Molecular Cellular Biology of the Soybean
15th Biennial Conference
The Commons Hotel
University of Minnesota

Sunday, August 3, 2014

3:00 p.m. - Registration opens

3:00 – 5:00 p.m.
Satellite Workshop: SoyKB (room Think 4)

Plenary Address Sponsored by the United Soybean Board and the Minnesota Soybean Research and Promotion Council

6:15
Plenary Address
Dan Voytas, University of Minnesota
Engineering the Soybean Genome with Precision

7:30 - Reception

8:30 - Dinner on your own

Monday, August 4, 2014

7:00 a.m. - Registration and Continental Breakfast

Plenary Address and Morning Session Sponsored by Dow AgroSciences

8:00
Plenary Address
James Specht, University of Nebraska
Forty years of Fun in Soybean Genetic Improvement - Retrospect and Prospect (Oh! The places you will go!)

Pests and Diseases
Chairs: Andrew Bent, University of Wisconsin and Ann Dorrance, Ohio State University

9:00 - 9:20, Leonor Leandro, Iowa State University
Investigating Mechanisms of Foliar Resistance to Fusarium virguliforme Toxins Using Virus-Induced Gene Silencing

9:20 - 9:40, Andrew Brent, University of Wisconsin
SCN Resistance: A Major Plant Disease Resistance Trait Operates Via Novel Mechanisms
Monday, August 4, 2014 (continued)

9:40 - 10:00, Leah McHale, Ohio State University
Genome-Wide Analyses of Quantitative Resistance to Phytophthora sojae in Soybean

10:00 - Break

Pests and Diseases (continued)

10:15 - 10:35, Brett Tyler, Oregon State University
Using Pathogen Genomics and Effector Biology to Improve Oomycete Disease Management in Soybean

10:35 - 10:55, Maria Ortega, University of Georgia
QTL Pyramids for Effective Resistance to Chewing Insects

10:55 - 11:15, Andy Michel, Ohio State University
Molecular Interactions among Soybean and Soybean Aphid

11:15 - 11:35, Tom Ashfield, Indiana University
Using Domain Swaps to Identify the Regions Determining Recognition Specificity in Soybean Resistance Genes Effective Against Bacterial Blight

11:35 - 11:55, Yong Bao, University of Minnesota
Implementing Association Mapping and Genomic Selection in Soybean Breeding Program

12:00 p.m. - Lunch

Symbiotic Interactions
Chairs: Michelle Graham, USDA-ARS, Iowa State University and Janine Sherrier, University of Delaware

1:30 - 1:50, Perry Cregan, USDA-ARS, Beltsville, MD
Soybean Host Control of Nodulation by Strains of Bradyrhizobium

1:50 - 2:10, Md Shakhawat Hossain, University of Missouri
Root Hair, a Single Cell Model to Study Soybean-Microbe Interactions and Abiotic Stress

2:10 – 2:30, Brent Kaiser, The University of Adelaide, Australia
A Membrane Localized BHLH Transcription Factor Involved in Legume Nodule Development and Ammonium Transport

2:30 - 2:50, Suresh Damodaran, South Dakota State University
Regulation of HD-ZIP III Transcription Factor during Soybean Nodule Development

2:50 - Break

Abiotic Stress
Chairs: Jamie O'Rourke, USDA-ARS, Iowa State University and Henry Nguyen, University of Missouri

3:10 - 3:30, Zenglu Li, University of Georgia
Utilizing Genomic Tools to Improve Drought Tolerance in Soybean

3:30 - 3:50, Adrienne Moran Lauter, USDA-ARS, Ames IA
Investigating Gene Expression Changes in the Iron-Efficiency Response of Soybean by RNA-Seq and Virus-Induced Gene Silencing

3:50 - 4:10, Silvas Prince, University of Missouri
Integration of Genomic and Genetic Approaches to Improve Soybean Root Architecture

4:10 - 4:30, Kent Burkey, USDA-ARS, Raleigh, NC
Examining the Basis for Ozone Tolerance in Soybean
Monday, August 4, 2014 (continued)

4:30 - 4:50, Bishal Tamang, Virginia Tech
Physiological and Transcriptomic Responses to Submergence and Reoxygenation in Soybean at the Seedling Establishment Stage

Poster Reception Sponsored by DuPont Pioneer

5:00 - Poster Reception, All Posters
6:30 - Dinner on your own

Tuesday, August 5, 2014

7:00 a.m. - Registration and Continental Breakfast

Morning Sessions Sponsored by Syngenta

Composition/Nutrition
Chairs: Brian Diers, University of Illinois and Katy Martin Rainey, Purdue University

8:15 - 8:35, Karen Hudson, USDA-ARS, West Lafayette, IN
Genomic Mutation Breeding for Seed Composition

8:35 - 8:55, John Everard, DuPont Pioneer
Improving the Composition of Soybean Seeds

8:55 - 9:15, Hari Krishnan, USDA-ARS, Columbia, MO
A Multifaceted Approach to Improve the Protein Quality of Soybean Seed

9:15 - 9:35, Qijian Song, USDA-ARS, Beltsville, MD
Identification of Loci Associated with Protein and Oil Content in Soybean

