

Gregory Alan Weiss *Curriculum Vitae*

Professor of Chemistry, Molecular Biology and Biochemistry
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Personal

Born July, 1970 in New York City, NY.
Married to Kim M. Weiss.

Education

- *Postdoctoral Fellow*, Protein Engineering, **Genentech, Inc.**, 1997-2000.
- *Ph.D. and A.M.*, Chemical Biology, **Harvard University**, 1992-1997.
- *B.S.*, Chemistry, **U.C. Berkeley**, 1988-1992.

Research Experience

2009- *Professor of Chemistry, Molecular Biology and Biochemistry*,
University of California, Irvine (with tenure)

2006- *Associate Professor of Chemistry, Molecular Biology and Biochemistry*,
University of California, Irvine (with tenure)

2000-2006 *Assistant Professor of Chemistry, Molecular Biology and Biochemistry*
University of California, Irvine

1997-2000 *Postdoctoral Fellow* with Dr. James A. Wells, Genentech, Inc.

1992-1997 *Graduate Student* with Professor Stuart L. Schreiber, Harvard University

1990-1992 *Undergraduate Researcher* with Professor Paul A. Bartlett, U.C. Berkeley

1989-1990 *Research Assistant*, Lawrence Livermore National Laboratory

Awards and Other Professional Activities

2009 US Representative, Annual Meeting of New Champions, World Economic Forum,
Dalian, China (selected by the US National Academy of Sciences)

2009 Co-Director, Chemical and Structural Biology Program of the Chao Family
Comprehensive Cancer Center

2008-2009 Co-Chair, Organizing Committee, National Academy of Sciences Indo-US Kavli
Frontiers in Science Symposium

2008-2009 Member, NSF Proposal Review Panels

2007-2008 Outstanding Professor from the U.C. Irvine School of Physical Sciences
(selected by the graduating seniors)

2006-2009 UC Biotechnology Research Education Program, Executive Committee member

2001-2009 Ad Hoc Member, NIH study sections (>12 times including ALY, F04A, F04B, F32,
and SBCA study sections)

2009- Member, Scientific Advisory Board, Molecular Express, Inc.

2008- Chair, Scientific Advisory Board, Phylogica Ltd.

2004 U.C. Irvine, School of Physical Sciences, Innovation Award

2004 U.C. Irvine, School of Physical Sciences, Award for Contributions to
Undergraduate Education

2002-2005 Arnold & Mabel Beckman Foundation Young Investigator

2001-2008 Faculty of 1000, Chemical Biology of the Cell Section

1997	Ruth Kirschstein National Research Service Award (post-doctoral fellowship, funding returned to NIH)
1993-1996	NIH Biochemistry Training Grant
1992	High Honors at undergraduate graduation
1992	Phi Beta Kappa
1992	American Institute of Chemists Award
1990-1992	Department of Chemistry Scholarship, U.C. Berkeley
1988-1992	Chancellor's Scholarship, U.C. Berkeley

Memberships

2002-	Institute for Genomics and Bioinformatics, U.C. Irvine
2001-	Faculty of 1000, Chemical Biology of the Cell Section
2000-	Chao Family Comprehensive Cancer Center, U.C., Irvine
2000-	Center for Viral Research, University of California, Irvine
1993-	American Chemical Society
1989-	American Association for the Advancement of Science

U.C. Irvine Publications (*Corresponding Author)

46. Diaz, J.E., Lin, C.-S., Kunishiro, K., Feld, B.K., Avrantinis, S.K., Bronson, J., Greaves, J., Saven, J.G., Weiss, G.A.* (2009). Computational design, selections, and screens for an engineered terpene synthase. Submitted.

45. Overstreet, C.M., Levin, A.M., Kong, C., Coroneus, J.G., **Weiss, G.A.*** (2009). Harnessing a self-made phage library (SMPL). Submitted

44. Lamboy, J.A., Arter, J.A., Knopp, K.A., Der, D., Overstreet, C.M., Palermo, E., Urakami, H., Yu, T.-B., Tezgel, O., Tew, G.N., Guan, Z., Kuroda, K., **Weiss, G.A.*** (2009). Phage wrapping with cationic polymers eliminates non-specific binding between M13 phage and high pI target proteins. *J. Amer. Chem. Soc.* In press.

43. Lamboy, J.A., Tam, P.Y., Lee, L.S., Jackson, P.J., Avrantinis, S.K., Lee, H.J., Corn, R.M., **Weiss, G.A.*** (2008). Chemical and genetic wrappers for improved phage and RNA display. *ChemBioChem*. **9**: 2846-2852. Featured on the journal cover.

42. Majumdar, S., Hajduczki, A., Mendez, A.S., **Weiss, G.A.*** (2008). Phage display of functional, full-length human and viral membrane proteins. *Bioorg. Med. Chem. Lett.* **8**: 5937-5940.

