Research in Life Sciences Directory 2026

UKRI BBSRC EastBio Partnership

Introduction

Since its 2012 inception, the BBSRC-funded EastBio Partnership has been delivering excellence in bioscience researcher provision. Through consecutive funding and support from BBSRC, EastBio has continued to evolve thanks to innovative collaboration across our hosting partners -- the Universities of Aberdeen, Dundee, Edinburgh, St Andrews, Stirling, SRUC, James Hutton Institute, Moredun Research Institute, IBioIC -- our training partners SULSA, Scottish Policy and Research Exchange (SPRE), In2ScienceUK and our PhD CASE partner organisations. The EastBio BBSRC DLA award (2025-2030) supports the researcher and professional development of 174 students within the strategic areas of Healthy People, Animals and Plants; Sustainable Agriculture and Food Systems and A Resilient Bioeconomy.

In this context, the updated 2026 Research Directory provides a snapshot of the broad – interdisciplinary and collaborative - research conducted across the partnership. It features individual research profiles contributed by our supervisors and collaborative partners, including keywords and a statement to facilitate navigation. The concise brochure aims to facilitate effective and open networking among our current and prospective members.

We hope that the resource will benefit all supervisors and especially early career researchers to initiate conversations that can lead to fruitful collaborations. Make sure you reach out to PIs leading on research of interest to you in the next in-person EastBio event!

For current and past brochures, see: https://biology.ed.ac.uk/eastbio/about-eastbio/collaboration-with-industry

EastBio team and the EastBio Management Group
Edinburgh, July 2026

Prof. Amaya Albalat

University of Stirling, Institute of Aquaculture

Supervisor/Senior academic

Animal systems, health, welfare, food and sustainability

Decapod crustaceans, which are widely used in both scientific research and commercial food production, have largely been excluded from ethical discussions. However, over the past decade, growing public concern for their welfare has emerged in many regions worldwide. My research is focused in optimising production protocols (aquaculture and fisheries) for decapod crustaceans from a welfare perspective. Within this context, I have several projects that are aimed at developing humane slaughter methods specifically for decapod crustaceans.

I would be interested to develop projects on technology or sensors that could be used to assess welfare in aquatic animal species.

https://www.stir.ac.uk/people/256698

Dr Arno Alpi

University of Edinburgh CSE, School of Biological Sciences/Institute of Cell Biology

Senior Lecturer/Group leader

cell differentiation, haematopoiesis, cell signalling, proteostasis, ubiquitin-proteasome system,

INVESTIGATING UBIQUITIN SIGNALLING AND PROTEOSTASIS IN CELL DIFFERENTIATION

Our major scientific focus is to understand signalling pathways controlled by ubiquitylation – a protein modification utilizing the small protein "ubiquitin" – known to impact the protein's fate, such as its turnover and stability, subcellular location, assembly, conformation and activity. We combine integrative omics approaches, biochemistry, and cell biology to functionally dissect these ubiquitin signalling pathways and their molecular machines, aiming to understand their physiology and how their deregulation promotes cellular transformation and disease.

Human red blood cell (RBC) development is a multistep process that maintains stable erythroid homeostasis throughout life and replenishes more than 200 billion erythrocytes lost by senescence in healthy humans. Throughout this process, many RBC-specific proteins are initially expressed, but then all cellular organelles and the majority of proteins are eventually eliminated in a stepwise fashion. We recently identified and characterized the multiprotein CTLH E3 ubiquitin ligase complex as key regulator of balancing dormancy of RBC progenitors and their terminal differentiation into enucleated mature RBC. To determine the mechanism of CTLH E3 function, we identified several CTLH E3-specific protein targets associated with metabolisms and gene regulation. Using cell culture systems to reconstitute RBC differentiation in-vitro, we aim to dissect CTLH E3 function in metabolic rewiring during RBC differentiation, as well as changes in the chromatin landscape. Together, these studies will discover regulatory concepts of RBC development in stem cell niches, with implications for blood disorders and regenerative medicine.

https://biology.ed.ac.uk/ccbio/our-research/cellular-decisions/alpi

Paolo Annibale

University of St Andrews, School of Physics and Astronomy

Reader

fluorescence microscopy; cell signaling; molecular pharmacology; biophysics

PA is a Reader at the School of Physics and Astronomy of the University of St Andrews. His lab develops fluorescence spectroscopy-based methods to study membrane receptors-associated signalling. His core expertise is in the field of fluorescence spectroscopy methods, where he has contributed papers shining light on oligomerization behaviour of membrane proteins (Bathe-Peters, Gmach et al. 2021, Isbilir, Serfling et al. 2021), their subcellular localization in primary cells (Bathe-Peters, Gmach et al. 2021), as well as intracellular signalling cascades (Bock, Annibale et al. 2020). Upon moving to the UK in 2022 was awarded a Leverhulme Leadership Award for interdisciplinary research at the interface between biophotonics and cell biology, as well as UKRI and Royal Society grants totalling ~£1.1M to develop novel fluorescence spectroscopy approaches. In his previous post in Berlin he has led two DFG-funded grants (€700k) studying fundamental molecular signalling of membrane proteins.

https://www.st-andrews.ac.uk/physics-astronomy/people/pa53/

Dr Martin Balcerowicz

University of Dundee, Faculty of Life Sciences

Lecturer/Principal Investigator

plant signalling; plant stress responses; plant molecular biology; gene expression; climate resilience

Plants display a remarkable degree of developmental plasticity: they constantly adjust their growth and morphology in response to their surroundings to maximise fitness and reproductive success. Temperature is arguably one of the most influential factors impacting plant fitness as it affects the rate of every physical and biochemical reaction; it is therefore of vital importance for the plant to be able to sense its temperature environment. With the progression of climate change, plants in temperate regions such as the UK are challenged by more frequent heat waves as well as an overall rise in temperature, and these effects already impact crop production: in wheat and barley, each 1 °C increase above optimal growth temperature is estimated to reduce crop yield by 5-6%. Gaining a deeper understanding of how plants perceive temperature cues and translate them into appropriate developmental and physiological responses is thus a central question in both fundamental plant science and agriculture.

I would be interested in collaborating with non-academic partners on any aspects of crop responses to rising temperatures and improving heat/climate resilience.

https://www.dundee.ac.uk/people/martin-balcerowicz

Dr Beatriz Baragana

University of Dundee, Drug Discovery Unit, Faculty of Life Science

Senior Lecturer

Drug discovery, malaria, schistosomiasis, medicinal chemistry

I am the malaria and schistosomiasis portfolio leader in the Drug Discovery Unit (DDU). My lab is focused on delivering effective and safe treatments for malaria, cryptosporidiosis and schistosomiasis exploiting novel biological pathways.

I leads a portfolio of projects for malaria and schistosomiasis drug discovery. These projects are at various stages along the drug discovery pathway and involve an extended network of international collaborators both in industry and academia. I works closely with biologists, chemist, computational chemist, crystallographers, and pharmacologists to deliver leads and pre-clinical candidates with novel mode of actions for these infectious diseases. The most advanced compound discovered by my team, M5717 (DDD489) has recently demonstrated single dose cures of malaria infections in a Phase I clinical study and last year completed two Phase 2 trials. The DDU malaria team has been awarded the prestigious Medicines for Malaria Venture Project of the Year Award twice (2014 and 2018).

Key interests:

-Target based structure guided drug discovery for infectious diseases with a focus on malaria, tuberculosis, cryptosporidiosis and schistosomiasis

-Validation of novel targets for these pathogens

-Develop selective chemical probes to improve the understating of the biology of Plasmodium parasites and unveil new molecular targets for drug discovery

-Develop new pre-clinical candidates for malaria and schistosomiasis

-Develop the drug discovery pathway for schistosomiasis, including target product profiles, a drug discovery cascade, and better understanding of the PK/PD.

https://www.dundee.ac.uk/people/beatriz-baragana and https://drugdiscovery.dundee.ac.uk/about

Dr Jelena Baranovic

University of Edinburgh CSE, School of Biological Sciences

Lecturer

Neuroscience, transmembrane proteins, biophysics, neuroreceptors

We think, learn, memorise and forget because our neurons communicate in a certain way. Many proteins mediate this communication and AMPA-type glutamate receptors are among the most important ones. Their activity is one of the first signs to a neuron that another, neighbouring neuron is trying to communicate.

To understand what happens in our neurons when we learn, form memories and forget, we need to know how AMPA receptors work and how their activity is regulated.

Our group uses a range of biophysical and molecular biology techniques to

study function and regulation of AMPA receptors.

https://biology.ed.ac.uk/baranovic

Daniel Berg

University of Aberdeen, School of Medicine

Lecturer

Human, health and wellbeing, Brain development, Stem cells

Our research focuses on understanding human brain development using advanced human organoid systems. By modelling key features of the developing brain in vitro, we aim to study how neural stem cells generate diverse brain cell types, including excitatory and inhibitory neurons, and how these processes are regulated during development and altered in disease.

A central aim of our work is to build human-relevant model systems that bridge the gap between traditional cell culture, animal models, and human tissue. We develop and apply brain organoids, hippocampal organoids, choroid plexus assembloids, and ganglionic eminence-based 3D culture platforms to investigate neurodevelopment, interneuron generation, neuroimmune interactions, barrier function, and the brain–CSF interface.

Our research has impact in several areas. Scientifically, it provides new insight into how the human brain develops and how vulnerable developmental processes may be affected by stress, inflammation, infection, or disease-associated mechanisms. Technologically, it supports the development of more reproducible, scalable, and human-relevant organoid platforms.

Translationally, these systems have the potential to improve preclinical testing, reduce reliance on animal models, support drug discovery, and identify biomarkers of neurological and neurodevelopmental conditions.

Overall, our work aims to advance fundamental understanding of human brain development while building practical model systems that can support future therapeutic discovery and improve translation from the laboratory to clinical and industrial applications.

We are interested in collaborating with non-academic partners developing human-relevant platforms for CNS drug discovery, neuroinflammation, toxicity testing, and biomarker discovery. Our work uses human brain organoid and assembloid systems, including hippocampal, choroid plexus, and ganglionic eminence models, to study brain development, inhibitory neuron generation, barrier biology, and disease-relevant mechanisms.

https://www.abdn.ac.uk/people/daniel.berg

Dr Guy S Bewick

University of Aberdeen, Institute of Medical Sciences, School of Medicine, Medical Sciences & Nutrition

Senior Lecturer

Neuroscience, Neuromuscular physiology, Mechanosensation, Chronic pain, Hypertension

I have >40 years' experience across multiple aspects of nerve terminal physiological research. My major focus is on how nerve terminals, which all have very similar molecular components, are able to adapt to produce very different outputs. Thus,

we study endogenous mechanisms for synaptic plasticity and adaptations to different patterns of use with development, age and disease. My work ranges from the molecular to in vivo, with expertise in neural systems from insects, molluscs, amphibia, rodents and humans. I have a track record in innovation and development. With Prof Bill Betz (University of Colorado), I co-developed the FM1-43 fluorescent dye approach for optical monitoring of function of living nerve terminals (PMID: 1553547; PMID: 1371312) which has >1300 citations and has been widely adopted by laboratories worldwide. Working with Dr Bob Banks (Durham University) we discovered the glutamatergic system of neuromodulation crucial to maintaining the function of stretch-sensitive nerve terminals (PMID: 15528245). Most recently, we identified the several other aspects of the function of this class of endings (chronic pain, PMID: 40577248; skeletal alignment, PMID: 30249776; stretch-sensitive channels, PMID: 27161260). We are currently developing a drug company, Dioka Therapeutics, to develop novel treatments for treating hypertension.

https://www.abdn.ac.uk/people/g.s.bewick

Dr Annette Boerlage

SRUC, Population Health, Disease and Surveillance; Inverness School of Veterinary Medicine and Biosciences

Senior Scientist

aquaculture, fish health, epidemiology, molecular epidemiology, statistics

I use statistical and mathematical models to obtain insight into the fascinating interactions between environment, host and pathogen in aquaculture systems and industries. My research fits under the umbrella of the blue economy.

https://www.sruc.ac.uk/connect/find-an-expert/annette-boerlage/

Dr Elise Cachat

University of Edinburgh CSE, School of Biological Sciences/IQB3/Centre for Engineering Biology

Senior Lecturer in Synthetic Biology

engineering biology, mammalian synthetic biology, biomedicine

The Cachat Lab uses synthetic biology to engineer novel proteins and functions in mammalian cells. These engineered cells can be used as research tools to interrogate natural processes and pathways, or used in application-driven contexts to exert a greater control over complex cellular behaviours.

