

CURRICULUM VITAE

Judith Pollock Klinman

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Berkeley, CA 94708

Date of Birth: April 17, 1941
Place of Birth: Philadelphia, PA

EDUCATION

University of Pennsylvania (Chemistry), Philadelphia, PA A.B. 1962
University of Pennsylvania (Physical Organic Chemistry) Ph.D. 1966
Thesis Advisor: Dr. Edward R. Thornton
Thesis Title: A Kinetic Study of the Hydrolysis and Imidazole-Catalyzed Hydrolysis of Substituted Benzoyl Imidazole in Light and Heavy Water

LABORATORY APPOINTMENTS

Postdoctoral Fellow, Weizmann Institute of Science, Rehovoth, Israel 1966-1967
Affiliated with Dept. of Chemistry, University College, London, England 1967-1968
Postdoctoral Associate, The Institute for Cancer Research, Philadelphia 1968-1970
Research Associate, The Institute for Cancer Research, Philadelphia, PA 1970-1972
Assistant Member, The Institute for Cancer Research, Philadelphia, PA 1972-1977
Associate Member, The Institute for Cancer Research, Philadelphia, PA 1977-1978
Assistant Professor of Biophysics, University of Pennsylvania, Philadelphia, PA 1974-1978
Associate Professor of Chemistry, University of California, Berkeley, CA 1978-1982
Professor of Chemistry, University of California, Berkeley 1982-present
Professor of Molecular & Cell Biology, University of California, Berkeley 1993-present
Chair, Department of Chemistry 2000-2003
Hildebrand Distinguished Professor, University of California, Berkeley 2002-2003
Chancellor's Professor, University of California, Berkeley 1996-1999, 2009-2012
Professor of the Graduate School 2010-present

PROFESSIONAL SOCIETIES

American Chemical Society 1964-present
Sigma Xi 1966-present
American Society of Biochemistry and Molecular Biology 1972-present
Protein Society 1996-present
Biophysical Society 1996-present

FELLOWSHIPS AND AWARDS

Edgar Fahs Smith Scholar 1960-1962
National Science Foundation, Summer Predoctoral Fellow 1964
National Institutes of Health, Predoctoral Fellow 1964-1966
Weizmann Institute of Science, Postdoctoral Fellow 1966-1967
Guggenheim Fellow 1988-1989
Miller Professorship, University of California, Berkeley 1992, 2003-2004
Merit Award, National Institutes of Health 1991-2001
American Academy of Arts and Sciences, elected 1993
Repligen Award, American Chemical Society 1994
National Academy of Sciences, elected 1994
Fellow of the Japanese Ministry of Science 1996
Honorary Ph.D. at the University of Uppsala, Sweden 2000
American Philosophical Society, elected 2001
David S. Sigman Lectureship Award, University of California, Los Angeles 2003
Remsen Award, Maryland Section of the American Chemical Society 2005

Honorary Ph.D. at the University of Pennsylvania	2006
Merck Award, American Society of Biochemistry and Molecular Biology	2007
Fellow, American Association for the Advancement of Science, elected	2007
Fellow of the Royal Society of Chemistry	2009
Fellow of the American Chemical Society	2011
I. Scott Medal in Biological Chemistry, Texas A&M University	2012
National Medal of Science	2014
Mildred Cohn Award in Biological Chemistry	2015
Willard Gibbs Medal in Chemistry	2017
Penn Chemistry Distinguished Alumni Award, University of Pennsylvania	2018

