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ACADEMIC CAREER:

Professor of Chemical Biology, University of Oxford; Fellow of Hertford College (2003- present)

Professor & Head, Dept. of Medical Biochemistry & Genetics, The Texas A&M University System Health Science Center (1997- 2003); Professor of Chemistry, Texas A&M University (1997- 2003); Full Member, Faculty of Genetics (1997- 2003)

Principal Scientist, Worcester Foundation (1994-1996); Senior Scientist (1988- 1994); Associate Professor of Biochemistry & Molecular Biology (1991- 1996) and Physiology (1995- 1996), University of Massachusetts Medical Center; Associate Professor of Chemistry, Clark University (1996)

Associate Professor, Center for Neurobiology & Behavior,
Columbia University (1987-8); & Assistant Investigator,
Howard Hughes Medical Institute, Columbia University (1985-8)

University Lecturer in Organic Chemistry, Oxford University (1984-1985);
& Fellow of Brasenose College, Oxford (1984-1985)

Assistant Professor of Biochemistry, Columbia University (1981-1984)

Postdoctoral Research (1979 - 1981)
Massachusetts Institute of Technology
Departments of Chemistry and Biology
Laboratory of Professor H.G. Khorana

Postgraduate (1974 - 1979)
Harvard University Graduate School of Arts & Sciences
Laboratory of Professor J.R. Knowles
Ph.D in Chemistry (February 1979)
Teaching Fellow (1974 - 1976)

Undergraduate (1970 - 1974)
Oxford University, Balliol College
B.A. in Chemistry

HONORS:
1970: Open scholarship, Oxford University; 1972: Distinction in Chemical Pharmacology, Oxford University; 1973: Herbertson Prize for Chemistry, Balliol College, Oxford; Gibbs Prize for Chemistry, (University Award for best final examination); 1974: B.A., Part II, First Class Honors; Coolidge Pathfinder; 1983: Irma T. Hirschl Career Scientist Award; 1998: Michael Gill Lecture, Tufts University; 2002: Texas A&M, College of Medicine Excellence in Research Award; 2003: Royal Society Wolfson Research Merit Award; 2005: Fellow of the Royal Society of Chemistry; 2006: Frederick Seitz Lecture in Interdisciplinary Science, University of Chicago; 2007: Texas A&M University Frontiers in Chemistry Lectures; 2009: RSC Chemistry World Entrepreneur of the Year; Keith Ingold Lecture, Steacie Institute, Ottawa; Fellow of the American Association for the Advancement of Science; 2010: British Biophysical Society 50th Anniversary Lecture; 2011: Fellow of the Royal Society of Biology; Edward Teller Distinguished Lecture Series on Interdisciplinary Science, University of California at Davis; Fellow of the Royal Society; William E Mahoney Seminar, University of Massachusetts at Amherst; 2012: Fellow of the Learned Society of Wales; Royal Society of Chemistry Interdisciplinary Prize; Honorary Member of the British Biophysical Society; 2013: Honorary Fellow of Balliol College; 2014: UK's 100 leading practising scientists (Science Council);

