**Andrew Neil Webber**

**2023**

***ADDRESS***

 School of Life Sciences

 Arizona State University

 Tempe, Arizona, 85287-4501

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***EDUCATION***

 **Ph.D**. in Biology, University of Essex, UK. 1980-84

 **B.Sc. (Honors)** in Biological Chemistry, University of Essex, UK. 1977-80

 Stroud Technical College, UK 1974-77

***ADMINISTRATIVE POSITIONS***

 **Executive Director**, Office of the Provost, ASU 2016-2023

 **Interim Dean**, Division of Graduate Education, ASU 2015-2016

 **Vice Provost** for Graduate Education, ASU 2013-2015

 **University Accreditation Officer,** ASU 2013-2023

 **Associate Vice Provost**, Graduate College, ASU 2007-2013

 **Associate Dean**, Division of Graduate Studies, ASU 2005-2007

 **Associate Director**, School of Life Sciences, ASU 2003-2005

 **Director**, Center for the Study of Early Events in Photosynthesis, ASU 2000-2003

***PROFESSIONAL EXPERIENCE***

 **Senior Sustainability Scientist,** Julie Ann Wrigley Global Institute

 of Sustainability, ASU. 2017-present

 **Professor**, School of Life Sciences, ASU 2003-present

 **Professor**, Department of Plant Biology, ASU 2000-2003

 **Associate Professor**, Department of Plant Biology, ASU 1995-2000

 **Visiting Scientist**,Max-Volmer-Institute TU Berlin 1995

 **Assistant Professor**, Department of Botany, ASU 1989-1995

 **Postdoctoral scientist**, University of California, Berkeley 1988-1989

 **SERC Postdoctoral Fellow**, University of Cambridge, UK. 1986-1988

 **Postdoctoral scientist**, University of California, Riverside. 1984-1986

 **Visiting Postdoctoral Fellow**, University of Nebraska, Lincoln. 1984

***SELECTED AWARDS, HONORS AND SERVICE TO PROFESSION***

HLC Peer review team member for Colorado State University 2023

 HLC Peer review team member for University of Michigan 2021

 HLC Peer review team member for University of Nebraska 2020

Panel Member, Graduate Research Fellowships Program, NSF 2019

Panel Member, Graduate Research Fellowships Program, NSF 2017

 Peer Corps Member, Higher Learning Commission 2016-present

Panel Member, Graduate Research Fellowships Program, NSF 2016

 Invited Speaker, Council of Graduate Schools Summer Institute 2015

 Invited Speaker, Council of Graduate Schools Annual Meeting 2014

 Invited Speaker, Interdisciplinary Graduate Education Workshop, NSF 2012

 Editorial Board Member, PLoS One 2011-present

 Advisory Board Member: Longitudinal Study of Future STEM Faculty 2009-2013

 Panel Member, NSF Predoctoral Fellowships 2007

 Founding Fellow, Academy for the Arts, Science and Technology of 2005

 Arizona,

 Panel Member, NSF Predoctoral Fellowships 2005

 Associate Editor, Photosynthesis Research 2002-present

 Invited speaker, Gordon Research Conference 2003

 Panel member, NSF REU-Site Program 2002

 Panel member, NRICPG USDA Plant Biochemistry program 2002

Biology, 6/e (Johnson and Raven): Research highlighted 2001 <http://www.mhhe.com/biosci/genbio/raven6/lab3/labs/lab3/home.html>

 Panel member, NSF REU-Site Program 2001

 Panel member, NSF Molecular Biochemistry Program 2000

 Discussion leader, Gordon Research Conference 1998

 Editorial Board, Photosynthesis Research 1998-2002

 Panel member, NRICPG USDA Photosynthesis and Respiration Program 1997

 Invited speaker, Gordon Research Conference 1996

 Organizer, 4th Western Regional Photosynthesis Conference 1995

Visiting Scientist, Max-Volmer-Institute, TU-Berlin 1995

 Invited speaker, Photosystem I Conference, Berlin 1993

 Invited Speaker, Photobiology Society Annual Meeting 1991

 Director, NSF Research Experience for Undergraduates Program 1993-2003

 Postdoctoral Fellowship, Science and Engineering Research Council 1986-1988

 Wain Postdoctoral Fellowship, Agricultural and Food Research Council 1984

 Natural Environment Research Council Studentship 1980-1983

***Significant Department, College and University Service***

***University***

 University Pandemic Committee, 2014-present

 University Accreditation Officer, 2013-present

 University Academic Senate, Ad Hoc member 2013-16

 Curriculum and Academic Programs Committee, Ad Hoc member 2013-16

 Ethics Review Committee, 2012-13

 Energy Meta Plan Executive Committee, 2010-2018

 Graduate Council, 2005-2016

 Research Deans Council, 2006-2013

 Personnel Advisory Committee (PAC20), 2005-2009

 Council for Research and Creative Activities, 1999-2002.

 Radiation Protection Committee, 1995-2001.

 University Academic Senate, 1996-98.

***College***

 Reorganization of Life Sciences Steering Committee, 2002-03

 Interdisciplinary Science and Technology Building Planning Committee (ISTB1), 2003-2004

 Committee of Review, 1999-2002.

 Academic Standards Committee, 1995-98.

 Chair, Molecular and Cell Biology PhD Program Recruitment Committee, 1997-99.

