Curriculum Vitae

ROBERT M. STROUD
Updated CV is also available with more details via http://www.msg.ucsf.edu/stroud/
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Professor of Pharmaceutical Chemistry

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Born: Stockport, England U.K. U.S. Citizen, U.K. Citizen

AWARDS AND HONORS

1961 – 1964	State Scholar; University of Cambridge, England.
1965 – 1968	Moulton Fellow; University of London, England.
1972 – 1977	National Institutes of Health Career Development Award.
1975 – 1977	Alfred P. Sloan Foundation Fellow.
1983 –	Who's Who in America.
1984	DeWitt Stetten Lecturer of the National Institutes of Health (NIHGMS).
1984 –	Who's Who in Frontier Science and Technology.
1986	Council Member, Biophysical Society of the United States.
1988	President, Biophysical Society of the United States.
1988 – 2003	U.S. National Committee Member for the International Union of Pure and Applied Biophysics (IUPAB).
1992 – present	FRSM Fellow of the Royal Society of Medicine (United Kingdom).
1993 – 2003	The Editor, *Annual Review of Biophysics and Biomolecular Structure.*
1995 – present	Fellow of the New York Academy of Sciences.
1999 – present	Founding Fellow of the Biophysical Society of the United States.
2003 – present	NAS Elected Member of the National Academies of Science (NAS)
2004 -	Tenth Annual Lectureship on Applications of Molecular Biology to Biomedical Sciences, Carnegie Mellon University
2004 – 2014	Director, Center for Innovation in Membrane Protein Production
2005 – 2015	Director, Specialized Center for Membrane Protein Structures
2005	The NIH Director's Plenary Lecture, NIH April 2005
2005	Keynote Lecturer, East Coast Protein Crystallography Meeting May 2005
2005	Fred Richards Lectureship, Yale University, November 2005
2007- 2009	Chair of 'Biophysics and Computational Biology' (sect 29) National Academy of Sciences
2006 -2008	Chair of the Scientific Advisory board, St Jude Children' Cancer Research Hospital
2007	Fellow of the American Academy of Arts and Sciences

2007	Henry Bull Lectureship of the University of Iowa
2007	Bryden Distinguished Lecture California State University Fullerton
2008	Hans Neurath Award of the Protein Society US
2008	Baker Lecture at University of California in Santa Barbara
2009	Anatrace Award of the Biophysical Society US
2008	Welch lecturer 2008 Annual meeting 'Biological Macromolecules'
2008	The inaugural Kossiakoff Lecturer, Johns Hopkins University
2006 – 2016	NIH Merit Award
2014	8th C.B Anfinsen Memorial Lecture, Weizmann Institute
2014	Keynote 'Frontiers in Membrane Protein Structure and Dynamics', University of Chicago
2015	The 11th Johnson-Sokatch Lectureship, University of Oklahoma Health Sciences Center
2015	The Inaugural lecture, Indian Microbiology Society, New Delhi, India

EDUCATION

1964	B.A., Honours. University of Cambridge, Cambridge, England. Clare College, Natural Sciences (Physics).
1965	M.S., Crystallography with Distinction. University of London, London, England. Birkbeck College.
1968	M.A., Natural Sciences, University of Cambridge, England.
1968	Ph.D., University of London, London, England. Birkbeck College. Crystallographic Studies of Biologically Significant Compounds (advisor JD Bernal).
1968 – 1971	Postdoctoral Fellow, California Institute of Technology, Los Angeles, CA. Chemistry. (advisor R.E.Dickerson)

