

BIPS



Black in Plant Science Conference 2026



OFFICIAL PROGRAMME
30TH OCTOBER 2026

THE GUILDHALL, YORK
ST MARTINS COURTYARD, CONEY ST, YORK, YO1 9QL



SCHEDULE

09:00 AM - 09:30 AM	REGISTRATION
09:30 AM - 10:00 AM	MORNING REFRESHMENTS
10:00 AM - 10:10 AM	WELCOME AND PROGRAM OF EVENTS
10:10 AM – 10:45 AM	PLENARY TALK – YOSLIN BENITEZ-ALFONSO
10:45 AM - 11:00 AM	BREAK
11:00 AM - 11:30 PM	CULTIVATE: BIPS SUMMER STUDENTSHIP AWARDEES
11:30 AM - 12:00 PM	CELEBRATE: RESEARCH EXCELLENCE AWARDEES
12:00 PM - 01:30 PM	CONNECT: NETWORKING LUNCH
01:30 PM - 02:30 PM	BREAKOUT SESSIONS 1 BUILDING YOUR 'BRAND' AS A SCIENTIST 2 WORKING BEYOND ACADEMIA, DIFFERENT ROUTES 3 LEADING AUTHENTICALLY AT EVERY CAREER STAGE
02:30 PM - 03:00 PM	FLASH TALKS
03:00 PM - 03:30 PM	POSTER SESSION AND TEA BREAK
03:30 PM - 04:00 PM	PLENARY SPEAKER – TESSA BURCH-SMITH
04:00 PM – 04:20 PM	CLOSING REMARKS AND FUTURE DIRECTIONS
04:20 PM - 4:30 PM	CLOSE*

**PLEASE RESPECT THE VENUE'S CURFEW OF 4:30 PM*

This event is supported by:



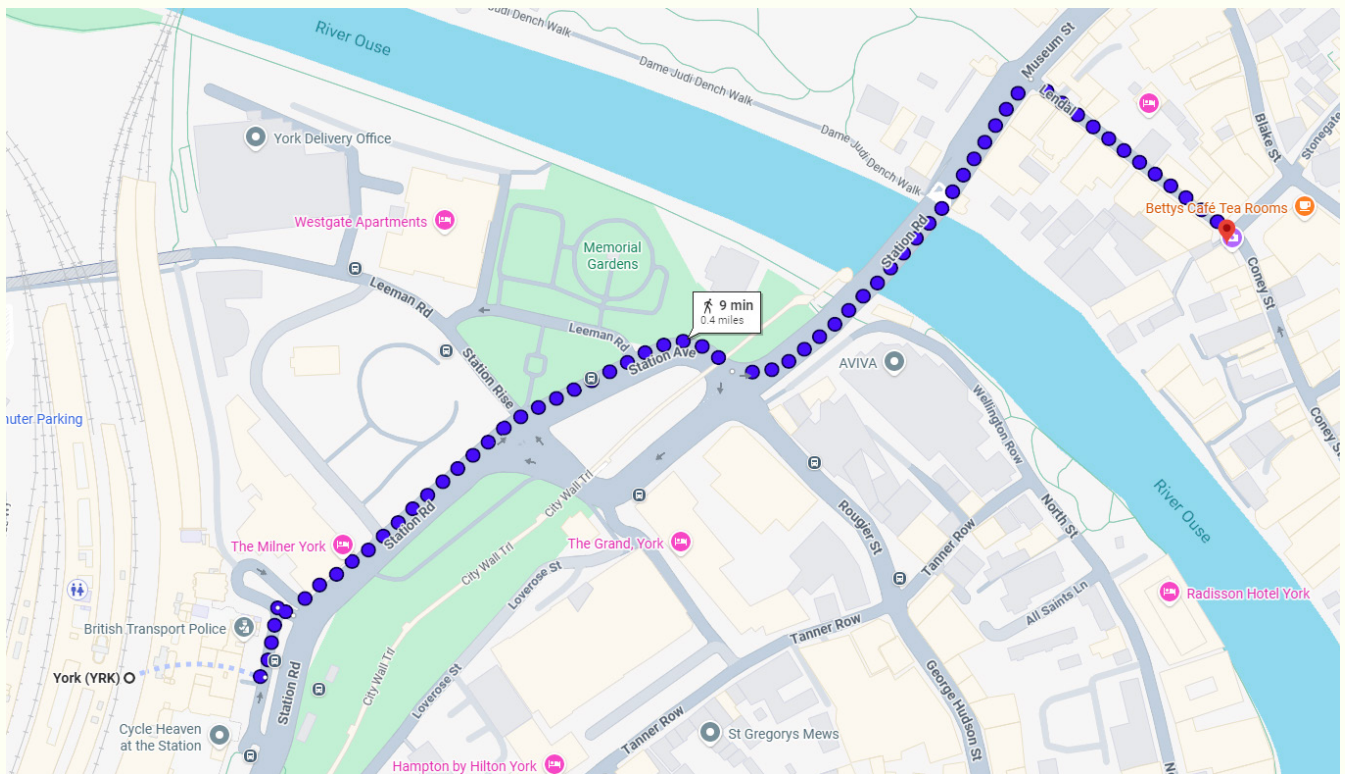


VENUE LOCATION

The Guildhall, St Martins Courtyard, Coney St, York YO1 9QL. Access to the building is through the Mansion House arch on St Helen's Square.

Directions from York Train Station

<https://maps.app.goo.gl/PDkwqJLJEy5kEVJp6>





SESSION DETAILS & SPEAKERS

Plenary Speaker - Yoselin Benitez-Alfonso



Yoselin Benitez-Alfonso, PhD, is a Professor of Plant Sciences and UKRI Future Leaders Fellow at the University of Leeds. She is originally from Cuba and studied in the University of La Habana. She completed a PhD in Biochemistry and Molecular Biology in the University of Cordoba, Spain and did postdoctoral placements at Cold Spring Harbor Laboratory (New York, USA) and at the John Innes Centre (JIC) (Norwich, UK).

Yoselin's research focuses on investigating the mechanisms regulating intercellular communication in plants using biological, physical and mathematical approaches.

Plenary Speaker - Tessa Burch-Smith



Tessa completed her undergraduate studies at the University of the West Indies, then graduate studies at Yale University and post-doctoral work at the University of California, Berkeley. She joined the University of Tennessee, Knoxville as an Assistant Professor in 2012 and was promoted to Associate Professor in 2019. In 2021 her lab moved to the Donald Danforth Plant Science Center in St. Louis, Missouri where she is currently an Associate Member and

Director of Research for Food Security. Tessa's research focuses on intercellular communication in plants and plant-virus interactions. She is also actively engaged in the wider scientific community, serving in editorial roles and on Boards of Directors for various scientific societies. She is currently the President-Elect of the American Society of Plant Biologists (ASPB), serving the first of year of a three-year presidential term. Tessa Burch-Smith is passionate about broadening participation in science and providing an enriching, supportive environment/opportunities for persons not traditionally engaged in science and scientific careers.



SESSION DETAILS & SPEAKERS

Cultivate: 2026 BiPS Summer Studentship Cohort

Meet the students from this year's cohort of the Summer Studentship Programme! Join us to hear directly from these emerging talents about their experiences and insights gained over the summer. Discover the impact of the programme and celebrate the achievements of the next generation of plant scientists.



Speaker: Phoebe Allen

Phoebe is a student of Global Sustainable development at the University of Warwick. Her longstanding passion for environmental justice and the fundamentals plant biology is what drove her to apply for this studentship. In future, she hopes to be a force for trans-disciplinary and sustainable solutions to food security issues, by harnessing crop improvement technology to modify

staple foods like rice and maize. She has led and participated in a number of sustainability campaigns about agro-ecology and conservation which she found very enjoyable. Aside from academics, Phoebe loves to dance, cook and rollerskate!



Speaker: Nalo Magar

Nalo is currently an undergraduate Biology student at the University of York. Her curiosity for biology developed through exploring emerging technologies in bioengineering, particularly how cellular processes can be harnessed to develop new therapeutics. She is especially drawn to the potential of plant-based systems to contribute to human health, including how bioactive

compounds from African medicinal plants could be used to improve treatment accessibility and address disparities in treatment outcomes for African women.

Nalo is particularly fascinated by cell signalling and developmental biology, and how these processes operate in plants. She finds it compelling how plants coordinate growth and respond to their environment through local signalling, offering a unique perspective on how cells communicate and function collectively.



