

PUBLICATIONS

J. BARBER

- 1 Barber, J. (1968) Light induced uptake of potassium and chloride by *Chlorella pyrenoidosa*. *Nature* 217, 876-878
- 2 Barber, J. (1968) Measurement of the membrane potential and evidence for active transport of ions in *Chlorella pyrenoidosa*. *Biochim. Biophys. Acta* 150, 618-625
- 3 Barber, J. (1968) The influx of potassium into *Chlorella pyrenoidosa*. *Biochim. Biophys. Acta* 163, 141-149
- 4 Barber, J. (1968) The efflux of potassium from *Chlorella pyrenoidosa*. *Biochim. Biophys. Acta* 163, 531-538
- 5 Barber, J. (1968) Sodium efflux from *Chlorella pyrenoidosa*. *Biochim. Biophys. Acta* 150, 730-733
- 6 Barber, J. (1968) Light induced net uptake of sodium and chloride by *Chlorella pyrenoidosa*. *Arch. Biochem. Biophys.* 130, 389-392
- 7 Barber, J. (1970) Biophysical aspects of photosynthesis. *FEBS Lett.* 6, 289-294
- 8 Barber, J. and Kraan, G.P.B. (1970) Salt induced light emission from chloroplasts. *Biochim. Biophys. Acta* 197, 49-59
- 9 Shieh, Y.J. and Barber, J. (1971) Intracellular sodium and potassium concentrations and net cation movements in *Chlorella pyrenoidosa*. *Biochim. Biophys. Acta* 223, 594-603
- 10 Barber, J. and Shieh, Y.J. (1971) Net cation transport in *Chlorella pyrenoidosa*. In: *Proc. First Eur. Biophys. Congress*, Vol. 3 (Broda, E., Locker, A. and Springer-Lederer, H., eds.) pp107-110
- 11 Barber, J. and Varley, W.J. (1971) Millisecond delayed light as an indicator of electrical gradients across chloroplast thylakoids. *Nature* 234, 188-189
- 12 Barber, J. and Varley, W.J. (1972) Stimulation of delayed light emission by salt gradients and estimation of the relative ionic permeabilities of the thylakoid membrane. *J. Exp. Bot.* 23, 216-228
- 13 Barber, J. and Shieh, Y.J. (1972) Net and steady-state cation fluxes in *Chlorella pyrenoidosa*. *J. Exp. Bot.* 23, 627-636
- 14 Barber, J. and Varley, W.J. (1972) Ion gradient effects in the stimulation of delayed light from chloroplasts. In: *Proc. 2nd Int. Congr. Photosynthesis*, Vol.2, W. Junk, The Hague, pp 963-975
- 15 Barber, J. (1972) Method of estimating the magnitude of the light-induced electrical potential across thylakoid membranes. *FEBS Lett.* 20, 251-254

- 16 Barber, J. (1972) Stimulation of millisecond delayed light emission by KCl and NaCl gradients as a means of investigating the ionic permeability properties of thylakoid membranes. *Biochim. Biophys. Acta* 275, 105 -116
- 17 Barber, J. (1972) Delayed light emission from chloroplasts as an indicator of electrical gradients across thylakoid membranes. *J. Physiol.* 223, 23-24
- 18 Barber, J., Beauford, W. and Shieh, Y.J. (1973) Some aspects of mercury uptake by plant, algal and bacterial systems in relation to its biotransformation and volatilisation. In: *Mercury, Mercurials and Mercaptans* (Miller, M. ed.), C.T. Thomas, Springfield, Illinois, pp 325-345
- 19 Barber, J. (1973) Millisecond delayed light as an indicator of the electrical and permeability properties of thylakoid membranes. In: *Workshop on Ion Transport in Plants* (Anderson, W.P., ed.), Academic Press, pp 191-204
- 20 Shieh, Y.J. and Barber, J. (1973) Uptake of mercury by *Chlorella* and its effect on potassium regulation. *Planta* 109, 49-60
- 21 Barber, J. and Shieh, Y.J. (1973) Sodium transport in Na-rich *Chlorella* cells. *Planta* 111, 13-22
- 22 Neumann, J., Barber, J. and Gregory, P. (1973) The relation between photophosphorylation and delayed light emission in chloroplasts. *Plant Physiol.* 51, 1069-1073
- 23 Dewater, M.A. and Barber, J. (1973) Cation regulation in *Anacystis nidulans*. *Planta* 113, 143-155
- 24 Barber, J. and Shieh, Y.J. (1973) Effect of light on net Na and K transport in *Chlorella* and evidence for *in vivo* cyclic phosphorylation. *Plant Sci. Lett.* 1, 405-411
- 25 Telfer, A. and Barber, J. (1974) Twofold effect of valinomycin on isolated spinach chloroplasts: uncoupling and inhibition of electron transport. *Biochim. Biophys. Acta* 333, 343-352
- 26 Barber, J. (1974) Chloroplast structure and function. *FEBS Lett.* 38, 243-246
- 27 Barber, J. and Telfer, A. (1974) Ionic regulations in chloroplasts as monitored by prompt and delayed chlorophyll fluorescence. In: *Membrane Transport in Plants* (Zimmerman, U. and Dainty, J. eds.), Springer-Verlag, pp 281-288
- 28 Dewater, M.A. and Barber, J. (1974) Chloride transport in *Anacystis nidulans*. *Planta* 117, 163-172
- 29 Barber, J. and Neumann, J. (1974) An energy conservation site between H₂O and DBMIB. Evidence from msec delayed light and chlorophyll fluorescence studies in chloroplasts. *FEBS Lett.* 40, 196-199

- 30 Hipkins, M.F. and Barber, J. (1974) Estimation of the activation energy for millisecond delayed fluorescence from uncoupled chloroplasts. FEBS Lett. 42, 289-292
- 31 Barber, J., Telfer, A. and Nicolson, J. (1974) Evidence for divalent cation movement within isolated whole chloroplasts from studies with ionophore A23187. Biochim. Biophys. Acta 357, 161-165
- 32 Barber, J., Mills, J.D. and Nicolson, J. (1974) Studies with cation specific ionophores show that within the intact chloroplast Mg^+ acts as the main counter-ion for H^+ pumping. FEBS Lett. 49, 106-110
- 33 Barber, J., Telfer, A., Mills, J.D. and Nicolson, J. (1974) Slow chlorophyll fluorescence changes in isolated intact chloroplasts. Evidence for cation control. In: Proc. 3rd Int. Congress on Photosynthesis (Avron, M. ed.), Elsevier Pub. Co., Amsterdam, pp 53-63
- 34 Hipkins, M.F. and Barber, J. (1974) Analysis of kinetics and temperature sensitivity of delayed fluorescence from uncoupled spinach chloroplasts. In: Proc. 3rd Int. Congress Photosynthesis (Avron, M. ed.), Elsevier Pub. Co., Amsterdam, pp 101-114
- 35 Telfer, A., Barber, J. and Nicolson, J. (1975) Availability of monovalent and divalent cations within intact chloroplasts for the action of ionophores nigericin and A23187. Biochim. Biophys. Acta 396, 301-309
- 36 Mills, J.D. and Barber, J. (1975) Energy-dependent cation induced control of chlorophyll *a* fluorescence in isolated intact chloroplasts. Arch. Biochem. Biophys. 170, 306-314
- 37 Beauford, W., Barber, J. and Barringer, A.R. (1975) Heavy metal release from plants into the atmosphere. Nature 256, 35-37
- 38 Telfer, A., Barber, J. and Nicolson, J. (1975) Energy-dependent cation induced quenching of chlorophyll *a* fluorescence. Evidence for coupled cyclic electron flow in isolated intact chloroplasts. Plant Sci. Lett. 5, 171-176
- 39 Barber, J. (1976) Ionic regulation in intact chloroplasts and its effect on primary photosynthetic processes. In: The Intact Chloroplast, Vol.1, Topics in Photosynthesis (Barber, J., ed.), Elsevier, Amsterdam, pp 89-134
- 40 Beddard, G.S., Porter, G., Tredwell, C.J. and Barber, J. (1975) Fluorescence lifetimes in the photosynthetic unit. Nature 258, 166-168
- 41 Telfer, A., Nicolson, J. and Barber, J. (1976) Cation control of chloroplast structure and chlorophyll *a* fluorescence yield and its relevance to the intact chloroplast. FEBS Lett. 65, 77-83
- 42 Mills, J.D., Telfer, A. and Barber, J. (1976) Cation control of chlorophyll *a* fluorescence yield in chloroplasts. Location of cation sensitive sites. Biochim. Biophys. Acta 440, 495-505

- 43 Harris, L., Porter, G., Synowiec, J.A., Tredwell, C.J. and Barber, J. (1976) Fluorescence lifetimes of *Chlorella pyrenoidosa*. *Biochim. Biophys. Acta* 449, 329-339
- 44 Williams, W.P., Salamon, Z., Maullem, A., Barber, J. and Mills, J. (1976) Enhancement studies on algae and isolated chloroplasts, Part II. Enhancement of oxygen evolution in intact chloroplasts. *Biochim. Biophys. Acta* 430, 300-311
- 45 Barber, J. (1976) Cation control in photosynthesis. *Trends Biochem. Sci.* 1, 33-36
- 46 Barber, J. and Mills, J.D. (1976) Control of chlorophyll fluorescence by the diffuse double layer. *FEBS Lett.* 68, 288-292
- 47 Beauford, W., Barber, J. and Barringer, A.R. (1977) The release of particles containing metals from vegetation into the atmosphere. *Science* 195, 571-573
- 48 Searle, G.F.W., Barber, J., Harris, L., Porter, G. and Tredwell, C.J. (1977) Picosecond laser study of fluorescence lifetimes in spinach chloroplast photosystem I and photosystem II preparations. *Biochim. Biophys. Acta* 459, 390-401
- 49 Barber, J. and Mills, J.D. (1976) Cation interaction with chloroplast membranes. The diffuse double layer and chlorophyll fluorescence. Int. Workshop on Transmembrane Ionic Exchange in Plants (Rouen/Paris), Colloque due CNRS No. 258, pp 553-558
- 50 Beauford, W., Barber, J. and Barringer, A.R. (1977) Uptake and distribution of mercury within higher plants. *Physiol. Plant.* 39, 261-265
- 51 Barber, J., Mills, J.D. and Love, A. (1977) Electrical diffuse layers and their influence on photosynthetic processes. *FEBS Lett.* 74, 174-181
- 52 Searle, G.F.W., Barber, J. and Mills, J.D. (1977) 9-aminoacridine as a probe of the electrical double layer associated with chloroplast thylakoid membranes. *Biochim. Biophys. Acta* 461, 413-425
- 53 Barber, J. (1978) Measurement of ionic content and fluxes in microalgae. In: *Handbook of Phycological and Biochemical Methods* (Hellebust, J. and Craigie, J.S., eds.), Cambridge Univ. Press, pp 450-461
- 54 Barber, J. (1977) Energy conversion and ion fluxes in chloroplasts. In: *Fertilizer Use and Production of Carbohydrates and Lipids*. In: Proc. 13th Coll. of Int. Potash Inst., Pub. Int. Potash Inst., Berne, pp 83-93
- 55 Porter, G., Tredwell, C.J., Searle, G.F.W. and Barber, J. (1978) Picosecond time resolved energy transfer in *Porphyridium cruentum*, Part I, In the intact alga. *Biochim. Biophys. Acta* 501, 232-245
- 56 Searle, G.F.W., Barber, J., Porter, G. and Tredwell, C.J. (1978) Picosecond time resolved energy transfer in *Porphyridium cruentum*, Part II, In the isolated light-harvesting complex (phycobilisomes). *Biochim. Biophys. Acta* 501, 246-256

- 57 Telfer, A. and Barber, J. (1978) Dual action of ionophore A23187 on intact chloroplasts. *Biochim. Biophys. Acta* 501, 94-102
- 58 Barber, J. (1977) Thylakoid membrane surface charges in relation to prompt and delayed chlorophyll fluorescence. In: *Bioenergetics of Membranes* (Packer, L., Papageorgiou, G.C. and Trebst, A., eds.), Elsevier, Amsterdam, pp 459-469
- 59 Barber, J. (1978) Biophysics of Photosynthesis. *Reports on Progress in Physics*, Vol. 41. Inst. Physics, U.K., pp 1157-1199
- 60 Tredwell, C.J., Porter, G., Synowiec, J., Barber, J., Searle, G.F.W. and Harris, L. (1977) Picosecond laser spectroscopy of the photosynthetic unit. In: *Lasers in Chemistry* (West, M.A. ed.), Elsevier, Amsterdam, pp 304-310
- 61 Barber, J., Mauro, S. and Lannoye, R. (1977) The relationship between the yield factors for prompt and delayed fluorescence. *FEBS Lett.* 80, 449-454
- 62 Nakatani, H.Y. and Barber, J. (1977) An improved method for isolating chloroplasts retaining their outer membranes. *Biochim. Biophys. Acta* 461, 510-512
- 63 Barber, J., Tredwell, C.J. and Porter, G. (1977) Application of picosecond spectroscopy to photosynthesis research. In: *U.V. Spectrometry Group Bull.* No.5, pp 65-76
- 64 Barber, J., Searle, G.F.W. and Tredwell, C.J. (1978) Picosecond time resolved study of $MgCl_2^+$ induced chlorophyll fluorescence yield changes from chloroplasts. *Biochim. Biophys. Acta* 501, 174-182
- 65 Malkin, S. and Barber, J. (1978) Induction patterns of delayed luminescence from isolated chloroplasts. I. Response of delayed luminescence to changes in the prompt fluorescence yield. *Biochim. Biophys. Acta* 502, 524-541
- 66 Barber, J. and Nakatani, H.Y. (1980) Techniques for studying ionic regulation of chloroplasts. In: *Methods in Enzymology*, Vol.69, *Photosynthesis and Nitrogen Fixation* (San Pietro, A., ed.) Academic Press, pp 585-604
- 67 Barber, J. and Halliwell, B. (1977) Photosynthesis. *Nature* 270, 104-105
- 68 Barber, J. (1977) Photosystem II and oxygen evolution. *Proc. IV Int. Congr. on Photosynthesis*. Elsevier, Amsterdam, pp 423-433
- 69 Searle, G.F.W. and Barber, J. (1978) The involvement of the electrical double layer in the quenching of 9-aminoacridine fluorescence by negatively charged surfaces. *Biochim. Biophys. Acta* 502, 309-320
- 70 Nakatani, H.Y., Barber, J. and Forrester, J.A. (1978) Surface charges on chloroplast membranes as studied by particle electrophoresis. *Biochim. Biophys. Acta* 504, 215-225
- 71 Telfer, A., Barber, J., Heathcote, P. and Evans, M.C.W. (1978) Variable chlorophyll *a* fluorescence from P700 enriched photosystem one particles

- dependent on the redox state of the reaction centre. *Biochim. Biophys. Acta* 504, 153-1164
- 72 Mills, J.D. and Barber, J. (1978) Fluorescence changes in isolated broken chloroplasts and the involvement of the electrical double layer. *Biophys. J.* 21, 257-272
- 73 Butler, W.L., Tredwell, C.J., Malkin, R. and Barber, J. (1979) The relationship between the lifetime and yield of the 735 nm fluorescence of chloroplasts at low temperature. *Biochim. Biophys. Acta* 545, 309-315
- 74 Malkin, R. and Barber, J. (1978) New insights on the primary electron acceptor complex of photosystem II. *Biochem. Soc. Trans.*, London, Vol. 6, pp 909-913
- 75 Thornber, J.P. and Barber, J. (1979) Photosynthetic pigments and models for their organisation *in vivo*. In: *Photosynthesis in Relation to Model Systems*, Vol. III, Topics in Photosynthesis (Barber, J. ed.), Elsevier, Amsterdam, pp 27-70
- 76 Harriman, A. and Barber, J. (1979) Photosynthetic water splitting process and artificial chemical systems. In: *Photosynthesis in Relation to Model Systems*, Vol. III, Topics in Photosynthesis (Barber, J. ed.), Elsevier, Amsterdam, pp 243-280
- 77 Nakatani, H.Y., Barber, J. and Minski, M.J. (1979) The influence of thylakoid membrane surface properties on the distribution of ions in chloroplasts. *Biochim. Biophys. Acta* 545, 24-35
- 78 Tredwell, C.J., Synowiec, J.A., Searle, G.F.W., Porter, G. and Barber, J. (1978) Picosecond time resolved fluorescence of chlorophyll *in vivo*. In: *Ultrafast Reactions in Photosynthesis*, Vol. 8, Photochem. Photobiol. (Govindjee, ed.), Pergamon Press Ltd., pp 1013-1020
- 79 Malkin, R. and Barber, J. (1979) On the function of the fluorescence quenchers in chloroplasts and their relation to the primary electron acceptor of photosystem II. *Arch. Biochem. Biophys.* 193, 169-178
- 80 Evans, M.C.W., Heathcote, P., Telfer, A. and Barber, J. (1979) Redox potential dependence of electron transport and variable fluorescence in photosystem I. In: *Frontiers of Biological Energetics*, Vol. I, Academic Press Inc., pp 241-248
- 81 Barber, J. (1979) Energy transfer and its dependence on membrane properties. In: *Chlorophyll Organisation and Energy Transfer in Photosynthesis*. Ciba Foundation Symp. Meeting No. 61 (Special Issue), Elsevier, Amsterdam, pp 283-304
- 82 Barber, J. and Searle, G.F.W. (1978) Cation induced increase in chlorophyll fluorescence yield and the effect of electrical charge. *FEBS Lett.* 92, 5-8
- 83 Searle, G.F.W., Tredwell, C.J., Barber, J. and Porter, G. (1979) Picosecond time-resolved fluorescence study of chlorophyll organisation and excitation energy distribution in chloroplasts from wild-type barley and a mutant lacking chlorophyll b. *Biochim. Biophys. Acta* 545, 496-507

- 84 Searle, G.F.W. and Barber, J. (1979) Interaction of an amphipathic fluorescence probe, 2-p-toluidinonaphthalene-6-sulphonate, with isolated chloroplasts. *Biochim. Biophys. Acta* 545, 508-518
- 85 Barber, J. and Searle, G.F.W. (1979) Double layer theory and the effect of pH on cation-induced chlorophyll fluorescence. *FEBS Lett.* 103, 241-245
- 86 Barber, J. (1979) Primary processes of photosynthesis: Structural and functional aspects. *Photochem. Photobiol. Annual Reviews* 29, 203-207
- 87 Horler, D.N.H. and Barber, J. (1979) Relationship between vegetation and heavy metals in the atmosphere. In: Proc. Int. Conf. Management and Control of Heavy Metals in the Environment, CEP Consultants Ltd., Edinburgh, U.K., pp 275-278
- 88 Mills, J.D., Mitchell, P.D. and Barber, J. (1979) The cyclic electron transport pathway in chloroplasts. Reduction of plastoquinone by reduced nicotinamide adenine dinucleotide phosphate in the dark. *Photobiochem. Photobiophys.* 1, 3-9
- 89 Mauro, S., Lannoye, R. and Barber, J. (1979) Cation composition of the diffuse layer and the ability of ionophores to uncouple photosynthetic flow as monitored by millisecond delayed light emission. *Photobiochem. Photobiophys.* 1, 11-15
- 90 Neumann, J., Drechsler, Z., Searle, G.F.W. and Barber, J. (1979) 2-p-Toluidinonaphthalene-6-sulphonate (TNS). An energy transfer inhibitor in chloroplasts. *FEBS Lett.* 102, 121-125
- 91 Barber, J. and Chow, W.S. (1979) A mechanism for controlling the stacking and unstacking of chloroplast thylakoid membranes. *FEBS Lett.* 105, 5-10
- 92 Barber, J., Chow, W.S., Scoufflaire, C. and Lannoye, R. (1980) The relationship between thylakoid stacking and salt induced chlorophyll fluorescence changes. *Biochim. Biophys. Acta* 591, 92-103
- 93 Barber, J. (1980) Ionic regulation in chloroplasts and its control of photosynthesis. In: Plant Membrane Transport; Current Conceptual Issues (Spanswick, R.M., Lucas, W.J. and Dainty, J., eds.) Elsevier/North Holland Biomed. Press, pp 83-94
- 94 Nakatani, H.Y. and Barber, J. (1980) Further studies of thylakoid membrane surface charges by particle electrophoresis. *Biochim. Biophys. Acta* 591, 82-91
- 95 Rubin, B. and Barber, J. (1980) The role of membrane surface charge in the control of photosynthetic processes and involvement of electrostatic screening. *Biochim. Biophys. Acta* 592, 87-102
- 96 Horler, D.N.H., Barber, J. and Barringer, A.R. (1980) Effects of heavy metals on the absorbance and reflectance spectra of plants. *Int. J. Remote Sensing* 1, 121-136
- 97 Horler, D.N.H., Barber, J. and Barringer, A.R. (1980) A multielemental study of plant surface particles in relation to geochemistry and biogeochemistry. *Geochemical Exploration J.* 13, 41-50