RESEARCH AND PROFESSIONAL

1965 – 1968	Demonstrator in Physics, Birkbeck College, University of London, England.
1966 – 1968	Lecturer in Crystallography, University of Surrey, England.
1966 – 1968	Molecular Biology Reporter, Medical News, London.
1968 – 1971	Postdoctoral Fellow, Department of Chemistry, California Institute of Technology (Cal Tech), Los Angeles.
1971 – 1973	Arthur Amos Noyes Research Instructor in Chemistry, Cal Tech.
1973 – 1975	Assistant Professor of Chemistry, Cal Tech.
1975 – 1977	Associate Professor of Chemistry, Cal Tech.
1977 – 1979	Associate Professor of Biophysics, Department of Biochemistry & Biophysics, University of California San Francisco, UCSF.
1977 – 1979	Associate Professor, Dept. of Pharmaceutical Chemistry, UCSF.
1979 – present	Professor, Department of Biochemistry & Biophysics, UCSF.
1979 – present	Professor, Department of Pharmaceutical Chemistry, UCSF.
1986 –	Professor, UCSF Biophysics Graduate Group.
1986 – 1991	Director, Biotechnology Research and Education Program, UCSF.
1988 –	Professor, UCSF Graduate Group in BioEngineering.
1990 -	Founding Advisor, Arris Pharmaceuticals (Celera) California, USA
1994	Faculty Member, Molecular Design Institute.
1994 – 1996	Scientific Advisory Board member, Lawrence Berkeley Laboratory.
1994 – 1996	Board member, Advanced Light Source, Lawrence Berkeley Laboratories.
1995 – 1996	Frederick Cancer Research and Development Center Advisory Committee, National Cancer Institute.

1996 – 2005	Scientific Advisory Board, Structural Biology Neutron Source (LANSE), Los Alamos National Laboratory.
1997 – 2005	Founding Advisor, Sunesis Pharmaceuticals.
2000 -	Scientific Advisor, ASTEX Pharmaceuticals, Cambridge England UK.
2002 - 2004	Advisor, Protein Mechanics, California USA
2000 –	Scientific Advisory board, Chair 2007- St Jude Childrens Cancer Hospital, Memphis Tennessee.
2000 -	Chair Scientific Advisory board of the University of Puerto Rico COBRE II program.
2002 - 2004	Scientific Advisory Board to Ion Channels program at California Inst of Technology.
2003 –	Scientific Advisory, NIDDK. NIH Bethesda Md.
2005 - 2010	Scientific Advisor JCSG Scripps Institute
2005-	Director, Membrane Protein Expression Center UCSF
2006-	Director, Center for Structure of Membrane Proteins UCSF
2007 - 2009	Chair of the Scientific Advisory board, St Jude Children's Cancer Research Hospital
2007 - 2011	Chair of 'Biophysics and Computational Biology' (sect 29) National Academy of Sciences
2006 -	Scientific Advisory Board to the DOE laboratory of structural proteomics UCLA

EDITORIAL BOARDS

1987 –	Editorial Board, *Protein Engineering (became PEDS in 2003)*
1989 – 1999	Editorial Board, *Journal of Structural Biology*
1992 – 2003	The Editor, *Annual Review of Biophysics and Biomolecular Structure*
2001 – 2011	Editorial Board, *Molecular and Cellular Proteomics*
2001 – present	Section Head Faculty of 1000
2003 – present	Editorial Board*, Protein Engineering, Design and Selection (PEDS)*
2003 – present	Editor of >100 articles PNAS *Proceedings of the National Academy of Sciences*

ADMINISTRATION AND SERVICE

National / International Service

1974	Organizer, West Coast Protein Crystallography Workshop.
1977 – 1981	BBCB Study Section of the National Institutes of Health.
1977 –	Ad Hoc reviewer for the National Science Foundation.
1984	Organizer, West Coast Protein Crystallography Workshop.
1986	President, United States Biophysical Society and Member of the Council.
1988	U.S. National Committee for the International Union of Pure and Applied Biophysics (IUPAB).
1990 –	BCB Study section of the National Institutes of Health.
1990 –	Advisor, meeting organizer, participant in Initiative on Technology in the Future; Structural Biology and Molecular Medicine.
1993	Organizer, West Coast Protein Crystallography Workshop.
1993	NIH Site Visits for Emerging Technology (Chair at Brookhaven, Scripps).
1994 –	Board Member, Lawrence Berkeley Laboratory.
1994 –	Board Member, Advanced Light Source, Lawrence Berkeley Laboratory.
1995 –	National Cancer Institute Frederick Cancer Research and Development Center Advisory Committee.