41. Yang, L.-M., Diaz, J.J., McIntire, T., **Weiss, G.A.***, Penner, R.M.* (2008). Direct electrical transduction of antibody binding to a covalent virus layer using electrochemical impedance. *Anal. Chem.* **80**: 5695-5705. Accelerated article.

40. Goldsmith, B., Coroneus, J.G., Lamboy, J.A., Kane, A.A., Collins, P.G.*, **Weiss, G.A.*** (2008). Mechanism-guided improvements to the single molecule oxidation of carbon nanotube sidewalls. *ChemPhysChem*. **9**: 1053-1056.

39. **Weiss, G.A.***, Penner, R.M.* (2008). The promise of phage display for analytical chemistry: bioaffinity sensing of almost anything and everything. *Anal. Chem.* **80**: 3082-3089.

38. Goldsmith, B., Coroneus, J.G., **Weiss, G.A.**, Collins, P.G.* (2008). Scaffolding carbon nanotubes into single-molecules circuitry. *J. Mater. Res.* **1018**: 1018-EE08-07.

37. Goldsmith, B.R., Coroneus, J.G., Kane, A.A., **Weiss, G.A.**, Collins, P.G.* (2008). Monitoring single molecule reactivity on a carbon nanotube. *Nano Lett.* **8**: 189-194.
36. Yang, L.-M.C., Diaz, J.E., McIntire, T.M., **Weiss, G.A.***, Penner, R.M.* (2008). Covalent virus layers for mass-based detection. *Anal. Chem.* **80**: 933-943.
35. Diaz, J.E., Yang, L.-M.C., Lamboy, J.A., Penner, R.M.* , **Weiss, G.A.*** (2008). Synthesis of a virus electrode for measurement of prostate specific membrane antigen. *Methods Mol. Biol.* **504**: 255-274.
34. **Weiss, G.A.*** (2007). Editorial Overview: Exploring the Milky Way of molecular diversity. *Curr. Opin. Chem. Biol.* **11**: 241-243.
33. Levin, A.M., Murase, K., Jackson, P.J., Poulos, T.L., **Weiss, G.A.*** (2007). Double barrel shotgun scanning of the caveolin-1 scaffolding domain. *ACS Chem. Biol.* **2**: 493-500. Featured on the journal cover.
32. Goldsmith, B., Coroneus, J.G., Khalap, V.R., Kane, A.A., **Weiss, G.A.**, Collins, P.G.* (2007). Conductance-controlled point functionalization of single-walled carbon nanotubes. *Science.* **315**: 77-81.
31. Yang, L.-M.C., Tam, P.Y., Murray, B.J., McIntire, T.M., Overstreet, C.M., **Weiss, G.A.***, Penner, R.M.* (2006). Virus electrodes for universal biodetection. *Anal. Chem.* **78**: 3265-3270. Featured on the journal cover.
30. Levin, A.M., Coroneus, J.G., Cocco, M.J., **Weiss, G.A.*** (2006). Exploring the interaction between the protein kinase A catalytic subunit and caveolin-1 scaffolding domain with shotgun scanning, oligomer complementation, NMR, and docking. *Prot. Science.* **15**: 478-486.
29. Feld, B.K., **Weiss, G.A.*** (2006). Convenient methods for the syntheses of P^1 -farnesyl- P^2 -indicator diphosphates. *Bioorg. Med. Chem. Lett.* **16**: 1665-1667.
28. Morrison, K.L., **Weiss, G.A.*** (2006). The origins of chemical biology. *Nat. Chem. Biol.* **2**: 3-6.
27. Levin, A.M., **Weiss, G.A.*** (2006). Optimizing the affinity and specificity of proteins with molecular display. *Mol. BioSyst.* **2**: 49-57. Invited review.
26. Olszewski, A., **Weiss, G.A.*** (2005). Library versus library recognition and inhibition of the HIV-1 Nef allele. *J. Am. Chem. Soc.* **127**: 12178-12179.
25. Wassman, C.D., Tam, P.Y., Lathrop, R.H., **Weiss, G.A.*** (2004). Predicting oligonucleotide mutagenesis failures in protein engineering. *Nucleic Acids Res.* **32**: 6407-6413.
24. Olszewski, A., Sato, K., Aron, Z.D., Cohen, F., Harris, A., McDougall, B.R., Robinson, Jr., W.E., Overman, L.E., **Weiss, G.A.*** (2004). Guanidine alkaloid analogs as inhibitors of HIV-1 Nef interactions with p53, actin and p56^{lck}. *Proc. Natl. Acad. Sci. USA.* **101**: 14079-14084.
23. Simon, M.D., Sato, K., **Weiss, G.A.**, Shokat, K.M. (2004). A phage display selection of mutant engrailed homeodomain mutants and the importance of residue Q50. *Nucleic Acids Res.* **32**: 3623-3631.

