Supervisor Portfolio for the Doctoral Programme in Biosciences and Drug Research

Cell Biology

Guillaume Jacquemet
Silvia Gramolelli
Eleanor Coffey
Annika Meinander
Lea Sistonen

Pharmacy

Outi Salo-Ahen
Tapani Viitala
Kuldeep Bansal
Zhang Hongbo
Xiaoju Wang

Marine Biology

Riikka Puntila-Dodd
Conny Sjöqvist
Christian Pansch-Hattich
Christoffer Boström
Markus Öst
Martin Snickars
Sonja Salovius-Lauren
Mikael von Numers

Biochemistry

Peter Mattjus

Guillaume Jacquemet

Group: Cell Migration Lab
Subject: Cell Biology
University: Åbo Akademi University
Lab Website: https://cellmig.org/
CRIS profile: https://research.abo.fi/en/persons/guillaume-jacquemet

Areas of Expertise

- Cancer cell biology
- Cell adhesion and migration
- Microscopy and live imaging
- Image analysis

Research Projects

- The role of filopodia during breast cancer progression
- Cancer cell communication via filopodia trans- endocytosis
- Deciphering the mechanisms of pancreatic cancer metastasis
- The role of mechanosensitive calcium channels in melanoma
- The role of TLNRD1 in endothelium homeostasis
- Democratising deep learning for microscopy with ZeroCostDL4Mic

Special Methodologies & Techniques

- Microscopy (super-resolution microscopy, live imaging, traction force microscopy)
- Image analysis, deep learning, and computer vision
- Cell and molecular biology
- Mass spectrometry (identification of protein-protein interactions using pull-downs and biotinylation-based strategy)
- Zebrafish embryo to study cancer biology
- Flow and perfusion chambers

Funding & Networks

- Sigrid Juselius Foundation
- Wellcome Trust
- Academy of Finland
- Finnish Cancer Foundation
- Inflames
- Turku Bioscience

Selected Publications

- TLNRD1 is a CCM complex component and regulates endothelial barrier integrity. J Cell Biol. 2024. DOI: 10.1083/jcb.202310030
- CellTracksColab is a platform that enables compilation, analysis, and exploration of cell tracking data. PLOS Biol. 2024. DOI: 10.1371/journal.pbio.3002740
- MYO10-filopodia support basement membranes at preinvasive tumor boundaries. Dev Cell. 2022. DOI: 10.1016/j.devcel.2022.09.016
- TrackMate 7: Integrating state-of-the-art segmentation algorithms into tracking pipelines. Nat. Methods. 2022. DOI: 10.1038/s41592-022-01507-1
- Democratising Deep Learning for Microscopy with ZeroCostDL4Mic. Nat Commun. 2021. DOI: 10.1038/s41467-021-22518-0

Outi Salo-Ahen

Group: Computer-aided drug design (CADD) group
Subject: Pharmacy
University: Åbo Akademi University
Lab Website: https://www.pharmscilab.fi/computer-aided-drug-design
CRIS profile: https://research.abo.fi/sv/persons/outi-salo-ahen

Areas of Expertise

- Computer-aided drug design
- Molecular modeling
- Biomolecular simulations
- Computational chemistry/biology and computational pharmaceutics
- Structural bioinformatics
- Immunoinformatics

Research Projects

- Discovery and design of novel antivirulence agents / antimicrobial compounds / anticancer drugs
- Computational analysis of pharmaceutical materials (e.g., nanoparticles, polymers)

Special Methodologies & Techniques

- Comparative protein modeling
- Molecular docking
- Molecular dynamics simulations
- Molecular interaction analysis
- Materials science modeling

Funding & Networks

- Tor, Joe & Pentti Memorial Fund
- Svenska Kulturfonden
- Research Council of Finland
- EU-OPENSCREEN

Selected Publications

- Microfluidics-Enabled Core/Shell Nanostructure Assembly: Understanding Encapsulation Processes via Particle Characterization and Molecular Dynamics. Adv Colloid Interface Sci. 2025. DOI: 10.1016/j.cis.2025.103400
- Insights Into Molecular Interactions and Biological Effect of Natural Stilbenoids at the TRPA1 ion channel. ChemMedChem. 2024. DOI: 10.1002/cmdc.202400501
- Development of Aptamer-DNAzyme based metal-nucleic acid frameworks for gastric cancer therapy. Nat Commun. 2024. DOI: 10.1038/s41467-024-48149-9.
- Isolation and functional analysis of phage-displayed antibody fragments targeting the staphylococcal superantigen-like proteins. MicrobiologyOpen. 2023. DOI: doi.org/10.1002/mbo3.1371
- The discovery of Zika virus NS2B-NS3 inhibitors with antiviral activity via an integrated virtual screening approach. Eur J Pharm Sci. 2022. DOI: 10.1016/j.ejps.2022.106220

Riikka Puntila-Dodd

Group: Marine ecosystem ecology
Subject: Marine Biology
University: Åbo Akademi University
CRIS profile: https://research.abo.fi/en/persons/riikka-puntila-dodd

Areas of Expertise

- Ecosystem modelling
- Ecopath with Ecosim
- Species distribution modelling
- Future scenarios
- Baltic Sea
- Cumulative pressures

