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Curriculum Vitae
Floyd Eric Romesberg

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Research Interests

The Romesberg group is pursuing four projects that are focused on using multidisciplinary approaches to understand evolution.

1) Developing unnatural base pairs with which to expand the genetic alphabet and thereby increase the chemical and functional potential of DNA and RNA and generate semi-synthetic organisms with increased potential for the storage and retrieval of genetic information.
2) The directed evolution of DNA polymerases with novel activities.
3) Using principles of evolution, as well as conventional synthetic and medicinal chemistry approaches, to identify and develop novel broad-spectrum antibiotics.
4) Developing tools that allow for the application of steady-state and time-resolved UV/vis and IR spectroscopy to understand how proteins are evolved for biological function.

Education

Description	*Date*	*Location*	*Advisor*
Postdoctoral Research	1994–1998	UC Berkeley, Berkeley, CA	Professor Peter G. Schultz
Ph.D. in Chemistry	1994	Cornell University, Ithaca, NY	Professor David B. Collum
M.S. in Chemistry	1990	Cornell University, Ithaca, NY	Professor David B. Collum
B.S. in Chemistry	1988	Ohio State University, Columbus, OH	Professor Matthew S. Platz

Appointments

2014 – present	Professor, Department of Chemistry, The Scripps Research Institute
2006 – 2014	Associate Professor, Department of Chemistry, The Scripps Research Institute
1998 – 2006	Assistant Professor, Department of Chemistry, The Scripps Research Institute

Professional Experience

2014 – present	Synthorx Inc., La Jolla, CA (Scientific Founder, Consultant, SAB member)
2010 – 2013	RQx Pharmaceuticals, Inc., La Jolla, CA (Scientific Founder, Consultant, SAB member); Acquired by Genentech in 2013
2005 – 2011	Achaogen Inc., South San Francisco, CA (Scientific Founder, Consultant, SAB member); NASDAQ: AKAO

Honors

2015	ACS Nobel Laureate Signature Award for Graduate Education in Chemistry
2008 – 2009	Member, Institute for Defense Analysis, Defense Science Study Group
2005	World Technology Award Nominee in Biotechnology

2004	Discover Magazine Technology Innovation Award
2004	NSF CAREER Award
2003	Camille Dreyfus Teacher Scholar Award
2003	Susan B. Komen Breast Cancer Foundation Award
2002	The Baxter Foundation Award
1994 –1996	NIH National Research Service Award Postdoctoral Fellowship
1987	The Mac Nevin Award

Publications: Principal Investigator, Primary Research Articles

1. AW Feldman, **FE Romesberg** (2017) In vivo structure-activity relationships and optimization of an unnatural base pair for replication in a semi-synthetic organism, *J Am Chem Soc* 139:11427-11433
2. T Chen, **FE Romesberg** (2017) Polymerase chain transcription: exponential synthesis of RNA and modified RNA, *J Am Chem Soc* 139:9949-9954
3. SE Morris, AW Feldman, **FE Romesberg** (2017) Synthetic biology parts for the storage of increased genetic information in cells, *ACS Synth Biol*, published online June 27
4. R Adhikary, YX Tan, J Liu, J Zimmermann, M Holcomb, C Yvellez, PE Dawson, **FE Romesberg** (2017) Conformational heterogeneity ad DNA recognition by the morphogen bicoid, *Biochemistry* 56:2787-2793
5. D Thirunavukarasu, T Chen, Z Liu, N Hongdilokkul, **FE Romesberg** (2017) Selection of 2'-fluoro-modified aptamers with optimized properties, *J Am Chem Soc (Comm)* 139:2892-2895
6. AW Feldman, VT Dien, **FE Romesberg** (2017) Chemical stabilization of unnatural nucleotide triphosphates for the in vivo expansion of the genetic alphabet, *J Am Chem Soc* 139:2464-2647
7. Y Zhang, BM Lamb, AW Feldman, AX Zhou, T Lavergne, L Li, **FE Romesberg** (2017) A semisynthetic organism engineered for the stable expansion of the genetic alphabet, *Proc Natl Acad Sci USA* 114:1317-1322
8. R Adhikary, J Zimmermann, **FE Romesberg** (2017) Transparent window vibrational probes for the characterization of proteins with high structural and temporal resolution, *Chem Rev* 117:1927-1969
9. T Chen, N Hongdilokkul, Z Liu, D Thirunavukarasu, **FE Romesberg** (2016) The expanding world of DNA and RNA, *Curr Op Chem Biol* 34:80-87
10. T Chen, N Hongdilokkul, Z Liu, R Adhikary, SS Tsuen, **FE Romesberg** (2016) Evolution of thermophilic DNA polymerases for the recognition and amplification of C2'-modified DNA, *Nat Chem* 8:556-562
11. T Lavergne, R Lamichhane, DA Malyshev, Z Li, L Li, E Sperling, JR Williamson, DP Millar, **FE Romesberg** (2016) FRET characterization of complex conformational changes in a large 16S ribosomal RNA fragment site-specifically labeled using unnatural base pairs, *ACS Chem Biol* 11:1347-1353
12. R Adhikary, J Zimmermann, PE Dawson, **FE Romesberg** (2015) The temperature dependence of CN and SCN IR absorptions facilitates their interpretation and use as probes of proteins, *Anal. Chem.* 87:11561-11567 PMID: 26523838
13. A Craney, MM Dix, R Adhikary, BF Cravatt, **FE Romesberg** (2015) An alternative terminal step of the general secretory pathway in Staphylococcus aureus, *mBio.* 6:e01178-15. PMID: 26286693
14. DB Steed, J Liu, E Wasbrough, L Miller, S Halasohoris, J Miller, B Somerville, JR Hershfield, **FE Romesberg** (2015) Origins of Y. pestis sensitivity to the arylomycin antibiotics and the inhibition of type I signal peptidase, *Antimicrob. Agents Chemother.* 59:3887-3898. PMID: 25896690
15. A Craney, **FE Romesberg** (2015) A putative Cro-like repressor contributes to arylomycin resistance in Staphylococcus aureus, *Antimicrob. Agents Chemother.* 59:3066-3074. PMID: 25753642
16. RA Adhikary, W Yu, M Oda, T Chen, R Walker, R Stanfield, I Wilson, J Zimmermann, **FE Romesberg** (2015) Adaptive mutations alter antibody structure and dynamics during affinity maturation, *Biochemistry* 54:2085-2093. PMID: 25756188
17. RA Rodriguez, DB Steed, Y Kawamata, S Su, PA Smith, TC Steed, **FE Romesberg**, PS Baran (2014)

Axinellamines as broad-spectrum antibacterial agents: scalable synthesis and biology, *J Am Chem Soc* 136:15403-15413. PMID: 25328977

18. R Adhikary, J Zimmermann, J Liu, RP Forrest, TD Janicki, PE Dawson, SA Corcelli, **FE Romesberg** (2014) Evidence of an unusual N–H···N hydrogen bond in proteins, *J Am Chem Soc* 136:13474-13477. PMID: 25226114.
19. K Dhami, DA Malyshev, P Ordoukhanian, T Kubelka, M Hocek, **FE Romesberg** (2014) Systematic exploration of a class of hydrophobic unnatural base pairs yields multiple new candidates for the expansion of the genetic alphabet, *Nucleic Acids Res* 42:10235–10244. PMID: 25122747.
20. DA Malyshev, K Dhami, T Lavergne, T Chen, N Dai, JM Foster, IR Corrêa, **FE Romesberg** (2014) A semi-synthetic organism with an expanded genetic alphabet, *Nature* 509:385-388. [featured on the cover] PMID: 24805238
21. R Adhikary, J Zimmermann, PE Dawson, **FE Romesberg** (2014) IR probes of protein microenvironments: utility and potential for perturbation, *Chemphyschem* 15:849-853. PMID: 24519759.
22. L Li, M Degardin, T Lavergne, DA Malyshev, K Dhami, P Ordoukhanian, **FE Romesberg** (2014) Natural-like replication of an unnatural base pair for the expansion of the genetic alphabet and biotechnology applications, *J Am Chem Soc* 136:826-829 [cover story]. PMID: 24152106
23. K Betz, DA Malyshev, T Lavergne, W Welte, K Diederichs, **FE Romesberg**, A Marx (2013) Structural insights into DNA replication without hydrogen bonds, *J Am Chem Soc* 135:18637-18643. PMID: 24283923
24. J Liu, PA Smith, DB Steed, **FE Romesberg** (2013) Efforts toward broadening the spectrum of arylomycin antibiotic activity, *Bioorg Med Chem Lett* 23:5654-5659. PMID: 24012184
25. Z Li, T Lavergne, DA Malyshev, J Zimmermann, R Adhikary, K Dhami, P Ordoukhanian, Z Sun, J Xiang, **FE Romesberg** (2013) Site-specifically arraying small molecules or proteins on DNA using an expanded genetic alphabet, *Chem Eur J* 19:14205-14209. PMID: 24026962
26. R Adhikary, J Zimmermann, J Liu, PE Dawson, **FE Romesberg** (2013) Experimental characterization of electrostatic and conformational heterogeneity in an SH3 domain, *J Phys Chem B* 117:13082-13089. PMID: 23834285
27. T Lavergne, M Degardin, DA Malyshev, HT Quach, K Dhami, P Ordoukhanian, **FE Romesberg** (2013) Expanding the scope of replicable unnatural DNA: stepwise optimization of a predominantly hydrophobic base pair, *J Am Chem Soc* 135:5408-5419. PMID: 23547847
28. D Quinto-Alemany, A Canerina-Amaro, LG Hernandez-Abad, F Machin, **FE Romesberg**, C Gil-Lamaignere (2012) Yeasts acquire resistance secondary to antifungal drug treatment by adaptive mutagenesis, *PLoS One*, 7:e42279. PMID: 22860105
29. DA Malyshev, K Dhami, HT Quach, T Lavergne, P Ordoukhanian, A Torkamani, **FE Romesberg** (2012) Efficient and sequence-independent replication of DNA containing a third base pair establishes a functional six letter genetic alphabet, *Proc Natl Acad Sci USA*, 109:12005-12010. PMID: 22773812
30. PA Smith, **FE Romesberg** (2012) Mechanism of action of the arylomycin antibiotics and the effects of signal peptidase I inhibition *Antimicrob Agents Chemother*, 56:5054-5060. PMID: 22802255
31. R Adhikary, W Yu, M Oda, J Zimmermann, **FE Romesberg** (2012) Protein dynamics and the diversity of an antibody response, *J Biol Chem* 287:27139-27147. PMID: 22685303
32. K Betz, DA Malyshev, T Lavergne, W Welte, K Diederichs, TJ Dwyer, P Ordoukahanian, **FE Romesberg**, A Marx (2012) KlenTaq polymerase replicates unnatural base pairs by inducing a Watson-Crick geometry, *Nat Chem Biol,* 8:612-614. PMID: 22660438
33. W Yu, PE Dawson, J Zimmermann, **FE Romesberg** (2012) Carbon-deuterium bonds as probes of protein thermal unfolding, *J Phys Chem B*, 116:6397-6403. PMID: 22625650
34. MA Schallenberger, S Niessen, C Shao, B J Fowler, **FE Romesberg** (2012) Type I signal peptidase and protein secretion in *Staphylococcus aureus, J Bacteriol* 194:2677-2686. PMID: 22447899
35. T Lavergne, DA Malyshev, **FE Romesberg** (2012) Major groove substituents and polymerase recognition of a class of unnatural base pairs, *Chem Eur J* 18: 1231-1239. PMID: 22190386
36. YJ Seo, DA Malyshev, T Lavergne, P Ordoukhanian, **FE Romesberg** (2011) Site-specific labeling of

