

## Scientific Program: XXI SMB Plant Biology Congress & 4th ASPB Mexico Section Meeting

| Monday October 20              |                                                                                                                                                                                                 |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 09:00-18:30                    | Registration & Welcome                                                                                                                                                                          |
| <b><u>Keynote session</u></b>  |                                                                                                                                                                                                 |
| 18:30-19:15                    | <b>Siobhan M. Brady</b> (UC Davis)<br>Environmental Integration with Root Cell Type Development                                                                                                 |
| 19:30-21:30                    | Welcome Cocktail                                                                                                                                                                                |
| Tuesday October 21             |                                                                                                                                                                                                 |
|                                | · Abiotic stress and Genetics & Genomics ·                                                                                                                                                      |
| Chair                          | Stewart Gillmor                                                                                                                                                                                 |
| <b><u>Keynote session</u></b>  |                                                                                                                                                                                                 |
| 09:00 - 09:45                  | <b>Alejandra Covarrubias</b> (IBT-UNAM)<br>Dry Times, Tough Proteins: Roles of LEA proteins in plant responses to water scarcity                                                                |
| <b><u>Plenary sessions</u></b> |                                                                                                                                                                                                 |
| 09:45 - 10:15                  | <b>Minerva Trejo</b> (Institute of Science and Technology, Austria)<br>Leveraging the evolutionary information in genomic and epigenomic databases to reconstruct DNA methylation systems       |
| 10:15 - 10:45                  | <b>Ken Birnbaum</b> (New York University)<br>One Call, Many Responses: Decoding Auxin's Cell-Specific Language                                                                                  |
| 10:45 - 11:15                  | <b>Damien Formey</b> (CCG-UNAM)<br>Phabase: A High-Quality Genome Assembly and Platform for <i>Phaseolus vulgaris</i> cv. Negro Jamapa                                                          |
| 11:15 - 11:45                  | Coffee break                                                                                                                                                                                    |
| 11:45 - 12:15                  | <b>Dan Chitwood</b> (Michigan State University)<br>Iconography and Indigenous Knowledge in the De la Cruz-Badiano Nahuatl Herbal (1552): A Text Mining and Morphometric Study of Mexican Plants |
| 12:15 - 12:45                  | <b>Azalea Guerra</b> (Unidad Irapuato, Cinvestav)<br>Genetic Diversity of Orphan Crops and Wild Relatives: A Foundation for Resilient Agroecosystems                                            |
| 12:45 - 13:15                  | <b>Zachary Lippman</b> (Cold Spring Harbor Labs)<br>Hidden genetic complexities and phenotypic consequences of evolving plant stem cell networks in nature and agriculture                      |
| 13:15 - 14:45                  | Lunch                                                                                                                                                                                           |

Chair Fulgencio Alatorre

**Short talks**

14:45 - 15:00

**José Alberto Valenzuela** (CIAD)

A comparative genomic analysis reveals key conserved cuticular genes in fleshy fruits cuticular biosynthetic machinery.

15:00-15:15

**David Díaz** (Unidad Irapuato, Cinvestav)

WIP2/NTT modulates cytokinin homeostasis

15:15-15:30

**Elsa Góngora** (Unidad Mérida, Cinvestav)

What did we lose by domesticating papaya? Genome sequencing of wild and commercial varieties reveals genetic clues to resistance

15:30-15:45

**Sergio Pérez** (Penn State University)

The MexMAGIC population and novel whole genome assemblies define signals of clinal adaptation in Mexican native maize

15:45-16:00

**Teresa Nava** (IBT-UNAM)

Structural disorder and distinctive motifs in the C-terminal region of the MADS-domain transcription factors is conserved across diverse taxa

16:00-16:15

**Hong Ma**

President of the American Society of Plant Biologists (**ASPB**)

**Flash talks**

16:15-16:45

**Coral Martínez** (IBT-UNAM)

Anhydrobiosis in plants: from biocondensates in seeds, to the native cellular structure of the pollen grains.

**Donaji García** (Facultad de Química-UNAM)

ZmVDAC and ZmHXK4 are involved in plant drought response and the modulation of cell death

**Damaris Guerrero** (Facultad de Química-UNAM)

PCNA association with CycB1;2/CDKB1;1 complex and its role in DNA Damage Response during maize germination.

**Gerardo Contreras** (Facultad de Química-UNAM)

Structural insights into the functional regulation of DPE2 during bean fruit development

**Noe García** (ENES-León)

Identification and classification of pathogens effectors in agronomical relevant crops using meta-transcriptomics, proteome structural data, and artificial intelligence

**Jessica Segura** (CCG-UNAM)

Characterization of *Botrytis cinerea* infection in *Lotus japonicus* and effect of nodulation on the defense response

**Goretty Caamal** (CIBNOR)

MeJA triggers *Capsicum annuum* response against *Phytophthora capsici* through defense-related genes activation in early stages of infection.

**Rocío Reyero** (CCG-UNAM)

The common bean mutant (*Phaseolus vulgaris*) non-nodulating mutant: nnod(2114) is affected in the infection thread development during symbiosis with rhizobia.