22. Sato, K, Simon, M.D., Levin, A.M., Shokat, K.M., **Weiss, G.A.*** (2004). Dissecting the engrailed homeodomain-DNA interaction by phage-displayed alanine shotgun scanning. *Chem. Biol.* **11**: 1017-1023. Selected for the journal cover and reviewed by Scot A. Wolfe (2004). *Chem. Biol.* **11**: 889-891.
21. Diaz, J.E., Howard, B.E., Neubauer, M.S., Olszewski, A., **Weiss, G.A.*** (2003). Exploring biochemistry and cellular biology with protein libraries. *Curr. Issues Mol. Biol.* **5**: 129-146. Invited review.
20. **Weiss, G.A.***, Chamberlin, A.R.* (2003). Bridging the synthetic and biopolymer worlds with peptide-drug conjugates. *Chem. Biol.* **10**: 201-202. Invited review.
19. Murase, K., Morrison, K.L., Tam, P.Y., Stafford, R.L., Journak, F., **Weiss, G.A.*** (2003). EF-Tu binding peptides identified, dissected and affinity optimized by phage display. *Chem. Biol.* **10**: 161-168.
18. Sidhu, S.S.*, Feld, B.K., **Weiss, G.A.*** (2005). M13 bacteriophage coat proteins engineered for improved phage display. *Methods Mol. Biol.* **352**: 205-219.
17. Avrantinis, S.K., **Weiss, G.A.*** (2002). Chapter 14: Mapping protein functional epitopes. In *Phage Display in Biotechnology and Drug Discovery*, Taylor & Francis Group, LLC (Sidhu, S.S., ed.), 441-460. Invited review.
16. Avrantinis, S.K., Stafford, R., Tian, X., **Weiss, G.A.*** (2002). Dissecting the streptavidin-biotin interaction by phage-displayed shotgun scanning. *ChemBioChem* **3**: 1229-1234.
15. **Weiss, G.A.*** (2001). Leading the way: training future chemical biologists. *Chem. Innovation.* **31**: 3-4.
14. Morrison, K.L., **Weiss, G.A.*** (2001). Combinatorial alanine scanning. *Curr. Opin. Chem. Biol.* **5**: 302-307. Invited review.

Genentech Publications

13. Sidhu, S.S., **Weiss, G.A.** (2004). Oligonucleotide-directed construction of phage display libraries. In *Phage Display: A Practical Approach*, Oxford University Press (Lowman, H.L. & Clackson, T., eds.). pp. 27-41.
12. **Weiss, G.A.**, Roth, T.A., Baldi, P.F., Sidhu, S.S. (2003). Comprehensive mutagenesis of the C-terminal domain of the M13 gene-3 minor coat protein: the requirements for assembly into the bacteriophage particle. *J. Mol. Biol.* **332**: 777-782.
11. Roth, T.A., **Weiss, G.A.**, Eigenbrot, C., Sidhu, S.S. (2002). A minimized M13 coat protein defines the requirements for assembly into the bacteriophage particle. *J. Mol. Biol.* **322**: 357-367.
10. Sidhu, S.S., **Weiss, G.A.** (2002). DNA-encoded peptide libraries and drug discovery. In *Anticancer Drug Development*, Academic Press (Baguley, B. & Kerr, D., eds.), 237-248. Review.
9. **Weiss, G.A.**, Lowman, H.B. (2000). Anticalins versus antibodies: made-to-order binding proteins for small molecules. *Chem. Biol.* **7**: R177-R184. Review.

8. **Weiss, G.A.**, Watanabe, C.K., Goddard, A., Zhang, A., Sidhu, S.S. (2000). Rapid mapping of functional protein epitopes by combinatorial alanine-scanning. *Proc. Natl. Acad. Sci. USA*. **97**: 8950-8954.
7. **Weiss, G.A.**, Sidhu, S.S. (2000). Design and evolution of artificial M13 coat proteins. *J. Mol. Biol.* **300**: 213-219.
6. **Weiss, G.A.**, Sidhu, S.S., Wells, J.A. (2000). Mutational analysis of the major coat protein of M13 identifies residues that control protein display. *Protein Sci.* **9**: 647-654.
5. Sidhu, S.S., **Weiss, G.A.**, Wells, J.A. (2000). High copy display of large proteins on M13 phage for functional selections. *J. Mol. Biol.* **296**: 487-495.

