# PROGRAM & ABSTRACTS



## 16th International Conference on ARABIDOPSIS RESEARCH

June 15 – June 19, 2005

University of Wisconsin Madison, WI

Throughout this **PROGRAM**, the numbers next to abstracts refer to abstract numbers, not the page number in the **ABSTRACT** part of this book.

#### **SESSION OVERVIEW**

8:00 - 9:30 pm SESSION A: Cell Biology

THURSDAY, JUNE 16, 2005
9:00 - 10:30 am SESSION B: Cell Signaling

11:00 10:30 pm SESSION C: Development 1. Flower Fortilization Fruit and Sea

**11:00 - 12:30 pm SESSION C:** Development 1 - Flower, Fertilization, Fruit, and Seed **2:00 - 3:30 pm SESSION D:** Development 2 - Shoot and Root

**4:00 - 5:30 pm** SESSION E: Metabolism **7:00 - 12:00 am** POSTER SESSION I

FRIDAY, JUNE 17, 2005

**WEDNESDAY, JUNE 15, 2005** 

9:00 - 10:30 am SESSION F: 'omics

11:00 - 12:30 pm SESSION G: Interaction with the Environment 1 - Abiotic SESSION H: Interaction with the Environment 2 - Biotic

7:00 - 12:00 am POSTER SESSION II

**SATURDAY, JUNE 18, 2005** 

9:00 - 10:30 am
9:00 am - 12:30 pm
AGA SESSION I: Genetic and Epigenetic Mechanisms
AGA SESSION 1: Evolution and Development
SESSION J: Novel Tools, Techniques and Resources
SESSION J: Novel Tools, Techniques and Resources

2:00 - 5:30 pm SESSION K (Joint with AGA Session 2): Evolutionary Biology

8:00 - 12:00 am POSTER SESSION III

**SUNDAY, JUNE 19, 2005** 

**9:00 - 10:30 am** SESSION L: 2010

9:00 am - 12:30 pm AGA SESSION 3: Quantitative Genetics

11:00 - 12:30 pm SESSION M: NAASC Choices

### **Meeting Organizers:**

Members of the North American Arabidopsis Steering Committee (NAASC) are serving as the program committee for the 2005 meeting.

Philip Benfey, Duke University
Brenda Winkel-Shirley, Virginia Tech
Greg Copenhaver, University of North Carolina, Chapel Hill
Rob McClung, Dartmouth College
Judith Bender, Johns Hopkins University
Xing-Wang Deng, Yale University
Bonnie Bartel, Rice University, Houston, Texas
Eric Richards, Washington University, St. Louis

Isabell Witt, coordinator for NAASC

The 2005 AGA Symposium, Plant Evolution: Genes and Phenotypes is being organized by **John Doebley**, 2005 President of the AGA.

# **MEETING SPONSORS**



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# **MEETING EXHIBITORS**

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# **NOTES**

### **PROGRAM OVERVIEW**

#### Poster schedule

All posters will remain up for the entire meeting and can be set up Thursday morning beginning at 7 AM. There will be three poster sessions, one Thursday evening, one Friday evening and one Saturday evening. To determine when you should stand next to your poster:

Find your abstract in this book; your poster number is the number it is assigned in this book, NOT the number it was assigned when you originally submitted it.

All posters with EVEN numbers will be presented on Thursday evening. All posters with ODD numbers will be presented on Friday evening.

Saturday evening's poster session will be a "free-for-all" – plenty of time to look at all posters, or stand by your own if you need more time for discussion,

