

LIFE SCIENCE SECTOR IN MAŁOPOLSKA



REPORT

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LIFE SCIENCE
IN MAŁOPOLSKA



Introduction

This report was created as part of the project **Promotion of the Małopolska Bioregion (ProBioM-2)**, the aim of which is to strengthen the competitiveness of small and medium-sized enterprises through an integrated program of economic offer of the Małopolska bio-region, related to the program of stimulating and supporting expansion into international markets.

This goal in the long term will be achieved thanks to the existence of an effective „innovation ecosystem in the field of life sciences” in Małopolska. The key element of this ecosystem, with the highest growth potential on a global scale, is the sector of small and medium-sized enterprises, conducting innovative activities in the area of intelligent specialization of „life science”, at all stages of the company’s development (i.e. from startup to well-developed commercial activity).

The report contains information about:

- innovative potential of the voivodeship;
- initiatives and offers of the Life Science Krakow Cluster;
- life science events in Małopolska;
- building and dividing the life science domain in the voivodeship.



Małopolska

Małopolska has:

27

UNIVERSITIES

147
thous.

STUDENTS

8.4
thous.

STUDENTS FROM
ABROAD

The most popular groups
of fields of study:

21,6%

technology, industry
and construction

19,3%

business,
administration and law

13,2%

social sciences journalism
and information

12,3%

arts and humanities



LIFE SCIENCE KRAKOW CLUSTER



WHY LIFESCIENCE IN MAŁOPOLSKA?

Małopolska is perceived as a region with great potential for the development of life science technologies, with a well-developed medical base based on, among others, at a university center rich in tradition. The 2010 foresight studies identified four most promising technologies in this area: tissue engineering, drugs and technologies that locally destroy cancer, monitoring and control of disease states, and improvement of the treatment process based on data analysis. In turn, according to the Local Data Bank, internal expenditure on activities in the field of biotechnology in enterprises in Małopolska (9% of national expenditure) and employment in enterprises in this sector (11% of national employment) indicate the average position of Małopolska compared to other regions.



The entity that binds the entire life science sector in the region is the LifeScience Krakow Cluster, which has the status of the National Key Cluster and thus the Cluster remained in the group of 15 elite strategic clusters that are important for the development of the Polish economy and are competitive and innovative internationally.

The LifeScience Krakow Cluster also holds the „Cluster Management Excellence Silver Label Certificate” - the next level of the European Certificate of Excellence. The Cluster was subjected to a comparative analysis and certification audit, which showed that the cluster management processes that are systematically implemented in the organization are positive and confirm the quality and impact of the cluster in the region and in the European arena. The certificate is an authentication tool for cluster organizations. This proves their quality and value. Its aim is to distinguish them, motivate them to compete and contribute to the growth of interest in the cluster of potential partners.



INITIATIVES AND CLUSTER OFFER

The LifeScience Krakow Cluster is a joint venture of entities from the business, science and health sectors, actively supported by regional authorities. All partners share a similar attitude and common goals regarding the development of innovative ***Products and technologies for health and quality of life.***

The leader of the cluster initiative is the LifeScience Krakow Cluster Foundation, which acts for its Partners and contributes to the development of the entire innovation ecosystem in the Małopolska Region. As part of its activities, the Cluster runs Special Interest Groups (SIG), the aim of which is to integrate the activities of Partners who have common interests, topics, challenges, target groups and markets. Activities under SIG then translate into a joint action program, implemented with the support of the Cluster.

The LifeScience Krakow Cluster actively implements projects related to the life science industry and the development of innovation in this area, independently or in cooperation with partners. In implemented projects, the Cluster acts as a leader or acts as a content partner. The implemented projects are both regional and international.

Below is a list of the Cluster's **key projects** that have a significant impact on the development of this field.

Life Science Open Space

Life Science Open Space is an international forum for cooperation between professionals from the life science industry. This is an event for scientists, innovators, entrepreneurs, doctors, innovation brokers, investors and officials - all who share commitment and desire to cooperate in developing joint projects, solving problems or facing the challenges related to innovations for health and quality of life.

