

SciLifeLab PULSE: matchmaking portfolio

Application round 1 (Jan–March 2025)

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Introduction

This portfolio has been compiled to assist candidates applying for the PULSE postdoc program in identifying a suitable SciLifeLab Group Leader/hosting Principal Investigator (PI) and lab for their proposed research project. All SciLifeLab Group Leader profiles can be browsed at <https://www.scilifelab.se/contact/group-leaders/> .

Applicants are free to choose their hosting lab. However, please note that no prior collaboration between the applicant and the proposed supervisor is permitted.

Applicants should contact their prospective supervisor to discuss and secure support for the research proposal, as well as obtain the PI's commitment to act as the main supervisor. An applicant can submit one proposal, and a PULSE PI can support two proposals. The rationale for further communication during the application process should be clearly specified (e.g., seeking scientific advice, discussing the proposed research, visiting lab facilities, or meeting the research team). Note that the PI is not allowed to be involved in writing the proposal.

The PIs featured in this portfolio have submitted keywords summarizing their research areas. These keywords have been consolidated at the beginning of the portfolio to help candidates identify PIs in their field of interest. Candidates can easily locate relevant PIs by using the keywords and document's search function.

Keywords

3D cell cultures

AAV

Acoustofluidics

ADC

ADME

aging

AI

AI agents

AI applications in Healthcare

AI based medicinal chemistry

affinity proteomics

antibody

algorithms

AlphaFold

AlphaFold2

Alzheimer

analysis pipeline development

ancient RNA

Antibiotic Susceptibility Testing (AST)

Antibodies

antibody drug discovery

antibody technology

anticancer therapy

Aptamers

Artificial-intelligence

assay development

assays

autoimmunity

bacteria

Bacteria defense systems

bacterial diversity

bacterial vectors

bacteriophages

B-cells

behavior

behavioral and neural modules

binding kinetics

Biocatalysis

Biochemical

biodiversity

Bio engineering

Bio-fluids

Bioimaging

bioinformatics

Biologics

biomarker

biomaterials

Biomaterials Engineering

Biopharmaceuticals

biophysics

bioprinting

Bioremediation

Biosensors

brain organoids

bispecific antibodies

body-fluids

Breast cancer

cancer

Cancer Biophysics

cancer phenotype switches

Cancer relapse

Cancer research

Cancer Therapy

calcium signalling

cardiac	dog
cardiovascular disease mechanisms	droplet microfluidics
Catalytic Medicine	drug conjugates
Causal inference	drug delivery
cell assays	drug discovery
cellular	Drug resistance
cellular micro-environment	drug targeting
cellular tomography	ecology
Chemical biology	early detection
circuits	electron microscopy
climate change	endometrium
clinical proteomics	endosome
clinical validation	Epidemiology
clonal evolution	epigenetics
colorectal cancer	epithelia
companion diagnostics	evolution
comparative genomics	Evolutionary genomics
computational biology	exosomes
CRISPR-Cas13	exposome
CRISPR screen	extracellular vesicles/exosomes
CROPseq	feature inference
cryo-electron microscopy	feedback-microscopy
Cryo-EM	FISH
cytoskeleton	flow cytometry
Data science	fluorescence
deep-learning	functional screening
degradation	gene regulation
diabetes	Gene therapies
diagnostics	Generative AI
distributed neural networks	genetic adaptation
DNA damage response and repair	Genetic epidemiology
DNA encoded chemistry	Genetic variation
DNA metabolism	genetics
DNA nanotechnology	Genomics

glioblastoma	Infection Medicine
GLP-1	infectious diseases
glycobiology	inflammation
Graph Machine Learning	innate immunity
Gut	innovation
gut infection	insects
Gut microbiome	In situ Cryo EM
Gut microbial functional potential	instinctual behaviors
health	Insulin secretion
Heparan sulfate	Insulin-dependent trafficking
heparanase	Integrated/integrative structural biology
high-resolution mass spectrometry	Lab on a chip
high through-put	leukemia
High-throughput biophysics	lifespan
High-Throughput-Screening	light activation
host-pathogen interactions	lineage tracing
Human	lipid biology
human islets	lipidomics
image-analysis, image processing	liquid biopsy
immune checkpoints	live cell imaging
Immune Responses	liver
immunity	LNP
immunofluorescence	local adaptation
immuno-genetics	lymphoma
immunology	lipid nanoparticle
immuno-oncology	long-read sequencing
immunotherapy	LOY
influenza virus	lung
in situ imaging	Machine learning
in situ sequencing	Macrophages
In situ structural biology	Magnetic resonance imaging
in vivo neural dynamics	Mass spectrometry
induced pluripotent stem cells (iPSC)	mast cells
infection	medical microbiology

meiosis	microsampling
Microbial genes	microscopy
Microbiology	modelling
Microphysiological Systems	molecular diagnostics
microRNA	molecular docking
mucosal immunology	molecular dynamics simulations
Molecular chaperones	molecular engineering
Molecular dynamics simulations	molecular glue degradation
Molecular detection	molecular mechanisms
Molecular Psychiatry	molecular modeling and simulation
Myeloid cells	molecular networks
machine learning	molecular neuroscience
marine science	molecular radiotherapy
Mass spectrometry	molecular recognition
Mechanism	molecular tools
medical chemistry	mRNA
Medical Microbiology	multi-disease serology
medicine	Multi-modal based profiling
medulloblastoma	multi-omics
membrane biology	Multi-omics Data Integration
membrane protein	nanoparticles
membrane protein transport	neural encoding
membrane remodelling	neural networks
membrane trafficking	neurodegenerative disease
metabolism	neuroimaging
metabolome	neuroinflammation
metabolomics	neuroproteomics
Metagenomics	Neuroscience
Metastasis	NMR
microbiology	non-coding mutation
microbiomes	nuclear receptors
microenvironment	Nucleic acids therapeutics
microfabrication	Nucleotide metabolism
microfluidics	oligonucleotides

oncology	protein - DNA interactions
Oligonucleotide synthesis	protein interactions
oncology	Protein dynamics
Optical Pooled Screening (OPS)	protein evolution
oral microbiome	protein folding
Organoid modelling	protein-protein interactions
organoids	protein structure
organs-on-chip	protein structure predictions
pancreatic cancer	proteins
parasite	proteoforms
Parkinsons	proteogenomics
pediatric obesity	proteoglycans
peptide therapeutics	proteomics
Precision diagnostics	proximity inducing agents
Preclinical	proximity ligation
Personalized Medicine	Psychotropic Drugs
Phage Biology	radiation oncology
Phage display	radioimmunotherapy
pharmacokinetics	radiopharmaceuticals
plasticity	rare disease
polymer chemistry	rare event detection
population genetics	RBP
Positron Emission Tomography	reference genome assembly
Precision health	regeneration
precision medicine	regenerative medicine
prevention	regulated proteolysis
prion	respiratory pathogens
PROTACS	ribosome dynamics
proteases	risk prediction
protein design	RNA Biology
protein and antibody profiling	screening
protein assays	scRNA-seq
protein degradation	selection
Protein design	sequencing data

Sequencing	Systems medicine
Sex Steroids	targeted delivery
signal processing	targeted radionuclide therapy
Single-cell and spatial transcriptomics	Taxonomy
single molecule	Therapeutic oligonucleotides
single-cell	therapy resistance
Single-cell biology	time-resolved cryo-EM
Smart microscopy	time-resolved X-ray scattering
Spatial	Tissue engineering
spatial biology	toxicology
Spatial omics	transcriptomics
spatial proteomics	transcriptomics-microbiomics
spatial transcriptomics	translational
Statistics	Translational Research
stress adaptation	Transporters
Structural Biology	transposon
structural proteomics	tumor biology
structural variation	tumor lineages
Structure and function prediction	tumor microenvironment
structure-based drug design	Vaccines
super resolution	Vascular biology
Super resolution microscopy	virtual screening
synchrotrons	Virus-host interaction
Synthetic biology	virus infection
Systems Biology	whole cell modeling
Systems immunology	zebrafish

Mikael Altun

University

Karolinska Institutet

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Research key words

Degradation, proximity ligation, molecular glue degradation, PROTACs

Research abstract

Focused on protein degradation and the ubiquitin-proteasome system, we develop cell-based assays for drug discovery, understanding degradation, and evaluating targeted molecules like PROTACs, molecular glues, and proximity-based modalities.

Interested to collaborate in

Drug development, assay development, AI-drug discovery, chemistry

Bio

Associate Professor at Karolinska Institutet, with expertise in protein degradation and the ubiquitin-proteasome system. Leads research on targeted cancer therapies, developing novel assays and molecules for drug discovery.

Olov Andersson

University

Uppsala University

Name of department

Department of Medical Cell Biology

Email address

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Research key words

Zebrafish, diabetes, beta-cell, regeneration, insulin

Research abstract

By bridging developmental biology, genetics and chemical biology we perform high-throughput in vivo drug discovery using the zebrafish model, to elucidate organogenesis and related mechanisms of disease, particularly for diabetes.

Interested to collaborate in

We strive to link basic and translational science and anticipate that our research ultimately will have a significant impact on understanding and developing new therapies for increasing the number of functional β -cell and thereby reverse diabetes. We will stick to our line of research but exchange methods and approaches in a synergistic fashion to explore beta-cell biology, thereby interact with drug-discovery, high-throughput transcriptomics and proteomics platforms.

Bio

Our laboratory currently has 9 people spanning 8 countries and a niche that is quite unique. We have about 500 aquaria with 150 mutant/transgenic zebrafish lines, now available for you.

Leif Andersson

University

Uppsala University

Name of department

Department of Medical
Biochemistry and Microbiology

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Research key words

Evolutionary genomics,
genetics, biodiversity, population genetics, genetic adaptation



Research abstract

The main research focus is evolutionary genomics and genetic adaptation in natural populations (Atlantic herring and other fish, Darwin's finches and ruff) using whole genome sequencing and functional genomics.

Interested to collaborate in

Evolutionary genomics, functional genomics, genotype-phenotype relationships

Bio

Leif Andersson is professor in Functional Genomics at Uppsala University. He is a specialist in genetics and genome biology. h-index (Google scholar): 112 (2024-09-24); 54,694 citations.

Anders Andersson

University

KTH

Name of department

Department of Gene Technology

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Research key words

Metagenomics, microbiomes, evolution, ecology, marine science

Research abstract

Anders Andersson's group develops and applies molecular and bioinformatics methods for studying microbiomes. They use meta-omics to reconstruct genomes and study the ecology and evolution in ecosystems such as the Baltic Sea.

Interested to collaborate in

Microbial ecology, evolution, genomics, biogeochemistry, meta-omics, machine-learning, bioinformatics

Bio

Prof and PI of the Environmental Genomics group at SciLifeLab (<https://envgen.github.io/>). Coordinates genetic data within the Swedish Biodiversity Data Infrastructure (SBDI) and scientific co-lead of Planetary Biology Capability at SciLifeLab.

Davide Angeletti

University

Gothenburg University

Name of department

Department of Microbiology and Immunology

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Research key words

influenza virus, antibodies, vaccine, B cells, mucosal immunology

Research abstract

The lab studies all aspects of the adaptive immune response to influenza A virus infection, with focus on B cell immunity and development of novel mucosal vaccines.

Interested to collaborate in

viral immunology, vaccinology

Bio

Associate Professor. Lab established in 2018 and currently includes 5 PhD students, 2 postdoc and 1 lab technician. More info on www.angelettilab.com



Niklas Arnberg

University

Umeå University

Name of department

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Research key words

Virus, vaccin, vector, antiviral drugs, virus-host interactions

Research abstract

We study molecules and mechanisms engaged in virus-host interactions, with the aims to understand virus tropism, improve vector targeting, and develop new antiviral treatments.