Wednesday, June 15, 2005			
12:00 noon – 7:00 pm	Registration	Main Lounge	
4:00 - 5:30 pm	WORKSHOPS I Chair: Rob McClung Molecular Analysis of the Circadian Clock Mechanism	Union Theater	
5:30 - 7:00 pm	Dinner	<b>Tripp Commons</b>	
7:00 - 8:00 pm	KEYNOTE ADDRESS  Chris Somerville (Carnegie/Stanford)  Energizing Arabidopsis	Union Theater	
8:00 - 9:30 pm	SESSION A: Cell Biology	Union Theater	
8:00 pm	Kathy Osteryoung, Michigan State University, Session Chair Composition and analysis of the chloroplast division machinery		
8:25 pm	Marisa Otegui, University of Wisconsin Prevacuolar compartments as proteolytic processing stations for storage proteins in <i>Arabidopsis</i>		
8:50 pm	Tomasz Paciorek, ZMBP Tuebingen, Germany Auxin inhibits endocytosis and promotes its own efflux from cells		
9:10 pm	Rajagopal Balasubramanian, Clemson University  A Role for the Actin Cytoskeleton in Hexokinase Mediated Glucose Signaling		

# Thursday, June 16, 2005

7:00 am – all day	Poster set-up	See Below Locations
•	Great Hall/Reception Room (4th floor)	
	Posters of Orals (not including Session Chairs) ( $#1 - 60$ )	
	2010 (#61 – 74)	
	Cell Biology (#75 – 134)	
	Cell Signaling (#135 – 203)	
	Databases and Community Resources (#204 – 216)	
	Development 1: Flower, Fertilization, Fruit, & Seed (#217	(7-308)
	Late Submitted Abstracts: (#660 – 672)	
	Old Madison/Beefeaters Room (3 <sup>rd</sup> floor)	
	Development 2: Shoot and Root (#309 – 388)	
	Evolution and Development (AGA) (#389 – 397)	
	Evolutionary Biology (#398 – 412)	
	Tripp Commons (2 <sup>nd</sup> floor)	
	Genetic and Epigenetic Mechanisms (#413 – 449)	
	Interaction with the Environment 1: Abiotic (#450 – 524)	
	Interaction with the Environment 2: Biotic (#525 – 564)	
	Main Lounge (2 <sup>nd</sup> floor)	
	Interaction with the Environment 2: Biotic (#565 – 582)	
	Metabolism $(583 - 618)$	
	Novel Tools Techniques and Resources (#619 – 645)	
	Proteomics ( $\#646 - 652$ )	
	Quantitative Genetics (AGA) (#653 – 659)	

7:00 am - 8:00 pm	Registration Continues	Annex Room
7:45 - 9:00 am	Breakfast	Tripp Commons
8:50 - 9:00 am	Welcome and Announcements	Union Theater
9:00 - 10:30 am	SESSION B: Cell Signaling	Union Theater
9:00 am	Sally Assmann, Penn State University, Session Chair Signaling by heterotrimeric and extra-large G proteins in <i>Arabidopsis</i> ABA responses	
9:25 am	Kiyotaka Okada, Kyoto University, Japan  Axis -dependent gene expression in the lateral organ formation	
9:50 am	<b>Li-Sen Young, University of Wisconsin-Madison</b> A Mutation in the <i>Arabidopsis</i> ADK1 Gene Affects Root Gravitropism, Columella Morphogenesis and Lateral Auxin Transport Across the Root Tip	
10:03 am	Heather Shearer, McMaster University, Canada A lipid transfer protein-like protein, DIR1, is involved in long distance signaling during the development of systemic acquired resistance	
10:16 am	Lynn Hartweck, University of Minnesota Identification of O-GlcNAc modification of proteins in severa pathways	l signaling