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Beyond academic work, Nalo is strongly committed to improving access to education and reducing inequalities in academia. Through her role with the University of York Black Access Programme, she has had the honour of guiding Black students through tailored mentoring and work to address barriers they may face when applying to university, particularly within predominantly white institutions.



Speaker: Tinotenda Matemera

Tinotenda is a second-year BSc Genetics student at the University of Essex.

Her interest in plant science is rooted in its critical role in food security, sustainability, and climate resilience. This has motivated her to explore how plant genetics, bioinformatics, and gene editing can be applied to enhance crop resilience and address agricultural challenges, particularly in African regions that are heavily

impacted by climate change and food insecurity.

Tinotenda is especially drawn to plant genetics as it is an innovative and forward-looking field within plant science. It moves beyond the traditional study of plants to focus on understanding and improving how they function and adapt, using tools such as CRISPR, bioinformatics, and genomic analysis.

Outside of plant science, she engages in hobbies that allow her to be creative and decompress. Tinotenda enjoys baking, where she can experiment with different recipes and ingredients to create both simple and more complex treats. She also enjoys arts and crafts, which provide an outlet for creativity through hands-on projects and design. These activities help her maintain balance, unwind from academic study, and keep her mind engaged in a different, more creative way.



SESSION DETAILS & SPEAKERS

Cultivate: 2026 Research Excellence Awardees

In this session, we will be introducing you to this year's award winners of the Research Excellence Award!

Learn more about their contributions to the plant sciences from the beginning of their careers to date. Including their most recent experience at the respective conferences that they attended.



Speaker: Ousmane Dao

Ousmane Dao is a plant scientist specialising in algal photosynthesis and its applications to sustainable agriculture and climate solutions. He is currently based in the Department of Biology at the University of York, where his research focuses on understanding key processes such as carbon concentrating mechanisms, photorespiration, and their crosstalk, with the aim of

improving photosynthetic efficiency and developing sustainable bio-based production systems. His work has contributed to the discovery of novel components of algal photorespiration and to advancing our understanding of how photosynthetic systems can be optimised for enhanced carbon fixation and biofuel production. More broadly, his research sits at the intersection of fundamental biology and global challenges such as food security and climate change. Beyond the lab, Ousmane is a dedicated advocate for representation in STEM. He is committed to mentoring and supporting the next generation of scientists and to promoting diversity in plant science through teaching, supervision, and community engagement. He is the recipient of the Black in Plant Science Research Excellence Award, recognising his contributions to plant science and commitment to inclusive research communities.



Speaker: Sibongile Zimba

Dr Sibongile Zimba is a Research Fellow at the University of Bristol whose research aims to improve crop nutritional quality and resilience to climate stress. Growing up in Malawi prompted her passion for plant science to tackle global hunger and malnutrition. As a Lecturer and Senior Lecturer at



SESSION DETAILS & SPEAKERS

Lilongwe University of Agriculture and Natural Resources, in Malawi, she taught and mentored students, supervised research projects, and developed training resources that continue to support good agricultural practice.

Dr Zimba's PhD (University of Leeds, 2024), funded by UKRI-GCRF-AFRICAP, explored drought-tolerance mechanisms, identifying traits linked to resilience. This work contributed to the development of elite drought-tolerant sorghum varieties. She presented her work internationally and published as both first and co-author in journals (Plants People Planet, Current Biology, Nature Food, Frontiers in Sustainable Food Systems, CABI) and book chapters.

Now a Bristol Futures Research Development Fellow (2025-29), Dr Zimba investigates how combined climate stresses-including heat, drought, and elevated CO₂-affect wheat roots-soil interaction and grain nutritional quality. Integrating plant biology with machine learning, she aims to accelerate the development of climate-resilient, nutrient-rich crops for a nutritionally secure future. In 2025 she received the Rank Prize (The Lord Selborne Early Career Researcher Presentation Prize) and multiple travel grants to international conferences, including New Phytologist Next-Generation Scientists, Rank Prize Symposium, Rosalind Franklin Women in Wheat champions among others.

Dr Zimba is committed to inclusiveness in science, mentoring the next generation of scientists. She is an active member of the Association of Applied Biologists, Women in Crop Science, Black in Plant Science among others. She contributes to initiatives that advance research culture, equity, and diversity, and engages in outreach to inspire marginalised communities.