<https://lsos.info>

LifeScience Krakow EIT Health Hub

From May 2022, LifeScience Krakow Cluster joined the international EIT Health family as a new EIT Health Regional Innovation Scheme Hub in Poland. As part of its activities, LifeScience Krakow EIT Health Hub will engage in the exploration of the local start-up community, organize events for stakeholders, workshops and training for students and entrepreneurs, and promote a wide portfolio of instruments offered by EIT Health.

<https://lifescience.pl/projekty/lifescience-krakow-eit-health-hub/>

CE4BIG - Cluster Excellence for Business, Innovation and Growth in the health sector

The aim of the project was to support the cooperation of clusters on a European scale. The ultimate goal was to strengthen both clusters and SMEs to jointly master global competition and work on responses to the challenges of personalized medicine. The project aimed to promote business development and increase the innovative capacity of SMEs. Project activities were aimed at helping SMEs to develop and refine their business models, develop new partnerships, seize new business opportunities abroad, and provide financing for business and innovation to prove the technology's validity and further development.

<http://ce4big.lifescience.pl>

Global Innovation Network

The LifeScience Krakow Cluster together with Bioaratec Saragossa (SP2) and North Carolina Eastern Region are the founders of the non-profit organization The Global Innovation Network (GIN), whose main goal is to connect on a global scale regional institutions representing local companies from the SME and R&D sector. The goal of GIN is to connect emerging lifescience regions to compete more effectively with similar regions around the world. The activities of GIN are to help attract investments, create and develop new bio-enterprises, as well as help in the transfer of technology from science to business. GIN members are required to provide certain services, assets, and knowledge within the organization. On this basis, a multinational network of experts and suppliers in research and life science activities will be created. A GIN member may be: Regional organizations for the development of economic investments, non-profit organizations supporting the development of lifescience, Universities, research institutes and other entities recognized as appropriate by the institutions as a member of GIN.

Sano - Centre for Computational Personalised Medicine - International Research Foundation

The project is carried out in cooperation with the AGH University of Science and Technology, Cyfronet - Akademickie Centrum Komputerowe and PL-Grid Infrastructure. The project developed a toolkit to help life science scientists conduct complex large-scale experiments and manage their results.

<https://sano.science>

AMICI – Anti Microbial Coating Innovations to prevent infectious disease

The aim of the project was to organize and intensify a European network of institutions and researchers, manufacturers and contractors working in the field of antimicrobial coatings, and to agree international research and innovation in this field.

<https://lifescience.pl/projekty/amici/>

Smart Lab workshops

The LifeScience Krakow Cluster organized a series of Smart Lab workshops (part of the project „Organization of the management structure and animation of the Entrepreneurship Discovery Process within selected smart specializations of Małopolska”) aimed at examining the possibilities of cooperation in the area of bioeconomy. The topics of identifying the development potential of selected technologies or value chains in the field of healthy food were analyzed, it was determined where there are opportunities and threats for companies in relation to the growing role of biomanagement in the global economy and what actions can be taken together in the Cluster to support the development of innovation in this area. The workshop resulted in the creation of a Business Technology Road Map for healthy food technology.

ProBio Małopolska 2.0

The aim of the project is to strengthen the competitiveness of SMEs and Start-ups through an integrated program of the economic offer of BioRegion Małopolska, related to the program of stimulating and supporting expansion into international markets. The ProBioM2 project is based on the experience of the first ProBio Małopolska project, implemented in 2016-2019. The project relates directly to the opportunities and challenges of the SME sector, characterized by high dynamics of changes and development as well as a high cost and level of risk of starting a business.

<https://lifescience.pl/projekty/probio-m2/o-projekcie/probio-malopolska-2-0/>

DISH - Digital & Innovation Skills Helix in health

DISH aims to strengthen the innovation readiness and digital skills of health and social care professionals to develop, use and implement digital solutions in their daily practice. The DISH project will equip health and social care workers with relevant knowledge and competences, and the ability to use them and implement e-health solutions supported by national digitization strategies. The aim of the DISH project is therefore to look at current and future skills needs and to develop, test and demonstrate various concepts that will support healthcare and care professionals to better cope with the digital transformation of the healthcare and social sector.

<https://www.dishproject.eu>



LIFE SCIENCE EVENTS IN MAŁOPOLSKA

Every year, several dozen events take place in Małopolska, which can be attributed to the life science sector. Some of them are international, gathering participants from all over the world.