- 98 Horler, D.N.H., Barber, J. and Barringer, A.R. (1980) Effects of cadmium and copper treatments and water stress on the thermal emission from peas (*Pisum sativum*): Controlled environmental experiments. *Remote Sensing Environ.* 10, 191-199
- 99 Telfer, A., Barber, J. and Jagendorf, A.T. (1980) Electrostatic control of chloroplast coupling factor binding to thylakoid membranes as indicated by cation effects on electron transport and reconstitution of photophosphorylation. *Biochim. Biophys. Acta* 591, 331-345
- 100 Chow, W.S. and Barber, J. (1980) Salt-dependent changes of 9-aminoacridine fluorescence as a measure of charge density on membrane surfaces. *J. Biochem. Biophys. Methods* 3, 173-185
- 101 Moller, I.M., Chow, W.S., Palmer, J.M. and Barber, J. (1980) 9-Aminoacridine as a fluorescence probe of the electrical diffuse layer associated with the membranes of plant mitochondria. *Biochem. J.* 193, 37-46
- 102 Chow, W.S. and Barber, J. (1980) 9-Aminoacridine fluorescence changes as a measure of surface charge density of thylakoid membranes. *Biochim. Biophys. Acta* 589, 346-352
- 103 Barber, J. (1980) An explanation for the relationship between salt-induced thylakoid stacking and the chlorophyll fluorescence changes associated with changes in spillover of energy from photosystem II to photosystem I. *FEBS Lett.* 118, 1-10
- 104 Olsen, L.F., Telfer, A. and Barber, J. (1980) A flash spectroscopic study of the kinetics of the electrochromic shift, proton release and redox behaviour of cytochromes *f* and *b-563* during cyclic electron flow. *FEBS Lett.* 118, 11-17
- 105 Govindjee and Barber, J. (1980) Photosynthesis session of the British Photobiology Society Meeting. *Photobiochem. Photobiophys.* 1, 183-187
- 106 Chapman, D.J. and Barber, J. (1980) Influence of growth temperature on acyl lipids of leaves. In: *Developments in Plant Biology*, Vol. 6, *Biogenesis and Function of Plant Lipids* (Mazliak, P., Benveniste, P., Costes, C. and Douce, R., eds.), Elsevier/North Holland Biomedical Press, Amsterdam, pp 103-106
- 107 Rubin, B.T., Chow, W.S., and Barber, J. (1981) Experimental and theoretical considerations of mechanisms controlling cation effects on thylakoid membrane stacking and chlorophyll fluorescence. *Biochim. Biophys. Acta* 634, 174-190
- 108 Chow, W.S. and Barber, J. (1980) Further studies of the relationship between cation-induced chlorophyll fluorescence and thylakoid membrane stacking changes. *Biochim. Biophys. Acta* 593, 149-157
- 109 Olsen, L.F., Cox, R.P. and Barber, J. (1980) Flash-induced redox changes of P700 and plastocyanin in chloroplasts suspended in fluid media at sub-zero temperatures. *FEBS Lett.* 122, 13-16

- 110 Yamamoto, Y., Ford, R., Chow, W.S. and Barber, J. (1980) Cation-induced fluorescence change in triton sub-chloroplast preparations. *Photobiochem. Photobiophys.* 1, 271-277
- 111 Markwell, J.P., Nakatani, H.Y., Barber, J. and Thornber, J.P. (1980) Chlorophyll protein complexes fractionated from intact chloroplasts. *FEBS Lett.* 122, 149-153
- 112 Barber, J. and Malkin, S. (1981) Salt induced microscopic changes in chlorophyll fluorescence distribution in the thylakoid membrane. *Biochim. Biophys. Acta* 634, 344-349
- 113 Olsen, L.F. and Barber, J. (1981) Origin of the slow component of the electrochromic shift: a charge delocalization model. *FEBS Lett.* 123, 90-94
- 114 Ford, R. and Barber, J. (1980) The use of diphenyl hexatriene to monitor the fluidity of the thylakoid membrane. *Photobiochem. Photobiophys.* 1, 263-270
- 115 Chow, W.S., Ford, R. and Barber, J. (1981) Possible effects of the detachment of stromal lamellae from granal stacks on salt induced changes in spillover. A study by sonication of chloroplasts. *Biochim. Biophys. Acta* 635, 317-326
- 116 Nakatani, H.Y. and Barber, J. (1981) Cholate extraction of a heme-protein from spinach thylakoids and its possible involvement in PSII oxygen evolution. *Photobiochem. Photobiophys.* 2, 69-78
- 117 Yamamoto, Y., Ford, R. and Barber, J. (1981) Relationship between thylakoid membrane fluidity and the functioning of pea chloroplasts. Effects of cholestryl hemeisuccinate. *Plant Physiol.* 67, 1069-1072
- 118 Barber, J., Horler, D.N.H. and Chapman, D.J. (1981) Photosynthetic pigments and efficiency in relation to the spectral quality of absorbed light. In: *Plants and the Daylight Spectrum* (Smith, H. ed.), Pub. Academic Press, London, pp 341-354
- 119 Horler, D.N.H. and Barber, J. (1981) Principles of remote sensing of plants. In: *Plants and the Daylight Spectrum*, (Smith, H. ed.), Pub. Academic Press, London, pp 43-63
- 120 Barber, J., Nakatani, H.Y. and Mansfield, R.W. (1981) Photosynthetic oxygen evolution and the water splitting enzyme. *Israel J. of Chemistry*, 21, 243-250
- 121 Barber, J. (1980) Membrane surface charges and potentials in relation to photosynthesis. [review] *Biochim. Biophys. Acta* 594, 253-308
- 122 Yamamoto, Y. and Barber, J. (1981) Measurement of degree of chlorophyll fluorescence polarization in relation to the regulation of excitation energy transfer between PSI and PSII in pea chloroplasts. *Biochim. Biophys. Acta* 637, 224-230
- 123 Brody, S.S., Porter, G., Tredwell, C.J. and Barber, J. (1981) Picosecond energy transfer in *Anacystis nidulans*. *Photobiochem. Photobiophys.* 2, 11-14

- 124 Horler, D.N.H., Barber, J. and Barringer, A.R. (1981) New concepts for the detection of geochemical stress in plants. In: Proc. Ann. Remote Sensing Soc. Conf., Plymouth, Pub. Remote Sensing Society, London, U.K. pp 113-123
- 125 Telfer, A. and Barber, J. (1981) ATP dependent State 1-State 2 changes in isolated pea thylakoids. FEBS Lett. 129, 161-165
- 126 Chow, W.S., Telfer, A., Chapman, D.J. and Barber, J. (1981) State 1-State 2 transition in leaves and its association with ATP induced chlorophyll fluorescence quenching. Biochim. Biophys. Acta 638, 60-68
- 127 Rubin, B.T., Barber, J., Paillotin, G., Chow, W.S. and Yamamoto, Y. (1981) A diffusional analysis of the temperature sensitivity of the Mg²⁺-induced rise in chlorophyll fluorescence from pea thylakoid membranes. Biochim. Biophys. Acta 638, 69-74
- 128 Brody, S.S., Tredwell, C.J. and Barber, J. (1981) Picosecond energy transfer in *Porphyridium cruentum* and *Anacystis nidulans*. Biophys. J. 34, 439-450
- 129 Barber, J. (1983) Properties and organisation of photosynthetic pigments. In: The Biology of Photoreception, (Cosens, D.J. and Vince-Prue D., eds.), Proc. Soc. Exp. Biol., Symp. 36, Cambridge University Press, pp 19-52
- 130 Barber, J. (1982) Influence of surface charges on thylakoid structure and function. Annu. Rev. Plant Physiol., 33, 261-295
- 131 Horler, D.N.H., Barber, J., Blackman, R. and Barringer, A.R. (1980) Effects of metal stress on optical properties of plants. In: Proc. 6th Percora Symp., Sioux Falls, Dekota, U.S.A., Soc. Exp. Exploration Geophysicists, Tulsa, U.S.A. pp 124-126
- 132 Barber, J., Barringer, A.R., Daubner, L., Davies, J.H., Dick, R. and Horler, D.N.H. (1981) Scientific and instrumental design criteria for field reflectance spectroscopy. In: Proc. Int. Colloq. Spectral Signatures of Objects in Remote Sensing, Avignon, France pp124-142
- 133 Ford, R.C., Chapman, D.J., Barber, J., Pedersen, J.Z. and Cox, R.P. (1982) Fluorescence polarization and spin label studies of the fluidity of stromal and granal chloroplast membranes. Biochim. Biophys. Acta 681, 145-151
- 134 Mansfield, R.W., Nakatani, H.Y., Barber, J., Mauro, S. and Lannoye, R. (1982) Charge density on the inner surface of pea thylakoids. FEBS Lett. 137, 133-136
- 135 Barber, J. (1982) The control of membrane organisation by electrostatic forces. BioScience Reports 2, 1-13
- 136 Nakatani, H.Y., Mansfield, R.W., Whitford, D. and Barber, J. (1982) Further studies of the role of a hemeprotein in oxygen evolution. Photobiochem. Photobiophys. 4, 121-129

- 137 Barber, J. (1982) Control of quantal distribution to the two photosystems. Pub. Commission of the European Comm. 016-76 ESUK. In: EUR Series (ref. EUR 7681, en MF)
- 138 Brody, S.S., Barber, J., Tredwell, C.J. and Beddard, G. (1981) Effects of linolenic acid on spectral properties of picosecond fluorescence of pea chloroplasts. Zeitschrifte fur Naturforsch. 36, 1021-1024
- 139 Yamamoto, Y. and Barber, J. (1981) Cation induced fluorescence changes in triton-subchloroplast preparations. In: Photosynthesis, Vol. I Photophysical Processes - Membrane Energization (Akoyunoglou, G., ed.), Balaban Int. Sci. Serv. Philadelphia, P.A., pp 347-356
- 140 Barber, J. (1981) Control of photosynthetic phenomena by surface membrane charges. In: Photosynthesis, Vol.1, Photophysical Processes - Membrane Energization (Akoyunoglou, G., ed.), Balaban Int. Sci. Serv. Philadelphia, P.A., pp 385-396
- 141 Barber, J., Rubin, B.T. and Chow, W.S. (1981) Theoretical aspects of cation induced chlorophyll florescence and thylakoid stacking changes. In: Photosynthesis, Vol. I, Photophysical Processes - Membrane Energization (Akoyunoglou, G., ed.), Balaban Int. Sci. Serv. Philadelphia, P.A., pp 397-405
- 142 Olsen, L., Telfer, A. and Barber, J. (1981) Kinetics of the electrochromic shift, proton release and cytochrome redox changes in cyclic electron flow studied by flash spectroscopy. In: Photosynthesis, Vol.1, Photophysical Processes - Membrane Energization, (Akoyunoglou, G., ed.) Balaban Int. Sci. Serv. Philadelphia, P.A. pp 479-488
- 143 Mauro, S., Barber, J. and Lannoye, R. (1981) The effect of transmembrane and surface electrical fields on acid-base induced delayed fluorescence. In: Photosynthesis, Vol.1, Photophysical Processes - Membrane Energization (Akoyunoglou, G., ed.) Balaban Int. Sci. Serv. Philadelphia, P.A., pp 553-559
- 144 Chow, W.S., Ford, R.C. and Barber, J. (1981) Salt-induced chlorophyll fluorescence and spillover changes. A requirement for the attachment of stromal to granal thylakoid membranes. In: Photosynthesis, Vol.1, Photophysical Processes - Membrane Energization, (Akoyunoglou, G., ed.), Balaban Int. Sci. Serv. Philadelphia, P.A., pp 595-604
- 145 Scoufflaire, C., Chow, W.S., Barber, J. and Lannoye, R. (1981) Further studies of the relationship between thylakoid stacking and salt induced chlorophyll fluorescence changes. In: Photosynthesis, Vol.1, Photophysical Processes - Membrane Energization, (Akoyunoglou, G., ed.), Balaban Int. Sci. Serv. Philadelphia, P.A., pp 605-616
- 146 Ford, R.C., Yamamoto, Y. and Barber, J. (1981) Lipid fluidity and photosynthetic electron flow: effect of cholesterol. In: Photosynthesis, Vol.1, Photophysical Processes - Membrane Energization, (Akoyunoglou, G., ed.), Balaban Int. Sci. Serv. Philadelphia, P.A., pp 617-626

- 147 Nakatani, H.Y., Barber, J. and Evans, M.C.W. (1981) A heme protein extracted from spinach thylakoids involved in PS2 oxygen evolution. In: Photosynthesis, Vol.2, Electron Transport and Photophosphorylation, (Akoyunoglou, G., ed.), Balaban Int. Sci. Serv. Philadelphia, P.A., pp 487-494
- 148 Chapman, D.J. and Barber, J. (1981) Adaptation in degree of fatty acid unsaturation of chloroplast membrane lipids to growth temperature. In: Photosynthesis, Vol.6, Photosynthesis and Productivity, Photosynthesis and Environment, (Akoyunoglou, G., ed.) Balaban Int. Sci. Serv. Philadelphia, P.A., pp 359-368
- 149 Mansfield, R.W., Nakatani, H.Y., Barber, J. and Cammack, R. (1981) The role of manganese in photosynthetic oxygen evolution. In: Photosynthesis, Vol.2, Electron Transport and Photophosphorylation, (Akoyunoglou, G., ed.), Balaban Int. Sci. Serv. Philadelphia, P.A., pp 343-352
- 150 Telfer, A. and Barber, J. (1981) Redox reactions of cytochromes *b-563* and *f* during cyclic electron flow induced by continuous illumination. In: Photosynthesis, Vol.2, Electron Transport and Photophosphorylation, (Akoyunoglou, G., ed.), Balaban Int. Sci. Serv. Philadelphia, P.A., pp 559-568
- 151 Mauro, S., Barber, J. and Lannoye, R. (1981) Surface charge asymmetry induced dark static transmembrane potential in thylakoids. Arch. Int. Physiol. B19
- 152 Mansfield, R.W. and Barber, J. (1982) Manganese levels associated with inside-out thylakoid membranes in relation to oxygen evolution. FEBS Lett. 140, 165-168
- 153 Scoufflaire, C., Lannoye, R. and Barber, J. (1982) Chlorophyll fluorescence and thylakoid stacking changes: electrostatic screening versus charge neutralization. Photobiochem. Photobiophys. 4, 249-256
- 154 Chapman, D.J., Millner, P., Ford, R.C. and Barber, J. (1982) Lipid content of chloroplast thylakoids and regulation of photosynthetic electron transport. In: Proc. 5th Int. Symp on Biochemistry and Metabolism of Plant Lipids, Groningen, The Netherlands, (Wintermans, J.F.G.M. and Kuiper, P.J.C., eds.), Elsevier, Amsterdam, pp 363-368
- 155 Horler, D.N.H., Barber, J., Darch, J.P., Ferns, D.C. and Barringer, A.R. (1983) Approaches to detection of geochemical stress in vegetation. COSPAR Symp. on Remote Sensing and Mineral Exploration. Adv. Res. 3, 175-179
- 156 Horler, D.N.H., Dockray, M., Barber, J. and Barringer, A.R. (1983) Red edge measurements for remotely sensing plant chlorophyll content. COSPAR Symp. on Remote Sensing and Mineral Exploration. Adv. Res. 3, 273-277
- 157 Horler, D.N.H., Dockray, M. and Barber, J. (1983) The red-edge of plant leaf reflectance. Int. J. Remote Sensing 4, 273-288
- 158 Telfer, A., Allen, J.F., Barber, J. and Bennett, J. (1983) Thylakoid protein phosphorylation during State 1-State 2 transitions in osmotically shocked pea chloroplasts. Biochim. Biophys. Acta 722, 176-181

- 159 Chapman, D.J., De Felice, J. and Barber, J. (1983) Influence of winter and summer growth conditions on leaf membrane lipids of *Pisum sativum*. *Planta* 157, 218-223
- 160 Packham, N.K., Mansfield, R.W. and Barber, J. (1982) Action of cyanide on the photosynthetic water splitting process. *Biochim. Biophys. Acta* 681, 538-541
- 161 Barber, J. (1983) Membrane conformational changes due to phosphorylation and the control of energy transfer in photosynthesis. *Photobiochem. Photobiophys.* 5, 181-190
- 162 Darch, J.P. and Barber, J. (1983) Multitemporal remote sensing a geobotanical anomaly. *Econ. Geology* 78, 770-782
- 163 Millner, P.A., Grouzis, J.-P., Chapman, D.J. and Barber, J. (1983) Lipid enrichment of thylakoid membranes. Using Soybean phospholipids. *Biochim. Biophys. Acta* 722, 331-340
- 164 Hodges, M. and Barber, J. (1983) Photosynthetic adaptation of pea plants grown at different light intensities: State 1-State 2 transitions and associated chlorophyll fluorescence changes. *Planta* 157, 166-173
- 165 Barber, J. (1982) Interactions between photosystem I and II. *Biochem. Soc. Trans.* 10, 331-334
- 166 Ford, R.C. and Barber, J. (1983) Time-dependent decay and anisotropy of fluorescence from diphenyl hexatriene embedded in the chloroplast thylakoid membrane. *Biochim. Biophys. Acta* 722, 341-348
- 167 Ford, R.C. and Barber, J. (1983) Incorporation of sterol into chloroplast thylakoid membranes and its effect on fluidity and function. *Planta* 158, 35-41
- 168 Mansfield, R.W. and Barber, J. (1983) EDTA-induced release of manganese and proteins from inside-out thylakoid vesicles and the inhibition of oxygen evolution. *Biochem. Biophys. Res. Comm.* 110, 545-551
- 169 Chapman, D.J., De Felice, J. and Barber, J. (1983) Growth temperature effects on thylakoid membrane lipids and protein content of pea chloroplasts. *Plant Physiol.* 72, 225-228
- 170 Gounaris, K. and Barber, J. (1983) Monogalactosyldiacylglycerol: the most abundant polar lipid in Nature. *Trends Biochem. Sci.* 8, 378-381
- 171 Scoufflaire, C., Martens, E., Lannoye, R. and Barber, J. (1983) ATP-induced quenching of chlorophyll fluorescence in chloroplasts of higher plants. Dependence on structural properties of the membranes. *Photosyn. Res.* 4, 191-202
- 172 Packham, N.K. and Barber, J. (1983) Recognition of interaction between the donor electron-transfer chains of photosystem II under conditions of partial inhibition of oxygen evolution. *Biochim. Biophys. Acta* 723, 247-255
- 173 Telfer, A., Hodges, M. and Barber, J. (1983) Analysis of chlorophyll fluorescence induction curves in the presence of DCMU as a function of magnesium

- concentration and NADPH activated light-harvesting chlorophyll *a/b* protein phosphorylation. *Biochim. Biophys. Acta* 724, 167-175
- 174 Hodges, M. and Barber, J. (1983) State 1-State 2 transitions in a unicellular green algae: analysis of *in vivo* chlorophyll fluorescence induction curves in the presence of DCMU. *Plant Physiol.* 72, 1119-1122
- 175 Barber, J. (1983) Photosynthetic electron transport in relation to thylakoid membrane composition and organization. *Plant, Cell and Environment* 6, 311-322
- 176 Chapman, D.J., Millner, P. and Barber, J. (1983) The influence of plant growth temperature on the lipid/protein ratio of chloroplast thylakoid membranes. *Biochem. Soc. Trans.*, Vol. II, 387-388
- 177 Gounaris, K., Sundby, C., Andersson, B. and Barber, J. (1983) Lateral heterogeneity of polar lipids in the thylakoid membranes of spinach chloroplasts. *FEBS Lett.* 156, 170-174
- 178 Ferns, D.C., Zara, S.J. and Barber, J. (1984) Application of high resolution spectro-radiometry to vegetation. *Photogramm. Eng. and Remote Sensing* 50, 1725-1735
- 179 Gounaris, K., Whitford, D. and Barber, J. (1983) The effect of thylakoid lipids on an oxygen evolving PSII preparation. *FEBS Lett.* 163, 230-234
- 180 Millner, P.A., Mitchell, R.A.C., Chapman, D.J. and Barber, J. (1984) Fluidity properties of isolated chloroplast thylakoid lipids. *Photosyn. Res.* 5, 63-76
- 181 Packham, N.K. and Barber, J. (1984) Stimulation by manganese and other divalent cations of the electron donation reactions of photosystem two. *Biochim. Biophys. Acta* 764, 17-23
- 182 Canaani, O., Barber, J. and Malkin, S. (1984) Evidence that phosphorylation and dephosphorylation regulate the distribution of excitation energy between the two photosystems of photosynthesis *in vivo*: Photoacoustic and fluorimetric study of an intact leaf. *Proc. Natl. Acad. Sci.* 81, 1614-1618
- 183 Hodges, M. and Barber, J. (1983) The significance of the kinetic analysis of fluorescence induction in DCMU-inhibited chloroplasts in terms of photosystem 2 connectivity and heterogeneity. *FEBS Lett.* 160, 177-181
- 184 Barber, J. (1984) Energy and electron transfer processes in relation to the organization of the chloroplast thylakoid membrane. In: *Charge and Field Effects of Biosystems* (Allen, M.J. and Usherwood, P.N.R., eds.), Abacus Press, pp 213-226
- 185 Packham, N.K. and Barber, J. (1984) A possible role of manganese in coupling the charge transfer reactions of photosystem 2 of chloroplasts. In: *Charge and Field Effects in Biosystems* (Allen, M.J. and Usherwood, P.N.R., eds.), Abacus Press, pp 273-278
- 186 Pick, U., Gounaris, K., Admon, A. and Barber, J. (1984) Activation of the CF₀-CF₁, ATP synthase from spinach chloroplasts by chloroplast lipids. *Biochim. Biophys. Acta* 765, 12-20