SESSION DETAILS & PANELLISTS

Workshop: Building your 'Brand' as a Scientist

Social media is an often-overlooked tool for academic career development, opening doors to collaboration, invitations, and opportunity. Yet early-career Black and minoritised scientists frequently face added barriers around visibility and belonging in scientific spaces. In this interactive workshop, participants will explore practical skills for building an authentic, effective social media presence, including profile-building, audience engagement, collaboration-building, and translating online visibility into real opportunities.



Chair: Kathryn De Abreu

Kathryn is a postdoctoral researcher at the University of Southampton, UK. She obtained her PhD in 2025 at Southampton, which used CRISPR-Cas9 gene editing to illustrate the role of bZIP transcription factors in Zn homeostasis in barley (*Hordeum vulgare*), supervised by Dr. Lorraine Williams. Since then, Kathryn completed a postdoc in plant-microbe interactions with Dr.

Tomislav Cernava, investigating the impact of abiotic stresses on the recruitment and shaping of the barley microbiome through host Microbiome gene activity. She now works as a Research Fellow in Plant Bioacoustics in conjunction with the Institute of Sound and Vibration Research (ISVR) and the Schools of Biological Sciences and Engineering at Southampton.



Panellist: Erica Hawkins

Erica is a Postdoctoral Scientist at The Sainsbury Laboratory in Norwich, UK, where she works with the NELARIX team in the Kamoun Lab to develop a platform for made-to-order plant immune receptors. Her background is in plant metabolism and synthetic biology, and she has worked in both academic and industry labs. Beyond research, Erica cares about

science communication, knowledge exchange and building supportive networks between scientists. She works to raise awareness of mental health in academia and to promote LGBTQ+ inclusion in STEM.



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Panellist: Anna Amtmann

Professor for Molecular Plant Physiology, University of Glasgow, UK

Anna studied mathematics, biology and linguistics at the Universities of Heidelberg, Paris and Barcelona, and obtained an MSc in Biology and a PhD in Natural Sciences from the University of Göttingen, Germany. As a post-doc in the laboratory of Dale Sanders at the

University of York, UK, she characterised ion transport proteins in barley and Arabidopsis using a combination of electrophysiology and molecular biology and she pioneered the use of microarrays to monitor transcriptional responses of plants to nutrient deficiency and salinity. In 2001, Anna took up a Lecturer position at the University of Glasgow, Scotland, followed by promotion to Senior Lecturer in 2004 and to Professor in 2014.



SESSION DETAILS & PANELLISTS

Workshop: Working beyond academia, different routes

Academic careers are just one path among many. This workshop guides participants through the varied landscape of professional opportunities beyond the university setting. From industry to policy, entrepreneurship to NGOs, learn how to identify transferable skills, build relevant networks, and confidently pivot into fulfilling careers.



Chair: John Baison

John Baison, PhD, is a UKRI Future Leaders Fellow and cereal geneticist based at RAGT Seeds Ltd. focusing on the implementation of genomic selection methods in cereal breeding programmes, and liaison with breeders and statisticians to ensure delivery of molecular genetics and bioinformatics analyses. John completed his PhD on the application of genetic and genomic tools

in Apple breeding at the ARC in South Africa. In June 2015, John was awarded a Postdoctoral Fellowship from the Karl Kemp Foundation to join the Bio4Energy project at Umea Plant Science Centre (UPSC), Sweden as a bioinformatician. This was followed by a Postdoctoral Fellowship from The Swedish Foundation for Strategic Research (SSF) in the Forest Genetics group at UPSC as lead bioinformatician.



Panellist: Imelda Uwase

Imelda is a plant-soil scientist, currently working in Defra as part of the research and development fellowship. Both their PhD and postdoc research examined how plants interactions with soil organisms drive important processes like the cycling of carbon and nutrients in soils. They have since stepped out of academia, to see if the grass is greener in the civil service. They work on a

project on environmental land management schemes. This role, working at the science-policy interface, has given them the opportunity to broaden their experience, develop new skills, apply their scientific expertise and contribute to a project with real-life impact. In this session, they will talk about what prompted them to experiment with work outwith academia, their experience of the civil service so far, and the preliminary results of this work-related experiment.



