Cluster 1

Health

The aims of this cluster include improving and protecting the health and well-being of citizens of all ages by generating new knowledge, developing innovative solutions and integrating where relevant a gender perspective to prevent, diagnose, monitor, treat and cure diseases. Further aims include developing health technologies, mitigating health risks, protecting populations and promoting good health and well-being in general and at work.

Finally, this cluster also aims to make public health systems more cost-effective, equitable and sustainable, prevent and tackle poverty-related diseases and support and enable patients' participation and self-management.

AREAS OF INTERVENTION

- health throughout the life course
- environmental and social health determinants
- non-communicable and rare diseases
- infectious diseases including poverty-related and neglected diseases
- tools, technologies and digital solutions for health and care including personalised medicine
- health care systems

Source: Cluster 1

PhD, DSc

Adam Czarnecki

RESEARCH TEAM ON RURAL WELL-BEING

INSTITUTE OF RURAL AND AGRICULTURAL DEVELOPMENT, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

DARECKI@IOPAN.PL

+48 58 731 18 13

EXPERTISE

The research team is focused on the well-being and quality of life of rural and farming communities. We are interested in learning more about the socioeconomic factors and the resulting challenges for having a good life as well as the rural people's coping strategies to mitigate the negative effects of the ongoing processes such as the climate change, population shifts. We conduct work on farmers' and other rural residents' well-being shaped by variety of forces at different territorial scales.

SEEKING FOR COLLABORATION WITHIN

Well-being, quality of life, good life, coping strategies, rural/local communities, farmers

RELEVANT PROJECTS

FARMWELL

PhD, DSc

Maciej Figiel

DEPARTMENT OF MOLECULAR NEUROBIOLOGY

INSTITUTE OF BIOORGANIC CHEMISTRY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

MFIGIEL@IBCH.POZNAN.PL

+48 61 852 85 03 EXT. 1150

EXPERTISE

Our team studies the pathogenesis and therapy of neurodegeneration in model diseases such as polyglutamine Huntington's disease, juvenile HD, and SCA3/MJD. We define the earliest pre-symptomatic developmental pathogenesis using early brain models such as organoids, single-cell RNAseq, and proteomics. We investigate shRNA and AAV-based therapies (silencing or gene delivery) in our Knock-in SCA3 mouse and humanized HD mouse models model using BBB permeable AAV or AAV brain injections.

SEEKING FOR COLLABORATION WITHIN

neurodegeneration, brain, AAV drugs, organoids, HCS, microscopy, animal models, therapy, proteomics

RELEVANT PROJECTS

SCACYP

TreatPolyQ

National Ataxia Foundation funded project

PhD, DSc

Jacek Łukasz Kolanowski

CENTRE FOR CHEMICAL BIOLOGY ERIC

INSTITUTE OF BIOORGANIC CHEMISTRY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

JACEK.KOLANOWSKI@IBCH.POZNAN.PL

+48 61 852 85 03 EXT. 1165

EXPERTISE

In our research group we design, develop, and use fluorescent probes and assays for multiparametric imaging in live cells. In our core facility we offer (1) high throughput screening for identification of drug candidates (fluor. & biolum., biochemical and cell-based assays including high content imaging), (2) ultraresolution (<5 nm, MINFLUX) & superresolution fluorescent microscopy (STED, STED-FLIM) in live cells, (3) synthesis of chemical probes, natural compound analogues and hit optimization.

SEEKING FOR COLLABORATION WITHIN

chemical biology, fluorescent probes, multiplexing, imaging, HTS, protein labelling, core facility

RELEVANT PROJECTS

EU-OPENSCREEN-DRIVE

ISIDORe

AgroSERV

Professor
Marek Figlerowicz
DEPARTMENT OF MOLECULAR AND SYSTEMS BIOLOGY

INSTITUTE OF BIOORGANIC CHEMISTRY, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
MAREKF@IBCH.POZNAN.PL
+48 61 852 85 03 EXT. 1103

EXPERTISE

Our group focuses on cell engineering, particularly for the purposes of regeneration and interceptive medicine. We study factors shaping cell identities and states in the context of epigenetic rejuvena-tion, direct cell reprogramming, and intercellular communication via short- and long-distance RNA transport. We combine cutting-edge single-cell spatial multiomics, micro-patterned cell cultures, organoid models, and machine learning to model cell trajectories and control cell fate and functions.

SEEKING FOR COLLABORATION WITHIN

cardiology, AI,epigenetics, transdifferentiation, RNA, extracellular vesicles, CRISPR, APOBEC

RELEVANT PROJECTS

ECBiG-MOSAIC
NEB
LifeTime
LifeTime

PhD
Artur Zelent
DEPARTMENT OF MOLECULAR BIOLOGY

INSTITUTE OF GENETICS AND ANIMAL BIOTECHNOLOGY, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
A.ZELENT@IGBZPAN.PL
+48 22 736 70 86

EXPERTISE

Our current research focuses on the use of an innovative iterative functional and genomics approach to design new therapeutic strategies for patients with Myelodysplastic Syndromes (MDS), Acute Myeloid Leukemia (AML), and Chro-nic Lymphocytic Leukaemia (CLL). We are also interested in studying the relationship between the epigenetic landscape and the pathogenesis of diseases.

SEEKING FOR COLLABORATION WITHIN

biochemistry, genetics, molecular biology, medicine and health sciences, chemistry, immunology

RELEVANT PROJECTS

NCN/OPUS17
NCN/OPUS21

PhD, DSc, Assoc. Prof.
Tomasz Wypych
LABORATORY OF HOST-MICROBIOME INTERACTIONS

NENCKI INSTITUTE OF EXPERIMENTAL BIOLOGY, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
T.WYPYCH@NENCKI.EDU.PL
+48 22 589 21 84

EXPERTISE

Our research aims to unravel bidirectional interactions between the commensal microbiota and the host, which could be harnessed to treat inflammatory diseases. On the microbial side, we focus on identifying immunomod-ulatory metabolites active in the lungs and brain, and tailoring them toward the formulation of therapeutics against inflammatory conditions such as respiratory infections, asthma, and neuroinflammation. On the host side, we dissect IgA bacteria interactions that promote colonization of specific bacterial strains and exert far reaching effects on airway immunity.

SEEKING FOR COLLABORATION WITHIN

immunology, asthma, neurodegenerative disease, microbiome, metabolism

RELEVANT PROJECTS

FIRST TEAM - FENG

Professor

Izabela Wocławek-Potocka

EMBRYO BIOLOGY TEAM

INLIFE INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

I.WOCLAWEK-POTOCKA@PAN.OLSZTYN.PL

+48 668 398 919

EXPERTISE

We research advanced reproductive biotechnology in cattle, focusing on pre-implantation embryo development and oocyte quality markers to assess embryo viability. Our core method is in vitro embryo production (IVP), supporting micromanipulation, gene expression analysis, immunofluorescence, embryo culture, cryopreservation, and transfer. We study oocytes collected post-mortem and in vivo (OPU) from mature and immature animals, including young cattle to accelerate genetic progress. Our findings are translated into practical field applications for veterinarians and cattle breeders.

SEEKING FOR COLLABORATION WITHIN

embryotransfer, in vitro embryo production, veterinary

RELEVANT PROJECTS

NCN OPUS Lap

NCN OPUS

NCN OPUS

Assoc. Prof.

Joanna Wiśniewska

LABORATORY OF SPATIAL EPIGENETICS

INLIFE INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

J.BUKOWSKA@PAN.OLSZTYN.PL

+48 89 500 33 12

EXPERTISE

The research of the Regenerative Biology Team focuses primarily on the cellular and molecular mechanisms of skin wound healing. We are particularly interested in the following areas: • the impact of diet, aging, and metabolic status on the wound healing process; • skin regeneration versus repair; • wound healing–associated skin fibrosis; • metabolic regulation of skin regeneration and fibrosis; • skin immunology; • stem cells in wound healing and skin regeneration; • *in vitro* skin models in translational research

SEEKING FOR COLLABORATION WITHIN

metabolic diseases, nutrition , aging and regenerative medicine, immunology, inflammation, bioengineering

PhD, DSc

Katarzyna Leszczyńska

LABORATORY OF TUMOUR OF HYPOXIA AND EPIGENOMICS

NENCKI INSTITUTE OF EXPERIMENTAL BIOLOGY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

K.LESZCZYNSKA@NENCKI.EDU.PL

+48 22 589 22 51

EXPERTISE

Our research group focuses on tumour progression and therapy resistance in H3K27-altered diffuse midline gliomas (DMG). We investigate how tumour hypoxia and the H3K27M oncohistone can be exploited for therapeutic benefit. We apply CUT&RUN, ATAC-seq and chromatin capture to identify druggable vulnerabilities in DMG cells and their microenvironment. We study hypoxia-driven chromatin reprogramming, evaluate H3K27M-dependent gene targets, and explore strategies to eliminate the detrimental oncohistone from DMG cells.

