Curriculum Vitae

Philip C. Bevilacqua

Personal

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Education

1993	**University of Rochester**, Ph.D., Physical Chemistry
1989	**University of Rochester**, M.S., Chemistry
1987	**John Carroll University**, B.S., *summa cum laude,* Chemistry Major, Physics Minor

Professional Experience

2018-present	Distinguished Professor of Chemistry and of Biochemistry & Molecular Biology
2015 - 2017	Professor of Biochemistry and Molecular Biology, Pennsylvania State University
2015 - present	Member Bioinformatics and Genomics Graduate Program, Pennsylvania State University
2008 - present	Member Molecular Cellular and Integrative Biosciences (MCIBS) Graduate Program, Pennsylvania State University
2006 - present	Member Plant Biology Graduate Program, Pennsylvania State University
1997 - 2017	Assistant, Associate, and Full Professor of Chemistry, Penn State
1993 - 1997	Postdoctoral Research, University of Colorado, Boulder/HHMI Advisor: Professor Thomas R. Cech. Topic: Molecular Recognition of RNA by the dsRNA-Binding Domain from the RNA-Activated Protein Kinase PKR
1987 - 1993	Graduate Research, University of Rochester Advisor: Professor Douglas H. Turner. Topic: Dynamics of Substrate-Ribozyme Interaction
1986	Undergraduate Research, John Carroll University
1986	NSF Summer Research Fellow, Oak Ridge National Labs/Univ. of Tennessee, Knoxville

Honors and Awards

2018	Distinguished Professor
2018	Gomberg Lecturer, U Michigan, Ann Arbor MI
2016	Keynote Speaker, Zing Nucleic Acids Conference, Tampa, FL
2015	CESE Tombros Education Fellow
2014	Invited Speaker at RiboClub, Sherbrooke Québec
2013	Keynote Speaker at RNA Upstate NY: Finger Lakes RNA Conference
2012	C. I. Noll Award for Excellence in Teaching
2010 - 2012	Distinguished Honors Faculty Fellow
2010	Penn State Faculty Scholar Medal in Physical Sciences
2009	Elected Fellow of American Association for Advancement of Science (AAAS)
2001 - 2006	Camille Dreyfus Teacher-Scholar
2001 - 2006	Alfred P. Sloan Foundation Fellow
2000 - 2005	National Science Foundation (NSF), Faculty Career Development (CAREER) Award
1996 - 1997	Howard Hughes Medical Institute (HHMI) Postdoctoral Fellow, University of Colorado
1993 - 1996	Jane Coffin Childs Medical Research Postdoctoral Fellow, University of Colorado
1990 - 1991	Agnes and George Messersmith Fellow, University of Rochester
1989 - 1990	Elon Huntington Hooker Fellow, University of Rochester
1987 - 1989	Robert L. and Mary L. Sproull University Fellow, University of Rochester
1987 - 1992	Sherman Clarke Fellow, University of Rochester
1986	National Science Foundation (NSF) REU Fellow, University of Tennessee, Knoxville
1986	ACS Award in Analytical Chemistry, John Carroll University

Professional Memberships

AAAS, 1989-present
Alpha Sigma Nu, 1986-present
American Chemical Society; Member of Biological Division, 1996-present
Kavli Fellow, National Academy of Sciences, 2008-present
RNA Society, 1997-present; Member of Editorial Board, 2004-present

Professional Activities

Editorial Positions

2014-present	Editorial Board for *Journal of Molecular Biology*
2004-present	Editorial Board for *RNA*
2007, 2012	Guest Editor for *Proceedings of the National Academy of Sciences*
2008	Guest Editor for *Current Opinions in Chemical Biology*
2004	Guest Editor for *Biopolymers*: Nucleic Acids Issue

Review Panels

2018	NIH F04B Fellowship Panel
2018	NSF Review Panel
2017	NIH K99/R00 Panel
2017	Cornell High Energy Synchrotron Source (CHESS) Proposal Reviewer (8-10 proposals)
2013, 2016	NSF Review Panels
2015	NIH MSFA Study Section (Feb 2015 and June 2015)
2006-2013, 2015	Committee co-chair RNA Society Scaringe Award Selection
2014	NSF Review Panel
2014	*J. Mol. Biol.* Editors Meeting. San Francisco
2011, 2012	NIH PPG Study Sections
2010	NIH MGA Study Section
2007-present	Reviewer for the Royal Society of Chemistry (RSC), Invited Member
2005	NIH P01 Site Visit for RNA Folding PPG, Stanford University
2003-2011	NSF Review Panels

