

EASTBIO SYMPOSIUM 2022



Biotechnology and
Biological Sciences
Research Council



East of Scotland Bioscience
Doctoral Training Partnership



**JOHN MCINTYRE
CONFERENCE CENTRE**

9th - 10th June 2022

TABLE OF CONTENTS

01	WELCOME	page 3
02	AGENDA	page 4
03	KEYNOTE ADDRESS	page 6
04	STUDENT PRESENTATIONS	page 7
05	PANEL DISCUSSION	page 11
06	STUDENT POSTERS	page 12
07	PANEL DISCUSSION	page 13
08	ACKNOWLEDGEMENTS	page 14

THURSDAY 9TH JUNE 2022

11.00 - Joining and Welcome

Dr Sam Miller (University of Aberdeen, Co-Director of EASTBIO) with Mert Unal (Edinburgh) and Wylan Wong (St Andrews)

Pentland Suite

11:10 - 12.00 - Keynote address: Relational science for a kinder world: doing research differently and why it matters for society and the environment

Dr Rebecca Whittle (Lancaster University)

Student Chairs: Kate Dubarry (Edinburgh) and Katie Pickup (Edinburgh)

Pentland Suite

12:00-13:00 Lunch

13:00-14:45 - Student Presentations 1 - 4 (see page 7)

Academic Chairs: Dr Alistair McCormick (Edinburgh), Professor Malcolm White (St Andrews), Professor Alison Hulme (Edinburgh), Dr Morag K. Mansley (St Andrews)

Student Chairs:

Ella Catherall (Edinburgh) and Tamsin Woodman (Aberdeen)

Hannah Farley (Edinburgh) and Abdelazeem Elhabyan (Edinburgh)

Felicitas Pamatat (Aberdeen) and Annis Newman (Edinburgh)

Eilidh Geddes (Moredun Research Institute) and Sanni Ahonen (Aberdeen)

14:45 - 15:15 Coffee/ Tea Break

15:15 -17:00 - Student Presentations 5 - 8 (see page 8)

Academic Chairs: Dr Emily Gwyer Findlay (Edinburgh), Dr Samantha Miller (Aberdeen)

Craig Simpson (James Hutton Institute), Dr Marius Wenzel (Aberdeen)

Student Chairs:

Mert Unal (Edinburgh) and Wylan Wong (St Andrews)

Rochelle Kennedy (SRUC) and Amy Newell (Edinburgh)

Rose Doyle (Edinburgh) and Gauri Deak (Edinburgh)

Alexandra Florea (Edinburgh) and Ben Thompson (St Andrews)

17:00 - 17:30 Coffee/ Tea Break

17:30 -18:30 - Panel Discussion - The Future of Big Data in One Health

Panel chair: Dr Jennifer Postles (Senior Portfolio Manager, UKRI BBSRC Capability and Innovation)

Panel members: Professor Jude Capper(Harper Adams); Professor Andy Peters (Edinburgh); Dr Dana MacGregor (Rothamsted Research); Dr Erin Holmes (Babylon Health)

Co-chairs: Beth Riley (SRUC) and Carys Redman-White (Edinburgh)

Pentland Suite

18:30 - Closing of Symposium Day 1

Check-in at Chancellor's Court, Pollock Halls

19:30 - Dinner followed by Ceilidh and Board Games

South Hall

FRIDAY 10TH JUNE 2022

9:00 - 9:30 - Welcome and BBSRC talk

Dr Jennifer Postles - Senior Portfolio Manager, UKRI BBSRC Capability and Innovation

Pentland Suite

9.30 - 10:40 - Third year student poster presentations

Poster presentations from third year EASTBIO students, on their placement and/or project progression

JMCC Concourse.