DNA and RNA using an efficiently replicated and transcribed class of unnatural base pairs, *J Am Chem Soc* 133: 19878-19888. PMID: 21981600

37. J Liu, C Luo, PA Smith, JK Chin, MGP Page, M Paetzel, **FE Romesberg** (2011) Synthesis and characterization of the arylomycin lipoglycopeptide antibiotics and the crystallographic analysis of their complex with signal peptidase, *J Am Chem Soc* 133: 17869-17872. PMID: 21999324
38. KC Nicolaou, SP Ellery, F Rivas, K Saye, E Rogers, TJ Workinger, M Schallenberger, R Tawatao, A Montero, A Hessell, **F Romesberg**, D Carson, D Burton (2011) Synthesis and biological evaluation of 2',4'- and 3',4'- bridged nucleoside analogues, *Bioor Med Chem* 19: 5648-5669. PMID: 21840722
39. J Zimmermann, MC Thielges, YJ Seo, PE Dawson, **FE Romesberg** (2011) Cyano groups as probes of protein microenvironments and dynamics, *Angew Chem Int Ed* 50: 8333-8337. PMID: 21780257
40. TC Roberts, M Schallenberger, J Liu, PA Smith, **FE Romesberg** (2011) Initial efforts toward the optimization of arylomycins for antibiotic activity, *J Med Chem* 54: 4954-4963. PMID: 21630667
41. TC Roberts, PA Smith, **FE Romesberg**, (2011) Synthesis and Biological characterization of arylomycin B natural product antibiotics, *J Nat Prod* 74: 956-961. PMID: 21545107
42. J Zimmermann, MC Thielges, W Yu, PE Dawson, **FE Romesberg** (2011) Carbon-deuterium bonds as site-specific and non-perturbative probes for time-resolved studies of protein dynamics and folding, *J Phys Chem Lett* 2:412-416. DOI: 10.1021/jz200012h
43. PA Smith, ME Powers, TC Roberts, **FE Romesberg** (2011) *In vitro* activities of arylomycin natural-product antibiotics against *Staphylococcus epidermidis* and other coagulase-negative Staphylococci, *Antimicrob Agents Chemother* 55:1130-1134. PMID: 21189343
44. ME Powers, PA Smith, TC Roberts, BJ Fowler, CC King, SA Trauger, G Siuzdak, **FE Romesberg** (2011) Type I signal peptidase and protein secretion in *S epidermidis, J Bacteriol* 193: 340-3. PMID: 21075926
45. PA Smith, T R Roberts, **FE Romesberg** (2010) Broad spectrum antibiotic activity of the arylomycin natural products is masked by natural target mutations, *Chem Biol* 17:1223-1231. PMID: 21095572
46. MA Schallenberger, T Newhouse, PS Baran, **FE Romesberg** (2010) The psychotrimine natural products have antibacterial activity against Gram-positive bacteria and act via membrane disruption, *J Antibiot (Tokyo)* 63:685-687. PMID: 20924383
47. DA Malyshev, DA Pfaff, SI Ippoliti, GT Hwang, TJ Dwyer, **FE Romesberg** (2010) Solution structure, mechanism of replication, and optimization of an unnatural base pair, *Chem Eur J* 16:12650-12659. PMID: 20859962
48. B Li, P Smith, DJ Horvath, Jr, **FE Romesberg**, SS Justice (2010) SOS regulatory elements are essential for UPEC pathogenesis, *Microbes Infect* 12:662-668. PMID: 20435157
49. AM Leconte, MP Patel, LE Sass, P McInerney, M Jarosz, L Kung, J L Bowers, PR Buzby, JW Efcavitch, **FE Romesberg** (2010) Directed evolution of DNA polymerases for next-generation sequencing, *Angew Chem Int Ed Engl* 49:5921-5924. PMID: 20629059
50. D Chen, L Lei, C Lu, R Flores, MP DeLisa, TC Roberts, **FE Romesberg**, G Zhong (2010) Secretion of the chlamydial virulence factor CPAF requires the Sec-dependent pathway, *Microbiology* 156:3031-3040. PMID: 20522495
51. J Zimmermann, **FE Romesberg**, CL Brooks, 3rd, IF Thorpe (2010) Molecular description of flexibility in an antibody combining site, *J Phys Chem B* 114:7359-7370. PMID: 20455589
52. P Weinkam, J Zimmermann, **FE Romesberg**, PG Wolynes (2010) The folding energy landscape and free energy excitations of cytochrome *c*, *Acc Chem Res* 43:652-660. PMID: 20143816
53. D Malyshev, YJ Seo, P Ordoukhanian, **FE Romesberg** (2009) PCR with an expanded genetic alphabet, *J Am Chem Soc* 131:14620-14621. PMID: 19788296
54. YJ Seo, **FE Romesberg** (2009) Major groove derivatization of an unnatural base pair, *ChemBioChem* 10:2394-2400 [cover story]. PMID: 19722235
55. G T Hwang, Y Hari, **FE Romesberg** (2009) The effects of unnatural base pairs and mispairs on DNA duplex stability and solvation *Nucleic Acids Res* 37:4757-4763. PMID: 19515938
56. J Zimmermann, K Gundogdu, ME Cremeens, JN Bandaria, GT Hwang, MC Thielges, CM Cheatum, **FE Romesberg** (2009) Efforts toward developing probes of protein dynamics: vibrational dephasing and relaxation of carbon-deuterium stretching modes in deuterated leucine *J Phys Chem B* 113:7991-