- 187 Millner, P.A., Mitchell, R.A.C., Chapman, D.J. and Barber, (1984) Time-resolved anisotropy decay of diphenyl hexatriene in isolated thylakoid lipid dispersions. In: Advances in Photosynthesis Research, Vol.III (Sybesma, C., ed.), Martinus Nijhoff/Dr. W. Junk, The Hague, pp 163-166
- 188 Mitchell, R.A.C. Millner, P.A., Chapman, D.J., Hodges, M. and Barber, J. (1984). Alterations in membrane fluidity induced by growth temperature in pea thylakoids. In: Advances in Photosynthesis Research, Vol. IV (Sybesma, C. ed.), Martinus Nijhoff/Dr. Junk, The Hague, pp 263-266
- 189 Packham, N.K., Wilson, K. and Barber, J. (1984) Cation control of photosystem 2 electron donation reactions. In: Advances in Photosynthesis Research, Vol. III (Sybesma, C. ed.), Martinus Nijhoff/Dr. W. Junk, The Hague, pp 227-230
- 190 Telfer, A., Barber, J., Bottin, H. and Mathis, P. (1984) Studies on the control of excitation energy distribution between the two photosystems in pea thylakoids by Mg^2 and LHCP phosphorylation. In: Advances in Photosynthesis Research, Vol. III, (Sybesma, C. ed.) Martinus Nijhoff/Dr. W. Junk, The Hague, pp 287-290
- 191 Whitford, D., Gounaris, K. and Barber, J. (1984) Studies on cytochrome *b*-559 of higher plant thylakoid membranes. In: Advances in Photosynthesis Research, Vol I (Sybesma, C ed.), Martinus Nijhoff/Dr. W Junk, The Hague, pp 497-500
- 192 Hodges, M. and Barber, J. (1984) The effect of cations and LHCP phosphorylation on the F_0 and slow phase of fluorescence induction curves in DCMU-treated pea chloroplasts. In: Advances in Photosynthesis Research, Vol. I, (Sybesma, C. ed.), Martinus Nijhoff/Dr. Junk, The Hague, pp 417-420
- 193 Havaux, M., Lannoye, R., Chapman, D.J. and Barber, J. (1984) Alterations in chloro-plast thylakoids during cold hardening of barley. In: Advances in Photosynthesis Research, Vol. IV (Sybesma, C. ed.) Martinus Nijhoff/Dr. Junk, The Hague, pp459-462
- 194 Gounaris, K., Whitford, D. and Barber, J. (1984) The effect of polar thylakoid lipids on oxygen evolution. In: Advances in Photosynthesis Research, Vol. III (Sybesma, C. ed.), Martinus Nijhoff/Dr. Junk, The Hague, pp 107-110
- 195 Giorgi, L., Packham, N.K. and Barber, J. (1984) Redox titrations of fast and slow phase of the 515 nm electrochromic absorption change in chloroplasts. In: Advances in Photosynthesis Research, Vol. II (Sybesma, C.ed.), Martinus Nijhoff/Dr. Junk, The Hague, pp 273-276
- 196 Chapman, D.J., De-Felice, J. and Barber, J. (1984) Lipid, protein and plastoquinone-A content of chloroplast thylakoids: Effect of plant growth temperature. In: Advances in Photosynthesis Research, Vol. IV (Sybesma, C. ed.), Martinus Nijhoff/Dr. Junk, The Hague, pp 275-278
- 197 Barber, J., Gounaris, K., Sundby, C. and Andersson, B. (1984) Lateral heterogeneity of polar lipids in the thylakoid membranes of spinach chloroplasts. In: Advances in Photosynthesis Research, Vol. III (Sybesma, C. ed.), Martinus Nijhoff/Dr. Junk, The Hague, pp 159-162

- 198 Barber, J. (1984) Lateral heterogeneity of proteins and lipids in the thylakoid membrane and implications for electron transport. In: Advances in Photosynthesis Research, Vol. III (Sybesma, C. ed.), Martinus Nijhoff/Dr. Junk, The Hague, pp 91-98
- 199 Telfer, A., Bottin, H., Barber, J. and Mathis, P. (1984) The effect of magnesium and phosphorylation of light harvesting chlorophyll *a/b* protein on the yield of P700-photooxidation in pea chloroplasts. *Biochim. Biophys. Acta* 764, 324-330
- 200 Millner, P.A., Chapman, D.J. and Barber, J. (1984) The effect of chloroplast coupling factor ATP synthase (CF₁-CF₀) reconstitution on fluidity properties of isolated thylakoid lipid vesicles. *Biochim. Biophys. Acta* 765, 282-287
- 201 Barber, J. (1984) Has the mangano-protein of the water splitting reaction of photosynthesis been isolated? *Trends in Biochem. Sci.* 9, 79-80
- 202 Barber, J., Ford, R.C., Mitchell, R.A.C. and Millner, P.A. (1984) Chloroplast thylakoid membrane fluidity and its sensitivity to temperature. *Planta* 161, 375-380
- 203 Barber, J. (1984) Further evidence for the common ancestry of cytochrome b-c complexes. *Trends in Biochem. Sci.* 101, 209-211
- 204 Havaux, M., Barber, J., Chapman, D.J. and Lannoye, R. (1984) Changes in leaf and thylakoid membrane lipids during low-temperature adaptation of winter barley (*Hordeum Vulgare* L.) *J. Exp. Bot.* 35, 948-954
- 205 Hodges, M., Packham, N.K. and Barber, J. (1984) ATP-induced changes in the photooxidation of a low potential cytochrome *b559*. *Photobiochem. Photobiophys.* 7, 311-317
- 206 Millner, P.A. and Barber, J. (1984) Plastoquinone as a mobile redox carrier in the photosynthetic membrane. *FEBS Lett.* 169, 1-6
- 207 Hodges, M. and Barber, J. (1984) Analysis of chlorophyll fluorescence quenching of DBMIB as a means of investigating the consequences of thylakoid membrane phosphorylation. *Biochim. Biophys. Acta* 767, 102-107
- 208 Barber, J. and Telfer, A. (1984) Factors controlling stacking of the thylakoid membrane of chloroplasts. *Proc. Phys. Soc. C40* 48P
- 209 Barber, J. and Millner, P.A. (1984) The regulation of fluidity in chloroplast thylakoid membranes. *Proc. Phys. Soc. C41* 49P
- 210 Telfer, A., Hodges, M., Millner, P.A. and Barber, J. (1984) The cation-dependence of the degree of protein phosphorylation-induced unstacking of pea thylakoids. *Biochim. Biophys. Acta* 766, 554-562
- 211 Packham, N.K. and Barber, J. (1984) The light intensity dependence of the efficacy of Ant 2p to inhibit the photosystem 2 reactions of chloroplasts. *Biochem. J.* 221, 513-520

- 212 Scoufflaire, C., Lannoye, R. and Barber, J. (1985) Influence of structural and physical properties of the thylakoid membrane on Q-A oxidation. *Photosyn. Res.* 6, 133-146
- 213 Barber, J. (1984) A quantum step towards artificial photosynthesis. *Nature* 307, 596
- 214 Packham, N.K. and Barber, J. (1984) The inhibitory action of Ant 2p on photosystem two. 3rd EBEC, Hannover, (Germany)
- 215 Millner, P.A. and Barber, J. (1984) Biophysical characteristics of plastoquinone lateral motion within the thylakoid membrane. 3rd EBEC, Hannover, GDR
- 216 Telfer, A., Hodges, M., Millner, P.A. and Barber, J. (1984) The effect of cations on the mechanism of regulation of excitation energy distribution by reversible phosphorylation of LHC in pea thylakoids. In: Proc. 3rd EBEC, Hannover, (Germany)
- 217 Barber, J. (1984) The role of surface electrical charge in controlling the organisation and functioning of the chloroplast thylakoid membrane. In: Proc. 3rd EBEC, Hannover, (Germany)
- 218 Barber, J. (1984) The genetic manipulation of photosynthesis. *Nature* 310, 184
- 219 Millner, P.A. and Barber, J. (1985) Intramolecular excimer formation as a probe of lateral viscosity in thylakoid membranes and reconstituted CF₁.CF₀/lipid vesicles. *Photobiochem. Photobiophys.* 9, 21-27
- 220 Giorgi, L.B., Packham, N.K. and Barber, J. (1985) Redox potentiometric titrations of the electrochromic absorption change in chloroplasts. *Biochim. Biophys. Acta* 806, 366-373
- 221 Chapman, D.J., Telfer, A., Hodges, M. and Barber, J. (1984) Lipid composition and photosynthetic electron transfer reaction of thylakoids from atrazine susceptible and resistant weed species. In: Proc. 4th Congr. Federation of European Soc. Plant Physiology, Strasbourg, P25. pp 71-72
- 222 Millner, P.A., Chapman, D.J., Mitchell, R.A.C. and Barber, J. (1984) Modulation of membrane fluidity by chloroplast thylakoid lipid protein ratio. In: *Developments in Plant Biology*, Vol. 9, Structure, Function and Metabolism of Plant Lipids (Siegenthaler, P.A. and Eichenberger, W., eds.), Elsevier, Amsterdam, pp 433-436
- 223 Chapman, D.J., De-Felice, J. and Barber, J. (1984) Lipids at sites of quinone and herbicide interaction with the PSII pigment protein complex of chloroplast thylakoids. In: *Developments in Plant Biology*, Vol. 9, Structure, Function and Metabolism of Plant Lipids (Siegenthaler, P.A. and Eichenberger, W., eds.), Elsevier, Amsterdam, pp 457-464
- 224 Gounaris, K., Lambillotte, M., Barber, J., Muehlethaler, K. and Jay, F. (1984) Monoclonal antibodies against thylakoid lipids. In: *Developments in Plant Biology*, Vol. 9, The Structure, Function and Metabolism of Plant Lipids (Siegenthaler, P.A. and Eichenberger, W., eds.), Elsevier, Amsterdam. pp 485-488

- 225 Gounaris, K., Pick, U. and Barber, J. (1984) The effect of thylakoid lipids on enzymatic activity and ultrastructure of membrane protein complexes. In: Developments in Plant Biology, Vol. 9, The Structure, Function and Metabolism of Plant Lipids (Siegenthaler, P.A. and Eichenberger, W., eds.), Elsevier, Amsterdam, pp 451-455
- 226 Barber, J. (1985) Protein-protein and protein-lipid interaction and the regulation of electron flow in photosynthesis. In: Proc. 16th FEBS Congr., Moscow, VNU Science Press BV. Part B, pp 9-20
- 227 Pick, U., Gounaris, K., Weiss, M. and Barber, J. (1985) Tightly bound sulfolipids in chloroplast CF_O-CF₁. *Biochim. Biophys. Acta* 808, 415-420
- 228 Hodges, M., Packham, N.K. and Barber, J. (1985) Modification of photosystem II activity by protein phosphorylation. *FEBS Lett.* 181, 83-87
- 229 Barber, J. (1985) A reaction centre elucidated. *Nature* 315, 278-279
- 230 Millner, P.A. and Barber, J. (1985) Modification of photosystem II-light harvesting complex molecular topography in response to protein phosphorylation as detected by reversible crosslinking. *Physiol. Veg.* 23, 767-775
- 231 Barber, J. (1986) Regulation of thylakoid membrane structure by surface electrical charge. In: Ion Interactions in Energy Transfer Systems (Papageorgiou, G., Barber, J. and Papa, S., eds.), Plenum Press. N.Y., pp 15-27
- 232 Barber, J. (1985) A new type of photosynthetic reaction centre discovered. *Trends in Biochem. Sci.* 10, 218
- 233 Malkin, S., Telfer, A. and Barber, J. (1986) Quantitative analysis of State 1-State 2 transitions in intact leaves using modulated fluorimetry - evidence for changes in the absorption cross-section of the two photosystems during state transitions. *Biochim. Biophys. Acta* 848, 48-57
- 234 Hodges, M. and Barber, J. (1986) Analysis of chlorophyll fluorescence induction kinetics exhibited by DCMU-inhibited thylakoids and the origin of a and b centres. *Biochim. Biophys. Acta* 848, 239-246
- 235 Barber, J. (1986) Organisation and dynamics of protein complexes within the chloroplast thylakoid membrane, In: Photosynthesis and Plant Genetic Engineering, Vol.14, Trans. Biochem. Soc. Oxford, pp 1-4
- 236 Chapman, D.J., De-Felice, J. and Barber, J. (1985) Characteristics of chloroplast thylakoid lipid composition associated with resistance to triazine herbicides. *Planta* 166, 280-285
- 237 Gounaris, K. and Barber, J. (1985) Isolation and characterisation of a photosystem II reaction centre lipoprotein complex. *FEBS Lett.* 188, 68-72
- 238 Barber, J. (1985) Thylakoid membrane structure and organisation of electron transport components, In: Photosynthetic Mechanisms and the Environment, Vol. 6,

Topics in Photosynthesis (Barber, J. and Baker, N.R., eds.), Elsevier Science Publishers, Amsterdam, pp 91-134

- 239 Chapman, D.J., De-Felice, J. and Barber, J. (1986) Polar lipid composition of chloroplast thylakoids isolated from leaves grown under different lighting conditions. *Photosynthesis Res.* 8, 257-265
- 240 Barber, J. and Gounaris, K. (1986) What role does sulpholipid play within the thylakoid membrane? *Photosynthesis Res.* 9, 239-249
- 241 Ide, J.P., Klug, D.R., Kühlbrandt, W., Giorgi, L.B., Porter, G., Gore, B., Doust, T. and Barber, J. (1985) Picosecond fluorescence and absorption spectroscopy of light harvesting chlorophyll protein complex from pea chloroplasts. *Biochem. Trans. Soc. Oxford*, pp 34
- 242 Giorgi, L.B., Doust, T., Gore, B.L., Klug, D.R, Porter, G. and Barber, J. (1985) Picosecond and absorption spectroscopy of photosystem I reaction centres from higher plants. *Biochem. Soc. Trans. Oxford*. pp 47-48
- 243 Whitelegge, J., Millner, P.A. and Barber, J. (1986) Lateral distribution of thylakoid protein kinase activities. *Biochem. Soc. Trans. Oxford*. pp 40-41
- 244 Barber, J. (1986) Surface electrical charges and protein phosphorylation In: *Encyclopedia of Plant Physiology, New Series, Photosynthesis III. Photosynthetic membranes and light harvesting systems*, Vol. 19, (Staehelin, L.A. and Arntzen, C.J., eds.) Springer-Verlag, Heidelberg. pp.653-664
- 245 Blackwell, M.F., Gounaris, K. and Barber, J. (1986) Evidence that pyrene excimer formation in membranes is not diffusion-controlled. *Biochim. Biophys. Acta* 858, 221-234
- 246 Chapman, D.J. and Barber, J. (1987) Polar lipids of chloroplast membranes. *Methods in Enzymology* 148, 294-319
- 247 Chapman, D.J. and Barber, J. (1986) Analysis of plastoquinone-9 levels in appressed and non-appressed thylakoid membrane regions. *Biochim. Biophys. Acta* 850, 170-172
- 248 Barber, J. (1986) Regulation of energy transfer by membrane conformational changes induced by protein phosphorylation. In: *Fifth Int. Seminar on Energy Transfer in Condensed Matter*, (Pancoska, P and Pantoflicek, J. eds.) Charles University, Prague pp 5-14
- 249 Gounaris, K., Barber, J. and Harwood, J.L. (1986) The thylakoid membranes of higher plant chloroplasts. *Biochem. J.* 237, 313-326
- 250 Barber, J. (1986) Regulation of energy transfer by cations and protein phosphorylation in relation to thylakoid membrane organisation. In: *Excitation energy and electron transfer in photosynthesis*. *Photosynthesis Res.(Butler Memorial Edition)* 10, 243-253

- 251 Barber, J. and Marder, J.B. (1986) Application of molecular genetics for determining photosynthetic membrane structure. *Biotech. Genet. Eng. Rev.* Vol. 4, pp. 355-404, Intercept Ltd., Newcastle-upon-Tyne
- 252 Millner, P.A., Marder, J.B., Gounaris, K. and Barber, J. (1986) Localization and identification of phosphoproteins within the photosystem II core of higher plant thylakoid membranes. *Biochim. Biophys. Acta* 852, 30-37
- 253 Barber, J. (1987) The control of photosynthetic efficiency by electrostatic interactions. In: *Current Trends in Life Sciences, XIII, Biomembranes: Structure, Biogenesis and Transport* (Rajamanicam, C. ed), Today & Tomorrow's Printers & Publ., New Delhi, India pp 1-10
- 254 Barber, J. (1986) New organism for elucidating the origin of higher plant chloroplasts. *Trends in Biochem. Sci.* 11, 234
- 255 Mitchell, R.A.C. and Barber, J. (1986) Adaptation of photosynthetic electron transport rate to growth temperature in pea. *Planta* 169, 429-436
- 256 Pick, U., Weiss, M., Gounaris, K. and Barber, J. (1987) The role of different thylakoid glycolipids in the function of reconstituted chloroplast ATP synthase. *Biochim. Biophys. Acta* 891, 28-39
- 257 Blackwell, M.F., Gounaris, K., Zara, S.J. and Barber, J. (1987) A method for estimating lateral diffusion coefficients in membranes from steady-state fluorescence quenching studies. *Biophys. J.* 51, 735-744
- 258 Telfer, A., Whitelegge, J.P., Bottin, H. and Barber, J. (1986) Changes in the efficiency of P700 photooxidation in response to protein phosphorylation detected by flash absorption spectroscopy. *J. Chem. Soc. Faraday Trans. 2, Special Issue* 82, 2207-2215
- 259 Nixon, P.J., Dyer, T.A., Barber, J. and Hunter, C.N. (1986) Immunological evidence for the presence of the D1 and D2 proteins in PSII cores of higher plants. *FEBS Lett.* 209, 83-86
- 260 Barber, J. (1987) Composition, organisation and dynamics of the thylakoid membrane in relation to its function. In: *Biochemistry of Plants, Vol. 10, Photosynthesis. A Comprehensive Treatise* (Hatch, M.D. and Boardman, N.K., eds.) Academic Press. pp. 75-130
- 261 Barber, J. (1987) The role of electrostatic forces in regulating membrane conformational changes induced by protein phosphorylation. In: *Membrane Receptors, Dynamics and Energetics, Vol.33, Life Sciences*, (Wirtz, K.W.A., ed.) Plenum Press, pp. 293-310
- 262 Packham, N.K. and Barber, J. (1987) Structural and functional comparison of anoxygenic and oxygenic organisms. In: *The Light Reactions, Vol. 8, Topics in Photosynthesis* (Barber, J., ed.) Elsevier, Amsterdam, pp. 1-30