10:40 - 11:10 Coffee/ Tea Break

11:10 - 12:10 - Panel Discussion - Lived Experiences and the Future of EDI in Science

Panel chair: Claire Hodgson

Panel members: Dr Alex Bond (Natural History Museum); Professor Gwenetta Curry (Edinburgh), Dr Helen Gray (Newcastle)

Co-chairs: Beth Riley (SRUC) and Jack Barber (Aberdeen)

Pentland Suite

12:10 - 13:10 Lunch

13:10 -14:10 Student Networking event: "Speed Dating"

Chairs: Felicitas Pamatat (Aberdeen) and Jack Barber (Aberdeen)

Pentland Suite

13:10 -14:10 EASTBIO Management Group/ Advisory Board meeting

Boardroom 1

14:10-14:45 - Closing Remarks with Drinks Reception

Dr Sam Miller and student organisers

Pentland Suite

WELCOME



DR SAM MILLER, UNIVERSITY OF ABERDEEN



A very warm welcome to attendees at the 2022 Annual Symposium of the BBSRC-funded EASTBIO Doctoral Training Partnership. The Annual Symposium is one of the highlights in the EASTBIO calendar. The Symposium has been planned by volunteer EASTBIO student event organisers and the EASTBIO DTP Manager and Support Officer. This year is the 10th anniversary of EASTBIO DTP and we are very pleased to be able to return to an in-person event, with a hybrid component to allow access for people unable to attend in person. The Symposium brings together four cohorts of our PhD students, guest speakers and panellists to discuss and celebrate the broad range of interdisciplinary research conducted across the Partnership and to consider wider aspects of conducting research in these challenging times. We hope you will enjoy the proceedings!

Dr Sam Miller
(she/her)
University of Aberdeen

On behalf of the EASTBIO Management Group & Symposium Organising Committee

KEYNOTE ADDRESS

RELATIONAL SCIENCE FOR A KINDER WORLD: DOING RESEARCH DIFFERENTLY AND WHY IT MATTERS FOR SOCIETY AND THE ENVIRONMENT.

DR REBECCA WHITTLE (LANCASTER UNIVERSITY)

ABSTRACT

We live in turbulent and often terrifying times. In the face of climate breakdown, global pandemics, rampant inequality and wars both new and old, we can feel helpless and disorientated, struggling to cope with one wave of chaos after another. We may even wonder what on earth is the point of science or technical expertise when the careful, reasoned evidence that we have worked diligently to create seems to get lost in the maelstrom of fake news and powerful voices from vested interests pushing for business as usual. These feelings can be particularly acute if you are a PhD researcher who is just starting out in your academic training, experiencing the full force of imposter syndrome and deeply conscious of all the things that you don't know. Yet what if we flipped our perspective? What if making a difference and figuring out our unique contribution – in terms of academic knowledge and beyond – is not just about the results of our research? What if it is, instead, the way in which we conduct ourselves as we go about our personal and professional lives within and beyond the academy? In the time that I have with you, I'm going to invite you to consider how and why we might want to reinsert ourselves back into our research topics in ways that blur the boundaries between research, life and activism. I'll also be advocating for an approach to science that's grounded in relationship and co-design and I'll show how the principles behind this approach speak to many of the social, political and environmental issues that research is grappling with today.

BIOGRAPHY

Rebecca Whittle is a senior lecturer in sustainability at Lancaster Environment Centre. She is also a mother, eco-activist, crafter and gardener and she works part time in an effort to give space to these endeavours, all of which inspire and influence each other. Rebecca trained in Geography because she was always passionate about environmental issues and the natural world but later came to specialise in human geography because she realised that sustainability was about the relationships that we have with each other and the world around us. In recent years, her work and everyday practice has been greatly inspired by feminist and ecological thinking around interdependence and co-design with a focus on food and fashion/craft in particular. Learning to care for ourselves, our world and the more-than-human others that we share it with, is perhaps the most fundamental endeavour that we can engage in and Rebecca is passionate about developing ways in which we can work together to do this through the different communities that we are part of in our professional and personal lives.

STUDENT PRESENTATIONS



1 MOLECULAR PERSPECTIVES ON EVOLUTION, DEVELOPMENT, DISEASE AND MORE

CHAIR: DR ALISTAIR MCCORMICK (EDINBURGH)

FACILITATORS: ELLA CATHERALL (EDINBURGH) AND TAMSIN WOODMAN (ABERDEEN)

ROOM: DUDDINGSTON

The study of organisms from molecular perspectives can help answer fundamental questions about how life works at the smallest of scales and provide insights into solutions to humanity's problems. This parallel session will cover how molecular approaches can be used to answer questions in a range of disciplines, including computational biology, evolution, behaviour, development, epigenetics, disease, and signalling, among others. Work covering these fields will be presented by first- and second-year PhD students from across the institutions involved in EASTBIO.

