University of California San Francisco
CURRICULUM VITAE

Prepared 03/03/08

JOHN D. GROSS

Position: Assistant Professor, Step 5
Department of Pharmaceutical Chemistry
School of Pharmacy

Address: Box 2280
600 16th Street
San Francisco, CA 94143-2280

Voice: 415-514-4402
FAX: 415-502-8298
Email: jdgross@picasso.ucsf.edu
http://www.grosslab.ucsf.edu

Member: Chemistry and Chemical Biology
Graduate Group in Biophysics
Biochemistry and Molecular Biology, PIBS Tetrad
Program in Biomedical Sciences

EDUCATION:

University of the South, Sewanee, TN (1992) B.S., Chemistry

Massachusetts Institute of Technology (1998) Ph.D., Chemistry

POSITIONS HELD:

Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School, Postdoctoral Fellow, Dr. Gerhard Wagner (1998-2003)

Department of Biochemistry and Molecular Pharmacology, University of Massachusetts Medical School, Assistant Professor (2003-2004)

Department of Pharmaceutical Chemistry, University of California, San Francisco, Assistant Professor (2004-present)

HONORS/AWARDS:

Susan Beaty Prize for highest achievement in Organic Chemistry, Department of Chemistry, University of the South (1989); Georgia Wilkins Scholarship, University of the South (1989-1992); Phi Beta Kappa, University of the South; NIH post-doctoral fellowship (declined); American Cancer Society post-doctoral fellowship (1999-2002); Worcester Foundation for Biomedical Sciences , Research Scholar Award (2003-2004); Sandler Foundation for Basic Science, Opportunity Award (2005-2007); Hellman Family Foundation Award for Early-Career Faculty (2007-2008)

PROFESSIONAL ACTIVITIES

PROFESSIONAL ORGANIZATIONS:

American Association for the Advancement of Science
American Chemical Society
RNA Society
Sigma Chi

SERVICE TO PROFESSIONAL PUBLICATIONS:

Reviewer for: Journal of the American Chemical Society, Nature Structural and Molecular Biology, Nature Biotechnology, Journal of Biomolecular NMR, Journal of Molecular Biology, PNAS, Structure, Journal of Bacteriology

INVITED PRESENTATIONS:

2002 Translational Control Meeting, Cold Spring Harbor Laboratory
2002 MIT Chemistry Seminar Series
2002 Brown University, Department of Molecular Pharmacology, Physiology and Biotechnology (Faculty Interview)
2002 University of Notre Dame, Department of Chemistry (Faculty Interview)
2002 University of Massachusetts Medical School (Faculty Interview)
2003 University of Georgia, Departments of Chemistry and Biochemistry (Faculty Interview)
2003 Johns Hopkins University School of Medicine, Department of Biophysics and Biophysical Chemistry (Faculty Interview)
2003 NIH, NIDCR (Faculty Interview)
2004 Clark University Chemistry Seminar Series
2004 University of Massachusetts Medical School Retreat, Woods Hole
2004 Wellesley College Guest Lecturer
2004 UCSF Biophysics Student Research Day, Tiburon
2004 UCSF BBC Joint Retreat, Asilomar
2005 Wake Forest University School of Medicine, Structural Biology Seminar Series
2005 UCSF Tetrad retreat
2005 UCSF Biophysics Student Weekend
2006 UCSF BBC Joint Retreat, Asilomar
2007 Bay Area 900 MHz NMR Symposium, Bruker BioSpin
2007 UCSF Mission Bay Faculty Lunch
2008 UCSC Chemistry and Biochemistry Seminar Series

GOVERNMENT AND OTHER PROFESSIONAL SERVICE:

Consultant, Microbia, 2002-2003
ACS Book Review, Modern NMR Spectroscopy in Education

UNIVERSITY AND PUBLIC SERVICE

Current Committees:

Genentech Hall Safety Committee, 2005-present
Chemistry and Chemical Biology Admissions Committee, 2005-present
Biophysics Program Admissions Committee, 2006-present
Department of Pharmaceutical Chemistry Chair Search Committee, 2007-present
HARC Center Executive Committee, 2007-present

