



University of Dundee

University of Dundee, School of Life Sciences, Annual Report 2021

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Public Engagement

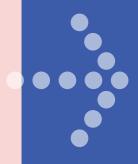


School of Life Sciences University of Dundee

Annual Report 2021

forward





As the year turns to 2022, the goalposts have continued to shift in unprecedented and unpredictable ways. This is true for the coronavirus pandemic, with Delta and Omicron variants sweeping the world, as much as it is for public engagement. From working exclusively online in 2020 we have moved towards blended and in-person events, although we find ourselves back online as the year turns.

Nonetheless, it has been a busy, productive year, and we are proud of what we have achieved.

The Life Sciences Public Engagement team

What did we do? Life Sciences Community

One of our strategic goals is to support a culture of active participation in public engagement within the School of Life Sciences community. We do this by providing training, opportunities to take part in activities, and support for funding applications. In 2021, we:

Shared **expertise** in p

Had **1,600** girls and young in a virtual sleepover in partnership

Walked 79 miles during Dundee walking tours

Hosted the SCOTPEN Annual engagement professionals and res

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Gained over **1,200** views on the digital storytelling project videos on YouTube.



professional journals
women from across the UK take part o with Girlguiding Dundee
e Discoveries Past & Present in-person
Gathering, a conference for public searchers across Scotland

community

With our support, staff and students:

- Created a medicinal garden on campus with two additional offshoot gardens at Hospitalfield House in Arbroath and Dundee Science Centre.
- Collaborated with Girlguiding Dundee to create a Virtual Sleepover, with a huge range of activities and a new badge developed.
- Provided guided walking tours across the city to share Dundee Discoveries, Past & Present, in partnership with Museum Services.
- Engaged 15 young people from both local communities and international schools in the summer Work Experience Week.
- Delivered 4 'In Conversation With...' online panel events focused on WCAIR's diverse work, exploring aspects such as our tuberculosis research, how we engage publics, and the differences between academia and industry.
- Added 5 new videos to our growing online catalogue as part of the Digital Storytelling project.
- Took part in online festivals, including Dundee Science Festival and Festival of the Future.
- Presented exciting new art collaborations at **Stobfest**, an online version of Stobswell's local festival.

- Played creatively with artist Emily Fong in an exploration workshop run at Dundee Science Centre.
- Participated in the Beer and Berries Festival, celebrating our medicinal garden at WCAIR's first in-person event since before the start of the Covid-19 pandemic.
- Created a self-guided trail at University of Dundee Botanic Garden for the annual Plant Power celebration event. The first 200 children received activity packs to take home.
- Shared stories and science of Dundee's Wonder Women of Science, past and present, online and with an exhibition for Dundee Women's Festival.
- Began the Scottish Daffodil Project involving secondary schools across Scotland in partnership with the James Hutton Institute, University Botanic Garden, Education & Social Work, National Trust for Scotland and Croft 16.
- Ran interactive online training to introduce 50 postgraduate students to public engagement.
- Provided imagery and content related to microbiology research in the School for Dundee Science Centre's new Microbe Zone.
 An accompanying book and activity booklet were created for open access for all.





>	Spoke along with members of the School of Medicine about various aspects of Covid research at Bang Goes the Borders!	>	P tl S
>	Joined the Royal Society of Edinburgh's virtual Curious Festival to speak about bacteria.	>	D a d o
>	Created more Science @ Home kits for the summer and October holidays with Dundee Science Centre for 294 local children to enjoy.	>	T C W
>	Contributed to Dundee Science Centre's STEM Clubs , both over the summer and October holidays, which hosted 155 children.	>	N P (N
>	Promoted International Day of Women and Girls in Science , making our online escape game available for Girlguides across Scotland to play.	>	te a D a





Participated in expert panel discussions on the Aging Society as part of the University's **Saturday Evening Lecture Series**.

Developed and ran an interactive workshop about **Artificial Intelligence** which ran during Work Experience Week and Festival of the Future.

Took part in the University of Dundee **Culture Day**, exploring the many and varied ways the WCAIR engages with culture.

Medical Research Council Protein Phosphorylation and Ubiquitylation Unit (MRC-PPU) developed resources with teachers for the **Immersive Cell project** at Baldragon Academy.

Developed a series of **creative activities** aligned to the medicinal garden.