- 263 Gounaris, K., Pick, U. and Barber, J. (1987) Stoichiometry and turnover of photosystem two polypeptides. FEBS Lett. 211, 94-98
- 264 Marder, J.B., Chapman, D.J., Telfer, A., Nixon, P.J. and Barber, J. (1987) Identification of *psbA* and *psbD* gene products, D1 and D2, as reaction centre proteins of photosystem 2. Plant Mol. Biol. 9, 325-333
- 265 Millner, P.A., Gogel, G. and Barber, J. (1987) Investigation of the spatial relationships between photosystem 2 polypeptides by reversible crosslinking and diagonal electrophoresis. Photosynthesis Res. 13, 185-198
- 266 Barber, J. (1987) Structure of key enzyme refined. Nature 325, 663-664
- 267 Barber, J. (1987) Rethinking the structure of the photosystem two reaction centre. Trends in Biochem. Sci. 12, 123-124
- 268 Pick, U., Gounaris, K. and Barber, J. (1987) Dynamics of photosystem 2 and its light harvesting system in response to light changes in the halotolerant alga *Dunaliella salina*. Plant Physiol. 85, 194-198
- 269 Barber, J., Gounaris, K. and Chapman, D.J. (1987) Isolation of the photosystem two reaction centre and the location and function of cytochrome *b*-559. In: Cytochrome Systems: Molecular Biology and Bioenergetics (Papa, S., Chance, B. and Ernster, L. eds.) Plenum Press. pp 657-666
- 270 Ireland, C.R., Telfer, A., Covello, P.S., Baker, N.R. and Barber J. (1988) Studies on the limitations to photosynthesis in leaves of the atrazine-resistant mutant of *Senecio vulgaris L.* Planta. 173, 459-467
- 271 Barber, J., Chapman, D.J. and Telfer, A (1987) Characterisation of a photosystem two reaction centre isolated from the chloroplasts of *Pisum sativum*. FEBS Lett. 220, 67-73
- 272 Ide, J.P., Klug, D.R., Crystall, B., Gore, B.L. Giorgi, L.B., Porter, G., Kühlbrandt, W. and Barber, J. (1986) Detergent effects upon the picosecond dynamics of higher-plant light harvesting chlorophyll complex (LHC2). J. Chem. Soc. Faraday Trans. (2) 82, 2263-2266
- 273 Telfer, A., Marder, J.B. and Barber, J. (1987) Photosystem two reaction centres isolated from phosphorylated pea thylakoids carry phosphate on the D1 and D2 polypeptide subunits. Biochim. Biophys. Acta 893, 557-563
- 274 Barber, J., Pick, U. and Gounaris, K. (1987) Variable and conserved characteristics of photosystem 2 of spinach and the halotolerant green alga *Dunaliella salina*. In: Progress in Photosynthesis Research, Vol. 2, (Biggins, J. ed.) Martinus Nijhoff Pubs. pp. 97-100
- 275 Gounaris, K., Barber, J. and Pick, U. (1987) Stoichiometry and turnover rates of photosystem 2 core polypeptides of the halotolerant green alga *Dunaliella salina*. In: Progress in Photosynthesis Research, Vol. 2, (Biggins, J. ed.) Martinus Nijhoff Pubs. pp. 93-96

- 276 Newell, W.R., Zara, S.J. and Barber, J. (1987) An analysis of the salt-induced rise of chlorophyll fluorescence to investigate ion-specific effects between and within valency groups. In: Progress in Photosynthesis Research, Vol. 2, (Biggins, J. ed.) Martinus Nijhoff Pubs. pp. 269-272
- 277 Chapman, D.J. and Barber, J. (1987) Reversible inhibition of photosystem two electron transfer reactions and specific removal of the extrinsic 23 kDa polypeptide by alkaline pH. In: Progress in Photosynthesis Research, Vol.1, (Biggins, J. ed.) Martinus Nijhoff Pubs. pp. 669-672
- 278 Marder, J.B., Millner, P.A., Gounaris, K. and Barber, J. (1987) Phosphorylated polypeptides of the photosystem 2 core complex. In: Progress in Photosynthesis Research, Vol. 2, (Biggins, J. ed.) Martinus Nijhoff Pubs. pp. 89-92.
- 279 Whitelegge, J.P., Millner, P.A., Gounaris, K. and Barber, J. (1987) The sensitivity of *Pisum sativum* thylakoid membrane protein kinase activity to inhibitors, detergents and heating. In: Progress in Photosynthesis Research, Vol. 2, (Biggins, J. ed.) Martinus Nijhoff Pubs. pp. 809-812
- 280 Blackwell, M.F., Gounaris, K. and Barber, J. (1987) Plastoquinol and plastoquinone diffusion in model membranes. In: Progress in Photosynthesis Research, Vol. 2, (Biggins, J. ed.) Martinus Nijhoff Pubs. pp. 501-504
- 281 Bhogal, M. and Barber, J. (1987) Photoinhibition and recovery in intact leaves of *Pisum sativum* grown in high and low light intensity. In: Progress in Photosynthesis Research, Vol. 4, (Biggins, J. ed.) Martinus Nijhoff Pubs. pp. 91-94
- 282 Nixon, P.J., Dyer, T.A., Barber, J. and Hunter, C.N. (1987) The production of monospecific antibodies to D1 and D2 polypeptides of photosystem II. In: Progress in Photosynthesis Research, Vol. 3, (Biggins, J. ed.) Martinus Nijhoff Pubs. pp. 779-782
- 283 Ide, J.P., Klug, D.R., Crystall, B., Gore, B.L., Giorgi, L.B., Kühlbrandt, W., Barber, J. and Porter, G. (1987) The dependence of the energy transfer kinetics of the higher plant light harvesting chlorophyll-protein complex on chlorophyll/detergent resolubilisation ratios. In: Progress in Photosynthesis Research, Vol. 1, (Biggins, J. ed.) Martinus Nijhoff Pubs. pp. 131-134
- 284 Giorgi, L.B., Gore, B.L., Klug, D.R., Ide, J.P., Barber, J. and Porter, G. (1987) Picosecond transient absorption spectroscopy of photosystem I reaction centres from higher plants. In: Progress in Photosynthesis Research, Vol.1, (Biggins, J. ed.) Martinus Nijhoff Pubs. pp. 257-260
- 285 Barber, J. (1987) Photosynthetic reaction centres: A common link. Trends Biochem. Sci. 12, 321-326
- 286 Zara, S.J., Nicholson, D., Parsonage, N.G. and Barber, J. (1989) Mixed valency counterions between charged walls: An investigation using Monte Carlo simulation and comparison with Poisson-Boltzmann Theory. J. Colloid Int. Sci. 129, 297-307
- 287 Giardi, M.T., Marder, J.B. and Barber, J. (1988) Herbicide binding to the isolated photosystem two reaction centre. Biochim. Biophys. Acta 934, 64-71

- 288 Chapman, D.J., Gounaris, K. and Barber, J. (1988) Electron transport properties of the isolated D1-D2-cytochrome b559 photosystem two reaction centre. *Biochim. Biophys. Acta* 933, 423-431
- 289 Marder, J.B., Telfer, A. and Barber, J. (1988) The D1 polypeptide subunit of the photosystem two reaction centre has a phosphorylation site at its amino terminus. *Biochim. Biophys. Acta* 932, 362-366
- 290 Kühlbrandt, W. and Barber, J. (1988) Separation of phosphorylated and unphosphorylated light-harvesting chlorophyll *a/b* protein complex by column chromatography. *Biochim. Biophys. Acta* 934, 118-122
- 291 Newell, W.R., van Amerongen, H., van Grondelle, R., Aalberts, J.W., Drake, A.F., Udvarhelyi, P. and Barber, J. (1988) Spectroscopic characterisation of the reaction centre of photosystem two from higher plants. *FEBS Lett.* 228, 162-166
- 292 Zara, S., Nicholson, D. and Barber, J. (1988) The use of supercomputers and microcomputers in computational chemistry. Job turnaround time as a criterion for the choice of system. *Molecular Simulation* 1, 299-307
- 293 Barber, J., Chapman, D.J., Gounaris, K. and Telfer, A. (1989) Further characterisation of the isolated PS2 reaction centre. In: *Photosynthesis: Molecular Biology and Bioenergetics* (Singhal, G.S., Barber, J., Dilley, R.A., Govindjee, Haselkorn, R. and Mohanty, P. eds.) Vedam Books Int. pp 85-102
- 294 Telfer, A., Marder, J.B. and Barber, J. (1989) Phosphorylation of photosystem two reaction centre polypeptides. In: *Photosynthesis: Molecular Biology and Bioenergetics* (Singhal, G.S., Barber, J., Dilley, R.A., Govindjee, Haselkorn, R. and Mohanty, P. eds.) Vedam Books Int. pp 175-188
- 295 Telfer, A., Barber, J. and Evans, M.C.W. (1988) Oxidation-reduction potential dependence of reaction centre triplet formation in the isolated D1/D2/cytochrome *b*-559 photosystem two complex. *FEBS Lett.* 232, 209-213
- 296 Barber, J. (1988) Signals from the reaction centre. *Nature* 332, 111-112
- 297 Barber, J. (1988) Surface electrical charges and their role in membrane function. In: *Plant Membranes: Structures, Assembly and Function*. (J.L. Harwood and T.J. Walton, eds.) Biochem. Soc. London, pp 73-83
- 298 Gounaris, K., Chapman, D.J. and Barber, J. (1988) The interaction between the 33 kD manganese stabilising protein and the D1/D2 cytochrome b559 complex. *FEBS Lett.* 234, 374-378
- 299 Barber, J. (1988) Organisation and dynamics of the chloroplast thylakoid membrane. *ISI Atlas of Science: Biochemistry* 1, 127-133
- 300 Barber, J., Chapman, D.J. and Gounaris, K. (1988) The reaction centre of photosystem two. In: *Proc. Fifth European Bioenergetics Conf.*, Aberystwyth

- 301 Gounaris, K., Chapman, D.J. and Barber, J. (1988) Lipid protein interactions and membrane function. In: Plant Membranes: Structures Assembly and Function. (J.L. Harwood and T.J. Walton, eds.) London, Biochem. Soc. pp 169-178
- 302 Barber, J. (1988) Electron-transfer theory in question. Nature 333, 114
- 303 Barber, J. (1988) Isolation of the reaction centre of photosystem two and its implications. In: Proc. Int. Congr. Plant Phys., Vol. 1 (S.K. Sinha, P.V. Sane, S.C. Bhargava and P.K. Agrawal, eds.) Publ. Verdam Books Int. pp 593-602
- 304 Barber, J. (1988) Similarities and differences between the photosystem two and purple bacterial reaction centres. In: Light-Energy Transduction in Photosynthesis: Higher Plant and Bacterial Models. (S.E. Stevens and D.A. Bryant, eds.) Publ. The American Soc. Plant Physiologists, Maryland, USA. pp 178-196
- 305 Barber, J., Malkin, S. and Telfer, A. (1989) The origin of chlorophyll fluorescence *in vivo* and its quenching by the photosystem two reaction centre. Phil. Trans. Royal Society, London B323, 227-239
- 306 Chapman, D.J., Wang, W.Q. and Barber, J. (1989) Low temperature stress and photoinhibition of photosystem two. In: Proc. Int. Congr. Plant Phys., Vol.1 (S.K. Sinha, P.V. Sane, S.C. Bhargava and P.K. Agrawal, eds.) Publ. Proc. Int. Plant Physiology Soc., New Delhi, pp 622-629
- 307 Chapman, D.J., De Felice, J., Davis, K. and Barber, J. (1989) Effect of alkaline pH on photosynthetic water oxidation and the association of extrinsic proteins with photosystem two. Biochem. J. 258, 357-362
- 308 Taylor, M.A., Nixon, P.J., Todd, C.M., Barber, J. and Bowyer, J. (1988) Characterisation of the D1 protein in a photosystem two mutant (LF-1) *Scenedesmus obliquus* blocked on the oxidising side. Evidence supporting non-processing of D1 as the cause of the lesion. FEBS Lett. 235, 109-116
- 309 Gounaris, K., Chapman, D.J. and Barber, J. (1988) Reconstitution of plastoquinone in the D1-D2-cytochrome b559 photosystem two reaction centre complex. FEBS Lett. 240, 143-147
- 310 Gounaris, K., Chapman, D.J. and Barber, J. (1989) Isolation and characterisation of a D1/D2/cyt b559 complex from *Synechocystis* 6803. Biochim. Biophys. Acta 973, 296-301
- 311 Crystall, B., Booth, P.J., Klug, D.R., Barber, J. and Porter, G. (1989) Resolution of a long lived fluorescence component from D1-D2-cytochrome *b559* reaction centres. FEBS Lett. 249, 75-78
- 312 Barber, J. (1989) Thylakoid membrane dynamics. In: Highlights of Modern Biochemistry, (A. Kotyk, J. Skoda, V. Paces and V. Kostka, eds.), Pub. VSP Science Press, pp 913-921
- 313 Chapman, D.J., Gounaris, K. and Barber, J. (1989) The D1/D2/cytochrome b559 PS2 reaction centre from *Pisum sativum* L: Isolation, characterisation and damage by light. Photosynthetica 23, 411-426

- 314 Webber, A.N., Packman, L., Chapman, D.J., Barber, J. and Gray, J.C. (1989) A fifth chloroplast-encoded polypeptide is present in the photosystem II reaction centre complex. FEBS Lett. 242, 259-262
- 315 Miyazaki, A., Shina, T., Toyoshima, Y., Gounaris, K. and Barber, J. (1989) Stoichiometry of cytochrome *b*559 in photosystem II. Biochim. Biophys. Acta 975, 142-147
- 316 Marder, J.B. and Barber, J. (1989) The molecular anatomy and function of thylakoid proteins. Plant, Cell and Environ. 12, 595-614
- 317 Nixon, P.J., Gounaris, K., Coomber, S.A., Hunter, C.N., Dyer, T.A. and Barber, J. (1989) *psbG* is not a photosystem two gene but may be an *ndh* gene. J. Biol.Chem. 264, 14129-14135
- 318 Barber, J. (1989) Regulation of thylakoid membrane structure and function by surface electrical charge. In: Techniques and New Developments in Photosynthesis Research (J. Barber and R. Malkin, eds.), Plenum Press, pp.159-172
- 319 Barber, J., Chapman, D.J., Gounaris, K., Marder, J.B. and Telfer, A. (1989) Structural and functional properties of the isolated photosystem two reaction centre. In: Techniques and New Developments in Photosynthesis Research (J. Barber and R. Malkin, eds.), Plenum Press, pp. 81-90
- 320 Wang, W.Q., Chapman, D.J. and Barber, J. (1989) Photoinhibition of reaction centre activity in photosystem II preparations with reduced rates of water oxidation. In: Techniques and New Developments in Photosynthesis Research (J. Barber and R. Malkin, eds.), Plenum Press, pp. 543-546
- 321 Telfer, A. and Barber, J. (1989) Evidence for the photo-induced oxidation of primary electron donor P680 in the isolated photosystem two reaction centre. FEBS Lett. 246, 223-228
- 322 Barber, J. (1989) Function and molecular biology of photosystem two. In: Oxford Surveys of Plant Molecular and Cell Biology (B.J. Miflin, ed.) Vol.6, pp 115-162, Publ. Oxford University Press
- 323 Klug, D.R., Giorgi, L.B., Crystall, B., Barber, J. and Porter, G. (1989) Energy transfer to low energy chlorophyll species prior to trapping by P700 and subsequent electron transfer. Photosyn. Res. 22, 277-284
- 324 Vass, I., Chapman, D.J. and Barber, J. (1989) Thermoluminescence properties of isolated photosystem two reaction centres. Photosynthesis Res. 22, 295-301
- 325 Barber, J. (1991) Photoinactivation of the isolated photosystem two reaction centre and its prevention. In: Light in Biology and Medicine, Vol.2 (R.H. Douglas, J. Moan and G. Ronto, eds.), Plenum Press, New York, pp. 21-32
- 326 Giorgi, L.B., Crystall, B., Booth, P.J., Durrant, J.R., Klug, D.R., Barber, J. and Porter, G. (1989) Microsecond and nanosecond kinetics of isolated photosystem 2 reaction centres studied by single photon counting and transient absorption. In:

Photo-conversion Processes for Energy and Chemicals (D.O. Hall and G. Grassi, eds.) Elsevier App. Sci. Publ. Amsterdam, pp 11-20

- 327 Barber, J. (1989) Isolation of the photosystem two reaction centre: A step forward in understanding how photosynthetic organisms split water. In: Photo-conversion Processes for Energy and Chemicals (D.O. Hall and G. Grassi, eds) Elsevier App. Sci. Publ. Lond., pp 172-184
- 328 Nugent, J.H.A., Telfer, A., Demetriou, C. and Barber, J. (1989) Electron transfer in the isolated photosystem two reaction centre complex. FEBS Lett. 255, 53-58
- 329 Barber, J. (1989) A quantum step in understanding photosynthesis. In: Plants Today. Blackwell Scientific Publs. pp. 165-169
- 330 Barber, J. (1989) Detergent ringing true as a model for membranes. Nature 340, 601
- 331 Barber, J. (1989) Light is both good and bad for photosynthesis. In: AFRC News Pub. Agricultural and Food Research Council, pp 3-5
- 332 Newell, W.R., Kwa, S.L.S., van Mourik, F., van Amerongen, H., Barber, J. & van Grondelle, R. (1990) Fluorescence properties of the isolated D1/D2/cyt b559 reaction centre complex of photosystem 2. In: Current Research in Photosynthesis, Vol.1, (M. Baltscheffsky, ed.) pp 279-282, Kluwer Academic Publ. , The Netherlands
- 333 Booth, P.J., Crystall, B., Barber, J., Klug, D.R. and Porter, G. (1990) Thermodynamics of the primary electron transfer reaction in D1/D2 cytochrome b559 reaction centres. In: Current Research in Photosynthesis, Vol.1 (M. Baltscheffsky, ed.) pp 611-614, Kluwer Academic Publ., The Netherlands
- 334 Durrant, J.R., Giorgi, L.B., Barber, J., Klug, D.R. and Porter, G. (1990) Characterisation of triplet and quinone induced cation radical states in the isolated photosystem two reaction centre. In: Current Research in Photosynthesis, Vol.1 (M. Baltscheffsky, ed.) pp 415-418, Kluwer Academic Publ., The Netherlands
- 335 Crystall, B., Booth, P.J., Barber, J., Klug, D.R. and Porter, G. (1990) Fluorescence kinetics of D1/D2 cytochrome b559 reaction centres. In: Current Research in Photosynthesis, Vol.1 (M. Baltscheffsky, ed.) pp 455-458, Kluwer Academic Publ., The Netherlands
- 336 Giorgi, L.B., Crystall, B., Booth, P.J., Durrant, J.R., Barber, J., Klug, D.R. and Porter, G. (1990) Oxygen quenching of triplet states in isolated photosystem 2 reaction centres: A mechanism for photodamage. In: Current Research in Photosynthesis, Vol.2 (M. Baltscheffsky, ed.) pp 519-522, Kluwer Academic Publ., The Netherlands
- 337 Chapman, D.J., Gounaris, K., Vass, I. and Barber, J. (1990) Properties and stability of the isolated photosystem two reaction centre. In: Current Research in Photosynthesis, Vol.1 (M. Baltscheffsky, ed.) pp 223-230, Kluwer Academic Publ., The Netherlands