SESSION DETAILS & PANELLISTS

Panellist: ThankGod Ebenzer



Dr. ThankGod Ebenzer is the Global Engagement Manager for EMBL-EBI Data Services at the EMBL-European Bioinformatics Institute (EMBL-EBI), UK, where his role focuses on exploring new approaches, data, metadata, functions, services, and potential uses of open data in low-resource settings. Prior to taking up this role, ThankGod was a

Bioinformatician at QBio.AI, University of Cambridge School of Clinical Medicine, and EMBL-EBI. Dr Ebenzer undertook his postdoctoral research training at the Earlham Institute, UK, where he worked on Wheat transcriptomics and epigenomics. ThankGod studied for his PhD degree in Biochemistry at the University of Cambridge, UK, MSc in Environmental Toxicology and Pollution Management at the University of Lagos, Nigeria, and BSc in Parasitology and Entomology from Nnamdi Azikiwe University, Nigeria. In 2020 Dr Ebenzer founded the African BioGenome Project which sequences the genomes of African endemic and indigenous species, and has since 2022 trained over 1400 African scientists in genomics, bioinformatics, molecular biology and gene editing across 12 African countries.



SESSION DETAILS & PANELLISTS

Leading authentically at every career stage: as a Black scientist

Unlock your leadership potential in science! This interactive workshop will help ECRs thrive in collaborative and interdisciplinary environments by developing essential leadership skills. Through self-reflection, discussion, and practical exercises, participants will explore their unique leadership styles, learn how to adapt their approach to different contexts, and create a personal leadership action plan. Leave with greater confidence, clear development goals, and practical strategies to strengthen your impact within research teams and the wider plant science community.



Chair: Crispus Mbaluto

Crispus is a Marie Skłodowska-Curie Actions Research Fellow at the Estación Experimental del Zaidín-CSIC, Spain. He investigates the molecular and ecological mechanisms underlying plant immunity, with particular focus on plant-mediated interactions between root organisms, including microbiome and plant-parasitic nematodes, and shoot insect herbivores. By linking the

molecular mechanisms that occur inside the plants to broader ecological outcomes, his research advances our understanding of plant defence strategies and contributes to the development of sustainable crop protection practices. He holds PhD in ecology, and has extensive postdoctoral research experience in plant-microbe-herbivore interactions. Most recently, has expanded his interest to a complementary research direction exploring cereal grafting as innovative tool to enhance abiotic stress resilience in cereal cropping system. Beyond research, Crispus is passionate about science communication, knowledge exchange, and community engagement. He serves as an Assistant Features Editor for The Plant Cell, where he contributes to communicating plant sciences to global audience.



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Panellist: Bernice Waweru

Bernice Waweru is a Kenyan plant scientist who recently submitted her PhD thesis at the John Innes Centre, UK. Her research combines bioinformatics, genomics and plant breeding to explore wheat genetic diversity and support breeding for disease resistance.

She previously worked at the International Livestock Research Institute and the Kenya Agricultural and Livestock Research Organization, with experience generating resources for underutilised crops. A previous recipient of a Black in Plant Science Research Excellence Award, Bernice values the encouragement, collaboration and shared learning that have shaped her journey.

She cares about creating spaces where others feel welcome, supported and able to grow. For Bernice, leadership means listening, sharing knowledge and helping people recognise their strengths. She hopes to be a bridge to opportunities for others, particularly those navigating unfamiliar paths into science, and to contribute to a plant science community where people feel a sense of belonging and can thrive together.



Panellist: Sibongile Zimba

(As seen before)



SESSION DETAILS & PANELLISTS



Panellist: Charlene Dambire

Dr Charlene Kunaka Dambire, PhD, is a Zimbabwe-born plant scientist and Research Fellow at the University of Nottingham's School of Biosciences, working in Professor Michael Holdsworth's lab. She holds a BSc Hons in Microbiology (cum laude) from the University of Fort Hare, an MSc in Zoology (Evolutionary Genomics, cum laude) from Stellenbosch University,

and a Doctorate in Agriculture from Aberystwyth University. Dr Dambire's research explores plant proteostasis, with a focus on N-degron pathways that regulate protein stability under environmental stress. She is internationally recognised for her groundbreaking work on oxygen sensing and plant adaptation to altitude, published in leading Nature journals. Her research is driven by a passion for enhancing crop resilience, aiming to improve food security and livelihoods. In recognition of her achievements, she received the 2025 UK Black in Plant Science Research Excellence Award. Beyond her scientific work, Dr Dambire founded Ideas2Careers, a mentorship platform empowering Black girls in STEM, reflecting her dedication to diversity, inclusion, and nurturing the next generation of scientists.