- Engineering synthetic sensor circuits in mammalian cells to interrogate disease pathways:

By constructing novel ligand/receptor systems and downstream signalling cascades in mammalian cells, we can shade light on cell-cell interactions that are central to disease progression: e.g. (i) reporting contact between cancer cells and macrophages in the context of metastasis, (ii) deciphering the molecular role of specific cell-cell interactions (e.g. host/bacterial interactions). These systems can be used for detection-, screening- or diagnosis-based biomedical applications, as well as to highlight

novel therapeutic intervention strategies.

- Engineering novel toolkits for the engineering biology research community:

Synthetic biology strives to make the engineering of biology easier and more predictable. To do so, the community relies on the construction and exchange of novel molecular tools. We developed a toolkit for the generation of user-specific small antibody binders, as well as readily-implementable CRISPR activation/inhibition system in mammalian cells.

- Engineering new tools for the Biotechnology/BioPharma industry:

The Biotech/BioPharma industry encounters many challenges related to R&D translation, production, sustainability, etc. Synthetic biology can help addressing these challenges and we aim at engineering precisely controllable chassis cells for safer cell therapies or engineering CHO cells for biologics production.

Always interested in projects at the intersection of art, biology and social sciences

https://edwebprofiles.ed.ac.uk/profile/elise-cachat

Dr Ewen Calder

University of Edinburgh CSE, School of Chemistry

PI - Early Career Researcher

Chemical Biology, health and wellbeing, technologies and methodological development

Dr Ewen Calder's research sits at the chemistry–biology interface, using advanced peptide discovery technologies to generate novel chemical tools for previously intractable biological targets. His work over the past three years has focused on pushing the boundaries of the RaPID (Random non-standard Peptide Integrated Discovery) mRNA display platform, and applying it to targets of direct biomedical relevance.

Since joining Edinburgh as a Chancellor's Fellow, Dr Calder has established an independent research programme directed at the SUMOylation pathway — a post-translational modification system implicated in cancer, neurodegeneration, and innate immunity. His lab uses mRNA display to screen trillion-member peptide libraries for molecules with tight and selective binding of protein targets, developing chemical probes for translationally important biology. Active projects now extend this platform to dementia and Parkinson's targets and those involved in T cell metabolism and inflammageing in cardiometabolic disease, in collaboration with groups at the Institute for Regeneration and Repair.

The broader impact of this work lies in creating selective molecular tools that enable mechanistic dissection of disease-relevant pathways, generating the foundational knowledge needed for future therapeutic development.

My lab is open to collaborations on new targets and the development of novel chemical biology tools to address them.

https://edwebprofiles.ed.ac.uk/profile/dr-ewen-d-d-calder

Dr Delma Childers

University of Aberdeen, School of Medicine, Medical Sciences and Nutrition

PI

Microbes, Mycology, Antimicrobial resistance, Industrial Biotechnology

My research focuses on understanding how pathogenic fungi adapt to the host environment and evade immune defences, with the ultimate goal of improving outcomes for patients affected by fungal infections. Working within the Aberdeen Fungal Group, my laboratory investigates the molecular and cellular mechanisms that underpin fungal virulence, immune recognition, and the emergence of antifungal drug resistance, with a particular emphasis on Candida species of major clinical relevance. Recently, my laboratory has also ventured into novel antifungal drug discovery in collaboration with Dr Sergio Dall'Angelo, and we jointly supervise an EASTBIO PhD student on this project.

As part of our molecular pathogenic work, we examine how changes to the fungal cell wall and metabolism alter host–pathogen interactions and influence disease progression. Our work has shown that fungal pathogens dynamically remodel surface structures in response to environmental stress and antifungal therapy, modifying immune detection and contributing to persistence during infection. By integrating fungal biology with immunology, including macrophage–pathogen interactions, our research provides mechanistic insight into how immune evasion arises and identifies potential targets for improved therapeutic strategies.

The impact of this work is underpinned by the global and growing burden of fungal disease and antimicrobial resistance, an area that remains under-recognised despite causing over a million deaths annually. My research contributes to this challenge by informing the rational development of antifungal interventions and by strengthening the evidence base needed to combat drug-resistant infections.

Beyond academia, I am strongly committed to public and policy engagement. Through national outreach initiatives, STEM ambassador activities, and public science events, I actively promote awareness of fungal infections and antimicrobial resistance, helping to translate complex biomedical research into accessible and meaningful societal impact.

I am happy to consider collaboration with non-academic partners interested in antimicrobial development.

https://www.abdn.ac.uk/people/delma.childers

Dr Mattie Christine Pawlowic

University of Dundee

PI

parasitology, Cryptosporidium, drug discovery, One Health

The Pawlowic lab studies Cryptosporidium, an apicomplexan parasite that causes diarrheal disease in both humans and livestock. We are primarily interested in parasite transmission. We have an emerging research focus in animal health. We collaborate with drug discovery

scientists to develop new medicines and understand their mode of action.

pawlowiclab.org

Prof. Scott L. Cockroft

University of Edinburgh CSE

Professor

Technologies and methodological development; Molecules, cells and industrial biotechnology

We are chemists working at the interface of biology through collaborations in the biological and medical sciences. We have interests in molecular recognition processes, molecular folding, lipid membranes, vesicles, transmembrane pores, membrane disruption, and protein/nucleic acid bioconjugation. We employ the tools of synthetic organic chemistry, patch clamp electrophysiology, fluorescence microscopy, and computational chemistry to tackle challenges related to understanding, disrupting, or exploiting biological interactions at a molecular level. Examples of these challenges include tackling antimicrobial resistance and the chemical tagging of biomolecules to gain insight into biological function.

I have worked with Syngenta to understand the conformational properties of small molecules, and hence how this relates to their physiochemical properties and biological activity.

https://chem.ed.ac.uk/cockroft-group/research

Dr Christopher Coxon

University of Edinburgh CSE, School of Chemistry

Senior Lecturer

Medicinal and Biological Chemistry, Biophysical Methods, Peptide Synthesis, Organic Synthesis, Protein Chemistry

The Coxon Lab is interested in developing new medicines, detecting and diagnosing disease and understanding how diseases work at the molecular level by designing and testing chemical probes. We have a specific interest in neurological and neurodegenerative diseases, such as migraine, chronic pain and Parkinson's disease; but also work on drug targets relating to infectious disease virulence and diabetes.

Our lab has specific expertise in drug design, peptide synthesis, organic chemistry, drug metabolism and pharmacokinetics analysis, fluorine chemistry, NMR analysis of biological samples and tissues.

Dr Coxon is an experienced medicinal chemist with expertise in small-molecule and peptide design, synthesis, biophysical characterisation, in vitro metabolism, pharmacokinetics, and mechanism-of-action studies. His work integrates synthetic chemistry with advanced NMR methods, including ^{19}F techniques, to probe ligand binding, protein structure, and dynamic processes. He has a strong track record of developing modified (e.g. cyclic, lipidated, stapled) peptides for drug discovery projects (e.g. https://doi.org/10.1021/acs.jmedchem.5c03445). His team developed and manages a peptide therapeutics and diagnostics database (http://peptherdia.herokuapp.com) that

has been widely accessed by major Pharma and biotech companies. He has significant experience of working with UK and international chemical, life sciences and biotech companies, as well as media organisations as a partner and consultant. He is Founder and Director of his own peptide synthesis company (Pepmotec Ltd, since 2019) and has successful experience in the commercial sector through this e.g. delivering high-quality products on time, communicating with customers, confidentiality and understanding the needs of the customer. Specifically, he has delivered custom peptide synthesis and authentication analysis of 'skinny-jabs' from the peptide 'grey market' for national media.

https://edwebprofiles.ed.ac.uk/profile/dr-christopher-r-coxon

Prof. Tim Czopka

University of Edinburgh CMVM, Institute of Neuroscience and Cardiovascular Research

Professor

animal systems, health and wellbeing, technologies and methodological development

I work in the field of developmental and cellular neurosciences where my group investigates principles that govern the assembly and remodelling of brain circuits. Precise assembly of circuit connectivity is crucial for functional brain networks to process sensation, cognition, and action. Consequently, alterations to circuitry associate with neurodevelopmental, -psychiatric disorders and -degenerative disorders.

My group has a particular interested in understanding how non-neuronal support cells of the brain (called glial cells) interact and communicate with neurons as functional circuits form during neurodevelopment. Glial cells comprise about half of all brain cells and it wouldn't function without their support.

For our work we use zebrafish as model organism. Young zebrafish are small in size, genetically tractable, and develop functional circuits capable to execute sophisticated behaviours whilst being optically nearly transparent. This allows us to study glial regulation of circuit development at unprecedented resolution using a wide range of complementary methods, including high-resolution optical microscopy of live cell reporters and biomolecular sensors, cellular and (opto)genetic manipulations, as well as behavioural analysis.

https://www.czopka-lab.com/

Prof. Jamie Davies

University of Edinburgh CMVM, Institute of Neuroscience and Cardiovascular Research

Professor

Development, organogenesis, synthetic morphogenesis, tissue engineering, nephrology

My lab's research centres on morphogenesis - the creation of biological form. We study this process in natural embryos, but also use the knowledge gained to design synthetic biological systems that generate pattern and form. We mix self-organizing systems, such as organoids, with techniques of tissue engineering to produce in vitro models of human tissues, for example to study

interactions between microorganisms and tissue during infection. We have worked with pharma and biotech companies to bring these in vitro models into commercial use. The work of hte lab has been cited > 29,000 times (h index of PI = 82).

We have experience of co-designing in vitro models of human tissues for toxicity testing, with a majoe pharma partner. They approached us (so I do not have any words of wisdom for academics trying to interest partners).

http://golgi.ana.ed.ac.uk/Davieslab/

Prof. Owen Davies

University of Edinburgh CSE

Professor of Structural Biology

Meiosis, cell division, recombination, protein self-assembly, structural biology

Meiotic cell division is defined by a unique and highly dynamic programme of events that results in homologous chromosome segregation following crossover formation. In mammals, the telomeric ends of chromosomes become tethered to the nuclear envelope by the meiotic telomere complex, where they undergo rapid movements, driven by microtubule forces transmitted by the LINC complex, that facilitate the identification and alignment of homologous chromosome pairs through recombination. Once established, homologue chromosome pairs become synapsed along their length by the zipper-like assembly of the synaptonemal complex, which provides the unique three-dimensional architecture necessary for recombination intermediate resolution and crossover formation. Our research aims to uncover the structure, assembly mechanism and recombination function of the synaptonemal complex, the mechanistic basis of nuclear envelope tethering by the meiotic telomere complex and the mechanism of force transduction by the LINC complex. To achieve this, we adopt a structural biology approach of biophysics, crystallography and cryo-EM, coupled with collaborative structure-directed mutation in mouse meiosis. Ultimately, we aim to uncover how the mammalian synaptonemal complex, meiotic telomere complex and LINC complex operate together as an integrated molecular machine to achieve their essential functions of mammalian meiosis, and crucially how their dysfunction leads to human infertility, miscarriage and aneuploidy.

https://edwebprofiles.ed.ac.uk/profile/dr-owen-davies

Prof. Rick D'Eath

SRUC, School of Veterinary Medicine and Biosciences, Suisag

Professor

animal behaviour, technologies and methodological development, animal welfare, livestock

My research uses animal behaviour as a way to measure animal welfare, or to understand and solve animal welfare problems which involve behaviour.