- 338 Telfer, A. and Barber, J. (1990) Photoaccumulation of oxidised electron donors in the isolated photosystem II reaction centre studied by steady-state light-induced absorption changes. In: Current Research in Photosynthesis, Vol.1 (M. Baltscheffsky, ed.) pp 435-438, Kluwer Academic Publ., The Netherlands
- 339 Mayes, S.R., Cook, K.M. and Barber, J. (1990) Studies on the *psbH*, *woxA*, *ndhC* and *psbG* loci in the cyanobacterium *Synechocystis* 6803. In: Current Research in Photosynthesis, Vol.3 (M. Baltscheffsky, ed.) pp 617-620, Kluwer Academic Publ., The Netherlands
- 340 Zhang, Z.H., Mayes, S.R. and Barber, J. (1990) Cloning of the *psbK* gene from cyanobacterium *Synechocystis* 6803. In: Current Research in Photosynthesis, Vol.3 (M. Baltscheffsky, ed.) pp 637-640, Kluwer Academic Publ., The Netherlands
- 341 Wang, W.Q., Chapman, D.J. and Barber, J. (1990) Photoinhibition of photosystem two in increased by freezing *in vivo* or inhibition of water oxidation *in vitro*. In: Current Research in Photosynthesis, Vol.2, (M. Baltscheffsky, ed.) pp 515-519, Kluwer Academic Publ., The Netherlands
- 342 Marder, J.B. and Barber, J. (1990) Probing of apoprotein function in the photosystem II reaction centre by proteolytic modification. In: Current Research on Photosynthesis, Vol.1 (M. Baltscheffsky, ed.) pp 307-310, Kluwer Academic Publ., The Netherlands
- 343 Gounaris, K., Chapman, D.J. and Barber, J. (1990) The binding of the extrinsic 33 kD protein to the D1/D2/cyt b559 photosystem 2 reaction centre complex. In: Current Research in Photosynthesis, Vol.1 (M. Baltscheffsky, ed.) pp 327-330, Kluwer Academic Publ., The Netherlands
- 344 He, W.-Z., Telfer, A., Drake, J., Hoadley, J. and Barber, J. (1990) Protection of the isolated photosystem II reaction centre against photodamage by removing oxygen or adding silicomolybdate. In: Current Research in Photosynthesis, Vol.1 (M. Baltscheffsky, ed.) pp 431-434, Kluwer Academic Publ., The Netherlands
- 345 Shipton, C.A., Marder, J.B. and Barber, J. (1990) The role of photosystem II D1 apoprotein metabolism in the physiology of photoinhibition. In: Current Research in Photosynthesis, Vol.2, (M. Baltscheffsky, ed.) pp 415-418, Kluwer Academic Publ., The Netherlands
- 346 Barber, J. (1990) The fluid-mosaic nature of the thylakoid membrane. In: Current Research in Photosynthesis, Vol. II, (M. Baltcheffsky, ed.) pp 715-724, Kluwer Academic Publ., The Netherlands
- 347 Searle, G.F.W., Telfer, A., Barber, J. and Schaafsma, T. (1990) Millisecond time resolved epr of the spin polarised triplet in the isolated photosystem II reaction centre. In: Current Research in Photosynthesis, Vol.1 (M. Baltscheffsky, ed.) pp 419-422, Kluwer Academic Publ., The Netherlands
- 348 Telfer, A. and Barber, J. (1989) Electron transfer reactions in the isolated photosystem II reaction centre complex. In: Proc. VI International Conf. on Energy and Electron Transfer (J. Fiala and J. Pokorny, eds.), Vol.1, pp 102-106

- 349 Chapman, D.J. and Barber, J. (1989) Recent work on photosystem two: Structure and site of action of inhibitors of photosynthetic electron transport. In: Proc. Brighton Crop Protection Conf. Weeds, Publ. British Crop Protection Council, Bracknell, UK, pp 1185-1196
- 350 Telfer, A., He, W.-Z. and Barber, J. (1990) Spectral resolution of more than one chlorophyll electron donor in the isolated photosystem two reaction centre complex. *Biochim. Biophys. Acta* 1017, 143-151
- 351 Shipton, C.A., Marder, J.B. and Barber, J. (1990) Determination of catabolism of the photosystem II D1 subunit by structural motifs in the polypeptide sequence. *Z. Naturforsch.* 45c, 388-394
- 352 Giardi, M.T., Barber, J., Giardina, M.C. and Bassi, R. (1990) Studies on the herbicide binding site in isolated PSII core complexes from a flat bed isoelectro-focusing method. *Z. Naturforsch.* 45c, 366-372
- 353 Searle, G.F.W., Telfer, A., Barber, J. and Schaafsma, T. (1990) Millisecond time resolved EPR of the spin polarised triplet in isolated photosystem II reaction centre. *Biochim. Biophys. Acta* 1016, 235-243
- 354 Mayes, S.R., Cook, K.M. and Barber, J. (1990) Nucleotide sequence of the second *psbG* gene in *Synechocystis* 6803. Possible implications for *psbG* function as a NAD(P)H dehydrogenase subunit gene. *FEBS Lett.* 262, 49-54
- 355 Mayes, S.R. and Barber, J. (1990) Nucleotide sequence of the *psbH* gene of the cyanobacteria *Synechocystis* 6803. *Nucleic Acids Res.* 18, 194
- 356 Durrant, J.R., Giorgi, L.B., Barber, J., Klug, D.R. and Porter, G. (1990) Characterisation of triplet states in isolated photosystem II reaction centres: oxygen quenching as a mechanism for photodamage. *Biochim. Biophys. Acta* 1017, 167-175
- 357 Booth, P.J., Crystall, B., Giorgi, L.B., Barber, J., Klug, D.R. and Porter, G. (1990) Thermodynamic properties of D1/D2/cyt b-559 reaction centres investigated by time-resolved fluorescence measurements. *Biochim. Biophys. Acta* 1016, 141-152
- 358 Blackbourn, H.D., Jeger, M.J., John, P., Telfer, A. and Barber, J. (1990) Inhibition of degreening in the peel of bananas ripened at tropical temperatures. IV. Photosynthetic capacity of ripening bananas and plantains in relation to changes in the lipid composition of ripening banana peel. *Annals. Applied Biol.* 117, 163-174
- 359 Nicholson, D., Zara, S.J., Parsonage, N.G. and Barber, J. (1990) Lattice model simulations of the stacking/unstacking behaviour in thylakoid membranes. *J. Theor. Biol.* 145, 65-81
- 360 Zhang, Z.H., Mayes, S.R. and Barber, J. (1990) Nucleotide sequence of the *psbK* gene of the cyanobacteria *Synechocystis* 6803. *Nucl. Acids Res.* 18, 1284
- 361 Arnon, D.I. and Barber, J. (1990) Photoreduction of NADP⁺ by isolated reaction centers of photosystem II: Requirement for plastocyanin. *Proc. Natl. Acad.Sci. USA*, 87, 5930-5934

- 362 Telfer, A., Durrant, J.R. and Barber, J. (1990) Transient absorption spectroscopy of primary electron donor, P680, in the isolated photosystem two reaction centre Biochim. Biophys. Acta 1018, 168-172
- 363 He, W.-Z., Newell, W.R., Haris, P.I., Chapman, D. and Barber, J. (1991) Protein secondary structure of the isolated photosystem two reaction centre and conformational changes studied by Fourier Transform Infrared Spectroscopy. Biochemistry 30, 4552-4559
- 364 Gounaris, K., Chapman, D.J., Booth, P., Crystall, B., Giorgi, L.B., Klug, D.R., Porter, G. and Barber, J. (1990) Comparison of the D1/D2/cyt b₅₅₉ reaction centre complex of photosystem two isolated by two different methods. FEBS Lett. 265, 88-92
- 365 Barber, J. and Melis, A. (1990) Quantum efficiency for the photoaccumulation of reduced pheophytin in photosystem two. Biochim. Biophys. Acta 1020, 285-289
- 366 Mayes, S.R., Zhang, Z.-H., Self, S.J., Cook, K.M. and Barber, J. (1990) *Synechocystis* 6803 as a test bed system for the genetic modification of photosynthesis. In: SCI Agricultural Group Symposium, Publ. Soc. of Chemical Industry, Belgravia, London
- 367 Barber, J. (1990) Are the molecular electronics of the reaction centres of bacteria and photosystem two comparable? In: Proc. 12th International Conference of IEEE/Engineering in Medicine and Biology Society, Pennsylvania, USA (Pedersen, P.C. and Onaral, B. eds.) Vol. 12, No. 4, pp 1792-1793
- 368 Newell, W.R., van Amerongen, H., Barber, J. and van Grondelle, R. (1991) Spectroscopic characterisation of the reaction centre of Photosystem II using polarised light: Evidence for \square -carotene excitons in PSII reaction centres. Biochim. Biophys. Acta 1057, 232-238
- 369 Chapman, D.J., Gounaris, K. and Barber, J. (1991) Isolation and characterisation of thylakoid membrane proteins. In: Methods in Plant Biochemistry, Vol.5, (Rogers, L. ed) Pub. Academic Press Ltd., pp 171-193
- 370 Chapman, D.J., Vass, I. and Barber, J. (1991) Secondary electron transfer reactions of the isolated PSII reaction centre after reconstitution with plastoquinone-9 and diacylglycerolipids. Biochim. Biophys. Acta, 1057, 391-398
- 371 Bose, S. and Barber, J. (1991) Inhibition of the photochemical activity of the isolated photosystem two reaction centre by 2-cyanoacrylates. Pesticide Science 32, 329-338
- 372 Shipton, C.A. and Barber, J. (1991) Photoinduced degradation of the D1 polypeptide in isolated reaction centers of photosystem II: Evidence for an autoproteolytic process triggered by the oxidizing side. Proc. Natl. Acad. Sci. (USA) 88, 6691-6695
- 373 Mayes, S.R., Cook, K.M., Self, S.J., Zhang, Z.H. and Barber, J. (1991) Deletion of the gene encoding the PSII 33 kDa protein from *Synechocystis* PCC 6803 does not

- inactivate water-splitting but increases vulnerability to photoinhibition. *Biochim. Biophys. Acta* 1060, 1-12
- 374 Booth, P.J., Crystall, B., Ahmad, I., Barber, J., Porter, G. and Klug, D.R. (1991) Observation of multiple radical pair states in photosystem two reaction centres. *Biochemistry*, 30, 7573-7586
- 375 Telfer, A., De Las Rivas, J. and Barber, J. (1991) Understanding the role of beta-carotene in photosystem two: light driven oxidation and bleaching of this pigment in the isolated photosystem two reaction centre. In: *Spectroscopy of Biological Molecules* (Hester, R.E. and Girling, R.B., eds.) pp. 63-64. Pub. Bookcraft (Bath) Ltd.
- 376 Simonyan, G., Telfer, A. and Barber, J. (1992) Transient chlorophyll fluorescence yield changes from the isolated photosystem two reaction centre induced by electron transfer. *J. Luminescence* 51, 111-117
- 377 Telfer, A., De Las Rivas, J. and Barber, J. (1991) Beta-carotene within the isolated photosystem II reaction centre: photooxidation and irreversible bleaching of this chromophore by oxidised P680. *Biochim. Biophys. Acta* 1060, 106-114
- 378 Barbato, R., Race, H.L., Friso, G. and Barber, J. (1991) Chlorophyll levels in the pigment binding proteins of PSII: A study based on the chlorophyll to cytochrome ratio in different PSII preparations. *FEBS Lett.* 286, 86-90
- 379 Barber, J., Malkin, R. and Roncel, M. (1992) Photoinduced oxidation and reduction of cytochrome b559 in the isolated photosystem two reaction centre indicates its role in cyclic electron flow. In: *Trends in Photosynthesis Research* (Barber, J., Medrano, H. and Guerrero, M.G. eds.) Publ. Intercept, Andover, UK. pp 125-134
- 380 Barber, J. (1992) Composition, structure and dynamics of the isolated reaction centre of photosystem two. In: *Trends in Photosynthesis Research* (Barber, J., Medrano, H. and Guerrero, M.G. eds.) Publ. Intercept, Andover, UK. pp 29-43
- 381 Mayes, S.R. and Barber, J. (1991) Primary structure of the *psbN-psbH-petC-petA* gene cluster of the cyanobacterium *Synechocystis* PCC 6803. *Plant Mol. Biol.* 17, 289-293
- 382 Misra, A.N., Hall, S. and Barber, J. (1991) The isolated D1/D2/cyt b559 reaction centre complex of photosystem two possesses a serine-type endopeptidase activity. *Biochim. Biophys. Acta* 1059, 239-242
- 383 Barber, J. and Andersson, B. (1992) Too much of a good thing: light can be bad for photosynthesis. *Trends in Biochem. Sci.* 17, 61-66
- 384 Shipton, C. A. and Barber, J. (1992) Characterisation of photoinduced breakdown of the D1 polypeptide in isolated reaction centres of photosystem two. *Biochim. Biophys. Acta* 1099, 85-90
- 385 Barbato, R., Shipton, C.A., Giacometti, G.M. and Barber, J. (1991) New evidence suggests that the initial photoinduced cleavage of the D1-protein may not occur near the PEST sequence. *FEBS Lett.* 290, 162-166

- 386 Hastings, G., Durrant, J.R., Barber, J., Porter, G., and Klug, D.R. (1992) Observation of pheophytin reduction in PSII reaction centres using femtosecond transient absorption spectroscopy. Biochemistry 31, 7638-7647
- 387 Durrant, J.R., Hastings, G., Hong, Q., Barber, J., Porter, G. and Klug, D.R. (1992) Determination of the P680 singlet state lifetimes in photosystem two reaction centres. Chem Phys. Lett. 188, 54-60
- 388 Wang, W.Q., Chapman, D.J. and Barber, J. (1992) Inhibition of water splitting increases the susceptibility of photosystem two to photoinhibition. Plant Physiol. 99, 16-20
- 389 Wang, W.Q., Chapman, D.J. and Barber, J. (1992) Effect of cold treatments on the binding stability of photosystem two extrinsic proteins and an associated increase in susceptibility to photoinhibition. Plant Physiol. 99, 21-25
- 390 Klug, D.R., Durrant, J.R., Hastings, G., Hong, Q., Barber, J. and Porter, G. (1991) Electron transfer in photosystem two reaction centres. In: Spectroscopy of Biological Molecules (Hester, R.E. and Girling, R.B., eds.) pp. 51-54. Pub. Bookcraft (Bath) Ltd.
- 391 Booth, P.J., Crystall, B., Ahmad, I., Barber, J., Porter, G. and Klug, D.R. (1991) Multiple radical pair states in photosystem 2 reaction centres. In: Spectroscopy of Biological Molecules (Hester, R.E. and Girling, R.B., eds.) Pub. Bookcraft (Bath) Ltd. pp. 61-62
- 392 De Las Rivas, J., Crystall, B., Booth, P.J., Durrant, J.R., Ozer, S., Porter, G., Klug, D.R. and Barber, J. (1992) Long lived primary radical pair state detected by time resolved fluorescence and absorption spectroscopy in an isolated photosystem two core. Photosyn. Res. 34, 419-431
- 393 Barber, J. (1992) The isolated photosystem two reaction centre reveals details of the molecular processes of photoinhibition. Photosynthetica 27, 63-80
- 394 Mayes, S.R., Dubbs, J.M., Vass, I., Hideg, E., Nagy, L. and Barber, J. (1993) Further characterisation of the psbH locus of *Synechocystis* sp PCC 6803: Inactivation of *psbH* impairs QA to QB electron transport in photosystem 2. Biochemistry 32, 1454-1465
- 395 Macpherson, A.N, Telfer, A., Barber, J. and Truscott, T.G. (1993) Direct detection of singlet oxygen from isolated Photosystem II reaction centres. Biochim. Biophys. Acta 1143, 301-309
- 396 Vass, I., Cook, K.M., Deak, Z., Mayes, S.R. and Barber, J. (1992) Thermoluminescence and flash-oxygen characterization of the IC2 deletion mutant of *Synechocystis* sp PCC 6803 lacking the photosystem II 33 kDa protein. Biochim. Biophys. Acta 1102, 195-201
- 397 Montoya, G., De Las Rivas, J., Booth, P.J., Giorgi, L.B., Klug, D.R., Porter, G., Barber, J. and Picorel, R. (1994) A comparison of the photochemical activity of two

- forms of PSII reaction centre isolated from sugar beet. *Biochim. Biophys. Acta* 1185, 85-91
- 398 De Las Rivas, J., Andersson, B. and Barber, J. (1992) Two sites of primary degradation of the D1-protein induced by acceptor or donor side photoinhibition in PSII core complexes. *FEBS Lett.* 301, 246-252
- 399 Mayes, S.R., Zhang, Z.-H., Dubbs, J.M., Cook, K.M. and Barber, J. (1992) Genetic engineering of the photosystem two complex. In: *Protein Engineering*. (Goodenough, P. ed.), Publ. CPL Press, Newbury, Berkshire, UK pp 3-16
- 400 Ponticos, M., Shipton, C.A., De Las Rivas, J. and Barber, J. (1993) Two D1 protein degradation patterns in isolated photosystem II core and reaction centre complexes. *Photosynthetica (Proc. Szeged Symposium)* 28, 215-224
- 401 Klug, D.R., Durrant, J.R., Hastings, G., Hong, Q., Joseph, D.M., Barber, J. and Porter, G. (1993) Primary radical pair formation in photosystem II reaction centres. *Proc. VIII Conf. Ultrafast Phenomena*, Paris
- 402 De Las Rivas, J., Telfer, A. and Barber, J. (1993) Two coupled b-carotene molecules protect P680 from photodamage in isolated photosystem two reaction centres. *Biochim. Biophys. Acta* 1142, 155-164
- 403 Barber, J., Cook, K.M., Nagy, L., Vass, I. and Mayes, S.R. (1992) Comparison of the effect of adding *psbO* and *psbH* genes from *Synechocystis* sp. PCC 6803. In: *Research in Photosynthesis*, Vol.III. (ed. Murata, N.) Kluwer Academic Publ. pp. 469-472
- 404 Telfer, A., De Las Rivas, J. and Barber, J. (1992) Investigation of the role of the accessory chromophores of isolated Photosystem II reaction centres. In: *Research in Photosynthesis*, Vol.IV (ed. Murata, N.) Kluwer Academic Publ. pp.463-466
- 405 De Las Rivas, J., Shipton, C.A., Ponticos, M. and Barber, J. (1992) Revealing two mechanisms of D1 protein degradation using isolated photosystem two complexes. In: *Research in Photosynthesis*, Vol.IV (ed. Murata, N.) Kluwer Academic Publ. pp. 427-430
- 406 Durrant, J.R., Hastings, G., Joseph, D.M., Barber, J., Porter, G. and Klug, D.R. (1992) Electron and energy transfer in photosystem II reaction centres: Discrimination of five kinetic components.. In: *Research in Photosynthesis*, Vol.II (ed. Murata, N.) Kluwer Academic Publ. pp. 243-246
- 407 Hastings, G., Durrant, J.R., Barber, J., Porter, G. and Klug, D.R. (1992) Electron and energy transfer in isolated Photosystem II reaction centres: Radical pair formation. In: *Research in Photosynthesis*, Vol.II (ed. Murata, N.) Kluwer Academic Publ. pp. 247-250
- 408 Salter, A.H., De Las Rivas, J., Barber, J. and Andersson, B. (1992) On the molecular mechanisms of light-induced D1-protein degradation. In: *Research in Photosynthesis*, Vol. IV (ed. Murata, N.) Kluwer Academic Publ. pp. 395-402

- 409 Durrant, J.R., Hastings, G., Joseph, D.M., Barber, J., Porter, G. and Klug, D.R. (1992) Sub-picosecond equilibrium of excitation energy in isolated photosystem II reaction centers. Proc. Natl. Acad. Sci. USA 89, 11632-11636
- 410 De Las Rivas, J., Shipton, C.A., Ponticos, M. and Barber, J. (1993) Acceptor side mechanism of photo-induced proteolysis of the D1 protein in photosystem II reaction centres. Biochemistry 32, 6944-6950
- 411 Friso, G., Giacometti, G.M., Barber, J. and Barbato, R. (1993) Evidence for concurrent donor and acceptor side photoinduced degradation of the D1-protein in isolated reaction centres of photosystem two. Biochim. Biophys. Acta 1144, 265-270
- 412 Boichenko, V.A., Klimov, V.V., Mayes, S.R. and Barber, J. (1993) Characterisation of light-induced oxygen gas exchange from the IC2 deletion mutant of *Synechocystis* sp PCC 6803 lacking the photosystem II 33 kDa extrinsic protein. Z. Naturforsch. 48C, 224-233
- 413 Durrant, J.R., Hastings, G., Joseph, D.M., Barber, J., Porter, G. and Klug, D.R. (1993) Rate of oxidation of P680 in isolated PSII reaction centres monitored by loss of chlorophyll stimulated emission. Biochemistry 32, 8259-8267
- 414 Barber, J. and De Las Rivas, J. (1993) A functional model for the role of cytochrome b559 in the protection against donor and acceptor side photoinhibition. Proc. Natl. Acad. Sci. USA 90, 10942-10946
- 415 Andersson, B. and Barber, J. (1994) Organisation and dynamics of thylakoid membranes. In: Molecular Processes of Photosynthesis, Vol.10, Advances in Molecular and Cell Biology (Barber, J. ed.). Pub. JAI Press Inc. USA pp 1-53
- 416 Cánovas, P.M. and Barber, J. (1993) Detection of a 10 kDa breakdown product containing the C-terminal of the D1-protein in photoinhibited wheat leaves suggests an acceptor side mechanism. FEBS Lett. 324, 341-344
- 417 Ahmad, I., Giorgi, L.B., Barber, J., Porter, G. and Klug, D.R. (1993) Redox potentials of cytochrome b559 in the D1/D2/cyt b559 reaction centre complex of photosystem 2. Biochim. Biophys. Acta 1143, 239-242
- 418 Barber, J. and Andersson, B. (1994) Revealing the blueprint of photosynthesis. Nature 370, 31-34
- 419 Mayes, S.R., Chiesa, M.D., Zhang, Z.-H. and Barber, J. (1993) The genes *aroA* and *trnQ* are located upstream of *psbO* in the chromosome of *Synechocystis* 6803. FEBS Lett. 325, 255-261
- 420 Zhang, Z.-H., Mayes, S.R., Vass, I., Nagy, L. and Barber, J. (1993) Characterisation of the *psbK* locus of *Synechocystis* sp PCC 6803 in terms of photosystem II function. Photosyn. Res. 38, 369-377
- 421 Shipton, C.A. and Barber, J. (1994) *In vivo* and *in vitro* photoinhibition generates similar degradation fragments of the D1 and D2 photosystem two reaction centre proteins. Eur. J. Biochem. 220, 801-808