Research Projects

- GES4SEAS
- MIMOSA
- Identifying changes in coastal ecosystems – implications to
- Recovery trajectories (RCoF)
- SEADITO

Special Methodologies & Techniques

- Ecopath with Ecosim
- Bayesian networks
- Species distribution modelling
- Integrated trend analysis
- Multivariate analyses

Funding & Networks

- RCoF
- Horizon Europe ICES WGIAB
- Marine modelling network
- Ecopath Consortium
- Beyond shifting baselines-consortium

Selected Publications

- Novelty, variability, and resilience: exploring adaptive cycles in a marine ecosystem under pressure. Ambio. 2025. DOI: 10.1007/s13280-025-02181-1
- Food web robustness depends on the network type and threshold for extinction. Oikos. 2025. DOI: 10.1111/oik.11139.
- Modelling Framework to Evaluate Societal Effects of Ecosystem Management. Sci Total Environ. 2023. DOI: 10.1016/j.scitotenv.2023.165508
- Integrating diverse model results into decision support for good environmental status and blue growth. Sci Total Environ. 2022. DOI: 10.1016/j.scitotenv.2021.150450.
- Food-web modeling in the Maritime Spatial Planning Challenge Simulation Platform: Results from the Baltic Sea. Proc Int Simulation and Gaming Ass Conf. 2021. DOI: 10.1007/978-3-030-72132-9_25

Peter Mattjus

Group: Lipid Transfer Protein Research
Subject: Biochemistry
University: Åbo Akademi University
Lab Website: https://users.abo.fi/pmattjus/
CRIS profile: https://research.abo.fi/sv/persons/peter-mattjus

Areas of Expertise

- The role of glycolipid transfer proteins in cells
- Glycosphingolipid biosynthesis
- Intracellular glycosphingolipid transport events

Research Projects

- Glycolipid transfer protein, GLTP interaction with VAP-proteins in the ER exit sites
- The role of GLTP in demyelination
- Intracellular localization of GLTP
- Inhibitors for glycolipid binding proteins

Special Methodologies & Techniques

- Lipid biochemistry
- Quantitative and qualitative glycosphingo- and phospholipid analysis by high-performance TLC
- Cell and molecular biology
- Fluorescence spectroscopy, steady-state and lifetime
- Radioisotope labeling and lipid metabolism techniques

Funding & Networks

- Medicinska understödsföreningen Liv och hälsa
- Borgs stiftelse
- COST action SPHINX member

Selected Publications

- Glycolipid transfer protein knockout disrupts vesicle trafficking to the plasma membrane. Journal of Biological Chemistry. 2023. DOI: 10.1016/j.jbc.2023.104607
- Who moves the sphinx? An overview of intracellular sphingolipid transport. BBA Molecular and Cell Biology of Lipids. 2021. DOI: 10.1016/j.bbalip.2021.159021
- Glucosylceramide acyl chain length is sensed by the glycolipid transfer protein. PLoS ONE. 2018. DOI: 10.1371/journal.pone.0209230
- Alternation in the Glycolipid Transfer Protein Expression Causes Changes in the Cellular Lipidome. PLoS ONE. 2014. DOI: 10.1371/journal.pone.0097263
- Vesicular and non-vesicular transport feed distinct glycosylation pathways in the Golgi. Nature. 2013. DOI: 10.1038/nature12423

Conny Sjöqvist

Group: Molecular Ecology Lab
Subject: Marine Biology
University: Åbo Akademi University
Lab Website: www.connysjoqvist.com
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Areas of Expertise

- Plankton ecology and evolution
- Experimental and molecular ecology
- Paleo- and resurrection biology

Research Projects

- Temperature adaptation in European diatom populations - AWARE
- Hotspots for biodiversity shifts in the Archipelago Sea - BIOSHIFT
- Modeling advanced primary production scenarios in coastal seas - MIMOSA
- Geochemical Dynamics of Seawater-Submarine Aquifer Interactions: Impacts on Coastal Sediments and Ecosystems
- Switching functional roles of gene expression of feeding trait plasticity in a marine key species - GeneMac

Special Methodologies & Techniques

- Cell cultivation
- Microscopical analyses
- DNA and RNA sequencing
- Population genomics
- Transcriptomics
- Bioinformatics

Funding & Networks

- Centre for Sustainable Ocean Science
- Swedish Cultural Foundation
- European Molecular Biology Laboratory (EMBL)
- Traversing European Coastlines (TREC)
- Estonian Research Council

Selected Publications

- Biodiversity of microorganisms in the Baltic Sea: The power of novel methods in the identification of marine microbes. FEMS Microbiology Reviews. 2024. DOI: 10.1093/femsre/fuae024
- Temperature optima of a natural diatom population increases as global warming proceeds. Nature Climate Change. 2024. DOI: 10.1038/s41558-024-01981-9
- Toward phytoplankton parasite detection using autoencoders. Machine Vision and Applications. 2023. DOI: 10.1007/s00138-023-01450-x
- Strain-specific transcriptional responses overshadow salinity effects in a marine diatom sampled along the Baltic Sea salinity cline. ISME Journal. 2022. DOI: 10.1038/s41396-022-01230-x
- Ecologically coherent population structure of uncultivated bacterioplankton. ISME Journal. 2021. DOI: 10.1038/s41396-021-00985-z

