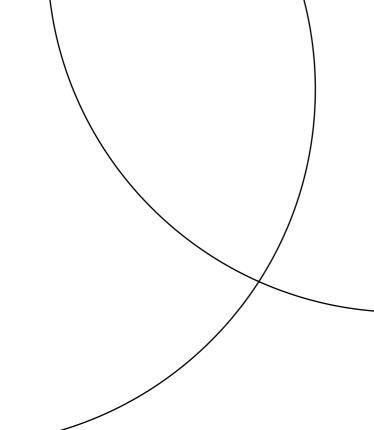
TECH4/LIFE



# Life Science The DNA of Łódź and the Metropolitan Area





#### Dear All,

The Life Science sector, encompassing a broad range of fields – from medicine and biotechnology to pharmaceuticals and medical technologies – is one of the key drivers behind the development of modern economies. Recognising the vast potential of this area, Łódź considers it a cornerstone of local growth, as well as a vital component of global innovation trends and technological advancement.

It is with great pleasure that I present to you a report offering an in-depth analysis of the scale and structure of the Life Science market in our city. In the first phase of the study, we focused on assessing the number and structure of enterprises, the potential of human capital, and the institutional support that underpins further development of the sector.

The analysis clearly indicates that Łódź and the surrounding region represent a significant point on Poland's Life Science map, offering numerous opportunities for emerging tech companies and for investment in research and development.

The dynamic growth of the Life Science sector in Łódź is supported by R&D institutions, dedicated programmes, and the availability of public aid. Identifying industry leaders and the key success factors allows us to build lasting competitive advantages that will play a decisive role in the sector's continued growth.

I hope this report will serve not only as a valuable source of information, but also as a source of inspiration for companies and institutions supporting innovation in the Life Science sector. I trust that the insights it contains will contribute to strengthening Łódź's position as a leader in innovation in Poland.

Yours sincerely,

Hanna Zdanowska Mayor of the City of Łódź

# Life Science

Sector
The DNA of Łódź
and the Metropolitan Area

## Life Science Sector

The Life Science sector is a key area of modern economies, gaining importance in response to evolving societal and market needs. As incomes rise and urbanisation progresses, consumers are increasingly shifting away from traditional material goods such as furniture, cars or clothing. Instead, demand is growing for services and products related to health, prevention, safety and sustainable development. The Life Science sector responds to these changes, becoming not only a source of innovation, but also a vital contributor to social wellbeing and economic growth.

Contemporary development of the Life Science sector is driven by synergies between business, science, public administration and the social sector. The complexity of global challenges – such as demographic shifts, lifestyle diseases and climate change – requires interdisciplinary cooperation.

This sector integrates biotechnology, biochemistry, engineering, chemistry, IT and medicine, enabling the creation of innovative solutions and their implementation in fields such as pharmaceuticals, medicine, agriculture, the cosmetics and food industries, and environmental protection.

The definition of the Life Science sector covers all activities related to the study and application of living organisms, aimed at translating research findings into production processes. The sector's key areas include biotechnology (Bio-Tech) and biochemistry (Bio-Chem), whose development forms the foundation of innovation and competitiveness across the entire industry. Strengthening innovation capacity in these fields is essential for the sector's continued advancement, in line with the growing expectations of both the market and society.

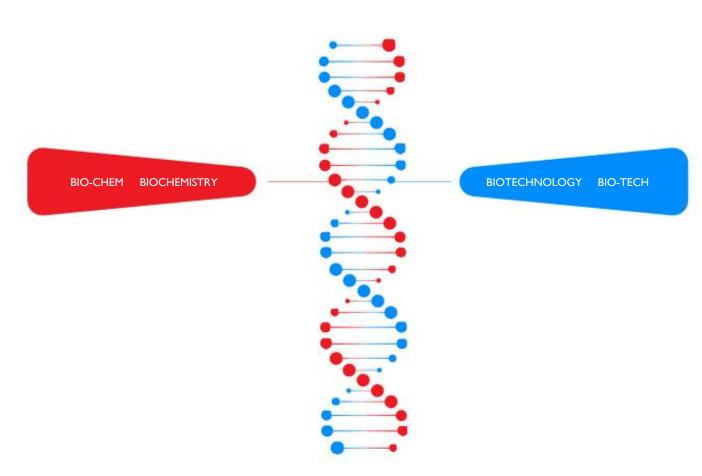


Fig. 1. The Scientific Core of the Life Science Sector

## The Specific Nature of Life Science

in Łódź and the Metropolitan Area
– the Territorial DNA of the Region

The Life Science sector is diverse in both industry focus and geographical distribution, shaped by variations in human, economic and scientific resources, as well as the historical contexts of individual regions. As a result, specialisation within specific areas of Life Science depends largely on the unique characteristics and potential of a given territory.

The Łódź metropolitan area is no exception. Thanks to its traditions and the consistent implementation of smart specialisation strategies, Łódź has become an ideal location for the development of the Life Science sector, offering excellent conditions for both research and innovation. The region benefits from a supportive business and academic environment, enabling dynamic growth. Biotechnology and biochemistry in particular are developing here at a globally competitive level – not only at universities (the Medical University of Łódź, the University of Łódź, and Lodz University

of Technology), but also at R&D institutes (such as Łukasiewicz – Łódź Institute of Technology and ProAkademia), as well as within companies. The region is home to approximately 220 laboratories, 200 service providers, and around 160 intellectual property assets, making it a major asset on the Polish, European and even global stage.

The region's economic profile and research potential point to key industries in which Łódź and its metropolitan area have competitive advantages. An analysis of activity within the Life Science sector indicates that the region focuses on four primary domains:

- Medical technologies (MED-TECH),
- Pharmaceuticals (PHARMA-TECH),
- Cosmetic industry (BEAUTY),
- Agriculture, with a strong focus on food production (FOOD-TECH).

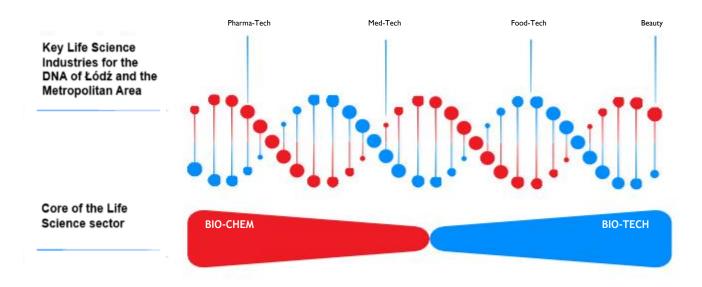


Fig. 2. The DNA Code of Łódź and the Metropolitan Area – the Regional Specificity of Life Science

A strong scientific and research base in the field of medicine is located in Łódź, particularly within the Medical University of Łódź, one of the country's leading centres for training doctors, pharmacists, and other medical professionals. The university's collaboration with local healthcare institutions and businesses fosters the development of innovative treatment methods and clinical research. The Łódź metropolitan area is also characterised by a high concentration of pharmaceutical companies involved in the production of medicines, dietary supplements, and functional foods.

The food industry is another strong sector in the region, with a focus on the production of high-quality food, including dairy, meat, bakery products, and confectionery. In response to growing demand for healthy products, increasing emphasis is placed on the production of organic and functional food. The Łódź metropolitan area is also a major centre of the cosmetics industry, home to numerous companies producing skincare, colour cosmetics, and personal hygiene products.