Graduate and Undergraduate Publications

4. Evensen, E., Joseph-McCarthy, D., **Weiss, G.A.**, Schreiber, S.L. (2007). Ligand design by a combinatorial approach based on modeling and experiment: application to HLA-DR4. *J. Comput. Aided Mol. Des.* **21**: 395-418.
3. **Weiss, G.A.**, Valentekovich, R.J., Collins, E.J., Garboczi, D.N., Schreiber, S.L., Wiley, D.C. (1996). Covalent HLA-B27/peptide complex induced by specific recognition of an aziridine mimic of arginine. *Proc. Natl. Acad. Sci. USA* **93**: 10945-10948.
2. **Weiss, G.A.**, Collins, E.J., Garboczi, D.N., Wiley, D.C., Schreiber, S.L. (1995). A tricyclic ring system replaces the variable regions of peptides presented by three alleles of human MHC class I molecules. *Chem. Biol.* **2**: 401-407.
1. Karo, A.M., Deboni, T.M., Hardy, J.R., **Weiss, G.A.** (1990). Shock dynamics in the subnanometer femtosecond domain. *Int. J. Quant. Chem.* **S24**: 277-289.

Patents and Software Copyright

Weiss, G.A.*, Stafford, R.L., Tam, P.Y. (2003). Peptide ligands specific for anthrax lethal factor. U.S. provisional filed.

Sidhu, S.S. & **Weiss, G.A.** (2001). A combinatorial method for mapping functional protein domains by scanning phage display libraries with libraries of peptide variants. Application: WO 0144463 A1 20010621.

Sidhu, S.S. & **Weiss, G.A.** (2001). Improved transformation efficiency in phage display through modification of a coat protein. Application: PCT/US99/16596.

Sidhu, S.S., **Weiss, G.A.** & Wells, J.A. (2000). Improving the efficiency of phage display libraries by use of amino acid-substituted modification of the phage coat protein and electroporation with low-conductance DNA solutions. Application: WO 99-US16596 19990722.

Wiley, D.C., Schreiber, S.L., Valentekovich, R.J., **Weiss, G.A.** & Shambayati, S. (1996). Preparation of reactive peptide ligands and covalent peptide-ligand complexes. Application: WO 97-US17483 970930.

Bartlett, P.A., Lauri, G. & **Weiss, G.A.** (1992). Tricyclics for automated design (TRIAD). Software copyright, held by Regents of the University of California

FundingACTIVE

Principal Investigator	Dates of Proposed Project	Role
G.A. Weiss	8/1/06 to 7/31/11	PI

Source: NIH (1 R01 GM078528-01)	Total Direct Costs: \$891,000
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Title of Project (or Subproject)

Engineering Soluble Aggregation-Prone and Membrane-Bound Proteins

This proposal describes new approaches to expedite the structural genomics of challenging proteins.

ACTIVE

Co-Principal Investigator	Dates of Proposed Project	Role
G.A. Weiss	03/1/08 to 02/28/10	Co-PI

Source: NSF (CHE-0755547)	Total Direct Costs: \$231,690
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Title of Project (or Subproject)

REU Site: Chemistry Summer Undergraduate Research Fellowships (Chem-SURF)

This award supports a Research Experience for Undergraduates site designed to bring undergraduates from non-research universities to experience cutting edge chemical research to UC Irvine. The funding exclusively supports undergraduate education.

ACTIVE

Principal Investigator	Dates of Proposed Project	Role
G.A. Weiss	9/1/08 to 8/1/13	PI

Source: NIH, NCI (1 R01 CA133592-01)	Total Direct Costs: \$871,500
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Title of Project (or Subproject)

Single Molecule Enzymology with Carbon Nanocircuits

This project leverages advances in single molecule nanocircuits to investigate the kinetics and mechanisms of individual molecules, comparing wild-type and mutants.

ACTIVE

Co-Principal Investigator	Dates of Proposed Project	Role
G.A. Weiss (Fuji, PI)	08/1/08 to 07/31/09	PI

Source: NIH (1 R43 AI074163)	Total Direct Costs: ≈\$100,000
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Title of Project (or Subproject)

Development of Virus Electrodes for Fungal Pathogen Detection

This proposal describes new sensors for *Aspergillus* infection based upon covalent virus surfaces with phage-displayed binders to infection markers.ACTIVE

Principal Investigator	Dates of Proposed Project	Role
G.A. Weiss	8/1/08 to 7/31/09	PI

Source: NIH (1 S10 RR025588-01)	Total Direct Costs: \$500,000
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Title of Project (or Subproject)

Purchase of a MALDI TOF/TOF

This proposal will fund purchase of a multi-user MS instrument in the Department of Chemistry at UCI.