PRESENTERS

Barber, Jack

Deak, Gauri

Fu, Zishan (Sannie)

Kompauerova, Michaela

Leligdowicz, Anastasia

Martin, Rachel

Mason, Robert Oskar

Notari, Evangelia

Pickup, Katherine

Tan, Hwei Ling

Venckute, Evelina

2 APPLICATIONS OF MOLECULAR TECHNIQUES AND PATHWAYS

CHAIR: PROFESSOR MALCOLM WHITE (ST ANDREWS)

FACILITATORS: HANNAH FARLEY (EDINBURGH) AND ABDELAZEEM ELHABYAN (EDINBURGH)

ROOM: HOLYROOD

This symposium session will welcome talks covering a wide range of research topics, discussing a variety of species, techniques and applications. The session will have a particular focus on projects which apply molecular-based techniques or pathways to fundamental research questions.

Presentations will discuss how current projects are using aspects of molecular biology to investigate disciplines such as genetics, cell biology, microbiology, immunology and bioinformatics. The research presented will cover work from first and second year EASTBIO students to introduce research topics and present current data.

PRESENTERS

Brown, Erin

Chen, Zihao

Crawley, Phoebe

Czapnik, Paulina

Doyle, Rose

Eve, Oliver

Headley, Louis

Konieczna, Zuzanna

Sahin, Alp Tegin

Thorley, Luke

Tozer, Mary

Turnbull, Lucy

STUDENT PRESENTATIONS



3

FROM CELLS TO GENES – FINE-TUNING THE FUTURE

CHAIR: PROFESSOR ALISON HULME (UNIVERSITY OF EDINBURGH)

FACILITATORS: FELICITAS PAMATAT (ABERDEEN) AND ANNIS NEWMAN (EDINBURGH)

ROOM: PRESTONFIELD

This session is going to take you on a journey from understanding more about molecular interactions, over characterising enzymes and their mechanisms, to identifying microbes. We are welcoming speakers which will use this newfound knowledge to either implement it into processes in the industry, agriculture, treatment of diseases or fine-tune existing procedures (e.g. reducing the environmental impact of chemical manufacturing).

PRESENTERS

Monteiro do Carmo, Rafael
Richardson, Shannon
Spankie, Tim
Lansch-Justen, Lucy
Poot, Ellen
Sanchez Utges, Javier

Unal, Mert
Wong, Wylan
Trotter, Connor
Tynan, Ailish
Zolotariof, Anna

4

FUNDAMENTAL MACRO BIOSCIENCE

CHAIR: DR MORAG K. MANSLEY (ST ANDREWS)

FACILITATORS: EILIDH GEDDES (MOREDUN RESEARCH INSTITUTE) AND SANNI AHONEN (ABERDEEN)

ROOM: SALISBURY

This session will include a variety of talks within the overarching theme of fundamental 'macro-bioscience'. We have a multidisciplinary session, with talks from both first and second-year students from the University of Edinburgh, Dundee and St Andrews. The short presentations in this session will mostly focus on humans and plant systems, touching on subjects such as immunology, data science and unpicking the mechanisms behind some biological processes.

PRESENTERS

Barr, Zoe
Clarke, Thomas
Fraser, Olivia
Gibbon, Samuel
Haley, Emily

Newell, Amy
Qiu, Guiyun (Bella)
Roberts, Calvin
Mubarak, Shirooza
Yuan, Yifang

STUDENT PRESENTATIONS



5 FARMING FOR A HEALTHY FUTURE

CHAIR: CRAIG SIMPSON (JAMES HUTTON INSTITUTE)

FACILITATORS: ROSE DOYLE (EDINBURGH) AND GAURI DEAK (EDINBURGH)

ROOM: PRESTONFIELD

An exploration of local and global challenges related to agriculture, wildlife ecosystems, and health. Talks related to agriculture will span agronomy, animal husbandry, and aquaculture and will highlight current research efforts to improve farming efficiency and sustainability. Computational analytics to improve both human and animal health will be discussed, ranging from human brain injury to calf health. Finally, a talk on drug discovery using natural sources will explore the intersection between health and the environment.