10:30 - 11:00 am

**Refreshment Break** 

**Union Theater Lobby** 

11:00 - 12:30 pm	SESSION C:  Development 1 - flower, fertilization, fruit, and seed	<b>Union Theater</b>
11:00 am	Rick Amasino, University of Wisconsin, Session Chair Regulation of Flowering Time and the role of Vernalization	
11:25 am	George Coupland, Max-Planck Institute for Breeding Research The control of flowering by day length in <i>Arabidopsis</i>	ch, Germany
11:50 am	Michitaka Notaguchi, Kyoto University, Japan Studies on the graft-transmissibility of promotion of flowering by Arabidopsis	FT in
12:03 pm	Melinka A. Butenko INFLORESCENCE DEFICIENT IN ABSCISSION Controls Flor Organ Abscission in <i>Arabidopsis</i>	al
12:16 pm	Moritz Nowack, Max-Planck-Institute for Breeding Research A novel positive signal from the fertilization of the egg cell sets of endosperm proliferation in angiosperm embryogenesis	
12:30 - 2:00 pm	Lunch	<b>Tripp Commons</b>
2:00 - 3:30 pm	SESSION D: Development 2 - shoot and root	<b>Union Theater</b>
2:00 pm	Gerd Jürgens, ZMBP University of Tuebingen, Session Chair From embryogenesis to the vegetative plant	
2:25 pm	<b>Doris Wagner, University of Pennsylvania</b> Two tales of meristems	
2:50 pm	Masahiko Furutani, Nara Institute of Science and Technology The MACCHI-BOU genes regulate organogenesis together with F	· · · · · · · · · · · · · · · · · · ·
3:03 pm	<b>Dana MacGregor, University of Chicago</b> Phosphatidylinositol signaling is involved in the regulation of roo system architecture	t
3:16 pm	<b>John Chandler, University of Cologne, Germany</b> DRN and DRN-LIKE of <i>Arabidopsis</i> redundantly control early er onic patterning through interactions with class III HD-ZIP protein	
3:30 - 4:00 pm	Refreshment Break Un	ion Theater Lobby
4:00 - 5:30 pm	SESSION E: Metabolism	<b>Union Theater</b>
4:00 pm	Alison Smith, John Innes Centre United Kingdom, Session Ch Shedding light on metabolism in the dark	air
4:25 pm	Jorge Vivanco, Colorado State University Root Exudation of Antimicrobials Mediates Pathogen Resistance Arabidopsis	in
4:50 pm	Joost Keurentjes, Wageningen University - Dep. of Genetics, This throughput metabolomics for the construction of regulatory works for plant metabolism	
5:03 pm	Peter Eastmond, University of York, United Kingdom <i>Arabidopsis</i> mutants that are defective in seed storage reserve depand mobilization: RDM1 encodes the triacylglycerol lipase that cathe first step in storage oil breakdown	

5:	16	'n	m
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#### Indrani Mukherjee, University Of South Carolina

The FRO3 ferric reductase plays a vital role in iron homeostasis in *Arabidopsis* 

5:30 - 7:00 pm	Dinner	Tripp Commons
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### 7:00 - 12:00 am POSTER SESSION I

**See Below Locations** 

### Please present (stand by) your poster if your abstract number in this book is EVEN

**Great Hall/Reception Room (4th floor)** 

Posters of Orals (not including Session Chairs) (#1 – 60)

2010 (#61 - 74)

Cell Biology (#75 – 134)

Cell Signaling (#135 - 203)

Databases and Community Resources (#204 – 216)

Development 1: Flower, Fertilization, Fruit, & Seed (#217 – 308)

Late Submitted Abstracts: (#660 – 672)

#### Old Madison/Beefeaters Room (3rd floor)

Development 2: Shoot and Root (#309 – 388)

Evolution and Development (AGA) (#389 – 397)

Evolutionary Biology (#398 – 412)

#### Tripp Commons (2<sup>nd</sup> floor)

Genetic and Epigenetic Mechanisms (#413 – 449)

Interaction with the Environment 1: Abiotic (#450 – 524)

Interaction with the Environment 2: Biotic (#525 – 564)

### Main Lounge (2<sup>nd</sup> floor)

Interaction with the Environment 2: Biotic (#565 – 582)

Metabolism (583 – 618)

Novel Tools Techniques and Resources (#619 – 645)

Proteomics (#646 - 652)

Quantitative Genetics (AGA) (#653 – 659)