SEEKING FOR COLLABORATION WITHIN

tumour microenvironment, mouse glioma models, paediatric high-grade gliomas, epigenomics, radiotherapy

RELEVANT PROJECTS

HIT-GLIO

PhD, DSc, Assoc. Prof.

Aleksandra Pękowska

DIOSCURI CENTER FOR CHROMATIN BIOLOGY AND EPIGENOMICS

NENCKI INSTITUTE OF EXPERIMENTAL BIOLOGY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

A.PEKOWSKA@NENCKI.EDU.PL

+48 22 589 21 70

EXPERTISE

Our group uses stem cell models, high-throughput sequencing technologies (ChIP-seq, ATAC-seq, RNA-seq, Hi-C), CRISPR-Cas9-mediated genome editing, and computational tools to decipher the regulatory networks orchestrating astrocyte evolution and functions in mammals and to understand the interplay between chromatin topology and gene expression.

SEEKING FOR COLLABORATION WITHIN

chromatin biology, epigenomics and transcriptional regulation, astrocyte biology and neurodevelopment

RELEVANT PROJECTS

Dioscuri Grant

MSCA Doctoral Network

Professor

Marek Strączkowski

HEAD OF PROPHYLAXIS OF METABOLIC DISEASES TEAM

INLIFE INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

M.STRACZKOWSKI@PAN.OLSZTYN.PL

+48 85 722 25 58

EXPERTISE

Research within the Prophylaxis of Metabolic Diseases Team focuses on the pathogenesis of insulin resistance, with particular emphasis on assessment of insulin resistance in individuals at increased risk of type 2 diabetes, pathogenesis of skeletal muscle and adipose tissue insulin resistance - tissue transcriptomic, cell cultures mechanisms of an improvement in insulin sensitivity during lifestyle intervention.

SEEKING FOR COLLABORATION WITHIN

pathogenesis of skeletal muscle and adipose tissue insulin resistance

RELEVANT PROJECTS

NCN OPUS

Assoc. Prof.

Adam Jurgoński

BIOLOGICAL FUNCTION OF FOOD TEAM

INLIFE INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

A.JURGONSKI@PAN.OLSZTYN.PL

+48 89 50 03 313

EXPERTISE

Elucidating the physiological and molecular mechanisms through which both well-known and novel dietary components influence gut function and metabolic health. The team conducts controlled feeding experiments using animal models of disorders characteristic of diet-related diseases. The research to date has focused on: • phenolic extracts and fiber–phenolic preparations, • prebiotic preparations and food additives, • unconventional sources of unsaturated fatty acids, • trace minerals in nanoparticle form.

SEEKING FOR COLLABORATION WITHIN

preparation, chemical analysis, evaluation of the properties of novel food ingredients

RELEVANT PROJECTS

NCN/OPUS

NCN/OPUS

NCN/SONATA

Assoc. Prof.

Radosław Kowalski

AQUATIC ORGANISM REPRODUCTIVE BIOTECHNOLOGY TEAM

INLIFE INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

R.KOWALSKI@PAN.OLSZTYN.PL

+48 692 901 511

EXPERTISE

The research interests focus broadly on the reproduction of aquatic organisms and its support under controlled conditions. This includes understanding physiological and biochemical mechanisms underlying gamete function, as well as developing and optimizing methods that enhance reproductive success in both experimental and applied contexts, including aquaculture and conservation programs. Specific expertise: sperm motility and kinematic analysis, seminal plasma biochemistry and functional biomarkers, sperm cryopreservation and long-term storage of genetic resources.

SEEKING FOR COLLABORATION WITHIN

genetic and genomic analyses, molecular data, reproductive processes

RELEVANT PROJECTS

Salmocross

Professor

Ewelina Knapska

LABORATORY OF EMOTIONS NEUROBIOLOGY

NENCKI INSTITUTE OF EXPERIMENTAL BIOLOGY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

E.KNAPSKA@NENCKI.EDU.PL

+48 22 589 23 70

EXPERTISE

Our research aims to understand the neural circuit mechanisms controlling social interaction and reward learning in health and disease. We focus on the amygdala and its functional connectivity with other brain structures, using neuroanatomical methods, opto- and chemogenetics, and recording neuronal activity. We have developed social communication, emotion discrimination, and reward learning behavioral protocols, including an automated system to track the behavior of mice in semi-naturalistic settings.

SEEKING FOR COLLABORATION WITHIN

autism/depression models, social behavior/reward processing in humans, ultrasound brain stimulation

RELEVANT PROJECTS

BRAINCITY

PainSociOT

EnviroMood

PhD, DSc, Assoc. Prof.

Grzegorz Sumara

DIOSCURI CENTER FOR METABOLIC DISEASES

NENCKI INSTITUTE OF EXPERIMENTAL BIOLOGY, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES

G.SUMARA@NENCKI.EDU.PL

+48 22 589 21 90

EXPERTISE

Our Laboratory seeks to elucidate the signaling pathways regulating basic metabolic processes in adipose tissue, intestine and liver as well as inter-organ cross-talk, perturbations of which often result in metabolic diseases. We combine cell biology, biochemical and -omics approaches with mouse genetics. By determining essential signaling networks we aim to contribute to more targeted pharmacological strategies for the treatment of metabolic diseases such as obesity or type 2 diabetes (T2D).

SEEKING FOR COLLABORATION WITHIN

metabolism, obesity, diabetes, kinase signaling, ERK3, protein kinase D (PKD), lipolysis, ubiquitin

RELEVANT PROJECTS

TR 240

Dioscuri Grant

SiCMetabol

Professor
Iwona Grabowska
BIOELECTROANALYTICS TEAM

INLIFE INSTITUTE OF ANIMAL REPRODUCTION AND FOOD RESEARCH, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
I.GRABOWSKA@PAN.OLSZTYN.PL
+48 89 500 33 44

EXPERTISE

Studying the interactions between biomolecules using electroanalytical methods to develop innovative analytical systems that can be applied in medicine, veterinary science, food analysis, and environmental protection. We are particularly interested in: • testing of antibodies, single-stranded nucleic acids (ssDNA, ssRNA), and aptamers as recognition element in electrochemical biosensors, • exploring new carbon or gold nanomaterials as transducer element in biosensors, • systems for targeted and controlled delivery of therapeutically significant compounds to cancer cells.

SEEKING FOR COLLABORATION WITHIN

electrochemical biosensors, aptasensors, immunosensors, genosensors, biomarkers

RELEVANT PROJECTS

ADEVASCO
NCN OPUS
NCN OPUS

Professor
Roza Kucharczyk
LABORATORY OF BIOENERGETICS AND MITOCHONDRIAL DISEASE MECHANISMS

INSTITUTE OF BIOCHEMISTRY AND BIOPHYSICS, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
ROZA@IBB.WAW.PL
+48 22 592 12 21

EXPERTISE

Our research focuses on mitochondrial ATP synthase – an inner mitochondrial membrane enzyme. Our unique expertise on a global scale lies in targeted mutagenesis of mitochondrial DNA in S. cerevisiae yeast. We aim to understand the mechanisms of ATP synthase dysfunction due to mutations in genes encoded by mtDNA. We also study post-translational, redox homeostasis--dependent, mechanisms regulating ATP synthase and OXPHOS activities, focusing on the interplay between ampylation/phosphorylation.

SEEKING FOR COLLABORATION WITHIN

mitochondrial bioenergetics, mitochondrial diseases, redox homeostasis in mitochondria

RELEVANT PROJECTS

OPUS 16, National Science Centre

PhD, Assistant Professor
Agata Starosta
LABORATORY OF TRANSLATOMICS

INSTITUTE OF BIOCHEMISTRY AND BIOPHYSICS, PAS

DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
AGATA.STAROSTA@IBB.WAW.PL
+48 22 592 33 41

EXPERTISE

I am interested in prokaryotic translation, gene expression regulation on a translation level, antibiotics targeting translation machinery, antibiotic resistance related to translation, and translation during sporulation in Bacillus subtilis. I apply a state-of-the-art analytical approach, utilizing Next Generation Sequencing to elucidate the regulatory role of translation machinery, combined with fluorescence-based microscopy, genetics, and biochemistry.

SEEKING FOR COLLABORATION WITHIN

molecular microbiology, antibiotic discovery

RELEVANT PROJECTS

EMBO Installation Grant (nr 3914)
FIRST TEAM
OPUS19

PhD, Assistant Professor
Roman Szczesny
LABORATORY OF RNA BIOLOGY

INSTITUTE OF BIOCHEMISTRY AND BIOPHYSICS, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
RSZCZESNY@IBB.WAW.PL
+48 22 592 20 33

EXPERTISE

Our laboratory focuses on understanding how mitochondrial RNAs are controlled in terms of their quality, quantity, and processing. Our main objective is to uncover the machinery responsible for the decay and surveillance of mitochondrial RNA. We also study the mechanisms that maintain and regulate the mitochondrial DNA and how they enable the cell to respond and adapt to different conditions. To achieve these goals, we use various methods, including genome-wide high-content siRNA screenings.