Silvia Gramolelli

Group: Viral Oncogenesis
Subject: Cell Biology
University: Åbo Akademi University
Lab Website: https://viraloncor.wordpress.com/
CRIS profile: https://research.abo.fi/sv/persons/silvia-gramolelli/publications/

Areas of Expertise

- Gene expression
- Chromatin remodelling
- Viral reactivation from latency
- Cellular transformation

Research Projects

- Role of somatic mutations in Epstein-Barr virus-induced oncogenesis and drug resistance
- Role of stress-related transcription factors in oncogenic herpesvirus persistence and gene expression
- New diagnostic tools based on DNA nanotechnology to detect viral genomic sequences

Special Methodologies & Techniques

- Patient-derived organoids
- Lentiviral production and transduction
- Chromatin IP
- Proteomics

Funding & Networks

- Research Council of Finland
- Sigrid Juselius
- Finnish Cultural Foundation
- Mary & George Ehrnrooth Foundation
- Suomen Tiedeseura
- InFLAMES

Selected Publications

- Heat shock factor 2 regulates oncogenic gamma-herpesvirus gene expression by remodeling the chromatin at the ORF50 and BZLF1 promoter. PLoS Pathog. 2025. DOI: 10.1371/journal.ppat.1013108
- DLL4/Notch3/WNT5B axis mediates bidirectional prometastatic crosstalk between melanoma and lymphatic endothelial cells. JCI Insight. 2024. DOI: 10.1172/jci.insight.171821
- Oncogenic Herpesvirus Engages Endothelial Transcription Factors SOX18 and PROX1 to Increase Viral Genome Copies and Virus Production. Cancer Res. 2020. DOI: 10.1158/0008-5472.CAN-19-3103
- Kaposis Sarcoma-Associated Herpesvirus Lytic Replication Is Independent of Anaphase-Promoting Complex Activity. Journal of Virology. 2020. DOI: 10.1128/JVI.02079-19
- High tissue MMP14 expression predicts worse survival in gastric cancer, particularly with a low PROX1. Cancer Medicine. 2019. DOI: 10.1002/cam4.2576

Christian Pansch-Hattich

Group: Experimental Ecology - Stress Ecology & Ecophysiology
Subject: Marine Biology
University: Åbo Akademi University
Lab Website: https://pansch-research.com
CRIS profile: https://research.abo.fi/en/persons/christian-pansch-hattich

Areas of Expertise

- Climate change impacts on marine systems; environmental variability & extreme climatic events, heatwaves, climate change refugia, thermal microclimates
- Area: Ecophysiology, thermal ecology, acclimation & adaptation, species interactions e.g., facilitation, mesocosm food webs, invasion ecology, macrophyte-grazer interactions
- Systems: Bivalves, macrophytes (seagrass, Fucus), associated epi- and infauna, crustaceans (Gammarus, Idotea, mudcrabs), phytoplankton

Research Projects

- PhD S. Rühmkorff: Resilience of Seagrass Ecosystems through Habitat Heterogeneity & Genetic Diversity
- ÅA Stiftelse: SOS - Centre for Sustainable Ocean Science
- Horizon: SEA-Quester - Blue Carbon production, export, & sequestration in emerging polar ecosystems
- Res. Counc. Norway: NORSE - Biodiversity in Northern European Seagrass meadows – drivers, responses, & resilience
- PhD L. Kraufvelin: Impacts of Heatwaves on the Functioning of Temperate Coastal Ecosystems

Special Methodologies & Techniques

- Combine ecophysiology, acclimation, and adaptation experimental studies with simplified community assessments in mostly experimental approaches
- Using high-throughput incubation units and mesocosms
- Simulating multiple and fluctuating climate change drivers
- High-resolution coastal environmental monitoring

Funding & Networks

- Funders: EU, Research Council Fi, Svenska Kulturfonden, Stiftelse Åbo Akademi, City of Turku
- Collaborations: Tvärminne Zoological Station at Helsinki University, Turku, University of Applied Sciences – TUAS, Tjärnö Marine Laboratory at Gothenburg University, GEOMAR – Helmholtz Centre for Ocean Research Kiel, Alfred Wegener Institute for polar and marine research (AWI) – Wadden Sea Station Sylt, Leibniz Institute for Baltic Sea Research Warnemünde – IOW

Selected Publications

- Small-scale thermal habitat variability may not determine seagrass resilience to climate change. Limnology and Oceanography. In press
- The interplay of co-occurring ecosystem engineers shapes the structure of benthic communities – a mesocosm experiment. Frontiers in Marine Science. 2024. DOI: 10.3389/fmars.2024.1304442
- Marine heatwaves and hypoxic upwelling shape stress responses in a keystone predator. Proceedings of the Royal Society Biological Sciences. 2023. DOI: 10.1098/rspb.2022.2262
- Environmental variability in aquatic ecosystems: avenues for future multifactorial experiments. Limnology and Oceanography – Letters. 2023. DOI: 10.1002/lol2.10286
- Editorial: Influence of environmental variability on climate change impacts in marine ecosystems. Frontiers in Marine Science. 2022. DOI: 10.3389/fmars.2022.994756