- 422 Telfer, A., Bishop, S.M., Phillips, D. and Barber, J. (1994) Isolated photosynthetic reaction centre of photosystem II as a sensitiser for the formation of singlet oxygen: detection and quantum yield determination using a chemical trapping technique. *J. Biol. Chem.* 269, 13244-13253
- 423 Barber, J. (1993) Learning about photosystem two from analogies with purple photosynthetic bacteria. *Biochem. Soc. Trans.*, Vol.21, Pub. Portland Press Ltd., London, UK pp. 981-986
- 424 Andersson, B., Ponticos, M., Barber, J., Koivuniemi, A., Aro, E.-M., Hagman, A., Salter, A.H., DanHui, Y. and Lindahl, M. (1994) Light-induced proteolysis of photosystem II reaction centre proteins and LHCII in isolated preparations. In: *Photoinhibition of Photosynthesis, from molecular mechanisms to the field* (eds. Baker, N.R. and Bowyer, J.R.). BIOS Scientific Publ. Ltd., Oxford, UK pp 143-159
- 425 Telfer, A. and Barber, J. (1994) Elucidating the molecular mechanisms of photoinhibition by studying isolated PSII reaction centres. In: *Photoinhibition of Photosynthesis, from molecular mechanisms to the field* (eds. Baker, N.R. and Bowyer, J.R.). BIOS Scientific Publ. Ltd., Oxford, UK pp 25-49
- 426 Barber, J. (1993) Photosystem II: No longer the black box of photosynthesis. *Biochem. Soc. Trans.*, Vol.22, Pub. Portland Press Ltd. London UK pp. 313-318
- 427 Friso, G., Barbato, R., Giacometti, G.M. and Barber, J. (1994) Degradation of the D2 protein due to UV-B irradiation of the reaction centre of photosystem two. *FEBS Lett.* 339, 217-221
- 428 Dalla Chiesa, M., Mayes, S.R., Maskell, D.J., Nixon, P.J. and Barber, J. (1994) An *aroA* homologue from *Synechocystis* sp. PCC 6803. *Gene* 144, 145-146
- 429 Andersson, B. and Barber, J. (1996) Mechanisms of photodamage and protein degradation during photoinhibition of photosystem two. In: *Advances in Photosynthesis Series: Photosynthesis and the Environment* (Ed. Baker, N.R.) pp 101-121 Pub Kluwer
- 430 Rech, T., Durrant, J.R, Joseph, D.M., Barber, J., Porter, G. and Klug, D.R. (1994) Does slow energy transfer limit the observed time constant for radical pair formation in PSII reaction centres? *Biochemistry* 33, 14768-14774
- 431 Barber, J. (1995) Short circuiting the Z-scheme. *Nature* 376, 388-389
- 432 Nagy, L., Bálint, E., Barber, J., Ringler, A., Cook, K.M. and Maróti, P. (1995) Photoinhibition and law of reciprocity in photosynthetic reactions of *Synechocystis* sp. PCC 6803. *J. Plant Physiol.* 145, 410-415
- 433 Boekema, E.J., Hankamer, B., Bald, D., Kruip, J., Nield, J., Boonstra, A.F., Barber, J. and Rögner, M. (1995) Supramolecular structure of the photosynthetic complex from green plants and cyanobacteria. *Proc. Natl. Acad. Sci. U.S.A.* 92, 175-179

- 434 Giorgi, L.B., Durrant, J.R., Alizadeh, S., Nixon, P.J., Joseph, D.M., Rech, T., Barber, J., Porter, G. and Klug, D.R. (1994) Comparison of primary electron transfer in photosystem two reaction centres isolated from the higher plant *Pisum sativum* and the green alga *Chlamydomonas reinhardtii*. *Biochim. Biophys. Acta* 1186, 247-251
- 435 Barber, J. (1994) Molecular basis of the vulnerability of photosystem II to damage by light. *Aust. J. Plant Physiol.* 22, 201-208
- 436 Alizadeh, S., Nixon, P.J., Telfer, A. and Barber, J. (1995) Isolation and characterisation of the photosystem two reaction centre complex from a double mutant of *Chlamydomonas reinhardtii*. *Photosyn. Res.* 43, 165-171
- 437 Telfer, A., Dhami, S., Bishop, S.M., Phillips, D. and Barber, J. (1994) ~~Carotene~~ quenches singlet oxygen formed by isolated photosystem II reaction centers. *Biochemistry* 33, 14469-14474
- 438 Giorgi, L.B., Nixon, P.J., Merry, S.A.P., Joseph, D.M., Durrant, J.R., De Las Rivas, J., Barber, J., Porter, G. and Klug, D.R. (1996) Comparison of primary charge separation in the PSII reaction centre complex isolated from wild type and D1-130 mutants of cyanobacterium *Synechocystis* PCC 6803. *J. Biol. Chem.* 271, 2093-2101
- 439 Alizadeh, S., Nechushtai, R., Barber, J. and Nixon, P.J. (1994) Nucleotide sequencing of the *psbE*, *psbF* and *trnM* genes from the genome of *Chlamydomonas reinhardtii*. *Biochim. Biophys. Acta* 1188, 439-442
- 440 Barber, J. (1994) F1-ATPase structures: getting our bearings for ATP synthesis. *Structure* 2, 889-890
- 441 Vacha, F., Joseph, D.M., Durrant, J.R., Telfer, A., Klug, D.R., Porter, G. and Barber, J. (1995) Photochemistry and spectroscopy of a five chlorophyll reaction center of PSII isolated using a Cu-affinity column. *Proc. Natl. Acad. Sci. USA.* 92, 2929-2933
- 442 Nixon, P.J., Komenda, J., Barber, J., Deak, Zs., Vass, I. and Diner, B.A. (1995) Deletion of the PEST-like region of PSII modifies the Q_B binding pocket but does not prevent rapid turnover of D1. *J. Biol. Chem.* 270, 14919-14927
- 443 Klug, D.R., Rech, T., Joseph, D.M., Barber, J., Durrant, J.R. and Porter, G. (1995) Primary processes in isolated photosystem II reaction centers probed by magic angle transient absorption spectroscopy. *Chem. Phys.* 194, 433-442
- 444 Friso, G., Vass, I., Spetea, C., Barber, J. and Barbato, R. (1995) UV-B induced degradation of the D1 protein in isolated reaction centres of photosystem II. *Biochim. Biophys. Acta* 1231, 41-46
- 445 Komenda, J. and Barber, J. (1995) Comparison of *psbO* and *psbH* deletion mutants of *Synechocystis* PCC 6803 indicate that degradation of D1 protein is regulated by the Q_B site and is dependent on protein synthesis. *Biochemistry* 34, 9625-9631

- 446 De Las Rivas, J., Klein, J. and Barber, J. (1995) pH sensitivity of the redox state of cytochrome b559 may regulate its function as a protectant against donor and acceptor side photoinhibition. *Photosyn. Res.* 46, 193-202
- 447 Klimov, V.V., Zharmukhamedov, S.K., De Las Rivas, J. and Barber, J. (1995) Effect of PSII inhibitor K-15 on photochemical reactions of the isolated D1/D2 cytochrome b559 complex. *Photosyn. Res.* 44, 67-74
- 448 Klein, J., De Las Rivas, J. and Barber, J. (1995) Indirect reduction of cytochrome b559 in isolated reaction centres of PSII by exogenous flavins. *Bioelectrochem. Bioenergetics* 38, 9-14
- 449 Rögner, M., Boekema, E.J. and Barber, J. (1996) How does PSII split water? The structural basis of efficient energy conversion. *Trends Biochem. Sci.* 21, 44-49
- 450 Barbato, R., Friso, G., Ponticos, M. and Barber, J. (1995) Characterisation of light-induced cross-linking of the β -subunit of cytochrome b559 and the D1 protein in isolated PSII reaction centres. *J. Biol. Chem.* 270, 24032-24037
- 451 Klug, D.R., Durrant, J.R., Joseph, D.M., Merry, S.A.P., Barber, J. and Porter, G. (1996) An overview of electron and energy transfer in reaction centres of PSII. In: *Fast Elementary Processes in Chemical and Biological Systems* (ed. A. Tramer), pp 219-234, Pub. American Institute of Physics Press, New York
- 452 Giorgi, L.B., Nixon, P.J., Merry, S., Durrant, J.R., Alizadeh, S., Joseph, M.D., Barber, J., Porter, G. and Klug, D.R. (1995) PSII primary electron transfer in cyanobacteria, green algae and mutants. In: *Proceedings XVIIth Int. Conf. Photochemistry*, London, 4P18. Stabur Graphics Ltd. London, UK
- 453 Barber, J. and Porter, G. (1995) Electron and energy transfer in the reaction centre of photosystem two. In: *Proceedings XVIIth Int. Conf. Photochemistry*, London, 4P19. Stabur Graphics Ltd. London, UK
- 454 Durrant, J.R., Merry, S., Klug, D.R., Kwa, S.L.S., van Grondelle, R., Barber, J., Porter, G. and Dekker, J.P. (1995) Charge separation in the photosystem two reaction centre: A charge transfer reaction in an excitonically coupled supramolecular complex? In: *Proceedings XVIIth Int. Conf. Photochemistry*, London, 4P22. Stabur Graphics Ltd. London, UK
- 455 Telfer, A., Dhami, S., Phillips, D. and Barber, J. (1995) Detection of singlet oxygen formation by photosynthetic chlorophyll protein complexes. In: *Proceedings XVIIth Int. Conf. Photochemistry*, London, 4P24. Stabur Graphics Ltd. London, UK
- 456 Merry, S., Kumazaki, S., Durrant, J.R., Tachibana, Y., Barber, J., Porter, G. and Klug, D.R. (1995) Photoselective excitation of P680? In: *Photosynthesis: from Light to Biosphere*, Vol.I (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 607-610
- 457 Durrant, J., Porter, G., Barber, J. and Klug, D.R. (1995) Influence of energy level disorder on the charge separation/trapping kinetics in photosystem two. In:

Photosynthesis: from Light to Biosphere, Vol.I (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 611-614

- 458 Kumazaki, S., Joseph, D.M., Crystall, B., Tachibana, Y., Durrant, J.R., Barber, J., Porter, G., Yoshihara, K. and Klug, D.R. (1995) Experimental observation of multiple trapping/charge separation steps in the isolated PS2 reaction centre. In: Photosynthesis: from Light to Biosphere, Vol.I (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 883-886
- 459 Giorgi, L.B., Nixon, P.J., Merry, S.A.P., Joseph, D.M., Durrant, J.R., De Las Rivas, J., Barber, J., Porter, G. and Klug, D.R. (1995) Comparison of PSII primary photochemistry in higher plant *Synechocystis* and *Synechocystis* mutants. In: Photosynthesis: from Light to Biosphere, Vol.I (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 615-618
- 460 Rappaport, F., Porter, G., Barber, J., Klug, D.R. and Lavergne, J. (1995) Reinvestigation of the phases of reduction of P680⁺ in the microsecond time domain. In: Photosynthesis: from Light to Biosphere, Vol.II (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 345-348
- 461 De Las Rivas, J., Morais, F., Nixon, P.J. and Barber, J. (1995) Cytochrome b559 within photosystem II: studies on its photoreduction and photooxidation in pea and targeted mutagenesis of its genes in *Chlamydomonas*. In: Photosynthesis: from Light to Biosphere, Vol.II (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 579-582
- 462 Morais, F., Barber, J. and Nixon, P.J. (1995) Insertional inactivation of the chloroplast *psbE* gene in the green alga *Chlamydomonas reinhardtii*. In: Photosynthesis: from Light to Biosphere, Vol.I (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 791-794
- 463 Alizadeh, S., Barber, J. and Nixon, P.J. (1995) Stoichiometry of cytochrome b559 within the isolated photosystem two reaction centre complex of *Chlamydomonas reinhardtii* as determined by isotopic labelling of the polypeptide subunits. In: Photosynthesis: from Light to Biosphere, Vol.I (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 895-898
- 464 Nield, J., Hankamer, B., Zheleva, D., Hodges, M.L., Boekema, E.J. and Barber, J. (1995) Biochemical characterisation of PSII-LHCII complexes associated with and lacking the 33 kDa subunit. In: Photosynthesis: from Light to Biosphere, Vol.III (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 361-364
- 465 Boekema, E.J., Hankamer, B., Nield, J. and Barber, J. (1995) Photosystem II structure investigated by electron microscopy and single particle averaging. In: Photosynthesis: from Light to Biosphere, Vol.III (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 229-232
- 466 Kruip, J., Bald, D., Hankamer, B., Nield, J., Boonstra, A.F., Barber, J., Boekema, E.J. and Rögner, M. (1995) Localization of subunits in PS1, PS2 and in a PS2/lightharvesting supercomplex. In: Photosynthesis: from Light to Biosphere, Vol.III (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 405-408

- 467 Kruse, O., Zheleva, D., Hankamer, B. and Barber, J. (1995) Investigating the protective role of phosphorylation for PSII complexes. In: Photosynthesis: from Light to Biosphere, Vol.III (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 401-404
- 468 Friso, G. and Barber, J. (1995) Comparison of the level of *psbA*, *psbD* and *psbB* transcripts in *psbO*-less, *psbH*-less mutants and wild type of *Synechocystis* sp. PCC 6803. In: Photosynthesis: from Light to Biosphere, Vol.III (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 517-520
- 469 Telfer, A. and Barber, J. (1995) Role of carotenoid bound to the photosystem II reaction centre. In: Photosynthesis: from Light to Biosphere, Vol.IV (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 15-20
- 470 Barber, J. (1995) Molecular basis of photoinhibition. In: Photosynthesis: from Light to Biosphere, Vol.IV (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 159-164
- 471 Hankamer, B., Morris, E., Zheleva, D. and Barber, J. (1995) Biochemical characterisation and structural analysis of monomeric and dimeric photosystem II core preparations. In: Photosynthesis: from Light to Biosphere, Vol. III (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 365-368
- 472 Zheleva, D., Vacha, F., Hankamer, B., Telfer, A. and Barber, J. (1995) Determination of the complex homogeneity and pigment stoichiometry of isolated PSII reaction centres. In: Photosynthesis: from Light to Biosphere, Vol. I (ed. P. Mathis) Kluwer Academic Publishers, The Netherlands. pp 759-762
- 473 Durrant, J.R., Dekker, J.P., Kwa, S.L.S., van Grondelle, R., Barber, J., Porter, G. and Klug, D.R. (1995) Trapping of excitation energy of photosystem two reaction centres: Is P680 a multimer? Solar Energy Materials and Solar Cells 38, 135-138
- 474 Hankamer, B., Nield, J., Zheleva, D., Boekema, E.J., Jansson, S. and Barber, J. (1997) Isolation and biochemical characterisation of monomeric and dimeric PSII complexes from spinach and their relevance to the organisation of photosystem II *in vivo*. Eur. J. Biochem. 243, 422-429
- 475 Zheleva, D., Hankamer, B. and Barber, J. (1996) Heterogeneity and pigment composition of isolated PSII reaction centers. Biochemistry 35, 15074-15079
- 476 Kruse, O., Zheleva, D. and Barber, J. (1997) Stabilisation of photosystem two dimers by phosphorylation: Implication for the regulation of the turnover of the D1 protein. FEBS Lett. 408, 276-280
- 477 Eijckelhoff, C., Vacha, F., van Grondelle, R., Dekker, J.P. and Barber, J. (1997) Spectroscopic characterisation of a 5 chl *a* photosystem II reaction centre complex. Biochim. Biophys. Acta 1318, 266-274
- 478 Merry, S.A.P., Kumazaki, S., Tachibana, Y., Joseph, M.D., Porter, G., Yoshihara, K., Barber, J., Durrant, J.R. and Klug, D.R. (1996) Sub-picosecond equilibration of excitation energy in isolated PSII reaction centres revisited: time dependent anisotropy. J. Phys. Chem. 100, 10469-10478

- 479 Chiesa, M.D., Friso, G., Déak, Z., Vass, I., Barber, J. and Nixon, P.J. (1997) Reduced turnover of the D1 polypeptide and photoactivation of electron transfer in novel herbicide resistant mutants of *Synechocystis* sp PCC 6803. Eur. J. Biochem. 248, 731-740
- 480 Chiesa, M.D., Deák, S., Vass, I., Barber, J. and Nixon, P.J. (1996) The luminal loop connecting transmembrane helices I and II of the D1 polypeptide is important for assembly of the PSII complex. Photosyn. Res. 50, 79-91
- 481 Hankamer, B., Barber, J. and Boekema, E.J. (1997) Structure and membrane organisation of PSII in green plants. Annu. Rev. Plant Phys. Mol. Biol. 48, 641-671
- 482 Sharma, J., Panico, M., Barber, J. and Morris, H.R. (1997) Characterisation of the low molecular weight PSII reaction centre subunits and their light-induced modifications by mass spectrometry. J. Biol. Chem. 272, 3935-3943
- 483 Morris, E.P., Hankamer, B., Zheleva, D., Friso, G. and Barber, J. (1997) The 3-D structure of a photosystem II core complex determined by electron crystallography. Structure 5, 837-849
- 484 Rhee, K-H., Morris, E.P., Zheleva, D., Hankamer, B., Kühlbrandt, W. and Barber, J. (1997) Two-dimensional structure of plant photosystem II at 8Å resolution. Nature 389, 522-526
- 485 Sharma, J., Panico, M., Barber, J. and Morris, H.R. (1997) Purification and determination of the molecular mass by electrospray ionisation mass spectrometry of the PSII D1 and D2 subunits. J. Biol. Chem. 272, 33153-33157
- 486 Sharma, J., Panico, M., Shipton, C.A., Nilsson, F., Morris, H.R. and Barber, J. (1997) Primary structure characterisation of the PSII D1 and D2 subunits. J. Biol. Chem. 272, 33158-33166
- 487 Klug, D.R., Durrant, J.R. and Barber, J. (1998) The entanglement of excitation energy transfer and electron transfer in the reaction centre of photosystem II. Phil. Trans. R. Soc. Lond. A 356, 449-464
- 488 De Las Rivas, J. and Barber, J. (1997) Structural and thermal stability of PSII reaction centres studied by infrared spectroscopy. Biochemistry 36, 8897-8903
- 489 Barber, J. (1998) What limits the efficiency of photosynthesis and can there be beneficial improvements? Proceedings of the The Rank Prize Funds Symposium 8, 107-123, (ed. Waterlow *et al.*) Publ. Oxford Univ. Press, N. Carolina, USA
- 490 Barber, J., Nield, J., Morris, E.P., Zheleva, D. and Hankamer, B. (1997) The structure, function and dynamics of photosystem II. Physiol. Plant. 100, 817-827
- 491 Boekema, E.J., Nield, J., Hankamer, B. and Barber, J. (1998) Localisation of the 23 kDa subunit of the oxygen evolving complex of PSII by electron microscopy. Eur. J. Biochem. 252, 268-276