SEEKING FOR COLLABORATION WITHIN

RNA processing and decay, mitochondrial gene expression, mitochondrial DNA replication and repair

RELEVANT PROJECTS

MITGEST
SONATA BIS 11
FIRST TEAM
RNA Technologies

PhD, Assistant Professor
Kevin Waldron
LABORATORY OF METALLOPROTEIN BIOLOGY

INSTITUTE OF BIOCHEMISTRY AND BIOPHYSICS, PAS
DIVISION II - BIOLOGICAL AND AGRICULTURAL SCIENCES
KWALDRON@IBB.WAW.PL
+48 22 592 33 42

EXPERTISE

My group has studied the structure and function of metalloproteins for more than a decade, including those involved in multiple aspects of human and animal health and in bacterial pathogens. Approximately one-third of all proteins use metals, making understanding metal usage by proteins relevant to almost every aspect of biology and medicine. We use bioinformatics, biochemistry and biophysics to study how proteins utilize metal cofactors, as well as how metal usage has evolved.

SEEKING FOR COLLABORATION WITHIN

biophysics, microbiology, bioinorganic chemistry, structural biology, immunology

RELEVANT PROJECTS

MAESTRO
NIH R01 AI155611-01
UKRI BBSRC BB/S006818/1
Wellcome Trust 098375/Z/12/Z

PhD
Wojciech Cypryk
LABORATORY OF MOLECULAR MEDICINE

CENTRE OF MOLECULAR AND MACROMOLECULAR STUDIES, PAS
DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES
WOJCIECH.CYPRYK@CBMM.LODZ.PL
+48 42 680 32 15

EXPERTISE

Our work focuses on different aspects of extracellular vesicle (EV) biology, including proteomics, signalling, and EV function in cancer and inflammation. Our current aims include understanding how EVs are generated in inflammatory and cancer cells, as well as characterising intercellular EV-mediated signalling in the context of diseases such as cancer or atherosclerosis. We combine proteomic and bioinformatic analyses to better understand both the biogenesis and signalling capacity of EVs.

SEEKING FOR COLLABORATION WITHIN

immunology, inflammasome, extracellular vesicles, proteomics, atherosclerosis, bioinformatics

RELEVANT PROJECTS

NCN/SONATINA2
NCN/SONATA19

PhD, DSc
Monika Gosecka
CROSS-LINKED MATERIALS TEAM

CENTRE OF MOLECULAR AND MACROMOLECULAR STUDIES, PAS
DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES
MONIKA.GOSECKA@CBMM.LODZ.PL
+48 42 680 32 70

EXPERTISE

Our laboratory is focused on polymer networks and their characteristics. In particular, we develop hydrogel materials for biomedical applications as carriers of water-insoluble active substances and advanced dressings in the therapy of diabetic foot ulcers. We also work on the synthesis of bio-derived reprocessable rubbers.

SEEKING FOR COLLABORATION WITHIN

drug delivery, molecular calculations, reversible networks, reprocessable networks

RELEVANT PROJECTS

SONATA BIS 8
NCN OPUS 25
Proof of Concept, FNP
SONATA 15

PhD, DSc
Agnieszka Kowalczuk
LABORATORY OF NANO- AND MICROSTRUCTURAL MATERIALS

CENTRE OF POLYMER AND CARBON MATERIALS, PAS
DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES
AKOWALCZUK@CMPW-PAN.PL
+48 32 271 60 77 (EXT. 235)

EXPERTISE

Our research focuses on designing advanced polymer materials for biomedical use. Alongside well defined linear polymers in terms of molar mass and functionality, we synthesize branched macromolecules, including star-shaped, dendritic, and hyperbranched polymers, some responsive to environmental stimuli. This approach enables us to develop innovative nano- and microstructures for personalized drug delivery, antifouling and antibacterial polymers, and stimuli-responsive tools for cell culture.

SEEKING FOR COLLABORATION WITHIN

drug delivery, tissue engineering, bioprinting, molecular cell biology, antibacterial activity

RELEVANT PROJECTS

NCN/OPUS
NCN/OPUS
POLYCELL

Professor
Grażyna Adamus
LABORATORY OF BIODEGRADABLE MATERIALS

CENTRE OF POLYMER AND CARBON MATERIALS, PAS
DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES
GADAMUS@CMPW-PAN.PL
+48 32 271 60 77 (EXT. 226)

EXPERTISE

Our group investigates biodegradable and biocompatible polyesters for medical and environmental applications. Our research interests include polymers from renewable sources, the synthesis of functional polyesters with controlled biodegradability and determining the structure-property relationships of new polymer materials. We also have experience in the use of mass spectrometry techniques for molecular-level structural studies of synthetic polymers and the products of their degradation.

SEEKING FOR COLLABORATION WITHIN

biodegradable polyesters, drug delivery system, biomaterials, eco-packaging, mass spectrometry

RELEVANT PROJECTS

GREEN Map
PELARGODONT
Bio ANC Hydrogel

PhD, DSc
Urszula Szeluga
LABORATORY OF CARBON AND POLYMER-CARBON MATERIALS

CENTRE OF POLYMER AND CARBON MATERIALS, PAS
DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES
USZELUGA@CMPW-PAN.PL
+48 32 271 60 77 (EXT. 245)

EXPERTISE

Our team specializes in the synthesis, functionalization and surface modification of carbon materials, including graphene, applied individually and in polymer-carbon composites. We study the relationship between the structure and electrochemical properties of such materials and focus on their potential applications as smart materials in micro-devices, sensors, EMI shielding materials, and wearable electronics. Carbon materials also show great promise for energy storage and biomolecule detection systems.

SEEKING FOR COLLABORATION WITHIN

carbon materials, polymer matrix composites, biomolecule detection, smart materials, energy storage

RELEVANT PROJECTS

NCBR funded project

PhD, DSc
Sławomira Pusz
MICROSCOPY LABORATORY

CENTRE OF POLYMER AND CARBON MATERIALS, PAS
DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES
SPUSZ@CMPW-PAN.PL
+48 32 271 60 77 (EXT. 235)

EXPERTISE

Our team specializes in using Transmission Electron Microscopy, including its Cryogenic Mode, to visualize and characterize polymers, polymeric bioconjugates, polymer-lipid hybrids, lipids and carbon materials for use in nanomedicine, pharmacy and drug delivery systems. We focus on nanoparticles as potential carriers for drugs and active substances. Polymers, lipids and their hybrids are of significant scientific interest because of their self-organisation features and potential applications as nanocarriers.

SEEKING FOR COLLABORATION WITHIN

lipids, polymer-lipid hybrids, lyotropic liquid crystalline nanoparticles, drug delivery systems

RELEVANT PROJECTS

NCBR funded project

Professor
Rafał Wiglusz
BBRA - BIOMATERIALS FOR BIO-RELATED APPLICATIONS, DIVISION OF BIOMEDICAL PHYSICOCHEMISTRY

INSTITUTE OF LOW TEMPERATURE & STRUCTURE RESEARCH, PAS
DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES
R.WIGLUSZ@INTIBS.PL
+48 71 395 41 59

EXPERTISE

Our laboratory is focused on the preparation of nanosized biomaterials, followed by the creation of periodically ordered nanostructures based on single nanoparticles. An important factor is the design and fabrication of nanocomponents with new functionalities and characteristics for improving existing materials: photonic and conductive materials, polymers and composites. The aim is to develop innovative products and applications in electronics and biomedicine based on nanoscale technology.

SEEKING FOR COLLABORATION WITHIN

biomaterials, tissue regeneration, cells proliferation, biopolymers, hydrogels, block copolymers

RELEVANT PROJECTS

NCN funded project

NCN funded project

POIR

POWR

PhD, DSc
Agnieszka Michota-Kamińska
PLASMONIC NANOSTRUCTURES FOR BIOSPECTROSCOPIC ANALYSES

INSTITUTE OF PHYSICAL CHEMISTRY, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

AKAMIN@ICHF.EDU.PL

+48 22 343 32 28

EXPERTISE

Our group is focused on Raman vibrational and surface-enhanced Raman spectroscopy, surface plasmon resonance for biomolecule detection & identification (e.g. protein, DNA, viruses, antigens, antibodies, bacteria, fungi and cancer cells) for analytical & medical applications. We also develop innovative SERS platforms based on femtosecond laser-modified silicon, polymer layers created by electrospinning or polymer membranes with nanopores.

