

CURRICULUM VITAE
RONALD ROSS SEDEROFF

April 16, 2017

RETIRED 31 January 2017.

PROFESSIONAL POSITION until 31 January 2017: Then Edwin F. Conger Professor Emeritus:
and Distinguished University Professor of Forestry and Environmental Resources
North Carolina State University, Raleigh, NC

Home Address: 3417 Huckabay Circle, Raleigh, NC, 27612.

CURRENT ADDRESS

Department of Forestry and Environmental Resources, Forest Biotechnology Group, 2500 Partners II Building,
Room 2500, 840 Main Campus Drive, Centennial Campus, North Carolina State University Box 7247, Raleigh, NC
27695. Telephone: direct 919-513-0073 or 919-515-7800. Fax: 919-515-7801. Email: ron_sederoff@ncsu.edu

CURRENT RESEARCH INTERESTS

Genetics and genomics of forest trees
Genetic regulation of lignin biosynthesis
Molecular mechanisms in the formation of the plant cell wall
Gene expression in differentiating wood
Disease resistance in forest trees.

PREVIOUS PROFESSIONAL POSITIONS

USDA Forest Service, Berkeley, CA. 1985-1987. Senior Scientist and Plant Molecular Geneticist.
North Carolina State University, Raleigh, NC. 1978-1985. Associate Professor, Department of Genetics
University of Oregon, Eugene, OR. 1975-1978. Associate Professor/Assistant Professor, Department of Biology
Columbia University, New York, NY. 1969-1975. Assistant Professor, Dept. of Biological Sciences
University of Geneva, Geneva, Switzerland. 1967-1969. Postdoctoral Fellow, Institute of Molecular Biology
University of California, Los Angeles, CA. 1967. Acting Assistant Professor, Department of Zoology

EDUCATIONAL BACKGROUND

College degrees:

1961 Bachelor of Arts in Zoology, UCLA
1963 Master of Arts in Zoology, UCLA (Genetics)
1966 Doctor of Philosophy in Zoology, UCLA (Genetics)

Additional academic study:

1967-1969: Post-doctoral Training Post-doctoral Fellow at the Laboratoire
de Biophysique, Institute de Biologie Moleculaire, University of Geneva, Switzerland
1984: Sabbatical: On leave from the Department of Genetics, North Carolina State
University, to the Forest Genetics group, Pacific Southwest Forest and Range
Experiment Station, Berkeley, California – USDA – Forest Service (6 months)

HONORS AND AWARDS

2017 Awarded The Marcus Wallenberg Prize
2016 Elected to the NCSU Research Leadership Academy
2016 Alumni Association Outstanding Research Award
2011 Forest Biotechnologist of the Year.
2004 Doctor Honoris Causa, Swedish Agricultural University (Honorary Doctorate)
2003 Fellow of the American Association for the Advancement of Science
2000 Fellow of the International Academy of Wood Science
1998 Honorary Research Professor, Chinese Academy of Forestry

1997 Appointed Distinguished University Professor of Forestry, N.C. State University
 1997 Appointed Adjunct Professor Nanjing Forestry University
 1995 Appointed the Edwin F. Conger Professor of Forestry, N.C. State University
 1995 Elected to the National Academy of Sciences, USA
 1986 Appointed Senior Scientist, USDA Forest Service
 1965 A. Mandel Schectman Distinguished Teaching Assistant Award

PROFESSIONAL SERVICE

NATIONAL AND INTERNATIONAL COMMITTEES:

1988 Agricultural Biotechnology Research Advisory Committee (ABRAC) for USDA
 1989 National Research Council Committee on the Future of Forestry Research
 1992 Reappointed to the ABRAC
 1994 Reappointed to the ABRAC
 1995 to 1998 Board on Biology, National Research Council, National Academy of Sciences
 1996 to 2001 Program Board for the joint project on Forest Biotechnology and
 Chemistry/ Agricultural Biotechnology Swedish Foundation for Strategic Research
 1998 National Research Council on Evaluation of the USDA /NRI Program
 1998-2000 Member of the Commission of Life Sciences for the National Research Council
 1998 National Research Council Committee on Forestry Research
 2003 Member of the Electorate Nominating Committee, AAAS Section on Agriculture, Food, and
 Renewable Resources

MEMBER OF PANELS FOR COMPETITIVE GRANTS PROGRAMS:

2016 NCSU/GRIPS Grant Panel
 2012 NSF: Molecular and Cell Biology
 2009 Grant Panel: Foundation for Science and Technology, Lisbon, Portugal
 1999-2012 Consortium for Plant Biotechnology Research
 1997 USDA/NRI, Plant Genome Program
 1992 Department of Energy, Biological Sciences Program
 1991 USDA Competitive Grants, Plant Pathology Program
 1987 USDA Competitive Grants, Forest Biology Program: Genetic Structure and Function
 1987 NIH Postdoctoral Grants Panel (Genetics of Plants and microorganisms)
 1986 USDA Competitive Grants, Genetic and Molecular Mechanisms /Environmental Stress
 1985 USDA Competitive Grants, Forest Biology Program, Genetic Structure and Function
 1985 Environmental Stress Program, USDA Competitive Grants
 1982 Department of Energy, Biological Sciences Panel, Competitive Grants

CONSULTING AND ADVISORY SERVICE:

2017 Research Leadership Academy Selection Committee
 2016 Research Leadership Academy
 2015 Science Advisory Committee for the "Alliance for Saving Threatened Forests"
 2011-2015 Science Advisory Committee. Phase II American Chestnut Restoration Project,
 Institute of Forest Biotechnology.
 2011-2014 Science Advisory Committee: NSF sponsored Hardwood Genome Project
 2010 NuPlant Advisory Council, Brisbane, Australia.
 2009 Science Fair Judge, A.B. Combs Elementary School, Raleigh NC
 2009 to 2012 Science Advisory Board, University of Florida Genetics Institute
 2003 Paradigm Genetics, Inc. Science Advisory Board
 2000-2006 Biolex, Science Advisory Board
 2001-2005 Genome Canada
 2001-2005 Board of Directors, Institute of Forest Biotechnology
 2000-2001 National Center for Genomic Research, Science Advisory Board,
 1998-1999 Weyerhaeuser Corporation

1998 Shell Ltd. Consultant
1998-1999 Dow-Chemical, Consultant.
1995 Program review, GEENZ, NZ
1995 Program review, Forest Research Institute, Rotorua, NZ
1995 Program review, Department of Plant Sciences, Ohio University
1995-2000 Strategic Fund for Swedish Research
1992 NSERC, Site visit to University of British Columbia
1991-1994 Nordic Fund Project on DNA Transfer
1991 USDA site visit to Department of Microbiology, Biochemistry and Molecular Biology at the University of Maine
1990 USDA National Research Initiative Workshop: Science Planning Committee on Plant Systems
1989 Department of Energy, Short Rotation Woody Crops Program

EDITORIAL SERVICE AND GRANT REVIEW:

Guest Editor: PLoS Genetics 2011

Monitoring Editor: Plant Physiology 2010 to 2017.

Associate Editor: Tree Genetics and Genomes 2006 to 2016

Editorial Board: Tree Physiology, 2005-2016

Editorial Board: Plant, Tissue and Organ Culture, 2000 to 2008

Editorial Board: Current Opinion in Plant Science, 1997 to Present

Associate Editor: Forest Science, 1992 to 1994

Associate Editor: Canadian Journal of Forestry Research, 1989 to 1994

Reviewer for: Plant Physiology, Plant Molecular Biology, Science, Nature, PNAS, Genetics, Planta, Phytochemistry, Nucleic Acids Research, Plant Journal, BBA, Plant Cell, Plant Breeding Reviews, Plant and Cell Physiology, In Vitro, Annals of Botany and Journal of Food and Agricultural Chemistry, Tree Physiology, Tree Genetics and Genomes and International Review Board of Annals of Botany and others.

Reviewer for Competitive Grants for: National Science Foundation, USDA Competitive Grants, Department of Energy, NSERC (National Science and Engineering Research Council of Canada), Finnish National Science Foundation, Ohio University OURC Program, BBSRC/UK, the Consortium for Plant Biotechnology Research, and Genome Canada, and others.

INDUSTRIAL ASSOCIATIONS

Co-Organizer of NCSU Forest Biotechnology Industrial Research Consortium (FORBIRC) Phase 3. 2004 to present.

Supporting Companies: ArborGen, Weyerhaeuser, Forestal CMPC (Chile), Investigaciones Forestales Bioforest SA/Arauco.

1988-2004: Supporting Companies for Industrial Associates Program in Forest Biotechnology: Weyerhaeuser, Westvaco, Procter and Gamble Cellulose, Scott Paper, Mead, International Paper, Potlatch, James River, Tasman Forestry, Carter Holt Harvey, Union Camp, Nippon Paper, Shell Research Ltd., Soporcel, Portugal, ForBio, Pty, Australia, Aracruz, Brazil, and Champion International.

Other Industrial Collaborations: Calgene, Davis CA 1985-1986, Pioneer Hi-Bred 1997-1999, RAIZ, Portugal 2003
ArborGen 2004-2006, FOSA Uruguay 2008.

TEACHING IN SPECIAL COURSES AND WORKSHOPS

1986 Summer Course in Forest Molecular Biology, Placerville, CA. at the Institute of Forest Genetics. Co-organizers and teachers: A-M. Stomp, M.T. Conkle, and R. Sederoff. Laboratory work in molecular genetics of conifers and conifer tissue culture. Sponsored by the USDA and the USDA Forest Service.
1989 Forest Biotechnology Workshop, Taipei, Taiwan. American Co-organizers and Instructors: H-M. Chang, R. Kellison, A-M. Stomp, and R. Sederoff.
1991 International Course in Forest Biotechnology, Caracas, Venezuela, at the Institute for Advanced Studies. Taught section on DNA markers.

- 1992-1996: RAPD mapping. A 2- unit course on genomic mapping, taught as part of the summer Biotechnology series at NCSU.
- 1996 Summer Course in Agricultural Biotechnology, San Sebastian, Spain, Universidad del Pais Vasco.
- 1999 Microarray technology: Biotechnology summer course series at NCSU. (One week -40 hours) Co-taught with R. Alscher, Ying-Hsuan Sun and Susan McCord.
- 2001 Teaching Genomics: A course designed for high school teachers to incorporate genomics into their biology curriculum. Biotechnology summer course series at NCSU. (One week-40 hours) Co-taught with Claire Kinlaw, Catherine Clark and Ernie Retzel.