From a quantitative perspective, the structure of the Life Science sector in Łódź and the metropolitan area can be precisely defined using the universal codes of the European Statistical Classification of Economic Activities (NACE). This framework enables effective operationalisation and measurement of the sector's scale in the region.

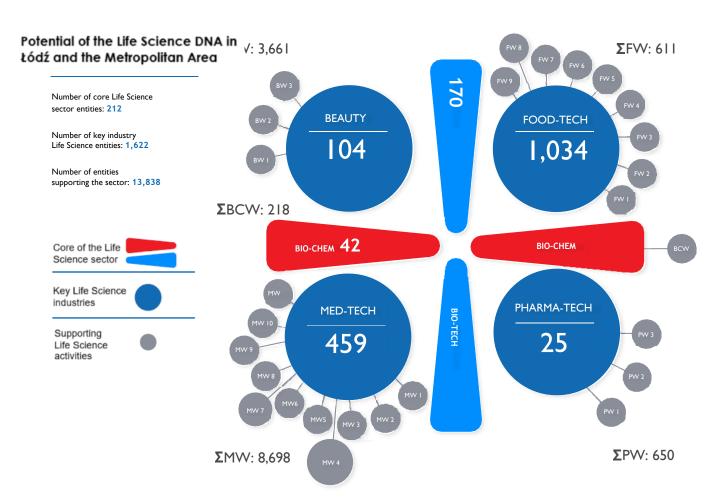


Fig. 3. Number of Life Science Entities Comprising the DNA of Łódź and the Metropolitan Area

At the end of 2024, the Life Science sector in the Łódź metropolitan area comprised:

- 212 entities forming the sector's scientific core,
- 1,622 companies representing the four key specialisation branches (MED-TECH, PHARMA-TECH, BEAUTY, FOOD-TECH),
- nearly 14,000 entities operating in the sector's ecosystem or providing support services.

These figures confirm Łódź's strong position as one of the most important Life Science hubs in Poland, characterised by a broad and diverse base of enterprises, research institutions, and a well-developed service and technology infrastructure supporting the development of innovative solutions.

According to estimates, the scientific core of the Life Science sector in the Łódź metropolitan area – encompassing biotechnology (Bio-Tech) and biochemistry (Bio-Chem) – employs around 2,800 highly qualified professionals, primarily scientists, R&D experts, and technology specialists.

In the four strategic industry branches – medical (MED-TECH), pharmaceutical (PHARMA-TECH), cosmetics (BEAUTY), and functional food and agriculture (FOOD-TECH) – employment reaches nearly 13,500 people, consisting mainly of specialists and highly skilled managerial staff.

Although it is difficult to precisely determine the number of jobs generated in related industries, regional analyses suggest an average employment multiplier of 4.5, varying between specific branches.

This means that each job in the sector's core and key industries generates, on average, four and a half jobs in the broader business environment – in logistics, specialised services, IT, consulting, or complementary production.

As a result, the total estimated employment in the Life Science sector in Łódź and the metropolitan area exceeds 69,000 people. This scale confirms the sector's importance as one of the main drivers of economic growth, innovation, and high-value-added regional specialisation.

Employment in core LS sector entities	Employment in key LS industry entities	Employment in supporting LS sector entities	total
2,765	13,505	53,636	69,906

Table 1. Estimated Life Science Employment in the Łódź Metropolitan Area (by poviat, 2024)

# Bio-Tech & Bio-Chem The DNA of Łódź and the Metropolitan Area

## **Bio-Chem**

Number of key industry

entities:

**42** 

**Estimated employment:** 

700

**Number of supporting** 

entities:

474

**Estimated employment:** 

3,920

Number of study programmes 16 related to the industry:

related to the massify.

10

Number of students: (2023)

2,211

Number of graduates: (2023)

574

## **Bio-Tech**

Number of key industry entities: 170

Estimated employment: 2,065

Estimated employment in the industry's 11,564 ecosystem:

Number of study programmes 21 related to the industry:

Number of students: (2023) 2,301

Number of graduates: (2023) 773

## Bio-Chem & Bio-Tech

**BIO-TECH Entrepreneurs** 

Invest in Łódź

**Business Support** Institutions

**Technology Services** 

**Accelerators** 

**Universities** 

Labs

**Clinical Hospitals** and Research **Institutes** 

**BIO-CHEM Entrepreneurs** 

**Legal Services** 

**Financial Services** 

**R&D Units** 

MED-TECH



**BIO-TECH Entrepreneurs:** Biogen; Celther Polska; Hero Labs; Mabion; Moratex; Proteon Pharmaceuticals; Trimen Chemicals **BIO-CHEM Entrepreneurs:** Avient Colorants Poland; Bio Lider; Biomar; BTL; Chemipol; Fileclo; Gebako; Kolasa; Organika; Technologie Galwaniczne; Towarzystwo Chemiczne Danmar; Trimen Chemicals; Zoolek

**R&D Units:** Institute of Microbiology, Biotechnology and Immunology, University of Lodz; Biobank, University of Lodz; Institute of Molecular and Industrial Biotechnology, Lodz University of Technology; Institute of Natural Products and Cosmetics, Lodz University of Technology; Institute of General and Ecological Chemistry, Lodz University of Technology; Institute of Organic Chemistry, Lodz University of Technology; Faculty of Physics and Applied Informatics, University of Lodz; Łukasiewicz – Łódź Institute of Technology; Tricomed S.A.; Centre of Molecular and Macromolecular Studies, Polish Academy of Sciences (PAN); European Regional Centre for Ecohydrology, Polish Academy of Sciences (PAN); Institute of Medical Biology, Polish Academy of Sciences (PAN); Institute of Forensic Medicine in Łódź; Nofer Institute of Occupational Medicine; Łukasiewicz – ŁIT

Clinical Hospitals and Research Institutes: Central Teaching Hospital of the Medical University of Lodz; Polish Mother's Health Centre Institute in Łódź; Dr. Karol Jonscher Municipal Medical Centre; Norbert Barlicki University Teaching Hospital No. 1; Military Medical Academy University Clinical Hospital No. 2; Dr. Władysław Biegański Regional Specialist Hospital; M. Kopernik Voivodeship Multi-Specialist Center for Oncology and Traumatology in Lodz

Labs: Laboratory of Industrial Biotechnology, Lodz University of Technology; Laboratory of Structural Biochemistry, Lodz University of Technology; Laboratory of Phytocompounds and Nutrigenomics, Lodz University of Technology; Environmental Engineering Laboratory, Lodz University of Technology; Peptide and Protein Chemistry and Engineering Group, Institute of Organic Chemistry, Lodz University of Technology; DPL Laboratory, Proteon Pharmaceutics; Process Development Laboratory, Mabion; Infrastructure for the Isolation and Characterisation of Nucleic Acids, Peptides and Proteins, University of Lodz; Microbiology Laboratories, University of Lodz; Laboratories for Applied Cellular and Molecular Research, University of Lodz; Bioprocess Engineering Laboratory, University of Lodz

Accelerators: 'Startups Powered by Invest in Łódź' Acceleration Program; Spark 3.0 Acceleration Program

**Business Support Institutions:** Lodz Special Economic Zone; Lodz Regional Development Agency; Lodz Chamber of Industry and Commerce; Entrepreneur Service Centre, Marshal's Office of Łódzkie Voivodeship; Foundation for Promotion of Entrepreneurship, Enterprise Europe Network (FRP); Bionanopark; Technology Transfer Office, University of Lodz; Centre for Innovation and Entrepreneurship, Lodz University of Technology; Center for Innovation and Technology Transfer, Medical University of Lodz; BioForum; EIT Heatlh; Science Hub, University of Lodz; BCC; 'Bioenergy for the Region' Cluster; Lodz ICT Cluster; LODZistics

