**CURRICULUM VITA**

***Name*:** Christopher Roland Somerville

***Address*:** Energy Biosciences Institute, University of California Berkeley, 2151 Berkeley Way, Berkeley CA 94704; crs@berkeley.edu; 510-643-6265

***Birthdate*:** October 11, 1947

***Citizenship*:** USA (Naturalized)

***Education*:**

Ph.D. (genetics), 1978, University of Alberta, *E. coli* mutants defective in pppGpp hydrolysis

M.Sc. (genetics), 1976, University of Alberta, Positive gene regulation by *relA* in *E. coli*

B.Sc. (mathematics), 1974, University of Alberta

***Appointments*:**

Scientific advisor, Open Philanthropy (2016-)

Emeritus Professor, UC Berkeley (2017-)

Philomathia Chair in Alternative Energy, UC Berkeley, 2009-2017

Director, Energy Biosciences Institute, UC Berkeley, 2007-2016

Professor, Department of Plant & Microbial Biology, UC Berkeley, 2007-2017

Faculty Scientist, Physical Biosciences, Lawrence Berkeley National Lab, 2006-2011

Director, Carnegie Institution for Science Department of Plant Biology, 1994-2007

Professor, Department of Biological Sciences, Stanford University, 1994-2007

Professor, MSU‑DOE Plant Research Laboratory, Michigan State University, 1986‑93

Associate Professor, MSU‑DOE Plant Research laboratory, Michigan State University, 1982‑86

Assistant Professor, Department of Genetics, University of Alberta, 1981

Research Associate, Department of Agronomy, University of Illinois 1978‑81

***Awards*:**

D.Sc., University of York (2016); D.Sc. Michigan State University (2012); EPA Presidential Green Chemistry Award (2010); American Chemical Society Sterling B. Hendricks Memorial Lectureship Award (2010);;Fellow American Society of Plant Biologists (2007); Balzan Prize (2006); DSc., Guelph University (2006); Fellow of AAAS (2004); Genetics Society, Mendel Medal (2004); Biochemical Society, Sir Frederick Gowland Hopkins Medal (2004); Academia Europaea (2002); Kuhmo Award (2001); D.Sc., Wageningen University (1998); Visiting Professor, University of Glasgow (1998-01); D.Sc., University of Alberta (1997); Elected to U.S. National Academy of Sciences (1996); D.Sc., Queens University (1993); American Society of Plant Physiologists Gibbs Medal (1993); Fellow of Royal Society of Canada (1993); Humbolt Senior Research Award (1992); Elected Fellow of Royal Society London (1991); Schull Award, American Society of Plant Physiologists (1987); National Science Foundation Young Presidential Investigator Award (1984)

***Professional Service*:**

Panel Member, USDA‑ARS Federal Support for Soybean Research, (1981); Panel Member, USDA‑CRGO Photosynthesis Panel, Washington, (1983‑84); Editorial Committee, Photosynthesis Research (1984‑87); Editorial Committee, Plant Physiology (1985‑91); American Society of Plant Physiologists, Futures Committee (1985‑86); Panel Member, NSF Postdoctoral fellowships in Plant Biology (1985); Panel Member, NSF Eukaryotic Genetics Panel (1985‑88); Panel Member, NIH Molecular Biology Panel (1989); Editorial Committee, Archives Biochem. Biophys. (1986‑03); Panel Member, NSF Presidential Investigator Panel (1986); Editorial Committee, Development (1986‑93); Editorial Committee, Developmental Genetics (1989-91); American Society Plant Physiologists Publication Committee (1989-91); Member, Arabidopsis Genome Project Steering Committee (1989-94); Panel Member, USDA Genome Project Steering Committee (1989-93); Program Manager, USDA-CRGO Genetics Panel (1990-91); Editor, The Plant Journal, (1990-1994); Member, Plant Advisory Group, Cold Spring Harbor Laboratory (1990); Member, ASPP Executive Committee (1990-91); Member, NSF Biology Directors Advisory Committee (1992-1994); Member, AFRC IPSR Visiting Group (1993); Advisory Board, Noble Foundation (1993-97); Advisory Board, TIGR (1992-97); Advisory Board, Molecular Genetics, Massachusetts General Hospital (1989-92); Member of Board, International Society for Plant Molecular Biology (1993-97); Associate Editor, Annual Review Plant Physiol. Plant Mol. Biol. (1993-97); Member, NRC Board on Agriculture (1994-96); Visiting committee, RSBS Australian National University (1995); Visiting committee, Swedish Foundation for Strategic Research (1995); Associate Editor, The Plant Cell (1995-2000); Editorial Board, Current Biology (1996-99); Board of Reviewing Editors, Science (1996-2007); Editor, Current Opinion in Plant Science (1997-04); Presidents Advisory Panel on Plant Biodiversity (1997-98); Editorial Board, Proc,. Natl. Acad. Sci, (1997-2000); Visiting committee ETH and University of Zurich (1997); Visiting Committee, Cornell Plant Biology (1998); Visiting Committee, Berkeley Plant Biology (1999); Scientific Advisory Board, The Wellcome Trust (1999-2001); Advisory Board, Danforth Center (1999-2001); Max-Planck-Institut für Moleculare Pflanzenphysiologie Fachbeirat (2000-2005); US-EU Consultative Forum on Biotechnology (2000). Alberta Heritage Foundation for Science and Engineering (2000-2007); Senior Editorial Committee, Science (2001-2007); John Innes Visiting Committee (2001); Cornell Biology Visiting Committee (2001-5); University of Wisconsin Structural Biology Center Advisory Committee (2001-4); NRC Committee on Plant Genome Initiative (2002); Department of Plant Systems Biology VIB/Ghent University advisory committee (2002-5); Design Committee, Koshland Museum (2002-3); NAS Class II TNG chair (2003-6); Helios Advisory Committee, Lawrence Berkeley National Lab (2006-8); US DOE advisory committee (BERAC) (2006-07); JGI advisory committee (2006-2009); NRC Committee for Americas Energy Future, Transportation Fuels subcommittee (2007-08); California Academy of Sciences Committee on California’s Energy Future (2009-2011); BP Energy Sustainability Committee (2010-2012); PCAST Committee on Agricultural Preparedness (2012); Secretary of Energy Taskforce on R&D (2013-2014); UNESCO-SCOPE Advisory Committee on Biofuels (2013-15)

***Current Consulting:***

Centrillion, Palo Alto CA, RedLeaf Inc, Lexington KY, Amphora Inc, San Francisco CA, Boost Biomes, San Francisco CA.

***Past Consulting:***

BP, Mitsui, Eli Lilly, DuPont, Unilever, Warburg Pincus, DowElanco, Monsanto, The Institute of Genomic Research (TIGR), BP, Khosla ventures, Mendel Biotechnology, LS9 Inc., King Abdulaziz University, Jeddah, Saudi Arabia; CTC, Piracicaba Brazil

***Other experience:***

Co-founded Mendel Biotechnology (1997), Poetic Genetics (2004), LS9 Inc (2005), RedLeaf Inc (2015)

Chairman of the board, Mendel Biotechnology (1997-2008; 2015-)

Executive Chairman, Mendel Biotechnology (2002-2008)

Board of Directors, Bionova SA (1999-2000)

Scientific advisory board, Monsanto (1990-1997)

Chairman of the Board (RedLeaf, 2015-)

***Patents*:**

Nucleic Acid Fragment encoding herbicide resistant plant acetolactate synthase, J.R. Bedbrook, R.S. Chaleff, S.C. Falco, B.J. Mazur, C.R. Somerville, N.S. Yadav. US Patent number 5,013,659, May 7, 1991

Nucleic Acid Fragment encoding herbicide resistant plant acetolactate synthase, J.R. Bedbrook, R.S. Chaleff, S.C. Falco, B.J. Mazur, C.R. Somerville, N.S. Yadav. US Patent number 5,141,870, August 25, 1992

Nucleic acid fragment encoding herbicide resistant plant acetolactate synthase. J.R. Bedbrook, R.S. Chaleff, S.C. Falco, B.J. Mazur, C.R. Somerville, N.S. Yadav. US Patent number 5,378,824 Jan 3, 1995

Nucleic acid fragment encoding herbicide resistant plant acetolactate synthase. J.R. Bedbrook, R.S. Chaleff, S.C. Falco, B.J. Mazur, C.R. Somerville, N.S. Yadav. US Patent number 5,605,011 Feb. 25, 1997

Production of petroselenic acid in transgenic plants, E. Cahoon, J. Ohlrogge, J. Shanklin, C.R. Somerville, US Patent number 05430134, Issued 7/4/1995

Process for producing polyhydroxybutyrate and related polyalkanoates in the plastids of higher plants. C.R. Somerville, C. Nawrath, Y. Poirier, U.S. Patent number 5,610,041, March 11, 1997

Transgenic plants producing polyhydroxyalkanoates, C.R. Somerville, Y. Poirier, D.E. Dennis, US Patent number 5,650,555, Issued 7/22/1997

Altered Linoleic and linolenic acid content in plants, C.R. Somerville, G. Kishore, T. Ruff, V. Arondel, S. Gibson, filed February 5, 1993

Use of plant fatty acyl hydroxylases to produce hydroxylated fatty acids and derivatives in plants. C.R. Somerville, F. van de Loo, US Patent number 5668292, Issued 9/16/1997

Use of plant fatty acyl hydroxylases to produce hydroxylated fatty acids and derivatives in plants. C.R. Somerville, F. van de Loo, US Patent number 5801026 issued 9/1/98

Fatty acyl CoA Reductase. C.R. Somerville and S. Reiser, US Patent number 6143538 issued 11/7/00

Production of hydroxylated fatty acids in genetically modified plants. C.R. Somerville, P. Broun, F. van de Loo, US Patent number #6,291,742 issued 9/18/2001

Plant Fatty Acid Hydroxylases. C.R. Somerville, P. Broun, F. van de Loo, US Patent number #6310194 issued 9/30/2001

Structure and Expression of the biotin carboxylase subunit of heteromeric acetyl-CoA carboxylase. J. Ohlrogge, B. Shorrosh, D. Shintani, C. Somerville. 6218600 Issued April 17, 2001

Use of Plant Fatty Acyl Hydroxylases to Produce Hydroxylated Fatty

Acids in Derivatives in Plants 6,433,250 issued August 13, 2002

Strong early seed-specific gene regulatory region. P. Broun, C. Somerville. US Patent number 5965793 issued 10/99.

Strong early seed-specific gene regulatory region. P. Broun, C. Somerville. US Patent number 6,437,220 issued 8/20/2002.

