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# PROGRAM & ABSTRACTS

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17th International Conference  
on  
*ARABIDOPSIS* RESEARCH

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June 28 – July 2, 2006

University of Wisconsin  
Madison, WI, USA

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

### WEDNESDAY, JUNE 28, 2006

7:00 - 8:00 pm

8:00 - 9:30 pm

KEYNOTE ADDRESS

SESSION A: Bioinformatics

### THURSDAY, JUNE 29, 2006

9:00 - 10:30 am

11:00 - 12:30 pm

2:00 - 3:30 pm

4:00 - 5:30 pm

7:00 - 12:00 am

7:30 - 9:00 pm

SESSION B: Systems Biology

SESSION C: Environment 1: Abiotic

SESSION D: Environment 2: Biotic

SESSION E: Genetic and Epigenetic Mechanisms

POSTER SESSION I (Even Numbered Abstracts)

WORKSHOPS Ia & b (Concurrent)

### FRIDAY, JUNE 30, 2006

9:00 - 10:30 am

11:00 - 12:30 pm

2:00 - 3:30 pm

4:00 - 5:30 pm

7:00 - 12:00 am

7:30 - 9:00 pm

SESSION F: Natural Variation and Comparative Genomics

SESSION G: Development 1 - Flower, Fertilization, Fruit, and Seed

SESSION H: Development 2 - Shoot and Root

SESSION I: Metabolism

POSTER SESSION II (Odd Numbered Abstracts)

WORKSHOPS IIa & b (Concurrent)

### SATURDAY, JULY 1, 2006

9:00 - 10:30 am

11:00 - 12:30 pm

2:00 - 3:30 pm

4:00 - 5:30 pm

7:00 - 8:00 pm

8:00 - 12:00 am

8:15 - 9:30 pm

SESSION J: Signaling

SESSION K: Modeling/Other Systems

SESSION L: Cell Biology

SESSION M: Energy

SPECIAL LECTURE

POSTER SESSION III (All Abstracts)

WORKSHOPS IIIa & b (Concurrent)

### SUNDAY, JULY 2, 2006

9:00 - 10:30 am

11:00 - 12:30 pm

SESSION N: Arabidopsis 2010

SESSION O: NAASC Choices

## Meeting Organizers:

Members of the North American Arabidopsis Steering Committee (NAASC) are serving as the program committee for the 2006 meeting.

**Brenda Winkel**, Virginia Tech

**Greg Copenhaver**, University of North Carolina, Chapel Hill

**Philip Benfey**, Duke University

**Rob McClung**, Dartmouth College

**Judith Bender**, Johns Hopkins University

**Xing-Wang Deng**, Yale University

**Xue Mei Chen**, University of California, Riverside

**Joe Kieber**, University of North Carolina, Chapel Hill

**Joanna Friesner**, coordinator for NAASC/MASC

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# PROGRAM OVERVIEW

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## ***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 and note the new abstract number. The new number is your poster number, NOT the number it was assigned when you originally submitted. Posters are sequenced by topic and presenter. See the poster list on page vi to determine which group contains your topic.

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,

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## Wednesday, June 28, 2006

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|                     |   |               |
|---------------------|---|---------------|
| 12:00 noon – 7:00pm | Registration  | Main Lounge   |
| 5:30 - 7:00 pm      | Opening Reception   | Tripp Commons |
| 7:00 - 8:00 pm      | <b>KEYNOTE ADDRESS</b><br><i>Mark Estelle (Indiana University)</i><br>Genetic analysis of auxin signaling: a long road to a short pathway           | Union Theater |
| 8:00 - 9:30 pm      | <b>SESSION A:</b><br>Bioinformatics   | Union Theater |
| 8:00 pm             | <b>Chris Town, TIGR, Session Chair</b><br>Introductory remarks  |               |
| 8:05 pm             | <b>Kimmen Sjolander, University of California, Berkeley, Second</b><br>Improving protein functional classification through structural phylogenomics |               |
| 8:30 pm             | <b>Ann Loraine, University of Alabama, Birmingham</b><br>Transcriptional coordination of the metabolic network in <i>Arabidopsis thaliana</i>       |               |
| 8:45 pm             | <b>Bjorn Usadel, Max Planck Institute, Germany</b><br>New MapMan dimensions   |               |
| 9:00 pm             | <b>Eva Huala, Carnegie Institution, Stanford University</b><br>The <i>Arabidopsis</i> Information Resource (TAIR)                                   |               |
| 9:15 pm             | <b>Heiko Schoof, Max Planck Institute, Germany</b><br>Web services for <i>Arabidopsis</i> data integration  |               |

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## Thursday, June 29, 2006

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|--------------------------|---|------------------------------|
| <b>7:00 am – all day</b> | <b>Poster set-up</b><br><b>Main Lounge (2nd floor)</b><br>Posters of Orals (Except for Session Chairs) (1 - 74)<br>Arabidopsis 2010 (75 - 94)<br>Bioinformatics (95 - 106)<br><b>Tripp Commons (2nd floor)</b><br>Cell Biology (107 - 135)<br>Development 1: Flower, Fertilization, Fruit, and Seed (136 - 178)<br>Development 2: Shoot and Root (179 - 231)<br>Energy (232)<br>Environment 1: Abiotic (233 - 261)<br><b>Great Hall (4th floor)</b><br>Environment 2: Biotic (262 - 300)<br>Genetic and Epigenetic Mechanisms (301 - 320)<br>Metabolism (321 - 347)<br>Modeling/Other Systems (348 - 349)<br>Natural Variation and Comparative Genomics (350 - 376)<br>Signaling (377 - 431)<br>Systems Biology (432 - 440) | <b>See locations below</b>   |
| <b>7:00 am - 8:00 pm</b> | <b>Registration Continues</b>   | <b>Annex Room</b>            |
| <b>7:45 - 9:00 am</b>    | <b>Breakfast</b>  | <b>Inn Wisconsin/Profile</b> |
| <b>8:50 - 9:00 am</b>    | <b>Welcome and Announcements</b>  | <b>Union Theater</b>         |
| <b>9:00 - 10:30 am</b>   | <b>SESSION B:</b><br><i>Systems Biology</i>   | <b>Union Theater</b>         |
| <b>9:00 am</b>           | <b>Philip Benfey, Duke University, Session Chair</b><br>A systems biology approach to understanding root development  |                              |
| <b>9:25 am</b>           | <b>Wilhelm Gruissem, Swiss Federal Institute of Technology, Switzerland, Second</b><br>Systems biology and reverse engineering of metabolic pathways using sparse GGM   |                              |
| <b>9:50 am</b>           | <b>Kieron Edwards, University of Edinburgh, United Kingdom</b><br>Functional analysis of regulatory flexibility in the circadian clock: transcriptomic and reporter gene assays of circadian phase  |                              |
| <b>10:03 am</b>          | <b>Freeman Chow, University of Toronto, Canada</b><br>LATCA: a library of biologically active small molecules for plant chemical genomics   |                              |
| <b>10:16 am</b>          | <b>Sean Coughlan, Agilent Technologies</b><br>Design and testing of an <i>Arabidopsis</i> small RNA microarray  |                              |
| <b>10:30 - 11:00 am</b>  | <b>Refreshment Break</b>  | <b>Union Theater Lobby</b>   |

