Centre for Plant Sciences
A centre of excellence in cellular & molecular plant sciences at the University of Leeds

Report 2014
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview</td>
<td>3</td>
</tr>
<tr>
<td><strong>Summary of Achievements 2014</strong></td>
<td></td>
</tr>
<tr>
<td>Research Funding</td>
<td>4</td>
</tr>
<tr>
<td>Publication &amp; Citations Metrics</td>
<td>5</td>
</tr>
<tr>
<td><strong>Research Group Reports 2014</strong></td>
<td></td>
</tr>
<tr>
<td>Prof. Alison Baker</td>
<td>6</td>
</tr>
<tr>
<td>Dr. Yoselin Benitez-Alfonso</td>
<td>7</td>
</tr>
<tr>
<td>Dr. Andrew Cuming</td>
<td>8</td>
</tr>
<tr>
<td>Prof. Brendan Davies</td>
<td>9</td>
</tr>
<tr>
<td>Prof. Jurgen Denecke</td>
<td>10</td>
</tr>
<tr>
<td>Prof. Christine Foyer</td>
<td>11</td>
</tr>
<tr>
<td>Dr. Stefan Kepinski</td>
<td>12</td>
</tr>
<tr>
<td>Prof. Paul Knox</td>
<td>13</td>
</tr>
<tr>
<td>Prof. Peter Meyer</td>
<td>14</td>
</tr>
<tr>
<td>Prof. P.E. Urwin</td>
<td>15</td>
</tr>
<tr>
<td>Dr. Chris West</td>
<td>16</td>
</tr>
<tr>
<td><strong>Grant Funding/Publications</strong></td>
<td></td>
</tr>
<tr>
<td>BBSRC CASE / Industrial CASE partnership programmes 2013</td>
<td>17</td>
</tr>
<tr>
<td>CPS Research Grants 2009 - 2014</td>
<td>17</td>
</tr>
<tr>
<td>CPS publications 2009 – 2014</td>
<td>20</td>
</tr>
</tbody>
</table>
Overview

The Centre for Plant Science (CPS) is a peak of research excellence at the University of Leeds. It is one of the major research groups of the Faculty of Biological Sciences at Leeds in terms of research income and publication outputs and is one of the major plant science groups in the UK.

Eleven academic staff head research groups in CPS in the cell & molecular plant sciences and currently CPS has over 30 postgraduates, 20 post-doctoral researchers and 9 research technicians.

Major CPS research areas of international and global significance include developing resistance to nematode pests of crops, plant stress biology and plant cell walls.

CPS research themes and activities cover developmental plant biology, DNA structure, regulation & repair, epigenetics, hormonal physiology, cell biology, cell signalling, biotic and abiotic stresses.

We pursue our mission of excellence and the highest standards in plant science through interdisciplinary interactions with the colleagues in the School of Biology, Faculty of Biological Sciences, Astbury Centre for Structural Molecular Biology, Schools of Food Science, Chemistry, Environment and Physics and use the resource of the University of Leeds farm.

Links with industry include research programmes with Bayer Bioscience, British Sugar, Carbogen Ltd., Enza Zaden UK Ltd., Sinochem and Syngenta.

CPS staff are partners in a range of EU consortia and programmes including Ciscode, COSI, Crop Life, EcoSeed, Epigenome, Sysflo, Transistor, and WallTraC.

Our fundamental plant science and strategic science makes us ideally placed to develop partnerships and collaborative research addressing global challenges and current agenda concerning crops and food security.

The following pages provide snapshots of the current activities of our groups, our grant funding and publications.

Full details at: www.plants.leeds.ac.uk
Contact: plants@leeds.ac.uk
Follow us on twitter: @plantscileeds
Summary of Achievements 2014

Research Funding

The current funding portfolio of CPS research grant funding is shown schematically below with most funding obtained from the UK Biotechnology & Biosciences Research Council (BBSRC) and funding instruments of the EU including International Training Networks (ITNs) aimed at training early stage researchers. A major industry investment in CPS activity in 2013 was support from Sinochem.

CPS Research Funding: £11,321,961

Gatsby Summer School Funding: £1,108,697

An additional feature of CPS funding is the Gatsby Plant Science Summer School Project (http://www.gatsbyplants.leeds.ac.uk/) - a series of programmes and activities aimed at promoting plant science to UK students.
Publication & Citations Metrics

CPS research groups have maintained a high level of outputs in terms of publications in recent years with CPS averaging over 35 publications/year since 2009. Our publications since 2009 have received over 3,500 citations thus averaging ~18 citations/article in the most recent period.

Recent highlights are included in the research group reports that follow and all are listed at the end of this document.

Recent journal covers featuring CPS research
My group is interested in membrane protein transport processes in plants. Much of our work has focused on peroxisomes, essential cellular organelles that are involved in an extraordinarily wide range of processes from primary metabolism, signalling and defence responses. We have used a range of biochemical, cell biological, genomic and chemical biology approaches to address the mechanism of transport of both proteins and metabolites across the peroxisome membrane. In the latter case we have identified and characterized a peroxisomal ABC transporter which acts as the primary transport route for fatty acids and pro-hormones into peroxisomes and shown that it possesses a novel thioesterase activity that cleaves acyl CoA substrates upon transport. We have recently initiated a new area of research studying the families of membrane proteins involved in uptake and transport of phosphate with emphasis on structure-function relationships, to help understand whether these proteins play a role in phosphorus use efficiency.

Links:
www.fbs.leeds.ac.uk/staff/profile.php?un=bmbalb

Recent publications:


Dr. Yoselin Benitez-Alfonso

Plasmodesmata | Cell-to-cell communication | Root architecture | Callose metabolism | Meristem development | Arabidopsis thaliana

Plasmodesmata mediate the transport of proteins, metabolites and RNAs between cells and regulate the function of these non-cell autonomous factors in plant development. Our research focuses on the mechanisms that control plasmodesmata form and function. We use cell biology and genetic approaches to determine how changes in plasmodesmata affect the initiation and development of root meristems. We have identified and characterized proteins that modify callose polysaccharide in the channel neck region. Callose deposition affects plasmodesmata aperture and cell-to-cell transport of developmental regulators. We are also interested in characterizing the molecular pathways regulating callose and plasmodesmata transport in response to environmental cues. Results from our research demonstrate the role of redox signalling in regulating plasmodesmata transport and the importance of callose regulation at plasmodesmata during the initiation of lateral root meristems.

Links:
www.plants.leeds.ac.uk/people/groups_yba.php

Recent publications:
We use the model bryophyte, *Physcomitrella patens* represents one of the earliest diverging lineages following the transition of plants from an aquatic to a terrestrial environment. We use the remarkable ability of Physcomitrella to integrate transgenes at predetermined loci by "gene targeting" to probe the functions of conserved and bryophyte-specific genes. We focus on two features of *P. patens*: (i) the way in which genes responsible for the repair of DNA-double-strand breaks participate in targeted transgene insertion, and (ii) the abscisic acid (ABA) and dehydration-stress-response pathway. We are using both "forward" and "reverse genetic" approaches to identify conserved and novel bryophyte-specific functions inherent to these processes.