7994. PMID: 19441845
57. DA Harris, M E Powers, **FE Romesberg** (2009) Synthesis and biological evaluation of penem inhibitors of bacterial signal peptidase *Bioorg Med Chem Lett* 19:3787-3790. PMID: 19427205
58. ME Cremeens, J Zimmermann, W Yu, PE Dawson, **FE Romesberg** (2009) Direct observation of structural heterogeneity in a β-sheet, *J Am Chem Soc* 131:5726-5727. PMID: 19351132
59. MC Thielges, J Zimmermann, **FE Romesberg** (2009) Direct observation of ligand dynamics in cytochrome *c, J Am Chem Soc* 131:6054-6055. PMID: 19361220
60. YJ Seo, S Matsuda, **FE Romesberg** (2009) Transcription of an expanded genetic alphabet, *J Am Chem Soc* 131:5046-5047. PMID: 19351201
61. MC Thielges, J Zimmermann, PE Dawson, **FE Romesberg** (2009) The determinants of stability and folding in evolutionarily diverged cytochromes *c*, *J Mol Biol* 24:159-167. PMID: 19268474
62. D Groff, MC Thielges, S Celliti, PG Schultz, **FE Romesberg** (2009) Efforts toward the direct experimental characterization of enzyme microenvironments: tyrosine 100 in dihydrofolate reductase, *Angew Chem, Int, Ed* 48:3478-3481. PMID: 19347910
63. P Weinkam, **FE Romesberg**, PG Wolynes (2009) Chemical frustration in the protein folding landscape: grand canonical ensemble simulations of cytochrome *c*, *Biochemistry*, 48:2394-2402. PMID: 19199810
64. SRG Naraharisetty, VM Kasyanenko, J Zimmermann, MC Thielges, **FE Romesberg**, IV Rubtsov (2009) C-D Modes of deuterated side chain of leucine as structural reporters via dual-frequency two-dimensional infrared spectroscopy, *J Phys Chem B* 113:4940-4946. PMID: 19298041
65. YJ Seo, G T Hwang, P Ordoukhanian, **FE Romesberg** (2009) Optimization of an unnatural base pair towards natural-like replication, *J Am Chem Soc* 131:3246-3252. PMID: 19256568
66. P Weinkam, J Zimmermann, LB Sagle, S Matsuda, PE Dawson, PG Wolynes, **FE Romesberg** (2008) Characterization of alkaline transitions in ferricytochrome *c* using carbon-deuterium infrared probes, *Biochemistry 47*:13470-13480. PMID: 19035653
67. Y Hari, GT Hwang, AM Leconte, N Joubert, M Hocek, **FE Romesberg** (2008) Optimization of the pyridyl nucleobase scaffold for polymerase recognition and unnatural base pair replication, *ChemBioChem* 9:2796-2799. PMID: 19012285
68. GT Hwang, **FE Romesberg** (2008) The unnatural substrate repertoire of A, B, and X family DNA polymerases, *J Am Chem Soc* 130:14872-14882. PMID: 18847263
69. MC Thielges, J Zimmermann, W Yu, M Oda, **FE Romesberg** (2008) Exploring the energy landscape of antibody-antigen complexes: protein dynamics, flexibility, and molecular recognition, *Biochemistry* 47:7237-7247 [Hot Article]. PMID: 18549243
70. MC Thielges, DA Case, **FE Romesberg** (2008) Carbon-deuterium bonds as probes of dihydrofolate reductase, *J Am Chem Soc* 130:6597-6603. PMID: 18412341
71. ET Lis, BM O'Neill, C Gil-Lemaignere, JK Chin, **FE Romesberg** (2008) Identification of pathways controlling DNA damage induced mutation in *Saccharomyces cerevisiae, DNA Repair* 7:801-810. PMID: 18400565
72. AM Leconte, GT Hwang, S Matsuda, P Capek, Y Hari, **FE Romesberg** (2008) Discovery, characterization, and optimization of an unnatural base pair for expansion of the genetic alphabet, *J Am Chem Soc* 130:2336-2343. PMID: 18217762
73. TC Roberts, PA Smith, **FE Romesberg** (2007) Structural and initial biological analysis of synthetic arylomycin A_2, *J Am Chem Soc* 129:15830-15838. PMID: 18052061
74. GT Hwang, AM Leconte, **FE Romesberg** (2007) Polymerase recognition and stability of fluoro substituted pyridone nucleobase analogs, *ChemBioChem* 8:1606-1611. PMID: 17647205
75. S Matsuda, JD Fillo, AA Henry, P Rai, SJ Wilkens, TJ Dwyer, BH Geierstanger, DE Wemmer, PG Schultz, G Spraggon, **FE Romesberg** (2007) Efforts toward expansion of the genetic alphabet: structure and replication of unnatural base pairs, *J Am Chem Soc* 129:10466-10473. PMID: 17685517
76. MF Goodman, MD Scharrf, **FE Romesberg** (2007) AID-initiated purposeful mutations in immunoglobulin genes, *Adv Immunol* 94:127-155. PMID: 17560274
77. BM O'Neill, SJ Szyjka, ET Lis, AO Bailey, JR Yates, III, OM Aparicio, **FE Romesberg** (2007) Psy2 and Pph3 form a phosphatase complex required for Rad53 dephosphorylation and replication form

restart during recovery from DNA damage, *Proc Natl Acad Sci USA* 104:9290-9295. PMID: 17517611
78. S Matsuda, AM Leconte, **FE Romesberg** (2007) Minor groove hydrogen-bonds and the replication of unnatural base pairs, *J Am Chem Soc* 129:5551-5557. PMID: 17411040
79. RT Cirz, MB Jones, NA Gingles, TD Minogue, B Jarrahi, SN Peterson, **FE Romesberg** (2007) The complete and SOS-mediated response of *Staphylococcus aureus* to the antibiotic ciprofloxacin, *J Bacteriol* 189:531-519. PMID: 17085555
80. Y Kim, AM Leconte, Y Hari, **FE Romesberg** (2006) Stability and polymerase recognition of pyridine nucleobase analogues: role of minor-groove H-bond acceptors, *Angew Chem Int Ed* 45:7809-7912. PMID: 17075934
81. LB Sagle, J Zimmermann, PE Dawson, **FE Romesberg** (2006) Direct and high resolution characterization of cytochrome *c* equilibrium folding, *J Am Chem Soc* (Comm) 128:14232-14233. PMID: 17076477
82. CS Kinnaman, ME Cremeens, **FE Romesberg**, SA Corcelli (2006) Infrared line shape of an alpha-carbon deuterium-labeled amino acid, *J Am Chem Soc* (Comm) 128:13334-13335. PMID: 17031927
83. J Zimmermann, EL Oakman, IF Thorpe, X Shi, P Abbyad, CL Brooks, III, SG Boxer, **FE Romesberg** (2006) Antibody evolution constrains conformational heterogeneity by tailoring protein dynamics, *Proc Natl Acad Sci USA* 103:13722-13727. PMID: 16954202
84. AM Leconte, S Matsuda, GT Hwang, **FE Romesberg** (2006) Efforts toward expansion of the genetic alphabet: pyridone and methyl pyridone, *Angew Chem Int Engl* 45:4326-4329. PMID: 16733840
85. RT Cirz, BM O'Neill, JA Hammond, SR Head, **FE Romesberg** (2006) Defining the *Pseudomonas aeruginosa* SOS response and its role in the global response to the antibiotic ciprofloxacin, *J Bacteriol* 188:7101-7110. PMID: 17015649
86. ME Cremeens, H Fujisaki, Y Zhang, J Zimmermann, LB Sagle, S Matsuda, PE Dawson, JE Straub, **FE Romesberg** (2006) Efforts toward developing direct probes of protein dynamics, *J Am Chem Soc* (Comm) 128:6028-6029. 16669659
87. AM Leconte, S Matsuda, **FE Romesberg** (2006) An efficiently extended class of unnatural heterobase pairs, *J Am Chem Soc* (Comm) 128:6780-6781. PMID: 16719445
88. LB Sagle, J Zimmermann, S Matsuda, PE Dawson, **FE Romesberg** (2006) Redox-coupled dynamics and folding in cytochrome *c, J Am Chem Soc* 128:7909-7915. PMID: 16771505
89. E Lis and **FE Romesberg** (2006) The role of Doa1 in the *S. cerevisiae* DNA damage response, *Mol Cell Biol* 26:4122-4133. PMID: 16705165
90. JK Chin, VI Bashkirov, W-D Heyer, **FE Romesberg** (2006) Esc4 and the control of recombination during replication, *DNA Repair* 5:618-628. PMID: 16569515
91. S Matsuda, AA Henry, **FE Romesberg** (2006) Optimization of unnatural base pair packing for polymerase recognition, *J Am Chem Soc* 128:6369-6375. 16683801
92. GT Hwang and **FE Romesberg** (2006) Substituent effects on the pairing and polymerase recognition of simple unnatural base pairs, *Nucleic Acids Res* 34:2037-2045. PMID: 16617144
93. RT Cirz and **FE Romesberg** (2006) Induction and inhibition of ciprofloxacin resistance-conferring mutations in hypermutator bacteria, *Antimicrob Agents Chemother* 50:220-225. PMID: 16377689
94. F-Y Dupradeau, DA Case, C Yu, R Jimenez, **FE Romesberg** (2005) Differential solvation and tautomer stability of a model base pair within the major and minor grooves of DNA, *J Am Chem Soc* 127:15612-15617. PMID: 16262427
95. AM Leconte, L Chen, **FE Romesberg** (2005) Polymerase evolution: efforts toward expansion of the genetic code, *J Am Chem Soc* 127:12470-12471. PMID: 16144377
96. RT Cirz, JK Chin, DR Andes, V de Crécy-Lagard, WA Craig, **FE Romesberg** (2005) The molecular mechanism of mutation underlying the evolution of antibiotic resistance, *PLoS Biology* 3:e176. PMID: 15869329
97. BM O'Neill, D Hanway, EA Winzeler, **FE Romesberg** (2004) Coordinated functions of *WSS1*, *PSY2*, and *TOF1* in the DNA damage response, *Nucleic Acids Res* 32:6519-6530. PMID: 15598824
98. S Matsuda and **FE Romesberg** (2004) Optimization of interstrand hydrophobic packing interactions within unnatural DNA base pairs. *J Am Chem Soc* 126, 14419-14427. PMID: 15521761
99. AA Henry, R Jimenez, D Hanway, **FE Romesberg** (2004) Preliminary characterization of light

