

# List of Research Areas assessed in the PASIFIC Evaluation Panels

Appendix No. 2 to the Terms and Conditions of the  
PASIFIC Call 1



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Maria Skłodowska-Curie Actions

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## List of Research Areas assessed in the PASIFIC Evaluation Panels

For the purpose of merit-based evaluation of applications submitted in the Call, the following division into 3 Evaluation Panels, covering the entire thematic scope of research, was adopted. Each Evaluation Panel covers the research areas described below with keywords.

### 1. PANEL 1: Humanities and Social Sciences (SH)

#### 1.1 RESEARCH AREA: SH1

Unit, institutions, markets: economics, finance, management

KEYWORDS:

Number	Keywords
SH1_1	Macroeconomics; monetary economics; economic growth
SH1_2	International trade; international management; international business; spatial economics
SH1_3	Development economics; structural change; political economy of development
SH1_4	Finance; asset pricing; international finance; market microstructure
SH1_5	Corporate finance; banking and financial intermediation; accounting; auditing; insurance
SH1_6	Econometrics; operations research
SH1_7	Behavioral economics; experimental economics; neuro-economics
SH1_8	Microeconomic theory; game theory; decision theory
SH1_9	Industrial organization; entrepreneurship; R&D and innovation
SH1_10	Management; strategy; organizational behavior
SH1_11	Human resource management; operations management, marketing

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SH1_12	Environmental economics; resource and energy economics; agricultural economics
SH1_13	Labour and demographic economics
SH1_14	Health economics; economics of education
SH1_15	Public economics; political economics; law and economics
SH1_16	Historical economics; quantitative economic history; institutional economics; economic systems

## 1.2 RESEARCH AREA: SH2

**Institutions, governments and legal systems:** political science, international relations, law

KEY WORDS:

Numer	Słowa klucz
SH2_1	Political systems, governance
SH2_2	Democratization and social movements
SH2_3	Conflict resolution, war, peace building, international law
SH2_4	Legal studies, constitutions, human rights, comparative law
SH2_5	International relations, global and transnational governance
SH2_6	Humanitarian assistance and development
SH2_7	Political and legal philosophy
SH2_8	SH2_8 Big data in political and legal studies

### 1.3 RESEARCH AREA: SH3

**Social world and its diversity:** sociology, social psychology, social anthropology, pedagogy, communication studies

KEY WORDS:

Numer	Słowa klucz
SH3_1	Social structure, social mobility, social innovation
SH3_2	Inequalities, discrimination, prejudice
SH3_3	Aggression and violence, antisocial behavior, crime
SH3_4	Social integration, exclusion, prosocial behavior
SH3_5	Attitudes and beliefs
SH3_6	Social influence; power and group behaviour
SH3_7	Kinship; diversity and identities, gender, interethnic relations
SH3_8	Social policies, welfare, work and employment
SH3_9	Poverty and poverty alleviation
SH3_10	Religious studies, ritual; symbolic representation
SH3_11	Social aspects of teaching and learning, curriculum studies, education and educational policies
SH3_12	Communication and information, networks, media
SH3_13	Digital social research
SH3_14	Social studies of science and technology



## 1.4 RESEARCH AREA: SH4

**Human mind and its complexity:** cognitive science, psychology, linguistics, theoretical philosophy

KEY WORDS:

Numer	Słowa klucz
SH4_1	Cognitive basis of human development and education, developmental disorders; comparative cognition
SH4_2	Personality and social cognition; emotion
SH4_3	Clinical and health psychology
SH4_4	Neuropsychology
SH4_5	Attention, perception, action, consciousness
SH4_6	Learning, memory; cognition in ageing
SH4_7	Reasoning, decision-making; intelligence
SH4_8	Language learning and processing (first and second languages)
SH4_9	Theoretical linguistics; computational linguistics
SH4_10	Language typology; historical linguistics
SH4_11	Pragmatics, sociolinguistics, linguistic anthropology, discourse analysis
SH4_12	Philosophy of mind, philosophy of language
SH4_13	Philosophy of science, epistemology, logic



