

RICHARD H. EBRIGHT: BIOGRAPHY

Richard H. Ebright, Ph.D., is Board of Governors Professor of Chemistry and Chemical Biology at Rutgers University and Laboratory Director at the Waksman Institute of Microbiology. He directs a laboratory of approximately twenty postdoctoral associates, graduate students, and technicians and serves as project leader on four National Institutes of Health research grants ("Bacterial Transcription Complexes," "Therapeutics for Drug-Resistant Bacteria: Myxopyronins," "Therapeutics for Drug-Resistant Bacteria: Pseudouridimycins," and "Therapeutics for Drug-Resistant Bacteria: Arylpropionyl Phloroglucinols") and a Global Alliance for TB Drug Development contract ("Therapeutics for Tuberculosis: RNA Polymerase Inhibitors").

His research focusses on the structure, mechanism, and regulation of bacterial transcription complexes, and on the development of inhibitors of bacterial transcription as antituberculosis agents and broad-spectrum antibacterial agents. His research employs tools of structural biology, biophysics, and drug-discovery.

He received his A.B. (Biology, *summa cum laude*) and Ph.D. (Microbiology and Molecular Genetics) degrees from Harvard University. He performed graduate research at Harvard and the Institut Pasteur and was a Junior Fellow of the Harvard University Society of Fellows. In 1987, he was appointed as a Laboratory Director at the Waksman Institute and a faculty member at Rutgers University. From 1997 to 2013, he was co-appointed as an Investigator of the Howard Hughes Medical Institute.

He has received the Searle Scholar Award, the Schering-Plough Award of the American Society for Biochemistry and Molecular Biology, the Walter J. Johnson Prize, the Waksman Award of the Theobald Smith Society, and the National Institutes of Health MERIT Award. He is a Fellow of the American Association for Advancement of Science, the American Academy of Microbiology, and the Infectious Diseases Society of America.

He has more than one hundred thirty publications in peer-reviewed journals and more than thirty issued and pending patents. He has been an invited participant and presenter at scientific meetings in the US and overseas.

He served for sixteen years as editor of the Journal of Molecular Biology. He has served on the National Institutes of Health Molecular Biology Study Section and on National Institutes of Health special emphasis panels. He is a member of the Institutional Biosafety Committee of Rutgers University and has been a member of the Working Group on Pathogen Security of the state of New Jersey and the Controlling Dangerous Pathogens Project of the Center for International Security Studies.

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RICHARD H. EBRIGHT: CURRICULUM VITAE

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EDUCATION

- 1981 Harvard University, Cambridge, MA, USA
A.B. *summa cum laude* in Biology
- 1987 Harvard University, Graduate School of Arts and Sciences, Cambridge, MA, USA
Ph.D. in Microbiology and Molecular Genetics; Doctoral research with Dr. Jon Beckwith

POSITIONS

- 1984-1987 Junior Fellow, Harvard University Society of Fellows:
1. Dr. Jon Beckwith, Department of Microbiology and Molecular Genetics,
Harvard Medical School, Boston, MA, USA
2. Dr. Henri Buc, Unité de Physicochimie des Macromolécules Biologiques,
Institut Pasteur, Paris, France
- 1987- Laboratory Director, Waksman Institute of Microbiology,
Rutgers University, New Brunswick, NJ, USA
- 1987-1992 Assistant Professor, Department of Chemistry,
Rutgers University, New Brunswick, NJ, USA
- 1992-1995 Associate Professor, Department of Chemistry,
Rutgers University, New Brunswick, NJ, USA
- 1995-2013 Professor, Department of Chemistry,
Rutgers University, New Brunswick, NJ, USA
- 1997-2013 Investigator, Howard Hughes Medical Institute
- 2013- Board of Governors Professor, Department of Chemistry and Chemical Biology,
Rutgers University, New Brunswick, NJ, USA

HONORS

- 1980 Phi Beta Kappa
1989 Searle Scholar Award
1990 Johnson & Johnson Discovery Research Fellowship
1995 American Society for Biochemistry and Molecular Biology Schering-Plough Award
1995 Walter J. Johnson Prize
1996 Fellow, American Academy of Microbiology
1998 Rutgers University Board of Trustees Award
2004 Fellow, American Association for the Advancement of Science
2011 Fellow, Infectious Diseases Society of America
2012 Theobald Smith Society Waksman Award
2013 National Institutes of Health MERIT Award

CURRENT SUPPORT

NIH-NIGMS. Bacterial transcription complexes
2/2013-1/2018, \$1,500,000 (direct costs)

NIH-NIAID. Therapeutics for Drug-Resistant Bacteria: Myxopyronins
7/2010-6/2015, \$4,989,115 (direct costs)

NIH-NIAID. Therapeutics for Drug-Resistant Bacteria: Pseudouridimycins
1/2013-1/2018, \$4,024,805 (direct costs)

NIH-NIAID. Therapeutics for Drug-Resistant Bacteria: Arylpropionyl Phloroglucinols
4/2014-3/2019, \$1,570,780 (direct costs)

Global Alliance for TB Drug Development. Therapeutics for TB: Mycobacterial RNAP Inhibitors
8/2014-7/2016 (pending), \$422,500 (direct costs)

SELECTED PUBLICATIONS (OF 162)

Ebright, R., Cossart, P., Gicquel-Sanzey, B., and Beckwith, J. (1984) Mutations that alter the DNA sequence specificity of the catabolite gene activator protein of *E. coli*. *Nature* **311**, 232-235.

Ebright, R., Cossart, P., Gicquel-Sanzey, B., and Beckwith, J. (1984) Molecular basis of DNA sequence recognition by the catabolite gene activator protein: detailed inferences from three mutations that alter DNA sequence specificity. *Proc. Natl. Acad. Sci. USA* **81**, 7274-7278.

Ebright, R. (1986) Evidence for a contact between glutamine-18 of lac repressor and base pair 7 of lac operator. *Proc. Natl. Acad. Sci. USA* **83**, 303-307.

Ebright, R., Kolb, A., Buc, H., Kunkel, T., Krakow, J., and Beckwith, J. (1987) Role of glutamic acid 181 in DNA-sequence recognition by the catabolite gene activator protein (CAP) of *Escherichia coli*. *Proc. Natl. Acad. Sci. USA* **84**, 6083-6087.

Ebright, R., Ebright, Y., and Gunasekera, A. (1989) Consensus DNA site for the *Escherichia coli* catabolite gene activator protein (CAP): CAP exhibits a 450-fold higher affinity for the consensus DNA site than for the *E. coli lac* DNA site. *Nucleic Acids Res.* **17**, 10295-10305.

Ebright, R., Ebright, Y., Pendergrast, P.S., and Gunasekera, A. (1990) Conversion of a helix-turn-helix motif sequence-specific DNA binding protein into a site-specific DNA cleavage agent. *Proc. Natl. Acad. Sci. USA* **87**, 2882-2886.

Zhang, X. and Ebright, R. (1990) Identification of a contact between arginine-180 of the catabolite gene activator protein (CAP) and base pair 5 of the DNA site in the CAP-DNA complex. *Proc. Natl. Acad. Sci. USA* **87**, 4717-4721.