Christoffer Boström

Group: Boström's Lab
Subject: Marine Biology
University: Åbo Akademi University
CRIS profile: https://research.abo.fi/sv/persons/christoffer-bostr%C3%B6m/projects/

Areas of Expertise

- Marine ecology

Research Projects

- Digital Waters

Special Methodologies & Techniques

- Marine field sampling, mesocosm experiments, field experiments

Funding & Networks

- Doctoral Pilot
- Svenska Kulturfonden
- networks Zostera Experimental Network
- Nordic collaboration

Selected Publications

- Marine biodiversity loss in coastal waters: evidence and implications for management in Finnish sea areas, northern Baltic Sea, AMBIO 2025. DOI: 10.1007/s13280-025-02185-x
- Shallow coastal bays as sediment carbon and nutrient reservoirs in the Baltic Sea. Estuaries and Coasts 2024 in press
- Assessing the success of marine ecosystem restoration using meta-analysis. Nature Communications. 2025. DOI: 10.1038/s41467-025-57254-2
- The methylome of clonal seagrass shoots shows age-associated variation and differentiation of roots from other tissues. Biochimica et Biophysica Acta. 2025. Vol. 1869, Issue 2. DOI: 10.1016/j.bbagen.2024.130748.
- Global effects of ecosystem and climate on long-term belowground decomposition in wetlands. Environmental Science & Technology DOI: 10.1021/acs.est.4c02116

Tapani Viitala

Group: Pharmaceutical Biophysics
Subject: Pharmacy
University: Åbo Akademi University
CRIS profile: https://research.abo.fi/fi/persons/tapani-viitala

Areas of Expertise

- Pharmaceutical nanotechnology
- Surface and colloid chemistry
- Physico-chemical characterization
- Drug delivery and targeting
- Biomolecular interactions
- Real-time label-free living cell sensing
- 3D printing

Research Projects

- NAP4DIVE: Non-Animal Platform for Nanoparticle-Based Delivery Across the Blood-Brain Barrier Interface with Vehicle Evolution - EU Horizon RIA
- Nordic Pharmaceutical Translation and Innovation - Nordforsk
- MADNESS: Centre of Excellence in Materials-driven solutions for combatting antimicrobial resistance - Åbo Akademi Foundation
- Data integrated platforms for the design, production, and testing of therapeutics (project in Helsinki) - Business Finland

Special Methodologies & Techniques

- Multi-Parametric Surface Plasmon Resonance
- Impedance-based Quartz Crystal Microbalance
- LigandTracer
- Waveguide scattering microscopy

Funding & Networks

- EU Horizon RIA
- NordForsk
- Åbo Akademi Foundation
- Business Finland

Selected Publications

- Semi-solid extruded tablets for personalized pediatric use: Development, Quality control and In-Vitro Assessment of Enteral Tube Administration. European Journal of Pharmaceutical Sciences. 2025. DOI: 10.1016/j.ejps.2025.107122
- Monitoring silica core@shell nanoparticle-bacterial film interactions using the multi-parametric surface plasmon resonance technique. Smart Medicine 2. 2023. DOI: 10.1002/SMMD.20230012
- In Vitro Characterization and Real-Time Label-Free Assessment of the Interaction of Chitosan-Coated Niosomes with Intestinal Cellular Monolayers. Langmuir. 2023. DOI: 10.1021/acs.langmuir.3c00728
- Protein A/G-based surface plasmon resonance biosensor for regenerable antibody-mediated capture and analysis of nanoparticles. Colloids and Surfaces A: Physicochemical and Engineering Aspects. 2022. DOI: 10.1016/j.colsurfa.2022.130015
- In situ analysis of liposome hard and soft protein corona structure and composition in a single label-free workflow. Nanoscale. 2020. DOI: 10.1039/C9NR08186K

Kuldeep Bansal

Group: Polymeric drug delivery
Subject: Pharmacy
University: Åbo Akademi University
Lab Website: https://www.pharmscilab.fi/
CRIS profile: https://research.abo.fi/fi/persons/kuldeep-bansal

Areas of Expertise

- Functional Polymers
- Stimuli-Sensitive Polymers
- Targeted and Controlled Drug Delivery
- Polymeric Micelles
- Polymer-Drug Conjugates
- Microparticles
- Amorphous Solid Dispersions
- Polymeric Nanoemulsion

Research Projects

- Centre of Excellence in Materials-driven Solutions for Combatting Antimicrobial Resistance (MADNESS)
- Jasmine PRO: A versatile platform for drug delivery
- Non-Animal Platform for Nanoparticle-Based Delivery across the blood-brain barrier Interface with Vehicle Evolution

Special Methodologies & Techniques

- Polymer Synthesis and Characterization (NMR, FTIR, GPC, DSC),
- Nanoparticle Synthesis and Characterization (nanoprecipitation, microfluidics, DLS, HPLC, TEM),
- Cell Culture,
- Design of Stimuli-Sensitive Drug Delivery Platforms

Funding & Networks

- Funding Sources: Stiftelsen för Åbo Akademi, Business Finland, Academy of Finland
- International Networks: Copenhagen University, NIPER (India), UiT The Arctic University of Norway, University College London