**Links:**
www.plants.leeds.ac.uk/people/groups_cum.php

**Recent publications:**
Rensing SA et al. (2008) The Physcomitrella genome reveals insights into the conquest of land by plants. Science 319, 64-69


We are interested in how plants develop and how plant development is modified by the environment. There are three broad areas of research, all linked by a common theme of regulating gene expression to influence how plants grow. We have a long history of studying flowering and flower development and this continues with studies into how floral organs are specified in development and how the underlying transcription factors influence cell fate. Our work on gene regulation led us to consider alternative forms of control, such as through mRNA stability. This has had unexpected spinoffs in the area of drought tolerance. Studying meristem development led us to a mechanism of transcriptional repression that has been used multiple times in plant evolution. Our overall aim is to understand and manipulate how plants regulate expression of their genes to develop in a way that is appropriate to their environment.

Links:
www.plants.leeds.ac.uk/people/groups_dav.php

Recent publications:
Lloyd JPB, Davies B (2013) SMG1 is an ancient nonsense-mediated mRNA decay effector. Plant Journal 76, 800-810
We study the secretory pathway, a group of membrane bound organelles that play key functions in virtually every process of eukaryotic life. Our research is mainly curiosity- and hypothesis-driven, and we use biochemical transport assays, cellular engineering, and in vivo imaging techniques to capture the exciting microcosmos of plant cells. We aim to understand complete transport processes so that each step can be explained via bio-molecular interactions, conformational changes, molecular switches and the principle of recycling. More recently, we have become interested in harnessing the plant secretory pathway for the renewable production of food, energy and materials from plants.

Recent publications:


Prof. Christine Foyer

Stress tolerance | Redox biology & antioxidants | Photosynthesis | Plant growth & development | Cystatin technology | Low temperature | Drought | High light | Aphid resistance

We are interested in the roles of redox regulation in plant metabolism, gene expression and stress tolerance. We study the regulation of photosynthesis and respiration under optimal and stress conditions. Our lab uses multidisciplinary approaches to analyse plant stress responses, such as regulation of root and shoot growth, incorporating -omics technologies, molecular and biochemical techniques, classic whole plant physiology and phenotyping. In addition to undertaking fundamental studies on model plant species such as Arabidopsis thaliana, research in our lab is also focussed on enhancing the lifespan and stress tolerance of crop species such as soybean, barley and faba beans. Recent highlights have included the demonstration that ectopic phytocystatin expression in soybean and Arabidopsis thaliana leads to enhanced drought stress tolerance and can also improve seed traits such as protein content, the characterisation of the low glutathione transcript profile in roots and shoots, and the proposal that redox regulation of the WHIRLY1 protein may be important in cross tolerance responses.

Links:
www.plants.leeds.ac.uk/people/groups_foy.php

Recent publications:


We are interested in understanding how the plant hormone auxin controls such a remarkable range of developmental events. Auxin regulates both patterning and growth and our projects reflect this broad division. For patterning we are investigating how the spatial control of auxin responsiveness in the root epidermis contributes to the formation of hair and non-hair cells. For growth we are studying how root and shoot branch angles are set and maintained with respect to gravity (so called gravitropic setpoint angles). We have discovered a novel role for auxin in the maintenance of non-vertical branch GSAs which are an important determinant of the plant’s ability to capture resources above and below ground. These projects are based on genetic and molecular genetic analysis integrated with computational approaches. We also have projects focused on the earliest events of auxin perception where we are using biophysical, thermodynamic and structural techniques to characterise the docking and binding of auxin and Aux/IAA proteins to the TIR1/AFB auxin co-receptors. This work is providing a platform for the development of next-generation auxinic agrochemicals.

Links:
www.plants.leeds.ac.uk/people/groups_kep.php

Recent publications:


Our interests focus on the structure-function relations of the matrix glycan components of plant cell walls and extend from model systems to fruit, vegetable, fibre & bioenergy crops. Our strategy is to develop monoclonal antibody probes for defined oligosaccharides and to use these to understand cell wall polysaccharide structures & developmental dynamics. Our probes are used for in situ fluorescence imaging and rapid quantitative assays. They are available through PlantProbes. Recent highlights have included the analysis of the cell wall heterogeneity in the Miscanthus bioenergy crop and the detailing of cell wall glycan dynamics in seed endosperms.

Recent publications:


We are interested in the significance of DNA methylation for gene expression, plant development and adaptation to abiotic stress. We especially focus on the role of maintenance DNA methyltransferase MET1 in coordinating the activity of other DNA methylation functions and in the establishment of DNA methylation patterns that are independent of the small RNA pathway. In recent years, we have extended the functional analysis of MET1 and its target genes from Arabidopsis into crop species to induce heritable DNA methylation changes, to produce novel epigenetic variants, and to identify loci, which are controlled by DNA methylation.

**Recent publications:**


**Links:**
www.personal.leeds.ac.uk/~genpme/
Plant parasitic nematodes (PPNs) cause >$100 billion annual losses to world agriculture of which cyst and root-knot nematodes contribute over 80%. Their management involves crop rotation and host resistance, which provide incomplete control, and chemical nematicides, which are the most toxicological and environmentally damaging pesticides in widespread use posing considerable risk to aquatic ecosystems and drinking water supplies. The approaches taken by the group to overcome this challenge include developing biofumigation to replace the withdrawn nematicides and utilising well established anti-feedant technology as well as newly developed behavioural repellents and RNAi to provide plant based resistance to nematodes in several crops. We are also undertaking fundamental research using the model species C. elegans and utilising the data we have generated by the sequencing the Globodera pallida genome and multiple transcriptomes, to identify novel strategies and targets for engineering nematode resistance.
We are interested in the elucidating roles of DNA repair and recombination in plant growth and development and their potential to improve crop productivity. Our research focuses on understanding DNA repair mechanisms in plants using model species such as Arabidopsis, barley and brassica. In particular, we have characterised the recombination pathways that repair chromosomal breaks, one of the most cytotoxic forms of DNA damage. Our interests also include characterisation of DNA damage responses, integrating genetic, biochemical and omic approaches to understand transcriptional and post-translational signalling pathways. Recent progress has identified important roles for recombination in the seed stages of the plant life cycle, with genome repair critical to rapid germination and successful seedling establishment. Our continued research is revealing the relationship between genome repair and seed vigour.

**Links:**
www.plants.leeds.ac.uk/groups_wes.html

**Recent publications:**


Analysis of extra chromosom al recombination (ECR) in Arabidopsis
Grant Funding/Publications

BBSRC CASE / Industrial CASE Partnership Programmes 2013

Optimising Phosphate recovery from waste water using photosynthetic aquatic organisms.

