the implementation of a dedicated exercise program for mobility improvement in home setting on upper limb function in hemiparetic children of 6 - 10 in the course of cerebral palsy.

Implementation period: **2019–2022**

PUBLICATIONS



Research findings are published by employees of the Faculty of Medicine in journals indexed in international databases, such as:

Antimicrobial Agents and Chemotherapy, Blood, European Journal of Medicinal Chemistry, European Heart Journal - Cardiovascular Imaging, Frontiers in Immunology, International Journal of Environmental Research and Public Health, International Journal of Molecular Sciences, Journal of American College of Cardiology, Cardiovascular Imaging, Journal of the European Academy of Dermatology and Venereology, Molecules, Scientific Reports.

List of selected publications of employees since 2020:

Marlena Krawczyk-Suszek, Andrzej Kleinrok. Health-Related Quality of Life (HRQoL) of People over 65 Years of Age. International Journal of Environmental Research and Public Health 2022, 19, 2; 625. ISSN 1661-7827.

[Publication](#)

Agnieszka Ciarka, Filipa Cordeiro, Walter Droogne, Johan Van Cleemput, Jens-Uwe Voigt. Speckle-tracking-based global longitudinal and circumferential strain detect early signs of antibody-mediated rejection in heart transplant patients. European Heart Journal - Cardiovascular Imaging 2021. ISSN 2047-2404

[Publication](#)

Askhat Sabitov, Katarzyna Gawel-Beben, Zuriyadda Sakipova, Marcelina Strzepek-Gomółka, Uliana Hoian, Elmira Satbayeva, Kazimierz Głowniak, Agnieszka Ludwiczuk. Rosa platyacantha Schrenk from Kazakhstan—Natural Source of Bioactive Compounds with Cosmetic Significance. Molecules 2021, 26, 9; 2578. ISSN 1420-3049

[Publication](#)

Bartosz Skóra, Urszula Krajewska, Anna Nowak, Andrzej Dziedzic, Adriana Barylyak, Małgorzata Kus-Liśkiewicz. Noncytotoxic silver nanoparticles as a new antimicrobial strategy. Scientific Reports 2021, 11; 13451. ISSN 2045-2322

[Publication](#)

Blazej Michalski, Ivan Stankovic, Efsthios Pagourelas, Agnieszka Ciarka, Marit Aarones, Stefan Winter, Lothar Fabe, Svend Aakhus, Wolfgang Fehske, Marta Cvijic, Jens-Uwe Voigt. Relationship of mechanical dyssynchrony and LV remodelling with improvement of mitral regurgitation after CRT: a PREDICT-CRT sub-study. Journal of American College of Cardiology, Cardiovascular Imaging 2021. ISSN: 1936-878X

[Publication](#)

PUBLICATIONS

Gulnara Kadyrbayeva , Justyna Zagórska , Agnieszka Grzegorzczak , Katarzyna Gawęł-Bęben , Marcelina Strzępek-Gomółka, Agnieszka Ludwiczuk , Karolina Czech , Manoj Kumar , Wojciech Koch , Anna Malm, Kazimierz Głowniak , Zuriyadda Sakipova, Wirginia Kukula-Koch. The Phenolic Compounds Profile and Cosmeceutical Significance of Two Kazakh Species of Onions: *Allium galanthum* and *A. turkestanicum*. MOLECULES 2021, 26, 18; 5491. ISSN 1420-3049

[Publication](#)

Kamila Buzun , Anna Kryshchysyn-Dylevych , Julia Senkiv , Olexandra Roman , Andrzej Gzella, Krzysztof Bielawski, Anna Bielawska, Roman Lesyk. Synthesis and Anticancer Activity Evaluation of 5-[2-Chloro-3-(4-nitrophenyl)-2-propenylidene]-4-thiazolidinones. Molecules, 2021, 26,10; 3057. ISSN 1420-3049

[Publication](#)

Kamila Buzun, Agnieszka Gornowicz , Roman Lesyk , Krzysztof Bielawski, Anna Bielawska. Autophagy Modulators in Cancer Therapy. International Journal of Molecular Sciences 2021, 22,11; 5804. ISSN 1422-0067

[Publication](#)

Kamila Rybczyńska - Tkaczyk, Teresa Kornitowicz-Kowalska, Konrad Szychowski. Possibility to Biotransform Anthracyclines by Peroxidases Produced by *Bjerkandera adusta* CCBAS 930 with Reduction of Geno- and Cytotoxicity and Pro-Oxidative Activity. Molecules, 2021, 26,2:462. ISSN 1420-3049

