

CURRICULUM VITAE

Richard Arthur Dixon, MA, D.Phil, D.Sc (Oxford)

January 2009

SUMMARY

Richard A. Dixon is Senior Vice President and Director of the Plant Biology Division at the Samuel Roberts Noble Foundation. He also holds Adjunct Professorships at Rice University, the University of Texas at Austin, and the University of Oklahoma. He received his Bachelor's and Doctoral degrees in Biochemistry and Botany from Oxford University (UK), and postdoctoral training in Plant Biochemistry at Cambridge University (UK). He was awarded the Doctor of Science degree for his research achievements by the University of Oxford in 2004. His research interests center on the biochemistry, molecular biology and metabolic engineering of plant natural product pathways, and he has published over 370 papers and chapters on these and related topics in international journals. Professor Dixon is a Member of the US National Academy of Sciences (elected in May 2007), a Fellow of the American Association for the Advancement of Science (elected in 2003), a member of the Editorial Boards of five international journals, and has been named by the Institute for Scientific Information as one of the 10 most cited authors in the plant and animal sciences.

PERSONAL

Nationality: United Kingdom/United States
Date of Birth: December 29, 1951
Place of Birth: Cape Town, South Africa
Spouse: Rachel
Children: Lois Mary (born 1983)
Arthur Malcom (born 1993)

CURRENT POSITION

Senior Vice President, Professor and Director, Plant Biology Division, Samuel Roberts Noble Foundation, 2510 Sam Noble Parkway, Ardmore, OK 73401, USA

CURRENT RESEARCH INTERESTS

- Metabolic engineering of plant natural products and lignin for improvement of biomass utilization, forage quality, and human health.
- Genomics approaches to understanding plant natural product biosynthesis.

EDUCATION

- Ashby de la Zouch Boy's Grammar School, UK, 1963-1969
- Ison Exhibition to Brasenose College, University of Oxford, UK, 1969-1973
- B.A., Biochemistry, University of Oxford, UK, 1973
- SERC Studentship, Botany School, University of Oxford, UK, 1973-1976
- MA, University of Oxford, 1976
- D.Phil., Plant Biochemistry, University of Oxford, UK, 1976

PROFESSIONAL EXPERIENCE

A) Academic Positions

Present:

- The Samuel Roberts Noble Foundation, Ardmore, Oklahoma, Senior Vice President. 2006-
- The Samuel Roberts Noble Foundation, Ardmore, Oklahoma. Plant Biology Division, Professor and Director. 1988-
- Rice University, Houston, TX. Adjunct Professor, Biochemistry and Cellular Biology. 2003-
- University of Texas at Austin, Adjunct Professor, Botany. 1993-1998. Adjunct Professor, Molecular, Cell and Developmental Biology, 1998-
- University of Oklahoma, Norman, Oklahoma, Adjunct Professor, Botany and Microbiology. 1994-

Past:

- University of Cambridge, U.K. Department of Biochemistry, Postdoctoral Research Assistant, 1976-1978
- University of London, U.K. Royal Holloway and Bedford New College, Department of Biochemistry:
- Lecturer. 1978-1985
- Reader in Plant Biochemistry. 1985-1988
- Honorary Research Fellow. 1988-1990
- Norman Borlaug Institute for Plant Science Research, De Montfort University, Leicester, U.K. Honorary Visiting Research Professor. 1995-2003
- Washington State University, Pullman, WA. Adjunct Professor, Institute of Biological Chemistry. 1997-2005
- Oklahoma State University, Stillwater, Oklahoma. Adjunct Professor, Biochemistry and Molecular Biology. 1988-2005
- University of York, UK. Center for Novel Agricultural Products. Visiting Chair in Phytochemical Genomics. 2003-2006

B) Recognition, Honors and Special Lectures:

- Named "Oklahoma Scientist of the Year" by the Oklahoma Academy of Sciences, October 31, 2008.
- Richard R. Hill Achievement Award for Outstanding Contribution to Alfalfa Research, National Alfalfa Improvement Congress, June 2008
- Elected to membership in the US National Academy of Sciences, May 1, 2007
- Pioneers in Genomics Lecturer, University of Illinois, October 2006
- Loomis Lecturer, Iowa State University, March 2005
- Dermot Coyne Distinguished Lectureship, University of Nebraska, Lincoln, NE, 2004.
- Named as a "Top Principal Investigator" in Science magazine, September 2004.
- Awarded Doctor of Science degree, University of Oxford, March 2004.
- Elected Fellow of the American Association for the Advancement of Science, Feb 2003.
- Ardmore (Oklahoma) Chamber of Commerce: Named "Ardmore Star", June 2002.

- Institute for Scientific Information (ISI). Named among the 15 most cited authors in Plant and Animal Science for 1991-2001. Awarded in New Orleans, April 2002.
- Victor M. Bendelow Memorial Lectureship, University of Manitoba, Winnipeg, Canada, February 2002
- Gabe Lester Memorial Lecturer, Reed College, Portland, Oregon (1992)
- Hannaford Lecturer, Waite Agricultural Research Institute, Adelaide, Australia (1992).

C) Committees and Editorial Boards

a. Grant and program review panels:

- Foundation for Research, Science & Technology, New Zealand. External Reviewer for “Exploiting Opportunities from Horticultural Genomics” program at HortResearch, Auckland, and “New Opportunities from Forage Plant Genomics” program at AgResearch, Palmerston North. March 2008.
- Oklahoma Center for the Advancement of Science and Technology, Technical Advisory Committee, Plant Sciences Research Program. 2006-
- State of Florida Comprehensive Citrus Research Review Panel, USDA, ARS, Orlando and IFAS, Lake Alfred, FL, January 1999.
- USDA Plant Pathology Competitive Grants Panel. 1999
- Texas Cotton and Grain Biotechnology Competitive Grants Panel, 1997
- USDA Plant Pathology Competitive Grants Panel. 1997
- Texas Cotton Biotechnology Competitive Grants (TxCot). 1995
- AIBS, NASA Biological Sciences Grant Review Panel. 1994
- Program reviewer for Monsanto Chemical Company, December 1992.
- National Science Foundation Advisory Panel on Cellular Biochemistry (Integrative Plant Biology from 1993). 1990-1993
- Oklahoma Center for the Advancement of Science and Technology, Applied Research Committee. 1992-1996
- United States Department of Agriculture, Competitive Grants Panel (Plant Pathology and Weed Science). 1988-1990
- UK SERC Biotechnology Directorate/AFRC/DTI Steering Committee on Plant Biotechnology. 1984-1986

b. Committees and elected offices

- National Research Council Board on Agriculture and Natural Resources. Member. 2009-
- Electorate Nominating Committee, American Association for the Advancement of Science, Section on Agriculture, Food and Renewable Resources. 2007-2010
- Member of the Advisory Board, EPOBIO - Realising the economic potential of sustainable resources - bioproducts from non-food crops. 2006-
- Member of the Advisory Board, Phytochemical Society of North America, 2001-2007
- President, Phytochemical Society of North America, 2000-1
- Member of the Board, International Society for Plant Molecular Biology, 2000-2004
- President-Elect, Phytochemical Society of North America. 1999

- International Consultative Committee, Institute of Genetic Engineering, Kostinbrod, Bulgaria. 1995-2000
- American Society of Plant Physiologists, Publications Committee. 1991-1995
- University of Texas at Austin, Botany Department Visiting Committee. 1990-1997
- Phytochemical Society of Europe Management Committee. 1983-1986

c. Editorial boards:

- Co-Editor in-Chief, BioEnergy Research. 2007-
- Editorial Board, Annual Review of Plant Biology. 2001-2005
- Editorial Advisory Board, Trends in Plant Science. 2000-
- Editorial Board, Phytochemistry. 2000-
- Editorial Board, Planta. 2000-
- Editorial Board, Archives of Biochemistry and Biophysics. 1991- 2008
- Editorial Board, Biotechnology/Biotechnological Equipment. 1995-2000
- Associate Editor, Plant Molecular Biology. 1994-1999
- Founding Editor, Transgenic Research. 1991-1996
- Editorial Advisory Board, The Plant Journal. 1990-2003
- Editorial Board, Journal of General Microbiology. 1985-1988

D). Consulting and Science Advisory Boards:

- The State of Oklahoma EDGE (Economic Development Generates Excellence) Program. Member of the Science Advisory Board. 2008, 2009
- Oklahoma Department of Energy, Oklahoma Bioenergy Center. Member of the Science Advisory Group. 2008, 2009
- University of North Texas, Denton, TX. Member of the Advisory Board for the “Signaling Mechanisms in Plants” Research Cluster. November 3, 2008
- HortResearch and AgResearch, Auckland and Palmerston North, New Zealand. Member of the Quality Assurance Review Board. 2008.
- Agricultural Biotechnology Research Center, Academia Sinica, Taipei, Taiwan. Member of the Scientific Advisory Board. 2007-present
- RIKEN Plant Science Center, Yokohama, Japan. Member of the Scientific Advisory Committee. 2007-present
- Purdue-University of Alabama at Birmingham Botanicals Research Center. Member of the External Advisory Committee. 2007-present
- Mendel Biotechnology Inc, Hayward, CA. Consultant. 2007
- NuTein Companies, Inc., Minneapolis, MN. Member of the Scientific Advisory Board. 2006-present
- Chromatin Inc, Chicago, IL. Member of the Scientific Advisory Board. 2003-2006.
- Renessen, Davis, CA and St Louis, MO. Consultant. 2002, 2003.
- Akkadix Inc, San Diego, CA, Member of the Scientific Advisory Board, 1999-2001
- Monsanto Co., St Louis, Consultant 1992; 1998; 2003
- Applied Phytologies Inc, Sacramento, CA, Consultant 1998-1999
- David Michael and Co., Philadelphia, PA, Consultant 1997-2002

E). Administrative Duties and Experience (Noble Foundation):

Division Director, responsible for overall research vision and its implementation, supervision and mentoring of Plant Biology Division faculty, conducting annual faculty and support staff performance appraisals, preparing and administering annual budget, preparing short term and long term planning documents, initiating new research directions and securing funding for such through representations to the Foundation President and presentations to the Board of Trustees, implementing an external review program for the Division, acting as “gateway” for intellectual property filings. Answers to Foundation President and Board of Trustees.

F). Current Membership of Scientific Societies

- American Society of Plant Physiologists
- American Association for the Advancement of Science

G). Teaching

(1978-1988):

- First year undergraduate level - Tutorials, lectures and lab classes in general introductory biochemistry and molecular biology.
- Second year undergraduate level - Lectures on symbiotic nitrogen fixation, metabolism of amino acids, purines and pyrimidines. Lab classes.
- Final year undergraduate level - Lectures on biosynthesis of plant secondary products, phytochrome, modulation of plant gene expression by light, molecular plant pathology, plant tissue culture biotechnology, control of plant growth and development, plant molecular biology and genetic manipulation. Research project supervision (4-6 students per annum).
- Postgraduate level - Supervised 5 Ph.D. students, 7 postdoctorals and 4 technicians. Internal and external examiner for Ph.D. and M.Phil. examinations.
- (1988-present):
- Lectures in plant-microbe interactions, plant natural products, metabolic engineering, and service on PhD student committees and PhD examiner as part of adjunct faculty duties at the University of Texas, University of Oklahoma and Oklahoma State University. PhD examiner for University of British Columbia, Vancouver, and Australian National University, Canberra.

H). Graduate Students Advised

University of London:

- Ian Whitehead (Ph.D. 1985)
- Maha Hamdan (Ph.D. 1986)
- Julio Reinecke (1986-87)
- Timothy Barnes (1987)
- Mehrdad Mavandad (Ph.D. 1990)

Department of Botany, University of Texas:

- Qin Liu. (Ph.D 1995) (Graduate committee)
- John Clements. (PhD 1995) (Graduate committee)
- Meide Pan. 1993- (PhD 1997) (Graduate committee)
- Espanta Seradge. 1994-6 (Co-advisor)

University of Oklahoma:

- Isabelle Salles (co-advisor with Dr Karel Schubert)

Oklahoma State University:

- Edward Davis. (PhD 1998) (Graduate committee)

University of York:

- Lorenzo Caputi (PhD committee- 2005-2008)

I). Postdoctoral Associates Supervised (with current or recent positions):

- Mark Robbins (1983-86). Project leader, IGER, Aberystwyth, Wales
- G. Paul Bolwell (1983-86). Professor of Plant Biochemistry, Royal Holloway, University of London
- Damian L. Murphy (1984-87) ?
- E. Richard Blyden (1985-89). Biotech business
- David J. Millar (1986-87) ?
- Joanna S. Ellis (1986-87) ?
- Maria J. Harrison (1988-90). Professor, Boyce Thompson Institute, Cornell University
- Karen Dalkin (1988-91). UK Biotech Company
- Brent Edington (1988-91). Technology Transfer Department, University of Utah
- Helmut Kessmann (1989-90). Group Leader, CIBA-GEIGY (Syngenta), Basle, Switzerland
- Ganesan Gowri (1989-92). Project Leader, Maxygen, Redwood City, CA
- Eileen Maher (1989-90) (joint with Chris Lamb). Research Associate, University of Wisconsin, Madison
- Gary Loake (1989-90) (joint with Chris Lamb). Professor, Institute of Cell and Molecular Biology, University of Edinburgh, Scotland
- Basil Shorosh (1989-92). Group Leader, Cargill Seed Co., Boulder, CO
- Lloyd Yu (1990-92) (joint with Chris Lamb). Research Scientist, Palo Alto Institute of Molecular Medicine, Mountain View, CA
- Keith Wycoff (1990-91) (joint with Chris Lamb). Co-Founder, Planet Biotechnology, Mountain View, CA
- Nancy Paiva (1990). Associate Professor, South Eastern Oklahoma State University
- John Orr (1990-92). Group Leader, Eisai Merrimack Valley Laboratories Inc, Andover, MA
- Carl Maxwell (1990-92). Research Scientist, DuPont, Wilmington, DE
- Theodor Fahrendorf (1990-94). Founder, Novoplant, Gatersleben, Germany
- Weiting Ni (1991-94). Research Scientist, DowElanco, Indianapolis, IN
- Abraham Oommen (1991-92) (joint with Nancy Paiva). Co-founder GeneSeek Inc. Lincoln, NE
- Gerard Lazo (1991-93). Research Geneticist, USDA/ARS, Albany, CA
- Holger Junghans (1991-92). Potato research company, Germany
- Diane Ruezinsky (1992-93) (joint with Chris Lamb). Research Scientist, Monsanto Calgene, Davis, CA
- Bernard Kraft (1992-94) (joint with Chris Lamb) ?

- Hsou-min Li (1993-95) (joint with Joanne Chory). Associate Professor, Institute of Molecular Biology, Academia Sinica, Taipei, Taiwan
- Robin Cameron (1993-95) (joint with Chris Lamb). Assistant Professor, Botany, University of Toronto
- Jacky Pallas (1992-95) (joint with Chris Lamb). Research Scientist, Syngenta, Bracknell, UK
- William Lindsay (1992-95) (joint with Chris Lamb). Intellectual Property, UK
- Sameer Masoud (1992-95). Associate Professor, Mu'tah University, Mu'tah-Karak, Jordan
- Vincent Sewalt (1994-97). Project Leader, Pioneer Hi-Bred International, Johnson City, IA
- Ze-Jian Guo (1995-98) (joint with Chris Lamb). Associate Professor, Zhejiang University, Hangzhou, PRC
- Paul Howles (1995-97) (joint with Chris Lamb). Postdoc, CSIRO, Canberra, Australia
- Xian-Zhi He (1995-1999). Senior Research Associate, Noble Foundation
- Pedro Canovas (1995-98) (joint with Chris Lamb) ?
- J.T. Reddy (1995-1998). Postdoc, Dept of Human Genetics, UCLA Medical Center, Los Angeles
- Ken Shirasu (1995-97) (joint with Chris Lamb). Group Leader, RIKEN Plant Sciences, Yokohama, Japan
- Ken Korth (1995-2000) Associate Professor, Plant Pathology, University of Arkansas
- Susanne Rasmussen (1996-98). Group Leader, AgResearch, Palmerston North, New Zealand
- Kentaro Inoue (1996-1999). Associate Professor, Department of Vegetable Crops, UC Davis
- Christopher Steele (1997-99). Research Scientist, Bristol-Myers-Squibb, Syracuse, NY.
- Fiona McAlister (1997-2000) (joint with Chris Lamb). Instructor, Southern Oklahoma Technology Center, Ardmore, OK
- S. Varsha Wesley (1997-98). Postdoc, CSIRO, Canberra, Australia
- Delia Brownsen (1997-1998) (joint with Tom Mabry, UT Austin) ?
- Yiji Xia (1997-99) (joint with Chris Lamb). Associate Member, Donald Danforth Plant Science Center, St Louis, MO.
- Dianjing Guo (1998-2001). Assistant Professor, Chinese University, Hong Kong
- Galina Kourteva (1999-2002). Research Scientist, Hoffman LaRoche, New Brunswick, NJ
- Fang Chen (1999-2002). Research Scientist, Noble Foundation
- Parvathi Kota (1999-2003). Research Scientist, Massachusetts Institute of Technology, Boston, MA. Patent law company, Washington DC
- Chang-Jun Liu (1999-2003). Assistant Professor, Brookhaven National Laboratory, NY
- Lahoucine Achnine (2000-2005). Project leader, GenApps, Lexington, Kentucky.
- Hideyuki Suzuki (2000-2003). Project leader, Kasuza DNA Center, Chiba, Japan.