Meeting Organization

2018	Co-chair, Telluride Nucleic Acids Chemistry Workshop
2018	Organizer, American Chemical Society, RNA Structure Function Session
2017	Elected to RNA Rustbelt Meeting Steering Committee
2015	Workshop Chair, 20th Annual RNA Society Conference (Madison, WI)
2014	Session Chair at RiboClub Meeting (Sherbrooke Québec CANADA)
2014	Chair, RNA Rustbelt Meeting (Pittsburgh, PA)
2013	Vice-Chair, RNA Rustbelt Meeting (Cleveland, OH)
2013	Co-Chair, Nucleic Acids Dynamics Workshop (Telluride, CO)
2013	Organizer, ACS PHYS Symposium, 245th ACS National Meeting (New Orleans, LA)
2011	Organizer, Automated Biological Calorimetry Workshop. (Penn State)
2010	Co-Chair, 2010 FASEB Nucleic Acids Enzymes Meeting (Saxtons River, VT)
2007	Session Chair, 233rd ACS National Meeting (Chicago, IL)
2006	Co-Chair, Plant Physiology Meeting, "*RNA Biology: Novel Insights from Plant Systems"* (Penn State)
2005	Session Coordinator/Chair at National Meeting: RNA 2005 (Banff, **Canada**)
2004	Session Coordinator/Chair at National Meeting: RNA 2004 (Madison, WI)
2000	Co-Chair, Symposium "*Protein and RNA Folding Problems: Sharing Perspectives*" (Penn State)

Notable Penn State Committees (recent)

2017-2018	Department Promotion & Tenure Committee; *Chair 2017-2018.*
2016-2017	Biochemistry and Molecular Biology Department Search for New Head Committee; *Chair*
2015-2016	World Campus Instructor Search; *Chair*
2012-2015	Department Promotion & Tenure Committee; *Chair 2013-2015*
2010-2012	Eberly College Promotion & Tenure Committee; *Chair 2011-2012*
2010-present	Established NSF MRI-funded Automated Biological Calorimetry Facility; Huck Institutes; Currently *Chair* of Facilities Advisory Committee
2009-present	Center for RNA Molecular Biology; Huck Institutes; *Co-director*
2008-present	University Isotopes Committee (UIC); *Vice Chair*

Notable Outreach Efforts

2017-2021	Elected to the ACS Program Committee of the Division of Biological Chemistry
2016	ASBMB (IMAGE) Grant Writing Workshop for New Faculty
2013-2015	Millennium Science Summer Workshops in Chemistry
2011-2014	Hosted summer SEECoS students in our lab
2012	Presented in Discovery-U for PSU Undergraduates. Video is online.
1998-2002; 2005-2011	Career site for "Take Our Daughters and Sons to Work Day"

Research Honors for Students and Postdocs

2018	NSF Graduate Research Fellowship, Honorable Mention, Jacob Sieg
2017	Best Poster Award, 4th Annual RNA Symposium, Kate Leamy
2017	RNA Society/Scaringe Award Best Graduate Student, Madeline Sherlock
2015	NSF Graduate Research Fellowship, Honorable Mention, Laura Ritchey
2014	Dalton Undergraduate Student Research Fund for Women in Sciences, Ananya Anmangandla
2014	NSF Graduate Research Fellowship, Honorable Mention, Jamie Bingaman
2014	Penn State Alumni Association Dissertation Award, Chun Kit Kwok
2012	Rustbelt RNA Meeting 2012, Best Student Talk, Jennifer Wilcox
2012	PSU Library Award, Undergraduate Research Exhibition, Amarpreet Ahluwalia
2012	RNA Society Travel Award, Jennifer Wilcox
2011	NSF Graduate Research Fellowship, Honorable Mention, Christopher Strulson
2010	ASBMB Meeting (Anaheim, CA), Best Poster Award, Rebecca Toroney.
2009	Symposium on RNA Biology VIII (Research Triangle Park, UNC), Best Poster Awards: Melissa Mullen, Subbarao Nallagatla, Joshua Sokoloski
2007	NSF Graduate Research Fellowship, Honorable Mention, Melissa Mullen
2007	Rustbelt RNA Meeting 2007, Best Poster, Laurie Heinicke
2007	Jean Dreyfus Boissevain Undergraduate Scholarship for Excellence in Chemistry, Elizabeth Gratton
2006 - 2008	NIH NSRA Fellowship, Joshua Sokoloski
2004 - 2007	NSF Graduate Research Fellowship, Andrea Cerrone-Szakal
2004	RNA Structure Function Meeting (Edinburgh, Scotland), Best Poster, Rieko Yajima
2003	Penn State Alumni Association Dissertation Award, David Proctor
2003	Nucleic Acids Gordon Conference, Best Poster, Ellen Moody
2002 - 2005	Sloan Scholarship, Trevor Brown
2002 - 2005	NSERC Predoctoral Fellowship, Rieko Yajima
2002	Paul Berg Prize in Molecular Biology, Ellen Moody
2001 - 2005	NIH Minority Predoctoral Fellowship, Trevor Brown
2001 - 2003	American Cancer Society Postdoctoral Fellowship, Amy Diegelman-Parente