**Universities:** University of Humanities and Economics in Lodz; Lodz University of Technology; SAN University; University of Lodz; Medical University of Lodz

**Financial Services:** Medical Research Agency; EU Horizon Europe programmes; Lodz Entrepreneurship Centre; Polish Agency for Enterprise Development; National Centre for Research and Development; National Science Centre; Bank Gospodarstwa Krajowego; Polish Development Fund (PFR); European Funds for Smart Economy (FENG); European Funds for Łódzkie 2021–2027 Regional Programme; Programme for supporting investments of major importance to the Polish economy for the years 2011-2030

The BIO-TECH and BIO-CHEM industries in Poland are dynamic and fast-growing sectors that play a crucial role in modern medicine, pharmaceuticals, agriculture, environmental protection, cosmetics production, and many other fields. As one of Poland's largest cities, Łódź benefits from the development of biotechnology in several ways. First, these industries contribute to the city's economic growth by creating new jobs in both research and development, as well as in manufacturing. Second, the presence of BIO-TECH and BIO-CHEM companies fosters cooperation with local universities, which leads to innovation and technology transfer.

Third, the development of biotechnology and biochemistry supports local initiatives related to environmental protection and public health. On the labour market, these sectors offer broad employment opportunities for graduates. BIO-TECH constitutes a significant group within the DNA structure of Łódź and the metropolitan area, comprising 170 organisations. The number of BIO-CHEM entities included in the DNA structure of Łódź and the metropolitan area amounts to 42 organisations, with an additional 218 entities registered in the supporting sectors.

**BIO-CHEM**NACE Code: 20.12.Z 20.14.Z

BIO-TECH NACE Code: 72.11.Z

### BIO-CHEM Key Business Activities:

- Manufacture of other organic basic chemicals
- Manufacture of dyes and pigments
- Manufacture of other chemical products not elsewhere classified

## **BIO-TECH Key Business Activities:**

- Research and experimental development on biotechnology
- Research and experimental development on natural sciences and engineering

BIO-TECH Supporting Activity:

**BCW.** Wholesale of chemical products

Fig. 4. BIO-CHEM and BIO-TECH Profile

# Med-Tech The DNA of Łódź and the **Metropolitan Area**

## Med-Tech

Number of key industry

entities:

459

**Estimated** employment:

5,210

Number of study programmes 28 related to the industry:

14,655 Number of students: (2023)

3,835 Number of graduates: (2023)

Internationalisation of

higher education

13% (share of international

students):

Number of supporting entities: 8,698

Estimated employment: 28,600

## Med-Tech

MED-TECH Entrepreneurs

Invest in Łódź

Technology Services

Accelerators

Accelerators

Distributors

Clinical Hospitals and Research Institutes

**Financial Services** 

**Universities** 

BIO-CHEM Industry

**Business** 

**Support Institutions** 

BIO-TECH

Industry

**R&D Units** 

**Legal Services** 

Labs

22

The MED-TECH sector in Łódź and the metropolitan area is centred around the Medical University of Lodz, key clinical hospitals, research institutes and associated laboratories, as well as experimental departments of the University of Lodz. MED-TECH is the most extensively represented branch within the DNA structure of Łódź and the metropolitan area, comprising 459 active entities, with an additional 8,698 entities registered in supporting sectors

Łódź is home to scientific research institutes and clinical hospitals that are essential for the development of the MED-TECH industry. These institutions play a critical role in the MED-TECH ecosystem, particularly as tertiary reference centres—the highest level within the healthcare system. It is in these centres that advanced specialist research is conducted and innovative, prototype treatment methods are tested in collaboration with the Medical University of Lodz, the University of Lodz, and Lodz University of Technology.

The activities of clinical hospitals are supported by a network of specialised laboratories, including: the Genetic Laboratory; the Center for Molecular Research on Civilization Diseases – MOLecoLAB; the BRaIn Laboratory Complex; the Toxicology Laboratory; the Clinical Research Support Centre; as well as the biobanks of the Medical University of

Lodz; such as the Tissue Bank, Haematopoietic Cell Bank, and Stem Cell Bank. Also of key importance is the Centre for Digital Biology and Biomedical Science – BIOBANK ŁÓDŹ®, along with the Animal Research Facility, the Laboratory of Microscopic Imaging and Specialized Biological Techniques, and the infrastructure and laboratory teams from the Faculty of Biology and Environmental Protection and the Faculty of Chemistry at the University of Lodz

In addition, the University of Lodz and the Medical University of Lodz closely cooperate in experimental research and education, particularly in the areas of thesis and doctoral work, as well as in joint research and implementation projects.

The MED-TECH sector in the region is experiencing dynamic development in both the public and private spheres, effectively addressing the needs of healthcare and improving the quality of life for local residents. Innovations developed and implemented in this field are gaining international recognition, as evidenced by the presence in Łódź of specialised companies providing comprehensive services for the MED-TECH sector, as well as branches of global corporations operating within international business networks.

**MED-TECH Entrepreneurs:** Alreh Medical; Bakmed; Digica; Dynamolab; Ekodent; Endolink; Famed; Htl-Strefa; Liw Care; Makromed; Med-Art; Medisensonic; Medisensonic Mdh; Mikomed; Moratex; Natrodent; Philips; Pixel Technologie; Proteo; Pulsmed; Salve; Scan Lab; Seliga Microscopes; Tricomed; Ultra-Viol; Wident; SP Medical; Limbxpert

**R&D Units:** Institute of Microbiology, Biotechnology and Immunology, University of Lodz; HARC Biobank, Medical University of Lodz; Biobank, University of Lodz; Institute of Molecular and Industrial Biotechnology, Lodz University of Technology; Institute of Organic Chemistry, Lodz University of Technology; Faculty of Physics and Applied Informatics, University of Lodz; Tricomed S.A.

Clinical Hospitals and Research Institutes: Central Teaching Hospital of the Medical University of Lodz; Polish Mother's Health Centre Institute in Łódź; Dr. Karol Jonscher Municipal Medical Centre; Norbert Barlicki University Teaching Hospital No. 1; Military Medical Academy University Clinical Hospital No. 2; Dr. Władysław Biegański Regional Specialist Hospital; M. Kopernik Voivodeship Multi-Specialist Center for Oncology and Traumatology in Lodz; Center of Hearing and Speech MEDINCUS in Lodz

Labs: the Genetic Laboratory; the Center for Molecular Research on Civilization Diseases – MOLecoLAB; the BRaIn Laboratory Complex; the Clinical Research Support Centre; the Toxicology Laboratory; Human Milk Bank; Tissue Bank; Haematopoietic Cell Bank; Stem Cell Bank; Department of Genetic Engineering; Research Centre for New Biologically Active Compounds Potentially Useful in Medical Diagnostics, Technical University of Lodz; Witko