## 1.5 RESEARCH AREA: SH5

**Culture and cultural products:** literary studies, cultural studies, art, philosophy

KEY WORDS:

Numer	Słowa klucz
SH5_1	Classics, ancient literature and art
SH5_2	Theory and history of literature, comparative literature
SH5_3	Philology; text and image studies
SH5_4	Visual and performing arts, film, design and architecture
SH5_5	Music and musicology; history of music
SH5_6	History of art and architecture, arts-based research
SH5_7	Museums, exhibitions, conservation and restoration
SH5_8	Cultural studies, cultural identities and memories, cultural heritage
SH5_9	Metaphysics, philosophical anthropology; aesthetics
SH5_10	Ethics and its applications; social philosophy
SH5_11	History of philosophy
SH5_12	Computational modelling and digitization in the cultural sphere





## 1.6 RESEARCH AREA: SH6

**Studies of the past:** archaeology and history

KEY WORDS:

Numer	Słowa klucz
SH6_1	Historiography, theory and methods in history, including the analysis of digital data
SH6_2	Classical archaeology, history of archaeology, social archaeology
SH6_3	General archaeology, archaeometry, landscape archaeology
SH6_4	Prehistory, palaeoanthropology, palaeodemography, protohistory, bioarchaeology
SH6_5	Palaeography and codicology
SH6_6	Ancient history
SH6_7	Medieval history
SH6_8	Early modern history
SH6_9	Modern and contemporary history
SH6_10	Colonial and post-colonial history
SH6_11	Global history, transnational history, comparative history, entangled histories
SH6_12	Social and economic history
SH6_13	Gender history, cultural history, history of collective identities and memories, history of religions
SH6_14	History of ideas, intellectual history, history of economic thought
SH6_15	History of science, medicine and technologies

## 1.7 RESEARCH AREA: SH7

**Mobility, environment and space:** human geography, demography, health, sustainable development, territorial planning, spatial analysis

KEY WORDS:

Numer	Słowa klucz
SH7_1	Human, economic and social geography
SH7_2	Migration
SH7_3	Population dynamics: households, family and fertility
SH7_4	Social aspects of health, ageing and society
SH7_5	Sustainability sciences, environment and resources
SH7_6	Environmental and climate change, societal impact and policy
SH7_7	Cities; urban, regional and rural studies
SH7_8	Land use and planning
SH7_9	Energy, transportation and mobility
SH7_10	GIS, spatial analysis; big data in geographical studies

## 2. PANEL 2: Physical Sciences and Engineering (PE)

### 2.1 RESEARCH AREA: PE1

**Mathematical sciences:** all areas of mathematics, theoretical and applied, and the mathematical foundations of computer science, physics and statistics

KEY WORDS:

Numer	Słowa klucz
PE1_1	Logic and foundations
PE1_2	Algebra
PE1_3	Number theory
PE1_4	Algebraic and complex geometry
PE1_5	Lie groups, Lie algebras
PE1_6	Geometry and global analysis
PE1_7	Topology
PE1_8	Analysis
PE1_9	Operator algebras and functional analysis
PE1_10	ODE and dynamical systems
PE1_11	Theoretical aspects of partial differential equations
PE1_12	Mathematical physics
PE1_13	Probability
PE1_14	Mathematical statistics
PE1_15	Generic statistical methodology and modelling
PE1_16	Discrete mathematics and combinatorics
PE1_17	Mathematical aspects of computer science
PE1_18	Numerical analysis
PE1_19	Scientific computing and data processing
PE1_20	Control theory, optimisation and operational research
PE1_21	Application of mathematics in sciences
PE1_22	Application of mathematics in industry and society

## 2.2 RESEARCH AREA: PE2

**Basic constituents of matter:** particle, nuclear, plasma, atomic, molecular, gas and optical physics

KEY WORDS:

Numer	Słowa klucz
PE2_1	Theory of fundamental interactions
PE2_2	Phenomenology of fundamental interactions
PE2_3	Experimental particle physics with accelerators
PE2_4	Experimental particle physics without accelerators
PE2_5	Classical and quantum physics of gravitational interactions
PE2_6	Nuclear, hadron and heavy ion physics
PE2_7	Nuclear and particle astrophysics
PE2_8	Gas and plasma physics
PE2_9	Electromagnetism
PE2_10	Atomic, molecular physics
PE2_11	Ultra-cold atoms and molecules
PE2_12	Optics, non-linear optics and nano-optics
PE2_13	Quantum optics and quantum information
PE2_14	Lasers, ultra-short lasers and laser physics
PE2_15	Thermodynamics
PE2_16	Non-linear physics
PE2_17	Metrology and measurement
PE2_18	Equilibrium and non-equilibrium statistical mechanics: steady states and dynamics

## 2.3 RESEARCH AREA: PE3

**Condensed matter physics:** structure, electronic properties, fluids, nanoscience, biological physics

KEY WORDS:

Numer	Słowa klucz
PE3_1	Structure of solids, material growth and characterisation
PE3_2	Mechanical and acoustical properties of condensed matter, lattice dynamics
PE3_3	Transport properties of condensed matter
PE3_4	Electronic properties of materials, surfaces, interfaces, nanostructures
PE3_5	Physical properties of semiconductors and insulators
PE3_6	Macroscopic quantum phenomena, e.g. superconductivity, superfluidity, quantum Hall effect
PE3_7	Spintronics
PE3_8	Magnetism and strongly correlated systems
PE3_9	Condensed matter – beam interactions (photons, electrons, etc.)
PE3_10	Nanophysics, e.g. nanoelectronics, nanophotonics, nanomagnetism, nanoelectromechanics
PE3_11	Mesoscopic quantum physics and solid-state quantum technologies
PE3_12	Molecular electronics
PE3_13	Structure and dynamics of disordered systems, e.g. soft matter (gels, colloids, liquid crystals), granular matter, liquids, glasses, defects
PE3_14	Fluid dynamics (physics)
PE3_15	Statistical physics: phase transitions, condensed matter systems, models of complex systems, interdisciplinary applications
PE3_16	Physics of biological systems

## 2.4 RESEARCH AREA: PE4

**Physical and analytical chemistry:** analytical chemistry, theoretical chemistry, physical chemistry (chemical physics)

KEY WORDS:

Numer	Słowa klucz
PE4_1	Physical chemistry
PE4_2	Spectroscopic and spectrometric techniques
PE4_3	Molecular architecture and Structure
PE4_4	Surface science and nanostructures
PE4_5	Analytical chemistry
PE4_6	Chemical physics
PE4_7	Chemical instrumentation
PE4_8	Electrochemistry ,electrodialysis, microfluidics, sensors
PE4_9	Method development in chemistry
PE4_10	Heterogeneous catalysis
PE4_11	Physical chemistry of biological systems
PE4_12	Chemical reactions: mechanisms, dynamics, kinetics and catalytic reactions
PE4_13	Theoretical and computational chemistry
PE4_14	Radiation and Nuclear chemistry
PE4_15	Photochemistry
PE4_16	Corrosion
PE4_17	Characterization methods of materials
PE4_18	Environment chemistry

## 2.5 RESEARCH AREA: PE5

**Chemistry and synthetic materials:** new materials and their preparation, structure-property relationships, solid state chemistry, molecular architecture, organic chemistry

KEY WORDS:

Numer	Słowa klucz
PE5_1	Structural properties of materials
PE5_2	Solid state materials chemistry
PE5_3	Surface modification
PE5_4	Ionic liquids
PE5_5	New materials: oxides, alloys, composite, organic-inorganic hybrid, nanoparticles
PE5_6	Biomaterials synthesis
PE5_7	Intelligent materials synthesis – self assembled materials
PE5_8	Coordination chemistry
PE5_9	Colloid chemistry
PE5_10	Biological chemistry and chemical biology
PE5_11	Chemistry of condensed matter
PE5_12	Homogeneous catalysis
PE5_13	Macromolecular chemistry
PE5_14	Polymer chemistry
PE5_15	Photochemistry
PE5_16	Supramolecular chemistry
PE5_17	Organic chemistry
PE5_18	Medicinal chemistry