Production of hydroxylated fatty acids in genetically modified plants. C.R. Somerville, P. Broun, F. van de Loo, S.S. Boddupalli US Patent number #6,936,728 issued 8/30/2005

Altered linolenic and linoleic acid contents in plants. G. Kishore, T. Ruff, T. gene, V. Arondel, V. Armel, S. Gibson, S. Irma, C.R. Somerville. US patent issues April 17, 2007

Modified cellulose synthase gene from Arabidopsis thaliana confers herbicide resistance to plants. C.R. Somerville, W. Scheible US Patent #7,241,878 issued july 10, 2007

Production of hydroxylated fatty acids in genetically modified plants. C.R. Somerville, P. Broun, F. van de Loo, Boddupalli; Sekhar S US Patent number #8003855 issued 8/23/2011

***Invited Seminars:***

Laboratorie Physico‑Chemique de Foundation Rothschild, Paris; Du Pont Central Research Department, Wilmington, Delaware; University of Alberta, Edmonton, Alberta; York University, Toronto, Ontario; Du Pont Central Research Department, Wilmington, Delaware; Queens University, Kingston, Ontario; University of California, San Diego, California; Monsanto, St. Louis, Missouri; University of Toronto, Toronto, Ontario; Kettering Institute, Yellow Springs, Ohio; University of California, Davis, California; University of California, Berkeley, California; ARCO Research Institute, Dublin, California; University of Michigan, Ann Arbor, Michigan; Purdue University, W. Lafayette, Indiana; Shell Development Labs, Modesto, California; University of Colorado, Boulder, Colorado; University of Pennsylvania, Philadelphia, Pennsylvania; Washington University, St. Louis, Missouri; University of Utah, Salt Lake City, Utah; University of Chicago, Chicago, Illinois; Amoco Research Center, Chicago, Illinois; Rothamsted Experiment Station, Harpenden, England; Du Pont Central Research Department, Wilmington, Delaware; University of Washington, Seattle, Washington; Rockefeller University, New York, New York; Massachussetts General Hospital, Boston, Massachussetts; Cornell University, Ithaca, New York; University of Ghent, Ghent, Belgium; University of California, Davis; MIT, Boston; University of Illinois, Urbana; Queens University, Kingston Ontario; Cold Spring Harbor Laboratory, Cold Spring Harbor, New York; Eli Lilley Research Dept, Indianapolis, Indiana; Case Western Reserve University, Cleveland, Ohio; Carnegie Mellon University, Pittsburgh, Pennsylvania; Dow Chemical Co, Midland, Michigan; Monsanto, St. Louis, Missouri; Washington State University, Pullman, Washington; Colorado State University, Fort Collins, Colorado; Scripps Research Institute, San Diego, California; Rockefeller University, New York; Louisiana State University, Baton Rouge, Louisiana; Cold Spring Harbor Laboratory, New York; McGill University, Montreal, Quebec; Iowa State University, Ames, Iowa; Pioneer HiBred Co., Des Moines, Iowa; Northern Illinois University, DeKalb, Illinois; University of Tokyo, Japan; Ajinomoto Co., Kawasaki, Japan; UCLA, Los Angeles CA; Oregon State University, Corvallis OR; University of Minnesota, Minneapolis MN; Brookhaven National Laboratories, Upton NY; University of Guelph, Guelph Ontario; Roche Institute, Nutley NJ; Ohio State University, Columbus OH; University of Saskatchewan, Saskatoon, Sask; Cornell University, Ithaca, NY; Monsanto, St Louis, MO; Cold Spring Harbor, NY; University of Wisconsin, Madison; University of Kansas, Manhattan, KS; University of Florida, Gainesville, FL; Harvard University, Boston, MA; Procter and Gamble, Cincinatti, OH; Calgene, Davis, CA; DNA PLant Technology, Oakland, CA; University of California, Berkeley, CA; Max-Planck-Institut für Zuchtungsforshung, Köln, Germany; Cold Spring Harbor Laboratory, New York; Monsanto Corporation, St. Louis, MO; John Innes Institute, Norwich, England; Cambridge University, Cambridge, England; Rockefeller University, New York, NY; University of Gerogia, Athens GA; MoGen International, Leiden, Netherlands; University of Kentucky, Lexington; University of British Columbia, Vancouver BC; UCLA, Los Angeles CA; Cold Spring Harbor Laboratory, Cold Spring Harbor, NY; Virginia Polytec, Blacksburg VA; University of Paris, Paris France; Salk Institute, San Diego, CA; Yale University, New Haven, CT; University of Alberta, Edmonton, Canada; Monsanto Corporation, St. Louis, MO; Friedrich Miescher Institute, Basel Switzerland; Cold Spring Harbor Laboratory, Cold Spring Harbor; University of California, San Diego; Laboratorium voor Genetica, Gent, Belgium; University of Nebraska, Lincoln; DuPont central Research, Wilmington DE; University of Arizona, Tucson AZ; Rockefeller University, New York; Pioneer Hybred International, Johnson City, IA; University of Iowa, Iowa City, IA; Cornell University, Ithaca, NY; Stanford UNiversity, Palo Alto, CA; University of California, Berkeley, CA; Oxford University, Oxford England; John Innes Institute, Norwich England; Max-Planck Institut, Koln, Germany; University of Freiburg, Freiburg Germany; University of Hamburg, Hamburg Germany; Hoechst, Frankfurt Germany; BASF, Mannheim Germany; University of Munich, Munich, Germany; ETH, Zurich; University of Calgary, Calgary Alberta; Purdue University; University of Oklahoma; Noble Foundation; Carlsberg Laboratory, Copenhagen; University of California, Davis; Rice University, Houston TX; Williams College; UC Santa Cruz, Santa Cruz CA; Washington University, St Louis MO; Texas A&M University, College Stn, TX; University of Tennesee, Knoxville TN; University of Lausanne, Lausanne Switzerland; Wageningen University, Wageningen, Netherlands; Max Planck Institute, Koln, Germany; University of Illinois; Penn State University; University of Nevada; University of Minnesota; Washington University; Colorado State University; KRIBB, Tejon, Korea; CNRS, Gif-Sur-Yvette; University of Gent, Gent Belgium; University of Arizona, Tucson AZ; University of Florida, Gainesville; University of Minnesota; University of California, Davis CA; University of California, Riverside; John Innes Institute; University of British Columbia, Vancouver BC; John Innes Institute; Plant Gene Expression Center, Albany CA; Michigan State University; Moore Foundation; Lawrence Berkeley National Lab; Salk Institute, San Diego CA; Flanders Institute for Biotechnology, U Massachusetts, Amherst MA; Procter & Gamble; Harvard University; MIT

***Invited symposia***

International Botanical Congress, Sydney, Australia (1981); Minnesota Spring Symposium, St. Paul, Minnesota (1982); Gordon Conference on Photosynthetic, Carbon Metabolism (1982); Miami Winter Symposium, Miami, Florida (1983); Plant Growth Regulator Society Meetings, E. Lansing, Michigan (1983); Gordon conference on Plant Molecular Biology, Andover, New Hamshire (1984); Genetics Society Meeting, Vancouver, B.C. (1984); UCLA Symposium, Keystone, Colorado (1985); US‑Australia Workshop, Fraser Island, Australia (1985); Gordon Conference on CO2‑fixation, New Hampshire (1985); American Chemical Society, Chicago, Illinois (1985); Royal Society of London, London, England (1986); Hoechst Molecular Biology Workshop, Graineau, W. Germany (1986); American Society of Plant Physiologists, Baton Rouge, Louisiana (1986); 7th International Congress in Plant Lipids, Davis, California (1986); Symposium on Genetic Engineering of Crops, Davis, California (1986); UCLA Symposium on Molecular and Cellular Biology, Part City, Utah (1987); Phytochem Society, Tampa, Florida (1987); FASEB, Copper Mountain, Colorado (1987); Lilly Symposium on Innovative Approaches to Agrichemical Research, Indianapolis, Indiana (1987); Toyobo Foundation Symposium on Plant Biotechnology, Nagaja, Japan (1987); National Institute for Basic Biology, Okazaki, Japan (1988); Purdue Symposium on Biotechnology, Purdue University, West Lafayette, IN (1988); Annual meeting American Society Plant Physiologists, Reno, NV (1988); International Congres on Plant Lipids, Budapest, Hungary (1988); US-Japan Symposium on photosynthetic productivity, Honolulu Hawaii (1988); Gordon Conference on Temperature Stress in Plants, Oxnard CA (1989); American Oil Chemists Society, Cincinatti OH (1989); EMBO Symposium, Heidelberg, Germany (1989); Australian Biochemical Society Meeting, Brisbane Australia (1989); The Genetics and Molecular Biology of *Arabidopsis*, Bloomington, IN (1989); UCLA Symposium, Keystone, CO (1990); Ann. Mtg, American Society of Clinical Nutrition, Washington, DC (1990); Fourth International Arabidopsis Meeting, Vienna, Austria (1990); IX International Symposium on Plant Lipids, Wye College, England (1990); National Research Council Seed Oil Modification Workshop, Saskatoon, Canada (1990); Conference on Biotechnology for Safe and wholesome foods, Vlaardingen, Netherlands (1990); Symposium on Metabolic Compartmentation, Riverside, CA (1991); UCLA Symposium, Keystone, CO (1991); American Association for Advancement of Science Annual Meeting, Washington DC (1991); Canadian Genetics Society, Kingston, Ontario (1991); ICI-Harvard Frontiers of Science Symposium, Boston MA (1991); Penn State Symposium in Molecular Biology, College Station, PA (1991); Monod Conference on Membrane Flow, Roscoff, France (1991); Human Genome III, San Diego, CA (1991); Keystone Symposium on Crop Improvement via Biotechnology, Keystone CO (1992); 10th ISF World Congress & 83rd AOCS Annual Meeting, Toronto (1992); Gordon Conference on Plant Molecular Biology, Proctor Academy, NH (1992); Royal Society meeting on Transgenic plants and animals, London, England (1992); FEBS Meeting, Dublin, Ireland (1992); ACS International Symposium on Biotechnology, Washington, DC (1992); Foundation Ramon Areces Symposium "Biotechnology:the future today", Madrid, Spain (1992); EC-Bridge T-project, Copenhagen, Denmark (1992); US-Japan Workshop on Molecular Biology of Plant Lipids, Kona HI (1992); Tel-Aviv Biotechnology Meeting, Tel-Aviv, Israel (1993); Royal Society Meeting on Transgenic Plants, London, England (1993); FEBS Meeting, Stockholm (1993); Recent Advances in Plant Molecular Biology, Kyoto Japan (1993); Annual Meeting of American Society of Plant Physiologists, Minneapolis, MN (1993); Annual Meeting of Canadian Society of Plant Molecular Biology, Toronto (1993); Genome V, Hilton Head, SC (1993); Chicago Symposium, Chicago IL (1993); Plant genome II, San Diego CA (1994); Federation of Canadian Biological Societies Annual Meeting, Montreal (1994); International Society for Plant Molecular Biology Congress, Amsterdam (1994); International Plant Lipid Congress, Paris (1994); Keystone meeting on Plant Cell Biology, Taos NM (1995); Glasgow University Symposium on Biochemical Genetics, Glasgow (1995); IAEA, Vienna, Austria (1995); Symposium on Plant genetic Engineering, Lexington KY (1995); National Academy of Sciences, Conference on resource sharing (1996); Workshop on Transgenic Plants, Tuskeege University, Tuskeege AL (1996); SEB Symposium on Plant Development, Dublin Ireland (1996); NATO Conference on Signals in Plant Development, Maratea, Italy (1997); National Academy of Sciences Symposium on Plant Genomes, Irvine CA (1997); National Plant Lipid Meeting, Lake Taho CA (1997); 17th International Congress of Biochemistry & Mol Biol, San Francisco (1997); Ninth International Genome Sequencing and Aanalysis Conference, Hilton Head SC (1997); International Society of Plant Molecular Biology Congress, Singapore (1997); International Prize in Biology Symposium, Kyoto (1997); Keystone meeting on Plant Cell Biology, Taos NM (1998); Swedish Foundation for Strategic Research Next Millenium Symposium (1998); American Society of Plant Physiologists, Madison WI (1998); Ohio State Biotechnology Symposium, Columbus OH (1998); National Academy meeting on the Future of Plant Biology, Lansing MI (1999); TIGR Genome meeting, Miami FL (1999); Biotechnology: Promises and Problems, The Hague (2000);DARPA Opportunities in AgBIotec Meeting (2000); AAAS Annual Meeting (2000); Thornton-Masa Lecture, Colorado State University (2000); Lemieux Lecture, University of Alberta (2000); International Biotechnology Congress, Berlin Germany (2000); Rothamstead Biomarket, Harpenden, England (2000); Plant development: Cell fate to Organ Formation, Capri, Italy (2000); American Chemical Society Annual meeting (2001); Kuhmo Symposium, Seoul Korea (2001); Annual meeting of American Botanical Society, Albuquerque NM (2001); Arabidopsis meeting, Seville (2002); Garnet Meeting, York (2002); Chilean Life Science Foundation, Santiago (2002); Leibnitz Kollegium, Postdam, Germany (2003); Riverside Symposium on Plant cell Biology, Riverside CA (2003); International Society of Plant Molecular Biology, Barcelona (2003); American Chemical Society meeting (2004); Biochemical Society Symposium, Glasgow (2004); Royal Society Meeting on Domestication, London (2004); Iowa Symposium on Bioenergy, Ames IA (2005); DOE Planning Meeting on Solar Energy, Washington, (2005); DOE-BER-BP meeting on Biomass Energy, Washington DC (2005); Arabidopsis Meeting, Madison WI (2005); BIO Meeting, Philadelphia PA (2005); Ten Years of Genome Sequencing, UC San Diego (2005); Int. Congress on Plant Microbe Interactions, Merida MX (2005); Interacademy Mtg on Energy Technologies, UC Berkeley (2006); Rick Symposium, UC Davis (2006); Symposium on Biofuels , University of Illinois (2006); 28th symposium on Biofuels and Biomass, Nashville (2006); EPSO meeting, Visegrad Hungary (2006); ASPB Annual meeting, Boston (2006); Gordon Conference, Maine NH (2006); Royal Society, London (2006); Canadian Genome Mtg, Vancouver (2007); Soc Computational Biology, San Diego (2007); Illinois Biofuels Mtg, Urbana IL (2007); Newsweek keynote, National Press Club, Washington DC (2007); Toxicology Society Annual Mtg, Seattle (2008); Material Research Society, San Francisco (2008); Washington International Renewable Energy Conference, Washington DC (2008); Environmental defense Fund Biofuels Symposium, Menlo Park (2008); La Jolla Spring Symposium, San Diego (2008); Genetics Society Mtg, San Diego (2008); Society for Industrial Microbiology (2008), FEBS mtg, Tampere Finland (2008); Indian Institute of technology Energy Symposium, Kharagpur India (2010); American Chemical Society Annual meeting, San Francisco (2010); Biophysical Society Annual meeting, San Francisco (2010); Kobe Symposium on Bioproducts, Kobe Japan (2010); BBEST Symposium, Campos do Jordao, Brazil (2011); International Botanical Symposium, Melbourne Australia (2011); BIO Leadership Summit (2012); NAS Symposium on Biofuels (2012); CERA Houston TX (2012); Gordon Conference on Cell Walls, Waterville ME (2012); STS Forum Kyoto (2012); JETRO Symposium, Tokyo (2012); Symposium on renewable Energy, IIT Kharagpur India (2013); SCOPE workshop on biofuels, Sao Paulo Brazil (2013); Oslo Energy Forum, Oslo Norway (2013); MIT Climate Symposium, MIT Boston MA (2013); Symposium on Biofuels, Bioproducts and Extractive Industries, Edmonton Alberta (2013); Symposium on the use of CO2, Tokyo (2013); World Science Forum, Rio de Janiero, (2013); SCOPE-UNESCO Conference on Sustainability of Biofuels, paris (2013); World Energy Future Summit, IRENA, Abu Dhabi (2014); APS Conference on Physics of Renewable Energy, Berkeley (2014); National Academy Conference on Industry Academic Interactions, Washington (2014); DOE Workshop on Future of Biofuels and Biomaterials, Washington (2014); Pacidic Northwest National Lab (EMSL), Richland WA (2015), Hebrew University, Tel Aviv (2015)