-Behaviour-related welfare problems in pigs: social aggression, tail biting and mounting, and genetics of animal temperament in relation to these problems.

-Hunger in ration-fed animals (dry sows and broiler breeder chickens). Using behaviour, motivation,

neurophysiology and gut physiology to understand, measure and ameliorate the problem.

-Precision livestock farming- collaborating to develop and validate agri-technology such as machine vision cameras and other sensors to monitor behaviour, health and welfare on farm.

-Analysis of how wider drivers and issues impact animal welfare and policy (including trade, regulations, economics and climate change)

I work with NGOs, policy makers and companies in agriculture to improve animal welfare, and with agri-tech companies to develop and test technology that can be used to monitor the behaviour, health and welfare of farm animals, primarily pigs.

https://pure.sruc.ac.uk/en/persons/rick-death/

Dr Andrew Desbois

University of Stirling

Senior Lecturer

Aquaculture; Antimicrobial resistance; Microbiology

My research concerns the microbiology of aquaculture systems with a key aim to characterise, prevent and control bacterial infections in aquatic animals. Antimicrobial resistance provides a special focus, including describing the scale of this problem to identifying and evaluating possible interventions. I apply a range of methods to address my research questions such bacterial culture and molecular microbiology through to systems thinking and participatory approaches. Study host species range from temperate salmonids and marine shellfish to warmwater shrimp, tilapia and catfish, all cultured in diverse production systems from open ponds and pens through to sophisticated closed recirculation systems. I work regularly in collaboration with aquatic animal producers, vaccine manufacturers, and animal health product suppliers.

https://www.stir.ac.uk/people/256149

Joy Edwards-Hicks

University of Edinburgh CMVM, Institute for Regeneration and Repair

Principal Investigator

Immunology, Metabolism, Health and wellbeing

We investigate how age-related metabolic changes impact lymphocyte signalling and function. The goal of our research is to promote healthy human ageing through reduced age-associated inflammation and improved aged lymphocyte function.

https://inflammation-research.ed.ac.uk/research/research-groups/dr-joy-edwards-hicks

Dr Elaine Emmerson

University of Edinburgh CMVM, Institute for Regeneration and Repair

Principal Investigator

regeneration, macrophages, epithelia, salivary gland, development

Therapeutic radiation is a life-saving treatment for those with head and neck cancer. However, tissues that lie in the radiation field also receive high doses of radiation, leading to cellular

damage and irreversible organ dysfunction. The salivary glands are often inadvertently irradiated, leading to significant oral health problems, and difficulties in speaking, eating and sleeping, which together severely affect quality-of-life. Patients rely solely on short-term solutions which alleviate the symptoms, and while considerable effort has been invested in understanding the side effects of radiation injury on the SGs, there is no permanent cure for this debilitating condition. While the SGs go through an initial period of regeneration, this ultimately fails over time and the tissue degenerates. However, why this occurs and which cells are involved is unknown. Our research aims to characterise the cellular response to radiation injury, understand the kinetics of crucial ligand-cell interactions, and ultimately test whether regeneration can be rescued by replacing injured cells or restoring cell-niche crosstalk. A regenerative approach could eliminate the need for lifelong salivary replacements for people experiencing xerostomia (chronic dry mouth). This has the potential to save over £1 billion/yr within the UK, and to lead to vast improvements in patient quality of life after cancer treatment.

https://regenerative-medicine.ed.ac.uk/research/research-groups/elaine-emmerson-research-group

Dr William Farnaby

University of Dundee, Faculty of Life Sciences, Biotechne Tocris

Principal Investigator

molecules, cells, technologies and methodological development

We identify new induced proximity approaches such as molecular glues and bifunctional molecules. This includes, but is not limited to the use of high-throughput chemistry and allied cellular assays, novel electrophilic probes, chemoproteomics, biophysics and cellular mechanism of action studies. Our group is based within the University of Dundee Centre for Targeted Protein Degradation, a world-class research centre for multi-disciplinary translational chemical biology. We collaborate with experts in academia and industry to ensure our research and the approaches we discover can have maximal impact and meaning for the life science community. We use our creative freedom, curiosity and our passion for scientific discovery to generate new knowledge to benefit society.

https://sites.dundee.ac.uk/farnaby-group/

Dr Laura Glendinning

University of Edinburgh CMVM, Roslin Institute

Chancellor's Fellow

microbiota, poultry, livestock, food, ecology

My research characterises the complex interactions between microbial communities (microbiota), their hosts, and the environment. It tackles key global issues in sustainability, nutrition, and disease resistance, with applications that benefit both industrial contexts and low- and middle-income countries (LMICs).

A notable milestone was the publication of the first extensive catalogue of chicken metagenome-

assembled genomes (https://doi.org/10.1186/s13059-020-1947-1), including the discovery of 283 novel microbial species. These genomes were constructed from the gut microbiota of two broiler breeds used extensively world-wide in intensive and free-range farms, and I demonstrated that these genomes were abundant across European poultry flocks. My group pioneered the use of multi-omic techniques to understand the key roles of members of the chicken microbiota in fibre fermentation (https://doi.org/10.1038/s41522-026-00943-7). Collaborating with researchers from the International Livestock Research Institute (Ethiopia), I published the first large-scale metagenomic analysis of smallholder chickens (https://doi.org/10.1186/s40168-024-01847-4). I have demonstrated that it is possible to easily manipulate the composition of the microbiota in healthy chickens. By transplanting the gut microbiota from adult birds to chicks we are able to cause large changes in the gut microbiota (https://doi.org/10.1016/j.psj.2021.101624). I have expanded our understanding of immune-microbiota interactions using chicken immune knockout models (https://doi.org/10.1099/mgen.0.001289, https://doi.org/10.7554/eLife.106252.2. Such studies open the way for future methods designed to manipulate the chicken microbiota to improve health or productivity.

Beyond chickens, I published the first study on the red grouse microbiota, demonstrating how the red grouse extracts energy from its high-fibre diet, highlighting crucial microbial adaptations that support their survival (https://doi.org/10.1186/s12866-025-04280-1). I have also contributed to microbiota studies on the sheep respiratory tract; inflammation-related aging; oral melanoma; cow fertility; canine dermatitis; equine grass sickness; porcine coronavirus; women's reproductive health; canine prebiotic treatment; equine dental caries; and wildlife conservation.

I am interested in establishing collaborations with non-academic partners interested in the microbiota in domesticated animals.

https://edwebprofiles.ed.ac.uk/profile/laura-glendinning

Dr James Glover

University of Edinburgh CMVM, Roslin Institute

Chancellor's Fellow

Developmental biology, chicken, transgenics, patterning

The two main goals of our research group are to understand how cells organise themselves to make functional tissues during development, and how we can generate novel transgenic avian technologies to investigate these processes. We focus on the molecular and mechano-cellular processes that drive the emergence of self-organising embryonic patterns (including digit patterning in the limb, skin appendages, and tracheal cartilage rings), using the chick embryo as our main model. To achieve this, we use chicken primordial germ cells—the precursors of sperm and eggs—to create transgenic avian models that both enable us to investigate these patterning processes and provide tools for the wider community.

I would love to develop more connections with new partners. Area I have identified include with the poultry

industry for utilising our transgenic technologies, or with biomedical companies which may be interested in using avian species as models of human disease.

https://vet.ed.ac.uk/the-roslin-institute/research/divisions/functional-genetics/glover-lab

Gregor Gorjanc

University of Edinburgh
CMVM

Professor

genetics, breeding, statistics, genomics, data science

We focus on populations used for food, feed, and fibre production with some spillover into other populations. We are particularly interested in: (i) methods for genetics and breeding, (ii) design and optimisation of breeding programmes, and (iii) analysis of data to unravel biology and to find new ways of improving populations

We have experience working with a range of academic and non-academic partners, including for profit and non-profit non-organisations.

https://vet.ed.ac.uk/roslin/research/divisions/quantitative-biology/highlander-lab

Dr Rafael Guimaraes da Silva

University of St Andrews

Senior Lecturer in Biochemistry

enzymology, catalysis, antibiotics, biotechnology

Enzymes catalyse virtually all chemical reactions in living organisms, making their rates compatible with life. These proteins have evolved to utilize a range of strategies to achieve incredible rate enhancements in comparison with the corresponding non-catalysed reactions. The study of enzymatic mechanisms is fundamental to elucidate how enzymes work in physical and chemical terms, and how their activity is regulated. In the da Silva Lab, we apply techniques of molecular biology, biochemistry, structural biology and physical organic chemistry to unravel the mechanisms of enzymatic reactions catalysed by multi-protein allosteric complexes, tRNA methyltranferases, NADH-dependent oxidoreductases, and nucleotide hydrolases. Particular attention is given to transition-state structure, inhibitor design, and fast protein dynamics. We use the uncovered information to design inhibitors and biocatalytic routes.

I have been a consultant for companies in the USA and UK, and have active collaborations with drug companies in the UK (NuCana) and biocatalysis companies in India (Kcat Enzymatic)

https://dasilva.wp.st-andrews.ac.uk/

Adam Hayward

Moredun Research Institute

Research Fellow

Parasitology, livestock, immunity, parasite control, agriculture

Animals in any population, wild or domesticated, vary enormously in their responses to infection. Some mount effective immune responses that clear the infection (resistance), some appear to continue to thrive in spite of infection (tolerance), others deal

poorly with the infection and succumb to its effects (susceptible). My interest is in asking how individuals vary in these traits, identifying the mechanisms underpinning this variation, and working out how we can exploit this variation to devise strategies to reduce the impact of disease on the productivity and sustainability of the livestock industry, including breeding and management of the environment.

My main focus is on helminth parasites of sheep (gastro-intestinal nematodes), and I collaborate with colleagues who are experts in immunology, parasitology and genetics as well as producers and commercial companies with more knowledge of animal production. I mainly use data collected from large-scale field trials but also use data from abattoirs and I have worked on a wild population of Soay sheep for over 15 years. I also use metaanalysis to make synthesise the results of past studies on important topics in livestock disease to summarise past findings and identify areas in need of research.