**Elizabeth Quintana** (CIATEC)

How ozone can affect pollination syndromes in strawberry plants?

**Mingyar López** (Facultad de Química-UNAM)

Revealing new mechanisms of maize Wee1 kinase regulation

**Juan Ramos** (Unidad Irapuato, Cinvestav)

Arabidopsis gynoecium development: confocal imaging of the cell cycle and cytokinin signaling

**Iván López** (Leibniz Institute)

Gradual domestication of root traits in ancient maize shows an adaptation to the Neolithic soils from Tehuacán

16:45-17:15

Coffee break

17:15-18:30

Poster session (even numbers)

**Keynote session**

18:30-19:15

**Sue Rhee** (Michigan State University)

Drug discovery for agriculture: Center for Sustainable Plant Innovation and Resilience through International Teamwork (C-SPIRIT)

### Wednesday October 22

·Plant-biotic interactions and Metabolism·

Chair

Jesús Montiel

**Keynote session**

The EMBO Lecture

09:00 - 09:45

**Cyril Zipfel** (Universitat Zurich)

Roles and recognition of stress-regulated secreted signaling peptides

**Plenary sessions**

09:45 - 10:15

**Jeongmin Choi** (University of Cambridge)

Identification of a suppressor of arbuscular mycorrhizal symbiosis in high phosphate conditions

10:15 - 10:45

**Jean Michel Ané** (University of Wisconsin)

Biological Nitrogen Fixation on the Aerial Roots of Maize and Sorghum for Sustainable Agriculture

10:45 - 11:15

**Clelia de la Peña** (CICY)

Integrative study of *in vitro* albinism in *Agave angustifolia*: Transcriptomic, Epigenetic, and Metabolomic evidence

11:15 - 11:45

Coffee break

11:45 - 12:15

**Robertas Ursache** (CRAG)

GELP proteins as architects of essential plant biopolymers

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|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12:15 - 12:45      | <b>Samuel Zeeman</b> (ETH Zürich)<br>Beyond Simple Storage: Revealing the Cellular Machinery and Processes Underpinning Starch Granule Biosynthesis                                                       |
| 12:45 - 13:15      | <b>Berkley Walker</b> (Michigan State University)<br>Photorespiration as a crossroads between photosynthesis, metabolism, and leaf energetics                                                             |
| 13:15 - 14:45      | Lunch                                                                                                                                                                                                     |
| Chair              | Alejandra Rougon                                                                                                                                                                                          |
| <b>Short talks</b> |                                                                                                                                                                                                           |
| 14:45 - 15:00      | <b>Carmen Quinto</b> (IBT-UNAM)<br>Unraveling the role of the phospholipase PvPLD $\alpha$ 2 in the symbiotic interaction between common bean and rhizobia                                                |
| 15:00-15:15        | <b>Naveenkumar Athiyannan</b> (Unidad Irapuato, Cinvestav)<br>A tandem kinase fusion protein in <i>Aegilops tauschii</i> confers wheat leaf rust resistance                                               |
| 15:15-15:30        | <b>Rosana Sánchez</b> (IBT-UNAM)<br>The dynamics between the infection thread formation and cell division at the rhizobial-infection site in <i>P. vulgaris</i> roots                                     |
| 15:30-15:45        | <b>Roxana Coreas</b> (University of California, Berkeley)<br>Nano-omics enables pathogen infection in plants through stress biomarker enrichment in plants and crops within hours of infection            |
| 15:45-16:00        | <b>Aurora Lara</b> (Facultad de Química-UNAM)<br>Glucose-6-phosphate dehydrogenase is regulated via Cyclin/CDK phosphorylation during maize germination                                                   |
| 16:00-16:15        | <b>June Simpson</b> (Unidad Irapuato, Cinvestav)<br>Inactive cell wall invertases are necessary for correct development of <i>A. thaliana</i> seedlings and affect aspects of sucrose metabolism          |
| 16:15-16:30        | <b>Carlos Rodríguez</b> (Tecnológico de Monterrey)<br>Integrating multi-omics data of Olive ( <i>Olea europaea</i> ) and transcriptomics of multiple Oleaceae species for tracing oleuropein biosynthesis |
| <b>Flash talks</b> |                                                                                                                                                                                                           |
| 16:30-16:45        | <b>Alexis Cadena</b> (CICY)<br>ROS dynamics among three <i>Agave angustifolia</i> Haw. Phenotypes                                                                                                         |
|                    | <b>Gema Hernández</b> (CIBA-IPN)<br>Phytochemical evaluation of <i>E. beecheyanum</i> a medicinal plant from the Purépecha Plateau                                                                        |
|                    | <b>Elizabeth Monroy</b> (CCG-UNAM)<br>EXPA1 and EXPA2, cell wall $\alpha$ -expansins, are required for symbiotic infection and nodule development in <i>Lotus japonicus</i>                               |
|                    | <b>Catalina Bucarey</b> (CCG-UNAM)<br>Functional Roles of Pectin Methyl Esterase Isoforms in Intra- and Intercellular Symbiotic Infection of <i>Lotus japonicus</i>                                       |
|                    | <b>Diana Bravo</b> (UMSNH)                                                                                                                                                                                |