harvesting in *E coli* DNA photolyase, *ChemBioChem* 4:563-571. PMID: 15300832
100. AA Henry, AG Olsen, S Matsuda, C Yu, B Geierstanger, **FE Romesberg** (2004) Efforts to expand the genetic alphabet: identification of a stable and replicable unnatural DNA self pair, *J Am Chem Soc* 126:6923-6931. PMID: 15174862
101. R Jimenez, G Salazar, J Yin, T Joo, **FE Romesberg** (2004) Protein dynamics and the immunological evolution of molecular recognition, *Proc Natl Acad Sci USA*, 101:3803-3808. PMID: 15001706
102. LB Sagle, J Zimmermann, PE Dawson and **FE Romesberg** (2004) A high resolution probe of protein folding, *J Am Chem Soc* (Comm), 126:3384-3385. PMID: 15025440
103. M Fa, A Radeghieri, AA Henry, **FE Romesberg** (2004) Expanding the substrate repertoire of a DNA polymerase by directed evolution, *J Am Chem Soc*, 126:1748-1754. PMID: 14871106
104. AA Henry, C Yu and **FE Romesberg** (2003) Determinants of unnatural nucleobase stability and polymerase recognition, *J Am Chem Soc*, 125:9638-9346. PMID: 12904030
105. S Matsuda, AA Henry, PE Schultz, **FE Romesberg** (2003) The effect of minor groove hydrogen-bond acceptors and donors on the stability and replication of four unnatural base pairs, *J Am Chem Soc*, 125:6134-6138. PMID: 12785844
106. R Jimenez, G Salazar, KK Baldridge, **FE Romesberg** (2003) Flexibility and molecular recognition in the immune system, *Proc Natl Acad Sci,* 100:92-97. PMID: 12518056
107. H Wang, H Zhang, OK Abou-Zied, C Yu, **FE Romesberg**, M Glasbeek (2002) Femtosecond fluorescence upconversion studies of excited-state proton transfer dynamics in 2-(2'-hydroxyphenyl)benzoxazole (HBO) in liquid solution and DNA, *Chem Phys Lett* 367:599-608. DOI: 10.1016/S0009-2614(02)01741-4
108. Y Wu, M Fa, E L Tae, P G Schultz, **FE Romesberg** (2002) Enzymatic phosphorylation of unnatural nucleobases, *J Am Chem Soc* 124:14626-14630. PMID: 12465973
109. C Yu, AA Henry, P G Schultz, **FE Romesberg** (2002) Polymerase recognition of unnatural base pairs, *Angew Chem Int Ed* 41:3841-3944. PMID: 12386865
110. R Jimenez and **FE Romesberg** (2002) Excited state dynamics and heterogeneity of folded and unfolded states of cytochrome *c, J Phys Chem B* 106:9172-9180. DOI: 10.1021/jp0209648
111. D Hanway, JK Chin, G Xia, G Oshiro, EA Winzler, **FE Romesberg** (2002) Previously uncharacterized genes in the UV- and MMS-induced DNA damage response in yeast *Proc Natl Acad Sci USA*, 99:10605-10610. PMID: 12149442
112. G Xia, L J Chen, T Sera, M Fa, P G Schultz and **FE Romesberg** (2002) Directed evolution of novel polymerase activities: Mutation of a DNA polymerase into an efficient RNA polymerase *Proc Natl Acad Sci USA*, 99:6597-6602. PMID: 12011423
113. M Berger, S D Luzzi, AA Henr, **FE Romesberg** (2002) Stability and selectivity of unnatural DNA with five-membered-ring nucleobase analogs, *J Am Chem Soc* 124:1222-1226. PMID: 11841290
114. JK Chin, R Jimenez, **FE Romesberg** (2002) Protein dynamics and cytochrome *c*: correlations between ligand vibrations and redox activity, *J Am Chem Soc* (Comm) 124:1846-1847. PMID: 11866585
115. R Jimenez, DA Case, **FE Romesberg** (2002) Flexibility of an antibody binding site measured with photon echo spectroscopy, *J Phys Chem B* 106:1090-1103. DOI: 10.1021/jp013110g
116. OK Abou-Zied, R Jimenez, EK Thompson, DP Millar, **FE Romesberg** (2002) Solvent-dependent photoinduced tautomerization of 2-(2'hydroxyphenyl)benzoxazole, *J Phys Chem A*, 106:3665-3672. DOI: 10.1021/jp013915o
117. EL Tae, Y Wu, G Xia, PG Schultz, **FE Romesberg** (2001) Efforts toward expansion of the genetic alphabet: replication of DNA with three base pairs, *J Am Chem Soc* 12:7439-7440. PMID: 11472182
118. OK Abou-Zied, R Jimenez, **FE Romesberg** (2001) Tautomerization dynamics of a model base-pair in DNA, *J Am Chem Soc* 123:4613-4614. PMID: 11457253
119. JK Chin, R Jimenez, **FE Romesberg** (2001) Direct observation of protein vibrations by selective incorporation of spectroscopically observable carbon-deuterium bonds in cytochrome *c, J Am Chem Soc* (Comm), 123:2426-2427. PMID: 11456893
120. H Shulman, C Makarov, AK Ogawa, **FE Romesberg**, E Keinan (2000) Chemically reactive immunogens lead to functional convergence of the immune response, *J Am Chem Soc* 122:10743-10753. DOI: 10.1021/ja000616o

121. AK Ogawa, OK Abou-Zied, V Tsui, R Jimenez, DA Case and **FE Romesberg** (2000) A photo-tautomerizable model DNA base pair, *J Am Chem Soc* 122:9917-9920. DOI: 10.1021/ja001778n
122. A K Ogawa, Y Wu, M Berger, P G Schultz and **FE Romesberg** (2000) Rational design of an unnatural base pair with increased kinetic selectivity *J Am Chem So*c (Comm), 122:8803-8804. DOI: 10.1021/ja001450u
123. M Berger, Y Wu, AK Ogawa, DL McMinn, PG Schultz, **FE Romesberg** (2000) Universal bases for hybridization, replication, or chain termination, *Nucleic Acids Res* 28:2911-2914. PMID: 10908353
124. Y Wu, AK Ogawa, M Berger, DL McMinn, PG Schultz, **FE Romesberg** (2000) Efforts toward the expansion of the genetic alphabet: optimization of interbase hydrophobic interactions, *J Am Chem Soc* 122:7621-7632. DOI: 10.1021/ja0009931
125. M Berger, AK Ogawa, DL McMinn, PG Schultz, **FE Romesberg** (2000) Stable and selective hybridization of oligonucleotides using unnatural hydrophobic bases, *Angew Chem Int Ed* 39:2940-2942. PMID: 11028017
126. AK Ogawa, Y Wu, DL McMinn, J Liu, J-Q, PG Schultz, **FE Romesberg** (2000) Efforts toward the expansion of the genetic alphabet: information storage and replication with unnatural hydrophobic base pairs, *J Am Chem Soc* 12:3274-3287. DOI: 10.1021/ja9940064
127. E Meggers, PL Holland, WB Tolman, **FE Romesberg**, PG Schultz (2000) A novel copper-mediated DNA Base Pair, *J Am Chem Soc* (Comm) 122:10714-10715. DOI: 10.1021/ja0025806
128. DL McMinn, AK Ogawa, Y Wu, J Liu, PG Schultz, **FE Romesberg** (1999) Efforts toward expansion of the genetic alphabet: DNA polymerase recognition of a highly stable, self-pairing hydrophobic base, *J Am Chem Soc* (Comm) 121:11585-11586. DOI: 10.1021/ja9925150

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Publications: Principal Investigator, Invited Reviews.

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129. A Craney, **FE Romesberg** (2016) Discovery of novel antibacterials, *Bioorg Med Chem* 24:6225-6226
130. SI Walsh, A Craney, **FE Romesberg** (2016) Not just an antibiotic target: Exploring the role of type I signal peptidase in bacterial virulence, *Bioorg Med Chem* 24:6370-6378
131. T Chen, N Hongdilokkul, Z Liu, D Thirunavukarasu, **FE Romesberg** (2016) The Expanding World of DNA and RNA, *Curr Op Chem Biol* 34:80-87
132. A Craney, **FE Romesberg** (2015) The inhibition of type I bacterial signal peptidase: Biological consequences and therapeutic potential, *Bioorg. Med. Chem. Lett*. 25:4761-4766. PMID: 26276537
133. DA Malyshev, **FE Romesberg** (2015) An expanded genetic alphabet, *Chem Int. Ed.* 54:11930-11944. PMID: 26304162
134. T Chen and **FE Romesberg** (2014) Directed polymerase evolution, *FEBS Lett* 588:219-229. PMID: 24211837
135. J Zimmermann and **FE Romesberg** (2014) Carbon-deuterium bonds as non-perturbative infrared probes of protein dynamics, electrostatics, heterogeneity, and folding, *Methods Mol Biol* 1084:101-119. PMID: 24061918
136. DA Harris and **FE Romesberg** (2012) SpsB signal peptidase Handbook of Proteolytic Enzymes, vol 3, N Rawlings and G Salvesen, eds, Academic Press, 3502-3508.
137. Y X Tan and **FE Romesberg** (2012) Latent antibiotics and the potential of the arylomycins for broad-spectrum antibacterial activity, *Med Chem Comm* 3:916-925. DOI: 10.1039/C2MD20043K
138. J Zimmermann, MC Thielges, W Yu, **FE Romesberg** (2009) Protein dynamics and the evolution of novel protein functions Protein Engineering Handbook, vol 1, S Lutz and U T Bornscheuer, eds, Wiley-VCH: Weinheim, 147-186.
139. A M Leconte and **FE Romesberg** (2009) Engineering nucleobases and polymerases for an expanded genetic alphabet, Protein Engineering, C Köhrer and U L TajBhandary, eds, Springer-Berlag, 291-314.
140. A Mapp and **FE Romesberg** (2008) Editorial overview: Next generation therapeutics, *Curr Opin Chem Biol* 12:387-388. PMID: 18707019
141. J Heideker, ET Lis, **FE Romesberg** (2007) Phosphatases, DNA damage checkpoints and checkpoint deactivation, *Cell Cycle* 6:3058-3064. PMID: 18075314

142. PA Smith and **FE Romesberg** (2007) Combating bacteria and drug-resistance by inhibiting mechanisms of persistence and adaptation, *Nat Chem Biol* 3:549:556. PMID: 17710101
143. RT Cirz and **FE Romesberg** (2007) Opening the door for the intervention in evolution as a therapeutic strategy: controlling induced mutagenesis, *Crit Rev Biochem Mol Biol* 42:341-354. PMID: 17917871
144. H Bayley and **FE Romesberg** (2006) From therapeutic nucleic acids to redox hydrogels: the diverse world of biopolymers, *Curr Opin Chem Biol* 10:598-600. DOI: 10.1016/j.cbpa.2006.10.028
145. AM Leconte and **FE Romesberg** (2006) Chemical Biology: a broader take on DNA, *Nature* 444:553-555. PMID: 17136078
146. AM Leconte and **FE Romesberg** (2006) Amplify this! DNA and RNA get a third base pair, *Nat Methods* 3:667-668. PMID: 16929309
147. RT Cirz, N Gingles, **FE Romesberg** (2006) Side effects may include evolution, *Nat Med* 12:890-891. PMID: 16892033
148. AA Henry and **FE Romesberg** (2005) The evolution of DNA polymerases with novel activities, *Curr Opin Biotech* 16:370-377. PMID: 16006114
149. RC Holmberg, AA Henry, **FE Romesberg** (2005) Directed evolution of novel polymerases *Biomol Eng.* 22:39-49. PMID: 15857782
150. R L Schowen and **FE Romesberg** (2004) Isotope effects and quantum tunneling in enzyme-catalyzed hydrogen transfer Part I The experimental basis, *Adv Phy Org Chem* 39:27-77. DOI: 10.1016/S0065-3160(04)39002-7
151. AA Henry and **FE Romesberg** (2003) Beyond A, C, G & T: augmenting nature's alphabet, *Curr Opin Chem Biol* 7:727-733. PMID: 14644182
152. **FE Romesberg** (2003) Multidisciplinary Experimental approaches to characterizing biomolecular dynamics, *ChemBioChem* 4:563-571. PMID: 12851924
153. **FE Romesberg**, C Yu, S Matsuda, AA Henry (2002) UNIT 1.5 Development of a universal nucleobase and nucleobases for expanding the genetic code, *Curr Prot Nucleic Acid Chem* doi: 10.1002/0471142700.nc0105s10. PMID: 18428883