[Publication](#)

Magdalena Wójciak, Ireneusz Sowa, Aleksandra Ziemlewska, Zofia Nizioł-Łukaszewska, Tomasz Bujak, Martyna Zagórska-Dziok. Effect of fermentation time on the content of bioactive compounds with cosmetic and dermatological properties in Kombucha Yerba Mate extracts. Scientific Reports 2021, 11, 1; 18792. INNS 2045-2322

[Publication](#)

Martyna Zagórska-Dziok, Tomasz Bujak, Aleksandra Ziemlewska, Zofia Nizioł-Łukaszewska. Positive Effect of Cannabis sativa L. Herb Extracts on Skin Cells and Assessment of Cannabinoid-Based Hydrogels Properties. MOLECULES 2021. ISSN 1420-3049

[Publication](#)

Martyna Zagórska-Dziok, Aleksandra Ziemlewska, Tomasz Bujak, Zofia Nizioł-Łukaszewska, Zofia Hordyjewicz-Baran. Cosmetic and dermatological properties of selected Ayurvedic plant extracts. Molecules 2021, 26,3;614 .ISSN 1420-3049

[Publication](#)

Marcelina Strzępek-Gomółka, Katarzyna Gawęł-Bęben, Apostolis Angelis, Beata Antosiewicz, Zuriyadda Sakipova, Kaldanay Kozhanova, Kazimierz Głowniak, Wirginia Kukula-Koch. Identification of Mushroom and Murine Tyrosinase Inhibitors from *Achillea biebersteinii* Afan Extracts. Molecules 2021, 26,4; 964. ISSN 1420-3049

[Publication](#)

Patrycja Kleczkowska, Ewa Olędzka, Ramona Figat, Martyna Zagórska-Dziok, Marcin Sobczak. Poly (chitosan-ester-ether-urethane) Hydrogels as Highly Controlled Genistein Release Systems. INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES 2021, 22,7;3339. ISSN 1422-0067

[Publication](#)

Ruochen Jia, Thomas Balligand, Vasyl Atamanyuk, Harini Nivarthi, Erica Xu, Leon Kutzner, Jakob Weinzierl, Audrey Nedelec, Stefan Kubicek, Roman Lesyk, Oleh Zagrijschuk, Stefan N. Constantinescu, Robert Kralovics. Hematoxylin binds to mutant calreticulin and disrupts its abnormal interaction with thrombopoietin receptor. Blood 2021, 137 (14): 1920–1931. ISSN 0006-4971

[Publication](#)

Sergii Demchenko, Roman Lesyk, Oleh Yadlovskiy, Johannes Zuegg, Alysha G. Elliott, Iryna Drapak, Yuliia Fedchenkova, Zinaida Suvorova, Anatolii Demchenko. Synthesis, Antibacterial and Antifungal Activity of

New 3-Aryl-5H-pyrrolo[1,2-a]imidazole and 5H-Imidazo[1,2-a]zepine Quaternary Salts. *MOLECULES*, 2021, 26, 14: 4253. ISSN 1420-3049

[Publication](#)

Serhii Holota, Sergiy Komykhov, Stepan Sysak, Andrzej Gzella, Andriy Cherkasa, Roman Lesyk. Synthesis, Characterization and In Vitro Evaluation of Novel 5-Ene-thiazolo[3,2-b][1,2,4]triazole-6(5H)-ones as Possible Anticancer Agents. *Molecules* 2021, 26, 4; 1162. ISSN 14203049

[Publication](#)

Simon Vlad, Katarzyna Gawel-Beben, Marcelina Strzpek-Gomółka, Ainur Jumabayeva, Zuriyadda Sakipova, Jianbo Xiao, Laurence Marcourt, Jean-Luc Wolfender, Krystyna Skalicka-Woźniak. Liquid-Liquid Chromatography Separation of Guaiane-Type Sesquiterpene Lactones from *Ferula penninervis* Regel & Schmalh. and Evaluation of Their In Vitro Cytotoxic and Melanin Inhibitory Potential. *International Journal of Molecular Sciences* 2021, 22, 19; 10717. ISSN 1422-0067

[Publication](#)

Tomasz Bujak, Martyna Zagórska-Dziok, Aleksandra Ziemlewska, Zofia Nizioł-Łukaszewska, Tomasz Wasilewski, Zofia Hordyjewicz-Baran. Antioxidant and Cytoprotective Properties of Plant Extract from Dry Flowers as Functional Dyes for Cosmetic Products. *Molecules*, 2021, 26, 9; 2809. ISSN 1420-3049

[Publication](#)