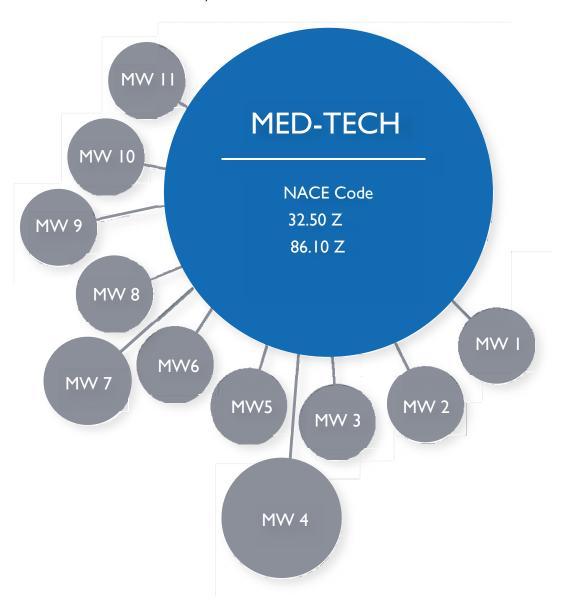
**Business Support Institutions:** Lodz Special Economic Zone; Lodz Regional Development Agency; Lodz Chamber of Industry and Commerce; Entrepreneur Service Centre, Marshal's Office of Łódzkie Voivodeship; Foundation for Promotion of Entrepreneurship, Enterprise Europe Network (FRP); Bionanopark; Technology Transfer Office, University of Lodz; Centre for Innovation and Entrepreneurship, Lodz University of Technology; Center for Innovation and Technology Transfer, Medical University of Lodz; BioForum; EIT Heatlh; Science Hub, University of Lodz; BCC; 'Bioenergy for the Region' Cluster; Lodz ICT Cluster; LODZistics

**Universities:** University of Humanities and Economics in Lodz; Lodz University of Technology; SAN University; University of Lodz; Medical University of Lodz

**Financial Services:** Medical Research Agency; EU Horizon Europe programmes; Lodz Entrepreneurship Centre; Polish Agency for Enterprise Development; National Centre for Research and Development; National Science Centre; Bank Gospodarstwa Krajowego; Polish Development Fund (PFR); European Funds for Smart Economy (FENG); European Funds for Łódzkie 2021–2027 Regional Programme; Programme for supporting investments of major importance to the Polish economy for the years 2011-2030

**Distributors:** Skamex; Hammermed Medical Polska; Endolink; Limbxpert

#### Concentration of MED-TECH Industry Leaders



### MED-TECH Key Business Activities:

- Hospital activities
- Manufacture of medical and dental instruments and supplies

#### **Supporting Activity:**

MW1. Sale of medical devices
MW2. General medical practice activities
MW3. Specialist medical practice activities
MW4. Dental practice activities
MW5. Physiotherapy activities
MW6. Ambulance activities
MW7. Nursing and midwifery activities
MW8. Paramedical activities
MW9. Social work activities
MW10. Veterinary activities
MW11. Psychotherapy activities

Fig. 5. MED-TECH Profile

## Pharma-Tech

The DNA of Łódź and the Metropolitan Area

## Pharma-Tech

Number of key industry entities:

25

Estimated

755

employment:

Number of supporting

entities: 650

**Estimated** 

4,152

Number of study programmes related to the industry:

Number of students: (2023) 2,736

Number of graduates: (2023) 734

employment: 4,15

# FOOD-TECH

## BEAUTY

## Pharma-Tech

### Invest in Łódź

**Technology Services** 

PHARMA-TECH Entrepreneurs

**Distributors** 

Clinical Hospitals and Research Institutes

**Financial Services** 

**Legal Services** 

Labs

BIO-TECH Industry

**Business Support Institutions** 

**Universities** 

BIO-CHEM Industry

**R&D Units** 

MED-TECH

The PHARMA-TECH industry in the Łódź region is a dynamically growing sector that integrates pharmaceuticals with advanced technologies. As one of Poland's key economic centres, Łódź attracts investment thanks to its strategic location and welldeveloped logistics and research infrastructure. At the heart of PHARMA-TECH integration in Łódź and the metropolitan area are entrepreneurs – leaders of the national market. The number of entities classified as key industry players stands at 25, with every fifth company being a large enterprise. The production of pharmaceutical products is closely linked to the activities of institutions forming the scientific core of the Life Science sector, particularly with the BIO-CHEM industry, which includes 42 active entities. For this reason, the potential of PHARMA-TECH should be viewed in complementarity with BIO-CHEM, due to their strong technological and infrastructural interconnections.

The PHARMA-TECH sector also benefits from a robust distribution base – within the supporting sectors, 650 entities have been identified as directly connected to PHARMA-TECH, along with 218 entities supporting the development of the BIO-CHEM industry.

It is also worth noting the dynamic development of the CDMO market (Contract Development and Manufacturing Organisation) in the region. This segment offers comprehensive services in the development and manufacturing of pharmaceuticals on behalf of other pharmaceutical companies. Its growth is supported by close collaboration with universities and research institutes, as well as the innovation capacity of BIO-CHEM and BIO-TECH.

**PHARMA-TECH Entrepreneurs:** Adamed; Aflofarm; Afm; Biomar; Bliss Pharma; Canpoland; Emo-Farm; Lek S.A.; Med Farmacja; Molecure; Mt Laboratories; Pelion; Pentarex; Personather; Pharmbridge; Pharmena; Polfarma; Polfarmex; Probiome; Tactical Pharmacy Laboratory; The Health Company; Wörwag pharma; Orifarm Manufacturing Poland

Clinical Hospitals and Research Institutes: Central Teaching Hospital of the Medical University of Lodz; Polish Mother's Health Centre Institute in Łódź; Dr. Karol Jonscher Municipal Medical Centre; Norbert Barlicki University Teaching Hospital No. 1; Military Medical Academy University Clinical Hospital No. 2; Dr. Władysław Biegański Regional Specialist Hospital; M. Kopernik Voivodeship Multi-Specialist Center for Oncology and Traumatology in Lodz; Center of Hearing and Speech MEDINCUS in Lodz

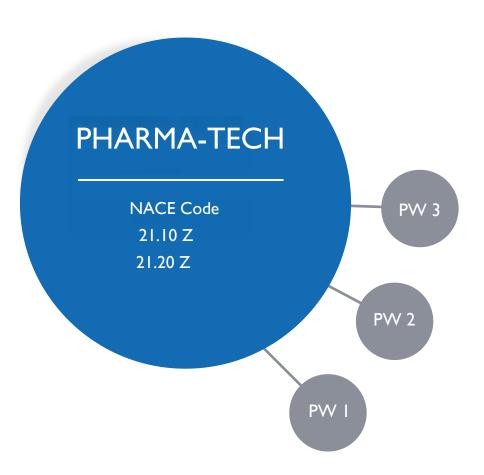
**Business Support Institutions:** Lodz Special Economic Zone; Lodz Regional Development Agency; Lodz Chamber of Industry and Commerce; Entrepreneur Service Centre, Marshal's Office of Łódzkie Voivodeship; Foundation for Promotion of Entrepreneurship, Enterprise Europe Network (FRP); Bionanopark; Technology Transfer Office, University of Lodz; Centre for Innovation and Entrepreneurship, Lodz University of Technology; Center for Innovation and Technology Transfer, Medical University of Lodz; BioForum; EIT Heatlh; Science Hub, University of Lodz; BCC; 'Bioenergy for the Region' Cluster; Lodz ICT Cluster; LODZistics

**Universities:** Lodz University of Technology; University of Lodz; Medical University of Lodz

**Financial Services:** Medical Research Agency; EU Horizon Europe programmes; Lodz Entrepreneurship Centre; Polish Agency for Enterprise Development; National Centre for Research and Development; National Science Centre; Bank Gospodarstwa Krajowego; Polish Development Fund (PFR); European Funds for Smart Economy (FENG); European Funds for Łódzkie 2021–2027 Regional Programme; Programme for supporting investments of major importance to the Polish economy for the years 2011-2030