PUBLICATIONS (not including abstracts):

- 1) Carlson, E.A., Sederoff, R.R. and Cogan, M. 1967. Evidence favoring a frameshift mutation mechanism for ICR-170 induced mutation in *D. melanogaster*. *Genetics* 55:295-313.
- 2) Sederoff, R. R. 1967. A rare pseudoallelic crossover between two phenotypically identical alleles at a restricted sub-locus of dumpy in *D. melanogaster*. *Nature* 216:1348-1349.
- 3) Brody, E.M., Sederoff, R.R., Bolle, A. and Epstein, R.H. 1970. Early Transcription in T4 infected cells. *Cold Spring Harbor Symp. Quant. Biol.* 35:201-211.
- 4) Sederoff, R.R., Bolle, A. and Epstein, R.H. 1971. A method for the detection of specific T4 messenger RNAs by hybridization competition. *Virology* 45:440-445. (This paper was republished in a volume of collected papers titled "mRNA Current Research I" edited by S. Riva and published by MSS Information Corp., New York, 1972.)
- 5) Sederoff, R.R., Bolle, A., Goodman, H. and Epstein, R.H. 1971. Regulation of rII and region D transcription in T4 bacteriophage: a sucrose gradient analysis. *Virology* 46:817-829.
- 6) Sederoff, R.R., Clynes, R., Poncz, M. and Hatchel, S. 1973. RNA synthesis by exogenous RNA polymerase on cytological preparations of chromosomes. *J. Cell. Biol.* 57:538-550.
- 7) Birnboim, H.C. and Sederoff, R.R. 1975. Polypyrimidine segments in *Drosophila melanogaster* DNA: I. Detection of a cryptic satellite containing polypyrimidine/polypurine DNA. *Cell* 5:173-181.
- 8) Birnboim, H.C., Straus, N.A. and Sederoff, R.R. 1975. Characterization of polypyrimidines in *Drosophila* and L-cell DNA. *Biochemistry* 14:1643-1647.
- 9) Sederoff, R.R., Lowenstein L., and Birnboim, H.C. 1975. Polypyrimidine segments in *Drosophila melanogaster* DNA II. Chromosome location and nucleotide sequence. *Cell* 5:182-194.
- 10) Sederoff, R.R., Lowenstein, L., Mayer, A., Stone, J. and Birnboim, H.C. 1975. Acid treatment of *Drosophila* DNA. *J. Histochem. Cytochem.* 23:482-491.
- 11) Birnboim, H.C., Sederoff, R.R. and Paterson, M.C. 1979. Distribution of segments in DNA from diverse organisms. *European J. Biochem.* 98:301-307.
- 12) Cseko, Y.M.T., Stone, J. and Sederoff, R.R. 1979. Nucleic acid hybridization of highly repeated DNA in extracts of single *Drosophila*. *Biochem. Biophys. Acta* 565:253-264.
- 13) Cseko, Y.M.T., Dower, N.A., Minoo, P., Lowenstein, L., Smith, G.R. and Sederoff, R.R. 1979. Evolution of polypyrimidines in *Drosophila*. *Genetics* 92:459-484.
- 14) Feigen, M.I., Johns, M.B., Postlethwait, J.H. and Sederoff, R.R. 1980. Purification and characterization of acid phosphatase-1 from *Drosophila melanogaster*. *J. Biol. Chem.* 255:10338-10343.

- 15) Spruill, W.M., Jr., Levings, C.S. III and Sederoff, R.R. 1980. Recombinant DNA analysis indicates that the multiple chromosomes of maize mitochondria contain different sequences. *Developmental Genet.* 1:363-378.
- 16) Schaffer, H.E. and Sederoff, R.R. 1981. Improved estimation of DNA fragment lengths from agarose gels. *Analytical. Biochem.* 115:113-122.
- 17) Sederoff, R.R., Levings, III, C.S., Timothy, D.H. and Hu, W.W. 1981. Evolution of DNA sequence organization in mitochondrial genomes of Zea. *Proc. Natl. Acad. Sci. USA* 78:5953-5957.
- 18) Spruill, W.M., Jr., Levings, III, C.S. and Sederoff, R.R. 1981. Organization of mitochondrial DNA in normal and Texas male-sterile cytoplasms of maize. *Developmental Genet.* 2:319-336.
- 19) Levings, III, C.S. and R.R. Sederoff. 1981. Organization of the mitochondrial genome of maize. pp 119-136, in Subtelny, S. and Abbott, U.K. (eds.), *Levels of genetic control in development. Thirty-ninth Symp. Soc. Developmental Biol.* Alan R. Liss, Inc., NY.
- 20) Levings, C.S., III, Sederoff, R.R., Hu, W.W. and Timothy, D.H. 1982. Relationships among plasmid-like DNAs of the maize mitochondria. pp 363-371 in Ciferri, O. and Dure, L. (eds.), *Structure and function of plant genomes.* NATO Advanced Inst. Ser., Vol. 31. Plenum Press, NY.
- 21) Sederoff, R. R. 1982. *Recombinant DNA: New Techniques Create a New Frontier in Biological Sciences.* Research Perspectives 1:5-8.
- 22) Chao, S., Sederoff, R.R. and Levings, III, C.S. 1983. Partial nucleotide sequence of the 18S-5S region of mitochondrial DNA. *Plant Physiol.* 71:190-193.
- 23) Levings, C.S., III and Sederoff, R.R. 1983. Nucleotide sequence of the S-2 mitochondrial DNA from the S cytoplasm of maize. *Proc. Natl. Acad. Sci. USA* 80:4055-4059.
- 24) Stone, J.S., Dower, N.A., Houseman, J., Cseko, Y.M.T. and Sederoff, R.R. 1983. The characterization of a mutant affecting DNA metabolism in the development of *D. melanogaster*. *Can. J. Genet.* 25:129-138.
- 25) Levings, C.S., III, Sederoff, R.R. and Timothy, D.H. 1983. Molecular basis of cytoplasmic inheritance in plants. Pp. 157-189, in M.S. Swaminathan, P.K. Gupta, and U. Sinha (eds.), *Cytogenetics of crop plants.* Macmillan India, Ltd., Delhi.
- 26) Chao, S., Sederoff, R.R. and Levings, III, C.S. 1984. Nucleotide sequence and evolution of the 18S ribosomal RNA gene in maize mitochondria. *Nucleic Acids Res.* 12:6629-6644.
- 27) Sederoff, R.R. 1984. Structural variation in mitochondrial DNA. *Advances in Genet.* 22:1-108.
- 28) Sederoff, R.R. and Ledig, F.T. 1985. Increasing forest productivity and value through biotechnology. 253-267 In *Weyerhaeuser Forest Potentials Symp.*, Tacoma, WA.
- 29) Sederoff, R.R. and Levings, III, C.S. 1985. Supernumerary DNAs in plant mitochondria. 91-109 In "Genetic flux in plants". B. Hohn and E.S. Dennis eds., Springer-Verlag NY.
- 30) Paillard, M., Sederoff, R.R. and Levings, III, C.S. 1985. Nucleotide sequence of the S-1 mitochondrial DNA from the S cytoplasm of maize. *Journal of the European Molecular Biology Organization* 4:1125-1128.
- 31) Ledig, F.T. and Sederoff, R.R. 1985. Genetic Engineering in Forest Trees. Southern Forest Tree Improvement Conference 18:4-13. (This article was reprinted in the Proceedings of the IX World Forestry Congress, Mexico City, 5 July 1985).

- 32) Sederoff, R.R., Ronald, P., Bedinger, P., Rivin, C., Walbot, V., Bland, M., and Levings, III, C.S. 1986. Maize mitochondrial plasmid S-1. Sequences share homology with chloroplast gene psbA. *Genetics* 113:469-482.
- 33) Sederoff, R., Stomp, A-M, Chilton, W.S. and Moore, L. 1986. Gene transfer into loblolly pine by *Agrobacterium tumefaciens*. *Bio/Technology* 4:647-750.
- 34) Braun, C.J., Sisco, P.H., Sederoff, R.R. and Levings, III, C.S. 1986. Characterization of inverted repeats from plasmid-like DNAs and the maize mitochondrial genome. *Current Genetics* 10:625-630.
- 35) Sederoff, R., Stomp, A-M, Gwynn, G., Ford, E., Loopstra, C., Hodgskiss, P. and Chilton, W.S.. 1987. Application of recombinant DNA techniques to pines: A molecular approach to genetic engineering in forestry. In "Cell and Tissue Culture in Forestry" edited by J.M. Bonga and D.J. Durzan. p. 314-329.
- 36) Sederoff, R.R. 1987. Molecular mechanisms of mitochondrial genome evolution in higher plants. *Amer. Naturalist* 130:s30-s45.
- 37) Gwynn, B.F., Dewey, R.E., Sederoff, R.R., Timothy, D.H. and Levings, III, C.S. 1987. Sequence of the 18S-5S ribosomal gene region and the cytochrome oxidase II gene from mtDNA of *Zea diploperennis*. *Theor. and Applied Genet.* 74:781-788.
- 38) Neale, D.B. and Sederoff, R.R. 1988. Inheritance and evolution of conifer organelle genomes. In "Genetic manipulation of woody plants." eds. J. Hanover and D. Keathley. Plenum Press N.Y. pp 251-164.
- 39) Stomp, A.M., Loopstra, C., Sederoff, R.R., Chilton, S., Fillatti, J., Dupper, G., Tadeschi, P. and Kinlaw, C. 1988. Development of a DNA transfer system for pines. In "Genetic manipulation of woody plants." eds. J. Hanover and D. Keathley, Plenum Press, N.Y. pp 231-241.
- 40) Kinlaw, C.S. Harry, D.E., Sleeter, D.D. and Sederoff, R.R. 1988. Using heterologous probes to isolate and characterize conifer genes. In "Molecular genetics of forest trees," eds. W.M. Cheliak and A.C. Yapa. Published by the Petawawa National Forest Institute, Chalk River, Ont., Canada. pp 9-18.
- 41) Neale D.B., Marshall, K.A., and Sederoff, R.R. 1988 Inheritance of chloroplast and mitochondrial DNA in conifers. In "Proceedings of the Frans Kempe Symposium, Molecular Genetics of Forest Trees." *Studia Forestalia Suecica*: pp 89-100
- 42) Neale D.B. and Sederoff, R.R. 1989 Paternal inheritance of chloroplast DNA and maternal inheritance of mitochondrial DNA loblolly pine. *Theor. & Applied Genetics* 77:212-216.
- 43) Harry D. E., Mordecai, K.S., Kinlaw, C.S., Loopstra, C.A. and Sederoff, R.R. 1989. DNA Sequence diversity in alcohol dehydrogenase genes from pines. *Proceedings of the Southern Forest Tree Improvement Conference* 20:373:380.
- 44) Neale, D. B., Marshall, R.A. and Sederoff, R.R. 1989. Chloroplast and mitochondrial DNA are paternally inherited in *Sequoia sempervirens* *Proc. Natl. Acad. Sci.* 86:9347-9349.
- 45) Harry, D. E., and Sederoff, R. R. 1989. *Biotechnology in Biomass Crop Production: The Relationship of Biomass Production and Genetic Engineering.* Oak Ridge National Laboratory, Environment Sciences Division. Publications No. 3411. 47 pages.
- 46) Loopstra, C. A., Stomp, A. M., and Sederoff, R.R. 1990. *Agrobacterium* mediated DNA transfer in sugar pine. *Plant Molecular Biology* 15:1-9.
- 47) Stomp, A.M., Loopstra, C. A., Chilton, W. S., Sederoff, R. R. and Moore, L.W. 1990. Extended host range of *Agrobacterium tumefaciens* in the Genus *Pinus*. *Plant Physiology* 92:1226-1232.