 Member, Molecular and Cellular Biology PhD Program Executive Committee, 1992-94.

Photosynthesis Center Seminar Committee, 1990-1994

Photosynthesis Center Personnel Committee, 1997-99.

Photosynthesis Center Executive Committee, 1989-present

***Department/School***

 Bioenergy Hiring Planning Committee, 2011

 Executive Committee, School of Life Sciences, 2003-2005

 Chair, Joint Biochemistry/SoLS Faculty Search Committee, 2004

 Faculty Search Committee for Bioethics, 2004

 Personnel Committee, Department of Plant Biology (Chair 2002/03), 2000-03

 CBME Chemical Engineering Faculty Search Committee member, 1998-99.

 Departmental AA/EEO Representative, 1995-98

 Student Advisor, 1994-96.

 Chair, Faculty Search Committee for Plant Molecular Geneticist, 1998-99.

 Chair, Faculty Search Committee for Plant Molecular Biologist, 1996-97.

 CBME Chemical Engineering Faculty Search Committee member, 1991-92.

 Faculty Search Committee for Research Scientist (EPR Facility), 1990-91.

 Faculty Search Committee for Urban Horticulturist, 1989-90.

***GRADUATE STUDENT AND POSTDOCTORAL TRAINING***

***Committees Chaired***

Anthony Gutierrez

Ruo Hui Xu

Liying Cui

Hyeonmoo Lee

Hui Su

Joe Austin,

Asaph Cousins (2012 SoLS Outstanding Alumni Awardee)

Faye Farmer

Jayita Goswami

Michael McConnell

***Committee member***

 Jiujang Yu

 Ghaozong Shen

 Lilian Jiang.

 Zhiqian Pan

 Hsin-Sheng Yang

 Richard White

 Chia-Yuan Hu

 David Wolfe

 Michael Laird

 Keith Idso

 Martin Tichy

 Donald Crampton

 Cale Lisenbee

 Laura Eggink

 Daniel Dojconovic

 Martin Hohmann-Marriott

 Zhi Cai

***Postdoctoral Fellows***

 Rajagopal Subramanian

 Krzysztof Gibasiewicz

 Ramesh, VM

 Gying Nie

 Neal Adam

 Hyeonmoo Lee

 Pamella Gibbs

***FUNDING***

*\*Awards as Institutional PI*

*\*\*Graduate and Undergraduate Research Training Grants*

 \*“2012 Bisgrove Scholar Program” Science Foundation Arizona, 2012-14

 $400,000, A. Webber

\*\*”IGERT; Solar Utilization Network (SUN)”, NSF, $3,000,000, 2012-17

 W. Vermaas, A. Webber, 18 Co-PI’s

\* “Graduate Research Fellowships and K12 partnerships at ASU” 2009-12

 Science Foundation Arizona, $964,000, A. Webber

\*“Graduate Research Fellowships at ASU” Science Foundation Arizona, 2008-11

 $3,250,000, A. Webber.

\*“Graduate Research Fellowships at ASU” Science Foundation Arizona, 2007-11

 $3,650,000, A. Webber.

 “Purchase of an Instrument for Ultrafast, Multidimensional 2006-09

 Fluorescence Detection and Imaging,”NSF, $500,000. W. Petuskey,

 S. Lin, N. Woodbury, A. Webber (5 other Co-PI’s)

"Excitation Energy Transfer in the photosystem I,” 2005-09

 DOE, $360,000. A. Webber (PI) and N. Woodbury

"Structure of Photosystem I super complexes," NSF, $1,400,000 2004-11

 P. Fromme (PI), A. Webber and A. Melakazernov.

"Excitation energy transfer in the photosystem I core antenna," 2002-05

 DOE, $300,000. A. Webber (PI) and Neal Woodbury.

“Pathway of electron transfer in Photosystem I,” NRICGP-USDA, $205,000. 2001-05

 A. Webber.

\*\*"IGERT: Optical biomolecular devices," NSF, $2,826,800. 2001-06

 N. Woodbury PI and 12 CoPI's

\*\*“Research experience in chemical and biochemical aspects of photosynthesis,” 2000-03

 NSF, $150, 000. A. Webber.

“Excitation energy transfer in the photosystem I core antenna: function of 1999-02

 the clustered and connecting chlorophylls,” DOE, $300,000. A. Webber (PI)

 and Neal Woodbury.

“Analysis of the primary electron donor of photosystem I in 1998-00.

 *Chlamydomonas* mutants,” NRICGP-USDA, $105,000. A. Webber.

“Carbon balance of a wheat ecosystem from source to sink in response 1997-00

 to Free-Air CO2 enrichment and nitrogen,” Agricultural Research Service,

 USDA, $148,000. A. Webber.

“Acquisition of a pulsed FT-EPR spectrometer,” NSF, $324,850, 1997-99

 LoBrutto, R. (PI)., Blankenship, R, Frasch, W., Gust, D.,

 Vermaas, W., Webber, A.

\*\*“Research experience in chemical and biochemical aspects of photosynthesis,” 1997-00

 National Science Foundation, $150,000. A. Webber.

\*\*“Research training grant in optical biomolecular devices,” NSF, $1,780,000, 1996-01

 Woodbury, N. (PI), Gust, D., Blankenship, R. Pizziconi, V.,

 Webber, A.