Fungal endophytes associated to *Asclepias curassavica* influence the oviposition and foraging in the monarch butterfly (*Danaus plexippus*)

**Sandra Adame** (UMSNH)

The role of volatiles emitted by the entomopathogenic fungus *Beauveria bassiana* in interaction with plants

**Pablo Suárez** (Facultad de Química)

Taxonomic and functional overlap of the coralloid root and seed microbiome from cycad *Dioon edule*

**Victoria Vela** (Unidad Irapuato, Cinvestav)

The role of mir156 and SQUAMOSA PROMOTER BINDING PROTEIN-LIKE transcription factors in Arabidopsis embryo development

16:45-17:15

Coffee break

17:15-18:30

Poster session (odd numbers)

**Keynote session**

18:30-19:15

**Marisa Otegui** (University of Wisconsin Madison)

Membrane remodeling by ESCRT proteins in plant cells

**Thursday October 23**

·Development and Evolution·

Chair

Karolina Heyduk

**Keynote session**

09:00 - 09:45

**Alfredo Cruz** (Unidad de Genómica Avanzada, Cinvestav)

Exploring the AINTEGUMENTA/PLETHORA–Auxin Feedback Loop: Insights from an EvoDevo Perspective on Stem Cell Niche Regulation

**Plenary sessions**

09:45 - 10:15

**Robert VanBuren** (Michigan State University)

Leveraging evolutionary innovations in grasses to develop climate resilient agriculture

10:15 - 10:45

**Ana Caicedo** (U Mass Amherst)

Converging on competitiveness: the repeated evolution of seed shattering in weedy rice

10:45 - 11:15

**Joseph G. Dubrovsky** (IBT-UNAM)

Conceptual developments and new players in lateral root initiation and morphogenesis

11:15 - 11:45

Coffee break

**Plenary session**

11:45 - 12:15

**Tzvetanka D. Dinkova** (Facultad de Química, UNAM)

microRNA regulatory roles during de-differentiation and differentiation in maize Somatic Embryogenesis

12:15 - 12:45

**Paul Jarvis** (Oxford University)

Protein import into chloroplasts and its regulation by the ubiquitin-proteasome system

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|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12:45 - 13:15          | <b>Zhiyong Wang</b> (Carnegie Institution for Science)<br>The crosstalk between sugar and brassinosteroid regulates plant growth and acclimation                                                |
| 13:15 - 14:45          | Lunch                                                                                                                                                                                           |
| Chair                  | Patricia Coello                                                                                                                                                                                 |
| <b>Short talks</b>     |                                                                                                                                                                                                 |
| 14:45 - 15:00          | <b>Brenda López</b> (Instituto de Biología-UNAM)<br>The unique shoot apical meristems in Cactaceae                                                                                              |
| 15:00-15:15            | <b>Renata Rivera</b> (CICY)<br>Morpho-anatomical characterization of fruit dehiscence in <i>Bixa orellana</i> L.: implications for plant development and crop improvement                       |
| 15:15-15:30            | <b>Edgar Demesa</b> (Unidad Irapuato, Cinvestav)<br>Imputation integrates single-cell and spatial gene expression data to resolve transcriptional networks in barley shoot meristem development |
| 15:30-15:45            | <b>Isabel Goldaracena</b> (Stanford University)<br>Engineering multi-input protein logic gates for programmable gene expression control in plants                                               |
| 15:45-16:00            | <b>Martin Heil</b> (Unidad Irapuato, Cinvestav)<br>Resistance triggered by self-DNA: specificity and application potential of an incomprehensible immune response                               |
| 16:00-16:15            | <b>Arturo Guevara</b> (IBT-UNAM)<br>Exploring the signaling pathway that controls arsenite (As [III]) responses in the root of <i>Arabidopsis thaliana</i> L.                                   |
| 16:15-16:30            | <b>Beatriz Ruiz</b> (Unidad Irapuato, Cinvestav)<br>Interactions Between the Transcription Factor BOL/DRNL/ESR2 and the Jasmonate Pathway                                                       |
| 16:30-16:45            | <b>Héctor Hugo Torres</b> (Stanford University)<br>Understanding and engineering crown root developmental program in the C4 grass <i>Setaria viridis</i>                                        |
| 16:45-17:15            | Coffee break                                                                                                                                                                                    |
| 17:15-18:30            | Business meeting                                                                                                                                                                                |
| <b>Keynote session</b> |                                                                                                                                                                                                 |
| 18:30-19:15            | <b>Keiko Torii</b> (University of Texas)<br><i>Environmental control of stomatal development - From intricate modulation to innovation</i>                                                      |
| 20:30-23:30            | Final Banquet                                                                                                                                                                                   |

### Friday October 24

|             |           |
|-------------|-----------|
| 08:30-09:15 | Departure |
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