### **Friday, June 17, 2005**

7:45 - 9:00 am	Breakfast	<b>Tripp Commons</b>
9:00 - 10:30 am	SESSION F: 'omics	Union Theater
9:00 am	Natasha Raikhel, University of California Riverside, Session Chair Exploring Chemical Space in the Plant World	
9:30 am	Sigrun Reumann, Albrecht-von-Haller-Institute for Plant Sciences, Germany Studying Novel Plant Peroxisomal Functions by Bioinformatics and Proteomics	
9:50 am	Moshe Reuveni, ARO, Volcani center, Israel Studying the plant vacuolar ATPase function through hybrid plant-yeast V-ATPases	
10:10 am	<b>Linda Walling, University of California</b> LAPs and DAPs: N-terminal Modifying Enzymes of <i>Atthaliana</i>	rabidopsis

10:30 - 11:00 am	Refreshment Break	<b>Union Theater Lobby</b>
11:00 - 12:30 pm	SESSION G:	Union Theater
	Interaction with the Environment 1 - abiotic	
11:00 am	Rob McClung, Dartmouth College, Session Chair Abiotic Interactions with the Environment	
11:25 am	Steve Kay, The Scripps Research Institute Clocks, photoreceptors and photoperiodism	
11:50 am	David Salt, Purdue University Mapping the Arabidopsis ionome	
12:03 pm	<b>Triin Kollist, University of Tartu, Estonia</b> What can we learn by monitoring rapid O3-induced guard cel in <i>Arabidopsis</i> ?	l responses
12:16 pm	Stefanie Maruhnich, University of Florida	
	Two Visual Cycle Homologs, Ccd8/Max4 and a Putative Sho Dehydrogenase/Reductase, are Required for Normal Green L sponses in <i>Arabidopsis thaliana</i>	
12:30 - 2:00 pm	Lunch	Tripp Commons
2:00 - 3:30 pm	SESSION H:	Union Theater
	Interaction with the Environment 2 - biotic	
2:00 pm	Barbara Ann Halkier, RVAU Denmark, Session Chair The potential of engineering natural products to improve dise tance in <i>Arabidopsis thaliana</i>	ase resis-
2:25 pm	Jane Glazebrook, University of Minnesota A Functional Genomics Approach to Disease Resistance Sign	naling
2:50 pm	Adam Bahrami, Harvard University Pseudomonas syringae manipulates systemic plant defenses a pathogens and herbivores	gainst
3:10 pm	<b>Remco Van Poecke, University of Minnesota</b> Efficient discovery of regulatory loci in plant defense by explanatural variation	loitation of
3:30 - 4:00 pm	Refreshment Break	<b>Union Theater Lobby</b>
4:00 - 5:30 pm	WORKSHOPS II (Concurrent)	
	(a) Natural Variation and Comparative Genomics  Tom Mitchell-Olds	Union Theater
	(b) Getting Databases Talking: Mechanisms to Facilitate	
	Data Integration and Data Mining across the Arabidopsis	
	Community	3650 Humanities
	Community Christopher Town and Heiko Schoof	3650 Humanities

7:00 - 8:30 pm	TAIR Introductory Workshop: including info on stock ordering, registration	3650 Humanities
7:00 - 8:30 pm	TAIR: Workshop on Microarray Data/Go Annotations	1111 Humanities

### Please present (stand by) your poster if your abstract number in this book is ODD

### **Great Hall/Reception Room (4th floor)**

Posters of Orals (not including Session Chairs) (#1 - 60)

2010 (#61 - 74)

POSTER SESSION II

7:00 - 12:00 am

Cell Biology (#75 – 134) Cell Signaling (#135 - 203)

Databases and Community Resources (#204 – 216)

Development 1: Flower, Fertilization, Fruit, & Seed (#217 – 308)

**See Below Locations** 

Late Submitted Abstracts: (#660 – 672)

#### Old Madison/Beefeaters Room (3rd floor)

Development 2: Shoot and Root (#309 – 388) Evolution and Development (AGA) (#389 – 397)

Evolutionary Biology (#398 – 412)

#### **Tripp Commons (2nd floor)**

Genetic and Epigenetic Mechanisms (#413 – 449)

Interaction with the Environment 1: Abiotic (#450 – 524)

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#### Main Lounge (2<sup>nd</sup> floor)