ENZA ZADEN UK Ltd. (2013-2017) Peter Meyer
Generating epigenetic diversity in plants.

ENZA ZADEN UK Ltd. (2013-2017) Peter Meyer
DNA demethylation strategies and targets in crops.

Genetic determinants of cell wall composition in sugar beet storage roots.

CPS Research Grants 2009 - 2014

2014

BBSRC - £2,392,227
Alison Baker, Exploring the role of acyl CoA cleavage by COMATOSE a plant ABC transporter in regulating entry of substrates into beta oxidation, 3/2/2014 – 2/2/2017, £403,439
Brendan Davies, FLOWPLAST, 1/3/2014 – 28/2/2017, £451,829
Brendan Davies, A New Conditional Gene Regulation System in Plants, 1/1/2014 – 31/12/2016, £410,053
Stefan Kepinski, Next generation auxins and anti-auxins: principles for binding and design, 1/1/2014 – 31/12/2016, £358,506
Paul Knox, Pectic RG-I and the generation of plant cell wall properties, 1/1/2014 – 31/12/2016, £411,948
Peter Urwin & Howard Atkinson, Establishing biofumigation as a sustainable replacement to pesticides for control of soil-borne pests and pathogens of potato and horticultural crops, 1/3/2014 – 28/2/2018, £356,452

Industry - £129,953
Brendan Davies, Bayer Crop Science, A New Conditional Gene Regulation System in Plants, 1/1/2014 – 31/12/2016, £60,000
Peter Urwin & Howard Atkinson, British Potato Council, Establishing biofumigation as a sustainable replacement to pesticides for control of soil-borne pests and pathogens of potato and horticultural crops, 1/3/2014 – 28/2/2018, £69,953

Charity - £181,241
Chris West, Leverhulme Trust, Understanding the molecular links between transcription and recombination, 1/6/2014 – 31/5/2017, £181,241

Other - £13,990
Peter Urwin and Howard Atkinson, Agriculture & Horticulture Development Board, Establishing biofumigation as a sustainable replacement to pesticides for control of soil-borne pests and pathogens of potato and horticultural crops, 1/3/2014 – 28/2/2018, £13,990
2013

**BBSRC - £1,033,621**
Stefan Kepinski, Commercialisation of ARF-CA Technology, 1/2/2013 – 31/7/2014, £155,619
Peter Urwin and Howard Atkinson, LWEC, 1/3/2013 – 31/08/2016, £421,182

**EU - £777,708**
Andy Cuming, Identification and Characterisation of the sex locus in the Dioecious Moss Ceratodon purpureus, 2/9/2013 – 1/9/2015, £237,626
Christine Foyer and Chris West, Impacts of Environmental Conditions on Seed Quality, 1/1/2013 – 31/12/2016, £311,798
Peter Meyer, Comparative analysis and mammalian DNA methylation functions in epigenetic Arabidopsis mutants, 1/9/2013 – 31/08/2015, £228,284

**Charity - £101,765**
Peter Meyer, Leverhulme Trust, Dissecting an ancient but hitherto cryptic function of DNA methyltransferases, 28/2/2013 – 27/02/2015, £101,765

2012

**BBSRC - £230,582**
Christine Foyer, FACCE MACSUR Knowledge Hub Crop Modelling, 13/9/2012 – 12/9/2015, £53,820
Peter Urwin, Collaboration with Southampton, 1/6/2012 – 31/5/2015, £176,762

**EU - £411,651**
Alison Baker, Improved Millets for Phosphate Acquisition and Transport, 9/5/2012 – 8/5/2014, £175,304
Christine Foyer, Extending Soybean Lifespan, 1/6/2012 – 31/5/2014, £236,347

**Charity - £613,106**
Alison Baker and Andy Cuming, Leverhulme Trust, Synthetic organelles: manipulating peroxisome protein import to create designer compartments, 1/10/2012 – 30/9/2015, £221,906
Alison Baker, Gatsby Foundation, Gatsby Summer School, 1/4/2012 – 28/2/2014, £375,000
Christine Foyer, Royal Society, Understanding stress tolerance traits in grapevine, 21/2/2012 – 20/2/2012, £11,200
Paul Knox, Yorkshire Agricultural Society, Molecular characterization of the interaction of nitrogen-fixing cyanobacteria with wheat roots, 1/4/2012 – 31/3/2013, £5,000

**Industry - £500,000**
Peter Urwin and Howard Atkinson, Sinochem Corporation, Leeds Research Collaboration, 1/9/2012 – 31/8/2015, £500,000

**Other - £8,000**
Peter Urwin and Howard Atkinson, EPSRC, India Sciences Bridges extension, 1/1/2012 – 31/12/2013, £8,000

2011

**BBSRC - £230,829**

**EU - £559,223**
Christine Foyer, Systemic signalling in plant – aphid interactions, 1/6/2011 – 31/5/2013, £224,824
2010

**BBSRC - £1,114,834**
Brendan Davies, A Family of Transcriptional Co-repressors Controlling Multiple Processes in Plants, 1/6/2010 – 31/5/2013, £398,679
Peter Urwin, Pathogenicity genes of G. pallida, 1/7/2010 – 30/6/2013, £343,205

**EU - £233,005**
Christine Foyer, Enhanced plant productivity through control of lifespan, 1/12/2010 – 30/11/2014, £233,005

**Charity - £159,588**
Andy Cuming, Leverhulme Trust, Leverhulme Trust/QMUL, 1/4/2010 – 31/3/2013, £6,000
Jurgen Denecke, Leverhulme Trust, Functional analysis of the late pre-vacuolar compartment of plants, 1/12/2010 – 30/11/2013, £152,153
Christine Foyer, Royal Society, XXVIII Argentinean Meeting of Plant Physiology Royal Society Travel, 1/7/2010 – 30/6/2011, £1,435

**Industry - £51,300**
Peter Urwin, Syngenta, Syngenta Small Grant, 1/11/2010 – 31/10/2012, £51,300

2009

**BBSRC - £1,393,453**
Howard Atkinson, Sustainable periurban vegetable production for nutritional food security in sub-Saharan Africa, 1/8/2009 – 31/1/2010, £10,000
Brendan Davies, A Biological Rationale for NMD in Plants, 3/12/2009 – 30/5/2013, £347,967
Paul Knox, The virtual seed: combined mathematical, engineering and post-genomics approaches to seed germination, 17/8/2009 – 16/8/2012, £303,782
Peter Urwin, Wain International Travel Fellowship Dr Richard Collins, 1/1/2009 – 31/8/2009, £43,500
Peter Urwin and Howard Atkinson, Determine the primary responses of target parasites to xenobiotic compounds utilising the model organism C.elegans, 1/7/2009 – 30/6/2012, £403,558