|                         |  |                              |
|-------------------------|--|------------------------------|
| <b>11:00 - 12:30 pm</b> | <b>SESSION C:</b><br><i>Environment 1: Abiotic</i>   | <b>Union Theater</b>         |
| <b>11:00 am</b>         | <b>Pill-Soon Song, Kumho Life &amp; Environmental Science Laboratory, Korea, Session Chair</b><br>Phenotypic functions of bathochromic mutant phytochromes A conferring shade tolerance to <i>Arabidopsis thaliana</i> |                              |
| <b>11:25 am</b>         | <b>Javier Paz-Ares, Centro Nacional de Biotecnologia, Spain, Second</b><br>Regulation of phosphate starvation responses in <i>Arabidopsis</i> : transcriptional control and beyond                                     |                              |
| <b>11:50 am</b>         | <b>Diane Bassham, Iowa State University</b><br>Autophagy is required plants for plants to survive under abiotic stresses   |                              |
| <b>12:03 pm</b>         | <b>Anthony Hall, University of Liverpool, United Kingdom</b><br>The molecular basis of temperature compensation in the <i>Arabidopsis</i> circadian clock  |                              |
| <b>12:16 pm</b>         | <b>Elsebeth Kolmos, Max Planck Institute, Germany</b><br>ELF4 point mutations affect phase and period properties of the <i>Arabidopsis</i> circadian clock   |                              |
| <b>12:30 - 2:00 pm</b>  | <b>Lunch</b>   | <b>Inn Wisconsin/Profile</b> |
| <b>2:00 - 3:30 pm</b>   | <b>SESSION D:</b><br><i>Environment 2: Biotic</i>  | <b>Union Theater</b>         |
| <b>2:00 pm</b>          | <b>Xinnian Dong, Duke University, Session Chair</b><br>Signaling Network of Plant Immunity   |                              |
| <b>2:25 pm</b>          | <b>Edward Farmer, University of Lausanne, Switzerland, Second</b><br>Controls over oxylipin biogenesis   |                              |
| <b>2:50 pm</b>          | <b>Kristoffer Palma, University of British Columbia, Canada</b><br>The MOS4-associated complex is an important regulatory node in NPR1-independent innate immunity signaling   |                              |
| <b>3:03 pm</b>          | <b>Hironori Kaminaka, University of North Carolina</b><br>bZIP10-LSD1 antagonism modulates basal defense and cell death in <i>Arabidopsis</i> following infection  |                              |
| <b>3:16 pm</b>          | <b>A. Corina Vlot, Boyce Thompson Institute for Plant Research</b><br>Identification of <i>Arabidopsis</i> ortholog(s) of a regulator of systemic acquired resistance in tobacco                                       |                              |
| <b>3:30 - 4:00 pm</b>   | <b>Refreshment Break</b>   | <b>Union Theater Lobby</b>   |
| <b>4:00 - 5:30 pm</b>   | <b>SESSION E:</b><br><i>Genetic and Epigenetic Mechanisms</i>  | <b>Union Theater</b>         |
| <b>4:00 pm</b>          | <b>Judith Bender, Johns Hopkins University, Session Chair</b><br>Histone methyltransferases that control DNA methylation in <i>Arabidopsis</i>   |                              |
| <b>4:25 pm</b>          | <b>Pam Green, University of Delaware, Second</b><br>Elucidating the small RNA component of the <i>Arabidopsis</i> transcriptome  |                              |

|                        |   |                              |
|------------------------|---|------------------------------|
| <b>4:50 pm</b>         | <b>Todd Sangster, Whitehead Institute</b><br>Chaperone Hsp90 as a molecular mechanism of genetic and environmental canalization   |                              |
| <b>5:10 pm</b>         | <b>Hidetoshi Saze, National Institute of Genetics, Mishima, Japan</b><br>BONSAI: loss-of-function epigenetic mutation induced in the DDM1 (decrease in DNA methylation) background  |                              |
| <b>5:30 - 7:00 pm</b>  | <b>Dinner</b>   | <b>Inn Wisconsin/Profile</b> |
| <b>7:30 - 9:00 pm</b>  | <b>Workshops I (Concurrent)</b>   |                              |
|                        | <b>(a) Submitting data to long-term repositories: information for 2010 grant recipients and all researchers</b><br><i>Eva Huala</i>   | <b>Union Theater</b>         |
|                        | <b>(b) TAIR introductory workshop: including a general overview of the website and available resources and tools</b><br><i>Peifan Chang and Katica Ilic</i>   | <b>Reception Room</b>        |
| <b>7:00 - 12:00 am</b> | <b>POSTER SESSION I</b><br><b>Please present (stand by) your poster if your abstract number in this book is EVEN</b>  | <b>See locations below</b>   |
|                        | <b>Main Lounge (2nd floor)</b><br>Posters of Orals (Except for Session Chairs) (1 - 74)<br>Arabidopsis 2010 (75 - 94)<br>Bioinformatics (95 - 106)  |                              |
|                        | <b>Tripp Commons (2nd floor)</b><br>Cell Biology (107 - 135)<br>Development 1: Flower, Fertilization, Fruit, and Seed (136 - 178)<br>Development 2: Shoot and Root (179 - 231)<br>Energy (232)<br>Environment 1: Abiotic (233 - 261)  |                              |
|                        | <b>Great Hall (4th floor)</b><br>Environment 2: Biotic (262 - 300)<br>Genetic and Epigenetic Mechanisms (301 - 320)<br>Metabolism (321 - 347)<br>Modeling/Other Systems (348 - 349)<br>Natural Variation and Comparative Genomics (350 - 376)<br>Signaling (377 - 431)<br>Systems Biology (432 - 440) |                              |