- M.S.Srinivasa Reddy (2001-2005). Research Scientist, Forage Genetics International, West Salem, WI.
- Shashi Sharma (2001-2005).
- Deyu Xie (2002-2005). Assistant Professor, Department of Plant Sciences, North Carolina State University.
- Bettina Deavours (2002-2005). Postdoctoral Fellow, Colorado State University.
- Marina Naoumkina (2003-). Research Scientist, Noble Foundatioin
- Kumboo Choi (2003-2005). Biotechnology company, Korea.
- Li Tian (2004-2007). Assistant Professor, University of California, Davis.
- Sanchita Vaagchippawala (2005-)
- Luzia Modolo (2005-2009). Assistant Professor, Department of Botany, Federal University of Minas Gerais, Brazil.
- Yongzhen Pang (2005-)
- Gregory Peel (2005-2008). Research Scientist, Monsanto
- Angelika Reichardt (2005-2008). Postdoctoral Fellow, Oklahoma State University
- Jin Nakashima (2005-2008). Cellular Imaging Facility Manager, Noble Foundation
- Wengshen Li (joint with Lloyd Sumner) (2006-2008). Research Scientist, Monsanto
- Guodong Wang (2006-2009). Assistant Professor, Academia Sinica, Beijing.
- Rui Zhou (2006-)
- Chunfen Zhao (2008)
- Jian Zhao (2008-)
- Vaishali Sharma (2008-)
- Qiao Zhao (2008-)
- Lina Gallego-Giraldo (2008-)
- Huanzhong Wang (2008-)
- Guoan Shen (2008-)

J). Visiting Scientists:

- Dr Louis J. van Lelyveld, Citrus and Sub-Tropical Fruit Research Institute, Nelspruit, South Africa. Sabbatical 1983.
- Dr Allen Jennings, Waite Agricultural Institute, Adelaide, Australia. Sabbatical 1987.
- Dr Jesus Jorin, University of Cordoba, Spain; NATO Fellowship 1987-1989.
- Dr Arvind D. Choudhary, University of Nagpur, India; Government of India Fellowship 1988-90.
- Professor Kailash Upadhyaya, J. Nehru University, New Delhi, India; U.S. India Exchange Program Sabbatical 1992-93.
- Professor G. Murray Balance, University of Manitoba, Winnipeg, Canada. Sabbatical 1993-1994; 2003-2004).
- Dr V.K. Rajasekhar, Humboldt University, Berlin. Visiting Scientist 1996-98.
- Dr Andrzej Podstolski, University of Warsaw, Poland. Sabbatical 1998-99.
- Darius Michalzyck, University of Olsten, Poland Visiting Scientist 1998-99.
- Professor Salvatore A. Sparace, McGill University, Montreal, Canada. Sabbatical 1999-2000.

- Professor Qing-Hu Ma, Institute of Botany, Academia Sinica, Beijing, PRC. Visiting Scientist 2000, 2003, 2004.
- Professor Kent Chapman, University of North Texas, Denton, TX .Sabbatical 2001-2002.
- Dr Matthew Templeton, HortResearch, Auckland, New Zealand. Sabbatical, 2004, 2005.
- Dr Neelam Sangwan, CIMAP, Lucknow, India. Sabbatical, BOYSCAST Fellow, 2005-06.
- Professor M. David Marks, University of Minnesota. Sabbatical 2005-06.
- Dr Sarath Abeysinghe, Tea Research Institute of Sri Lanka (Collaborator on NSF Plant Genome grant). 2006
- Mewan Kooragodage, Tea Research Institute, Sri Lanka. 2007
- Shujun Ge, Agricultural University of Hebei, China. 2009-2010

K). Meetings/Symposia Organized

- Conference Co-Chair, 2nd Banff Conference on Plant Metabolism, Banff, Alberta, Canada, June 2010.
- Session Co-Chair, 32nd Symposium on Biotechnology for Fuels and Chemicals, Clearwater Beach, Florida, April 2010.
- Scientific Advisory Committee, 2007 Model Legumes Congress, Tunis, Tunisia
- Organizing Committee, International Model Legume Congress, Asilomar, CA, June 2005
- Co-organizer for National Congress of Biochemistry and Molecular Biology of Plants, La Paz, Mexico, October, 2001
- Organizer for Phytochemical Society of North America Annual Meeting, “Phytochemistry in the Genomics and Post-Genomics Eras”, Oklahoma City, August 2001.
- Co-organizer for Keystone Symposium on Signals and Signal Perception in Biotic Interactions in Plants. Taos, New Mexico, Feb 2000.
- Organizing Committee: Gatlinberg Symposium, Knoxville, TN, 1999
- Organizing Committee: Plant Protein Club Symposium on Pathway Engineering in Plants, York, UK, 1999
- Co-organizer for Keystone Symposium on Metabolic Engineering in Transgenic Plants, Copper Mountain, CO. 1997
- Co-organizer for Noble Foundation Plant Biochemistry Symposium on Polyketide Synthases, Palmas del Mar Resort, Puerto Rico. 1996
- Co-organizer for International Symposium on "Applications and Prospects of Biotechnology for Arid and Semi-Arid Lands, Texas Tech University, Lubbock, Texas. 1992
- Co-organizer for Fifth Mid-America Molecular and Cellular Biology Colloquium, Afton, Oklahoma, 1989
- Organizer for British Society for Plant Pathology meeting, Royal Holloway College. 1985
- Organizer for Phytochemical Society of Europe Symposium on Plant Nucleic Acids and Nucleotides, Royal Holloway College. 1985

- Organizer (Local Secretary) for British Society for Plant Pathology / British Mycological Society joint meeting at Royal Holloway College. 1982

L). Reviewing

Review papers for: Analytical Biochemistry, Archives of Biochemistry and Biophysics, Biotechnology and Bioengineering, Biotechnology Progress, Canadian Journal of Botany, European Journal of Biochemistry, Haseltonia, Horticultural Science, Journal of Biological Chemistry, Journal of Experimental Botany, Journal of General Microbiology, Molecular Plant-Microbe Interactions, Molecular Plant Pathology, Nature, Nature Biotechnology, Nature Structural Biology, Physiological and Molecular Plant Pathology, Phytochemistry, Plant Cell Reports, Plant Cell, Tissue and Organ Culture, Plant Molecular Biology, Plant Pathology, Plant Physiology, Plant Physiology and Biochemistry, Planta, Proceedings of the National Academy of Sciences USA, Science, The Plant Cell, The Plant Journal, Trends in Microbiology, Trends in Plant Science.

Review books for: FEBS Letters, Outlook on Agriculture, Physiological Plant Pathology, Annals of Botany, Nature, Oxford University Press, Trends in Genetics, Trends in Microbiology.

Review grant applications for: National Science Foundation (Washington); Agricultural and Food Research Council (UK); Science and Engineering Research, Council (UK); United States Department of Agriculture; U.S. Department of Energy (including panel for overview of DOE programs in plant science); Natural Sciences and Engineering Research Council of Canada; National Council Board in Science and Technology for International Development (USA); United States-Israel Binational Agricultural and Development Fund; New Zealand Foundation for Research, Science and Technology; Israel Science Foundation; South Africa Foundation for Research Development; U.K. Biotechnology and Biological Sciences Research Council; Swiss National Science Foundation; Thrasher Foundation.