“Spectroscopic analysis of site-directed mutants of photosystem I,” 1995-96

 NATO, $6000, Kuhn, M. (PI) and Webber, A. N.

“Mutational analysis of the photosystem I reaction center in chloroplasts,” 1995-98

 NRICGP-USDA, $160,000. A. Webber (PI)

 and S. Bingham.

 \*\*“Research experience in chemical and biochemical aspects of 1994-97

 photosynthesis,” National Science Foundation, $150, 000. A. Webber.

“Specific mutagenesis of the photosystem I reaction center in chloroplasts,” 1993-95

 USDA National Research Initiatives Program, $110,000. A. Webber (PI)

 and S. Bingham.

\*\*“Research experience in photosynthesis,” National Science Foundation 1993-94

 $47, 000. A. Webber (PI).

“X-ray crystallography of photosynthetic complexes,”. Department of 1992-94 Energy, $208,860. Allen, J. (PI), Webber, A. N., (8 additional Co-PI’s).

“Manipulation of chloroplast genes for in situ studies of photosystem I 1991-93

 Assembly,” USDA National Research Initiatives Competitive

 Grants Program, $110,000. A. Webber (PI) and S. Bingham.

“A center for the study of early events in photosynthesis,” Department of 1991-94

 Energy, $1,295,882. Blankenship, R. E. (PI), Webber, A. N. and

 9 Co-PI’s.

“Function of low molecular weight polypeptides in photosystem II,” 1991-93

 National Science Foundation, $170,000. A. Webber.

“Electron paramagnetic resonance spectrometer for photosynthesis 1990-92

 Research,” $283, 340. Department of Energy University Instrumentation

 Program. Dr. R. E. Blankenship (PI), A. Webber (CoPI) and 8 others.

 “Regulation of chloroplast gene expression,” Science and Engineering 1987-88

 Research Council, UK, £7000. A. Webber.

“Chloroplast Biogenesis”, Science and Engineering Research Council, UK. 1986-88

 Postdoctoral Fellowship Award

***REVIEWER ACTIVITIES***

Department of Energy, National Science Foundation, United States Department of Agriculture, Human Frontiers Science Program (EU), Biotechnology and Biological Sciences Research Council (UK), Israeli Academy of Sciences, Biochimica Biophysica Acta, Biochemistry, Biophysical Journal, Current Genetics, EMBO Journal, FEBS letters, Journal of Applied Phycology, Journal of Biological Chemistry, Journal of Physical Chemistry, Nature, New Phytologist, Photochemistry and Photobiology, Photosynthesis Research, Physiologia Plantarum, Plant, Cell and Environment, Plant Molecular Biology, Plant Journal, Plant Physiology, PLoS, Proceedings of the National Academy of Sciences, Science.

***PUBLICATIONS***

**Webber, A.N.**, Baker, N.R., Platt-Aloia, K. and Thomson, W.W. 1984. Appearance of a state 1-state 2 transition during chloroplast development in the wheat leaf: Energetic and structural considerations. Physiologia Plantarum 60, 171-179.

**Webber, A.N.**, Baker, N.R., Paige, C.D. and Hipkins, M.F. 1984. Electron transport between photosystem 1 and photosystem 2 and development of a transthylakoid energy gradient during chloroplast development in the wheat leaf. In Advances in Photosynthesis Research (Sybesma, C. ed.) Vol. 4, pp. 665-668, Dr. Junk Publishers, The Hague.

Baker, N.R., Markwell, J.P., **Webber, A.N.** and Thornber, J.P. 1984. The role of light harvesting complex phosphorylation in mediating the state 1-state 2 transition: A re-examination. In: Advances in Photosynthesis Research (Sybesma, C. ed.), Vol. 3, pp. 319-322, Dr. Junk Publishers, The Hague.

Baker, N.R., **Webber, A.N.**, Bradbury, M., Markwell, J.P., Baker, M.G. and Thornber, J.P. 1984. Development of photochemical competence during growth of the wheat leaf. In Biosynthesis of the Photosynthetic Apparatus: Molecular Biology, Development and Regulation (Thornber, J.P., Staehlin, L.A. and Hallick, R.B., eds.), pp. 237-255, Alan R. Liss Inc., New York.

Percival, M.P., **Webber, A.N.** and Baker, N.R. 1984. Evidence for the role of the light harvesting chlorophyll a/b protein complex in photosystem II heterogeneity. Biochimica et Biophysica Acta 767, 582-589.

**Webber, A.N.**, Spencer, L., Sawyer, D.T. and Heath, R.L. 1985. Photosynthetic water oxidation: A new chemical model. Federation of European Biochemical Societies Letters 189, 258-262.

Markwell, J.P., **Webber, A.N.** and Lake, B. 1985. Mutants of sweet clover (*Melilotus alba*) lacking chlorophyll *b*: Studies on pigment-protein complexes and thylakoid protein phosphorylation. Plant Physiology 77, 948-951.

Markwell, J.P., **Webber, A.N.**, Danko, S.J. and Baker, N.R. 1985. Thylakoid protein kinase activities of three higher plant mutants deficient in chlorophyll *b*. Biochimica et Biophysica Acta 808, 156-163.