NAMED AND PLENARY LECTURESHIPS

Philips Lecturer, Haverford College, PA	1990
Dow Lectureship, University of Indiana, Bloomington, IN	1994
Mildred Cohn Lectureship, University of Pennsylvania, PA	1994
Alexander Cruickshank Lecturer, Gordon Research Conference	1995
Plenary Lecturer, American Society of Biochemistry and Molecular Biology	1995, 2003
Plenary Lecturer, Protein Society	1995
Rosetta Briegel Barton Lecturer, University of Oklahoma	1998
Merck Lecturer, Rutgers University, NJ	1998
Marker Lecturer, Penn State University, PA	1998
Bigeleisen Lecturer, Stony Brook, NY	1999
Plenary Lecturer, ICBIC, Minneapolis, MN	1999
Lucy Pickett Lecturer, Mount Holyoke, NH	1999
Reilly Lecturer, University of Notre Dame, IN	2000
Distinguished Lecturer in Macromolecular and Cellular Structure and Chemistry, Scripps Institute, San Diego, CA	2000
Research Frontiers in Chemistry, University of Iowa	2001
British Biophysical Society Lecturer, Leeds University, UK	2002
Intl Conference on B6 and Quinones, Plenary Lecturer, Southampton, UK	2002
James D. and Julia P. Morrison Lecturer, Carleton College	2002
Intl Conference on Physical Org. Chemistry, Plenary Lecturer, San Diego	2002
Gunning Lecturer, University of Alberta, Edmonton	2003
Women Leaders in the Biosciences Lectureship, UCSF	2004
R. Gaurth Hansen Lectureship, Utah State University	2005
Keynote Lecturer, Symposium on Astrobiology, McQuarrie Univ., Sydney	2005
Richard L. Schowen Lecturer in Bioorganic Chemistry	2005
Chem. Comm. Lecturer of the Royal Society, Pacificchem, Honolulu, HI	2005
Boehringer Ingelheim Research Lecturer, University of British Columbia	2007
Keynote Lecturer (Inauguration of a new Max Planck program on Quantum Dynamics)	2007
University Lecturer, Juniata College, PA	2008
Plenary Speaker, Trends in Enzymology, St. Malo, France	2008
Frontiers in Chemistry, Texas A&M	2009
Distinguished Women in Science, Stanford University	2009
Closing Lecturer, European Symposium of the Protein Society, Zurich	2009
Lecturer, WINS Distinguished Lecture in Chemistry and Biochemistry, University of Texas, Austin	2009
Closing Lecturer, Methods in Protein Structure Analysis, Sweden	2010
Ross Lecturer, Dartmouth	2011
TY Shen Lecturer, Massachusetts Institute of Technology	2011
Isotopes 2011 Plenary Lecturer, Provence, France	2011
Australian Society for Biophysics, Plenary Lecturer	2011
Li Ka Shing Lecturer, China	2012
DeLuca Lecturer, University of California, San Diego	2013
Fritz London Lecturer, Duke University	2013
Peter Yates Lecturer, University of Toronto	2013
Danforth Lecturer, Grinnell College	2013

Women in Science Lecturer, Boston University	2016
Chilton Lecturer, University of Texas, Southwestern	2017
William W. Wells Endowed Lecturer, Michigan State University	2018
William Lloyd Evans Lecturer, Ohio State University	2018

INVITED TALKS AT CONFERENCES AND SYMPOSIA (other than Named or Plenary)