INVITED SEMINARS AND TALKS AT NATIONAL AND INTERNATIONAL CONFERENCES, UNIVERSITIES OR COMPANIES

Pre 1988:

- Society for Experimental Biology, University of Sterling, Scotland, 1981.
- British Society for Plant Pathology, Royal Holloway College, Egham, U.K. 1982.
- Society for General Microbiology, Dundee, Scotland, 1982.
- ICI Workshop on Biosynthesis and Control of Amino Acids, Bath, U.K., 1984.
- International Association for Plant Tissue Culture, Sheffield, U.K., 1985.
- NATO Advanced Research Workshop, "Biology and Molecular Biology of Plant-Pathogen Interactions", Ilminster, U.K., 1985.
- British Society for Plant Pathology, "Genetics and Plant Pathogenesis", Egham, U.K., 1985.
- Society for Experimental Biology, Nottingham, U.K., 1986.
- Royal Society Discussion Meeting, "Differential Gene Expression in the Regulation of Plant Growth and Development", London, U.K., 1986.

- 17th FEBS Meeting, Berlin, Germany, 1986.
- Society for Chemical Industry, "Novel Approaches in Agrochemical Research, London, 1986.
- Society for General Microbiology, "Genetics of Plant-Pathogen Interactions", Swansea, U.K., 1986.
- "Nature" International Meeting on Plant and Animal Biotechnology, London, U.K., 1987.
- EMBO Workshop, "*Petunia hybrida* as a model system for molecular research", Amsterdam, Netherlands, 1987.
- Biochemcial Society 29th Harden Conference, Wye, U.K., 1987.
- Society of Chemical Industry/British Society for Plant Pathology, "Mechanisms of Natural Disease Resistance", London, U.K., 1987.
- Noble Foundation Plant Biology Retreat, Lake Texhoma, Oklahoma, 1987.

1988

- Phytochemical Society of Europe, Secondary Products from Plant Tissue Culture, London, U.K.
- Fifth International Congress of Plant Pathology, Kyoto, Japan.
- Third Mid-America Molecular and Cellular Biology Colloquium, Afton, Oklahoma.
- Second International Symposium on Primary and Secondary Metabolism of Plant Cell Cultures, Saskatoon, Canada.
- Department of Botany and Microbiology, University of Oklahoma, Norman, OK.
- University of Oklahoma Health Sciences Center, Oklahoma City, OK.
- Department of Plant Pathology, Oklahoma State University, Stillwater, OK.
- Department of Biochemistry, Royal Holloway and Bedford New College, Egham, U.K.
- Department of Botany, University of Nottingham, Nottingham, U.K.

1989

- UCLA Symposium, Plant Gene Transfer, Park City, UT.
- Phytochemical Society of Europe, Biochemistry and Molecular Biology of Plant Pathogen Interactions, Norwich, U.K.
- NATO International Symposium, Signal Perception and Transduction in Higher Plants, Toulouse, France.
- Department of Biology, University of Tulsa, Tulsa, OK.
- Department of Plant Pathology, University of Nebraska, Lincoln, NE.
- Department of Plant Pathology, Kansas State University, Manhattan, KS.
- Department of Botany, University of Texas at Austin.
- Department of Biochemistry and Biophysics, Iowa State University, Ames, IA.

1990

- Plant Molecular Biology Gordon Conference, Andover, NH.
- UCLA Symposium, Molecular Strategies for Crop Improvement, Keystone, CO.
- Guelph Waterloo Plant Biotechnology Center Advanced Course in Plant-Microbe Interactions, Guelph, Canada.
- Institute of Biological Chemistry, Washington State University, Pullman, WA.
- National Institutes of Health, Bethesda, Maryland.
- DOE Plant Research Laboratory, Michigan State University, East Lansing, MI.

- Center for Agricultural Biotechnology, Rutgers University, New Brunswick, NJ.

1991

- First Queenstown Molecular Meeting, Queenstown, New Zealand
- Third International Congress of Plant Molecular Biology, Tucson, AZ.
- Phytochemical Society of North America, Fort Collins, CO.
- Department of Botany, University of Texas at Austin.
- Plant Genetic Engineering Laboratory, New Mexico State University, Las Cruces.
- Department of Plant Science and Plant Pathology, University of Arizona, Tucson, AZ.
- Biotechnology Institute and Department of Plant Pathology, Penn State University, College Park, PA.
- Department of Biology, Texas A and M University, College Station, TX.
- Department of Biology, University of Tulsa, Tulsa, OK.
- Division of Scientific and Industrial Research, Plant Protection, Auckland, New Zealand.
- Department of Cellular and Molecular Biology, University of Auckland, New Zealand.
- 641st Meeting of the Biochemical Society, Royal Holloway College, London, UK

1992

- Department of Biology, Reed College, Portland, OR (Gabe Lester Memorial Lecture).
- Lorne Genome Conference, Lorne, Melbourne, Australia.
- Waite Agricultural Research Institute, Adelaide, Australia (Hannaford Lecture).
- Department of Plant Pathology, North Carolina State University, Raleigh, NC.
- Agricultural Biotechnology Research Unit, CIBA-GEIGY Corporation, Research Triangle Park, NC.
- Biotechnology Program, Texas Tech University, Lubbock, TX.
- University of Oklahoma, Department of Botany and Microbiology.
- Texas College of Osteopathic Medicine, Department of Microbiology, Fort Worth, Texas.
- University of Kentucky, Departments of Plant Pathology and Agronomy, Lexington, Kentucky.
- Department of Energy Workshop on Research Needs in Plant Biochemistry, Kona, Hawaii.
- 6th International Symposium on Molecular Plant-Microbe Interactions, Seattle, WA.
- 9th Annual Meeting of the Mid-Atlantic Plant Molecular Biology Society, Beltsville, MD (keynote address).
- American Society of Plant Physiologists Annual Meeting, Pittsburg, PA.

1993

- Agricultural Biotechnology Program, Purdue University, West Lafayette, IN.
- Phytochemical Society of North America, Asilomar, CA.
- Department of Biochemistry and Molecular Biology, Oklahoma State University.
- American Phytopathological Society, Nashville, TN.
- Department of Chemistry and Biochemistry, University of Texas at Arlington.
- National Science Foundation, Washington, DC.

- Department of Botany, University of Texas at Austin.
- 6th International Congress of Plant Pathology, Montreal, Ontario, Canada
- XV International Botanical Congress, Yokohama, Japan
- Society for Chemical Industry “Approaches for Molecular Biology in Crop Protection”, Cambridge, UK

1994

- Department of Human Nutrition, University of Texas Southwestern Medical Center, Dallas, TX.
- Southern Region American Society of Plant Physiologists Symposium on Phytoalexins, Austin, TX
- Department of Biology, Midwestern State University, Wichita Falls, TX.
- Merck, Sharpe and Dhome Co., Rahaway, NJ.
- Department of Energy Lignin Workshop, Asilomar, CA.
- American Society of Plant Physiologists Plant Biochemistry Course, Michigan State University.
- USDA National Center for Agricultural Utilization Research, Peoria, IL.
- Department of Biology, University of North Texas, Denton, TX.
- Phytera Inc., Worcester, MA.
- NASA NSCORT Program, Purdue University, West Lafayette, IN.
- Albert B. Alkek Institute of Biosciences and Technology, Texas A & M University, Houston, TX.
- 34th North American Alfalfa Improvement Conference, Guelph, Ontario, Canada
- First European Nitrogen Fixation Conference, Szeged, Hungary

1995

- Keystone Symposium on Plant Cell Biology: Mechanisms, Molecular Machinery, Signals and Pathways, Taos, New Mexico.
- Molecular Biology Training Grant Program, University of California at Davis.
- Ninth International Conference on Cytochrome P450, Zurich, Switzerland.
- International Symposium on Biotechnology Research and Applications for Sustainable Development, Bangkok, Thailand.
- Institute of Genetic Engineering, Kostinbrodt, Bulgaria.
- International Symposium on Engineering Plants for Commercial Products and Applications, Lexington, Kentucky.
- Boyce Thompson Institute, Cornell University, Ithaca, New York.
- Plant Biology Program, University of Missouri, Columbia.