Zhang, X. and Ebright, R. (1990) Substitution of two base pairs (one base pair per DNA half site) within the *Escherichia coli lac* promoter DNA site for catabolite gene activator protein places the lac promoter in the FNR regulon. *J. Biol. Chem.* **265**, 12400-12403.

- Gunasekera, A., Ebright, Y. and Ebright, R. (1990) DNA-sequence recognition by CAP: Role of the adenine N⁶ atom of base pair 6 of the DNA site. *Nucleic Acids Res.* **18**, 6853-6856.
- Shin, J., Ebright, R., and Dervan, P. (1991) Orientation of the Lac repressor DNA binding domain in complex with the left *lac* operator half site characterized by affinity cleaving. *Nucleic Acids Res.* **19**, 5233-5236.
- Zhou, Y., Zhang, X., and Ebright, R. (1991) Random mutagenesis of gene-sized DNA molecules by use of PCR with *Taq* DNA polymerase. *Nucleic Acids Res.* **19**, 6052.
- Ebright, R. (1991) Identification of amino acid-base pair contacts by genetic methods. *Methods Enzymol.* **208**, 620-640.
- Zhang, X., Zhou, Y., Ebright, Y., and Ebright, R. (1992) CAP is not an "acidic activating region" transcription activator protein: negatively charged amino acids of CAP that are solvent-accessible in the CAP-DNA complex play no role in transcription activation at the *lac* promoter. *J. Biol. Chem.* **267**, 8136-8139.
- Gunasekera, A., Ebright, Y. and Ebright, R. (1992) DNA-sequence determinants for binding of the *Escherichia coli* catabolite gene activator protein (CAP). *J. Biol. Chem.* **267**, 14713-14720.
- Dong, Q. and Ebright, R. (1992) DNA binding specificity and sequence of *Xanthomonas campestris* catabolite gene activator protein-like protein. *J. Bacteriol.* **174**, 5757-5461.
- Blatter, E., Ebright, Y., and Ebright, R. (1992) Identification of an amino acid-base contact in the GCN4-DNA complex by bromouracil-mediated photocrosslinking. *Nature* **359**, 650-652.
- Pendergrast, P.S., Chen, Y., Ebright, Y., and Ebright, R. (1992) Determination of the orientation of a DNA binding motif in a protein-DNA complex by photocrosslinking. *Proc. Natl. Acad. Sci. USA* **89**, 10287-10291.
- Ebright, Y., Chen, Y., Pendergrast, P.S., and Ebright, R. (1992) Incorporation of an EDTA-metal complex at a rationally selected site within a protein: application to EDTA-iron affinity cleaving with catabolite gene activator protein (CAP) and Cro. *Biochem.* **31**, 10664-10670.
- Chen, Y. and Ebright, R. (1993) Phenyl-azide-mediated photocrosslinking analysis of Cro-DNA interaction. *J. Mol. Biol.* **230**, 453-460.
- Ebright, Y., Chen, Y., Ludescher, R., and Ebright, R. (1993) Iodoacetyl-p-phenylenediamine-EDTA: Reagent for high-efficiency incorporation of an EDTA-metal complex at a rationally selected site within a protein. *Bioconj. Chem.* **4**, 219-225.
- Ebright, R. (1993) Transcription activation at class I CAP-dependent promoters. *Mol. Microbiol.* **8**, 797-802.
- Zhou, Y., Zhang, X., and Ebright, R. (1993) Identification of the activating region of CAP: isolation and characterization of mutants of CAP specifically defective in transcription activation. *Proc. Natl. Acad. Sci. USA* **90**, 6081-6085.

- Zhou, Y., Busby, S., and Ebright, R. (1993) Identification of the functional subunit of a dimeric transcription activator protein by use of "oriented heterodimers." *Cell* **73**, 375-379.
- Heyduk, T., Lee, J., Ebright, Y., Blatter, E., Zhou, Y., and Ebright, R. (1993) CAP interacts with RNA polymerase in solution in the absence of promoter DNA. *Nature* **364**, 548-549.
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- Dong, Q., Blatter, E., Ebright, Y., Bister, K., and Ebright, R. (1994) Identification of amino acid-base contacts in the Myc-DNA complex by site-specific bromouracil-mediated photocrosslinking. *EMBO J.* **13**, 200-204.
- Chen, Y., Ebright, Y., and Ebright, R. (1994) Identification of the target of a transcription activator protein by protein-protein photocrosslinking. *Science* **265**, 90-92.
- Pendergrast, P.S., Ebright, Y., and Ebright, R. (1994) High-specificity DNA cleavage agent: design and application to kilobase and megabase DNA substrates. *Science* **265**, 959-961.
- Blatter, E., Ross, W., Tang, H., Gourse, R., and Ebright, R. (1994) Domain organization of RNA polymerase α subunit: C-terminal 85 amino acids constitute a domain capable of dimerization and DNA binding. *Cell* **78**, 889-896.
- Zhou, Y., Pendergrast, P.S., Bell, A., Williams, R., Busby, S., and Ebright, R. (1994) The functional subunit of a dimeric transcription activator protein depends on promoter architecture. *EMBO J.* **13**, 4549-4557.
- Niu, W., Zhou, Y., Dong, Q., Ebright, Y., and Ebright, R. (1994) Characterization of the activating region of *Escherichia coli* catabolite gene activator protein (CAP): I. Saturation and alanine-scanning mutagenesis. *J. Mol. Biol.* **243**, 595-602.
- Zhou, Y., Merkel, T., and Ebright, R. (1994) Characterization of the activating region of *Escherichia coli* catabolite gene activator protein (CAP): II. Role at Class I and Class II CAP-dependent promoters. *J. Mol. Biol.* **243**, 603-610.
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Sheehan, B., Klarsfeld, A., Ebright, R. and Cossart, P. (1996) A single substitution in the putative helix-turn-helix motif of the pleiotropic activator PrfA attenuates *Listeria monocytogenes* virulence. *Mol. Microbiol.* **20**, 785-797.

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Parkinson, G., Wilson, C., Gunasekera, A., Ebright, Y., Ebright, R. and Berman, H. (1996) Structure of the CAP-DNA complex at 2.5 Å resolution: a complete picture of the protein-DNA interface. *J. Mol. Biol.* **260**, 395-408.

Parkinson, G., Gunasekera, A., Vojtechovsky, J., Zhang, X., Kunkel, T., Berman, H. and Ebright, R. (1996) Aromatic hydrogen bond in sequence-specific protein-DNA interaction. *Nature Struct. Biol.* **3**, 837-841.

Heyduk, T., Heyduk, E., Severinov, K., Tang, H. and Ebright, R. (1996) Determinants of RNA polymerase α subunit for interaction with β and β' subunits: hydroxyl-radical protein footprinting. *Proc. Natl. Acad. Sci. USA* **93**, 10162-10166.

Lagrange, T., Kim, T.-K., Orphanides, G. Ebright, Y., Ebright, R., and Reinberg, D. (1996) High-resolution mapping of nucleoprotein complexes by site-specific protein-DNA photocrosslinking: organization of the human TBP-TFIIA-TFIIB-DNA quaternary complex. *Proc. Natl. Acad. Sci. USA* **93**, 10620-10625.