Publications: (*Corresponding author) H-Index (Web of Science): 42 (6/27/18)

1. Sugimoto, N., Tomka, M., Kierzek, R., Bevilacqua, P. C. and Turner, D. H.* "Effects of Substrate Structure on the Kinetics of Circle Opening Reactions of the Self-Splicing Intervening Sequence from *Tetrahymena thermophila*: Evidence for Substrate and Mg^{2+} Binding Interactions." *Nucleic Acids Res.* 17, 355-371 (1989).
2. Bevilacqua, P. C. and Turner, D. H.* "Comparison of Binding of Mixed Ribose-Deoxyribose Analogues of CUCU to a Ribozyme and to GGAGAA by Equilibrium Dialysis: Evidence for Ribozyme Specific Interactions with 2' OH Groups." *Biochemistry* 30, 10632-10640 (1991).
3. Bevilacqua, P. C., Kierzek, R., Johnson, K. A. and Turner, D. H.* "Dynamics of Ribozyme Binding of Substrate Revealed by Fluorescence Detected Stopped-Flow." *Science* 258, 1355-1358 (1992).
4. Kierzek, R., Li, Y., Turner, D. H.* and Bevilacqua, P. C. "5'-Amino Pyrene Provides a Sensitive, Non-Perturbing Fluorescent Probe of RNA Secondary and Tertiary Structure Formation." *J. Am. Chem. Soc.* 115, 4985-4992 (1993).
5. Bevilacqua, P. C., Johnson, K. A. and Turner, D. H.* "Cooperative and Anticooperative Binding to a Ribozyme." *Proc. Natl. Acad. Sci. USA* 90, 8357-8361 (1993).
6. Turner, D. H.* and Bevilacqua, P. C. "Thermodynamic Considerations for Evolution by RNA." Invited Chapter in *RNA World*, Cold Spring Harbor Press, eds Ray Gesteland and John Atkins, 447-464 (1993).

7. Bevilacqua, P. C., Li, Y. and Turner, D. H.* "Fluorescence-Detected Stopped Flow with a Pyrene Labeled Substrate Reveals That Guanosine Facilitates Docking of the 5' Cleavage Site into a High Free Energy Binding Mode in the *Tetrahymena* Ribozyme." *Biochemistry* 33, 11340-11348 (1994).

8. Li, Y., Bevilacqua, P. C., Mathews, D. and Turner, D. H.* "Thermodynamic and Activation Parameters for Binding of a Pyrene Labelled Substrate by the *Tetrahymena* Ribozyme: Docking is Not Diffusion Controlled and is Driven by a Favorable Entropy Change." *Biochemistry* 34, 14394-14399 (1995).

9. Bevilacqua, P. C., Sugimoto, N. and Turner, D. H.* "A Mechanistic Framework for the Second Step of Splicing Catalyzed by the *Tetrahymena* Ribozyme." *Biochemistry* 35, 648-658 (1996).

10. Turner, D. H.*, Li, Y., Fountain, M., Profenno, L. and Bevilacqua, P. C. "Dynamics of a Group I Ribozyme Detected by Spectroscopic Methods." In *Nucleic Acids & Molecular Biology*, eds Fritz Eckstein & David M. J. Lilley, 10, 19-32 (1996).

11. Cech, T. R.*, Bevilacqua, P. C., Doudna, J. A., McConnell, T. S., Strobel, S. A., Weinstein, L. B. "Mechanism and Structure of a Catalytic RNA Molecule." In *Proceedings of the Robert A. Welch Foundation*, 91-110 (1993).

12. Bevilacqua, P. C. and Cech, T. R.* "Minor-Groove Recognition of Double-Stranded RNA by the Double-Stranded RNA-Binding Domain from the RNA-Activated Protein Kinase PKR." *Biochemistry* 35, 9983-9994 (1996).