ACTIVE

Co-Investigator	Dates of Proposed Project	Role
G.A. Weiss	01/01/10 to 07/01/14	Co-I

Source: UC Multi-Campus Research Program	Total Direct Costs: Weiss: \$282,357
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Title of Project (or Subproject)

California Center for Antiviral Drug Discovery

In the Weiss laboratory, this award funds discovery of new anti-HIV compounds targeting HIV Vif.

PREVIOUS

Principal Investigator	Dates of Proposed Project	Role
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G.A. Weiss 9/1/06 to 2/28/09 Sole PI
 Source: California HIV/AIDS Research Program Total Direct Costs: \$100,000
 (IDEA award, ID06-I-181)
 Title of Project (or Subproject)
 Dissection of HIV Nef by combinatorial mutagenesis
 This project proposes to expand the anti-HIV arsenal through the development of inhibitors targeting HIV Nef.

PREVIOUS

Co-Investigator Dates of Proposed Project Role
 G.A. Weiss 12/1/06 to 08/30/08 Co-PI
 Source: NIH (1R43CA11955-01) Total Direct Costs: Weiss: \$105,021
 Title of Project (or Subproject)
 Selection and Characterization of PSMA Ligands from Phage-Displayed Libraries
 This proposal applies phage-displayed combinatorial libraries to target a prostate cancer specific marker with anti-cancer therapies and diagnostic imaging agents.

PREVIOUS

Co-Principal Investigator Dates of Project Role
 G.A. Weiss 05/01/04 to 08/31/08 Co-PI
 Source: NSF (EF-0404057) Total Direct Costs: Weiss: ≈\$300,000
 Title of Project (or Subproject)
 Direct Electronic Sensing of Biomolecular Activity and Signaling
 This proposal describes electronic architectures for molecular sensing based on carbon nanotube nanoelectronic devices.

PREVIOUS

Co-Principal Investigator Dates of Project Role
 G.A. Weiss 6/15/04 to 12/14/06 Co-PI
 Source: NIH (1R43AI058365-01) Total Direct Costs: Weiss: ≈\$215,000
 Title of Project (or Subproject)
 Vaccinia Proteome Reagents from Phage Display
 This proposal describes plans to identify receptors with high affinity and specificity for every protein in the vaccinia proteome.

PREVIOUS

Principal Investigator Dates of Project Role
 G.A. Weiss 12/1/05 to 11/30/06 Sole PI
 Source: Pacific Southwest Regional Center of Excellence for Biodefense (NIAID, NIH) Total Direct Costs: \$25,000
 Title of Project (or Subproject)
 Molecular Evolution of Viruses for Biodefense Sensors
 This project aims to develop ultra-sensitive devices for the detection of biodefense agents including botulinum toxin.

PREVIOUS

Principal Investigator Dates of Project Role
 G.A. Weiss 6/1/04 to 5/30/06 Sole-PI
 Source: ACS Petroleum Research Fund Type G Total Direct Costs: \$35,000
 Title of Project (or Subproject)
 Library Approaches to Exploring Terpene Cyclase Enzyme Mechanisms
 The overarching aim of this proposal is to decipher how terpene cyclase enzymes accomplish complex organic synthesis.

PREVIOUS

Principal Investigator	Dates of Project	Role
G.A. Weiss	9/1/02 to 8/31/05	Sole-PI
Source: Arnold and Mabel Beckman Foundation	Total Direct Costs: \$240,000	
Young Investigator Award (BF-30212)		
Title of Project (or Subproject)		
Molecular Recognition by Libraries of HIV Nef and Streptavidin		
This proposal funds research to dissect molecular recognition between canonically strong and weak receptor-ligand interactions, streptavidin-biotin and Nef-CD4, respectively.		

PREVIOUS

Principal Investigator	Dates of Project	Role
G.A. Weiss	8/3/04 to 8/2/05	Sole-PI
Source: UCI School of Physical Sciences	Total Direct Costs: \$20,000	
Innovation Fund		
Title of Project (or Subproject)		
Targeting Ovarian and Prostate Cancer Markers with Phage-Displayed Libraries		
This proposal funds identification of ligands to cancer-specific markers.		

PREVIOUS

Principal Investigator	Dates of Project	Role
G.A. Weiss	05/01/03 to 05/02/04	Sole-PI
Source: Camille & Henry Dreyfus Foundation	Total Direct Costs: \$27,500	
Special grant program in the Chemical Sciences		
Title of Project (or Subproject)		
Equipment for Undergraduate Chemical Biology Laboratory		
This proposal funds acquisition of equipment for an upper division, undergraduate laboratory for students to learn cutting edge experimental techniques in chemical biology.		

PREVIOUS

Principal Investigator	Dates of Project	Role
G.A. Weiss	07/01/00 to 06/30/04	Sole-PI
Source: UCI School of Physical Sciences	Total Direct Costs: \$550,000	
Title of Project (or Subproject)		
Start-up Funding		
Start-up funds have been used to construct phage display libraries, hire students and post-docs and purchase equipment.		