Ebright, R., Ebright, Y., and Pendergrast, P.S. (1996) CAP-phenanthroline conjugate for DNA cleavage. *US Patent* US5556949.

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Niu, W., Kim, Y., Tau, G., Heyduk, and Ebright, R. (1996) Transcription activation at Class II CAP-dependent promoters: two interactions between CAP and RNA polymerase. *Cell* **87**, 1123-1134.

Busby, S. and Ebright, R. (1997) Transcription activation at Class II CAP-dependent promoters. *Mol. Microbiol.* **23**, 853-859.

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Lagrange, T., Kapanidis, A., Tang, H., Reinberg, D. and Ebright, R. (1998) New core promoter element in RNA-polymerase-II-dependent transcription: sequence-specific DNA binding by transcription factor IIB. *Genes & Development* **12**, 34-44.

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Estrem, S., Ross, W., Gaal., Chen, Z.W.S., Niu, W., Ebright, R., and Gourse, R. (1999) Bacterial promoter architecture: subsite structure of UP elements and interactions with the carboxyl-terminal domain of RNA polymerase α subunit. *Genes & Development* **13**, 2134-2147.

Busby, S. and Ebright, R. (1999) Transcription activation by catabolite activator protein (CAP). *J. Mol. Biol.* **293**, 199-213.

Tan, Q., Linask, K.L., Ebright, R. and Woychik, N. (2000) Activation mutants in yeast RNA polymerase subunit RPB3 provide evidence for a structurally conserved surface required for activation in eukaryotes and bacteria. *Genes & Development* **14**, 339-348.

Boyer, L., Shao, X., Ebright, R., and Peterson, C. (2000) Roles of the histone H2A/H2B dimers and (H3/H4)₂ tetramer in nucleosome remodeling by SWI/SNF complex. *J. Biol. Chem.* **275**, 11545-11552.

Meibom, K., Kallipolitis, B., Ebright, R., and Valentin-Hansen, P. (2000) Identification of the subunit of CRP that functionally interacts with CytR in CRP-CytR-mediated transcriptional repression. *J. Biol. Chem.* **275**, 12123-12128.

Kim, T.-K., Ebright, R., and Reinberg, D. (2000) Mechanism of ATP-dependent promoter melting by transcription factor IIIH. *Science* **288**, 1418-1421.

Naryshkin, N., Revyakin, A., Kim, Y., Mekler, V., and Ebright, R. (2000) Structural organization of the RNA polymerase-promoter open complex. *Cell* **101**, 601-611.

Ebright, R. (2000) RNA polymerase: structural similarities between bacterial RNA polymerase and eukaryotic RNA polymerase II. *J. Mol. Biol.* **304**, 687-698.

Naryshkin, N., Kim, Y., Dong, Q., and Ebright, R. (2001) Site-specific protein-DNA photocrosslinking: analysis of bacterial transcription initiation complexes. *Methods Mol. Biol.* **148**, 336-361.

Minakhin, L., Bhagat, S., Brunning, A., Campbell, E., Darst, S., Ebright, R. and Severinov, K. (2001) Bacterial RNA polymerase subunit ω and eukaryotic RNA polymerase subunit RPB6 are sequence, structural, and functional homologs and promote RNA polymerase assembly *Proc. Natl. Acad. Sci. USA* **98**, 892-897.

Mukhopadhyay, J., Kapanidis, A., Mekler, V., Kortkhonjia, E., Ebright, Y., and Ebright, R. (2001) Translocation of σ^{70} with RNA polymerase during transcription: fluorescence resonance energy transfer assay for movement relative to DNA. *Cell* **106**, 453-463.

Kapanidis, A., Ebright, Y., Ludescher, R., Chan, S., and Ebright, R. (2001) Mean DNA bend angle and distribution of DNA bend angles in the CAP-DNA complex in solution. *J. Mol. Biol.* **312**, 453-468.

Chen, S., Vojtechovsky, J., Parkinson, G., Ebright, R., and Berman, H. (2001) Indirect readout of DNA sequence at the primary-kink site in the CAP-DNA complex: I. DNA binding specificity based on energetics of DNA kinking. *J. Mol. Biol.* **314**, 63-74.

Chen, S., Gunasekera, A., Zhang, X., Kunkel, T., Ebright, R., and Berman, H. (2001) Indirect readout of DNA sequence at the primary-kink site in the CAP-DNA complex: II. Alteration of DNA binding specificity through alteration of DNA kinking. *J. Mol. Biol.* **314**, 75-82.

Kapanidis, A., Ebright, Y., and Ebright, R. (2001) Site-specific incorporation of fluorescent probes into protein: hexahistidine-tag-mediated fluorescent labeling using $(\text{Ni}^{++}:\text{nitrilotriacetic acid})_n$ -fluorochrome conjugates. *J. Amer. Chem. Soc.* **123**, 12123-12125.

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Severinov, K., Ebright, R., Pavlova, O., and Sineva, E. (2008) Mutational derivatives of peptide antibiotic microcin J25. *US Patent* US7442762.

Pavlova, O., Mukhopadhyay, J., Sineva, E., Ebright, R., and Severinov, K. (2008) Systematic structure-activity analysis of microcin J25 (MccJ25). *J. Biol. Chem.* **283**, 25589-25595.

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Naryshkin, N., Druzhinin S., Revyakin, A., Kim, Y., Mekler, V., and Ebright, R. (2009) Static and kinetic site-specific protein-DNA photocrosslinking: analysis of bacterial transcription initiation complexes. *Meths. Mol. Biol.* **543**, 403-437.

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Ho, M., Hudson, B., Das, K., Arnold, E., and Ebright, R. (2009) Structures of RNA polymerase-antibiotic complexes. *Curr. Opin. Structl. Biol.* **19**, 715-723.

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Chakraborty, A., Wang, D., Ebright, Y., and Ebright, R. (2010) Azide-specific labelling of biomolecules by Staudinger-Bertozzi ligation: phosphine derivatives of fluorescent probes suitable for single-molecule fluorescence spectroscopy. *Meths. Enzymol.* **472**, 19-30.

Grohmann, D., Nagy, J., Chakraborty, A., Klose, D., Fielden, D., Ebright, R., Michaelis, J., and Werner, F. (2011) The initiation factor TFE and the elongation factor Spt4/5 compete for binding to the RNAP clamp during transcription initiation and elongation. *Mol. Cell* **43**, 263-274.

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Kuznedelov, K., Semenova, E., Knappe, T., Mukahmedjarov, D., Srivastava, A., Chatterjee, S., Ebright, R., Marahiel, M., and Severinov, K. (2011) The antibacterial threaded-lasso peptide capistrain inhibits bacterial RNA polymerase. *J. Mol. Biol.* **412**, 842-848.

Srivastava, A., Talaue, M., Liu, S., Degen, D., Ebright, R.Y., Sineva, E., Chakraborty, A., Druzhinin, S., Chatterjee, S., Mukhopadhyay, J., Ebright, Y., Zozula, A., Shen, J., Sengupta, S., Niedfeldt, R., Xin, C., Kaneko, T., Irschik, H., Jansen, R., Donadio, S., Connell, N., and Ebright, R. (2011) New target for inhibition of bacterial RNA polymerase: "switch region." *Curr. Opin. Microbiol.* **14**, 532-543.