## 2.6 RESEARCH AREA: PE6

**Computer science and information technology:** computer science, information technology and systems, scientific computing, smart systems

KEY WORDS:

Numer	Słowa klucz
PE6_1	Computer architecture, embedded systems, operating systems
PE6_2	Distributed systems, parallel computing, sensor networks, cyber-physical systems
PE6_3	Software engineering, programming languages and systems
PE6_4	Theoretical computer science, formal methods, automata
PE6_5	Security, privacy, cryptology, quantum cryptography
PE6_6	Algorithms and complexity, distributed, parallel and network algorithms, algorithmic game theory
PE6_7	Artificial intelligence, intelligent systems, natural language processing
PE6_8	Computer graphics, computer vision, multimedia, computer games
PE6_9	Human computer interaction and interface, visualisation
PE6_10	Web and information systems, data management systems, information retrieval and digital libraries, data fusion
PE6_11	Machine learning, statistical data processing and applications using signal processing (e.g. speech, image, video)
PE6_12	Scientific computing, simulation and modelling tools
PE6_13	Bioinformatics, bio-inspired computing, and natural computing
PE6_14	Quantum computing (formal methods, algorithms and other computer science aspects)



## 2.7 RESEARCH AREA: PE7

**Systems and telecommunications engineering:** electrical, electronic, communications, optical and systems engineering

KEY WORDS:

Numer	Słowa klucz
PE7_1	Control engineering
PE7_2	Electrical engineering: power components and/or systems
PE7_3	Simulation engineering and modelling
PE7_4	(Micro- and nano-) systems engineering
PE7_5	(Micro- and nano-) electronic, optoelectronic and photonic components
PE7_6	Communication systems, wireless technology, high-frequency technology
PE7_7	Signal processing
PE7_8	Networks, e.g. communication networks and nodes, Internet of Things, sensor networks, networks of robots
PE7_9	Man-machine interfaces
PE7_10	Robotics
PE7_11	Components and systems for applications (in e.g. medicine, biology, environment)
PE7_12	Electrical energy production, distribution, applications

## 2.8 RESEARCH AREA: PE8

**Process and production engineering:** product and process design, chemical, civil, environmental, mechanical, automotive engineering, energy processes and relevant computational methods

KEY WORDS:

Numer	Słowa klucz
PE8_1	Aerospace engineering
PE8_2	Chemical engineering, technical chemistry
PE8_3	Civil engineering, architecture, offshore construction, lightweight construction, geotechnics
PE8_4	Computational engineering
PE8_5	Fluid mechanics
PE8_6	Energy processes engineering
PE8_7	Mechanical engineering
PE8_8	Propulsion engineering, e.g. hydraulic, turbo, piston, hybrid engines
PE8_9	Production technology, process engineering
PE8_10	Manufacturing engineering and industrial design
PE8_11	Environmental engineering, e.g. sustainable design, waste and water treatment, recycling, regeneration or recovery of compounds, carbon capture & storage
PE8_12	Naval/marine engineering
PE8_13	Industrial bioengineering
PE8_14	Automotive and rail engineering; multi-/inter-modal transport engineering

## 2.9 RESEARCH AREA: PE9

**Astronomy and space research:** astrophysics, astrochemistry, astrobiology, Solar System, planetary systems, stellar, galactic and extragalactic astronomy, space research, instruments

KEY WORDS:

Numer	Słowa klucz
PE9_1	Solar physics – the Sun and the heliosphere
PE9_2	Solar system science
PE9_3	Exoplanetary science, formation and characterization of extrasolar planets
PE9_4	Astrobiology
PE9_5	Interstellar medium and star formation
PE9_6	Stars – stellar physics, stellar systems
PE9_7	The Milky Way
PE9_8	Galaxies – formation, evolution, clusters
PE9_9	Cosmology and large-scale structure, dark matter, dark energy
PE9_10	Relativistic astrophysics and compact objects
PE9_11	Gravitational wave astronomy
PE9_12	High-energy and particle astronomy
PE9_13	Astronomical instrumentation and data, e.g. telescopes, detectors, techniques, archives, analyses