INVITED TALKS (2013- present):
2013: RSC Bristol Chemical and Synthetic Biology Symposium; Biological and Soft Matter, Oxford; Science and Society, University of Liverpool; Institute of Physical Chemistry, Polish Academy of Sciences; Linz Winter Workshop XV; Oxford Medical Law & Ethics Discussion Group; Oxford at Saïd Seminar; School of Chemistry, University of St Andrews; Center for Research in Biological Chemistry and Molecular Materials, University of Santiago de Compostela; Department of Chemistry, University of Sussex; Zernike Institute Retreat, Vlieland; Biosystem Science and Engineering, ETHZ in Basel; Nanoscience & Quantum Information Centre, University of Bristol; Department of Physics, Syracuse University; 18th Albany Conversation, University at Albany, NY; Celebrating Chemistry at King's, King's College London; Transport through Nanopores: From Understanding to Engineering, Jacobs University Bremen; T.Y. Shen Lecture, Department of Chemistry, University of Manchester; Engineering Life 2013, Dresden; RE.WORK Technology Summit, London; Opportunities and challenges in 3D bioprinting, Cambridge; College of Life Sciences, Dundee. **2014**: Lorne Conference on Protein Structure and Function; Victor Chang Institute, Sydney; Centre for NanoScale Science and Technology, Flinders University, Adelaide; Oxford Membranes Protein Forum; Institut Parisien de Chimie Moléculaire; Blizard Institute of Barts and The London School of Medicine and Dentistry; CEO Leadership Programme- Beyond Business, Said Business School, Oxford; GRC Biointerface Science, Il Ciocco, Italy; GRC Single Molecule Approaches to Biology, Il Ciocco, Italy; IMI Translocation meeting, Jacobs University Bremen; Science Foo Camp, Mountain View, CA; Workshop on pore-forming toxins (in memory of Gianfranco Menestrina), Trento, Italy; Careers talk, RAMS conference, Bath; Biomaterials plenary lecture, RAMS conference, Bath; Oxford alumni weekend; SynOx student society, Oxford; Single Molecule & High Throughput Biology, Cambridge; St Anne's College Science Discussion Group, Oxford; MEXT meeting on Single-Molecule Sequencing, Tokyo; Department of Chemistry, University of Tokyo; Japanese Society for Cell Synthesis Research, 7th meeting, University of Tokyo; SEB Plant Transport Group meeting, Glasgow; **2015**: Fitzwilliam College Natural Sciences Society and Cambridge University Biological Society, Cambridge; Biophysical Society Meeting, Baltimore, MD; Society of Lab Automation, Washington, DC; University of Massachusetts Medical School; Selective transport through nanopores, Lenzerheide, Switzerland; 15th Bristol Synthesis The RSC lecture; National Human Genome Research Institute DNA Sequencing Technology, San Diego; Silicon Valley Comes to Oxford; VIB Symposium, Gent, Belgium; Antibiotic Permeability in Gram-Negative Bacteria, Bremen; Oxford Biotech Entrepreneurship Meeting; History of Sequencing, Cold Spring Harbor Laboratory; Nanotechnology Meet Life Science, University of Frankfurt; Pregl Colloquium, National Institute of Chemistry, Ljubljana; 10th European Biophysics Congress, Dresden; International Society of Toxinology, Oxford; Anniversary Lecture, CIC bioGUNE Bilbao; Single Molecule Biophysics, The Crick Institute; Towards a Synthetic Cell, Delft

PUBLICATIONS

ARTICLES:

1. Staros, J.V., Bayley, H., Standring, D.N., and Knowles, J.R., Reduction of aryl azides by thiols: Implications for the use of photoaffinity reagents. **Biochem. Biophys. Res. Commun.** 80, 568-572 (1978).

2. Bayley, H., and Knowles, J.R., Photogenerated reagents for membrane labeling. I. Phenyl nitrene formed within the lipid bilayer. **Biochemistry** 17, 2414-2419 (1978).

3. Bayley, H., and Knowles, J.R., Photogenerated reagents for membrane labeling. II. Phenyl carbene and adamantylidene formed within the lipid bilayer. **Biochemistry** 17, 2420-2423 (1978).

4. Bayley, H., Standring, D.N., and Knowles, J.R., Propane-1, 3-dithiol: A selective reagent for the efficient reduction of alkyl and aryl azides to amines. **Tetrahedron Letters** 3633-3634 (1978).

5. Bayley, H., Inhibitors of photosynthetic electron transport - The properties of diazidodialkylbenzoquinones. **Z. Naturforschung** 34c, 490-492 (1979).

6. Goldman, D.W., Pober, J.S., White, J., and Bayley, H., Selective labeling of the hydrophobic segments of intrinsic membrane proteins with a lipophilic photogenerated carbene. **Nature** 280, 841-843 (1979).

7. Huang, K.-S., Bayley, H., and Khorana, H.G., Delipidation of bacteriorhodopsin and reconstitution with exogenous phospholipid. **Proc. Natl. Acad. Sci. USA** 77, 323-327 (1980)

8. Farley, R., Goldman, D.W., and Bayley, H., Identification of regions of the catalytic subunit of Na,K-ATPase embedded within the cell membrane. **J. Biol. Chem.** 255, 860-864 (1980).

9. Bayley, H., and Knowles J.R., Photogenerated reagents for membranes: Selective labeling of intrinsic membrane proteins in the human erythrocyte membrane. **Biochemistry** 19, 3883-3892 (1980).

10. Bayley, H., Radhakrishnan, R., Huang, K.-S., and Khorana, H.G., Light-driven proton translocation by bacteriorhodopsin reconstituted with the phenyl analog of retinal. **J. Biol. Chem.** 256, 3797-3801 (1981).

11. Huang, K.-S., Bayley, H., Liao, M.-J., London, E., and Khorana, H.G., Refolding of an integral membrane protein: Denaturation, renaturation and reconstitution of intact bacteriorhodopsin and two proteolytic fragments. **J. Biol. Chem.** 256, 3802-3809 (1981).