Signs of Success: Growing Our Reach

One of the key challenges and opportunities of the last 2 years has been the transition to digital engagement. This change has empowered us to reach audiences far beyond Dundee, but has also risked us alienating those without easy digital access and neglecting our on-campus offerings. Using a variety of media and methods to bring projects to life has allowed us to grow our reach while still maintaining existing links.

The amount of things in the past and today that Dundee is at the forefront of was both surprising and amazing.

Dundee Discoveries, Past & Present walking tour participant

CASE STUDY The WeeCAIR Medicinal Garden

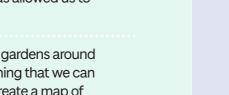
PEOPLE INVOLVED: 1 lead researcher and 26 team members made up of researchers and staff members from around the university. Plus externals from Dundee Science Centre and Hospitalfield House.

WHAT WAS IT? The idea for creating a medicinal garden came from one of the WCAIR Malaria researchers, Irene Hallyburton. Irene wanted to create a multidisciplinary engagement space on campus next to our current LifeSpace Art Science gallery. The garden itself has over 15 different types of plant that have an active ingredient

which a medicine has been made from. The garden links together the history of medicine, with ancient medicines such as St John's Wort and modern medicinal plants such as Sweet Wormwood which has the active ingredient Artemisinin which is a modern malaria treatment.

KEY OUTCOMES: The medicinal garden project has grown from more than just an on-campus site. We have worked with Dundee Science Centre to develop their sensory garden with medicinal plants. We also worked with Hospitalfield house in Arbroath to create a satellite medicinal garden alongside their traditional herbal garden. We were also asked to be part of their annual Beer and Berries Festival which was allowed us to expand the impact of the project.

FUTURE PLANS: The project is ever expanding with interest for more satellite medicinal gardens around Dundee. The location of these gardens will be in non-life science specific locations meaning that we can engage communities that may never come to the university campus. We also hope to create a map of all the local Medicinal Garden spaces for use by local schools and community groups.



wellcome

centre



CASE STUDY In Conversation With... and online talks

PEOPLE INVOLVED: 10 different speakers from WCAIR and different research institutions.

WHAT WAS IT? A series of Q+A seminars delivered by a variety of experts in drug discovery and public engagement. The series is aimed at a variety of different audiences also attracting audiences from international early career researchers.

KEY OUTCOMES: We received over 400 different views from attendees and YouTube views. Participants filling in our online surveys reported that they had enjoyed the events and gained new insights into the complexities around WCAIR's varied missions.

FUTURE PLANS: We are planning on continuing and growing the seminar series with multiple already planned for 2022. We also plan on making the session more interactive by using Mentimeter to increase engagement during the sessions.





UNIVERSITY OF CAPE TOWN

I enjoyed seeing the 3 scientists interact in a relaxed and friendly manner. **I** commend the interviewer for this.

'In Conversation With...' attendee



CASE STUDY Dundee Discoveries Past & Present Walking Tours

PEOPLE INVOLVED: 28 scientists from Life Sciences, Medicine, Health Sciences and Science & Engineering, University of Dundee Museum Curator, Illustrator James Gemmill, 27 public.

WHAT WAS IT? Two guided tours were given as part of the University's Festival of the Future (City Centre tour) and Dundee West End's Christmas fortnight (University tour). These were live versions of the Dundee Discoveries Past & Present self-guided walking tours map designed and illustrated by DJCAD graduate James Gemmill. Basic information about each topic was presented on the map, with more in-depth information, images and videos on the accompanying website at uod.ac.uk/DundeeDiscoveriesMap.

KEY OUTCOMES: We gathered feedback via on online questionnaire sent to attendees after the events. They reported that the tours were pitched at the right level, informative and enjoyable. Many were surprised by the amount of local history and current research they were unaware of.

FUTURE PLANS: The map remains available online which is regularly promoted at local festivals. To reach new audiences plans to add the University trail locations to a Geocaching app are underway. If this is successful, other map locations may be added.

Signs of Success: Targeted Communities

Part of our goal as a public engagement team is to be purposeful about the activities we do and the audiences we target. By selecting and consulting with specific groups we can ensure our activities are meeting the needs of that community and ensure the best chances of a successful engagement. In 2021 we focused on local communities as well as our peers in the public engagement community, reaching new people as well as building on existing relationships and networks.

