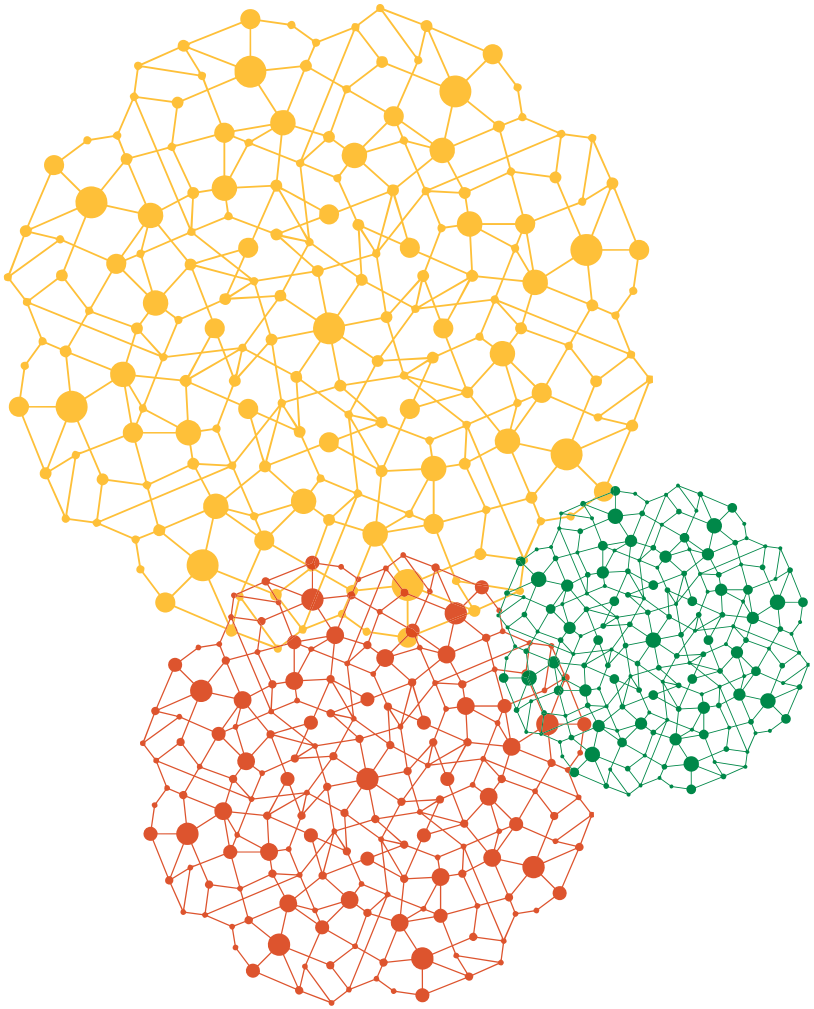


SCIENCE AND RESEARCH LITHUANIA

Over a dozen stories of science and research from arguably the best place to combine world class research and premium quality of life

Lithuanian Academy of Sciences

RCL

Research Council of Lithuania

A joint publication
of the Lithuanian Academy of Sciences
and the Research Council of Lithuania

Science advances when ideas move across disciplines, institutions, and nations. Lithuania has long been such a meeting place. More than seven centuries ago, Grand Duke Gediminas sent letters across Europe inviting merchants, craftsmen, and knights to settle in Lithuania, pursue their professions, and help build a flourishing state. His message was enduring: welcome talent, share knowledge, create progress together.

Today, the Lithuanian state and its scientific community continue that tradition. Our invitation now extends to many more professions, and especially to scientists and researchers seeking a place where ambitious questions can be pursued, partnerships formed quickly, and ideas translated into impact.

Lithuania is compact enough for institutions, disciplines and decision-makers to connect, yet deeply integrated into European and global science. Our researchers work through Horizon Europe and in partnerships and infrastructures like the European Council for Nuclear Research (CERN), the European Molecular Biology Laboratory (EMBL), or the Extreme Light Infrastructure (ELI ERIC). World-class research infrastructure and open-access facilities support discovery across photonics, the life sciences, medicine, artificial intelligence, advanced materials, environmental research, the social sciences, and the humanities.

This capacity transcends a single government coalition or one electoral cycle. Across party lines, Lithuania has made the development of scientific potential a long-term national commitment. Sustained public investment, competitive funding, support for early-career researchers and international centres of excellence reflect a shared conviction: knowledge is essential to resilience, prosperity, and security. Lithuania is also strengthening the connection between science and society through close cooperation between academia, industry, and the public sector. Researchers are encouraged to translate discoveries into practical solutions, while businesses increasingly engage with scientific institutions to develop new technologies, products, and services. A particularly important advantage is Lithuania's openness to experimentation. Regulatory sandboxes and other testing environments enable innovators to validate ideas under real-world conditions, accelerating the path from laboratory discovery to societal and economic impact.

Scientific opportunity is matched by an exceptional quality of life. Researchers find a human scale of living, rich cultural life, and easy access to nature – conditions that make demanding work compatible with personal wellbeing. Scientists from many countries are already finding their place here: building teams and careers, enriching Lithuanian institutions, and realising their own potential.

The pages that follow present over a dozen stories from Lithuania's research landscape. They showcase achievements in the life sciences, photonics, quantum technologies, artificial intelligence, medicine, the social sciences, and many other fields. Yet these examples offer only a glimpse of the breadth, diversity, and ambition of research taking place across our country today.

At the heart of each research story is a belief in scientific curiosity and intellectual freedom. Transformative discoveries cannot always be planned in advance, and ambitious research inevitably involves uncertainty, experimentation, and sometimes failure. Lithuania therefore seeks to create conditions in which researchers can pursue bold questions, cross disciplinary boundaries, and explore ideas whose value may only become visible over time. Scientific excellence grows where talented people are given both opportunity and trust. Lithuania is working to create and sustain such an environment – not only for today, but for generations of researchers to come.

In the spirit of Gediminas, we renew Lithuania's invitation: bring your questions, expertise and ambition here. Join our institutions. Use our infrastructure. Test your ideas, challenge ours, and create with us. Seven centuries ago, Lithuania opened its doors to those ready to build. This helped to create the largest medieval European empire. Today, we extend a similar invitation to researchers, innovators, entrepreneurs, and scientific leaders from around the world. Come to Lithuania. Join our international research community. Build partnerships. Test your ideas and challenge ours. Create new knowledge. And write your own scientific success story here.

Prof. VYTAUTAS NEKROŠIUS
President of the Lithuanian Academy of Sciences

Prof. JUOZAS AUGUTIS
Acting Chair of the Research Council of Lithuania

SCIENCE AND RESEARCH IN LITHUANIA: FACTS AND FIGURES

Over the past decade, Lithuania has undergone a remarkable transformation in science, research, and innovation. The European Innovation Scoreboard records that Lithuania has improved its innovation performance index by 19.7 percentage points between 2018 and 2025, significantly outpacing the EU average increase of 12.6 percentage points and placing the country among the five fastest-improving innovation ecosystems in Europe.

Lithuania boasts both diverse and dynamic research and higher education landscape. A country of 2.9 million is home to 17 universities (11 public and 6 private), 13 colleges or universities of applied sciences, and 16 public (state-funded) research institutes, providing a strong foundation for scientific excellence, talent development and knowledge transfer.

Lithuania has one of the highest levels of tertiary educational attainment in the European Union. In 2025, 61.8% of people aged 25–34 had completed tertiary education, compared with an EU average of 44.8%. As a result, Lithuania ranks among the leading European countries in terms of highly educated young adults, reflecting a sustained national commitment to education and human capital development.

Public investment in research and development (R&D) is increasing and rose by 13% in 2025 compared with the previous year, followed by a further 20% increase in 2026. Taken together, these planned increases amount to a cumulative growth of approximately 36% over two years, reflecting the government's commitment to strengthening Lithuania's research and innovation system and supporting its long-term science and innovation policy objectives.

Lithuania is among the leading EU countries in terms of gender balance in research. Women account for just over half of scientists and engineers, one of the highest shares in the European Union. They also represent 50% of doctoral graduates, exceeding the EU average and reflecting the strong participation of women in Lithuania's research and higher education system.

Supported by a highly educated workforce, a modern research infrastructure, and growing public investment, Lithuania is increasingly positioning itself as a competitive European hub for scientific research, technological development, and innovation.

2.89 M
population (2026)

14,764
employed in R&D (FTE)

33TH
Global Innovation Index

49.3% : 50.7%
female-to-male researcher gender balance

LITHUANIA'S RESEARCH AND INNOVATION ECOSYSTEM

The base of the Lithuanian research and innovation system rests on an interlinked grid of universities and research institutes, supported by a multi-layered network of policy, funding and advisory institutions (Table 1). Gross expenditure on R&D stood at approximately 1.03% of GDP in 2022, with around 4,150 researchers per million inhabitants – a density comparable to several larger EU member states. Business enterprise funds constitute the largest single source of R&D expenditure (38.7%), followed by government funds (31.2%), and foreign sources (26.7%), the latter reflecting the importance of international funding, including European research programmes, within Lithuania's R&D system.

TABLE 1. **Key institutions in the Lithuanian research and innovation system**

Institution	Role
Ministry of Education, Science, and Sport	Policy formation; R&D strategy and budget planning; international representation of the Lithuanian science system.
Research Council of Lithuania	Competitive R&D funding (~50 calls per year, ~2,224 active projects); Horizon Europe national contact point; research quality assessment; international cooperation.
Lithuanian Academy of Sciences	Expert advisory function to the Seimas and the Government; 112 full members and 64 foreign members; science awards; cooperation agreements with several dozens of foreign academies.
Lithuanian University Rectors' Conference	Coordination body for universities; common positions on higher education policy; international networking (EUA membership).
Conference of Directors of Lithuanian Research Institutes	Coordination body for research institutes; common positions on research policy.
Universities and research institutes	Primary sites of research activity, doctoral training, and knowledge transfer.
Innovation Agency	An executive agency under the Ministry of Economy and Innovation, coordinating public support for business R&D and innovation including management of EU and national funds for technology development and start-ups.

ECOSYSTEM AND INDUSTRY: LASERS, LIFE SCIENCES, AND SCIENCE VALLEYS

Lithuania is an emerging European hub for science, innovation, and industry collaboration. The country has developed internationally competitive strengths in high-tech sectors where research is effectively translated into innovative products and global exports.

Strong academia–industry collaboration, a network of integrated science and technology valleys, and a business-friendly environment provide attractive opportunities for investors, researchers, and international partners. Lithuania is internationally recognised for its laser technologies and is also home to rapidly growing life sciences and fintech sectors, demonstrating how a small economy can achieve global impact through sustained investment in research, talent, and innovation.

Between 2014 and 2024 alone, government budget allocations for R&D per capita increased by 197%, making it the third-largest percentage rise in the EU.

The country's research base has become increasingly international and interconnected. Between 2018 and 2025, Lithuania's performance in international scientific co-publications increased by 47 percentage points, while the share of foreign doctoral students improved by 42.3 percentage points. Over the same period, the European Innovation Scoreboard's Attractive Research Systems dimension improved by 29.9 percentage points, reflecting the growing international reach and attractiveness of Lithuanian research.

Links between research and the wider economy have also strengthened. Lithuania performs at 129.3% of the EU average in innovation-system linkages, while public-private scientific co-publications have increased by 31.7 percentage points since 2018. Lithuania also ranks first in the EU for job-to-job mobility of highly qualified science and technology professionals, demonstrating strong circulation of knowledge and expertise across the economy.

This ecosystem supports internationally competitive high-tech specialisations. Lithuania has developed a world-leading laser and photonics industry, identified by the European Commission as a strategic asset and a natural foundation for further development in quantum technologies and semiconductor applications. Together with Lithuania's expanding capabilities in advanced digital technologies, this provides a strong foundation for connecting scientific excellence, specialised talent, and high-tech industry to international research and value chains.

HUMANITIES AND SOCIAL SCIENCES: FROM ADAPTING MOST ANCIENT INDO-EUROPEAN LANGUAGE FOR IA ERA TO STREAMLINING RESPONSES FOR WARS OF DISINFORMATION

Lithuania's priority research agenda in the humanities and social sciences has combined the preservation and critical interpretation of national heritage with the analysis of rapidly changing societal and technological conditions. Its scope extends from efforts to safeguard Lithuanian – one of the most archaic and structurally complex living Indo-European languages – and adapt it to the age of artificial intelligence through language technologies, digital corpora, and computational tools, to the development of effective responses to information warfare, and other threats to freedom and democracy. Major research areas are centred around region's history, archaeology, statehood, cultural memory, and heritage; language, literature, culture and Baltic studies; welfare-state development, social inequality, demographic change, family, and migration; democracy, governance, law, security, and Eastern European studies; economics, labour markets, organisations, management, and innovation; education, child and youth development, psychology, and mental well-being; the social implications of digital platforms, data-intensive technologies, and algorithmic governance. Increasing attention is also being devoted to climate policy, energy transitions, sustainability, environmental citizenship, and the ethical implications of technological change. Together, these fields reflect Lithuania's dual ambition to sustain its cultural and intellectual distinctiveness while producing internationally relevant knowledge for addressing contemporary social, political, and technological challenges.

A FAST-GROWING EUROPEAN INNOVATION LEADER

European Innovation Scoreboard estimates Lithuania's innovation performance growth by 17.4 percentage points between 2018 and 2025 – well above the EU average of 12.6. This positions Lithuania among the fastest-improving innovation systems in Europe, reflecting sustained investment in research capacity, talent development, and technology transfer.

A highly educated workforce underpins this progress: over 60% of young adults hold tertiary education qualifications, one of the highest rates in the EU. This creates a strong pipeline of researchers, engineers, and specialists driving advanced industries forward.

Lithuania also stands out for its capacity to turn knowledge and technological ideas into new businesses. The European Commission's European Startup and Scaleup Scoreboard 2025 places Lithuania among Europe's high-performing startup and scaleup ecosystems, with an index score of 119.7. This puts Lithuania in the same performance group as Belgium, Austria, Cyprus, Malta and Germany, highlighting an ecosystem capable of supporting innovative companies from their early stages towards growth and international expansion.