## 2.10 RESEARCH AREA: PE10

**Earth sciences:** physical geography, geological sciences, geophysics, atmospheric and climate sciences, oceanography, cryology, ecology, global environmental change, biogeochemical cycles, natural resource management

KEY WORDS:

Numer	Słowa klucz
PE10_1	Atmospheric chemistry, atmospheric composition, air pollution
PE10_2	Meteorology, atmospheric physics and dynamics
PE10_3	Climatology and climate change
PE10_4	Terrestrial ecology, land cover change
PE10_5	Geology, tectonics, volcanology
PE10_6	Palaeoclimatology, paleoecology
PE10_7	Physics of earth's interior, seismology, geodynamics
PE10_8	Oceanography (physical, chemical, biological, geological)
PE10_9	Biogeochemistry, biogeochemical cycles, environmental chemistry
PE10_10	Mineralogy, petrology, igneous petrology, metamorphic petrology
PE10_11	Geochemistry, cosmochemistry, crystal chemistry, isotope geochemistry, thermodynamics
PE10_12	Sedimentology, soil science, palaeontology, earth evolution
PE10_13	Physical geography, geomorphology
PE10_14	Earth observations from space/remote sensing
PE10_15	Geomagnetism, paleomagnetism
PE10_16	Ozone, upper atmosphere, ionosphere
PE10_17	Hydrology, hydrogeology, engineering and environmental geology, water and soil pollution
PE10_18	Cryosphere, dynamics of snow and ice cover, sea ice, permafrosts and ice sheets
PE10_19	Planetary geology and geophysics
PE10_20	Geohazards
PE10_21	Earth system modelling and interactions

## 2.11 RESEARCH AREA: PE11

**Material engineering:** development of advanced materials: performance improvement, modelling, large-scale processes, modification, adjustment, optimisation, innovative use of existing materials e.g. composites

KEY WORDS:

Numer	Słowa klucz
PE11_1	Engineering of biomaterials, biomimetic, bioinspired and bio-enabled materials
PE11_2	Engineering of metals and alloys
PE11_3	Engineering of ceramics and glasses
PE11_4	Engineering of polymers and plastics
PE11_5	Engineering of composites and hybrid materials
PE11_6	Engineering of carbon materials
PE11_7	Engineering of metal oxides
PE11_8	Engineering of alternative established or emergent materials
PE11_9	Nanomaterials engineering, e.g. nanoparticles, nanoporous materials, 1D & 2D nanomaterials
PE11_10	Soft materials engineering, e.g. gels, foams, colloids
PE11_11	Porous materials engineering, e.g. covalent-organic, metal-organic, porous aromatic frameworks
PE11_12	Semi-conducting and magnetic materials engineering
PE11_13	Metamaterials engineering
PE11_14	Computational methods for materials engineering

## 3. PANEL 3: Life Sciences (LS)

### 3.1 RESEARCH AREA: LS1

**Basic life processes at the cellular level: biological mechanisms, structures and functions:** molecular biology, biochemistry, structural biology, molecular biophysics, synthetic and chemical biology, drug design, innovative methods and modelling

KEY WORDS:

Numer	Stowa klucz
LS1_1	Macromolecular complexes including interactions involving nucleic acids, proteins, lipids and carbohydrates
LS1_2	Biochemistry
LS1_3	DNA and RNA biology
LS1_4	Protein biology
LS1_5	Lipid biology
LS1_6	Glycobiology
LS1_7	Molecular biophysics, biomechanics, bioenergetics
LS1_8	Structural biology
LS1_9	Molecular mechanisms of signalling processes
LS1_10	Synthetic biology
LS1_11	Chemical biology
LS1_12	Protein design
LS1_13	Early translational research and drug design
LS1_14	Innovative methods and modelling in molecular, structural and synthetic biology

### 3.2 RESEARCH AREA: LS2

**Integrative biology: from genes and genomes to systems:** genetics, epigenetics, genomics and other omics research, bioinformatics, systems biology, genetic diseases, gene editing, innovative methods and modelling, omics for personalised medicine

KEY WORDS:

Numer	Słowa klucz
LS2_1	Genetics
LS2_2	Gene editing
LS2_3	Epigenetics
LS2_4	Gene regulation
LS2_5	Genomics
LS2_6	Metagenomics
LS2_7	Transcriptomics
LS2_8	Proteomics
LS2_9	Metabolomics
LS2_10	Glycomics/Lipidomics
LS2_11	Bioinformatics and computational biology
LS2_12	Biostatistics
LS2_13	Systems biology
LS2_14	Genetic diseases
LS2_15	Integrative biology for personalised medicine
LS2_16	Innovative methods and modelling in integrative biology



### 3.3 RESEARCH AREA: LS3

**Biology at the cell level: cellular, developmental and regenerative biology:** structure and function of the cell, cell-cell communication, embryogenesis, tissue differentiation, organogenesis, growth, development, evolution of development, organoids, stem cells, regeneration, therapeutic approaches

KEY WORDS:

Numer	Słowa klucz
LS3_1	Cell cycle, cell division and growth
LS3_2	Cell senescence, cell death, autophagy, cell ageing
LS3_3	Cell behaviour, including control of cell shape, cell migration
LS3_4	Cell junctions, cell adhesion, the extracellular matrix, cell communication
LS3_5	Cell signalling and signal transduction, exosome biology
LS3_6	Organelle biology and trafficking
LS3_7	Mechanobiology of cells, tissues and organs
LS3_8	Embryogenesis, pattern formation, morphogenesis
LS3_9	Cell differentiation, formation of tissues and organs
LS3_10	Developmental genetics
LS3_11	Evolution of developmental strategies
LS3_12	Organoids
LS3_13	Stem cells
LS3_14	Regeneration
LS3_15	Development of cell-based therapeutic approaches for tissue regeneration
LS3_16	Functional imaging of cells and tissues
LS3_17	Theoretical modelling in cellular, developmental and regenerative biology



### 3.4 RESEARCH AREA: LS4

Biology at the tissue, organ and organism level: human physiology in health, disease and ageing processes: organ and tissue physiology, comparative physiology, physiology of ageing, pathophysiology, communication between organs and tissues, endocrinology, nutrition, metabolism, interaction with the microbiome, non-communicable diseases including cancer (except diseases of the nervous system and those related to the immune system)

KEY WORDS:

Numer	Słowa klucz
LS4_1	Organ and tissue physiology and pathophysiology
LS4_2	Comparative physiology
LS4_3	Physiology of ageing
LS4_4	Endocrinology
LS4_5	Non-hormonal mechanisms of inter-organ and tissue communication
LS4_6	Microbiome and host physiology
LS4_7	Nutrition and exercise physiology
LS4_8	Impact of stress (including environmental stress) on physiology
LS4_9	Metabolism and metabolic disorders, including diabetes and obesity
LS4_10	The cardiovascular system and cardiovascular diseases
LS4_11	Haematopoiesis and blood diseases
LS4_12	Cancer
LS4_13	Other non-communicable diseases (except disorders of the nervous system and immunity-related diseases)

### 3.5 RESEARCH AREA: LS5

**Neurology and nervous system diseases:** development of the nervous system, homeostasis and ageing, function and dysfunction of the nervous system, neuroscience and systems modelling, biological basis of cognitive processes and behaviour, neurological and psychiatric disorders

KEY WORDS:

Numer	Słowa klucz
LS5_1	Neuronal cells
LS5_2	Glial cells and neuronal-glia communication
LS5_3	Neural development and related disorders
LS5_4	Neural stem cells
LS5_5	Neural networks and plasticity
LS5_6	Neurovascular biology and blood-brain barrier
LS5_7	Sensory systems, sensation and perception, including pain
LS5_8	Neural basis of behaviour
LS5_9	Neural basis of cognition
LS5_10	Ageing of the nervous system
LS5_11	Neurological and neurodegenerative disorders
LS5_12	Mental disorders
LS5_13	Nervous system injuries and trauma, stroke
LS5_14	Repair and regeneration of the nervous system
LS5_15	Neuroimmunology, neuroinflammation
LS5_16	Systems and computational neuroscience
LS5_17	Imaging in neuroscience
LS5_18	Innovative methods and tools for neuroscience