Ebright, R. (2012) Switch region: target and method for inhibition of bacterial RNA polymerase. *US Patent* US8114583.

Ebright, R. (2012) Target and method for inhibition of bacterial RNA polymerase. *US Patent* US8198021.

Ebright, R. (2012) RNA exit channel: target and method for inhibition of bacterial RNA polymerase. *US Patent* US8206898.

Chakraborty, A., Wang, D., Ebright, Y., Korlann, Y., Kortkhonjia, E., Kim, T., Chowdhury, S., Wigneshweraraj, S., Irschik, H., Jansen, R., Nixon, B.T., Knight, J., Weiss, S., and Ebright, R. (2012) Opening and closing of the bacterial RNA polymerase clamp. *Science* **337**, 591-595.

Srivastava, A., Degen, D., Ebright, Y., and Ebright, R. (2012) Frequency, spectrum, and nonzero fitness costs of resistance to myxopyronin in *Staphylococcus aureus*. *Antimicrob. Agents Chemother.* **56**, 6250-6255.

Zhang, Y., Feng, Y., Chatterjee, S., Tuske, S., Ho, M., Arnold, E., and Ebright, R. (2012) Structural basis of transcription initiation. *Science* **338**, 1076-1080.

Seul, M. and Ebright, R. (2013) Color-encoding and *in-situ* interrogation of matrix-coupled chemical compounds. *Canadian Patent* CA2291853.

Ebright, R., Mukhopadhyay, J., Severinov, K., and Semenova, E. (2013) Non-MccJ25-related lariat-peptide inhibitors of bacterial RNA polymerase. *US Patent* US8354246.

Ebright, R. and Wang, D. (2013) Bipartite inhibitors of bacterial RNA polymerase. *US Patent* 8372839.

Robb, N., Cordes, T., Hwang, L., Gryte, K., Duchi, D., Craggs, T., Santoso, Y., Weiss, S., Ebright, R., and Kapanidis, A. (2013) The transcription bubble of the RNA polymerase-promoter open complex exhibits conformational heterogeneity and millisecond-scale dynamics: implications for transcription start-site selection. *J. Mol. Biol.* **425**, 875–885.

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Vorobiev, S., Kramer, Y., Vahedian-Movahed, H., Seetharaman, J., Sua, M., Huang, J., Xiao, R., Kornhaber, G., Montelione, G., Tong, L., Ebright, R., and Nickels, B. (2014) Structure of the DNA-binding and RNA polymerase-binding region of transcription antitermination factor Q. *Structure* **22**, 488-495.

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Zhang, Y., Degen, D., Ho, M., Sineva, E., Ebright, K., Ebright, Y., Mekler, V., Vahedian-Movahed, H., Feng, Y., Yin, R., Tuske, S., Irschik, H., Jansen, R., Maffioli, S., Donadio, S., Arnold, E., and Ebright, R. (2014) GE23077 binds to the RNA polymerase "i" and "i+1" sites and prevents the binding of initiating nucleotides. *eLife*, **3**, e02450.

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Ebright, R. (2014) Arylpropionyl-alpha-pyrone antibacterial agents. *US Patent* US8,772,332.

Chakraborty, A., Mazumder, A., Lin, M., Hasemeyer, A., Xu, Q., Wang, D., Ebright, Y., and Ebright, R. (2014) Site-specific incorporation of probes into RNA polymerase by unnatural-amino-acid mutagenesis and Staudinger-Bertozzi ligation. *Meths. Mol. Biol.* (in press).

Tang, W., Liu, S, Degen, D., Ebright, R., and Prusov, E., (2014) Synthesis and evaluation of novel analogues of ripostatins. *Chem. Eur. J.* (submitted).

Hassan, H., Degen, D., Jang K., Ebright, R., and Fenical, W. (2014) Salinamide F, New depsipeptide antibiotic and inhibitor of bacterial RNA polymerase from a marine-derived *Streptomyces* sp. *J. Antibiot.* (submitted).

LECTURES (1990-PRESENT)

- 1990, Department of Microbiology, University of Pennsylvania Medical School, Philadelphia, PA.
1990, American Society for Microbiology Annual Meeting, Anaheim, CA.
1990, Cold Spring Harbor Meeting, Molecular Genetics of Bacteria and Phage, Cold Spring Harbor, NY.
1990, Department of Biology, Hunter College of CUNY, New York.
1990, Department of Biochemistry, University of Medicine and Dentistry of New Jersey, Newark, NJ.
1990, Department of Microbiology and Immunology, SUNY Health Science Center, Brooklyn, NY.
1990, Department of Chemistry and Biochemistry, University of Delaware, Newark, DE.
1991, New England Biolabs, Inc., Beverly, MA.
1991, Bio-Rad Laboratories, Inc., Richmond, CA.
1991, University of Birmingham, Birmingham, United Kingdom.
1991, 7th Tenovus-Scotland Symposium, Glasgow, Scotland, United Kingdom.
1991, Keystone Symposium on Protein Folding, Structure, and Design, Keystone, CO.
1991, Seventh Conversation in Biomolecular Stereodynamics, Albany, NY.
1991, FASEB Meeting on Control of Transcription Initiation in Prokaryotes, Saxtons River, Vermont.
1991, Cold Spring Harbor Meeting, Molecular Genetics of Bacteria and Phage, Cold Spring Harbor, NY.
1991, Department of Chemistry, Rutgers University, Piscataway, NJ.
1992, SUNY Health Science Center, Brooklyn, NY.
1991, CABM-Fisher Symposium on Advances in Molecular Recognition and Design, Piscataway, NJ.
1992, Department of Biochemistry, University of Medicine and Dentistry of New Jersey, Piscataway, NJ.
1992, Department of Molecular and Cell Biology, University of California, Berkeley, CA.
1992, Department of Molecular Biology and Biochemistry, Tufts University Medical School, Boston, MA.
1992, Searle Scholars Program, Annual Meeting, Chicago, IL.
1992, American Society for Microbiology Annual Meeting, New Orleans, LA.
1992, Juan March Foundation Workshop on Transcription Initiation in Prokaryotes, Madrid, Spain.
1992, Meeting on Molecular Genetics of Bacteria and Phage, Cold Spring Harbor, NY.
1992, ZMBH Forum on Control of Gene Activity and Differentiation, Heidelberg, Germany.
1992, Boehringer Mannheim GmbH, Penzberg, Germany.
1992, Department of Chemistry, Princeton University, Princeton, NJ.
1992, Department of Microbiology, Cornell University Medical School, New York, NY.
1992, Department of Molecular and Cell Biology, Pennsylvania State University, University Park, PA.
1992, Department of Biology, Johns Hopkins University, Baltimore, MD.
1993, Department of Biological Sciences, University of Wisconsin, Milwaukee, WI.
1993, Keystone Symposium, Nucleases, Tamaron, CO.
1993, University of Medicine and Dentistry of New Jersey, Piscataway, NJ.
1993, Department of Biology, University of Iowa, Iowa City, IA.
1993, Department of Molecular Genetics and Cell Biology, University of Chicago, Chicago, IL.
1993, Conference, Genetics of Regulation and Protein Export, Woods Hole, MA.
1993, Department of Biological Sciences, University of Maryland, Baltimore County, Baltimore, MD.
1993, Department of Biological Sciences, Stanford University, Stanford, CA.
1993, Department of Biochemistry, St. Louis University Medical School, St. Louis, MO.
1993, Department of Bacteriology, University of Wisconsin, Madison, WI.
1993, Promega, Inc., Madison, WI.
1993, Gordon Research Conference, Biological Regulatory Mechanisms, Holderness, NH.
1993, FASEB Meeting, Control of Transcription Initiation in Prokaryotes, Saxtons River, VT.
1993, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.
1993, Cold Spring Harbor Meeting, Molecular Genetics of Bacteria and Phage, Cold Spring Harbor, NY.
1993, Cold Spring Harbor Meeting, Mechanisms of Eukaryotic Transcription, Cold Spring Harbor, NY.
1993, Roche Institute for Molecular Biology, Nutley, NJ.
1993, Department of Microbiology, University of Connecticut Health Center, Farmington, CT.

