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Education

- 1978 B.A. in Chemistry and German, magna cum laude, Brown University
1979 Predoctoral Fellow, ETH Zurich, Switzerland
1983 Ph.D. in Organic Chemistry, Columbia University, New York, New York

Professional Experience

- 1984 - 1985 NIH Postdoctoral Fellow, Rockefeller University, New York, New York
1986 - 1989 Assistant Member, Department of Molecular Biology
Research Institute of Scripps Clinic, La Jolla, California
1989 - 1994 Associate Member, Departments of Chemistry and Molecular Biology
The Scripps Research Institute, La Jolla, California
1994 - 1997 Janet and W. Keith Kellogg II Professor of Chemistry
The Scripps Research Institute, La Jolla, California
1996 - 1997 Affiliate, Skaggs Institute for Chemical Biology
The Scripps Research Institute, La Jolla, California
1997- Professor, Department of Chemistry
Swiss Federal Institute of Technology (ETH), Zurich, Switzerland

Honors and Awards

NIH Postdoctoral Fellow (1983-85); Junior Faculty Research Award, American Cancer Society (1987-90); Faculty Research Award, American Cancer Society (1990-95); Visiting Professor, Laboratorium für Organische Chemie, ETH-Zürich, Switzerland (1991); Alfred P. Sloan Research Fellow (1991-93); Arthur C. Cope Scholar Award, American Chemical Society (1992); American Association for the Advancement of Science, Fellow (1993); Pfizer Award in Enzyme Chemistry (1994), Merck Lecturer, Cambridge University (2001); Novo Nordisk Lecturer, Danish University of Pharmaceutical Sciences (2003); Fellow of the Royal Society of Chemistry (2004); AstraZeneca Lecture, Sheffield University (2006); President, 43rd Bürgenstock Conference on Stereochemistry (2008); Bruno-Werdelmann-Vorlesung, Universität Duisburg-Essen (2008); Eli Lilly Lecture, University of Illinois (2009), Emil Thomas Kaiser Award, Protein Society (2009); Doctor of Philosophy honoris causis, Uppsala University (2011); Honorary Lifetime Membership of the Israel Chemical Society (2011)

Activities

Editor: *Current Opinion in Chemical Biology*; Scientific Editor: *Chemical Communications (The Royal Society of Chemistry)*; Editorial Advisory Boards: *Chemical Reviews*, American Chemical Society (1992-present); *Protein Science*, Protein Society (1992-1996); *Chemistry & Biology*, Current Biology Ltd. (1993-present); *Bioorganic & Medicinal Chemistry* and *Bioorganic & Medicinal Chemistry Letters* (1996-present); *Journal of Molecular Catalysis* (1996-2000); *Bioorganic Chemistry* (1997-present); *Organic Letters*, (1999-present); *ChemBioChem* (2000-present); Scientific Advisory Boards: Actelion Pharmaceuticals Ltd. (2000-2006); Selecore GmbH (2003-2005); Max Planck Institut für medizinische Forschung, Heidelberg (2003-present); Global Bioenergies S.A. (2009-present). Board Member of the Swiss Chemical Society (2001-2007).

Research Interests

Enzymology • Enzyme Engineering • Molecular Evolution • Chemical Biology

Representative Recent Publications (from 186 total)

- K. Walter, K. Vamvaca & D. Hilvert (2005). An active enzyme constructed from a 9-amino acid alphabet. *J. Biol. Chem.* 280, 37742-37746.
- M. Toscano, K.J. Woycechowsky & D. Hilvert (2007). Minimalist active-site redesign: Teaching old enzymes new tricks. *Angew. Chem. Int. Ed.* 46, 3212-3236.
- J. Beld, K.J. Woycechowsky & D. Hilvert (2007). Selenogluthathione: Efficient oxidative protein folding by a diselenide. *Biochemistry* 46, 5382-5390.
- K. Pervushin, K. Vamvaca, B. Vögeli & D. Hilvert (2007). Structure and dynamics of a molten globular enzyme. *Nat. Struct. Mol. Biol.* 14, 1202-1206.
- M. Neuenschwander, M. Butz, C. Heintz, P. Kast & D. Hilvert (2007). A simple selection strategy for evolving highly efficient enzymes. *Nat. Biotechnol.* 25, 1145-1147.
- C. Jäckel, Peter Kast & D. Hilvert (2008). Protein design by directed evolution. *Annu. Rev. Biophys.* 37, 153-173.
- L. Jiang, E.A. Althoff, F.R. Clemente, L. Doyle, D. Röthlisberger, A. Zanghellini, J.L. Gallaher, J.L. Betker, F. Tanaka, C.F. Barbas, D. Hilvert, K.N. Houk, B. Stoddard & D. Baker (2008). De novo computational design of retro-aldol enzymes. *Science* 319, 1387-1391.
- J.M. Serafimov, D. Gillingham, S. Kuster & D. Hilvert (2008). The putative Diels-Alderase macrophomate synthase is an efficient aldolase. *J. Am. Chem. Soc.* 130, 7798-7799.
- K.J. Woycechowsky, A. Choutko, K. Vamvaca & D. Hilvert (2008). Relative tolerance of an enzymatic molten globule and its thermostable counterpart to point mutation. *Biochemistry* 47, 13489-13496.
- M.M. Müller, M. A. Windsor, W.C. Pomerantz, S.H. Gellman & D. Hilvert (2009). A rationally designed aldolase foldamer. *Angew. Chem. Int. Ed.* 48, 922-925.
- C. Aldag, I. A. Gromov, I. Garcia Rubio, K. von Koenig, I. Schlichting, B. Jaun & D. Hilvert (2009). Probing the role of the proximal heme ligand in cytochrome P450cam by recombinant incorporation of selenocysteine. *Proc. Natl. Acad. Sci. USA* 106, 5481-5486.
- E.W. Debler, R. Müller, D. Hilvert & I.A. Wilson (2009). An aspartate and a water molecule mediate efficient acid-base catalysis in a tailored antibody pocket. *Proc. Natl. Acad. Sci. USA* 106, 18539-18544.
- D.G. Gillingham, P. Stallforth, A. Adibekian, P.H. Seeberger & D. Hilvert (2010). Chemoenzymatic synthesis of differentially protected 3-deoxysugars. *Nat. Chem.* 2, 102-105.
- J. Beld, K.J. Woycechowsky & D. Hilvert (2010). Small molecule diselenides catalyze oxidative protein folding in vivo. *ACS Chem. Biol.* 5, 177-182.
- M.M. Müller, H. Kries, E. Cshai, P. Kast & D. Hilvert (2010). Design, selection, and characterization of a split chorismate mutase. *Protein Sci.* 19, 1000-1010.
- C. Jäckel, J.D. Bloom, P. Kast, F.H. Arnold & D. Hilvert (2010). Consensus protein design without phylogenetic bias. *J. Mol. Biol.* 399, 541-546.
- J.B. Siegel, A. Zanghellini, H. Lovick, A. Lambert, G. Kiss, J. St.Clair, J.L. Gallaher, D. Hilvert, K.N. Houk, M. Gelb, B. Stoddard, M. Forrest, D. Baker (2010). Computational design of an enzyme catalyst for a stereoselective bimolecular Diels-Alder reaction. *Science* 329, 309-313.
- B. Wörsdörfer, K.J. Woycechowsky & D. Hilvert (2011). Directed evolution of a protein container. *Science* 331, 589-592