- 492 Zheleva, D., Sharma, J., Panico, M., Morris, H.R. and Barber, J. (1998) Isolation and characterisation of monomeric and dimeric CP47-RC PSII complexes. *J. Biol. Chem.* 273, 16122-16127
- 493 Bianchetti, M., Zheleva, D., Deak, Z., Zharmuhamedov, S., Klimov, V.V., Nugent, J.H.A., Vass, I. and Barber, J. (1998) Comparison of the functional properties of the monomeric and dimeric forms of the isolated CP47-RC complex. *J. Biol. Chem.* 273, 16128-16133
- 494 Barber, J. (1998) Photosystem two. *Biochim. Biophys. Acta (review)* 1365, 269-277
- 495 Barber, J. and Sharma, J. (2000) Application of Mass Spectrometry to the study of PSII. In: *Probing Photosynthesis: Mechanism, regulation & adaptation* (eds. M. Yunus, U. Pathre & P. Mohanty) Pub. Taylor & Francis, London UK pp 413-425
- 496 Rhee, K.-H., Morris, E.P., Barber, J. and Kühlbrandt, W. (1998) Three-dimensional structure of the photosystem II reaction centre at 8 Å resolution. *Nature* 396, 283-286
- 497 Hankamer, B., Morris, E.P. and Barber, J. (1999) Cryoelectron microscopy of photosystem two shows that CP43 and CP47 are located on opposite sides of the D1/D2 reaction centre proteins. *Nature Structural Biology* 6, 560-564
- 498 Barber, J., Nield, J., Morris, E.P. and Hankamer, B. (1999) Subunit positioning in PSII revisited. *Trends Biochem. Sci.* 278, 43-45
- 499 Morais, F., Barber, J. and Nixon, P.J. (1998) The chloroplast encoded alpha subunit of cytochrome b559 is required for assembly of the PSII complex in both the light and dark in *Chlamydomonas reinhardtii*. *J. Biol. Chem.* 273, 29315-29320
- 500 den Hartog, F.T.H., Vacha, F., Lock, A.J., Barber, J., Dekker, J.P. and Völker, S. (1998) A comparison of the excited-state dynamics of five and six chlorophyll photosystem II reaction centre complexes. *J. Phys. Chem.* 102, 9174-9180
- 501 Telfer, A., Oldham, T.C., Phillips, D. and Barber, J. (1999) Singlet oxygen formation detected by near infra-red emission from isolated PSII reaction centres: Direct correlation between P680 triplet decay and luminescence rise kinetics and the consequences for photoinhibition. *J. Photochem. Photobiol.* 48, 89-96
- 502 Alizadeh, S., Morais, F., Barber, J. and Nixon, P.J. (1999) Isotopic labelling of the polypeptide subunits of the isolated PSII RC of *Chlamydomonas reinhardtii* suggests an  heterodimeric structure for cytochrome b559. *J. Photochem. Photobiol.* 48, 148-153
- 503 Merry, S.A.P., Nixon, P.J., Barter, L.M.C., Schilstra, M., Porter, G., Barber, J., Durrant, J.R. and Klug, D.R. (1998) Modulation of quantum yield of primary radical pair formation in photosystem II by site-directed mutagenesis affecting radical cations and anions. *Biochemistry* 37, 17439-17447
- 504 Barber, J. (1998) Organisation of the PSII light harvesting system. In: *The Chloroplast: from Molecular Biology to Biotech.* (ed. Argyroudi-Akoyunoglou, J.

and Senger, H.) NATO ASI Series, vol. 64, pp 11-18. Kluwer Acad. Publ., Dordrecht, The Netherlands

- 505 Eshaghi, S., Andersson, B. and Barber, J. (1999) Isolation of a highly active PSII-LHCII supercomplex from thylakoid membranes by a direct method. FEBS Lett. 446, 23-26
- 506 Büchel, C., Morris, E.P. and Barber, J. (1998) Isolation and characterisation of photosystem II complexes for crystallization. In: Photosynthesis: Mechanisms and Effects (Ed. Garab, G.) Vol. II. pp 953-956, Kluwer Academic Publ., Dordrecht, The Netherlands
- 507 Hankamer, B., Morris, E.P. and Barber, J. (1998) Cryoelectron microscopy of photosystem II shows that CP43 and CP47 are located in opposite sides of the D1/D2 reaction centre proteins. In: Photosynthesis: Mechanisms and Effects (Ed. Garab, G.) Vol. II. pp 957-960, Kluwer Academic Publ., Dordrecht, The Netherlands
- 508 Franco, E., Lindo, V., Morris, H.R. and Barber, J. (1998) Application of mass spectrometry to characterise post-translational modifications of PSII proteins. In: Photosynthesis: Mechanisms and Effects (Ed. Garab, G.) Vol. II. pp 961-964, Kluwer Academic Publ., Dordrecht, The Netherlands
- 509 Eshaghi, S., Barber, J. and Andersson, B. (1998) Direct isolation of a highly active PSII-LHCII supercomplex from spinach thylakoid membranes. In: Photosynthesis: Mechanisms and Effects (Ed. Garab, G.) Vol. II. pp 965-968, Kluwer Academic Publ., Dordrecht, The Netherlands
- 510 Da Fonseca, P., Maghlaoui, K., Hankamer, B., Büchel, C. and Barber, J. (1998) Purification of oxygen evolving PSII complexes from *Synechococcus elongatus* for electron crystallography. In: Photosynthesis: Mechanisms and Effects (Ed. Garab, G.) Vol. II. pp 969-972, Kluwer Academic Publ., Dordrecht, The Netherlands
- 511 Catucci, L., Dörner, W., Nield, J., Hankamer, B., Vass, I. and Barber, J. (1998) Isolation and characterisation of oxygen evolving photosystem II core complexes from spinach in the presence of glycine betaine. In: Photosynthesis: Mechanisms and Effects (Ed. Garab, G.) Vol. II. pp 973-976, Kluwer Academic Publ., Dordrecht, The Netherlands
- 512 Durrant, J.R., Nixon, P.J., Barber, J. and Klug, D.R. (1998) Identification of chlorophyll anion states during charge separation in mutant photosystem II reaction centres. In: Photosynthesis: Mechanisms and Effects (Ed. Garab, G.) Vol. II. pp 1041-1044, Kluwer Academic Publ., Dordrecht, The Netherlands
- 513 Lendzian, F., Bittl, R., Telfer, A., Barber, J. and Lubitz, W. (1998) Time resolved ENDOR of the triplet state of P680 in PSII reaction centres. In: Photosynthesis: Mechanisms and Effects (Ed. Garab, G.) Vol. II. pp 1057-1060, Kluwer Academic Publ., Dordrecht, The Netherlands

- 514 Telfer, A., Lendzian, F., Schlodder, E., Barber, J. and Lubitz, W. (1998) ENDOR and transient absorption studies of P680⁺ and other cation radicals in PSII reaction centres before and after inactivation of secondary electron donors. In: Photosynthesis: Mechanisms and Effects (Ed. Garab, G.) Vol. II. pp 1061-1064, Kluwer Academic Publ. Dordrecht, The Netherlands
- 515 Morais, F., Barber, J. and Nixon, P.J. (1998) Cytochrome b-559 protects II in the light and the dark in *C. reinhardtii*. In: Photosynthesis: Mechanisms and Effects (Ed. Garab, G.) Vol. II. pp 1109-1112, Kluwer Academic Publ., Dordrecht, The Netherlands
- 516 Georgieva, K., Kruse, O. and Barber, J. (1998) Investigating the role of CP43 phoshorylation during environmental stress. In: Photosynthesis: Mechanisms and Effects (Ed. Garab, G.) Vol. III. pp 2159-2162, Kluwer Academic Publ., Dordrecht, The Netherlands
- 517 Barber, J. (1998) A multifaceted approach for elucidating the structure of PSII. In: Photosynthesis: Mechanisms and Effects (Ed. Garab, G.) Vol. II. pp 919-924, Kluwer Academic Publ., Dordrecht, The Netherlands
- 518 Kühlbrandt, W., Rhee, K.-H., Morris, E.P. and Barber, J. (1998) Three-dimensional structure of PSII determined by electron microscopy of two-dimensional crystals. In: Photosynthesis: Mechanisms and Effects (Ed. Garab, G.) Vol. II. pp 913-917, Kluwer Academic Publ. Dordrecht, The Netherlands
- 519 Barbato, R., Mulo, P., Bergo, E., Carbonera, D., Maenpaa, P., Giacometti, G.M., Barber, J. and Aro, E.-M. (1999) Substantial deletions in the DE loop of the photosystem II D1 protein do not prevent its turnover or cross-linking with the \square -subunit of cytochrome b559. A study using *Synechocystis* sp PCC 6803 mutants. J. Plant Physiol. 154, 591-596
- 520 Büchel, C., Barber, J., Ananyev, G., Eshaghi, S., Watt, R. and Dismukes, C. (1999) Photoassembly of the manganese cluster and oxygen evolution from monomeric and dimeric CP47-reaction centre photosystem II complexes. Proc. Natl. Acad. Sci. USA 96, 14288-14293
- 521 Barber, J. and Kühlbrandt, W. (1999) Photosystem II. In: Current Opinions in Structural Biology. 9, 469-475. Publ. Current Biology Publications, London
- 522 Nield, J., Orlova, E., Morris, E., Gowen, B., van Heel, M. and Barber, J. (2000) 3D map of the plant photosystem two supercomplex obtained by cryoelectron microscopy and single particle analysis. Nature Structural Biology 7, 44-47
- 523 Pascal, A., Telfer, A., Barber, J. and Robert, B. (1999) Fourier-transform resonance Raman spectra of cation carotenoid in photosystem II reaction centres. FEBS Lett. 453, 11-14
- 524 Schilstra, M.J., Nield, J., Dörner, W., Hankamer, B., Carradus, M., Barter, L.M.C., Barber, J. and Klug, D.R. (1999) Similarity between electron donor side reactions in solubilised PSII-LHCII supercomplexes and PSII containing membranes. Photosynth. Res. 60, 191-198

- 525 Kruse, O., Hankamer, B., Konczak, C., Gerle, C., Morris, E., Radunz, A., Schmid, G.H. and Barber, J. (2000) Phosphatidyl glycerol is involved in the dimerization of photosystem II. *J. Biol. Chem.* 275, 6509-6514
- 526 Eshaghi, S., Turcsanyi, E., Vass, I., Nugent, J.H.A. and Barber, J. (2000) Functional characterisation of the PSII-LHCII supercomplex isolated by a direct method from spinach thylakoid membranes. *Photosynth. Res.* 64, 179-187
- 527 Komenda, J., Hassan, E., Diner, B., Debus, R., Barber, J. and Nixon, P.J. (2000) Degradation of the PSII D1 and D2 proteins in different strains of the cyanobacteria *Synechocystis* PCC 6803 varying with respect to the type and level of *psbA* transcript. *J. Plant Mol. Biol.* 42, 635-645
- 528 Büchel, C., Morris, E. and Barber, J. (2000) Crystallization of CP43, a chlorophyll binding protein of photosystem II: an electron microscopy analysis of molecular packing. *J. Struct. Biol.* 131, 181-186
- 529 Andronis, C., Merry, S.A. P., Durrant, J.R., Klug, D.R., Barber, J. and Nixon, P.J. (1999) Mutation of the *Chlamydomonas* analogue of residue M210 of the *Rhodobacter sphaeroides* reaction centre slows down primary electron transfer in PSII. *Photosynth. Res.* 62, 205-217
- 530 Nield, J., Kruse, O., Ruprecht, J., Da Fonseca, P., Büchel, C. and Barber, J. (2000) 3D structure of *Chlamydomonas reinhardtii* and *Synechococcus elongatus* photosystem II complexes allow for comparison of their OEC organisation. *J. Biol. Chem.* 275, 27940-27946
- 531 Nield, J., Funk, C. and Barber, J. (2000) Supermolecular structure of photosystem two and location of the PsbS protein. *Phil. Trans. R. Soc. Lond. B* 355, 1337-1344
- 532 Barber, J., Morris, E. and Büchel, C. (2000) Revealing the structure of the photosystem two chlorophyll binding proteins, CP43 and CP47. *Biochim. Biophys. Acta* 1459, 239-247
- 533 Barter, L.M.C., Bianchetti, M., Jeans, C., Schilstra, M.J., Hankamer, B., Diner, B.A., Barber, J., Durrant, J.R. and Klug, D.R. (2001) The relationship between excitation energy transfer, trapping and antenna size in PSII. *Biochemistry* 13, 4026-4034
- 534 Hankamer, B., Morris, E.P., Nield, J., Gerle, C. and Barber, J. (2001) Three-dimensional structure of photosystem II core dimer of higher plants determined by electron microscopy. *J. Struct. Biol.* 135, 262-269
- 535 Büchel, C., Morris, E., Orlova, E. and Barber, J. (2001) Localisation of the PsbH subunit in PSII – a new approach using labelling of His-tags with a Ni²⁺-NTA-gold cluster and single particle analysis. *J. Mol. Biol.* 312, 371-379
- 536 Barber, J. and Archer, M.D. (2001) P680, the primary electron donor of PSII. *Photochem. Photobiol. A Chemistry* 142, 97-106

- 537 Hankamer, B., Morris, E.P., Nield, J., Carne, A. and Barber, J. (2001) Subunit positioning and transmembrane helix organisation in the core dimer of photosystem II. FEBS Lett. 504, 142-151
- 538 Bibby, T., Nield, J. and Barber, J. (2001) Iron deficiency induces the formation of an antenna ring around trimeric photosystem I in cyanobacteria. Nature 412, 743-745
- 539 Morais, F., Kühn, K., Stewart, D.H., Barber, J., Brudvig, G.W. and Nixon, P.J. (2001) Photosynthetic water oxidation in cytochrome b559 mutants containing a disrupted haem-binding pocket. J. Biol. Chem. 276, 31986-31993
- 540 Da Fonseca, P., Morris, E.P., Hankamer, B. and Barber, J. (2002) Electron crystallographic study of photosystem II of the cyanobacterium *Synechococcus elongatus*. Biochemistry 41, 5163-5167
- 541 Bibby, T.S., Nield, J., Partensky, F. and Barber, J. (2001) Oxyphotobacteria: Antenna ring around PSI. Nature 413, 590
- 542 Bibby, T.S., Nield, J. and Barber, J. (2001) 3D model and characterisation of the iron stress induced CP43`-PSI supercomplex isolated from the cyanobacteria *Synechocystis* PCC 6803. J. Biol. Chem. 276, 43246-43252
- 543 Barber, J. (2002) P680: What is it and where is it? J. Bioelectrochem. 55, 135-138
- 544 Barber, J. (2001) The structure of photosystem I. Nature Struct. Biol. 8, 577-579
- 545 Barber, J. (2003) Photosystem II: The engine of life. Biophys. Quart. Revs. 36, 71-89
- 546 Nield, J., Balsera, M., De Las Rivas, J. and Barber, J. (2002) 3D cryo-EM study of the extrinsic domains of the oxygen evolving complex of spinach. Assignment of the PsbO protein. J. Biol. Chem. 277, 15006-15012
- 547 Barber, J. and Nield, J. (2002) Organisation of transmembrane helices in photosystem II: comparison of plants and cyanobacteria. Phil. Trans. R. Soc. Lond. B 357, 1329-1336
- 548 Barber, J. (2002) Photosystem II: a multisubunit membrane protein that oxidises water. Curr. Opinions Structural Biology 12, 523-530
- 549 Moser, C.C., Page, C.C., Cogdell, R.J., Barber, J., Wraight, C.A. and Dutton, P.L. (2003) Length, time, and energy scales of photosystems. In: Advances in Protein Chemistry, Vol. 63, Membrane Proteins (Ed. D.C. Rees), Pub. Academic Press, San Diego, USA pp71-106
- 550 Archer, M.D. and Barber, J. (2003) Photosynthesis and photoconversion. In: Photoconversion of solar energy from molecular to global photosynthesis, Vol.II (Ed. M.D. Archer and J. Barber), Pub. Imperial College Press, London pp 1-34
- 551 Barber, J. (2002) Throwing light on photosynthesis. Trends in Biochem. Sci. 27, 433

- 552 Nield, J., Morris, E.P., Bibby, T. and Barber, J. (2003) Structural analysis of the photosystem one supercomplex of cyanobacteria induced by iron deficiency. Biochemistry 42, 3180-3188
- 553 Melkozernov, A.N., Lin, S., Bibby, T.S., Barber, J. and Blankenship, R.E. (2003) Time-resolved absorption and emission show that CP43` antenna ring of iron stressed *Synechocystis sp.* PCC6803 is efficiently coupled to the PSI reaction center core. Biochemistry 42, 3893-3903
- 554 Nield, J., Rizkallah, P.J., Barber, J. and Chayen, N.E. (2003) The 1.45 Å 3D structure of C-phycocyanin from the thermophilic cyanobacterium *S. elongatus*. J. Struct. Biol. 141, 149-155
- 555 Bibby, T.S., Nield, J., Chen, M., Larkum, A.W.S. and Barber, J. (2003) Structure of a photosystem II supercomplex isolated from *Prochloron didemni* retaining its chlorophyll a/b light-harvesting system. Proc. Natl. Acad. Sci. USA 100, 9050-9054
- 556 Barber, J., Morris, E.P. Fonseca, P.C.A. (2003) Interaction of the allophycocyanin core complex with PSII. Photochem. Photobiol. Sci. 2, 536-541
- 557 Kargul, J., Nield, J. and Barber, J. (2003) 3D reconstruction of a PSI-LHCI supercomplex from the green alga *Chlamydomonas reinhardtii*: insights into light harvesting for PSI. J. Biol. Chem. 278, 16135-16141
- 558 Telfer, A., Frolov, D., Barber, J., Robert, B. and Pascal, A. (2003) Oxidation of the two *beta*-carotene molecules in the PSII reaction center. Biochemistry 42, 1008-1015
- 559 Duncan, J., Bibby, T.S., Tanaka, A. and Barber, J. (2003) Exploring the ability of chlorophyll b to bind to the CP43` protein induced under iron deprivation in a mutant of *Synechocystis* PCC 6803 containing the *cao* gene. FEBS Lett. 541, 171-175
- 560 Bibby, T.S., Mary, I., Nield, J., Partensky, F. and Barber, J. (2003) Low light-adapted *Prochlorococcus* spp. possess specific antennae for each photosystem. Nature 424, 1051-1054
- 561 Barber, J. (2004) Towards a full understanding of water splitting in photosynthesis. J. Photoenergy 6, 43-51.
- 562 Aspinwall, C.L., Duncan, J., Bibby, T.S. Mullineaux, C.W. and Barber J. (2004) The trimeric organisation of photosystem I is not necessary for the iron-stress induced CP43` protein to functionally associate with this reaction center. FEBS Lett. 574, 126-130
- 563 Barber, J. (2004) Water water everywhere and its remarkable chemistry. Biochim Biophys Acta 1655, 123-132

- 564 Barber, J. (2004) Photosystem II protein complexes. Encycl. Biol. Chem. (Pub. Elsevier) in press
- 565 De Las Rivas, J., Balsera, M. and Barber, J. (2004) Evolution of oxygenic photosynthesis: genome-wide analysis of the OEC extrinsic proteins. Trends Plant Sci. 9, 18-25
- 566 Ferreira, K.N., T.M. Iverson, K. Maghlaoui, J. Barber and S. Iwata. (2004) Architecture of the photosynthetic oxygen-evolving center. Science 303, 1831-1838
- 567 Iwata, M., Imamura, H., Stambouli, E., Ikeda, C., Tamakoshi, M., Nagata, K., Makyio, H., Hankamer B., Barber, J., Yoshida, M., Yokoyama, K. and Iwata, S. (2004) Crystal structure of a central stalk subunit C and reversible association/dissociation of vacuole-type ATPase. Proc Natl Acad Sci USA 101, 59-64
- 568 Barber, J. (2004) Engine of life and big bang of evolution: a personal perspective. Photosyn. Res. 80, 137-155
- 569 Barber, J. and Iwata, S. (2004) Photosystem II. In: Photosystem II. The Water Plastoquinone Oxido-reductase in Photosynthesis. (Eds. T. Wydrzynski & K. Satoh), Pub. Kluwer Publications. Chapter 21. p 469-489.
- 570 Hankamer, B., Barber, J. and Nield, J. (2004) Electron microscopy of Photosystem II and its antenna system. In: Photosystem II. The Water Plastoquinone Oxido-reductase in Photosynthesis. (Eds. T. Wydrzynski & K. Satoh), Pub. Kluwer Publications Chapter 18. pp 403-424.
- 571 De Las Rivas, J. and Barber, J. (2004) Analyses of the structure of the PsbO protein and its implications. Photosyn. Res. 81, 329-343
- 572 Barber, J. Ferreria, K., Maghlaoui, K. and Iwata, S. (2004) Structure of the oxygen evolving center of photosystem II and its mechanistic implications. Phys. Chem. Chem. Phys. 6, 4737-4742
- 573 Melkozernov, A.N., Kargul, J., Lin, S., Barber, J. and Blankenship, R.E. (2004) Energy coupling in the PSI-LHCI supercomplex from the green alga *Chlamydomonas reinhardtii*. J. Phys. Chem. B108, 10547-10555
- 574 Iwata, S. and Barber, J. (2004) Structure of photosystem II and molecular architecture of the oxygen-evolving centre. Curr. Opinions Struct. Biol. 14, 447-453
- 575 Melkozernov, A.N., Kargul, J., Lin, S., Barber, J. and Blankenship, R.E. (2005) Spectral and kinetic analysis of the energy coupling in the PSI-LHCI supercomplex from the green alga *Chlamydomonas reinhardtii* at 77K. Photosynth. Res. 86, 203-215
- 576 Kargul, J., Turkina, M.V., Nield, J., Benson, S., Vener, A.V. and Barber, J. (2005) Light harvesting complex II protein CP29 binds to photosystem I of *Chlamydomonas reinhardtii* under State 2 conditions. FEBS J. 272, 4792-4806