1993, Department of Microbiology and Molecular Genetics, Harvard Medical School, Boston, MA.
1993, Department of Microbiology and Immunology, University of Michigan, Ann Arbor, MI.
1994, European Commission Meeting, Tools for Genome Mapping, Paris, France.
1994, Institut Pasteur, Paris, France.
1994, Department of Biological Chemistry, Pennsylvania State Medical School, Hershey, PA.
1994, Department of Microbiology, University of Illinois, Urbana, IL.
1994, Keystone Meeting, Basic Aspects of Transcription, Keystone, CO.
1994, Rockefeller University and Memorial-Sloan Kettering Cancer Center, New York, NY.
1994, Gordon Research Conference, Biopolymers, Newport, RI.
1994, Conference, Molecular Genetics of Bacteria and Phage, Madison, WI.
1994, European Union Meeting, Protein-Protein Interaction, Nyborg, Denmark (2 lectures).
1994, Department of Biochemistry, Michigan State University, East Lansing, MI.
1994, Fred Hutchinson Cancer Research Center, Seattle, WA.
1994, Department of Molecular Biology, Princeton University, Princeton, NJ.
1994, Wistar Institute, Philadelphia, PA.
1994, Institute for Cancer Research, Columbia University, New York, NY.
1995, Department of Biochemistry, Albert Einstein College of Medicine, New York, NY.
1995, Department of Microbiology, University of Medicine and Dentistry of New Jersey, Newark, NJ.
1995, Department of Biochemistry, Dartmouth Medical School, Hanover, NH (2 lectures).
1995, AMGEN, Inc., Thousand Oaks, CA (2 lectures).
1995, Tularik, Inc., S. San Francisco, CA.
1995, American Society for Biochemistry and Molecular Biology Annual Meeting, San Francisco, CA.
1995, American Society for Microbiology Annual Meeting, Washington, DC.
1995, Gordon Research Conference, Biological Regulatory Mechanisms, Holderness, NH.
1995, Scriptgen, Inc., Medford, MA.
1995, FASEB Meeting, Control of Transcription Initiation in Prokaryotes, Saxtons River, VT.
1995, American Chemical Society Annual Meeting, Chicago, IL.
1995, Institute of Molecular and Cellular Biosciences, University of Tokyo, Tokyo, Japan.
1995, National Institute of Genetics, Mishima, Japan.
1995, Asagiri Symposium, Gene Expression, Asagiri Heights, Japan.
1995, Cold Spring Harbor Meeting, Mechanisms of Eukaryotic Transcription, Cold Spring Harbor, NY.
1995, EMBO Meeting, Dynamics of DNA-Protein Interactions, Wildbad Kreuth, Germany.
1995, Department of Biochemistry, Cornell University, Ithaca, NY.
1995, Department of Biochemistry, University of California, Los Angeles, CA.
1995, Molecular Biology Institute, University of Oregon, Eugene, OR.
1995, Department of Biochemistry, Oregon Health Sciences Center, Portland, OR.
1995, American Association for Cancer Research Meeting, Transcription, San Diego, CA.
1995, Department of Biochemistry, Chicago Medical School, Chicago, IL.
1995, Department of Biochemistry, University of Indiana, Bloomington, IN.
1995, Department of Chemistry, Wayne State University, Detroit, MI.
1996, Keystone Symposium, Transcriptional Mechanisms, Taos, NM.
1996, University of Texas, Southwestern Medical Center, Dallas, TX.
1996, Conference, Genetics of Regulation and Protein Export, Woods Hole, MA.
1996, National Institutes of Health, Bethesda, MD.
1996, Department of Molecular and Cellular Biology, Harvard University, Cambridge, MA, 1996
1996, Gordon Research Conference, Biopolymers, Newport, RI.
1996, Gordon Research Conference, Molecular Genetics, Newport, RI.
1996, Cold Spring Harbor Meeting, Molecular Genetics of Bacteria and Phage, Cold Spring Harbor, NY.
1996, EMBO Meeting, Transcription, Heidelberg, Germany.
1996, Department of Biochemistry and Microbiology, Rutgers University, New Brunswick, NJ.
1996, Department of Biochemistry, University of California Medical School, San Francisco, CA.