Gordon Research Conference on Enzymes, Co-enzymes and Metabolic Pathways	1973, 1978, 1981 1984, 1988, 1991 1994, 1998, 2000 2004, 2010
Steenbock Symposia:	
Isotope Effects in Enzymology	1976
Enzyme Mechanisms	1998, 2003
Gordon Research Conference on Physics and Chemistry of Isotopes	1976, 1979, 1988, 1992, 1998 2002, 2008, 2010, 2014
Minnesota Section of the American Chemical Society	1979
Gordon Research Conference on Metals in Biology	1982, 1997, 2005, 2013, 2017
Gordon Research Conference on Protein Derived Cofactors	1990, 1992, 1995, 1997, 1999 2004, 2006, 2008, 2010 2012
Gordon Research Conference on Electron Donor-Acceptor Interactions	2012, 2018
American Society of Biochemistry and Molecular Biology:	
Symposium on Isotope Effects	1982
Symposium on Enzyme Mechanism	1988
Symposium on Novel Cofactors	1990
Symposium on Enzyme Mechanism	1997
Symposium to honor Irwin Rose	2006
Symposium on Protein Dynamics	2007
Post-Translational Modification Conference	2008
American Chemical Society:	
Symposium on Transition States	1982
Symposium on Hydrogen Transfer	1990, 1995, 2000, 2005
Symposium on Tunneling	1993, 2006
Repligen Symposium	1994, 2006, 2017
Pfizer Symposium	2001
Symposium on Oxygen Activation	2007
Symposium on Novel Enzymatic Cofactors and Function (Chair)	2009
Symposium on 20 Years of Tunneling Pathways	2011
Presidential Symposium on Catalysis	2012
Symposium in Honor of Brian Hoffman (Alfred Bader Award)	2012
Symposium on Computational Chemical Dynamics	2015
Symposium on Protein Dynamics	2016
Symposium on Oxygen Activation	2016
Symposium on the Many Colors of Copper	2017
Memorial Symposium Honoring Justine Roth	2017
Canadian Institute of Chemistry, Symposium on Metals in Biology	1983
International Chemical Congress of Pacific Basin Societies, HI	1984
Conference on Copper Proteins, Italy	1985, 1990, 1996
Fourth International Symposium on Oxidases, Portland, OR	1987
Structural Biology Symposium, Berkeley, California	1988
International Conference on Amine Oxidases, Italy	1988
International Conference on Amine Oxidases, Finland	1999
First International Congress on Quinoproteins, Netherlands	1988
Winter Enzyme Mechanism Conference	1989, 1997, 2003, 2007
International Symposium on Biological Oxidation Systems, Bangalore, India	1989
International Symposium on Oxygenases and Active O ₂ , Kyoto, Japan	1990
Second International Congress on Quinoproteins, Japan	1991

Symposium on Copper Coordination Chemistry, Baltimore, MD	1992
Protein Society Meeting:	
Symposium on New Cofactors	1992
Symposium on Protein Dynamics	2000
Fifth Glaxo-UNC "Frontiers in Chemistry & Medicine" Symposium, NC	1993
Fourth European Symposium on Organic Reactivity, Newcastle, UK	1993
Ninth Harden Discussion Meeting, "Biological Electron & Proton Transfer," UK	1994
Second International Symposium on Vitamins and Biofactors, San Diego, CA	1995
International Conference on C-1 Microorganisms, San Diego, CA	1995
Tables Rondes Roussel UCLAF, Paris, France	1995
International Workshop on New Trends in Biocatalysis Research, Japan	1996
International Meeting on Hydrogen Transfer, Germany	1997
Biophysical Society:	
Symposium on Enzyme Mechanism	1998
Symposium on Protein Dynamics	2006
Symposium to Honor Mo Cleland	2014
Earl and Theresa Stadtman Symposium, Philadelphia, PA	2000
Johnson Foundation Discussions, "40 Years of Tunneling in Biology", Phila PA	2001
2001 An Isotope Odyssey Series, Zakopane, Poland	2001
Panel Member, ACS Committee on Science-Special Session: "Diversity in the Top 50 Universities: The Challenge to Lead"	2001
29 th Reaction Mechanisms Conference, Ohio State University	2002
Meeting of IUPAC and Canadian Chemical Society	2003
Taiwan Bioinorganic Symposium	2003
Reaction Mechanisms VII, University College Dublin	2004
The Research Triangle Park Biochemistry & Enzymology Club 2 nd Symp.	2004
Gordon Research Conference on Bio-Organic Chemistry	2005
Symposium on Enzyme Dynamics, Ohio State University	2005
Royal Society Discussion Meeting on Hydrogen Tunneling, London	2005
Chemical Challenges for the 21 st Century, Sydney	2005
Agouron Institute Meeting on "O ₂ ", Santa Fe, NM	2006
Sanken Workshop on Nano-Bioscience, Berkeley	2007
Isotopes 2007, Spain	2007
QAMTS, Houston	2007
Protein Dynamics Workshop, New York	2008
Quantum Technology in Biological Systems, Singapore	2009
Frontiers in Chemical Biology, Bangalore, India	2009
Solvay Conference on Chemistry, Brussels, Belgium	2010, 2013, 2016
EMBO: Catalytic Mechanisms by Biological Systems, Netherlands	2012
FEBS, St. Petersburg, Russia	2013
CECAM Workshop, Paris	2014
EMBO Conference on Enzymology, Manchester	2014
Steenbock Symposium to honor WW Cleland, Madison WI	2014
Symposium to honor Izaak Maurits Kolthoff, Minneapolis, MN	2014
Buergenstock Conference, Switzerland	2016
QAMTS, Madison	2017
Isotopes 2017, Switzerland	2017