Below is a list of some of them, those organized periodically and gathering the largest audience.



Life Science Open Space

Coordinator: LifeScience Krakow Cluster

This is a cyclical event that has become a permanent fixture in the calendar of the most important and prestigious meetings of life science professionals. The forum is dedicated to people open to cooperation and looking for partners to develop innovative ventures in various fields - from food, medicine and pharmacy, to the environment and bioeconomy and others.

<https://lsos.info>

Małopolski Festiwal Innowacji

Coordinator: The Marshal's Office of the Małopolska Region

The event connects entities that create the innovation system in the region: business, science, administration and the community. The common goal is to promote innovation and innovation, knowledge transfer and the role of mutual cooperation in economic development.

www.innowacyjna.malopolska.pl

National Genetic Conference - GENOMICA

Coordinator: Mygen - Krakow

The event is an initiative of students from the Faculty of Biochemistry, Biophysics and Biotechnology of the Jagiellonian University. It is a genetic symposium bringing together young people from all over the country, whose common passion is genetics.

www.genomica.pl

Krakow Medical Tourism Congress

Coordinator: Krakow Chamber of Commerce and Industry

The event aims to strengthen the integration and cooperation of entities operating in the medical and tourist industry. At the same time, it is a tool for creating the brand of Małopolska as a destination for medical tourism.

www.turystykamedyczna.krakow.pl





International Trade Fair of Hotel and Catering Equipment - HORECA

Coordinator: Targi w Krakowie Ltd.

During the event, a comprehensive offer of hotel equipment, leisure facilities, dining establishments, as well as food, drinks and wines from around the world are presented.

www.horeca.krakow.pl

International Dental Trade Fair - KRAKDENT

Coordinator: Targi w Krakowie Ltd

International exhibition of products and services in the field of dentistry combined with the KRAKDENTedu scientific program addressed to dentists, dental technicians, hygienists and assistants.

www.krakdent.pl

EUROBIOTECH Congress

Coordinator: Targi w Krakowie Ltd.

The event was created with special needs in mind and concern for the contact between scientists and the biotechnology industry. It pays particular attention to the exchange of information, research and concepts that lead to the development of biotechnology.

www.eurobiotech.krakow.pl

Małopolska Food Fair - ZASMAKUJ Z UR

Coordinator: University of Agriculture in Krakow

The aim of the event is to promote regional and traditional products from Małopolska, as well as agritourism and spending free time close to nature.

www.zasmakuj.urk.edu.pl



LIFE SCIENCE IN MAŁOPOLSKA



The life science sector in Małopolska covers scientific, innovative and entrepreneurial activities aimed at introducing products and services to the market to improve the health and quality of life of people and animals.

The further division of the Life Science domain refers to the concept of value chains and introduces three groups of technologies and related innovative activities, aimed at the development of technologies and products for „health and quality of life”:

- **Health** - activities related to research, development, production and services in the field of drugs, medical devices and cosmetics,
- **Food** - activities related to research, development, production and services in the field of food,
- **Environment** - activities related to research, development, production and services in the field of bioeconomy and the environment, in particular the production and processing of biomass (including waste), environmental protection.

The detailed structure of the Life Science domain adopted in Małopolska distinguishes a total of 11 specializations. A broader description of each of them is presented below, with exemplary initiatives / programs that have been implemented or have been implemented recently. Each specialization has also been assigned innovative representatives operating on the market in its field, which contribute to strengthening the competitiveness of the Region.

HEALTH



AREAS OF SPECIALIZATION	OBJECTIVES OF SCIENTIFIC, INNOVATIVE AND ENTREPRENEURIAL ACTIVITY
Active, healthy life and aging	Creating better living conditions in the context of an aging society and combining the scientific and economic potential of the Region with its cultural and spa values.
An innovative hospital	Support for the development of the health care system in the context of growing needs in the field of medical care and the exponential development of medical technologies.
Digital technologies supporting medical care	Building competitiveness in the area of creating and using digital technologies applicable in diagnostic, treatment and rehabilitation procedures.