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## Friday, June 30, 2006

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|------------------------|---|------------------------------|
| <b>7:45 - 9:00 am</b>  | <b>Breakfast</b>  | <b>Inn Wisconsin/Profile</b> |
| <b>9:00 - 10:30 am</b> | <b>SESSION F:</b><br><i>Natural Variation and Comparative Genomics</i>  | <b>Union Theater</b>         |
| <b>9:00 am</b>         | <b>Johanna Schmitt, Brown University, Session Chair</b><br>Measuring selection on natural variation           |                              |
| <b>9:25 am</b>         | <b>Justin Borevitz, University of Chicago, Second</b><br>Evolutionary mechanisms of light response adaptation |                              |

|                  |   |                              |
|------------------|---|------------------------------|
| 9:50 am          | <b>Sureshkumar Balasubramanian, Max Planck Institute, Germany</b><br>Common alleles of PHYTOCHROME C mediate natural variation in flowering and growth responses of <i>Arabidopsis thaliana</i> |                              |
| 10:03 am         | <b>Christopher Toomajian, University of Southern California</b><br>Recent selection in the <i>Arabidopsis</i> genome: FRIGIDA and beyond  |                              |
| 10:16 am         | <b>M. Eric Schranz, Duke University</b><br>Independent ancient polyploidy events in the sister families <i>Brassicaceae</i> and <i>Cleomaceae</i>   |                              |
| 10:30 - 11:00 am | <b>Refreshment Break</b>  | <b>Union Theater Lobby</b>   |
| 11:00 - 12:30 pm | <b>SESSION G:</b><br><i>Development 1: Flower, Fertilization, Fruit, and Seed</i>   | <b>Union Theater</b>         |
| 11:00 am         | <b>Caroline Dean, John Innes Centre, United Kingdom, Session Chair</b><br>Flowering and vernalization   |                              |
| 11:25 am         | <b>Jean-Philippe Vielle-Calzada, Langebio- Cinvestav, Mexico, Second</b><br>Seven cells in the ovule: functional analysis of the female gametophyte transcriptome                               |                              |
| 11:50 am         | <b>Wim Soppe, Max Planck Institute, Germany</b><br>The molecular identification of <i>RDO2</i> and <i>RDO4</i> reveals new aspects of the seed dormancy mechanism                               |                              |
| 12:03 pm         | <b>Yunde Zhao, University of California, San Diego</b><br>Temporally and spatially regulated auxin biosynthesis controls the formation of floral organs and vascular tissues                    |                              |
| 12:16 pm         | <b>Cristina Castellejo, CSIC-IRTA, Spain</b><br>A <i>RAV</i> gene negatively regulates <i>FT</i> expression and extremely delays flowering  |                              |
| 12:30 - 2:00 pm  | <b>Lunch</b>  | <b>Inn Wisconsin/Profile</b> |
| 2:00 - 3:30 pm   | <b>SESSION H:</b><br><i>Development 2: Shoot and Root</i>   | <b>Union Theater</b>         |
| 2:00 pm          | <b>Dominique Bergmann, Stanford University, Session Chair</b><br>Promoting stomatal development   |                              |
| 2:25 pm          | <b>Ben Scheres, Utrecht University, The Netherlands, Second</b><br>Root patterning and cell polarity in <i>Arabidopsis</i> roots  |                              |
| 2:50 pm          | <b>Steffen Vanneste, Ghent University, Belgium</b><br>FOUR LIPS/MYB124 and MYB88 enhance PIN transcription  |                              |
| 3:03 pm          | <b>Kimberly Gallagher, Duke University</b><br>Examination of the mechanisms of SHORT-ROOT cell-to-cell signaling  |                              |
| 3:16 pm          | <b>John Chandler, University of Cologne, Germany</b><br>DORNROESCHEN (DRN) and DRN-LIKE redundantly control cotyledon initiation and meristem development in <i>Arabidopsis thaliana</i>        |                              |
| 3:30 - 4:00 pm   | <b>Refreshment Break</b>  | <b>Union Theater Lobby</b>   |

|                        |   |                              |
|------------------------|---|------------------------------|
| <b>4:00 - 5:30 pm</b>  | <b>SESSION I:</b><br><i>Metabolism</i>  | <b>Union Theater</b>         |
| <b>4:00 pm</b>         | <b>Harvey Millar, University of Western Australia, Australia, Session Chair</b><br>Where are all the proteins? Subcellular compartmentation of the <i>Arabidopsis</i> proteome as a key foundation for post-genomic analysis of metabolism  |                              |
| <b>4:25 pm</b>         | <b>Wolf Frommer, Carnegie Institution, Stanford University, Second</b><br>The visible plant cell- biosensors and bioreporters: <i>in vivo</i> physiological imaging using fluorescent indicator proteins  |                              |
| <b>4:50 pm</b>         | <b>Nicole Linka, Michigan State University</b><br>Peroxisomal ATP import is involved in fatty acid oxidation  |                              |
| <b>5:03 pm</b>         | <b>Keiko Yonekura-Sakakibara, RIKEN, Japan</b><br>Functional identification of <i>Arabidopsis</i> flavonoid 7-O-rhamnosyltransferase gene by co-expression analysis   |                              |
| <b>5:16 pm</b>         | <b>Yan Lu, Michigan State University</b><br>Functional and informatic analyses of the <i>Arabidopsis</i> plastid  |                              |
| <b>5:30 - 7:00 pm</b>  | <b>Dinner</b>   | <b>Inn Wisconsin/Profile</b> |
| <b>7:30 – 9:00 pm</b>  | <b>Workshops II (Concurrent)</b>  |                              |
|                        | <b>(a) Web services and demonstrations</b><br><i>Chris Town and Heiko Schoof</i>  | <b>Union Theater</b>         |
|                        | <b>(b) Public engagement: broadening the impact of your research</b><br><i>Erin Dolan</i>   | <b>Reception Room</b>        |
| <b>7:00 - 12:00 am</b> | <b>POSTER SESSION II</b><br><b>Please present (stand by) your poster if your abstract number in this book is ODD</b>  | <b>See locations below</b>   |
|                        | <b>Main Lounge (2nd floor)</b><br>Posters of Orals (Except for Session Chairs) (1 - 74)<br>Arabidopsis 2010 (75 - 94)<br>Bioinformatics (95 - 106)  |                              |
|                        | <b>Tripp Commons (2nd floor)</b><br>Cell Biology (107 - 135)<br>Development 1: Flower, Fertilization, Fruit, and Seed (136 - 178)<br>Development 2: Shoot and Root (179 - 231)<br>Energy (232)<br>Environment 1: Abiotic (233 - 261)  |                              |
|                        | <b>Great Hall (4th floor)</b><br>Environment 2: Biotic (262 - 300)<br>Genetic and Epigenetic Mechanisms (301 - 320)<br>Metabolism (321 - 347)<br>Modeling/Other Systems (348 - 349)<br>Natural Variation and Comparative Genomics (350 - 376)<br>Signaling (377 - 431)<br>Systems Biology (432 - 440) |                              |