CASE STUDY ScotPEN Gathering

PEOPLE INVOLVED: Public engagement professionals from around Scotland, freelance science communication trainers, University of Dundee academics, researchers.

WHAT WAS IT? A 2-week virtual public

engagement conference themed around accessibility. There were skills-based training sessions to further our practical abilities, networking sessions to encourage collaboration and cross-skill working, and panels on topics such as devolved funding, inclusive practice, and art/science collaborations featuring projects from the University of Dundee, among others. Sessions were spread across the weeks at different times of the day to maximise the number of people who could attend, and key panels and training sessions were recorded and hosted on the ScotPEN website for people to view afterwards.

KEY OUTCOMES: Universally positive feedback from all attendees about the variety of sessions, organisation and opportunities for career development.

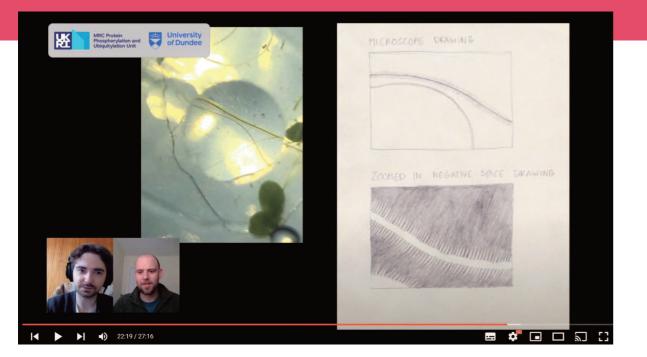
FUTURE PLANS: We will be supporting colleagues at the University of Edinburgh as they organise the 2022 Annual Gathering, lending expertise and learning from our experience.



We used the kits during our sessions with our harder to reach audiences and they went down a storm. We would love some more if you had any?

Community Key Worker about the Science @ Home kits





CASE STUDY Immersive Cell Art-Science Workshops

PEOPLE INVOLVED: MRC PPU researchers, students and support staff. Seven teachers from the Art & Science Departments at Baldragon Academy in Dundee and a freelance artist.

WHAT WAS IT? MRC PPU researchers, students and support staff have a long-standing partnership with Baldragon Academy in Dundee (since 2015) that aims to make science, scientists and careers in science accessible, fun and relevant to all pupils. Originally planned to be in-person, a total rethink of an "Immersive Cell" project – led by PhD student Daniel Squair – was required due to the pandemic. The MRC PPU worked closely with the teachers and an external artist to co-produce engaging new Art-Science resources to support both the Art and Science Curriculums. The resources encourage pupils to be curious, explore the natural world around them and discover the world of the cell whilst developing their artistic techniques.

KEY OUTCOMES: Resources were co-produced to support the S2 Art and Science Curriculums. These were a series of three art-science video workshops (Sketching & Microscopes, 3D Modelling & The Cell, Animation & Proteins) and an accompanying printed workbook. The workbook can be used in isolation of the video workshops if required e.g. at home during periods of isolation without access to internet/device.

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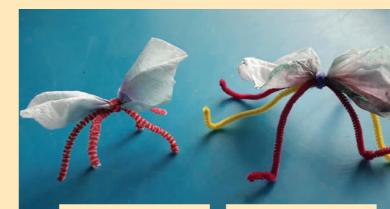
FUTURE PLANS: The workshops are being delivered by the Art and Science Departments at Baldragon Academy in the 2021/2022 school year, supported by live discussion sessions with MRC PPU scientists, students and staff. An exhibition of pupil artworks in planned for late 2022 to engage a wider non-scientific audience with the concept of a cell. There are plans to engage a wider group of pupils and teachers with the Art-Science workshops in 2022.

https://www.ppu.mrc.ac.uk/public-engagement/immersivecell



MRC Protein Phosphorylation and Ubiquitylation Unit







CASE STUDY Girlguiding Virtual Sleepover

PEOPLE INVOLVED: A collaboration between WCAIR researchers, the Girlguiding Dundee committee, and 2 other senior female scientists from SLS.

WHAT WAS IT? A series of activity packs released over the course of a weekend to create the feeling of a sleepover. The packs were accompanied by a series of videos, a Teams Live event, and interaction on social media, particularly using a Facebook group.

