

Agenda of the 53rd Annual Meeting

Saturday, August 9 (Day 1: Arrival)

| Time | Meeting activities | Location |
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| <i>12:00 noon-15:00 PM</i> | PSNA Executive Meeting | 2212 Gardner Hall, on campus of North Carolina State University |
| <i>15:00-19:30 PM</i> | Registration Deck Open | McKimmon Center |
| <i>18:00-20:00 PM</i> | Evening Reception and Setup of Posters | McKimmon Center |
| <i>19:00-20:00 PM</i> | Scientific organization committee meeting (only for committee members) | McKimmon Center |

Sunday, August 10 (Day 2), McKimmon Center

Morning

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| Time | Meeting activities |
| 7:15-8:15 AM | Registration desk open Breakfast and poster setup |
| 8:15-8:30 AM | Welcome opening remarks (Dr. Richard Linton, Dean, College of Agriculture and Life Sciences) |
| 8:30-8:35 | Conference Announcements |
| Plenary Symposium: Plant Metabolic Biology (Chair: Dr. Argelia Lorence) | |
| 8:35-9:20 AM (45 min) | P1: Dr. Richard Dixon (University of North Texas, USA) Title: "Biology Meets Phytochemistry- Lessons from Lignin Biosynthesis" |
| Symposium I: Biosynthesis of Plant Natural Products (Chairs: Dr. Sangeeta Dhaubhadel, Dr. Li Tian) | |
| 9:20-9:55 AM (35 min) | KS-1: Dr. Vincenzo de Luca (Brock University, Canada) Title: "Discovery and Metabolic Engineering of Iridoid/Secoiridoid and Monoterpenoid Indole Alkaloid Biosynthesis" |
| 9:55-10:15 AM | Coffee break |
| 10:15-10:50 AM (35 min) | KS-2: Dr. Asaph Aharoni (Weizmann Institute of Science, Israel) Title: "Deciphering the Steroidal Alkaloids Pathway in Tomato and Other Solanaceous Species through the Integration of Heterogeneous Data from Genetics, Informatics and Metabolomics" |
| 10:50-11:10 AM (20 min) | OP-1: Dorothea Tholl Title "Protein-Structure Function Relationships and Evolution of Triterpene-derived Homoterpene Volatile Formation" |
| 11:10-11:30 AM (20 min) | OP-2: Xu Li Title: "Exploiting Natural Metabolic Variation to Discover a Novel D-Amino Acid Racemase in <i>Arabidopsis thaliana</i> ." |
| 11:30-11:45AM (15 min) | OP-3: Anna Berim Title: "Delineation of the Lipophilic Flavone Biosynthetic Network in <i>Ocimum basilicum</i> Trichomes" |
| 11:45-12:00 (15 min) | OP-4: Weili Yang Title: "Quantitative Analysis of Glycerol in Arabidopsis Dicarboxylic Acid-Rich Cutins Provides New Insights into Cutin Structure" |

Lunch (12:00-1:30 PM, 90 min)

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| 12:20-1:20 PM (60 min) | Young members Luncheon Chairs: Dr. Jing Xi and Lorenzo Rossi Special Speakers: Drs. Richard Dixon and Mansukh C. Wani Topic: "Stories of Research-Roads towards a Successful Career" |
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Afternoon-Evening, McKimmon Center

| Symposium II: Plant Metabolomics (Chair: Dr. Lining Guo and Reinhard Jetter) | |
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| 1:30-2:05 PM (35 min) | KS-3: Dr. John Ryals (Metabolon Inc., USA) Title: “Insights into Plant Water Stress Pathway and Crop Diversity through Global Metabolomics” |
| 2:05-2:40 PM (35 min) | KS-4: Dr. Lloyd Sumner (Plant Biology Division, Noble Foundation, USA) Title: “Integrated Metabolomics, Gene Expression, and GWAS Identify New Saponin Biosynthetic Genes in <i>Medicago truncatula</i> ” |
| 2:40-3:00 PM | Coffee break |
| 3:00-3:25 PM (25 min) | OP-5: Berin Boughton Title “Spatial Metabolomics: Mapping the Distribution of Metabolites Using Imaging Mass Spectrometry” |
| 3:25-3:45 PM (20 min) | OP-6: Junhua Wang Title: “Coupling Ion Chromatography with a New Q Exactive Orbitrap Mass Spectrometer for High Throughput Targeted Metabolomic Analysis” |
| 3:45-4:00 PM (15 min) | OP-7: Shivakumar P. Devaiah Title: “Towards Understanding of Glucosyltransferase Specificity in <i>Citrus paradisi</i> ” |
| 4:00-4:15 PM (15 min) | OP-8: Stephen Grace Title: “Haystack, a Web-Based Tool for Metabolomics Research” |
| 4:15-4:30 PM (15 min) | OP-9: Aruna Kilaru Title: “Discovery of a Mammalian Endocannabinoid Ligand and Its Metabolites in Early Land Plants” |
| 4:30-4:45PM (15 min) | OP-10: Massuo J. Kato Title: “Secondary Metabolite Richness in Piperaceae Species” |
| 4:45-5:00 PM (15 min) | OP-11: Robert Mistrík Title: “A Novel Cloud Approach to Solving the Identification Bottleneck in the Untargeted Metabolomics” |
| 5:00-7:30 PM | Dinner on your own |
| 7:30-9:30 PM | Poster section and reception |