Interested to collaborate in

Expertise in glycobiology, glycan arrays, antiviral treatment, respiratory virus, adeno-associated virus

Bio

Professor in virology. Senior Principal Investigator in EMBL-MIMS. Board member of Swedish Research Council. Secretary General for Virus- and pandemic foundation.

Per I Arvidsson

University

Karolinska Institutet

Name of department

Department of Medical Biochemistry
and Biophysics



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Research key words

Drug discovery, medical chemistry, protein degradation, DNA encoded chemistry, targeted delivery

Research abstract

New methods and technologies for drug discovery, e.g. targeted protein degradation, covalent drug design, AI methods for drug design, display and selection technologies, targeted delivery, oligonucleotides, and proximity inducing agents.

Interested to collaborate in

Artificial intelligence for drug discovery - both small molecules and antibody therapeutics, assay development for target engagement and degradation, novel drug target discovery, proteomics

Bio

Founding Director of SciLifeLab DDD platform. Before being recruited by SciLifeLab & Karolinska Institutet in 2013, Prof. Arvidsson held various roles at AstraZeneca, Uppsala University, and University of KwaZulu Natal.

Gemma Atkinson

University

Lund University

Name of department

Department of EMV

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Research key words

Bioinformatics, microbiology, proteins, AlphaFold, bacteriophages

Research abstract

In my group we develop bioinformatics approaches to discover new biology, with a focus on proteins of bacterial immune systems. We use comparative genomics, remote homology detection, and AlphaFold predictions..

Bio

Established in 2015, the Atkinson lab works together with experimentalists to generate testable hypotheses about protein function. We recently launched LU-Fold, a national infrastructure for high-throughput protein complex prediction with AlphaFold.

Burcu Ayoglu

University

KTH

Name of department

Department of Protein Science

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Research key words

Spatial biology, Systems immunology, Proteomics, Bioimaging, Single-cell biology



Research abstract

Our research deciphers how single-cell phenotypes and tissue microenvironments drive immune functions in human development, health, and disease through advanced assays integrating omics and spatial biology.

Interested to collaborate in

Spatial omics, single-cell biology, systems immunology, human development, maternal-fetal immune interface, neuroimmunology, autoimmunity

Bio

Burcu Ayoglu, Docent in systems immunology, holds a PhD from KTH and was a KAW fellow at Stanford. Her research combines spatial biology, proteomics, and immunology to study immune function in tissues.

Hossein Azizpour

University

KTH

Name of department

Division of Robotics, Perception, and Learning



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Research key words

Deep-Learning, Generative Models, Under-supervised Learning, Feature Selection, Inverse Problems

Research abstract

My group does research in machine learning, particularly deep-learning with applications to life science, particularly generative modeling of proteins with diffusion and flow matching models.

Interested to collaborate in

Life science research activities where either a generative model or feature selection is of importance. Particularly interested in modeling bio-molecules.

Bio

I am an associate professor at KTH and further affiliated with SciLifeLab, SeRC, WASP, Digital Futures and ELLIS. My main background is in deep-learning, so I am primarily a member of machine learning community. I am particularly interested in applications of ML in sciences, specifically life science.

Pawel Baranczewski

University
Uppsala University

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Research key words

ADME, PHARMACOKINETICS, MACHINE LEARNING, OLIGONUCLEOTIDES, PROTACS

Research abstract

1) To integrate physiologically based pharmacokinetics (PBPK) modelling into SciLifeLab DDD and precision medicine capabilities. 2) Application of machine learning to development of bioanalysis and metabolite identification strategy for new modalities: oligonucleotides, protacs and peptides.

Interested to collaborate in

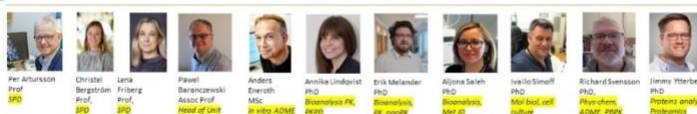
DRUG DISCOVERY, PRECISION MEDICINE, THERAPEUTIC OLIGONUCLEOTIDES, PROXIMITY INDUCING AGENTS

Bio

Associate Professor (Docent) in preclinical drug development. 14 years of industrial experience within the area of drug discovery and development. Expertise in ADME and pharmacokinetics (PK) of drugs.



SciLifeLab Drug Discovery and Development Platform
ADME of Therapeutics (UDOPP) Unit



Our vision is to add value to all stages of ADME/PK and pharmaceutical related research and thereby increase the number of leads and drug candidates which can be successfully developed to marketed drugs

ADME of Therapeutics (UDOPP) unit uses a state of the art laboratory and cutting edge research to help projects (preclinical) optimize compound series and deliver lead compounds and candidate drugs of the highest possible quality.

UDOPP - Uppsala University Drug Optimization and Pharmaceutical Profiling

Equipment:

2 x UPLC-MS/MS TQ(S) (Waters, 2017 & 2023)
UPLC-HR MS QToF Synapt G2-Si (Waters, 2021) & UPLC-HR MS QToF Synapt XS (ETD) (Waters, 2022)
[n]UPLC-HR MS Orbitrap Q-Exactive HF (Thermo, 2018)
Liquid handling robot TECAN Evo (Tecan, 2004)
Access to cell culture lab

Contact: udopp@farmaci.uu.se
https://twitter.com/UDOPP_ADMEtoT
<https://www.linkedin.com/school/udopp/>

Hanna Barriga

University

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Research key words

Lipid nanoparticle, endosome, mRNA, cardiac



Research abstract

We use multidisciplinary approaches to advance our understanding of nanoscale structure and dynamics in biological processes. Our long term goal is to understand drug delivery and engineer improved nanomedicines.

Interested to collaborate in

Cardiac models, super resolution microscopy

Bio

Hanna Barriga is an Associate Professor at KTH, SciLifeLab. Her research is focused on engineering and characterising lipid systems on the nanoscale.

Erik Benson

University

Karolinska Institutet

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Department of Microbiology, Tumor and Cell Biology

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Research key words

DNA nanotechnology, Selection, Aptamers, Drug delivery, Sequencing.

Research abstract

We are developing a new type of DNA nanostructure compatible with selection experiments, and we combine these with sequencing and computational tools to develop strong binders and study the cell uptake of DNA.

Interested to collaborate in

Bioinformatics, Affinity profiling, Protein production.

Bio

I have an interest in combining physics and engineering with medicine to develop new tools. I run a research group at KI and SciLifeLab since 2024, and have previously worked in departments of medicine, physics and engineering.

Peter Bergsten

University

Uppsala University

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Research key words

Translational, pediatric obesity, prevention, GLP-1, human islets

Research abstract

Insulin secretion in human islets (translational medicine); cardiometabolic health and pharmacological trials in pediatric obesity (precision medicine); tailored interventions to sustainably revert children at risk back to health (precision health)

Interested to collaborate in

Field: Metabolism, obesity, type 2 diabetes, pediatrics, prevention, bioinformatics, risk scoring, genomics, lipidomics, proteomics; Techniques at Cellular level: Islets of Langerhans, insulin and glucagon secretion, metabolism, differential expression of target genes, mitochondrial function; Techniques at Patient, individual level: Multinational childhood obesity patient cohort, clinical assessments and pharmacological trials; prospective municipality-based childhood cohort, health data including lifestyle data, anthropometry and blood samples; Techniques at Societal level: Co-creation, implementation, evaluation of interventions tailored to individuals, collecting, storing and analyzing biological (from children and their family members) and non-biological (different levels in society) data sets

Bio

Medical doctor, PhD (UU); postdoc at NIH (USA) and Cambridge (UK). Conducts translational research on childhood obesity prevention and treatment, integrating cellular, patient and societal levels for meaningful impact.

Daniel Bojar

University

Göteborg University

Name of department

Department of Chemistry and
Molecular Biology

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Research key words

AI; glycobiology; bioinformatics; systems biology; data science

Research abstract

Pioneering the application of machine learning to glycobiology, studying roles of complex sugar molecules in biological systems, with applications in host-microbe interactions and immunology.

Interested to collaborate in

Computer science; chemical biology; protein engineering

Bio

Pioneered AI in glycobiology; Associate Professor in Bioinformatics; Leader in computational glycobiology and studying breast milk oligosaccharides.

Hjalmar Brismar

University
KTH

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Department of Applied Physics

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Research key words
Microscopy, super resolution, membrane protein, biophysics

Research abstract
Our lab studies the NA,K-ATPase, regulation and function in normal and disease states. We develop biophysical measurement technology based on advanced light microscopy.

Interested to collaborate in
Super resolution microscopy, light sheet microscopy, single molecule analysis.

Bio
Brismar's group specializes in cellular biophysics, with a focus on advanced microscopy and membrane protein dynamics. They apply cutting-edge imaging and computational techniques to uncover detailed mechanisms of cellular processes.

Björn Burmann

University

Göteborg University

Name of department

Department of Chemistry and Molecular Biology

Email address

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Research key words

Advanced NMR spectroscopy/Integrated structural biology/In situ structural biology/molecular chaperones and proteases/bacterial and mitochondrial transcription regulation

Research abstract

Elucidation the function of protein complexes involved in a variety of aspects of cellular protein quality control, transcription regulation etc. at the atomic level using integrated structural biology approaches with a focus on NMR spectroscopy.

Interested to collaborate in

All the range of integrated structural biology approaches, with a focus on advanced high-resolution NMR spectroscopy, needed to answer fundamental biological questions.

Bio

More info can be found here: <https://www.gu.se/en/research/bjorn-burmann>

Jens Carlsson

University

Uppsala University

Name of department

Department of Cell and Molecular Biology

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Research key words

Structure-based drug design, virtual screening, machine learning, molecular dynamics simulations, molecular docking

Research abstract

By integrating artificial intelligence, protein structure prediction, molecular dynamics simulations, and virtual screening, we identify ligands for protein drug targets to enable the development of small molecule therapeutics.

Interested to collaborate in

Computational chemistry, structural biology, pharmacology, chemical biology, medicinal chemistry

Bio

Jens Carlsson is a Professor of Computational Biochemistry at Uppsala University. More details about his diverse and international research team can be found on the group website: www.carlssonlab.org

Laura Carroll

University

Umeå University

Name of department

Department of Clinical Microbiology

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Research key words

Microbiology, metagenomics, single-cell, oral microbiome, bioinformatics

Research abstract

Using the oral microbiome as a model, our team is developing high-throughput experimental and computational methods, which can reconstruct whole microbial genomes from microbiome samples at the single-cell level.

Interested to collaborate in

Single-cell biology, molecular microbiology, bioinformatics, experimental and/or computational methods development

Bio

We develop bioinformatic/experimental (wet-lab) methods, which can leverage/generate massive (meta)genomic data sets to improve pathogen surveillance, source tracking, outbreak detection, and risk evaluation efforts.

Marta Carroni

University

Stockholm University

Name of department

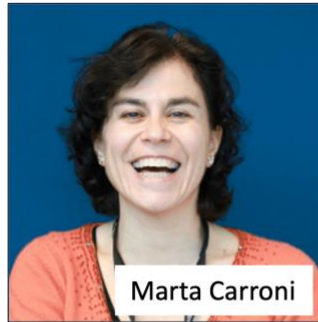
Department of Biochemistry and Biophysics

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Research key words

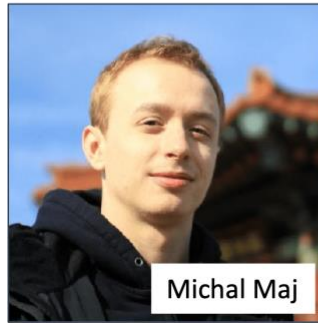
Time-resolved cryo-EM, light activation, microscopy



Marta Carroni



Sebastian Westenhoff



Michal Maj



Filipe Maia

Research abstract

Build microscopy set ups to perform time-resolved cryo-EM experiments, using lasers to melt vitrified sample and induce light conformational changes. Set ups will be available to the whole Swedish community.

