Division of Plant Sciences

University of Dundee

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The Division of Plant Sciences has been very successful in attracting external research grant funding of over £9 million over the last 18–24 months. The grants are mainly from the BBSRC but also include EU funding and a major grant from the Global Climate and Energy project (GCEP) and will run for between 3–5 years. Claire Halpin has been the major contributor with £5.5M for projects on lignin biosynthesis and recombination. One aspect of much of this funding is the collaboration with SCRI research groups reflecting the special partnership between the College of Life Sciences of the University of Dundee and SCRI.

A major highlight was the January launch of the BBSRC Sustainable Bioenergy Centre (BSBEC), a virtual Centre with six research hubs. The Dundee centre is headed by Claire Halpin and is a collaboration with Robbie Waugh and Derek Stewart at SCRI. BSBEC is supported by £28 million of BBSRC funding, has many links with industrial partners and is focused on complementary research areas relevant to sustainable bioenergy.

We are pleased to welcome a new Fellow of the Royal Society of Edinburgh, Edgar Huitema, who joined the Division in October. His area of research is the function of a new class of effector proteins, the crinklers, in the plant pathogen, *Phytophthora*. He is associated with the Plant Pathology programme of SCRI and his work will complement that of Paul Birch in advancing our understanding of effectors and the defence

mechanisms that they target for suppression. This year, Paul Birch's research group was one of the leading groups involved in obtaining the genome sequence of *Phytophthora infestans*, the major pathogen of potato (published earlier this year in *Nature*). We also say a sad goodbye to Lyn Jones, Professor of Plant Ecology, who retired at the end of September. Lyn will remain active as he follows ongoing interests and collaborations.

The grant income success has also meant a rapid increase in the size of the Division to over 45 people. A challenge has been to reinforce the identity of the Division while many of its Principal Investigators are situated in different parts of the SCRI campus – mainly to reflect their research areas and opportunities for interaction and collaboration. The recent refurbishment of a corridor which houses three of the Plant Sciences groups alongside SCRI colleagues, has allowed many of the newly recruited scientists and technicians to be accommodated. In addition, it has also created a central hub for the Division where Morven Pearson (the Divisional Secretary) and Sandie Gray (recently appointed as Lab Manager) are situated alongside John Brown and Claire Halpin (the Head and Deputy Head of Division).

The Masters level MRes teaching course in 'Crops for the Future' began this October with its first intake of four students from Scotland, Poland, Pakistan and India. The course is a joint venture between the College of Life Sciences/Division of Plant Sciences and SCRI and builds on the unique combination of expertise of both organisations. Our MRes is highly topical as issues of food security and sustainability continue to dominate scientific policy. It aims to give students a strong grounding in modern plant and crop biology including genetics, genomics and new approaches to breeding and crop improvement.

Other scientific highlights include Gordon Simpson's work on the function of FPA in flowering time control and the demonstration that it controls RNA 3' end formation which has led to a successful grant to look at wider aspects of mRNA 3' processing in regulating expression. John Brown's group has discovered mRNAs and aberrant mRNAs in the nucleolus raising the possibility of novel functions for the nuclear compartment in regulating plant gene expression. Andy Flavell has developed a PCR based technology for Next Generation Sequencing of hundreds of candidate gene alleles in hundreds of barley genotypes as a basis for identifying alleles responsible for traits important to the breeder. Finally, Steve Hubbard has developed a number of interactions with SCRI colleagues in the Environment Plant Interactions Programme in particular looking at the dynamics of the interaction between the potato aphid (*Macrosiphon euphorbiae)* and its parasitoids, endosymbionts and plant pathogens and the impact of secondary bacterial endosymbionts on fitness of the cabbage aphid (*Brevicoryne brassicae)* and its capacity to resist parasitism and to transmit viral pathogens.