SEEKING FOR COLLABORATION WITHIN

Raman, SERS, bacteria, cancer cells, lung cancer, chemometric analysis, nanoplasmonic structures

RELEVANT PROJECTS

NOBLESSE

NCBR funded project/Bio-SERS

Professor
Marcin Drąg
CHEMICAL BIOLOGY CENTRE

INSTITUTE OF PHYSICAL CHEMISTRY, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

MARCIN.DRAG@ICHF.EDU.PL

+48 22 343 24 26

EXPERTISE

Prof. Marcin Drąg, head of the newly established Chemical Biology Centre at IChF, is a chemical biologist known for pioneering a technology platform that uses natural and unnatural amino acids to monitor protease activity. Under his leadership, the Centre will develop advanced chemical tools for biological and medical applications, collaborating closely with other research teams at IChF to contribute to the creation of next-generation diagnostic and therapeutic solutions.

SEEKING FOR COLLABORATION WITHIN

chemical biology, unnatural amino acids, peptides, inhibitors of proteases

RELEVANT PROJECTS

PERFECTION (Horizon Europe, ERA Chairs)

Professor
Joanna Niedziółka-Jönsson
SURFACE NANOENGINEERING GROUP

INSTITUTE OF PHYSICAL CHEMISTRY, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

JNIEDZIOLKA@ICHF.EDU.PL

+48 22 343 31 30

EXPERTISE

Our group specializes in the synthesis and functionalization of plasmonic nanoparticles and their spatial organization. We use these particles as elements in plasmonic sensors and to study molecular interactions. The group also works on the development of peptides as recognition elements in biosensors. The peptides are panned from libraries using the phage display technique.

SEEKING FOR COLLABORATION WITHIN

surface characterisation, biosensing, metallic particle synthesis

RELEVANT PROJECTS

CREATE

Noblesse

Professor

Maciej Wojtkowski

INTERNATIONAL CENTRE FOR TRANSLATIONAL EYE RESEARCH

INSTITUTE OF PHYSICAL CHEMISTRY, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

ICTER@ICHF.EDU.PL

+48 607 293 453

EXPERTISE

We are an RDI center created to advance cutting-edge hi-tech to support the diagnosis and treatment of eye diseases, enabling faster implementation of new therapies. We specialize in the field of minimally invasive surgery, structural and ophthalmic biology, computational genomics, bioinformatics, biochemical control of the protein machinery, genetic repair in inherited diseases, and tissue engineering. We develop optical imaging and robotic technologies to assist in eye surgery and drug delivery.

SEEKING FOR COLLABORATION WITHIN

medical physics, biochemistry, instrumentation/ biomedical engineering, ophthalmology

RELEVANT PROJECTS

CREATE

Youtube link

IMCUSTOMEYE

FNP funded project

Professor

Robert Hołyst

SOFT CONDENSED MATTER GROUP

INSTITUTE OF PHYSICAL CHEMISTRY, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

RHOLYST@ICHF.EDU.PL

+48 22 343 31 23

EXPERTISE

We use single-molecule fluorescence methods to study diffusion in the nanoscale & aim to determine the mechanisms involved in the cellular uptake of drugs, protein oligomerization, and the quantitative description of drug-target interactions. We strive to quantitatively understand biochemical reactions with DNA in a flask & in living cells' nuclei by developing novel techniques for bioanalysis. We also study nonequilibrium thermodynamics/statistical physics.

SEEKING FOR COLLABORATION WITHIN

soft matter, transport in cells, biochemistry, statistical physics & thermodynamics

RELEVANT PROJECTS

NaMeS

WIB HERO

NCN/OPUS22

PhD, DSc

Marcin Klepka

LABORATORY OF X-RAY AND ELECTRON MICROSCOPY RESEARCH

INSTITUTE OF PHYSICS, PAS

DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES

MKLEPKA@IFPAN.EDU.PL

+48 22 116 34 79

EXPERTISE

Our lab focuses on the characterization of the structural and electronic properties of matter, ranging from bulk material, through 1D/2D/3D nanoobjects, to biologically active molecules. We apply experimental techniques based on X-ray (XRD, XAS, XPS), electron (SEM, TEM) and ion beams (SIMS), supported with theoretical modelling (DFT). Our research extends towards non-ambiguous (low/high temperature, high pressure) conditions and dynamic studies (down to sub-ps time scale).

SEEKING FOR COLLABORATION WITHIN

x-ray spectroscopy and diffraction, atomic structure and structural transformation

RELEVANT PROJECTS

NCN projects

Ministry of Science and Higher Education projects

EAgLE

Science Link

Baltic Tram

PhD, DSc
Bożena Sikora-Dobrowolska
LABORATORY OF BIOLOGICAL PHYSICS

INSTITUTE OF PHYSICAL CHEMISTRY, PAS
DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES
BOZENA.SIKORA@IFPAN.EDU.PL
+48 22 116 35 39

EXPERTISE

Our laboratory focuses on the preparation of opto-magnetic nanoparticles with upconverting properties for theranostic applications. We have expertise in synthesizing nanoparticles doped with rare earth ions for fluorescent imaging and magnetic nanoparticles for hyperthermia and MRI. The group also works on the functionalization of nanoparticles with SiO2 and photosensitizers for PDT. In our laboratory, we can test nanoparticle luminescence on cell cultures using confocal microscopy.

SEEKING FOR COLLABORATION WITHIN

hyperthermia, protein labelling, MRI measurements, *in vivo* testing, nanoparticle synthesis

RELEVANT PROJECTS

NCN/SONATA8

Professor
Bartłomiej Witkowski
GROUP OF PHYSICS OF OXIDE STRUCTURES

INSTITUTE OF PHYSICAL CHEMISTRY, PAS
DIVISION III - MATHS, PHYSICS, CHEMISTRY, EARTH SCIENCES
BWITKOW@IFPAN.EDU.PL
+48 22 116 33 41

EXPERTISE

Our group specializes in the production and characterization of a variety of oxide nanostructures in the form of layers (tested as antibacterial and osteointegration coatings), nanorods (an excellent base for biosensors.) and nanopowders (for cancer diagnostics and therapy, as well as supplementation). We rely mainly on Atomic Layer Deposition (ALD) and hydrothermal technologies, with which we have many years of experience.

SEEKING FOR COLLABORATION WITHIN

Human Tumour Marker Studies, biosensors, human and animal implant studies, antibacterial coatings

RELEVANT PROJECTS

NCN projects
Ministry of Science and Higher Education projects
EAgLE
NCBR projects (TECHMATSTRATEG, POIR, POIG, PBS)

Professor
Andrzej Gamian
LABORATORY OF MEDICAL MICROBIOLOGY

HIRSZFELD INSTITUTE OF IMMUNOLOGY AND EXPERIMENTAL THERAPY, PAS
DIVISION V - MEDICAL SCIENCES
ANDRZEJ.GAMIAN@HIRSZFELD.PL
+48 502 302 941

EXPERTISE

Research on the pathogenicity mechanisms of certain diseases of bacterial etiology and the role of phages, surface glycoconjugates, and protein bacterial antigens in accompanying immune processes. In particular, we perform structural and serological studies of surface bacterial, viral, and phage antigens and the role of these antigens in disease development and immune responses. We work on vaccines, ad- juvants, actinomycetal diagnostics, and glycolipid and polysaccharide biomarkers.

SEEKING FOR COLLABORATION WITHIN

conjugate vaccines, advanced glycation end-products

RELEVANT PROJECTS

2023/ABM
2022/ABM
OPUS20
OPUS23

Professor
Joanna Wietrzyk
LABORATORY OF EXPERIMENTAL ANTICANCER THERAPY

HIRSZFELD INSTITUTE OF IMMUNOLOGY AND EXPERIMENTAL THERAPY, PAS

DIVISION V - MEDICAL SCIENCES
JOANNA.WIETRZYK@HIRSZFELD.PL
+48 71 370 99 85, EXT. 371

EXPERTISE

Focused on tumor metastases and angiogenesis, experimental anticancer therapy, immunotherapy, preclinical studies of potential anticancer drugs. Interested in the influence and mechanism of vitamin D and its derivatives on the tumor microenvironment; mechanisms of vitamin D interaction with anticancer drugs; new isothiocyanate derivatives and new bisphosphonates for use in anti-cancer therapy; immunotherapy using genetically modified dendritic cells; microRNA in the invasive growth of breast cancer.