- 48) Kinlaw, C.S., Harry, D.E. and Sederoff, R.R. 1990 Isolation and characterization of alcohol dehydrogenase cDNA clones from *Pinus radiata*. *Can. J. For. Res.* 20:1343-1350.
- 49) Whetten, R. and Sederoff, R.R. 1991 Genetic Engineering of Wood. *J. Forest Ecology and Management* 43:301-316.
- 50) Sederoff, R. R. and Chang, H-M. 1991 Lignin Biosynthesis. In "Structure and Composition of Wood." eds. M. Lewin and I. Goldstein. M. Dekker, N.Y. pp 263-285.
- 51) Harry, D.E., Strauss, S.H., and Sederoff, R.R. 1991. Molecular Genetics Comes of Age: 4th Meeting, Molecular Genetics Working party, International Union of Forestry Research Organizations. *Plant Molecular Biology Reporter* 9:169-174.
- 52) Neale, D, and Sederoff, R. 1991. Genome mapping in pine takes shape. *Probe*, 1, 1-3.
- 53) Stomp, A.M., Weissinger, A.K., and Sederoff, R.R. 1991. Transient expression from microprojectile-mediated DNA transfer in *Pinus taeda*. *Plant Cell Reports* 10:187-190.
- 54) Whetten, R. and Sederoff, R.R. 1991. Phenylalanine ammonia-lyase in loblolly pine: Purification of the enzyme and isolation of a cDNA clone. *Plant Physiology* 98:380-386.
- 55) O'Malley, D.M., Porter, S., and Sederoff, R.R. 1992. Purification and characterization of cinnamyl alcohol dehydrogenase in loblolly pine. *Plant Physiology* 98:1364-1371.
- 56) Loopstra, C.A., Weissinger, A.K., and Sederoff, R.R. 1992. Transient gene expression in differentiating wood in loblolly pine. *Can. J. Forestry Research* 22:993-996.
- 57) Robertson, D. Weissinger, A.K., Glover, S., Ackley, R., and Sederoff, R.R. 1992. Transient and stable transformation following microprojectile bombardment in Norway spruce. *Plant Mol. Bio.* 19:925-935.
- 58) Bao, W., O'Malley, D., and Sederoff, R.R. 1992. Wood contains a cell wall structural protein. *Proc. Natl. Acad. Sci. USA* 89:6604-6608.
- 59) Grattapaglia, D., Chaparro, J.X., Wilcox, P., McCord, S., Werner, D., Amerson, H., McKeand, S., Bridgwater, F., Whetten, R., O'Malley, D., and Sederoff, R. 1992 Mapping in Woody Plants with RAPD Markers: Application to Breeding in Forestry and Horticulture. In "Applications of RAPD Technology to Plant Breeding". Joint Plant Breeding Symposium Series pp 37-40.
- 60) Grattapaglia, D., O'Malley, D.M. and Sederoff, R.R. 1993 Multiple applications of RAPD markers to genetic analysis in *Eucalyptus* sp. Proceedings of IUFRO Group S2.02-08 Breeding Tropical Trees; Conference, Cartagena and Cali, Columbia, SA, October 9-12, pp 436-450.
- 61) Sederoff, R. and Stomp, A.M. 1993. DNA transfer in conifers. In "Clonal Forestry I: Genetics and Biotechnology" ed. Ahuja, M.R. and Libby, W.J. Springer-Verlag Berlin Heidelberg: pp 241-255.
- 62) Bao, W., O'Malley, D.M., Whetten, R., and Sederoff, R.R. 1993. A laccase associated with lignification. *Science* 260:672-674.
- 63) O'Malley, D., Whetten, R., Bao, W., Chen, C-L., and Sederoff, R.R. 1993. The role of laccase in lignification. *The Plant Journal* 4:751-757.
- 64) Wilcox, P.L., Amerson, H.A., O'Malley, D.M., Carson, S., Carson, M.J., Kuhlman, G., and Sederoff, R.R. 1993. Fusiform rust-A model for marker assisted selection in loblolly pine. Proceedings of the Southern Forest Tree Improvement Conference 22:174-182.

- 65) Grattapaglia, D., Chaparro, J.X., Wilcox, P.L. McCord, S., Crane, B., Amerson, H., Werner, D., Liu, B.-H., O'Malley, D., Whetten, R., McKeand, S., Goldfarb, B., Greenwood, M., Kuhlman, G., Bridgwater, F., and Sederoff, R. 1993. Application of genetic markers to tree breeding. Proceedings of the Southern Forest Tree Improvement Conference 22:452-463.
- 66) Chaparro, J.X., Werner, D.J., O'Malley, D.O. and Sederoff, R.R. 1994. Targeted mapping and linkage analysis of morphological isozyme, and RAPD markers in peach. Theoretical and Applied Genetics 87: 805-815.
- 67) Grattapaglia, D., Sederoff, R. 1994. Genetic linkage maps of *Eucalyptus grandis* and *E. urophylla* using a pseudotestcross mapping strategy and RAPD markers. Genetics 137: 1121-1137.
- 68) Bao, W., O'Malley, D.M., Whetten, R., and Sederoff, R.R. 1994. A laccase in xylem cell walls of loblolly pine. Polyphenols Actualites 10:22-24.
- 69) Sederoff, R., Campbell, M., O'Malley, D. and Whetten, R. 1994. Genetic regulation of lignin biosynthesis and the potential modification of wood by genetic engineering in loblolly pine. Recent Advances in Phytochemistry 28:313-355.
- 70) O'Malley, D.O., Crane, B., McKeand, S. E., Liu, B.-H., and Sederoff, R.R. (1994) Genomic mapping of quantitative traits in loblolly pine. TAPPI Biological Sciences Symposium, pp 173-177
- 71) Campbell, M.M., Whetten, R.W., and Sederoff, R.R. 1994. Cancer genes and wood formation. TAPPI Biological Sciences Symposium, pp 147-155.
- 72) Grattapaglia, D., Bertolucci, F.L., Penchel, R., and Sederoff, R. 1994. Molecular genetic mapping of economically important traits in *Eucalyptus grandis*. TAPPI, Biological Science Symposium. pp 133-137.
- 73) Loopstra, C.A., and Sederoff, R.R. 1995. Xylem specific gene expression in loblolly pine. Plant Molecular Biology 27:277-291.
- 74) Sederoff, R.R. DNA transfer in forest trees. 1995. In "Transformation in plants and soil micro-organisms" eds. Wang, K. Herrera-Estrella, A. and van Montagu, M. pp 150-163.
- 75) Michler, C.H., Becwar, M.R., Cullen, D., Nance, W., Sederoff, R., Slavicek, J.M. eds. 1994. Proceedings of papers presented at the 2d international symposium on applications of biotechnology to tree culture, protection, and utilization. Gen. Tech. Report. NC-175. St. Paul MN. US Department of Agriculture, Forest Service, North Central Forest Experiment Station, p 203.
- 76) Grattapaglia, D., Bertolucci, F.L. and Sederoff, R.R. 1995. Genetic mapping of quantitative trait loci controlling vegetative propagation in *Eucalyptus grandis* and *E. urophylla* using a pseudotestcross mapping strategy and RAPD markers. Theoretical and Applied Genetics. 90:933-947
- 77) Voo, K.S., Whetten, R.W., O'Malley, D.M. and Sederoff, R.R. 1995. 4 Coumarate :CoA Ligase from loblolly pine xylem: Characterization and complementary DNA cloning. Plant Physiology 108:85-97.
- 78) MacKay, J.J., Liu, W., Whetten, R.W., Sederoff, R.R., and O'Malley, D.M. 1995. Genetic analysis of cinnamyl alcohol dehydrogenase (Cad) in loblolly pine. Single gene inheritance, molecular characterization and evolution. Molecular and General Genetics 247:537-545.
- 79) Tsang, E. Charest, P. and Sederoff, R. 1995. Transformation in conifers. In "Recent Progress in Forest Biotechnology in Canada" pp 16-28.
- 80) Whetten, R. and Sederoff, R. 1995. Lignin Biosynthesis. Plant Cell 7:1001-1013.