PRESENTERS

Palma, Peter
Kostrzewa, Lucja
Kok, Bjorn
Pamatat, Felicitas
Dornan, Daniel
Geddes, Eilidh

Eshelman, Susan
Riley, Beth
Ahonen, Sanni
Milne, Morag
Clark, Poppy

6 BARLEY-BEES-BOVINES: DIAGNOSTICS AND MOLECULAR TRENDS IN PLANTS AND ANIMALS

CHAIR: DR MARIUS WENZEL (ABERDEEN)

FACILITATORS: ALEXANDRA FLOREA (EDINBURGH) AND BEN THOMPSON (ST ANDREWS)

ROOM: SALISBURY

The first part of this multidisciplinary session will touch upon genetics, genomics and transcriptomic techniques for pathogen outbreak prevention and farming efficiency, as well as highlight certain ecological problems in the heart of our urban cradle.

The second part is designed to highlight new diagnostics and therapy insights to facilitate disease prevention throughout the world. We will touch upon the genetics and epidemiological factors of multiple diseases as well as investigate biomarkers and imaging models of our health and diet.

PRESENTERS

McHugh, Kara
Newstead, Logan
Gibbons, Samuel
Rossi, Nicola
Selvakumar, Monika

Sommer, Nadine
Tsoi, Sau Yeei
Wegg, Michaela
Zirra-Shallangwa, Bibiana
Gaskell-mew, Laura

STUDENT PRESENTATIONS



Abstracts

7 FROM THE MICROSCOPE TO THE PLANET

CHAIR: DR EMILY GWYER FINDLAY (EDINBURGH)

FACILITATORS: MERT UNAL (EDINBURGH) AND WYLAN WONG (ST ANDREWS)

ROOM: DUDDINGSTON

This session will explore applied biosciences at a microscopic scale, spanning agriculture, infection, immunity, and ecology. Modelling and synthetic biology will be discussed in relation to furthering understanding of bacterial biofilms and multicellular self-organisation, before we move on to explore immunological topics spanning stem cell generation, cytokine activity and immune system regulation. Finally, topics related to agriculture will discuss the microbiome, host-pathogen, and environmental interactions of livestock and crops, concluding with the applications of modelling in food security and biodiversity conservation.

PRESENTERS

Robles Garcia, Miguel
Stevenson, David
Moxom, Alex
Richards, Josh
Mahmoudi, Matin
Newman, Annis

Scaife, Rebecca
Winspear, Charlotte
Smith, Moray
Tollervey, Mette Juhl
Woodman, Tamsin

8 APPLIED MICRO BIOSCIENCE

CHAIR: DR SAM MILLER (ABERDEEN)

FACILITATORS: ROCHELLE KENNEDY (SRUC) AND AMY NEWELL (EDINBURGH)

ROOM: HOLYROOD

These first and second year students will explore areas from food security to human and livestock health at the microscopic scale. Together we will explore some of the biggest questions in biology with a small selection of 5-minute and 7-minute talks followed by questions.

PRESENTERS

Astin, Edmund
Baker, Benjamin
Assir, Muhammad
Bradley, Stephen
Buckner, Alice
Candlish, Emily

Catherall, Ella
Charlton, Emily
Kapadia, Rumana
Murray, Rachel
Keegan, Karen

PANEL DISCUSSION

THE FUTURE OF BIG DATA IN ONE HEALTH

The panel will aim to explore the potential of using big data to tackle challenges in 'One Health', the dynamic intersection of human, animal, and plant health. From the sustainability of livestock systems to the use of data in agriculture and clinical settings, the discussion will centre around the panellists' research and experiences relating to these topics.

DR JENNIFER POSTLES

Panel Chair

Dr Postles completed her PhD looking at the accumulation of metabolites in rye in 2013. Since then she has worked with BBRSC in a variety of roles supporting industry engagement with UK research and then leading the delivery of doctoral training programmes in the UK in her role as Senior Portfolio manager.

BETH RILEY (SRUC) AND CARYS REDMAN-WHITE (EDINBURGH)

Student Panel Co-Chairs

PROFESSOR JUDE CAPPER

Jude has a PhD in ruminant nutrition and behaviour looking at the effects of ewe nutrition on lamb behaviour and performance. Over the last 17 years, Jude has worked at universities both in the UK and the US in teaching, research and outreach, as well as running her own consultancy business. With her current research centring around modelling the sustainability of livestock production systems, Jude is the ABP Chair of Sustainable Beef and Sheep Production at Harper Adams University and is also an independent consultant with her business "Livestock Sustainability Consultancy".