Interested to collaborate in

Correlative light and electron microscopy, Cell Biology, Optogenetics

Bio

Marta Carroni, Head of the Swedish National Cryo-EM Facility at SciLifeLab, is a pioneering structural biologist recognized for her expertise, innovation, and contributions to cryo-EM and imaging in Sweden.

Erika Comasco

University

Uppsala University

Name of department

Department of Women's and Children's Health

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Research key words

Molecular Psychiatry; Positron Emission Tomography; Sex Steroids; Psychotropic Drugs; Personalized Medicine

Research abstract

Neural temporal dynamics at the intersection of personalized medicine and molecular psychiatry: person-centered research on the impact of sex steroids on response to psychotropic drugs by using positron emission tomography.

Interested to collaborate in

Neuroimaging; AI; Pharmacology; Endocrinology

Bio

SciLifeLab fellow neuroscientist passionate about neuropsychopharmacology. Leader of an international and multi-disciplinary research group dedicated to filling the knowledge gap surrounding sex and gender equity in mental health.

Helena Danielsson

University
Uppsala University

Name of department
Department of Chemistry - BMC



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Research key words
Biosensors, drug discovery, proximity inducing agents

Research abstract
Research using biosensors for drug discovery and life science. Expertise in fragment-based drug discovery, enzymology and molecular interactions. Analysis of conformational changes and ternary complexes.

Interested to collaborate in
Drug discovery, proximity inducing agents

Bio
Professor of Biochemistry at Uppsala University since 2002. Specialist in enzymology and biosensor-based drug discovery. New methods for analysis of recognition processes in life science area and drug discovery

David Drew

University

Stockholm University

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Research key words

In situ Cryo EM, Transporters, Mechanism, Insulin-dependent trafficking, Metabolism

Research abstract

We aim resolve native-like structures of glucose (GLUT) transporters directly from membranes using in situ cryo EM to build transport models beyond the individual proteins, e.g., from GLUT4 storage vesicles.

Interested to collaborate in

Cryo EM imaging platform

Bio

David Drew is a structural biologist and biochemist recognized for his mechanistic insights on SLC transporters and influential reviews on small molecule transport.

Jan Dumanski

University

Uppsala University

Name of department

Department of Immunology, Genetics and Pathology



Email address

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Research key words

LOY, cancer, Alzheimer, immuno-genetics, aging

Research abstract

We study systemic immuno-genetic effects of loss of Y chromosome (LOY) on male health, using a longitudinal cohort of ageing males to follow up the LOY and its consequences on immunity.

Interested to collaborate in

The field of post-zygotic mutations in the normal breast tissue of breast cancer patients suggests that the therapeutic surgical treatment of patients (increasingly smaller resections of breast) is leaving behind oncogenic mutations causing recurrence, and this is associated with shorter survival. Results from the LOY-field suggest that males live shorter mainly because of this mutation and that it could be possible to overcome the negative LOY-effects on the function of the immune system. The field of LOY, including future perspectives and possibilities for collaboration is well described in very recent paper in press in Nature Reviews Genetics (Bruhn-Olszewska, et al. Dumanski: The effects of loss of Y chromosome on male health, Nature Reviews Genetics 2024, in press, available upon request).

Bio

Group leader and professor at Uppsala University (UU). Guest professor at Medical University of Gdansk (MUG). Since 2019, director of translational research centre at MUG (3P-Medicine Lab; <https://ira3p.mug.edu.pl/71458.html>).

Chinmay Dwibedi

University

Umeå University

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Department of Clinical Microbiology

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Research key words

Metagenomics, Human gut Microbiome, Microbial genes, Structure and function prediction, Gut microbial Functional potential

Research abstract

We are interested in exploring structure and functional differences in human gut microbes. We are especially interested in microbial genes associated with metabolic disease progression and those mediating drug response.

Interested to collaborate in

Shotgun metagenomics, microbial gene structure and function exploration.

Bio

Chinmay Dwibedi is a MIMS [Nordic EMBL node for molecular medicine, Sweden] group leader and DDLS Fellow in Biology of infection at Umea University. Interested in high resolution metagenomics.

Petter Dyverfeldt

University

Linköping University

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Department of Health, Medicine and
Caring Sciences

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Research key words

Magnetic resonance imaging, image processing, artificial intelligence, precision diagnostics, cardiovascular disease mechanisms

Research abstract

Development and application of cardiovascular imaging, image processing and analysis to leverage improved understanding and precision diagnostics of cardiovascular disease.

Interested to collaborate in

Cardiovascular imaging, artificial intelligence, image processing, magnetic resonance imaging, cardiovascular physiology and pathophysiology.

Bio

Professor Petter Dyverfeldt conducts groundbreaking research on the development and application of cardiovascular imaging and image processing, using traditional methods and artificial intelligence at the intersection of medicine and technology.

Sara Ek

University
Lund University

**Name of
department**
Department of
Immunotechnology



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sara.ek@immun.lth.se

Research key words
Oncology, lymphoma, multi-omic, machine learning, translational

Research abstract
Plasma-based protein profiling to reveal immune-related factors governing response to treatment in clinical trial cohorts of mantle cell lymphoma patients

Interested to collaborate in
Spatial omics

Bio
I have a research group within translational lymphoma research. I have extensive experience in doctoral and postdoctoral supervision in the past 20 years.

Lena Eliasson

University

Lund University

Name of department

Department of Clinical Sciences Malmö

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Research key words

microRNA, islet of Langerhans, insulin secretion, Type 2 diabetes, exosomes

Research abstract

Focus on development of dysfunctional insulin secretion in Type 2 diabetes, and the role of microRNAs in this process. The studies integrate electrophysiology, electron microscopy, and molecular biology.

Interested to collaborate in

non-coding RNA, iPS cells

Bio

LE is Professor at Lund University and deputy coordinator of Lund University Diabetes Centre (LUDC). Her research focuses on mechanisms underlying impaired islet hormone secretion contributing to diabetes development.

Johan Elf

University

Uppsala University

Name of department

Department of Cell and Molecular Biology

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Research key words

Optical Pooled Screening (OPS), Super Resolution Microscopy, Single-Cell Biology, Microfluidics, Antibiotic Susceptibility Testing (AST)

Research abstract

We bridge the gap between quantitative physical models and biological observations to identify and resolve inconsistencies in our understanding of life. We develop tools to fight the causes and consequences of antimicrobial resistance.

Interested to collaborate in

Optical pooled screening to solve fundamental biological riddles, super resolution microscopy, real-time image processing, microfluidics for single-cell biology, and AMR diagnostics.

Bio

Elf is a Professor of Physical Biology and a pioneer in live-cell optical pooled screening. Johan combines theory with experiments and methods development to tackle challenging problems related to biology's central dogma.

Arne Elofsson

University

Stockholm University

Name of department

Department of Biochemistry and Biophysics

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Research key words

Bioinformatics, machine learning, protein-protein interactions, protein evolution, AlphaFold2

Research abstract

We propose novel deep-learning methods to accurately map the human proteome, leveraging self-supervised learning on annotated and unannotated data to reveal proteoforms, interactions, and atomistic models.

Interested to collaborate in

Structural biology, machine learning, proteomics, imaging, Cryo-EM

Bio

Professor at SU/DBB. H-index 77, >22000 citations, supervised 25 PhD students. Honored for his many important contributions to the field of protein structure prediction. Among his many contributions are widely used prediction programs such as Pcons (automatic structure prediction), TOPCONS and OCTOPUS (membrane protein topology prediction), ProQ (assesses the quality of a protein structure), and studies of protein-protein interactions and evolution of protein structure. Nice and talented research group.

Julia Fernandez-Rodriguez



University

Göteborg University

Name of department

Centre for Cellular Imaging (Integrated Microscopy technologies, Gothenburg)

Email address

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Research key words

Smart microscopy, image-analysis, feedback-microscopy, Artificial-intelligence, deep-learning

Research abstract

Smart microscopy integrates automated imaging, AI, and data management, enhancing productivity and reproducibility with scalable workflows, metadata management, and a robust framework for analysis and visualization in imaging research

Interested to collaborate in

Computer sciences, physicists, image analysts, microscopy. Our work aligns well with the entrepreneurial track, particularly in Machine Learning/AI, as we aim to use these technologies for Smart Microscopy

Bio

Head of the Centre for Cellular Imaging and Co-Director of Sweden's National Microscopy Infrastructure, I advance imaging research, lead training, and serve on international advisory boards with 22 years' experience in RI

Lars Feuk

University

Uppsala University

Name of department

Department of Immunology, Genetics
and Pathology



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Research key words

Long-read sequencing, structural variation, rare disease

Research abstract

Long-standing interest and experience in using cutting-edge genomics technologies to study neurodevelopmental disorders and rare disease. Specific interest in structural variation in population and patient genomes.

Interested to collaborate in

Cutting-edge sequencing technologies applied to patient samples. Will be a close collaboration with Uppsala Genome Center who will generate significant amounts of long-read sequencing data.

Bio

Professor of Molecular Medicine at Uppsala University, Co-Director of the National Genomics Infrastructure (NGI) and director of the long-read sequencing facility within NGI.

Karin Forsberg Nilsson

University

Uppsala University

Name of department

Department of Immunology, Genetics and
Pathology

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Research key words

Glioblastoma, medulloblastoma, cancer, genomics, non-coding mutation

Research abstract

We identify and validate non-coding mutations with regulatory potential in Medulloblastoma and Glioblastoma, under the assumption that evolutionary constraint predicts function. Emerging results are also expected to suggest new targets.

Interested to collaborate in

Genomics, data-driven approaches, proteomics, functional validation, bioimaging, spatial methods

Bio

I'm a professor at Uppsala University, SciLifeLab Group Leader, and currently Dean of the Faculty of Medicine. My lab explores non-coding mutations in brain tumours to identify new driver mutations.

Mattias Forsell

University

Umeå University

Name of department

Department of Clinical Microbiology

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mattias.forsell@umu.se



Research key words

Respiratory pathogens, aging population, lifespan, proteomics, immune checkpoints

Research abstract

Aging increases susceptibility to infections and chronic diseases, straining public health. This project aims to identify factors influencing vulnerability and improve immunization strategies by integrating immunological data with population-based insights for healthier aging.

Interested to collaborate in

Multivariate analysis, AI, machine learning or similar field. Preferably with experience with large scale medical data

Bio

Our research group investigates molecular and cellular immune responses to infections and vaccination, translating these findings to population-level insights. This approach enhances understanding of immunological patterns and informs public health and clinical strategies.

Andrea Fossati

University

Karolinska Institutet

Name of department

Department of Microbiology, Tumor and Cell Biology

Email address

andrea.fossati@scilifelab.se



Research key words

Microbiology, Phage Biology, Bacteria defense systems, Proteomics, Systems Biology

Research abstract

We aim to discover, characterize and catalogue the molecular function of toxin-antitoxin systems in various bacteria of clinical interest and how it relates to virulence and phage defense

Interested to collaborate in

Transcriptomics/ bioinformatics / structural biology / signaling pathways / kinases / protein complexes / microbiology / RNA biology

Bio

Our group aims to discover and characterize the molecular networks underlying infections in the context of bacteria and their viruses (bacteriophages)

Claudia Fredolini

University

KTH

Name of department

Department of Protein Science

Email address

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Research key words

Biomarkers; body-fluids; microsampling; companion diagnostics

Research abstract

The affinity proteomics unit is equipped with high-throughput technologies applicable to the investigation of biomarkers in body fluids, but also for screening of protein-protein interaction (drug-protein interaction), and co-development of microsampling devices. I am available to host a postdoc interested in interdisciplinary projects.

