

Curriculum Vitae

DOUGLAS H. TURNER

Department of Chemistry
University of Rochester
ROCHESTER NY 14627-0216
Phone: 585-275-3207

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E-mail: Douglas.Turner@rochester.edu

Personal Data:

Birth Date: July 24, 1946
Citizenship: U.S.
Marital Status: Married to Joanna B. Olmsted; one child, Richard
Military Status: Captain, U. S. Army Reserve, inactive

Education:

1967 Harvard College, A.B. cum laude in Chemistry
1972 Columbia University, Ph.D., Physical Chemistry,
Advisors, G. W. Flynn and N. Sutin (Brookhaven National Labs)
1973-74 University of California, Berkeley, Postdoctoral Fellow,
Biophysical Chemistry, with I. Tinoco, Jr.

Professional Experience:

1975-81 Assistant Professor of Chemistry, University of Rochester
1981-85 Associate Professor of Chemistry, University of Rochester
1986- Professor of Chemistry, University of Rochester
1999-09 Professor of Pediatrics, University of Rochester,
School of Medicine and Dentistry

Honors:

National Institutes of Health Predoctoral Fellowship	1968-1972
Alfred P. Sloan Fellow	1979-1983
NIH Senior Fellowship, University of Colorado, Boulder	1984-1985
Member, Biomedical Sciences Study Section, NIH	1984-1988
Member, Editorial Board of <i>Biophysical Journal</i>	1992-1995, 1997-2003
Guggenheim Fellow and American Cancer Society Scholar	1993-1994
Co-chair, Nucleic Acids Gordon Conference	1995
Member, BBKA Study Section, NIH	1995-1999
Member, Editorial Board of <i>Folding and Design</i>	1996-1998
Associate-director, University of Rochester M.D./Ph.D. Program	1998-2013
Bridging Fellowship to Department of Pediatrics, University of Rochester	1999
Fellow, American Association for the Advancement of Science	1999
Member, International Adv7(nt)7(P)-e0 612 792 reW* nBT/F1 12 Tf1 0 0 1 414.17 439.4 Tm0 G[()] TJE	

Gordon Hammes Lectureship sponsored by the journal, <i>Biochemistry</i> , and the Biological Chemistry Section of the American Chemical Society	2011
University of Rochester Doctoral Commencement Award for Lifetime Achievement in Graduate Education	2014
American Association for the Advancement of Science Poland US Science Award (shared with Ryszard Kierzek)	2016
Honorary member, Phi Beta Kappa, Harvard College	2017
Total publications exceed 250	2022
Total citations exceed 20,000 (H-index > 70)	2022
RNA Society / Cold Spring Harbor Laboratory Press Distinguished Research Mentor Award	2023

Publications

1.

17. J. Am. Chem. Soc., 101, 2205-2207 (1979).
18. Raymond,* and D. H. Turner, J. Am. Chem. Soc., 101, 5822-5826 (1979).
- 19.

32. E. coli
and D. C. Hinkle, *Nucleic Acids Res.*, 10, 2399-2414 (1982).
33. -Stacking and Pairing Contributions to Helix Stability: Thermodynamics of Double Helix
Forma
Petersheim and D. H. Turner, *Biochemistry*, 22, 256-263 (1983).
34. H. Turner, *Biochemistry*, 22, 264-268 (1983).
- 35.

60. Sugimoto, S. D. Dreiker, S. M. Freier, and R. Kierzek, in *Structure and Expression*, Vol. 1: *From Proteins to Ribosomes*, ed. by R. H. Sarma and M. H. Sarma, p. 249-259 (1988).
61. *Circle Opening Reactions of the Self-Splicing Intervening Sequence from Tetrahymena thermophila: Evidence for Substrate and Mg²⁺*
*, R. Kierzek, P. Bevilacqua, and D. H. Turner, *Nucleic Acids Research*, 17, 355-371 (1989).
62. *-Jump, Spectroscopic and Thermodynamic Study of Salt Effects on Duplex*
H. Turner, *Biochemistry*, 28, 4283-4291 (1989).
63. *Letters*, 2223-2226 (1989).
64. Zuker, *Proc. Natl. Acad. Sci. U.S.A.*, 86, 7706-7710 (1989).
65. and M. Zuker, *Methods in Enzymology*, Vol. 183, 280-305 (1990).