NATIONAL SCIENCE VALLEYS: A DISTRIBUTED INNOVATION INFRASTRUCTURE AIDING INTEGRATION BETWEEN SCIENCE AND INDUSTRY

Unlike many smaller economies, Lithuania's science system is tightly connected to industrial application. Research institutions, universities, and technology centres work closely with private companies to rapidly transform scientific breakthroughs into export-ready products.

This model has enabled Lithuania to build globally competitive niche industries, particularly in photonics, the life sciences, and financial technologies.

Lithuania boasts the most extensive innovation infrastructure network in the Baltic region through its five integrated science and technology hubs, more commonly referred to as *valleys*. A science valley is a geographical concentration of research, higher education, and knowledge-intensive business, sharing common or interconnected infrastructure and contributing to the development of a knowledge-based society and economy and to Lithuania's international competitiveness. These hubs foster deep academia-industry collaboration by providing state-of-the-art facilities, incubation, talent pipelines, and R&D support:

Marine Valley (Klaipėda) – maritime and marine technologies

Marine Valley concentrates Lithuania's research and study capabilities in marine environments and marine technologies. Centred on Klaipėda University and the National Centre for Marine Science and Technology, its infrastructure includes scientific laboratories, research and environmental-monitoring vessels, and open-access facilities supporting marine research, specialist training, and cooperation with the maritime sector.

Nemunas Valley (Kaunas) – industrial, agricultural, and engineering technologies

Nemunas Valley focuses on agrobiotechnology, bioenergy and forestry, food technologies, food safety and health. Its specialised infrastructure supports research and studies in agriculture, forestry and the food sector, including agrobiotechnology, biomass energy, animal health and food science, while providing conditions for cooperation with knowledge-intensive businesses.

Santaka Valley (Kaunas) – advanced technologies and energy

Santaka Valley concentrates expertise in sustainable chemistry and biopharmacy, mechatronics and electronics, future energy and environmental engineering, and information and communication technologies. Bringing together Kaunas University of Technology, the Lithuanian University of Health Sciences, and the Lithuanian Energy Institute, it provides open-access R&D infrastructure for public and private research, technology transfer, and knowledge-intensive business.

Santara Valley (Vilnius) – biomedicine and health technologies

Santara Valley specialises in biotechnology, molecular medicine and biopharmacy, innovative medical technologies, ecosystems and sustainable development, and information and communication technologies. Its research infrastructure includes centres for life sciences, innovative medicine and nature research, as well as open-access facilities designed to connect fundamental and applied research with technology development and knowledge-intensive business.

Saulėtekis Valley (Vilnius) – lasers, physics, materials science, and ICT

Saulėtekis Valley brings together research and business capabilities in laser and light technologies, materials science and nanotechnology, semiconductor physics and electronics, and civil engineering. Its infrastructure includes the National Centre for Physical and Technological Sciences and the Vilnius University Laser Research Centre, supporting internationally competitive fundamental and applied research and high-tech development.

Together, these centres form a coordinated national innovation infrastructure that accelerates knowledge transfer and strengthens collaboration between science and industry. This ecosystem ensures efficient flow of knowledge, supports deep-tech startups, and attracts international partnerships (including CERN and other global players).

PHOTONICS AND LASERS: GLOBAL LEADERSHIP ROOTED IN DECADES OF EXCELLENCE

One of Lithuania's most remarkable success stories is its laser industry. More than 50 companies export laser systems and photonics technologies to over 80 countries worldwide. The country is estimated to hold around 50% of the global market for scientific ultra-short pulse lasers and holds dominant positions in related components like optical parametric oscillators (OPOs) – a result of decades of fundamental research and engineering excellence.

This success builds on long-term fundamental research at Vilnius University Laser Research Center, a founding contributor to the **ELI ERIC** (Extreme Light Infrastructure) – Europe's flagship high-power laser research consortium, often called the 'Laser CERN'. Lithuanian expertise powers applications in science, industry, and advanced manufacturing, trusted by top institutions worldwide (including 95 of the world's top 100 universities).

Recognition continues: the prestigious **Photonics100 2026** list honoured three Lithuanian innovators – Gediminas Račiukaitis, Sabina Kuprėnaitė, and Rimantas Budriūnas – thus underscoring the country's ongoing influence in global photonics.

LIFE SCIENCES: FROM RESEARCH TO GLOBAL BIOTECH EXPORTER

Lithuania's sector of the life sciences has become one of the country's fastest-growing high-value industries. Nearly 100 companies are active in biotechnology and pharmaceutical R&D or production, generating approximately 2.5% of national GDP with ambitions to reach 5% by 2030 and boasting annual growth rates of 22–25%.

A striking feature of the sector is its export orientation: around 90% of pharmaceutical and life science production is exported to over 100 countries. This places Lithuania among Europe's most globally integrated biotech ecosystems.

The country ranks 32nd globally in biotechnology innovation and excels in areas such as cell and gene therapy, protein engineering, medical devices, and biomanufacturing. Close collaboration between research institutions and industry accelerates the journey 'from genes to drugs', supported by modern infrastructure and a talented pool of scientists.

I love being part of the Lithuanian research community as it ascends on the global stage, especially within the life sciences. The country, and Vilnius in particular, is an excellent, healthy place to live. The people here treat us well, and we happily do the same!

Dr Stephen Jones
Research Professor and Group Leader
EMBL Partnership Institute at the Vilnius University Life Sciences Centre

RESEARCH FUNDING IN LITHUANIA

Lithuania combines institutional funding with a broad portfolio of competitive research programmes administered principally by the Research Council of Lithuania, the country's main national research and development funding body. Universities and research institutes receive block and performance-based funding, while researchers compete for project grants through open calls and expert assessment.

At the heart of the competitive system are researcher-led projects, which enable individual researchers and teams to pursue topics of their own choosing across the humanities, the social sciences, the natural sciences, technology, medicine, health, and agriculture. These are complemented by state-commissioned research addressing strategic public priorities and urgent policy needs. Current programmes support Lithuanian studies, societal resilience and crisis management, emerging information technologies and quantum computing, and personalised medicine. Short-term applied studies commissioned by public authorities produce evidence, recommendations, methodologies, scenarios, and technological solutions for decision-making.

Further instruments promote international collaboration through bilateral and multilateral programmes, European Partnerships, COST, and Horizon Europe. Dedicated measures also strengthen cooperation between research and business, supporting technology development, research-based spin-offs, EUREKA projects, and international innovation networks. Career development is supported through doctoral and postdoctoral funding, student research, academic mobility, international placements, assistance for European Research Council applicants, and grants for scientific events and publications.

The scale and competitiveness of the system are illustrated by the 2025 call for Researcher Group Projects, which received 587 applications and awarded funding to 107 projects, representing a success rate of 19.7% among evaluated proposals.

CURRENT AND RECENTLY LAUNCHED INSTRUMENTS

- **Programme for Implementing the Priority of Lithuanian Studies 2025–2030** – supports research, interdisciplinary projects and the dissemination of results in Lithuanian studies across the humanities, the social sciences, and arts
- **Needs-Driven Research Projects** – funds urgent, short-term applied research addressing priorities identified by the Presidency, Parliament, Government, and ministries
- **Strengthening Societal Resilience and Crisis Management** – supports interdisciplinary research into societal resilience, social cohesion, crisis governance, and adaptation to geopolitical, economic, and demographic change
- **Information Technologies for the Development of Science and the Knowledge Society** – develops R&D capabilities in emerging information technologies and quantum computing while promoting transformative innovation and cross-sectoral cooperation
- **Personalised Medicine for Longer Life Expectancy and Better Quality of Life** – supports large-scale interdisciplinary research into personalised disease prevention, diagnosis, treatment and patient monitoring
- **Educational Research Breakthrough Project** – funds internationally oriented educational research designed to strengthen teaching practice, researcher training, and evidence-informed education policy
- **Research in Education Science** – supports research into teacher education, digital learning and artificial intelligence, subject didactics, inclusive education, and lifelong learning
- **My First Research Team** – enables early-career researchers to establish and lead their first research teams while integrating students, postdoctoral researchers, and international expertise
- **Establishment of International Centres of Competence** – establishes five internationally connected centres to strengthen research excellence, applied R&D, talent development and knowledge commercialisation.

WORLD-CLASS RESEARCH: EUROPEAN COMPETITIVE FUNDING AND THE PURSUIT OF EXCELLENCE

Lithuanian science and research community has demonstrated a capacity to compete and cooperate at the highest European level – the most competitive funding environment. From the grants awarded by the European Research Council (ERC) to the Teaming for Excellence scheme and broader Horizon Europe participation, the trajectory of Lithuanian performance over the past decade tells a consistent story of rising ambition and expanding capability.

During the past ten years in Lithuania I have had the privilege of experiencing a highly developed research environment that strongly supports scientific research through continuous investment in infrastructure and comprehensive professional support. The beginning was challenging due to cultural differences, the climate, and the difficulty of the Lithuanian language. However, with patience and the support of the university administration and my colleagues, I successfully integrated and built a rewarding research career. One of the highlights of my journey has been collaborating with researchers from leading European universities, resulting in the publication of more than 100 papers in prestigious scientific journals, as well as securing funded research projects and partnerships. Based on my experience, Lithuania offers a calm, flexible, and inspiring research environment that fosters creativity and innovation supported by funding opportunities at both the national and European levels. On a personal level, I find life in Lithuania peaceful, well organised, and affordable compared with many other European countries.

Ahmed Samy Yousef Saed
Faculty of Mechanical Engineering,
Kaunas University of Technology

ERC GRANTS: FRONTIER RESEARCH RECOGNITION

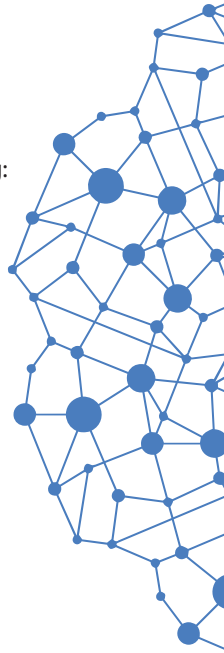
In recent decade, Vilnius University alone has hosted seven European Research Council awards, spanning epigenetics, genome editing, neuroscience, quantum-enabled spectroscopy, bacteriophage biology, and archaeology. Prof. Saulius Klimašauskas opened this sequence with Lithuania's first ERC Advanced Grant in 2017 – the €2.5 million EpiTrack project – and later received a €150,000 Proof of Concept grant, CoMBi, to explore

the application potential of the ERC-funded discoveries. Dr Stephen Knox Jones Jr followed with Lithuania's first Starting Grant, PROTEGE, for genome-editing research.

The portfolio also demonstrates the breadth of Lithuanian research. Prof. Giedrė Motuzaitė Matuzevičiūtė Keen received nearly €2 million for MILWAYS, an ERC SH6: The Study of the Human Past project combining archaeology, archaeobotany, isotope, and biomarker analysis to investigate the spread and consumption of millet across Central and Eastern Europe. In 2024, Prof. Mantas Šimėnas and Dr Patrick Pausch won Starting Grants of €2.5 million and €1.5 million, respectively, for ultra-sensitive EPR spectroscopy (Strong-ESPRESSO) and jumbo-phage biotechnology (JUPITER). Prof. Urtė Neniškytė subsequently secured €2 million for GLYCOCIRC, investigating how the neuronal glycocalyx shapes developing brain circuits.

Three ERC grantees – Jones, Pausch, and Neniškytė – are associated with the VU Life Sciences Center–EMBL Partnership Institute, illustrating how Lithuania's integration into major European research networks is helping build internationally competitive research capacity at home.

The ERC is the premier funder of investigator-driven frontier research in the European Union, selecting projects on the sole criterion of scientific excellence. Its four main frontier-research schemes – Starting, Consolidator, Advanced, and Synergy grants – support outstanding researchers and teams at different career stages, while the complementary Proof of Concept scheme helps the European Research Council grantees explore the commercial or societal potential of discoveries arising from their research. Competition is exceptionally strong: success rates for Starting, Consolidator, and Advanced grants typically stand at around 10–15%, and are lower for Synergy grants.



HORIZON EUROPE: STRUCTURAL IMPROVEMENT ACROSS PROGRAMMES

Beyond individual grants, Lithuania's aggregate performance across the Horizon Europe framework programme shows meaningful structural improvement compared with its predecessor, Horizon 2020. Whilst the number of individual grants awarded has remained broadly stable, the contribution of the European Commission to Lithuanian-hosted research has doubled from €95.5 million under Horizon 2020 to €185 million already secured under Horizon Europe by 2025. In parallel, Lithuania has rapidly climbed in the EU-wide ranking of participating countries, from 27th to 22nd, and its success rate on eligible applications has increased from 14.5% to 17.0%, now comfortably above the EU programme average (Table 2).

TABLE 2. **Lithuania's performance in Horizon 2020 and Horizon Europe compared**

Programme	EC contribution	Grants	Participations	EU ranking	Success rate
Horizon Europe (2021–2027)	€184.98 m	438	640	22nd	17.0%
Horizon 2020 (2014–2020)	€95.5 m	506	623	27th	14.5%

TEAMING FOR EXCELLENCE: BUILDING A CENTRE OF AI EXCELLENCE

The Teaming for Excellence scheme, one of the most structurally significant instruments within Horizon Europe's Widening participation strand, supports the creation of new centres of excellence in countries with developing research systems by linking national institutions with established international partners. Lithuania secured a Teaming grant for the SustAInLivWork project (launched September 2023), coordinated by Kaunas University of Technology (KTU) in partnership with three other Lithuanian universities (Vilnius Gediminas Technical University, Vytautas Magnus University, and the Lithuanian University of Health Sciences) and two leading international institutions: Tampere University in Finland and Hamburg University of Technology in Germany.

The project is creating a Centre of Excellence for Sustainable Living and Working, focused on the development and application of artificial intelligence solutions across four priority sectors: manufacturing, energy, healthcare, and transport. Operating through four thematic hubs on the Kaunas University of Technology campus in Kaunas, the centre provides organisations from both the public and private sectors with access to AI labs, test-before-invest services, consultancy, and training programmes. The project runs until 2029 and is designed with long-term sustainability in mind, intending to become an independent Lithuanian AI Centre of Excellence capable of anchoring the national AI research ecosystem and contributing to the broader Baltic Sea region.