Selected Publications

- Reactive Oxygen Species-Regulated Conjugates Based on Poly (jasmine) Lactone for Simultaneous Delivery of Doxorubicin and Docetaxel, Pharmaceutics. 2024. DOI: 10.3390/pharmaceutics16091164
- Poly-δ-decalactone (PDL) based nanoemulgel for topical delivery of ketoconazole and eugenol against Candida albicans, Nanoscale Advances. 2024. DOI: 10.1039/D4NA00176A
- Utilizing the allyl-terminated copolymer methoxy (poly(ethylene glycol))-block-poly (jasmine lactone) in the development of amorphous solid dispersions: A comparative study of functionalized and nonfunctionalized polymer, International Journal of Pharmaceutics. 2024. DOI: 10.1016/j.ijpharm.2024.124175
- Functional block copolymer micelles based on poly (jasmine lactone) for improving the loading efficiency of weakly basic drugs, RSC advances. 2022. DOI: 10.1039/D2RA03962A
- Synthesis and evaluation of novel functional polymers derived from renewable jasmine lactone for stimuli-responsive drug delivery, Advanced Functional Materials. 2021. DOI: 10.1002/adfm.202101998

Zhang Hongbo

Group: Functional Materials for Medicine
Subject: Pharmacy
University: Åbo Akademi University
Lab Website: https://www.pharmscilab.fi/nanoprecisionmed
CRIS profile: https://research.abo.fi/en/persons/hongbo-zhang

Areas of Expertise

- Nanomedicine
- Biomedical Engineering
- Drug Delivery
- Gene Therapy

Research Projects

- Functional Materials have played a more and more critical role in developing novel treatment methods for different diseases. Our group focuses on designing all kinds of functional materials, at different scales, to solve clinical and biological problems.

Special Methodologies & Techniques

- We have broad collaborations with hospitals, and most of our projects have clinical doctors involved, and initially, from a real-life clinical question. Our group is multidisciplinary, which involves an interplay between physics, materials science, synthetic organic chemistry, engineering, biology, and medicine. We aim that many of our designs could be clinically applicable in the future, and have a tremendous social impact in treating diseases.

Funding & Networks

- I am coordinating many projects from the Research Council of Finland, Business Finland, and different foundations. I am also part of many consortium projects, including the InFlame flagship, NAP4DIVE (EU Horizon), Nordic POP, NordicPharmTrain, PII: Printed Intelligence Infrastructure, MADNESS (ÅAU Center of Excellence). As well as the collaboration project with companies, e.g., the joint project with Bayer Oy. I collaborate broadly with Harvard University, USA, and Chinese hospitals.

Selected Publications

- Development of Aptamer-DNAzyme Based Metal-Nucleic Acid Frameworks for Gastric Cancer therapy. Nature Communications. 2024. DOI: 10.1038/s41467-024-48149-9
- An autocatalytic multicomponent DNAzyme nanomachine for tumor-specific photothermal therapy sensitization in pancreatic cancer. Nature Communications. 2023. DOI: 10.1038/s41467-023-42740-2
- Therapeutic DNAzymes: From Structure Design to Clinical Applications. Advanced Materials. 2023. DOI: 10.1002/adma.202300374
- Photothermal Responsive Nanosized Hybrid Polymersome as Versatile Therapeutics Co-Delivery Nanovehicle for Effective Tumor Suppression. Proc. Natl. Acad. Sci. U.S.A. 2019. DOI: 10.1073/pnas.1817251116
- Programmable and Multifunctional DNA-Based Materials for Biomedical Applications. Advanced Materials. 2018. DOI: 10.1002/adma.201703658

Eleanor Coffey

Group: Protein Kinase Function in Brain
Subject: Cell Biology
University: Åbo Akademi University
Lab Website: https://bioscience.fi/research/kinase-function-in-brain/
CRIS profile: https://research.abo.fi/en/persons/eleanor-coffey

Areas of Expertise

- Our lab investigates the molecular mechanisms underlying brain disorders, with specialized expertise in the signaling pathways regulated by the protein kinases JNK and LRRK2. We have uncovered novel insights into how these kinases influence anxiety-like behaviors and neuronal death in Parkinson's disease. By integrating animal and cellular models with clinical proteomics, we aim to deepen our understanding of the biology behind these conditions.

Research Projects

- We focus on Parkinson's disease, using deep proteomic profiling of blood cells to detect pre-symptomatic changes. This includes developing new informatics to decode the "dark proteome" of cohorts like PPMI to identify early biomarkers. We also study depression cohorts to find markers predicting treatment response. Together, this work offers insight into immune cell roles in brain disorders.

Special Methodologies & Techniques

- Our lab combines fluorescence imaging and proteomics methods with neurobiology, biochemistry, and data science to reach our goals.

Funding & Networks

- These projects are funded by the Michael J Fox Foundation, the Research Council of Finland, EU ERANET, Immudocs, and Inflames. We participate in international networks in the field of neuroscience, including informatics for neuroscience.