SEEKING FOR COLLABORATION WITHIN

tumor metastases, angiogenesis, drugs, experimental anticancer therapy, immunotherapy, vit. D, calcitriol

RELEVANT PROJECTS

ADEVASCO
OPUS18
OPUS14
POIR

Professor
Aleksandra Klimczak
LABORATORY OF BIOLOGY OF STEM AND NEOPLASTIC CELLS

HIRSZFELD INSTITUTE OF IMMUNOLOGY AND EXPERIMENTAL THERAPY, PAS

DIVISION V - MEDICAL SCIENCES
ALEKSANDRA.KLIMCZAK@HIRSZFELD.PL
+48 71 337 11 72 EXT. 118

EXPERTISE

Our laboratory is focused on cellular therapies in regenerative medicine and cancer stem cells. We work on: (1) MSCs and their secretome in regenerative processes; (2) an interdisciplinary approach to the biocompatibility of cells and scaffold, e.g. MSCs secretome and biological scaffold for the treatment of chronic wounds, the osteogenic potential of MSCs seeded on the composite scaffolds as a bioimplant for the reconstruction of large bone defects; (3) cancer stem cells as a therapeutic target.

SEEKING FOR COLLABORATION WITHIN

MSC, their secretome, microvesicles, chronic wounds, cardiovascular stents, regenerative medicine, cancer

RELEVANT PROJECTS

2024/ABM/03/KPO
M-ERA.NET 3 Call 2021
M-ERA.NET 3 Call 2023
SONATA BIS

PhD, DSc
Magdalena Bieda-Niemiec
LABORATORY OF SCANNING ELECTRON MICROSCOPY

INSTITUTE OF METALLURGY AND MATERIALS SCIENCE, PAS

DIVISION IV - ENGINEERING SCIENCES
M.BIEDA@IMIM.PL
+48 12 295 28 06

EXPERTISE

Our laboratory specializes in characterizing materials using scanning electron microscopy. We focus on qualitative and quantitative analysis of the orientation topography of crystalline materials (EBSD), 3D analysis of chemical composition and crystallographic orientation, and in situ investigations using heating stage. Our expertise includes investigating mechanisms of plastic deformation and material recrystallization in biomedical applications involving titanium, magnesium, and zinc alloys.

SEEKING FOR COLLABORATION WITHIN

biodegradable metals, severe plastic deformation methods, local microstructure characterization

RELEVANT PROJECTS

Bioabsmat
NCN Preludium Bis
NCBR LIDER

PhD, DSc

Roman Major

LABORATORY OF SURFACE ENGINEERING AND BIOMATERIALS

INSTITUTE OF METALLURGY AND MATERIALS SCIENCE, PAS

DIVISION IV - ENGINEERING SCIENCES

R.MAJOR@IMIM.PL

+48 12 295 28 60

EXPERTISE

We reconstruct natural organ structures using various types of biomaterials, with applications in blood-compatible materials and facial reconstruction, with a particular emphasis on mandibular implants tailored to specific clinical cases. Our work includes developing fluorescence techniques for analysing cell-substrate contact and dynamic blood tests and advancing organ-on-chip technology.

SEEKING FOR COLLABORATION WITHIN

biocybernetics, induced cell differentiation, dynamic cell culture, drug delivery systems

RELEVANT PROJECTS

jawIMPLANT

4DbloodROT

fingerIMPLANT

AtraumaBioMat

KIDmicroBLOODpump

Professor, PhD

Piotr Ładyżyński

LABORATORY OF DIAGNOSIS AND THERAPY SUPPORT OF METABOLIC DISEASES

NALECZ INSTITUTE OF BIOCYBERNETICS AND BIOMEDICAL ENGINEERING, PAS

DIVISION IV - ENGINEERING SCIENCES

PLADYZYNSKI@IBIB.WAW.PL

+48 22 592 59 41

EXPERTISE

We have wide experience in isolating and culturing HUVECs, as well as generating endothelial cells, blood vessels, and vascularized organoids from hiPSCs. We analyse metabolic profiles from cell cultures, biofluids, and tissue extracts using NMR spectroscopy. We develop and employ ICT and artificial intelligence systems, biomeasurement techniques, and mathematical and tissue models. These tools are applied to support diagnostics and investigate the pathomechanisms of selected chronic diseases.

SEEKING FOR COLLABORATION WITHIN

tissue engineering (3D bioprinting, organ-on-chip, organoids), metabolomics, biomeasurements

RELEVANT PROJECTS

NCN projects

PhD

Joanna Stachowska-Piętka

LABORATORY OF MATHEMATICAL MODELING OF PHYSIOLOGICAL PROCESSES

NALECZ INSTITUTE OF BIOCYBERNETICS AND BIOMEDICAL ENGINEERING, PAS

DIVISION IV - ENGINEERING SCIENCES

JSTACHOWSKA@IBIB.WAW.PL

+48 22 592 59 00

EXPERTISE

Working with clinical and experimental data as well as knowledge of human physiology, our laboratory applies physical laws to develop mathematical models focusing on three main topics: dialysis, the cardiovascular system, and tumours. We predict how dialysis will proceed and influence patient's wellbeing, how the cardiovascular system will respond to the medical treatments, and how tumours will grow and react to therapies. We are also interested in discovering patterns in multidimensional data sets.

SEEKING FOR COLLABORATION WITHIN

mathematical and computer modelling, dialysis, cancer, cardio-vascular system, data mining

RELEVANT PROJECTS

Project Novum-IBBE

NCN projects

Professor, PhD

Marek Darowski

LABORATORY FOR DIAGNOSTICS AND THERAPY OF CARDIOVASCULAR-RESPIRATORY SYSTEM

NALECZ INSTITUTE OF BIOCYBERNETICS AND BIOMEDICAL ENGINEERING, PAS

DIVISION IV - ENGINEERING SCIENCES

MDAROWSKI@IBIB.WAW.PL

+48 22 592 59 00

EXPERTISE

Our laboratory is focused on physiological modelling and simulations of the cardiovascular and respiratory systems, paying special attention to mechanical assistance of heart and lung function, biomedical signal and statistical analysis, and the development of devices for treating and monitoring these organs. We are engaged in developing an artificial cardio-respiratory patient – a unique device for independent lung ventilation – and an advanced monitoring system for thoracentesis.

SEEKING FOR COLLABORATION WITHIN

modelling and simulations, cardiovascular and respiratory systems, animal and clinical studies

RELEVANT PROJECTS

SensorART

NCN projects

Professor

Agnieszka Chacińska

LABORATORY OF MITOCHONDRIAL BIOGENESIS

IMOL POLISH ACADEMY OF SCIENCES

DIVISION V - MEDICAL SCIENCES

A.CHACINSKA@IMOL.INSTITUTE

+48 733 041 251

EXPERTISE

The Chacińska Group explores novel and exciting links between protein transport mechanisms and mitochondrial protein homeostasis. It postulates the presence of unique mechanisms involved in protein biogenesis that involve crosstalk between cytosol and mitochondrial compartments. The goal is to better understand the complex and dynamic processes involved in the formation of functional organelles, as well as the maintenance of cellular protein homeostasis and its failures, which result in pathology.

SEEKING FOR COLLABORATION WITHIN

molecular cell biology, biochemistry, mitochondria, protein biogenesis, homeostasis, stress response

RELEVANT PROJECTS

EMBO Installation Grant

FNP/WELCOME

NCN/MAESTRO7

FNP/ReMedy

PhD

Abdelhalim Azzi

LABORATORY OF LIPIDS AND CHRONOBIOLOGY

IMOL POLISH ACADEMY OF SCIENCES

DIVISION V - MEDICAL SCIENCES

A.AZZI@IMOL.INSTITUTE

+48 698 029 833

EXPERTISE

Our laboratory is focused on the role of pho-sphoinositide 5'-phosphatases in regulation of cell signaling in response to mitogenic signals. Moreover, we are also interested in understanding how these enzymes modulate different aspects of the circadian clock. As a model we are using inositol 5'-phosphatase SHIP2, and we are also planning to study the role of other enzymes from the same family, such as INPP5K and INPP5B.

SEEKING FOR COLLABORATION WITHIN

molecular and cell biology, phosphoinositide biology, autophagy, cancer biology

RELEVANT PROJECTS

MSCA COFUND

SNSF mobility grant

NCN/SONATABIS12

PhD
Maciej Cieśla
LABORATORY OF STEM CELL RNA METABOLISM

IMOL POLISH ACADEMY OF SCIENCES

DIVISION V - MEDICAL SCIENCES
M.CIESLA@IMOL.INSTITUTE
+48 608 667 221

EXPERTISE

The Cieśla lab focuses on understanding how stem cell activation is maintained at the level of RNA metabolism. It is our vision that different facets of RNA biology are intertwined to regulate cell fate trajectories during the activation of stem cells. Hence, our goal is to understand how macromolecular machineries of splicing, epi-transcriptomics, and translation functionally sculpt proteomes to determine differentiation outcomes and balance health and disease.