Interested to collaborate in

Companion diagnostics, affinity proteomics, microsampling, new drug screening

Marc Friedländer

University

Stockholm University

Name of department

The Department of Molecular Biosciences,
The Wenner-Gren Institute

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Research key words

RNA biology, ancient RNA, gene regulation, computational biology

Research abstract

Our group applies state-of-the-art wet-lab and dry-lab methods to study rare RNA molecules in the context of single cells, environmental samples, extinct animals and cancers.

Interested to collaborate in

Single-cell biology, planetary biology.

Bio

Dr. Marc Friedländer's team has recently developed the first method to experimentally map microRNA targets in single cells and has discovered RNAs in ancient samples, including the extinct Tasmanian tiger.

Stefania Giacomello

University

KTH

Name of department

Department of Gene Technology

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Research key words

Spatial, Transcriptomics, Microbiome, Gut, Bioinformatics

Research abstract

My research group develops new approaches for spatially resolved modalities to study how cell localization influences biological processes across kingdoms with a particular focus on host-microbiome interactions. We also apply our technology to different biological questions.

Interested to collaborate in

Spatial Biology, Bioinformatics, Computational Biology, Machine Learning, AI, Spatial metaTranscriptomics, Spatial Transcriptomics

Bio

I am an Associate Professor in Spatial Genomics at KTH. I have a master in Biotechnology and a PhD in Genomics. I did my postdoc in Spatial Transcriptomics. Subsequently, I was a Senior Bioinformatician at the National Bioinformatics Infrastructure of Sweden (WABI) for 2.5 years and specialized in the analysis of single-cell and spatial transcriptomics data. Overall, I detain molecular and computational biology expertise, which I implement daily in my research.

Per Hammarström

University

Linköping University

Name of department

Department of Physics, Chemistry and Biology

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per.hammarstrom@liu.se



Research key words

Amyloid, prion, protein folding, molecular chaperones, fluorescence

Research abstract

Our objective is to track protein misfolding processes in various amyloid and prion diseases and to intervene in the formation of the toxic species utilizing small-molecules and molecular chaperones.

Interested to collaborate in

Amyloidosis, prion disease, fluorescence microscopy and spectroscopy

Bio

Prof. Protein Chemistry. Work in the field of protein folding, misfolding and disease on many different proteins. Loves wet-lab experiments

Lotta Happonen

University

Lund University

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Department of Clinical Sciences Lund

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lotta.happonen@med.lu.se

Research key words

host-pathogen interactions, mass spectrometry, structural proteomics, cryoEM, medical microbiology

Research abstract

My research explores structural and molecular level mechanism of host-pathogen interactions, and determines how pathogens use defined virulence determinants to target central components of the host's immune system

Interested to collaborate in

proteomics, structural biology, cryoEM, microbiology, infection medicine

Bio

SciLifeLab Group Leader and Associate Professor (Docent) at Lund University with expertise in quantitative and structural proteomics combined with cryoEM, and other methods in integrated structural biology.



Vasili Hauryliuk

University

Lund University

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Medical Faculty

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Research key words

Bacteriophages, immunity, infection

Research abstract

We are interested in mechanistically dissecting diverse novel antiviral defenses that protect bacteria against their viruses, bacteriophages.

Interested to collaborate in

Techniques: cryo-EM, proteomics, NGS, 5P-Seq, super resolution microscopy

Bio

Protein synthesis and phage biology. Göran Gustafssonpriset, molecular biology 2024, Svenska Fernströmpriset 2019, Ragnar Söderberg Fellow in Medicine 2014. MIMS group leader 2013-2021.

Thomas Helleday

University

Karolinska Institutet

Name of department

Department of Oncology and Pathology



Email address

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Research key words

Drug Discovery, Translational Research, Catalytic Medicine, DNA damage response and repair, AI based medicinal chemistry

Research abstract

We crystalize and target DNA damage response proteins with AI-developed, medicinal chemistry and pharmacology optimized small molecules, explored on novel biology and progressed in models and clinical trials in patients

Interested to collaborate in

Cell and Molecular Biology, Medicinal Chemistry, Drug Development, Structural Biology, Computational biology, Chemical Biology, In vivo disease models, Ageing, Cancer, Immunology

Bio

Our interdisciplinary lab has developed PARPi-BRCA treatment concept approved in cancer as first-line treatment, and pioneer DNA damage response, catalytic medicine, chemical biology, that are in various clinical trials.

Susanne Hellstedt Kerje

University

Uppsala University

Name of department

Uppsala Genome Center, National Genomics Infrastructure, Department of Immunology, Genetics and Pathology

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Research key words

Long-read sequencing, genomics, analysis pipeline development, reference genome assembly

Research abstract

At Uppsala Genome Center we are experts in long-read sequencing and at the absolute forefront regarding sample handling guidelines, DNA/RNA extraction methods, sequencing methods, genome assemblies

Interested to collaborate in

Long-read sequencing technology development for biodiversity and medical applications, exploration of methylation data generated from long-read technologies.

Bio

PhD in genetics, many years of experience of genomics and genetics research, head of Uppsala Genome Center

Johan Henriksson

University
Umeå University

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Department of Molecular Bbiology

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Research key words
Single-cell, CRISPR, bioinformatics, screening, sequencing

Research abstract
Development of a novel single-cell perturbation method ("perturb-seq") using a new microfluidic system, for e.g. in vivo analysis of human T cells. Both bioinformaticians and wetlab postdocs welcome.

Interested to collaborate
CRISPR, Tn5, single-cell, bioinformatics, sequencing, RNA-seq, microfluidics

Bio
Our group develops new methods for high-throughput genomic analysis, including single-cell, CRISPR, transposons, and new bioinformatic tools (Rust!). Working



Tuulia Hyötyläinen

University

Örebro University

Name of department

Department of Natural Sciences and Technology

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Research key words

Exposome, metabolomics, health impacts of exposure, mass spectrometry

Research abstract

Our project develops high-throughput screening with direct MS analysis and phenotypic fingerprinting with high-resolution MS to identify sex-specific biomarkers and understand EDC-induced health effects, focusing on gut-liver and gut-brain axes.

Interested to collaborate

Within field of medicine and toxicology, MS imaging

Bio

I have focused on developing more robust methodologies to achieve comprehensive coverage of the metabolome, conducting detailed studies of each step in the workflow, and understanding the pathways and mechanisms of disease. My current research strongly focuses on the impact of the exposome on human health, using metabolomics and other omics as tools to characterize environmental exposures and the human biomolecular response to these exposures at the metabolic level.

Henrik Johansson

University

Karolinska Institutet

Name of department

Department of Oncology-Pathology

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Research key words

Breast cancer, clinical proteomics, proteogenomics, biomarker, precision medicine



Research abstract

Characterizing breast cancer proteome and proteogenome to enhance precision medicine, focusing on genome-phenotype impact, neoantigen discovery, immune composition, and therapy response biomarkers using mass spectrometry-based proteomics.

Interested to collaborate in

Cancer, breast cancer, proteomics, proteogenomics, multi-omics, clinical proteomics, therapy response biomarker discovery and validation, precision medicine, neoantigen discovery, immune composition, proteome cohort analysis.

Bio

Focused on breast cancer proteome and proteogenome to understand biology, identify drug targets, and develop biomarkers, emphasizing genome-phenotype impact, neoantigen discovery, and immune composition using mass spectrometry

Åsa Johansson

University

Uppsala University

Name of department

Department of Immunology, Genetics and Pathology

Email address

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Research key words

Genetic epidemiology, Precision health, Proteomics, Causal inference, Genomics

Research abstract

To uncover disease risk factors and the diverse pathways involved in disease development by leveraging national Swedish registers, as well as large-scale molecular data, including genomics, transcriptomics, and proteomics.

Interested to collaborate in

Genetic epidemiology, Precision health, Proteomics, Causal inference, Register-base research, multi-omics.

Bio

Associate professor at Uppsala University with a strong track record of high-impact publications like BMJ and Nature Medicine and plays a prominent role in local and national precision medicine initiatives.

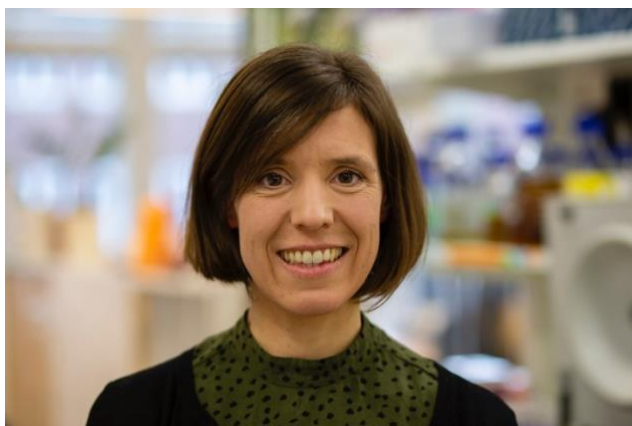
Kristina Jonas

University

Stockholm University

Name of department

Department of Molecular Biosciences,
The Wenner-Gren Institute



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Research key words

Bacteria, stress adaptation, regulated proteolysis, molecular mechanisms, bacterial diversity

Research abstract

The Jonas lab studies how bacteria grow and reproduce in fluctuating environments. We dissect the molecular mechanisms governing stress adaptation. Additionally, we study the diversity of stress response pathways and their evolution.

Interested to collaborate in

Microbial genomics, structural biology, machine learning

Bio

2009 PhD at Karolinska Institute; 2009-2013 Postdoc at MIT / USA; 2013-2016 Independent group leader at University of Marburg / DE; 2016-2021 SciLifeLab Fellow & Assistant Professor at SU; 2021 promoted to Associate Professor

Rene Kaden

University

Uppsala University

Name of department

Department of Medical Sciences

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Research key words

Medical Microbiology; Metagenomics; AI applications in Healthcare; Epidemiology; Taxonomy

Research abstract

Our research group is based in the hospital, where we conduct research as for example on post-COVID conditions and the role of metagenomics in disease development. See also: <https://www.scilifelab.se/researchers/rene-kaden/>

Interested to collaborate in

AI for clinical use; molecular techniques development

Bio

Assoc. Prof. in Medical Microbiology, PhD in Biology, SciLife Group leader
"Epidemiology, Taxonomy and Evolution", Coordinator Genomic Medicine Sweden
GMS Infectious diseases, Work package Leader "Microbiology" in Clinical Genomics
Uppsala

Masood Kamali-Moghaddam

University

Uppsala University

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Department of Immunology, Genetics and Pathology

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**Research key words**

Diagnostics, proteomics, molecular tools, extracellular vesicles/exosomes, cancer

Research abstract

Development of molecular tools for detection and characterization of proteins and extracellular vesicles, and clinical implementations of these technologies – with relevance to prostate- and pancreatic cancers, diabetes and liver disease.

Interested to collaborate in

Clinicians , biobanks, etc.

Bio

Professor of Molecular Diagnostics and the Director for SciLifeLab Proteomics platform, with experiences in developing large numbers of technologies resulted in commercial products or as services in SciLifeLab platforms

Kasper Karlsson

University

Karolinska Institutet

Name of department

Department of Oncology-Pathology

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Research key words

Metastasis, lineage tracing, CROPseq, single-cell and spatial transcriptomics, bioprinting

Research abstract

We study metastatic spread and formation of tumor niches in animal models, trying to understand how niches forms, are sustained and can be disrupted.

Interested to collaborate in

Metastatic niches, cell barcoding, CRISPR screenings, spatial transcriptomics and proteomics.