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Poster Abstracts

Engineering Microbial Communities for Enhanced Chocolate Flavour

David Gopaulchan, Christopher Moore, Naailah Ali, Darin Sukha, Sergio Leonardo Florez González, Fabio Esteban Herrera Rocha, Ni Yang, Mui Lim, Tristan P Dew, Andrés Fernando González Barrios, Pathmanathan Umaharan, David E Salt, and Gabriel Castrillo.

The quality and flavour of chocolate begin with the cacao bean and are strongly shaped by fermentation, the first major post-harvest process. This stage is driven by naturally occurring communities of bacteria and fungi that influence aroma development, flavour complexity, and bitterness. However, spontaneous fermentations vary considerably between farms and harvests, making flavour and quality difficult to control. We investigated cocoa fermentations across farms in Colombia, integrating environmental measurements, microbial community profiling, and metabolite analyses to understand how environmental conditions and microbial interactions shape fermentation and chocolate flavour. Using these insights, we designed a defined microbial community, a carefully selected consortium of bacteria and yeasts capable of reproducing key features of traditional fermentation. This community successfully recapitulated the microbial succession and metabolic transformations of farm fermentations, producing chocolate with desirable fine-flavour characteristics. These findings demonstrate the potential to transform cocoa fermentation into a more reproducible, science-based biotechnology while preserving valued sensory qualities.

Investigating the genetic regulation of germination speed in barley

Abijah Akhigbe, Emily Lyon, Luke Ramsay and Sarah McKim

Rapid and uniform germination is important for barley malting quality and crop establishment, yet its genetic regulation remains incompletely understood. This study investigated genetic factors underlying germination speed using complementary approaches. Natural variation was characterised in elite barley genotypes, followed by genome-wide association analysis (GWAS) of 24 h germination. The effects of variation in MKK3, MAPK-related signalling components, and developmental shrunken endosperm genetic (seg) mutants were also investigated. Germination speed varied 5–7-fold among selected genotypes. GWAS identified a chromosome 3H region consistently associated with 24 h germination across multiple models. Harrington–Caesarea recombinant chromosome substitution lines showed contrasting germination phenotypes that could not be explained by simple MKK3 allelic variation, while several seg mutants showed faster germination and accelerated root growth. Together, these findings indicate that germination speed is influenced by genetic and developmental factors beyond established dormancy regulation and identify additional components for further investigation in barley improvement.

Optimizing Phosphorus Input in Strawberry Production

Strawberries utilize P for their growth and development. However, indiscriminate use of inorganic P (Pi) is inimical to the environment as it poses indirect toxicity risks for soil biodiversity and aquatic health through eutrophication. Pi inputs under current fertigation regimes for strawberry production are unsustainable; hence, supplementation with Arbuscular Mycorrhizal Fungi (AMF). AMF form symbiotic associations with ~80% of plants, with a key benefit being enhanced Pi capture by plants in exchange for photosynthetically derived carbon. Notably, significant natural variation exists among strawberry cultivars in their ability to engage in symbiosis, suggesting genotype-specific regulation of symbiotic and potentially Pi-starvation response genes. Here, we observed that AMF colonisation is largely genotype-driven and phosphorus-independent. Nevertheless, how strawberries coordinate the choice between symbiosis and root development during Pi deprivation remains poorly understood. This study aims to dissect symbiotic and Pi-starvation response signalling pathways to understand the molecular mechanisms underpinning Pi acquisition in strawberry.

Investigating How Temperature and Brassinosteroid Levels Influence Growth and Development in *Arabidopsis Thaliana*

Elevated ambient temperature alters plant architecture via thermomorphogenesis, but how temperature coordinates with brassinosteroid (BR) signaling remains poorly understood. We investigated this interaction in *Arabidopsis thaliana* across cellular and organ scales using wild-type (PM-YFP) and temperature-insensitive *pif1/3/4/5* quadruple knockout (PQ) lines. Confocal imaging of heat-shocked root meristems using EdU and DAPI staining revealed that recovery at 28°C and continuous 28°C acclimation markedly accelerated S-phase entry and cell cycle progression compared to 21°C controls. In aerial tissues, elevated temperature (28°C) stimulated leaf area expansion in PM-YFP, brassinolide (BL), and biosynthesis inhibitor (propiconazole) treatments. Conversely, PQ mutants failed to display thermal leaf expansion across all conditions, remaining stunted regardless of exogenous BL. These findings demonstrate that warm ambient temperatures accelerate root mitotic reactivation and drive shoot expansion, establishing that Phytochrome-Interacting Factors (PIFs) are essential mediators linking temperature cues and brassinosteroid pathways to regulate plant growth.