Together, these achievements – the European Research Council grants recognising individual scientific excellence, improved aggregate performance in Horizon Europe, and a flagship Teaming project building institutional capacity in AI – reflect a research system that is not merely participating in European science but increasingly shaping it.

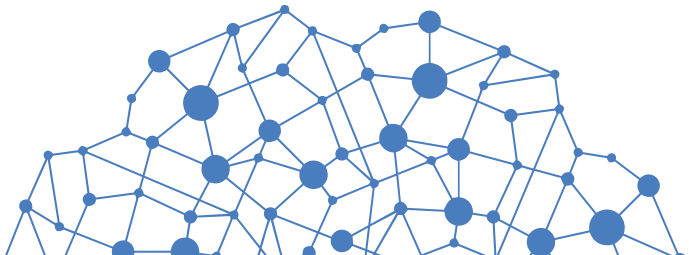
INTERNATIONAL COMPETENCE CENTRES: STRENGTHENING LITHUANIA'S RESEARCH AND INNOVATION INFRASTRUCTURE

Lithuania is expanding its research and innovation capacity through the establishment of five international competence centres in strategically important fields of science and technology. Bringing together leading Lithuanian universities, research institutes, and university hospitals with prominent European research and innovation organisations, the initiative is designed to strengthen Lithuania's position within the European Research Area (ERA) and create an internationally connected environment for high-level research, technological development, and innovation.

The **Establishment of International Competence Centres** project is coordinated by the Research Council of Lithuania and implemented in partnership with Lithuanian research and higher education institutions and university hospitals. With multimillion public investment the initiative, a part of National Progress Plan 2021–2030, supports the development of advanced research capacities in medical, technological, agricultural, and biological sciences.

The five centres are being developed in areas with strong potential for scientific breakthroughs and significant societal and economic impact. Their activities span precision medicine and microbiome research, advanced disease modelling, autonomous and connected systems, plant phenotyping and sustainable agrobiological resources, as well as terahertz technologies and next-generation semiconductor chips.

More than individual research projects, the competence centres are intended to become sustainable hubs of expertise. They will combine modern research infrastructure with multidisciplinary teams, international knowledge exchange, and strong links between fundamental research, applied R&D, and innovation. This environment will enable researchers to develop new methodologies, technologies, products, and solutions with relevance both to Lithuania and international markets.



FIVE CENTRES CONNECTING LITHUANIAN SCIENCE WITH LEADING EUROPEAN EXPERTISE

PhenoPlantCC – Centre of Competence for Plant Phenotyping for Healthy Food and Sustainable Agrobiological Resources established by the **Lithuanian Research Centre for Agriculture and Forestry** and **Vytautas Magnus University**, in partnership with the **University of Copenhagen, Denmark**.
PhenoPlantCC will strengthen Lithuania's capabilities in advanced plant phenotyping and agrobiological research, supporting the development of resilient crops, sustainable agricultural systems and healthier food resources.

ComARC – Autonomous, Remote-Controlled, and Connected Systems Centre established by **Vilnius TECH** and **Kaunas University of Technology**, in partnership with the **Fraunhofer FKIE Institute, Germany**.
ComARC will bring together expertise in autonomous, remotely controlled and connected technologies, strengthening research capabilities relevant to intelligent systems, robotics, communications and future technological applications.

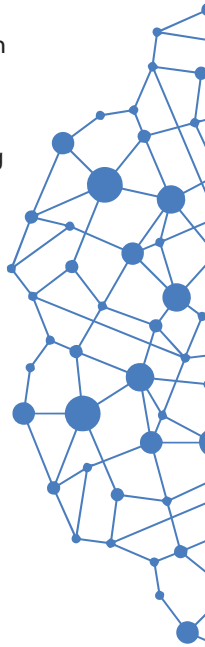
MPMC – Microbiome & Precision Medicine Centre established by the **Lithuanian University of Health Sciences** together with the **Hospital of the Lithuanian University of Health Sciences (Kauno Klinikos)**, in cooperation with the **Institute of Clinical Molecular Biology and the Kiel Microbiome Centre at Kiel University, Germany**.
The centre will advance microbiome research and precision medicine connecting molecular and clinical expertise and creating new opportunities for data-driven, personalised approaches to human health.

CADM – Centre for Advanced Disease Modelling established by **Vilnius University** and **Vilnius University Hospital (Santaros Klinikos)**, in partnership with **Utrecht University and University Medical Centre Utrecht, the Netherlands**.
CADM will develop advanced approaches to disease modelling, combining biomedical research and clinical expertise to improve the understanding of complex diseases, and accelerate the development of new diagnostic and therapeutic strategies.

Terahertz and Hybrid Semiconductor Chip Centre Established by **Vilnius University** and the public research institute **Center for Physical Sciences and Technology**, in cooperation with **Eindhoven**

University of Technology, the Netherlands, and **imec**, **Belgium**.
The centre will strengthen Lithuania's capabilities in terahertz technologies and semiconductor research – fields that are increasingly important for next-generation electronics, communications, sensing, and advanced chip technologies.

The five competence centres are designed as long-term components of Lithuania's research ecosystem rather than stand-alone research projects. Each combines Lithuanian universities, research institutes or university hospitals with established European partners, enabling multidisciplinary teams to share expertise, methodologies, and research infrastructure while developing new research capacity in Lithuania. The centres are focused on areas in which internationally competitive expertise can be developed – from precision medicine and advanced disease modelling to autonomous systems, plant phenotyping, and next-generation semiconductor technologies.



A central element of the initiative is the recruitment of research leaders capable of establishing new teams and research directions. In 2026, the centres launched international competitions for principal investigators and group leaders, including positions in microbiome and precision medicine, disease modelling, autonomous systems, terahertz technologies, and plant science. The Research Council of Lithuania coordinates the initiative, monitors its scientific and operational development, advises the centres on research funding and sustainability, and supports their international integration.

The first tangible results are already visible in the creation of new research teams and programmes. The Terahertz and Hybrid Semiconductor Chip Centre, bringing together Vilnius University and FTMC with Eindhoven University of Technology and imec, has defined research programmes in THz hybrid chips and photomixers and structured terahertz light for next-generation wireless communications. Its research agenda includes new semiconductor materials, advanced THz chip design, novel photomixers and hybrid integration, with the longer-term objective of developing technologies for 6G wireless communication systems.

In life sciences, the competence-centre initiative is already deepening established European research partnerships. The Microbiome & Precision Medicine Centre is being developed by Lithuanian University of Health Sciences, Kauno Klinikos, and Kiel University on the foundations of more than two decades of collaboration between Lithuanian and German researchers. In March 2026, the two universities signed a new strategic cooperation agreement; the Centre itself is supported by an €8 million competitive grant and has launched recruitment for four principal investigators/ group leaders. Its research environment brings together microbiome analysis, genomics, organoid biology and translational medicine, linking molecular research directly with clinical expertise.

New specialised research capacity is also being built in agriculture and autonomous technologies. PhenoPlantCC has established five planned research directions – plant genomic technologies, plant phenotyping, data analytics, plant adaptability, and bio-resource quality preservation – and launched an international competition for researchers to establish and lead these groups, offering access to the Lithuanian Research Centre for Agriculture and Forestry and Vytautas Magnus University infrastructure and cooperation with the University of Copenhagen. In parallel, ComARC is structuring research around autonomous air, ground and maritime platforms, embedded AI and RF systems, microsystems and advanced materials, with the aim of integrating AI, communications, cybersecurity and platform engineering into reliable autonomous systems for civil, industrial and defence applications.

By combining advanced infrastructure with internationally recruited researchers and long-term partnerships with leading European institutions, the initiative is moving from institution-building towards the creation of new research teams and specialised R&D programmes. Its longer-term scientific and technological impact will become measurable as these newly established teams begin producing research outputs, attracting competitive funding and translating their work into technologies and applications.

My journey in Lithuania began in 2013 during a conference and training programme at the Nature Research Centre. I was captivated by the country from that very first visit. That positive experience made it an easy choice to return in 2018 after securing a postdoctoral fellowship alongside world-renowned parasitologist Dr Gediminas Valkiūnas. Over the past eight years, Lithuania's supportive research ecosystem has enabled me to secure a second postdoctoral position and lead an independent grant project for early-career researchers. In my field (avian haemosporidian parasites and their vectors), Lithuania's P. B. Šivickis Laboratory of Parasitology stands as an internationally recognised benchmark of scientific excellence. Working alongside leading global experts has opened crucial doors for my career, significantly expanding my international network, facilitating my participation in European COST Actions, and creating the ideal platform to apply for prestigious European Research Council grants. Beyond the world-class research infrastructure, Lithuania offered an exceptionally welcoming community and colleagues who made settling in seamless. Today, Lithuania is truly home.

Carolina Chagas
Nature Research Centre

LITHUANIA IN THE GLOBAL RESEARCH ARENA: INTERNATIONAL PARTNERSHIPS AND INFRASTRUCTURE

Lithuania has been pursuing a deliberate and increasingly ambitious strategy of international scientific integration. The Research Council of Lithuania maintains active partnerships with counterpart funding organisations in 32 countries, spanning bilateral exchange programmes, joint calls for proposals, and co-funded mobility schemes. At the same time, Lithuanian universities and research institutes have secured membership or founder status in some of Europe's most significant research infrastructures at the level of participation that belies the country's size and reflects the genuine international standing of its scientific community.

This engagement unfolds across two complementary dimensions: participation in the European Research Area and its flagship infrastructures and the cultivation of bilateral relationships with partners beyond the EU's borders. Together, they constitute a coherent internationalist approach that opens Lithuanian researchers to global scientific networks while bringing international talent and funding into the Lithuanian system.

EUROPEAN RESEARCH INFRASTRUCTURES

Lithuania's most prominent international scientific commitment is its founding membership of ELI ERIC, the Extreme Light Infrastructure European Research Infrastructure Consortium, informally described as the 'Laser CERN'. Established alongside the Czech Republic, Hungary, and Italy, ELI ERIC coordinates a network of the world's most powerful laser facilities. In the consortium, Lithuania is represented by Vilnius University and the Centre for Physical Sciences and Technology. This founding status is no accident: Lithuanian laser science, rooted in Laser Research Centre of Vilnius University, has long been at the international frontier. Related to the work that contributed to the 2018 Nobel Prize in Physics, the optical parametric chirped pulse amplification (OPCPA) technology developed by Vilnius University scientists now powers ELI facilities across Europe.

In particle physics, Lithuania became an Associate Member of CERN in 2018, the first Baltic state to achieve this status. Via associate membership, Lithuanian researchers grants gain the right to hold staff positions at CERN; it allows Lithuanian industry to bid for CERN contracts and gives the country a voice in CERN governance. Vilnius University participates directly in LHCb experiments, having been admitted to the LHCb Collaboration by unanimous vote of the Collaboration Board.

In the life sciences, Lithuania joined the European Molecular Biology Laboratory (EMBL) in 2019. The EMBL Partnership Institute, established at Vilnius University Life Sciences Centre, focuses on genome editing research and the application of CRISPR-related technologies, positioning Lithuania within EMBL's pan-European network for molecular biology. Alongside these flagship memberships, Lithuanian institutions participate in BBMRI-ERIC (biobanks and biomolecular resources), CLARIN (language resources), ESS ERIC (social sciences survey infrastructure), INSTRUCT-ERIC (structural biology), and EuroHPC (high-performance computing) (Table 3).

TABLE 3. **Lithuanian membership in major European research infrastructures**

Infrastructure	Status	Lithuanian participants	Scientific domain
ELI ERIC	Founding member	Vilnius University (VU), Centre for Physical Sciences and Technology (FTMC)	Laser physics, photonics
CERN	Associate Member (since 2018)	Vilnius University (LHCb experiment)	Particle physics, high-energy physics
EMBL	Member (since 2019); Partnership Institute	Vilnius University Life Sciences Centre	Molecular biology, genome editing
BBMRI-ERIC	Member	Multiple institutions	Biobanks, biomolecular resources
CLARIN	Member	Multiple institutions	Language resources, linguistics
ESS ERIC	Member	Multiple institutions	Social sciences
INSTRUCT-ERIC	Member	Vilnius University	Structural biology
SHARE-ERIC	Participant	Multiple institutions	Health, ageing and retirement
EuroHPC	Participant	National HPC centre	High-performance computing

BILATERAL PARTNERSHIPS

Beyond European frameworks, the Research Council of Lithuania sustains a network of bilateral agreements with 32 countries. These range from long-standing programmes with neighbouring states to more recent partnerships with scientifically significant countries further afield. The programme with France ('Gilibert') supports mobility and joint research in science and technology. A Lithuania–Japan cooperation agreement, in place since 2017 with the Japan Society for the Promotion of Science, funds bilateral research projects and joint seminars. A Lithuania–Ukraine programme, rooted in an agreement signed in 1993, has provided continuity of scientific exchange through periods of political turbulence. The German Research Foundation maintains a formal partnership with the Research Council of Lithuania as its Lithuanian counterpart organisation, and Lithuania participates in M-ERA.NET and other multilateral networks for materials science and related fields.

My research experience and cooperation with other professors in Lithuania is a combination of professionalism, empathy, understanding, and mutual support. In recent years, Lithuania offers many more research and scientific opportunities and creates the environment of a desirable country for the development and demonstration of scientific competences. In addition, the natural environment and friendly people in Vilnius make one feel at home.

Željko Stević
Chief Research Fellow
Faculty of Transport Engineering
Vilnius TECH

LITHUANIAN–GERMAN SCIENTIFIC COOPERATION

Scientific cooperation between Lithuania and Germany has developed into a robust bilateral partnership that supports excellence-driven research and strengthens European scientific integration. Through collaboration between the Research Council of Lithuania and the German Research Foundation (German: *Deutsche Forschungsgemeinschaft*), researchers from both countries receive coordinated funding for jointly designed projects across all fields of science and the humanities. The partnership is founded on international peer review, scientific

merit, and the principle of equitable collaboration, enabling teams to combine complementary expertise and research capabilities. Beyond supporting frontier research, the programme fosters researcher mobility, long-term institutional partnerships, and the development of internationally competitive research networks. As part of the wider European Research Area, Lithuanian–German cooperation contributes to addressing global scientific challenges while reinforcing the international visibility and impact of research conducted in both countries.