Bio

I have a background developing molecular biology tools and studying tumor evolution. We are now focusing on translational research and tumor metastases.

Lukas Käll

University

KTH

Name of department

Department of Gene technology



Email address

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Research key words

Machine Learning; Proteomics; Mass spectrometry; Statistics

Research abstract

Computational proteomics expert developing innovative tools for mass spectrometry-based proteomics, metaproteomics, and feature selection in biological data.

Passionate about open science and advancing data-driven life science research.

Interested to collaborate in

Machine learning methods to interpret data, particularly within Proteomics and Metabolomics

Bio

Lukas Käll is a computational proteomics researcher specializing in mass spectrometry-based methods. He develops innovative machine learning-based tools for proteomics, metaproteomics, and feature selection, emphasizing open science and data-driven research

Claudia Kutter

University

Karolinska Institutet

Name of department

Department of Microbiology, Tumor
and Cell Biology



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Research key words

RBP, transcriptomics, transposon, CRISPR-Cas13, liver

Research abstract

Uncovering the molecular underpinnings of complex diseases by studying non-canonical RNA-protein interactions at single-cell resolution through advanced molecular, microscopic and sequencing-based methods.

Interested to collaborate in

Genomics, transcriptomics, proteomics, spatial transcriptomics, network inference, AI, hepatology, cell profiling

Bio

My group at SciLifeLab specializes in functional genomics and regulatory transcriptomics, using multi-omics to identify disease mechanisms. We develop innovative methods in RNA biology facilitating collaborations.

Nils Landegren

University

Uppsala University

Name of department

Department of Medical Biochemistry and Microbiology

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Research key words

Autoimmunity, medicine, immunology, diagnostics

Research abstract

Our group's research aims to improve understanding, diagnostics, and treatment of autoimmune diseases, focusing on 1) sex differences in autoimmunity, 2) cytokine autoantibodies linked to poor infectious disease outcomes, and 3) cancer-associated autoimmunity.

Interested to collaborate in

Most of our research projects are conducted in collaboration with clinicians and research groups who offer complementary expertise and technologies.

Bio

I have an MD background and am now full-time research active as a group leader at Uppsala University. Our research on autoimmunity is supported by the ERC, the Swedish Research Council, the Swedish Cancer Foundation, among others.

Ulf Landegren

University

Uppsala University

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Research key words

Molecular detection, innovation, molecular diagnostics, protein assays, rare event detection

Research abstract

We establish and commercialize molecular assays, such as Olink's. We now pursue digital protein and DNA/RNA detection at extreme sensitivity and selectivity, even at the point of care.

Interested to collaborate in

We collaborate with both clinical and basic scientists to apply our several technologies

Bio

MD PhD, professor. Member of KVA and EMBO, inventor of padlock probes and proximity ligation assays, founder of ten companies including Olink, planning for more.

Janne Lehtiö

University

Karolinska Institutet

Name of department

Department of Oncology and Pathology

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janne.lehtio@ki.se



Research key words

Cancer research, proteomics, proteogenomics, precision medicine, computational biology

Research abstract

Our project harnesses advancements proteomics to create high-resolution landscapes of diverse tumor cohorts and clonal cell populations, driving innovations in cancer precision medicine.

Interested to collaborate in

Mass spectrometry, proteomics, computational biology, AI, imaging, genomics

Bio

Janne Lehtiö is a Professor in Medical Proteomics at Karolinska Institutet, pioneering proteogenomics and cancer precision medicine with translational research integrating genomics and proteomics for clinical impact.

Jin-ping Li

University

Uppsala University

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Department of Medical Biochemistry and Microbiology

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Research key words

Heparan sulfate, heparanase, Alzheimer, inflammation, innate immunity

Research abstract

Heparan sulfate is a polysaccharide expressed in all cells, having essential functions in development and pathophysiology. The research is to elucidate the molecular mechanisms of heparan sulfate in the pathological process of Alzheimers disease, inflammatory diseases and innate immunity. The finding will provide information for development of new therapeutic strategies for the diseases.

Interested to collaborate in

Animal models, single-cell sequencing, FACS and advanced microscopes (including two-photon).

Bio

Basic education in Medicine, Master and PhD in biochemistry. Engaged in the research field since 1990. Established broad international collaboration within the field. Peer-reviewed original study : 140 and review 40. The research has been supported from VR (ongoing), Cancerfonden (ongoing) and Alzheimers foundation, Heart and Lung foundation

Kerstin Lindblad-Toh

University

Uppsala University

Name of department

Department of Medical Biochemistry and Microbiology

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Research key words

Cancer, genomics, comparative genomics, dog, human

Research abstract

The non-coding genome is understudied in cancer. Using evolutionary constraint from Zoonomia (240 mammals) we identify genes enriched for non-coding constraint mutations in dogs and humans with osteosarcoma and DLBCL.

Interested to collaborate in

We perform both bioinformatic analysis, such as identification of non-coding constraint mutations, and experimental work including MPRA , CRISPR editing and drug response.

Bio

Professor in comparative genomics. I co-led the Zoonomia project published in 11 papers in Science in 2023. My work focuses on mammalian comparative genomics, dog and human genetics and cancer.

Bo Lundgren

University

Stockholm University

Name of department

Department of Biochemistry and Biophysics



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Research key words

Biochemical, cellular, assays, drug discovery, high through-put

Research abstract

Biochemical and cellular assays, used in our drug discovery projects. We use microplates and robotics to set-up new assay technologies for improved assay sensitivity, reliability and through-put.

Interested to collaborate in

Plate based, plate reader technologies, Imaging, High through-put, drug discovery, in vitro toxicology, Technology, novel therapeutic agents, target based

Bio

The BCA unite compass a broad expertise in biochemistry, in vitro toxicology, cell culture, 2D and 3D culture, HCS-imaging, molecular cloning, robotics, drug discovery, siRNA and small molecule screening.

Peetra Magnusson

University

Uppsala University

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Research key words

Preclinical, vascular biology, neuroinflammation, rare disease, induced pluripotent stem cells (iPSC)

Research abstract

We investigate brain vascular malformations, where blood-brain barrier disruption cause hemorrhage and neuroinflammation. Using human endothelial cells, iPSC, animal models, we explore molecular mechanisms driving immunothrombosis, vascular leakage, and disease.

Interested to collaborate in

Neuroinflammation, iPSC, omics, cell biology, inflammation, immunothrombosis

Bio

Associate Professor, DDLS RS Director, Rudbeck Laboratory Director, expertise in neuroinflammation, vascular biology, stem cell biology, advanced human preclinical models and patient material for novel treatment regimens. Since 2025 managing director of the SSF Center CNSx3.

Richard Lundmark

University

Umeå University

Name of department

Department of Medical and Translational Biology

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richard.lundmark@umu.se



Research key words

Membrane trafficking, membrane remodeling, protein structure, virus infection, metabolism

Research abstract

Our research is focused on how proteins and lipids interact to generate small membrane vesicles in cells. We aim to identify and structurally define mechanism that aid these processes.

Interested to collaborate in

Advanced light microscopy, cryo-electron microscopy, NMR, model membranes, mass spectrometry.

Bio

I am a northerner and professor in cell biology with a background in biochemistry and biophysics

Johan Malmström

University

Lund University

Name of department

Department of Clinical Sciences, Lund

Email address

johan.malmstrom@med.lu.se



Research key words

Mass spectrometry, proteomics, Structural biology, Infection Medicine, Vaccines, Antibodies

Research abstract

We use advanced methods in quantitative and structural mass spectrometry to develop self-assembling nanoparticle vaccines against bacteria to combat the increasing threat of antibiotics resistant bacteria

Interested to collaborate in

Single-cell sequencing, structural biology (cryoEM, x-ray crystallography), protein production and protein design

Bio

Professor since 2017, National director for the distributed infrastructure in biological mass spectrometry since 2024, platform scientific director for the integrated structural biology platform (ISB) at SciLifeLab

Sara Mangsbo

University

Uppsala University

Name of department

Department of Pharmacy

Email address

sara.mangsbo@farmaci.uu.se



Research key words

Biologics, drug conjugates, targeted delivery, oncology, immunotherapy, ADC, peptide therapeutics, oligonucleotides, LNP, mRNA

Research abstract

My group work with research spanning the medicine and pharmaceutical field with a focus on both disease biomarker studies, model development and antibody and new modality drug development. A big focus at the moment is on targeted delivery of drugs such as peptides and oligonucleotides and LNPs using antibodies.

Interested to collaborate in

Targeted delivery, drug screening, in vitro and in vivo model,

Bio

Dr Mangsbo is a professor in antibody-based drugs at Uppsala University and have been active in research surrounding immunotherapy and cancer for about 20 years. She has been active in research that has moved drug candidates from discovery to phase I clinical testing and her expertise is within antibody and peptide-based drug development. She has also developed models for improved characterization of immune toxicity and bladder cancer progression. Apart from her active research contributions she is an inventor on multiple patent families and co-founder of Immuneed AB and Strike Pharma AB.

Yumeng Mao

University

Uppsala University

Name of department

Department of Immunology,
Genetics and Pathology

Email address

yumeng.mao@igp.uu.se



Research key words

Cancer, immune checkpoints, therapy resistance, CRISPR screen, drug discovery

Research abstract

We focus on understanding how solid tumors resist to immunotherapy and discover ways to overcome it.

Interested to collaborate in

Spatial transcriptomics, transgenic mouse, clinical samples

Bio

I am a trained tumor immunologist with a few years' experience leading drug discovery projects in a pharma R&D environment. Our work combines genetic tools to validate new drug targets.

Emil Marklund

University

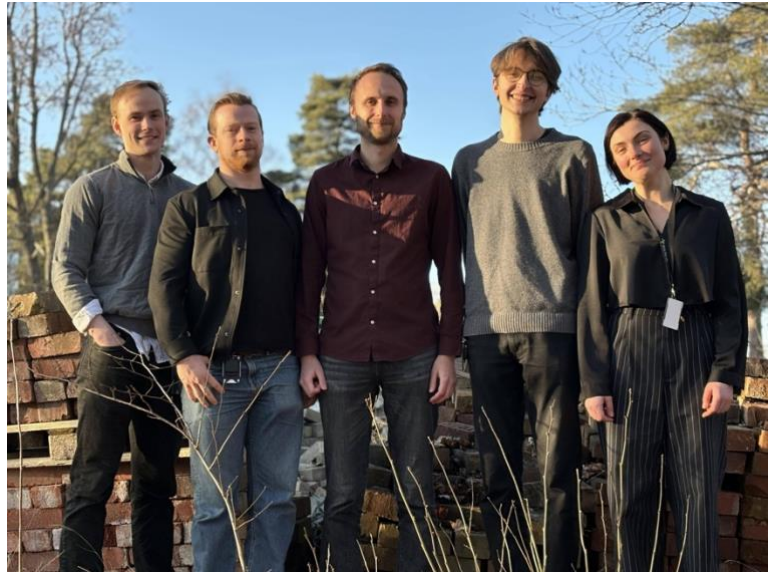
Stockholm University

Name of department

Department of Biochemistry and Biophysics

Email address

emil.marklund@scilifelab.se



Research key words

High-throughput biophysics, molecular recognition, binding kinetics, protein - DNA interactions, protein-protein interactions

Research abstract

We investigate how biological macromolecules can manage to interact with each other with high specificity, and how sequence information determines macromolecular structure and function.

Interested to collaborate in

Gene regulation, High-throughput in vivo screens

Bio

We combine high-throughput measurements of molecular binding with simulations and mathematical modeling. Our goal is to gain a deep and quantitative understanding of life at the molecular level.