- 577 Chen M, Bibby TS, Nield J, Larkum AW, Barber J (2005) Iron deficiency induces a chlorophyll *d*-binding Pcb antenna around photosystem I in *Acaryochloris marina*. *BBA-Bioenerg.* 1708, 367-374.
- 578 Chen M, Bibby TS, Nield J, Larkum AW, Barber J (2005) Structure of a large photosystem II supercomplex from *Acaryochloris marina*. *FEBS Lett.* 579, 1306-1310.
- 579 M. Chen, A. Telfer, S. Lin, A. Pascal, A.W.D. Larkum, J. Barber, R.E. Blankenship, The nature of the Photosystem II reaction centre in the chlorophyll *d*-containing prokaryote, *Acaryochloris marina*, *Photochem. Photobiol. Sci.* 4 (2005) 1060-1064
- 580 Melkozernov, A.N., Barber, J. and Blankenship, R.E. (2006) Light-harvesting in Photosystem I supercomplexes. *Biochemistry* 45, 331-345.
- 581 Murray, J.W., Duncan, J. and Barber, J. (2006) CP43-like chlorophyll binding proteins: structural and evolutionary implications. *Trends Plant Sci.* 11, 152-158.
- 582 Murray J.W. and Barber, J (2006) Identification of a calcium-binding site in the PsbO protein of photosystem II. *Biochemistry*. 45, 4128-4130.
- 583 Vener AV, Turkina MV, Hansson M, Aboulaich N, Stralfors P, Villarejo A, Kargul J and Barber J. (2006) Vectorial proteomics of biological membranes. *FEBS J.* 272, 115-115.
- 584 Neild, J and Barber, J (2006) Refinement of the structural model of the Photosystem II supercomplex of higher plants. *Biochim.Biophys.Acta* 1757, 353-361.
- 585 Turkina MV, Kargul J, Blanco-Rivero A, Villarejo A, Barber J, and Vener A.V. (2006) Environmentally modulated phosphoproteome of photosynthetic membranes in the green alga *Chlamydomonas reinhardtii*. *Mol Cell Proteomics*. 5, 1412-25
- 586 Barber, J (2006) Photosystem II; The engine of life. *Biochemist* 28, 7-11
- 587 Barber, J (2006) Photosystem II; An enzyme of global significance. *Biochemical Society Transaction* 34, 619-631
- 588 Lundin, B, Thuswaldner, S, Shutova, T, Eshaghi, S, Samuelsson, G, Barber, J, Andersson, B. and Spetea, C. (2007) Subsequent Events to GTP Binding by the Plant PsbO Protein: Structural Changes, GTP Hydrolysis and Dissociation from the Photosystem II Complex. *Biochim.Biophys.Acta* 1767, 500-508
- 589 Morosinotto, T, Bassi, R, Frigerio, S, Finazzi, G, Morris, E. And Barber, J. (2006) Biochemical and structural analyses of a higher plant photosystem II supercomplex of a PSI-less mutant of barley: consequences of a chronic over reduction of the plastoquinone pool. *FEBS J.* 273, 4616-4630
- 590 Barber J. (2007) Biological solar energy. *Philos Transact A Math Phys Eng Sci.* 365:1007-23.

- 591 Murray, J.W. and Barber, J (2007) Structural characteristics of channels and pathways in Photosystem II including the identification of oxygen channel. *J.Struct. Biol.* 159, 228-237.
- 592 Kargul,J. Maghlaoui, K. Murray, JW, Deak, Z, Boussac,A, Rutherford,AW, Vass,I and Barber,J (2007)Purification, crystallization and X-ray diffraction analyses of the *T. elongatus* PSII core dimer with strontium replacing calcium in the oxygen-evolving complex. *Biochim.Biophys.Acta* 1767, 404-413
- 593 Schlodder, E, Çetin, M, Eckert, H-J ,Schmitt,F-J ,Barber,J and Telfer,A (2007) Both chlorophyll *a* and *d* are essential for the photochemistry in photosystem II of the cyanobacterium, *Acaryochloris marina* *Biochim.Biophys. Acta* 1767, 589-595.
- 594 He, P, Duncan, J, Barber, J (2007) Astaxanthin accumulation in the green alga *Haematococcus pluvialis*: Effects of cultivation parameters. *J. Inter. Plant Biol.* 49:447-451
- 595 Di Valintino, M., Ceola, S., Agostini, G., Telfer, A., Barber, J., Bohles, F., Santabarbara, S. and Carbonera, D. (2007) The photo-excited triplet state of chlorophyll *d* in methyl-tetrahydrofuran studied by optically detected magnetic resonance and time-resolved EPR. *Mol. Phys.* 105, 2109-2117.
- 596 Murray, J.W., Maghlaoui, K. and Barber, J, (2007) The structure of allophycocyanin from *Thermosynechococcus elongatus* at 3.5 angstrom resolution. *Acta Crystallog. F*, 63, 998 – 1002.
- 597 Barber, J. and Murray, J.W. (2008) The structure of the Mn₄Ca²⁺-cluster of Photosystem II and its protein environment as revealed by X-ray crystallography. *Phil. Trans. R. Soc. B* 363, 1129-1138
- 598 Barber, J. and Murray, J.W. (2008) Revealing the structure of the Mn-cluster of Photosystem II by X-ray crystallography. *Coord. Chem. Reviews* 252, 233-243.
- 599 Kargul, J and Barber, J. (2008) Photosynthetic acclimation: Structural reorganisation of light harvesting antenna role of redox-dependent phosphorylation of major and minor chlorophyll a/b binding proteins. *FEBS Journal* 275, 1056-1068.
- 600 Barber, J. (2008) Photosynthetic Generation of Oxygen. *Phil. Trans. R. Soc. B.* 363, 2665-2674
- 601 Barber, J. (2008) Crystal structure of the oxygen-evolving complex of photosystem II. *Inorgan. Chem.* 47, 1700 – 1710.
- 602 Cser K, Deak Z, Telfer, A, Barber J and Vass I (2008) Energetics of Photosystem II charge recombination in *Acaryochloris marina* studied by thermoluminescence and flash-induced chlorophyll fluorescence measurements, *Photosynth Res* 98:131–140
- 603 Bailleul, B., Finazzi, G., Bensen, S., Barber, J., Rappaport, F. and Telfer, A. (2008) Photosynthesis under a weak load: intersystem electron transfer in the

- Chl d dominated cyanobacterium, *Acaryochloris marina*. J. Biol. Chem. 283, 25218-25226.
- 604 Jia, H., Oguchi, R., Hope,A.B., Barber, J. and Chow, W.S. (2008) Differential effects of severe water stress on linear and cyclic electron fluxes through Photosystem I in spinach leaf discs in CO₂-enriched air. Planta, 228, 803-812.
- 605 Schenderlein, M., çetin, M., Barber, J., Telfer, A., and Schlodder, E.(2008) Spectroscopic studies of the chlorophyll d containing photosystem I from the cyanobacterium, *Acaryochloris marina*. Biochim. Biophys. Acta. 1777, 1400-1408.
- 606 Oguchi, R., Jia, H., Barber, J. and Chow, W.S. (2008) Recovery of photoinactivated Photosystem II in leaves: retardation due to restricted mobility of Photosystem II in the thylakoid membrane. Photosyn. Res. 98, 523-527.
- 607 Murray, J.W., Maghlaoui, K., Kargul, J., Ishida, N., Lai T-L, Rutherford, A.W., Sugiura, M., Boussac, A.and Barber, J. (2008) X-ray crystallography identifies two chloride binding sites in the oxygen evolving centre of Photosystem II. Energy Environ. Sci., 1, 161-166
- 608 Murray, J.W., Maghlaoui, K., Kargul, J. Sugiura, M. and Barber, J. (2008) Analysis of Xenon binding to Photosystem II by X-ray crystallography. Photosyn. Res. 98, 523-527
- 609 Barber, J. (2009) Photosynthetic energy conversion: natural and artificial. Chem. Soc. Revs. 38, 185-196
- 610 Listorti A, Durrant J, and Barber J.(2009) Artificial photosynthesis; Solar to fuel. Nature Materials 8, 929.
- 611 Telfer, A., Pascal, A., Bordes, L., Barber, J. and Robert, B. (2010) Fluorescence Line Narrowing Studies on isolated Chlorophyll Molecules. J. Phys. Chem. 114, 2255-2260
- 612 Barber, J. (2010) Solar Surge Comment article Chemistry World 7, 41
- 613 Blankenship R.E, Tiede D.M, Barber J, Gary W. Brudvig G.W, Fleming G, Ghirardi M, Gunner M.R, Junge W, Kramer D.M, Melis A, Moore T.A, Mosee C.C, Nocera D.G, Nozik A.J, Ort D.R, Parson W.W, Prince R.C and Sayre R.T (2011) Comparing the Efficiency of Photosynthesis with Photovoltaic Devices: Recognizing Opportunities for Improvement. Science 332, 805-809
- 614 Pagliano C, Chimirri F, Saracco G, and Barber J (2011) PsbP does not require LHCII to bind the PSII core. Proc. 17th Intern. Photosyn Congress, Beijing
- 615 Pagliano C, Chimirri F, Saracco G, Marsano, F and Barber J (2011) One-step isolation and biochemical characterization of a highly active plant PSII monomeric core. Photosyn. Res. 108, 33-46
- 616 Kargul, J and Barber, J (2011) Structure and function of Type I and Type II Reaction Centres. In Molecular Solar Fuels. Pp 107-142 Ed. Wydrzynski, E.J and Hillier, W. Pub RSC Publications.

- 617 Barber, J (2012) Photosystem II: Redox and Protein Components. Encyclopedia of Biological Chemistry, 2nd Edition, Bioenergetics 512–519
- 618 Santabarbara S, Bailleul, B, Redding K, Barber J, Rappaport F and Telfer A.(2012) Kinetics of phyllosemiquinone oxidation in the Photosystem I reaction centre of *Acaryochloris marina* *Biochim. Biophys.Acta* 1817, 328-335.
- 619 Pagliano, C, Barera, S, Chimirri, F, Saracco,G and Barber, J. (2012) Comparison of the α and β isomeric forms of the detergent n-dodecyl-D-maltoside for solubilizing photosynthetic complexes from pea thylakoids membranes. *Biochim. Biophys.Acta* 1817, 1506-1515.
- 620 Tran, P.D., Wong, L.H., Barber, J. and Loo J.S.C. (2012) Recent advances in hybrid photocatalysts for solar fuel production. *Energy and Environmental Sciences* 5, 5902-5918.
- 621 Tran, P.D., Batabyal, S.K, Pramanab, S.S., Barber, J., Wong, L.H. and Loo, J.S.C. (2012) A Cuprous oxide_reduced graphene oxide (Cu2O/rGO) composite photocatalyst for hydrogen generation: employing rGO as electron acceptor to enhance photocatalytic activities and stability of Cu2O. *Nanoscale*, 4, 3875-3878.
- 622 Xi, L., Bassi, P.S., Chia, S.Y., Mak, W.F., Tran, P.D., Barber, J., Loo, J.S.C. and Wong, L.H. (2012) Surface treatment of hematite photoanodes with zinc acetate for water oxidation. *Nanoscale*, 4, 4430–4433.
- 623 Tran, P.D., Xi, L., Batabya, L.K., Wong, L.H. and Barber, J. and Loo, J.S.C.(2012) Enhancing photocatalytic efficiency of TiO2 nanopowder for H2 production by using non-noble transition metal co-catalysts. *Phys Chem. Chem.Phys.* 14, 11596–11599.
- 624 Xi, L., Tran, P.D., Chia, S.Y., Bassi, P.S., Mak, W.F., Mulmudi, H.K., Batabyal, S.K., Barber, J. and Loo, J.S.C. and Wong, L.H. (2012) Co₃O₄ decorated hematite nanorods as efficient photoanode for solar water oxidation *J. Phys. Chem. C*. 116, 13884-13889
- 625 Barera, S, Pagliano, C, Tillmann, P, Saracco,G and Barber, J. (2012) Characterization of PSII-LHCII supercomplexes isolated from pea thylakoid membranes by one-step treatment with α -and β - dodecyl-D-maltoside. *Phil. Trans. R. Soc. B*. 367, 3389-3399. doi: 10.1098/rstb.2012.0056
- 626 Fang, J, Cao, S, Wang, Z, Shahjamali, M.M, Loo, J. Barber, J. and Xue C (2012) "Mesoporous Plasmonic Au-TiO₂ Nanocomposites for Efficient Visible-Light-Driven Photocatalytic Water Reduction", submitted to *Int. J. Hydrogen Energy*, *Int. J. Hydrogen Energy*, 37, 17853-17861.
- 627 Cao, S. W. Fang, J. Shahjamali, M. M. Yin, Z. Wang, Z., Boey, F., Barber, J., Loo, S. C. J., Xue, C.(2012) In-situ Growth of Au Nanoparticles on Fe₂O₃ Nanocrystals for Catalytic Applications, *CrystEngComm*. 14, 7229-7235.
- 628 Cao, S. W., Fang, J. Shahjamali, M. M. Boey, F.. Barber, J., Loo S. C. J. and Xue, C.(2012) Plasmon-Enhanced Hydrogen Evolution on Au-InVO₄ Hybrid Microspheres, *RSC Advances*. 2, 5513-5515.

- 629 Cao, S. W., Yin, Z., Barber, J Boey, F., Loo S. C. J. and Xue, C., Preparation of Au-BiVO₄ (2012) Heterogeneous Nanostructures as Highly Efficient Visible-Light Photocatalysts, ACS Appl. Mater. Interfaces., 4, 418-423.
- 630 Xi, L. Chiam, S.Y., Mak, W.F., Barber, J., Loo, S.C.J., Wong, L.H.(2012). A novel strategy for doping and passivating surface defects on hematite photoanode for efficient water oxidation. Chemical Sciences, 4, 164–169.
- 631 Tran, P.D. Nguyen, M., Pramana, S., Chiam, S.Y., Bhattacharjee, A., Fize, J., Field, M.J., Artero, V., Wong, L.H., Loo, J. and Barber, J. (2012) Copper Molybdenum Sulfide: A New Efficient Electrocatalyst for Hydrogen Production from Water. Energy and Environmental Sciences. 5, 8912-8916.
- 632 Tran, P.D. Nguyen, M., Pramana, Kale, V.S., Nguyen, T.X.M., Chiam, S.Y., Batabyal, S.K., Wong, L.H., Barber, J., Loo, S.C.J. (2012) Novel assembly of MoS₂ electrocatalyst onto silicon nanowire array electrode to construct photocathode composed of Earth-abundant elements for Hydrogen generation. Chemistry-A European Journal, 18, 13994 – 13999.
- 633 Tran, P.D. and Barber, J. (2012) Proton reduction to hydrogen in biological and chemical systems. Phys. Chem. Chem. Phys. 2012, 14, 13772 – 13784.
- 634 Najafpour, M.M., Barber, J., Shen, J-R., Moore, G., Govindjee (2012) Running on sun. Chemistry World, November, page 43.
- 635 Cao, S-W., Yuan Y-P., Fang, J., Shahjamalia, M.M., Boey, F.Y.C., Barber, J., Loo, S.C.J. and Xue, C.(2012). In-situ Growth of CdS Quantum Dots on g-C₃N₄ Nanosheets for Highly Efficient Photocatalytic Hydrogen Generation under Visible Light Irradiation. Int. J.of Hydrogen Energy, 3, 1258-1266
DOI:10.1016/j.ijhydene.2012.10.116.
- 636 Anna, J.M., Ostroumov, E, Maghlaoui E., Barbee, J. and . Scholes, G.D. (2012). Two-Dimensional Electronic Spectroscopy Reveals Ultrafast Downhill Energy Transfer in Photosystem I Trimers of the cyanobacterium *Thermosynechococcus elongatus*. J.Phys. Chem. Lett. **2012**, 3, 3677–3684
DOI: 10.1021/jz3018013.
- 637 Pagliano, C., Chimirri, F., Saracco, G. and Barber,J.(2012) PsbP does not require LHCII to bind to the PSII core. Proc. 15th Intern.Congr. Photosyn.(Ed.Kuang, T-Y., Lu, C-M.and Zhang L-I) pp 55-58
- 638 Kargul, J., Boehm, M., Morgner, N., Robinson, C.V., Nixon, P. and Barber, J. (2012). Composition and structural analyses of photosystem II isolated from the red alga Cyanidioschyzon Merolae. Proc. 15th Intern.Congr. Photosyn.(Ed.Kuang, T-Y., Lu, C-M.and Zhang L-I) pp 59-63
- 639 Barber, J. (2013) Photosysten II: The water slitting enzyme of photosynthesis. Cold Spring Harbor Symposium Vol 77 DOI:10.1101/sqb.2012.77.014472
- 640 Barber, J. and Tran, P.D. (2013) From Natural to Artificial Photosynthesis. The Roy. Soc J. Interface DOI:10.1098/rsif.2012.0984, Vol 10 1-16
- 641 S-W Cao, X-F Liu, Y-P Yuan, Z-Y Zhang, J Fang, M.M Shahjamali, J. Barber, T-C Sum, S.C. Joachim Loo and C. Xue (2013) Artificial Photosynthetic

- Hydrogen Evolution over g-C₃N₄/Cobaloxime Hybrids. Phys. Chem.Chem.Phys., 15, 18363-18366.
- 642 Kaucikas, M., Barber, J and Van Thor, J. (2013) Polarization sensitive ultrafast mid-IR pump probe micro-spectrometer with diffraction limited spatial resolution. Optics Express 21, 8357-8370.
- 643 Shi, W-J, Barber, J and ZhaoY (2013) Role of formation of statistical aggregates in chlorophyll uorescence concentration quenching. J. Phys. Chem. B, 117, 3976–3982 DOI: 10.1021/jp311821t
- 644 Moore, B., Kelley, L., Barber, J., Murray, J.and MacDonald, J. (2013) High quality protein backbone reconstruction from alpha carbons using Gaussian mixture models. Journal of Computational Chemistry. 34, 1881–1889,
- 645 Tran, P.D., Chiam, S.Y., Pramana, S.S, Ren, Y., Fize, J., Artero, V., and Barber, J. (2013). Novel Ternary Metal Sulfide Catalysts for Electrocatalytic Hydrogen Generation in Water. Energy and Environmental Sciences. 6, 2452-2459.
- 646 Pagliano, C., Saracco, G. and Barber,J.(2013) Structural, Functional and Auxiliary Proteins of Photosystem II. Photosyn. Res. 116,167–188 (DOI: 10.1007/s11120-013-9803-8)
- 647 Lee, R.H., Tran, P.D. Pramana, S.S., Chiam, S.Y., Ren, Y., Meng, Wong, L.H. and Barber, J. (2013). Assembling graphitic-carbon-nitride with cobalt-oxide-phosphate to construct an efficient hybrid photocatalyst for water splitting application. Catalysis Science & Technology. 3, 1694-1698.
- 648 Gurudayal, Chaim, S.Y., Kumar M.H., Bassi P.S., Seng H.L., Barber, J. and Wong, L.H. (2014) Improving the efficiency of Hematite Nanorods fo Photoelectrochemical Water Splitting by doping with Manganese. Submitted to
- 649 van Oort B, Kargul, J., Barber, J. and van Amerongen, H. (2014) Fluorescence kinetics of PSII crystals containing Ca²⁺ or Sr²⁺ in the oxygen evolving complex. Biochim. Biophys. Acta 1837, 264–269.
- 650 Pagliano, C., Nield, J., Marsano, F., Pape, T., Barera, S., Saracco, G. and Barber, J.(2014) Proteomic characterization and three-dimensional electron microscopy study of PSII-LHCII supercomplexes from higher plants. Biochim. Biophys. Acta , in press
- 651 Barber, J. (2014) Photosystem II: Its Function, Structure and Implications for Artificial Photosynthesis Biochemistry (Moscow)/ Biokhimiya in press
- 652 Bassi, P.S.,Gurudayal, Wong,L.H and Barber, J. (2014) Iron based photoanodes for solar fuel production. Phys. Chem. Chem. Phys., DOI:10.1039/C3CP55174A.
- 653 Chen, Y., Tran, D.P., Boix, P.P, Bassi, P.S., Yantara, N., Wong, L.H. and Barber, J. (2014) "Engineering Cu₂O/NiO/Cu₂MoS₄ Hybrid Photocathode for H₂ Generation in Water" Nanoscale submitted.