- 81) Loopstra, C.A., No, E.-G., and Sederoff, R.R. 1995. Expression and function of arabinogalactan proteins in xylem of loblolly pine. *Proceedings of the 23rd SFTIC*, pp 153-160.
- 82) Grattapaglia, D., Bertolucci, F.L., Penchel, R., and Sederoff, R. 1995. Advances in Genetic mapping of *Eucalyptus grandis*. In "Eucalyptus plantations: Improving fiber yield and quality." CRCTHF-IUFRO Conference Proceedings. Hobart, Australia pp 392-397.
- 83) Sederoff, R. and Meagher, L. (1995) Access to intellectual property in biotechnology: constraints on the research enterprise. *Proceedings of the NABC Symposium Report 7*: 71-78.
- 84) O'Malley, D.M., Grattapaglia, D., Chaparro, J.X., Wilcox, P.L., Amerson, H.V., Liu, B.-H., Whetten, R., McKeand, S., Kuhlman, E.G., McCord, S., Crane, B., and Sederoff, R. 1996. Molecular markers, forest genetics and tree breeding. In "Genomes of Plants and Animals" 21st Stadler Genetics Symposium. Eds. Gustafson, J. Perry and Flavell, R.B. Plenum Press, N.Y. pp 87-102.
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184) Amborella Genome Project: V.A. Albert, W. B. Barbazuk, C.W. dePamphilis, J.P. Der, J. Leebens-Mack, H. Ma, S. Rounsley, D. Sankoff, S. Schuster, D.E. Soltis, P.S. Soltis, S.R. Wessler, R.A. Wing, S. Chamala, A.S. Chandrabali, R. Determann, A.S.S. Jetty, P. Ralph, J. Talag, L. Tomsho, B. Walts, S. Wanke, T.-H. Chang, T. Lan, S. Arikiti, M. Axtell, S. Ayampalayam, J.M. Burnette, III, E. De Paoli, J.C. Estill, N.P. Farrell, A. Harkess, Y. Jiao, K. Liu, W. Mei, B.C. Meyers, S. Shahid, E. Wafula, J. Zhai, X. Zhang, L. Carretero-Paulet, Y. Jiao, E. Lyons, H. Tang, C. Zheng, N.S. Altman, F. Chen, J.-Q. Chen, V. Chiang, B. Fogliani, C. Guo, J. Harholt, C. Job, D. Job, S. Kim, H. Kong, G. Li, L. Li, J. Liu, J. Park, X. Qi, L. Rajjou, V. Sarramegna, R. Sederoff, Y.-H. Sun, P. Ulvskov, M. Villegente, J.-Y. Xue, T.-F. Yeh, X. Yu, J.J. Acosta, R.A. Bruenn, A. de Kochko, L.R. Herrera-Estrella, E. Ibarra-Laclette, M. Kirst, S. P. Pissis, and V. Poncet. (2013): The Amborella Genome and the Evolution of Flowering Plants. *Science*. 342:1241089. DOI:10.1126/science.1241089. (for the full online article go to <http://dx.doi.org/10.1126/science.1241089>).

185) Myburg, A.A., Lev-Yadun, S., Sederoff, R.R. (2013) Xylem Structure and Function. In: *Encyclopedia of the Life Sciences*. (eLS) John Wiley & Sons Ltd: Chichester <http://www.els.net/> [DOI: 10.1002/9780470015902.a0001302.pub2]online.

186) Loziuk, P.L., Wang, J., Li, Q., Sederoff, R.R., Chiang, V.L., and D.C. Muddiman. (2013) Understanding the Role of Proteolytic Digestion on Discovery and Targeted Proteomic Measurements Using Liquid Chromatography Tandem Mass Spectrometry and Design of Experiments. *J. Proteome Res.* 12: 5820-5829.

187) Lin, Y-C., Li, W., Sun, Y-H., Kumari, S., Wei, H., Li, Q., Tunlaya-Anukit, S., Sederoff, R.R. and Chiang, V.L. (2013). SND1 Transcription Factor-Directed Quantitative Functional Hierarchical Genetic Regulatory Network in Wood Formation in *Populus trichocarpa*. *Plant Cell* 25: 4324-4341. This article was featured in an editorial (In Brief) in *Plant Cell*, “Breaking down the regulatory web underlying lignin biosynthesis.”

188) D.B. Neale, J.L. Wegrzyn, K.A. Stevens, A. Zimin, D. Puiu, M. Crepeau, C. Cardeno, M. Koriabine, A.E. Holtz-Morris, J.D. Liechty, P.J. Martínez-García, H.A. Vasquez-Gross, B.Y. Lin, J.J. Zieve, W.M. Dougherty, S. Fuentes-Soriano, L. Wu, D. Gilbert, G. Marçais, M. Roberts, C. Holt, M. Yandell, J.M. Davis, K. Smith, J.F.D. Dean, W.W. Lorenz, R.W. Whetten, R. Sederoff, N. Wheeler, P.E. McGuire, D. Main, C.A. Loopstra, K. Mockaitis, P. deJong, J.A. Yorke, S.L. Salzberg, and C.H. Langley. 2014. Decoding the massive genome of loblolly pine using haploid DNA and novel assembly strategies. *Genome Biology*. 15:R59DOI: 10.1186/gb-2014-15-3-r59.

189) Wang, J.P., Niak, P., Chen, H-C., Shi, R., Lin, C-Y., Liu, J., Shuford, C.M., Li, Q., Muddiman, D.C., Ducoste, J., Sederoff, R.R., and Chiang, V.L. (2014) Complete proteomic based enzyme reaction and inhibition kinetics reveal how monolignol biosynthetic pathway enzyme families affect metabolic-flux and lignin in *Populus trichocarpa*. *Plant Cell* 26: 894-914.

190) Chen, H.C., Song, J., Ducoste, J., Shuford, C.M., Liu, J., Li, Q., Shi, R., Nepomucino, A., Isik, F., Muddiman, D.C., Williams, C., Sederoff, R.R. and Chiang, V.L. (2014). Systems Biology of Lignin Biosynthesis in *Populus trichocarpa*: Heteromeric 4-Coumaric acid: CoA Ligase (4CL) Protein Complex Formation, Regulation and Numerical Modeling. *Plant Cell* 26: 876-893.

191) Wei Li, Ying-Chung Lin, Quanzi Li, Rui Shi, Chien-Yuan Lin, Hao Chen, Ling Chuang, Guanzheng Qu, Ronald R. Sederoff, and Vincent L. Chiang. 2014. A robust chromatin immunoprecipitation (ChIP) protocol for studying transcription factor (TF)-DNA interactions and histone modifications in wood forming tissue. *Nature Protocols* 9: 2180-2193.

192) Ying-Chung Lin, Wei Li, Hao Chen, Quanzi Li, Ying-Hsuan Sun, Rui Shi, Chien-Yuan Lin, Jack P. Wang, Hsi-Chuan Chen, Ling Chuang, Guanzheng Qu, Ronald R. Sederoff, and Vincent L. Chiang. 2014. A simple high throughput xylem protoplast system for studying wood formation. *Nature Protocols* 9: 2194-2205.

193) Losiuk, P., Sederoff, R.R., Chiang, V.L., and Muddiman, D.C. (2014) Establishing ion ratio thresholds based on absolute peak area for absolute protein quantification using protein cleavage isotope dilution mass spectrometry. *The Analyst* 139: 5439-5450.

194) Li, Q., Song, J., Peng, S., Wang, J. P-Y., Guanzheng Qu, G., Sederoff, R.R., and V.L. Chiang. (2014) Plant biotechnology for lignocellulosic biofuel production. *Plant Biotechnology* 9: 1174-1192.

195) Lin C-Y., Wang, J.P., Li, Q., Chen, H.C., Liu, J., Losiuk, P., Muddiman, D.C., Sederoff, R.R. and Chiang, V.L. (2015) 4-Coumaroyl and Caffeoyl Shikimic Acids Inhibit 4-Coumaric Acid:Coenzyme A Ligases and Modulate Metabolic Flux for 3-Hydroxylation in Monolignol Biosynthesis of *Populus trichocarpa*. *Molecular Plant* 8:176-187.

196) Li, Q., Yeh, T-F., Yang, C., Song, J., Chen, Z-Z., Sederoff, R.R. and Chiang, V.L. (2015) *Populus trichocarpa* Transformation Using Stem Explants, In “*Agrobacterium Protocols*” third edition. Ed. K. Wang. pp 357-364.

197) Losiuk, P.L., Parker, J., Li, W., Lin, C-Y., Wang, J., Li, Q., Sederoff, R.R., Chiang, V.L. and Muddiman, D.C. (2015) Elucidation of Cellulosic Transcription Factors in Stem Differentiating Xylem Tissue of *Populus trichocarpa*. *Journal of Proteome Research* 14: 4158-4168.

198) Wang, J.P., Chuang, L., Losiuk, P., Chen, H., Lin, Y-C., Shi, R., Muddiman, D.C., Sederoff, R.R., and Chiang, V.L. (2015) Phosphorylation is an on/off switch for 5-hydroxyconiferaldehyde O-Methyltransferase activity in poplar monolignol biosynthesis. *Proc. Natl. Acad. Sci. USA*. 117: 8481-8486.

199) Tunlaya-Anukit, S., Wang, J.P., Shi, R., Chuang, L., Isik, F., Yang, C., Liu, J., Li, Q., Losiuk, P., Muddimann,

D.C., Sederoff, R.R., Chiang, V.L. A proteomic based quantitative analysis of the relationship between monolignol biosynthetic protein abundance and lignin content using transgenic *Populus trichocarpa*. In "Recent Advances in Polyphenols Research". In Press.

200) Lin, C-Y., Li, Q., Tunalaya-Anukit, S., Shi, R., Sun, Y-H., Liu, J., Loziuk, P., Edmunds, C.W., Miller, Z.D., Peszlen, I., Muddiman, D.C., Sederoff, R.R., and V.L. Chiang. (2016) An anionic peroxidase PtrPO21 involved in lignin biosynthesis in *Populus trichocarpa*. *Tree Genetics & Genomes*, 12: 1-18.

201)

Rui Shi, Jack P. Wang, Ying-Chung Lin, Quanzi Li, Ying-Hsuan Sun, Hao Chen, Ronald R. Sederoff, Vincent L. Chiang (2017). Tissue and cell-type co-expression networks of transcription factors and wood component genes in *Populus trichocarpa*. *Planta*, 245:927-938.