SEEKING FOR COLLABORATION WITHIN

RNA metabolism, stem cells, splicing, development, hematopoiesis, epitranscriptomics

RELEVANT PROJECTS

NCN/OPUS22

NCN/SONATABIS12

EMBO Installation Grant

PhD
Anna Marusiak
LABORATORY OF MOLECULAR ONCOSIGNALLING

IMOL POLISH ACADEMY OF SCIENCES

DIVISION V - MEDICAL SCIENCES
A.MARUSIAK@IMOL.INSTITUTE
+48 607 435 448

EXPERTISE

The Laboratory of Molecular OncoSignalling is interested in studying how aberrant signaling in cancer cells contributes to cancer development, metastasis, and therapy resistance, and how we can use that knowledge to design novel anticancer treatments. In particular, we focus on investigating oncogenic signaling activated by MLK4 in breast cancer and its role in metastasis and tumor microenvironment. We also assess the efficiency of novel MLK4 small molecule inhibitors and PROTAC compounds.

SEEKING FOR COLLABORATION WITHIN

cancer biology, signal transduction, breast cancer, inhibitors, PROTACs, cancer therapies

RELEVANT PROJECTS

FNP/HOMING

NCN/SONATABIS11

NCN/SONATA14

NCN/PRELUDIUM20

PhD
Piotr Gerlach
LABORATORY OF STRUCTURAL VIROLOGY

IMOL POLISH ACADEMY OF SCIENCES

DIVISION V - MEDICAL SCIENCES
P.GERLACH@IMOL.INSTITUTE
+48 690 557 222

EXPERTISE

Our lab studies how RNA viruses (bunyaviruses in particular) reorganize and exploit intracellular complexes. We combine structural biology (cryo-EM and X-ray) with mini-replicons mimicking viral transcription and replication in human cell cultures. We use this to identify host factors interacting with bunyaviral proteins and to monitor changes in the host proteome. The ultimate goal is to characterize assemblies of the viral polymerase and the host translation machinery formed during infection.

SEEKING FOR COLLABORATION WITHIN

molecular cell biology, translation, ribosomes, RNA viruses, antiviral drugs, cryo-EM

RELEVANT PROJECTS

EMBO Installation Grant

EMBO Long-Term Fellowship

NCN/SONATABIS12

PhD
Karolina Szczepanowska
LABORATORY OF METABOLIC QUALITY CONTROL

IMOL POLISH ACADEMY OF SCIENCES
DIVISION V - MEDICAL SCIENCES
K.SZCZEPANOWSKA@IMOL.INSTITUTE
+48 605 544 190

EXPERTISE

Our lab is fascinated by the mechanisms underlying the regulation of cellular metabolism. Our research focuses on the quality control of mitochondrial respiratory complexes, a set of elaborative mole-cular machines critical for energy production. The major aim is to understand how the respiratory complexes are surveilled, repaired and turned over upon exposure to stress. Our findings will help design new therapeutic strategies against diseases associated with metabolic constrain.

SEEKING FOR COLLABORATION WITHIN

cancer, rare diseases, mitochondria, protein turnover, protein quality control, metabolism

RELEVANT PROJECTS

EMBO Installation Grant

NCN/SONATABIS11

Professor
Ewa Ziętkiewicz
DEPARTMENT OF MOLECULAR AND CLINICAL GENETICS

INSTITUTE OF HUMAN GENETICS, PAS
DIVISION V - MEDICAL SCIENCES
EWA.ZIETKIEWICZ@IGCZ.POZNAN.PL
+48 61 657 92 03

EXPERTISE

We focus on three research areas: 1. We study the genetic basis of rare respiratory diseases; this includes epidemiology and evolutionary history of diagnostically relevant variants, and molecular biology of genetically determined defects of motile cilia in human epithelial cells and in a model of planaria. 2. We investigate the biology and molecular heterogeneity of hematologic neoplasms, with the focus on translational research. 3. We also study genetic and epigenetic diversity in modern humans, aiming to find forensic markers differentiating human populations.

SEEKING FOR COLLABORATION WITHIN

ciliopathies, cystic fibrosis, molecular diagnostics, hematological neoplasms, multiomics analyses

RELEVANT PROJECTS

COST_BEAT-PCD

BESTCILIA

UE Horyzont2020_ NEXTLEVEL

ERDERA

Professor
Maciej Giefing
DEPARTMENT OF CANCER GENETICS

INSTITUTE OF HUMAN GENETICS, PAS
DIVISION V - MEDICAL SCIENCES
MACIEJ.GIEFING@IGCZ.POZNAN.PL
+48 61 657 91 38

EXPERTISE

We are interested in the (epi)genetics of hema-tological neoplasms and head and neck cancers. We evolved from a group dedicated to the identification of tumor related genes (tumor suppressor genes and oncogenes). Currently, we are focusing on deciphering the role of deregulated transcription factors in these neoplasms, including multiple functional assays. Moreover, we have solid expertise in epigenetic research, including DNA methylation analysis and studying miRNAs and cfDNA.

SEEKING FOR COLLABORATION WITHIN

hematological neoplasms, Hodgkin lymphoma, head and neck cancers, laryngeal cancer

RELEVANT PROJECTS

NEXT_LEVEL

NCN/OPUS21

NCN/OPUS20

NCBR/POIR funded project

PhD
Natalia Rozwadowska
MOLECULAR PATHOLOGY DEPARTMENT

INSTITUTE OF HUMAN GENETICS, PAS
DIVISION V - MEDICAL SCIENCES
NATALIA.ROZWADOWSKA@IGCZ.POZNAN.PL
+48 61 6579219

EXPERTISE

Our research group uses pluripotent stem cells (IPSC) for developmental process monitoring and disease modeling. We focus on the cardiovascular system, investigating human gametogenic cell development, and using a chamber-specific human engineered heart tissue model together with heart-on-chip technology, offering the most advanced platform to study heart organogenesis and pa- thology. We have established the LAD ligation mouse model with broad portfolio of advanced molecular imaging of heart function for the CVD.

SEEKING FOR COLLABORATION WITHIN

CVD, male infertility, heart failure, RNA binding, tissue engineering, organ-on-chip

RELEVANT PROJECTS

NCN/OPUS13
NCN/SONATA14
NCN/OPUS24

PhD
Marzena Skrzypczak-Zielińska
DEPARTMENT OF NUCLEIC ACID FUNCTION

INSTITUTE OF HUMAN GENETICS, PAS
DIVISION V - MEDICAL SCIENCES
MARZENA.SKRZYPCZAK-ZIELINSKA@IGCZ.POZNAN.PL
+48 61 65 79 201

EXPERTISE

Our research centers on the pathogenesis and treatment of inflammatory bowel diseases and other gastrointestinal disorders. We apply NGS and QF PCR technologies to analyze gut microbiota composition and microbiota from various environments. Our team has extensive experience designing targeted NGS panels tailored for pharmacogenetic studies and conducting DNA profiling using STR markers in human and animal samples, and in vitro cultured cell lines.

SEEKING FOR COLLABORATION WITHIN

inflammatory bowel disease, irritable bowel syndrome, microbiota

RELEVANT PROJECTS

MEDPIG
ONKOKAN
ABM/2023/2
NCN/SONATA 12

Professor
Maciej Kurpisz
DEPARTMENT OF REPRODUCTIVE BIOLOGY AND STEM CELLS

INSTITUTE OF HUMAN GENETICS, PAS
DIVISION V - MEDICAL SCIENCES
MACIEJ.KURPISZ@IGCZ.POZNAN.PL
+48 616 579 202

EXPERTISE

Our department focuses on 2 modules: 1) the molecular background of male infertility and bio-logical properties of stem cells (their application in organ regeneration perspective); here we apply systemic biology to the transcriptomic identification of gene expression in dysfunctional male gonads and DNA arrays of infertile individuals to identify novel genes; 2) studies of pro-generative properties of stem cells investigated in clinical trials, for instance in the regeneration of post-infarction heart.

SEEKING FOR COLLABORATION WITHIN

male infertility, post-infarction heart, regenerative medicine, muscular dystrophy, stem cells

RELEVANT PROJECTS

SSA (European Commission) Grant No. LSSM-CT-511992
StrategMed
NCN/OPUS13
NCN/OPUS19

PhD
Agnieszka Dzikiewicz-Krawczyk
RESEARCH GROUP OF NON-CODING PARTS OF THE GENOME

INSTITUTE OF HUMAN GENETICS, PAS

DIVISION V - MEDICAL SCIENCES
AGNIESZKA.DZIKIEWICZ-KRAWCZYK@IGCZ.POZNAN.PL
+48 61 65 79 219

EXPERTISE

Our research group uses pluripotent stem cells (IPSC) for developmental process monitoring and disease modeling. We focus on the cardiovascular system, investigating human gametogenic cell development, and using a chamber-specific human engineered heart tissue model together with heart-on-chip technology, offering the most advanced platform to study heart organogenesis and pathology. We have established the LAD ligation mouse model with broad portfolio of advanced molecular imaging of heart function for the CVD.