**PUBLICATIONS**

**Books**

Biochemistry and Molecular Biology of Membrane and Storage Lipids of Plants. N. Murata and C.R. Somerville, eds, American Soc. Plant Physiol., Rockville MD (1993)

Arabidopsis. E. Meyerowitz and C.R. Somerville, eds, Cold Spring Harbor Laboratory Press (1994)

The Arabidopsis Book, E. Meyerowitz and C.R. Somerville, founding editors 2002, Published online by American Society of Plant Biologists. A free ebook, currently 13 volumes, Continuously expanded by a series of editors. Chapters downloaded ~ 100,000 times per year. DOI 10.1199/tab.9999 http://www.arabidopsisbook.org

**Major Reports Coauthored**

Bioenergy & Sustainability. Policy Brief. Souza, G.M. et al. (2015) SCOPE, Paris ISSN 2411-6149

Task Force Report to Support the Evaluation of New Funding Constructs for Energy R&D in the DOE . Secretary of Energy Advisory Board (2014) 16pp

Report to the President on Agricultural Preparedness and the Agricultural Research Enterprise, Presidents Council of Advisors on Science and technology (2012). 52 pp

California’s Energy Future – The Potential for Biofuels. California Council on Science and Technology (2012). 51 pp

California’s Energy Future – the view to 2050. California Council on Science and technology (2011). 57 pp

Liquid Transportation Fuels from Coal and Biomass, National Academy of Sciences, National Academy of Engineering, National Research Council (2009). 370 pp

Breaking the Biological barriers to Cellulosic Ethanol. DOE/SC-0095 (2006). 212 pp

Basic Research Needs for Solar Energy Utilization. Report of the basic Energy Sciences Workshop on Solar Energy Utilization, April 18-21 (2005).

Applications of Molecular Biology for the Production of Plants for Biobased Products and Biofuels, US-EU Taskforce on Biotechnology Research, 2004

The National Plant Genome Initiative. National Research Council, NAS, 2002.

US-EU Consultative Forum on Biotechnology, US State Department, 2000

The Multinational Coordinated Arabidopsis 2010 Project. Functional Genomics and the Virtual Plant: A blueprint for understanding how plants are built and how to improve them. National Science Foundation, 2000

Realizing the Potential of Plant Genomics: From Model Systems to the Understanding of Diversity. National Science Foundation, 1999

Teaming with Life: Investing in Science to Understand and Use Americas Living Capital. Presidents Committee on Science and Technology Report, 1998

Designing an Agricultural Genome Program, National Research Council, 1998

Resource Sharing in Biomedical Research, Institute of Medicine, NAS, 1996

A Long-range Plan for the Multinational Coordinated Arabidopsis thaliana Genome Research Project, Progress Report Year 4 National Science Foundation 1994

A Long-range Plan for the Multinational Coordinated Arabidopsis thaliana Genome Research Project, Progress Report Year 3 National Science Foundation 1993

A Long-range Plan for the Multinational Coordinated Arabidopsis thaliana Genome Research Project, Progress Report Year 2, National Science Foundation 1992

A Long-range Plan for the Multinational Coordinated Arabidopsis thaliana Genome Research Project, Progress Report Year 1, National Science Foundation 1991

A Long-range Plan for the Multinational Coordinated Arabidopsis thaliana Genome Research Project, National Science Foundation 1990

**Research Publications**

1. Morgan, K., C.R. Somerville. Maximum entropy spectral analysis of monte carlo simulations of a closed finite human population. Can. Studies Populat. 3,1‑17 (1976).

2. Somerville, C.R., A. Ahmed. *rel*‑dependent methionine requirement in methionyl‑tRNA synthetase mutants of *E. coli*. J. Mol. Biol. 111,77‑81 (1977).

3. Somerville, C.R., A. Ahmed. Mutants of *E. coli* defective in the degradation of guanosine 5'‑triphosphate, 3'‑diphosphate (pppGpp). Molec. Gen. Genet. 169,315‑323 (1979).

4. Somerville, C.R., W.L. Ogren. A phosphoglycolate phosphatase deficient mutant of *Arabidopsis*. Nature 280,833‑836 (1979).

5. Somerville, C.R., W.L. Ogren. Photorespiration mutants of *Arabidopsis* *thaliana* deficient in serine:glyoxylate aminotransferase. Proc. Natl. Acad. Sci., USA 77,2684‑2687 (1980).

6. Somerville, C.R., W.L. Ogren. Defective photosynthesis in mutants of *Arabidopsis* deficient in leaf glutamate synthase activity. Nature 286,257‑259 (1980).

7. Somerville, C.R., S.C. Somerville, W.L. Ogren. Isolation of photosynthetically active protoplasts and chloroplasts from *Arabidopsis thaliana*. Plant Sci. Lett. 21,89‑96 (1981).

8. Somerville, C.R., W.L. Ogren. Photorespiration deficient mutants of *Arabidopsis thaliana* lacking mitochrondrial serine transhydroxymethylase activity. Plant Physiol. 67,666‑671 (1981).

9. Somerville, C.R., S.C. Somerville, W.L. Ogren. Genetic analysis of photorespiration. In: Proceedings of the Fifth International Congress on Photosynthesis (G. Akoyunoglou, ed.), Vol. VI, pp. 145‑152 (1982).

10. Somerville, C.R., W.L. Ogren. Mutants of *Arabidopsis* deficient in glycine decarboxylase activity. Biochem. J. 202,373‑380 (1982).

11. Somerville, C.R., W.L. Ogren. A mutant of *Arabidopsis* which lacks light activation of RuBP carboxylase. Plant Physiol. 70,381‑387 (1982).

12. Somerville, C.R., W.L. Ogren. Genetic modification of photorespiration. Trends Biochem. Sci. 7,171‑174 (1982).

13. Somerville, C.R., W.L. Ogren. Isolation of photorespiration mutants in *Arabidopsis thaliana*. In: Methods in Chloroplast Molecular Biology (M. Edelman, R.B. Hallick and N.H. Chua, eds.), Elsevier, pp. 129‑138 (1982).

14. Somerville, C.R. Genetic modification of photorespiration. Whats New Plant Physiol., 13,29‑32 (1982).

15. Somerville, S.C., C.R. Somerville. The effect of O2 and CO2 on photorespiratory flux determined from measurements of glycine accumulation in a mutant of *Arabidopsis*. J. Expt. Bot. 34,415‑424 (1983).

16. Somerville, C.R., S.C. Somerville. Cloning and expression of the *Rhodospirillum rubrum* ribulose bisphosphate carboxylase gene in *E. coli*. Molec. Gen. Genet., 193,214‑219 (1984).

17. Somerville, C., J. Fitchen, S. Somerville, L. McIntosh, F. Nargang. Enhancement of net photosynthesis by genetic manipulation of photorespiration and RuBP carboxylase/oxygenase. In: Advances in Gene Technology: Molecular Genetics of Plants and Animals, (F. Ahmad, K. Downey, J. Schultz and R. Voellmy, eds.) Academic Press, N.Y., pp. 295‑309 (1983).

18. Ogren, W.L., C.R. Somerville, R.J. Spreitzer, M.H. Spalding. Strategies to improve photosynthesis by induced mutation. In: Selection in Mutation Breeding, (A. Micke, ed.) International Atomic Energy Agency, Vienna, pp. 59‑66 (1984).

19. Nargang, F., L. McIntosh, C.R. Somerville. Nucleotide sequence of the ribulose bisphosphate carboxylase gene from *Rhodospirillum rubrum*. Molec. Gen. Genet. 193,220‑224 (1984).

20. Ogren, W.L., C.R. Somerville, S.C. Somerville, R.J. Spreitzer, M.H. Spalding and D.B. Jordan. Genetic analysis of photosynthetic carbon pathways in higher plants. In: Advances in Photosynthesis Research, (C. Sybesma, ed.) Martinus NIjhoff, The Hague, Vol. 3, pp. 429‑435 (1984).

21. McIntosh, L., J. Hirschberg, C.R. Somerville, J. Fitchen. Genetically altered chloroplast genes. In: Advances in Photosynthesis Research, (C. Sybesma, ed.) Martinus Nijhoff, The Hague, Vol. 4, pp. 483‑490 (1984).

22. Somerville, C.R. The analysis of photosynthetic carbon dioxide fixation and photorespiration by mutant analysis. In: Oxford Surveys of Plant Molecular and Cell Biology, (B.J. Miflin, ed.), Oxford University Press, Vol. 1, pp. 102‑133 (1984).

23. Somerville, C.R., S.C. Somerville. Les photosyntheses des plantes. La Recherche, 15,490‑501 (1984).

24. Somerville, C.R., S.C. Somerville. Regulation of photorespiration. In: The Biochemical Basis of Plant Breeding, (C.A. Neyra, ed.), CRC Press, Boca Raton, pp. 89‑131 (1985).