Interaction with the Environment 2: Biotic (#565 – 582)

Metabolism (583 – 618)

Novel Tools Techniques and Resources (#619 – 645)

Proteomics (#646 - 652)

Quantitative Genetics (AGA) (#653 – 659)

### Saturday, June 18, 2005

7:00am – 8:00 pm	AGA Registration	Annex Room
7:45 - 9:00 am	Breakfast	Tripp Commons
9:00 - 10:30 am	SESSION I: Genetic and epigenetic mechanisms	Union Theater
9:00 am	Daphne Preuss, University of Chicago, Session Chair Genetic and Epigenetic Mechanisms	
9:25 am	Craig Pikaard, University of Washington Role of RNA polymerase IV in siRNA-mediated DNA methylation and heterochromatin formation	
9:50 am	Dmitry Belostotsky, State University of New York at Albany Mutational and TAP tag-assisted proteomic analyses and inducible RNA interference reveal the role of the <i>Arabidopsis</i> exosome in embryo/ endosperm identity and imprinting, functional specialization of its subunits, and novel RNA substrates	
10:10 am	<b>Renate Schmidt, Max-Planck Institute of Molecular Plant Pl</b> Monitoring transgene silencing in <i>Arabidopsis</i> - a broadly applic non-invasive and sensitive system	

9:00 am - 12:30 pm	AGA SESSION 1 (concurrent with Sessions I & J):  Evolution and Development  Chairman Development	3650 Humanities
9:00 am	Christopher Day, University of Wisconsin, Session Chair Vivian Irish, Yale University Evolution of MADS box gene function in the angiosperms	
9:45 am	David Baum, University of Madison  The evolution of inflorescence architecture in Brassicacea	
11:00 am	Neelima Sinha, University of California Davis Transcription factors, gene expression and leaf evolution	
11:45 am	Alexis Maizel, Max-Planck Institute for Developmental Molecular Evolution of LEAFY transcription factor in lan	
12:05 pm	<b>Ji-Young Lee, Duke University</b> Evidence of genetic conservation of diverse nectaries with	in the eudicots
10:30 - 11:00 am	Refreshment Break Union Theate	er Lobby/3650 Humanities
11:00 - 12:30 pm	SESSION J: Novel Tools, Techniques and Resources	<b>Union Theater</b>
11:00 am	Gregory Copenhaver, University of NC at Chapel Hill,	Session Chair
11:10 am	Albrecht von Arnim, University of Tennessee In Vivo Protein-Interaction Assays Based on Bioluminesconance Energy Transfer (BRET)	
11:30 am	Michael Fromm, University of Nebraska Isolation of TAP-tagged Protein Complexes From Plants	
11:50 am	Vladimir Shulaev, VBI Virginia-Tech Using metabolomics and transcriptomics data to study metabolic networks in <i>Arabidopsis</i>	
12:10 pm	Wolfram Weckwerth, Max-Planck Institute of Molecular Plant Physiology, Germany	
	Metabolomics and proteomics in <i>Arabidopsis thaliana</i> – trapattern recognition to biological interpretation	ansitions from
12:30 - 2:00 pm	Lunch	Tripp Commons
2:00 - 5:30 pm	SESSION K (Joint with AGA Session 2): Evolutionary Biology	Union Theater
	David Baum, University of Wisconsin, Session Chair	
2:00 pm	Michael Purugganan, North Carolina State University Adaptation and variation in <i>Arabidopsis</i> flowering	
2:45 pm	Magnus Nordborg, University of Southern California Linkage disequilibrium mapping in <i>Arabidopsis</i>	
3:30 - 4:00 pm	Refreshment Break	<b>Union Theater Lobby</b>
4:00 pm	Tom Mitchell-Olds, Max-Planck Institute for Chemical Ecology, Germany Evolution of ecologically important traits in relatives of <i>Arabidopsis</i>	
4:45 pm	Shin-Han Shiu, University of Chicago Pronounced Expansion of Transcription Factor Families in Plants	