**EU - £447,026**
Christine Foyer, Chloroplast Signals, 1/7/2009 – 30/6/2012, £134,384
Christine Foyer, Legume Improvement, 1/7/2009 – 30/6/2012, £54,725
Charity - £900,480
Alison Baker, Gatsby Foundation, Plant science research and development GAT3021SS, 1/2/2009 – 30/4/2012, £733,697
Brendan Davies, Gatsby Foundation, Sainsbury PhD Studentship, 1/10/2009 – 30/9/2013, £86,360
Christine Foyer, Royal Society, Africa College 100% Legume Improvement, 1/4/2009 – 31/3/2010, £50,000
Stefan Kepinski, Royal Society, Single cell type profiling for plant systems biology, 1/1/2009 – 31/1/2011, £14,973
Peter Urwin, Yorkshire Agricultural Society, Microwave heating of glasshouse crops, 1/9/2009 – 31/8/2011, £4,000

Industry - £97,500
Stefan Kepinski, Syngenta, IPA - Syngenta contribution, 1/1/2009 – 31/7/2014, £43,500
Peter Urwin, Syngenta, Syngenta IPA, 1/7/2009 – 31/8/2013, £54,000

Other - £786,561
Alison Baker, Biochemical Society, Summer Vacation Studentship, 6/7/2009 – 28/08/2009, £1,600
Brendan Davies, MRC, The JLPS workshop in translational science, 1/9/2009 – 30/9/2009, £12,000
Peter Urwin, Howard Atkinson, Brendan Davies and Stefan Kepinski, EPSRC, India Bridges programme. 3/8/2009 – 31/12/2013, £772,611

CPS publications 2009 – 2014

2014


Quain MD; Makgopa ME; Márquez-García B; Comadira G; Fernandez-Garcia N; Olmos E; Schnaubelt D; Kunert KJ; Foyer CH (2014) Ectopic phytocystatin expression leads to enhanced drought stress tolerance in soybean (Glycinemax) and Arabidopsis thaliana through effects on strigolactone pathways and can also result in improved seed traits. Plant Biotechnol J -, DOI:10.1111/pbi.12193


2013


Bartoli CG; Casalongue CA; Simontacchi M; Marquez-Garcia B; Foyer CH (2013) Interactions between hormone and redox signalling pathways in the control of growth and cross tolerance to stress Environmental And Experimental Botany 94, 73-88 DOI:10.1016/j.envexpbot.2012.05.003


Brown L-A; Larson TR; Graham IA; Hawes C; Paudyal R; Warriner SL; Baker A (2013) An inhibitor of oil body mobilization in Arabidopsis New Phytopath 200, 641-649 DOI:10.1111/nph.12467

Crisford A; Ludlow E; Marvin J; Kearn J; O'Connor V; Urwin PE; Lilley C; Holden-Dye L (2013) LEVERAGING C. ELEGANS CUE-DEPENDENT BEHAVIOR TO UNDERSTAND THE HOST/PARASITE INTERACTION FOR PLANT PARASITIC NEMATODES Journal Of Nematology 45, 285-285,

De Marcos Lousa C; van Roermund CW; Postis VL; Dietrich D; Kerr ID; Wanders RJ; Baldwin SA; Baker A; Theodoroulou FL (2013) Intrinsic acyl-CoA thioesterase activity of a peroxisomal ATP binding cassette transporter is required for transport and metabolism of fatty acids. Proceedings of the National Academy of Sciences of USA 110, 1279-1284 DOI:10.1073/pnas.1218034110

Foyer CH; Noctor G (2013) Redox signaling in plants. Antioxid Redox Signal 18, 2087-2090, DOI:10.1089/ars.2013.5278


Gilbert HJ; Knox JP; Boraston AB (2013) Advances in understanding the molecular basis of plant cell wall polysaccharide recognition by carbohydrate-binding modules Current Opinion in Structural Biology 23, 669-677, DOI:10.1016/j.sbi.2013.05.005


Kerchev PI; Karpinska B; Morris JA; Hussain A; Verrall SR; Hedley PE; Fenton B; Foyer CH; Hancock RD (2013) Vitamin C and the abscissic acid-insensitive 4 transcription factor are important determinants of aphid resistance in Arabidopsis. Antioxid Redox Signal 18, 2091-2105 DOI:10.1089/ars.2012.5097

Lee KJD; Cornault V; Manfield IW; Ralet M-C; Knox JP (2013) Multi-scale spatial heterogeneity of pectic rhamnogalacturonan I (RG-I) structural features in tobacco seed endosperm cell walls. Plant Journal 75, 1018-1027 DOI:10.1111/tpj.12263

Lloyd JPB; Davies B (2013) SMG1 is an ancient nonsense-mediated mRNA decay effector Plant Journal 76, 800-810 DOI:10.1111/tpj.12329

Luís AS; Venditto I; Prates JAM; Ferreira LMA; Temple MJ; Rogowski A; Baslé A; Xue J; Knox JP; Najmudin S; Fontes CMGA; Gilbert HJ (2013) Understanding how noncatalytic carbohydrate binding modules can display specificity for xyloglucan Journal of Biological Chemistry 288, 4799-4809 DOI:10.1074/jbc.M112.432781

Luis Garcia-Gimenez J; Markovic J; Dasi F; Queval G; Schnaubelt D; Foyer CH; Pallardo FV (2013) Nuclear glutathione Biochimica Et Biophysica Acta-General Subjects 1830, 3304-3316 DOI:10.1016/j.bbagen.2012.10.005


Meyer P (2013) Transgenes and their contributions to epigenetic research The International Journal of Developmental Biology 57, 509-515 DOI:10.1387/ijdb.120254pm

Munné-Bosch S; Queval G; Foyer CH (2013) The impact of global change factors on redox signaling underpinning stress tolerance Plant Physiology 161, 5-19 DOI:10.1104/pp.112.205690


Schnaubelt D; Queval G; Dong Y; Diaz-Vivancos P; Makgopa ME; Howell G; DE Simone A; Bai J; Hannah MA; Foyer CH (2013) Low glutathione regulates gene expression and the redox potentials of the nucleus and cytosol in Arabidopsis thaliana. Plant Cell Environment - DOI:10.1111/pce.12252


Tripathi L; Tripathi JN; Roderick H; Atkinson HJ (2013) Engineering nematode resistant plantains for sub-Saharan Africa Acta Horticulturae 974, 99-108,

Verhertbruggen Y; Marcus SE; Chen J; Knox JP (2013) Cell wall pectic arabinans influence the mechanical properties of Arabidopsis thaliana inflorescence stems and their response to mechanical stress. Plant And Cell Physiology 54, 1278-1288, DOI:10.1093/pcp/pct074


2012


Brunoud G; Wells DM; Oliva M; Larrieu A; Mirabet V; Burrow AH; Beeckman T; Kepinski S; Traas J; Bennett MJ; Vernoux T (2012) A novel sensor to map auxin response and distribution at high spatio-temporal resolution. Nature 482, 103-106 DOI:10.1038/nature10791