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## Saturday, July 1, 2006

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|-------------------------|---|------------------------------|
| <b>7:45 - 9:00 am</b>   | <b>Breakfast</b>  | <b>Inn Wisconsin/Profile</b> |
| <b>9:00 - 10:30 am</b>  | <b>SESSION J:</b><br><i>Signaling</i>   | <b>Union Theater</b>         |
| <b>9:00 am</b>          | <b>Ute Hoecker, University of Duesseldorf, Germany, Session Chair</b><br>Suppression of light signaling in darkness   |                              |
| <b>9:25 am</b>          | <b>Masatoshi Nakajima, University of Tokyo, Japan, Second</b><br>Cytosolic gibberellin-receptor GID1  |                              |
| <b>9:50 am</b>          | <b>Geraint Parry, Indiana University, Bloomington</b><br>Investigating the expression of the TIR1/AFB family of auxin receptors: could miRNAs hold the key?   |                              |
| <b>10:03 am</b>         | <b>Aaron Rashotte, University of North Carolina, Chapel Hill</b><br>Cytokinin-regulated AP2/ERF transcription factors are novel components of the cytokinin signaling pathway that function in concert with type-B ARR5 |                              |
| <b>10:16 am</b>         | <b>Hicham Zegzouti, University of California, Los Angeles</b><br>Structural and functional insights into the regulation of the <i>Arabidopsis</i> AGC VIIa kinase family  |                              |
| <b>10:30 - 11:00 am</b> | <b>Refreshment Break</b>  | <b>Union Theater Lobby</b>   |
| <b>11:00 - 12:30 pm</b> | <b>SESSION K:</b><br><i>Modeling/Other Systems</i>  | <b>Union Theater</b>         |
| <b>11:00 am</b>         | <b>Sue Wessler, University of Georgia, Session Chair</b><br>Dramatic amplification of a rice transposable element since domestication   |                              |
| <b>11:25 am</b>         | <b>Michael Beer, Johns Hopkins University, Second</b><br>Systematic identification of cis-regulatory logic from microarray data and whole-genome sequence   |                              |
| <b>11:50 am</b>         | <b>Li Li, USDA/Cornell University</b><br><i>Or</i> encodes a cysteine-rich zinc finger domain containing protein that regulates high-levels of $\beta$ -carotene accumulation in cauliflower                            |                              |
| <b>12:10 pm</b>         | <b>Rodrigo Gutierrez, New York University</b><br>VirtualPlant: a software platform to support systems biology research in the post-genomic era  |                              |
| <b>12:30 - 2:00 pm</b>  | <b>Lunch</b>  | <b>Inn Wisconsin/Profile</b> |
| <b>2:00 - 3:30 pm</b>   | <b>SESSION L:</b><br><i>Cell Biology</i>  | <b>Union Theater</b>         |
| <b>2:00 pm</b>          | <b>Jiri Friml, University of Tuebingen, Germany, Session Chair</b><br>Establishment and maintenance of cell polarity  |                              |
| <b>2:25 pm</b>          | <b>Chris Staiger, Purdue University, Second</b><br>Actin-binding proteins as sensors of cellular stress   |                              |

|                 |   |   |
|-----------------|---|---|
| 2:50 pm         | <b>Catherine Konopka, University of Wisconsin, Madison</b><br><i>In vivo</i> dynamics implicate a role for dynamin-related protein 1C in polar cell growth  |   |
| 3:03 pm         | <b>Simon Alfred, University of Toronto, Canada</b><br>Polarazine: a new plant cytokinesis inhibitor   |   |
| 3:16 pm         | <b>Nico Dissmeyer, Max Planck Institute, Germany</b><br>Functional analysis of the <i>Arabidopsis</i> cdc2 homolog CDKA:1   |   |
| 3:30 - 4:00 pm  | <b>Refreshment Break</b>  | <b>Union Theater Lobby</b>                        |
| 4:00 - 5:30 pm  | <b>SESSION M:</b><br><i>Energy</i>  | <b>Union Theater</b>                              |
| 4:00 pm         | <b>Steven Rothstein, University of Guelph, Canada, Session Chair</b><br>Energy and Agriculture: The potential to use genetics to improve the energy efficiency of crop production   |   |
| 4:25 pm         | <b>Keiko Torii, University of Washington, Second</b><br>Linking biomass and stomatal development  |   |
| 4:50 pm         | <b>Liming Xiong, Danforth Plant Science Center</b><br>Genetic analysis of drought tolerance in <i>Arabidopsis</i>   |   |
| 5:10 pm         | <b>Akiko Maruyama-Nakashita, RIKEN</b><br>SLIM1/EIL3 transcription factor required for plant growth on low sulfur environment   |   |
| 5:30 - 7:00 pm  | <b>Dinner</b>   | <b>Inn Wisconsin/Profile</b>                      |
| 7:00 - 8:00 pm  | <b>Special Lecture</b><br><i>Richard Young (M.I.T)</i><br>Regular circuitry in embryonic stem cells   | <b>Union Theater</b>                              |
| 8:15 - 9:30 pm  | <b>Workshops III (Concurrent)</b><br><br>(a) <b>Systems biology approaches to analysis of metabolic and regulatory networks of <i>Arabidopsis</i></b><br><i>Eve Wurtele</i><br><br>(b) <b>Mechanotransduction in <i>Arabidopsis</i></b><br><i>Elizabeth Haswell</i> | <b>Union Theater</b><br><br><b>Reception Room</b> |
| 8:00 - 12:00 am | <b>POSTER SESSION III</b><br><b>Free-for-All: A time for further discussions</b>  | <b>See schedule for locations</b>                 |
| 9:35 - 10:20 pm | <b>Fireworks Celebration</b>  | <b>Union Terrace</b>                              |