D. H. Turner, *Biochemistry*, 30, 8242-8251 (1991).

74. -Deoxyribose Analogues of CUCU to a Ribozyme and to GGAGAA by Equilibrium Dialysis: Evidence for Ribozyme Specific Interactions with 2' OH
30, 10632-10640 (1991).

75. $\begin{matrix} 5'GU3' \\ 3'UG5' \end{matrix}$ is Destabilizing in the Contexts
 $\begin{matrix} CGUG & UGUA & & AGUU \\ GUGC' & AUGU' & \text{and} & UUGA' \end{matrix}$ but Stabilizing in $\begin{matrix} GGUC \\ CUGG' \end{matrix}$
A. Walter, and D. H. Turner, *Biochemistry*, 30, 11124-11132 (1991).

76. "Inhibition of Deoxyribo Oligonucleotides on the Circle Opening Reaction of the Intervening Sequence from *Tetrahymena thermophila*," N. Sugimoto, M. Sasaki, R. Kierzek, and D. H. Turner, *Chemistry Letters*, 747-748 (1990).

77. -
Res., 20, 1685-1690 (1992).

78. ited review for *Current Opinion in Structural Biology*, 2, 334-337 (1992).

79. 256, 217-219 (1992).

80. Dynamics of Ribozyme Binding of Substrate Revealed by Fluorescence Detected Stopped-
258, 1355-1358 (1992).

81. invited chapter in The RNA World, ed. by R. F. Gesteland and J. F. Atkins, Cold Spring Harbor Press, p. 447-464 (1993).

82. Low Temperature Transition is Primarily
32, 153-163 (1993).

83. ϕ -Amino Pyrene Provides a Sensitive, Non-Perturbing Fluorescent Probe of RNA Secondary and Terti
Chem. Soc., 115, 4985-4992 (1993).

84. D. H. Turner, *Biochemistry*, 32, 5247-5256 (1993).

85. -P
and D. H. Turner, *Nucleic Acids Research*, 21, 601-606 (1993).

86. Axenson*, C. A. Schadt, and D. H. Turner, *Nucleic Acids Res.*, 21, 3845-3849 (1993).

87.

102. GACGC)₂ by Two-Dimensional NMR and the Interactive
35, 9677-9689 (1996).
103. Biology, 6, 299-304 (1996).
104. M. Fountain, L. Profenno, and P. C. Bevilacqua, Nucleic Acids and Molecular Biology, 10, 19-32 (1996).
- 105.

- Mol. Biol., 290, 967-982 (1999).
129. H. Turner, *Biochemistry*, 38, 14214-14223 (1999).
130. -RNA Duplexes with 2- or 4-Thiouridines: Implications for
R. Kierzek, *Biochemistry*, 38, 16655-16662 (1999).
131. S. M. Freier, J. R. Wyatt, and D. H. Turner, *RNA*, 5, 1458-1469 (1999).
132. cal
ed. by J. Barciszewski and B. F. C. Clark, Kluwer Academic Publishers, p. 11-43 (1999).
133. Zuker, in *Current
Protocols in Nucleic Acid Chemistry*, ed. by S. Beaucage, D. E. Bergstrom, G. D. Glick, and R.
A. Jones, John Wiley & Sons, p. 11.2.1-11.2.10 (2000).
134. -Stranded-RNA-
Dependent
Mathews, and C. A. Thornton, *RNA*, 6, 79-87 (2000).
135. *Pneumocystis carinii* Group I Intron with Methylphosphonate Oligonucleotides:

- K_M
- Disney and D. H. Turner, *Biochemistry*, 41, 8113-8119 (2002).
158. *Candida albicans* Group I Intron
11096 (2002).
159. ^{anti} ^{anti} Base Pairs in a Destabilizing Internal Loop: The NMR Structure of
5'(rGGCAAGCCU)₂
Turner, *Biochemistry*, 41, 14969-14977 (2002).
160. -Rich Internal Loops: Thermodynamics, Structural, and
Dynamic Consequences of Purine for Adenine Substitutions in 5'(rGGCAAGCCU)₂
Znosko, M. E. Burkard, T. R. Krugh, and D. H. Turner, *Biochemistry*, 41, 14978-14987 (2002).
161. *Candida albicans*
Haidaris, and D. H. Turner, *Proc. Natl. Acad. Sci. USA*, 100, 1530-1534 (2003).
162. Propynyl
H. Turner, *J. Am. Chem. Soc.*, 125, 6090-6097 (2003).
163. *Escherichia coli*
Childs, A. W. Poole, and D. H. Turner, *RNA*, 9, 1437-1445 (2003).
164. *Pneumocystis carinii*
R. Krugh, and D. H. Turner, *Biochemistry*, 42, 14184-14196 (2003).