13. Bevilacqua, P. C.*, George, C., Samuel, C. E., and Cech, T. R. "Binding of the Protein Kinase PKR to RNAs with Secondary Structure Defects: Role of the Tandem A-G Mismatch and Noncontiguous Helixes." *Biochemistry* 37, 6303-6316 (1998).

14. Szewczak, A. A., Podell, E., Bevilacqua, P. C., and Cech, T. R.* "Thermodynamic Stability of the P4-P6 Domain RNA Tertiary Structure Measure by Temperature Gradient Gel Electrophoresis." *Biochemistry* 37, 11162-11170 (1998).

15. Bevilacqua, J. M. and Bevilacqua, P. C.* "Thermodynamic Analysis of an RNA Combinatorial Library Contained in a Short Hairpin." *Biochemistry*, 37, 15877-15884 (1998).

16. Arnold, J. J., Ghosh, S.K.B., Bevilacqua, P. C. and Cameron, C.* "Single-Nucleotide Resolution of RNA Strands in the Presence of their RNA Complements." *Biotechniques*, 27, 450-456 (1999).

17. Shu, Z., and Bevilacqua, P. C.* "Isolation and Characterization of Thermodynamically Stable and Unstable RNA Hairpins from a Triloop Combinatorial Library." *Biochemistry,* 38, 15369-15379 (1999).

18. Bevilacqua, P. C.* "Exploring the Possibility of an RNA World." Book Review of "The RNA World," 2nd Ed., Gesteland, R. F., Cech, T. R., and Atkins, J. F. Eds. for *Nature Struct. Biol.,* 6, 997 (1999).

19. Nakano, S., Chadalavada, D. M., and Bevilacqua, P. C.* "General Acid-Base Catalysis in the Mechanism of an HDV Ribozyme." *Science*, 287, 1493-1497 (2000).

20. Chadalavada, D. M., Knudsen, S. K., Nakano, S., and Bevilacqua, P. C.* "A Role for Upstream RNA Structure in Facilitating the Catalytic Fold of the Genomic Hepatitis Delta Virus Ribozyme." *J. Mol. Biol.* 301, 349-368 (2000).

21. Zheng, X., and Bevilacqua, P. C.* "Straightening of Bulged RNA by the Double-Stranded Domain from the Protein Kinase PKR." *Proc. Natl. Acad. Sci. USA* (Track II) 97, 14162-14167 (2000).

22. Zheng, X. and Bevilacqua, P. C.* "Efficient Construction of Long DNA Duplexes with Internal non-Watson-Crick Motifs and Modifications." *Nucleic Acids Res.* 29, E6 (2001).

23. Bevilacqua, P. C.* "Making Biochemistry Required Reading." *Chemical & Engineering News.* 79, 219 (2001).

24. Nakano, S., Proctor, D. J., and Bevilacqua, P. C*. "Mechanistic Characterization of the HDV Genomic Ribozyme: Assessing the Catalytic and Structural Contributions of Divalent Metal Ions within a Multi-Channel Reaction Mechanism." *Biochemistry,* 40, 12022-12038 (2001).

25. Nakano, S. and Bevilacqua, P. C.* "Proton Inventory of the Genomic HDV Ribozyme in Mg^{2+}-Containing Solutions." *J. Am. Chem. Soc.*, 123, 11333-11334 (2001).

26. Chadalavada, D. M., Senchak, S. E., and Bevilacqua, P. C*. "The Folding Pathway of the Genomic Hepatitis Delta Virus Ribozyme is Dominated by Slow Folding of the Pseudoknots." *J. Mol. Biol.*, 317, 559-575 (2002).

27. Bevilacqua, P.C. and Turner, D.H.* "Use of fluorescence spectroscopy to elucidate RNA folding pathways." In *Current Protocols in Nucleic Acid Chemistry* (S. Beaucage et al., eds.). John Wiley & Sons, New York. 11.8.1-11.8.6 (2002).

28. Bevilacqua, P. C. "Battle for the Bulge: Directing Natural Products to DNA Defects." *Chem. Biol.,* 9, 854-855 (2002).

29. Proctor, D. J., Schaak, J. E., Bevilacqua, J. M., Falzone, C. J. and Bevilacqua, P. C.* "Isolation and Characterization of a Family of Stable Tetraloops with the Motif YNMG that Participate in Tertiary Interactions." *Biochemistry*, 41, 12062-12075 (2002).

30. Diegelman-Parente, A., and Bevilacqua, P. C.* "A Mechanistic Framework for Co-transcriptional folding of the HDV Genomic Ribozyme in the Presence of Downstream Sequence." *J. Mol. Biol.*, 324, 1-16 (2002).