202) Wang et al submitted 2017:

Jack P. Wang, Megan Matthews, Rui Shi, Chenmin Yang, Sermsawat Tunlaya-Anukit, Hsi-Chuan Chen, Quanzi Li, Jie Liu, Chien-Yuan Lin, Punith Naik, Ying-Hsuan Sun, Philip L. Loziuk, Ting-Feng Yeh, Hoon Kim, Erica Gjersing,¹ Todd Shollenberger, Christopher M. Shuford, Jina Song, Zachary Miller, Warren Edmonds, Yung-Yun Huang, Ying-Chung Lin, Wei Li, Hao Chen, Ilona Peszlen, Cranos M. Williams, Joel J. Ducoste, John Ralph, Hou-min Chang, David C. Muddiman, Mark Davis, Fikret Isik, Chris Smith, Ronald R. Sederoff, Vincent L. Chiang. A Systems Model of Lignin Biosynthesis Predicts Wood Properties and Wood Utilization.

203) Li, Q., Liu, J., Kim, H., Yeh, T-F., Lin, Y-C., Chen, H., Yang, Z., Yang, C., Peng, X., Wang, J.P., Muddiman, D.C., Ralph, J., Sederoff, R.R., Vincent L. Chiang, V.L. PtrCAD1 and PtrCCR2 complex formation for monolignol biosynthesis in *Populus trichocarpa* to be submitted 2017

TEXTBOOK:

2010: Albersheim, P., Darvill, A., Roberts, K., Sederoff, R., and Staehelin, L.A. *Plant Cell Walls*. Garland Science, N.Y. 430pp.

NATIONAL RESEARCH COUNCIL PUBLICATIONS (role in parentheses)

1990: Forestry Research: A mandate for change. (Member of the Committee on Forestry Research that wrote the report).

1996: Intellectual Property Rights and Research Tools in Molecular Biology. (Workshop Moderator).

1997: Intellectual Property Rights and Plant Biotechnology. (Steering Committee and NAS Board on Biology)

1999: Finding the path: Issues of access to research resources. (Conference Advisory Committee)

2000: National Research Initiative: A vital competitive grants program in Food, fiber, and natural-resources research (Committee on evaluation of the USDA National Research Initiative Competitive Grants Program.)

2001: Ecological Monitoring of Genetically Modified Crops: (NAS Board on Biology and Commission on Life Sciences).

2002: National Capacity in Forestry Research. (Member of Committee on National Capacity in Forestry Research).

BOOK PREFACES:

(2015) Biosafety of Forest Transgenic Trees: Improving the Scientific Basis for Safe Tree Development and Implementation of EU Policy directives. Editors: Vettori, C., Fladung, M., Haggman, H., Pilate, G. (in press).

2006) Forest Biotechnology, Edited by Aluizio Borem. (in Portuguese).

1997) Statistical Genomics: Linkage, Mapping and Analysis, by Ben Hui Liu. CRC Press.

PATENTS

1. O'Malley, David M., Sederoff, Ronald R., Grattapaglia, Dario. (2000). Methods for within family selection in woody perennials using genetic markers. U.S. Patent No. 6,054,634. Washington, DC: U.S. Patent and Trademark Office.
2. Amerson, Henry V., Wilcox, P., Sederoff, R. R., Kuhlman, E. G., O'Malley, D. M., & Grattapaglia, D. (1999). Methods for within family selection of disease resistance in woody perennials using genetic markers. U.S. Patent No. 5,908,978. Washington, DC: U.S. Patent and Trademark Office.
3. MacKay, John, O'Malley, David, Whetten, Ross, Sederoff, Ronald. (1998). Method of altering lignin in trees. U.S. Patent No. 5,824,842. Washington, DC: U.S. Patent and Trademark Office.
4. Stomp; Anne-Marie, Weissinger; Arthur K, Sederoff; Ronald R. 1989. Method for transforming pine. U.S. Patent No. 5,824,842. Washington, DC: U.S. Patent and Trademark Office.
5. Sederoff; Ronald R, Stomp; Anne-Marie, Moore; Larry W. Chilton, Scott W. 1989. Method for transforming pine.

EXTRAMURAL GRANT AWARDS AND CONTRACTS (total 52): Continuous funding since 1970.

- 2011 DOE/ Office of Biological and Environmental Research: Modeling of cellulose, hemicellulose and lignin-carbohydrate complex formation and regulation to understand plant cell wall structure. V. Chiang (PI), R. Sederoff, J. Ralph and H-m. Chang, CoPIs. 2011-2014. \$2.2 million for three years.
- 2010 University of Tennessee/Sun Grant. PI Vincent Chiang, CoPIs Ron Sederoff and Hou-min Chang. Transgenic Wood with Genetically Built-In Hyperthermophilic Endo-1,4-Beta-D-Xylanase/Beta-Xylosidase and Reduced Lignin for Direct Biological-Based Saccharification. 2 years. \$234,896.
- 2009 NSF: Acquisition of massively deep-read sequencing technology at NCSU. # 0923119. PI W.O. McMillan, CoPIs: R. Kelley, R. Sederoff, R. Dean, and B. Weigmann. Equipment grant for one year.
- 2009 NSF: Predictive model of lignin biosynthesis. PI: Vincent Chiang, CoPIs: Ron Sederoff, John Ralph, Joel Ducoste, Fikret Isik. \$3.7 million for 5 years.
- 2008 DOE-JGI: 'Advancing Pine Genomics through Targeted and Random BAC Sequencing', to JGI's Community Sequencing Program. PI, Dan Peterson, CoPIs, Jeff Dean, Dana Nelson, Ron Sederoff, Dan Rokhsar.
- 2006 NSF: Genomic tool Development for the Fagaceae: R. Sederoff, PI. CoPIs: J. Tomkins and Paul Sisco: 2.7 million for 4 years.
- 2005 CPBR: Consortium for Plant Biotechnology Research Bioenergy Competition. Genomic regulation of growth and lignin in Eucalyptus. R. Sederoff and M. Kirst. \$150,000 for two years.
- 2004 CPBR: Consortium for Plant Biotechnology Research. On the mechanism of formation of dihydroconiferyl alcohol subunits in lignin of a mutant loblolly pine. Sederoff, Stasolla, Kadla, Chiang. 152,000 for 2004.
- 2003 RAIZ. SNP Discovery, Diversity and Association Studies in Eucalyptus: Candidate Genes Associated with Wood Quality Traits. 1 year, \$20,000.
- 2001 NSF. Long-Term Evolutionary Response of Huon Pine to Climatic Fluctuation. R. Sederoff (PI), B. Weir, C. Clark, R. D'Arrigo, T. Meagher. 2 years, \$29,638.
- 2001 USDA/ IFAFS. Short rotation loblolly pine with improved wood properties. H-M. Chang (PI) with (co-PI's) J. Kadla, D. O'Malley, B. Goldfarb, B. Li, and R. Sederoff. 4 years, \$3 million.

- 1999 Industrial Consortium on Genetic Control of Wood Formation. \$200,000 per year for 5 years. R. Sederoff, PI. CoPI's D. O'Malley, R. Whetten, A. Johnson.
- 1999 NSF. Integrative Graduate Training in Bioinformatics and Functional Genomics - IGERT Full Proposal. B. Sherry, B. Weir, M. King, Ron Sederoff. 4 years, \$1,571,981.
- 1999 Wood formation in the pine genome. NSF Plant Genome Program. \$4.45 million for three years. R. Sederoff (PI) with (co-Pi's) D. O'Malley, R. Whetten, B-H. Liu, A. Johnson, T. Kepler, D. Neale, C. Kinlaw, E. Retzel, C. Loopstra, J. MacKay, G. Peter.
- 1997 Pine Gene Discovery Project. Ross Whetten, PI and Ron Sederoff CoPI. Department of Energy. Agenda 2020. \$574,985, 1997-2001.
- 1997 Genetic modification of lignin in loblolly pine. USDA/NRI Wood Utilization. \$110,000 for two years. R. Sederoff and J. MacKay.
- 1996 Computers for DNA sequence informatics. National Science Foundation, \$120,000. R. Sederoff and B. Wiegmann.
- 1996 A high throughput DNA sequencing facility for NCSU. \$184,000 from North Carolina Biotechnology Center. R. Sederoff and B. Wiegmann.
- 1995 Molecular markers and management of fusiform rust resistance. USDA/NRI, Plant Pathology, H. Amerson, D. O'Malley and R. Sederoff. \$140,000, for 3 years.
- 1995 Transcription factors in wood formation. Department of Energy, Energy Biosciences. \$315,000 for three years. R. Sederoff, M. Campbell, R. Whetten and D. O'Malley.
- 1995 Expression and mapping of cDNAs in loblolly pine. USDA/NRI, Plant Genome Program. \$167,000 for two years. R. Whetten, M. Campbell, and R. Sederoff.
- 1994 Genomic map merging. Plant Genome Program USDA/NRI \$100,000 for two years. B. Liu and R. Sederoff.
- 1993 Extensin-like protein in the wood cell wall. USDA Wood Utilization Program. \$155,000 for 30 months. R. Sederoff, R. Whetten and M. Tierney.
- 1993 National Needs Graduate Research Training Grant in Plant Biotechnology. USDA. \$110,000 for three years. Graduate Research Training in Forest Biotechnology.
- 1993 Industrial Consortium on Genetic Engineering of Lignin Biosynthesis and Wood Properties. 1993-1998, \$700,000 for 5 years. R. Sederoff, D. O'Malley, R. Whetten, B. Liu.
- 1992 Genomic mapping of host factors for rust resistance. USDA Plant Genome Program. \$210,000 for three years. R. Sederoff, H. Amerson and D. O'Malley.
- 1992 Transcription Factors Regulating Lignin Biosynthesis in Xylem. Department of Energy. \$194,000 for two years. R. Sederoff, D. O'Malley and R. Whetten.
- 1992 Half sib RAPD analysis of QTLs underlying early shoot growth in loblolly pine. \$220,000 for three years. D. O'Malley, S. McKeand and R. Sederoff.
- 1991 Regulation of Phenylalanine ammonia-lyase in developing wood. USDA Competitive Grants (Wood Utilization Panel) \$94,000 for two years. 1991-1993 R. Whetten (PI) and R. Sederoff (co-PI).
- 1991 Molecular markers to accelerate breeding in loblolly pine. USDA Competitive Grants (Plant Genome Program) \$140,000 for two years. R. Sederoff (PI) and D. O'Malley (co-PI).
- 1991 Developmental regulation of cinnamyl alcohol dehydrogenase in pine. USDA Competitive Grants 1991-1993. \$110,000 two years. D. O'Malley (PI) R. Sederoff (Co-PI).
- 1990 Regulation of xylem specific gene expression in loblolly pine. USDA competitive grants 1990-1992, 2 years \$130,000. R. Sederoff (PI) and C.A. Loopstra (co-PI).
- 1989 Training Grant: McKnight Program in Plant Biology at North Carolina State University. \$750,000, 3 years. R. Sederoff was one of 12 faculty in the Program.
- 1988 Isolation of a lignin-biosynthetic gene from loblolly pine. USDA Competitive Grants, 1988-1990, \$140,000, 2 years. R. Sederoff (PI), A-M. Stomp and H-M. Chang (co-PI's).
- 1988 Molecular Studies of Wood Productivity. USDA Forest Service Cooperative Agreement (\$32,000). D. O'Malley and R. Sederoff.
- 1987 Mechanisms of inheritance and transmission of conifer organelle genomes, USDA Competitive Grants, 1987-1989, \$115,000, 2 years. R, Sederoff and D. Neale.
- 1987 Industrial Consortium on Genetic Engineering of Lignin Biosynthesis, 1987-1992, \$600,000, 5 years. A-M. Stomp, H-M.Chang, D.M. O'Malley, and R. Sederoff.