172.

Candida dubliniensis

Pneumocystis carinii f. sp. muris, *Candida albicans*, and

186. **UGAGGCU**)₂ and (r**GCGGAUGCU**)₂: Probing the Structural
J. Schroeder, T. R. Krugh, and D. H. Turner, *Biochemistry*, **46**, 1511-1522 (2007).
187. rner, and M. Zuker, *Current
Protocols in Nucleic Acid Chemistry, Supplement 28*, 11.2.1-11.2.17 (2007).
188. When Flanking GC Pairs are Replaced by isoG- R. Kierzek, I. Yildirm, T.
R. Krugh, D. H. Turner, and S. D. Kennedy, *J. Phys. Chem. B*, **111**, 6718-6727 (2007).
189. -O-methyl-2,6-diaminopurine Riboside and LNA-2,6-
-O-methyl
Kierzek, *Nucleic Acids Res.*, **35**, 4055-4063 (2007).
190. D.H. Mathews, and D.H. Turner, *Biochemistry*, **46**, 12665-12678 (2007).
- 191.

199. Turner, in *Methods in Enzymology*, 468, 371-387, ed. by D. Herschlag, Academic Press, Burlington, (2009).
200. -2- Selectivity of
Kierzek, *Biochemistry* 48, 10882-10893 (2009).
201. in *The RNA Worlds*, ed. by J. F. Atkins, R. F. Gesteland, and T. R Cech, Cold Spring Harbor Press, p. 293-307 (2010) cited as: *Cold Spring Harb Perspect Biol* doi: 10.1101/cshperspect.a003665.
202. Turner, f1000
Biology Reports, 2, 8 (2010).
203. -634 (2010).
204. r Predicting Stability of Nucleic Acid
-D282
(2010).
205. - -
GAN Internal Loops Studied by Mole
Kulhanek, I. Besseova, D.H. Mathews, K. Van Nostrand, I. Yildirim, D.H. Turner, and J. Sponer, *J. Chem. Theory and Computation*, 6, 910-929 (2010).
206. -parameterization of RNA Torsion Parameters for t

*, S. D. Kennedy, N. Shankar, M. Parisien, F. Major, and D. H. Turner, RNA, 17, 1664-1677 (2011).

212.

Noble, D. H. Mathews, J. L. Chen, D. H. Turner, T. Takamoto, and B. Kim, J. Biol. Chem., 286, 24872-24881 (2011).

213.

stranded r(GACC) are Improved by Revised
D. Kennedy, and D. H. Turner, J. Phys. Chem. B, 115, 9261-9270 (2011).

214.

Eickbush, and D. H. Turner, RNA Biology, 8, 714 - 718 (2011).

215.

-Adenine Non-Canonical Pair
J.
Chem. Theory Computation, 7, 3779 - 3792 (2011).

216.

Hart, R. Kierzek, and D. H. Turner, J. Chem. Theory Computation, 8, 172-181 (2012).

217.