Wojciech Koch, Wirginia Kukula-Koch, Marcin Czop, Tomasz Baj, Janusz Kocki, Piotr Bawiec, Roser Olives Casanovas, Anna Głowniak-Lipa, Kazimierz Głowniak. Analytical Assessment of Bioelements in Various Types of Black Teas from Different Geographical Origins in View of Chemometric Approach. *MOLECULES* 2021, 26, 19; 6017. ISSN 1420-3049

[Publication](#)

Zofia Nizioł-Łukaszewska, Aleksandra Ziemlewska, Martyna Zagórska-Dziok. Assessment of cytotoxicity and antioxidant properties of berry leaves as by-products with potential application in cosmetic and pharmaceutical products. *Scientific Reports* 2021, 11, 1. ISSN 2045-2322

[Publication](#)

Marcin Czop, Zuriyadda Sakipova, Wirginia Kukula-Koch, Katarzyna Gawel-Beben, Marcelina Strzpek-Gomółka, Kazimierz Głowniak. *Achillea millefolium* L. and *Achillea biebersteinii* Afan. Hydroglycolic Extracts–Bioactive Ingredients for Cosmetic Use. *MOLECULES* 2020, 25, 15; 3368. ISSN 1420-3049

[Publication](#)

Mohammad Roky, Jinlian Tan, John O. Trent, Donald R. Demuth, Maryta Sztukowska. Identification of Small-Molecule Inhibitors Targeting *Porphyromonas gingivalis* Interspecies Adherence and Determination of Their In Vitro and In Vivo Efficacies. *Antimicrobial Agents and Chemotherapy* 2020, 64, 11. ISSN 0066-4804

[Publication](#)

Muhammad Torequl Islam, Sanaa K. Bardaweel, Mohammad S. Mubarak, Wojciech Koch, Javad Sharifi-Rad, Katarzyna Gawel-Beben, Beata Antosiewicz. Immunomodulatory Effects of Diterpenes and Their Derivatives Through NLRP3 Inflammasome Pathway: A Review. *Frontiers in Immunology* 2020, 11; 572136. ISSN 1664-3224

[Publication](#)

Pereira MP, Hoffmann V, Weisshaar E, Wallengren J, Halvorsen JA, Garcovich S, Misery L, Brenaut E, Savk E, Potekae N, Lvov A, Bobko S, Szepietowski JC, Reich A, Bozek A, Legat FJ, Metz M, Streit M, Serra-Baldrich E, Gonçalo M, Storck M, Greiwe I, Nau T, Steinke S, Dugas M, Ständer S, Zeidler C. Chronic nodular prurigo:

PUBLICATIONS

clinical profile and burden. A European cross-sectional study. *Journal of the European Academy of Dermatology and Venereology* 2020, 34, 2373-2383. ISSN 0926-9959

[Publication](#)

Sergii Demchenko, Johannes Zuegg, Alysha G. Elliott, Yuliia Fedchenkova, Zinaida Suvorova, Anatolii Demchenko, Roman Lesyk. Synthesis, antibacterial and antifungal activity of new 3-biphenyl-3H-Imidazo[1,2-a]azepin-1-ium bromides. *EUROPEAN JOURNAL OF MEDICINAL CHEMISTRY* 2020, 201; 112477. ISSN 0223-5234

[Publication](#)

Zofia Nizioł-Łukaszewska, Aleksandra Ziemlewska, Tomasz Bujak, Martyna Zagórska-Dziok, Magdalena Zarębska, Zofia Hordyjewicz - Baran, Tomasz Wasilewski. Effect of Fermentation Time on Antioxidant and Anti-Ageing Properties of Green Coffee Kombucha Ferments. *MOLECULES* 2020, 25, 22; 5394. ISSN 1420-3049

[Publication](#)

Zofia Nizioł-Łukaszewska, Martyna Zagórska-Dziok, Tomasz Bujak. Complexes of Ectoine with the Anionic Surfactants as Active Ingredients of Cleansing Cosmetics with Reduced Irritating Potential. *MOLECULES* 2020, 25, 6; 1-14. ISSN 1420-3049

[Publication](#)

IMPLEMENTATION AND SERVICE CENTRE

The Implementation and Service Centre was established in 2017 in response to market demand for a unit whose aim would be to implement the production of technologies obtained within the framework of research conducted at the Faculty of Medicine and to conduct service activities related thereto.