Distributors: Delfarma; Medezin; Pharmalink; Pelion

Concentration of PHARMA-TECH Industry Leaders



## PHARMA-TECH Key Business Activities:

- Manufacture of basic pharmaceutical products and pharmaceutical preparations
- Manufacture of pharmaceutical preparations

Fig. 6. PHARMA-TECH Profile

#### Supporting Activity:

PW1. Wholesale of pharmaceutical goods
 PW2. Growing of spices, aromatic,
 drug and pharmaceutical crops
 PW3. Retail sale of pharmaceutical goods

# Food-Tech The DNA of Łódź and the **Metropolitan Area**

Number of key industry

entities:

1,034

**Estimated** 

employment:

6,030

36

Number of supporting

entities:

Food-Tech

The DNA of Łódź and the

**Metropolitan Area** 

**Estimated** 1,809 employment:

Number of study programmes 17

related to the industry:

2,625 Number of students: (2023)

864 Number of graduates: (2023)

# PHARMA-TECH MED-TECH

## Food-Tech

**FOOD-TECH Entrepreneurs** 

Invest in Łódź

**Technology Services** 

**Functional Food Producers** 

**Business Support** Institutions

**AGRO-TECH** Industry

**Clinical Hospitals** and Research

**Universities** 

Labs

**Financial Services** 

**BIO-CHEM Industry** 

**Legal Services** 

**BIO-TECH Industry** 

**R&D Units** 

38

BEAUTY

The FOOD-TECH industry is characterised by a more decentralised structure compared to the other three leading branches of the Life Science sector. Its potential is built on two key stakeholder groups. First, the main driver of development is small and medium-sized enterprises, which bring dynamism to the entire segment. Second, the industry's innovation capacity is reinforced by scientific and research institutions – both public and private – including primarily Lodz University of Technology (Faculty of Biotechnology and Food Sciences), University of Lodz (Faculty of Biology and Environmental Protection, Faculty of Chemistry), and the Institute of Agricultural and Food Biotechnology (IBPRS) in Lodz (Department of Food Quality, Department of Refrigeration Technology and Technique). FOOD-TECH ranks first in terms of the number of registered entities within the DNA structure

of Łódź and the metropolitan area, comprising 1,034 active entities, with an additional 611 entities operating in supporting sectors. This potential is further reinforced by numerous companies from the FOOD-TECH, AGRO-TECH, and WET-TECH sectors located outside the metropolitan area, across Łódzkie Voivodeship. It is important to highlight that FOOD-TECH exhibits strong links with the MED-TECH sector, particularly in addressing shared technological, health-related, and environmental challenges.

The development of the industry is closely tied to EU policies on shortening supply chains, protecting public health and the environment, as well as the Farm to Fork Strategy and the principles of the circular economy.

**FOOD-TECH Entrepreneurs:** Agrecol; Biobact; Blue Drop Coffee Roasters; Browin; Dakri; Fant; Kilargo; Master Pharm; MGM Pharma; Milkpol; Napiferyn Biotech; Nutracevit; OSM w Głuchowie; OSM w Łasku; OSM Wart-Milk; Pamapol; Pamso; Probiotics; Rekeep; SM "Mleczwart" w Wartkowicach; ZPM Grot; ZPM Łódź; ZPM Witmas

**Functional Food Producers:** Blue Drop Coffee Roasters; Bracia Urbanek; Browary Łódzkie; Dom Jantoń; Excellence; Granex; Jamir Food; Joyfood; Kilargo; Koreb Browar; Kowalewski; Milkpol S.A.; Soligrano; Vegeniola; ZPOIW Motyl; Orvicta; Revolife

R&D Units: Research and Innovation Centre Pro-Akademia; Functional Food Research Centre, Department of Biochemistry, Medical University of Lodz; Institute of Microbiology, Biotechnology and Immunology, University of Lodz; Institute of Molecular and Industrial Biotechnology, Lodz University of Technology; Institute of General and Ecological Chemistry, Lodz University of Technology; Institute of Organic Chemistry, Lodz University of Technology; Łukasiewicz – Łódź Institute of Technology; Institute of Fermentation Technology and Microbiology, Lodz University of Technology; Institute of Food Technology and Analysis, Lodz University of Technology; Institute of Horticulture – National Research Institute; Department of Food Quality, Prof. Wacław Dąbrowski Institute of Agricultural and Food Biotechnology – State Research Institute; Department of Refrigeration Technology and Technique, Prof. Wacław Dąbrowski Institute of Agricultural and Food Biotechnology – State Research Institute

Clinical Hospitals and Research Institutes: Central Teaching Hospital of the Medical University of Lodz; Polish Mother's Health Centre Institute in Łódź; Dr. Karol Jonscher Municipal Medical Centre

; Norbert Barlicki University Teaching Hospital No. 1; Military Medical Academy University Clinical Hospital No. 2; Dr. Władysław Biegański Regional Specialist Hospital; M. Kopernik Voivodeship Multi-Specialist Center for Oncology and Traumatology in Lodz; Center of Hearing and Speech MEDINCUS in Lodz

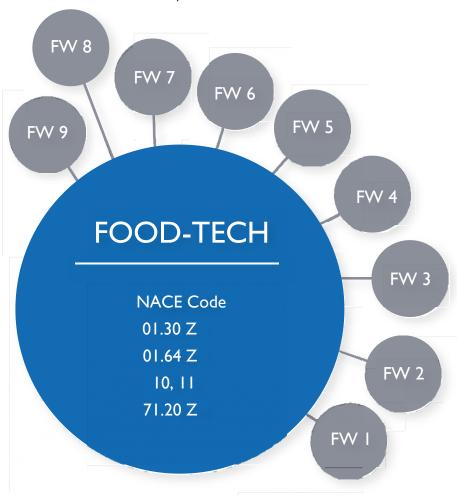
Labs: Research and teaching laboratory for process optimisation and design in the food industry, with a special focus on the sugar sector, Lodz University of Technology; Artificial Digestive Tract Laboratory; Laboratory for Advanced Chromatographic Analysis, Lodz University of Technology; Laboratory of Advanced Omics Techniques; Food Storage Laboratory, Lodz University of Technology; Laboratory of Health-Promoting Foods, Lodz University of Technology; Food Prototyping Laboratory, ProAkademia; Agro Laboratory; Accredited External Laboratory, Bifix; Eurofins Laboratory Network

**Business Support Institutions:** Lodz Special Economic Zone; Lodz Regional Development Agency; Lodz Chamber of Industry and Commerce; Entrepreneur Service Centre, Marshal's Office of Łódzkie Voivodeship; Foundation for Promotion of Entrepreneurship, Enterprise Europe Network (FRP); Bionanopark; Technology Transfer Office, University of Lodz; Centre for Innovation and Entrepreneurship, Lodz University of Technology; Center for Innovation and Technology Transfer, Medical University of Lodz; BioForum; EIT Heatlh; Science Hub, University of Lodz; BCC; 'Bioenergy for the Region' Cluster; Lodz ICT Cluster; LODZistics

**Universities:** Academy of Business and Health Sciences in Lodz; University of Humanities and Economics in Lodz; Lodz University of Technology; University of Lodz; Medical University of Lodz

**Financial Services:** Medical Research Agency; EU Horizon Europe programmes; Lodz Entrepreneurship Centre; Polish Agency for Enterprise Development; National Centre for Research and Development; National Science Centre; Bank Gospodarstwa Krajowego; Polish Development Fund (PFR); European Funds for Smart Economy (FENG); European Funds for Łódzkie 2021–2027 Regional Programme; Programme for supporting investments of major importance to the Polish economy for the years 2011-2030