1996 –	Structural Biology Neutron Facilities Advisory Group, Los Alamos National Laboratory.
2002 –	SAB member, St Jude Children Hospital
2002 – present	Ad hoc member of NIH study sections BBCB, BCB, BBM, MFSA, MFSB
2003 –	Organizer, the annual meeting of the Protein Society
2004 -	Organizer of the 2005 Gordon Conference on Mechanisms of Membrane Transport
2004 -	Organizer of the West Coast Protein Crystallography meeting, Asilomar CA.
2004 -	Coordinator/Editor Royal Society of Chemistry Volume on Computation and Structure based Drug Discovery.
2005 -	Study Section Meeting, Holiday Inn, Bethesda, MD
2005 -	Member MCB Study Section of the NIH (membrane initiatives)
2005 -	Organizer, West Coast Protein Crystallography meeting.
2005 -	Organizer, Gordon Conference on Channels and transporters.
2006 - 2009	Chair of Section 29 National Academy of Sciences
2006 - 2010	Chair of the Scientific advisory board, St Jude Childrens Cancer Research Hospital
2004 - 2015	Director of the Center for Membrane Protein Expression (mpec.ucsf.edu)
2005 - 2016	Director of the Center for Structure of Membrane Protein Structure (csmp.ucf.edu)
2006 -	Scientific Advisory Board to the DOE laboratory of structural proteomics UCLA
2009	Organiser Membrane Protein Technologies and Structures
2012	Organiser Membrane Protein Technologies, San Francisco
2014	Organiser Membrane Protein Structural Biology, Argonne Natl. Labs. Chicago
2016 –	Member BPNS study section

University

1973 – 1977	Patents; California Institute of Technology and the Jet Propulsion Laboratory.
1978 –	Served on UCSF reviews of faculty promotion.
1985 – 1991	Director, UCSF Biotechnology Research & Education Program.
1990 – 2005	Member, UCSF Committee on Awards and Honors.
1993 – 2003	Seminar Chairman, Biophysics Graduate Group.
1993 – 1996	Chair/Organizer, Bioengineering Graduate Group Retreat.
1990 – present	Organizer and Lecturer, Bi 202/204 Macromolecular Interactions, Required Core 2 qtr Graduate Course
1977 –	Organizer and Lecturer, Bi 242 Protein Crystallography Graduate Course
1977 –	Lecturer Biochemistry in the Professional (Medical & Pharmacy) Schools
2010 –	Organizer, sole lecturer Bi 217 Mini-course in X-ray Crystallography of macromolecules
2011 –2014	Medical and Dental student lectures: Cellular membranes

Department

1973 – 1974	Ombudsman in Chemistry, California Institute of Technology.
1973 – 1976	Member, Chemistry Graduate Studies Committee, Calif. Institute of Technology.
1974 – 1977	Chairman, Electronic Instrumentation Committee, Calif. Institute of Technology.
1977 –	Chairman, Biostructural Faculty Search Committee.
1977 –	Member Graduate Curriculum Committee.
1977 –	Member, Ad Hoc Review Committee, UCSF.
1977 – present	Organizer Lecturer course Bi 242 Protein Crystallography
1977 – 1985	Organizer/Lecturer, 200A/240 Biophysical grad. courses. Biochemistry/Biophysics.
1978 – 1979	Member Graduate Admissions Committee.
1979 –	Biophysics Program development.

1980 – 1981 Member, Ad Hoc Peer Review Committee, UCSF.
1980 – 1984 Member, Biomathematics Search Committee.
1983 – 1985 Asilomar Planning Committee.
1984 – 1986 Safety Committee Chairman, Biochemistry.
1985 – 1986 Seminar Committee Chairman, Biochemistry Department.
1985 – 1987 Member Graduate Admissions Committee, Biochemistry Department.
1986 – 1989 Member Executive Committee, Biochemistry Department.
1986 – Director of Curriculum, Biophysics Group, UCSF.
1989 Graduate Curriculum Committee, Department of Biochemistry & Biophysics.
1989 Director, Biotechnology Research & Education Program.
1990 Organizer, faculty scientific meeting.
1991 Library Committee, Department of Biochemistry.
1992 Minicourses Committee, Department of Biochemistry.
1995 Radiation Safety Committee, Department of Biochemistry.
1998 – present Organizer Lecturer Core course Bi 204a, b Macromolecular Interactions
1999 Departmental Library Committee
2000 – 2003 Computation, Department of Biochemistry.
2000 – 2003 Library Chairman, Department of Biochemistry.
2000 – Radiation Safety, Department of Biochemistry.
2000 – 2003 Chair of Departmental Retreat
2003 – 2008 Curriculum Committee Biophysics graduate group.
2005 – Member Awards Nomination Committee (Biochemistry Department)

PREVIOUS TRAINEES

Graduate Students and their current positions (32 obtained PhD with me; 2 obtained MS degree with me, as listed below with their current positions).