Jonathan Martin

University

Stockholm University

Name of department

Dept. Environmental Science

Email address

jon.martin@scilifelab.se



Research key words

exposome, high-resolution mass spectrometry, metabolome, toxicology, health

Research abstract

Development and applications of chemical exposomics methods for human exposure monitoring

Interested to collaborate in

exposome, high-resolution mass spectrometry

Bio

I'm interested in the effects of complex environmental chemical exposures on health. My group develops sensitive analytical methods and runs national infrastructure for chemical exposomics using high-resolution mass spectrometry.

Pär Matsson

University

Göteborg University

Name of department

Department of Pharmacology,
Institute of Neuroscience and Physiology



Email address

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Research key words

Therapeutic oligonucleotides, PROTACs, pharmacokinetics, biophysics, molecular modeling and simulation

Research abstract

We study the cellular and molecular mechanisms governing the delivery, exposure and cellular effects of new-modality drugs, specifically oligonucleotide therapeutics and PROTACs, combining cell-based and biophysical experiments with molecular simulation and AI.

Interested to collaborate in

Oligonucleotide and proximity-inducing agent drug discovery - measurements and predictions of activity, tissue distribution and cellular disposition using, for example, AI/ML and molecular simulation techniques, and biophysical experiments

Bio

I lead a group of 6 post docs, PhD and MSc students in Cellular and Molecular Pharmacokinetics, as well as the national infrastructure for oligonucleotide drug discovery, OligoNova (part of SciLifeLab-DDD) which support academic scientists with state-of-the-art oligonucleotide drug discovery capabilities.

Mikael Mattsson

PI name

Mikael Mattsson

University

Lund University

Name of department

Immunotechnology



Email address

mikael.mattsson@immun.lth.se

Research key words

Phage display, antibody drug discovery, bispecific antibodies

Research abstract

Currently head of SciLifeLab unit “Selection and Display technologies”. Previous research includes e g phenotypic antibody discovery, mining of complex antibody pools and bispecific antibodies.

Interested to collaborate in

Isolation, characterization and optimization of antibody drug candidates. Technologies for display of antibody libraries, affinity maturation and improved developability. Novel antibody formats, AI and NGS/long-read sequencing.

Bio

PhD in microbiology/biochemistry and MSc in molecular biology. Extensive experience of antibody drug discovery in the biotech industry and QC in the pharma industry in positions as line/project manager.

Wojciech Michno

University

Uppsala University

Name of department

Public Health and Caring Sciences

Email address

wojciech.michno@scilifelab.uu.se



Research key words

brain organoids, cancer, metabolism, microenvironment

Research abstract

We study cell-specific metabolic changes in tissue microenvironment, and how these influence inflammation in neurological diseases. We use brain organoids and spatial omics and work with both neurodegeneration and cancer.

Interested to collaborate in

Collaborators working on anti-inflammatory drugs, lipid-based formulation, and lipid metabolism altering compounds.

Bio

I did my PhD Sweden, and postdocs in UK and USA (including Stanford University). I have extensive interdisciplinary training in analytical/biochemistry chemistry and stem-cell biology (and so does my team).

Gisele Miranda

University

KTH

Name of department

Division of Computational Science and Technology

Email address

gisele.miranda@scilifelab.se



Research key words

Deep-learning, Generative AI, Graph Machine Learning, Multi-modal based profiling

Research abstract

My group leverages cutting-edge machine learning techniques to advance our understanding of cellular behavior and interactions. We use generative AI to enhance our understanding of cellular networks and tissue architecture.

Interested to collaborate with

Imaging scientists, bioinformaticians, cellular biologists.

Bio

Gisele Miranda is a SciLifeLab fellow and an Imaging Scientist of the Chan-Zuckerberg Initiative. She has been working on multidisciplinary research projects in the intersection of computer science and biology.

Gabriela Montejo-Kovacevich

University

Uppsala University

Name of department

Department of Ecology and Genetics, EBC

Email address

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Research key words

Evolution, local adaptation, climate change, genomics, insects

Research abstract

We study the mechanisms driving local adaptation. Our research combines the power of genomics with ecology to gain insights into the mode and tempo of evolution in the wild.

Interested to collaborate with

I am interested to collaborate with researchers that would like to study rapid adaptation to climate change in wild populations of butterflies. This could be from a purely genomics perspective, or combining ecology, modelling, and fieldwork as well.

Bio

I am an evolutionary biologist specialising in genomics, focusing on adaptation to environmental change and developing innovative methods to study historical and contemporary evolutionary processes.

Marika Nestor

University

Uppsala University

Name of department

Department of Immunology Genetics and Pathology

Email address

marika.nestor@igp.uu.se



Research key words

radioimmunotherapy, targeted radionuclide therapy, molecular radiotherapy, radiopharmaceuticals, radiation oncology

Research abstract

Explore molecular radiotherapy innovations in cancer therapy through developing new radioconjugates, dosing strategies (such as fractionation or pretargeting) and combination strategies (e.g. with immune therapy) to improve efficacy and lower toxicity.

Interested to collaborate in

biomedical radiation sciences, radiochemistry, dosimetry, xenograft models, transgenic mice, organoids, nuclide techniques

Bio

Marika Nestor, professor at Uppsala University, develops cancer-targeted radiopharmaceuticals. She co-founded Akiram Therapeutics, advancing AKIR001 to clinical trials, and has received multiple prestigious research awards.

Avlant Nilsson

University

Karolinska Institutet

Name of department

Department of Cell and Molecular Biology

Email address

avlant.nilsson@ki.se



Research key words

Cancer, modelling, deep-learning, multi-omics, molecular networks

Research abstract

We develop deep-learning models of cancer mechanisms. By integrating omics data and constraints from molecular networks, we aim to identify drug targets and predict resistance mechanisms for precision medicine.

Interested to collaborate in

Developing, expanding, applying, and/or validating computational models of cells. We are also interested in high throughput screening to generate training data for our models.

Bio

I am an Assistant Professor and DDLS Fellow in Precision Medicine, with a PhD in Systems biology from Chalmers and postdoc from MIT. I develop computer models of cells.

Peter Nilsson

University

KTH

Name of department

Dept Protein Science

Email address

peter.nilsson@scilifelab.se



Research key words

affinity proteomics, protein and antibody profiling, multi-disease serology, infectious diseases, neuroproteomics

Research abstract

We do highly multiplex protein and antibody profiling in body fluids based on affinity proteomics and applied to neuroproteomics, psychiatric disorders, inflammatory autoimmune diseases, infectious diseases and multi-disease serology.

Interested to collaborate in

all fields

Bio

PhD 1999 in biotechnology, KTH and professor in proteomics 2011, KTH. Heading protein array technologies within Human Protein Atlas since 2003. Platform Scientific Director in the Proteomics platform at SciLifeLab.

Mats Nilsson

University

Stockholm University

Name of department

Biochemistry and Biophysics

Email address

mats.nilsson@scilifelab.se



Research key words

spatial biology, in situ sequencing, tumor biology, clonal evolution

Research abstract

Novel spatial biology tools will be developed evolving from the in situ sequencing method and they will be applied to studies of the molecular, genetic and cellular heterogeneity of tumors.

Interested to collaborate in

Spatial Biology, applying in situ sequencing

Bio

The group has pioneered the spatially resolved transcriptomic method in situ sequencing. We continue to develop this basic principle to address modes of analysis currently not available on commercial platforms.

.

Jessica Nordlund

University
Uppsala University

Name of department
Medical Sciences



Email address
jessica.nordlund@medsci.uu.se

Research key words
scRNA-seq, functional screening, leukemia, epigenetics

Research abstract

The Molecular Precision Medicine group works closely with clinical collaborators to integrate genomics, transcriptomics, epigenomics, and proteomics with machine learning to identify biomarkers, refine diagnostics, and explore new treatments.

Interested to collaborate in

We welcome postdoc candidates with expertise in computational fields, such as machine learning and single-cell analysis, as well as those with laboratory skills, including functional drug screening, CRISPR, flow cytometry, etc.

Bio

The Molecular Precision Medicine group develops molecular approaches to analyze patient samples, with the aim of advancing precision diagnosis and treatment discovery through multi-omics data integration.

Mats Ohlin

University

Lund University

Name of department

Dept. of Immunotechnology

Email address

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Research key words

antibody, antibody technology, molecular engineering, immuno-oncology, biomarker

Research abstract

Research focus on antibodies in health, disease and in technology. We exploit recombinant antibody technology, combinatorial antibody libraries, NGS, immunoinformatics, and a diversity of immunochemical techniques to study immune responses and antibodies

.

Interested to collaborate in

antibody development, therapeutic antibody, phage display, bacterial display, yeast display, mammalian display

Bio

Professor of Immunotechnology. Platform Scientific Director at SciLifeLab DDD. Expert in antibody technology and antibody development

Vladislav Orekhov

University

Göteborg University

Name of department

Department of Chemistry and
Molecular Biology

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vladislav.orekhov@nmr.gu.se



Research key words

Structural Biology, NMR, signal processing, AI, AlphaFold

Research abstract

We will develop a generative AI model to revolutionize biomolecular NMR in structural biology. The research leverages the group expertise in AI, NMR methodology, and advanced signal processing

.

Interested to collaborate in

AI methods, AlphaFold methodology, MD simulations of proteins

Bio

M.S. (1989) and Ph.D. (1993) degrees in biophysics from Moscow Institute of Physics and Technology, Moscow. 2007-2008, a visiting Associate Professor in the Dept Biol Chem & Mol Pharmacol, Harvard Medical School, Boston. Since 1998, a faculty member at the University of Gothenburg, where he is currently Professor in the Department of Chemistry and Molecular Biology.

Matej Oresic

University

Örebro University

Name of department

School of Medical Sciences

Email address

matej.oresic@oru.se

Research key words

Metabolomics, lipidomics, systems medicine, exposome, biomarkers

Research abstract

The aim of the project is to identify early exposomic and multi-omics signatures associated with immune dysregulation and disease risk, with focus on neurocognitive and neurodegenerative diseases.

Interested to collaborate in

metabolomics and systems medicine

Bio

Matej Oresic is professor of medicine (systems medicine) at Örebro University and professor of biochemistry (metabolomics) at University of Turku. His research includes exposomics and metabolomics applications in biomedical research.



Dmitri Ossipov

University

Göteborg University

Name of department

Core Facilities, OligoNova Hub

Email address

dmitri.ossipov@gu.se



Research key words

Oligonucleotide synthesis, drug delivery, drug targeting, polymer chemistry, biomaterials

Research abstract

Conjugation of synthetic oligonucleotides (ONs) to cell/tissue/organ specific ligands as well as chemical modification of ONs aiding in cellular uptake and intracellular trafficking to their mRNA targets

.

Interested to collaborate in

In vitro transcription, cell imaging, ADME

Bio

Dmitri Ossipov received his PhD degree from Uppsala University (2002), he has authored over 60 scientific papers and four patents. His expertise is chemical modifications of synthetic oligonucleotides, biomaterials, and drug delivery

Wei Ouyang

University

KTH

Name of department

Applied Physics

Email address

wei.ouyang@scilifelab.se



Research key words

Whole Cell Modeling, Smart Microscopy, AI Agents, Generative AI, Multi-omics Data Integration

Research abstract

The AICell Lab pioneers AI-driven human cell modeling by integrating real-time microscopy, automated data generation, and multi-omics data analysis to train AI models for in-silico experimentation, accelerating drug discovery, and advancing cellular-level understanding.

Interested to collaborate in

AI-driven bioimage analysis, multi-omics integration, cellular modeling, and automated microscopy systems. Expertise in deep-learning, computational biology, and smart microscopy are highly valued.

Bio

I lead the AICell Lab focused on AI-powered cell modeling, multi-omics integration, and generative AI for enabling automated scientific discovery in life sciences.