31. Nakano, M., Moody, E. M., Liang, J., and Bevilacqua, P. C.* "Selection for Thermodynamically Stable DNA Tetraloops Using Temperature Gradient Gel Electrophoresis Reveals Four Motifs: d(cGNNAg), d(cGNABg), d(cCNNGg), and d(gCNNGc)." *Biochemistry*, 41, 14281-14292 (2002).

32. Moody, E. M., and Bevilacqua, P. C.* "Thermodynamic Coupling of the Loop and Stem in Unusually Stable DNA Hairpins Closed by CG Base Pairs." *J. Am. Chem. Soc.*, 125, 2032-2033 (2003).

33. Proctor, D. J., Kierzek, E., Kierzek, R., and Bevilacqua, P. C.* "Restricting the Conformational Heterogeneity of RNA by Specific Incorporation of 8-Bromoguanosine." *J. Am. Chem. Soc.,* 125, 2390-2391 (2003).

34. Bevilacqua, P. C.* "Mechanistic Considerations for General Acid-Base Catalysis by RNA: Revisiting the Mechanism of the Hairpin Ribozyme." *Biochemistry*, 42, 2259-2265 (2003).

35. Nakano, S., Cerrone, A. L., and Bevilacqua, P. C.* "Mechanistic Characterization of the HDV Genomic Ribozyme: Classifying the Catalytic and Structural Metal Ion Sites within a Multichannel Reaction Mechanism." *Biochemistry*, 42, 2982-2994 (2003).

36. Bevilacqua, P. C.*, Brown, T. S., Chadalavada, D. M., Parente, A. D. and Yajima, R. "Kinetic Analysis of Ribozyme Cleavage." In *Kinetic Analysis of Macromolecules: A Practical Approach* (K. Johnson, ed.) Oxford University Press. Chpt 3, 49-74 (2003)

37. Babitzke, P.*, Schaak, J., Yakhnin, A. V., and Bevilacqua, P. C. "Role of RNA Structure in Transcription Attenuation in *Bacillus subtilis*: the *trpEDCFBA* Operon as a Model System." *Methods Enzymol.*, 371, 392-404 (2003).

38. Schaak, J. E., Yakhnin, H., Bevilacqua, P. C.*, and Babitzke, P.* "A Mg^{2+}-Dependent RNA Tertiary Structure Forms in the *Bacillus subtilis trp* Operon Leader Transcript and Appears to Interfere with *trpE* translation control by inhibiting TRAP binding." *J. Mol. Biol.*, 332, 555-574 (2003).

39. Schaak, J. E., Babitzke, P.*, and Bevilacqua, P. C.* "Phylogenetic Conservation of RNA Secondary and Tertiary Structure in the *trpEDCFBA* Operon Leader Transcript in *Bacillus*." *RNA* 9, 1502-1515 (2003).

40. Moody, E. M., and Bevilacqua, P. C.* "Folding of a Stable DNA Motif Involves a Highly cooperative network of Interactions." *J. Am. Chem. Soc..* 125, 16285-16293 (2003).

41. Bevilacqua, P. C.*, Brown, T. S., Nakano, S., and Yajima, R. "Catalytic Roles for Proton Transfer and Protonation in Ribozymes." *Biopolymers* 73, 90-109 (2004).

42. Bevilacqua, P. C.* "Mechanism of Catalytic RNA." *Biopolymers* 73, 69-70 (2004).

43. Moody, E. M., Feerrar, J. C., and Bevilacqua, P. C.* "Evidence that Folding of RNA Tetraloop Hairpin is Less Cooperative than its DNA Counterpart." *Biochemistry*, 43, 7992-7998 (2004).

44. Moody, E. M., and Bevilacqua, P. C.* "Structural and Energetic Consequences of Expanding a Highly Cooperative Stable DNA Hairpin Loop." *J. Am. Chem. Soc. 126*, 9570-9577 (2004).

45. Brown, T. S., Chadalavada, D. M., and Bevilacqua, P. C.* "Design of a Highly Reactive HDV Ribozyme Sequence Uncovers Facilitation of RNA Folding by Alternative Pairings and Physiological Ionic Strength." *J. Mol. Biol. 341*, 695-712 (2004).

46. Moody, E. M., Brown, T. S., and Bevilacqua, P. C.* "Simple Method for Determining Nucleobase pK_a Values by Indirect Labeling and Demonstration of a pK_a of Neutrality in dsDNA." *J. Am. Chem. Soc. 126*, 10200-10201 (2004).