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## Sunday, July 2, 2005

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|-------------------------|---|------------------------------|
| <b>7:45 - 9:00 am</b>   | <b>Breakfast</b>  | <b>Inn Wisconsin/Profile</b> |
| <b>9:00 - 10:30 am</b>  | <b>SESSION N:</b><br><i>Arabidopsis 2010</i>  | <b>Union Theater</b>         |
| <b>9:00 am</b>          | <b>Machi Dilworth, NSF, Session Chair</b><br>Introductory Remarks   |                              |
| <b>9:05 am</b>          | <b>Jeff Harper, University of Nevada, Reno</b><br><i>Arabidopsis 2010</i> : Integrating the Unknown-come with abiotic stress response networks in <i>Arabidopsis</i>  |                              |
| <b>9:25 am</b>          | <b>Heven Sze, University of Maryland</b><br><i>Arabidopsis 2010</i> : Functional genomics of cation transporters  |                              |
| <b>9:45 am</b>          | <b>Mary Wildermuth, University of California, Berkeley</b><br>Temporal and spatial expression profiling of the <i>Arabidopsis</i> response to powdery mildew  |                              |
| <b>10:05 am</b>         | <b>Kristin Kasschau, Oregon State University</b><br>Genome-wide analysis of <i>Arabidopsis</i> small RNAs   |                              |
| <b>10:30 - 11:00 am</b> | <b>Refreshment Break</b>  | <b>Union Theater Lobby</b>   |
| <b>11:00 - 12:30 pm</b> | <b>SESSION O:</b><br><i>NAASC Choices</i>   | <b>Union Theater</b>         |
|                         | <b>Rob McClung, Dartmouth College, Session Chair</b>  |                              |
| <b>11:00 am</b>         | <b>Matt Geisler, University of Western Ontario, Canada</b><br>The predicted <i>Arabidopsis</i> interactome  |                              |
| <b>11:22 am</b>         | <b>Bert van der Zaal, Leiden University, The Netherlands</b><br>Polydactyl zinc finger transcription factors can be used as efficient tools to discover <i>Arabidopsis</i> mutants with enhanced homologous recombination |                              |
| <b>11:44 am</b>         | <b>Rebecca Schwab, Cold Spring Harbor Laboratory</b><br>Engineering specific and efficient gene silencing with artificial microRNAs   |                              |
| <b>12:06 pm</b>         | <b>Martin Bayer, Cold Spring Harbor Laboratory</b><br>The receptor-like cytoplasmic kinase gene SHORT SUSPENSOR regulates extra-embryonic development in <i>Arabidopsis</i>   |                              |
| <b>12:30 - 2:00 pm</b>  | <b>Lunch</b>  | <b>Inn Wisconsin/Profile</b> |

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# PROGRAM

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WEDNESDAY, JUNE 28  
7:00 - 8:00 pm – Union Theater  
**Keynote Address**  
Abstract #1

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- 1 **Genetic analysis of auxin signaling: A long road to a short pathway**  
*Mark Estelle*
- 

WEDNESDAY, JUNE 28  
8:00 - 9:30 pm – Union Theater  
**Session A**  
**Bioinformatics**  
*Chris Town: Chair*  
Abstracts #2-7

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- 2 **Bioinformatics**  
*Chris Town*
- 3 **Improving Protein Functional Classification Through Structural Phylogenomics**  
*Kimmen Sjölander*
- 4 **Transcriptional coordination of the metabolic network in *Arabidopsis thaliana***  
*Hairong Wei, Staffan Persson, Tapan Mehta, Vinodh Srinivasasainagendra, Lang Chen, Grier Page, Chris Somerville, Ann Loraine*
- 5 **New MapMan Dimensions**  
*Bjorn Usadel, Axel Nagel, Yves Gibon, Oliver Blaesing, Maria Piques, Oliver Thimm, Henning Redestig, Jan Hannemann, Svenja Meyer, Peter Kruger, Mark Stitt*
- 6 **The Arabidopsis Information Resource (TAIR)**  
*Eva Huala, Katica Ilic, Peifen Zhang, Tanya Berardini, Hartmut Foerster, Joseph Filla, Margarita Garcia-Hernandez, Aleksey Kleytman, Suparna Mundodi, Neil Miller, Mary Montoya, Jon Slenk, David Swarbreck, Julie Tacklind, Christophe Tissier, Chris Wilks, Thomas Yan, Daniel Yoo, Seung Rhee*
- 7 **Web services for Arabidopsis data integration**  
*Heiko Schoof, Chris Town*
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THURSDAY, JUNE 29  
9:00 - 10:30 am – Union Theater  
**Session B**  
**System Biology**  
*Philip Benfey: Chair*  
Abstracts #8-12

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- 8 **A systems biology approach to understanding root development**  
*Philip Benfey, Ji-Young Lee, Juliette Colinas, Hongchang Cui, Richard Twigg, Terri Long, Jose Dinneny*
- 9 **Systems Biology and Reverse Engineering of Metabolic Pathways Using Sparse GGM**  
*Wilhelm Gruissem*
- 10 **Functional Analysis of Regulatory Flexibility in the Circadian Clock: Transcriptomic and Reporter Gene Assays of Circadian Phase**  
*Kieron Edwards, Paul Anderson, Adrian Thomson, Laszlo Kozma-Bognar, James Smith, Andrew Millar*

11 **LATCA: a Library of Biologically Active Small Molecules for Plant Chemical Genomics.**  
*Freeman Chow, Simon Alfred, Yang Zhao, Pauline Fung, Sean Cutler*