1971 – 1976 Monty Krieger (Ph.D.), Professor, MIT, Biology Department; Whittaker College
1971 – 1976 Michael J. Ross (Ph.D.), former Vice President Genentech Inc. former President, Metaxen Corp.; former President, ArrisPharmaceuticals Inc; Venture Capital; General Partner, SV Life Sciences.
1971 – 1976 Roger E. Koeppe II (Ph.D.), Professor, University of Arkansas.
1971 – 1977 Steven A. Spencer (Ph.D.), Senior Scientist, Genentech Inc.
1972 – 1977 John L. Chambers (Ph.D.), Head, Research & Dev., Siemens.
1973 – 1975 Diane Kent (M.S.), Executive Administrator, Dean of Students, University of British Columbia, Canada; retired.
1973 – 1976 John E. Ruark (MS) M.D., Private Psychiatric practice, Clinical Faculty, Stanford University.
1973 – 1978 Jerry Tobler (Ph.D.) M.D., Yale University; Scientist, Proctor & Gamble; retired.
1974 – 1979 Michael W. Klymkowsky (Ph.D.), Professor of Cell & Molecular Biology, University of Colorado.
1975 – 1980 David A. Agard (Ph.D.) Professor of Biochemistry & Biophysics, UCSF.
1976 – 1980 Melvin O. Jones (MS) Developmental Engineer, UCSF; deceased.
1982 – 1985 Robert Love (Ph.D.), Consultant in structure-based drug design, Xtal Clear.
1984 – 1987 Senyon Choe (Ph.D), Professor of Structural Biology, The Salk Institute.
1985 – 1992 Stephanie Mel (Ph.D.) Professor, Section of Molecular Biology, University of California, San Diego.

1985 – 1992	Partho Ghosh (Ph.D.), Professor of Biochemistry and Chemistry, University of California San Diego; Department Chair 2012-2016.
1986 – 1992	Celia Schiffer (Ph.D), Professor, Biochemistry and Molecular Pharmacology, University of Massachusetts Medical School, Worcester.
1987 – 1993	Eric Fauman (Ph.D.), Research Fellow and Head, Computational Target Validation, Pfizer, Ann Arbor, MI.
1987 – 1990	Jim Hurley (Ph.D), Professor and Judy C. Webb Chair, UC Berkeley, Biochemistry, Biophysics and Structural Biology.
1990 – 1996	Bob Rose (Ph.D), Associate Professor, Molecular and Structural Biochemistry, North Carolina State University.
1992 – 1997	Chris Schafmeister (Ph.D), Professor, Temple University.
1990 – 1998	Paul Foster (Ph.D.), Senior Clinical Scientist, Genentech Inc.
1990 – 1998	Bob Keenan (Ph.D.), Associate Professor, University of Chicago.
1994 – 1999	Julian Chen (Ph.D.), Instrument Scientist, Los Alamos National Laboratory, Lujan Neutron Scattering Center and Bioscience Division.
1994 – 2000	Sherry LaPorte (Ph.D.), Director of Antibody Therapeutics, Vivace Therapeutics.
1996 – 2002	Chris Reyes (Ph.D), Co-Founder, CSO, Board Director at Hove, a solutions market place company.
1996 – 2002	Christa Nunes (Ph.D.), Associate Director of Research and Care, The Gorilla Foundation.
1997 – 2002	Kinkead Reiling (Ph.D.), Founder, CSO Amyris Inc (AMRS); retired.
2001 – 2004	Adrian Keatinge-Clay (Ph.D.), Associate Professor, University of Texas, Austin.
2002 – 2009	Zachary Newby (Ph.D), Senior Scientist, Gilead Pharmaceuticals.
2003 – 2007	David Savage (Ph.D), Assistant Professor, UC Berkeley, Chemistry/Molecular & Cell Biology.
2004 – 2009	Joseph Ho (Ph.D), Senior Scientist, Eli Lilly Corporation
2005 – 2011	Ian Harwood (PhD), Associate Executive Director at Berkeley Symphony.
2010 – 2014	Hemant Kumar (PhD – JNU India).
2008 – 2012	Sarika Chaudhary, (Ph.D.) Ramanujan Fellow at Institute of Genomics and Integrative Biology, New Delhi, India.
2016 –	Sergei Pourmal