Calderón Villalobos LIA; Parry G; Estelle M; Lee S; Napier R; De Oliveira C; Ivetac A; Brandt W; Armitage L; Kepinski S; Sheard LB; Tan X; Mao H; Zheng N (2012) A combinatorial TIR1/AFB-Aux/IAA co-receptor system for differential sensing of auxin Nature Chemical Biology 8, 477-485 DOI:10.1038/nchembio.926


Causier B; Lloyd J; Stevens L; Davies B (2012) TOPLess co-repressor interactions and their evolutionary conservation in plants. Plant Signal Behav 7, 325-328 DOI:10.4161/psb.19283
Davies LJ; Lilley CJ; Paul Knox J; Urwin PE (2012) Syncytia formed by adult female Heterodera schachtii in Arabidopsis thaliana roots have a distinct cell wall molecular architecture New Phytologist 196, 238-246 DOI:10.1111/j.1469-8137.2012.04238.x


De Rybel B; Audenaert D; Xuan W; Overvoorde P; Strader LC; Kepinski S; Hooy R; Brisbois R; Parizot B; Vanneste S; Liu X; Gilday A; Graham IA; Nguyen L; Jansen L; Njo MF; Inzé D; Bartel B; Beeckman T (2012) A role for the root cap in root branching revealed by the non-auxin probe naxillin. Nat Chem Biol 8, 798-805, DOI:10.1038/nchembio.1044

Denecke J; Aniento F; Frigerio L; Hawes C; Hwang I; Mathur J; Neuhaus JM; Robinson DG (2012) Secretory pathway research: the more experimental systems the better. Plant Cell 24 1316-1326, DOI:10.1105/tpc.112.096362


Drury GE; Dowle AA; Ashford DA; Waterworth WM; Thomas J; West CE (2012) Dynamics of plant histone modifications in response to DNA damage. Biochemical Journal 445, 393-401 DOI:10.1042/BJ20111956

Fangel JU; Ulvskov P; Knox JP; Mikkelsen MD; Harholt J; Popper ZA; Willats WGT (2012) Cell wall evolution and diversity Frontiers In Plant Science 3 -, DOI:10.3389/fpls.2012.00152


Harholt J; Jensen JK; Verhertbruggen Y; Søgaard C; Bernard S; Nafisi M; Poulsen CP; Geshi N; Sakuragi Y; Driouch A; Knox JP; Scheller HV (2012) ARAD proteins associated with pectic Arabinan biosynthesis form complexes when transiently overexpressed in planta. Planta 236, 115-128, DOI:10.1007/s00425-012-1592-3

Hayashi K; Neve J; Hirose M; Kuboki A; Shimada Y; Kepinski S; (2012) Nozaki H Rational design of an auxin antagonist of the SCF(TIR1) auxin receptor complex. ACS Chem Biol 7, 590-598 DOI:10.1021/cb200404c

Hu J; Baker A; Bartel B; Linka N; Mullen RT; Reumann S; Zolman BK (2012) Plant peroxisomes: biogenesis and function Plant Cell 24, 2279-2303 DOI:10.1105/tpc.112.096586

Kamisugi Y; Schaefer DG; Kozak J; Charlo F; Frielynck N; Holá M; Angelis KJ; Cuming AC; Nogué F (2012) MRE11 and RAD50, but not NBS1, are essential for gene targeting in the moss Physcomitrella patens. Nucleic Acids Res 40, 3496-3510 DOI:10.1093/nar/gkr1272

Kercchev PI; Fenton B; Foyer CH; Hancock RD (2012) Infestation of potato (Solanum tuberosum L.) by the peach-potato aphid (Myzus persicae Sulzer) alters cellular redox status and is influenced by ascorbate. Plant Cell Environ 35, 430-440 DOI:10.1111/j.1365-3040.2011.02395.x


Lee KJ; Dekkers BJ; Steinbrecher T; Walsh CT; Bacic A; Bentsink L; Leubner-Metzger G; Knox JP (2012) Distinct cell wall architectures in seed endosperms in representatives of the Brassicaceae and Solanaceae. Plant Physiology 160, 1551-1566, DOI:10.1104/pp.112.203661

Lilley CJ; Davies LJ; Urwin PE (2012) RNA interference in plant parasitic nematodes: a summary of the current status. Parasitology 139, 630-640 DOI:10.1017/S0031182011002071


Nyathi Y; Zhang X; Baldwin JM; Bernhardt K; Johnson B; Baldwin SA; Theodoulou FL; Baker A (2012) Pseudo half-molecules of the ABC transporter, COMATOSE, bind Pex19 and target to peroxisomes independently but are both required for activity. FEBS Letters 586, 2280-2286 DOI:10.1016/j.febslet.2012.05.065


Pedersen HL; Fangel JU; Rydahl MG; Willats WGT; McGeary B; Ruzanski C; Field R; Ralet M-C; Farkas V; Von Schantz L; Ohlin M; Marcus SE; Knox JP; Andersen MCF; Clausen MH (2012) Versatile high resolution oligosaccharide microarrays for plant glycobiology and cell wall research Journal of Biological Chemistry 287, 39429-39438, DOI:10.1074/jbc.M112.396598


Rayson S; Ashworth M; de Torres Zabala M; Grant M; Davies B (2012) The salicylic acid dependent and independent effects of NMD in plants. Plant Signal Behav 7, 1434-1437 DOI:10.4161/psb.21960

Rayson S; Arciga-Reyes L; Wootten L; De Torres Zabala M; Truman W; Graham N; Grant M; Davies B (2012) A role for nonsense-mediated mRNA decay in plants: pathogen responses are induced in Arabidopsis thaliana NMD mutants. PLoS One 7 e31917- DOI:10.1371/journal.pone.0031917

Roderick H; Mbiru E; Coyne D; Tripathi L; Atkinson HJ (2012) Quantitative digital imaging of banana growth suppression by plant parasitic nematodes. PLoS One 7 e53355- DOI:10.1371/journal.pone.0053355

Roderick H; Tripathi L; Babire A; Wang D; Tripathi J; Urwin PE; Atkinson HJ (2012) Generation of transgenic plantain (Musa spp.) with resistance to plant pathogenic nematodes. Mol Plant Pathol 13, 842-851 DOI:10.1111/j.1364-3703.2012.00792.x

Salleh FM; Evans K; Goodall B; Machin H; Mowla SB; Mur LA; Runions J; Theodoulou FL; Foyer CH; Rogers HJ (2012) A novel function for a redox-related LEA protein (SAG21/AtLEA5) in root development and biotic stress responses. Plant Cell Environ 35, 418-429 DOI:10.1111/j.1365-3040.2011.02394.x

Siroky J; Benians TAS; Russell SJ; Bechtold T; Knox JP; (2012) Blackburn RS Analysis of crystallinity changes in cellulose II polymers using carbohydrate-binding modules Carbohydrate Polymers 89, 213-221, DOI:10.1016/j.carbpol.2012.02.073