1996, Department of Microbiology, Emory University School of Medicine, Atlanta, GA (2 lectures).
1996, Banbury Meeting, Transcription Activation, Cold Spring Harbor, NY.
1997, Rockefeller University, New York, NY.
1997, Institut Pasteur, Paris, France.
1997, Köln Spring Meeting, Protein-DNA Recognition and Control of Transcription, Köln, Germany.
1997, Department of Biochemistry, State University of New York, Buffalo, NY.
1997, Department of Chemistry, Bryn Mawr College, Bryn Mawr, PA.
1997, American Society for Microbiology Annual Meeting, Miami, FL.
1997, Rutgers Molecular Biophysics Symposium, Targeting Nucleic Acids, New Brunswick NJ.
1997, FASEB Meeting, Control of Transcription Initiation in Prokaryotes, Saxtons River, VT.
1997, Cold Spring Harbor Meeting, Mechanisms of Eukaryotic Transcription, Cold Spring Harbor, NY.
1997, Wyeth-Ayerst, Inc., Pearl River, NY.
1997, Umea University, Umea, Sweden.
1997, Department of Biochemistry, University of Birmingham, Birmingham, United Kingdom.
1998, Wadsworth Center, New York State Department of Health, Albany, NY.
1998, Department of Molecular Cell Biology and Biochemistry, Virginia Tech, Blacksburg, VA.
1998, American Society for Microbiology Annual Meeting, Atlanta, GA.
1998, Cold Spring Harbor Symposium on Quantitative Biology, Cold Spring Harbor, NY.
1998, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.
1998, Cold Spring Harbor Meeting, Molecular Genetics of Bacteria and Phage, Cold Spring Harbor, NY.
1998, University of Maryland, College Park, MD.
1999, DGI Biotechnologies, Edison, NJ.
1999, Conference, Genetics of Regulation and Protein Export, Amalfi, Italy.
1999, FASEB Meeting, Control of Transcription Initiation in Prokaryotes, Saxtons River, VT.
1999, Protein Society Annual Meeting, Boston, MA.
1999, Conference, Molecular Genetics of Bacteria and Phage, Madison, WI.
1999, Cold Spring Harbor Meeting, Mechanisms of Eukaryotic Transcription, Cold Spring Harbor, NY.
1999, Symposium, JMB 40th Anniversary, Cambridge University, Cambridge, United Kingdom.
1999, Howard Hughes Medical Institute Meeting, Structural Biology, Chevy Chase, MD.
1999, Symposium, RNA Polymerase Sigma Subunit, Rutgers University, New Brunswick, NJ
2000, Howard Hughes Medical Institute Meeting, Transcription and Translation, Chevy Chase, MD.
2000, Department of Molecular Biosciences, University of Kansas, Lawrence, KS.
2000, Department of Molecular Biology, University of Iowa, Iowa City, IA.
2000, American Society for Microbiology Annual Meeting, Los Angeles, CA.
2000, Workshop, Transcription and Chromatin, Marie Curie Research Institute, Oxted, United Kingdom.
2000, Cold Spring Harbor Meeting, Molecular Genetics of Bacteria and Phage, Cold Spring Harbor, NY.
2000, EMBL Meeting, Eukaryotic Transcription, Heidelberg, Germany.
2000, Meeting, DNA-Dependent Polymerases, Nouan-le-Fuzelier, France.
2000, GeneSoft, Inc., South San Francisco, CA.
2001, Department of Microbiology and Immunology, SUNY Health Science Center, Brooklyn, NY.
2001, Biophysical Society Annual Meeting, Boston, MA.
2001, Department of Biochemistry, University of Medicine and Dentistry of New Jersey, Newark, NJ.
2001, Howard Hughes Medical Institute Meeting, Structural Biology, Chevy Chase, MD.
2001, Center for Studies in Physics and Biology, The Rockefeller University, New York, NY.
2001, Department of Microbiology, Harvard Medical School, Boston, MA.
2001, Department of Microbiology, University of Georgia, Athens GA.
2001, FASEB Meeting, Transcription Initiation in Prokaryotes, Saxtons River, VT.
2001, Conference, Molecular Genetics of Bacteria and Phage, Madison, WI.
2001, Cold Spring Harbor Meeting, Mechanisms of Eukaryotic Transcription, Cold Spring Harbor, NY.
2001, Biochemical Society of Norway, Oslo, Norway.
2001, Department of Biochemistry, Johns Hopkins University School of Medicine, Baltimore, MD.

2002, Biophysical Society Annual Meeting, San Francisco, CA.
2002, Department of Biochemistry, Columbia University Medical School, New York, NY.
2002, Department of Biophysics, Cornell University, Ithaca, NY.
2002, Conference, Genetics and Genomics of Microbial Systems, Fontevraud, France, 2002.
2002, American Society for Microbiology Annual Meeting, Salt Lake City, UT.
2002, Cold Spring Harbor Meeting, Molecular Genetics of Bacteria and Phage, Cold Spring Harbor, NY.
2002, Workshop on RNA Polymerase Structure, Cold Spring Harbor, NY.
2002, Howard Hughes Medical Institute Meeting, Structural Biology, Chevy Chase, MD.
2002, Center for Molecular Biophysics, Rutgers University, Piscataway NJ.
2003, Bio-Molecular Networks Program, Institute of Theoretical Physics, Santa Barbara, CA.
2003, National Institutes of Health, Bethesda MD.
2003, Department of Biomedical Engineering, Rutgers University, Piscataway, NJ.
2003, FASEB Meeting on Mechanism and Regulation of Prokaryotic Transcription, Saxtons River, VT.
2003, Conference, Molecular Genetics of Bacteria and Phage, Madison, WI.
2003, Cold Spring Harbor Meeting, Mechanisms of Eukaryotic Transcription, Cold Spring Harbor, NY.
2003, Howard Hughes Medical Institute Meeting, Structural Biology, Chevy Chase, MD.
2003, Department of Chemistry, University of California, Los Angeles, CA.
2004, BioMaPS Summer Institute, Transcription, Rutgers University, Piscataway, NJ (3 lectures).
2004, Program on Science and Global Security, Princeton University, Princeton, NJ.
2004, Cold Spring Harbor Meeting, Molecular Genetics of Bacteria and Phage, Cold Spring Harbor, NY.
2004, Department of Biochemistry, Case Western Reserve University, Cleveland, OH.
2004, Meeting on Post-Initiation Activities of RNA Polymerase, Mountain Lake, WV.
2005, Biophysical Society Annual Meeting, Long Beach, CA.
2005, Howard Hughes Medical Institute Meeting, Structural Biology, Chevy Chase, MD.
2005, Biochemical Society Annual Symposium, Transcription, Imperial College, London, UK.
2005, Howard Hughes Medical Institute/CSIS Meeting, Washington, DC.
2005, Conference, Microbial Genomics and Genetics III, Moab, UT.
2005, American Chemical Society, Mid-Atlantic Regional Meeting, Piscataway, NJ (2 lectures).
2005, FASEB Meeting on Mechanism and Regulation of Prokaryotic Transcription, Saxtons River, VT.
2005, ActivBiotics, Inc., Lexington, MA.
2005, Meeting on Molecular Genetics of Bacteria and Phages, Madison, WI.
2005, Program on Security Studies, MIT, Cambridge, MA.
2005, Department of Microbiology and Molecular Genetics, Harvard Medical School.
2006, Keystone Meeting on Nucleic Acid Enzymes, Taos, NM.
2006, Program on Science and Global Security, Princeton University, Princeton, NJ.
2006, Kavli Institute for Theoretical Physics, University of California, Santa Barbara, CA (2 lectures).
2006, Cold Spring Harbor Meeting, Molecular Genetics of Bacteria and Phage, Cold Spring Harbor, NY.
2006, Mountain Lake Meeting, Post-Initiation Activities of RNA Polymerases, Mountain Lake, VA.
2007, Howard Hughes Medical Institute Meeting, Genome Dynamics, Janelia Farm, VA.
2007, Gordon Research Conference, Nucleic Acids, Newport, RI.
2007, FASEB Meeting on Mechanism and Regulation of Prokaryotic Transcription, Saxtons River, VT.
2007, American Chemical Society National Meeting, Boston, MA.
2007, Department of Bacteriology, University of Wisconsin, Madison, WI
2008, Public Health Research Institute, UMDNJ-New Jersey Medical School, Newark, NJ
2008, Department of Biochemistry, University of California, San Francisco, CA
2008, Meeting on Bacterial Genetics, Physiology, and Biotechnology, Cassis, France
2008, Gordon Research Conference, Single-Molecule Approaches to Biology, New London, NH.
2008, Cold Spring Harbor Meeting, Molecular Genetics of Bacteria and Phage, Cold Spring Harbor, NY.
2008, Howard Hughes Medical Institute Meeting, Imaging--Molecules to Organisms, Janelia Farm, VA
2008, Mountain Lake Meeting, Post-Initiation Activities of RNA Polymerases, Mountain Lake, VA
2009, Single Molecule Biophysics 2009, Aspen, CO.