- 1986 Forest Biology program: Genetic Structure and Function. Alcohol dehydrogenase genes in pines, USDA Competitive Grants, \$97,000, 2 years. David Harry (PI), Claire Kinlaw and Ron Sederoff (co-PI's).
- 1985 A DNA transfer system for pine, Forest Biology Program: Genetic Structure and Function. USDA Competitive Grants, 1985-1988, \$184,000, 3 years. R. Sederoff (PI), A-M. Stomp (co-PI).
- 1985 A workshop in forest biotechnology, Forest Biology Program: Genetic Structure and Function. USDA Competitive Grants, 1986, \$44,000, 3 months, F.T. Ledig (PI), Sederoff, Stomp and Conkle (co-PI's).
- 1984 Genetic Engineering Technology for Loblolly Pine. USDA Forest Service: Cooperative Agreement Number A8fs-20, 147, 1984-1986, \$36,000, 1.5 years, H.V. Amerson and A-M. Stomp.
- 1983 Variation of nuclear DNA in Zea, Pioneer Hi-bred International, 1983-1984, \$23,000, 1 year.
- 1982 Transcription of plasmid-like DNAs in maize mitochondria, USDA Competitive Grants: Genetic Mechanisms for Crop Improvement, 1982-1985 \$105,000, 3 years. C.S. Levings, III (PI), R. Sederoff (co-PI).
- 1981 Selection for improved cysteine and methionine content in crop plants, USDA Competitive Grants: Genetic Mechanisms for Crop Improvement, 1982, \$29,451, 1 year. J.C. Sorensen and R. Sederoff.
- 1980 Isolation of the triazine resistant genes in Brassica, USDA Competitive Grants: Genetic Mechanisms for Crop Improvement, 1980-1983, \$75,000, 3 years, R. Sederoff.
- 1979 Transposable elements in maize as potential vectors for genetic engineering, USDA Competitive Grants: Genetic Mechanisms for Crop Improvement. 1979-1982, \$167,000, 3 years, C.S. Levings, III (PI), R. Sederoff (co-PI).
- 1977 Genetic analysis of simple sequence DNA, National Institutes of Health, Genetics Program, General Medical Sciences. 1977-1980, \$202,000, 3 years.
- 1975 Polypyrimidines in Drosophila DNA, National Science Foundation: Genetic Biology, 1975-1977, \$30,000, 2 years.
- 1973 RNA synthesis during differentiation, National Institutes of Health, Genetics Program, General Medical Sciences, 1973-1977, \$117,000, 3 years.
- 1970 RNA synthesis during differentiation, National Institutes of Health, Genetics Section, General Medical Sciences, 1970-1973, \$108,000, 3 years.
- 1970 Properties of Y Chromosome specific DNA and RNA, National Science Foundation, Genetic Biology, 1970-1972, \$40,000, 2 years.

POSTDOCTORAL ASSOCIATES AND VISITING FACULTY

- Wei Tang, Postdoctoral Research Associate 1998-2003.
- Claudio Stasolla, Postdoctoral Research Associate, NSERC fellow, 2001-2002.
- Len Van Zyl, Postdoctoral Research Associate 1999-2001.
- Kei'ichi Baba, Visiting Scientist, Wood Research Institute, Kyoto, Japan.
- Kenji Kanazawa, Visiting Scientist, Hokkaido Agricultural Expt. Station, Japan.
- Yasushi Sato, Monobusho Grant, Visiting Scientist, Ehime University, Japan.
- Rongling Wu, Postdoctoral Research Associate 1996-1998.
- Allan Wenck, Postdoctoral Research Associate 1997-1998.
- Isabel Allona Alberich, Fulbright Postdoctoral Fellow 1995-1998.
- Glen Dale, Fulbright Postdoctoral Fellow 1995.
- Malcolm Campbell, Visiting Research Assistant Professor 1993-1996.
- Jose X. Chaparro, Postdoctoral Research Associate 1993.
- Kheng Cheah, Visiting Industrial Scientist 1992-1993.
- Reza Yasdani, Visiting Scientist, Agricultural Genetics, University of Uppsala, Sweden 1992.
- Ross Whetten, Postdoctoral Research Associate, NC State University 1989-1991.
- Dominique Robertson, McKnight Postdoctoral Research Associate 1989-1991.
- Wei-Young Wang, Visiting Scientist, National Forestry Institute, Taipei, Taiwan 1990.
- Juhani Haggman, Visiting Scientist, The Finnish Forest Research Institute 1988-1989.
- Hely Haggman, Visiting Scientist, Finnish Forest Research Institute 1988-1989.
- David O'Malley, Postdoctoral Research Associate, NC State University, 1988-1990.
- Claire S. Kinlaw, Postdoctoral Research Associate, USDA Forest Service 1986-1987.
- David E. Harry, Postdoctoral Research Associate, USDA Forest Service 1986-1987.

David Neale, Postdoctoral Research Associate, USDA Forest Service 1986-1987.
Robert Teasdale, Visiting Scientist, NSF, USA-Australia Cooperative Exchange Program 1986
Anne-Marie Stomp, Visiting Faculty from NC State University, Assistant Professor, Dept. of Forestry 1985-1986.
Steve Strauss, Visiting Faculty from Oregon State University, Dept. of Forestry 1985.
John Doebley, Postdoctoral Associate, now Professor, University of Minnesota, 1983-1984.
Georgina Werner, Research Scientist, Union Carbide, 1981.
C.Dale Grace, Research Associate, University of Oregon 1975.
Allan Mayer, Research Faculty, NYU School of Medicine 1974.

DISSERTATIONS AND THESES DIRECTED

Catherine Clark, Forestry, NC State University
Matias Kirst, Genomics, NC State University
Shuku Sun, Forestry, NC State University
Alexander Myburg, Genetics, NC State University
Yi Zhang, Genetics, NC State University
Susan Rodzik, Biochemistry, NC State University
Ying-Hsuan Sun, Forestry, NC State University
Alison Morse, Genetics, NC State University
David Remington, Forestry, NC State University
Wilfred Vermeris, Genetics, NC State University
Christina Almeida, Forestry, NC State University
Bonnie Furman, Genetics, NC State University
John MacKay, Genetics, NC State University
Phillip Wilcox, Forestry, NC State University
Kui Shin Voo, Genetics, NC State University
Dario Grattapaglia, Genetics and Forestry, Co-major, NC State University
Wei Wei Liu, Biochemistry, NC State University (Masters)
Jose Chaparro, Horticulture, NC State University
Wuli Bao, Forestry and Genetics Co-major, NC State University
Carol Loopstra, Genetics and Forestry, Co-major, NC State University
Ben A. Bergmann, Forestry, NC State University
Babette Gwynn, NC State University (Masters)
Shiaoman Chao, Genetics, NC State University
Daniel Tisch, Genetics, NC State University (Masters)
Marc Feigen, Biology, University of Oregon
Parviz Minoos, Biology, Univ. of Oregon
James Stone, Biological Sciences, Columbia Univ., NY (Masters)
Linda Lowenstein, Biology, Columbia Univ., NY (MA and Ph.D.)
Yara Cseko, Biological Sciences, Columbia Univ., NY (MA and Ph.D.)

MEMBERSHIP ON ADDITIONAL GRADUATE STUDENT COMMITTEES

External examiner

E. Mizrahi, Univ. of Pretoria, South Africa, Department of Genetics, PhD
Evandro Novaes, Forest Resources and Conservation, University of Florida.

NCSU:

Ying-Chung Lin, Forestry and Environmental Resources (Co-chair)
Hao Chen, Forestry and Environmental Resources (Co-chair current)
Chien-Yuan Lin, Forestry and Environmental Resources (Co-chair)
Jack Wang, Forestry and Environmental Resources
Hsi-Chuan Chen, Forestry and Environmental Resources
Enying Liu, Forestry and Environmental Resources

Rodrigo Laurenc, Forestry and Environmental Resources
Christine Duarte, Bioinformatics
Kitt Payne, Forestry.
Christopher Whittier, DVM
Cameron Morris, Wood and Paper Science
Zhenjian Hu, Wood and Paper Science
Victor Busov, Forestry
Wendy Pline, Crop Science
Wenjun Zhao, Genetics
Patricia Eagle, Biochemistry
Erin Egelkraut, Biochemistry
Lynn Senior, Genetics
Ye-Hee Yi, Crop Science
Ke Dong, Plant Pathology
Ling Li, Genetics
Jill Stevenson, Botany
Erika Kosal, Zoology
Liz Johnson, Crop Science

STANDING AND AD HOC NCSU COMMITTEES.