EDITORIAL AND ADVISORY BOARDS

National Institutes of Health	
Ad Hoc Biochemistry & Physical Biochemistry Study Sections	1977-1984
Ad Hoc Enzymology Study Section	2008
Reviewer of the Pioneer Awards	2009
Reviewer for Special Study Section	2010, 2011
Reviewer for MIRA grants for Young Investigators	2016
<i>Journal of Biological Chemistry</i> , Editorial Board	1979-1984
American Chemical Society Monograph Series, Editorial Board	1980-1982

Mid-Winter Enzyme Mechanisms Conference	
Seventh Conference, Organizing Committee	1981
Eighth Conference, Organizer	1983
American Chemical Society, Biological Chemistry Division	
Executive Council	1982-1985
Chair, Nominating Committee	1986-1987
Program Chair	1992
American Society of Biochemists and Molecular Biologists	
Membership Committee	1984-1986
Nominating Committee	1986
Public Affairs Committee	1987-1993
Symposium Chair, Novel Cofactors	1989
Program Committee	1995
President-Elect	1997-1998
President	1998-1999
Past President	1999-2000
Nominating Committee	2008-2010
Committee on Status of Women	2011, 2015-2017
Awards Committee	2015-present
National Institutes of Health, Physical Biochemistry Study Section	1984-1988
International Union of Biochemistry, Interest Group on Kinetics and Mechanisms of Enzymes and Metabolic Networks	1984
Gordon Conference on Enzymes, Coenzymes & Metabolic Pathways, Co-Chair	1989
<i>European Journal of Biochemistry</i> , Editorial Board	1991-1995
Sterling Winthrop Pharmaceuticals, Board of Scientific Advisors	1990-1994
<i>Biofactors</i> , Editorial Board	1991-1998
Fibromed, Board of Scientific Advisors	1992-1994
Advisory Board of the National Tritium Lab	1992-1995
<i>Biochemistry</i> , Editorial Board	1993-present
Gordon Conference on Isotopes in Biology and Chemistry	
Assistant Chair	1994
Chair	1996
Council of the Gordon Research Conferences	1994-1997
<i>Annual Review of Biochemistry</i> , Editorial Board	1995-2000
Advisory Board of the National Stable Isotopes Lab	1997-2000
Accounts of Chemical Research, Editorial Board	1995-1998
Current Opinions in Chemical Biology, Editorial Board	1997-present
Protein Society, Program Co-Chair	1998
Gordon Conference on Quinones and Redox Active Amino Acids, Asst. Chair	1999
Roche Diagnostics, Scientific Advisory Board	1999-2001
Mesilla Conference on Tunneling and Dynamics in Proteins, Co-Chair	2000
Chemical Record, Editorial Board	2000-present
Gordon Conference on Protein Derived Cofactors, Radicals & Quinones, Chair	2002
Advisory Board Member, Advances in Physical Organic Chemistry	2003-present
Editorial Board, Chemistry and Biodiversity	2004-present
Advisory Board for Program on Enzyme Dynamics, Albert Einstein Med. College	2005-2010
Organizing Committee of Agouron Institute Conference on O ₂	2006
Blue Ribbon Committee Member (to evaluate US/Israel Binational Science Prog.)	2007-2008
Faculty of 1000, Section Head in Biocatalysis	2012-present
Retrotope, Scientific Consultant	2012-2013
Bioelectronic, Scientific Board	2016-present
UNIVERSITY SERVICE (selected from 1992):	
Member of the Chancellor's Advisory Committee on Biology	1992-1995
Environmental Health and Safety Committee, College of Chemistry	1992, 1993
Member of the Planning Committee, Department of Chemistry	1994, 1995, 1997-1999
	2010-2011