LITHUANIAN–UKRAINIAN SCIENTIFIC COOPERATION

Lithuania and Ukraine maintain a long-standing partnership in research through the Lithuanian–Ukrainian Programme for Cooperation in the Fields of Research and Technologies, coordinated by the Research Council of Lithuania and its Ukrainian counterpart. The programme supports jointly developed research projects, researcher mobility, and scientific networking across a broad range of disciplines, with funding awarded through competitive international peer review. Since the beginning of Russia's full-scale invasion of Ukraine in 2022, Lithuania has significantly expanded its support for the Ukrainian research community by funding the employment of Ukrainian researchers at Lithuanian universities and research institutes, while continuing to finance bilateral collaborative projects. These measures have enabled displaced scientists to continue their research, strengthened institutional partnerships and helped preserve Ukraine's scientific capacity during wartime. By combining long-term bilateral cooperation with targeted emergency support, Lithuania has demonstrated a sustained commitment to scientific excellence, academic solidarity, and the integration of Ukrainian research into the European Research Area.

I have been living and working in Lithuania for almost a decade, and this journey has been both exciting and challenging. On a personal level, it has marked a new chapter in my ongoing process of self-discovery. Professionally, it has been equally fulfilling, allowing me to broaden my scholarly interests and explore new areas of knowledge beyond my core research focus. I look forward to the coming years with hope that they will bring even greater opportunities, growth, and fulfilment.

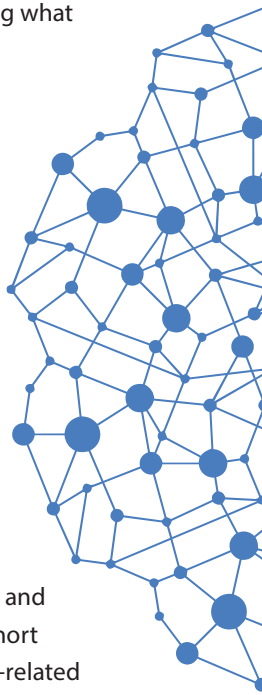
Runa Chakraborty Paunksnis
Faculty of Social Sciences, Arts and Humanities,
Kaunas University of Technology

EXPANDING REACH: CANADA AND THE BALTIC–TRANSATLANTIC DIMENSION

One of the more notable developments in recent years has been the growth of Lithuania's research relationship with Canada. Between 2021 and 2025, Lithuanian and Canadian researchers were jointly involved in 13 Horizon Europe projects with a combined European Commission value of €445.8 million, of which Lithuania's share amounted to €6.22 million. While Canada is not an EU Member State, its researchers participate in Horizon Europe as partners from associated or third countries, and the Lithuanian–Canadian collaborations that have developed through this route reflect genuine complementarity in research interests.

In May 2025, the Research Council of Lithuania co-organised the first Canada–Baltic States Horizon Europe networking event, bringing together 197 participants from Lithuania, Latvia, Estonia, and Canada to facilitate new partnerships and identify opportunities for joint proposals. The event marked a qualitative shift from ad hoc bilateral contacts to a structured regional networking effort. Three further events of this kind are planned for 2026, institutionalising what began as a promising bilateral dynamic into a durable framework for transatlantic scientific exchange.

Taken together, Lithuania's international research engagements – from founding laser infrastructure consortia to convening Baltic–Canadian networking forums – paint a picture of a small country that has been investing strategically and persistently in scientific openness. The returns are visible not only in funding figures but in the quality of the research partnerships, the mobility of Lithuanian scientists, and the growing international reputation of Lithuanian institutions.



LITHUANIA–LATVIA–TAIWAN PROGRAMME

The Lithuania–Latvia–Taiwan Programme is a trilateral funding initiative designed to strengthen scientific and technological collaboration among the three partner countries. Implemented by the Research Council of Lithuania, the Latvian Council of Science, and Taiwan's National Science and Technology Council, the programme is open to researchers across all academic disciplines.

Annual calls support joint projects involving research and higher education institutions from Lithuania, Latvia, and Taiwan. Projects may run for up to three years and can encompass research and experimental development, short research visits, invited lectures, joint seminars and conferences, collaborative publications, and other research-related activities. Proposals undergo peer review in each participating country, with final funding decisions taken jointly

by a trilateral programme committee. By bringing together complementary expertise, research infrastructures, and scholarly networks, the programme promotes durable international partnerships and the development of ambitious collaborative research.

Although challenging at the beginning, it was extremely rewarding to develop my research career in Lithuania. It was a pleasure to see how much the opportunities and the research quality have grown in recent years, helping me and likely other colleagues to establish solid and competitive research groups. This increased Lithuania's capacity to compete for prestigious European and global funds. Living in Lithuania was the best choice after knowing many countries around the world. I feel valued, safe, and with very good personal and professional future perspectives.

Paulo Alexandre da Silva Pereira
Mykolas Romeris University

A VOICE FOR LITHUANIA'S EMERGING RESEARCH LEADERS

Established in 2018, the Young Academy of the Lithuanian Academy of Sciences (*Lietuvos mokslų akademijos Jaunoji akademija*, LMAJA) provides a national platform for high-achieving early-career researchers from universities and research institutes across Lithuania. Each year, ten researchers are elected for four-year terms, continuously renewed interdisciplinary community of up to forty members. Candidates must have completed their doctorate within the preceding ten years and be no older than forty years of age at the time of election. The membership spans the humanities and the social sciences, mathematical, physical and chemical sciences, biological, medical and geosciences, agricultural and forestry sciences, and engineering.

The Young Academy offers emerging research leaders a collective voice within Lithuania's research and innovation ecosystem. It represents their interests in dialogue with government bodies and research institutions, contributes evidence-informed perspectives to science policy, and supports academic career development through mentoring and intergenerational exchange with senior members of the Young Academy. Its work is organised around science policy, science communication, and expert evaluation, while members also initiate interdisciplinary conferences, public lectures, consultations, training programmes, and science outreach activities.

International engagement forms an integral part of the Young Academy's mission. Through cooperation with other national young academies, particularly within the Nordic–Baltic region, the Young Academy of the Lithuanian Academy of Sciences connects Lithuania's researchers to wider European debates on academic careers, research ethics, artificial intelligence, science diplomacy, and academic freedom. Initiatives ranging from contributions to strategic discussions on quantum technologies to communication training and the 'Mokslo karta' (Science Generation) podcast illustrate its broader role: not merely recognising scientific excellence but cultivating a new generation of researchers capable of leading across disciplinary boundaries, advising policymakers and society, and strengthening public trust in science.

NURTURING THE NEXT GENERATION: LITHUANIA'S NATIONAL PROGRAMME FOR YOUNG RESEARCHER EXCELLENCE

The national programme 'My First Research Team' (Lithuanian: *Mano pirmoji tyrimų komanda*) is aimed to select a new cohort of early-career researchers and provide them with the resources to establish and lead their own research teams. Administered by the Research Council of Lithuania and co-funded by the EU, the programme is to become a cornerstone of the national strategy for developing the next generation of scientific leaders. In the 2026 cycle, 89 researchers have been selected and will commence their projects this autumn.

Initiated by the Ministry of Education, Science, and Sport, the programme pursues three core objectives: supporting talented researchers in building independent scientific careers within Lithuania, attracting international talents to Lithuanian institutions, and creating competitive research groups aligned with the country's Smart Specialisation

I have lived in Vilnius for 15 years, and I really think that moving to live and work in Lithuania has been a very positive decision on both a professional and personal level. The academic environment is far less complex than elsewhere in Europe, providing better research opportunities, concrete career prospects, and an efficient administrative system that genuinely supports foreign researchers. Life in Lithuania offers lower stress levels, with its beautiful nature and low population density, making my overall experience here overwhelmingly positive.

Daniele Ettore Otera
Vilnius University

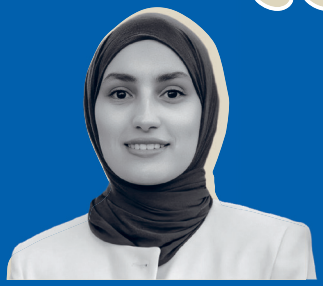
priorities. Each project receives up to €350,000 over a period of up to three years, reflecting a sustained national commitment to early-career research excellence.

The programme is open to researchers who obtained their doctoral degree no more than seven years prior to application and have not previously led a project funded by the Research Council of Lithuania. Each annual call is advertised internationally, including through the EURAXESS platform, thus ensuring open competition across European and global academic networks. Host institutions – eighteen Lithuanian universities and research organisations – conduct their own international selection processes in accordance with the guidelines of the Research Council of Lithuania.

The programme's team model is deliberately interdisciplinary and internationally oriented. Each team typically brings together postgraduate students, postdoctoral researchers, visiting scientists from abroad, and representatives from industry – a composition that encourages the integration of diverse expertise and accelerates the translation of research findings into high-value scientific and technological outcomes.

Researcher mobility is a further structural feature of 'My First Research Team'. Funded research visits, short-term placements, and joint activities with international partners are embedded in every project, broadening the global reach of Lithuanian research and fostering durable scientific partnerships. Over successive cohorts, the programme aims to build a growing network of internationally connected research teams capable of competing at the European level.

More broadly, 'My First Research Team' represents an investment not merely in individual projects, but in people – in the researchers who will shape the direction of Lithuanian science for decades to come. By providing structured, recurring support for scientific independence at the earliest career stage, Lithuania continues to strengthen its research capacity and cultivate a self-renewing pool of scientific talent.



As a biotechnologist dedicated to the circular economy, my research experience in Lithuania revealed a highly collaborative landscape anchored by modern infrastructure and deep European integration. Lithuania's focus on interdisciplinary innovation presents compelling growth prospects across all career stages. Strategic initiatives in biotechnology and sustainable tech demonstrate a firm commitment to translate scientific discovery into commercial solutions. This aligns precisely with my long-term professional objectives, making Lithuania an inspiring environment where science is actively translated into tangible impact.

Saloua Biyada
Vilnius TECH

LITHUANIAN SCIENCE FORUM

The Lithuanian Science Forum is Lithuania's national platform for strategic dialogue on research, innovation, and science policy. Established by the Research Council of Lithuania as part of the international **(re)SEARCH** Science Week, the forum brings together researchers, leaders of universities and research institutes, government representatives, industry, funding organisations, and international partners to discuss the future direction of the country's research and innovation ecosystem.

Rather than serving as a traditional scientific conference, the Lithuanian Science Forum focuses on the broader role of science in addressing societal challenges and strengthening national competitiveness. Its programme explores topics such as excellence in research, research funding, international collaboration, knowledge transfer, evidence-informed policymaking, and the contribution of science to sustainable economic and social development. Organised under a slogan 'competitive and creative future', the 2025

Lithuanian Science Forum 2025

forum also provided a venue for discussing Lithuania's long-term strategic priorities, including the implementation of the 'Lithuania 2050' vision and the country's ambitions within the European Research Area.

An important feature of the forum is its strong international dimension. The event attracts distinguished speakers and participants from leading European research organisations, funding agencies, universities, and policy institutions, fostering dialogue between Lithuanian stakeholders and the wider international research community. By facilitating the exchange of experience and good practice, the forum contributes to strengthening Lithuania's integration into the global research landscape and promotes new opportunities for international cooperation.

The Forum has also strengthened the interface between science and public policy. The 2025 programme brought researchers into direct discussion with representatives of the Presidency, government institutions, the State Data Agency, Government's Strategic Reseach Agency (STRATA), and the European Commission's Joint Research Centre on how research evidence, data, and analytical capacities can be more systematically incorporated into policymaking. Its impact has extended beyond the inaugural event: the experience of the first (re)SEARCH week demonstrated demand for dialogue reaching beyond the research community, and the Lithuanian Science Forum returned in 2026 with an expanded focus on science diplomacy, research security, and Lithuania's international scientific influence.

As the flagship event on the calendar of Lithuania's science policy, the Lithuanian Science Forum reflects the country's commitment to excellence, openness, and international partnership. It supports the development of a competitive and resilient research system capable of addressing complex global challenges while contributing to Europe's shared scientific and innovation ambitions.

With the current economic growth and decent salaries for researchers, it has become quite lucrative to move to Lithuania. Considering the great number of calls for research and innovation projects, there is plenty of room for more international research. My colleagues, as well as most Lithuanians in daily life, are friendly and openminded towards English speaking foreigners and it's quite easy to integrate in Lithuania. Moving from Prague to Vilnius was a great decision, because now I've obtained a contract at the research institute where I started on a project.

Nick Schafstall
Nature Research Centre
Vilnius University

RESEARCH IN ACTION: SUCCESS STORIES

GENE SCISSORS TRANSFORMING THE FUTURE OF MEDICINE AND BIOTECHNOLOGY

RESEARCH TEAM:
Protein-DNA Interaction Laboratory

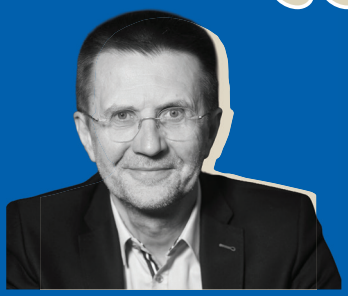
INSTITUTION:
Life Sciences Center of Vilnius University

A breakthrough in modern life sciences emerged at the Life Sciences Centre of Vilnius University. A team led by Professor Virginijus Šikšnys made pioneering contributions to the development of CRISPR-Cas9 technology, widely known as 'gene scissors' – a revolutionary tool that enables precise editing of DNA. Their work laid the foundation for a technology that has transformed biological research and opened unprecedented opportunities in medicine, biotechnology, and agriculture.