Breaking the Centromere Barrier: Natural Variation Controls Crossover Suppression in Arabidopsis

Mujeeb Adaraloye, Nicola Gorringer, Robin Burns, and Ian Henderson.

Meiotic crossovers generate genetic diversity and ensure accurate chromosome segregation, yet they are strongly suppressed near centromeres across eukaryotes, for reasons still unclear. These pericentromeric regions contain expressed and conserved genes, however, without recombination they cannot be unlinked from neighbouring alleles, so beneficial and harmful variants are inherited together as linked haplotype blocks. This constrains plant breeding, since desirable genes here cannot be introgressed without unwanted linked mutations. We use natural genetic variation across wild *Arabidopsis thaliana* accessions to study the genetic factors that contribute to crossover suppression within centromeric-proximal regions. I have identified a genetic locus, called rQTL1, that modifies pericentromere crossover frequency in a Col-0 × Tanz-1 and independently in a Col-0 × Cvi-0 F₂ population. I am currently identifying the causal loci through genome alignment analysis and F₃ population generation. The results of this work will reveal general principles governing centromere-proximal recombination, with important relevance for plant breeding and understanding genome evolution.

Engineering a FRET-based Biosensor for Real-time Quantification of Plant Hormone Dynamics

Plant hormones play a crucial role in plant growth, development, and stress responses. Although hormone signalling pathways and downstream transcriptional responses are increasingly well understood, linking these pathways to hormone distribution and dynamics at the cellular level remains challenging. Here, we present the application of Förster Resonance Energy Transfer (FRET)-based biosensors as a powerful strategy to bridge this gap. These genetically encoded sensors integrate a donor-acceptor fluorescent protein pair with a ligand-responsive sensory domain. Upon hormone binding, conformational changes within the sensor modulate the distance and/or orientation between the fluorophores, resulting in a measurable shift in fluorescence emission ratios. This enables real-time, non-invasive quantification of hormone dynamics in living plant cells with high spatial and temporal resolution. We provide a step-by-step overview of the design of a novel FRET-based biosensor that will help elucidate the spatiotemporal distribution of cytokinins.

Deciphering the phytochrome-independent gene regulation in response to changes in Far-red (Fr) light

**Saurabh Chaudhary¹, Natalia Hurtado-Castano¹, Emma Thomson², Matthew P Johnson¹ and Stuart Casson¹*

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The red-to-far-red (Fr) light ratio is a key environmental cue for plant development, growth, and overall fitness. Phytochrome photoreceptors are believed to detect changes in this ratio alone. However, recent research indicates that plants lacking phytochromes can still respond to Fr light, with the Photosynthetic Electron Transport Chain (PETC) acting as the sensor. To investigate this, we conducted RNA sequencing and Ribosomal profiling of wild-type and phytochrome-null mutants (phyQ) of *Arabidopsis thaliana* under various white-to-Fr light ratios. We also applied the herbicide DCMU, which inhibits PETC. Preliminary sequencing results show overlapping patterns between phyQ plants exposed to different Fr ratios and those treated with DCMU, particularly in the differential expression of auxin-related, metabolism-related, and transcription factor genes at the transcriptional and translational levels. Further study will help identify marker genes associated with alternative signalling pathways that affect plant growth and development in response to changes in Fr light independent of phytochromes.

Bridging the Gap between Crop Wild Relative Diversity and Climate-Resilient Wheat Through Introgression Lines

Workie Zegeye¹, Simon Orford¹, Alex Howard¹, Tilahun Hilemikaël¹, Ajay Siluveru¹, Smitha Chundakkad¹, Saranya Cherukudi-Mattuvayal¹, Sophie Eade¹, Daniel Mcfeely¹, Eleni Vekeli¹, Magali Joannin³, Bérengère Blum³, Cyrille Saintenac⁴, Francesca Desiderio², Jacques Le-Gouis⁴ and Noam Chayut^{1*}

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The Horizon Europe PRO-WILD project aims to increase wheat genetic diversity by exploring crop wild relatives in situ and ex situ and by developing and analysing pre-breeding materials for delivering nutritious and sustainable wheat. In this study, we evaluated 361 wheat introgression lines (ILs) arising from crosses between diverse wild relative species and several modern wheat backgrounds. We tested these ILs in the UK and France under field and glasshouse conditions for yield components, grain quality, and disease resistance. Significant variation was observed across all traits, with distributions extending beyond the recurrent parents, indicating successful capture of novel alleles from wild relatives applicable to pre-breeding programmes.