Member of the Executive Committee, Interdepartmental NIH Training Grant in Molecular Biophysics	1996-2001
Chair, Search Committee for a Structural Biologist in the Department of Molecular and Cell Biology	1996
Member, Divisional Council of the Academic Senate	1997, 1998
Member, Chancellor's Committee on the Status of Women	1999
Member, Stanley Hall Replacement Committee	1999
Member, Chancellor's Task Force on the Recruitment of Women and Underrepresented Faculty	2000
Chair, Department of Chemistry	2000-2003
Member of Two-Person Committee to Evaluate University Child Care Services	2006
Chair, Graduate Life Committee	2008-2011
Recruitment Committee for Junior Faculty in Chemistry	2008
Committee to select QB3 Director for Berkeley Campus	2009
Member, Dept. of Chemistry Planning Committee	2011-present
Faculty Awards Committee	2015-present

CURRENT FUNDING:

NIH Grant Number: R35 GM118117

Looking in New Directions for Origins and Cryptic Mechanisms of Enzyme Catalysis
04/01/2016-03/31/2021

Role: PI

REFEREED PUBLICATIONS:

- 1 Klinman, J.P. and Thornton, E.R. Solvolysis Mechanisms: A Kinetic Study of the Hydrolysis and Imidazole-Catalyzed Hydrolysis of *p*-methyl, *p*-chloro, and *p*-nitro Benzoyl Imidazole in H₂O and *p*-nitro Benzoyl Imidazole in D₂O. *J. Am. Chem. Soc.* **99**, 4390-4394 (1968).
- 2 Klinman, J.P. and Samuel, D. Oxygen-18 Studies to Determine the Position of Bond Cleavage of Acetyl Phosphate in the Presence of Divalent Metal Ions. *Biochemistry* **10**, 2126-2130 (1971).
- 3 Klinman, J.P. and Rose, I.A. Purification and Kinetic Properties of Aconitase Isomerase from *Pseudomonas putida*. *Biochemistry* **10**, 2253-2259 (1971).
- 4 Klinman, J.P. and Rose, I.A. Mechanism of Aconitase Isomerase Reaction. *Biochemistry* **10**, 2259-2266 (1971).
- 5 Klinman, J.P. and Rose, I.A. Stereochemistry of the Interconversion of Citrate and Acetate Catalyzed by Citrate Synthase, Adenosine Triphosphate Citrate Lyase, and Citrate Lyase. *Biochemistry* **10**, 2267-2272 (1971).
- 6 Klinman, J.P. The Mechanism of Enzyme Catalyzed NADH Dependent Reduction: Substituent and Isotope Effects in the Yeast Alcohol Dehydrogenase Reaction. *J. Biol. Chem.* **247**, 7977-7987 (1972).
- 7 Schray, K. and Klinman, J.P. The Magnitude of Enzyme Transition State Analog Binding Constants. *Biochem. Biophys. Res. Commun.* **57**, 641-648 (1974).
- 8 Klinman, J.P. Acid-base Catalysis in the Yeast Alcohol Dehydrogenase Reaction. *J. Biol. Chem.* **250**, 2569-2573 (1975).
- 9 Klinman, J.P. The Interaction of an Epoxide with Yeast Alcohol Dehydrogenase: Evidence for Binding and the Modification of Two Active Center Cysteines by Styrene Oxide. *Biochemistry* **14**, 2568-2574 (1975).