25. Somerville, S.C., C.R. Somerville. A mutant of *Arabidopsis* deficient in chloroplast dicarboxylate transport is missing an envelope protein. Plant Sci. Lett. 37:217‑220 (1985).

26. Browse, J., P. McCourt, C.R. Somerville. A mutant of *Arabidopsis* lacking a chloroplast‑specific lipid. Science, 227,763‑765 (1985).

27. Browse, J.A., C. Somerville, P. McCourt. Glycerolipid metabolism in leaves. New information from Arabidopsis mutants. In: Structure, Function and Metabolism of Plant Lipids. (P.A. Siegenthaler and W. Eichenberger, eds.), Elsevier, Amsterdam, pp. 101‑104 (1984).

28. Somerville, C.R., L. McIntosh, M. Gurevitz, J. Fitchen. Cloning and expression in *E. coli*. of the large subunit of RuBP carboxylase/oxygenase. Methods in Enzymology, 118,419‑433 (1986).

29. McIntosh, L., J.G. Williams, C. Somerville, M. Gurevitz. Genetic modification of photosynthesis. In: Molecular Form and Function of the Plant Genome. Fourth NATO Conference on Plant Mol. Biol., (L. van Vloten Dotten, ed.) Plenum Press, NY, pp. 335‑346 (1985).

30. Caspar, T.C., S.C. Huber, C.R. Somerville. Effects on growth, photosynthesis and respiration in a starchless mutant of *Arabidopsis* deficient in chloroplast phosphoglucomutase. Plant Physiol. 79,11‑17 (1985).

31. McCourt, P., J. Browse, J. Watson, C.J. Arntzen, C.R. Somerville. Analysis of photosynthetic antenna function in a mutant of *Arabidopsis thaliana* lacking *trans*‑hexadecenoic acid. Plant Physiol. 78,853‑858 (1985).

32. Artus, N.N., S.C. Somerville and C.R. Somerville. The biochemistry and cell biology of photorespiration. CRC Critical Reviews in Plant Sciences 4,121‑147 (1986).

33. Gurevitz, M., C.R. Somerville, L. McIntosh. Pathway of assembly of ribulose bisphosphate carboxylase/oxygenase from *Anabaena* 7120 expressed in *E. coli*. Proc. Natl. Acad. Sci. USA. 82,6546‑6550 (1985).

34. Estelle, M.E., J. Hanks, L. McIntosh, C.R. Somerville. Site‑specific mutagenesis of ribulose 1,5‑bisphoshate carboxylase/oxygenase: Evidence that carbamate formation at lys‑191 is required for catalytic activity. J. Biol. Chem. 260,9523‑9526 (1985).

35. Martinez, J., S.C. Somerville, C.R. Somerville. A possible case of position‑effect variegation in *Arabidopsis thaliana*. In: Plant Genetics, UCLA Symp. Molec. Cell. Biol., (M. Freeling, ed.), Alan Liss Inc., N.Y., pp 828‑829 (1985).

36. Browse, J., P.J. McCourt, C.R. Somerville. Overall fatty‑acid composition of leaf lipids determined after combined digestion and fatty acid methyl ester formation from fresh tissue. Anal. Biochem. 152,141‑146 (1986).

37. Somerville, C.R., P. McCourt, T. Caspar, M. Estelle, K. Keith. *Arabidopsis thaliana* as a model system for plant genetics and molecular biology. In: Plant Genetics, UCLA Symp. Molec. Cell Biol., (M. Freeling, ed.) Alan Liss Inc., N.Y., pp. 651‑660 (1985).

38. Browse, J., N. Warwick, C.R. Somerville, C.R. Slack. Fluxes through the prokaryotic and eukaryotic pathways of lipid synthesis in the 16:3 plant *Arabidopsis thaliana*. Biochem. J. 235,25‑31 (1986).

39. Somerville, C.R. Analysis of photosynthesis with mutants of higher plants and algae. Annu. Rev. Plant Physiol. 37,467‑507 (1986).

40. Estelle, M.A., C.R. Somerville. The mutants of *Arabidopsis*. Trends in Genetics, 2,89‑93 (1986).

41. Haughn, G.W. and C.R. Somerville. Selection for herbicide resistance at the whole plant level. In:Applications of Biotechnology to Agricultural Chemistry, (H. Le Baron, R.O. Mumma, R.C. Honeycutt, J.H. Duesing, eds.) American Chemical Society, pp. 98‑108 (1987).

42. McCourt, P., C.R. Somerville. The use of mutants for metabolic studies in plants. In: The Biochemistry of Plants: A Comprehensive Treatise, (D. Davies, ed.), Academic Press, NY, Vol. 13, pp. 33‑64 (1987).

43. Browse, J., P. McCourt, C.R. Somerville. A mutant of *Arabidopsis* deficient in C18:3 and C16:3 leaf lipids. Plant Physiol. 81,859‑864 (1986).

44. Haughn, G.W., C.R. Somerville. Sulfonylurea resistant mutants of *Arabidopsis*. Molec. Gen. Genet. 204,430‑434 (1986).

45. Martinez, J., M.A. Estelle, C.R. Somerville. A highly repeated DNA sequence in *Arabidopsis*. Molec. Gen. Genet. 204,417‑423 (1986).

46. Estelle, M.A., C.R. Somerville. Auxin‑resistant mutants of *Arabidopsis*. Molec. Gen. Genet. 206,200‑206 (1987).

47. Zhang, H., C.R. Somerville. Transfer of the transposable element Mu1 into *Arabidopsis*. Plant Sci. 48,165‑173 (1987).

48. Somerville, C.R., P. McCourt, L. Kunst, J. Browse. Mutants of *Arabidopsis* deficient in fatty acid desaturation. In: Plant Lipids: Biochemistry Structure and Function. (P.K. Stumpf, J.B. Mudd, W.D. Nes, eds.), Plenum Press, NY, pp. 683‑688 (1987).

49. McCourt, P., L. Kunst, J. Browse, C.R. Somerville. The effects of reduced amounts of lipid unsaturation on chloroplast ultrastructure and photosynthesis in a mutant of *Arabidopsis*. Plant Physiol. 84,353‑361 (1987).

50. Somerville, C.R. Future prospects for genetic manipulation of Rubisco. Phil. Trans. Royal Soc. Lond. Series B. 313,459‑469 (1986).

51. Martinez‑Zapater, J., Finkelstein, R. and C.R. Somerville. Introduction of the P‑element from *Drosophila* into tobacco. In: Plant Gene Systems and their Biology. UCLA Symposium on Molecular and Cellular Biology, New Series, Vol. 62, (Eds. L. McIntosh and J. Key), Alan R. Liss Inc., NY, pp 314‑320 (1987).

52. Browse, J., Kunst, L., McCourt, P. and C.R. Somerville. Genetic manipulation of membrane lipid composition in *Arabidopsis*. In: Structure and Function of Plant Membranes, UCLA Symposium on Molecular and Cellular Biology, (Eds. H. Sze and C. Leaver), Alan R. Liss Inc., NY, (1987).

53. Haughn G., J. Smith, B. Mazur, C.R. Somerville. An *Arabidopsis* acetolactate synthase gene in tobacco confers resistance to sulfonylurea herbicides, Molec. Gen. Genet. 211,266‑271 (1988).

54. Somerville, C.R., J. Browse. Genetic manipulation of the fatty acid composition of plant lipids. Adv. Phytochem. 22,19-45 (1988).

55. Volokita, M., C.R. Somerville. The primary structure of spinach glycolate oxidase deduced from the DNA sequence of a cDNA clone, J. Biol. Chem., 262,15825‑15828 (1987).

56. Haughn, G.H., C.R. Somerville. Genetic control of morphogenesis in *Arabidopsis*. Devel. Genet. 9,73-89 (1988).

57. Finkelstein, R., M. Estelle, J. Martinez‑Zapater, C.R. Somerville. *Arabidopsis* as a tool for the identification of genes involved in plant development. In: Plant Gene Research 5: Temporal and Spatial Regulation of Plant Genes, (eds. R. Goldberg, D.P. Venna), Springer‑Verlag, N.Y., pp 1-25 (1988).

58. Moffatt, B. and C.R. Somerville. Positive selection for male‑sterile mutants of *Arabidopsis* lacking adenine phosphoribosyl transferase activity, Plant Physiol. 86,1150‑1154 (1988).

59. Kunst, L., J. Browse, C. R. Somerville. Altered regulation of lipid biosynthesis in a mutant of *Arabidopsis* deficient in chloroplast glycerol phosphate acyltranferase activity. Proc. Natl. Acad. Sci. USA 85,4143-4147 (1988).

60. Browse, J., C. R. Somerville, C. R. Slack. Changes in lipid composition during protoplast isolation. Plant Sci. 56,15-20 (1988)

61. Lin, T. P., T. Caspar, C. R. Somerville, J. Preiss. Isolation and characterization of a starchless mutant of *Arabidopsis thaliana* lacking ADP glucose pyrophosphorylase activity. Plant Physiol. 86,1131‑1135 (1988).

62. Artus, N. N., C. R. Somerville. A mutant of *Arabidopsis* that exhibits chlorosis in air but not in atmospheres enriched in CO2. Plant Physiol. 87,83‑89 (1988).

63. Zhang, H., C. R. Somerville. The primary structure of chicken liver cytochrome b5 deduced from the DNA sequence of a cDNA clone. Arch. Biochem. Biophys. 264,343-348 (1988).

64. Wu, C., T. Caspar, J. Browse, S. Lindquist, C.R. Somerville. Characterization of an HSP70 cognate gene family in *Arabidopsis*. Plant Physiol. 88,731-740 (1988).

65. Bleecker, A.B., M. Estelle, C. Somerville, H. Kende. A dominant mutation confers insensitivity to ethylene in *Arabidopsis thaliana*. Science 241,1086-1089 (1988).

66. Lin, T.P., T. Caspar, C.R. Somerville, J. Preiss. A starch deficient mutant of *Arabidopsis thaliana* with low ADP glucose pyrophosphorylase activity lacks one of the two subunits of the enzyme. Plant Physiol. 88,1175-1181 (1988).

67. Browse, J., L. Kunst, S. Anderson, S. Hugly, C.R. Somerville. A mutant of *Arabidopsis* deficient in the chloroplast 16:1/18:1 desaturase. Plant Physiol. 90,522-529 (1989).

68. Martinez-Zapater, J.M., R. Finkelstein, C.R. Somerville. *Drosophila* P-element transcripts are incorrectly processed in tobacco. Plant Mol. Biol. 11,601-607 (1988).

69. Somerville, C.R. The biochemical basis for plant improvement. IN: Advanced Plant Biochemistry and Molecular Biology, (D.H. Terpin and D. Dennis, eds.), Pitman, pp 498-511 (1990).

70. Finkelstein, R. C.R. Somerville. Abscisic acid and high osmoticum promote accumulation of long-chain fatty acids in developing embryos of *Brassica napus*. Plant Sci. 61,213-217 (1989).

71. Kunst, L., J. Browse, C.R. Somerville. Altered chloroplast ultrastructure in a mutant of *Arabidopsis* deficient in plastid glycerol-3-phosphate acyltransferase activity. Plant Physiol. 90,846-853 (1989).

72. Kunst, L., J. Browse, C.R. Somerville. A mutant of *Arabidopsis* deficient in desaturation of palmitic acid in leaf lipids. Plant Physiol. 90,943-947 (1989).

73. Hugly, S., L. Kunst, J. Browse, C.R. Somerville. Enhanced thermal tolerance and altered chloroplast ultrastructure in a mutant of *Arabidopsis* deficient in lipid desaturation. Plant Physiol. 90,1134-1142 (1989).

74. Bernhard, W., C.R. Somerville. Coidentity of putative amylase inhibitors from barley and millet with phospholipid transfer proteins inferred from amino acid sequence homology. Arch. Biochem. Biophys. 269,695-697 (1989).