AREAS OF SPECIALIZATION	OBJECTIVES OF SCIENTIFIC, INNOVATIVE AND ENTREPRENEURIAL ACTIVITY
Hybrid medical care	Building competitiveness in technologies and solutions for transformation to a hybrid model of real-time care, based on monitoring, event management and data exchange.
Innovative therapeutic technologies and medical devices	Building competitiveness in the areas of development and application of advanced and experimental therapies as well as new technologies, devices and tools supporting or supplementing non-pharmacologically the processes of diagnostics, treatment and rehabilitation.
Innovative drugs and other medicinal products	Building competitiveness in global value chains of innovative drugs and other medicinal products as well as technologies, methods, processes and tools for their development, production and delivery.
Laboratory and diagnostic techniques	Development of new technologies, equipment, tools and techniques and laboratory services to meet the current needs of the medical and veterinary care sector and for research and development in all areas of life sciences.





ACTIVE, HEALTHY LIVING AND AGING

The aim of the specialization is to create better living conditions in the context of an aging society and to combine the scientific and economic potential of the Region with its cultural and spa values. The specialization covers the innovative use of research, technology, processes, products and other integrated solutions focusing on factors of health and quality of life throughout life.

INITIATIVES / PROGRAMS

- **SIG Active and Healthy Life.** The initiative of the LifeScience Krakow Cluster, the purpose of which is to initiate activities aimed at creating better living conditions in the context of the problem of an aging society. The group combines the scientific potential with the health benefits of Małopolska.
- **Jagiellonian University of the Third Age.** A university for seniors that meets the expectations of the participants of the classes. It offers its students a rich and innovative study program.
- **„Silver Economy”.** Strategic program of the Marshal’s Office of the Małopolska Region in the field of activities addressed to Małopolska 60+. The program defines activities that will make Małopolska even more elderly-friendly.

LEADERS

- **1+1 Spółdzielnia Socjalna.** The company provides services in a niche area, the so-called Accessibility Testing, i.e. carrying out tests of the accessibility of applications, websites and devices in terms of their adaptation to the needs of people with disabilities. It organizes social and educational events.
- **Laboratorium 60+.** A foundation, and at the same time a studio dealing with an innovative approach to planning and design in the face of the needs of an aging society. It implements projects on all spatial scales, from urban policy, through spatial development, architecture, interior and design design.
- **Eurokreator T&C.** The company specializes in the implementation of development programs: training, workshops, coaching. He often directs his projects to adults and seniors, e.g. „ilab Plus - a new method of training for adults”, creative workshops Design Thinking - Prototyping.





INNOVATIVE HOSPITAL

The aim of the specialization is to improve the quality of operation of medical facilities, as well as the quality of the entire medical care system. The specialization covers the development and application of innovations aimed at continuous improvement of healthcare provision and its adaptation to the new conditions determined by changes in the social, economic and technological environment. The specialization is also aimed at supporting solutions integrating the health care system with the concept of a Smart Green City.

INITIATIVES / PROGRAMS

- **SIG Innovative Hospital.** The initiative of the LifeScience Krakow Cluster, the purpose of which is to initiate activities aimed at improving healthcare, supporting solutions for patients and healthcare professionals.

LEADERS

- **The University Hospital in Krakow.** It is a nationally leading multidisciplinary medical center. The mission of the facility is to combine experience and tradition with the latest trends in medicine to improve the health and comfort of life of the patient.

- **Krakow Specialist Hospital.** A leader in implementing modern technologies in the patient's service. Through the effective use of equipment and human resources, the facility has achieved high organizational efficiency in the treatment of patients.

- **„Szpital na Klinach”.** Belonging to the NEO HOSPITAL Group, Szpital na Klinach combines the most outstanding doctors in their specialties with ultra-modern equipment, building one of the most effective and patient-friendly medical centers in Central and Eastern Europe.





DIGITAL TECHNOLOGIES SUPPORTING MEDICAL CARE

The aim of the specialization is to build competitiveness in the area of developing and using digital technologies to support diagnostic and treatment processes, primarily to establish a precise diagnosis and individual adjustment of the treatment method, optimization and synchronization of pharmacological and non-pharmacological treatment, as well as harmonization of diagnosis, treatment and rehabilitation.