KEY OUTCOMES: 1,600 people from across the UK signed up to take part, and the packs received over 6,000 downloads. We had an incredibly busy weekend with thousands of images uploaded onto the Facebook group, and thousands of views on our YouTube videos. Well over 1000 people also signed up to receive their badge after the event.

FUTURE PLANS: Continue our relationship with Girlguiding so that we can have an in-person sleepover in the future, and continue to use the resources developed for other projects, such as with Glasgow Science Centre.





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Amazing range of activities and useful downloadable resources which we can use again. It was also a great way of introducing science to young people and to de-mystify it for them. So often it is taught in schools in such a dull way – excellent weekend!

Virtual Sleepover attendee





Signs of Success: Creative Partnerships

Partnership working is a key component of our activity. Our partners allow us greater reach, including with audiences we could not reach alone, and enhance our outputs with their experience and expertise. Love this. Thank you for the informative exhibition. Working at the Steeple back door yesterday, we enjoyed a great discussion of these and other memorable Dundee women. Hoping that as lockdown eases more people will see, read and appreciate this.

Dundee Wonder Women of Science exhibit visitor

CASE STUDY Microbe Zone at Dundee Science Centre

PEOPLE INVOLVED: 20 staff and students, Dundee Science Centre, exhibit installers.

WHAT WAS IT? A physical exhibition, the microbe zone, located at Dundee Science Centre features images of microbes. Scientists at the University of Dundee alongside some collaborators at other Scottish Institutions

contributed images of microbes that highlight their research. Short descriptions accompany the images to allow the reader to explore the wonderful world of microbiology. An associated 'Images of microbiology' booklet and activity book were also created.

KEY OUTCOMES: Almost 30,000 people have visited Dundee Science Centre since the installation of the Microbe Zone, providing the opportunity to reach many people. Staff at the Centre have observed and spoken to visitors at the Zone. Their feedback stated that interest in the Zone is mostly positive, and discussions are often related to current experience of science in the news. They have been downloaded over 1,100 and 250 times respectively from people based in over 40 countries globally.

FUTURE PLANS: The Zone is a new exhibit which forms part of the ground floor redevelopment that took place in the Centre over 2020/21. It will remain at the Centre for many years to come. The two accompanying books are freely available online and will continue to be promoted.





CASE STUDY Scottish Daffodil Project

PEOPLE INVOLVED: Staff and students at the University of Dundee (Education and Social Work, Botanic Garden, School of Life Sciences), The Royal Society, The James Hutton Institute, 9 secondary schools across Scotland, Jon Hale, National Trust for Scotland Brodie Castle and Croft 16.

WHAT WAS IT? A collaborative school-based research project where the schools involved work in parallel to study the genetic and trait diversity of daffodils. The school pupils will be gaining experience of using DNA sequencing in their classroom and contributing data points to the tree of life. The project links with the Scottish curriculum, throughout the National 5 curriculum, Highers and Advanced Highers. The significance of this research lies in the context of educating and training the next generation of plant scientists and botanical horticulturalists.

KEY OUTCOMES: Teacher CPD training has taken place and schools have started their projects in collaboration with each other and their STEM partners. This includes pupils planting their daffodils and starting to learn their basic lab skills, such as pipetting and DNA extraction. Equipment (a thermocycler and Minion portable sequencing device) has been delivered to schools. The schools will keep this equipment which will allow them to use it for other practical work beyond the project.

FUTURE PLANS: The school pupils will be working with STEM professionals and academics over the 2021-22 academic year to sample various daffodils, extracting DNA from their leaves and using high throughput DNA sequencing in the classroom before assembling the chloroplast's genome.





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SOCIETY



Challenges and achievements 2021

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2021 continued to offer challenges around engaging safely and effectively with our partners and audiences.

- While we navigated the ins and outs of engaging online and learned new approaches, we had to contend with the fact that for many people, online was not where they wanted to be. Zoom fatigue, screen burnout - we saw a significant drop in numbers for some of our online offerings as the year went on.
- engagement activity; while we had plenty of researchers put time and effort into online activities, it was clear that this was not the preferred engagement style for many.
- often felt more like science communication and instruction. Evaluation also felt more challenging; while we could share surveys and questionnaires it was harder to gauge real-time reactions and qualitative feedback.

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with uncertainty in restrictions and scheduling. We obviously prioritised the safety of our scientists and our audience members, which meant needing to respond to changes in COVID restrictions and new variants, sometimes with only a few weeks' notice.