2009, Biophysical Society Annual Meeting, Boston, MA.
2009, American Society for Biochemistry and Molecular Biology Annual Meeting, New Orleans, LA.
2009, Howard Hughes Medical Institute Meeting, Proteins, Janelia Farm, VA
2009, FASEB Meeting on Prokaryotic Transcription, Saxtons River, VT (keynote address).
2009, Meeting on Molecular Genetics of Bacteria and Phages, Madison, WI.
2009, Department of Biochemistry, New York University Medical School, New York, NY.
2010, Howard Hughes Medical Institute Meeting, Proteins, Chevy Chase MD, 2009.
2010, Department of Biochemistry, University of Colorado, Boulder, CO.
2010, Biochemical Society/Wellcome Harden Meeting, RNA Polymerases, Cambridge, United Kingdom.
2011, Single Molecule Biophysics 2011, Aspen, CO.
2011, EMBO Workshop on the Operon Model, Institut Pasteur, Paris, France.
2011, FASEB Meeting on Prokaryotic Transcription, Saxtons River, VT.
2012, Center for Advanced Biotechnology and Medicine, Rutgers University, Piscataway, NJ.
2012, Department of Biochemistry and Microbiology, Rutgers University, New Brunswick, NJ.
2012, Theobald Smith Society Meeting, New Jersey Branch, ASM, New Brunswick, NJ.
2012, Howard Hughes Medical Institute Meeting, Infectious Diseases, Chevy Chase MD.
2012, Biochemical Society/Wellcome Harden Meeting, Molecular Machines, Oxford, United Kingdom.
2012, William Pyle Philips Lectureship, Department of Chemistry, Haverford College, Haverford, PA.
2012, Merck, Inc., Kenilworth, NJ.
2012, Department of Microbiology and Immunology, Columbia University, New York, NY.
2012, Mountain Lake Meeting on Post-Initiation Activities of RNA Polymerases, Mountain Lake, VA
2012, Waksman Nobel Prize Anniversary Symposium, Rutgers University, New Brunswick, NJ.
2013, Single Molecule Biophysics 2013, Aspen, CO.
2013, American Society for Microbiology Annual Meeting, Denver, CO.
2013, FASEB Meeting on Prokaryotic Transcription, Saxtons River, VT.
2013, TB Alliance Discovery Partners Workshop, GlaxoSmithKline, Tres Cantos, Spain.
2013, Cold Spring Harbor Meeting on Mechanisms of Eukaryotic Transcription, Cold Spring Harbor, NY.
2014, Center for Integrative Proteomics, Rutgers University, Piscataway, NJ.
2014, Department of Biochemistry, University of Chicago, Chicago, IL
2014, Department of Biochemistry, Michigan State University, Lansing, MI.
2014, Microbial Genetics and Genomics VI, Institut Pasteur, Paris, France.
2014, Pharmaceutical Sciences Symposium, Helmholtz Center, Saarbrücken, Germany
2014, Natural Products Discovery Institute, Baruch S. Blumberg Institute, Doylestown, PA.

TEACHING/TRAINING

TEACHING

Chemistry 480	Structural Biology, Structural Biophysics, and Chemical Biology of Transcription (2013-; lecture course; 42 contact hours)
Chemistry 491	Seminar in Chemistry (2007-2012; seminar course; 26 contact hours)
Chemistry 537	Molecular Biophysics (1994-2002; lecture course; 9-15 contact hours)
Chemistry 542	Protein Engineering and Design (1988-1996, alternate years; lecture course; 39 contact hours)
Biochemistry 501	Biochemistry and Molecular Biology (1990-1993; lecture course; 6 contact hours)
Biochemistry 502	Molecular Biology (1994-2012; lecture course; 6 contact hours)
Biochemistry 504	Biochemistry (1988-1991; lecture course; 4 contact hours)

TRAINING

Yon W. Ebricht	Postdoctoral fellow, 1989-1992; research associate, 1993-
Erich Blatter	Postdoctoral fellow, 1990-1994; research associate, 1994-1999
Tsuyoshi Fujiwara	Postdoctoral fellow, 1995-1996
Nikolai Naryshkin	Postdoctoral fellow, 1997-2002
Xiao Shao	Postdoctoral fellow, 1997-1999
Vladimir Mekler	Postdoctoral fellow, 1997-2000; research associate, 2000-2008
Igor Kanevsky	Postdoctoral fellow, 1997-2000
Vitaly Vogel	Postdoctoral fellow, 1998-1999
Sergei Druzhinin	Postdoctoral fellow, 1998-2001; research associate, 2001-2011
Adam Goodman	Postdoctoral fellow, 1999-2001
Jayanta Mukhopadhyay	Postdoctoral fellow, 2000-2005; research associate, 2006-2009
Amal Bandyopadhyay	Postdoctoral fellow, 2001-2003
Yu-Chun Du	Postdoctoral fellow, 2001-2003
Mikhail Sinev	Postdoctoral fellow, 2001-2004
Elena Sineva	Postdoctoral fellow, 2001-2004
Rui Rong Niedfeldt	Postdoctoral fellow, 2004-2007; research associate, 2007-2010
Yi Jiang	Postdoctoral Fellow, 2006-2010
Sukhendu Mandal	Postdoctoral fellow, 2007-2012
Sujoy Chatterjee	Postdoctoral fellow, 2008-2011
M. Shesha Rao	Postdoctoral fellow, 2009-2010
Sonali Sengupta	Postdoctoral fellow, 2009-2011
Juan Shen	Postdoctoral fellow, 2009-2012; research associate, 2012-
Yu Zhang	Postdoctoral fellow, 2009-2012; research associate, 2012-
Yu Feng	Postdoctoral fellow, 2010-2012; research associate, 2013-
Feng Liang	Postdoctoral fellow, 2012-2013
Richard Wilde	Postdoctoral fellow, 2013-2014
Abhishek Mazumder	Postdoctoral fellow, 2013-
Shengjian Li	Postdoctoral fellow, 2013-
Jeremy Bird	Postdoctoral fellow, 2013-