Publications: Postdoctoral work

154. **FE Romesberg** and PG Schultz (1999) A mutational study of a Diels-Alder catalytic antibody, *Bioorg Med Chem Lett* 9:1741-1744. PMID: 10406634
155. **FE Romesberg**, BD Santarsiero, B Spiller, PG Schultz, RC Stevens (1998) Structural and kinetic evidence for strain in biological catalysis, *Biochemistry* 37:14404-14409. PMID: 10406634
156. **FE Romesberg**, ME Flanagan, T Uno, PG Schultz (1998) Mechanistic studies of an antibody-catalyzed elimination reaction, *J Am Chem Soc* 120:5160-5167. DOI: 10.1021/ja9738992
157. **FE Romesberg**, BS Spiller, PG Schultz, RC Stevens (1998) Immunological origins of binding and catalysis in a Diels-Alderase antibody *Science*, 279:1929-1933. PMID: 9506942
158. ME Blackwood Jr, TS Rush III, **FE Romesberg**, PG Schultz and TG Spiro (1998) Alternative modes of substrate distortion in enzyme and antibody catalyzed ferrochelation reactions, *Biochemistry* 37:779-782. PMID: 9457047
159. RC Stevens, LC Hsieh-Wilson, BD Santarsiero, GJ Wedemayer, B Spiller, LH Wang, D Barnes, HD Ulrich, PA Patten, **FE Romesberg**, PG Schultz (1996) Structural studies of catalytic antibodies, *Isr J Chem* 36:121-132. DOI: 10.1002/ijch.199600018
160. D Ulrich, PL Yang, PA Patten, **FE Romesberg**, PG Schultz (1995) Expression studies of catalytic antibodies, *Proc Natl Acad Sci USA* 92:11907-11911. PMID: 8524873

Publications: Ph.D. work

161. F Remenar, BL Lucht, D Kruglyak, **FE Romesberg**, JH Gilchrist, DB Collum (1997) Lithium 2,2,6,6-tetramethylpiperidide and lithium 2,2,4,6,6-pentamethylpiperidide: Influence of TMEDA and related chelating ligands on the solution structures. Characterization of higher cyclic oligomers, cyclic dimers, open dimers, and monomers, *J Org Chem* 62:5748-5754. DOI: 10.1021/jo970520l

162. **FE Romesberg** and DB Collum (1995) Mechanism of lithium dialkylamide mediated deprotonations: An MNDO study of monomer and open dimer pathways, *J Am Chem Soc* 117:2166-2178. DOI: 10.1021/ja00113a006
163. **FE Romesberg** and DB Collum (1994) Lithium dialkylamide mixed aggregate formation: An NMR spectroscopic study of the influence of hexamethylphosphoramide (HMPA), *J Am Chem Soc* 116:9198-9202. DOI: 10.1021/ja00099a039
164. **FE Romesberg** and DB Collum (1994) Lithium dialkylamide mixed aggregate formation: An MNDO computational study of salt and solvent dependencies. *J Am Chem Soc* 116:9187-9197. DOI: 10.1021/ja00099a038
165. Sakuma, JH Gilchrist, **FE Romesberg**, CE Cajthaml, DB Collum (1993) Lithium bis(2-adamantyl)amide: Structure and reactivity of an extremely hindered lithium dialkylamide, *Tetrahedron Lett* 34:5213-5216. DOI: 10.1016/S0040-4039(00)73955-4
166. **FE Romesberg**, MP Bernstein, JH Gilchrist, DJ Fuller, AT Harrison, DB Collum (1993) Structure and reactivity of lithium hexamethyldisilazide in the presence of hexamethylphosphoramide. Spectroscopic and computational studies of monomers, dimers, and triple ions, *J Am Chem Soc* 115:3475-3483. DOI: 10.1021/ja00062a010
167. M P Berstein, **FE Romesberg**, D J Fuller, A T Harrison, DB Collum, Q-Y Liu, P G Willard (1992) Structure and reactivity of lithium diisopropylamide in the presence of *N*,*N*,*N'*,*N'*-tetramethylethylenediamine, *J Am Chem Soc* 114:5100-5110. DOI: 10.1021/ja00039a022
168. **FE Romesberg** and DB Collum (1992) Determination of the structures of solvated lithium dialkylamides by semiempirical (MNDO) methods comparison of theory and experiment, *J Am Chem Soc* 114:2112-2121. DOI: 10.1021/ja00032a027
169. **FE Romesberg**, JH Gilchrist, AT Harrison, DJ Fuller, DB Collum (1991) The structure of lithium tetramethylpiperdide and lithium diisopropylamide in the presence of hexamethylphosphoramide: Structure-dependent distribution of cyclic dimers, open dimers, ion triplets, and monomers, *J Am Chem Soc* 113:5751-575. DOI: 10.1021/ja00015a032
170. Y J Kim, M P Bernstein, A S Galiano-Roth, **FE Romesberg**, PG Willard, D J Fuller, A T Harrison, DB Collum (1991) On the structure and reactivity of lithium diisopropylamide in hydrocarbon solutions formation of unsolvated ketone, ester, and carboxamide enolates, *J Org Chem* 56:4435-4439. DOI: 10.1021/jo00014a019

Patents

1. **F. E. Romesberg**, Y. Zhang, E.C. Fischer, A.W. Feldman, V.T. Dien. Incorporation of Unnatural Nucleotides and Methods Thereof. Provisional Patent Application 62/531,325, 11 July 2017.
2. T. Chen, **F.E. Romesberg**. Polymerase Chain Transcription (PCT): Exponential Synthesis of RNA and Modified RNA. Provisional Patent Application 62/531,603, 12 July 2017.
3. **F.E. Romesberg**, Y. Zhang. Novel Nucleoside Triphosphate Transporter and Uses Thereof. PCT Patent Application US2017039133, 23 June 2017.
4. **F.E. Romesberg**, P. Baran, D. Peters. Synthesis of the Arylomycin Macrocyclic Core. PCT Patent Application US2017036797, 9 June 2017.
5. **F.E. Romesberg**, B. Lamb, Y. Zhang. Production of Unnatural Nucleotides Using a Crispr/CAS9 System. PCT Patent Application US2016067353, 16 December 2016.
6. **F.E. Romesberg**, A. Craney. Compositions and Methods for Identifying Type I Signal Peptidase Inhibitors. PCT Patent Application US2016045796, 5 August 2016.
7. **F.E. Romesberg**, D.A. Malyshev. Import of Unnatural or Modified Nucleoside Triphosphates into Cells via Nucleic Acid Triphosphate Transporters. Patent Application US2017029829 (A1), 2 February 2017.
8. **F.E. Romesberg**, D.A. Malyshev, L. Li, T. Lavergne, Z. Li. A Method for the Site-Specific Enzymatic Labelling of Nucleic Acids In Vitro by Incorporation of Unnatural Nucleotides. Patent Application

US20160168187 (A1), 16 June 2016.

9. **F.E. Romesberg**, P.A. Smith, T.C. Roberts. Broad Spectrum Antibiotic Arylomycin Analogs. U.S. Patent 9,187,524 (B2), 17 November 2015.
10. **F. E. Romesberg**, D.A. Bachovchin. Genomic Mutation Inhibitors that Inhibit Y Family DNA Polymerases. Patent Application US20100130439 (A1), 27 May 2010.
11. **F. E. Romesberg**, R.T. Cirz, P.A. Patten. Compositions and Methods for Enhancing Drug Sensitivity and Treating Drug Resistant Infections and Diseases. Patent Application US2006286574 (A1), 21 December 2006.
12. **F. E. Romesberg**, N. David, R.T. Cirz. Compositions and Methods to Reduce Mutagenesis. US Patent 7,455,840 (B2), 25 November 2008.