Gunnar Pejler

University

Uppsala University

Name of department

Department of Medical
Biochemistry and Microbiology (IMBIM)



Email address

gunnar.pejler@imbim.uu.se

Research key words

mast cells, proteases, proteoglycans, inflammation, cancer

Research abstract

We are interested in the role of mast cells in health in disease. We are particularly interested in the biological function of mast cell granule compounds, such as tryptase, chymase and serglycin. We are developing novel strategies to target mast cells in disease.

.

Interested to collaborate in

We are interested in collaborations with investigators within the fields of immunology, cancer immunology, asthma research and omics approaches.

Bio

I am professor of experimental immunology at Uppsala University. I have been working for more than 30 years within the field of mast cell biology, and have published over 200 articles on this and related topics. The group presently consists of around 10 co-workers, including post docs, lab engineers, PhD students and master students.

Vicent Pelechano

University

Karolinska Institutet

Name of department

MTC



Email address

vicent.pelechano@scilifelab.se

Research key words

RNA Biology, Genomics, ribosome dynamics

Research abstract

We create genomic tools and diagnostic methods that focus on RNA biology in humans, yeast, and bacteria. Our studies include epigenetics, transcription, and posttranscriptional regulation.

Interested to collaborate in

Genomics, AI, synthetic biology, AMR, evolution.

Bio

I have a background in molecular biology and genomics, with experience in both experimental and computational biology. I hold a PhD from Spain and have completed postdoctoral training at EMBL.

Mia Phillipson

University

Uppsala University

Name of department

Medical Cell Biology



Email address

mia.phillipson@mcb.uu.se

Research key words

Macrophages, drug discovery, endometrium, bacterial vectors, regeneration

Research abstract

The outermost goal of my lab is to uncover immune cell contributions important in maintaining homeostasis, and to utilize these functions when developing the next-generation immunotherapies targeting cardiovascular disease, cancer and endometriosis

.

Interested to collaborate in

microbiology, cell biology, machine learning, single-cell sequencing, bioinformatics, intravital imaging

Bio

I head the immunophysiology laboratory of 14 members, am the co-director of SciLifeLab and co-founded Ilya Pharma which develops immunotherapies accelerating healing of wound in skin and mucosa currently in clinical phase 2.

Iskra Pollak Dorocic

University

Stockholm University

Name of department

Department of Biochemistry and Biophysics



Email address

iskra.pollak@scilifelab.se

Research key words

Neuroscience, circuits, transcriptomics, in vivo neural dynamics, behavior

Research abstract

The project aims to bridge genetic and molecular brain modalities with functional and behavioral analysis to uncover how dysfunction of complex neural circuits plays a role in neuropsychiatric disorders.

Interested to collaborate in

transcriptomics, connectomics, whole-brain imaging, in vivo neural recordings and manipulations, behavioral assays.

Bio

The Pollak Dorocic lab studies the molecular diversity of neuromodulatory neurons and circuits with the aim to decipher their contribution to both healthy brain function and disease

Sean Rudd

University

Karolinska Institutet

Name of department

Department of Oncology-Pathology

Email address

sean.rudd@scilifelab.se



Research key words

Cancer therapy; DNA metabolism; Nucleotide metabolism; Drug resistance; Chemical biology

Research abstract

We are a curiosity-driven research group interested in nucleotide metabolism & molecular pharmacology and we apply our interests to better understand how current therapies work to inform optimal mechanism-based use

Interested to collaborate in

Cancer biology, Cancer therapy, Chemical biology

Bio

Sean trained in biochemistry and has spent his career investigating the molecular mechanisms of genome stability and nucleotide metabolism in cancer cells, and how this information can be exploited therapeutically.

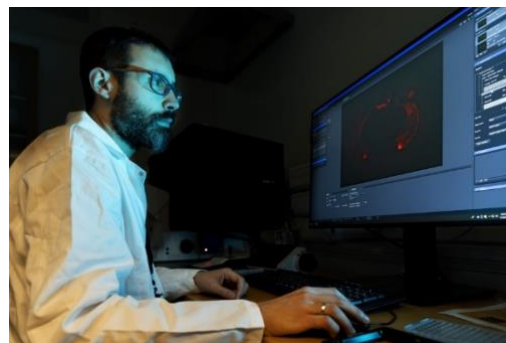
Mario Ruiz

University

Göteborg University

Name of department

OligoNova Drug discovery and Development
Platform (DDD) - SciLifeLab / University of Gothenburg



Email address

mario.ruiz@gu.se

Research key words

Therapeutic Oligonucleotides; cell assays, High-Throughput-Screening;

Research abstract

State-of-the-art research for oligonucleotide-based drug discovery: From bioinformatics to cell-based-assays and supporting in-vivo studies. From high-throughput screens and “omics” to deep phenotyping. Always open to innovations & new technologies.

Interested to collaborate in

Drug discovery/development, assay and technology development, cell biology, genomics, microscopy, oligonucleotides, lipids, metabolism, neuroscience.

Bio

+15 years of broad scientific experience. Since 2022, leading a fantastic interdisciplinary team at OligoNova Biology (SciLifeLab/University-of-Gothenburg) to deliver pharma quality standards in the academia.

Linda Sandblad

University

Umeå University

Name of department

Department of Chemistry

Email address

linda.sandblad@umu.se



Research key words

Electron microscopy, Cryo-EM, cytoskeleton, bacteria, cellular tomography

Research abstract

Cryo-EM and tomography study the proteome of microorganisms. To understand basic growth, cell division mechanisms, the cytoskeleton and molecular assemblies as well as regulation of antibiotic production in microorganisms.

Interested to collaborate in

Cryo-electron microscopy, electron tomography, biochemistry and image processing

Bio

Associate Professor at Department of chemistry, Umeå university, in the area of biochemistry and electron microscopy, research focus on cell and microbiology, Director at Umeå Centre for Electron Microscopy and Team Leader at Molecular Infection Medicine Sweden (MIMS).

Kristoffer Sahlin

University

Stockholm University

Name of department

Department of Mathematics

Email address

kristoffer.sahlin@scilifelab.se



Research key words

Bioinformatics, Metagenomics, transcriptomics, sequencing data, algorithms

Research abstract

We develop algorithms and statistical models for analyzing large biological datasets, particularly, high-throughput genomic and transcriptomic long and short read sequencing data.

Interested to collaborate in

Bioinformatic researchers that work with data driven method development.

Bio

I am an Assistant Professor at Stockholm University (the Department of Mathematics) and SciLifeLab Fellow at the Science for Life Laboratory. I obtained my PhD in Computer science from KTH Royal institute of Technology in 2015.

Patrick Sandoz

University

Uppsala University

Name of department

Materials Science and Engineering



Email address

patrick.sandoz@scilifelab.se

Research key words

Microphysiological Systems, Cancer Biophysics, Biomaterials Engineering, Immune Responses

Research abstract

My group will launch in January 2025, focusing on developing miniaturized in vivo-mimetic technology to study the spatial and temporal biophysical properties of the microtumor environment.

.

Interested to collaborate in

Spatial-omics, Artificial intelligence, Computational Modelling, Biomaterials, Microfabrication, Advanced Microscopy, Immuno-oncology

Bio

I am excited to join the SciLifeLab Fellows program. My previous background: MSc @UCLA (US) in microfluidics & lab-on-a-chip / PhD @EPFL (CH) in cellular biology / Postdoc @KTH (SE) developing microtumor models in immunology research.

Jochen Schwenk

University

KTH

Name of department

Protein Science

Email address

jochen.schwenk@scilifelab.se



Research key words

proteomics, liquid biopsy, assay development, multi-omics, precision medicine

Research abstract

My research aims to utilize innovative proteomic approaches to understand the involvement of circulating biomarkers in human health and disease.

.

Interested to collaborate in

Protein interactions, autoimmunity, GPCRs, drug development, proteomics

Bio

Jochen, a KTH professor and biochemist, leads research in translational proteomics at SciLifeLab. He is part of the Human Protein Atlas (HPA), a Scientific Director of SciLifeLab's Proteomics Platform, and chair of HUPO's Plasma Proteome Project

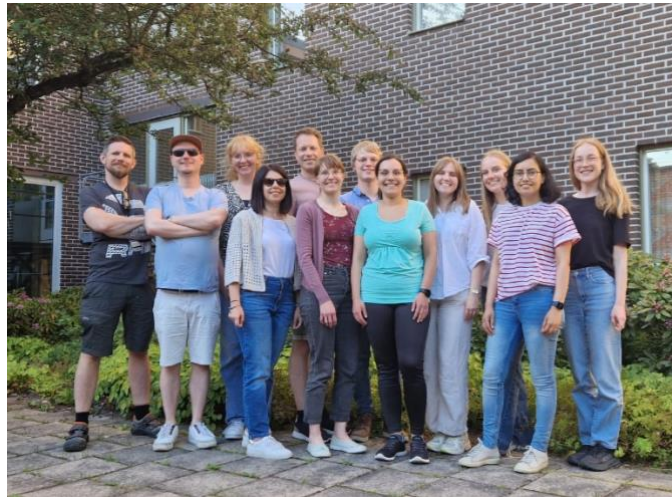
Mikael Sellin

University

Uppsala University

Name of department

Medical Biochemistry and
Microbiology



Email address

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Research key words

Organoid modelling, gut infection, inflammation, microbiology, epithelia.

Research abstract

Cell death in the gut epithelium is a fine-tuned process, subverted by invasive microbes and during tumorigenesis. We intend to resolve the mechanistic basis for such cell death subversion.

.

Interested to collaborate in

Genetic engineering of human cells, single-cell and bulk transcriptomics and proteomics, image analysis.

Bio

The Sellin laboratory combines human organoid modelling with microbial genetics and live-cell bioimaging to decipher microbe - host interactions in the gut and the implications for intestinal pathologies.

Erdinc Sezgin

University

Karolinska Institutet

Name of department

Women's and Children's Health

Email address

erdinc.sezgin@ki.se



Research key words

biophysics, immunology, membrane biology, lipid biology, synthetic biology

Research abstract

We develop and use advanced imaging and synthetic biology tools to reveal the molecular mechanisms governing the cellular physiology and disease processes.

Interested to collaborate in

drug screening, diseases

Bio

PhD, Dresden, Germany; EMBO, Marie Curie and Newton Postdoctoral Fellow, Oxford, UK; Group Leader, SciLifeLab, Karolinska Institutet, Stockholm

Tobias Sjöblom

University

Uppsala Universitet

Name of department

Department of Immunology, Genetics and Pathology



Email address

Tobias.sjoblom@igp.uu.se

Research key words

Colorectal cancer, somatic mutation analysis, drug discovery

Research abstract

Our research departs from -omics analyses of large sets of samples from patients with colorectal cancers (CRCs) to identify targets for functional studies, diagnostic and prognostic biomarkers, and drug discovery.

Interested to collaborate in

Targeting LOH and alternatively spliced genes in CRCs (experimental). Functional studies of recently discovered CRC genes (computational and experimental). Spatial and single-cell analyses of a large CRC cohort, multi-omics data integration (computational).

Bio

Performed the first exome sequencing of any human disease (Science, 2006). Director for U-CAN (2013-). Professor in tumor genetics (2017-). Director for Biobank Sweden (2018-2023). Published currently largest WGS/TX multi-omics study of CRC (Nature, 2024). Co-founded two startups in the cancer precision medicine space.

Marie Skepö

University

Lund University

Name of department

Department of Chemistry,
Div. of Computational Chemistry



Email address

marie.skepo@compchem.lu.se

Research key words

Intrinsically disordered and multi domain proteins, integrative structural biology, molecular dynamics simulations, BioSAXS, bimolecular interactions

Research abstract

Skepö's research combines computer simulations with experimental techniques like small-angle scattering to study intrinsically disordered regions and multi-domain proteins, focusing on their structure, interactions, and macroscopic properties.