#### Concentration of FOOD-TECH Industry Leaders



### FOOD-TECH Key Business Activities:

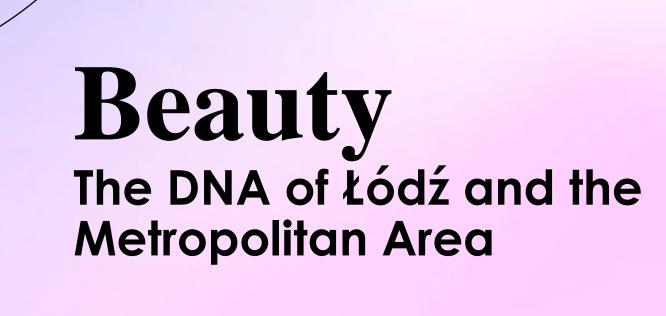
- Manufacture of food products
- Manufacture of beverages
- Research and analysis relating to food quality
- Plant propagation
- Seed processing for propagation

Fig. 7. FOOD-TECH Profile

#### **Supporting Activity:**

FW1. Retail sale of flowers, plants, seeds, and pet animals
FW2. Growing and processing of plants
FW3. Animal breeding and processing
FW4. Hunting
FW5. Forestry
FW6. Fisheries
FW7. Wholesale of food
FW8. Retail sale of food

FW9. Manufacture of fertilisers



Number of key industry

entities:

104

**Estimated** 

employment:

1,520

Number of study programmes related to the industry:

3,426 Number of students: (2023)

1,282 Number of graduates: (2023)

## Beauty

The DNA of Łódź and the **Metropolitan Area** 

Number of supporting entities: 3,661

**Estimated** 6,840 employment:

## Beauty

Invest in Łódź

**Technology** 

**Services** 

**BIO-TECH** Industry

Labs

**Business Support Institutions** 

**R&D Units** 

Universities

**BEAUTY Entrepreneurs** 

**BIO-CHEM** Industry

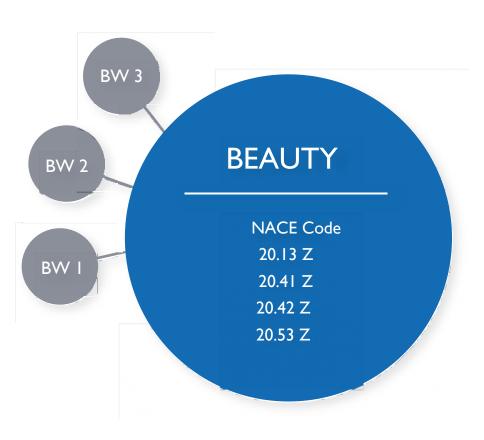
**Financial Services** 

Legal **Services** 

A key strength and distinguishing feature of the BEAUTY industry in Łódź and the metropolitan area lies in the presence of medium and large enterprises, which act as leaders in selected product lines on the Polish BEAUTY market. This industry ranks second in terms of the number of registered entities within the DNA structure of Łódź and the metropolitan area, with 104 active organisations, and an additional 3,661 entities registered in supporting sectors. There is particularly active collaboration between the University of Lodz and the BEAUTY sector, especially through the Faculty of Biology and Environmental Protection (in the area of microbiological purity assessment of cosmetics) and the Faculty of Chemistry, which closely cooperates in chemical analysis and innovation. The Medical University of Lodz is also an important partner. The BEAUTY industry is strongly

connected to MED-TECH and PHARMA-TECH, and its development is closely linked to the innovation capacity of the BIO-CHEM sector. It is characterised by a high degree of complexity, stemming from both the multi-segment nature of its target markets and the diversity of technological specialisations. The DNA of Łódź and the metropolitan area in the BEAUTY sector is built on a rich tradition and established market position – both domestically and internationally. Regional industry players rank among the leading producers in selected product categories also on global markets. One of the sector's defining features is its innovative approach to circular transformation and the improvement of resource efficiency, aligning with sustainable development goals and modern value chain management.

Concentration of BEAUTY Industry Leaders



**BEAUTY Entrepreneurs:** Biogen; Delia Cosmetics; Dermena Lab; Elfa Pharm; Enzym Kosmetyki; Golden Rose; Indigo Nails; Jpharma; Loki; Medic Natural Cosmetics; MG Evolution; Naan Laboratorium; Oil Medica; Pharmena; Pollena Ewa; Revolab; Uvera; Venita; Vimax

**R&D Units:** Institute of Microbiology, Biotechnology and Immunology, University of Lodz; Institute of Molecular and Industrial Biotechnology, Lodz University of Technology; Institute of Natural Products and Cosmetics, Lodz University of Technology; Institute of General and Ecological Chemistry, Lodz University of Technology; Institute of Organic Chemistry, Lodz University of Technology; Łukasiewicz – Łódź Institute of Technology;

Labs: Microbiological Laboratory for Cosmetics, Pollena Ewa; Laboratory for Ageing Chambers for Cosmetic and Medical Products, Pollena Ewa

**Business Support Institutions:** Lodz Special Economic Zone; Lodz Regional Development Agency; Lodz Chamber of Industry and Commerce; Entrepreneur Service Centre, Marshal's Office of Łódzkie Voivodeship; Foundation for Promotion of Entrepreneurship,

Enterprise Europe Network (FRP); Bionanopark; Technology Transfer Office, University of Lodz; Centre for Innovation and Entrepreneurship, Lodz University of Technology; Center for Innovation and Technology Transfer, Medical University of Lodz; BioForum; EIT Heatlh; Science Hub, University of Lodz; BCC; 'Bioenergy for the Region' Cluster; Lodz ICT Cluster; LODZistics

**Universities:** University of Humanities and Economics in Lodz; Lodz University of Technology; SAN University; University of Lodz; Medical University of Lodz; Academy of Business and Health Sciences in Lodz; Higher School of Cosmetology and Health Sciences in Łódź

**Financial Services:** Medical Research Agency; EU Horizon Europe programmes; Lodz Entrepreneurship Centre; Polish Agency for Enterprise Development; National Centre for Research and Development; National Science Centre; Bank Gospodarstwa Krajowego; Polish Development Fund (PFR); European Funds for Smart Economy (FENG); European Funds for Łódzkie 2021–2027 Regional Programme; Programme for supporting investments of major importance to the Polish economy for the years 2011-2030

## **BEAUTY Key Business Activities:**

- Manufacture of perfume and toilet preparations
- Manufacture of soap and detergents, cleaning and polishing preparations
- Manufacture of other inorganic basic chemicals
- Manufacture of essential oils

Fig. 8. BEAUTY Profile

**Supporting Activity: BW1.** 

Wholesale of cosmetics **BW2.** Retail sale of cosmetics **BW3.** Beauty care and other beauty
treatment services





## Life Science

R&D Centres
in the DNA of Łódź
and the Metropolitan Area





51



Fig. 9. Local R&D Ecosystem of Life Science in the DNA of Łódź and the Metropolitan Area



The core institutional environment of the Life Science sector in Łódź and the metropolitan area consists of leading universities and research institutes that are developing advanced biochemical and biotechnological technologies. The key centres include the Medical University of Lodz, Lodz University of Technology, University of Lodz, Łukasiewicz – Łódź Institute of Technology, and the Research and Innovation Centre Pro-Akademia. The sector's ecosystem is built on synergy between public and private entities, working together to optimise the use of unique research and laboratory infrastructure, specialist services, and the implementation of innovative solutions and co-creation of patents.