Invited Seminars

2017

- ChemBio Seminar Series, University of Southern California, Los Angeles, CA
- International Symposium of Bioorganic Chemistry, Konstanz, Germany
- CBI Annual Research Symposium, University of California, San Diego
- Chemical Biology Program Retreat, University of California, Davis
- San Diego State University, San Diego, CA
- BIO International Convention, San Diego, CA
- 15th Annual Genomics Forum, Vancouver, British Columbia
- World Molecular Engineering Meeting, Los Cabos, Mexico
- Frontiers in Chemical Biology, Henan Normal University, Xinxiang, China
- FNANO 17 Self-Assembled Architectures and Devices, Snowbird, UT
- Purdue University, West Lafayette, IN
- China Society of Biotechnology Young Scientist Forum II, South China University of Technology, Guangdong, China
- University of Miami, Miller School of Medicine, Miami, FL
- Department of Chemistry Colloquium, University of California, Riverside
- Scripps Florida External Seminar Series, Jupiter, FL
- Pathogenesis Affinity Group, Rancho Santa Fe, CA
- PepTalk The Protein Science Week, San Diego, CA

2016

- Nucleic Acid Workshop, Telluride Science Research Center, Telluride, CO
- XXII International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, Paris, France
- Medical University of Vienna, 12th PhD Symposium, Vienna, Austria
- XB2 The Second Conference on Xenobiology, Berline, Germany
- Princeton University, Chemistry Department Lecture Series, Princeton, NJ
- FNANO16 Foundations of Nanoscience, Snowbird, UT
- Antibody Biology & Engineering Gordon Research Conference, Galveston, TX
- UT Southwestern Medical Center, Dallas, TX
- Genome Engineering and Synthetic Biology Conference, Gent, Belgium
- Salk Institute IPSEN Science Symposium on Biological Complexity, La Jolla, CA

2015

- Pacifichem 2015, Honolulu, HI
- Cellular and Molecular Biotechnology Conference, Institut des Hautes Études Scientifiques, Paris, France
- BMB 2015 Biochemistry and Molecular Biology, Kobe, Japan
- TEDMED 2015, Palm Springs, CA
- Molecular Biology Program Retreat, University of Colorado, School of Medicine, Denver, CO
- Denison University, Chemistry Department Lecture Series, Granville, OH
- Chemical and Structural Biology and Biophysics RFG Seminar, The Ohio State University, Columbus, OH
- The Past, Present, and Future of DNA, Radcliffe Institute for Advanced Study, Harvard University, Cambridge, MA
- The Scripps Research Institute Graduate Student Symposium, Lake Arrowhead, CA
- Protein Dynamics 2015, Telluride Science Research Center, Telluride, CO
- Synthetic Biology Gordon Research Conference, Newry, ME

- CAS Conference Synthetic Biology, Munich, Germany
- Bioorganic Chemistry Gordon Research Conference, Andover, New Hampshire
- University of California, Chemical Biology and Biophysics Seminar, San Diego, CA
- Berkeley City College, Science Seminar Program, Berkeley, CA
- PEGS: The Protein and Antibody Engineering Summit, Boston, MA
- World Molecular Engineering Meeting, Los Cabos, Mexico
- University of Wisconsin, Microbiology Doctoral Training Program, Madison, WI
- 12th Annual Foundations of Nanoscience Conference, Snowbird, UT
- Boston College, Chemistry Seminar Series, Boston, MA
- Indiana University, Chemical Biology Seminar Series, Bloomington, IN
- 249th ACS National Meeting, Chemistry & Biology of Non-Natural Nucleic Acids Session, Denver, CO
- Carnegie Mellon University, Chemistry Department Lecture Series, Pittsburgh, PA
- Frontiers in Biomedical Research Symposium, Indian Wells, CA
- RNA Consortium Workshop, The Scripps Research Institute, La Jolla, CA
- 7th Annual Engineering Genes, Vectors, Constructs and Clones PepTalk 2015, San Diego, CA

2014

- Techonomy TE14, Half Moon Bay, CA
- New England Biolabs, Ipswich, MA
- Yale University, Organic Chemistry Seminar Series, New Haven, CT
- Colloquium Series, Origins Institute, McMaster University, Ontario, Canada
- University of Pennsylvania, Department of Biochemistry and Biophysics Seminar Series, Philadelphia, PA
- National Academies CSTL Forum on Synthetic Biology, Washington, D.C.
- Texas A&M University, College Station, TX
- 17th Annual San Diego Medchem Symposium, San Diego, CA
- GTCbio Nucleic Acids Summit, San Diego, CA
- Techonomy Bio, Mountain View, CA
- Plenary Speaker, XVIth Symposium on Chemistry of Nucleic Acid Components, Czech Republic
- North Dakota State Frontiers in Biomedical Research Symposium, Fargo, ND
- World Molecular Engineering Meeting, Los Cabos, Mexico
- SUNY Buffalo Department of Chemistry Foster Colloquium, Buffalo, NY
- 247th ACS National Meeting, Frontiers of Nucleic Acid Chemistry Session, Dallas, TX

2013

- Molecular Basis of Disease Area of Focus, George State University, Atlanta, GA
- University of Montréal, Québec
- 246th ACS National Meeting, Optical Spectroscopy of Proteins Session, Indianapolis, IN
- Georgia Tech College of Sciences, Atlanta, GA
- Biomolecular Interaction Technologies Center Symposium on Antibody Flexibility, Durham, NH
- Chemistry Biology Interface Training Grant Symposium, Univ. of Minnesota Dept. of Chemistry
- Claremont Colleges Keck Science Department, Chemistry Seminar Series, Claremont, CA
- Department of Chemistry Seminar, The Scripps Research Institute, Jupiter, FL
- 65th Fujihara Seminar and Symposium, Hokkaido, Japan
- Tsing Hua University, Hsinchu, Taiwan
- Institute of Chemistry Symposium, Academia Sinica, Taipei, Taiwan
- Department of Chemistry Colloquium, University of Chicago
- World Molecular Engineering Meeting, Los Cabos, Mexico
- PEGS: The Protein and Antibody Engineering Summit, Boston, MA
- California State University - Long Beach, Chemistry and Biochemistry Seminar Series

2012

- 244th American Chemical Society National Meeting and Exposition, Philadelphia, PA
- World Molecular Engineering Meeting, Los Cabos, Mexico
- Georgia Institute of Technology, Atlanta, GA
- 243rd American Chemical Society National Meeting and Exposition, San Diego, CA

2011

- McMaster University Biochemistry and Biomedical Sciences Seminar Series, Ontario, Canada
- University of Maryland, Baltimore County Chemistry-Biology Interface Program, Baltimore, MD
- Society for Industrial Microbiology Annual Meeting, New Orleans, LA
- Gordon Research Conference on Tuberculosis Drug Development, Lucca, Italy
- 22nd American Peptide Society Symposium, San Diego, CA
- Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai, China
- Shanghai Institute of Meteria Medica, Chinese Academy of Sciences, Shanghai, China

- Chemical and Structural Biology of Nucleic Acids and Proteins for Novel Drug Discovery, Beijing, China
- CLIO Proposers Day Workshop, DARPA

2010

- University of Victoria Lecture Series, Victoria, BC
- Lectures in Modern Chemistry Series, University of British Columbia, Vancouver, BC
- Simon Fraser University Lecture Series, Vancouver, BC
- Nucleic Acid Chemistry Workshop, Telluride, CO
- Center for Workshops in the Chemical Sciences: Nucleic Acids Workshop, Atlanta, GA
- Evolving DNA Polymerases: Chemistry Meets Biology, Ascona, Switzerland
- World Molecular Engineering Meeting, Los Cabos, Mexico
- Johns Hopkins Chemistry-Biology Interface Program, Baltimore, MD
- Highs in Chemistry and Biology Conference, Dead Sea, Israel

2009

- Wayne State University Lecture Series, Detroit, MI
- Michigan State University Lecture Series, East Lansing, MI
- 3éme Cycle Lecture Tour in Chemistry, Switzerland
- Functional Nucleic Acids Conference, Regensburg, Germany
- Gordon Research Conference on Proteins, Holderness, NH
- New York University, New York, New York
- Society for General Microbiology, Hastings, England
- Case Western Reserve University, Cleveland, OH

2008

- Mesilla Chemistry Workshop, Mesilla, New Mexico
- 43rd Congress of the Mexican Chemical Society, Tijuana, Mexico
- Workshop on Evolution in Health and Disease, Oeiras, Portugal
- 236th American Chemistry Society National Meeting, Philadelphia, PA
- Mutagenesis Gordon Conference, Oxford, UK
- Broad Institute, Cambridge, MA
- Reuben H. Fleet Science Center, San Diego, CA

2007

- Nucleic Acids Gordon Conference, Salve Regina University
- UCSD Medical Center, San Diego, CA
- San Diego State University, San Diego, CA
- 223rd American Chemical Society National Meeting, Chicago, IL
- American Society of Biochemistry and Molecular Biology 2007 Annual Meeting, Washington DC

2006

- Frontiers in Biological Chemistry Session, 20th Annual Symposium of the Protein Society, San Diego, CA
- Second International Symposium on Biomolecular Chemistry, Kobe, Japan
- Osaka Prefecture University, Osaka, Japan
- Beckman Symposium on Evolution, Palo Alto, CA
- Sixth Osaka University Forum, San Diego, CA
- Department of Biological Sciences, University of Southern California
- Department of Chemistry, University of Utah
- Department of Pharmacology and Molecular Sciences, Johns Hopkins University
- Gordon Research Conference on Chemistry and Biology of Peptides, Ventura, CA

2005

- Symposium on Chemically Modified DNA: Synthesis, Photochemistry, and Applications, Pacifichem, Honolulu, HI
- 17th Annual Frontiers of Science Symposium of the National Academy of Sciences, Frontiers in Synthetic Chemistry and Biology Session, Irvine, CA
- Ambassador Speaker, Gordon Research Conference on Epigenetics, Plymouth, NH
- Plenary Speaker, 32nd Symposium on Nucleic Acids Chemistry, Fukuoka, Japan
- Plenary/Novartis Speaker, XIIIth Symposium on the Chemistry of Nucleic Acid Components, Prague, Czech Republic
- Institute of Organic Chemistry and Biochemistry, Academy of Science of the Czech Republic, Prague, Czech Republic
- Department of Chemistry, Uppsala University, Uppsala, Sweden
- Biomimetic Polymers symposium, 229th American Chemical Society National Meeting, San Diego, CA
- Gordon Research Conference on Nucleosides, Nucleotides and Oligonucleotides, Newport, RI
- Telluride Science Research Center Workshop on Vibrational Dynamics of Biological Molecules, Telluride, CO
- Department of Defense Era of Hope Conference, Philadelphia, PA
- Instituto Tecnologico de Tijuana, Tijuana, Mexico
- BioAgenda2005, Palm Springs, CA