Monday, August 11 (Day 3)

Morning

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| Time | Meeting activities |
| 7:15-8:15 AM | Registration desk open |
| | Breakfast |
| Plenary Symposium: Plant Synthetic Biology (Chair: Dr. Deyu Xie) | |
| 8:15-9:00 AM (45 min) | P2: Dr. Christopher Paddon (Amyris Inc., Emeryville, USA) Title: "Semi-Synthetic Artemisinin: Using Synthetic Biology to Develop Industrial Production of an Essential Plant Natural Product" |
| Symposium VII: Phytochemicals, Pathogens and Insects (Chairs: Dr. Mark Bernards and Dr. Eric Johnson) | |
| 9:00-9:35 AM (35 min) | KS-5: Dr. Reuben Peters (Iowa State, University, USA) Title: "Manifold Roles For Rice Diterpenes" |
| 9:35-10:10 AM (35 min) | KS-6: Dr. Soren Bak (University of Copenhagen, Denmark) Title: "Evolution and Impact of Cyanogenic Glucosides In <i>Zygaena</i> Moths" |
| 10:10-10:30 AM | Coffee break |
| 10:30-10:45 AM (15 min) | OP-12: Mark A. Bernards Title: "Rhizosphere Ginsenosides Affect <i>Pyhtium irregulare</i> growth <i>in vitro</i> and <i>in vivo</i> " |
| 10:45-11:00 AM (15 min) | OP-13: Reinhard Jetter Title: "Waxes Coating Fern Fronds: Fatty Acid Derivatives and Secondary Metabolites" |
| 11:00-11:15 AM (15 min) | OP-14: Jeremy J. Heath Title: "Exploring Llant Defense Theory in Tall Goldenrod" |
| 11:15-11:30 AM (15 min) | OP-15: Dhirendra Kumar Title: "Tobacco SBIP-428: A SIR2 Like Deacetylase, and Its Role in SA Mediated Pathway"" |
| 11:30-11:45 AM (15 min) | OP-16: Nikolaj Hansen Title: "Evolutionary Cues from Functional Switching of Two Closely Related Class II Diterpene Synthases" |
| 11:45-12:00 noon (15 min) | OP-17: Christopher S. Jeffrey Title: "Amides and Steroids from <i>Manekia obtusa</i> (Piperaceae) and their synergistic activity against insect herbivores" |

Lunch (12:00 noon-1:00 PM, 60 min)

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| 12:10-12:50 PM (40 min) | Contest Activity (12:10-12:50 PM) Topic: "Critical Assessment of Small Molecule Identification (CASMI) Contest" Chair: Dr. Dejan Nikolic |
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Afternoon-Evening

| Symposium III: Plant Systems Biology (Chairs: Dr. Rosangela Sozzani and Dr. David Gang) | |
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| 1:00-1:35 PM (35 min) | KS-7: Dr. Joerg Schwender (Brookhaven National Laboratory, USA) Title: “Quantitative Analysis of Metabolism on a Network Scale Unlocks the Complexity of Central Carbon Metabolism” |
| 1:35-2:10 PM (35 min) | KS-8: Dr. Adrienne Roeder (Cornell University, USA) Title: “A Systems Biology Approach to Understanding the Relationship between Plant Cell Size and Organ Size” |
| 2:10-2:25 PM (15 min) | OP-18: David R. Gang Title: “From Temporal Systems Biology to Regulatory Networks in the Microalga <i>Chlamydomonas reinhardtii</i> ” |
| 2:25-2:40 PM (15 min) | OP-19: Sangeeta Dhaubhadel “Soybean 14-3-3 Proteins and GMMYB176 Interactome: The Key Players Involved in the Regulation of Isoflavonoid Biosynthesis” |
| 2:40-3:00 PM | Coffee break |
| Symposium I: Biosynthesis of Plant Natural Products (Chairs: Dr. Monica Borghi and Dr. Xu Li) | |
| 3:00-3:35 PM (15 min) | KS-9: Dr. Natalia Dudareva (Purdue University, USA) Title: “Aromatic Amino Acid Network: Biosynthesis, Regulation and Transport” |
| 3:35-4:10 PM (15 min) | KS-10: Dr. Jose Alonso (North Carolina State University, USA) Title: “Auxin Biosynthesis and Its Regulation” |
| 4:10-4:30 PM (20 min) | OP-20: Toshiaki Umezawa Title: “CAD2 Deficiency Causes Both Brown Midrib and Gold Hull and Internode Phenotypes in <i>Oryza sativa</i> ” |
| 4:30-4:45 PM (15 min) | OP-21: Russell Chedgy Title: “Functional Characterization of Two Novel BAHD Acyltransferases from <i>Populus trichocarpa</i> , SABT & BEBT, which are Potentially Involved in Salicinoid Phenolic Glycoside Synthesis” |
| 4:45-5:00 PM (15 min) | OP-22: Kevin Potter Title: “Mechanistic Analysis of the Ent-Copalyl Diphosphate Synthases Required for Plant Gibberellin Hormone Biosynthesis Leads to Novel Product Chemistry” |
| 5:00-7:30 PM | Dinner on your own |
| 7:30-9:30 PM | Poster section and reception, McKimmon Center |