Zhang SJ; Song XQ; Yu BS; Zhang BC; Sun CQ; Knox JP; Zhou YH (2012) Identification of quantitative trait loci affecting hemicellulose characteristics based on cell wall composition in a wild and cultivated rice species. Mol Plant 5, 162-175, DOI:10.1093/mp/ssr076

Zhu Q; Dugardeyn J; Zhang C; Takenaka M; Kühn K; Craddock C; Smalle J; Karampelas M; Denecke J; Peters J; Gerats T; Brennicke A; Eastmond P; Meyer EH; Van Der Straeten D (2012) SLO2, a mitochondrial pentatricopeptide repeat protein affecting several RNA editing sites, is required for energy metabolism. Plant Journal 71 836-849, DOI:10.1111/j.1365-313X.2012.05036.x


2011

Atkinson NJ; Dew TP; Orfila C; Urwin PE (2011) Influence of combined biotic and abiotic stress on nutritional quality parameters in tomato (Solanum lycopersicum). J Agric Food Chem 59, 9673-9682 DOI:10.1021/jf202081t


Bottanelli F; Foresti O; Hanton S; Denecke J (2011) Vacuolar Transport in Tobacco Leaf Epidermis Cells Involves a Single Route for Soluble Cargo and Multiple Routes for Membrane Cargo Plant Cell 23, 3007-3025, DOI:10.1105/tpc.111.085480

Brown LA; O’Leary-Steele C; Brookes P; Armitage L; Kepinski S; Warriner SL; Baker A (2011)
A small molecule with differential effects on the PTS1 and PTS2 peroxisome matrix import pathways. Plant Journal 65, 980-990, DOI:10.1111.j.1365-313X.2010.04473.x

Chater C; Kamisugi Y; Movahedi M; Fleming A; Cuming AC; Gray JE; Beerling DJ (2011) Regulatory mechanism controlling stomatal behavior conserved across 400 million years of land plant evolution. Current Biology 21, 1025-1029 DOI:10.1016/j.cub.2011.04.032


Fenta BA; Driscoll SP; Kunert KJ; Foyer CH (2011) Characterization of Drought-Tolerance Traits in Nodulated Soya Beans: The Importance of Maintaining Photosynthesis and Shoot Biomass Under Drought-Induced Limitations on Nitrogen Metabolism Journal of Agronomy and Crop Science -


Fitch MMM; Leong TCW; He XL; McCafferty HRK; Zhu YJ; Moore PH; Gonsalves D; Aldwinckle HS; Atkinson HJ (2011) Improved transformation of Anthurium. Hortscience 46, 358-364


Foyer CH; Shigeoka S (2011) Understanding oxidative stress and antioxidant functions to enhance photosynthesis. Plant Physiology 155, 93-100 DOI:10.1104/pp.110.166181


Kerchev PI; Pellny TK; Vivancos PD; Kiddie G; Hedden P; Driscoll S; Vanacker H; Verrier P; Hancock RD; Foyer CH (2011) The Transcription Factor ABI4 Is Required for the Ascorbic Acid-Dependent Regulation of Growth and Regulation of Jasmonate-Dependent Defense Signaling Pathways in Arabidopsis Plant Cell 23, 3319-3334 DOI:10.1105/tpc.111.090100

Kieffer M; Master V; Waites R; Davies B (2011) TCP14 and TCP15 affect internode length and leaf shape in Arabidopsis. Plant Journal 68, 147-158 DOI:10.1111/j.1365-313X.2011.04674.x

Kljun A; Benians TA; Goubet F; Meulewaeter F; Knox JP; Blackburn RS (2011) Comparative analysis of crystallinity changes in cellulose I polymers using ATR-FTIR, X-ray diffraction, and carbohydrate-binding module probes. Biomacromolecules 12, 4121-4126, DOI:10.1021/bm201176m


Leroux O; Bagniewska-Zadworna A; Rambe SK; Knox JP; Marcus SE; Bellefroid E; Stubbe D; Chabbert B; Habrant A; Claeyss M; Viane RLL (2011) Non-lignified helical cell wall thickenings in root cortical cells of Aspleniaceae (Polypodiales): histology and taxonomic significance Annals of Botany 107, 195-207, DOI:10.1093/aob/mcq225

Leroux O; Knox JP; Masschaele B; Bagniewska-Zadworna A; Marcus SE; Claeyss M; van Hoorebeke L; Viane RL (2011) An extensin-rich matrix lines the carinal canals in Equisetum ramosissimum, which may function as water-conducting channels. Annals of Botany 108, 307-319, DOI:10.1093/aob/mcr161
Leroux O; Leroux F; Bagniewska-Zadworna A; Knox JP; Claeyts M; Bals S; Viane RL (2011) Ultrastructure and composition of cell wall appositions in the roots of Asplenium (Polypodiales). Micron 42, 863-870, DOI:10.1016/j.micron.2011.06.002


Lopes MS; Araus JL; van Heerden PDR; Foyer CH (2011) Enhancing drought tolerance in C4 crops Journal Of Experimental Botany 62, 3135-3153 DOI:10.1093/jxb/err105

Lopes MS; Foyer CH (2011) The impact of high CO on plant abiotic stress tolerance Crop Stress Management and Global Climate Change 85-104


Manabe Y; Nafisi M; Verhertbruggen Y; Orfila C; Gille S; Rautengarten C; Cherk C; Marcus SE; Somerville S; Pauly M; Knox JP; Sakuragi Y; Scheller HV (2011) Loss-of-function mutation of REDUCED WALL ACETYLATION2 in Arabidopsis leads to reduced cell wall acetylation and increased resistance to Botrytis cinerea Plant Physiology 155, 1068-1078, DOI:10.1104/pp.110.168989


Prins A; Mukubi JM; Pellny TK; Verrier PJ; Beyene G; Lopes MS; Emami K; Treumann A; Lelarge-Trouverie C; Noctor G; Kunert KJ; Kerchev P; Foyer CH (2011) Acclimation to high CO2 in maize is related to water status and dependent on leaf rank Plant Cell Environ 34, 314-331 DOI:10.1111/j.1365-3040.2010.02245.x


Vernoux T; Brunoud G; Faricot E; Morin V; Van den Daele H; Legrand J; Oliva M; Das P; Larrieu A; Wells D; Guedon Y; Armitage L; Picard F; Guyomarc'h S; Cellier C; Parry G; Koumprog Lou; Doanan JH; Estelle M; Godin C; Kepinski S; Bennett M; De Veylder L; Traas J (2011) The auxin signalling network translates dynamic input into robust patterning at the shoot apex. Mol Syst Biol 7, - DOI:10.1038/msb.2011.39

Vivancos PD; Driscoll SP; Bulman CA; Ying L; Emami K; Treumann A; Mauve C; Noctor G; Foyer CH (2011) Perturbations of Amino Acid Metabolism Associated with Glyphosate-Dependent Inhibition of Shikimic Acid Metabolism Affect Cellular Redox Homeostasis and Alter the Abundance of Proteins Involved in Photosynthesis and Photorespiration. Plant Physiology 157, 256-268 DOI:10.1104/pp.111.181024