Interested to collaborate in

Cryo-TEM/EM

Bio

Marie Skepö, Professor of Theoretical Chemistry at Lund University, researches biophysics and colloidal chemistry. She was LINXS vice director (2018–2023) and is the Chemistry Department's vice head.

Charlotte Stadler

University

KTH

Name of department

Protein Science

Email address

charlotte.stadler@scilifelab.se



Research key words

Spatial omics, immunofluorescence, FISH, precision medicine, cancer

Research abstract

Technology development within image based spatial omics in cells and tissues including antibodies and probes, method integration with MALDI imaging, protein interactions. Applications within cancer to improve treatment selection for immunotherapy vs directed antibody therapies - focusing on solid tumours.

Interested to collaborate in

Spatial omics, bioinformatics for data integration, cancer, host-pathogen interactions, mass spectrometry, Olink or similar circulating protein

Bio

After doing my PhD within the Human protein Atlas Project I worked within research infrastructure to establish the Spatial Biology Platform at Scilifelab. Today I lead the Spatial Proteomics Team of 6 members, including 2 researchers, 2 PhD students and 2 research engineers.

Stefanos Stagkourakis

University

Karolinska Institutet

Name of department

Neuroscience



Email address

stefanos.stagkourakis@scilifelab.se

Research key words

distributed neural networks, neural encoding, instinctual behaviors, behavioral and neural modules, plasticity

Research abstract

Our lab focuses on understanding how biological neural networks drive behavior. We use cutting-edge technologies and systems-level approaches to connect traditionally isolated biological levels, ranging from ion channels to brainwide neuron population dynamics, and animal behavior.

Interested to collaborate in

The Stagkourakis lab has experimental and computational expertise, and we are now in wealth of "first of a kind" neural data sets acquired with custom neurotechnologies. We have the resources to pursue the analysis of these large data, but are interested in a possible collaboration with Jeanette Hellgren Kotaleski, an expert in modeling and simulations.

Bio

Dr. Stagkourakis completed his doctoral training on the neural basis of instincts at Karolinska Institute. During his postdoctoral tenure at Caltech, he developed advanced neurotechnologies and expertise in computational methods, which laid the foundation for the launch of his lab in the autumn of 2024.

Staffan Svärd

University

Uppsala University

Name of department

Department of Cell and Molecular Biology

Email address

staffan.svard@icm.uu.se



Research key words

Parasite, diarrhea, genetic variation, meiosis

Research abstract

Giardia intestinalis is a significant cause of diarrheal disease worldwide in humans and other mammals. In this project we will study internal and external sexual processes that occur during *Giardia* encystation.

Interested to collaborate in

Infection biology, molecular parasitology

Bio

Dr. Staffan Svärd is the Deputy Vice-Rector of the Faculty of Natural Science and Technology, Uppsala University and Director of the Pandemic Preparedness program of SciLifeLab. His main research interest is the biology and pathogenesis of *Giardia intestinalis*, a major contributor to the enormous burden of diarrheal diseases with 200 million symptomatic human infections per year.

Fredrik Swartling

University

Uppsala University

Name of department

Department of Immunology, Genetics and Pathology

Email address

fredrik.swartling@igp.uu.se



Research key words

Brain tumors, cancer relapse, gene therapies, in vivo models, organoids

Research abstract

We have collected paired samples (matched cells from primary operation and at relapse) from operated children affected by various malignant brain tumors. We aim to see if cells with particular expression of genes and distinct signalling pathways are enriched in recurrent tumor cells as compared to matched primary tumor cells. We will use advanced molecular analysis and single-cell sequencing to see if minor or major clones from the primary tumor are driving relapse and we finally hope to identify distinct molecular therapies that can specifically target relapsing cells.

Interested to collaborate in

Single-cell sequencing, iPS cell reprogramming, radiation treatment, blood-brain barrier, AAVs, anti-sense oligonucleotides

Bio

Dr. Staffan Svärd is the Deputy Vice-Rector of the Faculty of Natural Science and Technology, Uppsala University and Director of the Pandemic Preparedness program of SciLifeLab. His main research interest is the biology and pathogenesis of *Giardia intestinalis*, a major contributor to the enormous burden of diarrheal diseases with 200 million symptomatic human infections per year.

Per-Olof Syrén

University

KTH

Name of department

CBH, FPT

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per-olof.syren@scilifelab.se



Research key words

Protein design; Biocatalysis; Synthetic biology; Bioremediation

Research abstract

De novo protein design is used to develop designer enzymes with unprecedented structures harboring new-to-nature biochemistries to pave the way for biological breakdown plastics and man-made pollutants accumulating in nature.

Interested to collaborate in

Synthetic biology, protein design, biomolecular engineering

Bio

Following PhD at KTH and an Alexander von Humboldt postdoctoral fellowship in Germany, Dr. Syrén has built up an independent research program at KTH/SciLifeLab bridging biotechnology, protein engineering and chemistry.

Maria Tenje



University

Uppsala University

Name of department

Materials Science and Engineering

Email address

maria.tenje@angstrom.uu.se

Research key words

organs-on-chip, microfluidics, organoids, droplet microfluidics, microfabrication

Research abstract

We develop and apply innovative computational tools to infer and integrate complex cell features (e.g., cell lineage and micro-environment) to dissect intra-tumor cancer heterogeneity, especially phenotype switches.

Interested to collaborate in

droplet microfluidics, organs-in-chip, organoids, single-cell analysis

Bio

I hold expertise in microfabrication and microfluidics focused on life science and biomedical applications. I am Wallenberg Academy Fellow and I currently lead an ERC Consolidator grant focused on organoid-on-chip.



Ilaria Testa

University

KTH

Name of department

Applied Physics

Email address

ilaria.testa@scilifelab.se



Research key words

fluorescence, microscopy, in situ imaging, single molecule, molecular neuroscience

Research abstract

We are fascinated by the dynamic nature of protein interactions. Based on novel fluorescence probes, optics and images' computation we push forward the methodological toolbox to capture molecules in action.

Interested to collaborate in

cryo electron microscopy, labeling strategies, protein engineering

Bio

I started my lab 2015 at KTH-SciLifeLab after a top-notch training in super resolution microscopy, fluorescence microscopy and biophysics. Since then we developed new super resolution approaches compatible with live cell imaging across scales.

Qiaoli Wang

University

Lund University

Name of department

Department of Translational Medicine

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Research key words

early detection, pancreatic cancer, risk prediction, liquid biopsy, machine learning

Research abstract

Research focused on advancing early detection and personalized risk assessment in pancreatic cancer, integrating genetics, multi-omics, and imaging within large-scale population-based and clinical studies to transform diagnostic and preventive strategies.

Interested to collaborate in

bioinformatics, computation sciences, biostatistics

Bio

As a cancer epidemiologist and oncologist, Dr. Qiaoli Wang enhances precision prevention and diagnostic strategies by driving interdisciplinary innovation in pancreatic cancer research at Lund University.

Björn Wallner

University

Linköping University

Name of department

Bioinformatics Division, Department of Physics, Chemistry, and Biology



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Research key words

bioinformatics, machine learning, protein interactions, protein dynamics, AlphaFold

Research abstract

We propose an AI method to predict dynamic structural ensembles, improving macromolecule representation. Building on our AFsample model from CASP15, we optimize AlphaFold sampling, retrain networks for dynamic structures, and generate probability distributions from experimental data, enhancing structure prediction and applications.

Interested to collaborate in

Protein structure prediction and dynamics using AI

Bio

Professor at LiU with a track-record of developing top-ranked protein modeling methods, winning the CASP quality assessment category (CASP10-CASP13). He pioneered rawMSA, essential to AlphaFold, utilizing evolutionary data for deep learning and laying the groundwork for its success. In CASP15, he improved on AlphaFold's baseline and was ranked no 1, introducing the massive sampling technique. He has collaborated extensively on modeling protein systems using diverse experimental data and created DockQ, now a standard for assessing multimeric model quality.

Oommen Varghese

University
Uppsala University



Name of department
Department of Chemistry-Ångström Laboratory

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Research key words
Nucleic acids therapeutics, nanoparticles, drug delivery, anticancer therapy, regenerative medicine,

Research abstract
My group is actively involved in designing next generation of nucleic acid drugs for gene silencing and developing bio-nanomaterials for delivering small-molecules, nucleic acid drugs and therapeutic proteins and 3D bioprinting. The group is focused on translational research for developing drugs for anticancer therapeutics and biomaterials for bone and cartilage regeneration.

Interested to collaborate in
Precision medicine & diagnostics; Therapeutic oligonucleotides; Nanomaterials; Drug design and delivery; AstraZeneca AB

Bio
Our group is one of the leading interdisciplinary research team within Uppsala University that aims to bring technologies from bench to bedside. Key interest is in developing technologies for treating brain cancer and for regenerating bone and cartilage tissues. We have the expertise and infrastructure for developing hydrogels, nanoparticles and therapeutics oligonucleotides. We also perform 3D bioprinting to develop in vitro models as well as develop 3D printed bone-like scaffolds that is implanted in bone defect models that showed promising results in preclinical rat models.

Gunilla Westergren Thorsson

University

Lund University

Name of department

Department of Experimental Medical Science

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Research key words

Regeneration, inflammation, clinical validation, bioengineering, lung

Research abstract

I investigate lung connective tissue remodeling in chronic lung diseases (COPD, fibrosis, asthma), focusing on ECM-cell interactions, inflammation, and diagnostic and therapeutic strategies using glycosaminoglycans, human 3D model systems, and bioengineering.

Interested to collaborate in

spatial omics, bioimaging, mass spectrometry, AI, machine learning

Bio

Director, Lund University Bioimaging Center

Martin Viklund

University

KTH

Name of department

Department of Applied Physics



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Research key words

3D cell cultures; Tissue engineering; Lab on a chip; Acoustofluidics; Cancer Therapy

Research abstract

We use microscale acoustofluidics for 3D cell culture, micro-tumor modelling, and live cell microscopy in 3D, for research within anti-cancer drug screening and immunotherapy.

Interested to collaborate in

Researchers interested in using experimental facilities with advanced imaging/microscopy equipment combined with microscale acoustofluidic technology for cell, particle and fluid manipulation.

Bio

Martin Viklund is a Professor in Applied Physics with expertise within experimental acoustofluidics, acoustophoresis, ultrasound and microfluidics, with a research focus towards cancer therapy studies.

Cecilia Williams

University
KTH

Name of department
Department of Protein science

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Research key words
Colorectal cancer, nuclear receptors, transcriptomics-microbiomics, spatial proteomics, tumor microenvironment

Research abstract
Understanding the impact by sex and hormones on colorectal cancer development and treatment by connecting molecular sex differences and protective effects by estrogen via the ESR2 receptor.

Interested to collaborate in
Techniques: system biology, machine learning, bioinformatics, spatial omics. Fields: immune signalling and immune checkpoint inhibitors

Bio
Cecilia Williams is a Professor and Head of Department at KTH, and Principal scientist at Karolinska Institutet, SciLifeLab Campus Solna. Scientific articles: 96, Graduate students main supervisor: 13, Postdocs: 6.

Jacob Vogel

University

Lund University

Name of department

Department of Clinical Science
Malmö

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Research key words

AI, neuroimaging, multi-omics, neurodegenerative disease, neuroscience

Research abstract

My lab applies AI and statistical learning approaches to diverse clinical imaging and biomarker data in order to model the onset and progression of neurodegenerative disease.

Interested to collaborate in

AI for medical images, proteomics, fMRI, disease progression modeling, subtyping

Bio

My expertise is at the interface of data science and clinical science. I use neurodegenerative disease as a model to better understand the brain function and disfunction.