PROFESSOR ANDY PETERS

Andy is Professor of Tropical Veterinary Medicine at Edinburgh University and Director of SEBI-livestock, Centre for Evidence Based Interventions, which focuses on improving available data on livestock health and productivity in low and middle income countries. He also works as an independent consultant through Arpexas Ltd. in development of veterinary medicines, with special emphasis on vaccines. He is a member of several public committees and charity trusts both in the UK and internationally and has published some 175 scientific papers and two books.

DR DANA MACGREGOR

Dana investigates how plants survive the changeable or challenging environment in which they live. She did her PhD at the University of Chicago, her Post-doctoral work at the Universities of Exeter and York and the John Innes Centre, and was a Knowledge Exchange Fellow at Durham University. Dana now works for Rothamsted Research and uses genetics and genomics approaches to gain mechanistic understanding of the traits that agricultural weeds use to survive in the agroecosystem.

DR ERIN HOLMES

Erin is a Clinical Informatician at Babylon in London supporting clinical and product teams to deliver data based solutions to improve patient and population health. With a background in Health Information Management, Clinical Analytics and Public Health, her work and studies have taken her around the globe including a public health clinic in Peru, large scale population studies and health improvement workshops in rural Uganda, a statewide Electronic Medical Record (EMR) rollout in Australia and as an international representative for data standards in Europe.

STUDENT POSTERS

JMCC Concourse

- 1** **Abigail Brewer**
Redirecting phosphatase activity to target dephosphorylation of phospho-proteins

- 2** **Sam Borrowman**
Investigating the targeted inhibition of host S-nitrosylation machinery by pathogen effector proteins from barley powdery mildew

- 3** **Laurine Brouk**

- 4** **Akanksha Jain**
Mechanism of exo-endocytosis coupling during intense neuronal activity

- 5** **Alice Macauley**
PIPS at EnginZyme

- 6** **Beth McCaw**
Screening *Philaenus spumarius* for the parasitic big-eyed fly *Verrallia aucta*: A potential biocontrol for *Xylella* vectors? A PIPS Project.

PANEL DISCUSSION

LIVED EXPERIENCE AND THE FUTURE OF EDI IN SCIENCE

This panel brings together different perspectives and lived experiences with the understanding that our experiences are different but regardless we all belong in STEM and research. This session brings together those with lived experiences from across the scientific community. This allows for an open and frank discussion of the current challenges we face as we push forward equality, diversity and inclusion within STEM as well as considering the challenges and opportunities of the future. This session will allow us as the current generation of ECRs to learn from and build on the work of those who came before us as we build a more diverse and fairer STEM community.

CLAIRE HODGSON

Panel Chair

Claire is a Veterinary Surgeon who qualified from Royal Veterinary College in 2000 before working in mixed and then equine practice. Following a diagnosis of ME/CFS, she made a decision to transition to working as a small animal locum in 2018.

Also in 2018, Claire co-founded the Veterinary Spoonholders UK group, a forum that allows veterinary staff with chronic illnesses and disabilities to support each other. From this group, British Veterinary Chronic Illness Support (BVCIS) has grown to provide a more formal organisation to represent the community. The work of BVCIS includes advocating for the community on the wider veterinary stage including to the Royal College of Veterinary Surgeons and the British Veterinary Association and educating workplaces on building a supportive and inclusive workplace.

BETH RILEY (SRUC) AND JACK BARBER (ABERDEEN)

Student Panel Co-Chairs

DR ALEX BOND

Alex is a Canadian conservation biologist and ecologist with a focus on marine birds and the impact of oceanic plastic pollution on threatened and endangered species. He is currently Senior Curator in Charge of Birds at the Natural History Museum, Co-Editor in Chief of the journal *Avian Conservation and Ecology* and a member of the Adrift Lab in Tasmania, Australia, a group of researchers studying anthropogenic debris and pollution on marine ecosystems. Beyond his research, Alex champions diversity in academia and is a prominent advocate for improving the representation of LGBTQ+ people in STEM. He is the creator and co-chair of LGBTQ+ STEM, an initiative that provides a network for and boosts the visibility of LGBTQ+ researchers, for which he won the 2020 Royal Society Athena Prize. Alex is also a notable proponent of alternative careers in academia and is passionate about blogging, social media and outreach in science.