PREVIOUS

Principal Investigator	Dates of Project	Role
G.A. Weiss	07/01/01 to 06/30/02	Sole-PI
Source: U.C. Cancer Research Coordinating Committee	Total Direct Costs: \$50,000	
Title of Project (or Subproject)		
Ovarian Cancer Binding by Phage-Displayed Peptides		
This project investigated using phage-displayed peptides to recognize and potentially diagnose ovarian cancer.		

Invited Seminars

- 100. Wake Forest University – Winston-Salem, North Carolina, December 3, 2009
- 99. University of Arizona – Tucson, AZ, October 30, 2009
- 98. Leibniz-Institut für Molekular Pharmakologie im Forshungsverbund – Berlin, Germany, October 12, 2009.
- 97. Cambridge Healthtech Institute Phage Display Conference – Hannover, Germany, October 6, 2009
- 96. New York University – New York City, NY, September 25, 2009

95. Albert Einstein College of Medicine – New York City, NY, May 19, 2009
94. Physical Optics Corporation – Torrance, CA, May 8, 2009
93. U.C. Irvine Strategic Partners for the Evaluation of Cancer Signatures Symposium – Laguna Beach, CA, January 16, 2009
92. U.C. Irvine LifeChips International Symposium – Irvine, CA, January 9-10, 2009
91. The Telethon Institute for Children's Research – Perth, Australia, November 26, 2008
90. Phylogica – Perth, Australia, November 24, 2008
89. Genentech – South San Francisco, CA, September 23, 2008
88. CODA Genomics – Laguna Hills, CA, August 7, 2008
87. IBC Beyond Antibodies Conference – La Jolla, CA, July 28, 2008
86. Dow-Corning – Midland, MI, July 17, 2008
85. Lawrence Berkeley National Laboratory – Berkeley, CA, July 15, 2008
84. U.C. Irvine LifeChips Workshop on Cancer, Stem Cells, and Micro/nanotechnology – Irvine, CA, May 30, 2008
83. U.C. Irvine Campuswide Symposium on Basic Cancer Research – Irvine, CA, May 3, 2008
82. Cambridge Healthtech Institute Phage Display Conference – Cambridge, MA, April 28, 2008
81. U.C. Irvine, Department of Pathology – Irvine, CA, March 21, 2008
80. Lund University – Lund, Sweden, March 16, 2008
79. Saddleback College – Mission Viejo, CA, March 7, 2008: Distinguished Guest Lecture
78. Materials Research Society Symposium MM: Biomolecular and Biologically Inspired Interfaces and Assemblies – Boston, MA, November 26-30, 2007
77. U.C. San Diego – La Jolla, CA, November 5, 2007
76. Georgia State University – Atlanta, GA, September 21, 2007
75. Lawrence Livermore National Laboratory – Livermore, CA, March 5, 2007
74. California State University, Fullerton – Fullerton, CA, February 28, 2007
73. NANOWorld, Loyola Marymount University – Los Angeles, CA, January 24, 2007
72. AvidBiotics – San Francisco, CA, December 19, 2006
71. UCLA – Los Angeles, CA, December 6, 2006
70. University of California, Riverside – Riverside, CA, November 8, 2006
69. NSF Workshop in Physical Organic Chemistry – San Gabriel, CA, October 27-31, 2006
68. Université de Montréal – Montréal, Canada, October 13, 2006
67. San Diego State University – San Diego, CA, October 6, 2006
66. University of Maryland – Rockville, Maryland, June 5, 2006
65. Cambridge Healthtech Institute Phage Display Conference – Cambridge, MA, April 24-26, 2006
64. Harvey Mudd College – Claremont, CA, March 22, 2006
63. Palm Springs Symposium on HIV/AIDS – Palm Springs, CA, March 2-4, 2006
62. The Scripps Research Institute – La Jolla, CA, December 12, 2005
61. University of Minnesota – Minneapolis, Minnesota, December 8, 2005
60. Harvard University – Cambridge, MA, November 7, 2005
59. University of Massachusetts Medical Center – Worcester, MA, November 4, 2005
58. U.C. Irvine, Department of Chemistry – Irvine, CA, October 26, 2005
57. Santa Clara University – Santa Clara, CA, October 7, 2005
56. Michigan State University – East Lansing, MI, September 7, 2005
55. Purdue University – Lafayette, IN, September 6, 2005
54. Arnold & Mabel Beckman Foundation Young Investigator Symposium – Irvine, CA, August 27, 2005
53. U.S. Food and Drug Administration – Irvine, CA, June 22, 2005
52. Gordon Research Conference (Bioorganic Chemistry) – Proctor, NH, June 16, 2005
51. Tufts University – Medford, MA, May 19, 2005
50. Cornell University – Ithaca, NY, May 18, 2005
49. Stanford University – Stanford, CA, March 30, 2005
48. American Chemical Society National Meeting – San Diego, CA, March 13, 2005