Postdoctoral Scholars and their current positions (86 postdoctorals trained with me as listed below, along with their current positions)

1972 – 1976 Tony A. Kossiakoff, former Head of Protein Engineering, Genentech Inc; Professor, Dept. of Biochemistry & Molecular Biology, University of Chicago.
1972 – 1974 Gary G. Christoph, Professor of Chemistry, Ohio State University.
1975 – 1976 Phillip Serwer, Professor of Biochemistry, University of Texas, San Antonio.
1975 – 1977 Christina Henneke, Entrepreneur.
1976 – 1977 David McKay, Professor of Structural Biology, Stanford University; Research Professor, University of Colorado.
1976 – 1977 Kenneth Gerst, Industry.
1976 – 1977 Monty Krieger, Professor, MIT, Biology Department; Whittaker College.
1977 – 1980 John L. Chambers, Head, Research & Development, Siemens X-Ray Division.
1979 – 1985 Nandini Katre, former Head of Protein Chemistry, Cetus Corporation.
1979 – 1983 Robert Fairclough, Professor of Neurology, UC Davis; retired.
1980 – 1983 Peter Desmueles, software company founder, San Francisco.
1980 – 1981 Joerg Kistler, Professor Emeritus, Auckland University, New Zealand; Dean of Science Auckland University.
1980 – 1981 Steven Hayward, Former Head Electron Microscopy, Public Health Department.
1980 – 1981 David A. Agard, Professor of Biochemistry, UCSF. Member of the National Academy of Sciences USA.
1980 – 1984 Janet Finer-Moore, Research Biochemist, UCSF.
1982 – 1985 Susan Hershenson, Deputy Director Chemistry, Manufacturing and Controls, The Bill and Melinda Gates Foundation.
1982 – 1984 David Kristofferson, Director, Information Systems, EOS Biotechnology, Inc., South San Francisco, CA.
1983 – 1985 Ellen Farr-Young
1983 – 1993 Alok Mitra, Professor, University of Auckland, New Zealend.
1984 – 1988 Michael McCarthy.
1985 – 1989 Julie P. Earnest, Systems Trainer, Deacon Corporation.
1985 – 1989 William Montfort, Professor of Biochemistry, University of Arizona, Tucson.
1985 – 1986 Ted Cremer, Research Associate, Stanford Synchrontron Radiation Laboratory; Researcher, Lucas Labs, Adelphia Technology.
1986 – 1990 Michael P. Shuster, Scientific Legal Advisor, McCutchen Doyle Brown & Enersen, San Francisco.
1986 – 1991 Kathy Perry, Senior Director, Twist Bioscience.
1987 – 1990 Thomas N. Earnest, Group Leader, Lawrence Berkeley Laboratory. Synchrotron; CAS Visiting Professor, Shanghai Institute Applied Physics.
1987 – 1989 Cynthia Wolberger, Professor, HHMI Johns Hopkins University.
1989 – 1992 Alexander Kamb, Senior Vice President of Research AMGEN, Head of Neuroscience, South San Francisco.
1992 – 1993 Mary Betlach, formerly Adjunct Associate Professor, Dept of Pharmaceutical Chemistry, UCSF; former Director, Sunesis Pharmaceuticals, grants consultant.
1991 – 1994 Diana Cherbavaz, Director of Genomic/Product Sciences, Molecular Diagnostics.
1986 – 1995 V. Ramalingam, Entrepreneur, San Francisco, California.
1990 – 1995 George Turner, Professor and Dean, Atlantic University School of Medicine.
1990 – 1997 Earl Rutenber, Scientist E-Scape, South San Francisco.
1990 – 1997 Doug Freymann, Associate Professor of Biochemistry and Molecular Genetics, Northwestern University, Chicago.
1991 – 1996 Michael Wiener, Professor of Biochemistry, University of Virginia.
1992 – 1997 Thomas Stout, Senior Director of Clinical Sciences, Genentech Inc.
1993 – 2004 David Birdsall, California State University, Monterey Bay