Services provided by the Implementation and Service Centre are mainly targeted at companies dealing in the production, distribution, import / export of cosmetic products and raw materials. They include, among others: preparation of recipes, preparation of comprehensive documentation (including preparation of PIFs, safety reports and product notification on the CPNP portal), conducting obligatory tests and markings specified by EU Regulation 1223/2009 and conducting a wide spectrum of advanced tests on biological activity of products. As part of its activities, the Centre also offers consultancy and advisory services in the field of creation of marketing content and the preparation and verification of the content of labels and marketing declarations. The scope of activity of the Implementation and Service Centre also includes the implementation of research and development projects in the field of designing and manufacturing cosmetic preparations and raw materials, as well as research on the activity of biologically active substances. In this activity, the facilities of Laboratory of Implementation and Service Centre are used.

Contact:

tbujak@wsiz.edu.pl, uhoian@wsiz.edu.pl

cwu.wsiz.pl

TEACHING LABORATORIES

USED IN THE EDUCATION PROCESS,
IN RESEARCH AND COMMERCIAL ACTIVITIES
IN FIELDS OF STUDY AT MEDICAL FACULTY



Anatomy and Physiology Laboratory

The Laboratory's equipment allows to expand knowledge of the anatomy and physiology of the human body, as well as mechanisms of disease processes and dysfunctions of individual systems. The acquired theoretical knowledge and practical classes enable further study of issues related to the anatomical and physiological aspects of the functioning of the human body. The laboratory is equipped with anatomical models, colourful large-format anatomical charts presenting diagrams of individual parts of the human body, a set of audiovisual and multimedia teaching materials, as well as computer programs concerning human anatomy and physiology. The laboratory will be used for demonstration classes within Anatomy, Physiology, or Pathology.

Contact: wcyganik@wsiz.edu.pl

General Biology Laboratory

The laboratory is designed to perform a wide range of microbiological analyses. The laboratory enables analysis of various types of samples such as raw materials and cosmetic products, plant extracts, food samples and biological material collected from patients.

Contact: kczech@wsiz.edu.pl

Cosmetology Laboratory

The laboratory is equipped with the necessary equipment and devices as well as professional cosmetic preparations enabling the performance of treatments in the field of care and therapeutic cosmetology. These include: cosmetic combines equipped with ultrasound, cavitation peeling, devices used for diamond microdermabrasion treatment, needle-free mesotherapy, equipment equipped with RF waves, dermomassage, cryolipolysis etc.

Contact: bmysliwiec@wsiz.edu.pl

Make-up and Stylization Laboratory

The laboratory offers professionally arranged stands, equipped with coloured cosmetics and accessories which enable colour analysis and various types of make-up and stylization.

Contact: wcyganik@wsiz.edu.pl

Biochemical and Kinesitherapy Laboratory

The laboratory equipment enables the student to learn the use of basic rehabilitation techniques and perform elementary physiotherapy procedures. The equipment enables simulated classes and acquisition of practical knowledge in the field of motor rehabilitation and physiotherapy..

Contact: pjazwa@wsiz.rzeszow.pl

Massage Laboratory

Laboratory equipment allows to expand knowledge of the theoretical foundations of kinesiotherapy, therapeutic massage, manual therapy and the practical use of skills gained in individual and group work with a patient. The laboratory offers equipment necessary to implement the course program and achieve the intended learning outcomes.

Contact: wcyganik@wsiz.edu.pl



Nursing Skills Laboratory

The Nursing Skills Laboratory has a structure and equipment adapted to the needs of teaching in the field of Nursing. The laboratory offers equipment that allows simultaneous practice at a minimum of 3 stands, providing the opportunity to train the skills of nursing both adults and children, in hospital and out-of-hospital conditions.

The phantoms, trainers, disposable and reusable equipment in the laboratory allow to learn planning, organising and implementing care, diagnostic, preventive, therapeutic and rehabilitation treatments. The equipment of the laboratory also allows to learn how to conduct a physical examination of the patient, including auscultation of heart sounds, lung fields and the sounds of intestinal peristalsis.

Contact: mszciech@wsiz.edu.pl

Medical Rescue Laboratory

In the Medical Rescue Laboratory, students can acquire practical skills in providing first aid, qualified first aid and medical emergency services. The laboratory offers equipment necessary for demonstration and practical exercises within life-saving and health care for people in emergency situations.

Contact: lcislo@wsiz.edu.pl

Gastronomic Technology Laboratory

The laboratory is intended for theoretical and practical classes for students of Dietetics. The laboratory is equipped with independent stands and equipment necessary to prepare dishes and beverages. The consumer service room has modern waiter and bartending equipment, which allows students to develop practical skills.