Selected Publications

- PhosPiR: an automated phosphoproteomic pipeline in R. Briefings in Bioinformatics. 2022. DOI: 10.1093/bib/bbab510
- Protein synthesis is suppressed in sporadic and familial Parkinson's disease by LRRK2. FASEB Journal. 2020. DOI: 10.1096/fj.202001046R
- JNK1 controls adult hippocampal neurogenesis and imposes cell-autonomous control of anxiety behaviour from the neurogenic niche. Molecular Psychiatry. 2018. DOI: 10.1038/mp.2016.203.
- Nuclear and cytosolic JNK signalling in neurons. Nature Reviews Neuroscience. 2014. DOI: 10.1038/nrn3729
- Phosphorylation of SCG10/stathmin-2 determines multipolar stage exit and neuronal migration rate. Nature Neuroscience. 2011. DOI: 10.1038/nn.2755

Markus Öst

Group: Eider Research Team
Subject: Marine Biology
University: Åbo Akademi University
Lab Website: https://www.abo.fi/en/adaptations-to-challenging-environments-in-common-eiders/
CRIS profile: https://research.abo.fi/en/persons/markus-%C3%B6st

Areas of Expertise

- Population- and individual-level responses to increasing predation
- Fitness consequences of behavioural and physiological variation under predation and climate forcing
- Genetic connectivity, gene flow, and diversity during population decline
- Causes and consequences of breeding dispersal, choice of overwintering area, and migration
- Strategies, evolution of animal personality
- Life-history evolution
- Social evolution

Research Projects

- Ongoing project: Hormonal and genetic adaptations to a changing environment: a longitudinal population study of eiders (funding: Swedish Cultural Foundation in Finland)

Special Methodologies & Techniques

- Stress physiology: radioimmunoassay of corticosterone and other hormones (prolactin, thyroid hormones)
- Genetics: reduced-representation sequencing (RAD-seq)
- Movement: geolocator tracking
- Morphology and tagging: field measures and colour rings for individual identification

Funding & Networks

- Academy of Finland, project 128039; 2009-2012.
- Swedish Cultural Foundation, 12 grants (2013-2024).
- Maj and Tor Nessling Foundation; 2009-2011.
- ARONIA 10-Year Jubilee Funds (2010).
- Academy of Finland project 104582; 2004-2007.
- Academy of Finland project 51895; 2001-2003.
- Delta Waterfowl Foundation (USA), 2004-2007.
- Oskar Öflunds stiftelse, 2006-2008.
- Ella och Georg Ehrnrooths stiftelse, 2001.

Selected Publications

- The effect of climate change on avian offspring production: a global meta-analysis. Proc. Natl. Acad. Sci. U.S.A. 2023. DOI: 10.1073/pnas.2208389120
- Kin association during brood care in a facultatively social bird: active discrimination or byproduct of partner choice and demography? Mol. Ecol. 2012. DOI: 10.1111/j.1365-294X.2012.05603.x
- Winter climate affects subsequent breeding success of common eiders. Glob. Change Biol. 2006. DOI: 10.1111/j.1365-2486.2006.01162.x
- Brood size matching: a novel perspective on predator dilution. Am. Nat. 2013. DOI: 10.1086/668824
- Drivers of within- and among-individual variation in risk-taking behaviour during reproduction in a long-lived bird. Proc. R. Soc. 2022. DOI: 10.1098/rspb.2022.1338

Martin Snickars

Group: Husö
Subject: Marine Biology
University: Åbo Akademi University
Lab Website: https://www.abo.fi/huso-biologiska-station/
CRIS profile: https://research.abo.fi/en/persons/martin-snickars

Areas of Expertise

- Coastal water ecology

Research Projects

- Marine Waterways -Together with local communities, the Åland Government, Åland Fisheries Center (Guttorp), SLU
- Currently involved in a large national Biodiversea focusing on the restoration of key coastal habitats.

Special Methodologies & Techniques

- Ordinary coastal monitoring methods and advanced echosounders and autonomous sonars

Funding & Networks

- FIRI, EMBRC

Selected Publications

- Physical drivers of epi-and infauna communities related to dominating macrophytes in shallow bays in the Northern Baltic Sea. Estuar, Coast Shelf Sci. 2021. DOI: 10.1016/j.ecss.2021.107600
- Declines in predatory fish promote bloom-forming macroalgae. Ecol Appl. 2009. DOI: 10.1890/08-0964.1
- Impact of eutrophication and climate change on fish and zoobenthos in coastal waters of the Baltic Sea. Mar Biol. 2015. DOI: 10.1007/s00227-014-2579-3
- Essential coastal habitats for fish in the Baltic Sea. Estuar, Coast Shelf Sci. 2018. DOI: 10.1016/j.ecss.2018.02.014
- Coastal habitats and their importance for the diversity of benthic communities: a species-and trait-based approach, Estuari, Coast Shelf Sci. 2019. DOI: 10.1016/j.ecss.2019.106272

Annika Meinander

Group: Inflammatory Signalling Group
Subject: Cell Biology
University: Åbo Akademi University
Lab Website: https://www.abo.fi/en/inflammatory-signalling-lab/
CRIS profile: https://research.abo.fi/sv/persons/annika-meinander

Areas of Expertise

- Post-translational modifications, ubiquitination in particular
- NF-κB signalling pathways
- Apoptotic and non-apoptotic roles of caspases
- Drosophila melanogaster as a model system