I developed a collaboration with a farm in Cornwall on resilience to nematode infection in sheep. Together we worked on an Innovate UK fuinded project on tolerance of nematode infection and how it varied between individual lambs and breeding sires.

https://moredun.org.uk/people/staff-directory/adam-hayward

Dr Emilie Hollville

University of Aberdeen

Lecturer

Neuronal morphogenesis, Neurodegeneration, Ubiquitin signalling, Programmed cell death, Membrane trafficking

Genetic risk factors encoding ubiquitin ligases are increasingly found associated with neurodevelopmental and neurodegenerative disorders. Their function in the brain is however not always fully understood. Our lab investigates how these ubiquitin ligases and their substrates cooperate to control the maturation and maintenance of neuronal architecture and structure which is systematically found affected in neurological diseases. We use complementary approaches including biochemistry and proteomics to identify and validate ubiquitin ligases/substrates pairs. We also employ fluorescent reporters and confocal imaging of mouse primary neurons and brain tissue to study the functional impact of the ubiquitin signalling pathways on neuronal architecture. Our goal is to identify critical ubiquitin signalling hubs controlling neuronal morphology and help identify future therapeutical targets.

https://www.abdn.ac.uk/people/emilie.hollville

Prof. Mathew Horrocks

University of Edinburgh CSE, School of Chemistry and Institute for Regeneration and Repair

Professor

Microscopy, Single-Molecule, Super-resolution, Neurodegeneration

We develop single-molecule and super-resolution microscopy approaches. These have been used to study protein aggregates present in neurodegenerative disorders, such as

Alzheimer's and Parkinson's disease. They are also been used to analyse samples from Parkinson's clinical trials.

http://www.horrockslab.org

Prof. Louise Horsfall

University of Edinburgh CSE

Prof

sustainable biotechnology; engineering biology; microbes

Metals have a finite supply, thus metal scarcity and supply security have become worldwide issues. We have to ensure that we do not drain important resources by prioritising the desires of the present over the needs of the future. To solve such a global challenge, we need to move to a circular, more sustainable economy where we use the resources we have more wisely. One of the founding principles of a circular economy is that waste is an unused feedstock, that organic and inorganic components can be engineered to fit within a materials cycle by the design, engineering and re-purposing of waste streams.

Certain bacteria have the ability to reduce metal cations and form precipitates of zero-valence, pure metals, as part of their survival mechanism to defend against toxic levels of metal cations. Using Synthetic Biology tools and techniques, alongside iterative design, build and test cycles we aim to enhance, manipulate and standardise the bio-manufacture of these nanosize precipitates as high value products. Ultimately producing engineered microbes with the ability to upcycle critical metal ions from waste streams into high value nanoparticles with a range of exciting applications.

I have interacted with over a hundred companies to date interested in sustainable technologies. My past collaborative projects with industry have included companies from large multi-nationals through to local SMEs, from sectors that include pharma, industrial biotech, food & drink, personal care, waste and remediation.

https://horsfall.bio.ed.ac.uk

Prof. Alison Hulme

University of Edinburgh CSE

Professor of Synthesis and Chemical Biology

biomolecular imaging; Raman microscopy; chemical biology; protein labelling; Health and wellbeing

Imagine being able to image a cell, purely on the basis of the vibrations of its different molecular components (proteins, lipids, etc.). Over the past ten years we have shown that you can do exactly that, with exquisite sub-cellular resolution and near video-rate acquisition speeds, by using coherent Raman microscopy. We can even visualise small molecules, such as drugs or metabolites within the cell, by using bioorthogonal vibrations to detect their presence. Thus, coherent Raman microscopy provides a label-free platform for quantifying small molecule uptake by cells and in tissue models, and for studying phenotypic responses to a range of stimuli. We collaborate with biologists and biomedical scientists to aid understanding of the basic rules of life and to underpin projects focussed on healthy (and diseased) ageing processes. Alongside this imaging work, the Hulme group also develops new tools to probe protein-protein interactions, from stapled peptides,

PROTACs, DUBTACs and molecular glues, to the synthesis of bespoke time-resolved proximity labelling probes.

We have extensive experience of developing collaborative CASE awards across the pharmaceutical industry (AZ, GSK, UCB, Eli Lilly) funded through UKRI and charities. We are happy to partner in areas of commercial interest, particularly where a project can have dual aspects (public alongside more commercially sensitive) to ensure freedom to publish.

https://edwebprofiles.ed.ac.uk/profile/alison-hulme

Prof. Marcel Jaspars

University of Aberdeen

Established career

Chemical ecology, marine biodiscovery, method development, industrial biotechnology, pdrug discovery

Prof Marcel Jaspars is professor of organic chemistry at the University of Aberdeen, researching the functions and applications of marine and extremophile natural products. Marcel is co-author of the textbook 'Organic Structure Analysis' (OUP 2010). Marcel has authored of over 250 research papers and reviews. He founded the Marine Biodiscovery Centre in 2010. Marcel Jaspars' main expertise is in the discovery, characterisation, utilisation and biosynthesis of marine natural products. This forms the core of the marine biodiscovery pipeline, and Marcel has frequent contact with people operating at all stages of this pipeline, from the collection and identification of the organisms to their testing in whole animal models. Marcel has been active at national and international levels to develop the science, its applications/industrial uptake and associated policy involved in marine biodiscovery and biotechnology.

Marcel provided scientific leadership for a large EU FP7 consortium 'PharmaSea', running from 2012-2017 with the contribution of 24 partners from 14 countries. Part of this project was to engage with stakeholders, NGOs and policy makers to provide sound scientific advice on major issues affecting the conservation and sustainable use of marine biodiversity. His major role was to translate scientific information and provide options on this topic to senior policy makers at the EU and UN, making visits to Brussels and New York to present information in a digestible format and answer questions, paying particular attention to the legal and policy requirements.

I have worked with the pharmaceutical industry, agrochemical industry as well as policy makers,

https://www.abdn.ac.uk/ncs/departments/chemistry/research/marine-biodiscovery/ and https://www.abdn.ac.uk/people/m.jaspars

Stephen Jenkins

University of Edinburgh CMVM, Centre for Inflammation Research, Institure for Regeneration and Repair

Reader

infection, injury, repair, immunology

My group studies the mechanisms that regulate the behaviour and survival of

innate immune cells in tissues during health and disease, with the aim of identifying novel pathways that can be targeted to improve tissue repair and resolution of inflammatory and infectious disease. We focus on a heterogeneous group of phagocytic cells, termed macrophages, that are central to the maintenance, defence and repair of tissues, using mouse models, reverse genetics and fatemapping systems to understand in a time resolved manner where these cells come from, what they do, and what molecules and cellular interactions regulate their function. This has included defining the effect of cell origin, the time spent in a tissue, previous exposure to inflammation, and biological sex on the function and regenerative capacity of macrophages. We have found that macrophages can accumulate in diseased tissues through rapid proliferation of resident cells or recruitment of circulating precursors, but that these two processes give rise to functionally distinct populations. Likewise, in healthy animals, resident macrophages are maintained by self-renewal/longevity or replenishment from circulating precursors in a tissue-dependent manner. However, these strategies are associated with different costs and benefits. For example, under non-inflammatory conditions, peritoneal macrophages are replenished from circulating precursors in a sexually dimorphic manner that contributes to sex-differences in macrophage phenotype and function and renders males more susceptible to infection. Furthermore, we have found precursor-derived macrophages recruited during inflammation persist long-term yet remain in a transitory state of differentiation characterised by altered responsiveness to subsequent challenge, elevated migratory capacity and increased cellular plasticity. This altered state is driven by the presence of enduring resident macrophages, suggesting that competition between incoming monocytes and established macrophages ultimately drives the heterogeneity in function of the macrophage pool.

https://inflammation-research.ed.ac.uk/research/research-groups/dr-steve-jenkins

Prof. Ines Jentzsch

University of St Andrews, Psychology & Neuroscience

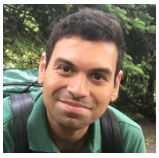
Professor of Cognitive Neuroscience

health and wellbeing

I am a cognitive neuroscientist and a classically trained pianist studying different aspects of attention and performance in humans. I am specifically interested in the processes that underlie our ability to plan and control our actions, using both behavioural and electrophysiological approaches. I am also interested in how these processes change as a function of expertise (e.g., in groups with high levels of motor skills such instrumental musicians), normal aging and psychological illness.

https://www.st-andrews.ac.uk/psychology-neuroscience/people/ij7/

Dr Noel Juvigny-Khenafou



University of Stirling, Institute of Aquaculture

Lecturer in Aquatic Environmental Science

Freshwater ecology, Multiple stressors, Biodiversiy, Ecological networks, Aquaculture

My research addresses the crucial role aquatic systems play in supporting biodiversity and providing essential services such as the degradation of organic matter, carbon sequestration, food and clean water

access, particularly in agriculture-aquaculture landscapes. I take a biodiversity-driven approach that centres on community assembly, functional resilience, and meta-ecosystems in inland waters. I employ a diverse range of methods (molecular, computational and field experimentations) to study the temporal and spatial heterogeneity of environmental conditions and perturbations that shape the response of freshwater systems in the face of global change and anthropogenic stressors. Through this interdisciplinary approach, I aim to better understand how stressors interact with each other and the environment and how we can leverage this knowledge to develop innovative and effective strategies for the management of agroecosystems.

https://www.stir.ac.uk/people/1977786

Dr Rob Kelly

University of Edinburgh
CMVM, Royal (Dick) School of Veterinary Studies

Clinical Lecturer

Veterinary Medicine, Livestock, Parasitology, Population Medicine, Education

With a background in veterinary clinical practice, education and research; I focus on assessing the impact of endemic diseases to develop pragmatic interventions to improve livestock health and production.

As a clinician, I graduated as a Veterinary Surgeon with an MSc in Veterinary Parasitology from the University of Liverpool. Since 2009, I have practiced in mixed and farm animal practice in the UK, Latin America, North and sub-Saharan Africa. Attaining RCVS Advanced Practitioner in Production Animal Practice status, I am interested in investigating how simple diagnostic tools can influence population medicine decision-making to control infectious diseases particularly in resource limited settings.

As a researcher, I completed a part-time PhD at the Roslin Institute investigating the epidemiology of zoonotic and parasitic disease of cattle in Cameroon. Subsequently collaborating on projects investigating the impact of livestock infectious diseases including the influence of parasitic co-infections on disease or diagnostic outcomes. I am keen to continue to collaborate on related topics.

As an educator, I use blended learning approaches to improve capability of veterinary professionals. With a Senior Fellowship of the Higher Education Academy from my time in academia, I have also worked with Food and Agriculture Organisation (FAO) and as Head of Clinical Education for a cooperate veterinary group. Setting up evidence-led postgraduate veterinary surgeon, paraprofessional and nurse curricula internationally. Through collaboration, I intend to improve animal health and associated livelihoods through research informed education.

https://www.research.ed.ac.uk/en/persons/rob-kelly-2/

Dr Fiona Kenyon

Moredun Research Institute, Disease Control

Principal Investigator

veterinary parasitology, roundworm parasites, sustainable control, precision livestock farming

My research interests are focussed on gastrointestinal nematode parasites of livestock and wildlife. My current research is focussed on four main areas: 1. Understanding impacts of environmentally-friendly livestock farming systems on livestock health and welfare. 2. Development and validation of decision support tools/digital/precision livestock farming tools to improve animal health and welfare 3. Understanding the epidemiology of nematode infections in both livestock and wild animals 4. Application of molecular tools to improve diagnosis of worm infection and to understand nematode population structure.

https://moredun.org.uk/people/staff-directory/fiona-kenyon

Farina Khattak

SRUC, School of Veterinary Medicine and Biosciences, Monogastric Science Research Center

Professor

Poultry Nutrition, Food Safety, Gut health, Sustainable Poultry Production

As a poultry nutritionist, my research focuses on the nutritive evaluation of feedstuffs, nutritional interventions, exogenous feed additives, and infection challenge models to improve poultry production, gut health, bird resilience, carcass quality, welfare, and environmental sustainability in broilers, laying hens, and turkeys. My work investigates how nutritional strategies can enhance nutrient utilisation, reduce feed costs and nutrient excretion, and support the development of beneficial gut microbial communities while improving resistance to important enteric diseases such as Eimeria, Campylobacter, coccidiosis, and Salmonella. Through a combination of proof of concept studies and in-depth mechanistic investigations, my research aims to translate novel nutritional concepts into practical and commercially relevant solutions that enhance animal performance, welfare, food safety, and sustainable poultry production.