1996

- John Innes Center, Norwich, UK.
- Institute of Molecular and Cellular Biology, University of Edinburgh, Scotland.
- Department of Plant Science, De Montfort University, Leicester, UK.
- American Chemical Society, New Orleans (Biotechnology Division, Keynote address).
- Departments of Botany and Plant Science, University of British Columbia, Vancouver, BC.
- North American Alfalfa Improvement Conference, Oklahoma City, OK.
- Balkan Biotechnology Congress, Sandanski, Bulgaria.
- American Chemical Society, Orlando, Florida.

- Biotechnology Laboratory, University of British Columbia, Vancouver, BC.
- **1997**
- Department of Molecular Biology and Genetics, University of California at Los Angeles, California.
- Second International Wood Biotechnology Symposium, Canberra, Australia.
- Keystone Symposium, Metabolic Engineering in Transgenic Plants, Copper Mountain, Colorado.
- American Chemical Society, Plant Cell and Tissue Culture for Food Ingredient Production, San Francisco, California.
- Department of Plant Sciences, University of Oxford, UK.
- Institute of Biological Chemistry, Washington State University (Plant Biochemistry Course).
- David Michael and Company, Philadelphia, Pennsylvania.
- 5th International Congress of Plant Molecular Biology, Republic of Singapore.
- Department of Botany, University of Texas at Austin.
- Center for Agricultural Biotechnology and Department of Plant Science, Rutgers State University, New Brunswick, New Jersey.
- Salk Institute for Biological Studies, La Jolla, California.

1998

- Phytochemical Society of Europe International Symposium on Anticancer Compounds from Plants, Paris, France.
- Plant Science Seminar, Cornell University, Ithaca, New York.
- Monsanto Co. St Louis, Missouri.
- Temple Inland Co, Evadale, Texas.
- 2nd US-Mexico Joint Symposium on Plant Biochemistry and Molecular Biology, Guanajuato, Mexico.
- Novartis Co., Research Triangle Park, North Carolina
- IX International Congress on Plant Tissue and Cell Culture, Jerusalem, Israel
- Plant Molecular Biology Gordon Conference, Henniker, New Hampshire
- Phytochemical Society of North America, Pullman, Washington
- 7th International Congress of Plant Pathology, Edinburgh, Scotland.
- Cambridge Healthtech Symposium on Crop Genetics, Minneapolis, Minnesota.
- University of Oklahoma at Norman
- American Institute of Chemical Engineering, Miami Beach, Florida

1999

- Department of Entomology, University of Maryland
- Department of Microbiology and Molecular Genetics, Oklahoma State University
- Institute of Cell and Molecular Biology, University of Edinburgh, Scotland
- Institute for International Research Agricultural Genomics Conference, San Diego, California
- Plant Biochemistry Course, Washington State University
- Rendez-vous BioAtlantech; Farm, Forests and Fish Genomic Technology Conference, Fredericton, New Brunswick, Canada
- International Molecular Farming Conference, London, Ontario
- European Research Conference on Plant Cell Biology and Biotechnological Applications:

- Signal Recognition, Transduction Mechanisms and Gene Regulation, Rolduc, The Netherlands
- Novartis Inc, Research Triangle Park, North Carolina
- Akkadix Inc, San Diego, California

2000

- Zia Symposium on Plant Metabolic Engineering, New Mexico State University, Las Cruces, New Mexico
- Keystone Symposium on Signals and Signal Perception in Biotic Interactions in Plants, Taos, New Mexico.
- Department of Biochemistry, Oklahoma State University, Stillwater
- Oklahoma Medical Research Foundation, Oklahoma City
- American Chemical Society. Symposium on Flavonoids in Cell Function, San Francisco, California
- American Chemical Society. Symposium on Biosynthesis of Woody Plant Polymers and Related Substances, San Francisco, California
- John Innes Center, Norwich, UK
- Institute for International Research, Agricultural Genomics Conference, San Diego, California
- In Vitro Biology 2000, San Diego, California
- Society for Industrial Microbiology Annual Meeting, San Diego, California
- Phytochemical Society of North America and Mid-Atlantic Plant Molecular Biology Society Joint Annual Meeting, Beltsville, MD
- European Conference on the Nutritional Enhancement of Plant-Based Foods, Norwich, UK
- Oklahoma Molecular Plant Biology Conference, Oklahoma City, Oklahoma
- Department of Plant Pathology, University of Arkansas, Fayetteville, Arkansas

2001

- Plant and Animal Genome Meeting, *Medicago truncatula* community pre-meeting, San Diego, California
- Rice University, Houston, Texas
- Virginia Polytechnic University, Molecular Cell Biology and Biotechnology Series
- University of Texas at Austin
- David Michael and Company, Philadelphia, PA
- Purdue University, Department of Horticulture Faculty Retreat
- Texas Women's University, Denton, TX
- Keystone Meeting on Plant Foods for Human Health, Breckenridge, Colorado
- BBSRC Workshop on Natural Products, Warwick, UK
- North Central Division of the American Phytopathological Society, Manhattan, Kansas
- Brazilian Society of Plant Physiology, Ilheus, Bahia, Brazil
- Ohio State University, Plant Molecular Biology/Biotechnology Program Distinguished Speaker series.
- Crop Science Society of America, Charlotte, North Carolina
- National Congress of Biochemistry and Molecular Biology of Plants, La Paz, Mexico

- Metabolic Profiling Workshop, Kasuza Research Park, Chiba, Japan

2002

- University of Manitoba, Winnipeg, Canada (Victor M. Bendelow Memorial Lectureship)
- Department of Biochemistry, Royal Holloway, University of London, UK
- Plant Research Laboratory, Michigan State University, East Lansing, MI
- Biotechnology Institute, University of Delaware, Newark, DE
- Agricultural Biotechnology Center, Rutgers University, New Brunswick, New Jersey
- Center for Novel Agricultural Products, Department of Biology, University of York, York, UK
- International Conference on Genetics and Genomics of Legumes, Minneapolis, Minnesota (Keynote Lecture)
- Group Polyphenols International Meeting on Plant Polyphenols, Marrakesh, Morocco
- Metabolome Analysis and Systems Biology Workshop, Third International Congress of Systems Biology, Stockholm, Sweden

2003

- Gordon Conference on Agricultural Science, Ventura, California
- National Center for Natural Products Research, University of Mississippi, Oxford, MS
- Arizona State University, Tempe, AZ
- University of Arizona, Tucson
- Oklahoma Molecular Plant Biology Minisymposium, Stillwater, OK
- Society for Experimental Biology, Southampton, UK
- Phytochemical Society of Europe, Phytochemistry and Biology of Lignans, Bornheim-Walbeberg, Germany
- International Conference on Molecular Breeding of Forage and Turf, Dallas, Texas (Keynote Speaker)
- International Society of Plant Molecular Biology, Barcelona, Spain (speaker and session organizer/chair)
- University of Lancaster, Department of Plant Sciences, Lancaster, UK
- University of York, Department of Biology, York, UK
- Phytochemical Society of North America annual meeting, Peoria, Illinois
- CSSA Symposium on Lignin and Forage Digestibility, Denver, Colorado
- National Conference on Grazing Lands, Nashville, TN
- Chromatin Inc, Chicago, IL

2004

- Imperial College of London at Wye, UK
- University of North Carolina, Chapel Hill- North Carolina Plant Molecular Biology Consortium.
- Arizona State University, Tempe, AZ
- US Agricultural Research Service National Program 302 Assessment and Customer Workshop, St Louis, MO.
- Third International Congress on Plant Metabolomics, Ames, IA
- Galileo Pharmaceuticals, Sheffield, UK

- Metanomics GmbH, Berlin. Germany
- Fourth Tannin Conference, American Chemical Society, Philadelphia, PA
- Department of Biology, University of York, UK
- Third Plant Genomics European Meeting, Lyon, France.
- University of Nebraska, Lincoln, NE. Dermot Coyne Distinguished Lectureship
- Western Regional American Society of Plant Biologists, Reno, Nevada. Keynote lecture