CRISPR-Cas9 allows researchers to identify, remove, and replace specific genetic sequences with remarkable precision. This capability is creating new possibilities for treating inherited diseases, developing innovative therapies, improving crops, and advancing biotechnology. The technology is recognised globally as one of the most important scientific innovations of the 21st century and continues to drive progress in genome engineering.

Life Sciences Centre continues to expand the frontiers of genome editing. Scientists are developing more accurate and efficient gene-editing tools, uncovering new functions of CRISPR-Cas systems, and creating methods that improve the safety and precision of genetic engineering. Recent discoveries have revealed previously unknown mechanisms of CRISPR-Cas proteins and opened new directions for next-generation genome-editing technologies.

The impact of this research extends far beyond academia. Advances in genome editing have the potential to revolutionise healthcare by enabling personalised treatments for genetic disorders, support sustainable agriculture, and strengthen the rapidly growing biotechnology sector. At the same time, these achievements have established Lithuania as an internationally recognised centre of excellence in the life sciences and biotechnology.



We are proud that fundamental research carried out in Lithuania has contributed to a technology that is transforming modern biology. The discovery and development of CRISPR-Cas systems continue to inspire new scientific advances, bringing us closer to solutions for diseases that were once considered untreatable and opening entirely new possibilities for biotechnology and society.

Prof. Dr **Virginijus Šikšnys,**
Head of Department of Protein-DNA Interactions,
Institute of Biotechnology, Vilnius University Life Sciences Center

FROM ELEGANT MATHEMATICS TO TANGIBLE CHANGE ON THE ROAD: PAVING THE WAY FOR SAFER, MORE COMFORTABLE JOURNEYS FOR ALL

PROJECT:
conTROLL

RESEARCH TEAM:
Vilnius TECH Transport and Logistics Competence Centre

INSTITUTION:
Vilnius Tech

The project – Novel preview and control allocation algorithms for vehicle integrated chassis control, targeting ride comfort and handling improvement – a conTROLL project addresses the acute need of improving ride comfort and handling while enhancing road safety by developing advanced systems that enable vehicles to better 'read' the road and respond intelligently in real time.

The project resulted in state-of-the-art AI-based virtual sensor, capable of accurately estimating tyre-road friction and road geometry using data from visual and virtual sensors along with data-driven control allocation algorithm for integrated chassis control. These innovations were validated in simulation and have already secured two prestigious Horizon Europe projects – MOCO and ClimaFlux – allowing real-world implementation with next-generation axial flux motors and four-wheel steering vehicles.

By enabling more precise vehicle control, the system significantly improves stability, handling, and comfort, particularly in challenging conditions such as wet or uneven roads. This reduces the risk of loss of control, which is a key factor in many accidents, and brings theoretical advances into practical, life-saving applications.

This research seamlessly bridges theory and practice, allowing the latest ideas to be thoroughly tested in real-world systems – a meaningful step from elegant mathematics to genuine, tangible change on the road.

Assoc. Prof. Dr Viktor Skrickij,
Chief Researcher and Director,
Transport and Logistics Competence Centre, Vilnius TECH

CREATING A NEW GENERATION OF LASERS

PROJECT:
Towards Very High Average Power and High Repetition Rate Tunable Femtosecond Laser Systems

RESEARCH TEAM:
Laser Research Center

INSTITUTION:
Vilnius University

This team is working on a high average power, high repetition rate femtosecond amplification system based on a novel high-power rod-type fibre amplifier and subsequent optical parametric amplification stages. This will enable the generation of powerful femtosecond pulses tunable across the visible, near- and mid-infrared spectral ranges.

The project investigates femtosecond laser source development in the direction of high repetition rate and high average power – an area that has previously been largely overlooked. By combining advanced fibre amplifier technology with optical parametric amplification, the team is pushing the boundaries of what is possible in ultrafast laser engineering.

The resulting system holds strong potential for advanced ultrafast nonlinear optics experiments, interdisciplinary scientific research, and defence-related applications. It also paves the way for the commercialisation of new Lithuanian photonics industry products. This research bridges cutting-edge theory and practical innovation, transforming elegant laser physics into powerful new tools that will open fresh frontiers in science and technology.

Assoc. Prof. Dr Julius Vengelis,
Principal Investigator,
Laser Research Center, Vilnius University

BIOPOLYMER-BASED BIOPLASTICS: ADVANCING SUSTAINABLE MATERIAL TECHNOLOGIES

PROJECT:
Biopolymer based bioplastics for sustainable material technologies

RESEARCH TEAM:
Department of Polymer Chemistry and Technology

INSTITUTION:
Kaunas University of Technology

As global plastic consumption continues to rise, its environmental impact becomes major pressing challenge of our time. Researchers are addressing it by innovative bioplastics derived from renewable resources, offering a sustainable alternative to conventional fossil-based plastics.

Current research focuses on creating novel bioplastics and composites with tailored functional and biodegradation properties. By developing advanced synthesis and thermal processing methods, scientists build industrially viable technologies that combine environmental responsibility with economic feasibility.

The significance of this work extends far beyond materials science. Bioplastics research contributes to the reduction of plastic pollution and greenhouse gas emissions while supporting the transition towards a circular economy. It also creates opportunities for new industries based on renewable feedstocks, reduces dependence on finite resources, and drives innovation in green technologies.

The project demonstrates the power of interdisciplinary research in addressing global sustainability challenges. By integrating expertise in polymer chemistry, materials engineering, and environmental science, researchers are developing solutions that deliver environmental, social, and economic benefits. By advancing knowledge in sustainable polymers, this research is helping to shape the future of green manufacturing and long-term global sustainability.

Our research is opening new possibilities for the development of next-generation sustainable materials. The relationship between biopolymers and bioplastics creates unique opportunities to design innovative materials with improved functionality, performance and biodegradability. We are proud to contribute to scientific advances that transform industry and support a more sustainable future.

Prof. Ramunė Rutkaitė,
Department of Polymer Chemistry and Technology, KTU

THE ROLE OF SUGAR IN THE BRAIN: A NEW PERSPECTIVE ON THE NERVOUS SYSTEM

PROJECT:
GlycoCirc

INSTITUTION:
Vilnius University Life Sciences Center / EMBL Partnership Institute in Lithuania

FUNDING:
European Research Council (ERC) Consolidator Grant

A thin layer of sugar molecules known as the glycocalyx coats the surface of nerve cells throughout the body. Despite its potential importance, the glycocalyx remains largely unexplored in the brain. Thanks to a prestigious ERC Consolidator Grant, Professor Urtė Neniškytė and her team will undertake the first systematic investigation into how these sugar-rich neuronal coatings influence the formation of neural circuits during brain development.

The research addresses a fundamental question in neuroscience: how do molecular structures on the surface of neurons shape the wiring of the brain? Understanding these mechanisms could provide new insights into the biological basis of autism spectrum disorders, neurodegenerative diseases, and other developmental brain conditions.

The project is being carried out at the EMBL Partnership Institute in Vilnius, part of the European Molecular Biology Laboratory network. The Vilnius – based institute is internationally recognised for its expertise in genome engineering and advanced molecular biology technologies.

The GlycoCirc project exemplifies how international scientific infrastructure, represented by EMBL, combined with Lithuania's long-term investment in research and innovation, can create a world-class environment for cutting-edge discovery. By exploring an overlooked aspect of brain biology, the project has the potential to open entirely new directions in neuroscience and deepen our understanding of how the human brain develops and functions.

We are tackling a fundamental question: what is so special about the human brain? Why is it so much more potent than that of any other species? We seek to discover how brain disorders can be prevented or treated. My work is funded by society, so I feel a responsibility to ensure that society benefits from what I do. With our international team, we are attracting talent and ideas that can have a global impact.

Prof. Dr Urtė Neniškytė,
Chief Researcher, Vilnius University Life Sciences Center-EMBL Partnership Institute

AI-DRIVEN COST ESTIMATION IN CUSTOMISED MANUFACTURING: ANTICIPATING THE REVOLUTION

PROJECT:
Participation-based intelligent system to estimate customised production process

INSTITUTION:
Mykolas Romeris University

In customised manufacturing, generating a reliable price estimate for a unique customer order within 30 minutes was considered highly ambitious when this project was launched in 2018, well before the transformative impact of AI on industry became mainstream. The MRU-led research proposed a fundamentally new paradigm: treating manufacturing cost estimation not as an accounting exercise based on resource consumption but as a dynamic, knowledge-based process combining historical production data, machine learning, expert judgement, and market intelligence.

Bringing together management researchers, manufacturing engineers, AI analysts, probabilistic modelling experts, and sociologists, the interdisciplinary team developed an intelligent evaluation prototype demonstrating how human expertise and AI can collaborate to support rapid and reliable decision-making in customised production environments, particularly in SMEs. Looking back, the project proved remarkably prescient: it anticipated the broader AI-driven transformation of industry several years before the global AI boom.

It is rare for researchers to find themselves working exactly at the point where a technological breakthrough is about to reshape an entire field. When this project started in 2018, the transformative potential of AI was still far from obvious, yet we had the vision to explore how these emerging technologies could address a long-standing management challenge in customised manufacturing.

Prof. Dr Birutė Mockevičienė,
Project Leader, Mykolas Romeris University

RELAY CROPPING SYSTEMS FOR A SUSTAINABLE AGRICULTURAL TRANSITION

PROJECT:
BIO-CROP

INSTITUTION:
Vytautas Magnus University

European agriculture faces a structural dilemma: productivity must be maintained while inputs – synthetic fertilisers, pesticides, and irrigation – are dramatically reduced to meet climate and biodiversity targets. Relay cropping, in which multiple crops are combined in time and space to complement each other's growth patterns, offers a systems-level approach that can enhance biodiversity, improve soil functions, and strengthen resilience to climate variability without relying on external chemical inputs.

The BIO-CROP project, operating across the Baltic and Nordic regions, develops and tests innovative relay cropping systems through Living Labs where solutions are co-created with farmers, researchers, and advisors under real agricultural conditions. The project evaluates environmental, economic, and social impacts to determine the viability of each system and provides practical decision-support tools for farmers, advisors, and policymakers seeking to facilitate wider adoption of agroecological practices.

BIO-CROP allows us to study how diversified cropping strategies perform under different environmental and management conditions across Europe. It enables the integration of soil health, biodiversity, and socio-economic assessments within a common research framework, and strengthens the link between scientific research and practical farming by co-developing solutions with farmers and other stakeholders.

Prof. Kęstutis Romaneckas,
Chief Researcher,
Vytautas Magnus University

COMPUTATIONAL THINKING AND AI FOR INCLUSIVE LEARNING OF MATHEMATICS

PROJECT:
DigiMaths4All

RESEARCH TEAM:
Institute of Educational Sciences

INSTITUTION:
Vilnius University

Mathematical underachievement in primary education is one of the most persistent predictors of later educational disadvantage. In Lithuania, as across the EU, disparities in mathematical attainment by socio-economic background remain stubbornly wide.

DigiMaths4All, a study embedded within the large-scale national EDU Project (Breakthrough in Educational Research, coordinated by the Research Council of Lithuania), investigates how computational thinking and technology-enhanced learning environments can strengthen mathematical problem-solving in primary education. Combining AI-supported tools, learning analytics, and adaptive digital environments, the study engages more than 3,000 pupils and 150 teachers from 51 Lithuanian schools in interactive activities integrating mathematics, creative problem solving, and gamified digital tasks. The project aims to develop scalable instructional approaches that support analytical thinking, abstraction, and algorithmic reasoning by providing practical recommendations for the integration of digital innovation into everyday teaching practice across Lithuania and beyond.

DigiMaths4All explores innovative, engaging ways to help children learn mathematics through digital technologies and computational thinking. By bringing together education, technology, learning analytics, and AI, DigiMaths4All helps to create smarter, more personalized, and more inclusive learning experiences for schools in Lithuania and beyond.

Prof. Dr Valentina Dagienė,
Principal Researcher,
Institute of Educational Sciences, Vilnius University

FROM A RESEARCH CONCEPT TO A CERTIFIED MEDICAL DEVICE FOR ATRIAL FIBRILLATION

PROJECT:
TeltoHeart

INSTITUTION:
Kaunas University of Technology

Atrial fibrillation is the most common sustained cardiac arrhythmia worldwide, affecting over 37 million people globally and increasing stroke risk fivefold. It frequently presents asymptomatically or intermittently, making it difficult to detect through periodic clinical electrocardiogram.

In 2013, at a time when no comparable research or commercial devices existed, the biomedical engineering team at Kaunas University of Technology proposed a wrist-worn device combining continuous photoplethysmography screening for pulse irregularity with a unique six-lead electrocardiogram for confirmatory arrhythmia classification.

Over more than a decade of development through FP7, projects funded by the Research Council of Lithuania, and direct collaboration with cardiologists at Santaros Klinikos Vilnius, the concept matured into a clinically validated technology. In 2021, a license agreement was signed with Teltonika; in 2024, the resulting TeltoHeart device received CE MDR Class IIa certification, and commercial distribution across Europe and Asia began. The licensing value exceeded €600,000, and the project produced over 670 combined citations, international patents (US, JP, WO), and four doctoral dissertations.

Science and business partnership exemplifies how deep scientific expertise in signal processing can be transformed into certified medical devices through industrial collaboration. By combining continuous PPG screening with high-precision six-lead ECG in a single wearable device, we provide a robust tool for early arrhythmia detection that bridges the gap between home monitoring and clinical diagnostics.

Prof. **Vaidotas Marozas,**
Director of the Institute of Biomedical Engineering,
Kaunas University of Technology

SECURING THE DIGITAL FUTURE OF THE LITHUANIAN LANGUAGE

PROJECT:
CLARIN-LT

RESEARCH TEAM:
SILK Team
(Semantics and
Computational
Linguistics Team)

INSTITUTION:
Vytautas Magnus University /
Vilnius University /
Mykolas Romeris University

Language resources such as digitised text corpora, lexicons, annotated datasets, and natural language processing tools are rapidly becoming essential infrastructure for humanities research, the social sciences, and AI development. Without access to high-quality, open-access resources for smaller European languages, those languages are at risk of marginalisation in AI systems and digital research environments.