SEEKING FOR COLLABORATION WITHIN

CVD, male infertility, heart failure, RNA binding, tissue engineering, organ-on-chip

RELEVANT PROJECTS

NCN/OPUS13
NCN/OPUS14
NCN/OPUS 24

Professor
Marzena Maćkowiak
LABORATORY OF PHARMACOLOGY AND BRAIN BIOSTRUCTURE, DEPARTMENT OF PHARMACOLOGY

MAJ INSTITUTE OF PHARMACOLOGY, PAS

DIVISION V - MEDICAL SCIENCES
MACKOW@IF-PAN.KRAKOW.PL
+48 12 662 32 62

EXPERTISE

The laboratory is focused on neurodevelopmental and pharmacological models of schizophrenia: prenatal MAM administration, blockade of NMDA receptors in juvenile and adult rodents. The laboratory uses maternal separation and social isolation paradigms to model early-life adversity. We conduct behavioral tests: fear conditioning, acoustic startle response, novel object recognition, social interaction, light/dark box, and molecular techniques (proteomics, transcriptomics), immunohistochemistry.

SEEKING FOR COLLABORATION WITHIN

epigenetics, environment vs. brain development, depression, anxiety, neuroplasticity, schizophrenia

Professor
Agata Faron-Górecka
DEPARTMENT OF PHARMACOLOGY, LABORATORY OF BIOCHEMICAL PHARMACOLOGY

MAJ INSTITUTE OF PHARMACOLOGY, PAS

DIVISION V - MEDICAL SCIENCES
GORECKA@IF-PAN.KRAKOW.PL
+48 12 662 33 18

EXPERTISE

Our laboratory employs diverse methodologies, including cell cultures, transgenic animals, radioisotope techniques PLA to map protein interactions, in situ hybridization, RT-PCR, miRNA measurements using TaqMan Array Cards and multiplexing protein- and gene-level measurements on the Luminex platform. Furthermore, our laboratory also performs behavioral tests: the forced swim test, tail suspension test, marble-burying test, and attentional set-shift task in mice.

SEEKING FOR COLLABORATION WITHIN

treatment-resistant depression, stress resilience, biomarkers, miRNAs, GPCRs dimerization

Professor
Krystyna Gołembiowska
RESEARCH TEAM NO 2, DEPARTMENT OF PHARMACOLOGY

MAJ INSTITUTE OF PHARMACOLOGY, PAS

DIVISION V - MEDICAL SCIENCES
NFGOLEMB@CYF-KR.EDU.PL
+48 12 662 32 11

EXPERTISE

Our laboratory is focused on the therapeutic effects of psychedelics in animal models of depression; in particular, we study mechanisms of psilocybin in naive and stressed animals. We work on neurotransmitter release (monoamines, acetylcholine, glutamate, and GABA) in the brain using microdialysis in freely moving rats. Our laboratory also conducts behavioral tests: the forced swim test, open field and novel object recognition, light/dark box.

SEEKING FOR COLLABORATION WITHIN

depression, anxiety, neuroplasticity, neurotransmitter release, DNA damage

Professor
Agnieszka Basta-Kaim
DEPARTMENT OF EXPERIMENTAL NEUROENDOCRINOLOGY/
LABORATORY OF IMMUNOENDOCRINOLOGY

MAJ INSTITUTE OF PHARMACOLOGY, PAS

DIVISION V - MEDICAL SCIENCES
BASTA@IF-PAN.KRAKOW.PL
+48 12 662 32 73

EXPERTISE

Our laboratory is focused on understanding of the mechanisms underlying complex brain functions under physiological and pathological conditions. In particular, we are focused on the neurodevelopmental and pharmacological models of depression, schizophrenia and Alzheimer's disease. We employ complex of animal models: neurodevelopmental of schizophrenia (MIA), depressive-like behaviors (prenatal stress), a genetic depression model (Wistar Kyoto rats), a model of Alzheimer's disease (APP NL-F/NL-F mice), and a rat diabetes model (streptozotocin).

SEEKING FOR COLLABORATION WITHIN

inflammatory bowel disease, microbiome, molecular diagnostics, large animal models, microRNAs

RELEVANT PROJECTS

EpiAD

Professor
Małgorzata Filip
RESEARCH GROUP OF NON-CODING PARTS OF THE GENOME

MAJ INSTITUTE OF PHARMACOLOGY, PAS

DIVISION V - MEDICAL SCIENCES
MAL.FIL@IF-PAN.KRAKOW.PL
+48 12 662 32 96

EXPERTISE

Our laboratory is focused on understanding of the mechanisms underlying complex brain functions under physiological and pathological conditions. In particular, we are interested in preclinical research methods of substance use and eating disorders, depression, anxiety, as well as social and cognitive decline. We employ complex behavioral analysis methods, in parallel with analyses focused on brain organization, protein interaction, genetic and epigenetic networks and synaptic connections.

SEEKING FOR COLLABORATION WITHIN

substance use disorder, feeding behavior, emotional state, learning, memory, cell and network level

RELEVANT PROJECTS

NCN/OPUS22

NCN funded project

NCN/SONATA16

DAAD-NAWA funded project

Professor
Agnieszka Olejniczak
SCREENING LABORATORY

INSTITUTE OF MEDICAL BIOLOGY, PAS

DIVISION V - MEDICAL SCIENCES
AOLEJNICZAK@CBM.PAN.PL
+48 42 272 36 37

EXPERTISE

Our screening laboratory primarily focuses on identifying new chemical compounds with potential biological activity, particularly in the field of medicinal chemistry. The laboratory explores the synthesis of chemical compounds with anticancer or antimicrobial activity modified with boron clusters. We also investigate the biological and physicochemical properties of such chemical compounds in relation to their antiviral activity.

SEEKING FOR COLLABORATION WITHIN

synthesis, boron clusters, carboranes and metallocarboranes, cytotoxicity, antiviral activity, BNCT

RELEVANT PROJECTS

EU-OPENSCREEN ERIC

Professor
Zbigniew Leśnikowski
MEDICAL CHEMISTRY LABORATORY

INSTITUTE OF MEDICAL BIOLOGY, PAS

DIVISION V - MEDICAL SCIENCES
ZLESNIK@CBM.PAN.PL
+48 42 209 33 80

EXPERTISE

Our laboratory specializes in synthesizing modified nucleosides, nucleotides, and DNA/RNA-oligonucleotides containing boron clusters and their complexes with metals. We study the relationship between the structure of such compounds (or their components) and their physicochemical and biological properties. Furthermore, the laboratory explores the potential applications of modified nucleic acids as novel materials in nanotechnology, biotherapeutics, and as molecular probes.

SEEKING FOR COLLABORATION WITHIN

chemistry of nucleosides, nucleotides and nucleic acids for molecular technologies, BNCT

RELEVANT PROJECTS

EU-OPENSCREEN ERIC

Professor
Jarosław Dziadek
MYCOBACTERIUM GENETICS AND PHYSIOLOGY LABORATORY

INSTITUTE OF MEDICAL BIOLOGY, PAS

DIVISION V - MEDICAL SCIENCES
JDZIADEK@CBM.PAN.PL
+48 42 272 36 00

EXPERTISE

Our team focuses on *Mycobacterium bacteria*, particularly the pathogenic *Mycobacterium tuberculosis*. Motivated by the urgent need to address current threats, we aim to discover new anti-mycobacterial drugs and diagnostic methods. We study mycobacterial virulence and explore host-pathogen interactions. Spanning from single molecules to bacterial ecosystems, our research focuses on mycobacterial cell biology (DNA repair, tRNA maturation, transcription, signal transduction, and cell wall biosynthesis) and genetic variability.

SEEKING FOR COLLABORATION WITHIN

mycobacterium bacteria, genetics, pathogens, host--pathogen interactions, DNA repair mechanisms

RELEVANT PROJECTS

EU-OPENSCREEN ERIC

PhD
Magdalena Winiarska
DEPARTMENT OF IMMUNOLOGY

MOSSAKOWSKI MEDICAL RESEARCH CENTRE, PAS
DIVISION V - MEDICAL SCIENCES
MWINIARSKA@IMDIK.PAN.PL
+48 22 608 64 49

EXPERTISE

The Department of Immunology is focused on elucidating the mechanisms regulating immune cell activation and advancing cancer immunotherapy using monoclonal antibodies, effector cells and cells engineered with chimeric antigen receptors (CAR). Our work ranges from basic research in the field of cancer immunology to translational research aimed at improving the efficacy of cancer therapy.