1994 – 1997	Carleton Sage, Co-founder and Vice-President Computational Sciences, Beacon Discovery Inc.
1994 – 2001	Richard Morse, Consultant.
1994 – 2000	Peter Sayre, (MD, PhD) Professor, UCSF Medical School.
1996 – 1997	Pamela Williams, Senior Research Scientist, Astex Technology, Cambridge, U.K.
1997 – 2000	Andrew Libson, Teacher, Mission High School
1997 – 2000	Amy Anderson, Department Head Assoc. Professor of Medicinal Chemistry, Department of Pharmaceutical Sciences University of Connecticut; deceased 2016
1997 – 2000	DaXiong Fu, Associate Professor of Physiology, Johns Hopkins School of Medicine.
1997 – 2001	Tim Fritz, Scientist, FDA.
1998 – 2004	Tom Lee, Scientist, Fate Therapeutics.
1998 – 2000	Cindy Weitzman, Math Curriculum Specialist, Nunya Academy.
1999 – 2001	Peter Nollert, Head Business Development North America, LeadXpro
1999 – 2000	Paul Foster, Senior Clinical Scientist, Genentech, So. San Francisco, CA.
1999 – 2004	Sanjay Agarwalla, Senior Scientist, Novartis.
1999 – 2003	Hu Pan, Scientist Elan Pharmaceutics, retired.
1999 – 2003	Julian Chen, Instrument Scientist, Los Alamos National Laboratory, Lujan Neutron Scattering Center and Bioscience Division.
2000 – 2003	Sheryl Tsai, Professor, Molecular Biology and Biochemistry School of Biological Sciences, University of California, Irvine,
2000 – 2004	Sherry LaPorte, Director of Antibody Therapeutics, Vivace Therapeutics
2000 – 2013	William Harries, Founder & Chief Scientist, Aromyx Corp.
2000 – 2009	Pascal Egea, Research Fellow, UCLA
2000 – 2005	Shahram Khademi, Assistant Professor, University of Iowa
2002 – 2010	John Kyongwon Lee, Scientist 3, Bristol-Myers, Squib
2003 – 2009	Akram Alian, Assistant Professor, Technion University, Israel
2003 – 2008	Sun Hur, Associate Professor Harvard Medical School
2004 – 2008	Adrian Keatinge-Clay, Associate Professor, University of Texas at Austin
2005 – 2008	Min Li, Investigator 3, Novartis Institutes for Biomedical Research
2005 – 2009	Frank Hays, Assistant Professor, University of Oklahoma School of Medicine
2005 - 2010	Franz Gruswitz, Group Leader, Structural Biology, Aptevo Therapeutics
2007 - 2009	Anna Tochowicz
2006 - 2008	Melissa del Rosario, Staff Scientist, Thermo Fisher Scientific
2009 - 2011	Anirban Adhikari, Staff Research Scientist, Biologics Research at Bayer HealthCare
2009 - 2015	Oren Rosenberg, Assistant Professor of Medicine, UCSF
2010 - 2013	Nadine Czudnochowski, Senior Research Scientist, Infectious Diseases, UCSF
2010 - 2014	John Pak, Scientist BioMarin Pharmaceuticals, Novato CA
2010 - 2012	Louis Metzger, Investigator III and Project Team Leader, at Novartis Co.
2010 - 2013	Andrew Waight, Senior Scientist at Seattle Genetics, Inc.
2010 - 2014	Bjørn Pedersen, Assistant Professor, Aarhus University, Copenhagen, Denmark
2011 -	Thomas Tomasiak, K99 Fellow, Research Biochemist, UCSF
2011 - 2014	Shujun Yuan, Scientist, Bayer Corporation, San Francisco California
2011 - 2013	Emily McCusker, Associate Director, Clinical Development, Allergan
2012 -	Alex Vecchio, postdoctoral scholar at Stroud Lab, UCSF
2012	Alex Kintzer, postdoctoral scholar at Stroud Lab, UCSF
2012 -2017	Bryan Schmidt, Assistant Professor, Davidson College, North Carolina
2014	Khyati Kapoor, postdoctoral scholar at Stroud lab UCSF
2014	Jonathan Leano, postdoctoral scholar at Stroud lab UCSF
2015	Lucas Liu, postdoctoral scholar at Stroud lab UCSF
2015	Laura Caboni, postdoctoral scholar at Stroud lab UCSF