This collaboration enables the effective commercialisation of scientific projects, the development of innovative technologies and products, and represents a strategic advantage of the region within the Life Science sector.

#### **Medical University of Lodz**

The Medical University of Lodz is a key centre of medical innovation, conducting approximately 600 medical experiments annually, which contribute to the development of practical, innovative solutions. Additionally, the university conducts around 132–140 commercial clinical trials each year.

Research activities at MUL are centred around the Clinical Research Centre and three leading academic hospitals, including the Central Teaching Hospital of the Medical University of Lodz. The university is a member of EIT Health, supporting innovation in healthy living and active ageing, and is also part of the European Clinical Research Infrastructure Network.

The Medical University of Lodz hosts several high-quality laboratories, including the Genetic Laboratory (a reference laboratory for Poland) and the Clinical Research Support Centre, which coordinates clinical trials among university hospitals. Other important units include the Center for Molecular Research on Civilization Diseases – MOLecoLAB, the BRaIn Laboratory Complex, the Toxicology Laboratory and the HARC Biobank. The Animal Research Facility of the Faculty of Pharmacy provides services in biochemistry, haematology, and related fields.

The university actively collaborates with the private sector through its **Center for Innovation and Technology Transfer**, which promotes the synergy between science and business.

The centre ensures intellectual property protection, manages the sale of invention rights, and supports the creation of spin-off and spin-out companies, facilitating the commercialisation of research innovations.

The university also fosters entrepreneurship through its **Business Incubator**, supporting early-stage companies.

Key research areas at the Medical University of Lodz include paediatric diabetes, cardiovascular diseases, therapeutic adherence, and functional food. Its activities represent a strategic asset for the region in the Life Science sector, enabling effective innovation commercialisation and the development of translational medicine. The university is also a leader in medical education, introducing innovative tools such as micro-credentials, which improve the quality of education and adapt academic offerings to the rapidly evolving needs of the labour market.

#### **University of Lodz**

The University of Lodz is one of the largest and most prestigious universities in Poland, plavina a significant role in the development of the Life Science sector. It offers commercial services, research, and expert analyses in areas such as diagnostic innovation, prevention of biological, chemical, and radiological threats, biobanking, DNA sequencing, microbiological purity assessment (Beauty-Tech, Food-Tech), environmental expertise, and implementation projects covering, among others, medical products, food, and dietary supplements. The university also provides specialist training for companies and institutions in areas such as applied research, environmental protection, and sustainable development. Its strength lies in the interdisciplinary and complementary nature of its infrastructure and competences, supported by well-defined science-business cooperation paths.

 $^{\circ}52$ 

The University of Lodz educates specialists across 165 academic programmes, including biology, microbiology, biotechnology, forensic biology, ecology, chemistry, computer science, physics, law, and management.

Its Life Science development is primarily driven by: the Faculty of Biology and Environmental Protection, the Faculty of Chemistry, the Faculty of Physics and Applied Informatics, the Faculty of Management, the Faculty of Economics and Sociology, and the Technology Transfer Centre.

Researchers and doctoral students at UL are the authors of numerous inventions in medicine, chemistry, ecology, environmental protection, and food sciences. The Faculty of Biology and Environmental Protection is the largest biology faculty in Poland (category A, Ministry of Education and Science), employing nearly 400 staff members. It collaborates intensively with industry – from diploma theses and tripartite projects (via Science Hub UL) to the coordination of multimillion-euro international projects involving regional companies. It also manages field research stations and modern research units, including Biobank Łódź®, the Laboratory of Microscopic Imaging, the Animal Research Facility, the Biohazard Prevention Centre, and the Natural History Museum.

#### **Lodz University of Technology**

Lodz University of Technology stands out in the Life Science sector thanks to its interdisciplinary approach, integrating biotechnology, chemistry, engineering, and computer science. The university hosts unique research units such as the Bioreactor Laboratory, which simulates the effects of new food products on mammalian organisms – a solution considered exceptional in Europe. On the national level, laboratories such as the Environmental Engineering Laboratory, Biodeterioration Laboratory, Chromatographic Analysis Laboratory for Bioorganic Compounds, and the Accredited Specialist Laboratory for Sugar Industry Analysis are particularly noteworthy.

The university also operates advanced laboratories and analytical centres focused on biotechnology, physics, chemistry, and nanotechnology, equipped with highly specialised instruments. Its research results in numerous patents and utility models, including a nanomaterial synthesis reactor, as well as patents for the production of granulated calcium mineral fertiliser and biofuel components based on bioethanol.

The university maintains a strong position in THE World University Rankings by Subject 2025 in the Life Sciences category, confirming its relevance in the field. Through close cooperation with industry and partnerships with national and international research centres, Lodz University of Technology implements ambitious projects that address current scientific and technological challenges.

The Centre for Innovation and Entrepreneurship at Lodz University of Technology plays a key role in the commercialisation of research results, supporting students and researchers in launching their own companies and transferring technologies to the market. Collaboration with the Łukasiewicz Research Network and the European Innovation Foundation further boosts the region's innovation capacity by promoting new technologies and supporting startups.

#### Łukasiewicz – Łódź Institute of Technology

The Łukasiewicz – Łódź Institute of Technology is an integral part of the Łukasiewicz Research Network – the third-largest research network in Europe. It employs more than 440 staff and operates on an annual budget of nearly PLN 90 million, enabling the development of cutting-edge research infrastructure and the full utilisation of its scientific workforce across seven research centres. The institute conducts research in several key areas critical to the economy, specialising in the development of innovative cross-sectoral solutions, particularly in circular economy, biomedicine, and technology digitalisation. Core research directions focus on practical implementation across industries, with emphasis on the medical, bioengineering, and pharmaceutical sectors. The institute applies cutting-edge scientific knowledge to optimise manufacturing processes for new polymer and fibre materials in the Life Science sector.



#### Research and Innovation Centre Pro-Akademia

Pro-Akademia is a scientific unit specialising in interdisciplinary applied research and educational activities.

Within the Life Science sector, Pro-Akademia focuses on key areas such as the bioeconomy in the context of FOOD-TECH and AGRO-TECH.

This includes the integration of biology, agriculture, and technology in the production of food, feed, and biofuels, as well as the transformation of agriculture towards sustainable and precision-based practices.

In addition, the centre is engaged in the development of functional food, bioproducts, and bioprocessing technologies.

Pro-Akademia offers laboratory services through two dedicated units: the Natural Products Laboratory, equipped with a setup for research on fermented beverages, and the Food Prototyping Laboratory, fitted with equipment for the characterisation of biomaterials, including a gas chromatograph with mass spectrometry (GC-MS) and instruments for microbiological analysis.

## People and Institutions of the Łódź

## Life Science

**Ecosystem** 

#### Specialists and Experts in the Life Science Market

The Łódź region is a dynamic academic and business centre that attracts both students and investors. The city is home to 20 higher education institutions, providing access to a skilled graduate workforce. Over 12,600 students are currently pursuing degrees in Life Science-related fields, with medical and health sciences leading in terms of enrolment and demonstrating the highest level of internationalisation, with 13% of students coming from abroad.