12 **Design and testing of an Arabidopsis small RNA microarray**  
*Sean Coughlan, Charlie Nelson, Fred Souret, Blake Meyers, Pam Green*

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**THURSDAY, JUNE 29**

**11:00 am - 12:30 pm – Union Theater**

**Session C**

**Environment 1: Abiotic**

*Pill-Soon Song: Chair*

Abstracts #13-17

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13 **Phenotypic Functions of Bathochromic Mutant Phytochromes A Conferring Shade Tolerance to *Arabidopsis thaliana***

*Yun-Jeong Han, Jeong-Il Kim, Pill-Soon Song*

14 **Regulation of Phosphate Starvation Responses in Arabidopsis. Transcriptional Control and Beyond**

*Jose Manuel Franco-Zorrilla, Regla Bustos, Esperanza Gonzalez, Gabriel Castrillo, Francisco Scaglia, Isabel Mateo, Maria Isabel Puga, Vicente Rubio, Antonio Leyva, Javier Paz-Ares*

15 **Autophagy is Required for Plants to Survive under Abiotic Stresses**

*Yan Xiong, Diane Bassham*

16 **The Molecular Basis of Temperature Compensation in the Arabidopsis Circadian Clock**

*Anthony Hall, Peter Gould, James Locke, Andrew Millar*

17 **ELF4 Point Mutations Affect Phase and Period Properties of the Arabidopsis Circadian Clock**

*Elsebeth Kolmos, Ferenc Nagy, Seth Davis*

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**THURSDAY, JUNE 29**

**2:00 - 3:30 pm – Union Theater**

**Session D**

**Environment 1: Biotic**

*Xinnian Dong: Chair*

Abstracts #18-22

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18 **Signaling Network of Plant Immunity**

*Xinnian DONG, Wendy Durrant, Rebecca Mosher, Junqi Song, Steven Spoel, DONG Wang*

19 **Controls over oxylipin biogenesis**

*Gustavo Bonaventure, Lucie Dubugnon, Victor Rodriguez, Laurent Mene-Saffrane, Celine Davoine, Edward Farmer*

20 **The MOS4-Associated Complex is an Important Regulatory Node in NPR1-Independent Innate Immunity Signaling**

*Kristoffer Palma, Yuelin Zhang, Xin Li*

21 **bZIP10-LSD1 Antagonism Modulates Basal Defense and Cell Death in Arabidopsis Following Infection**

*Hironori Kaminaka, Christian Nake, Petra Epple, Jan Dittgen, Katia Schutze, Christina Chaban, Ben Holt III, Thomas Merkle, Eberhard Schafer, Klaus Harter, Jeffery Dangl*

22 **Identification of Arabidopsis Ortholog(s) of a Regulator of Systemic Acquired Resistance in Tobacco**

*A. Corina Vlot, Dhirendra Kumar, Sang-Wook Park, Yue Yang, Robin Cameron, Eran Pichersky, Daniel Klessig*

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**THURSDAY, JUNE 29**  
**4:00 - 5:30 pm – Union Theater**  
**Session E**  
**Genetic and Epigenetic Mechanisms**  
*Judith Bender: Chair*  
Abstracts #23-26

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- 23 Histone methyltransferases that control DNA methylation**  
*Michelle Ebbs, Judith Bender*
- 24 Elucidating the Small RNA Component of the Transcriptome**  
*Cheng Lu, Fred Souret, Shivakundan Tej, Karthik Kulkarni, Monica Accerbi, Sean Coughlan, Blake Meyers, Pamela Green*
- 25 Chaperone Hsp90 As A Molecular Mechanism Of Genetic And Environmental Canalization**  
*Todd Sangster, Neeraj Salathia, Kurt Schellenberg, Hana Lee, Keith Morneau, Susan Lindquist, Christine Queitsch*
- 26 BONSAI: Loss-of-function Epigenetic Mutation Induced in the ddm1 (decrease in DNA methylation) Background**  
*Hidetoshi Saze, Tetsuji Kakutani*
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**FRIDAY, JUNE 30**  
**9:00 - 10:30 am – Union Theater**  
**Session F**  
**Natural Variation and Comparative Genomics**  
*Johanna Schmitt: Chair*  
Abstracts #27-31

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- 27 Measuring Selection on Natural Variation**  
*Johanna Schmitt*
- 28 Evolutionary Mechanisms of Light Response Adaptation**  
*Justin Borevitz, Xu Zhang, Yan Li, Evadne Smith*
- 29 Common alleles of PHYTOCHROME C mediate natural variation in flowering and growth responses of *Arabidopsis thaliana***  
*Sureshkumar Balasubramanian, Sridevi Sureshkumar, Mitesh Agrawal, Todd Michael, Carrie Wessinger, Julin Maloof, Richard Clark, Norman Warthmann, Joanne Chory, Detlef Weigel*
- 30 Recent Selection in the Arabidopsis Genome: FRIGIDA and Beyond**  
*Christopher Toomajian, Tina Hu, Maria Jose Aranzana, Clare Lister, Chunlao Tang, Honggang Zheng, Keyan Zhao, Peter Calabrese, Caroline Dean, Magnus Nordborg*
- 31 Independent ancient polyploidy events in the sister families Brassicaceae and Cleomaceae**  
*M. Eric Schranz, Thomas Mitchell-Olds*
- 

**FRIDAY, JUNE 30**  
**11:00 am - 12:30 pm – Union Theater**  
**Session G**  
**Development 1: Flower, Fertilization, Fruit, and Seed**  
*Caroline Dean: Chair*  
Abstracts #32-36

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- 32 Flowering and Vernalization**  
*Caroline Dean*
- 33 Seven Cells in the Ovule: Functional Analysis of the Female Gametophyte Transcriptome**  
*Mario Arteaga-Vazquez, Nidia Sanchez-Leon, Marcelina Garcia-Aguilar, Vianey Olmedo-Bonfil, Javier Mendiola-Soto, Victor Perez-Espana, Mario Arteaga-Sanchez, Kan Nobouta, Kalyan Vemaraju, Blake Meyers, Jean-Philippe Vielle-Calzada*