I have extensive experience developing collaborative research projects with a wide range of non academic partners, including feed additive companies, poultry producers, nutrition and biotechnology industries, and innovation funding bodies. My research is highly industry focused and ranges from proof of concept studies to commercially relevant poultry trials investigating sustainable nutrition, gut health, microbiota modulation, feed additives, welfare, pathogen control, and environmental sustainability. I regularly work with partners to design and deliver applied research projects that translate scientific findings into practical solutions for the poultry sector, with particular interests in sustainable feed resources, antimicrobial reduction strategies, precision nutrition, and microbiome based interventions. I am

always interested in building new interdisciplinary and industry collaborations that can bridge fundamental science with practical on farm impact.

https://pure.sruc.ac.uk/en/persons/farina-khattak/

Dr Catherine Kidner

University of Edinburgh CSE, School of Biological Sciences

Professor

Plant Speciation Genetics Genomics

Understanding Diversity

We are interested in determining the genetics underlying differences between species. We would like to know how many genetic changes and what type of changes determine differences in plant growth and form. A combination of classical genetics and new sequencing technologies is being used to link the variation in form to variation in the sequence and expression of genes. We are particularly interested applying these techniques to tropical species, as the tropics contain most of the world's diversity but have been genetically understudied.

We are interested in the application of large scale comparative sequence analysis to understanding patterns of diversity. We use transcriptomes, genomes and phylogenies to explore the diversity of tropical plants. We use the resources of the living collections at RBGE for expression analysis and are using Hyb-Seq to mine genetic data from herbarium samples.

https://www.rbge.org.uk/science-and-conservation/science-staff-directory/biodiversity-genomics-and-analytics/prof-catherine-kidner/

Dr Guillaume Latombe

University of Edinburgh CSE, School of Biological Sciences, Institute of Ecology and Evolution

Senior Lecturer

Invasion Science, Conservation, Socio-ecology, Macroecology, Ecological Modelling

I am an interdisciplinary researcher at the University of Edinburgh, where my work sits at the intersection of invasion science, conservation biology and socio-ecology. My research addresses one of the main environmental challenges of the twenty-first century: how human activities move species beyond their native ranges, how those species establish and spread, and how their impacts can be anticipated and managed in ways that are both ecologically effective and socially legitimate. By combining ecological modelling, spatial analysis, synthesis of biodiversity data and decision-support approaches, I aim to develop a more integrated understanding of biological invasions across complex socio-ecological systems. I treat invasions not only as ecological processes, but also as outcomes of trade, transport, governance, behaviour and changing societal values. This perspective is especially important for conservation, where management decisions must balance biodiversity protection with livelihoods, cost, feasibility and public acceptance.

My impact lies in connecting theory with action. In invasion science, my work strengthens capacity for prevention, horizon scanning, early warning and prioritisation. In conservation, it supports more

strategic allocation of limited resources to protect native biodiversity, ecosystem functioning and resilience. In socio-ecology, it highlights the need for collaborative, evidence-based governance that recognises people as both drivers of invasions and essential partners in solutions. This interdisciplinary perspective is particularly important in a period of rapid global change, when invasive species, habitat loss and climate pressures increasingly interact. By framing invasions as conservation and governance challenges simultaneously, I intend to contribute to develop management approaches that are preventative, adaptive, equitable and grounded in real-world decision contexts today.

https://www.research.ed.ac.uk/en/persons/guillaume-latombe/

Prof. Marcus Lee

University of Dundee, Faculty of Life Sciences, Division of Biological Chemistry and Drug Discovery

Principal Investigator

Malaria, Drug Resistance, CRISPR

We are interested in the molecular basis of drug resistance in the human malaria parasite Plasmodium falciparum, and in developing molecular genetics approaches

to interrogate gene function.

One of our longstanding research interests has been to understand the mechanisms available to the parasite to develop resistance, which often comes at a cost in terms of fitness in the absence of drug pressure. We use in vitro evolution of resistance, genome sequencing and CRISPR-based engineering to understand drug mode-of-action and parasite adaption.

https://leelab.org.uk

Dr Craig Lewis

PIC Europe

Genetic Services

Genetics, Welfare, Behaviour

Making a better pig.

www.pic.com

Prof. Neil A Mabbott

University of Edinburgh CMVM

Professor of Immunopathology, Head of Immunology Division & Director of Teaching (Roslin Institute)

immunology, host-pathogen interactions, bioimaging, infectious diseases, aging

My research aims to understand the interactions of infectious diseases within the immune system. Particular interests include understanding host-pathogen interactions within the mucosal immune system, especially prion diseases and other gastrointestinal pathogens such as Salmonella.

My research is also interested in understanding how parasites such as African trypanosomes and nematodes manipulate the body's immune system to establish chronic infections. A systems biology approach is also being used to compare the transcriptomic profiles of distinct immune cell populations in the steady-state and during ageing.

https://edwebprofiles.ed.ac.uk/profile/neil-mabbott

Tom MacGillivray

University of Edinburgh CMVM

Principal Investigator

health and wellbeing; imaging and image analysis; clinical research; retina

I work in clinical research that features medical imaging and computational analysis. This includes the application of retinal imaging and analysis to conditions such as stroke, diabetes, MS, and Alzheimer's disease. My research group in the Centre for Clinical Brain Sciences at the University of Edinburgh sees PhD students and postdocs develop novel software methodologies for detecting and quantifying features in retinal imaging as well as contributing to the standardization of acquisition and analysis protocols. My team at the Edinburgh Clinical Research Facility joint with Edinburgh Imaging staff a computer laboratory and retinal imaging suite in the Queens Medical Research Institute and provide specialist support to investigators working with data from a variety of medical imaging modalities across the Little France BioQuarter campus.

Have previously collaborated with Optos and Heidelberg Engineering on PhD projects and Innovate UK KTPs

https://edwebprofiles.ed.ac.uk/profile/dr-tom-macgillivray

Dr Stuart MacNeill

University of St Andrews

PI

molecules, cells and industrial biotechnology; microbes, food and sustainability; bacteriophage; archaea

Research in the MacNeill lab is focused on using bacteriophage genome engineering to investigate the biology of lytic coliphage, primarily using bacteriophage T5 as a model. Current projects include attempting to understand the function of single-stranded DNA nicks found in packaged phage genomes, as well as the molecular mechanisms underlying phage-induced cell lysis. In addition, we are also studying selected carbohydrate-active enzymes (CAZymes) in haloarchaea with a focus on understanding fructan metabolism in these organisms. We use a variety of methods including genetics, genome engineering, cell and molecular biology, biochemistry, structural biology and bioinformatics.

https://macneill.wp.st-andrews.ac.uk

Prof. Sam Martin

University of Aberdeen, School of Biological Sciences

Prof / Director of Research

Salmon Trout Aquaculture Health Genes

Sam is director of the Scottish Fish Immunology Research Centre (SFIRC), School of Biological (SBS) Sciences at the University of Aberdeen and also director of research for (SBS) where he oversees research direction of the school. His research focuses of molecular biological approaches for the analysis of health and nutrition in both salmonid fish, with an emphasis on identifying differentially expressed genes related to immune function. The research

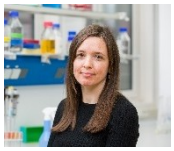
programs cover both fundamental questions in fish health and projects directly relevant to aquaculture industry. His group has developed tools for high throughput transcriptomics in salmonid fish. As part of investigating regulation of the immune response we have utilized gene editing using crispr/cas9 to examine immune signalling. There is also an emphasis on mucosal health investigating intestine, gill and skin mucosal tissues, which includes microbiome studies. He was Co-I on the UKRI funded Aquaculture Research Collaborative Hub –UK, identifying priority areas for future research for both finfish and shell fish aquaculture. The research group has funding from UKRI, EU, SAIC and a number of industrial funded projects.

I have project with aquaculture companies including fish feed manufacturers and aquaculture production companies

https://www.abdn.ac.uk/people/sam.martin

Dr Claudia Martinho

University of Dundee, Faculty of Life Sciences, Division of Plant Sciences at the James Hutton Institute, Edward Vison Ltd



Lecturer

Epigenetics, Plant Sciences, Crop biotechnology, Climate stress

My research explores how plants remember environmental stress and how this knowledge can be harnessed to improve crop resilience in a changing climate. I work at the intersection of epigenetics, biotechnology, and crop science, focusing on the molecular mechanisms that allow plants to respond and adapt to stresses such as heat and drought without changes to their DNA sequence.

Using a combination of genomics, epigenomics, and genome engineering approaches, my group investigates how DNA methylation, histone modifications, and chromatin organisation influence stress responses and longer-term stress memory in plants. Our work spans both fundamental discovery and translational applications, with a particular interest in developing innovative strategies to enhance crop performance and sustainability.

A major focus of my current research is understanding how epigenetic pathways can be manipulated to create more resilient crops. This includes the development of targeted epigenome editing tools and synthetic biology approaches to modulate stress-responsive genes in a precise and potentially reversible way. We work primarily in strawberry and Arabidopsis as complementary systems for discovery and translation.

Beyond plant systems, I am also interested in broader evolutionary questions surrounding epigenetic regulation across photosynthetic organisms, including brown algae. Through interdisciplinary collaborations integrating genomics, AI, and biotechnology, I aim to bridge fundamental biology with practical solutions for agriculture and food security.

My long-term goal is to contribute to the development of climate-resilient crops and next-generation sustainable agricultural technologies while training researchers in interdisciplinary and innovative plant science.

Plant Biotechnology insdustry

https://www.dundee.ac.uk/people/claudia-martinho

Prof. Peter McCaffery

University of Aberdeen, Institute of Medical Sciences, School of Medicine, Medical Science and Nutrition, Nevrargenics Ltd

Professor

Vitamin A; Retinoic acid receptor; Alzheimer's disease; Amyotrophic lateral sclerosis; Nuclear receptor

We have worked on NIH, Wellcome and UK research council-funded grants on retinoic acid receptors (RARs) initially to identify their roles in guiding development of the CNS, demonstrating their capacity to regulate patterning of neurons in eye, spinal cord and brain. This work has extended to the adult CNS, developing the idea of RARs control of CNS development to their role in regulating neuronal plasticity. These studies pointed to the action of RARs to regulate adult neurogenesis in the hippocampus where they influence learning and memory. We also demonstrated how RARs are crucial for control of hypothalamic homeostatic functions and seasonal plasticity in the neural stem cells present in the hypothalamus. These studies have provided the "missing piece" of the retinoid puzzle — how retinoic acid synthesis and degradation sets up a pattern of retinoic acid distribution in the CNS, which is then "read" by the receptors to organize correct transcriptional patterns in either the embryonic or adult brain. Collaboration with Prof Andy Whiting at Durham University over the past 10 years has made use of Whiting's potent RAR ligands to demonstrate how the role of RARs in plasticity expands to neuroprotective actions in neuronal cell lines and cultured primary neurons. Importantly this demonstrated that the action of these RAR ligands to promote both genomic and non-genomic activity is vital to this protective action. This collaboration has resulted in novel approaches to develop these ligands into therapeutics for neurodegenerative disease and led to the start-up company Nevrargenics Ltd, with a focus on amyotrophic lateral sclerosis.