Past Committees:

Faculty search committee, Department of Biochemistry and Biophysics, 2006
Co-Chair, BBC retreat organizing committee, 2006

SERVICE NARRATIVE:

I participate in a variety of service activities, including search and admissions committees. As acting director of the NMR facility, it is my goal to educate other labs about the power of NMR spectroscopy and the resources available at UCSF. Together with Dr. Mark Kelly, I ensure that the different spectrometers of the facility are being used efficiently and are set-up so that students and post—docs from a variety of backgrounds can run routine experiments used for macromolecular NMR. Members of my lab help Dr. Kelly with upkeep of the NMR systems. In addition, we assist in the maintenance of state-of-the art pulse sequence library which is available to researchers at UCSF and used for elucidation of structure and dynamics of proteins and macromolecular complexes.

TEACHING AND MENTORING

FORMAL SCHEDULED CLASSES FOR UCSF STUDENTS:

2004-2005:
• Pharm Chem 231 Developed and directed new course "Principles of Macromolecular NMR Spectroscopy" (Spring), 3 unit course, 30 hours taught

2005-2006:
• Chem 241 Molecular Statistical Mechanics (Fall), 4 unit course, 14 hours taught
• Biophys 202 Biophysical Methods (Fall), 3 unit course, 4.5 hours taught, 1.5 hours literature discussion
• Biochem 200A Macromolecules (Fall), 4 unit course, 3 hours taught, 6 hours literature discussion
• Chem 112, School of Pharmacy Course: Kinetics (Winter), 4 unit course, 16 hours lab lecture

2006-2007:
• Biochem 200A Macromolecules (Fall), 4 unit course, 1.5 hours taught
• Biophys 204 Macromolecular Interactions (Fall), 4 unit course, 1.5 hours taught
• Biophys 204 Macromolecular Interactions (Winter), 4 unit course, 12 hours taught
• Chem 112, Kinetics, School of Pharmacy Course (Winter), 4 unit course, 16 hours lab lecture
• Pharm Chem 231 Principles of Macromolecular NMR Spectroscopy (Spring) 3 unit course, course director, 15 hours taught

2007-2008:
• Biochem 200A Macromolecules (Fall), 4 unit course, 1.5 hours lecture
• Biophys 204 - Macromolecular Interactions (Fall), 4 unit course, 3 hours lecture

• Chem 112, School of Pharmacy Course: Kinetics (Winter), 4 unit course, course director, 15 hours main lecture, 15 hours lab lecture, 6 hours staff meetings
• Biophys 204 - Macromolecular Interactions (Winter), 4 unit course, 3 hours lecture

Student-faculty journal club (avg. 15 hours/yr):
Anselm Levskaya, Biophysics, Winter 2004; Mori Feldman, Biophysics, Winter 2005; Kristin Coan, CCB, Winter 2005, Greg Friedland, Biophysics, Winter 2005; Janet Chung, CCB, Fall 2005; Jeff Henise, CCB, Fall 2005; Dan Mandell, Biophysics, Fall 2005; Michelle Dimon, BMI, Winter 2006; Colin Smith, BMI, Winter 2006; Karin Buser, CCB, Spring 2006; Brandon Tavshanjian, CCB, Winter 2007

Qualifying examination committees (avg. 15 hours/yr):
Quincy Justman, Biophysics, 5/24/05; Janet Cheung, CCB, 6/06/05; Richard Tjhen, Biochemistry, 6/30/05; Clement Chu, Biophysics, 5/11/06; Greg Friedland, Biophysics, 6/01/06; Jeff Henise, CCB, 6/06/06; Andrew Mackinnon, CCB, 5/23/07; Emily Crawford, CCB, 6/05/07; Brandon Tavshanjian (chair), CCB, 6/14/07; Christopher Mcclendon, 11/9/07

Thesis committees (avg. 20 hours/yr):
Matt Daugherty, CCB; Janet Cheung, CCB; Brandon Toyama, Biophysics; Mark Albers, Bioengineering; Richard Tjhen, Biochemistry