47. University of Illinois at Urbana-Champaign – Urbana-Champaign, IL, March 3, 2005
46. University of Wisconsin, Madison – Madison, WI, March 1, 2005
45. University of Illinois at Chicago – Chicago, IL, February 28, 2005
44. Caltech – Pasadena, CA, February 2, 2005
43. University of Pittsburgh – Pittsburgh, PA, January 7, 2005
42. Memorial Sloan Kettering Institute – New York City, NY, December 14, 2004
41. Columbia University – New York City, NY, December 10, 2004
40. Target-Based Compound Libraries Conference – San Diego, CA, December 6-8, 2004
39. Celera Genomics – South San Francisco, CA, December 2, 2004
38. U.C. San Francisco – San Francisco, CA, November 17, 2004
37. Genentech, Inc. – South San Francisco, CA, November 16, 2004
36. U.C. Irvine, Department of Physiology and Biophysics – Irvine, CA, September 13, 2004
35. University of Delaware – Newark, DE, September 8, 2004
34. Johns Hopkins University – Baltimore, MD, September 7, 2004
33. Gordon Research Conference (Combinatorial Chemistry) – Oxford, UK, August 22-26, 2004
32. U.C. Santa Cruz – Santa Cruz, CA, May 10, 2004
31. U.C. Irvine, Department of Cell and Developmental Biology – Irvine, CA, April 15, 2004
30. American Chemical Society National Meeting – Anaheim, CA, March 28, 2004
29. Pennsylvania State University – State College, PA, December 16, 2003
28. University of Pennsylvania – Philadelphia, PA, December 15, 2003
27. University of California, Irvine, Department of Chemistry – Irvine, CA, November 19, 2003
26. Iowa State University – Ames, IA, November 4, 2003
25. Pioneer Hi-Bred / DuPont – Ames, IA, November 3, 2003
24. University of California, Irvine, Department of Microbiology – Irvine, CA, October 16, 2003
23. California State University, Fullerton – Fullerton, CA, October 10, 2003
22. American Chemical Society National Meeting – New York City, NY, September 8, 2003
21. University of California at San Diego – San Diego, CA, June 9, 2003
20. University of Rochester – Rochester, NY, June 2, 2003
19. Dyax Corp. – Cambridge, MA, May 14, 2003
18. Lawrence Livermore National Laboratory – Livermore, CA, February 4, 2003
17. Xenon Genetics – Vancouver, Canada, January 20, 2003
16. Understanding Phage Display 2003 – Vancouver, Canada, January 17-20, 2003
15. University of California, Irvine, Institute of Genomics and Bioinformatics – Irvine, CA, September 24, 2002
14. University of California, Irvine, Department of Molecular Biology and Biochemistry – Irvine, CA, June 21, 2002
13. Phage Display: The Chemistry Set for Proteins – Cambridge, MA, April 22-23, 2002
12. University of Maryland, Baltimore County – Baltimore, MD, March 5, 2002
11. Viruses: the environment and cancer – Monterey, Mexico, November 8-10, 2001
10. Synthesis and Structure of Biological Macromolecules Symposium – Irvine, CA, September 22, 2001
9. IBM, Industry Solutions Laboratory – White Plains, NY, September 11, 2001
8. Children's Hospital Los Angeles, University of Southern California – L.A., CA, August 6, 2001
7. Hitachi Chemical Research – Irvine, CA, July 20, 2001
6. Nanogen – La Jolla, CA, May 11, 2001
5. California State University Long Beach – Long Beach, CA, April 25, 2001
4. Phage Display Technologies Conference – Cambridge, MA, April 9, 2001
3. University of California, Irvine – Irvine, CA, November 7, 2000
2. Chao Family Cancer Center Retreat – Oxnard, CA, October, 2000
1. University of California, Irvine – Irvine, CA, October 11, 2000

Teaching Experience

Chemistry 51A,B,C, & LC: *Introduction to Organic Chemistry* (2001, 2005-09) – The sophomore organic chemistry series emphasizes mechanistic organic chemistry as a tool both to manipulate and understand our surroundings.

Chemistry 128: *Introduction to Chemical Biology* (2003-09) – Using the tools of arrow pushing and mechanistic organic chemistry, this upper division course surveys the chemical basis for life, ranging from the Central Paradigm of Molecular Biology to viruses. The course introduces students to cutting-edge concepts in chemical biology, and concludes with an assignment to devise an original research proposal.