Gilmour, D.J., Hipkins, M.F., **Webber, A.N.** Baker, N.R. and Boney, A.D. 1985. The effect of ionic stress on photosynthesis in *Dunaliella tertiolecta*.: Chlorophyll fluorescence and spectral characteristics. Planta 163, 250-256.

**Webber, A.N.**, Baker, N.R., Paige, C.D. and Hipkins, M.F. 1986. Photosynthetic electron transport and establishment of an associated trans-thylakoid proton electrochemical gradient during development of the wheat leaf. Plant, Cell and Environment 9, 203-208.

Percival, M.P., **Webber, A.N.** and Baker, N.R. 1986. Modification of the interaction between photosystem II and the light harvesting chlorophyll *a/b* complex by protein phosphorylation in developing wheat thylakoids exhibiting different degrees of lateral heterogeneity. Biochimica et Biophysica Acta 848, 317-323.

Bredencampf, G.T., Percival, M.P., **Webber, A.N.** and Baker, N.R. 1986. Organization of the light harvesting apparatus during chloroplast development in wheat. In: Regulation of Chloroplast Differentiation (Akoyunoglou, G. and Senger, H. eds.), pp. 259-265.

Baker N.R. and **Webber, A.N.** 1987. Interactions of photosystems. In: Advances in Botanical Research (Callow, ed.), Vol. 13, pp. 1-62.

Cavello, P., **Webber, A.N.**, Danko, S.J., Markwell, J.P. and Baker, N.R. 1987. Changes in light-regulation of thylakoid protein phosphorylation during chloroplast development in wheat. Photosynthesis Research 12, 243-254.

**Webber, A.N.**, Platt-Aloia, K.A., Thomson, W.W. and Heath, R.L. 1987. Composition of the marginal regions of thylakoid membranes. In: Progress in Photosynthesis Research (Biggins, J. ed.), Vol. 2, 285-288.

Nishio, J.N., **Webber, A.N.**, Guralnick, L.J., Heath, R.L. and Ting, I.P. 1987. Photosynthetic properties of the three major tissue layers of the CAM plant *Peperomia camptotricha*. In: Progress in Photosynthesis Research (Biggins, J. ed.), Vol. 3, 523-526.

Spencer, L., Sawyer, D.T., **Webber, A.N.** and Heath, R.L. 1987. Thermodynamic constraints to photosynthetic water oxidation. In: Progress in Photosynthesis Research (Biggins, J. ed.), Vol. 1, 717-720.

**Webber, A.N.**, Platt-Aloia, K.A., Heath, R.L. and Thomson, W.W. 1988. The marginal regions of thylakoid membranes: a partial characterization using polyoxyethylene sorbitan monolaurate solubilisation of thylakoid membranes. Physiologia Plantarum 72, 288-297.

Gray, J.C., Dunn, P.P.J., Eccles, C.J., Green, R.M. Hird, S.M., Hoglund, A.S., **Webber, A.N.**, Willey, D.L. and Dyer, T.A. 1988. The chloroplast genome and the biogenesis of the chloroplast thylakoid membrane. Biochemical Society Transactions 16, 704-706.

**Webber, A.N.**, Packman, L.C., Chapman, D.J., Barber, J. and Gray, J.C. 1989. A fifth chloroplast-encoded polypeptide is present in the photosystem II reaction centre complex. Federation of European Biochemical Societies Letters 242, 259-262.

**Webber, A.N.**, Hird, S.M., Packman, L.C., Dyer, T.A. and Gray, J.C. 1989. A photosystem II polypeptide is encoded by an open reading frame co-transcribed with genes for cytochrome *b*-559 in wheat chloroplast DNA. Plant Molecular Biology 12, 141-151.

**Webber, A.N.**, Packman, L.C. and Gray, J.C. 1989. A 10kDa polypeptide associated with the oxygen-evolving complex of photosystem II has a putative *C*-terminal non-cleavable thylakoid transfer domain. Federation of European Biochemical Societies Letters 242, 435-438.

**Webber, A.N.** and Gray, J.C. 1989. Detection of calcium binding by photosystem II polypeptides immobilized onto nitrocellulose membrane. Federation of European Biochemical Societies Letters 249, 79-82.

**Webber, A.N.**, Wales, R. and Gray, J.C. 1989. 45Ca binding by photosystem II polypeptides. Techniques and New Developments in Photosynthesis (Barber, J. and Malkin, R. eds.) pp. 133-136, Plenum Press.

Gray, J.C., Hird, S.M., Wales, R., **Webber, A.N.** and Willey, D.L. 1989. Genes and polypeptides for photosystem II. Techniques and New Developments in Photosynthesis (Barber, J. and Malkin, R. eds.) pp. 423-435, Plenum Press.

Zilber, A., Wynn, R. M., **Webber, A.N.** and Malkin, R. 1990. Organization of photosystem I subunits in thylakoid membranes. Current Research in Photosynthesis (Baltscheffsky, M. ed.) Vol. 2, 575-578.

Gray, J. C., **Webber, A.N.**, Hird, S. M., Willey, D. L. and Dyer, T. A. 1990. Genes for photosystem II polypeptides. Current Research in Photosynthesis (Baltscheffsky, M. ed.) Vol. 3, 461-468.

**Webber, A.N.** and Malkin, R. 1990. Photosystem I reaction center proteins contain leucine zipper motifs - a proposed role in dimer formation. Federation of European Biochemical Societies Letters 264, 1-4.