225. -) Strands but Relatively Less
F. Priore, W. N. Moss, and D. H. Turner, *BMC Research Notes* 6:330. Doi: 10.1186/1756-0500-6-330. (2013).
226. *Biopolymers* 99, 1097-1104 (2013).
227. Malgowska, J. Lisowiec, D. H. Turner, Z. Gdaniec, and R. Kierzek, *Nucleic Acids Res.* 42, 3492-3501 (2014).
228. Reveals Similarities and Differences between
Moss, and D. H. Turner, *BMC Research Notes*, 7:22. Doi:10.1186/1756-0500-7-22 (2014).
229. E. Condon, I. Yildirim, S. D. Kennedy, B. C. Mort,
R. Kierzek, and D. H. Turner, *J. Phys. Chem. B*, 118, 1216-1228 (2014).
230. Sripakdeevong, M. Cevec, A. T. Chang, M. C. Erat, M. Ziegler, Q. Zhao, G. E. Fox, X. Gao, S. D. Kennedy, R. Kierzek, E. P. Nikonowicz, H. Schwalbe, R. K. Sigel, D. H. Turner, and R. Das, *Nature Methods* 11, 413-416 (2014).
231. T. Jiang, S. D. Kennedy, W. N. Moss, E. Kierzek, and D. H. Turner, *Biochemistry* 53, 5236-5248 (2014).
232. Turner, and E. Kierzek, *Nucleic Acids Res.* 43, 1-12 (2015).
233. S. D. Kennedy, B. C. Mort, R. Kierzek, I. Yildirim, and D. H. Turner, *J. Chem. Theory Comput.* 11, 2729-2742 (2015).
234. "Structural Features of a 3' Splice Site in Influenza A," J. L. Chen, S. D. Kennedy, and D. H. Turner, *Biochemistry* 54, 3269-3285 (2015).
235. -
F. Priore, A. D. Kauffmann, J. R. Baman, and D. H. Turner, *Biochemistry* 54, 3413-3415 (2015).
236. -Assisted Prediction of Secondary Structure for RNA:
Incorporation of Direction-
D. Tubbs, S. D. Kennedy, M. J. Lopez, D. H. Mathews, and D. H. Turner, *Biochemistry* 54, 6769-6782 (2015).
237. -folding of Naked Segment 8 Genomic RNA
Kesy, A. Ruzzkowska, M. Soszynska-Jozwiak, P. Michalak, W. N. Moss, D. H. Turner, R. Kierzek, and E. Kierzek, *PLoS ONE* 11:e0148281 (2016).

238.

s of Influenza A

Nogales, S. F. Baker, L. Martinez-Sobrido, and D. H. Turner, PLoS ONE 11: e0156906. (2016).

239.

Segment 8 Genomic RNA Inhibit Viral

-Sobrido, and D.

H. Turner, Nucleic Acid Therapeutics 26, 277-285 (2016) (with cover illustration).

240.

Zipper at Acidic pH: Evidence that Adenine N1

and L. E. Maquat, Nucleic Acids Res. 44, 8417-8424 (2016)



252. "Accurate Geometrical Restraints for Watson-Crick Base Pairs," M. Gilski, J. Zhao, M. Kowiel, D. Brzezinski, D.H. Turner, and M. Jaskolski, *Acta Crystallographica Section B: Structural Science, Crystal Engineering and Materials* B75, 235-245 (2019).
253. *In Vivo* Analysis of Influenza A mRNA Secondary Structures Identifies Critical Regulatory
Martinez-Sobrido, D. H.
Turner, S. Oliviero, and D. Incarnato, *Nucleic Acids Res.* 47, 7003-7017 (2019).
254. "Nuclear Magnetic Resonance of Single Stranded RNAs and DNAs of CAAU and UCAAUC
as Benchmarks for Molecular Dynamics Simulations," J. Zhao, S.D. Kennedy, K.D. Berger,
and D.H. Turner, *J. Chem. Theory Comput.* 16, 1968-1984 (2020).
255. "Nuclear Magnetic Resonance Spectra and AMBER OL3 and ROC-RNA Simulations of
J. Zhao,
S.D. Kennedy, and D.H. Turner, *J. Chem. Theory Comput.* 18, 1241-1254 (2022).
256. "Nuclear Magnetic Resonance -Splice Site of
A.D. Kauffmann,
S.D. Kennedy, W.N. Moss, E. Kierzek, R. Kierzek, and D.H. Turner, *RNA* 28, 508-522.
(2022).
257. J. Zuber, S.J. Schroeder, H. Sun, D.H. Turner, and D.H. Mathews, *Nucleic Acids Res.* 50,
5251-5262 (2022), <https://doi.org/10.1093/nar/gkac261>.
258. *Comments on Inorganic Chemistry: A Remembrance and
ments Inorg. Chem.* 43, 66-76 (2022).

Research Support

American Chemical Society -

-1977.

-1976.

National Science
coauthored with T. R. Krugh, \$37,200, 1975-1976.

-1976.

-Nucleic Acid

Alfred P. Sloan Fellowship, \$20,000, 1979-1983.

coauthored with D. C. Hinkle, \$5,000, 1979-1980.

cost), 1980-1983.

cost), 1981-1984.

1984-1985.

-1985.