75. Caspar, T., T.P. Lin, J. Monroe, W. Bernhard, S. Spilatro, J. Preiss, C.R. Somerville. Altered regulation of β-amylase activity in mutants of *Arabidopsis* with lesions in starch metabolism. Proc. Natl. Acad. Sci. USA 86,5830-5833 (1989).

76. Kunst, L., J. Browse, C.R. Somerville. Enhanced thermal tolerance in a mutant of *Arabidopsis* deficient in palmitic acid unsaturation. Plant Physiol. 91,401-408 (1989).

77. Haughn, G.W., C.R. Somerville. A mutation causing imidazolinone resistance maps to the *csr1* locus of *Arabidopsis thaliana*. Plant Physiol. 92,1081-1085 (1990).

78. Martinez, J., C.R. Somerville. Effects of light quality and vernalization on late-flowering mutants of *Arabidopsis thaliana*. Plant Physiol. 92,770-776 (1990).

79. Somerville, C.R. *Arabidopsis* Blooms. Plant Cell 1,1131-1135 (1989).

80. Schiefelbein, J.W., C.R. Somerville. Mutations affecting root hair development in *Arabidopsis thaliana*. Plant Cell 2,235-243 (1990).

81. Hugly, S., P. McCourt, J. Browse, G.W. Patterson, C.R. Somerville. A chilling sensitive mutant of *Arabidopsis* with altered steryl-ester metabolism. Plant Physiol. 93,1053-1062 (1990).

82. Bernhard, W.R., S. Thoma, J. Botella, C.R. Somerville. Isolation of a cDNA clone for spinach lipid transfer protein and evidence that the protein is synthesized by the secretory pathway. Plant Physiol., 95,164-170 (1991).

83. Zhang. H., C.R. Somerville. Soluble and membrane-bound forms of cytochrome b5 are the products of a single gene in chicken. Arch. Biochem. Biophys. 280,412-415 (1990).

84. Lemieux, B. M. Miquel, C.R. Somerville, J. Browse. Mutants of *Arabidopsis* with alterations in seed lipid fatty acid composition. Theor. Appl. Genet., 80,234-240 (1990).

85. Finkelstein, R., C.R. Somerville. Three classes of ABA-insensitive mutants of *Arabidopsis* define genes which control overlapping subsets of ABA responses. Plant Physiol. 94,1172-1179 (1990).

86. Ohlrogge J., J. Browse, C.R. Somerville. The genetics of plant lipids. Biochim. Biophys. Acta, 1082,1-26 (1991).

87. Moffatt B., C.R. Somerville. Purification of adenine phosphoribosyltransferase from *Brassica juncea*. Arch. Biochem. Biophys., 283,484-490 (1990).

88. Grill, E., C.R. Somerville. Chromosome walking in *Arabidopsis* using yeast artificial chromosomes. Molec. Gen. Genet., 226,484-490 (1991).

89. Somerville, C.R. How is the amount of membrane regulated? In Molecular approaches to compartmentation and metabolic regulation, (A.H.C. Hunag and L. Taiz, Eds.) American Society Plant Physiologists, 151-159 (1991).

90. Shanklin, J., C.R. Somerville. Stearoyl-ACP desaturase from higher plants is structurally unrelated to the animal homolog. Proc. Natl. Acad. Sci. USA 88,2510-2514 (1991).

91. Caspar, T.C., T.P. Lin, G. Kakefuda, L. Benbow, J. Preiss, C.R. Somerville CR. Mutants of *Arabidopsis* deficient in starch degradation. Plant Physiol. 95,1181-1188 (1991).

92. Kearns, E.V., S. Hugly, C.R. Somerville. The role of cytochrome b5 in Δ12 desaturation of oleic acid by microsomes of safflower (*Carthamus tinctorius* L.). Arch. Biochem. Biophys., 284,431-436 (1991)

93. Somerville, C.R., Browse, J. Plant Lipids: Mutants, metabolism and membranes. Science 252,80-87 (1991).

94. Browse, J., Somerville, C.R. Glycerolipid Synthesis: Biochemistry and Regulation. Ann. Rev. Plant Physiol. Mol. Biol. 42,467-506 (1991).

95. Somerville, C.R. Prospects for genetic modification of the composition of edible oils from higher plants. Food Biotech. 5,217-229 (1991).

96. Hugly, S., Somerville, C.R. A role for membrane lipid polyunsaturation in chloroplast biogenesis at low temperature. Plant Physiol. 99,197-202 (1992).

97. Post-Beittenmiller, D., Ohlrogge, J., Somerville, C.R. Regulation of plant lipid biosynthesis: An example of developmental regulation superimposed on a ubiquitous pathway. In Control of Plant Gene Expression, Ed. D.P. Verma, Telford Press (1992).

98. Poirier, Y., Thoma, S., Somerville, C.R., Schiefelbein, J. Isolation and characterization of a phosphate-deficient mutant of *Arabidopsis*. Plant Physiol., 97, 1087-1093 (1991).

99. Hwang, I, Kohchi, T., Hauge, B., Goodman, H., Schmidt, R., Cnops, G., Dean, C., Gibson, S., Iba, K., Lemieux, B., Arondel, V., Danhoff, L., Somerville, C.R. Identification and map position of YAC clones comprising one third of the *Arabidopsis* genome. Plant J. 1,367-374 (1991)

100. Shanklin, J., Mullins, C., Somerville, C.R. Sequence of a complementary DNA from *Cucumis sativus* L. encoding the stearoyl-acyl carrier protein desaturase. Plant Physiol. 97, 467-468 (1991)

101. Hugly, S., Kunst, L., Somerville, C.R. Linkage relationships of mutations affecting fatty acid composition in *Arabidopsis*. J. Hered. 82:484-489 (1991).

102. Poirier, Y.P., Dennis, D.E., Klomparens, K., Somerville, C.R. Production of polyhydroxybutyrate, a biodegradable thermoplastic, in higher plants. Science 256,520-523 (1992)

103. Wilson, R.N., Somerville, C.R. Gibberellin is required for flowering but not for senescence in Arabidopsis thaliana under short days. Plant Physiol. 100,403-408 (1992)

104. Schneider, G., Lindqvist, Y., Shanklin, J., Somerville, C.R. Preliminary crystallographic data for stearoyl acyl carrier protein desaturase from castor seed. J. Mol. Biol. 225,561-564 (1992).

105. Johnson, T.C., Schneider, J.C., Somerville, C.R. Nucleotide sequence of acyl-ACP:glycerol-3-phosphate acyltransferase from cucumber. Plant Physiol. 99,771-772 (1992).

106. Martinez-Zapater, J.M., Gil-Vinuelas, P., Capel, J., Somerville, C.R. Mutations at the *Arabidopsis chm* locus promote rearrangements of the mitochondrial genome. Plant Cell 4,889-899 (1992)

107. Benning, C., C.R. Somerville. Isolation and genetic complementation of a sulfolipid-deficient mutant of *Rhodobacter sphaeroides*. J. Bacteriol. 174,2352-2360 (1992).

108. Kearns, E.V., P. Keck, C.R. Somerville. Primary structure of cytochrome b5 from cauliflower (*Brassica oleracea* L.) deduced from peptide and cDNA sequences. Plant Physiol. 99,1254-1257 (1992).

109. van de Loo, F., B. Fox, C.R. Somerville. Unusual fatty acids. In, Plant Lipids, ed., T. Moore, CRC Press, Boca Raton pp. 91-126 (1993)

110. Benning, C. and C.R. Somerville. Identification of an operon involved in sulfolipid biosynthesis in *Rhodobacter sphaeroides*. J. Bacteriol., 174,6479-6487 (1992)

111. Poirier, Y., D. Dennis, K. Klomparens, C. Nawrath, C.R. Somerville. Perspectives on the production of polyhydroxyalkanoates in plants. FEMS Microbiol. Rev. 103,237-246 (1992)

112. Arondel, V., B. Lemieux, I. Hwang, S. Gibson, H. Goodman, C.R. Somerville. Map-based cloning of a gene controlling omega-3 fatty acid desaturation in *Arabidopsis*. Science 258,1353-1355 (1992)

113. Gibson, S., and C.R. Somerville. Chromosome walking in *Arabidopsis* using yeast artificial chromosomes. In Methods in Arabidopsis Research, Eds. C. Koncz, N.H. Chua, J. Schell, World Scientific, River Edge, NJ pp 119-143 (1992)

114. Chapple, C.S., T. Vogt, B.E. Ellis, C.R. Somerville. Altered lignin composition and transparency to ultraviolet irradiation in a mutant of *Arabidopsis* defective in the general phenylpropanoid pathway. Plant Cell 4,1413-1424 (1992)

115. Fox, B.G., J. Shanklin, C. Somerville, E. Münck. Stearoyl acyl carrier protein Δ9 desaturase from *Ricinus communis* is a diiron-oxo protein. Proc. Natl. Acad. Sci. USA 90:2486-2490 (1993)

116. Benning, C.B., J.T. Beatty, R.C. Prince, C.R. Somerville. The sulfolipid sulfoquinovosyldiacylglycerol is not required for photosynthetic electron transport in *Rhodobacter sphaeroides*, but enhances growth under phosphate-limitation. Proc. Natl. Acad. Sci. USA 90:1561-1565 (1993)

117. Arondel, V., C. Benning, C.R. Somerville. Isolation and functional expression in *E. coli* of a gene encoding phosphatidylethanolamine methyltransferase (E.C. 2.1.1.17) from *Rhodobacter sphaeroides*. J. Biol. Chem. 268,16002-16008 (1993)

118. Somerville, C.R. New opportunities to dissect and manipulate plant processes. Phil. Trans. R. Soc. Lond. B. 339, 199-206 (1993)

119. Poirier, Y., D.E. Dennis, C. Nawrath, C.R. Somerville. Polyhydroxyalkanoate production in bacteria and plants: Progress toward biologically produced biodegradable thermoplastics. Advanced Materials 5,30-37 (1993)

120. Thoma, S., Y. Kaneko, C.R. Somerville. The non-specific lipid transfer protein from *Arabidopsis* is a cell wall protein. Plant J., 3,427-437 (1993)

121. Kishore, G., C.R. Somerville. Genetic engineering of commercially useful biosynthetic pathways in transgenic plants. Current Opinion Biotechnol. 4,152-159 (1993)

122. Gibson, S., C.R. Somerville. Isolating plant genes. Trends Biotechnol. 11,306-313 (1993)

123. Reiter, W.D., C. Chapple, C.R. Somerville. Altered Growth and Development in a Fucose-Deficient Cell Wall Mutant of *Arabidopsis.*  Science 261,1032-1035 (1993)

124. Iba, K., Gibson, S., Nishiuchi, T., Fuse, T., Nishimura, M., Arondel, V., Hugly, S., Somerville, C.R., A gene encoding a chloroplast omega-3 fatty acid desaturase complements the fatty acid composition and chloroplast copy number defects of the *fad7* mutant of *Arabidopsis thaliana*. J. Biol. Chem. 268,24099-24105 (1993)

125. Somerville, C.R. Production of Industrial materials in Transgenic Plants. Proc. Roy. Soc. Lond. B 342, 251-257 (1993)

126. Thoma S, Hecht U, Kippers A, Botella J, De Vries S, Somerville CR. Tissue-specific expression of a gene encoding a cell-wall-localized lipid transfer protein from *Arabidopsis*. Plant Physiol. 105,35-45 (1994)

127. Nawrath, C., Poirier, Y., Somerville, C.R. (1994) Plastid targeting of the enzymes required for the production of PHB in plants. In, Biodegradable Plastics and Polymers, eds Y. Doi and K. Fukuda, Elsevier, New York, p 136-149.