SEEKING FOR COLLABORATION WITHIN

adoptive therapy, CAR-T, monoclonal antibodies, tumor microenvironment, drug target, immunooncology

RELEVANT PROJECTS

STIMUNO ERC Starting Grant
ArTCell EIC PATHFINDER
MAVERIC Swiss-Polish Cooperation Programme
MAESTRO15

Professor
Leonora Bużańska
DEPARTMENT OF STEM CELL BIOENGINEERING

MOSSAKOWSKI MEDICAL RESEARCH CENTRE, PAS
DIVISION V - MEDICAL SCIENCES
BUZANSKA@IMDIK.PAN.PL
+48 602 575 161

EXPERTISE

Our expertise is neurobiology, stem cells (human iPSC and MSC), genetic engineering (gene editing, genetic vectors), bioengineering (natural and synthetic scaffolds, cell/biomaterial or cell/ECM interphase) and GMP compliant precision medicine. We are modeling neural disorders with human iPSCs lines (isogenic/control) and brain organoids (whole brain and region specific) in biomimetic microenvironment. We derive therapeutically competent cells and MVs for preclinical and clinical treatment.

SEEKING FOR COLLABORATION WITHIN

modeling neuropathology with iPSCs and brain organoids, MSCs and secretome, GMP-based cell therapies

RELEVANT PROJECTS

NCN/OPUS18
NCN/PRELUDIUM 21
NCN/OPUS28 LAP
NCN/Preludium Bis2022

PhD
Izabela Sabała
LABORATORY OF PROTEIN ENGINEERING

MOSSAKOWSKI MEDICAL RESEARCH CENTRE, PAS
DIVISION V - MEDICAL SCIENCES
ISABALA@IMDIK.PAN.PL
+48 22 608 64 51

EXPERTISE

We focus on developing novel antibacterials based on bacteriolytic enzymes to target antibiotic resistant pathogens, e.g. *Staphylococcus aureus, Streptococci, Enterococci, Pseudomonas aeruginosa, Klebsiella pneumoniae* and fungi. Each of our novel proteins is engineered to meet the requirements of future applications and tested as a preventive agent or potential drug to treat infectious diseases, e.g., chronic wounds, diabetic foot ulcers, atopic dermatitis, psoriasis, impedigo.

SEEKING FOR COLLABORATION WITHIN

AI-based protein engineering, biological antimicrobials, antibiotic resistance, skin diseases

RELEVANT PROJECTS

Infectless TEAM TECH FNP
PrevEco POLNOR19
MRA National Reconstruction Plan
NCN/OPUS26

PhD, DSc
Dawid Walerych
LABORATORY OF HUMAN DISEASE MULTIOMICS

MOSSAKOWSKI MEDICAL RESEARCH CENTRE, PAS

DIVISION V - MEDICAL SCIENCES
DWALERYCH@IMDIK.PAN.PL
+48 22 608 66 41

EXPERTISE

We research molecular processes leading to human diseases using large-scale molecular analyses. In particular, we are interested in the interplay of driver oncogenes in human neoplasias (mutant TP53, mutant K/H-RAS, hyperactive CMYC, HSP molecular chaperones and the proteasome machinery). Using large-scale omics methods (e.g. transcriptomics and proteomics) in conjunction with advanced disease model validation (e.g. organoids) we look for novel therapeutic protocols to treat human cancer

SEEKING FOR COLLABORATION WITHIN

molecular oncology, p53, RAS, MYC, Li-Fraumeni syndrome, omics, organoids, pancreatic cancer

RELEVANT PROJECTS

Proteasome in cancer
Multi-onco-map
Oncogene competition

Professor
Magdalena Zielińska
DEPARTMENT OF NEUROTOXICOLOGY

MOSSAKOWSKI MEDICAL RESEARCH CENTRE, PAS

DIVISION V - MEDICAL SCIENCES
MZIELINSKA@IMDIK.PAN.PL
+48 22 608 64 70

EXPERTISE

Our research focuses on the mechanisms underlying brain function in hyperammonemic encephalopathies (including rare diseases), anxiety, epilepsy, and metabolic disorders, as well as interorgan crosstalk with the liver and intestine. We combine cell biology, biochemical, and omics approaches with behavioural studies. We aim to decipher the role of the glutamine-glutamate cycle and oxidative stress in the pathobiology of gliomas, in search of therapeutic strategies in collaboration with clinicians and chemists.

SEEKING FOR COLLABORATION WITHIN

hyperammonemic encephalopathies, anxiety, metabolic diseases, epilepsy, gliomas, anticancer drugs

RELEVANT PROJECTS

HEPENTRANS EEA and Norway Grants
NCN/OPUS20
NCN/OPUS15
NCN/OPUS21

PhD
Jakub Godlewski
DEPARTMENT OF NEUROONCOLOGY

MOSSAKOWSKI MEDICAL RESEARCH CENTRE, PAS

DIVISION V - MEDICAL SCIENCES
JGODLEWSKI@IMDIK.PAN.PL
+48 22 608 65 67

EXPERTISE

Our department focuses on exploring the underlying mechanisms of brain tumours through phenotypic-genotypic studies, identifying new biomarkers and targets for diagnosis/prognosis and therapy. In particular, we study non-coding RNAs (microRNAs, lncRNAs, and circular RNAs) in the pathogenesis of glioblastomas. We also apply extracellular vesicles derived from non-coding RNA producing cells to develop novel therapies, and from oncolytic virus-infected cells to increase local and systemic anti-tumour immunity.

SEEKING FOR COLLABORATION WITHIN

neuro-oncology, extracellular vesicles, cancer therapy, immunotherapy, non-coding RNA, biomarkers

RELEVANT PROJECTS

NCN/OPUS21
NCN/OPUS23
NCN/OPUS20
NAWA/Polish Returns 2019

Professor
Lidia Karabon
LABORATORY OF GENETICS AND EPIGENETICS OF HUMAN DISEASES

HIRSZFELD INSTITUTE OF IMMUNOLOGY AND EXPERIMENTAL THERAPY, PAS

DIVISION V - MEDICAL SCIENCES
LIDIA.KARABON@HIRSZFELD.PL
+48 71 370 11 72 EXT. 267

EXPERTISE

Focused on developing advanced immunotherapies, particularly CAR-T and TCR-T, and on identifying biomarkers of response and resistance to immunotherapy, including markers guiding optimal recipient selection. Emphasis on immune-checkpoint regulation and genetic–epigenetic determinants shaping antitumor immunity in solid tumours (NSCLC, BLCA, RCC, melanoma) and haematological malignancies (AML, multiple myeloma, CLL), as well as diagnostic markers in blood cancers.

SEEKING FOR COLLABORATION WITHIN

immunotherapy, CAR-T, TCR-T, specific antibodies
immune checkpoints, genetic and epigenetic factors

RELEVANT PROJECTS

OPUS17
OPUS24
TACTIC
SCALEREADY'S G-REX® GRANT AWARD
FUNDACJA IM. JAKUBA HR. POTOCKIEGO

Professor
Andrzej Górski
BACTERIOPHAGE LABORATORY

HIRSZFELD INSTITUTE OF IMMUNOLOGY AND EXPERIMENTAL THERAPY, PAS

DIVISION V - MEDICAL SCIENCES
ANDRZEJ.GORSKI@HIRSZFELD.PL
+48 71 370 99 51 EXT. 399

EXPERTISE

Studies on the therapeutic potential of bacteriophages (phages), especially in human clinical scenarios. We isolate new phages to enrich our phage bank and identify their biological properties to select an optimal set of phages devoid of toxic and resistance conveying genes. Those phages are tested in animal models. In 2005 we established a phage therapy unit for patients with antibiotics-resistant infections. Now, a clinical trial of the therapy in patients with chronic bacterial sinusitis is being run.

SEEKING FOR COLLABORATION WITHIN

bacteriophage, phage therapy, phage immunobiology

RELEVANT PROJECTS

RHINOPHAGE
OPUS6
OPUS16
NOR/SGS/ACIPHAGE

Professor
Katarzyna Bogunia-Kubik
LABORATORY OF CLINICAL IMMUNOGENETICS AND PHARMACOGENETICS

HIRSZFELD INSTITUTE OF IMMUNOLOGY AND EXPERIMENTAL THERAPY, PAS

DIVISION V - MEDICAL SCIENCES
KATARZYNA.BOGUNIA-KUBIK@HIRSZFELD.PL
+48 71 337 11 72 EXT. 235

EXPERTISE

Research on hematopoietic and organ transplant immunology/immunogenetics, novel biomarkers associated with susceptibility, course of disease, response to treatment, efficacy and safety of therapies (e.g. rheumatic or hematological disorders), and factors related to immunogenetics of ageing. Focused on NK and γδT cells, characterization of extracellular vesicles, HLA and non-HLA polymorphisms, expression of miRNA and genes coding for proteins involved in the regulation of immune response, implementation of TERT variability and telomere length assessment for clinical purposes.

SEEKING FOR COLLABORATION WITHIN

transplant immunology/immunogenetics, epigenetics, NK cells, γδT cells, ageing, telomers, autoimmunity

RELEVANT PROJECTS

OPUS11
STRATEGMED
COST-CA17138
OPUS16
OPUS24