Ikeuchi, M., Eggers, B., Shen, G., **Webber, A**., Yu, L., Hirano, A., Inoue, Y. and Vermaas, W. 1991. Cloning of the *psbK* gene from *Synechocystis* sp. PCC 6803, and characterization of photosystem II mutants lacking PSII-K. Journal of Biological Chemistry, 266, 11111-11115.

Hird, S.M., **Webber, A.N.**, Dyer, T.A. and Gray, J.C. 1991. Differential expression of the chloroplast genes for the 47kDa chlorophyll a-protein and the 10kDa phosphoprotein during chloroplast development in wheat. Current Genetics 19, 199-206.

Bingham, S.E., Xu, R-H and **Webber, A.N.** 1991. Transformation of chloroplasts with the *psaB* gene encoding a polypeptide of the photosystem I reaction center. Federation of European Biochemical Societies Letters 292, 137-140.

**Webber, A.N.**, Bingham, S.E., Gibbs, P.B., Misra, L.M. and Ward, J.B. 1992. Site-directed mutagenesis of the photosystem I reaction center in *Chlamydomonas reinhardtii*. Research in Photosynthesis (Murata, ed), Vol. I, 561-564.

**Webber, A.N.**, Gibbs, P.B., Ward, J.B. and Bingham, S.E. 1993. Site-directed mutagenesis of the photosystem I reaction center in chloroplasts: the proline-cysteine motif. Journal of Biological Chemistry 268, 12990-12995.

Xu, R-H., Bingham, S.E. and **Webber, A.N.** 1993. Increased mRNA accumulation in a chloroplast *psaB* frameshift mutant of *Chlamydomonas reinhardtii* suggests a role for translation in *psaB* mRNA stability. Plant Molecular Biology 22, 465-474.

**Webber, A.N.**, Nie, G.-Y. and Long, S.P. 1994. Acclimation of photosynthetic proteins to raising CO2. Photosynthesis Research 39, 413-426.

Bingham, S.E. and **Webber, A.N.** 1994. Maintenance and expression of heterologous genes in the chloroplast of *Chlamydomonas reinhardtii*. Journal of Applied Phycology 6, 239-245.

Cui, L., Bingham, S. E., Kuhn, M., Käss H., Lubitz, W. and **Webber, A.N.** 1995. Site-directed mutagenesis of conserved histidines in the helix VIII domain of PsaB impairs assembly of the photosystem I reaction center without altering spectroscopic characteristics of P700. Biochemistry 34, 1549-1558.

Rodday, S.M., **Webber, A.N.**, Bingham, S.E. and Biggins, J. 1995. Evidence that the FX domain in photosystem I interacts with the subunit PsaC: Site-directed changes in PsaB destabilize the subunit interaction in *Chlamydomonas reinhardtii*. Biochemistry 34, 6328-6334.

Nie, G.-Y., Long, S.P., Garcia, R.L. Kimball, B.A., LaMorte, R.L., Pinter, P.J., Wall, G.W., and **Webber, A.N.** 1995. Free-Air CO2 enrichment effects on the development of the photosynthetic apparatus in wheat, as indicated by changes in leaf proteins. Plant Cell and Environment, 18, 855-864.

Nie, G.-Y., Hendrix, D.L., **Webber, A.N.**, Kimball, B.A. and Long, S.P. 1995. Increased accumulation of carbohydrates and decreased photosynthetic gene transcript levels in wheat grown at an elevated CO2 concentration in the field. Plant Physiology 108, 975-983.

**Webber, A.N.**, Bingham, S.E. and Lee, H. 1995. Genetic engineering of thylakoid protein complexes by chloroplast transformation in *Chlamydomonas reinhardtii*. Photosynthesis Research 44, 191-205.

Hastings, G., Hoshina, S., **Webber, A.N.** and Blankenship, R. E. 1995. Universality of electron and energy transfer processes in photosystem I. Biochemistry, 34, 15512-15522.

Krabben, L., Käß, H., Schlodder, E., Kuhn, M., Lubitz, W., Su, H., Bingham, S. and **Webber, A.** 1995. Site-directed mutations of PsaB for the study of cofactor protein and protein-protein interactions of Photosystem I. In: Photosynthesis: From Light to Biosphere, Mathis, P. (Ed.), Kluwer Academic Publishers, Dordrecht, Vol I, pp. 123–126.

Hu, C.-Y., Houseman, A.L.P., Morgan, L., **Webber, A.N.** and Frasch, W.D. 1995. Catalytic function of a vital carboxylase residue in the beta subunit of the CF1-ATPase from C. reinhardtii. In: Photosynthesis: From Light to Biosphere, Mathis, P. (Ed.), Kluwer Academic Publishers, Dordrecht, Vol III, pp. 131–134.

Lee, H., Bingham, S.E. and **Webber, A.N.** 1996. Site-directed mutagenesis and analysis of revertants indicates a requirement for *C*-terminal amino acids of PsaB for stable assembly of the photosystem I reaction center complex. Photochemistry Photobiology 64, 46-52.

Lee, H., Bingham, S.E. and **Webber, A.N.** 1996. Function of 3’ non-coding sequences and stop codon usage in expression of the chloroplast *psaB* gene in *Chlamydomonas reinhardtii*. Plant Molecular Biology, 31, 337-354.