Tuesday, Aug. 12 (Day 4), McKimmon Center

Morning

| Time | Meeting activities |
|--|---|
| 7:15-8:15 AM | Registration desk open |
| | Breakfast |
| Plenary Symposium: Botanic Medicines (Chair: Dr. Fred Stevens) | |
| 8:15-9:00 AM (45 min) | P3: Dr. Nicholas Oberlies (University of North Carolina, Greensboro, USA) Title: "Chemistry of the Endophytic Fungi of the Medicinal Herb Milk Thistle (<i>Silybum marianum</i>)" |
| Symposium V: Botanical Medicines (Chairs: Dr. Nicholas Oberlies and Dr. Jeremy Johnson) | |
| 9:00-9:35 AM (35 min) | KS-11: Dr. Douglas Kinghorn (Ohio State University, USA) Title: "Aglaia Cyclopenta [b]Benzofurans As Potential Anticancer Agents" |
| 9:35-10:10 AM (35 min) | KS-12: Dr. Luc Pieters (, University of Antwerp, Belgium) Title: "Botanical Medicines Against Malaria" |
| 10:00-10:20 AM | Coffee break |
| 10:20-10:45 AM (25 min) | OP-23: Scott M.Laster Title: "Alkylamides from Echinacea and Their Effects on the Production of Inflammatory Mediators from Macrophages and Mast cells" |
| 10:45-11:10 AM (25 min) | OP-24: Athar Ata Title: "New Enzyme Inhibiting Phytochemicals and their Pharmaceutical Applications" |
| 11:10-11:25 AM (15 min) | OP-25: Pei Chen Title: "Differentiation of The Four Major Species (<i>C. burmannii</i> , <i>C. verum</i> , <i>C. cassia</i> , and <i>C. loureiroi</i>) of Cinnamons Using a Flow-Injection Mass Spectrometric (FIMS) Fingerprinting Method" |
| 11:25-11:40 AM (15 min) | OP-26: Josh Kellogg Title: "Multi-target Functionality of Alaskan Seaweed in Combatting Hyperglycemia and Type 2 Diabetes" |
| 10:40-11:55 AM (15 min) | OP-27: Lydia F Yamaguchi Title: "Changes in the Secondary Metabolites during Ontogeny of <i>Piper gaudichaudianum</i> Kunth" |

Lunch 11:55 AM-1:00 PM

Afternoon-Evening, McKimmon Center

| Symposium IV: Renewable Petro Biofuel from Plants (Chairs: Dr. Danny J. Schnell and Dr. Deyu Xie) | |
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| 1:00-1:35 PM (35 min) | KS-13: Dr. Danny Schnell (University of Massachusetts, USA) Title: “Approaches to Increase Carbon Capture and Redistribution to Fuel Molecules and Co-products in <i>Camelina sativa</i> ”” |
| 1:35-2:10 PM (35 min) | KS-14: Dr. Edgar Cahoon (University of Nebraska, USA) Title: “Camelina: A Designer Oil Seed Crop for Metabolic Engineering of Advanced Biofuels and Bio-based Lubricants” |
| 2:10-2:45 PM (35 min) | KS-15: Dr. Amy Grunden (North Carolina State University, USA) Title: “Increasing Photosynthetic CO ₂ Capture in <i>Camelina sativa</i> with a Synthetic Carbon Fixation Cycle Composed of Selected Microbial Enzymes” |
| 2:45-3:00 PM (15 min) | OP-28: Matthew J. Salie Title: “Discovering Novel Interacting Proteins with Heteromeric Acetyl-CoA Carboxylase” |
| 3:00-3:15 PM (15 min) | OP-29: Hong Ma Title: “Synthetic Design of Pathways for Terpene Biofuel Production in Tobacco” |
| 3:15-3:30 PM (15 min) | OP-30: Dr. Monica Borghi Title: “Metabolic Engineering of <i>Camelina sativa</i> to Produce Additives for Biodiesel” |
| Neish Young Investigator Award Winner (Chair: Dr. Argelia Lorence) | |
| 3:30-3:55 PM (25 min) | Dr. Leslie Hicks (University of North Carolina, USA) Title: “Interrogation of Post-translational Regulation in <i>C. reinhardtii</i> via Mass Spectrometric Proteomics Approaches” |
| 3:55-7:00 PM | Free time |
| 7:00-10:00 PM | Banquet at McKimmon Center Announcements of Neish Award Winner, Best Poster Winner, and Travel Award Winners |