CLARIN-LT, the Lithuanian node of the European Research Infrastructure Consortium CLARIN ERIC, addresses this challenge by providing open and sustainable access to Lithuanian language resources and digital research services. Coordinated across Vytautas Magnus University, Vilnius University, and Mykolas Romeris University, the initiative supports innovation in digital humanities, the social sciences, and AI while ensuring that the Lithuanian language remains technologically empowered and internationally visible in multilingual AI and data-driven research environments. CLARIN-LT connects Lithuanian language data, tools, and expertise to a pan-European network that no single institution could replicate independently.

Language resources and technologies are becoming essential research infrastructure for Europe's digital future. Through CLARIN-LT, Lithuania contributes to a shared European ecosystem where language data, tools, and expertise are openly accessible across disciplines and borders. Our ambition is to ensure that Lithuanian and other smaller European languages remain visible and technologically empowered in the rapidly evolving AI landscape.

Assoc. Prof. Dr Jurgita Vaičenonienė,
CLARIN-LT, Vytautas Magnus University

ACADEMIC ASSISTANCE TO TAMING RUSSIA-RELATED RISKS IN EUROPE

PROJECT:
INFLUENCE

INSTITUTION:
Institute of International Relations and Political Science, Vilnius University

Marie Skłodowska-Curie Actions Doctoral Network project 'Russian Influences in the European Periphery: Interdependencies, Narratives, Power (INFLUENCE)' deepens understanding of the mechanisms, structures, and relationships that enable Russian influence in Europe, with particular focus on the strategically important eastern regions – the Baltic countries and the Western Balkans.

The project will train promising early-career researchers through an innovative interdisciplinary doctoral programme. Over four years, it will produce PhD theses, open-access datasets, and high-quality publications. The network will foster transferable skills, strengthen collaboration between academic and non-academic partners, enhance the quality and sustainability of doctoral education across five partners – universities of Vilnius, Glasgow, Helsinki, Sarajevo, and Warsaw. By integrating interdependencies, narratives, and power dynamics, the project generates original middle-range theories and comparative field-based data that address critical gaps in existing research.

Scientifically, the project will establish a novel interdisciplinary doctoral training model focused on foreign influence studies. Societally, it will strengthen European resilience by increasing public awareness, supporting evidence-based policymaking, and contributing to national security and development strategies. Economically, it will provide valuable risk assessments and recommendations for businesses engaging with Russian partners.

By transforming advanced theoretical insights into practical knowledge that strengthens democratic resilience and societal cohesion across Europe, this project elegantly connects rigorous academic research with real-world relevance.

INFLUENCE comprehensively analyses the forms and operations of Russian foreign influence in the Baltics and Western Balkans by developing research on the mechanisms, structures, relations, and practices of foreign influence. The project also provides doctoral students with interdisciplinary knowledge on how to analyse aggressive foreign influence, along with practical transferable skills, to enhance their career prospects within and beyond academia. We aim to improve the quality, relevance, and sustainability of doctoral studies thus enriching public debate.

Prof. Dr **Dovilė Jakniūnaitė**,
Institute of International relations and Political Science, Vilnius University

ENVIRONMENTAL POLLUTANTS AND HUMAN EXPOSURE: LINKING MEASUREMENT TO SOLUTIONS

PROJECT:
Environmental Pollutants and Human Exposure: Air Quality, Risks and Solutions

RESEARCH TEAM:
Department of Environmental Technology, Faculty of Chemical Technology

INSTITUTION:
Kaunas University of Technology

Long-term exposure to fine particulate matter ($PM_{2.5}$) above the levels of the WHO guidelines was associated with an estimated 182,000 premature deaths in the EU in 2023 alone. Yet a compounding challenge is that indoor environments, where people spend approximately 90% of their time, can harbour pollutant concentrations two to five times higher than outdoors.

Research at Kaunas University of Technology addresses human exposure to environmental pollutants across both settings, with particular focus on aerosol particles and emerging contaminants such as microplastics and microfibres. The programme integrates environmental monitoring, laboratory analysis, exposure and toxicity assessment, and engineering approaches for air quality improvement. It seeks to identify key pollution sources, characterise pollutant concentrations and composition, evaluate exposure pathways, and assess practical technologies and management strategies for pollution prevention and control by linking fundamental pollutant science directly to actionable risk-reduction measures.

The most dangerous environmental threats are often invisible. Air quality is one of the most important factors affecting human health, yet many pollutants remain unnoticed until their impacts become measurable. By understanding pollutant sources, pathways and exposure, we can develop healthier and more sustainable living environments.

Prof. Dr **Violeta Kaunelienė**, Department of Environmental Technology, Faculty of Chemical Technology, Kaunas University of Technology

OPENING WORLD-CLASS LITHUANIAN LASER INFRASTRUCTURE TO EUROPE

PROJECT:
Lasers4EU

RESEARCH TEAM:
Laser Research Center

INSTITUTION:
Vilnius University

Lasers4EU, a Horizon Europe project uniting 29 partners and 27 access-providing infrastructures from 15 European countries, addresses this undertaking by creating a single virtual distributed research infrastructure through which academic and industrial users gain coordinated, free-of-charge access to a portfolio of world-leading laser systems and expertise.

This solves a key issue of research – situation when access to the most advanced research facilities is essential for frontier research in materials science, life sciences, attosecond physics, and photonics – along with the cost and complexity of state-of-the-art laser laboratories places researchers beyond the reach of most individual research groups.

Vilnius University Laser Research Center, internationally recognised as the birthplace of OPCPA technology in the 1990s is the foundation of the ELI laser systems and participates as a full beneficiary and access-providing infrastructure, offering transnational access to its home-built terawatt few-cycle OPCPA system with high-harmonic generation, high-repetition-rate Yb-fibre amplifier, femtosecond micromachining stations, and ultrafast spectroscopy and laser-induced damage threshold metrology facilities.

Through Lasers4EU, VULRC and Lithuania welcome researchers from across the world to access advanced femtosecond laser technologies, unique laser systems, and expertise spanning ultrafast science, materials processing, and precision metrology. Vilnius proudly contributes to strengthening Europe's laser and photonics ecosystem while fostering innovation that benefits both science and industry.

Assoc. Prof. Dr **Ona Balachninaitė**,
Vilnius University Laser Research Centre

PATIENT-DERIVED ORGANOIDS: MOLECULAR TWINS FOR ADVANCING PERSONALISED MEDICINE

RESEARCH TEAM:
Laboratory of Clinical and Molecular Gastroenterology

INSTITUTION:
Institute for Digestive Research of Lithuanian University of Health Sciences

The challenge pf personalised medicine to precisely shape targeted therapies is addressed by a team led by Prof. Jurgita Skiecevičienė and Prof. Juozas Kupčinskas by advancing patient-derived gastrointestinal organoid platforms. Often described as 'organ-like models in a dish', these miniature tissue models preserve key structural, functional and molecular characteristics of an individual patient's gastric epithelium.

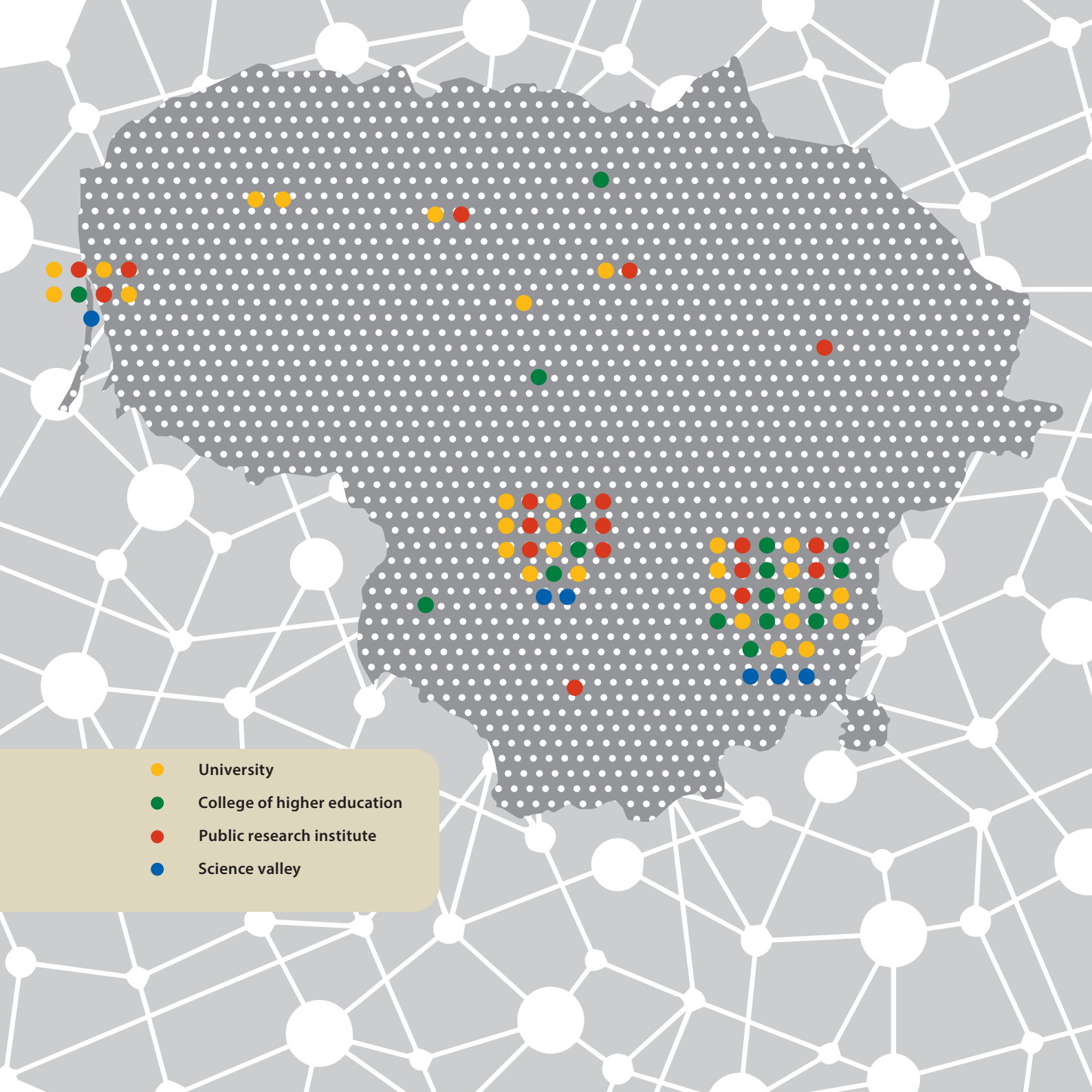
Two ongoing Horizon Europe grants – MiGut-Health and PerPrev-Cid – focus on personalised solutions and organoid models in inflammatory bowel diseases to enable the team to investigate molecular mechanisms of digestive diseases, including changes in epithelial barrier function, tissue repair and mucus production. Researchers also study interactions between the host epithelium, immune system and bacteria that influence disease development, progression and treatment response.

Patient-derived organoids provide a platform for evaluating therapies already used in clinical practice and linking experimental findings with patients' clinical responses and molecular biomarkers. Acting as patient-specific 'avatars' in the laboratory, they can reveal why the same treatment works for some patients but not others, while supporting research into new therapeutic candidates, mechanisms of action and molecular targets.

This multidisciplinary research combines clinical gastroenterology, cell and molecular biology, microbiology, immunology, multi-omics technologies and bioinformatics. By integrating patient-derived models with clinical and molecular data, the team advances biomarker discovery and develops more precise, individually tailored treatments for digestive diseases.

Our goal is to build a bridge between the basic research and the clinical application. Patient-derived organoids allow us to test therapies, investigate the molecular basis of individual responses and search for biomarkers that may ultimately support more informed treatment decisions.

Prof. Dr **Jurgita Skiecevičienė**,
Head of Clinical and Molecular Gastroenterology Laboratory, Chief Researcher,
Institute for Digestive Research of the Lithuanian University of Health Sciences


University
College of higher education
Public research institute
Science valley

SCIENCE AND RESEARCH ECOSYSTEM: NAMES AND NUMBERS

Following recent reforms and mergers, Lithuanian science, research, and studies ecosystem consist of 17 universities, 13 universities of applied sciences, and 11 public research institutes, representing balance between ambitions of scientific excellence, constant strive for best usage of existing potentials as well as regional coverage.

UNIVERSITIES

- Vilnius University
- Kaunas University of Technology
- Vytautas Magnus University
- Vilnius Gediminas Technical University (Vilnius TECH)
- Mykolas Romeris University
- Klaipėda University
- Lithuanian University of Health Sciences
- Lithuanian Academy of Music and Theatre
- Vilnius Academy of Arts
- Lithuanian Sports University
- ISM University
- General Jonas Žemaitis Military Academy
- LCC International University
- Kazimieras Simonavičius University
- European Humanities University

UNIVERSITIES OF APPLIED SCIENCES (COLLEGES)

1. Vilnius University of Applied Sciences
2. Kaunas University of Applied Sciences
3. Klaipėda State University of Applied Sciences
4. Panevėžys University of Applied Sciences
5. Šiauliai State University of Applied Sciences
6. Utena University of Applied Sciences
7. Lithuanian Engineering College
8. Kolping University of Applied Sciences
9. St Ignatius of Loyola College
10. Vilnius Business College
11. Vilnius Design College
12. Lithuania Business College
13. University of Applied Social Sciences

PUBLIC RESEARCH INSTITUTES AND RESEARCH CENTRES

1. Center for Physical Sciences and Technology (FTMC)
2. Nature Research Centre
3. Lithuanian Energy Institute
4. Lithuanian Research Centre for Agriculture and Forestry (LAMMC)
5. Lithuanian Centre for Social Sciences
6. Institute of Lithuanian Literature and Folklore
7. Institute of the Lithuanian Language
8. Lithuanian Institute of History
9. Lithuanian Culture Research Institute
10. Centre for Innovative Medicine
11. National Cancer Institute

PUBLIC RESEARCH INSTITUTES AND RESEARCH CENTRES

Center for Physical Sciences and Technology (Lithuanian: *Fizinių ir technologijos mokslų centras, FTMC*) focuses on fundamental and applied research in laser technologies, photonics, materials science, nanotechnology, chemistry, electronics, and nuclear physics. The centre is internationally recognised for its contributions to laser science and high-performance optical technologies. The centre combines interdisciplinary research with technology development for industrial and societal applications. It also plays a leading role in innovation, doctoral education, and international scientific collaboration.