**Webber, A.N.** and Baker, N.R. 1996. Control of thylakoid membrane development and assembly. In: Oxygenic Photosynthesis: the Light Reactions (Ort and Yocum eds.), pp. 41-58, Kluwer Academic Publishers.

Hu, C.-Y., Houseman, A.L.P, Morgan, L., **Webber, A.N.** and Frasch, W.D. 1996. Catalytic function of conserved carboxylic residues in the -subunit of the chloroplast F1-ATPase from *Chlamydomonas reinhardtii*. Biochemistry, 35, 12201-12211.

**Webber, A.N.**, Su, H., Bingham S.E., Käss, H., Krabben, L., Kuhn, M., Schlodder, E. and Lubitz, W. 1996. Site-directed mutations affecting the spectroscopic characteristics and mid-point potential of the primary donor in photosystem I. Biochemistry, 39, 12857-12863.

**Webber, A.N.**, Lee, H. and Bingham, S. E. 1997. Structure and function of photosystem I: a molecular approach. In: Handbook of Photosynthesis (M. Pessarakli, ed.), pp. 219-230, Marcell Deker, inc.

Melkorzernov, A.N., Lin, S., Su, H., Bingham, S.E., **Webber, A.N.** and Blankenship, R.E. 1997. Specific mutation near the primary donor in photosystem I from *Chlamydomonas reinhardtii* alters the trapping time and spectroscopic properties of P700. Biochemistry, 36, 2898-2907.

Lee, H., Bingham, S.E. **Webber, A.N.** 1998. Mutational analysis of reaction centers in Chlamydomonas reinhardtii. In: Photosynthesis: Molecular Biology of Energy Capture (L. McIntosh, Ed.), Methods in Enzymology, Vol 297, pp311-319, Academic Press, Inc., FL.

**Webber, A.N.** and Bingham, S.E. 1998. Structure and function of photosystem I. In: Molecular Biology of Chlamydomonas: Chloroplasts and mitochondria (J.D. Rochaix, S. Merchant and M. Goldschmidt-Clermont eds.), pp. 323-348, Kluwer Academic Publishers.

Melkorzernov, A.N., Su, H., **Webber, A.N.** and Blankenship, R.E. 1998. Excitation energy transfer in thylakoid membranes from *Chlamydomonas reinhardtii* lacking chlorophyll *b* and with mutant photosystem I. Photosynthesis Research 56, 197-207.

Austin, J., Backhaus, R. and **Webber, A.N.** 1999. Photosystem I function and assembly in tobacco chloroplast mutants. In: Photosynthesis: Mechanism and Effects (G. Garab, ed.), Dordrecht: Kluwer Academic Publishers, 4 pp.

**Webber, A.N.** 2000. Photophosphorylation. In: Encyclopedia of Life Sciences, Macmillan Reference Limited, Stockton Press, 4pp.

**Webber, A.N.** 2000. Development of the photosynthetic apparatus. In: Leaf Development and Canopy Growth (B. Marshall and J. Roberts, eds.), pp. 145-170, Sheffield Academic Press.

Krabben, L. Schlodder, E., Jordan, R., Carbonera, D., Giacometti, G., Lee, H., **Webber, A.N.** and Lubitz W. 2000. The Influence of the Axial Ligands on the Spectral Properties of P700 of Photosystem I: A Study of Site-Directed Mutants. Biochemistry, 39, 13012-13025.

Adam N.R., Wall, G.W., Kimball, B.A., Pinter, Jr., P.A., LaMorte. R.L. and **Webber, A.N.** 2000. Acclimation Response of the Photosynthetic Apparatus in a Wheat Ecosystem Under Free-air CO2 Enrichment (FACE) and Variable Soil Nitrogen Regimes: Leaf Position and Phenology Determine Acclimation Response. Photosynthesis Research, 66, 65-77.

Wall, G.W., Adam, N.R., Brookes, T.J., Kimball, B.A., Pinter, Jr., P.P., LaMorte, R.L., Adamson, F.J., Hunsaker, D.J., Weschsung, G., Weschsung, F., Leavitt, S.W., Mathias, A.D. and **Webber, A.N.** 2000. Acclimation response of spring wheat in a free-air CO2 enrichment (FACE) atmosphere with variable soil nitrogen regimes: Net assimilation and stomatal conductance of leaves. Photosynthesis Research, 66, 79-95.

Brookes, T.J., Wall, G.W., Pinter, Jr., P.P., Kimball, B.A., LaMorte, R.L., Leavitt, S.W., Adamson, F.J., Hunsaker, D.J., Mathias, A.D. and **Webber, A.N.** 2000. Acclimation response of spring wheat in a free-air CO2 enrichment (FACE) atmosphere with variable soil nitrogen regimes: Net assimilation and stomatal conductance of leaves. Photosynthesis Research, 66, 97-108.

Cousins, A.B., Adam, N.R., Wall, G.W., Kimball, B.A., Pinter, Jr., P.P., Leavitt, S.W., LaMorte, R.L., Mathias, A.D., Ottman, M.J., Thompson, T.L. and **Webber, A.N.** 2001. Response of C4 photosynthesis in sorghum to growth under free-air carbon dioxide enrichment (face): Young leaves exhibit higher rates of photorespiration and decreased energy use efficiency. New Phytologist 150, 275-284.