PSNA business meeting: 4:00 PM-5:00 PM at McKimmon Center

Wednesday, Aug. 13 (Day 5), McKimmon Center

Morning

| Time | Meeting activities |
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| 7:15-8:15 AM | Registration desk open |
| | Breakfast |
| Symposium VIII: Phytochemicals, Crops and Agriculture (Chairs: Dr. Dan Sung, Dr. Baochun Li, and Dr. Peifeng Ren,) | |
| 8:15-8:50 AM (35 min) | KS-16: Dr. John Littleton (University of Kentucky, USA) Title: "Selection of Mutant Plant Cells for Target-directed Biosynthesis of Bioactive Metabolites"" |
| 8:50-9:25 AM (35 min) | KS-17: Dr. Luke Mankin (BASF Plant Science, L.P., Research Triangle Park, NC, USA) Title: "The Provisia™ Rice System: A New Vision in Red Rice Control (The Control of Grass Weeds in Rice)" |
| 9:25-9:45 AM (20 min) | OP-31: Amanda Souza Title: "A Metabolomics Based Approach for Understanding the Influence of Terroir in Wine Grape Juice Using LC-HR/AM"" |
| 9:45-10:00 AM (15 min) | OP-32: Adam Brown "Studies on Bacterial Efflux Pump Inhibitors and Their Distribution in Land Plants" |
| 10:00-10:15 AM (15 min) | OP-33: Jason McCallum Title: "Anthocyanin and Pyranoanthocyanin Biosynthesis in Staghorn Sumac (<i>Rhus typhina</i> L.)"" |
| 10:15-10:35 | Coffee break |
| 10:35-11:10 AM (35 min) | KS-18: Dr. Marie Petracek (Monsanto, St. Louis, MO, USA) Title: "Innovation in Agriculture: Mitigating the Effects of Climate Change" |
| 11:10-11:25 PM (15 min) | OP-34: Michael Gutensohn Title: "Metabolic Engineering of Monoterpene Biosynthesis in Tomato Fruits Via Introduction of the Non-canonical Substrate Neryl-diphosphate" |
| 11:25-11:40 AM (15 min) | OP-35: Eva Knoch Title: "Hydroxynitrile Glucosides in Barley" |
| 11:40 -11:55 (15 min) | OP-36: Benjamin Delory Title: "Barley (<i>Hordeum distichon</i> L.) Roots Produce Volatile Aldehydes Derived from the Lipoxygenase/Hydroperoxide Lyase Pathway with a Strong Age-dependent Pattern" |

Lunch (11:55 AM-1:10 PM)

(Removal of Posters)

Afternoon, McKimmon Center

| Symposium VIII: Phytochemicals, Crops and Agriculture (Chairs: Dr. Nic Bate and Dr. Mark Berhow) | | |
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| 1:10-1:45 PM (35 min) | KS-20: Dr. Sean Cutler (University of California, River side, USA) Title: “Agrichemical Control of Drought Tolerance Using Engineered ABA Receptors” | |
| 1:45-2:20 AM (35 min) | KS-19: Elvira DeMeija (the University of Illinois, USA) Title: “Phenolic Compounds from Fruits and Vegetables: Role in Chronic Diseases” | |
| 2:20-2:35 PM (15 min) | OP-37: Li Tian Title: “Vitamin A biofortification of wheat grains via a TILLING mutant-based approach” | |
| 2:35-2:50 AM (15 min) | OP-38: Daniel Owens Title: “Metabolism of Glyphosate and Aminophosphoric Acid in Glyphosate-Resistant and Conventional Canola (<i>Brassica napus L.</i> ” | |
| 2:50-3:00 PM (15 min) | Oral presentation winner announcement Closing remarks Adjournment | |
| 3:00 PM | RAP editorial board meeting and incoming executive meeting | Room |