Research Students

Research Associates

Susan M. Freier
Ph.D., University of California, Berkeley, 1976

Subsequent positions:

Scientist at Molecular Biosystems Inc., San Diego, CA.
Director of Structural Biology at ISIS Pharmaceuticals, Carlsbad, CA.
Vice President and Distinguished Research Fellow, IONIS Pharmaceuticals

Naoki Sugimoto
Ph.D., Kyoto University, 1985
Current position: Professor of Chemistry, Konan University, Kobe, JAPAN
Director, Frontier Institute of Biomolecular Engineering Research (FIBER)

Sean Moran
Ph.D., University of Colorado, Boulder, 1987

Subsequent positions:

Postdoctoral Fellow with E. Kool, University of Rochester
Research Associate with E. Nikonowicz, Rice University
NMR Facility Manager, Rice University
Director, Structural Biology Core Facility, Uniform Services University of the Health Sciences

Matthew Fountain
Ph.D., University of Rochester, 1994
Current position: Professor and Chair of Chemistry, State University College at Fredonia NY

Stephen M. Testa (NIH Postdoctoral Fellow)
Ph.D., Purdue University, 1994
Current position: Associate Professor of Chemistry, University of Kentucky

Sherry Spinelli
Ph.D., University of Rochester, 1999
Current position: Research Assistant Professor of Pathology and Laboratory Medicine and Environmental Medicine, University of Rochester

Irina Catrina
Ph.D., Utah State University, 2001
Current Position: Research Associate, Hunter College
Clinical Assistant Professor of Chemistry, Yeshiva University

Elzbieta Kierzek
Ph.D., Institute for Bioorganic Chemistry, Poznan, Polish Academy of Sciences
Current position: Professor, Institute of Bioorganic Chemistry, Poznan

Elzbieta Lenartowicz

1979 T. Gregory Dewey

Nucleic Ac

Subsequent positions:

NIH Postdoctoral Fellow in laboratory of G. G. Hammes, Cornell University
Professor of Chemistry (Department Chairman), University of Denver,
Senior Vice President for Academic Affairs, Dean of Faculty, Finnigan Professor,
Keck Graduate Institute for Applied Life Science (Claremont Consortium of Colleges)
Provost, University of La Verne
President, Albany College of Pharmacy and Health Sciences

1980 Craig D. Scoville

(Department of Microbiology)
Current position: Practicing Physician

1981 Eric W. Lobenstine

Subsequent positions:

NIH postdoctoral fellow in laboratory of T. G. Spiro, Princeton University
Scientist at Jarrell-Ash
Research Associate at Laboratory for Laser Energetics, University of Rochester
Manager of Computers and Network, Chemistry Department, University of
Rochester

1981 Diane DePrisco Albergo

ouble Helix Formation in

Subsequent positions:

American Cancer Society fellow in laboratory of P. Modrich, Duke University
Scientist at Abbott Laboratories, Irving, Texas

1982 Matthew Petersheim (deceased)

Ribonucleic Acid D05 226.83 Tm0 G[(0.00000)-6(i)7ian

Postdoctoral Fellow in laboratory of M. T. Record, University of Wisconsin,
Madison
Scientist at Eastman Kodak Company, Rochester, NY

David R. Hickey

Subsequent positions:

Postdoctoral Fellow in laboratory of F. Sherman, University of Rochester
Instructor, Department of Chemistry, University of Rochester

1985 Michael Lamos

Subsequent positions:

Scientist at Abbott Laboratories, Irving, Texas
Scientist at Becton-Dickinson, Sparks, Maryland
Scientist at Sienna Biotech, Stillwater, MN

1988 Alison Williams

-Jump, Spectroscopic and Thermodynamic Studies of Salt

Subsequent positions:

Assistant Professor of Chemistry, Swarthmore College, PA
Research Associate Professor, Wesleyan University, Middletown, CT
Research Associate Professor, Rutgers University, New Brunswick, NJ
Director of Studies, Princeton University
Lecturer, Department of Chemistry, Princeton University
Vice President for Equity and Inclusion, Wesleyan University

1989 Carl Longfellow

Bulge Loop Structures Formed by

Subsequent position:

Scientist at Wyeth-Ayerst Labs, Rouses Point, NY

1989 John Jaeger

Subsequent positions:

NIH Postdoctoral Fellow in laboratory of I. Tinoco, Jr., University of California,
Berkeley
Scientist at Genta, San Diego, CA
Database Administrator for Informatics at Trega, San Diego, CA
Database Administrator for Informatics at Lion Bioscience, Inc., San Diego, CA
Database Administrator for Discovery Partners, San Diego, CA
Information Technology Business Partner for Research, Bristol Myers Squibb

1991 John SantaLucia, Jr.

Bioinformatics Analyst II, Center for Cancer Computational Biology, Dana
Farber Cancer Institute

Blanton Tolbert

-Canonical GA

Pairs: Insights into the Factors Affecting Thermodynamic Stability of RNA 2X2 Nucleotide

Subsequent Positions:

Postdoctoral Fellow, University of Pennsylvania

Jonathan Chen

- and Three-Dimensional Modeling of RNA Structures with NMR and

Subsequent Positions:

Postdoctoral Fellow in laboratory of Matthew Disney, Scripps Florida
Staff Scientist, University of Rochester, Department of Biochemistry &

Biophysics

2016?

Tian Jiang

Subsequent Position:

Systems Engineer, Abbott Labs, Dallas

2018

Kyle Berger

Thermodynamic and Structural Studies of RNA Internal Loops Closed by GU

Pairs

Subsequent Position:

Postdoctoral Fellow in laboratory of David MacLean, University of Rochester
School of Medicine and Dentistry

2019

Andrew Kauffmann

Subsequent Position:

Assistant Professor of Chemistry, Truman State University, Missouri

2020

Jianbo Zhao

Subsequent Positions:

Research Associate then Senior Research Scientist for Computer-Aided Drug
Discovery, Albany Molecular Research Inc. (now named Curia Global Inc.)

Senior Scientist, Nested Therapeutics, Boston, MA

Visiting Scientists

Dr. Ryszard Kierzek, Professor, Institute of Bioorganic Chemistry, Poznan, Poland

Dr. Elzbieta Kierzek, Professor, Institute of Bioorganic Chemistry, Poznan, Poland

Dr. Peter Müller, Scientist, Dr. Karl Thomae, GmbH G[93 Tm0 G[() TJET 0 05b3(i)7(c(m)-ET, G)-6(ül)7r

Head, Department of Chemical Research, Dr. Karl Thomae, GmbH, Biebrach, Germany
Senior Vice President, Research and Development, Boehringer Ingelheim
Pharmaceuticals, Ridgefield, CT
Chief Scientific Officer & Senior Vice President, Vertex Pharmaceuticals

Dr. Martin J. Serra, Paul E. and Mildred L. Hill Professor of Chemistry, Allegheny College

Dr. Janet Morrow, Professor of Chemistry, SUNY at Buffalo

Dr. Neena Grover, Associate Professor of Chemistry, Colorado College

Teaching

For most of my career, I primarily taught a graduate Biophysical Chemistry course, and either lecture or lab for first year General Chemistry. The first year chemistry courses ranged from 50-600 students, and included applications to biological problems. A small part of the grade was based on writing a poem or song with content relative to anything taught in the course. This was meant to alert the students that success in many fields depends on creativity as well as knowledge. I graded each submission.

Service

Department Committees

Graduate Recruiting (1975-1983, 1999, 2005), Chair (1985, 1994-1996)
Safety (1975-1978), Chair (1976-