2016: Faculty Leadership Academy
2016: Faculty Senate and Faculty Senate Governance subcommittee.
2015 Common Reading Committee
2015 University Diversity Advisory Committee (UDAC)
2014 Committee on International Programs
2013: Search Committee for Head and Cluster Hires for Bioinformatics.
2013: NCSU Faculty Scholars Committee
2013: Committee on International Programs
2012: College of Natural Resources Research Committee
2012: Committee on International Programs
2011: University Committee on Honorary Degrees
2011: Building Future Faculty
2008-2010: O. Max Gardner Award Committee
2008: New Faculty Search Committee: Wood and Paper Science.
2008: New Faculty Search Committee: Forestry and Environmental Resources.
2007: The Jordan Professorship Committee
2006: O. Max Gardner Award Committee.
2006: Lifelong Faculty Committee.
2001, 2002, 2003, 2011 Post-Tenure Reviews: Dept of Forestry – College of Natural Resources
2001, 2002, 2003 Human Rights Week

UNIVERSITY TEACHING

North Carolina State University

PB 495/595 Fall 2015. Innovation in Agricultural Biotechnology. Co-taught with Richard Trethewey and Heike Sederoff.
FOR 810 Fall 2011, The Craft of Grant Writing; Co-taught with B. Goldfarb.
FOR 603 and FOR 803 - Grant Writing – combined course 2002-2008, guest lectures
FOR 411 - Genomics and Gene Discovery, guest lecture 2002-2006
BIT 815J - Microarray Course, 2002, guest lecture
GN725 - Forest Genetics, Spring Semester 2001, guest lecture
Genomics Journal Club, Spring 2001
Microarray summer course, Biotechnology series 1999
Mapping with RAPD markers, Biotechnology Summer Course series

1992,1993,1994, 1995, 1996 with O'Malley, Liu, and McCord
Forest Biotechnology Graduate Seminar series with David O'Malley 1992
Molecular Genetics Laboratory, Advanced Graduate Level 1981, 1983
Molecular Genetics, Graduate Level 1983
Molecular Cytogenetics, Graduate Level, 1979, 1981, 1983
Evolution, Undergraduate Level, 1980

University of Oregon

Genetics of Eukaryotes, Undergraduate Level, 1975, 1976, 1977
Genetics of Drosophila Lab, Undergraduate Level, 1976, 1977, 1978
Developmental Genetics, Graduate Level, 1976, 1978
Genetics Seminar, Graduate Level, 1975, 1976, 1977, 1978
Gene Action and Development, Undergraduate Level, 1977

Columbia University, New York

Introduction to Genetics, Undergraduate Level, 1970-1975
Advanced Genetics, Graduate Level, 1970, 1972, 1974

University of California, Los Angeles

Introduction to Biology, 1967
Human Anatomy Laboratory, 1963 (teaching assistant)
Genetics Laboratory, 1962

INVITED SEMINARS, PRESENTATIONS AND SYMPOSIA (1983-present).

- 2016 NCSU Plant Breeding Club - 3rd Biennial Symposium: symposium speaker.
- 2015 Osher Lifelong Learning Institute: Invited Lecture, McKimmon Center, Raleigh, NC.
Keynote speaker: Meeting of The American Chestnut Foundation, State College, Penn.
- 2014 Department of Plant and Microbial Sciences, NCSU, Invited Seminar.
- 2013: Panelist for Discussion for Frontiers in Biotechnology: NCSU, Raleigh NC
Session Chair on Sustainable Planted Forests: World Science Forum, Rio de Janeiro.
- 2012 Symposium on Sustaining Forest Resources: Keynote speaker, Taipei, Taiwan.
Academia Sinica, Taipei, Taiwan, Invited seminar.
Systems Biology Workshop, NCSU: Invited speaker.
- 2011 International IUFRO Tree Biotechnology, Porto Seguro, Brazil: Keynote Speaker.
Institute of Forest Biotechnology Annual Board meeting: invited speaker.
Duke Student Society of American Foresters, invited speaker
Building Future Faculty: NCSU, Invited Speaker
NESCent Conference on Woody Plants: Durham NC
- 2010: Plant and Animal Genome XVIII: In Fruit and Nut Workshop.
Annual Meeting of the Consortium for Plant Biotechnology
NE1034 Organization for Research on the American Chestnut
- 2009: Forest Health Initiative, Raleigh, NC
Symposium speaker, CPBR, Washington, D.C.
Invited seminar, University of Florida, Genomics Program.
Speaker: annual meeting Fagaceae Project. Raleigh, NC.
Forest Biotechnology Industrial Research Consortium (FORBIRC) NCSU, Raleigh NC.
Cold Spring Harbor Symposium on Evolution, CSH, Long Island NY
Forest Health and Genomics of the Fagaceae, Raleigh, NC.
- 2008: Departmental symposium, NCSU: Forestry and Environmental Resources. Invited speaker.
CPBR Symposium. Washington, DC, Invited speaker.
Speaker: annual meeting Fagaceae Project. CAES, New Haven, Connecticut.
- 2007: Bioinformatics Research Center, North Carolina State University, Invited seminar,
Panel member for Workshop: Genetically Engineered Forest Trees, Raleigh NC.

- Schatz Symposium on Forest Trees, Mont Alto Penn. State University. Invited speaker.
 Marcus Wallenberg Prize Symposium, Invited lecture, Stockholm, Sweden.
 Species Protection through Disease Resistance: Workshop, Invited speaker, Raleigh, NC.
 Pine Genome Initiative, Washington DC. Invited speaker.
- 2006 Sackler Symposium, NAS, Washington DC, invited presentation.
- 2005 NE Chestnut working group, Hamilton NY.
 AF&PA visit to NCSU: invited presentation.
 Video Teleconference on Forest Biotechnology NCSU. Extension Forestry Issues Forum
 Gordon Conference: Quantitative Genetics and Genomics, Ventura CA, invited speaker.
 Department of Biology, University of Iowa, invited seminar.
- 2004, Invited lecture, Swedish Agricultural University, Uppsala
 Pine genome workshop, Jekyll Island, GA.
 CPBR workshop presentation, Washington DC.
 DOE invited presentation, Atlanta GA.
- 2003 Weyerhaeuser – invited seminar
 Bayer, RTP, NC – invited seminar
- 2002 Plant Genome Conference
 Genome Canada Workshop, San Diego, CA
 Orlando, FL plenary symposium IATPC&B Congress
- 2001 Genetic Science and the New Millennium Symposium, Raleigh, NC.
 Quantitative Genetic Gordon Conference, Ventura, CA
 International Paper Co. Executive workshop, Durham, NC
 Genecore, Invited presentation, Palo Alto, CA
 Southern Section Amer. Soc. Plant Physiol. Raleigh, NC
 Western Forest Genetic Association, Davis, CA
 Wood Biotechnology, Bordeaux, France
 Lignin Biotechnology, Presymposium, Helsinki, Finland
 Conference on Agricultural GMO's. Stockholm, Sweden
 Animal Genomics Symposium, Raleigh, NC
 Friends of the Library, Raleigh, NC
 Swedish University of Agricultural Sciences, Uppsala, Sweden
 American Academy of Microbiology Colloquium, Ithaca, NY
- 2000 Forest Tree Workshop, Plant and Animal Genome, San Diego, CA
 Department of Biology, Debate on GMO's East Carolina University, NC
 Cell Wall Gordon Conference, Meriden, NH
 Workshop on Genetically Modified Crops, NC State University, Raleigh, NC
 International Wood Science Symposium, Taipei, Taiwan
 International Conference on Waste Management, Taipei, Taiwan
 Bio 2000, Session on Forest Biotechnology, Boston, MA
 Rotary Club, Raleigh, NC
 CAMCORE annual meeting, NC State University, Raleigh, NC
 Com Bio 2000, Wellington, NZ
 Forestry Research, Rotorua, NZ
 Banbury Conference, Cold Spring Harbor, NY
- 1999 National Academy of Sciences Symposium at NC State University, Raleigh, NC
 Weyerhaeuser Workshop on Forest Biotechnology, Tacoma, WA
 Plant Research Laboratory, Michigan State University
 Department of Genetics, University of Wisconsin
 Plant Breeding Group, University of Wisconsin
 Genomics Symposium, Duke University, Durham, NC
 CHI Agricultural Biotechnology Symposium, Minneapolis, MN
 CBWG Symposium on wood formation, Oxford, England, UK

- North Carolina Agriculture and Technology University, Greensboro, NC
NSF Plant Genome Awardees Conference, Washington, DC
AF&PA Research cooperative Conference, Atlanta, GA
Tree Biotechnology Symposium lecture, Pune, India
- 1998 Forest Tree Workshop, Plant and Animal Genome VI, San Diego, CA
Tuesday Forum, NC State University
Department of Forestry, NC State University
Conference on Statistical Genetics, Purdue University, IN
Bioscience Symposium, Royal Academy of Sweden, Stockholm, Sweden
REDBIO, Agricultural Biotechnology Conference, Havana, Cuba
Conifer Biotechnology Working Group Conference, Rutgers, New Jersey
Conference in Forest Biotechnology, HRI, Shell Ltd. E. Malling, UK
Department of Plant Science, Oxford. England, UK
Cold Spring Harbor Laboratory, Arabidopsis Course, NY
DuPont, Agricultural Biotechnology, Wilmington Delaware
International Congress of Genetics, Beijing, China
Chinese Academy of Forestry, Beijing, China
Nanjing Forestry University, China
IUFRO International Congress, Beijing, China
University of Madrid, Spain
IBET, Biotechnology Institute, Lisbon, Portugal
Monsanto, St. Louis, MO
Virginia Tech University, Biotechnology
University of Georgia
Weyerhaeuser Research Center, Tacoma, Washington
- 1997 Forest Tree Workshop, Plant & Animal Genome 5, San Diego, CA
Department of Chemistry, University of Ohio, Athens
ForBio Research Ltd. Brisbane, Australia
University of Chicago, Genetics Minisymposium
University of Arizona, Tucson
Sigma Xi, BASF, Research Triangle Park, NC.
Institute of Paper Science and Technology, Atlanta, GA
Chinese Academy of Forestry, Beijing, China
Nanjing Forestry University, Nanjing, China
Swedish Plant Physiology Society, Uppsala, Sweden
Workshop presentation, Agricultural Biotechnology, Uppsala, Sweden
Presidents Circle, National Academy, Woods Hole, MA
American Association of Plant Physiology, Vancouver, Canada
Molecular Genetics of Forest Trees, IUFRO, Quebec, Canada
Eucalypt: IUFRO meeting, Salvador, Brazil
Forest Biotechnology Conference, Blomfontein, South Africa
University of Stellenbosch, South Africa
International Society of Plant Molecular Biology, Congress in Singapore
- 1996 Regional Symposium of the NAS, Duke University, Duke, NC
Agricultural Biotechnology, Dupont, Wilmington, DE
Annual Meeting ForBio Ltd. Brisbane, Australia
Plant Cell Mol. Biol. University of Georgia, Athens
SRIEG Conference on Molecular Markers, Houston, TX
Cold Spring Harbor Arabidopsis Course
Union Camp Research Center, Princeton, NJ
Agricultural Biotechnology Course, San Sebastian, Spain