INITIATIVES / PROGRAMS

- **SIG Digital Health & Big Data.** The initiative of the LifeScience Krakow Cluster, aimed at initiating activities related to the development of technologies, processes and tools for data collection and processing in order to optimize treatment and diagnostic processes, as well as related to the acquisition, storage, transmission and processing of medical data.
- **Małopolska Medical Information System.** Regional Platform for the Exchange of Electronic Medical Records in the Małopolska Voivodeship (MSIM Platforms). The aim of the project is to increase the availability and improve the quality of e-services provided in the health sector by creating and developing a common platform at the regional level, enabling the processing and transfer of medical data between medical units in the region.

LEADERS

- **Sano – Center for Individualized Computational Medicine.** It is a project implemented by 6 partners as part of the Teaming for Excellence Horizon 2020 program and the International Research Agendas program of the Foundation for Polish Science. Sano's mission is, among others development of new computational methods, algorithms, models and technologies related to personalized medicine.
- **hub4industry.** Digital Innovation Hub (DIH) of the Krakow Technology Park and companies: ASTOR and T-Mobile, universities: AGH University of Science and Technology and Krakow University of Technology, as well as experts from BIM Klaster and the Kosciuszko Institute. It is a one-stop shop for industrial companies that want to introduce Industry 4.0 solutions to their factories. The initiative combines key technologies and solutions: 5G network connectivity, automation and robotization, IIoT, artificial intelligence (AI), augmented and virtual reality (AR and VR), cloud computing, BIM technology, 3D printing.





HYBRID MEDICAL CARE

The aim of the specialization is to increase competitiveness in the area of technologies and solutions for transformation from a traditional model based on medical facilities and occasional doctor visits to a hybrid model of real-time care (virtually + in person), based on monitoring and event management and data exchange. The specialization supports the use of technology, processes and devices that enable or facilitate the acquisition, storage, transmission or processing of medical data in order to support medical care.

INITIATIVES / PROGRAMS

- **SIG Hybrid medical care.** The initiative of the LifeScience Krakow Cluster.
- **e-Care Remote Medical Care Center.** A program implemented by the iMed24 Medical Center, which processes medical data collected from measuring devices that control specific vital parameters of patients who are constantly monitored without the need to stay in a medical facility.

LEADERS

- **Dr Eryk.** A company that develops professional software for medical entities that allows, for example, to organize the work of a medical facility, conduct remote medical visits, and perform hybrid cardiac telerehabilitation without the need for hospitalization.
- **Comarch Healthcare.** The company provides, among others IT systems for hospitals (HIS class), medical records management software (EDM) and innovative solutions in the field of telemedicine.
- **5th Military Clinical Hospital with Polyclinic in Krakow.** One of the largest and most modern hospitals with a specialized treatment and diagnostic base. It provides medical services in a stationary system as well as via telepaths and uses the eLaborat online platform for presenting results.





INNOVATIVE THERAPEUTIC TECHNOLOGIES AND MEDICAL DEVICES

The aim of the specialization is to strengthen competitiveness in the areas of development and application of advanced and experimental therapies as well as new technologies, devices and tools (medical devices) supporting or supplementing non-pharmacologically the processes of diagnostics, treatment and rehabilitation. The specialization supports the combination of various fields of science and knowledge in order to create new technologies and medical products.

INITIATIVES / PROGRAMS

- **SIG Medical Technologies.** The initiative of the LifeScience Krakow Cluster.

LEADERS

- **Biominds Healthcare.** The company aims to improve the quality of life of patients and increase the availability of an effective comprehensive therapy. Helps speed up the recovery of adults with neurological conditions (stroke and trauma, multiple sclerosis, cerebral palsy, etc.).

- **MedApp.** A technology company operating in the field of medicine, which develops technologies supporting imaging diagnostics and new generation digital medicine. It offers, among others: CarnaLife System - an advanced tool for remote health monitoring, CarnaLife Holo - 3D imaging system supporting precision, comfort and safety of medical treatments, and Digital Clinic - a platform for consultation, diagnostics and monitoring of patient health.

- **Warmie.** The company conducts research and manufactures medical devices. The company's mission is to set new standards to improve patient care by creating intelligent medical solutions supporting healthcare professionals.