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Despite these challenges, we had several significant achievements:

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- > Over 80 Science for All badges were given to partners and staff and students across the University.
- > Members of the School were recognised for their excellence in public engagement through University and School Awards. Michaela Omelkova and Diana Gudynaite were jointly awarded Engaged Researcher of the Year in the School's Brian Cox Prize for Excellence in Public Engagement with Research.

Michaela, a PhD student from Daan van Aalten's lab, won for her work on the Care to Share project. The judging panel said, "We were very impressed with the initiative shown by Miska, proposing her own projects which has led to substantial funding. In addition, engaging the primary stakeholders of her research (patients with neurodegenerative diseases) is extremely valuable not just for the patients but also for Miska's own research, and being able to pivot this project to a digital platform in light of covid restrictions."

Diana, from Nicola Stanley-Wall's lab in Molecular Microbiology, won for her diverse contributions to a number of public engagement activities throughout 2020. The judging panel said, "We felt that Diana's contributions to home learning throughout lockdown were very admirable. Alongside the other activities she has been involved in we are impressed by her public engagement activities."

- were received.
- Plant Pathology.



> Members of the Life Sciences community received commendations at the University's Stephen Fry Awards for Excellence in Public Engagement. Veronica Pravata, a PhD student from Daan van Aalten's lab, was commended in the Early Career Researcher category and a partnership project with Dundee Science Centre, Science @ Home kits, was commended in the project category where twenty-three applications

> Following the University's Gold Engage Watermark from the National Co-ordinating Centre for Public Engagement (NCCPE) in December 2020, the implementation of the action plan commenced in 2021. Members of the public engagement team have joined colleagues across the University in forming several working groups.

> Members of the School also represent us externally. This includes with British Science Association's Inclusive Science Network, UK Research and Innovation, Wellcome, ondon School of Hygiene and Tropical Medicine and the British Society for



The ScotPEN Wellcome Enrichment Award (SWEA) devolved public engagement funding support to a Scotland-based team lead by the Scottish Public Engagement Network (ScotPEN), of which Dundee is a key supporter (led by Erin Hardee). From 2019–2021 this team facilitated four rounds of funding, totalling over £1 million, to Scottish researchers and community groups. Two Dundee researchers were successful in receiving SWEA funding: Michela Omelkova (Daan van Aalten lab) in March 2020 for the Care to Share project and Tony Ly in November 2021 for the Fabric of Life project.

The Fabric of Life is a tote bag and quilting project that will use these modes of activity to facilitate conversations around basic cancer research (that of Ly, Pidoux, Welburn and Cook). It will involve Wellcome Centre for Cell Biology, Intercultural Youth Scotland and Edinburgh College. Public involved – teenagers interested in fashion design, minority groups with a cultural interest in textiles and adults interested in quilting/crafting.

> The Wellcome Centre for Anti-Infectives Research were refunded for two further years (April 2022 - March 2024). This award includes funding for dedicated public engagement staff and activity for the Centre. We will continue to build on our successful community partnerships, while exploring new creative artistic and exhibition options.

In Tribute

Sadly, we lost **Neil Paterson**, Education Officer, and **Claire Reaney**, Botanical Horticultural Technician in 2021. They were both members of the University Botanic Garden and worked with the School on many engagement activities. These included the annual Plant Power event where both played instrumental roles in the organisation of the event. Claire was also heavily involved with the WeeCAIR Medicinal Garden. They will be greatly missed.

Continue:

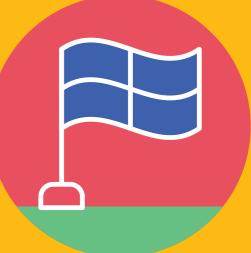
- Running events that reach varied audiencesSupporting our staff and students through training,
- Supporting our staff a advice and resources
- Sharing knowledge and resources widely

Build on:

- The range of ways we work with local communities to reflect their current needs
- > Reporting, evaluating and assessing impact in all we do
- > Our digital presence, particularly with our new website

Focus on:

- Integrating inclusive practices in our work
- > Sharing expertise across the University
- Sustainable finances and resources
- Revisiting our PE Strategy in line with new university strategy



We believe public engagement is a vitally important part of what we do:

- It increases the impact and value of our research
- It contributes to a scientifically literate culture
- It helps science remain relevant to society
- It builds trust between communities within and beyond academia
- It diversifies the skills and opportunities available to our staff and students at all stages of their careers