Our work on retinoic acid contributed to the founding of Nevrargenics Ltd. a UK drug discovery and development company focused on innovative and novel retinoids for neurodegenerative disease, in particular amyotrophic lateral sclerosis. The company is based in Durham with Professor Andy Whiting as CEO who was the chemist who designed and synthesised new retinoic acid receptor agonists. I am on the scientific leadership team.

https://www.abdn.ac.uk/people/peter.mccaffery

Alistair McCormick

University of Edinburgh CSE

PI/Professor

plants, algae, cyanobacteria, engineering biology, biotechnology

Alistair McCormick studies photosynthesis in cyanobacteria, algae and plants using a cross-disciplinary, engineering biology approach. His lab focuses on developing fundamental understanding to progress applied research goals, including yield

improvements in biomass, the production of high value products and/or carbon sequestration potential through rationally designed modifications of photosynthesis and primary metabolism. His lab is world-leading in efforts to engineering pyrenoid-based CO2-concentrating mechanism (pCCM) components into land plants to enhance photosynthetic efficiencies. Work to develop cyanobacteria as bio-platforms has been funded by the UKRI, the Scottish IBioIC, the CTRF, Innovate UK and supported by several UK industrial partners.

The McCormick lab's focus on engineering biology lends itself to collaborative research activities with academics and industrial partners, often working with labs from different disciplines. Their research work with industrial partner ScotBio led to an award for Best Innovative Collaboration at the Scotland's Life Sciences Awards in 2019. McCormick currently serves on the Scientific Advisory Board for industrial partner CyanoCapture (since 2022), with which he collaborates on an Innovate UK award. He is also on the Scientific Advisory Board of the start-up Deep Blue Biotech, for which he provides consultation support.

http://mccormick.bio.ed.ac.uk

Dr Laura McCulloch

University of Edinburgh CMVM

PI/ Wellcome Sir Henry Dale Fellow

health and wellbeing; neuroimmunology; stroke; ageing

Recent research has highlighted the increasing importance of cross-talk betwen the immune and central nervous systems in both homeostasis and disease. We investigate the impact of stroke on the systemic immune system and how this may contribute to complications of stroke recovery including infection vulnerability, gastrointestinal dysfunction and cognitive decline. We hope to find new strategies for therapeutic intervention to improve recovery in patients. Additionally, we hope that understanding the fundamentals of these signals in the context of stroke will allow further investigation of the role of neuroimmune communication in homeostasis, stress and age.

We receive funding from the company Biotest, to investigate antiody replacement therapy in post-stroke infection

https://inflammation-research.ed.ac.uk/research/research-groups/dr-laura-mcculloch

Dr Henry McSorley

University of Dundee, Faculty of Life Sciences

Reader

Animal systems, Microbes, Molecules

Our work investigates how parasitic nematodes modulate the host immune response, and hwo we can use this knowledge to design vaccination strategies. We have identified several set of defined immunomodulatory proteins secreted by a parasitic worm of mice, and shown that these are effective when delivered as vaccine antigens, giving protection against parasitic infection. We now are investigating the mechanism of action of these vaccines, and in particular imaging the intestine during infection,

to assess how vaccination affects the local site of infection. We hope to further develop this work to create vaccines against intestinal nematodes of livestock and humans.

We would like to investigate the use of immunomodulatory proteins from parasites for use in immune-mediated diseases, and also in the development of vaccines for livestock and humans.

https://hpolygyrus.wixsite.com/mcsorleylab

Prof. Simone Meddle

University of Edinburgh CMVM, The Roslin Institute, Royal (Dick) School of Veterinary Studies

Professor

Animal systems, Animal welfare, Neuroscience, Neuroendocrinology, Behaviour

I have several lines of research currently underway all related to my specific interest in behavioural neuroendocrinology. My neuroendocrine research focuses on how environmental cues can trigger the expression of functionally important behaviours. This is a question of significant importance in neuroscience and animal welfare. Neuroendocrine-related behaviours are thought to be initiated or enabled by peripheral hormone secretion, and appear to involve specific neurohormonal actions of peptides within the brain. The exact mechanisms by which hormones affect the apparent organisational changes in neuronal circuitry and the specific chemical signals involved in sustaining the resulting behaviours, are questions fundamental to understanding behavioural disorders.

https://edwebprofiles.ed.ac.uk/profile/simone-meddle

Prof. Andrew Millar

University of Edinburgh CSE, School of Biological Sciences and Centre for Engineering Biology

Professor

research data management; biological rhythms; science policy; metascience; tree biology

The Bio_RDM team that I supervise supports and advocates Open Research methods, especially in biology and now also in psychiatry with the Chronopsychiatry group: see the team's Research Data Management wiki. We have long experience of data curation and enriching metadata, now also using AI tools for Natural Language processing, with Ian Simpson's group in Informatics.

This work builds on our decades of linking specialised data analysis software for circadian biology with data management, and with mathematical modelling in systems biology and plant science, linking up to crop science and ecology. For example, the BioDare2 (and older BioDare) integrate rhythmic timeseries analysis with a data-sharing repository. We have also contributed software development for multiple, external repositories: OMERO for microscopy imaging, SynBioHub for synthetic biology designs, and formerly our PlaSMo model repository of curated, crop science, ecology and systems biology models (now hosted

on FAIRDOMHub). The Bio_RDM team has worked for many years with EPCC, Edinburgh's advanced computing centre, the University's Digital Research Services group, and external groups including the FAIRDOMHub repository, ETHZ IT, and OMERO.

Our experience in managing interdisciplinary research led us to two, related areas, science policy and research community organisation, which overlaps with current work on Research Cultures. The first area overlaps with Research on Research and the Science of Network Science. Here, we work with colleagues in the University's Business School and in Science, Technology and Innovation Studies, including the Innogen Institute. The interest in community organisation arose from Andrew's involvement in the UK organisation for Arabidopsis researchers, GARNet, from about 2000. The challenge of providing global Food Security in the coming decades sparked Andrew's interest in economics and monetary reform, particularly how the macroeconomic environment affects research systems.

EU Horizon projects require FAIR data management, where we have a long track record. We're happy to join most biological consortia, please contact us on bio_rdm@ed.ac.uk

https://amillar.org

Prof. Damian Mole

University of Edinburgh
CMVM

Group Leader

inflammation, immunity, metabolism, drug discovery

Damian is a surgeon, translational clinician scientist and recently exited biotech founder. He leads scientific, clinical, corporate and academic teams to ask ambitious, exciting, and translationally important research questions, enabling discovery through first class science and critical investigation of disease mechanisms. His translational research programme incepted a prestigious GSK-University of Edinburgh DPAc Collaboration, that was followed by the spin-out and licensing of Kynos Therapeutics Ltd from the University of Edinburgh, through venture capital equity and non-dilutive funding. Damian built the senior leadership and executive team and successfully navigated the company through preclinical and Phase 1 clinical trials, prior to acquisition by Dr. Falk Pharma GmbH in October 2024. Jointly trained in the UK and USA in translational science and business leadership, and as a surgeon in liver and pancreas disease, Damian holds the 1777 Chair of Surgery at the University of Edinburgh and recently completed a MRC Senior Clinical Fellowship. Key strengths include leveraging deep experience of bridging academic, industry and pharma to deliver scientific innovations through a first-hand understanding of the critical path, and a clear line of sight to clinic to achieve maximum impact for patients.

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https://surgery.ed.ac.uk/staff/profiles/damian-mole

Dr Jason Mooney

University of Edinburgh CSE, SCE/SBS/IIIR

Lecturer

Animal systems, health and wellbeing; Host-pathogen interactions; Mucosal immunology; Antimicrobial resistance; Environmental microbiology

My research investigates the complex interplay between infection, immunology, and the environment, focusing on how host-pathogen interactions are modulated by mucosal barriers and co-infections. By examining the mechanisms driving infectious diseases like malaria, my work aims to decipher how mucosal immunity shapes systemic disease outcomes and host susceptibility. Additionally, this research explores how environmental factors and urban ecosystems influence pathogen dynamics and the dissemination of antimicrobial resistance (AMR).

The impact of this work is two-fold: advancing fundamental biomedical knowledge and informing public health strategy. Deciphering these immunological mechanisms contributes directly to the design of targeted interventions and therapies for infectious diseases. Concurrently, integrating environmental surveillance supports a comprehensive "One Health" approach to disease prevention. Ultimately, this research translates molecular immunology into tangible societal benefits by providing stakeholders and policy makers with the empirical data needed to safeguard human and environmental health.

Interested to engage more with Scottish Water (Edinburgh) and EnteroBiotix (Glasgow) for developing new projects.

https://www.mooney-lab.com/

Dr Fiona Murray

University of Aberdeen, Institute of Medical Sciences, MelioBio

PI

Molecular Pharmacology, Drug Discovery, cell signalling

he overall goal of my research is to examine the role of cyclic adenosine 3',5'-monophosphate (cAMP) signalling in disease, in particular the progression of pulmonary arterial hypertension (PAH) and B- and T-cell lymphomas, to uncover novel therapeutic targets. Model systems

studied include cultured human lymphoma, pulmonary artery smooth muscle and pulmonary artery endothelial cells and models of disease. Current research focuses on the role of G protein-coupled receptors, in particular GPR75, which we believe could be a novel target and possible circulating biomarker for disease. In addition, we have an interest in re-purposing PDE1 inhibitors.

Collaborate with Pharma and Biotech in drug discovery

https://www.abdn.ac.uk/people/fmurray

Matthew Nolan

University of Edinburgh CMVM

Professor

animal systems, health and wellbeing, fundamental bioscience, neuroscience, neurotechnology

My research addresses four themes:

Circuit organisation. We are investigating the local and long-range organisation of circuits in the entorhinal cortex. We want to understand how molecular level organisation within the entorhinal cortex leads to architectural principles that are critical for memory storage and retrieval.

Circuit computations. We are using high density neural recordings and neural network models to investigate how entorhinal cortex circuits implement computations important for spatial memory.

Technology development. With collaborators in the Institute for Integrated and Nano Systems we are developing kilohertz frame rate cameras for imaging neural activity, and with collaborators in the School of Informatics and the Centre for Statistics we are developing new tools for analysing the organisation and activation of neural circuits.

Circuit disorders. Many disorders of the brain appear to result from circuit level deficits. We believe that understanding the fundamental principles for neural circuit computation will be essential for understanding and treating disorders. We are addressing this by focusing on models of autism spectrum disorders and Alzheimer's disease.

We've previously collaborated with Biotech partners, Synpromics/Askbio. We're interested in similar future collaborations.

https://nolansurmelilab.github.io/

Dr Darren Obbard

University of Edinburgh CSE, School of Biological Sciences / Institute of Ecology and Evolution

Professor

Evolutionary Genomics, Co-evolution, Metagenomics, Viruses, Insects

I am interested in the molecular basis of adaptive evolution. By applying population-genetic approaches to host-parasite systems, I hope to understand how the selective pressure exerted by host-parasite interaction translates into adaptive change in the genome.

Most of my current work focuses on Drosophila and their viral pathogens, but I also have side interests in other pathogens and parasites of wild

drosophila, and host-parasite coevolution in other insect systems.

https://obbard.bio.ed.ac.uk/

Prof. David O'Hagan

University of St Andrews, Chemistry

Professor Late Career

Molecules, fluorine biocatalysis and industrial biocatalysis towards fluorinated molecules

Our research has a strong focus on organo-fluorine chemistry, and particularly organo-fluorine chemistry focused on bioorganic and chemical biology research. We have been interested in the influence of the fluorine atom on the conformation and behaviour of biomolecules. We are interested in biocatalysis (fluorinase technology) and also the role of fluorine in medicinal chemistry, eg altering LogP, suppresing metabolism etc

I will retire in Jan 2027

https://davidohagangroup.wp.st-andrews.ac.uk/

Prof. Amy Pedersen

University of Edinburgh CSE, School of Biological Sciences, Institute of Ecology and Evolution

Professor

infectious disease, parasitology, wild immunology, disease ecology, community ecology

Professor Pedersen is a disease ecologist who addresses critical questions about host-parasite interactions, including how to improve host health and develop effective disease control strategies. Pedersen's research has played a key role in reshaping our approach to research on how parasites and pathogens impact the fitness and dynamics of their wild hosts. She has achieved this by devising empirical and analytical methodologies to study these interactions as they naturally occur - embedded in their natural ecological complexity. This might include host genetic or dietary variation, social organisation, demography, competition or coinfection with multiple pathogens. This approach is fundamentally interdisciplinary, combining ideas from emerging disciplines including One Health and Wild Immunology.