2016 Pawel Dominik, postdoctoral scholar at Stroud lab UCSF
2016 Meghna Gupta, postdoctoral scholar at Stroud lab UCSF

RESEARCH INTERESTS

Three main foci characterize my research. First, we aim to understand transport, cellular signaling and communication across cell membranes at the molecular level. Most recently this includes the first structures of channels in endolysosomes (TPCs) that participate in regulating nutrient acquisition, and are critical to Ebola viral fusion and entry; the structure is bound to an inhibitor NED19 that cures infected mice of Ebola. Another aim is on packaging of neurotransmitters into synaptic vesicles. The second focus is on understanding how macromolecular structure encodes specificity and affinity, at protein – protein and at protein – ligand interfaces, and how this can be used for biotherapeutics and drug design. To these ends we have determined the high-resolution three dimensional atomic structures of over 330 proteins of different classes, including and used these structures to help define biological, biochemical, and cellular function, and as templates for drug design. We seek to determine the structures of membrane receptors, channels and transporters using X-ray and cryo electron microscopy. We address the cellular partners of HIV proteins in attempts to elucidate novel drug targets for anti-HIV therapy. We also address recently identified essential enzymes and transporters of mycobacterium tuberculosis, and *P.falciparum* as targets for drug discovery. The third area of focus concerns RNA-protein recognition, specificity and modification. We described and decoded several methylases, pseudouridine synthases showing how they achieve specificity by allosteric alteration of RNA.

ROBERT STROUD
COMPLETE PUBLICATION LIST (* for most relevant 24)

PDB COORDINATES OF PROTEIN STRUCTURES DETERMINED & DEPOSITED

350 coordinate sets of Protein structures determined by X-ray crystallography in the Protein Data Bank as of July1st 2017; 8 sets currently being processed

REFEREED PUBLICATIONS

1. MacKay AL, Stroud RM. (l968). *Journal of Perception and Psychophysics* **4**, 90. An optical illusion.
2. Stroud RM, Kay L, Stanford RH, Battfay O, Corey RB, Dickerson, RE. (l969). *Acta Cryst.* **A25**, S182. The Crystal Structure of DIP-Trypsin at 2.7 Å Resolution.
3. Stroud RM, Kay LM, Dickerson RE. (l971). *Cold Spring Harbor Symposia on Quantitative Biology* **36**, 125-140. The Crystal and Molecular Structure of DIP-inhibited Bovine Trypsin at 2.7 Å Resolution. (PMID: 4508129)
4. Stroud RM, Carlisle CH. (1972). *Acta Cryst.* **B28**, 304-307. A Single-Crystal Structure Determination of DL-6-Thioctic Acid, C8H14O2S2.
5. Stroud RM. (1973). *Acta Cryst*. **B29**, 690-696. The Crystal and Molecular Structure of Tubercidin, C11H14N4O4.
6. Stroud RM. (1973). Stockholm Symposium on Structure of Biological Molecules. The High Resolution Structure of Trypsin.
7. Stroud RM, Kay LM, Dickerson RE. (1974). *J. Mol. Biol.* **83**, 185-208. The Structure of Bovine Trypsin: Electron Density Maps of the Inhibited Enzyme at 5 Å and at 2.7 Å Resolution. (PMID: 4821870)
8. Krieger M, Kay LM, Stroud RM. (1974). J. Mol. Biol. 83, 209-230. Structure and Specific Binding of Trypsin: Comparison of Inhibited Derivatives and a Model for Substrate Binding. (PMID: 4821871)