128. Gibson, S., Falcone, D., Browse, J., Somerville, C.R. Use of transgenic plants and mutants to study the regulation and function of lipid composition. Plant Cell Environ., 17, 627-637 (1994)

129. van de Loo, F., Somerville, C.R. (1994) A plastid omega-3 desaturase from castor (*Ricinus communis* L.). Plant Physiol. 105,443-444

130. Artus, N.N., Naito, S., Somerville, C.R. (1994) A mutant of *Arabidopsis thaliana* that defines a new locus for glycine decarboxylation. Plant Cell Physiol. 35:879-885

131. Falcone, D., Gibson, S., Lemieux, B., Somerville, C.R. (1994) Identification of a gene that complements an Arabidopsis mutant deficient in chloroplast ω-6 desaturase activity. Plant Physiol.106,1453-1459

132. Nawrath, C., Poirier, Y., Somerville, C.R. (1994) Targeting of the Polyhydroxybutyrate Biosynthetic Pathway to the Plastids of *Arabidopsis thaliana* Results in High-Levels of Polymer Accumulation. Proc. Natl. Acad. Sci. USA 91,12760-12764

133. Gibson, S., Arondel, V., Iba, K., Somerville, C.R. (1994) Temperature Regulated Expression of a Gene Encoding a Chloroplast omega‑3 Desaturase from *Arabidopsis thaliana*. Plant Physiol. 106,1615-1621

134. McConn, M., Hugly, S., Browse, J., Somerville, C.R. (1994) A mutation at the *fad8* locus of *Arabidopsis* identifies a second chloroplast omega‑3 desaturase. Plant Physiol.106,1609-1614

135. Newman, T., de Bruijn, F.J., Green, P., Keegstra, K., Kende, H., McIntosh, L., Ohlrogge, J., Raikhel, N., Somerville, S., Thomashow, M., Retzel, E., Somerville, C.R. (1994) Genes Galore: A Summary of the Methods for Accessing the Results from Large-Scale Partial Sequencing of Anonymous Arabidopsis cDNA Clones. Plant Physiol.106,1241-1255

136. Browse, J., Somerville, C.R. (1994) Glycerolipids. In Arabidopsis. Eds E. Meyerowitz and C.R. Somerville, Cold Spring Harbor Press, Cold Spring harbor NY,pp 881-913

137. Poirier, Y., Schechtman, L.A., Satkowski, M.M., Noda, I., C.R. Somerville(1995) Synthesis of high molecular weight poly([R]-(-)-3-hydroxybutyrate) in transgenic *Arabidopsis thaliana*. Int. J. Biol. Macromol. 17,7-12

138. Schneider, J.C., Nielsen, E., Somerville, C. (1995) A chilling-sensitive mutant of Arabidopsis is deficient in chloroplast protein accumulation at low temperature. Plant cell Environ., 18,23-32

139. Poirier, Y., Nawrath, C., Somerville, C.R. (1995) Production of polyhydroxyalkanoates, a family of biodegradable plastics and elastomers in bacteria and plants. Biotechnology 13,142-150

140. Schneider, C., Hugly, S., Somerville, C.R. (1994) Chilling sensitive mutants of Arabidopsis. Weeds World, http://weeds.mgh.harvard.edu/weedsworld/Vol1/ schneider.html

141. Nawrath, C.N., Poirier, Y., Somerville, C.R. (1995) Plant polymers for biodegradable plastics: Cellulose, starch and polyhydroxyalkanoates. Molec. Breed. 1,105-122.

142. van de Loo, F.N., Turner, S., Somerville, C.R. (1995) Expressed sequence tags from developing castor (*Ricinus communis* L.) seeds. Plant Physiol. 108,1141-1150

143. van de Loo, F.N., Broun, P., Turner, S., Somerville, C.R. (1995) An oleate 12-hydroxylase from castor (*Ricinus communis* L.) is a fatty acyl desaturase homolog. Proc. Natl. Acad. Sci. USA 92,6743-6747

144. Wilson, R. Somerville, C.R. (1995) Phenotypic suppression of the gibberellin-insensitive (*gai*) mutant of Arabidopsis. Plant Physiol. 108,495-502

145. Somerville, C.R. (1995) Direct tests of the role of membrane lipid composition in low-temperature induced photoinhibition and chilling sensitivity in plants and cyanobacteria. Proc. Natl. Acad. Sci. USA 92,6215-6218

146. Somerville, C.R. (1996) The physical map of an Arabidopsis chromosome. Trends Plant Sci 1,2

147. Somerville, C.R. (1995) Harnessing Arabidopsis to the Plow. Proceedings of FAO/IEAE Symposium on the Use of Induced Mutations and Molecular techniques for Crop Improvement, Vienna pp 401-410

148. Somerville, C.R. and Browse, J. (1996) Dissecting desaturation: Plants prove advantageous. Trends Cell Biol. 6, 148-153

149. Meyer, K., Cusumano, J., Somerville, C.R., Chapple, C. (1996) Ferulate 5-hydroxylase from Arabidopsis thaliana defines a new family of cytochrome P450-dependent monoxygenases. Proc. Natl. Acad. Sci. USA 93,6896-6874

150. Rounsley, S.D., Glodek, A., Sutton, G., Adams, M.D., Somerville, C.R., Venter, J.C., Kerlavage, A.R. (1996) The construction of Arabidopsis EST assemblies: A new resource to facilitate gene identification. Plant Physiol. 112,1177-1183

151. Somerville, S.C., Somerville, C.R. (1996) Arabidopsis at 7: Still growing like a weed. Plant Cell 11,1917-1933

152. Broun, P., Somerville, C.R. (1997) Accumulation of ricinoleic, lesquerolic and densipolic acids in seeds of transgenic Arabidopsis plants that express a fatty acyl hydroxylase cdna from castor bean (*Ricinus communis* L). Plant Physiol., 113,933-942.

153. Reiser, S.R., Somerville, C.R. (1997) Isolation of mutants of *Acinetobacter calcoaceticus* deficient in wax ester synthesis and complemention of one mutation with a gene encoding a fatty acyl-CoA reductase. J. Bacteriol., 179,2969-2975

154. Cutler, S., Somerville, C.R. (1997) Cellulose synthase: Cloning by in silico. Curr. Biol. 7,R108-R111

155. Somerville, C.R., Flanders, D., Cherry, J.M. (1997) Plant biology in the post-Gutenberg era: evereything you wanted to know and more on the world wide web. Plant Physiol., 113,1015-1022

156. Turner, S.R., Somerville, C.R. (1997) Collapsed xylem phenotype of Arabidopsis identifies mutants deficient in cellulose deposition in the secondary cell wall. Plant Cell 9,689-701

157. Reiter, W.D., Chapple, C.C., Somerville, C.R. (1997) Mutants of *Arabidopsis thaliana* with altered cell wall polysaccharide composition. Plant J., 12,335-345

158. Ogas, J., Cheng, J.C., Sung, R., Somerville, C.R. (1997) Gibberellin mediates the transition from embryonic to vegetative cell identity during germination of the Arabidopsis *pickle* mutant. Science 277,91-94

159. Zhang, J., Somerville, C.R. (1997) Suspensor-derived polyembryony caused by altered expression of valyl-trna synthetase in the *twn2* mutant of Arabidopsis. Proc. Natl. Acad. Sci. USA 94,7349-7355

160. Broun, P., Boddupalli, S., Somerville, C.R. (1998) A bifunctional oleate 12-hydroxylase : desaturase from *Lesquerella fendleri*., Plant J. 13,201-210

161. Rhee, S.Y., Somerville, C.R. (1998) Tetrad pollen formation in Arabidopsis quartet mutants is asociated with persistence of pectic polysaccharides of the pollen mother cell. Plant J 15,79-88.

162. Broun,P., Shanklin, J., Whittle, E., Somerville, C.R. (1998) Catalytic plasticity of fatty acid modification enzymes underlying chemical diversity of plant fatty acids. Science, 282,1315-1317.

163. Taylor, N.G., Scheible, W.R., Cutler, S., Hoyland, J., Somerville, C.R. and Turner, S.R. (1999) The *irregular xylem 3* locus of Arabidopsis encodes a cellulose synthase gene required for secondary cell wall synthesis. Plant Cell 11,769-779.

164. Broun, P., Gettner, S., Somervlle (1999) Genetic Engineering of Plant Lipids. Annu. Rev. Nutr., 19,197-216

165. Somerville, C.R. and Somerville, S.C. (1999) Plant Functional Genomics, Science 285,380-383

166. Ogas, J., Kaufmann, S., Henderson, J. and Somerville, C.R. (1999) PICKLE is a CHD3 chromatin remodeling factor that regulates the transition from embryonic to vegetative development in Arabidopsis. Proc. Natl. Acad. Sci. USA 96,13839-13844

167. Lin, X., Kaul, S., Rounsley, S., Shea, T.P., Benito, M-I., Town, C. D., Fujii, C. Y., Mason, T., Bowman, C. L., Barnstead, M., Feldblyum, T., Buell, C. R., Ketchum, K. A., Ronning, C. M., Koo, H., Moffat, K., Cronin, L., Shen, M., Pai, G., Van Aken, S., Umayam, L., Tallon, L., Gill, J., Adams, M.D., Carrera, A. J., Creasy, T. H., Goodman, H. M., Somerville, C. R., Copenhaver, G.P., Preuss, D., Nierman, W. C., White, O., Eisen, J. A., Salzberg, S., Fraser, C. M., and Venter, J. C. (1999) Sequence and Analysis of Chromosome 2 of the plant *Arabidopsis thaliana*. Nature, 402,761-768.

168. Scheible, W.R., Richmond, T., Wilson, I. and Somerville, C.R. (1999) Arabidopsis Genetics and Functional Genomics in the Post-Genome Era. In Advances in Photosynthesis - Regulatory Aspects of Photosynthesis, vol.11, eds E.M. Aro and B. Andersson, Kluwer Academic Publishers, in press

169. Somerville, C.R. (2000) The 20th century trajectory of plant biology. Cell 100,13-25

170. Cutler,S.R.,Ehrhardt, D.W., Griffitts, J.S., and Somerville, C.R. (2000) Random GFP::cDNA fusions enable visualization of subcellular structures in cells of A*rabidopsis* at a high frequency. Proc. Natl. Acad. Sci. USA 97,3718-3723

171. Richmond, T., and Somerville, C.R. (2000) The cellulose synthase superfamily. Plant Physiol. 124, 495-498.

172. Somerville, C.R., Browse, J., Jaworski, J.C., Ohlrogge, J. (2000) Lipids in Biochemistry and Molecular Biology of Plants, American society of Plant Physiologists, pp 456-526

173. Huala, E., Dickerman, A., Garcia-Hernandez, M., Weems, D., Reiser, L., LaFond, F., Hanley, D., Kiphart, D., Zhuang, M., Huang, W., Mueller, L., Bhattacharyya, D., Bhaya, D., Sobral, B., Beavis, B., Meinke, D., Town, C., Somerville, C.R., and Rhee, S.Y. (2001) The Arabidopsis Information Resource (TAIR): A comprehensive database and web-based information retrieval, analysis, and visualization system for a model plant. Nucleic Acids Res. 29:102-5

174. The Arabidopsis Genome Initiative (2000) Analysis of the genome sequence of the flowering plant *Arabidopsis thaliana.* Nature 408, 796-815.

175. Chory J, Ecker JR, Briggs S, Caboche M, Coruzzi GM, Cook D, Dangl J, Grant S, Guerinot ML, Henikoff S, Martienssen R, Okada K, Raikhel NV, Somerville CR, and Weigel D (2000) National Science Foundation‑Sponsored Workshop Report: "The 2010 Project" Functional genomics and the virtual plant. A blueprint for understanding how plants are built and how to improve them. Plant Physiol. 123: 423‑426

176. Somerville, CR (2000) The Genetically Modified Organism Conflict. Plant Physiol. 123: 1201‑1202.

177. Somerville, C.R. and Dangl, J. (2000) Plant Biology in 2010. Science 290: 2077‑2078.

178. Somerville, C.R. and Bonetta, D. (2001) Plants as factories for technical materials. Plant Physiol., 125: 168‑171

179. Somerville, C.R. (2001) An early Arabidopsis demonstration. Resolving a few issues concerning photorespiration. Plant Physiol., 125: 20‑24.