Wang D; Jones LM; Urwin PE; Atkinson HJ (2011) A synthetic peptide shows retro- and anterograde neuronal transport before disrupting the chemosensibility of plant-pathogenic nematodes PLOS ONE 6, DOI:10.1371/journal.pone.0017475

Waterworth WM; Drury GE; Bray CM; West CE (2011) Repairing breaks in the plant genome: the importance of keeping it together. New Phytology 192, 805-822 DOI:10.1111/j.1469-8137.2010.03926.x

Yin L; Verhertbruggen Y; Oikawa A; Manisseri C; Knieirbm B; Prak L; Jensen JK; Knox JP; Auer M; Willats WG; Scheller HV (2011) The cooperative activities of CSLD2, CSLD3, and CSLD5 are required for normal Arabidopsis development. Mol Plant 4, 1024-1037, DOI:10.1093/mp/ssr026

Zhang XB; Lousa CD; Schutte-Lensink N; Ofman R; Wanders RJ; Baldwin SA; Baker A; Kemp S; Theodoulou FL (2011) Conservation of targeting but divergence in function and quality control of peroxisomal ABC transporters: an analysis using cross-kingdom expression Biochem Journal 436, 547-557 DOI:10.1042/BJ20110249

Zubko E; Kunova A; Meyer P (2011) Sense and antisense transcripts of convergent gene pairs in Arabidopsis thaliana can share a common polyadenylation region. PLOS ONE 6, DOI:10.1371/journal.pone.0016769

2010

Airoldi CA; Bergonzi S; Davies B (2010) Single amino acid change alters the ability to specify male or female organ identity Proc Nati Acad Sci USA 107, 18898-18902 DOI:10.1073/pnas.1009050107

Baker A; Sparkes IA; Brown LA; O'Leary-Steele C; Warriner SL (2010) Peroxisome biogenesis and positioning Biochemical Society Transactions 38, 807-816 DOI:10.1042/BST0380807

Bartsch M; Bednarek P; Vivancos PD; Schneider B; von Roepenack-Lahaye E; Foyer CH; Kombrik E; Scheel D; Parker JE (2010) Accumulation of isochorismate-derived 2,3-Dihydroxybenzoic 3-O-beta-D-Xyloside in Arabidopsis Resistance to Pathogens and Ageing of Leaves J Biol Chem 285, 25654-25665 DOI:10.1074/jbc.M109.092569

Bemer M; Heijmans K; Airoldi C; Davies B; (2010) Angenent GC An Atlas of Type I MADS Box Gene Expression during Female Gametophyte and Seed Development in Arabidopsis Plant Physiol 154, 287-300 DOI:10.1104/pp.110.160770


Causier B; Castillo R; Xue YB; Schwarz-Sommer Z; Davies B (2010) Tracing the Evolution of the Floral Homeotic B- and C-Function Genes through Genome Synteny Mol Biol Evol 27, 2651-2664 DOI:10.1093/molbev/mqs156

Causier B; Schwarz-Sommer Z; Davies B (2010) Floral organ identity: 20 years of ABCs Semin Cell Dev Biol 21, 72-79 DOI:10.1016/j.semcdb.2010.01.005


Hager J; Pellny TK; Mauve C; Lelarge-Trouverie C; De Paepe R; Foyer CH; Noctor G (2010) Conditional modulation of NAD levels and metabolite profiles in Nicotiana sylvestris by mitochondrial electron transport and carbon/nitrogen supply. Planta 231, 1145-1157 DOI:10.1007/s00425-010-1117-x
Herve C; Rogowski A; Blake AW; Marcus SE; Gilbert HJ; Knox JP (2010) Carbohydrate-binding modules promote the enzymatic deconstruction of intact plant cell walls by targeting and proximity effects. Proc Natl Acad Sci USA 107, 15293-15298, DOI:10.1073/pnas.1005732107


Lanyon-Hogg T; Warriner SL; Baker A (2010) Getting a camel through the eye of a needle: the import of folded proteins by peroxisomes Biology of the Cell 102, 245-263 DOI:10.1042/BC20090159


Li JH; Dudas B; Webster MA; Cook HE; Davies BH; Gilmartin PM (2010) Hose in Hose, an S locus-linked mutant of Primula vulgaris, is caused by an unstable mutation at the Globosa locus Proc Natl Acad Sci USA 107, 5664-5668, DOI:10.1073/pnas.0910955107

Marcus SE; Blake AW; Benians TAS; Lee KJD; Poyser C; Donaldson L; Leroux O; Rogowski A; Petersen HL; Boraston A; Gilbert HJ; Willats WGT; Knox JP (2010) Restricted access of proteins to mannan polysaccharides in intact plant cell walls Plant Journal 64, 191-203, DOI:10.1111/j.1365-313X.2010.04319.x

Maughan SC; Pasternak M; Cairns N; Kiddle G; Brach T; Jarvis R; Haas F; Nieuwland J; Lim B; Muller C; Salcedo-Sora E; Kruse C; Orsel M; Hell R; Miller AJ; Bray P; Foyer CH; Murray JAH; Meyer AJ; Cobbett CS (2010) Plant homologs of the Plasmodium falciparum chloroquine-resistance transporter, PfCRT, are required for glutathione homeostasis and stress responses Proc Natl Acad Sci USA 107 2331-2336, DOI:10.1073/pnas.0913689107


Mehrsahri P; Gonzalez-Jorge S; Akhtar TA; Ward JL; Santoyo-Castelazo A; Marcus SE; Lara-Nunez A; Ravanel S; Hawkins ND; Beale MH; Barrett DA; Knox JP; Gregory JF; Hanson AD; Bennett MJ; DellaPenna D (2010) Functional analysis of folate polyglutamylation and its essential role in plant metabolism and development Plant Journal 64, 267-279, DOI:10.1111/j.1365-313X.2010.04336.x

Meyer P (2010) DNA methylation systems and targets in plants FEBS letters -, DOI:10.1016/j.febslet.2010.08.017

Mitsuya S; El-Shami M; Sparkes IA; Charlton WL; Lousa CD; Johnson B; Baker A (2010) Salt stress causes peroxisome proliferation, but inducing peroxisome proliferation does not improve NaCl tolerance in Arabidopsis thaliana PLoS One 5, 1-10 DOI:10.1371/journal.pone.0009408

Muller C; Salcedo-Sora E; Kruse C; Orsel M; Hell R; Miller AJ; Bray P; Foyer CH; Murray JAH; Meyer AJ; Cobbett CS (2010) Plant homologs of the Plasmodium falciparum chloroquine-resistance transporter, PfCRT, are required for glutathione homeostasis and stress responses Proc Natl Acad Sci USA 107, 2331-2336, DOI:10.1073/pnas.0913689107