Correlation analyses revealed strong positive associations among grain size, protein, and starch. A negative association between protein and grain weight underscored key trade-offs. Seedling-stage screening in the growth chamber via artificial inoculation for *Septoria tritici* identified ILs with enhanced resistance. Substantial variation among ILs was also observed for yellow rust and plant height under agronomic field conditions.

Insights into Oak Adaptation to Future Climates via Phenotypic and Omics Data

Reagan Neeson¹, Ken Man², Estrella Luna Diez¹, Marco Catoni¹, Rosa Sanchez Lucas³

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To understand English oak (*Quercus robur*) adaptation to future climates, we combined mature tree multi-omics with seedling disease assays. Integrating methylomic and transcriptomic data from 12 BIFoR FACE samples identified differentially methylated regions (DMRs) linked to key differentially expressed genes (DEGs), highlighting epigenetic regulation under elevated CO₂. Additionally, a split-condition powdery mildew experiment evaluated seedling disease severity, while mock transcriptomes revealed baseline transcriptional shifts prior to infection.

Investigating the Antibacterial Potential of *Rinorea oblongifolia* as a Natural Product Candidate Against Antimicrobial Resistant Gastrointestinal Pathogens

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Antimicrobial resistance (AMR) is a major global health concern, necessitating the exploration of natural products as potential sources of antimicrobial compounds. *Rinorea oblongifolia* is a medicinal plant whose phytochemical composition and antibacterial properties warrant further investigation. Fresh leaves of *R. oblongifolia* were collected, authenticated, dried, pulverised and extracted using hot water. The extract was evaluated for phytochemical composition, antioxidant activity, and antibacterial activity against 20 reference strains and clinical isolates of gastroenteritis-associated bacteria. Phytochemical constituents were screened qualitatively, while antioxidant activity was assessed using 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical-scavenging and iron-chelating assays. Total phenolic and flavonoid contents were quantified. Gas chromatography–mass spectrometry (GC–MS) and Fourier-transform infrared (FTIR) spectroscopy were used to profile chemical constituents and associated functional groups, respectively. Antibacterial activity was determined by inhibition-zone measurement and minimum inhibitory concentration (MIC) assays. Hot-water extraction yielded $5.42 \pm 0.10\%$. Phytochemical screening revealed abundant saponins, moderate levels of terpenoids, and trace amounts of flavonoids, phenols and tannins; alkaloids and steroids were not detected. DPPH radical-scavenging and iron-chelating activities were $71.62 \pm 0.81\%$ and $45.15 \pm 0.30\%$, respectively. Total phenolic and flavonoid contents were 5.10 ± 1.03 mg/g and 3.12 ± 0.27 mg/g, respectively. GC–MS analysis identified linolenyl alcohol (44.65%) and palmitic acid (14.70%) as the predominant detected constituents. FTIR analysis indicated functional groups associated with hydroxyl, alkane, alkene, ketone and alkyl halide moieties. The extract exhibited concentration-dependent antibacterial activity against *Staphylococcus aureus* (ATCC 29213), *Escherichia coli* (ATCC 0157; U7), *Salmonella Typhimurium* (ATCC 14028), *Pseudomonas aeruginosa* and *Klebsiella pneumoniae*, with inhibition zones of 7–28 mm at concentrations of 25–200 mg/mL. MIC values ranged from 50 to 200 mg/mL. The findings demonstrate preliminary antioxidant and antibacterial activities in the hot-water leaf extract of *R. oblongifolia*, supporting further investigation of this species as a potential source of natural-product-derived antibacterial candidates. Further bioassay-guided fractionation, structural confirmation of putative compounds, mechanistic studies and in vivo evaluation are required to establish its therapeutic potential

Keywords: *Rinorea oblongifolia*; natural products; phytochemical profiling; antioxidant activity; antibacterial activity; antimicrobial resistance.