Nature Research Centre (*Gamtos tyrimų centras, GTC*) is Lithuania's leading institute for environmental and life sciences. Its research focuses on biodiversity, ecology, geology, environmental chemistry, genetics, and the sustainable use of natural resources. Scientists investigate ecosystems, climate change, wildlife conservation, and the interactions between humans and the environment. The centre maintains nationally important biological and geological collections that support long-term scientific research. Its work provides valuable evidence for environmental policy and nature conservation.

Lithuanian Energy Institute (*Lietuvos energetikos institutas, LEI*) specialises in energy technologies and sustainable energy systems. It focuses on nuclear safety, renewable energy, hydrogen technologies, energy efficiency and environmental protection. The institute develops advanced modelling tools for energy systems and supports the transition towards climate-neutral energy solutions. Research also addresses industrial decarbonisation, carbon capture, and future energy infrastructure. The institute actively contributes to European research programmes and evidence-based energy policy.

Lithuanian Research Centre for Agriculture and Forestry (*Lietuvos agrarinių ir miškų mokslų centras, LAMMC*) focuses on sustainable agriculture, forestry and environmental sciences. Its work covers crop breeding, soil science, plant protection, horticulture, forest ecosystems and climate adaptation. Researchers develop innovative farming technologies and new plant varieties suited to changing environmental conditions. The centre also investigates biodiversity conservation and the sustainable management of natural resources. Its scientific results support food security, rural development and environmentally responsible land use.

Lithuanian Centre for Social Sciences (*Lietuvos socialinių mokslų centras, LSMC*) is the country's principal research institution in economics, sociology, and law. Its researchers analyse social change, public policy, economic development, labour markets, legal systems, and rural transformation. The centre provides scientific evidence for decision-making and contributes to the development of innovative public policies. Interdisciplinary research addresses contemporary societal challenges at both national and European levels. Through international collaboration, it strengthens the role of social sciences in sustainable societal development.

The **Institute of Lithuanian Literature and Folklore** (*Lietuvių literatūros ir tautosakos institutas, LLTI*) is dedicated to the study of Lithuanian literature, folklore, mythology and cultural heritage. Its researchers investigate historical and contemporary literary traditions, oral culture and comparative folklore. The institute preserves one of the world's largest archives of Lithuanian folklore and literary manuscripts, including UNESCO-recognised collections. It also develops digital humanities resources and publishes internationally recognised scholarly research. Its work contributes to understanding Lithuania's cultural identity within the broader European context.

The **Institute of the Lithuanian Language** (*Lietuvių kalbos institutas, LKI*) is the country's leading research institution in linguistics and Baltic language studies. Research focuses on the Lithuanian language, its history, dialects, grammar, lexicography, terminology and digital language resources. Scientists document language change, investigate the evolution of Baltic languages and develop modern linguistic databases. The Institute also prepares authoritative dictionaries and supports language technology development. Its research contributes to preserving one of Europe's oldest living Indo-European languages.

The **Lithuanian Institute of History** (*Lietuvos istorijos institutas, LII*) is the country's principal research institution devoted to historical scholarship. Its researchers study Lithuania's political, social, economic and cultural history from prehistory to the modern era. Archaeology, historical demography and source studies complement the Institute's interdisciplinary research. Its publications and international collaborations significantly advance knowledge of Lithuanian and East-Central European history.

Lithuanian Culture Research Institute (*Lietuvos kultūros tyrimų institutas, LKTI*) conducts fundamental and interdisciplinary research in philosophy, cultural studies and the arts. Its scientists investigate Lithuanian cultural heritage, visual arts, music, theatre, religion and contemporary cultural processes. Research explores the relationship between culture, identity and society within both national and European contexts. The institute also preserves, digitises and studies valuable documentary and intangible cultural heritage. Its work contributes to cultural policy, public understanding and the international visibility of Lithuanian scholarship.

The **Centre for Innovative Medicine** (*Inovatyvios medicinos centras, IMC*) is a biomedical research institute focused on modern life sciences and translational medicine. Its research covers molecular biology, immunology, regenerative medicine, stem cell biology, infectious diseases and biomedical technologies. Its researchers investigate disease mechanisms and develop innovative approaches for diagnostics and therapy. The Centre combines fundamental research with practical applications aimed at improving human health. Strong international partnerships and advanced laboratory infrastructure support its high-quality scientific output.

The **National Cancer Institute** (*Nacionalinis vėžio institutas, NVI*) is Lithuania's leading institution dedicated to cancer research, treatment and prevention. Its scientists conduct research in molecular oncology, cancer biology, epidemiology, personalised medicine and clinical oncology. Laboratory discoveries are closely integrated with clinical practice to improve diagnosis and patient outcomes. The Institute also leads national cancer screening programmes and develops evidence-based treatment strategies. Through international collaboration, it contributes to advances in cancer research and precision oncology.

UNIVERSITIES OF LITHUANIA

Vilnius University (*Vilniaus universitetas, VU*), Lithuania's foremost public research university, founded in 1579. More than 24,000 students pursue studies across 140 bachelor's and 140 master's programmes, together with doctoral training in 29 fields. Its scholars advance global knowledge in areas ranging from laser physics and biochemistry to linguistics and the social sciences.

The university comprises faculties of chemistry and geosciences, economics and business administration, philology, philosophy, physics, history, communication, mathematics and informatics, medicine, and law, as well as the Life Sciences Center, faculties in Kaunas, and Šiauliai Academy. It offers programmes in the humanities, social, physical, biomedical, and technological sciences, many of which are taught in English, with flexible, interdisciplinary pathways and strong opportunities for collaboration with business, public institutions, and international partners. With campuses in Vilnius, Kaunas, and Šiauliai, a diverse community drawn from over 100 countries, and a welcoming academic culture, Vilnius University provides an outstanding environment for study and research.

Guided by a humanist ethos that rejects narrow specialisation, **Vytautas Magnus University** (*Vytauto Didžiojo universitetas*, *VDU*) cultivates intellectual depth and civic awareness. Ranked the leading Baltic university for the internationalisation of academic staff (QS Rankings), it is a full member of the European University Association and participates in numerous international networks.

Organised across ten faculties and two academies, this university offers some 60 bachelor's and 76 master's programmes, including a substantial portfolio taught in English, together with doctoral studies in 23 fields. Enriched by extensive global partnerships via over 200 bilateral agreements and 330 Erasmus+ partners, its community of approximately 10,000 students and more than 700 scholars supports vibrant mobility of students and staff.

Kaunas University of Technology (*Kauno technologijos universitetas*, *KTU*) is a public research university founded in 1922 and recognised as one of Lithuania's leading institutions and a foremost technological university in the Baltic countries. It is distinguished by its strong research performance, innovative study programmes, and close collaboration with industry.

Organised across nine faculties – civil engineering and architecture, chemical technology, electrical and electronics engineering, informatics, mechanical engineering and design, mathematics and natural sciences, social sciences, arts and humanities, also the Panevėžys Faculty of Technologies and Business and the School of Economics and Business – together with eight research institutes, this university educates over 9,000 students.

Its research priorities focus on energy and electronics, artificial intelligence and cybersecurity, health technologies, societal resilience and defence technologies, and STEAM didactics, with particular strengths in advanced materials, sustainable technologies, mechatronics, and environmental engineering. As a member of the European Consortium of Innovative Universities (ECIU) and a participant in extensive international networks and projects, Kaunas University of Technology maintains cooperation agreements with over 350 higher education institutions worldwide and offers a substantial portfolio of programmes taught in English.

Lithuanian University of Health Sciences (*Lietuvos sveikatos mokslų universitetas*, *LSMU*) is a specialised public university for health and life sciences and a leading centre for biomedical research and health innovation. With academic roots dating to 1920, the university integrates education, research, and clinical practice through its Medical and Veterinary academies and five research institutes. The university has seven faculties and is home to more than 8000 students, over 25% of whom are international.

Research is central to the international profile of the Lithuanian University of Health Sciences. the university participates in multiple EU projects and multidisciplinary consortia, with distinguished research profiles in digestive diseases and microbiome research, oncology, neurosciences, cardiovascular research, bio pharmacy, and veterinary sciences. Close integration with Kauno Klinikos, the largest university hospital in the Baltic countries, provides access to large patient cohorts and advanced clinical expertise.

The university combines infrastructure for preclinical, translational, and clinical research, linking biobanks, organoid technologies, animal facilities, advanced omics technologies, imaging platforms, artificial intelligence, and clinical data towards health care innovations. The Microbiome and Precision Medicine Centre at LSMU, established recently with the University of Kiel, will serve as an excellence hub for microbiome research in the region. Overall, the Lithuanian University of Health Sciences

provides a strong environment for multidisciplinary European and international biomedical research and talent attraction.

Klaipėda University (*Klaipėdos universitetas, KU*) is a public multidisciplinary university founded in 1991 in Lithuania's principal seaport. It is a dynamic institution that capitalises on its coastal location to develop distinctive academic and research profiles not found elsewhere in the country.

The university is organised into three faculties (social sciences and humanities, marine technologies and natural sciences, and health sciences) and two research institutes: the Marine Research Institute and the Institute of Baltic Region History and Archaeology. Its study and research portfolio places particular emphasis on marine and coastal sciences, oceanography, port technologies and engineering, marine environment research, underwater archaeology, and the history and culture of the Baltic region and Lithuania Minor.

As a member of the European University alliance EU-CONEXUS, Klaipėda University actively participates in international research networks and collaborative projects focused on sustainable coastal and marine development. It maintains research vessels and specialised laboratories that support both fundamental and applied investigations of the Baltic Sea and its coastal ecosystems.

Mykolas Romeris University (*Mykolo Romerio universitetas*, *MRU*) is the largest specialised university for the social sciences and humanities in Lithuania. A public institution founded in 1990 and named after the distinguished constitutional lawyer, it is located primarily in Vilnius, with additional academic units in Kaunas and Marijampolė.

The university comprises the Faculty of Human and Social Sciences, the Faculty of Public Governance and Business, the Law School, the Public Security Academy, and the regional academy for the south-western region of Sūduva. The university offers a broad portfolio of bachelor's, master's, and doctoral programmes focused on law, public administration, public security, business, economics, psychology, communication, social work, and related fields, many of them available in English.

Research is organised around the priority theme of social innovations for global growth and concentrates on justice, security, and human rights, social technologies, sustainable growth in a global context, quality of life and employment, and the continuity and change of values in

contemporary society. As a member of the European Reform University Alliance (ERUA) and a partner of more than 200 international institutions, Mykolas Romeris University actively participates in European research networks, joint degree programmes and academic mobility.

Vilnius Gediminas Technical University (**Vilnius TECH**; *Vilniaus Gedimino technikos universitetas*) is a leading public technical university in Lithuania and one of the country's principal centres for engineering, technology, and architecture. Founded in 1956, it is recognised for high-quality education, strong research performance, and close links with industry.

The university comprises the Antanas Gustaitis Aviation Institute, the Lithuanian Maritime Academy, and faculties of architecture, business management, civil engineering, creative industries, electronics, environmental engineering, fundamental sciences, mechanics, and transport engineering. With nearly 9,000 students, including a substantial international cohort, Vilnius TECH offers a wide range of bachelor's, master's, and doctoral programmes, many offered in English.

Research strengths lie in civil and environmental engineering, transport and logistics, electronics and information technologies, mechanical engineering, aviation and sustainable technologies. Vilnius TECH ranks first in Lithuania for engineering disciplines and for climate-action performance, and it is the country's most international university. As a member of the European University alliance ATHENA and a partner of more than 470 institutions worldwide, it actively participates in international research networks, collaborative projects, and academic mobility.

Kazimieras Simonavičius University (*Kazimiero Simonavičiaus universitetas*, *KSU*) is a private, state-accredited research university founded in 2003 (originally as the Vilnius Academy of Business Law). Operating campuses in Vilnius and Klaipėda, it is known for its innovative, practice-oriented approach to education and its strong emphasis on entrepreneurship and creativity.

The university focuses primarily on the social sciences and related professional fields. Its distinctive programmes include aviation management (recognised for its links with international aviation standards) and fashion industry (the only bachelor's degree of this type in the region), alongside studies in business management, communication, public administration, law, organisational innovation and related disciplines. Bachelor's, master's, and integrated programmes are offered, many of them in English and available both on campus and online.

Supported by specialised centres such as the Next Society Institute, research and academic activity are centred on applied social sciences, management, communication, and the future of society. Kazimieras Simonavičius University maintains international partnerships, participates in Erasmus+ mobility, and attracts students from a wide range of countries, positioning itself as a flexible and career-oriented institution within Lithuania's higher-education landscape.

ISM University of Management and Economics is a private higher-education institution specialising in business, management, and economics. Founded in 1999 in Kaunas as the first privately owned management school in Lithuania (in partnership with BI Norwegian Business School), it is now based in Vilnius and serves as a centre for academic education, executive training and applied research.

The university offers bachelor's programmes in business management and marketing, economics, finance, international business and communication, entrepreneurship and innovation, and related fields; master's programmes in international marketing and management, financial economics, innovation and technology management, global leadership and strategy, and business sustainability management; also, doctoral studies in management and economics. Many programmes are delivered in English and combine rigorous academic content with close engagement with the business community.

Research is organised around interdisciplinary groups focusing on people and organisational sustainability, leadership, strategy and governance, marketing and entrepreneurship, and finance, economics, and politics. ISM is the first university in the Baltic countries to hold AACSB accreditation and the first in Lithuania to have received five Eduniversal Palmes of Excellence, reflecting its international standing and commitment to high-quality, globally oriented education and research.