- 34 **The molecular identification of RDO2 and RDO4 reveals new aspects of the seed dormancy mechanism**  
*Yongxiu Liu, Regina Geyer, Maarten Koornneef, Wim Soppe*
- 35 **Temporally and Spatially Regulated Auxin Biosynthesis Controls the Formation of Floral Organs and Vascular Tissues**  
*Youfa Cheng, Xinhua Dai, Yunde Zhao*
- 36 **A RAV gene negatively regulates FT expression and extremely delays flowering**  
*Cristina Castillejo, Soraya Pelaz*
- 

**FRIDAY, JUNE 30**  
**2:00 - 3:30 pm – Union Theater**  
**Session H**  
**Development 2: Shoot and Root**  
*Dominique Bergman: Chair*  
Abstracts #37-41

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- 37 **Promoting Stomatal Development**  
*Dominique Bergmann*
- 38 **Root Patterning and Cell Polarity in Arabidopsis Roots**  
*Ben Scheres*
- 39 **FOUR LIPS/MYB124 and MYB88 enhance PIN transcription**  
*Steffen Vanneste, Jessica Lucas, Zidian Xie, Dirk Inze, Erich Grotewold, Fred Sack, Tom Beeckman*
- 40 **Examination of the Mechanisms of SHORT-ROOT Cell-to-Cell Signaling**  
*Kimberly Gallagher, Philip Benfey*
- 41 **DORNROESCHEN (DRN) and DRN-LIKE Redundantly Control Cotyledon Initiation and Meristem Development in Arabidopsis thaliana**  
*John Chandler, Melanie Cole, Britta Grewe, Annegret Flier, Anwesha Nag, Thomas Jack, Wolfgang Werr*
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**FRIDAY, JUNE 30**  
**4:00 - 5:30 pm – Union Theater**  
**Session I**  
**Metabolism**  
*Harvey Millar: Chair*  
Abstracts #42-46

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- 42 **Where are all the proteins? Sub-cellular compartmentation of the Arabidopsis proteome as a key foundation for post-genomic analysis of metabolism**  
*A. Harvey Millar*
- 43 **The Visible Plant Cell: Biosensors And Bioreporters In vivo physiological imaging using fluorescent indicator proteins**  
*Wolf Frommer, Karen Deuschle, Loren Looger, sakiko okumoto*
- 44 **Peroxisomal ATP Import Is Involved In Fatty Acid Oxidation**  
*Nicole Linka, Ekkehard Neuhaus, Andreas Weber*
- 45 **Functional Identification of Arabidopsis Flavonoid 7-O-rhamnosyltransferase Gene by Co-expression Analysis**  
*Keiko Yonekura-Sakakibara, Takayuki Tohge, Masahisa Shibata, Rie Niida, Kazuki Saito*
- 46 **Functional and Informatic Analyses of the Arabidopsis Plastid**  
*Yan Lu, Linda Savage, Christoph Benning, Dean DellaPenna, John Ohlrogge, Katherine Osteryoung, Yair Shachar-Hill, Andreas Weber, William Wedemeyer, Curtis Wilkerson, Robert Last*

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**SATURDAY, JULY 1**

**9:00 - 10:30 am – Union Theater**

**Session J  
Signaling**

*Ute Hoecker: Chair*  
Abstracts #47-51

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- 47 Suppression of Light Signaling in Darkness**  
*Ute Hoecker, Sascha Laubinger, Kirsten Fittinghoff, Virginie Marchal, Jose Gentilhomme, Seonghoe Jang, Stephan Wenkel, Jessika Adrian, George Coupland*
- 48 Cytosolic Gibberellin-Receptor GID1**  
*Masatoshi Nakajima*
- 49 Investigating The Expression Of The TIR1/AFB Family Of Auxin Receptors: Could miRNAs Hold The Key?**  
*Geraint Parry, Lionel Navarro, Esther Lechner, Patrice Dunoyer, Mark Estelle*
- 50 Cytokinin Regulated AP2/ERF Transcription Factors Are Novel Components of the Cytokinin Signaling Pathway that Function in Concert with Type-B ARRs**  
*Aaron Rashotte, Michael Mason, Claire Hutchison, Fernando Ferreira, G. Eric Schaller, Joseph Kieber*
- 51 Structural and Functional Insights into the Regulation of Arabidopsis AGC VIIIa Kinase Family**  
*Hicham zegzouti, Wei Li, Richard Anthony, Todd Lorenz, Gregory Payne, Laszlo Bogre, Sioux Christensen*
- 

**SATURDAY, JULY 1**

**11:00 am - 12:30 pm – Union Theater**

**Session K  
Modeling/Other Systems**

*Sue Wessler: Chair*  
Abstracts #52-55

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- 52 Dramatic and Ongoing Amplification of a Rice Transposable Element**  
*Sue Wessler, Ken Nato, Eunyong Cho*
- 53 Systematic Identification of Cis-regulatory Logic from Microarray Data and Whole-genome Sequence**  
*Michael Beer*
- 54 Or Encodes a Cysteine-Rich Zinc Finger Domain Containing Protein That Regulates High-Level of  $\beta$ -Carotene Accumulation in Cauliflower**  
*Li Li, Shan Lu, Diana O'Halloran*
- 55 VirtualPlant: A software platform to support systems biology research in the post-genomic era**  
*Rodrigo Gutierrez, Mapreet Katari, Steven Nowicki, Chris Poultney, Varuni Prabhakar, Ranjita Iyer, Dennis Shasha, Gloria Coruzzi*
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**SATURDAY, JULY 1**

**2:00 - 3:30 pm – Union Theater**

**Session L  
Cell Biology**

*Jiri Friml: Chair*  
Abstracts #56-60

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- 56 Establishment and Maintenance of Cell Polarity in Plants**  
*Jiri Friml, Pankaj Dhonukshe, Marta Michniewicz, Tomasz Paciorek, Michael Sauer, Justyna Wisniewska*
- 57 Actin-Binding Proteins as Sensors of Cellular Stress**  
*Shanjin Huang, Lisa Gao, Laurent Blanchoin, Christopher Staiger*
-