2005

- American Chemical Society, "Applications of Metabolomics in Agriculture", San Diego, CA (March 13-17)
- Iowa State University, Loomis Lecturer and Minisymposium speaker (March 23)
- Natural Preservatives in Food Systems, Princeton, NJ (March 30-31)
- Molecular Cell & Developmental Biology, University of Texas at Austin (May 2)
- University of California, Davis (May 13)
- International Model Legume Congress, Asilomar, CA (June 2-9)
- 17th International Botanical Congress, Vienna, Austria (July 18-23)
- BASF Plant Sciences, Ludwigshafen, Germany (July 22)
- 12th European Congress on Biotechnology, Copenhagen, Denmark (August 21-25)
- Oklahoma BioLife Symposium, Oklahoma City (September 13)
- Medicago Genomic Function and Response to Biotic Stress, Ardmore, OK (October 25-27)
- Plant Cell Wall Seminar Series, USDA-ARS, Albany, CA (November 15/17)
- Society of Chemical Industry Symposium on Plants as Biofactories, London, UK (November 29-30)
- Pacificchem 2005, "Natural Products in Agriculture and Forestry: Structure, Function, and Utilization", Honolulu, Hawaii (December 15-20)

2006

- International Workshop on Anthocyanins, Rotorua, New Zealand, February 2006
- AgResearch, Palmerston North, New Zealand, February 2006
- Society for In Vitro Biology, Minneapolis, MN, June 2006
- 15th Federation of European Societies of Plant Biology, Lyon, France, Plenary speaker, July 2006
- American Society of Plant Biologists, Plenary speaker in symposium on "Plants mitigating global climate change", Boston, MA, August 2006
- 23rd International Conference on Polyphenols, Winnipeg, Manitoba, Canada, August 2006
- Suntory Ltd, Osaka, Japan, September 2006.
- BioJapan Conference- International Workshop on Plant Biotechnology for Production of Industrial Materials, Osaka, Japan, September 2006.
- Nara Institute of Science and Technology, Nara, Japan, September 2006.
- University of Illinois Institute for Genomic Biology, Pioneers in Genomics lecture series, Urbana, IL, October 2006
- Symposium on "Research into plant secondary metabolites and medicinal phytochemicals", The Institutes of BioAgricultural Sciences (IBS), Academia Sinica, Taipei, Taiwan, December 2006.

2007

- John Innes Centre, Norwich, UK, January 2007
- International Symposium on Secondary Metabolism in Plant Seeds: Current Status and Future Applications, German Society for Lipid Research, Potsdam, Germany, February 2007
- Carnegie Institute of Washington, Department of Plant Science, Stanford University, Palo Alto, CA, March 2007
- Mendel Biotechnology Inc, Hayward, CA, March 2007
- Department of Biochemistry and Cell Biology, Rice University, Houston, Texas, March 2007
- US Department of Energy, 29th Symposium on Biotechnology for Fuels and Chemicals, Denver, CO, April 2007
- Bio2007, Contributions of Plant Biotechnology to Human Health, Boston, MA, May 2007.
- University of Tennessee, Knoxville, TN, Department of Plant Sciences, July 2007
- Oak Ridge National Laboratory, Oak Ridge, TN, July 2007
- Phytochemical Society of Europe Symposium on Plants for Human Health in the Postgenome Era, Helsinki, Finland, August 2007.
- University of Kentucky Fall Symposium “Through the Looking Glass of Molecular and Cellular Genetics of Plants, Lexington, KY, September 2007
- Vth International Symposium on Natural Products, Chillan, Chile, October 2007
- American Society of Agronomy International Annual meeting, New Orleans, November 2007
- RIKEN Plant Science Center, Yokohama, Japan, November 2007
- Annual Symposium of the Phytochemical Society of Japan, Phytochemical Genomics, Tokyo, Japan, November 2007

2008

- Plant and Animal Genome Meeting, San Diego, CA, January 2008 (two presentations)
- DOE Bioenergy Sciences Center Annual Retreat, Townsend, Tennessee, February 2008
- Department of Molecular and Cellular Biology, University of Texas at Austin, February 2008
- Purdue-UAB Botanicals Center Symposium, March 2008.
- Michael Smith Laboratory, University of British Columbia, Vancouver, BC, March 2008.
- Dean’s Visionary Seminar series, University of New Hampshire, April 2008.
- Center for Chemical Ecology, Penn State University, April 2008.
- National Alfalfa Improvement Congress, Dallas TX and Ardmore, OK. June 2008
- Plenary speaker, 50th annual meeting of the Canadian Society of Plant Physiologists, Ottawa, June 2008.
- Plant Molecular Biology Gordon Conference, Plymouth, NH, July 2008
- NAS Lectureship seminar at the University of Minnesota, September 2008.
- Oklahoma State University Biochemistry and Molecular Biology Graduate Student Association, September 08.
- Danforth Center Fall Symposium, St louis, MO, October 2008

- DOE Bioenergy Science Center Retreat, Chattanooga, TN, December 2008
- IV International Conference on Legume Genomics and Genetics, Puerto Vallarta, Mexico, December 2008.

2009 (including accepted invitations)

- University of Tennessee and Oak Ridge National Laboratory course on Current Topics in Bioenergy Science, Knoxville, TN, February 2009
- US Department of Energy Feedstock Genomics and Genomes to Life Meeting, Bethesda, MD, February 2009
- International Association of Plant Biotechnology, Napier, New Zealand. February 2009
- AgResearch, Palmerston North, New Zealand. February 2009
- Texas A&M Molecular and Environmental Plant Sciences (MEPS) symposium. March 2009
- Second International Glucosinolate Conference, Helsingor, Denmark, May 2009
- Metabolic Engineering Gordon Conference, July 2009
- American Society of Plant Biologists Annual Meeting, Honolulu, HI, July 2009
- Plant Cell Wall Gordon Conference, August 2009
- International Congress of Plant Molecular Biology, St Louis, MO. October 2009
- Oklahoma Academy of Sciences Technical Meeting, East Central University, Ada, OK. Oklahoma Scientist of the Year address. November 2009
- 30th Annual Crown Gall Conference, Keynote address; Noble Foundation, Ardmore, OK. November 2009.
- 4th National Conference on Grazing Lands, Sparks/Reno, NV. December 2009.

2010 (including accepted invitations)

- 32nd Symposium on Biotechnology for Fuels and Chemicals, Clearwater Beach, Florida (April)
- John Innes Center, Norwich, UK (March)
- Plant Research Laboratory, Michigan State University (March)
- Colorado State University (April)
- BASF Plant Sciences, RTP, NC (May)
- University of California, Davis (May)
- 12th International Association for Plant Biotechnology Congress, St Louis, MO (June)
- Brock University, Ontario, CA (September)

INVITED TALKS TO NON-SCIENTIFIC, EDUCATIONAL, BUSINESS OR POLITICAL AUDIENCES

- Many presentations to charitable organizations such as local chapters of the Round Table, Kiwanees, etc, during the past 15 years
- Oklahoma Historical Society (Food and Society), Lake Murray, Ardmore, Oklahoma (2002)
- Oklahoma Farm Bureau Annual Legislative Meeting, Oklahoma City (2003)
- Oklahoma School for Science and Mathematics, Oklahoma City (2003)
- Oklahoma City Economic Club, Oklahoma City, OK (2004)
- United States Congress, Capitol Hill, Washington DC (congressional breakfast meeting) (2004)
- Presbyterian Health Foundation, Oklahoma City, “Meet the Scientist” (2004)

- Career workshop, ASPB Annual Meeting, Honolulu, HI (2008)

GRANT AWARDS

[**Note:** Research activities from 1988 to 1998 were funded internally by the Samuel Roberts Noble Foundation. The Foundation did not allow receipt of external funds until 1998].