- 10 Klinman, J.P. Isotope Effects and Structure-Reactivity Correlations in the Yeast Alcohol Dehydrogenase Reaction: A Study of the Enzyme Catalyzed Oxidation of Aromatic Alcohols. *Biochemistry* **15**, 2018-2026 (1976).
- 11 Klinman, J.P. and Welsh, K.M. The Zn Content of Yeast Alcohol Dehydrogenase. *Biochem. Biophys. Res. Commun.* **70**, 878-884 (1976).
- 12 Klinman, J.P., Welsh, K.M. and Hogue-Angeletti, R. Epoxide Inhibition of Alcohol Dehydrogenases. Identification of Modified Cysteines in Yeast Alcohol Dehydrogenase and Demonstration of Reversible and Irreversible Inhibition of Liver Alcohol Dehydrogenase by Styrene Oxide. *Biochemistry* **16**, 5521-5527 (1977).
- 13 Klinman, J.P. Kinetic Isotope Effects in Enzymology. *Adv. Enzymol. Relat. Areas Mol. Biol.* **46**, 415-494 (1978).
- 14 Battersby, A.R., Staunton, J., Klinman, J.P. and Summers, M.C. Stereochemistry of Oxidation of Benzylamine by the Amine Oxidase from Beef Plasma. *FEBS Lett.* **99**, 297 (1979).
- 15 Summers, M.C., Markovic, R. and Klinman, J.P. Stereochemistry and Kinetic Isotope Effects in the Bovine Plasma Amine Oxidase Catalyzed Oxidation of Dopamine. *Biochemistry* **10**, 1969 (1979).
- 16 Welsh, K.M., Creighton, D.J. and Klinman, J.P. Transition State Structure in the Yeast Alcohol Dehydrogenase Reaction: The Magnitude of Solvent and α -Secondary Hydrogen Isotope Effects. *Biochemistry* **19**, 2005-2016 (1980).
- 17 Klinman, J.P., Humphries, H. and Voet, J.G. Deduction of Kinetic Mechanism in Multisubstrate Enzyme Reactions from Tritium Isotope Effects: Application to Dopamine β -Hydroxylase. *J. Biol. Chem.* **255**, 11643 (1980).
- 18 Klinman, J.P. Probes of Mechanism and Transition State Structure in the Alcohol Dehydrogenase Reaction. *CRC Crit. Rev. Biochem.* **10**, 39 (1981).
- 19 Allen, R. and Klinman, J.P. Stereochemistry and Kinetic Isotope Effects in the Decarboxylation of S-Adenosylmethionine Decarboxylase. *J. Biol. Chem.* **256**, 3233 (1981).
- 20 Klinman, J.P. and Krueger, M. Dopamine β -Hydroxylase: Activity and Inhibition in the Presence of β -substituted Phenethylamines. *Biochemistry* **21**, 67 (1982).
- 21 Miller, S.M. and Klinman, J.P. Deduction of Kinetic Mechanism from Hydrogen Isotope Effects: Dopamine β -Hydroxylase, A Case History. *Methods Enzymol.* **87**, Part C, 711 (1982).
- 22 Miller, S.M. and Klinman, J.P. The Magnitude of Intrinsic Isotope Effects in the Dopamine β -Monooxygenase Reaction. *Biochemistry* **22**, 3091 (1983).
- 23 Ahn, N. and Klinman, J.P. Mechanism of Modulation of Dopamine β -Monooxygenase by pH and Fumarate, as Deduced from Initial Rate and Primary Deuterium Isotope Effect Studies. *Biochemistry* **22**, 3096-3106 (1983).
- 24 Palcic, M. and Klinman, J.P. Isotopic Probes Yield Microscopic Constants: Separation of Binding Energy from Catalytic Efficiency in the Bovine Plasma Amine Oxidase Reaction. *Biochemistry* **22**, 5957-5966(1983).
- 25 Klinman, J.P., Brenner, M., Krueger, M. and Edmondson, D. Evidence for Two Copper Atoms per Subunit in Dopamine β -Monooxygenase. *J. Biol. Chem.* **259**, 3399 (1984).