Deepankar Das	Postdoctoral fellow, 2013-
Xiaoping Zhang	Graduate student, 1988-1991; Ph.D. Microbiology/Molecular Genetics, 1991 First position: postdoctoral fellow, Lederle Laboratories Present position: research assistant professor, Rutgers University
Angelo Gunasekera	Graduate student, 1988-1991; Ph.D. Chemistry, 1991 First position: postdoctoral fellow, University of California at Berkeley (with Peter Schultz) Present position: visiting associate professor, SUNY Stony Brook
P. Shannon Pendergrast	Graduate student, 1988-1993; Ph.D. Microbiology/Molecular Genetics, 1993 First position: postdoctoral fellow, Cold Spring Harbor Laboratory (with Nouria Hernandez) Present position: chief scientific officer, Ymir Genomics
Yan Chen	Graduate student, 1989-1994; Ph.D. Biochemistry, 1994 First position: postdoctoral fellow, Bristol Myers-Squibb Research Institute (with Nikolai Kley) Present position: analyst, Merrill-Lynch
Yuhong Zhou	Graduate student, 1990-1994; Ph.D. Microbiology/Molecular Genetics, 1994 First position: postdoctoral fellow, Roche Institute (with Thomas Curran) Present position: senior director, Morphotek
Yuexing Ma	Graduate student, 1992-1995; M.S. Chemistry, 1995 First position: associate scientist, Johnson & Johnson, Advanced Care Products
Hong Tang	Graduate student, 1991-1996; Ph.D. Microbiology/Molecular Genetics, 1996 First position: postdoctoral fellow, MIT (with Phillip Sharp) Present position: professor, Chinese Academy of Sciences, Beijing
Wei Niu	Graduate student, 1993-1998; Ph.D. Microbiology/Molecular Genetics, 1998 First position: postdoctoral fellow, Harvard University (with Thomas Maniatis) Present position: associate director, Infinity Pharmaceuticals
Matthew Pellegrini	Graduate student, 1993-1999; Ph.D. Microbiology/Molecular Genetics, 1999 First position: scientist, Purdue Biopharma Present position: deceased
Achillefs Kapanidis	Graduate student, 1994-1999; Ph.D. Chemistry, 1999 First position: postdoctoral fellow, University of California, Los Angeles (with Shimon Weiss) Present position: professor, Oxford University
Younggyu Kim	Graduate student, 1995-2001; Ph.D. Microbiology/Molecular Genetics, 2001 First position: postdoctoral fellow, University of California, Los Angeles (with Shimon Weiss) Present position: project scientist, University of California, Los Angeles
Hao Chen	Graduate student, 1997-2001; Ph.D. Microbiology/Molecular Genetics, 2001 First position: postdoctoral fellow, MIT (with Gerald Fink) Present position: senior scientist, Amgen
Andrey Revyakin	Graduate student, 1999-2003; Ph.D. Biochemistry, 2003 First position: postdoctoral fellow, Stanford University (with Steven Chu and Robert Tjian) Present position: assistant professor, University of Leicester
Xinyue Wang	Graduate student, 2003-2005; M.S., Chemistry, 2005 First position: research scientist, Beth Israel Deaconess Medical Center

Ekaterine Kortkhonjia	Present position: research scientist, Beth Israel Deaconess Medical Center Graduate student, 2000-2005; Ph.D. Chemistry, 2005 First position: postdoctoral fellow, University of California, Los Angeles (with Shimon Weiss)
Chen-Yu Liu	Present position: investor relations officer, Genentech Graduate student, 2004-2007; Ph.D. BioMaPS, 2007 First position: postdoctoral fellow, Laboratoire de Nanobiophysique, CNRS (with Ulrich Bockelmann)
Dongye Wang	Graduate student, 2003-2008; Ph.D. Chemistry, 2008 First position: research associate, Chinese Academy of Sciences, Guangzhou
Nimish Gupta	Graduate student, 2007-2008; M.S., Biochemical/Chemical Engineering, 2008 First position: research scientist, Regeneron Inc
Anirban Chakraborty	Graduate student, 2008-2012; Ph.D., Biochemistry, 2012 First position: postdoctoral fellow, Stanford University (with Steven Block)
Qumiao Xu	Graduate student, 2007-2013; Ph.D., Biochemistry, 2013 First position: postdoctoral fellow, Zoetis
David Degen	Graduate student, 2006-2013; Ph.D., Biomedical Engineering, 2013 First position: postdoctoral fellow, Rutgers University
Soma Mandal	Graduate student, 2010-2013; ; Ph.D., Biochemistry, 2013 First position: postdoctoral fellow, Rutgers University
Adam Hasemeyer	Graduate student, 2010-
Miaoxin Lin	Graduate student, 2011-
Hanif Vahedian Mohaved	Graduate student, 2012-
Ruiheng Yin	Graduate student, 2014-

PROFESSIONAL SERVICE

RUTGERS UNIVERSITY

University Institutional Biosafety Committee (2002-)
Chair, Appointments and Promotions Committee, Waksman Institute (2002-)
Chair, Biological Division, Department of Chemistry (1994-1995)
Curriculum Committee, Department of Chemistry (1988-1990; 1993-2010)
Curriculum Committee, Consolidated Graduate Programs in Molecular Biosciences (1990-1997)
Admissions Committee, Consolidated Graduate Programs in Molecular Biosciences (1988-1997)
Executive Committee, Biology/Mathematics/Physical-Sciences (BioMaPS) Institute (2000- 2011)
Executive Committee, Center for Integrative Proteomics Technologies (2003-2004)
Executive Committee, Center for Nanoscience and Technology (2003-2004)
Executive Committee, Center for Sensors and Sensor Networks (2003- 2004)
Review Committee, Technology Commercialization (2009-2012)

PROFESSIONAL SOCIETIES

American Association for the Advancement of Science (1990-; Fellow, 2004-)
American Chemical Society (1989-)
American Society for Biochemistry and Molecular Biology (1993-)
American Society for Microbiology (1991-)
 Promega Biotechnology Research Award Selection Committee (2006-2010)
 Chair, Promega Biotechnology Research Award Selection Committee (2008-2010)
American Academy of Microbiology (Fellow, 1996-)
Infectious Diseases Society of America (Fellow, 2011-)
Biophysical Society (1997-)
The Protein Society (1993-)

PROFESSIONAL JOURNALS

Journal of Molecular Biology (Editor, 1997-2012)
Journal of Bacteriology (Editorial Board, 1995-1998)
Cold Spring Harbor Protocols (Editorial Board, 2006- 2009)

ADVISORY PANELS

Pathogen Security Working Group, New Jersey Domestic Security Preparedness Task Force (2002-2004)
Controlling Dangerous Pathogens Project, CISSM (2002-2006,2010-2011)
Biosecurity Advisory Board, Johns Hopkins Center for Civilian Biodefense Strategies (2003)
Basic Research in Bacteria Workshop, National Institutes of Health (2005)
National Board, Committee of Concerned Scientists (2005-)
Synthetic Genomics Study, Venter Institute (2006-2007)
Biomedical Expert Panel, Skolkovo Foundation (2011-)

GRANT REVIEWING

National Institutes of Health, Biophysical Chemistry Study Section
National Institutes of Health, Bioorganic and Natural Products Chemistry Study Section
National Institutes of Health, Molecular Biology Study Section
National Institutes of Health, Bacteriology and Mycology Study Section

National Institutes of Health, Partnerships for Biodefense Program
National Institutes of Health, Transformative R01 Program
National Institutes of Health, Intramural Program Site Visit Team
National Science Foundation, Organic Chemistry Program
National Science Foundation, Biophysics Program
National Science Foundation, Biochemistry Program
National Science Foundation, Biochemical Genetics Program
National Science Foundation, Microbial Genetics Program
National Science Foundation, International Postdoctoral Fellows Program
Defense Threat Reduction Agency, Basic Research for Combating WMD Program
United States Air Force, Office of Scientific Research
Department of Energy, Genome Program
United States Department of Agriculture, Plant Genetic Mechanisms Program
Howard Hughes Medical Institute, International Research Scholars Program
American Chemical Society, Petroleum Research Fund
American Cancer Society
Sloan Foundation
Research Corporation
United Kingdom: Biotechnology and Biological Sciences Research Council
United Kingdom: Medical Research Council
United Kingdom: Wellcome Trust
France: Centre National de la Recherche Scientifique
Netherlands: Organization for Scientific Research
Switzerland: Schweizerische Nationalfonds
Israel: German-Israeli Foundation for Scientific Research and Development
Israel: United-States-Israel Binational Science Foundation