Research Projects

- Ubiquitination-mediated regulation of inflammation during cell stress and infection
- Targeting ubiquitin signalling in chronic inflammation and inflammation-induced cancer
- Ubiquitin-mediated control of starvation-induced intestinal inflammatory responses
- Caspase-mediated regulation of autophagy in inflammatory signalling
- Modulating caspase activation and immune signalling in intestinal inflammation

Special Methodologies & Techniques

- Analysis of ubiquitin modifications in vitro and in vivo
- Drosophila melanogaster as a model system to study cell signalling and immune responses
- Imaging caspase activation in vivo

Funding & Networks

- InFLAMES Flagship
- Sigrid Jusélius Foundation
- Swedish Cultural Foundation
- COST Action CA20113/ProteoCure
- International Society of Protein Termini

Selected Publications

- Ubiquitin signalling in Drosophila innate immune responses. FEBS J. 2024. DOI: 10.1111/febs.17028.
- Drosophila caspases as guardians of host-microbe interactions. Cell Death Differ. 2023. DOI: 10.1038/s41418-022-01038-4.
- Core@shell structured ceria@mesoporous silica nanoantibiotics restrain bacterial growth in vitro and in vivo. Biomater. Adv. 2022. DOI: 10.1016/j.msec.2021.112607.
- A M1-ubiquitination facilitates NF-kappaB activation and survival during sterile inflammation. FEBS J. 2022. DOI: 10.1111/febs.16425.
- Drice restrains Diap2-mediated inflammatory signalling and intestinal inflammation. Cell Death Differ. 2022. DOI: 10.1038/s41418-021-00832-w.

Sonja Salovius-Lauren

Group: BiodiverSea-group
Subject: Marine Biology
University: Åbo Akademi University
Lab Website: https://www.abo.fi/en/emb-research/
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Areas of Expertise

- Marine biodiversity and marine inventories
- Spatial ecology
- Conservation planning
- Marine restoration
- Sediment-biological interactions
- Genetic (molecular markers)
- Studies including connectivity
- Macroalgal-invertebrate interactions
- Marine indicator development
- Macroalgal production related to eutrophication.

Research Projects

- Biodiversea-project, funded by EU LIFE IP
- Center for Sustainable Ocean Sciences (SOS), Center of Excellence, funded through ÅAU Endowment
- RIKI- project ("Nutrient turnover in the Archipealago Sea") in cooperation with the ELY Center, funded by the Ministry of the Environment
- The Finnish Inventory Programme for Underwater Marine Diversity, VELMU

Special Methodologies & Techniques

- Marine mapping methods including UW video camera and photography
- Aquarium experiments
- Sediment analysis
- Molecular markers of selected species (charophytes, blue mussels)
- Spatial modeling

Funding & Networks

- The present funding comes through EU Life, ÅAU endowment, and the Ministry of Environment/ELY-center. Recent funding: Baltic Sea Conservation Foundation, Government of Åland, European Maritime and Fisheries Fund, and the Ministry of Environment

Selected Publications

- Marine biodiversity loss in Finnish coastal waters: evidence and implications for management. AMBIO. 2025. DOI: 10.1007/s13280-025-02185-x
- Finnish inventory data of underwater marine biodiversity. Scientific Data. 2024. DOI: 10.1038/s41597-024-04092-4
- Invertebrate Responses to Large- and Small-Scale Drivers in Coastal Phragmites australis Beds in the Northern Baltic Sea. Estuaries and Coasts. 2024. DOI: 10.1007/s12237-024-01360-9
- Green algae as bioindicators for long-term nutrient pollution along a coastal eutrophication gradient. Ecological Indicators. 2022. DOI: 10.1016/j.ecolind.2022.109034
- Variation in Fucus vesiculosus associated fauna along a eutrophication gradient. Estuarine Coastal and Shelf Science. 2022. DOI: 10.1016/j.ecss.2022.107976

Lea Sistonen

Group: Sistonen Lab
Subject: Cell Biology
University: Åbo Akademi University
Lab Website: https://sistonenlab.com/
CRIS profile: https://research.abo.fi/sv/persons/lea-sistonen

Areas of Expertise

- Cell Differentiation
- Cell Stress
- Post-translational Modifications
- Proteostasis
- Transcriptional Gene Regulation

Research Projects

- HSF-NET: Functional networks regulated by heat shock factors in cell plasticity, Research Council of Finland 2023-27
- Proteostasis driven by HSFs in cell plasticity programs and cancer", Sigrid Jusélius Foundation 2025-28
- Re-programming of gene and enhancer expression in cell differentiation and stress, Liv och Hälsa 2023-26
- Pharmacologic strategy for targeting the main oncoproteins and defense systems of HPV-driven cancers, Cancer Foundation Finland 2024-26, together with John E. Eriksson

Special Methodologies & Techniques

- ChIP-seq
- DNA-protein interaction in vivo and in vitro
- Proteomics
- PRO-seq
- RNA-seq, including data analysis