2004
- Department of Pharmaceutical Chemistry, University of California, San Francisco, CA
- Department of Chemistry, University of Iowa, Iowa City, IA
- Department of Chemistry, University of Texas, Dallas, TX
- Department of Chemistry & Biology, University of Maryland, College Park, MD
- Department of Chemistry, Emory University, Atlanta, GA
- Department of Chemistry & Chemical Engineering, California Institute of Technology, Pasadena, CA
- Department of Biochemistry, Tufts University, Boston, MA
- Department of Chemistry, Ohio State University, Columbus, OH
- Department of Chemistry & Biochemistry, Denison University, Granville, OH
- Department of Chemistry & Biochemistry, University of Colorado, Boulder, CO
- Department of Chemistry, Michigan State University, Ann Arbor, MI
- Department of Chemistry, Wayne State University, Detroit, MI
- Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA

2003
- International Symposium on Bio-Inspired Engineering, Tel Aviv, Israel
- Department of Chemistry, Stanford University, Stanford, CA
- Department of Chemistry & Biochemistry Physical Chemistry Lecture, University of California, San Diego, CA
- Department of Chemistry, University of Rochester, Rochester, NY
- Conference on Lasers and Electro Optics/Quantum Electronics & Laser Science Conference, Baltimore, MD
- Department of Chemistry, Cornell University, Ithaca, NY

2002
- Department of Biochemistry & Biophysics, Albert Einstein College of Medicine of Yeshiva University, Bronx, NY
- Department of Chemistry, Yale University, New Haven, CT
- Department of Chemistry, Bowdoin College, Brunswick, ME
- Archemix Corp., Cambridge, MA
- Reaction Mechanisms Conference, Bartlett Session, Columbus, OH

2001
- Gordon Research Conference on Bioorganic Chemistry, Andover, NH
- New Frontiers in Chemical Biology, Seoul National University, Seoul, Korea
- Biomolecular Engineering Research Institute, Osaka, Japan
- Department of Chemistry, Pohang University of Science and Technology, Pohang, Korea

2000
- Department of Chemistry, University of Southern California, Los Angeles, CA
- Department of Chemistry, University of California, Irvine, C

1999
- International Conference on Phosphorus Chemistry, Cincinnati, OH

1995
- Gordon Research Conference on Isotopes in the Biological and Chemical Sciences, Oxnard, CA

1994
- Department of Chemistry, Yale University, New Haven, CT
- Department of Chemistry, Columbia University, Columbia, NY
- Department of Chemistry, University of Rochester, Rochester, NY
- Department of Chemistry, University of Wisconsin, Madison, WI
- Department of Chemistry, Ohio State University, Columbus, OH
- Department of Chemistry, University of Colorado, Boulder, CO

Professional Service

Academic Activities at The Scripps Research Institute

Teaching:
- 2000–2010, Physical Organic Chemistry, Chemistry Program (1/2 quarter each year)
- 2001–present, Spectroscopy, Chemistry Program (full quarter each year)
- 2001–present, Enzymology, Macromolecular and Cellular Structure and Chemistry Program; Section on Enzyme kinetics, Biology Program (8 one hr lectures each year)
- 2003–present, Enzymology, Macromolecular and Cellular Structure and Chemistry Program; Section on DNA Replication, Biology Program (2 one hr lectures each year)
- 2011–present, Bacteria and Antibiotics, Chemistry Program (full quarter each year)

Committees:

- 2002–2010, Graduate Admissions
- 2003–present, Postdoctoral Issues
- 2009–present, WASC Scientific Communications
- 2000–present, Graduate thesis committees (>90 doctoral candidates)

Trainees, Graduate Students

Name	*Training Period*	*Previous Training*	*Current Position*
Rebekah Karadeema, M.S.	2016 -	Univ. of Central Florida	Romesberg Lab
Emil Fischer, M.S.	2016 -	Univ. of Copenhagen	Romesberg Lab
Matthew Holcomb, B.S.	2016-	Luther College	Romesberg Lab
Vivian Dien, B.S.	2015-	UC Berkeley	Romesberg Lab
Sydney Morris, B.S.	2015-	George Washington Univ.	Romesberg Lab
Shawn Walsh, B.S.	2015-	Emory University	Romesberg Lab
David Peters, B.S.	2015-	Univ. of San Diego	Romesberg Lab
Michael Ledbetter, B.S.	2014-	Univ. of Texas, Austin	Romesberg Lab
Yorke Zhang, B.S.	2014 -	Johns Hopkins Univ.	Romesberg Lab
Aaron Feldman, B.S.	2014 –	Connecticut College	Romesberg Lab
Danielle Barrios Steed, M.D, Ph.D.	2011 – 2015	Emory University	Medical Residency
Yun Xuan Tan, B.S.	2011 –	Univ. of Cambridge	Romesberg Lab
Denis Malyshev, Ph.D. Chemistry	2008 – 2013	Higher Chemical College RAS	Scientist, Synthorx Inc.
Mark Schallenberger, M.S. Chemistry	2008 – 2011	Univ. Montana	Proj. Manager, Bacterin
David Harris, Ph.D. Chemistry	2005 – 2012	Cornell Univ.	Technical Advisor, Oblon, Inc.
Wayne Yu, Ph.D. Chemistry	2005 – 2012	N. Lehman/Portland State Univ.	Scientist, Abzena
Peter Smith, Ph.D. Biology	2005 – 2011	A. Friedman/Purdue Univ.	Scientist, Genentech
Tucker Roberts, Ph.D. Chemistry	2005 – 2011	C. Nuckolls/Columbia Univ.	Scientist, Aduro Biotech
Aaron Leconte, Ph.D. Chemistry	2004 – 2009	D. Alberg/Carleton College	Asst. Prof., Claremont Colleges
Patrick Weinkam, Ph.D. UCSD Chemistry	2004 – 2009	UC Santa Barbara	A. Sali/UCSF
Megan Thielges, Ph.D. Biophysics	2004 – 2009	Arizona State Univ.	Asst. Prof., Indiana Univ.
Ewa Lis, Ph.D. Chemistry	2002 – 2007	T. Begley/Cornell Univ.	Scientist, Genomatica
Ryan Cirz, Ph.D. Biology	2002 – 2007	Penn State Univ.	Scientist, Achaogen
Erin Oakman (transfer)	2002 – 2005	A. Ellington/UT Austin	Ph.D. studies, NYU Neurosciences
Bryan O'Neill, Ph.D. Biology	2001 – 2007	T. Dwyer/Univ. San Diego	Scientist-Founder,Sapphire Energy
Laura Sagle, Ph.D. UCSD Chemistry	2001 – 2006	UC Santa Cruz	Asst. Prof., Univ. Cincinnati
Allison (Henry) Berger, Ph.D. Chemistry	1999 – 2005	Reed College	B. Koksch/Free Univ. Berlin

Trainees, Postdoctoral Students

Name	*Training Period*	*Previous Training*	*Current Position*
Deepak Thirunavukarasu, Ph.D.	2015- 2017	H. Shi/SUNY Albany	Scientist, Base Pair Biotechnologies
Chien-Hung Yeh, Ph.D.	2015-	Baran/TSRI	Romesberg Lab
Zhixia Liu, Ph.D.	2015-	X. Huang/UCSD	Romesberg Lab
Martin Tabor, Ph.D.	2015 - 2017	Shenvi / TSRI	Investigator, GlaxoSmithKline
Narupat Hongdilokkul, Ph.D.	2014 - 2016	Hilvert/ETH Zurich	Asst. Prof., Mahidol University
Takashi Ando, Ph.D.	2014 - 2015	Rebek, TSRI	Scientist, Kaneka Corp.
Brian Lamb, Ph.D.	2014 - 2016	C. Barbas/TSRI	Scientist, Vertex Pharma
Elie Diner, Ph.D.	2014 – 2016	R. Vance/UC Berkeley	Medical Writer, Arbor Scientia
Shujian Cun, Ph.D.	2013 - 2014	S. Hecht/Arizona State	???
Arryn Craney, Ph.D.	2012 – 2017	J Nodwell/McMaster Univ.	CM Fellow, Univ of Nebraska MC
Ana-Florina Voica, Ph.D.	2012 – 2013	P. Baran/TSRI	Scientist, Gilead
Melissa Degardin, Ph.D.	2012 – 2013	J. Rebek/TSRI	Postdoc, J.Fourier Univ.
Ramkrishna Adhikary, Ph.D.	2011 –	J. Petrich/Iowa State Univ.	Romesberg Lab
Tingjian Chen, Ph.D.	2011 –	Z. Lin/Tsinghua Univ.	Romesberg Lab
Lingjun Li, Ph.D.	2011 – 2012	Henan Normal Univ.	Assoc Prof, Henan Normal Univ.
Haoxing Wu, Ph.D.	2011 – 2012	Sichuan Univ.	Prof, Sichuan University
Changxia Shao, Ph.D.	2010 – 2012	W. Gao/Texas Tech	Project Manager, Merck
Zhengtao Li, Ph.D.	2010 – 2012	K.C. Nicolaou/TSRI	Scientist, Astrazeneca
Xin Sheng, Ph.D.	2010 – 2013	M. Newcomb/Univ. Ilinois	Scientist, Thermo Fisher