Chemistry 128L: *Chemical Biology Laboratory* (2002-03) – Devised when no examples of chemical biology lab courses were offered, this course was designed to introduce upper-division undergraduates to key laboratory skills in chemical biology. The experiments, adapted for undergraduate pedagogy, emphasize discovery, and draw from a wide variety of techniques in chemical biology – including combinatorial synthesis, phage display, and toxicity assays.

Chemistry 219: *Graduate Chemical Biology* (2002-03) – This course, which was initiated and developed by GAW, surveys current topics at the forefront of chemical biology, including mechanistic enzymology, post-translational modification reactions, protein engineering and chemical genetics. The course concludes with an assignment to write a research proposal.

Chemistry 220: *Graduate Bioorganic Chemistry* (2000-03) – This course examines the mechanism of action for a broad range of cytotoxic agents.

Significant Departmental Service

Member, Graduate Admissions and Recruiting Committee (2000-present)
 Chair, Chemical Biology faculty search committee (2008-2009)
 Chair, Undergraduate and TA Awards Committee (2006-present)
 Chair, Sophomore Organic Chemistry Steering Committee (2008-present)
 Member, Space Planning Committee (2008-present)
 Member, Advanced Laboratory Issues Committee (2007-present)
 Chair, Organic Chemistry Seminars Committee (2001-02, 2004-05)
 Member, Parallel Synthesis Facility Oversight Committee (2004-05)
 Member, EKC Lee Fellowship and Distinguished Lectureship Committee (2002-03)

Significant University Service

Member, Executive Committee of the University of California Biotechnology Research Education Program (2006-09)
 Member, Council on Undergraduate Admissions and Relations with Schools (2008-2011)
 Faculty Advisor, UC Irvine Chemistry House (2000-06)
 Member, Workgroup on UC Irvine Graduate Student Residential Life (2005)
 Member, UC Irvine DNA and Protein Sequencing Oversight Committee (2003-05)

Significant Service to the Scientific Community

Co-Chair, 2009 Indian-American Frontiers of Science Symposium Organizing Committee, sponsored by the US National Academy of Sciences and the Kavli Foundation.

Grant reviewer to the NIH (2001, 2003, 2004-08) – Ad hoc member of 10 study section meetings including ALY, F04A, F04B, F32, S10, and SBCA.

Member, Science Foundation of Ireland – Biochemistry study section (2007-2008)

Reviewer of grant proposals submitted to the NSF, the ACS Petroleum Research Foundation, the Science Foundation of Ireland, the Research Corporation, the US Civilian Research and Development Foundation, the Swiss NSF, and the Marsden Foundation.

Reviewer of papers submitted for publication (2000-present) – Includes peer review for *Analytical Chemistry*; *Archives in Biochemistry and Biophysics*; *Angewandte Chemie*; *Biochemica Biophysica Acta*; *Biochemistry*; *Biotechniques*; *Biotechnology and Bioengineering*; *BMC Biotechnology*; *ChemBioChem*; *Chemical Reviews*; *Chemistry & Biology*; *FEBS Letters*;

Journal of the American Chemical Society; Journal of Organic Chemistry; Journal of Virology; Organic & Biomolecular Chemistry; Nature; Nature Biotechnology; Nucleic Acids Research; Proceedings of the National Academy of Sciences, USA; Protein Engineering, Design and Selection; Protein Science; Proteins; Vaccine.

Chair and Organizer of conferences and sessions at conferences – American Chemical Society National Meeting – New York City, NY, September 8, 2003; Gordon Research Conference in Bioorganic Chemistry – Proctor, NH, June 18, 2003; Cambridge Healthtech Institute Molecular Display Conference – Cambridge, MA, 2003-08; National Academy of Sciences Indo-US Kavli Frontiers in Science Symposium – Irvine, CA, January 18-20, 2007 and Agra, India, March 1-4, 2009 (Co-Chair, Organizing Committee).

Consulting

Coda Genomics (2006-present; pro bono unpaid)
Dow-Corning (2008-present; paid)
Molecular Express (2004-present; Member, Scientific Advisory Board; pro bono unpaid)
Phylogica, Ltd. (2007-present; Chair, Scientific Advisory Board; paid)
Physical Optics Corporation (2009-present; paid)
Pacific Marine Mammal Center (2008; pro bono unpaid)
Immport Therapeutics (2003-2006; pro bono, unpaid)

Significant Community Service

Ask-A-Scientist-Night Participant (various)
UCI COSMOS Guest Lecturer (2001)
UCI AGEP and UC LEADS Speaker (2003)
UCI Academy for Lifelong Learning lecturer (2004)
McFadden Intermediate School Career Day speaker (2005)
Media contact (various)
Panelist, Intelligent Design Forum (May 10, 2006)