9:35 - 9:55, Minviluz Stacey, University of Missouri
Utility of Fast Neutron Mutagenesis in Soybean Forward Genetics: Identification of Homogentisate Dioxygenase as a Target for Vitamin E Biofortification in Oilseeds

9:55 - Break

Functional Genomics
Chairs: Nathan Hancock, University of South Carolina and Marc Libault, University of Oklahoma

10:15 - 10:35, Robert Schmitz, University of Georgia
Epigenome-Wide Inheritance of Cytosine Methylation Variants in a Recombinant Inbred Population

10:35 - 10:55, Thomas Jacobs, University of Georgia
So Many Genes, So Little Time: Targeting Systems for Gene Destruction

10:55 - 11:15, Devinder Sandhu, University of Wisconsin
Tagging Soybean Genes with an Endogenous Transposable Element for their Functional Analyses

11:15 - 11:35, Jeremy Murray, John Innes Center
The Rhizobial Infectome: Uncovering the Genes that Control the Early Steps of the Legume-Rhizobia Interaction

11:35 - 11:55, Lila Vodkin, University of Illinois
Hi-Seq Approaches to Unravel Mendelian Traits Affecting Seed Color, Morphology, and Composition

12:00 p.m. - Lunch
**Tuesday, August 5, 2014 (continued)**

**Afternoon Sessions Sponsored by BASF**

Translational Genomics
Chairs: Steve Clough, USDA-ARS, Urbana, Illinois and Zenglu Li, University of Georgia

1:30 - 1:50, **Abraham Akpertey, University of Illinois**  
*Genetic Introgression from Glycine tomentella to Soybean to Increase Seed Yield*

1:50 - 2:10, **Justin Vaughn, University of Georgia**  
*The Genetic Architecture of Seed Composition in Soybean is Refined by a Genome-Wide Association Study Across Multiple Populations*

2:10 - 2:30, **Brian Diers, University of Illinois**  
*Nested Association Mapping of Agronomic Traits in Soybean*

2:30 - 2:50, **Ruth Swanson-Wagner, Monsanto Company**  
*Utilization of Genomic Information to accelerate commercial soybean breeding and product development through Marker Assisted Selection*

2:50 - Break

Translational Genomics (continued)

3:10 - 3:30, **Tiffany Lynn Langewisch, USDA-ARS, University of Missouri**  
*Constructing an E Gene Molecular Model for Soybean Maturity Groups*

3:30 - 3:50, **Daina Simmonds, Agriculture and Agri-Food Canada**  
*Gene Expression Studies to Identify and Verify the Function of Soybean Defense Genes against Sclerotinia sclerotiorum*

3:50 - 4:10, **Donald Ort, USDA-ARS, Urbana, IL**  
*Improving Photosynthetic Efficiency for Improved Yield Are Crop Plants Too Green?*

4:10 - 4:30, **Trulie Campbell, Dow AgroScience (previously Purdue University)**  
*Genotype by Sequencing to Quickly Map Wild Soybean Introgressions for Resistance to the Soybean Aphid*

4:30 – Adjourn

5:00 – 6:00 p.m.  
*Satellite Workshop: SoyBase (room Think 4)*

6:30 - Reception (*TCF Bank Stadium, University of Minnesota*)

7:15 - Banquet Dinner (*TCF Bank Stadium, University of Minnesota*)

**Wednesday, August 6, 2014**

7:00 a.m. - Continental Breakfast

**Morning Sessions Sponsored by Monsanto**

Genome Structure and Evolution (*The Commons Hotel*)  
Chairs: Scott Jackson, University of Georgia and Jianxin Ma, Purdue University
**Wednesday, August 6, 2014 (continued)**

8:30 - 8:50, Jianxin Ma, Purdue University  
*Evolutionary Novelty of Duplicates: Insights from a Case Study of Soybean Stem Growth Habit*

8:50 - 9:10, Benjamin Campbell, University of Minnesota  
*Genome Resilience and Prevalence of Segmental Duplications Following Fast Neutron Irradiation of Soybean*

9:10 - 9:30, Jeff Doyle, Cornell University  
*Progress in Studying Evolution and Diversity of the Perennial Relatives of Soybean*

9:30 - 9:50, Suk-Ha Lee, Seoul National University  
*Tracking the Historical Timeline of Soybean Using Archaeological, Cultural, and Genome Evidences*

9:50 - Break

**Genome Structure and Evolution (continued)**

10:15 - 10:35, Michelle Graham, USDA-ARS, Ames, IA  
*Using Genomics to Characterize Soybean Yield Improvement Over the Last 90 Years*

10:35 - 10:55, Lijuan Qiu, Chinese Academy of Agricultural Sciences, Beijing, China  
*Molecular Footprints of Domestication in Soybean*

10:55 - 11:15, David Grant, USDA-ARS, Ames, IA  
*SoyBase: A Comprehensive Database for Soybean Genetic and Genomic Data*

11:15 - 11:35, Jeremy Schmutz, HudsonAlpha Institute for Biotechnology  
*An Improved Reference and Annotation for the Soybean Genome*

11:35 - Concluding Remarks