INNOVATIVE MEDICINES AND OTHER MEDICINAL PRODUCTS

The aim of the specialization is to strengthen competitiveness in global value chains of innovative drugs and other medicinal products as well as the technologies, methods, processes and tools for their development, manufacture and delivery. The specialization supports combining various fields of science and knowledge in order to create new technologies and medicinal products.

INITIATIVES / PROGRAMS

- **SIG Medicinal products and medical devices.** The initiative of the LifeScience Krakow Cluster, aimed at initiating activities aimed at the development and production of innovative pharmaceutical preparations and related processes.

LEADERS

- **BSS Biomed.** The company creates biological drugs, including, in particular, specific and nonspecific bacterial vaccines, probiotic preparations, allergens, medical devices, in vitro microbiological diagnostics products and sterilization control indicators.
- **Selvita.** The company provides multidisciplinary support in addressing unique research challenges in the areas of drug discovery, regulatory research, and research and development.
- **Teva Pharmaceuticals Polska.** The company is a world leader in the pharmaceutical industry, committed to increasing patient access to high-quality therapy by developing, manufacturing and supplying affordable generic drugs, innovative and specialist drugs and active ingredients.
- **KCRI.** The company is a clinical research service provider. The company has been supporting for many years manufacturers of medical devices in introducing innovative solutions to the market by participating in their research and development programs.
- **F1 Pharma.** A pharmaceutical company focused on research and development. The company has the resources to carry out comprehensive work necessary to introduce a medicinal product to the market, quality control and release to the market, verification of suppliers and contract manufacturers.





LABORATORY AND DIAGNOSTIC TECHNIQUES

The aim of the specialization is the development of new technologies, devices, tools and techniques as well as laboratory services operating to meet the current needs of the medical and veterinary care sector and for research and development in all areas of life sciences.

INITIATIVES / PROGRAMS

- **SIG Laboratory and diagnostic techniques.** The initiative of the LifeScience Krakow Cluster, aimed at initiating and implementing interdisciplinary innovative projects related to the development of medical diagnostics.
- **Małopolska Oncology.** Initiative to improve the quality of treatment of malignant neoplasms in patients from the Małopolska Voivodeship. A consortium of four medical institutions will develop a common strategy for primary, secondary and phase III prevention of oncological diseases, common standards of oncological care, and will define the rules for conducting research and teaching activities in the field of oncology.

LEADERS

- **Center for Microbiological Research and Autovaccines.** A microbiology laboratory conducting research in the field of clinical and pharmaceutical microbiology.
- **Medical Simulation Technologies.** A company from the advanced medical technology industry that introduces an innovative system for medical simulation in the field of invasive cardiology and cardiosurgery.
- **National Institute of Oncology.** The facility conducts diagnostics and comprehensive treatment: surgical, radiation and personalized treatment based on molecular diagnostics.
- **Voxel.** A company that includes a network of medical diagnostic centers that provide highly specialized services in the field of radiology and nuclear medicine.
- **Ardigen.** A bioinformatics company providing comprehensive services for the pharmaceutical, biological and medical industries.



FOOD



AREAS OF SPECIALIZATION	OBJECTIVES OF SCIENTIFIC, INNOVATIVE AND ENTREPRENEURIAL ACTIVITY
Modern, sustainable agriculture and processing	Solving the development problems of the agri-food sector in the face of the growing demand for nutrients for humans and animals and the growing needs in terms of food availability, safety and quality, as well as related to the need for sustainable development.
Healthy food and nutrition	Developing competitiveness in the field of technology, production methods, storage and distribution of high-quality food, in particular functional food, i.e. with specific features meeting specific nutritional needs and with a prophylactic and preventive effect, supporting the treatment and rehabilitation process.





MODERN, SUSTAINABLE AGRICULTURE AND PROCESSING

The aim of the specialization is to solve the development problems of the agri-food sector in the face of the growing demand for nutrients for humans and animals as well as the growing needs in terms of the availability, safety and quality of food, as well as related to the need for sustainable development. The specialization covers research, development and implementation of new solutions for the efficiency of the entire „food and nutrition” value chain.