The key aim of her research is to understand how parasites and pathogens impact the fitness and dynamics of their wild hosts, specifically by recognising and understanding the complexities that are inherent in natural systems. To do this, she integrates modelling, statistical methods, meta-analysis, lab and field studies to maximise the potential of ecological and evolutionary studies to address key questions about host- parasite interactions. A key component of her research programme has involved establishing, managing and funding a laboratory colony of wild-caught wood mice in the UK from 2012 to present day. These laboratory and field resources have been the focus of grants, publications – and samples that have been shared with >25 laboratories around the world. Pedersen's research using this lab-to-wild mouse model has provided one of the first demonstrations of an interaction between coinfecting parasites, shown that anti-parasite drug treatment may result in increases in non-target pathogens, and may not

be optimal for long-term health, demonstrated a direct effect of nutrition on susceptibility and resistance to parasites and the efficacy of drug treatment, and provided crucial evidence of the importance of coinfection for pathology, transmission and disease control.

https://edwebprofiles.ed.ac.uk/profile/amy-b-pedersen

Dr Ivan Pocrnic

University of Edinburgh CMVM, The Roslin Institute, PIC

Career Track Fellow

Quantitative genetics, Animal breeding, Genomic prediction

My main research interest is in the development of novel breeding methodologies and tools. This work involves a synergy between theoretical quantitative genetics and practical animal breeding. My main expertise is the application of genomic selection on big datasets for various species (pig, chicken, cattle, etc.) and various models, with emphasis on single-step genomic prediction.

Before beginning my tenure-track role at The Roslin Institute, I served as a core scientist at HighlanderLab under Gregor Gorjanc, and previously as a postdoctoral researcher with Ignacy Misztal at the University of Georgia (USA), where I also earned my PhD in Animal Genetics and Breeding. My experience includes work with Croatia's national department for breeding value estimation (Croatian Agricultural Agency). I hold an MSc in Animal Genetics and Breeding and a BSc in Agricultural Economics from the University of Zagreb (Croatia). I serve as a member of the Commission on Animal Genetics at the European Federation of Animal Science (EAAP).

https://vet.ed.ac.uk/the-roslin-institute/research/divisions/quantitative-biology/pocrnic-lab

Prof. James Prendergast

University of Edinburgh CMVM, Roslin Institute

Professor

Bioinformatics, AI, genetics, genomics, livestock

Professor James Prendergast is a bioinformatician whose work sits at the intersection of computational biology, evolutionary genomics, and health. His research group at The Roslin Institute focuses on deciphering mammalian gene regulation, genome evolution, and the genetic architectures of both human and animal diseases. By integrating advanced artificial intelligence (AI) with graph genomics and novel cellular screens, his work bridges the gap between fundamental genomic discovery and transformative real-world applications, ranging from enhancing food security in low- and middle-income countries (LMICs) to understanding the evolution of mammalian gene regulation.

https://edwebprofiles.ed.ac.uk/profile/james-prendergast

Stefan Pulver

University of St Andrews, School of Psychology and Neuroscience and Centre for Biological Diversity, Cairn Research Ltd

Senior Lecturer

Neuroethology, Neuroscience, Ethology, Ecology, Sustainability

I study the neuroethology of movement in small animals. I am particularly interested in understanding how animals control movement over different types of terrain in the context of rapidly changing ecosystems. Work in the lab is highly integrative, involving everything from genetics to anatomy to electrophysiology and live imaging to biomechanics and animal behaviour in the field. We work with multiple species including flies, beetles, and aquatic invertebrates. Our work is well positioned to inform work in vertebrates and influence development of biologically inspired machines, while also understanding the impacts of changing ecosystems on brains and behaviours. Lab members weave research, teaching and outreach together and we invest in developing sustainable, accessible ways of doing science. The lab is accredited at Gold level through the Laboratory Efficiency Assessment Framework (LEAF). As part of our commitment to LEAF, we work to reduce and mitigate the environmental impact of our research activities and explore how to re-orient and redirect research projects towards addressing emerging environmental challenges.

I have extensive experience supervising Industrial Case PhD studentships and have collaborative links with with both for-profit and non-profit companies.

https://www.st-andrews.ac.uk/psychology-neuroscience/people/sp96/

Dr Lorena I Rangel

James Hutton Institute, Cell and Molecular Sciences

Research Plant Pathologist

endophyte, plant pathology, phyllosphere microbiome, microbial ecology, biological control

Our current research focuses on how native plant-associated microbiomes, particularly those of the phyllosphere or above ground tissues, can be leveraged to enhance plant health and resilience to biotic stress. Emphasis is placed on locally adapted microbial communities, including fungi, yeasts and bacteria, and their roles in disease suppression and ecosystem function. Using metabarcoding and eDNA approaches, our work profiles these microbial communities across plant systems to inform sustainable, crop-agnostic biocontrol strategies. A central aim is to catalogue microbiome diversity in the phyllosphere and endosphere (within plant tissue) to identify ecological principles underpinning plant–microbe interactions. This work is supported by a curated culture collection of fungal, yeast, and bacterial isolates that underpins both ecological research and downstream application.

This work is closely aligned with translational and commercial objectives, recognising the phyllosphere as a vast and underexplored microbial habitat with significant biotechnological potential. By linking microbial community structure to functional traits, such as secondary metabolite production and plant-beneficial activities, this work supports the discovery and development of novel products and applications. These include disease-suppressive and plant growth–promoting microbes, as well as bio-based industrial compounds and microbiome-informed surveillance tools for plant health, food safety, and biosecurity.

https://www.hutton.ac.uk/people/lorena-rangel/

Prof. Sarah Reece

University of Edinburgh
CSE, SBS/IEE

Chair of Evolutionary Parasitology

Malaria, ecology, evolution, mosquito, circadian rhythm

The Reece lab provides a unique perspective on parasites, examining their world within hosts and vectors (insects that transmit parasites). Working at the intersection of parasitology, chronobiology, and evolutionary ecology, our research asks: “what makes a successful parasite” and “what are their evolutionary limits”? Unlike most infection research, that focuses solely on genetics and molecular aspects, our approach considers parasites in their ecological and evolutionary contexts. This has enabled us to uncover the sophisticated strategies that malaria parasites possess, such as optimizing the balance between transmission and replication, strategic investment in each sex of transmission stages, and scheduling activities according to the time of day. By understanding how parasites navigate their challenging lifestyles and seize opportunities, we contribute to interventions that can outsmart parasites and reduce the risk of resistance evolution. Our findings extend beyond the laboratory, showcasing the potential of environmental research to curb the impact of parasitic infections, whether in humans, wildlife, livestock, or agriculture, and helping to protect ecosystems.

reecearchers.com

Dr Eva Rubinova

University of Aberdeen, School of Psychology

Lecturer

human memory; cognition and emotion; human behaviour; technologies and methodological development

The work in our lab aims to improve understanding of the factors that influence long-term memory retrieval. We examine how repetition shapes memory for individual experiences among related events, and how stress, negative emotion, and discomfort affect what people remember. We also investigate how different modes of experience (e.g., video versus virtual reality) influence both the amount and quality of information recalled. In addition, we explore techniques that may facilitate long-term remembering. From an applied perspective, our work provides insights into eyewitness memory and informs evidence-based practices in investigative interviewing.

https://www.abdn.ac.uk/people/eva.rubinova

Dr Jin Rui Liang

University of Dundee, School of Life Sciences, MRC Protein Phosphorylation and Ubiquitylation Unit

Junior Principal Investigator

molecular and cell biology, cancer biology

My laboratory investigates the fundamental biology and disease relevance of endoplasmic reticulum-specific autophagy (ER-phagy), a selective autophagy pathway responsible for the turnover of

damaged or excess endoplasmic reticulum (ER). The ER is a central organelle involved in protein folding, lipid synthesis, calcium homeostasis, and stress signalling, and its integrity is maintained by highly coordinated quality control systems such as ER-associated degradation (ERAD) and the unfolded protein response (UPR). While these pathways have been extensively studied, the mechanisms and physiological importance of ER-phagy remain poorly understood despite increasing evidence linking defective ER-phagy to neurodevelopmental disorders, pancreatic dysfunction, and cancer metastasis.

Our work has established key conceptual and technological advances in the field. We developed the ER-Autophagy Tandem Reporter (EATR), a quantitative flow cytometry-based platform that enables robust monitoring of ER-phagy activity in living cells. This tool has facilitated unbiased functional genomics approaches to systematically identify regulators of ER-phagy. Using genome-wide CRISPR interference (CRISPRi) screening coupled with fluorescence-activated cell sorting (FACS), we identified Atlastins, ER-resident membrane-remodelling GTPases, as critical mediators of ER membrane restructuring during ER-phagy (Liang et al., Journal of Cell Biology, 2018). This work provided one of the first mechanistic insights into how ER membranes are physically remodelled for autophagic degradation.

Building on this, we uncovered a previously unrecognised role for ER surface UFMylation in regulating ER-phagy through genome-wide CRISPRi screening and proteomic approaches. We demonstrated that disruption of the UFMylation pathway impairs ER-phagy, induces ER stress, and activates the UPR (Liang et al., Cell, 2020), thereby linking ER quality control networks to selective autophagy pathways. Collectively, our research provides fundamental insight into ER homeostasis mechanisms and establishes a framework for understanding how ER-phagy dysfunction contributes to human disease.

https://www.ppu.mrc.ac.uk/research/principal-investigator/jin-rui-amos-liang

Dr Uli Schwarz-Linek

University of St Andrews, Biology

Principal Investigator, mid-career/senior

molecules, microbes, infections

Our research is directed at understanding structure, mechanism of host protein recognition and function of bacterial and viral virulence factors, with an emphasis on Gram-positive bacterial surface proteins. My group specialises in structural biology and protein biochemistry, complemented with biophysical and cell-based techniques. We have a particular interest in TIE (thioester, isopeptide, ester domain) proteins of Gram-positive pathogens including group A streptococci, vancomycin-resistant enterococci, Bacillus anthracis and Clostridium difficile. Our most significant contribution to the field was the discovery of bacteria-encoded, TIE protein-mediated covalent binding as a novel molecular principle in host-microbe interactions. The lab also exploits TIE domains for protein engineering to develop molecular tools for diagnostics, therapy and nanotechnology. Another focus of the group is the structural characterization of M proteins of

human and animal-pathogenic streptococci. We also investigate structure and functions of single strand RNA virus NSs proteins, key virulence factors of a large class of clinically and economically important pathogens, with a focus on Rift Valley fever phlebovirus.

https://www.st-andrews.ac.uk/biology/people/us6/

Dr Manon Schweinfurth

University of St Andrews, School of Psychology & Neuroscience

Senior Lecturer

comparative psychology, animal behaviour, cooperation, evolution

Together with members of her Cooperation Lab, Manon Schweinfurth investigates the evolutionary and psychological origins of cooperation. She is particularly interested in why and how individuals choose to help others rather than act selfishly in a competitive world. To address these questions, she primarily studies chimpanzee and rats, alongside human. Her research is typically grounded in predictions derived from game theoretical models, which she tests experimentally in both laboratory and field settings.