Our work in 2021 was led by our five-year public engagement strategy, which was developed in consultation with our staff and students in 2017. In it, we state four main aims that underpin all our public engagement planning, development and delivery. These are:

- Build on our creative partnerships to deliver a high quality, innovative engagement programme
- Engage a diverse range of people with our research
- Consult with our local communities to widen our reach and meet their needs
- Promote and support a culture of active participation in public engagement within our life sciences community

In 2022 we will be revisiting our strategy and consulting with staff and students to update and reflect on new goals, audiences and approaches:

- Provide a school-wide support structure for public engagement
- Provide professional support and guidance, including training
- Provide opportunities to get involved with public engagement
- Provide funding and resources for public engagement activities
- Build and maintain relationships with external partners

Our team produces a comprehensive calendar in advance of each year, with events, training, drop-in sessions and other key dates outlined. There is also capacity for flexible, bespoke support for staff and students looking to get involved with the School of Life Sciences' public engagement programme.

Prof. Nicola Stanley-Wall, Academic Lead for Public Engagement

Nicola is the Head of the Division of Molecular Microbiology and has a leading voice in the School's public engagement for over ten years. She represents the School at the University-wide Public Engagement Forum and was heavily involved in the University's Watermark application to the National Coordinating Centre for Public Engagement.

Dr Amy Cameron, Public Engagement and Communications Officer

Amy has a background in academic research as prior to joining the School, she was a Postdoctoral Researcher in the School of Medicine at the University of Dundee. Throughout her research career, Amy participated in public engagement activity and teaching. In the public engagement part of her role in the School of Life Sciences, Amy works closely with public engagement colleagues within the School and across the University to deliver a programme of activity and the process that underpins it such as evaluation frameworks.

Erin Hardee, Schools Outreach Organiser

Erin supports outreach to local schools, builds partnerships and contributes to strategic development of public engagement both within the School of Life Sciences as well as the wider University. She has recently taken up a role as co-chair of the Scottish Public Engagement Network and will be focusing on leading a membership consultation about the future of the Network in 2022.

Ali Floyd, WCAIR Public Engagement Manager

Ali has a microbiology degree from the University of Glasgow. He has previously worked for Glasgow Science Centre and Edinburgh International Science Festival. Prior to Dundee, he was the Science Engagement Officer at the National Museum of Scotland, leading on biomedical programming and software interactive development for the Masterplan Phase 3 project. With his WCAIR role he has led on science art projects such as Parasiteseeing and the Dundee Print Collective project, creating a new piece of theatre with Dundee Rep: Engage, and community work with the Stobswell Forum.

Ailsa Mackintosh, WCAIR Public Engagement Officer

Ailsa Mackintosh joined the Wellcome Centre for Anti-Infectives Research in March 2020 and has been working on the creation and development of a programme of activities and projects for WCAIR. In her previous role as administrator for the public engagement team, she assisted the organisation of events and co-ordinating personnel as well as providing support at events.

MRC-PPU have additional support from Sarah Patrick who is the Unit's Communications and Public Engagement Consultant.

Geoff Barton's group is additionally supported by Suzanne Duce who is the Jalview and Dundee Resource for Protein Structure Prediction Training and Outreach Officer.

Public Engagement Divisional Champions:

Biological Chemistry and Drug Discovery Computational Biology Cell and Developmental Biology Cell Signalling and Immunology Gene Regulation and Expression Molecular Microbiology MRC Protein Phosphorylation and Ubiquity Plant Sciences

With experience in the world of research, museums, science centres and theatre, the School of Life Sciences' public engagement team brings a wealth of expertise to the table.

	Professor David Gray
	Professor Geoff Barton
	Dr Jens Januschke
	Dr Sharon Matthews
	Professor Tom Owen-Hughes
	Professor Nicola Stanley-Wall
/lation Unit	Dr Paul Davies
	Dr Jorunn Bos





If you would like to discuss our public engagement strategy or forthcoming programme please do get in touch.

Email: SLS-PublicEngagement@dundee.ac.uk

Come to our drop-in sessions the third Tuesday of every month online

#whyengage





MRC Protein Phosphorylation and Ubiguitylation Unit

Supported by the Wellcome Institutional Strategic Support Fund Grant reference number 204816/Z



Awarded 2017