PREDOCTORAL STUDENTS SUPERVISED:

•Brittnee Jones (2005-present), Chemistry and Chemical Biology
•Mark Borja (2006-present), Chemistry and Chemical Biology
•Stephen Floor (2006-present), Graduate Group in Biophysics
•David Stanley (2007-present), Graduate Group in Biophysics

Rotation students:
Matt Eames, Biophysics, Winter 2005; Brittnee Jones, CCB, Winter 2005; Elizabeth Montabana, Biophysics, Summer 2005; Bryant Chhun, Biophysics, Fall 2005; Emily Crawford, CCB, Winter, 2006; Mark Borja, CCB, Spring, 2006; Stephen Floor, Biophysics, Spring 2006; Haralambos Hadjivassiliou, Tetrad-BMB, Fall, 2007; David Stanley, Biophysics, Winter, 2007; Daniele Canzio, CCB, Spring 2007; Agenta Price, Tetrad-BMB, Winter 2008

POSTDOCTORAL STUDENTS SUPERVISED:

•Mandar Deshmukh (2004-2006) Ph. D., Chemistry, Technical University, Munich; currently Scientist, Centre for Cellular and Molecular Biology, Hyderabad, India
•Jeremy Flinders (2005-present) Ph. D., Chemistry, University of California, Davis; currently Post-doctoral fellow , Genentech, South San Francisco

UNDERGRADUATE STUDENTS SUPERVISED:

Yuko Oku, WPI Student, 2004-2005
Candice Kim, Berkeley Student, 2006
Anna Hurtley, SRTP Student, Summer 2007

SUMMARY OF TEACHING HOURS:

Over the last five years, approximately **150** hours per year in formal courses involving lectures, discussion sections, preparation time, administering oral exams, exam coaching, and course administration, 1**50** hours per year involved with journal clubs, qualifying exams, and thesis committees and **120** hours per year in student and postdoctoral mentoring in the context of individual and group meetings; total **320** hours per year.

TEACHING NARRATIVE:

My contributions to teaching include lecturing and leading discussions in several graduate courses, lecturing and directing a Pharmacy school course administered by the Department of Pharmaceutical Chemistry, coaching students and participating in journal clubs and research talks, serving on orals and thesis committees, and mentoring students and postdoctoral fellows.

Graduate courses: My contribution to graduate teaching includes teaching an overview of macromolecular NMR to Biophysics and Tetrad students in Biophysics 202 and Biochem 200A, respectively. I teach a 3 unit course "Principles of NMR Spectroscopy" biennially where NMR theory is taught rigorously to graduate students who use the technique as part of their thesis studies. I also have contributed to teaching Molecular Statistical Mechanics together with Ken Dill.

Professional school courses: I have routinely lectured in the laboratory section of chemical kinetics, a core course for pharmacy students. In the winter of 2008, I will direct this course.

Other student training: I regularly participate in coaching and evaluating students for journal club presentations and research talks, with students from Tetrad, Biophysics, CCB as well as attending the annual retreats. I attend research talks of Biophysics and CCB students and the Mission Bay RIPS series. I sit on a variety of qualifying exams and thesis committees. In my own laboratory, we hold weekly group meetings and I meet with each individual on a weekly basis. I pay great attention to mentoring individuals to meet their desired career goals and to help evaluate options. So far, every year my lab has hosted undergraduate students, helping to expand our diversity and provide valuable training experience for young scientists.

RESEARCH AND CREATIVE ACTIVITIES

RESEARCH AWARDS AND GRANTS:

Current:

Hellman Family Awards for Early Career Faculty
Structure and Function of the Decapping Enzyme Complex
2006-2007
$50,000 annual direct costs

NIH P50 GM082250, Co-Principal Investigator
HARC Center: HIV Accessory and Regulatory Complexes
8/15/07-7/31/12
$210,000 annual direct costs (Gross, J)

NIH RO1 GM078360-02
The Structure and Function of the Decapping Enzyme Complex
Pending