- Polish Academy of Sciences, Poznan, Institute of Bioorganic Chemistry, November
- 1986 University of California, Berkeley, Structural Biology Symposium, January
Nashville Section, American Chemical Society, March
Rutgers University, March
Georgetown University, April
- 1987 College of Wooster, January
National Research Council, Ottawa, February
Cold Spring Harbor Symposium on Evolution of Catalytic Function, May
Fifth Conversation in Biomolecular Stereodynamics, Albany, June
- 1988 University of Pennsylvania, March
UCLA Symposium on the Molecular Biology of RNA; Keystone, Colorado, April
Biopolymers Gordon Conference, June
- 1989 Roswell Park Memorial Institute, Biophysics Department, January
University of New Hampshire, Mobay Lecture, January
Texas A & M, Biochemistry Department, February
Applied Biosystems Inc., April
State University of New York, Buffalo, Biochemistry Department
Bowling Green University, September
University of Minnesota, Training Grant Symposium on Thermodynamics of Proteins
and Nucleic Acids, September
Sterling Drug, Great Valley, PA, November
- 1990 University of California, Berkeley, Structural Biology Symposium, January
Biophysical Society Meeting, Baltimore, on Advances in Nucleic Acid Structure
Symposium, February
University of Delaware, May
National Cancer Institute, Frederic, Maryland, June
- 1991 UCLA Symposium on Translational Control; Tamarron, Colorado, February
Yale University, Department of Chemistry, April
Structural Biology Symposium in honor of I. Tinoco, Jr., Lake Tahoe, June
University of Colorado, Boulder, Department of Molecular, Cellular, and Developmental
Biology, June
Sterling Drug, Great Valley, PA, July
American Society of Microbiology Conference on RNA Processing and mRNA Decay in
Procaryotic Cells, October
Allegheny College, November
- 1992 Columbia University, Department of Biochemistry and Biophysics, February
Dr. Karl Thomae GmbH, Bieberach, Germany, June
RNA Biochemie Meeting, Turnau, Germany, July
Appolon Inc., Great Valley, PA, November
Rutgers University, December
- 1993 University of Pittsburgh, Department of Biological Sciences, January
Boston College, January
Johns Hopkins University, Department of Biophysics, February
State University of New York at Stony Brook, Department of Microbiology, April
Nucleic Acids Gordon Conference, June

Calorimetry Conference, Duke University, July
Brookhaven National Labs, September
Nexagen, Boulder, CO, October
North Carolina State, Glaxo Lecture, November
University of Colorado, Boulder, December

1994 University of Denver, January
University of Texas Health Sciences Center at San Antonio, Department of Biochemistry,
February
University of Wisconsin at Madison, American Chemical Society Lecture, March
University of Colorado Health Sciences Center, Program in Molecular Biology, April
Genecore International, San Francisco, May
Colorado State University, Department of Biochemistry, May

- 1999 Boehringer Ingelheim, Danbury, CT, January
 Institute Pasteur, Paris, Bioinformatics Conference, June
 University of Vermont, July
 University of Rochester, Dedication of Levine Pavilion and Kornberg Medical
 Research Building, September
 Swarthmore College, October
 Messiah College, October
 Rice University, November
 Bayer Diagnostics, Emeryville, CA, November
 Geron Corporation, Foster City, CA, November
- 2000 The Millennium Conference on Nucleic Acid Therapeutics, Clearwater Beach, FL, January
 University of Kentucky, January
 University of Colorado, Boulder, April
 American Chemical Society Northeast Regional Meeting, Bioorganic Symposium,
 Storrs, Connecticut, June
 University of California, Berkeley, Tinoco Symposium, July
 Motorola BiochipSystems, Chicago, Illinois, July
 Third Wave Technologies, Madison, Wisconsin, July
 American Chemical Society Meeting, Washington, DC, Physical Chemistry of Nucleic Acids
 Symposium, August
 Pennsylvania State University, RNA and Protein Folding Symposium, August
- 2001 Florida State University, Tallahassee, March
 Clemson University, March
 University of Michigan, March
 Nature Biotechnology sponsored meeting: Antisense 2001, Advances in Epi Genetic
 Medicine, Tokyo, Japan, May
 Upstate New York NMR Conference, October
 Robert Wood Johnson Medical School (Rutgers University), November
 Keck Institute of Applied Biology, December
- 2002 Rensselaer Polytechnic Institute, February
 University of Texas, Austin, Texas, March
 American Chemical Society Meeting, Symposium on Molecular Modeling of Nucleic
 Acids, Orlando, FL, April
 Niagara University, October
- 2003 University of Colorado, Boulder, March
 American Chemical Society Northeast Regional Meeting, Saratoga Springs, NY,
 Chemical Biology Symposium, June
 Williams College, October
- 2004 SUNY, College at Geneseo, October
 American Chemical Society Northeast Regional Meeting, Rochester, NY, November
 Grinnell College, December

- 2016 Tinoco Celebration, Berkeley, March
Case Western Reserve University, March
Ceremony for Poland-US Science Award, Warsaw, November
Institute of Bioorganic Chemistry, Poznan, November
- 2017 University of Rochester, Laboratory for Laser Energetics, April
RNA Dynamics, Telluride, July
- 2019 RNA Dynamics, Telluride, Colorado, July
Florida Atlantic University, November
- 2021 RNA Goes Viral, Institute of Bioorganic Chemistry, Polish Academy of Sciences,
Poznan, Poland