180. Lukowitz, W., Nickle, T.C., Meinke, D.W., Last, R.L., Conklin, P.L., Somerville, C.R. (2001) Arabidopsis *cyt1* mutants are deficient in a mannose-1-phosphate guanosyltransferase and point to a requirement of n-linked glycosylation for cellulose biosynthesis. Proc. Natl. Acad. Sci. USA 98,2262-2267.

181. Richmond, T., and Somerville, C.R (2001) Integrative approaches to determining Csl function. Plant Mol. Biol. 47,131-143.

182. Gillmor, C.S. Kovaleva, V., Somerville, C.R and Raikhel, N.V. (2001) The *Arabidopsis* mutant *vacuoleless1* links vacuole formation and embryo morphogenesis. Develop. Cell 1,303-310.

183. Somerville, C.R. and Briscoe, J. (2001) Genetic engineering and water. Science, 292,2217

184. Broun, P. and Somerville, C.R. (2001) Progress in plant metabolic engineering. Proc. Natl. Acad. Sci. USA 98,8925-8927

185. Scheible, W.R., Eshed, R., Richmond, T., Delmer, D., Somerville, C.R. (2001) Modifications of cellulose synthase confer resistance to isoxaben and thiazolidinone herbicides in the Arabidopsis ixr1 mutants. Proc. Natl. Acad. Sci. USA 98,10079-10084

186. Gillmor, C.S., Poindexter, P., Lorieau, J., Sujino, K., Palcic, M., Somerville, C.R. (2002) The α-glucosidase I encoded by the *KNOPF* gene is required for cellulose biosynthesis and embryo morphogenesis in Arabidopsis. J. Cell Biol., 156,1003-1013

187. Hamburger, D., Rezzonico, E., MacDonald-Comber Petétot, J., Somerville, C. and Poirier, Y (2002) Identification and characterization of the Arabidopsis *PHO1* gene involved in phosphate loading to the xylem. Plant Cell 14,889-902

188. Sedbrook, J.C., Carroll, K.L., Hung, K.F., Masson, P.H., Somerville, C.R., (2002) The Arabidopsis *SKU5* gene encodes a GPI-anchored glycoprotein, evolutionarily related to multi-copper oxidases, that negatively regulates two separable directional growth processes. Plant Cell 14,1635-1648

189. Söllner, R., Glässer, G., Wanner, G., Somerville, C.R., Jürgens, G., Assaad, F.F. (2002) Cytokinesis-defective mutants of Arabidopsis. Plant Physiol 129,678-690

190. Somerville, C.R., and Koornnef, M. (2002) A fortunate choice: The history of Arabidopsis research, Nature Genetics 3,883-889.

191. Sørensen MB, Mayer U, Lukowitz W, Robert H, Chambrier P, Jürgens G, Somerville C, Lepiniec L, Berger F (2002) Cellularisation in the endosperm of Arabidopsis thaliana is coupled to mitosis and shares multiple components with cytokinesis. Development 129(24):5567-76

192. Scheible, W.R., Fry, B., Zimmerli, L., Somerville, S., Loria, R., Somerville, C.R. (2003) An *Arabidopsis* mutant resistant to Thaxtomin A, a cellulose Synthesis Inhibitor from *Streptomyces spp*. Plant Cell, 15: 1781-1794.

193. Rhee, S.Y., Osborne, E., Poindexter, P. and Somerville, C.R. (2003) Microspore separation in the *quartet 3* mutants of Arabidopsis is impaired by a defect in a developmentally regulated polygalacturonase required for pollen mother cell wall degradation. Plant Physiol., 133,1170-1180

194 Hamann, T., Osborne, E., Youngs, H.L., Misson, J., Nussaume, L., and Somerville, C.R. (2004) Tissue-specific expression of *CESA* and *CSL* genes in Arabidopsis. Cellulose 11,273-277

195. Lukowitz, W.L., Roeder, A., Parmenter, D., and Somerville, C.R. (2004) A MAPKK kinase gene regulates extra-embryonic cell-fate in *Arabidopsis.* Cell 116,109-119.

196. Vorwerk, S., Somerville, S.C. and Somerville, C.R. (2004) The role of plant cell wall polysaccharide composition in disease resistance. Trends Plant Sci. 9, 203-209

197. Bergmann, D.C., Lukowitz, W. and Somerville, C.R. (2004) A MAPKK kinase regulates cell fate in the Arabidopsis epidermis. Science 304,1494-1497

198. Sedbrook, J.S., Ehrhardt, D.W., Fisher, S.E., Scheible, W.R. and Somerville, C.R. (2004) The Arabidopsis *SKU6/SPR1* gene encodes a plus-end localized microtubule associated protein involved in directional cell expansion. Plant Cell 16,1506-1520

199. McCabe, R.A., Kato, T., Lukowitz, W., Sieber, P., Tasaka, M. and Somerville, C.R. (2004) The *gravitropism defective 2* (*grv2*) mutants of Arabidopsis are deficient in a protein implicated in endocytosis. Plant Physiol., 136, 3095-3103

200. Vogel, J., Raab, T., Somerville, C.R., and Somerville, S.C. (2004) Mutations in *PMR5* result in powdery mildew resistance and altered cell wall composition. Plant J 40,968-978

201. Assaad, F.F., Qiu, J.L., Youngs, H., Ehrhardt, D., Zimmerli, L., Kalde, M., Wanner, G., Peck, S.C., Edwards, H., Ramonell, K., Somerville, C.R., and Thordal-Christensen, H. (2004) The PEN1 syntaxin defines a novel cellular compartment upon fungal attack and is required for the timely assembly of papilla. Molec. Biol. Cell 15,5118-5129

202. Falcone, D.L., Ogas, J.P., and Somerville, C.R. (2005) Regulation of membrane fatty acid composition by temperature in mutants of Arabidopsis with alterations in membrane lipid composition. BMC Plant Biology 4:17

203. Somerville, C., Bauer, S., Brininstool, G., Facette, M., Hamann, T., Milne, J., Osborne, E., Paredez, A., Persson, S., Raab, T., Vorwerk, S., Youngs, H. (2004) Towards a systems approach to understanding plant cell walls. Science 306,2206-2211

204. Gillmor, C.S., Lukowitz, W., Brininstool, G., Sedbrook, J., Hamman, T., Poindexter, P. and Somerville, C.R. (2004) GPI-anchored proteins are required for cell wall synthesis and morphogenesis, but not cell proliferation, in *Arabidopsis.* Plant Cell 17,1128-1140.

205. Persson, S., Wei, H., Milne, J., Page, G.P., Somerville, C.R. (2005) Large-scale coexpression analysis reveals novel genes involved in cellulose biosynthesis. Proc. Natl. Acad. Sci. USA 102,8633-8638

206. Cutler, S., Somerville, C.R. (2005) GFP-Nit1 aggregation marks an early step of wound and herbicide induced cell death. BMC Plant Biology 5:4

207. Bauer, S., Vasu, P., Mort, A.J., Somerville, C.R. (2005) Cloning, expression and characterization of an oligoxyloglucan reducing end-specific xyloglucanobiohydrolase from *Aspergillus nidulans.* Carb. Res.,340,2590-2597.

208. Somerville, C.R. (2006) Cellulose synthesis in higher plants. Annu. Rev. Cell Dev. Biol. 22,53-78

209. Paredez, A., Somerville, C.R., Ehrhardt, D. (2006) Dynamic Visualization of Cellulose Synthase Demonstrates Functional Association with Cortical Microtubules**.** Science 312,1491-1495

210. Bauer, S., Vasu, P., Persson, S., Mort, A.J. and Somerville, C.R. (2006) Development and application of a suite of polysaccharide degrading enzymes for analyzing plant cell walls. Proc. Natl. Acad. Sci. USA 103,11417-11472.

211. Estevez, J., and Somerville, C.R. (2006) FlAsH-based live-cell fluorescent imaging of synthetic peptides expressed in Arabidopsis and tobacco. Biotechniques, 41,569-574

212. Wei, H., Persson, S., Mehta, T., Srinivasasainagendra, V., Chen, L., Page, G.P., Somerville, C., Loraine, A. (2006) Transcriptional coordination of the metabolic network in Arabidopsis thaliana. Plant Physiol., 142, 762-774

213. Estévez, J.M., Kieliszewski, M.J., Khitrov, N., Somerville, C. (2006) Characterization of synthetic hydroxyproline-rich proteoglycans with AGP- and extensin-motifs in Arabidopsis. Plant Physiol., 142,458-470

214. Persson, S., Hosmer-Caffall, K., Freshour, G., Hilley, M.T., Bauer, S., Poindexter, P., Hahn, M.G., Mohnen, D., Somerville, C.R. (2007) The Arabidopsis *irregular xylem 8* mutant is deficient in glucuronoxylan and homogalacturonan which are essential for secondary cell wall integrity. Plant Cell, 19: 237-255

215. DeBolt, S., Gutierrez, R., Ehrhardt, D.W., Melo, C.V., Ross, L., Somerville, C.R, Bonetta, D. (2007) Morlin, an inhibitor of cortical microtubule dynamics and cellulose synthase movement. Proc. Natl. Acad. Sci. USA 104,5854-5859

216. Somerville, C.R (2007) Biofuels. Current Biology 17 (4), R115-119

217. Bannigan, A., Scheible, W.R., Lukowitz, W., Eagerstron, C., Wadsworth, P., Somerville, C.R. and Baskin, T. (2007) A conserved role for kinesin-5 in plant mitosis. J. Cell Sci. , 120,2819-2827

218. Vorwerk, S., Schiff, C., Santamaria, M., Koh, S., Nishimura, M., Vogel, J., Somerville, C., Somerville, S. (2007) EDR2 negatively regulates salicylic acid-based defenses and cell death during powdery mildew infections of Arabidopsis thaliana. BMC Plant Biology 7,35

219. DeBolt, S., Gutierrez, R., Ehrhardt, D.W. and Somerville, C. (2007) Non-motile CESA rosettes repeatedly accumulate within localized sub-resolution regions at the plasma membrane in Arabidopsis hypocotyl cells following 2,6-dichlorobenzonitrile (DCB) treatment. Plant Physiol., 145,334-338.

220. Persson, S., Paredez, A., Carroll, A., Palsdottir, H., Doblin, M., Poindexter, P., Khitrov, N., Auer, M., Somerville, C.R. (2007) Genetic evidence for three unique components in primary cell wall cellulose synthase complexes in *Arabidopsis.* Proc. Natl. Acad. Sci. USA 104,15566-15571

221. Youngs, H.L., Hamann, T., Osborne, E. and Somerville, C.R. (2007) The Cellulose Synthase Superfamily. In, M. Brown and I. Saxena, eds, Molecular and Structural Biology of Cellulose, Springer, pp 35-49

### 222. Silady, R.A., Ehrhardt, D.W., Jackson, K., Faulkner, C., Oparka,K. and Somerville, C.R. (2008) The GRV2/RME-8 protein of Arabidopsis functions in the late endocytic pathway andis required for vacuolar membrane flow. Plant J., 53, 29-41

223. Paredez, A., Persson, S., Ehrhardt, D.W., and Somerville, C.R. (2008) Cellulose Synthase Activity is Required for Normal Cortical Microtubule Organization: Genetic Evidence for Cell Wall to Cytoskeleton Feedback. Plant Physiol., 147, 1723-1734

224. Mohnen, D., Bar-Peled, M., and Somerville, C. (2008) Cell wall synthesis. In M. Himmel, ed., Biomass Recalcitrance, Blackwell, pp 94-159

225. Gu, Y., Deng, Z., Paredez, A., DeBolt, S., Wang, Z.Y., Somerville, C.R. (2008) Prefoldin6 is required for proper microtubule dynamics and organization in *Arabidopsis. Proc. Natl. Acad. Sci. USA* 105:18064-18069

226. Hamann, T., Bennett, M., Mansfield, J., Somerville, C.R. (2009) Identification of cell-wall stress as a hexose-dependent and osmosensitive regulator of plant responses. Plant J.,57,1015-1026

227. Carroll, A., Somerville, C.R. (2009) Cellulosic biofuels. Annu. Rev. Plant Biol. 160, 165-82

228. Martone, P.T., Estevez, J.M., Lu, F., Ruel, K., Ralph, J., Denny, M.W., Somerville, C.R. (2009) Discovery of lignin in seaweed reveals convergent evolution of cell-wall architecture. Curr. Biol., 19, 169-175

229. Tilman, D., Socolow, R., Foley, J.A., Hill, J., Larson, E., Lynd, L., Pacala, S., Reilly, J., Searchinger, T., Somerville, C., Williams, R. (2009) Beneficial Biofuels—The Food,

Energy, and Environment Trilemma. Science, 325,270-271

230. DeBolt, S., Scheible, W.R., Schrick, K., Auer, M., Beisson, F., Bischoff, V., Bouvier-Nave´, P., Carroll, A., Hematy, K., Li, Y., Milne, J., Nair, M., Schaller, H., Zemla, M. Somerville, C.R. (2009) Mutations in UDP-glucose:sterol glucosyltransferase in Arabidopsis cause transparent testa phenotype and suberization defect in seeds. Plant Physiol., 151, 78-87.