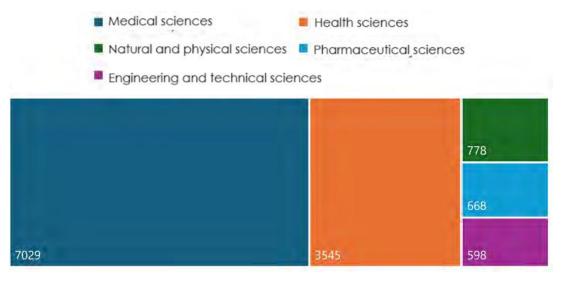


Fig. 10. Number of Life Science Students in Łódzkie Voivodeship in 2023 Source: Own elaboration based on data from https://radon.nauka.gov.pl/raporty/studenci\_kierunki\_medyczne\_2023. Accessed on 18 March 2025.

In the 2024/2025 academic year, Łódź-based universities are offering degree programmes in 42 fields of study that are considered particularly relevant to the Life Science sector.

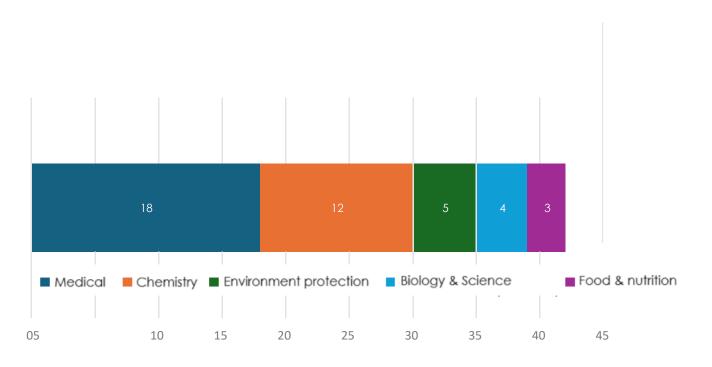


Fig. 11. Number of Life Science Degree Programmes in Łódź in the 2024/2025 Academic Year Source: Own elaboration based on data from https://www.otouczelnie.pl/studia/kierunki\_studiow. Accessed on 25 February 2025.



In Łódzkie Voivodeship, public universities offer the broadest range of Life Science-related degree programmes. Lodz University of Technology offers 16 programmes, focusing on the technical and engineering aspects of natural sciences. The University of Lodz provides 13 programmes, including biology and chemistry, while the Medical University of Lodz offers 15 programmes, specialising in health and medical education. Private universities complement the educational offer with an additional 12 programmes.

The academic staff in Łódzkie Voivodeship consists of both faculty members with academic degrees and experienced industry professionals. They conduct research activities that contribute to scientific advancement and industrial cooperation. Through collaboration with local clusters and innovation networks, academic staff support knowledge transfer and the development of innovative solutions for businesses. University business incubators provide support to students and graduates in developing their business ideas, creating a favourable environment for the growth of new companies and innovative projects.

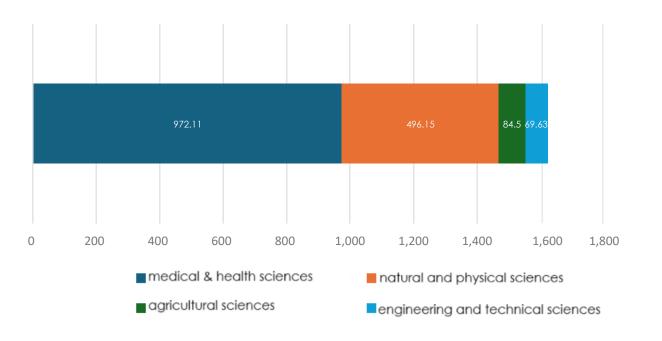


Fig. 12. Number of Academic Posts in Łódzkie Voivodeship in 2023 by Scientific Field Related to the Life Science Sector

Source: Own elaboration based on data from Statistics Poland (GUS)

# How We Support Life Science Investment in Łódź

#### Invest in Łódź

Invest in Łódź is an investor support centre operating under a **one-stop-shop** model, offering comprehensive assistance at every stage of the investment process – from the initial contact, through site selection, to business development.

#### What we offer:

- Tailored location consulting access to attractive real estate and investment sites
- Access to investment incentives and tax reliefs – including support from the Lodz Special Economic Zone (up to 70% tax exemption for 15 years)
- Recruitment and employer branding support, in cooperation with local universities and the labour market
- Assistance with administrative processes
- Fast-track investment implementation with the full commitment of the City of Łódź

#### Additionally:

- Connecting investors with international chambers of commerce and business support institutions
- Co-creating academic and educational programmes aligned with employer needs
- Organising industry and international events that promote the economic potential of Łódź

#### **Key tools:**

- 'Młodzi w Łodzi' [Youth in Łódź]
   Programme the largest scholarship system in Poland and a platform connecting business with emerging talent
- Startups Powered by Invest in Łódź an accelerator for innovative companies
- Poland's largest technology sandbox – a testing and implementation environment for innovation

#### Why Łódź?

Thanks to its central location, excellent connectivity, highly qualified workforce, and openness to innovation, Łódź is now one of the most attractive investment destinations in Central and Eastern Europe.

The Life Science sector benefits from access to a broad support ecosystem that includes advisory, training, and information services, as well as strong connections between science and business, enabling the commercialisation of research. A key regional partner is the Lodz Special Economic Zone, which offers comprehensive support – from tax incentives to business development services.

Life Science entrepreneurs in the Łódź region benefit from an extensive system of investment incentives, aimed at supporting the growth of innovation and R&D projects. The most important programmes include:

- 1. European Funds for Smart Economy (FENG) offering support through:
  - SMART Path
  - Technology credit for SMEs
  - Green credit
  - Businessmax Plus and Ekomax guarantees
- 2. European Funds for Łódzkie 2021–2027 Regional Programme, including:
  - Investment in research and innovation
  - Implementation of Industry 4.0 solutions for SMEs
- 3. Programme for supporting investments of major importance to the Polish economy, offering incentives for: robotics, prototypes, support for innovative employees, R&D activity (R&D tax relief).
- Lodz Special Economic Zone, providing corporate income tax exemptions for investments covered by official support decisions.



Entrepreneurs in the Łódź region are successfully taking advantage of available public support instruments, as confirmed by data showing consistent utilisation of these incentives.

As a result, Łódź is becoming an increasingly attractive destination for investment in the Life Science sector, supported by the following figures:

- 81.8% of companies received public support. These included businesses from the MED-TECH, BEAUTY-TECH, BIO-TECH, and PHARMA-TECH industries.
- The total value of support exceeded EUR 21 million, with PHARMA-TECH companies accounting for the largest share (57.1%).
- The most significant form of support in terms of value was tax base reduction, representing 80.87% of the total. Grants and other non-repayable benefits came in second, at 10.22%.
- Grants were among the most commonly requested forms of support, applied for by 79% of companies.
- The most frequent providers of support included: poviat offices (e.g. exemptions, grants, non-repayable benefits), Voivodeship Fund for Environmental Protection and Water Management (e.g. grants, non-repayable benefits, preferential loans), Zarządca Rozliczeń S.A. (grants, non-repayable benefits), Marshal of Łódzkie Voivodeship (e.g. grants, non-repayable benefits, reimbursements), Polish Agency for Enterprise Development (PARP) (grants, nonrepayable benefits), Lodz Regional Development Agency (grants, non-repayable benefits).

\*Based on data from the SUDOP database, Office of Competition and Consumer Protection (UOKiK), Warsaw, November 2024. The analysis covered all Life Science DNA companies in Łódź and the metropolitan area employing more than 50 people between 2020 and 2024.

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