9. Chambers JL, Christoph GG, Krieger M, Kay L and Stroud RM. (1974). *Bioch. Bioph. Res. Commun.* **59**, 70-74. Silver Ion Inhibition of Serine Proteases: Crystallographic Study of Silver-Trypsin. (PMID: 4842294)
10. Raftery MA, Bode J, Vandlen R, Michaelson D, Deutsch J, Moody T, Ross MJ, Stroud RM. (1974). *FEBS Proc.* **9**, 9. Molecular Properties of *Torpedo californica* Acetylcholine Receptors.
11. Stroud RM. (1974). *Scientific American* **231**, 74-88. A Family of Protein-Cutting Proteins.
12. Krieger M, Chambers JL, Christoph GG, Stroud RM, Trus BL. (1974). *Acta Cryst.* **A30**, 740-748. Data Collection in Protein Crystallography: Capillary Effects, and Background Corrections.
13. Stroud RM, Krieger M, Koeppe RE II, Kossiakoff AA, Chambers JL. (1975). In *Proteases and Biological Control*, pp. 13-32, Cold Spring Harbor Laboratory. Structure-Function Relationships in the Serine Proteases.
14. Raftery MA, Bode J, Vandlen R, Michaelson D, Deutsch J, Moody T, Ross MJ, Stroud RM. (1975). In *Protein-Ligand Interactions,* pp. 328-355, Walter de Gruyter & Co, Berlin, Germany. Structural and Functional Studies of an Acetylcholine Receptor.
15. Koeppe RE II, Stroud RM, Pena VA, Santi DV. (1975). *J. Mol. Biol.* **98**, 155-160. A Pulsed Diffusion Technique for the Growth of Protein Crystals for X-ray Diffraction. (PMID: 1195375)
16. Koeppe RE II, Stroud RM. (1976). *Biochemistry* **15**, 3450-3458. Mechanism of Hydrolysis by Serine Proteases: Direct Determination of the p*K*a's of Aspartyl-102 and Aspartyl-194 in Bovine Trypsin Using Difference Infrared Spectroscopy. (PMID: 986162)
17. Krieger M, Koeppe RE II, Stroud RM. (1976). *Biochemistry* **15**, 3458-3464. pH Depend- ence of Tritium Exchange with the C-2 Protons of the Histidines in Bovine Trypsin. (PMID: 8090)
18. Krieger M, Stroud RM. (1976). *Acta Cryst*. **A32**, 653-656. Data Collection in Protein Crystallography: Experimental Methods for Reducing Background Radiation.
19. Webb NG, Samson S, Stroud RM, Gamble RC, Baldeschwieler JD. (1976). *Rev. Sci. Instrum*. **47**, 836-839. Remotely controlled mirror of variable geometry for small-angle x-ray diffraction with synchrotron radiation.
20. Levitski A, Dodson GG, Henderson R, Palm D, Sheppard H, Stroud RM, Tanford C, Wright P, Zatz M. (1976). Dahlem Workshop on Hormone and Antihormone Action at the Target Cell. Catecholamine Receptors Group Report.
21. Webb NG, Samson S, Stroud RM, Gamble RC, Baldeschwieler JD. (l977). *J. Appl. Cryst*. **10**, 104-110. A Focusing Monochromator for Small-Angle Diffraction Studies with Synchrotron Radiation.
22. Koeppe RE II, Krieger M, Stroud RM. (1977). *Biochimica et Biophysica Acta* **481**, 617-621. The Effect of Pre-Incubation on Trypsin Kinetics at Low pH. (PMID: 15615)
23. Kossiakoff AA, Chambers JL, Kay LM, Stroud RM. (1977). *Biochemistry* **16**, 654-664. Structure of Bovine Trypsinogen at 1.9 Å Resolution. (PMID: 556951)
24. Chambers JL, Stroud RM. (1977). *Acta Cryst.* **B33**, 1824-1837. Difference Fourier Refinement of the Structure of DIP-Trypsin at 1.5 Å with a Minicomputer Technique.
25. Ross MJ, Stroud RM. (1977). *Acta Cryst*. **A33,** 500-508. Error Analysis in the Biophysical Applications of a Flatbed Autodensitometer.
* 26. Ross MJ, Klymkowsky MW, Agard DA, Stroud RM. (1977). *J. Mol. Biol.* **116**, 635-659. Structural Studies of a Membrane-bound Acetylcholine Receptor from *Torpedo californica*. (PMID: 563472)
27. Stroud RM, Kossiakoff AA, Chambers JL. (1977). *Ann. Rev. Bioph. Bioeng.* **6**, 177-193. Mechanisms of Zymogen Activation. (PMID: 17350)
28. McKay DB, Kay LM, Stroud RM. (1977). In *Chemistry and Biology of Thrombin*, Lundblad RL, Fenton JW II, Mann KG eds. pp. 113-121, Ann Arbor Science Publishers, Inc, Ann Arbor, Michigan. Preliminary Crystallization and X-Ray Diffraction Studies of Human Thrombin.
29. Stroud RM, Agard DA. (1979). *Biophys. J.* **25**, 495-512. Structure Determination of Asymmetric Membrane Profiles Using An Iterative Fourier Method. (PMID: 318062)
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PDB COORDINATES OF PROTEIN STRUCTURES DEPOSITED

301 coordinate sets of Protein structures; 40 are integral membrane proteins. determined by X-ray crystallography in the Protein Data Bank as of July 2016; 8 sets currently being processed.

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