Wall, G.W., Brookes, T.J., Adam, N.R., Cousins, A.B., Triggs, J., Kimball, B.A., Pinter, Jr., P.J., LaMorte, R.L., Ottman, M.J., Leavitt, S.W., Mathias, A.D., Williams, D.G. and **Webber, A.N.** 2001. Elevated atmospheric CO2 improved Sorghum plant water status by ameliorating the adverse effects of drought. New Phytologist, 152, 231-248.

**Webber, A.N.** and Lubitz, W. 2001. The primary electron donor of Photosystem I, P700. Biochimica Biophysica Acta 1507, 61-79.

Gibasiewicz, K., Ramesh, V., Melkozernov, A.N., Lin, S., Woodbury, N., Blankenship, R. E. and **Webber, A.N.** 2001. Excitation energy in the core antenna of PSI from *Chlamydomonas* *reinhardtii* CC 2692 at room temperature. Journal of Physical Chemistry B105, 11498-11506.

Ramesh, V.M., Gibasiewicz, K., and **Webber, A.N.** 2001. Specific mutations of the PsaB methionine axial ligand to chlorophyll(A0) of PSI in *Chlamydomonas reinhardtii*. Proceedings of the 12th International Congress on Photosynthesis, 4pp, CSRIO Publishing.

Austin, J, and **Webber, A.N.** 2001. Plastid alternative oxidase functions as an alternative electron acceptor in Arabidopsis and may protect young plastids from photodamage. Proceedings of the 12th International Congress on Photosynthesis, 4pp, CSRIO Publishing.

Gibasiewicz, K., Ramesh, V.M., Lin, S., Redding, K., Woodbury, N. W. and **Webber, A.N.** 2001. Mutation of ligands to connecting chlorophylls perturbs excitation dynamics in the core antenna of PS I from *Chlamydomonas reinhardtii*. Proceedings of the 12th International Congress on Photosynthesis, 4pp, CSRIO Publishing.

Cousins, A.C., Adam, N.A., Wall G.W., Kimball, B.A., and **Webber, A.N.** 2001. Photochemical energy use in Sorghum plants grown under drought and elevated CO2. Proceedings of the 12th International Congress on Photosynthesis, 4pp, CSRIO Publishing.

Hastings, G., Ramesh, V., Wang, R., Sivakumar, V. and **Webber, A.** 2001 Primary donor photo-oxidation in photosystem I: A re-evaluation of (P700+-P700) fourier transform infrared difference spectra. Biochemistry 40, 12943-12949.

Gibasiewicz, K., Ramesh, V., Lin, S., Woodbury, N., and **Webber, A.N.** 2002. Excitation dynamics in eukaryotic PSI from *Chlamydomonas* *reinhardtii* CC 2692 at 10 K. Direct detection of the reaction center exciton states. Journal of Physical Chemistry B, 106, 6322-6330.

Cousins, A.B., Adam, N.R., Wall, G.W., Kimball, B.A., Pinter, Jr, P.J., Ottman, M.J., Leavitt, S.W., **Webber, A.N.** 2002. Photosystem II energy use, non-photochemical quenching and the xanthophyll cycle in *Sorghum bicolor* grown under drought and Free-Air CO2 Enrichment (FACE) conditions. Plant Cell and Environment, 25, 1551-1559.

Ramesh, V.M., Guergova-Kuras, M., Joliot, P. and **Webber, A.N.** 2002. Electron transfer from plastocyanin to the photosystem I reaction center in mutants with increased potential of the primary donor in *Chlamydomonas* *reinhardtii*. Biochemistry, 41, 14652-14658.

Cousins, A.B., Adam, N.R., Wall, G.W., Kimball, B.A., Pinter, Jr, P.J., Ottman, M.J., Leavitt, S.W., **Webber, A.N.** 2003. Development of C4 photosynthesis in Sorghum leaves grown under elevated CO2, Journal of Experimental Botany, 54, 1969-1975.

Gibasiewicz, K., Ramesh, V., Lin, S., Woodbury, N., and **Webber, A.N.** 2003. Excitonic interactions in mutant and wildtype photosystem I reaction centers. Biophysical Journal 85, 2547-2559

Witt, H., Bordignon, E., Carbonera, D., Dekker, J.P., Karapetyan, N., Teutloff, C., **Webber, A.**, Lubitz, W. and Schlodder, E. 2003. Species specific differences in the spectroscopic properties of P700 investigated by site-directed mutagenesis of photosystem I from *Chlamydomonas reinhardtii*. Journal of Biological Chemistry, 278, 46760-46771.

Ramesh, V., Gibasiewicz, K., Lin, S., Scott E. Bingham and **Webber, A.N.** 2004. Bidirectional electron transfer in photosystem I: accumulation of A0- in A-side and B-side mutants of the axial ligand to chlorophyll A0. Biochemistry, 43, 1369-1375

Ramesh, V.M. and **Webber, A.N.** 2004. Rapid isolation and purification of photosystem I (PSI) chlorophyll - binding protein from *Chlamydomonas reinhardtii.* In: Methods in Molecular Biology, (Carpentier, R., Ed), Humana Press.

Ramesh, V.M. Bingham, S.E. and **Webber, A.N.** 2004. Specific mutagenesis of Photosystem I reaction center proteins by chloroplasts transformation of *Chlamydomonas.* In: Methods in Molecular Biology, (Carpentier, R., Ed), Humana Press.