Current:

- US Department of Agriculture (NIFA) Plant Biochemistry. (PI R.A. Dixon). Deciphering Proanthocyanidin Biosynthesis in Alfalfa. \$336,0632. 2009-2012.
- The State of Oklahoma- Oklahoma Bioenergy Center. (PI R.A. Dixon). Improving the performance of transgenic plants with improved efficiency for bioethanol processing. \$517,050, 2008-2009.
- The State of Oklahoma- Oklahoma Bioenergy Center. (PI F. Chen, Co-PI R.A. Dixon). Increasing lignin content for production of biomass better suited to gasification. \$164,350, 2008-2009.
- United States Department of Energy Bioenergy Research Centers. (\$125 million proposal with Oak Ridge National Laboratory as lead organization). (Noble Foundation PIs R.A. Dixon, F. Chen, R.S. Nelson, Z.Y. Wang, M. Udvardi, Y. Tang, E. Blancaflor, K. Craven, M. Saha and J. Bouton). 2007-2012 (\$8,265,872)
- National Institutes of Health. CERC Alzheimers (Co-PI with scientists from Mt Sinai Medical Center and Purdue and Rutgers Universities). \$193,970, 2007-2009.
- US Department of Energy. Systematic modification of monolignol pathway gene expression for improved lignocellulose utilization. \$700,000. 2006-2009.
- National Science Foundation Plant Genome Program. A genomics approach to the synthesis and secretion of bioactive plant natural products. \$1,400,000. 2006-2009
- The State of Oklahoma. The consortium for legume research: an integrated approach to cotton root rot disease of alfalfa. (Co-PI with Drs J. Bouton, B. Roe, S. Marek, K. Mysore, M. Sledge and L.W. Sumner). \$1,500,000. 2005-2007.
- Corporate sponsor. Characterization of Expressed Sequence Tags from Guar Seed cDNA Libraries.. \$620,360. 2004-2007. \$232,000 extension for 2008. Renewed 2009.
- Forage Genetics International. Genetic manipulation of lignin in alfalfa (\$195,000). 2002-2004. Renewed 2004-2006 (\$150,000). Renewed 2006-2008 (\$170,000). Renewed 2009.
- Forage Genetics International. Engineering condensed tannins in alfalfa (\$200,000). 2000-2003. Renewed 2004-2007 (\$225,000). Renewed 2007-2009 (\$170,000). Renewed 2009.

Completed:

- National Science Foundation, Metabolic Biochemistry Program. Structural and Functional Studies of Plant Natural Product Uridine Diphosphate Glycosyltransferases. (Co-PI with Dr Xiaoqiang Wang). \$495,000. 2004-2007

- US Department of Energy. Development of low lignin switchgrass for improved ethanol production. (Co-PI, with Drs Z-Y. Wang, F. Chen and J. Mielenz). \$670,166. 2005-2008.
- Forage Genetics International. Development of low-lignin silage maize (Co-PI with Dr Z-Y Wang [PI], J. Bouton). \$159,750. 2006-2008
- Oklahoma Center for the Advancement of Science and Technology Basic Plant Sciences Program. Characterization of isoflavone C-glycosyltransferase genes. \$90,000. 2007-2009
- National Science Foundation, Developing Countries Collaboration (Plant Genome Grant extension). A genomics approach to improvement of disease resistance in tea (*Camellia sinensis*). \$99,000. 2005-2007.
- Oklahoma Center for the Advancement of Science and Technology/ Health Research Program. Genetic modification of health-promoting isoflavones. \$135,000. 2002-005
- US Department of Energy. Deciphering the complex networks in monolignol formation, phenylpropanoid coupling and lignin assembly: an integrative approach (Co-PI with Dr Norman Lewis, Washington State University). \$330,000. 2002-2005
- National Science Foundation. Plant Genome Program An integrated approach to functional genomics in a model legume (Co-PI with Dr Pedro Mendes, Virginia Bioinformatics Institute). \$3,500,000. 2001-2005.
- National Science Foundation Multi-User Equipment and Instrumentation Resources. A single photon confocal laser scanning microscope for multispectral imaging of plant cellular processes (Co-PI with Drs E. Blancaflor [PI], G.D. May, M.J. Roossinck and R.S. Nelson). \$339,647. 2004-2007.
- David Michael and Co. Philadelphia, PA. Cloning and transgenic expression of the chain shortening enzyme of vanillin biosynthesis. (\$104,000). 1999-2001.
- David Michael and Co. Philadelphia, PA. Isolation of the chain shortening enzyme of vanillin biosynthesis. (\$50,000). 1998-99.
- Agribiotech Inc. and Forage Genetics International. Improved digestibility of alfalfa by genetic engineering. (\$165,000). 1998-2001.
- National Science Foundation EPSCoR program - Multidisciplinary Approaches to Molecular Analysis of Plant Biotic Stress (Co-PI) (\$975,000). 1992-1995
- UK Agricultural and Food Research Council - Enzymic and molecular genetic control of isoflavonoid phytoalexin biosynthesis. (\$103,504). 1986-1989
- UK Science and Engineering Research Council - The role of cinnamic acid as a modulator of the phenylpropanoid pathway in bean cells. (\$87,211). 1986-1989
- Gatsby Charitable Foundation - Enzymology and molecular cloning of isoflavone O-methyltransferase from alfalfa. (\$13,125). 1986-1989
- UK Agricultural and Food Research Council - Gene expression in the bean: *Colletotrichum* interaction. (\$167,435). 1985-1988
- ICI Corporate Biosciences - Molecular mechanisms underlying cinnamic acid control of phenylalanine ammonia-lyase production and removal. (\$12,696). 1985
- UK Agricultural and Food Research Council - Isolation, characterization and mode of action of endogenous elicitor molecules from *Phaseolus vulgaris*. (\$112,429). 1984-1987

- University of London Central Research Fund - Materials for production of monoclonal antibodies against plant proteins (\$1,225). 1983
- UK Science and Engineering Research Council and ICI Corporate Biosciences - Molecular mechanisms underlying cinnamic acid control of phenylalanine ammonia-lyase production and removal (\$86,595). 1982-1985
- UK Agricultural Research Council - Enzymic changes in relation to phytoalexin induction in *Phaseolus vulgaris*. (\$65,975). 1982-1985
- University of London Central Research Fund - Materials for density-labelling of plant proteins. (\$1,050). 1981
- South African Department of Agriculture and Fisheries - Resistance of avocado to *Phytophthora cinnamomi*. (\$2,625). 1981
- University of London Central Research Fund - Equipment for plant cell culture work. (\$4,200). 1980
- UK Agricultural Research Council - Enzymology and regulation of phytoalexin induction in the French bean. (\$31,500). 1979-1982

Fellowships, Travel Awards

- EMBO Short Term Fellowship to support nine weeks' sabbatical research at the Department of Genetics, Free University, Amsterdam. 1986
- Royal Society (London) Travel Grant to support three months' sabbatical research at the Salk Institute, San Diego. 1986

PATENTS

- Transgenic plants containing multiple disease resistance genes. C.J. Lamb, Q. Zhu, E.A. Maher, and R.A. Dixon. Issued. US patent number 5,530,187
- Isoflavone reductase promoter. R.A. Dixon, N.L. Paiva, and A. Oommen. Issued. US patent number 5,750,399. (International patents issued in Australia, New Zealand)
- Constitutive disease resistance (CDR1) gene and methods of use thereof. Y. Xia, R.A. Dixon and C. Lamb. Issued. US patent number 6,316,697
- Regulation of anthocyanin pigment production. J. Borevitz, X. Xia, R.A. Dixon and C. Lamb. Issued US patent number 6,573,432
- Genetic manipulation of isoflavonoids. R.A. Dixon and C.L. Steele. Issued. US patent number 7,038,113
- Isoflavonoid methylation enzyme. R.A. Dixon and X.-Z. He. Issued. US patent number 7,432,425
- Method for modifying lignin composition and increasing *in vivo* digestibility of forages. R.A. Dixon and D. Guo. Pending
- Methods and compositions for production of flavonoid and isoflavonoid nutraceuticals. R.A. Dixon, C.-J. Liu and B. Deavours. Australian Patent No. 2003270537, New Zealand Patent No. 538259.
- Methods and compositions for determining enzymatic activity and specificity of methyltransferases, J.Noel, C. Zubieta and R.A. Dixon. Issued. US patent No. 7,384,759

- Genetic manipulation of condensed tannins. R.A. Dixon, N.L. Paiva, D. Xie, S. Sharma. Issued. European patent No. 1546335. Australian patent No. 60/392,562
- Plant fatty acid amide hydrolases. K.D. Chapman, R. Shrestha and R.A. Dixon, Issued Jan 2008, US patent number 7,316,928
- Plant isoflavonoid hydroxylases and methods of use thereof. R.A. Dixon and C.-J. Liu, US patent number 7,442,851.
- Plant N-acyl ethanolamine binding proteins. K.D. Chapman, S. Tripathi and R.A. Dixon. Pending
- Modification of lignin biosynthesis. R.A. Dixon, M.S.S. Reddy and F. Chen. Pending
- Methods and compositions for modifying plant metabolic pathways. L. Tian and R.A. Dixon. Pending
- Plant isoflavone and isoflavanone *O*-methyltransferase genes, Bettina E. Deavours, Chang-Jun Liu and Richard A. Dixon. Pending.
- Production of proanthocyanidins to improve forage quality. R.A. Dixon, L. Modolo and G. Peel. Pending.
- Cotton root rot disease resistant plants. S.R. Uppalapati, K.S. Mysore, W. Li, L.W. Sumner and R.A. Dixon. Provisional, pending.
- Epicatechin glucosyltransferase. R.A. Dixon, Y. Pang, and G.J. Peel. Provisional, pending.
- Plants with modified lignin content and methods for production thereof. Q. Zhao, F. Chen and R. A. Dixon. Provisional, pending.