PROFESSOR GWENETTA CURRY

Dr Gwenetta D. Curry is a Lecturer of Race, Ethnicity, and Health in the Usher Institute at the University of Edinburgh. Her research interests are Racial and Ethnic Health Disparities, Maternal Health, and Black Family Studies. Her present research analyzes racial disparities in treatment and infection rates of Covid-19. She is the co-author of the UNCOVER Covid-19 Evidence review "What is the Evidence on Ethnic Variation on Covid-19 Incidence and Outcomes," and "Sharpening the global focus on ethnicity and race in the time of COVID-19" which has recently appeared in *The Lancet*. She is a member of The Royal Society's DELVE Initiative and a senior research associate in the Global Health Governance Programme at the University of Edinburgh Medical School. She is a member of the Medical School Equality, Diversity and Inclusion Alliance and the UK Inclusive Data Taskforce. She is currently the Project Director on the Evidence Base project as a part of the UKRI Inclusion Matters. These projects have investigated gender and race inequalities in STEM and pushed for systemic change.

DR HELEN GRAY

Dr Helen Gray is a postdoctoral researcher at the Asher Lab at Newcastle University investigating the causes and consequences of smothering events in laying hens. More broadly Helen is interested in the mechanisms of animal behaviour, the measurement of behaviour and how these measurements can be used as an indicator of welfare. Helen is an advocate for open research and research integrity and is the Newcastle University local lead for the UK Reproducibility Network. Helen is also an advocate for mental health in academia and had been open about her experiences with anxiety and Obsessive-Compulsive Disorder in order to raise awareness in the academic world. Helen sits on the EDI committee for the School of Natural and Environmental Sciences focusing on the strategic aim to embed the principles of EDI in teaching and research activities.

ACKNOWLEDGEMENTS

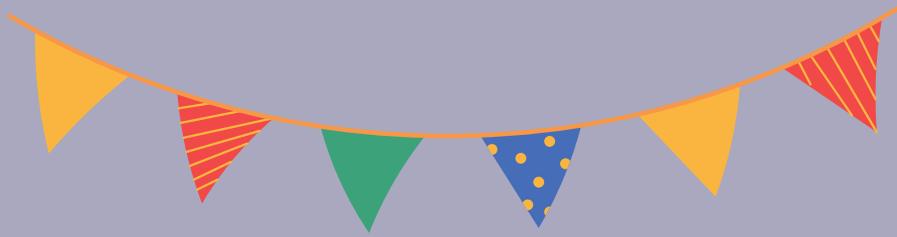
EASTBIO STUDENT REP EVENT ORGANISERS

Sanni Ahonen (Aberdeen)
Jack Barber (Aberdeen)
Erin Brown (Aberdeen)
Ella Catherall (Edinburgh)
Gauri Deak (Edinburgh)
Rose Doyle (Edinburgh)
Katie Dubarry (Edinburgh)
Abdelazeem Elhabyan (Edinburgh)
Hannah Farley (Edinburgh)
Alexandra Florea (Edinburgh)
Laura Gaskell-Mew (St Andrews)
Eilidh Geddes (Moredun Research)
Rochelle Kennedy (SRUC)
Michaela Kompauerova (Edinburgh)
Anastasia Leligdowicz (Aberdeen)
Amy Newell (Edinburgh)
Annis Newman (Edinburgh)
Feli Pamatat (Aberdeen)
Katherine Pickup (Edinburgh)
Carys Redman-White (Edinburgh)
Josh Richards (Dundee)
Beth Riley (SRUC)
Monika Selvakumar (Edinburgh)
Ben Thompson (St. Andrews)
Mary Tozer (Dundee)
Mert Ünal (Edinburgh)
Annamaria Wakileh (St. Andrews)
Michaela Wegg (Edinburgh)
Wylan Wong (St Andrews)
Tamsin Woodman (Aberdeen)
Anna Zolotariof (St. Andrews)

ACKNOWLEDGEMENTS

EASTBIO DTP PARTNERS





2012 - 2022

Celebrating 10 years of
EASTBIO Doctoral Training
Partnership.