12. Bayley, H., Huang, K.-S., Radhakrishnan, R., Ross, A.H., Takagaki, Y., and Khorana, H.G., Site of attachment of retinal in bacteriorhodopsin. **Proc. Natl. Acad. Sci. USA** 78, 2225-2229 (1981).

13. Bayley, H., Hojeberg, B., Huang, K.-S, Liao, M.-J., Lind, C., London, E., and Khorana, H.G., Delipidation, reconstitution, and renaturation of bacteriorhodopsin, **Methods in Enzymology** 88, 74-81 (1982).

14. Rothschild, K.J., Argade, P.V., Earnest, T.N., Huang, K.-S., London, E., Liao, M.-J., Bayley, H., Khorana, H.G., and Herzfeld, J., The site of attachment of retinal in bacteriorhodopsin: a resonance raman study. **J. Biol. Chem.** 257, 8592-8595 (1982).

15. Huang, K.-S., Radhadrishnan, R., Bayley, H., and Khorana, H. G., Orientation of retinal in bacteriorhodopsin as studied by crosslinking using a photosensitive analog of retinal. **J. Biol. Chem.** 257, 13616-13623 (1982).

16. Shih, L.B., and Bayley, H., A carbene-yielding amino acid for incorporation into peptide photoaffinity reagents. **Analyt. Biochem.** 144, 132-144 (1985).

17. Tobkes, N., Wallace, B.A., and Bayley, H., Secondary structure and assembly mechanism of an oligomeric channel protein. **Biochemistry** 24, 1915-1920 (1985).

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19. Eppler, C.M., Bayley, H., Greenberg, S., and Schwartz, J.H., Structural studies on a family of cAMP-binding proteins in the nervous system of *Aplysia*. **J. Cell Biol.** 102, 320-331 (1986).

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21. Yemul, S.S., Berger, C., Estabrook, A., Suarez, S., Edelson, R., and Bayley, H., Selective killing of T lymphocytes by phototoxic liposomes. **Proc. Natl. Acad. Sci. USA** 84, 246-250 (1987).

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24. Greenberg, S.M., Castellucci,V.F., Bayley, H., and Schwartz, J.H., A molecular mechanism for long-term sensitization in *Aplysia*. **Nature** 329, 62-65 (1987).

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26. Beushausen, S., Bergold, P., Sturner, S., Elste, A., Roytenberg, V., Schwartz, J.H., and Bayley, H. Two catalytic subunits of cAMP-dependent protein kinase generated by alternative RNA splicing are expressed in *Aplysia* neurons. **Neuron** 1, 853-864 (1988).

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29. Yemul, S.S., Berger, C., Katz, M., Estabrook, A., Edelson, R., and Bayley, H. Phototoxic liposomes coupled to an antibody that alone cannot modulate its cell-surface antigen kill selected target cells. **Cancer Immunol. Immunother.** 30, 317-322 (1990).

30. Cayanis, E., Bayley, H., and Edelman, I.S. Cell-free transcription and translation of Na, K-ATPase α and β subunit cDNAs. **J. Biol. Chem.** 265, 10829-10835 (1990).

31. Beushausen, S., and Bayley, H. A relative of the catalytic subunit of cAMP-dependent protein kinase in *Aplysia* spermatozoa. **Mol. Cell. Biol.** 10, 6775-6780 (1990).

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54. Chang, C.-Y., Niblack, B., Walker, B., and Bayley, H. A photogenerated pore-forming protein, **Chemistry & Biology** 2, 391-400 (1995).

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56. Panchal, R.G., and Bayley, H. Interactions between residues in staphylococcal α- hemolysin revealed by reversion mutagenesis, **J. Biol. Chem**. 270, 23072-23076(1995).

57. Valeva, A., Weisser, A., Walker, B., Kehoe, M., Bayley, H., Bhakdi, S., and Palmer, M. Molecular architecture of a toxin pore: a 15-residue sequence lines the transmembrane channel of staphylococcal alpha-toxin, **EMBO J.** 15, 1857-1864 (1996).

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In addition Dr. Bayley is an author of 15 published International Patent applications (WO 94/025616; 96/020688; 99/05167; 01/059453; 03/095669; 06/100484; 07/057668; 07/084103; 08/012552; 09/044170; 10/004265; 10/004273; 10/055307; 10/109197 and 7 unpublished patent applications.