INITIATIVES / PROGRAMS

- **SIG Modern, sustainable agriculture and processing.** The initiative of the LifeScience Krakow Cluster
- **„Bee” Małopolska.** Open competition for tenders for the implementation of public tasks of the Małopolska Region in the field of ecology and animal protection and the protection of natural heritage, in the field of biodiversity protection.
- **Agrotech.** The competition of the National Center for Research and Development, the aim of which is to increase the competitiveness of Polish companies working on projects in the field of robotization and automation, digitization or environmentally friendly agri-food production.

LEADERS

- **Intermag.** The company specializes in the development and production of modern preparations for agriculture. Currently, the company is one of the largest producers of fertilizers and biostimulants and is active in the field of health-promoting products for animals.
- **Biodar.** The company conducts conservation collections of crops with high biological value and carries out research on insects used for biological pest control.
- **Biocert Małopolska.** The company is a certification body, authorized to certify organic crops and food.
- **Browin.** A company offering home-made wine, beer, cold cuts, cheese, preserves, baked goods and other products.





HEALTHY FOOD AND NUTRITION

The aim of the specialization is to develop competitiveness in the field of technology, methods of production, storage and distribution of high-quality food, in particular functional food, i.e. with specific features that meet specific nutritional needs and with a prophylactic and preventive effect, supporting the treatment and rehabilitation process. The specialization also aims to use the unique location, structure and values of the Region for the development and promotion of food-related health prophylaxis.

INITIATIVES / PROGRAMS

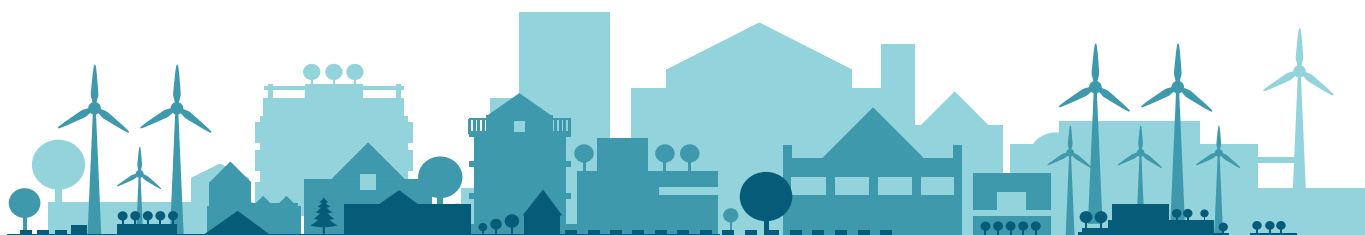
- **SIG Healthy food and nutrition.** The initiative of the LifeScience Krakow Cluster.
- **Made in Małopolska.** A project whose main goal is to support regional business, interesting design, good taste, valuable initiatives, as well as places and facilities particularly attractive in the region.
- **Regional bank of genes for crops.** An initiative aimed at enriching the market with products targeting various groups of recipients (allergy sufferers, people with gastric problems, convalescents, etc.) and the creation of the first in Poland - Regional Catalog of Cultivar Varieties for Organic Farming.
- **Post-Registry Variety Testing (PRVT).** A system that includes conducting a series of varietal and varietal-agrotechnical experiments. It is created through cooperation, on a regional and national scale, between units and organizations interested in the development of agriculture.

LEADERS

- **University of Agriculture in Krakow.** One of the largest agricultural universities in Poland. Currently, the University has seven faculties and an Inter-faculty Study of Biotechnology. The university has modern scientific facilities, which consist of 34 stations and experimental facilities.
- **Maspex.** The largest private company in the food industry in Poland and one of the largest in Central and Eastern Europe. The company is a market leader in drinks, pasta and jams in this part of Europe.
- **Herbapol.** The company manufactures herbal products for medicinal purposes. Its offer also includes mixtures for animals.
- **The ICPPC Foundation.** A foundation whose mission is to improve the condition of the natural environment, protect biodiversity, promote eco-technologies, develop eco-farming and eco-processing.
- **„Natura” Małopolska Association of Organic Farmers.** The aim of the association is to help organic farmers from the Małopolskie Voivodeship in the promotion and sale of food on the market.