- 26 Mangold, J.B. and Klinman, J.P. Mechanism-based Inactivation of Dopamine β -Monooxygenase by β -Chlorophenethylamine. *J. Biol. Chem.* **259**, 7772 (1984).
- 27 Klinman, J.P. and Matthews, R.S. Calculation of Substrate Dissociation Constants from Steady-State Isotope Effects in Enzyme-Catalyzed Reactions. *J. Am. Chem. Soc.*, **107**, 1058-1060 (1985).
- 28 Miller, S. and Klinman, J.P. Secondary Isotope Effects and Structure Reactivity Correlations in the Dopamine β -Monooxygenase Reaction: Evidence for a Chemical Mechanism. *Biochemistry* **24**, 2114 (1985).
- 29 Farnum, M.F., Palcic, M. and Klinman, J.P. The pH Dependence of Deuterium Isotope Effects and Tritium Exchange in the Bovine Plasma Amine Oxidase Reaction: A Role for Single Base Catalysis in Amine Oxidation and Imine Exchange. *Biochemistry* **25**, 1898 (1986).
- 30 Farnum, M.F. and Klinman, J.P. Stereochemical Probes of the Mechanism of Bovine Plasma Amine Oxidase: Evidence for Mirror Image Processing and a Syn-Cleavage of Hydrogens from C-1 and C-2 of Dopamine. *Biochemistry* **25**, 6028 (1986).
- 31 Bossard, M.J. and Klinman, J.P. Mechanism Based Inhibition of Dopamine β -Monooxygenase by Aldehydes and Amides. *J. Biol. Chem.* **261**, 16421 (1986).
- 32 Ahn, N.G. and Klinman, J.P. Activation of Dopamine β -Monooxygenase by External and Internal Electron Donors in Resealed Chromaffin Granule Ghosts. *J. Biol. Chem.* **262**, 1485 (1987).
- 33 Hartmann, C. and Klinman, J.P. Reductive Trapping of Substrate to Bovine Plasma Amine Oxidase. *J. Biol. Chem.* **262**, 962 (1987).
- 34 Stewart, L. and Klinman, J.P. Characterization of Alternate Reductant Binding and Electron Transfer in the Dopamine β -Monooxygenase Reaction. *Biochemistry* **26**, 5302 (1987).
- 35 Stewart, L.C. and Klinman, J.P. Dopamine β -Hydroxylase of Chromaffin Granules: Structure and Function. *Annu. Rev. Biochem.* **57**, 551-592 (1988).
- 36 Hartmann, C. and Klinman, J.P. Pyrroloquinoline Quinone: A New Cofactor in Eukaryotic Enzymes. *Biofactors* **1**, 41 (1988).
- 37 Stewart, L.C. and Klinman, J.P. Membranous Dopamine β -Hydroxylase is Not Anchored by Phosphatidylinositol. *J. Biol. Chem.* **263**, 12183 (1988).
- 38 Klinman, J.P., Hartmann, C. and Janes, S.M. Mechanism of Reaction of the Copper Amine Oxidases. *Pharm. Res. Commun.* **20**, 35 (1988).
- 39 Brenner, M., Murray, C.J. and Klinman, J.P. Rapid Freeze and Chemical Quench Studies of Dopamine β -Monooxygenase: Comparison of Pre-Steady State and Steady State Parameters. *Biochemistry* **28**, 4656 (1989).
- 40 Brenner, M. and Klinman, J.P. Correlation of Copper Valency with Product Formation in Single Turnovers of Dopamine β -Monooxygenase. *Biochemistry* **28**, 4664 (1989).
- 41 Cha, Y., Murray, C. and Klinman, J.P. Hydrogen Tunneling in Enzyme Reactions. *Science* **243**, 1325-1330 (1989).
- 42 Grant, K. L. and Klinman, J. P. Evidence that Both Protium and Deuterium Undergo Significant Tunneling in the Reaction Catalyzed by Bovine Serum Amine Oxidase. *Biochemistry* **28**, 6597-6605(1989).