Thomas Lavernge, Ph.D.	2010 – 2012	J.J. Vasseur/Univ. Montpellier	CR2/CNRS, JFourier Univ.
Jian Liu, Ph.D.	2009 – 2014	X. She/Lanzhou Univ.	Assoc. Prof., Xiamen Univ.
Young Jun Seo, Ph.D.	2007 – 2010	B. Kim/Pohang Univ.	Prof., Chonbuk National Univ.
Allen Horhota, Ph.D.	2007 – 2009	L. McLaughlin/Boston Univ.	SrScientist, BIND Biosciences
Petr Capek, Ph.D.	2006 – 2009	M. Hocek/Charles Univ.	Prognosys Biosciences
Cristina Gil-Lemaignere, Ph.D.	2006 – 2007	B. Beutler/TSRI	Univ. Hosp. Ntra. Sra. Candelaria
Gil Tae Hwang, Ph.D.	2005 – 2009	B. Kim/Pohang Univ.	Asst.Prof., Kyungpook Natl. Univ.
Matthew Cremeens, Ph.D.	2003 – 2008	B. Carpenter/Cornell Univ.	Asst. Prof., Gonzaga Univ.
Jörg Zimmermann, Ph.D.	2003 – 2010	G. Fleming/UC Berkeley	Scientist, Romesberg lab
Rebecca Holmberg, Ph.D.	2003 – 2005	H. Thorpe/Univ. North Carolina	Scientist, Akonni Biosystems
Chengzhi Yu, Ph.D.	2001 – 2003	L. Hu/Rutgers Univ.	Group Leader, Celgene
Ming Fa, Ph.D.	2000 – 2003	T. Ny/Umeå Univ.	Director, Genetivision
Shigeo Matsuda, Ph.D.	1999 – 2007	H. Saito/Kyoto Univ.	Scientist, Alnylam
Osama Abou-Zied, Ph.D.	1999 – 2002	A. Zewail/Caltech	Assoc. Prof., Sultan Qaboos Univ.
Gang Xia, Ph.D.	1999 – 2002	M. Pickart/Johns Hopkins Univ.	Prof., East China Normal Univ.
Markus Berger, Ph.D.	1999 – 2002	J. Mulzer/Free Univ. Berlin	Scientist, Schering AG
Yiqin Wu, Ph.D.	1999 – 2001	M. Roberts/Boston College	Scientist, Quanticel
Eunju Lee Tae, Ph.D.	1999 – 2001	M. Platz/Ohio State Univ.	
Liangjing Chen, Ph.D.	1999 – 2001	M. Roberts/Boston College	Scientist, Ambion
Jodie Chin, Ph.D.	1999 – 2005	J. Klinman/UC Berkeley	Scientist, Romesberg lab
Mimi Roy, Ph.D.	1999 – 2000	M. Hecht/Princeton Univ.	Scientist, Surromed
Ralph Jimenez, Ph.D.	1998 – 2003	G. Fleming/Univ. Chicago	Asst. Prof., JILA/UC Boulder
Dustin McMinn, Ph.D.	1998 – 1999	M. Greenberg/Colorado State	Assoc. Dir., Onyx
Jianquan Liu, Ph.D.	1998 – 1999	J. Taylor/WUSTL	
Takashi Sera, Ph.D.	1998 – 1999	A. Wolffe/NIH	Assoc. Prof., Kyoto Univ.
Anthony Ogawa, Ph.D.	1998 – 2000	R. Armstrong/UCLA	Scientist, Merck

Trainees, Interns

Name	*Training Period*	*Program*	*Current Position*
Reta Behnam	Summer 2017	TSRI Educational Outreach	
Emily Zhang	Summer 2017	TSRI Educational Outreach	
Anne Xiaozhou Zhou, B.S.	Summer 2015	TSRI Educational Outreach	The Scripps Research Institute
Jose Santiago	Summer 2015	TSRI Educational Outreach	UC Santa Cruz
Amy Pai	Summer 2014	TSRI Educational Outreach	
Triet Pham	Summer 2013	TSRI Educational Outreach	
Carolyn Yvellez	Summer 2013	TSRI Educational Outreach	Univ. of Notre Dame
Henry Quach, B.S.	Summer 2012	Academic Intern Program	Vanderbilt Univ Med School
Jesus Ramos	Summer 2012	TSRI Educational Outreach	
Daniel Waizman	Summer 2011	TSRI Educational Outreach	
Kirandeep Dhami	2010 – 2012	UCSD Student Work Study	Res.Assoc., Synthorx
Henry Quach	Summer 2010	TSRI Educational Outreach	(see above)
Amber Berry	Summer 2009	TSRI Educational Outreach	
Nazc-Aru Gonzalez	Summer 2009	TSRI Educational Outreach	Harvard Univ.
Wendy Feng, M.D.	Summer 2009	MSTAR Program	Medical Residency
Megan Meza	Summer 2007		
Michael Comstock	Summer 2004		Sr.Algorithms Arch., Synaptics
Daniel Bachovchin	Summer 2004	Harvard College	Research Fellow, Broad Inst.
Anne Goldbech Olsen	Summer 2003	P.Nielsen/Univ. Copenhagen	Scientist, Nuevolution
Annalisa Radeghieri	Summer 2003	H.Hochkoeppler/Univ. Bologna	
Scott Luzzi	Summer 2000	Rochester Inst. Technology	Project Manager, Gilead
David Keene	Summer 1999	Reed College	

Trainees, Research Associates

Name	*Training Period*	*Current Position*
Kirandeep Dhami, B.S.	2012 – 2014	(see above)
Michael Powers, B.S.	2006 – 2008	Doctoral candidate, J.Bubeck Wardenburg/Univ. Chicago
Meha Patel, M.S.	2007 – 2009	Researcher, GeneDX

Georgina Salazar, Ph.D.	2001 – 2003	Intern, UN Ambassador for Palau
Denise Hanway, B.S.	1998 – 2002	Scientific Writer, Ferring Research Inst.

Sponsored Sabbatical Research

Prof. Lingjun Li, Henan Normal University, College of Chemistry and Chemical Engineering, 2016
Prof. Yoshiyuki Hari, Osaka University, Graduate School of Pharmaceutical Sciences, 2006 - 2007
Prof. Poul Nielsen, University of Southern Denmark, Department of Chemistry, 2006
Prof. Masayuki Oda. Kyoto Prefectural University, Graduate School of Agriculture, 2005
Prof. Taiha Joo. Pohang University of Science and Technology, Department of Chemistry, 2002
Prof. Dr. Christian Leumann. University of Berne, Department of Chemistry and Biochemistry, 2001

Other Intramural Activities

Invited speaker at the Trends in the Research and the Scientific Marketplace professional development seminar for San Diego school teachers, as a part of The Scripps Research Institute's Science Outreach Program, 2001

Participation in The Scripps Research Institute's High School Student Research Education Program, involving lectures to students and laboratory demonstrations, 2000 – present

Extracurricular Professional Service

Grant Review	Synthetic and Biological Chemistry A Study Section, Center for Scientific Review, NIH, Ad Hoc review for NIGMS Bioorganic and Natural Products, American Chemical Society Petroleum Research Fund, Defense Threat Reduction Agency, Chemical and Biological Technologies, National Human Genome Research Institute, National Institutes of Health, National Science Foundation
Manuscript Review	*Accounts of Chemical Research, Angewandte Chemie, Biochemistry, Bioorganic and Medicinal Chemistry Letters, Cellular and Molecular Life Sciences, Chemistry & Biology, ChemPhysChem, Chemical Reviews, Journal of the American Chemical Society, Journal of Molecular Biology, Journal of Organic Chemistry, Journal of Physical Chemistry, Nucleic Acids Research, Nature, Nature Biotechnology, Nucleosides, Nucleotides, and Nucleic Acids, Proceedings of the National Academy of Sciences, Tetrahedron, Tetrahedron Letters*
Editorial Boards	Current Protocols in Chemical Biology, 2010 – present *PLoS ONE*, 2006 – present
Consulting	Archemix, Cambridge, MA (Consultant; 2010) Helicos BioSciences Corp, Cambridge, MA (Consultant, SAB member; 2005 – 2009) NuAce Technologies, Ltd., Rehovot, Israel (Consultant, SAB member; 2001 – 2006)
Professional Affiliations	American Chemical Society (1998 – present) American Society for Microbiology (2005 – present) Biophysical Society (2014 – present)

Scientific Collaborators

Current at TSRI	Phil Baran (Chemistry), Ben Cravatt (Chemical Physiology), Philip Dawson (Cell Biology), Gerald Joyce (Molecular Biology), Phil Ordoukhanian (Nucleic Acid Facility), Peter Schultz (Chemistry), Ali Torkamani (Molecular and Experimental Medicine), Ian Wilson (Molecular Biology)
Current at other institutions	Charles Brooks III (Univ. Michigan), David Case (Rutgers Univ.), Chris Cheatum (Univ. of Iowa/Chemistry), Steve Corcelli (Notre Dame), Tammy Dywer (Univ. San Diego), Andreas Marx (Konstanz Univ.), Shaul Mukamel (UCI), Peter Wolynes (UCSD/Chemistry), Martin Zanni (UWisc/Chemistry)
Past	Carlos Barbas III (Scripps/Molecular Biology), David Andes (UWisc/Medicine), Oscar Aparicio (USC/Biological Science), Steven Boxer (Stanford Univ/ Chemistry), Andrei Chabes (Umeå University), William Craig (UWisc/Medicine), Valérie de Crécy Lagard (Scripps/Molecular Biology), Jane Dyson (Scripps/Molecular Biology), Brunie Felding-Habermann (Scripps/Molecular & Experimental Medicine), Steve Head (DNA Array Core), Bernhard Geierstanger (Genomics Institute of the Novartis Research Foundation/Protein Sciences), M. Glasbeek (Universiteit van Amsterdam), Myron Goodman (USC), Wolf-Dietrich Heyer (UC Davis/Microbiology), Ehud Keinan (Scripps, Molecular Biology), Hadar Kless (NuAce), K. C. Nicolaou (Scripps/Chemistry), Art Olsen (Scripps/Molecular Biology), Scott Peterson (TIGR/Pathogen Functional Genomics Resource Center/JCVI), Stephen Quake (Stanford/Chemistry),

Igor Rubtsov (Tulane University), Glen Spraggon (Genomics Institute of the Novartis Research Foundation/Protein Sciences), Ray Stevens (Scripps/Chemistry), John Straub (Boston Univ./Chemistry), David Wemmer (UC Berkeley/Chemistry), Elizabeth Winzeler (Scripps/Cell Biology), John Yates III (Scripps/Cell Biology), Huilin Zhou (UCSD/Ludwig Institute for Cancer Research)