47. Paxon, T. L., Brown, T. S. Hsiao-yu, N. L. Brancato, S. J., Roddy, E. S., Bevilacqua, P. C., and Ewing, A. G.* "Continuous Monitoring of Enzyme Reactions on a Microchip: Application to Catalytic RNA Self-Cleavage." *Anal. Chem. 76,* 6921-6927 (2004). (A 1 page overview of the article appears in the front of this issue.)

48. Proctor, D. J., Ma, H., Kierzek, E., Kierzek, R., Gruebele, M.*, and Bevilacqua, P. C.* "Folding Thermodynamics and Kinetics of YNMG RNA Hairpins: Specific Incorporation of 8-bromoguanosine Leads to Stabilization by Enhancement of the Folding Rate." *Biochemistry 43*, 14004-14014 (2004).

49. Tian, B., Bevilacqua, P. C., Diegelman-Parente, A., and Mathews, M. B.* "The Double-Stranded RNA Binding Motif: Interference and Much More." *Nat. Rev. Mol. Cell. Biol. 5*, 1013-1023 (2004).

50. Zheng, X., and Bevilacqua, P. C.* "Activation of the Protein Kinase PKR by Short Double-stranded RNAs with Single-stranded Tails." *RNA 10*, 1934-1945 (2004).

51. Moody, E. M., Lecomte, J. T. J., and Bevilacqua, P. C.* "Linkage Between Proton Binding and RNA Folding: A Thermodynamic Framework and Its Experimental Application for Investigating pK_a Shifting." *RNA 11*, 157-172 (2005).

52. Brown, T. S., and Bevilacqua, P. C.* "Method for assigning double-stranded RNA structures." *Biotechniques 38*, 368-372 (2005). (1 page overview of the article appears in the front of this issue.)

53. Bevilacqua, P. C.*, Brown, T. S., Chadalavada, D., Lecomte, J., Moody, E., and Nakano, S.-i. "Linkage Between Proton Binding and Folding in RNA: Implications for RNA Catalysis." *Biochem. Soc. Trans. 33*, 466-470 (2005).

54. Ma, H., Proctor, D. J., Kierzek, R., Kierzek, E., Bevilacqua, P. C.*, and Gruebele, M.* "Exploring the Energy Landscape of a Small RNA Hairpin by Temperature Tuning" *J. Am. Chem. Soc. 128*, 1523-1530 (2006).

55. Bevilacqua, P. C.*, and Yajima, R. "Nucleobase Catalysis in Ribozyme Mechanism" *Curr. Opin. Chem. Biol. 10,* 455-464 (2006).

56. Siegfried, N. A., Metzger, S. L., and Bevilacqua, P. C.* "Folding Cooperativity in RNA and DNA is Dependent on Position in the Helix." *Biochemistry 46*, 172-181 (2007).

57. Yajima, R., Proctor, D. J., Kierzek, R., Kierzek, E., and Bevilacqua, P. C.* "A Conformationally Restricted Guanosine Analogue Reveals the Catalytic Relevance of Three Structures of an RNA Enzyme" *Chem. & Biol. 14,* 23-30 (2007).

58. Nakano, S., and Bevilacqua, P. C.* "Mechanistic Characterization of the HDV Genomic Ribozyme: A Mutant of the C41$^+$ Motif Provides Insight into Positioning and Thermodynamic Linkage of Metal Ions and Protons" *Biochemistry 46,* 3001-3012 (2007).

59. Blose, J. M., Silverman, S. K., and Bevilacqua, P. C.* "A Simple Model for Thermophilic Adaptation in Functional Nucleic Acids" *Biochemistry 46,* 4232-4240 (2007).

60. Bevilacqua, P. C.*, Cerrone-Szakal, A. L., and Siegfried, N. A. "Insight into the Functional Diversity of RNA Through Model-Making" *Q. Rev. Biophys. 40*, 55-85 (2007).

61. Bevilacqua, P. C.*, SantaLucia, J. Jr. "The Biophysics of RNA." *ACS Chem. Biol. 2,* 440-444 (2007).

62. McGraw, A. P., Bevilacqua, P. C.*, and Babitzke, P.* "TRAP-5' Stem-Loop Interaction Increases the Effect the Efficiency of Transcription Termination in the *Bacillus subtillis trpEDCFBA* Operon Leader Region by Increasing the Rate of TRAP Binding to the Nascent Transcript." *RNA 13*, 2020-2033 (2007).