Past:
Worcester Foundation for Biomedical Science Research Scholar Award
Characterization and Control of Protein Interactions that Regulate Ribosomal Scanning during EukaryoticTranslation Initiation
2003-2004
$100,000 annual direct costs

Sandler Family Research Foundation Opportunity Award
Probing the Control of mRNA Turnover
2005-2007
$100,000 annual direct costs

PEER REVIEWED PUBLICATIONS:

1. A.C. Bach, C.J. Eyermann, **J.D. Gross**, M.J. Bower, R.L. Harlow, P.C. Weber and W.F. Degrado (1994) "Structural Studies of a Family of High-Affinity Ligands for GPIIB/IIIA", **J. Am. Chem. Soc.** 116:(8) 3207-3219.
2. **J.D. Gross**, P.R. Costa, J.P. Dubacq, D.E. Warschawski, P.N. Lirsac, P.F. Devaux and R.G. Griffin (1995) "Multidimensional NMR in Lipid Systems: Coherence Transfer through J-Couplings under MAS" **J. Magn. Reson. B** 106:(2) 187-190 1995.
3. **J.D. Gross**, D.E. Warschawski and R.G. Griffin (1997) "Dipolar Recoupling in MAS NMR: A Probe for Segmental Order in Lipid Bilayers" **J. Am. Chem. Soc.** 119:(4) 796-802.
4. M. Hong, **J.D. Gross** and R.G. Griffin (1997) "Site-Resolved Determination of the Peptide Torsion Angle from the Relative Orientations of Backbone NH and CH Bonds by Solid-State NMR" **J. Phys. Chem. B** 101:(30) 5869-5874.
5. M. Hong, **J.D. Gross,** C.M. Rienstra, R.G. Griffin, K.K. Kumashiro and K. Schmidt-Rohr (1997) "Coupling Amplification in 2D MAS NMR and its Application to Torsion Angle Determination in Peptides" **J. Magn. Reson.** 129:(1) 85-92
6. P.R. Costa, **J.D. Gross**, M. Hong and R.G. Griffin (1997) "Solid-State NMR Measurements of in Peptides: a NCCN 2Q-Heteronuclear Local Field Experiment" **Chem. Phys. Lett**. 280:(1-2) 95-103 .
7. D.E. Warschawski, **J.D. Gross** and R.G. Griffin (1998) "Effects of Membrane Peptide Dynamics on High-Resolution Magic-Angle Spinning" NMR **J. Chim. Phys. PCB** 95 (2): 460-466.
8. **J.D. Gross**, P.R. Costa and R.G. Griffin (1998) "Tilted n-Fold Symmetric Radio Frequency Pulse Sequences: Applications to CSA and Heteronuclear Dipolar Recoupling in Homonuclear Dipolar Coupled Spin Networks" **J. Chem. Phys.** 108:(17) 7286-7293.
9. M. Hong, **J.D. Gross**, W. Hu and R.G. Griffin (1998) "Determination of the Peptide Torsion Angle by ^{15}N Chemical Shift and ^{13}C -^{1}H Dipolar Tensor Correlation in Solid-State MAS NMR" **J. Magn. Reson**. 135(1) 169-177.
10. P.E.C. Hershey, S.M. McWhirter, **J.D. Gross**, G. Wagner, T. Alber and A.B. Sachs (1999) "The cap-binding protein eIF4E promotes Folding of a Functional Domain of Yeast Translation Initiation Factor eIF4G1" **J. Biol. Chem.** 274:(30) 21297-21304.
11. A.A. Lugovsky, A. Degterev, A. F. Fahmy, P. Zhou, **J.D. Gross**, J. Yuan and G. Wagner (2001) "A Novel Approach for Characterizing Protein Ligand Complexes: Molecular Basis for Specificity of Small-Molecular Bcl-2 Inhibitors" **J. Am. Chem. Soc.** 124:(7) 1234-1240 2002
12. **J.D. Gross** , Vladimir Gelev and G. Wagner "A Simple and Robust Method for Obtaining Intermolecular NOEs between Sidechains in Large Protein Complexes" **J. Biol. Mol. NMR** 25 235-242 2003
13. A.E. Bennett, **J.D. Gross** and G. Wagner "Theory and Implementation of Pulse Sequences for Broadband Adiabatic Mixing In Solution NMR Spectroscopy" **J. Magn Reson.** 165 59-79 2003
14. **J.D. Gross**, N.J. Moerke,T. von der Haar, A.A. Lugovskoy, A.B. Sachs , J.E.G. McCarthy and G. Wagner "Ribosome loading onto the mRNA cap is driven by conformational coupling between eIF4G and eIF4E" **Cell** 115:(6) 739-750 2003
15. L.L. Chatwood, J. Muller, **J.D. Gross**, G. Wagner and S. Lippard "NMR Structure of the flavin domain from soluble methane monooxygenase from Methylococcus capsulatus (Bath)" **Biochemistry** 43:(38) 11983-11991 2004
16. C. He, J.C. Hus, L.J. Sun, P. Zhou, D.P. Norman, V. Dotcsh, H. Wei, **J.D. Gross**, W.S. Lane, G. Wagner, G.L. Verdine "A methylation-dependent electrostatic switch controls DNA repair and transcriptional activation in E. Coli ada." **Mol. Cell** 20:(1)117-129 2005
17. T. von der Haar, Y. Oku, M. Ptushkina, N.J. Moerke, G. Wagner, **J.D. Gross** and J.E.G. McCarthy "Folding transitions during assembly of the eukaryotic mRNA cap-binding complex" **J. Mol. Biol**, 356(4):982-92 2006
18. N.J. Moerke, H. Chen, F. Harbinski, A. Natarajan, **J.D. Gross**, A. Degterev,J. Yuan,M. Chorev,H. Aktas, J.A. Halperin and G. Wagner " A small molecule inhibitor of the eIF4E/eIF4G interaction with anti-tumour activity" **Cell**, 128 257-267 2007