Adam N.R., Wall, G.W., Kimball, B.A., Pinter, Jr., P.A., LaMorte. R.L. and **Webber, A.N.** 2004. Photosynthetic down-regulation over long-term CO2 enrichment in leaves of sour orange (*Citrus aurantium*) trees. New Phytologist, 163, 341-347.

**Webber, A.N.** 2004. Photosystem II and Photosystem I Structure. In: Encyclopedia of Plant and Crop Science (Goodman, R.M. ed.), Marcel Dekker, Inc. NY. 4pp

Austin, J. and **Webber, A.N.** 2005. Photosynthesis in *Arabidopsis thaliana* mutants with reduced chloroplast number. Photosynthesis Research, 85, 373-384.

Rajagopal S., Jolley, C., Brune, D., Fromme, P. and **Webber, A.N.** 2006. Characterization of a novel Photosystem I-LHCI supercomplex isolated from *Chlamydomonas reinhardtii* under anaerobic (State II) conditions. Federation of European Biochemical Societies Letters, 580, 233-238.

Li, Y., van der Est, A., Lucas, M.G., Ramesh, V.M., Gu, F., Petrenko, P., Lin, S., **Webber, A.N.**, Rappaport, F., Redding, K. 2006. Directing electron transfer within Photosystem I by breaking H-bonds in the cofactor branches. Proceedings of the National Academy of Sciences, 103, 2144-2149.

**Webber, A.N.** and Ramesh, V. 2006. Mutagenesis of Ligands to Photosystem I Cofactors. In: Golbeck JH (ed) Photosystem I: The Light-Driven Plastocyanin: Ferredoxin Oxidoreductase, Vol 24. Springer, Dordrecht, pp 193-204

Ramesh, V.M., Gibasiewicz, K., Lin, S., Bingham, S.E., **Webber, A.N.** 2007. Replacement of the methionine axial ligand to the primary electron acceptor A0 slows the A0- reoxidation dynamics in Photosystem I. Biochim., Biophys. Acta, 1767, 151-160.

Gibasiewicz, K., Ramesh, V.M., Lin, S., Redding, K., Woodbury N.W., **Webber, A.N.** 2007. Two equilibration pools of chlorophylls in the Photosystem I core antenna. Photosynthesis Research, 92, 55-63.

Giera, W., Gibasiewicz, K., Ramesh, Ziolek, M., Karolczak, J., Dobek, A., **Webber, A.N.** 2008. A0 to A1 electron transfer in *Chlamydomonas reinhardtii* PSI with replaced A0 axial ligand. In: Allen JF, Grantt E. Golbeck, JH Osmond CB (eds) Photosynthesis. Energy from the Sun, Springer, Dordrecht pp.65-68

Giera, W., Gibasiewicz, K., Ramesh, V.M., Lin, S., **Webber, A.N.** 2009. Electron transfer from A0- to A1 in Photosystem I from *Chlamydomonas reinhardtii* occurs in both the A and B branch with 25-30-ps lifetime. Physical Chemistry Chemical Physics, 11, 5186-5191.

Giera, W., Gibasiewicz, K., Ramesh, V.M., **Webber, A.N.**, Stokkum, I, Grondelle, R. 2010. Effect of the P700 pre-oxidation and point mutations near A0 on the reversibility of the primary charge separation in Photosystem I from *Chlamydomonas reinhardtii,* Biochim. Biophys. Acta1797, 106-112.

Subramanyam, R., Fromme, P., **Webber, A.N.** 2010. Purification and characterization of photosystem I-light harvesting complex I supercomplexes from *chlamydomonas reinhardtii*. *Protocols on algal research* and cyanobacterial research. (eds: Bagachi, S.N., Mohanty, P., Kleiner, D) Narosa Publishers Pvt. Ltd., New Delhi, India pp 138-147.

Subramanyam, R., Jolley, C., Thangaraj, B., Nellaepalli, S., **Webber, A.N.**, Fromme, P. 2010. Structural and functional changes of PSI-LHCI supercomplexes of *Chlamydomonas reinhardtii* cells grown under high salt conditions. Planta, 231, 913-922.

Ramesh, V.M., Bingham, S.E., **Webber, A.N.** 2011. Specific mutagenesis of Photosystem I reaction center proteins by chloroplasts transformation of *Chlamydomonas.* In: Methods in Molecular Biology, (Carpentier, R., Ed), Humana Press.

Seymoure, B., Moeller, K., Borchert, J., Stahlschmidt, A., Ganesh, T., **Webber, A.** 2013. Our watery world: teaching middle-school students about biodiversity. Science Scope, 36, 72-78.

McConnell, M.D., Sun, J., Siavashi, R., **Webber, A.N.**, Redding, K.E., Golbeck, J.H., van der Est, A. 2015. Species Dependent Alteration of Electron Transfer in the Early Stages of Charge Stabilization in Photosystem I. Biochem. Biophys. Acta, 1847, 429-440.

Ramesh, V.M., Whitelegge, J., Bassilian, S., Lin, S., and **Webber, A.N.** 2015. Excitation energy transfer in PSI-LHCI supercomplexes from *Chlamydomonas reinhardtii* cells adapted to State 1 and State 2 conditions. PLoS One, in preparation.