63. Chadalavada, D.M., Cerrone-Szakal, A.L., and Bevilacqua, P. C.* "Wild-type is the Optimal Sequence of the HDV Ribozyme Under Cotranscriptional Conditions." *RNA 13,* 2189-2201 (2007).

64. Gong, B, Chen, J. H., Chase, E., Chadalavada, D. M., Yajima, R., Golden, B. L.*, Bevilacqua, P. C.*, and Carey, P. R.* "Direct Measurement of a p*K*a Near Neutrality for the Catalytic Cytosine in the Genomic HDV Ribozyme by Raman Crystallography." *J. Am. Chem. Soc. 129,* 13335-13342 (2007).

65. Nallagatla, S. R., Hwang, J., Toroney, R., Zheng, X., Cameron, C. E.*, and Bevilacqua, P. C.* "5'-Triphosphate-Dependent Activation of PKR by RNAs with Short Stem-loops." *Science 318*, 1455-1458 (2007).(Featured paper in F1000 site)

66. Bevilacqua, P. C.* "Proton Transfer in Ribozyme Catalysis." *Ribozymes and RNA Catalysis.* D.M. Lilley and F. Eckstein eds. RSC Publishing, Cambridge, UK, pp. 11-36 (2008).

67. Bevilacqua, P. C.* and Blose, J. M. "Structures, Kinetics, Thermodynamics, and Biological Functions of RNA Hairpins." *Annu. Rev. Phys. Chem. 59, 79-103* (2008).

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69. Gong, B., Chen, Y.,Christian, E. L., Chen, J., Chase, E., Chadalavada, D. M., Yajima, R., Golden, B. L.*, Bevilacqua, P. C.*, and Carey, P. R.* "Detection of Inner-sphere Interactions between Magnesium Hydrate and the Phosphate Backbone of the HDV Ribozyme Using Raman Crystallography." *J. Am. Chem. Soc. 130*, 9670-9672 (2008).

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72. Nallagatla, S. R.*, Toroney, R. and Bevilacqua, P. C.* "A Brilliant Disguise for Self RNA: 5'-end and Internal Modifications of Primary Transcripts Suppress Innate Immunity." *RNA Biology 5,* 25-29 (2008).

73. Bevilacqua, P. C.*, & Russell, R.* "Editorial Overview: Exploring the Vast Dynamics of RNA Dynamics." *Curr. Opin. Chem. Biol*. *12,* 601-603 (2008).

74. McGraw, A., Mokdad, A., Major, F., Bevilacqua, P. C.*, and Babitzke, P.* "Molecular Basis of TRAP-5'SL RNA Interaction in the *Bacillus subtilis trp* Operon Transcription Attenuation Mechanism." *RNA 15*, 55-66 (2009).

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77. Blose, J. M., Proctor, D. J., Misra, V. K., and Bevilacqua, P. C.* "Contribution of the Closing Base Pair to Exceptional Stability in RNA Tetraloops: Roles for Molecular Mimicry and Electrostatic Factors" *J. Am. Chem. Soc. 131*, 8474-8484 (2009).

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Patents

Bevilacqua, P. C., Kwok, C. K., Assmann, S. M., Ding, Y. "Low Sequence Bias Single-Stranded DNA Ligation" US Patent No. 9,816,120.

Invited Talks (since 2006)