- 43 Klinman, J. P. Quantum Mechanical Effects in Enzyme Catalyzed Hydrogen Transfer Reactions. *Trends Biochem. Sci.*, **14**, 368 (1989).
- 44 Ahn, N. G., Klinman, J. P. Nature of Rate Limiting Steps in a Compartmentalized Enzyme System: Quantification of Dopamine Transport and Hydroxylation Rates in Resealed Chromaffin Granule Ghosts. *J. Biol. Chem.* **264**, 12259 (1989).
- 45 Taljanidisz, J., Stewart, L., Smith, A.J., and Klinman, J.P. Structure of Bovine Adrenal Dopamine β -Monooxygenase, as Deduced from cDNA and Protein Sequencing: Evidence that the Membrane Bound Form of Enzyme is Anchored by an Uncleaved Signal Peptide. *Biochemistry* **28**, 10054 (1989).
- 46 Bossard, M. J. and Klinman, J. P. Use of Isotope Effects to Characterize Intermediates in Mechanism-Based Inactivation of Dopamine β -Monooxygenase by β -Chlorophenethylamine. *J. Biol. Chem.* **265**, 5640 (1990).
- 47 Hartmann, C. and Klinman, J. P. Reductive Trapping of Substrate to Methylamine Oxidase from *Arthrobacter P1*. *FEBS Lett.* **261**, 441 (1990).
- 48 Janes, S.M., Mu, D., Wemmer, D., Smith, A., Kaur, S., Maltby, D., Burlingame, A.L. and Klinman, J.P. A New Redox Cofactor in Eukaryotic Enzymes: Identification of 6-Hydroxydopa at the Active Site of Bovine Serum Amine Oxidase. *Science* **248**, 981-987 (1990).
- 49 Janes, S.M. and Klinman, J.P. An Investigation of Bovine Serum Amine Oxidase Active Site Stoichiometry: Evidence for an Aminotransferase Mechanism Involving Two Carbonyl Cofactors per Enzyme Dimer. *Biochemistry* **30**, 4599-4605 (1991).
- 50 Hartmann, C. and Klinman, J.P. Structure Function Studies of Substrate Oxidation by Bovine Serum Amine Oxidase: Relationship to Cofactor Structure and the Hydrogen Transfer Mechanism. *Biochemistry* **30**, 4605 - 4611 (1991).
- 51 Brown, D.E., McGuirl, M.A., Dooley, D.M., Janes, S.M., Mu, D. and Klinman, J.P. The Organic Functional Group in Copper-Containing Amine Oxidases: Resonance Raman Spectra Are Consistent with the Presence of Topa Quinone (6-Hydroxydopa Quinone) in the Active Site. *J. Biol. Chem.* **266**, 4049 (1991).
- 52 Huyghe, B.G. and Klinman, J.P. Activity of Membranous Dopamine β -Monooxygenase Within Chromaffin Granule Ghosts: Interaction with Ascorbate. *J. Biol. Chem.* **266**, 11544-11550 (1991).
- 53 Stewart, L.C. and Klinman, J.P. Cooperativity in the Dopamine β -Monooxygenase Reaction: Evidence for Ascorbate Regulation of Enzyme Activity. *J. Biol. Chem.* **266**, 11537-11543 (1991).
- 54 Klinman, J.P., Dooley, D., Duine, J.A., Knowles, P., Mondovi, B. and Villafranca, J.J. Status of the Cofactor Identity in Copper Oxidative Enzymes. *FEBS Lett.* **282**, 1-7 (1991).
- 55 Kim, S.C. and Klinman, J.P. Mechanism of Inhibition of Dopamine β -Monooxygenase by Quinol- and Phenol-Derivatives, as Determined by Solvent and Substrate Deuterium Isotope Effects. *Biochemistry* **30**, 8138-8144 (1991).
- 56 Klinman, J.P. Surprises Among Quinoproteins. *Curr. Opin Struct. Biol.* **1**, 968-972 (1991).
- 57 Sanders-Loehr, J., Backes, G., Kahlow, M.A., Davidson, V.L., Duine, J.A. and Klinman, J.P. Identification of Quinone Cofactors in Proteins by Resonance Raman Spectroscopy. *J. Inorg. Biochem.* **43**, 194 (1991).
- 58 Grant, K.L. and Klinman, J.P. Exponential Relationships among Multiple Hydrogen Isotope Effects as Probes of Hydrogen Tunneling. *Bioorganic Chem.* **20**, 1-7 (1992).

- 59 Mu, D., Janes, S.M., Smith, A.J., Brown, D.E., Dooley, D.M. and Klinman, J. P. Codon Identification for 6-Hydroxydopa at the Active Site of the Amine Oxidase from the Yeast *Hansenula polymorpha*. *J. Biol. Chem.* **267**, 7979-7982 (1992).
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