5:05 pm	Jocelyn Hall, Harvard University Developmental mechanisms underlying fruit diversification i Brassiceae (Brassicaceae)	n
5:30 - 7:00 pm	Dinner	Tripp Commons
7:00 - 8:00 pm	Wilhelmine E. Key Lecture, joint with AGA  June Nasrallah, Cornell  Mating system evolution in crucifers	Union Theater
7:00 - 8:30 pm	TAIR: Accessing and analyzing information about biochemical pathways	3650 Humanities
7:00 - 8:30 pm	TAIR: Use of Ontologies for Annotating Gene Expression and Phenotypes in <i>Arabidopsis</i>	1111 Humanities
8:00 - 12:00 am	POSTER SESSION III	See Below Locations
	Great Hall/Reception Room (4th floor)  Posters of Orals (not including Session Chairs) (#1 – 60) 2010 (#61 – 74)  Cell Biology (#75 – 134)  Cell Signaling (#135 – 203)  Databases and Community Resources (#204 – 216)  Development 1: Flower, Fertilization, Fruit, & Seed (#2)  Late Submitted Abstracts: (#660 – 672)  Old Madison/Beefeaters Room (3rd floor)  Development 2: Shoot and Root (#309 – 388)  Evolution and Development (AGA) (#389 – 397)  Evolutionary Biology (#398 – 412)  Tripp Commons (2nd floor)  Genetic and Epigenetic Mechanisms (#413 – 449)  Interaction with the Environment 1: Abiotic (#450 – 524)  Interaction with the Environment 2: Biotic (#525 – 564)  Main Lounge (2nd floor)  Interaction with the Environment 2: Biotic (#565 – 582)  Metabolism (583 – 618)  Novel Tools Techniques and Resources (#619 – 645)  Proteomics (#646 – 652)  Quantitative Genetics (AGA) (#653 – 659)	17 – 308)
7:45 - 9:00 am	Breakfast	Tripp Commons

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Mary Schuler, University of Illinois Urbana

Arabidopsis cytochrome P450 monooxygenases

Machi Dilworth, National Science Foundation, Session Chair

**Union Theater** 

**SESSION L:** 

2010

9:00 - 10:30 am

9:00 am

9:10 am

9:30 am	Richard Vierstra, University of Wisconsin Ubiquitin-Protein Ligase (E3) Families	
9:50 am	Alice Harmon, University of Florida The CDPK Superfamily	
10:10 am	David Meinke, Oklahoma State University Indispensable Genes Required for Seed Development in <i>Arabidopsis</i>	
9:00 am - 12:30 pm	AGA SESSION 3 (concurrent with Sessions L & M):  Quantitative Genetics  Don Waller, University of Wisconsin, Session Chair	3650 Humanities
9:00 am	Susan McCouch, Cornell University Discovery and characterization of alleles associated with domestication- related traits in rice	
9:45 am	<b>Jeff Conner, Michigan State University</b> The roles of genetic integration and constraint in adaptive evolution: a floral case study	
11:00 am	Loren Rieseberg, Indiana University The Nature of Intrinsic Postzygotic Isolation	
11:45 am	Mark Rausher, Duke University Identification of a gene causing reproductive isolation in Phlox	
10:30 - 11:00 am	Refreshment Break	<b>Union Theater Lobby</b>
11:00 - 12:30 pm	SESSION M: NAASC Choices	Union Theater
11:00 am	Susan J. Lolle, Purdue University, Session Chair Non-mendelian inheritance of ancestral sequences in <i>Arabidopsis</i> .	
11:30 am	Sean May, NASC Nottingham stock center, United Kingdom "Asking for Arrays"	
11:50 am	Cheng Lu, University of Delaware  Deep profiling by massively parallel signature sequencing elucidates the small RNA component of the transcriptome	
12:10 pm	Pauline Fung, University of Toronto, Canada The Pyrabactins: small molecule agonists of the abscisic acid signaling pathway	
12:30 - 2:00 pm	Lunch	Tripp Commons