231. Anderson, C.T., Carroll, A., Akhmetova, L., Somerville, C.R. (2010) real time visualization of cellulose reorientation during cell wall expansion in *Arabidopsis* roots. Plant Physiology 152, 787-796

232. Gu, Y., Kaplinsky, N., Cobb, A., Baskin, T., Persson, S., Somerville, C.R. (2010) Identification of a novel protein essential for cellulose synthesis. . Proc. Natl. Acad. Sci USA 107, 12866-12871

233. Chen, S., Ehrhardt, D.W., Somerville, C.R. (2010) Mutations of CesA1 phosphorylation sitesmodulate anisotropic cell expansion and bidirectional mobility of cellulose synthase. Proc. Natl. Acad. Sci USA, 107, 17188-17193

234. Somerville, C., Youngs, H., Taylor, C., Davis, S., and Long, S.P. (2010). Feedstocks for lignocellulosic biofuels. Science 329: 790-792.

235. Gu, Y. and Somerville, C.R. (2010) Cellulose synthase interacting protein: A new factor in cellulose synthesis. Plant Signaling Behavior 5:1571-1574.

236. Velasquez, S.M., M. Ricardi, M.M., Dorosz, J.G.,Fernandez, P.V., Nadra, A.D., Pol-Fachin, L., Egelund, J., Gille, S., Harholt, J., Ciancia, M., Verli, H., Pauly, M., Bacic, A., Olsen, C.E., r Ulvskov, P., Petersen, B.L., Somerville, C., Iusem, N.D. & Estevez, J.M. (2011) *O*-glycosylated cell wall proteins are essential in root hair growth. Science 332,1401-1403

237. Sánchez-Rodríguez, C., ,Hématy, K., Ibáñez-Zamora, A.B., Saxe, F., Vodermaier, V., Sampathkumar, A., Rüggeberg, M., Neumetzler, L., Burgert, I., Aichinger, E., Bauer, S., Hauser, M.T., Somerville, C.R., Persson, S. (2012) CTL1/POM1 and its homolog CTL2 are glucan interacting proteins essential for cellulose biosynthesis. Plant Cell 24, 589-607

238. Li, S., Lei, L., Somerville, C., Gu, Y. (2011) CSI1 links microtubules and cellulose synthase complexes. Proc. Natl. Acad. Sci USA 109, 185-190

239. Anderson, C., Wallace, I., Somerville C.R. (2012) Metabolic click labeling with a fucose analog reveals pectin delivery, architecture, and dynamics in Arabidopsis cell walls. Proc. Natl. Acad. Sci USA 109, 1329-1334

240. Youngs, H.L., Somerville, C.R. (2012) Plant-related aspects of biofuels. F1000 Biology Reports 4:10

241. Somerville, C.R. (2012) Deciphering the parts list for the mechanical plant. Daedalus, 141 (3), 89-97

#### 242. Harris D.M., Corbin, K., Wang,T., Gutierrez,R., Bertolo, A.L., Petti, C., Smilgies, D.M., Estevez, J.M., Bonetta, D., Urbanowicz, B., Ehrhardt, D.W., Somerville, C., Rose, J.K.C., Hong, M., DeBolt, S, (2012) Cellulose microfibril crystallinity is reduced by mutating C-terminal transmembrane region residues CESA1A-V903 and CESA3T-I942. Proc. Natl. Acad. Sci. USA 109, 4098-4103

243. Youngs, H.L., and Somerville, C.R. (2012) Growing better biofuel crops. The Scientist 26, 46-52

244. Carroll, A., Mansoori, N., Li, S., Lei, L., Vernhettes, S., Visser, R.G.F., Somerville, C.R., Gu, Y., Trindade, L.M. (2012) Complexes with mixed primary and secondary cellulose synthases are functional in *Arabidopsis thaliana* plants. Plant Physiol., 160, 726-737.

245. Sorek, N., Yeats, T., Szemenyei, H., Youngs, H. Somerville, C.R. (2013) The Implications of Lignocellulosic Biomass Chemical Composition for the Production of Advanced Biofuels. Bioscience doi: 10.1093/biosci/bit037

246. Benz, JP, Chau, BH, Zheng, D, Bauer, S, Glass, NL, Somerville, CR (2013) Pectin Degradation Put Into Context: A Comparative Systems Analysis Using the Model Filamentous Fungus *Neurospora crassa.* Molecular Micro., 91(2):275-99 doi:10.1111/mmi.12459

247. Benz, JP, Protzko, RJ, Andrich, JMS, Dueber, JE, Somerville, CR (2014) Identification and characterization of a galacturonic acid transporter from *Neurospora crassa* and its application for *Saccharomyces cerevisiae* fermentation processes. Biotechnol. Biofuels 2014, **7**:20

248. Youngs, H., Horta Nogueira, L., Somerville, CR and Goldemberg, J (2015) Perspectives on Biofuels. In Souza, G. M., Victoria, R., Joly, C., & Verdade, L. (Eds.). *Bioenergy & Sustainability: Bridging the gaps.* p.231-256. Paris: SCOPE. ISBN 978-2-9545557-0-6

249. Xiao, C., Somerville, C.R., Anderson, C.T. (2014) Activation Tag Screening Reveals the Function of POLYGALACTURONASE INVOLVED IN EXPANSION 1 in Cell Elongation and Flower Development in *Arabidopsis thaliana.* Plant Cell 26,1018-1035

250. Youngs, H. and Somerville, C.R. (2014) Data-based standards should guide biofuel production. Science 344, 1096-1097

251. Youngs, H. and Somerville, C.R. (2014) How big is the bioenergy piece of the pie? Biotechnol. Bioeng. 111,1717-1718.

252. Sorek, N, Sorek, H, Kijac, A, Szemenyei, H, Bauer, S, Hématy, K, Wemmer, DE and Somerville, CR. (2014) The Arabidopsis COBRA protein facilitates cellulose crystallization at the plasma membrane. *J. Biol. Chem.* 289,34911-34920

253. Wallace, I. and Somerville, CR (2015) Making the most abundant biomolecule on the planet: A blueprint for cellulose biosynthesis, deposition, and regulation in plants. In Plant Cell wall Patterning and Cell Shape. Ed H. Fukuda, Wiley, pp 65-97.

254. Provart, N., Alonso, J., Assmann, S.,Bergmann, D.,Brady, S.,Brkljacic, J.,Browse, J., Chapple, C., Colot, V., Cutler, S., Dangl, J., Ehrhardt, D., Friesner, J., Frommer, W., Grotewold, E., Meyerowitz, E., Nemhauser, J., Nordborg, M., Pikaard, C., Shanklin, J., Somerville, C., Somerville, S., Stitt, M., Torii, K., Waese, J., Wagner D. and McCourt, P. (2015) 50 Years of Arabidopsis Research: Highlights and Future Directions. New Phytol., 209, 921-944 DOI: 10.1111/nph.13687

255. Foust, T.D., Arent, D., de Carvalho Macedo, I., Goldemberg, J., Hoysalad, C., Filho, R.M., Nigro, F.E.B., Richard, T.L., Saddler, J., Samseth, J., Somerville, C.R. (2015) Energy Security. In Souza, G. M., Victoria, R., Joly, C., & Verdade, L. (Eds.), *Bioenergy & Sustainability: Bridging the gaps* pp. 61-89. Paris: SCOPE. ISBN 978-2-9545557-0-6

256. Souza, G.M., Verdade, L.M., Brito Cruz, C.H., Kaffka, S., Osseweijer, P., Somerville, C.R., Youngs, H. (2015) The much needed science: filling the gaps for sustainable bioenergy expansion. In G.M. Souza, R. Victoria, C. Joly, L. Verdade (Eds.), *Bioenergy and Sustainability*: *Bridging the Gaps*. pp. 218–227 Paris: SCOPE ISBN 978-2-9545557-0-6

257. Tang, S.L., Bubner, P., Somerville C.R. (2016) *O*-Glycan Analysis of cellobiohydrolase I from *Neurospora crassa.* Glycobiology doi: 10.1093/glycob/cww004

258. Sorek, N., Szemenyei, H.J., Sorek, H., Landers, A.A., Knight, H., Bauer, S., Wemmer, D.E., Somerville, C.R. (2015) Identification of MEDIATOR16 as the Arabidopsis COBRA suppressor, MONGOOSE1. Proc. Natl. Acad. Sci USA 112,16048-16053

259. Chen, S. Jia, H, Zhao, H., Liu, D., Liu, Y., Liu, B., Bauer,S., Somerville, C.R. (2015) Regulation of anisotropic cell expansion and bidirectional mobility of cellulose synthase by phosphorylation of S211 and T212 of CESA3. Plant Physiol.171,242-250 DOI:10.1104/pp.15.01874

260. Yeats, T.H., Sorek, H., Wemmer, D.E., Somerville, C.R. (2016) Cellulose deficiency of *shv3svl1* is enhanced by hyper accumulation of exogenous sucrose via the plasma membrane sucrose/H+ symporter SUC1. Plant Physiol. 171,110-124 DOI:10.1104/pp.16.00302

261.Gillmor, C.S., Roeder, A.H.K., Sieber, P.,Somerville, C., Lukowitz,W. (2016) A screen for mutations affecting cell division in the *Arabidopsis* *thaliana* embryo identifies seven loci required for cytokinesis. PLoS ONE 11(1): e0146492. doi:10.1371/journal.pone.0146492

262.Sanchez-Rodriguez, C., Ketelaar, K. Schneider, J., Villalobos, J.A., Somerville, C.R., Persso, S., Wallace, I. (2017)BRASSINOSTEROID INSENSITIVE2 Negatively Regulates Cellulose Synthesis in Arabidopsis by Phosphorylating Cellulose Synthase1. Proc. Natl. Acad. Sci USA 114 (13) 3533-3538 www.pnas.org/cgi/doi/10.1073/pnas.1615005114

263. Thieme, N., Wu, V.W., Dietschmann, A., Salamov, A.A., Wang, M., Johnson, J., Singan, V.R., Grigoriev, I.V. Glass, N.L., Somerville, C.R., Benz, J.P. (2017)The transcription factor PDR-1 is a multi-functional regulator and key component of pectin deconstruction and catabolism in Neurospora crassa. Biotechnol. Biofuels 10,149 DOI 10.1186/s13068-017-0807-z

264. Youngs, H.L., Somerville, C.R. (2017) Implementing industrial–academic partnerships to advance bioenergy research: the Energy Biosciences Institute. Current Opin. Biotechnol. 45, 184-190.