The Extracellular Matrix of Plants:
Molecular, Cellular and Developmental Biology

Tamarron, Colorado
March 15 - 21, 1996

Organizers
Andrew Staehelin, Michael Hahn,
Norman Lewis, Andrew Mort
and Keith Roberts

Keystone Symposia
on Molecular and Cellular Biology

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Friday, March 15

2-7pm Registration Alcove
8-8:30pm Orientation Silverton Center
8:30-9:30pm Keynote Address
   Andrew Staehelin * University of Colorado
   John Lowe University of Michigan
   "Design and Properties of Glycosyltransferases"

Saturday, March 16

7-8am Breakfast Remingtons
8-11am STRUCTURE AND BIOCHEMISTRY OF CELL WALL POLYSACCHARIDES AND GLYCOPROTEINS
   Norman Lewis * Washington State University
   Alan Darvill University of Georgia
   "Structure and Biochemistry of Cell Wall Matrix Polysaccharides"
   Andrew Mort Oklahoma State University
   "Interactions Between Pectins and Other Cell Wall Polymers"
   Coffee Break
   Marcia Kieliszewski University of Ohio
   "Emerging Codes for Hydroxyproline-O-Glycosylation"
   Samuel Levy University of Colorado
   (Short Talk) "Computer Simulations and in vitro Reconstitution of Xyloglucan Cellulose Binding"
   William York University of Georgia
   (Short Talk) "Structural Analysis of Xyloglucans by NMR Spectroscopy"

11am-4pm Poster Set Up Innisbrook/Animas
4-6pm POSTERS: (100-135) Windom Peak
5-6pm Social Hour Silverton Center
8-10:30pm BIOCHEMISTRY, MOLECULAR BIOLOGY AND BIOSYNTHESIS OF LIGNIN
   Andrew Mort * Oklahoma State University
   Norman Lewis Washington State University
   "Conferring Specificity during Phenolic Coupling"
   Jeffrey Dean University of Georgia
   "The Role of Laccase in Lignin Biosynthesis"
   Coffee Break
   Alain Boudet University Paul Sabatier
   "Lignification Genes: Structure, Function and Regulation"

Sunday, March 17

7-8am Breakfast Remingtons
8-11am BIOSYNTHESIS I: SECRETORY PATHWAY AND SYNTHESIS OF GLYCOPROTEINS
   Deborah Delmer * University California-Davis
   Andrew Staehelin University of Colorado
   "The Plant Golgi Apparatus and Cell Plate Formation"
   Sabine Waffenschmidt University of Koln
   "Biosynthesis of Structural Cell Wall Glycoproteins"
   Coffee Break
   Nicholas Carpita Purdue University
   "Biosynthesis of Matrix Polysaccharides"
Sunday, March 17 (cont.)

Ariel Orellana  University of Chile
(Short Talk) “Transport of Nucleotide Sugars for Xyloglucan Synthesis into Golgi Vesicles”
Debra Mohnen  University of Georgia
(Short Talk) “Biosynthesis of Pectin: Solubilization of Polygalacturonate 4-α-Galacturonosyl Transferase Activity from Tobacco Membranes”

4-6pm  POSTERS: (100-135)
5-6pm  Social Hour
8-10:30pm  BIOSYNTHESIS II: MATRIX POLYSACCHARIDES, CALLOSE, AND CELLULOSE
Nicolas Carpita  * Purdue University
Deborah Delmer  Hebrew University
“Probing the Subunit of the β-Glucan Synthase Complexes of Cotton Fibers”
Bruce Wasserman  Rutgers University
“Molecular Architecture of Plasma Membrane Callose Biosynthetic Complexes”
Coffee Break
Katia Rue1  CNRS
(Short Talk) “Lignin Biogenesis in Higher Plant Cell Walls - An Investigation by Non-invasive Techniques”
John Ralph  US Dairy Forage Research Center
(Short Talk) “Cell Wall Cross-linking in Grasses by Ferulates and Dehydroferullates”

Monday, March 18

7-8am  Breakfast  Remingtons
8-11am  ROLE OF THE EXTRACELLULAR MATRIX IN PLANT GROWTH AND DEVELOPMENT I
Ralph Quatrano  * University of North Carolina
Keith Roberts  John Innes Centre
“Assembly of the Extracellular Matrix of Plants”
Adrienne Clarke  University of Melbourne
“Characterization of Four Glycoconjugates From Pistils of Nicotiana alata Containing Arabinose and Galactose Substituents”
Coffee Break
Daniel Cosgrove  Pennsylvania State University
“Characterization of Expansins and Their Role in Plant Cell Enlargement”
Richard Blanton  Texas Technology University
(Short Talk) “Patterns of Cellulose Depositions by Dictyostelium Discovered during Normal and Abnormal Development”
Sarah Whitney  Unilever Research
(Short Talk) “In vitro Construction of Cellulose/Hemicellulose Networks: Ultrastructural and Molecular Aspects”