### 3.6 RESEARCH AREA: LS6

**Immunology, infections and immunotherapy:** immune system, related diseases and their mechanisms, biology of infectious agents and infections, biological basis for prevention and treatment of infectious diseases, innovative immunological tools and approaches, including therapies

KEY WORDS:

Numer	Słowa klucz
LS6_1	Innate immunity
LS6_2	Adaptive immunity
LS6_3	Regulation of the immune response
LS6_4	Immune-related diseases
LS6_5	Biology of pathogens (e.g. bacteria, viruses, parasites, fungi)
LS6_6	Infectious diseases
LS6_7	Mechanisms of infection
LS6_8	Biological basis of prevention and treatment of infection
LS6_9	Antimicrobials, antimicrobial resistance
LS6_10	Vaccine development
LS6_11	Innovative immunological tools and approaches, including therapies



### 3.7 RESEARCH AREA: LS7

**Prevention, diagnosis and treatment of human diseases:** medical technologies and tools for prevention, diagnosis and treatment of human diseases, therapeutic approaches and interventions, pharmacology, preventive medicine, epidemiology and public health, digital medicine

KEY WORDS:

Numer	Słowa klucz
LS7_1	Medical imaging for prevention, diagnosis and monitoring of diseases
LS7_2	Medical technologies and tools (including genetic tools and biomarkers) for prevention, diagnosis, monitoring and treatment of diseases
LS7_3	Nanomedicine
LS7_4	Regenerative medicine
LS7_5	Applied gene, cell and immune therapies
LS7_6	Other medical therapeutic interventions, including transplantation
LS7_7	Pharmacology and toxicology
LS7_8	Effectiveness of interventions, including resistance to therapies 9
LS7_9	Public health and epidemiology
LS7_10	Preventative and prognostic medicine
LS7_11	Environmental health, occupational medicine
LS7_12	Health care, including care for the ageing population
LS7_13	Palliative medicine
LS7_14	Digital medicine, e-medicine, medical applications of artificial intelligence
LS7_15	Medical ethics

### 3.8 RESEARCH AREA: LS8

**Environmental biology, ecology and evolution:** ecology, biodiversity, environmental change, evolutionary biology, behavioural ecology, microbial ecology, marine biology, ecophysiology, theoretical development and modelling

KEY WORDS:

Numer	Słowa klucz
LS8_1	Ecosystem and community ecology, macroecology
LS8_2	Biodiversity
LS8_3	Conservation biology
LS8_4	Population biology, population dynamics, population genetics
LS8_5	Biological aspects of environmental change, including climate change
LS8_6	Evolutionary ecology
LS8_7	Evolutionary genetics
LS8_8	Phylogenetics, systematics, comparative biology
LS8_9	Macroevolution and paleobiology
LS8_10	Ecology and evolution of species interactions
LS8_11	Behavioural ecology and evolution
LS8_12	Microbial ecology and evolution
LS8_13	Marine biology and ecology
LS8_14	Ecophysiology, from organisms to ecosystems
LS8_15	Theoretical developments and modelling in environmental biology, ecology, and evolution

### 3.9 RESEARCH AREA: LS9

**Biotechnology and biosystems engineering:** biotechnology with the use of all organisms, biotechnology for environmental and food applications, applied plant and animal sciences, bioengineering and synthetic biology, biomass and biofuels, biological hazards

KEY WORDS:

Numer	Stowa klucz
LS9_1	Bioengineering for synthetic and chemical biology
LS9_2	Applied genetics, gene editing and transgenic organisms
LS9_3	Bioengineering of cells, tissues, organs and organisms
LS9_4	Microbial biotechnology and bioengineering
LS9_5	Food biotechnology and bioengineering
LS9_6	Marine biotechnology and bioengineering
LS9_7	Environmental biotechnology and bioengineering
LS9_8	Applied plant sciences, plant breeding, agroecology and soil biology
LS9_9	Plant pathology and pest resistance
LS9_10	Veterinary and applied animal sciences
LS9_11	Biomass production and utilisation, biofuels
LS9_12	Ecotoxicology, biohazards and biosafety



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