PUBLICATIONS

1. **Dixon, R.A. and Fuller, K.W.** (1976). Effects of synthetic auxin levels on phaseollin production and phenylalanine ammonia-lyase (PAL) activity in tissue cultures of *Phaseolus vulgaris* L. *Physiological Plant Pathology* **9**: 299-312.
2. **Dixon, R.A. and Fuller, K.W.** (1977). Characterization of components from culture filtrates of *Botrytis cinerea* which stimulate phaseollin biosynthesis in *Phaseolus vulgaris* cell suspension cultures. *Physiological Plant Pathology* **11**: 287-296.
3. **Dixon, R.A. and Fuller, K.W.** (1978). Effects of growth substances on non-induced and *Botrytis cinerea* culture filtrate-induced phaseollin production in *Phaseolus vulgaris* cell suspension cultures. *Physiological Plant Pathology* **12**: 279-288.
4. **Dixon, R.A. and Bendall, D.S.** (1978). Changes in phenolic compounds associated with phaseollin production in cell suspension cultures of *Phaseolus vulgaris*. *Physiological Plant Pathology* **13**: 283-294.
5. **Dixon, R.A. and Bendall, D.S.** (1978). Changes in the levels of enzymes of phenylpropanoid and flavonoid synthesis during phaseollin production in cell suspension cultures of *Phaseolus vulgaris*. *Physiological Plant Pathology* **13**: 295-306.

6. **Lamb, C.J. and Dixon, R.A.** (1978). Stimulation of de novo synthesis of L-phenylalanine ammonia-lyase during induction of phytoalexin biosynthesis in cell suspension cultures of *Phaseolus vulgaris*. FEBS Letters **94**: 277-280.
7. **Dixon, R.A. and Lamb, C.J.** (1979). Stimulation of de novo synthesis of L-phenylalanine ammonia-lyase in relation to phytoalexin accumulation in *Colletotrichum lindemuthianum* elicitor-treated cell suspension cultures of French bean (*Phaseolus vulgaris*). Biochimica et Biophysica Acta **586**: 453-463.
8. **Lawton, M.A., Dixon, R.A. and Lamb, C.J.** (1980). Elicitor modulation of L-phenylalanine ammonia-lyase in French bean cell suspension cultures. Biochimica et Biophysica Acta **633**: 162-175.
9. **Dixon, R.A., Browne, T. and Ward, M.** (1980). Modulation of L-phenylalanine ammonia-lyase by pathway intermediates in cell suspension cultures of dwarf French bean (*Phaseolus vulgaris* L.). Planta **150**: 279-28
10. **Dixon, R.A. and Lamb, C.J.** (1980). The specificity of plant defenses. Nature **283**: 135-136.
11. **Dixon, R.A.** (1980). Plant tissue culture methods in the study of phytoalexin induction. In "Tissue Culture Methods for Plant Pathologists", eds. D.S. Ingram and J.P. Helgeson, Blackwell Scientific Publications, Oxford, pp. 185-196.
12. **Lamb, C.J., Lawton, M.A., Taylor, S.J. and Dixon, R.A.** (1980). Elicitor modulation of phenylalanine ammonia-lyase in *Phaseolus vulgaris*. Annals of Phytopathology **12**: 423-433.
13. **Dixon, R.A., Dey, P.M., Murphy, D.L. and Whitehead, I.M.** (1981). Dose responses for *Colletotrichum lindemuthianum* elicitor-mediated enzyme induction in French bean cell suspension cultures. Planta **151**: 272-280.
14. **Dixon, R.A. and van Lelyveld, L.** (1981). Biochemical studies on resistance of avocado to *Phytophthora cinnamomi*. South African Department of Agriculture and Fisheries Report.
15. **Dixon, R.A., Dey, P.M. and Whitehead, I.M.** (1982). Purification and properties of chalcone isomerase from cell suspension cultures of *Phaseolus vulgaris*. Biochimica et Biophysica Acta **715**: 25-33.
16. **Whitehead, I.M., Dey, P.M. and Dixon, R.A.** (1982). Differential patterns of phytoalexin accumulation and enzyme induction in wounded and elicitor-treated tissues of *Phaseolus vulgaris*. Planta **154**: 156-164.
17. **Dewick, P.M., Steele, M.J., Dixon, R.A. and Whitehead, I.M.** (1982). Biosynthesis of isoflavonoid phytoalexins: incorporation of sodium (1,2-¹³C₂) acetate into phaseollin and kievitone. Zeitschrift für Naturforschung **37c**: 363-368.
18. **Lawton, M.A., Dixon, R.A., Hahlbrock, K. and Lamb, C.J.** (1983). Rapid induction of phenylalanine ammonia-lyase and of chalcone synthase synthesis in elicitor-treated plant cells. European Journal of Biochemistry **129**: 593-601.
19. **Lawton, M.A., Dixon, R.A., Hahlbrock, K. and Lamb, C.J.** (1983). Elicitor induction of mRNA activity: rapid effects of elicitor on

- phenylalanine ammonia-lyase and chalcone synthase mRNA activities in bean cells. *European Journal of Biochemistry* **130**: 131-139.
20. **Dixon, R.A., Dey, P.M., Lawton, M.A. and Lamb, C.J.** (1983). Phytoalexin induction in French bean: intercellular transmission of elicitation in cell suspension cultures and hypocotyl sections of *Phaseolus vulgaris*. *Plant Physiology* **71**: 251-256.
 21. **Whitehead, I.M. and Dixon, R.A.** (1983). Chalcone synthase from cell suspension cultures of *Phaseolus vulgaris*. *Biochimica et Biophysica Acta* **747**: 298-303.
 22. **Dixon, R.A., Gerrish, C., Lamb, C.J. and Robbins, M.P.** (1983). Elicitor modulated induction of chalcone isomerase in *Phaseolus vulgaris*. *Planta* **159**: 561-569.
 23. **Dixon, R.A., Dey, P.M. and Lamb, C.J.** (1983). Phytoalexins: enzymology and molecular biology. *Advances in Enzymology and Related Areas of Molecular Biology* **55**: 1-136.
 24. **Lamb, C.J., Bell, J., Norman, P., Lawton, M.A., Dixon, R.A., Rowell, P. and Bailey, J.A.** (1983). Early molecular events in the phytoalexin defense response. In "Structure and Function of Plant Genomes", eds. O. Ciferri and L. Dure III, vol. 63, NATO ASI Series, Plenum, New York, pp. 313-328.
 25. **Van Lelyveld, L.J., Dixon, R.A. and Gerrish, C.** (1983). Biochemical investigation into post-storage physiological disorders in avocados. South African Department of Agriculture and Fisheries Report, 40 pp.
 26. **Bell, J.N., Dixon, R.A., Bailey, J.A., Rowell, P.M. and Lamb, C.J.** (1984). Differential induction of chalcone synthase mRNA activity at the onset of phytoalexin accumulation in compatible and incompatible plant-pathogen interactions. *Proceedings of the National Academy of Sciences USA* **81**: 3384-3388.
 27. **Van Lelyveld, L. J., Gerrish, C. and Dixon, R.A.** (1984). Enzyme activities and polyphenols related to mesocarp discoloration of avocado fruit. *Phytochemistry* **23**: 1531-1534.
 28. **Ryder, T.B., Cramer, C.L., Bell, J.N., Robbins, M.P., Dixon, R.A. and Lamb, C.J.** (1984). Elicitor rapidly induces chalcone synthase mRNA in *Phaseolus vulgaris* cells at the onset of the phytoalexin response. *Proceedings of the National Academy of Sciences USA* **81**: 5724-5728.
 29. **Robbins, M.P. and Dixon, R.A.** (1984). Induction of chalcone isomerase in elicitor-treated bean cells. Comparison of rates of synthesis and appearance of immunodetectable enzyme. *European Journal of Biochemistry* **145**: 195-202.
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