CURRICULUM VITAE

**Judith Pollock Klinman**

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Ph: (510) 642-2668 Fax: (510) 642-8369 Date of Birth: April 17, 1941

E-mail: [klinman@berkeley.edu](mailto:klinman@berkeley.edu) 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, Pacifichem, 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, 2019

International Symposium on Biological Oxidation Systems, Bangalore, India 1989

International Symposium on Oxygenases and Active O2, 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,” Philadelphia, 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

29th 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 2nd 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 21st Century, Sydney 2005

Agouron Institute Meeting on “O2”, 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, WI 2017

Isotopes 2017, Switzerland 2017

NSF Quantum Biology and Quantum Processes in Biology Workshop, Tyson’s Corner, VA 2018

Stauffer Symposium, University of Southern California 2019

Frontiers in Chemical Biology, Scripps Florida (delayed due to Covid-19) 2020

Nobel Symposium on Metals in Biomolecules (delayed due to Covid-19) 2020

**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

*Journal of Biological Chemistry,* 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

*European Journal of Biochemistry,* Editorial Board 1991-1995

Sterling Winthrop Pharmaceuticals, Board of Scientific Advisors 1990-1994

*Biofactors,* Editorial Board 1991-1998

Fibromed, Board of Scientific Advisors 1992-1994

Advisory Board of the National Tritium Lab 1992-1995

*Biochemistry,* 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

*Annual Review of Biochemistry,* 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 O2 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 2016-2019

**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 2011-2019

Faculty Awards Committee 2015-2019

**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 Isomerse from *Pseudomonas pudita*. *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 a-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 -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 b-Hydroxylase: Activity and Inhibition in the Presence of -substituted Phenethylamines. *Biochemistry* **21**, 67 (1982).
21. Miller, S.M. and Klinman, J.P. Deduction of Kinetic Mechanism from Hydrogen Isotope Effects: Dopamine -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 -Monooxygenase Reaction. *Biochemistry* **22**, 3091 (1983).
23. Ahn, N. and Klinman, J.P. Mechanism of Modulation of Dopamine -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 -Monooxygenase. *J. Biol. Chem.* **259**, 3399 (1984).
26. Mangold, J.B. and Klinman, J.P. Mechanism-based Inactivation of Dopamine -Monooxygenase by -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 -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 -Monooxygenase by Aldehydes and Amides. *J. Biol. Chem.* **261**, 16421 (1986).
32. Ahn, N.G. and Klinman, J.P. Activation of Dopamine -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 -Monooxygenase Reaction. *Biochemistry* **26**, 5302 (1987).
35. Stewart, L.C and Klinman, J.P. Dopamine -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 -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 -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 b-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 -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 -Monooxygenase by -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 -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 -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 -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).
60. Rucker, J., Cha, Y., Jonsson, T., Grant, K.L. and Klinman, J.P. The Role of Internal Thermodynamics in Determining Hydrogen Tunneling in Enzyme Catalyzed Hydrogen Transfer Reactions. *Biochemistry*, **31**, 11489-11499 (1992).
61. Janes, S.M., Palcic, M.M., Scaman, C.H., Smith, A.J., Brown, D.E., Dooley, D.M., Mure, M. and Klinman, J.P. Identification of Topa Quinone and Its Consensus Sequence in Copper Amine Oxidases. *Biochemistry*, **31**, 12147-12154 (1992).
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Hydrostatic Pressure Studies Distinguish Global from Local Protein

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