19. M.V. Deshmukh, Y. Oku and **J.D. Gross**" Backbone and ILV Methyl resonance assignments of the catalytic domain of the yeast mRNA decapping enzyme, Dcp2", **Biol. Mol. NMR**. **Assignments** 1 17-18 2007
20. B.H. Toyama, M. J. S. Kelly, **J.D. Gross** and J.S. Weissman "The structural basis of yeast prion strain variants", **Nature** 449(7159):233-7 2007
21. M.V. Deshmukh, B.N. Jones, D.-U. Quang-Dang, J. Flinders, S.N. Floor, C. Kim, J. Jemielity, M. Kalek, E. Darzynkiewicz and **J.D. Gross** "mRNA decapping is promoted by an RNA binding channel in Dcp2", **Mol Cell 29** (3):324-36
22. L.A. Campbell, M.D. Show, J.G. Ingraham, J. Flinders, **J.D. Gross** and H.A. Ingraham, "Selective Recognition of Target Genes via Sumoylation of SF-1 (NR5A1)" **Mol. Cell. Biol. In Press**

BOOK CHAPTERS AND REVIEWS

1. J.L. Battiste, **J.D. Gross** and G. Wagner "Global Fold Determination of Large Proteins using Site-Directed Spin Labeling" in **Biological Magnetic Resonance**, Vol 20 (*Protein NMR for the Millennium*) , eds Rama Krishna, N. and Berliner, L. (Kluwer) Ch. 4, p. 79-101.

2. **J.D. Gross**, H. Matsuo, M. Fletcher, A.B. Sachs and G. Wagner "Interactions of the Eukaryotic Translation Initiation Factor eIF4E" **Cold Spring Harbor Symposium on Quantitative Biology: The Ribosome**, B. Stillman and D.J. Steward, eds, Vol 66, 2001, 397-402.

3. T. von der Haar, **J. D. Gross**, G. Wagner and J.E.G. McCarthy "The mRNA cap- binding protein in post-transcriptional gene expression" **Nature Structural and Molecular Biology** 11 503-511(2004)

4. B.N. Jones, D.U. Quang-Dang and **J. D. Gross** "Kinetic Analysis of mRNA Decapping under Single-Turnover Conditions" **Methods in Enzymology (in press)**