- 58 **In vivo Dynamics Implicate a Role for Dynamin-Related Protein 1C in Polar Cell Growth**  
*Catherine Konopka, Steven Backeus, Sebastian Bednarek*
- 59 **Polarazine: a new plant cytokinesis inhibitor**  
*Simon Alfred, Yang Zhao, Freeman Chow, Pauline Fung, Peter Roy, Sean Cutler*
- 60 **Functional Analysis of the Arabidopsis cdc2 Homologue CDKA;1**  
*Nico Dissmeyer, Moritz Nowack, Stefan Pusch, Arp Schnittger*
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**SATURDAY, JULY 1**

**4:00 - 5:30 pm – Union Theater**

**Session M**

**Energy**

*Steven Rothstein: Chair*

Abstracts #61-64

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- 61 **Energy and Agriculture: The Potential to Use Genetics to Improve the Energy Efficiency of Crop Production**  
*Steven Rothstein*
- 62 **Linking Biomass to Stomatal Development**  
*Keiko Torii, Shannon Bemis, Naomi Bogenschutz, Jessica McAbee, Lynn Pillitteri, Daniel Sloan*
- 63 **Genetic analysis of drought tolerance in Arabidopsis**  
*Hao Chen, Guohong Mao, Rui-Gang Wang, Jessica Koczan, Liming Xiong*
- 64 **SLIM1/EIL3 Transcription Factor Required for Plant Growth on Low Sulfur Environment**  
*Akiko Maruyama-Nakashita, Yumiko Nakamura, Takayuki Tohge, Kazuki Saito, Hideki Takahashi*
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**SATURDAY, JULY 1**

**4:00 - 5:30 pm – Union Theater**

**SPECIAL LECTURE**

*Richard Young: Chair*

Abstract #65

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- 65 **Regular Circuitry in Embryonic Stem Cells**  
*Richard Young*
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**SUNDAY, JULY 2**

**9:00 - 10:30 am – Union Theater**

**Session N**

**Arabidopsis 2010**

*Machi Dilworth: Chair*

Abstracts #66-70

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- 66 **Arabidopsis 2010**  
*Machi Dilworth*
- 67 **Arabidopsis 2010: Integrating the Unknown-eome with Abiotic Stress Response Networks in Arabidopsis**  
*Jeff Harper, Julia Bailey-Serres, Ron Mittler, John Cushman, Thomas Girke, Jian-Kang Zhu, Martin Gollery*
- 68 **Arabidopsis 2010: Functional Genomics of Cation Transporters**  
*Heven Sze, Senthilkumar Padmanaban, Kendal Hirschi, John Ward*
- 69 **Temporal and Spatial Expression Profiling of the Arabidopsis Response to Powdery Mildew**  
*Mary Wildermuth, Noriko Inada, Nancy Zhang, Terry Speed*
- 70 **Genome-Wide Analysis of Arabidopsis Small RNAs**  
*Kristin Kasschau, Christopher Sullivan, Jason Cumbie, Scott Givan, Noah Fahlgren, Elisabeth Chapman, James Carrington*

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**SUNDAY, JULY 2**  
**11:00 am - 12:30 pm – Union Theater**  
**Session O**  
**NAASC Choices**  
*Rob McLung: Chair*  
Abstracts #71-74

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- 71 The predicted Arabidopsis interactome**  
*Matt Geisler, Jane Geisler-Lee*
- 72 Polydactyl Zinc Finger Transcription Factors can be used as efficient tools to discover Arabidopsis mutants with enhanced homologous recombination**  
*Beatrice Lindhout, Leon Neuteboom, Johan Pinas, Paul Hooykaas, Bert van der Zaal*
- 73 Engineering Specific and Efficient Gene Silencing with Artificial microRNAs**  
*Rebecca Schwab, Stephan Ossowski, Markus Riester, Norman Warthmann, Detlef Weigel*
- 74 The Receptor-like Cytoplasmic Kinase Gene SHORT SUSPENSOR Regulates Extra-Embryonic Development in Arabidopsis**  
*Martin Bayer, Sharon Alabaster, Kelly Wetmore, Jason Williams, Wolfgang Lukowitz*
- 

**POSTER ABSTRACTS**  
Abstracts #75-440

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- 75 Integrating Membrane Transport with Male Gametophyte Development and Function through Transcriptomics**  
*Kevin Bock, David Honys, John Ward, Senthilkumar Padmanaban, Eric Nawrocki, Kendal Hirschi, David Twell, Heven Sze*
- 76 To identify the biotinylation of histones in Arabidopsis**  
*xi chen*
- 77 Alterations in Sphingolipid Hydroxylation Have Profound Effects on Plant Growth and Sphingolipid Composition**  
*Ming Chen, Jonathan Markham, Charles Dietrich, Jan Jaworski, Edgar Cahoon*
- 78 Authentic Investigations as Pedagogical Tool for Learning Scientific Inquiry**  
*David Lally, Julia Grady, Dayna Wilhelm, Marshall Swafford, Erin Dolan*
- 79 PREP: Partnership for Research and Education in Plants**  
*Eric Brooks, Erin Dolan, David Lally, Carol Robertson, Frans Tax, John Walker, Margaret Wilch*
- 80 The genomic pattern of linkage disequilibrium in Arabidopsis thaliana**  
*Tina Hu, Sung Kim, Vincent Plagnol, Chris Toomajian, Richard Clark, Clare Lister, Caroline Dean, Joseph Ecker, Detlef Weigel, Magnus Nordborg*
- 81 Insights into the Plant Polyadenylation Apparatus**  
*Arthur Hunt, Balasubrahmanyam Addepalli, Srinivasa Rao, Kevin Forbes, Kimberly Delaney, Ruqiang Xu, Quinn Li, Kil-Young Yun, Deane Falcone*
- 82 The LATERAL ORGAN BOUNDARIES (LOB) Transcription Factor Binds a Cis-Element In Vitro**  
*Aman Husbands, Harley Smith, Patricia Springer*
- 83 Characterization of Orthologous Subtilases in Arabidopsis and Tomato**  
*Franziska Huttenlocher, Anna Cedzich, Katrin Ullrich, Annick Stintzi, Andreas Schaller*
- 84 Analysis of the Arabidopsis thaliana Subtilisin-Like Serine Protease Gene Family**  
*Mathias Knappenberger, Annick Stintzi, Andreas Schaller*
- 85 Systems Biology at NASC**  
*Sean May*
- 86 NASC Germplasm Resources: <http://arabidopsis.info>**  
*Sean May*