Lithuanian Academy of Music and Theatre (*Lietuvos muzikos ir teatro akademija*, *LMTA*) is a public higher-education institution specialising in the performing and screen arts. Founded in 1933, it is Lithuania's principal conservatoire-level academy for the professional training of musicians, actors, directors, dancers, filmmakers, and related theorists.

The academy comprises three faculties, two of which are based in Vilnius (music; theatre and film) and one in Klaipėda, and educates approximately 1,000 students across bachelor's, master's, and

doctoral cycles. Programmes combine intensive practical training with theoretical and research-oriented study in music, theatre, dance, film, and multimedia arts.

Research encompasses fundamental and applied work in the humanities, art studies, ethnomusicology, and artistic research. The academy offers doctoral degrees in art studies, ethnology, music, and theatre and cinema, including artistic doctorates in music (available in English). As a member of the European Association of Conservatoires, CILECT, and other international networks, and through extensive partnerships and student–staff mobility, the Lithuanian Academy of Music and Theatre maintains a strong presence in European and global artistic and academic communities.

Lithuanian Sports University (*Lietuvos sporto universitetas*, *LSU*) is a specialised public higher-education institution dedicated to sport, physical activity, and leisure and health sciences. Founded in 1934 and located in Kaunas, it is the only university of its kind in Lithuania and is recognised as a leading centre for sports science in the Baltic Sea region.

The university comprises the Faculty of Sport Biomedicine and the Faculty of Sport Education, together with departments of applied biology and rehabilitation, coaching science, health, physical and social education, and sport management, economics and sociology, as well as the Institute of Sport Science and Innovations. It educates nearly 2,000 students across bachelor's, master's, and doctoral programmes in sports coaching, physiotherapy, physical activity and public health, sports management, performance analysis, and related fields, many of them offered in English or as international joint degrees.

Research at this university is focused on exercise physiology and genetics, brain and skeletal muscle function, health-enhancing physical activity and education through sport, methodology of sports training, and the management and economics of the sports industry. With academic exchange agreements involving more than 90 partner institutions and active participation in European networks, the Lithuanian Sports University maintains a strong international profile in both education and research.

General Jonas Žemaitis Military Academy of Lithuania (*Generolo Jono Žemaičio Lietuvos karo akademija*, *LKA*) is the country's sole public higher-education institution dedicated to the preparation of officers and specialists in defence and national security. Based in Vilnius and operating under

the Ministry of National Defence, it continues the traditions of the War School of Kaunas (founded in 1919) and was reorganised in its present form in the early 1990s. It bears the name of the anti-Soviet resistance commander General Jonas Žemaitis.

The academy combines university-level academic studies with intensive military training. It offers bachelor's programmes in defence studies and defence technologies, master's programmes in fields such as personnel management and military diplomacy, also doctoral studies, and a range of professional military and national-security courses. Cadets and civilian students receive an education that integrates leadership development, security studies, and practical officer preparation.

Research is concentrated on military sciences, security and defence policy, and related strategic studies. As a participant in the European Initiative for the Exchange of Young Officers (EMILYO), a partner of the International Society of Military Sciences, and a member of the International Society of Military Academies, the General Jonas Žemaitis Military Academy of Lithuania maintains active international cooperation and hosts joint educational activities with partner institutions across Europe and beyond.

European Humanities University (*Europos humanitarinis universitetas*, *EHU*) is a private, non-profit liberal arts university dedicated to the humanities and the social sciences. Founded in Minsk in 1992, forced to cease operations in Belarus in 2004, and relocated to Vilnius, it operates as a Lithuanian-accredited university since 2006. It continues to serve primarily students from Belarus and the wider Eastern European region while offering degrees fully recognised in the European Union.

The university is organised around the Department of Humanities and Arts and the Department of Social Sciences. It provides bachelor's, master's, and doctoral programmes (including a joint doctorate in philosophy) in fields of European heritage, media and communication, visual design, world politics and economics, public policy, cultural heritage development, international and EU law, and related disciplines, delivered in both high-residence and low-residence (blended/online) formats.

Research is concentrated on the humanities and the social sciences, supported by specialised centres including those for constitutionalism and human rights, gender studies, German studies and critical urbanism. As a member of the European University Association, the International Association of Universities, and other networks, and through partnerships with over 50 European institutions

under Erasmus+ and related programmes, the European Humanities University maintains a distinctly international academic profile oriented towards critical inquiry, civil society, and democratic values.

LCC International University is a private Christian liberal arts university located in Klaipėda. Founded in 1991 through a joint initiative of Lithuanian, Canadian, and American foundations (originally as Lithuania Christian College), it is recognised as a leading international higher-education institution in Lithuania and the Baltic region, offering a North American-style education within a European context.

The university is organised around academic departments in business, English, communication, international relations and development, psychology, theology, and related fields. It provides accredited bachelor's programmes in contemporary communication, English language and literature, international business administration, global business and communication, international relations and development, psychology and theology, together with master's programmes including TESOL and international management-related leadership studies. All instruction is delivered in English to a highly international student body drawn from more than 50–60 countries.

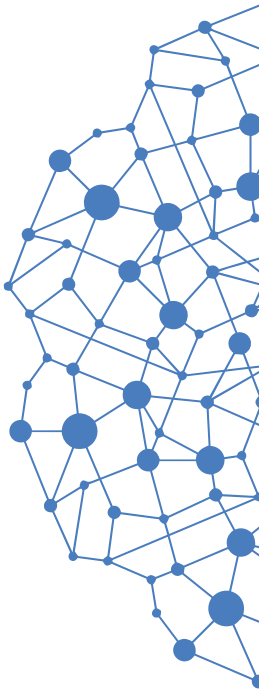
Research is guided by the university's identity as an international Christian liberal arts institution and focuses on human flourishing, moving from languishing through surviving to flourishing. Key structures include the Center for Research on Faith and Human Flourishing, the Center for Dialogue and Conflict Transformation, and the Institute for Philanthropy and Civil Society. With partnerships across Europe, North America, and beyond, active Erasmus+ and exchange programmes, and a strong emphasis on intercultural community, LCC International University maintains a distinctly global academic profile.

Vilnius Academy of Arts (*Vilniaus dailės akademija*, *VDA*) is the largest and oldest public higher-education institution for art and design in the Baltic region. Tracing its origins to the Architecture Department established at Vilnius University in 1793, it is Lithuania's principal academy for professional training in the visual arts, design, architecture, and related theoretical fields.

The Academy operates faculties in four cities (Vilnius, Kaunas, Klaipėda, and Telšiai) and educates more than 1,800 students across bachelor's, master's, and doctoral programmes, which span fine arts (painting, sculpture, graphic art, ceramics, textile), design (product, graphic, fashion, interior, visual

communication), architecture, photography and media art, scenography, animation, art restoration and conservation, metal art and jewellery, and the history and theory of art.

Research encompasses both scholarly inquiry in the history and theory of art, architecture and design and practice-based artistic research, supported by the Institute of Art Research and doctoral programmes in art, design, architecture, and art history and theory. With more than 180 Erasmus partners, membership of international art and design networks, specialised workshops, galleries, and off-campus facilities such as the Nida Art Colony, Vilnius Academy of Arts maintains a strong presence in European and global artistic education and research.



SCIENCE AND RESEARCH LITHUANIA
A joint publication of the Lithuanian Academy of Sciences and the Research Council of Lithuania

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Photos from the archive of the Research Council of Lithuania

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Bibliographic information is available on ibiblioteka.lt,
the portal of the Lithuanian Integral Library Information System (LIBIS).

ISBN 978-9986-08-113-5
eISBN 978-9986-08-114-2

WHAT DOES THE RESEARCH COUNCIL OF LITHUANIA DO?

RESEARCH COUNCIL OF LITHUANIA: INVESTING IN IDEAS

Behind every scientific discovery lies a network of support that helps research move from an idea to a result. In Lithuania, much of that support comes from the Research Council of Lithuania (*Lietuvos mokslo taryba, LMT*), the country's main research funding agency and a key contributor to national science policy.

The Council supports researchers at every stage of their careers – from doctoral candidates taking their first steps in research to experienced scientists leading major national and international projects. Through competitive funding programmes, it supports research across all fields, from medicine and engineering to history and linguistics. It also promotes mobility, networking, and international collaboration by helping researchers in Lithuania build partnerships across Europe and beyond and become active members of the global research community.

The Council's role extends far beyond funding. It provides expert advice on research, higher education, and experimental development to the Seimas and the Government, contributes to the formulation and implementation of science policy, and represents Lithuania in European and international research organisations and networks. Through its evaluations, programmes, and policy expertise, the Research Council of Lithuania helps identify priorities and strengthen the conditions in which excellent research can flourish.

The Council also plays a central role in safeguarding and strengthening the quality of Lithuania's research system. It organises expert evaluations of research and artistic activities carried out by universities and research institutes, assesses doctoral studies and contributes to decisions on doctoral degree-awarding rights. It also evaluates long-term research programmes and helps guide the strategic development of national research infrastructures. The Council also coordinates the development of open-access activities in Lithuania and promotes the principles of open science, helping make research results and data more accessible to the scientific community and society.

As Lithuania works to strengthen its knowledge-based economy and its place in the international research landscape, the Research Council of Lithuania helps connect individual scientific ambition with broader national goals. Its task is not simply to fund research but to help build an environment in which excellent ideas can emerge, talented people can develop, international partnerships can grow, and new knowledge can create lasting value for Lithuania and beyond.

WHAT DOES THE LITHUANIAN ACADEMY OF SCIENCES DO?

LITHUANIAN ACADEMY OF SCIENCES: A VOICE OF KNOWLEDGE AND EXPERTISE

For generations, the Lithuanian Academy of Sciences (*Lietuvos mokslų akademija, LMA*) has brought together some of the country's most accomplished researchers and scholars. As Lithuania's national academy, it serves not only as a symbol of scientific achievement but also as a bridge connecting science, society, and public decision-making.

The Academy unites experts from a wide range of disciplines, from physics and biology to economics, history, and the humanities. The Academy initiates research addressing Lithuania's scientific and societal priorities, promotes scientific excellence, champions academic freedom and supports early-career researchers.

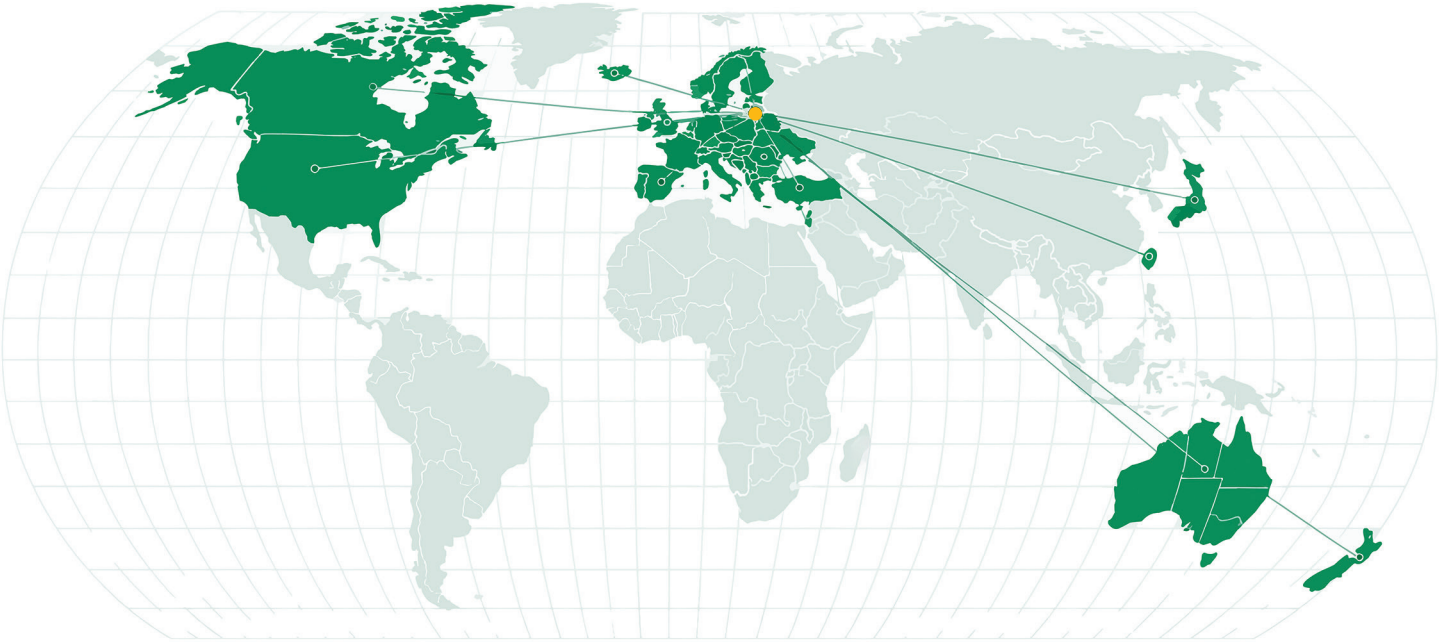
Its members contribute independent scientific expertise on issues that matter to society, helping ensure that public discussions and policy decisions are informed by evidence and knowledge.

Beyond its advisory role, the Academy promotes science through conferences, publications, lectures, and awards that recognise outstanding achievements in research. It also represents Lithuanian science internationally, maintaining partnerships with academies and scientific organizations around the world.

At a time when societies face increasingly complex challenges, the Academy's mission remains clear: to champion knowledge, support scientific excellence, and strengthen the role of science in shaping a better future.

Together, these bodies constitute a coherent national architecture through which science programmes operate: policy is set at a ministerial level, competitive funding is channelled through the Research Council of Lithuania, and research is conducted across an interconnected network of universities and institutes with growing international reach.

Lithuanian Academy of Sciences: **www.lma.lt**
Research Council of Lithuania: **www.lmt.lt**



Map of Lithuania's formalised science partnerships

Sources: Research Council of Lithuania (LMT); Vilnius University; CERN (2017, 2018); ELI ERIC founding documentation (2021); EMBL Partnership Institute (2019, 2020); UK Science and Innovation Network – Lithuania (2025); Lithuania.lt (2025).

Further information: lmt.lrv.lt

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