ENVIRONMENT



AREAS OF SPECIALIZATION	OBJECTIVES OF SCIENTIFIC, INNOVATIVE AND ENTREPRENEURIAL ACTIVITY
Bioeconomy	Developing the ability to participate and compete in global value chains based on natural products.
Environmental health factors	Development of technologies, processes, tools and products aimed at reducing health and quality of life risks related to environmental factors.





BIOECONOMY

The aim of the specialization is to develop the ability to participate and compete in global value chains based on products of natural origin (biomass, production by living organisms). The specialization supports the development of technologies that have the lowest possible „carbon footprint” due to the use of renewable, natural raw materials as well as low-energy and highly efficient bio-catalytic processes.

INITIATIVES / PROGRAMS

- **SIG Bioeconomy.** The initiative of the LifeScience Krakow Cluster, the aim of which is to initiate activities aimed at supporting solutions related to semi-finished products and products used in the production of pharmaceuticals, cosmetics, food, materials and energy.
- **Horizon 2020: BLOOM.** The Horizon 2020 program project, implemented by partners from eight European Union countries, aims to discuss the potential of the bioeconomy and involve civil society.

LEADERS

- **Institute of Catalysis and Surface Chemistry of the Polish Academy of Sciences.** The team of researchers of the Institute strives for an in-depth understanding of the phenomena and metabolism taking place at interphase boundaries through research combining important aspects of chemistry, physics, chemical technology, materials science, biology and medicine.
- **CRB Energia.** The company deals with the preparation of projects for cogeneration installations, i.e. the generation of electricity and heat using as fuel: biomass, natural gas, biogas and synthesis gas from biomass gasification or disposal installations.
- **Siga-Tech.** The company designs biogas and biomethane installations and produces, supplies and commissioning technological devices. The company is one of the few manufacturers in the world that provides all equipment in the technological line of biogas recovery and use installations.
- **ORLEN Południe.** The company's business activities focus on the main product segments related to the production and sale of biofuels and biocomponents, paraffins and solvents.
- **Krakow Institute of Technology.** The Institute focuses on the implementation of R&D projects and services. Institute laboratories develop new technologies, materials and measurement methods for universities, research institutes and research departments of commercial entities.





ENVIRONMENTAL HEALTH FACTORS

The aim of the specialization is the development of technologies, processes, tools and products aimed at reducing the risk to health and quality of life related to environmental factors. The overall goal is to reduce the „carbon and water footprint” and to apply the concept of the circular economy.

INITIATIVES / PROGRAMS

- **SIG Environment - environmental health factors.** The initiative of the LifeScience Krakow Cluster.
- **LIFE „Implementation of the Air Protection Program for the Małopolskie Voivodeship - Małopolska in a Healthy Atmosphere”.** The LIFE program finances innovative environmental projects in Europe and integrated projects are the new flagship instrument to support the implementation of environmental improvement strategies over a large area.
- **eco-Małopolska.** As part of the ecoMałopolska project, comprehensive measures are implemented for all components of the environment. This project integrates the most important areas of environmental protection: air quality, preventing climate change and waste management.
- **LIFE-IP EKOMALOPOLSKA.** Implementation of the Regional Action Plan for Climate and Energy for Małopolska.

LEADERS

- **Analytics.** The company designs gas emission measurement systems and optimizes combustion.
- **Andel Polska.** The company designs and distributes leakage monitoring systems and environmental protection systems.
- **Eco-Hera.** The company provides services in the field of environmental protection. It has its own research laboratory for measuring air pollutants.
- **Emipro.** The company specializes in sampling for the determination of concentrations and emissions of dioxins and furans. It has an Environmental Research Laboratory.
- **Wessling Polska.** The company runs accredited environmental protection laboratories, where it carries out soil and water tests for pollution and measurements of emissions to air.





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INICJATYW
INNOWACYJNYCH

The Foundation of Innovative Initiatives

Cegielniana 4a
30-404 Krakow, Poland
www.fii.org.pl
E-mail: biuro@fii.org.pl
Phone: 661 109 674



Klaster
LifeScience
Kraków

LifeScience Cluster Krakow

Bobrzyńskiego 14
30-348 Krakow, Poland
www.lifescience.pl
E-mail: klaster@lifescience.pl
Phone: 797 767 882

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