- Department of Horticulture, Helsinki University
 Forest Biotechnology Symposium, Bioscience Days, Helsinki
 TAPPI Meeting, Seattle, WA
 Pioneer International, Johnson City, Iowa
 Workshop presentation on Intellectual Property Rights, NRC, Washington DC
 Horticultural Research, Auckland, New Zealand
 Forestry Research Institute, Rotorua, New Zealand
- 1995: Gordon Conference on Quantitative Genetics and Biotechnology
 Program in Genetics, Duke University
 Inland Empire Tree Improvement Cooperative
 Departments of Forestry and MMBB, University of Idaho
 Institute of Paper Science and Technology, Atlanta, GA
 Howard Hughes Undergraduate Science Discovery Speaker, Rutgers University, NJ
 Biodiversity Program, Rutgers University, Newark, NJ
 22nd Stadler Genetics Symposium, Columbia MO
 NCSU Tree Improvement Workshop, Atlanta, Georgia
 National Agricultural Biotechnology Council Workshop, Washington, DC
 REDBIO Agricultural Biotechnology Symposium, Iguazu, Argentina
 Aracruz Cellulose, Aracruz, Brazil
 CENARGEN, EMBRAPA, Brasilia, Brazil
 CBWG, Conference, Brisbane, Australia
 American Society of Plant Physiology, Charlotte, NC
 Pasteur Institute Symposium, Paris, France
 IUFRO Conference on Molecular Genetics of Trees, Gent, Belgium
 ESPRA Symposium, SUNY, Syracuse, NY
- 1994: Agricultural Biotechnology Keystone Symposium Speaker, Keystone, CO
 Plant Genome II, Symposium Speaker, San Diego, CA
 Laval University, Quebec City, Quebec, Canada
 Laboratory of Genetics, University of Gent, Gent, Belgium
 Dept. of Forest Genetics, Swedish Agricultural University, Uppsala
 Joint meeting of the Nordic Fund Programs in Plant Biotechnology, Finland
 Applied Biosystems (Perkin Elmer Cetus), Redwood City, CA
 International Plant Molecular Biology Symposium, Amsterdam, The Netherlands
 Shell Research, Sittingbourne, England
 Zeneca Seeds, Jealotts Hill, Bracknell, Berkshire, England.
 American Society of Plant Physiology, Corvallis, Oregon
 International Wood Biotechnology Symposium, Tokyo, Japan
 Forest Research Institute Rotorua, New Zealand
 Department of Botany, University of Melbourne, Australia
 Wood Research Institute, Clayton, Australia
 Forestry Research, Canberra, Australia
 Plant Biotechnology, Canberra, Australia
 ForBio, Brisbane, Australia
 Biochemistry and Plant Physiology Conference, Australia
 Australian Plant Physiology Conference
 Department of Plant Pathology, University of Nebraska
 Boyce Thompson Institute, Cornell University, Ithaca, NY
 Cold Spring Harbor Mapping Course, Cold Harbor Springs, NY
 John Innes Institute, Norwich England
 Weyerhaeuser Technical Center, Tacoma, WA
- 1993: International Paper Company, Bainbridge GA.

- Cell Wall Keystone Meeting, Keystone, CO
 NC Biotechnology Center, Biotech Retreat, Beaufort, NC
 Joint McKnight Retreat, NC State University-Purdue University
 Quantitative Genetics Gordon Conference, Ventura CA
 Southern Forest Tree Improvement Conference, Atlanta, GA
 Agronomy Society, Minneapolis, MN
 Phytochemistry Meetings, Asilomar, CA
 Genomic Fingerprinting Workshop Madrid, Spain
 IUFRO Somatic Cell Genetics, Balsain, Spain
 Soporcel, Lisbon, Portugal
 NBIAP Workshop, Washington, DC
 International Congress of Botany: Cell walls & Tree Breeding
 Tokyo University of Agriculture and Technology,
 International Symposium of Wood Biotechnology, Japan
 Nippon Paper Co., Tokyo, Japan
 Cold Spring Harbor Mapping course, Cold Spring Harbor, NY
- 1992 AAAS, Chicago, IL
 Plant Genome Meeting, San Diego CA
 Moderator and discussion session, Genetic markers Conference, Rutgers University, NJ
 Swedish Agricultural University, Uppsala – invited seminar.
 Joensuu, Finland
 Tromso, Norway
 University of Sweden
 Purdue University, Indiana, IN
 Plant Physiology Regional Meeting, Duke University, Durham, NC
 University of Georgia, Athens, GA
 International Cell and Tissue Culture Meeting, Orlando, FL
 Virginia Polytechnic University, Blacksburg, VA
 University of Florida, Gainesville, FL
 Agronomy/Horticulture Society, Minneapolis, MN
 Cold Spring Harbor Mapping Course, Cold Spring Harbor, NY
 Washington University, St. Louis, MO
- 1991 International Symposium on Forest Biotechnology and Application, Columbus, OH
 Institute of Paper Science and Technology, Atlanta, GA
 Meeting on Marker Aided Selection, Gatlinburg, TN
 International Course in Forest Biotechnology at the Institute for Advanced Studies, Caracas, Venezuela
 Department of Forestry and the Biotechnology Program, Oregon State University
 Department of Biochemistry Biotechnology, Washington State University, Pullman
 Plant Biotechnology Institute, University of Saskatchewan, Saskatoon, Canada
 Biotechnology Institute, University of British Columbia, Vancouver, Canada
 Swedish Agricultural University, Uppsala, Sweden
 Department of Forestry, University of Joensuu, Finland
 Nordic Fund Conference on DNA transfer in Nordic Tree Species, Finland
- 1990 Texas A&M University, Department of Forestry
 Monsanto Corporation, St. Chesterfield, MO
 IUFRO Conference on Molecular Genetics of Forest Trees, Fallen Leaf Lake, CA.
 South Carolina Meeting of the Society of American Foresters
 Laboratorium voor Genetica, University of Ghent, Belgium
 IUFRO Congress, Molecular Genetics section, Montreal, Canada
 Center for Environmental Research, GSF at Munich, Germany
 Conifer Biotechnology Working Group, Sittingbourne, England

John Innes Institute, Norwich, England

- 1989 American Association of the Advancement of Science, San Francisco CA
Sino-American Workshop in Forest Biotechnology, Taipei, Taiwan
Bioscience Days, Helsinki, Finland
Department of Forestry, Joensuu University, Finland
Symposium for the National Tissue Culture Meeting, Orlando, Florida
Graduate Ethics Colloquium, North Carolina State University
Annual meeting of the Noble Foundation, Ardmore, Oklahoma
Cold tolerance in eucalyptus, Raleigh, NC
- 1988 Universite de Laval, Department of Forest Biology, Quebec, Canada
Natural Resource Societies Science Day (Forest Biotechnology), Washington, DC
Department of Genetics, NC State University
Department of Biochemistry, NC State University
Department of Biology, University of Nebraska, Lincoln
International Conifer Tissue Culture Working Group, Saskatoon, Saskatchewan, Canada
- 1987 Plant Biotechnology Institute, Saskatoon, Saskatchewan, Canada
USDA Forest Service, Southeast Station, Annual Meeting, Jekyll Island, SC
Biotechnology Group, University of British Columbia
Department of Forestry, University of British Columbia
Department of Biology, University of Victoria, British Columbia
USDA Forest Service, Washington Office, Washington DC
Biotechnology of Forest Trees, Aqueduct, NC
- 1986 Carnegie Institute of Washington, Stanford University, CA
American Society of Naturalists, National Meeting
Biotechnology of Woody Crops, Uppsala, Sweden
Department of Plant Pathology, University of California, Berkeley
- 1985 International Paper Company, Tuxedo Park, New York
Department of Forestry, University of California, Berkeley
Stauffer Chemical Company, Richmond, California
Southern Forest Tree Improvement Conference, Long Beach, MS
University of Alberta, Canadian Pacific Symposium
IUFRO Molecular genetics working party, Ohio State University
Forest products laboratory, Richmond, CA
- 1984 Forest Genetics, PSW, Berkeley, CA
Weyerhaeuser Research Center, Tacoma, WA
Crown Zellerbach Research Center, Portland, OR
Zoecon, Inc., Palo Alto, CA
Calgene, Davis, California
Workshop on Biotechnology, Institute of Forest Genetics, Placerville, CA
- 1983 Southern Forest Tree Improvement Workshop, Quail Roost, NC
Annual Meeting of the Tissue Culture Forestry Cooperative, NC State University
Columbia University Medical School, Department of Human Genetics, NY

CONFERENCES CO-ORGANIZED

- 2014 Systems Biology and Genetic Modification of Plants, Raleigh, NC.
2011 INRA Workshop on Fagaceae Genomics, Paris, France.
2009 Genomic Resources for the Fagaceae, Raleigh, NC.

- 2000 The Arabidopsis Genome and the Genetics of Trees, Banbury Conference
- 1997 International Wood Biotechnology Conference, Canberra, Australia
- 1997 International Wood Biotechnology Conference, Canberra, Australia
- 1994 Forest Biotechnology International Conference Minneapolis MN
- 1994 International Wood Biotechnology Conference, Tokyo, Japan
- 1992 International Forest Biotechnology Working Group, Raleigh NC

MEDIA INTERVIEWS

- 2003 Tree that towers is kin to lowly flower, News & Observer, Raleigh, NC
- 2000 News and Observer, Raleigh NC, Genomics at NC State University
National Public Radio, The Environment Show, interviewed by Peter Burley on
the genetic modification of trees.