Nyathi Y; Lousa CDM; van Roermund CW; Wanders RJA; Johnson B; Baldwin SA; Theodoulou FL; Baker A (2010) The Arabidopsis Peroxosomal ABC Transporter, Comatose, Complements the Saccharomyces cerevisiae pxa1 pxa2 Delta Mutant for Metabolism of Long-chain Fatty Acids and Exhibits Fatty Acyl-CoA-stimulated ATPase Activity Journal of Biological Chemistry 285, 29892-29902, DOI:10.1074/jbc.M110.151225

Vivancos PD; Wolff T; Markovic J; Pallardo FV; Foyer CH (2010) A nuclear glutathione cycle within the cell cycle Biochemical Journal 431, 169-178, DOI:10.1042/BJ20100409

Vivancos PD; Dong YP; Ziegler K; Markovic J; Pallardo FV; Pellny TK; Verrier PJ; Foyer CH (2010) Recruitment of glutathione into the nucleus during cell proliferation adjusts whole-cell redox homeostasis in Arabidopsis thaliana and lowers the oxidative defence shield Plant Journal 64, 825-838 DOI:10.1111/j.1365-313X.2010.04371.x

Waterworth WM; Masnavi G; Bhardwaj RM; Jiang Q; Bray CM; West CE (2010) A plant DNA ligase is an important determinant of seed longevity Plant Journal 63, 848-860, DOI:10.1111/j.1365-313X.2010.04285.x

Zhang HM; Han W; De Smet I; Talboys P; Loya R; Hassan A; Rong HL; Jurgens G; Knox JP; Wang MH (2010) ABA promotes quiescence of the quiescent centre and suppresses stem cell differentiation in the Arabidopsis primary root meristem Plant Journal 64, 764-774, DOI:10.1111/j.1365-313X.2010.04367.x

2010

Atkinson HJ; Urwin PE; Hussey RS (2009) Plant biotechnology and control Root-knot Nematodes 338-362,

Bartoli CG; Tambussi EA; Diego F; Foyer CH (2009) Control of ascorbic acid synthesis and accumulation and glutathione by the incident light red/far red ratio in Phaseolus vulgaris leaves FEBS Letters 583, 118-122, DOI:10.1016/j.febslet.2008.11.034


Causier B; Bradley D; Cook H; Davies B (2009) Conserved intragenic elements were critical for the evolution of the floral C-function Plant Journal 58, 41-52, DOI:10.1111/j.1365-313X.2008.03799.x


Cuming AC (2009) Mosses as Model Organisms for Developmental, Cellular and Molecular Biology In Bryophyte Biology


Dean PJ; Siwiec T; Waterworth WM; Schlogelhofer P; Armstrong SJ; West CE (2009) A novel ATM-dependent X-ray-inducible gene is essential for both plant meiosis and gametogenesis Plant Journal 58, 791-802, DOI:10.1111/j.1365-313X.2009.03814.x

Dietrich D; Schmuths H; Lousa CD; Baldwin JM; Baldwin SA; Baker A; Theodoulou FL; Holdsworth MJ (2009)

Atkinson HJ; Urwin PE; Hussey RS (2009) Plant biotechnology and control Root-knot Nematodes 338-362,
Mutations in the Arabidopsis Peroxisomal ABC Transporter COMATOSE Allow Differentiation between Multiple Functions In Planta: Insights from an Allelic Series Mol Biol Cell 20, 530-543 DOI:10.1091/mbc.E08-07-0745


Kamisugi Y; Cuming AC (2009) Gene targeting In The Moss Physcomitrella , 36: 76-112


Kozak J; West CE; White C; da Costa-Nunes JA; Angelis KJ (2009) Rapid repair of DNA double strand breaks in Arabidopsis thaliana is dependent on proteins involved in chromosome structure maintenance DNA Repair 8, 413-419, DOI:10.1016/j.dnarep.2008.11.012

Montanier C; van Bueren AL; Dumon C; Flint JE; Correia MA; Prates JA; Firbank SJ; Lewis RJ; Grondin GG; Ghinet MG; Gloster TM; Herve C; Knox JP; Talbot BG; Kerovuo J; Brzezinski R; Fontes CMGA; Davies GJ; Boraston AB; Gilbert HJ (2009) Evidence that family 35 carbohydrate binding modules display conserved specificity but divergent function Proc Natl Acad Sci USA 106, 3065-3070, DOI:10.1073/pnas.0808972106


Pellny TK; Locato V; Vivancos PD; Markovic J; De Gara L; Pallardo FV; Foyer CH (2009) Pyridine Nucleotide Cycling and Control of Intracellular Redox State in Relation to Poly (ADP-ribose) Polymerase Activity and Nuclear Localization of Glutathione during Exponential Growth of Arabidopsis Cells in Culture Mol Plant 2,442-456, DOI:10.1093/mp/ss008


Siddique S; Endres S; Atkins JM; Szakasits D; Wieczorek K; Hofmann J; Blaukopf C; Urwin PE; Tenhaken R; Grundler FMW; Kreil DP; Bohlmann H (2009) Myo-inositol oxygenase genes are involved in the development of syncytia induced by Heterodera schachtii in Arabidopsis roots New Phytologist 184, 457-472 DOI:10.1111/j.1469-8137.2009.02981.x

Soares-Cordeiro AS; Driscoll SP; Pellny TK; Olmos E; Arrabaca MC; Foyer CH (2009) Variations in the dorso-ventral organization of leaf structure and Kranz anatomy coordinate the control of photosynthesis and associated signalling at the whole leaf level in monocotyledonous species Plant Cell Environ 32, 1833-1844, DOI:10.1111/j.1365-3040.2009.02043.x

Valtaud C; Foyer CH; Fleurat-Lessard P; Bourbouloux A (2009) Systemic effects on leaf glutathione metabolism and defence protein expression caused by esca infection in grapevines Funct Plant Biol 36, 260-279, DOI:10.1071/FP08293

Van Heerden PDR; Kiddle G; Pellny TK; Mokwala PW; Jordaan A; Strauss AJ; de Beer M; Schluter U; Kunert KJ; Foyer CH (2009) Novel insights into the inhibition of symbiotic nitrogen fixation by dark chilling in soybean root nodules S Afr J Bot 75, 442-442 DOI:10.1016/j.sajb.2009.02.171


Verhertbruggen Y; Marcus SE; Haeger A; Verhoef R; Schols HA; McCleary BV; McKee L; Gilbert HJ; Knox JP (2009) Developmental complexity of arabinan polysaccharides and their processing in plant cell walls Plant Journal 59, 413-425, DOI:10.1111/j.1365-313X.2009.03876.x


Waterworth WM; Kozak J; Provost CM; Bray CM; Angelis KJ; West CE (2009) DNA ligase 1 deficient plants display severe growth defects and delayed repair of both DNA single and double strand breaks Bmc Plant Biol 9 -, DOI:10.1186/1471-2229-9-79