Funding & Networks

- HSF-NET: Functional networks regulated by heat shock factors in cell plasticity, Research Council of Finland 2023-27
- Proteostasis driven by HSFs in cell plasticity programs and cancer", Sigrid Jusélius Foundation 2025-28
- Re-programming of gene and enhancer expression in cell differentiation and stress, Liv och Hälsa 2023-26
- Pharmacologic strategy for targeting the main oncoproteins and defense systems of HPV-driven cancers, Cancer Foundation Finland 2024-26, together with John E. Eriksson

Selected Publications

- Nuclear talin-1 provides a bridge between cell adhesion and gene expression. iScience. 2025. DOI: 10.1016/j.isci.2025.111745
- CBP-HSF2 structural and functional interplay in Rubinstein-Taybi neurodevelopmental disorder. Nat Commun. 2022. DOI: 10.1038/s41467-022-34476-2
- HSFs drive transcription of distinct genes and enhancers during oxidative stress and heat shock. Nucleic Acids Res. 2022. DOI: 10.1093/nar/gkac493
- Stress-induced transcriptional memory accelerates promoter-proximal pause release and decelerates termination over mitotic divisions. Mol Cell. 2021. DOI: 10.1016/j.molcel.2021.03.007

• Heat shock factor 2 protects against proteotoxicity by maintaining cell-cell adhesion. Cell Rep. 2020. DOI: 10.1016/j.celrep.2019.12.037

Mikael von Numers

Group: Mikael von Numers
Subject: Marine Biology
University: Åbo Akademi University
CRIS profile: https://research.abo.fi/sv/persons/mikael-von-numers

Areas of Expertise

- Island biogeography
- Long-term changes
- Distribution patterns among plants and birds
- Species-environment interactions

Research Projects

- My main research interests include long-term changes (among both plants and birds) and biogeographical questions concerning species distribution patterns in relation to the environment.

Special Methodologies & Techniques

- Fieldwork, GIS

Funding & Networks

- mainly domestic sources such as SKF

Selected Publications

- Predation risk and landscape context shape reproductive output of an endangered sea duck from two subpopulations with contrasting predation risk. J. of Ornithology. 2023. DOI: 10.1007/s10336-022-02036-6
- Island properties dominate species traits in determining plant colonizations in an archipelago system. Ecography. 2020. DOI: 10.1111/ecog.05013
- Population changes in the declining Turnstone (Arenaria interpres) and other waders in the northern Baltic Sea based on past and current breeding observations. Ornis Fenn. 2020. DOI: 10.51812/of.133973
- Refining predictions of metacommunity dynamics by modelling species non-independence. Ecology. 2020. DOI: 10.1002/ecy.3067
- Distribution patterns and long-term changes in vascular plants of non-littoral areas in the SW archipelago of Finland. Part VII. Poaceae and synthesis. 2017. DOI: 10.5735/085.054.0607

Xiaoju Wang

Group: Biomaterials and Drug Fabrication
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Areas of Expertise

- My research focuses on harnessing the benign properties of bio-enabled plant biopolymers to design sustainable and functional biomaterials for better interfacing with living cells or microbes. To create effective bionanomaterials and soft-matter Biomaterials, my research applies core methodologies such as biopolymer chemical modifications, nanostructured biopolymer synthesis, and self-assembled biocolloidal networks from nano- to macro-scale.

Research Projects

- MADNESS CoE-Center of Excellence in Materials-driven solutions for combatting antimicrobial resistance, Åbo Akademi University Foundation, 01.01.2024-31.12.2028 (Co-PI; Center director: Prof. Jessica Rosenholm)
- SusCellInk-Sustainable nanocellulose-based bioinks towards diverse material functionalities and therapeutic delivery of bioactive cues, Research Council of Finland (333158), 01.09.2020-31.08.2025, (PI)

Special Methodologies & Techniques

- Chemical synthesis of nanostructured polysaccharides and polyphenols
- Rheology
- Various additive manufacturing techniques
- Cell-laden 3D bioprinting for fabrication of in vitro models

Funding & Networks

- Independent PI at CoE-MADNESS, Åbo Akademi University Foundation, 01.01.2024-31.12.2028
- Academy Research Fellow, Research Council of Finland (333158), 01.09.2020-31.08.2025

Selected Publications

- Photocurable cellulose nanofibers and their copolymers with polyacrylamide as microgels to support 3D cell cultivation. Nanoscale. 2025, DOI: 10.1039/D5NR00583C
- Bioprinting Macroporous Hydrogel with Aqueous Two-Phase Emulsion-Based Bioink: In Vitro Mineralization and Differentiation Empowered by Phosphorylated Cellulose Nanofibrils. Adv. Funct. Mater. 2024. DOI: 10.1002/adfm.202400431
- Aqueous Two-Phase Emulsion Bioresin for Facile One-Step 3D Microgel-Based Bioprinting. Adv. Healthcare Mater. 2023. DOI: 10.1002/adhm.202203243
- Evolution of Self-Assembled Lignin Nanostructure into Dendritic Fiber in Aqueous Biphasic Photocurable Resin for DLP-Printing. Adv. Funct. Mater. 2024. DOI: 10.1002/adfm.202315679
- Digital light processing (DLP) 3D-fabricated antimicrobial hydrogel with a sustainable resin of methacrylated woody polysaccharides and hybrid silver-lignin nanospheres. Green Chemistry. 2022. DOI: 10.1039/D1GC03841A