Contact: gkolodziej@wsiz.edu.pl

Sports Dietetics Laboratory

A laboratory created for the practical education of students of Dietetics at the specialisation "Dietetics in Sport and Fitness". It has advanced equipment for exercise tests of athletes (including a calorimeter, cycloergometer, cardiological treadmill, spirometer).

Cell and Tissue Culture Laboratory

It has the status of a BSL2 laboratory according to the criteria of the European Union and WHO – ensuring sterile working conditions protecting both the employee and biological material. Cell cultures are currently one of the most important techniques commonly used in biomedical research. The Cell and Tissue Culture Laboratory gives the opportunity to conduct a wide spectrum of research on processes occurring both in normal cells and tissues as well as in cells in pathological conditions.

Contact: kagawel@wsiz.edu.pl

Immunology and Biochemistry Laboratory

The Immunology and Biochemistry Laboratory conducts biochemical and immuno-enzymatic analyses of samples obtained as a result of experiments carried out on cell lines or samples from patients.

Contact: kczech@wsiz.edu.pl

Regenerative Medicine Laboratory – Research Laboratory

The Regenerative Medicine Laboratory is adapted to culture human stem cells in vitro. The Laboratory maintains BSL2 standards, required for research and microbiological laboratories. It allows research on biochemistry and morphology at the cellular level – both on primary and immortalised cell lines. The laboratory specialises in conducting research on the differentiation of human mesenchymal stem cells (hMSC) and determination of the

influence of selected xenobiotics and naturally released peptides on metabolism (hMSC). An additional area of interest is the receptor-dependent process of endocytosis. During classes in the laboratory, students have the opportunity to learn techniques related to sterile work on cell lines – primary and immortalised, methods used in regenerative medicine, basic techniques of molecular biology, research methods in cell biology and biochemistry, and the principles of confocal fluorescence microscopy.

Contact: bskora@wsiz.edu.pl

Biochemistry, Toxicology and Clinical Genetics Laboratory – Research Laboratory

The laboratory is designed to perform a wide spectrum of biochemical analyses of biological material collected from patients (blood, serum, urine), plant extracts, food samples and samples obtained in experiments using cell cultures.

Contact: bskora@wsiz.rzeszow.pl

Molecular Biology Laboratory – Research Laboratory

The Molecular Biology Laboratory offers modern equipment that allows to conduct comprehensive research at the molecular level by means of which the mechanisms responsible for the occurrence and course of selected civilization diseases can be characterised.

Contact: bskora@wsiz.edu.pl

Cosmetic Chemistry Laboratory – Research Laboratory

The Cosmetic Chemistry Laboratory is equipped with apparatuses, which allow to obtain biologically active substances from plant materials. Moreover, the laboratory enables elaboration of formulas of various forms of cosmetics, as well as complex quality analysis of the obtained products. The laboratory equipment allows to conduct classes e.g. on cosmetic chemistry, cosmetic prescription, cosmetic raw materials.

Contact: kczech@wsiz.rzeszow.pl

Implementation and Service Centre's Laboratory – Research Laboratory

The laboratory offers equipment and devices that enable the synthesis of chemical compounds, obtaining biologically active substances from plant raw materials, as well as the identification and determination of selected substances. In addition, the laboratory equipment facilitates production of innovative cosmetics, determination of the possibilities of applying the obtained substances and raw materials in cosmetic products, and a comprehensive analysis of the quality of the obtained products.

Contact: uhoian@wsiz.edu.pl

Dermatological and Application Tests Laboratory – Research Laboratory

The Dermatological and Application Tests Laboratory allows for dermatological tests of cosmetics (patch test). Patch tests are carried out to assess the irritation and allergies potentially caused by the tested products. The laboratory is also equipped with specialized measuring instruments that allow to assess the condition of the skin before and after a specified period of using cosmetics. The laboratory is equipped with instruments from Courage + Khazaka electronic GmbH - MPA base and a set of probes for the assessment of skin hydration (Corneometer® CM 825), transepidermal water loss from the epidermis (TEWL, Tewa-meter®TM 300), skin pH (Skin- pH-meter®PH 905), sebum level (Sebumeter®SM 815), melanin and skin redness level (Mexameter®MX 18).

In order to reliably assess and repeat the test results, the laboratory has equipment that ensures constant temperature and humidity.

Contact: uhoian@wsiz.edu.pl

University of Information Technology and Management in Rzeszow

ul. Sucharskiego 2, 35-225 Rzeszow, Poland

phone: 17 866 11 11, fax: 17 866 12 22

e-mail: wsiz@wsiz.rzeszow.pl

en.uitm.edu.eu