11am-4pm  Poster Set Up  Innisbrook/Animas
1-4pm  Workshop: GLYCOCHAPERONES
(Workshop sponsored by: The National Science Foundation)
Lawrence Griffing  * Texas A&M University
“Glycochaperones - A Useful Interkingdom Paradigm?”
Daniel Hebert  Yale University
“The Roles of Calnexin and Calreticulin, Lectin Chaperones of the ER”
Peter Scheiffele  EMBL
“N-glycosylation as a Sorting Signal for Intracellular Transport”
Clifton Barry III  NIAID
“The Role of Carbohydrate in Mycobacterial Cell Wall Structure and Assembly”
Mini Talks and General Discussion

4-6pm  POSTERS: (200-237)
5-6pm  Social Hour
8-10:30pm  ROLE OF EXTRACELLULAR MATRIX IN PLANT CELL GROWTH AND DEVELOPMENT II
Daniel Cosgrove  * Pennsylvania State University
Wolf-Dieter Reiter  University of Connecticut
“Genetic Analysis of Cell Wall Synthesis in Arabidopsis”
Monday, March 18 (cont.)

Alan Bennett  University California-Davis
"Role of Endo-1, 4-Glucanase Gene Family Members in Cell Growth and Expansion"

Coffee Break

Alice Cheung  Yale University
(Short Talk) "A Transmitting-specific Extracellular Glycoprotein Promotes and Attracts Pollen Tube Growth"

Mary Tierney  University of Vermont
(Short Talk) "Molecular Dissection of the Wound Response for Two Soybean Extracellular Matrix Proteins"

Tuesday, March 19

7-8am  Breakfast  Remingtons
8-11am  ROLE OF EXTRACELLULAR MATRIX IN PLANT CELL GROWTH AND DEVELOPMENT III  Silverton Center

Keith Roberts  * John Innes Centre
Ralph Quatrano  University of North Carolina
"Cytoskeletal-Cell Wall Interactions in the Fixation of Polarity"

Colin Brownlee  Marine Biological Association
"Cell Wall Control of Cell Fate in Fucus"

Coffee Break

PLANT CELL WALLS IN SYMBIOSIS AND PATHOGENESIS I

Michael Hahn  University of Georgia
"Oligoglucoside Elicitor Perception in Soybean"

Naoto Shibuya  National Institute of Agricultural Research
"Oligochitin Elicitor Perception in Rice"

4-6pm  POSTERS: (200-237)  Windom Peak
5-6pm  Social Hour  Silverton Center

8-10:30pm  PLANT CELL WALLS IN SYMBIOSIS AND PATHOGENESIS II  Silverton Center

Herman Spaink  Leiden University
"Signal Molecules Which Induce Plant Organogenesis"

Edward Farmer  University of Lausanne
"Biological Regulators from the Pectic Matrix and their Interaction with the Cell Surface"

Coffee Break

Bruno Moerschbacher  University of Munster
(Short Talk) "Surface Signals in Rust-infected Wheat"

Paul Bolwell  University of London
(Short Talk) "Modelling Cell Wall Changes during Defense"

Wednesday, March 20

7-8am  Breakfast  Remingtons
8-10:30am  PLANT CELL WALLS IN SYMBIOSIS AND PATHOGENESIS III  Silverton Center

Ronald Sederoff  * North Carolina State University
Giulia De Lorenzo  University of Rome
"Polygalacturonase-Inhibiting Protein (PGIPs) Plant Cell Wall Proteins Specialized for Pathogen Recognition"

Christopher Lamb  Salk Institute
"Mechanism and Function of the Oxidative Burst in Plant Disease Resistance"

Coffee Break

Bernard Fritig  CNRS
"Pathogenesis-Related Proteins: Biological Activities and Roles in Plant-Microbe Interactions"

10:30-11am  CELL WALLS IN FOOD, FEED AND INDUSTRY I  Silverton Center

Grant Reid  University of Stirling
"Characterization of Enzymes Associated with Xyloglucan Metabolism"

2-4:30pm  CELL WALLS IN FOOD, FEED AND INDUSTRY II  Silverton Center

Session Sponsored by: Hercules Incorporated

Alan Darvill  * University of Georgia
Alphons Voragen  Wageningen Agricultural University
"Use of Cell Wall Degrading Enzymes in Food Processing"
Wednesday, March 20 (cont.)

Dean Della Penna  University of Arizona
“A New Class of Aromatic Cell Wall Proteins Involved in Pectin Metabolism”

Coffee Break
John Bedbrook  DNA Plant Technology Corporation
“Control of Cell Wall Disassembly in Ripening Fruit and Commercialization of Research Results”

5:30-6:30pm Social Hour
6:30-9:30pm Banquet Silverton Center
8-9pm Banquet Address
Bruce Stone  * La Trobe University
Peter Albersheim  University of Georgia
“Cell Wall: Where We Are and Where We Are Going”

9pm-12am Entertainment

Thursday, March 21

Departure

We gratefully acknowledge support from:

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The Extracellular Matrix of Plants: Molecular, Cellular and Developmental Biology (D5)

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