As a blue-sky researcher, her primary goal is to generate fundamental knowledge. While her work does not always have immediate applications, Manon and her lab members actively engage in outreach and impact activities, sharing findings that challenge perceptions of non-human animals and foster appreciation of their cognitive and emotional lives. Making research accessible also promotes critical thinking and encourages people to see themselves as potential scientists. In addition, some of her work has direct implications for animal welfare, particularly in improving housing conditions for laboratory rats, with broader relevance for social inclusion and wellbeing in both animals and humans. As a member of the Young Academy of Europe, she therefore contributes to policy engagement and broader discussions on science and society.

https://www.st-andrews.ac.uk/psychology-neuroscience/people/ms397

Nicola Stanley-Wall

University of Dundee, Faculty of Life Sceinces

Deputy Faculty Vice Prinicipal

microbiology, signalling, biofilms,

The ability of unicellular bacteria to co-ordinate responses and to act as a multicellular population is proposed to provide an advantage to the bacterial population as a whole. A mechanism whereby bacteria can function as a multicellular population is to form a biofilm, a community of bacterial cells that is adherent to a surface, interface or to each other and encased in a self-produced polymeric matrix.

Bacteria living in biofilms have increased resistance to various antimicrobial agents and are better adapted to survive periods of environmental stress. Therefore, biofilms have a significant impact in clinical settings, where they are the causative agent of the majority of chronic infections, and in industrial settings where they cause significant

damage due to corrosion and bio fouling. On the other hand microbial biofilms can also result in beneficial processes such as bio-remediation and bio-control that cannot be accomplished by bacteria that are dispersed in the environment. Knowledge of the molecular mechanism of biofilm formation should allow the development of novel treatment strategies for controlling chronic biofilm infections and the development of ecologically friendly pesticides.

https://www.dundee.ac.uk/people/nicola-stanley-wall

Dr Chris Sutherland

University of St Andrews, Centre for Research into Ecological and Environmental Modelling

Reader

Population genetics, population genomics, statistical methodology, population biology, population ecology

I work at the intersection of spatial ecology and statistics, developing biologically realistic models to understand how space use, dispersal, and demography respond to density, environment, and landscape structure. The goal is to turn ecological theory into practical tools for conservation and management.

https://sutherlandecology.com/

Dr Takanobu Tagawa

University of Edinburgh CSE, School of Biological Sciences

Independent Research Fellow

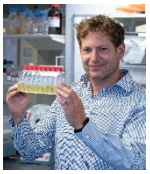
Human pathogens; Chronic infections; cancer; genetics, genomics and epigenetics; Immunology and inflammation

Our research aims to reveal how host-virus interactions are regulated upon infection with oncogenic viruses. In particular, we focus on non-protein-coding RNAs, such as circular RNAs, and investigate how they regulate the infection and pathogenesis of human herpesviruses, including Epstein-Barr virus and Kaposi sarcoma. Using a multiomics approach, we established methods to identify and quantify host- and virus-encoded circular RNAs (circRNAs) and determined a specific group of circular RNAs induced by multiple herpesviruses. The unique features of circular RNAs over more conventional gene regulators, such as proteins, are that circRNAs can directly bind to DNA, RNA, and proteins and regulate their functions. For example, we showed that a human circRNA, circRELL1, is induced by three or more human herpesviruses and regulates viral latency, growth of infected cells, and immune genes in infected cells. circRNAs can regulate targets without invoking the host immune surveillance system and are thus ideal tools for viruses. Indeed, we are among the first to identify virus-encoded circRNAs as a novel regulatory layer of virus-host interactions. In addition, our recent collaboration with the team at the University of St. Andrews showed novel small molecule inhibitors to be effective in suppressing viral lytic reactivation in multiple human herpesviruses including Epestein-Barr virus. It is crucial to have a medication that has cross-viral potential, as co-infection or simultaneous reactivation has been a key issue in many diseases, such as post-transplant disorders. As there are no approved vaccines or direct antivirals against

most herpesviruses, this development provides a new possibility for antiviral therapeutics.

https://biology.ed.ac.uk

Prof. Gerben van Ooijen



University of Edinburgh CSE, School of Biological Sciences

Chair of Chronobiology; Director of EastBio

Circadian rhythms; Cell biology; Plants and algae; Chronobiology; Magnesium

We all experience cycles of day and night resulting from planet Earth's rotation around its axis. Humans, other animals, plants, fungi, and some bacteria have evolved a biological clock, or circadian clock, to anticipate this rhythmicity.

Circadian rhythms are the appropriately 24h rhythms in the behaviour, physiology, or metabolism of an organism or cell, and are a fundamental feature of life on Earth. Circadian disruption, for example observed in shift workers (one in five of the UK workforce!), increases the risk of infectious diseases as well as the risk of metabolic syndrome, cardiovascular disease, depression, and even some types of cancer. The clear importance of our body clock for health warrants a full understanding of the mechanisms behind circadian timekeeping.

Whole-organism circadian rhythmicity is ultimately a culmination of circadian rhythms in every single cell. Every cell in your body individually keeps time! And in the living cell, virtually nothing stays the same over the course of a day. In our lab, We use minimal model cells to study the mechanisms and functional consequences of biological timekeeping at the molecular and cellular level.

https://biology.ed.ac.uk/vanooijen

Prof. Neil Vargesson

University of Aberdeen

Professor and PI

health and wellbeing, developmental biology, drug safety

My group is recognised for determining the mechanism by which thalidomide caused damage to the embryo. Thalidomide was used to treat morning sickness. Now its used to treat cancer and inflammatory disorders. We have also identified modified forms of thalidomide that no longer harm the embryo but which retain the clinically relevant benefits of the drug. We are also recognised for studying Primodos, which used to be used a hormone pregnancy test, and has been linked with causing birth differences. Our research in these areas has led to providing advice to Governments and Regulatory authorities around the world and has led to establishment of compensation schemes in several countries. Current work in the lab is looking at limb development and outgrowth and the role of the forming vascular system in this process.

https://www.abdn.ac.uk/people/n.vargesson

Dr Mike Webster

University of St Andrews, School of Biology, Centre for Biological Diversity

Senior Lecturer

Animal Behaviour, Behavioural Ecology, Ecology and Evolution

My group has two main research interests, (1) the social behaviour of animals, and (2) understanding and mitigating sampling biases in behavioural biology. We use a combination of laboratory experiments, field studies and meta-analyses to address questions in these areas.

(1) Social behaviour of animals. Our research explores how and why animals form groups, and investigates questions relating to recognition, cognition, social organisation, cooperation, information transmission, resource competition and responses to environmental change.

(2) Understanding and mitigating sampling biases in behavioural biology. We investigate how subject pool biases and experimental design decisions affect experimental outcomes, and how this impacts replication in animal behaviour research. We promote the STRANGE framework, which encourages researchers and publishers to recognise, report and discuss potential biases affecting research findings.

https://sites.google.com/view/big-lab-webster/home

Dr Andrea Weisse

University of Edinburgh CSE, Informatics & Biological Sciences

Lecturer

microbes, health, antimicrobial resistance, molecules, cells

Our group uses systems modelling and analysis as well as applied machine learning to study mechanisms that promote antibiotic resistance in bacteria. Our work is tightly linked to experiments through collaborations with microbiologists and clinicians.

https://homepages.inf.ed.ac.uk/aweisse

Dr Marcus Wilson

University of Edinburgh CSE

Lecturer

health and wellbeing, molecules, cells

We are interested in understanding how epigenetic marks are placed, read and interpreted on chromatin. Chromatin becomes decorated with post-translational modifications to control the myriad of DNA-related processes in the cell. We create modified chromatin using chemical biology and biochemical methods. We then use our defined modified chromatin to study individual nucleosome-chromatin protein complexes using single-particle cryo-electron microscopy (cryo-EM), Biochemical, Biophysical and Cell Biology approaches to investigate histone marks and DNA methylation.

Recently we have become particularly interested in how diverse eukaryotes such as parasitic causative agents of neglected tropical diseases use unconventional chromatin for unique and targetable cellular biology.

Open to developing projects with non-academic partners

www.mdwilsonlab.com

Dr Ewelina Wójcik

Proteon Pharmaceuticals

Chief Scientific Officer

bacteriophages, bacterial resistance, animal model

The research is focused on development of a pig model of urinary tract infection for phage therapy. In this project the dynamics of the infection following phage delivery including dissemination of phage and co-ordination with the inflammatory response will be characterised. The major focus is on bacterial resistance to the phage treatment which is investigated by sequencing isolates and studying their gene expression profile by RNAseq. The results are compared with data acquired on resistance mechanisms for the same strains under laboratory conditions. The results from this project should improve selection of phage for cocktails for treatment of multiple bacterial infections. This project will benefit from world class facilities on campus including the Large Animal Research and Imaging Facility (LARIF) and the knowledge and resources provided by Proteon Pharmaceuticals, which has a platform to develop and commercialize phage-based products for animal and human health.

https://www.proteonpharma.com/

Dr Dewei Yi

University of Aberdeen

Second Supervisor / Senior Lecturer

health and wellbeing; food and sustainability; technologies and methodological development;

My research lies at the intersection of trustworthy artificial intelligence (AI), robotics, and intelligent systems, with a focus on addressing real-world challenges through technological innovation. As an Associate Professor at the University of Aberdeen, my work integrates cutting-edge AI techniques with embedded systems to create impactful solutions across healthcare, sustainable agriculture, and autonomous systems.

A central theme of my research is the development of lightweight AI models for embedded systems and robotics, funded by organizations such as the Petroleum Technology Development Fund and the UKRI BBSRC. My leadership in projects like Smartrawl, funded by Fisheries Innovation & Sustainability, has contributed to sustainable fishing by reducing bycatch using AI-driven monitoring systems. Similarly, my involvement in ASICA projects, funded by Cancer Research UK, has advanced digital healthcare interventions for melanoma survivors.

My research outputs, published in high-impact journals like IEEE Transactions on Industrial Informatics and Neurocomputing, span from underwater instance segmentation frameworks to AI-powered personalized healthcare systems. These contributions have direct societal impacts, evidenced by their inclusion in impact case studies in areas such as smart farming and remote healthcare solutions.

I am dedicated to fostering future talent, supervising PhD research in areas like federated learning for IoT cybersecurity and neuro-symbolic learning for autonomous grasping. Additionally, my collaborative efforts with leading institutions and industry partners enhance the practical applications of my research, bridging

the gap between academia and industry.

My vision is to continue advancing AI technologies for societal good, focusing on sustainable systems, personalized healthcare, and intelligent autonomous solutions that address global challenges.

https://www.abdn.ac.uk/people/dewei.yi/

Dr Lida Zoupi

University of Edinburgh CMVM, Institute for Neuroscience and Cardiovascular Research

Chancellor's Fellow

animal systems; health and wellbeing; technologies and methodological development

We are interested in the fundamental cellular mechanisms that underly the establishment and regulation of neuronal networks in the brain during typical development and in the context of neurodevelopmental disorders. We focus on the communication between neurons and oligodendrocytes, a type of glia cell in the brain that wraps neurons with myelin, a specialised membrane that insulates the axons of neurons enabling fast and efficient signal transmission. We use genetic, environmental and pharmacological approaches to manipulate myelination during postnatal development and we study the effect on neuronal function. The nature and the outcomes of our work provide new conceptual insights into how myelinated neuronal networks regulate signal transmission and by extension influence information processing in the brain. In addition, we establish versatile and cutting-edge genetic approaches, protocols and analysis pipelines that we openly share with the broader scientific community to be used a wide range of researchers within the life sciences.

https://zoupilab.com/

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