2018 EMBO Workshop. RNA: Structure meets function. Stockholm archipelago, SWEDEN.
2018 Ohio State University CMP/RNA Biology Symposium, Keynote Lecturer
2018 Johns Hopkins University, Department of Biophysics (Homewood Campus) Baltimore, MD
2018 255th American Chemical Society Meeting. BIOL Symposium, New Orleans, LA
2018 University of Florida, Gainesville, FL.
2018 University of Michigan (Gomberg Lecturer), Ann Arbor, MI.
2017 McMaster University, Hamilton, CANADA.
2017 University of Waterloo, Waterloo, CANADA.
2017 Iowa State University, Ames, IA.
2017 Penn State College of Medicine, Hershey, PA
2017 Hunter College, NY, NY.
2017 Syracuse University, Syracuse, NY.
2016 5th Zing Nucleic Acids Conference, Tampa, FL.
2016 Solvay Conference on Chemistry, Brussels, BELGIUM.
2016 Telluride Workshop on Nucleic Acid Chemistry, Telluride, CO.
2016 Canadian Society for Chemistry (CSC), Workshop on Advances in Nucleic Acid Chemistry and Technology Symposium. Halifax, Nova Scotia, CANADA.
2016 SISSA (International School for Advanced Studies), Workshop on RNA Structure, Dynamics, Function, Trieste, ITALY.
2016 University of Massachusetts, Worcester MA.
2016 University of Zürich, Zürich, SWITZERLAND.
2016 London Imperial College, London, UNITED KINGDOM.
2016 University of Oregon, Eugene OR.
2016 251st American Chemical Society Meeting. BIOL Symposium, San Diego, CA
2016 Rutgers University, Piscataway, NJ
2015 Pacifichem: "*Functional Nucleic Acids: Chemistry, Biology, and Materials Applications*", Honolulu, HI
2015 Denison University, Granville, OH
2015 Case Western Reserve University, Cleveland, OH
2015 ACS Meeting, Boston, MA
2015 Telluride Workshop on RNA Dynamics, Telluride, CO
2015 University of Illinois, Urbana-Champaign, Urbana, IL
2015 24th Enzyme Mechanism Conference, Galveston, TX
2014 UNC, Chapel Hill, Chapel Hill, NC.
2014 RiboClub, Sherbrooke Québec, CANADA
2014 Carnegie Mellon University, Pittsburgh, PA
2014 Telluride Workshop on Challenges in RNA Structural Modeling and Design, Telluride, CO
2014 Cornell University, CHESS Users Meeting, Ithaca, NY
2014 Scripps Florida, Jupiter, FL
2014 University of Maryland, IBBR, NIST, Rockville, MD
2014 Gettysburg College, Gettysburg, PA
2014 Saint Francis University, Loretto, PA
2013 Finger Lakes RNA Conference, Canandaigua, NY
2013 ACS Meeting, Indianapolis, IN
2013 Telluride Workshop on RNA Dynamics, Telluride, CO
2013 ACS Meeting, New Orleans, LA
2013 Ohio State University, Department of Chemistry & Biochemistry, Columbus, OH
2013 Drexel University, Department of Biology, Philadelphia, PA

2012 FASEB Meeting (Snowmass, CO)
2012 RNA Meeting (Ann Arbor, MI)
2012 Saint Louis University, Department of Chemistry, St. Louis, MO
2012 University of California, LA, CNSI (California NanoSystems Institute)
2012 University of California, Irvine, Department of Chemistry, Irvine, CA
2011 Telluride Workshop on RNA Dynamics, Telluride, CO
2011 ACS Meeting, Denver, CO
2011 XCaret Mexico, Zing Meeting on Enzymes, Coenzymes, and Metabolic Pathways
2010 Franklin & Marshall College, Department of Chemistry, Lancaster, PA
2010 University of Southern California (USC), Department of Chemistry, Los Angeles, CA
2010 Cornell University, Biophysics Colloquium, Applied and Engineering Physics, Ithaca, NY
2010 Rensselaer Polytechnic Institute (RPI), Dept of Physics, Applied Physics and Astronomy, Troy, NY
2010 Telluride Workshop on Nucleic Acids Chemistry, Telluride, CO
2010 Puerto Morelos, MEXICO, Zing Conference on Nucleic Acid
2010 Pacifichem: "*New Frontiers of Functional Nucleic Acids*", Honolulu, HI
2009 Penn State Altoona, Department of Biology, Altoona, PA
2009 Telluride Workshop on RNA Dynamics, Telluride, CO
2009 Plant Biology Symposium, Pennsylvania State University, University Park
2008 2008 Biophysical Society Annual Meeting, Long Beach, CA
2008 Carnegie Mellon University, Department of Chemistry, Pittsburgh, PA
2008 Peking University, Dept Biochemistry and Molecular Biology, Life Sciences College, Beijing, China.
2008 Peking University, Dept Biochemistry and Molecular Biology, Life Sciences College, Beijing, China.
2008 2008 FASEB Meeting on Nucleic Acid Enzymes, Saxton's River, VT.
2008 Arnold and Mabel Beckman Center, 20th Annual Symposium on Kavli Frontiers of Science, Irvine, CA
2007 American Chemical Society Meeting, Chicago, IL
2007 Wayne State University, Department of Chemistry, Detroit MI
2007 Santa Fe Institute Workshop, "*Nucleic Acids—The First Billion Years*"
2007 Wesleyan University, Department of Molecular Biology and Biochemistry, Middletown, CT
2006 Université de Montréal, Department of Biochemistry, Montreal, CANADA
2006 Institute of Research in Immunology and Cancer (IRIC).Université de Montréal, Montreal, CANADA
2006 Kobe, JAPAN, 2nd International Symposium on Biomolecular Chemistry (ISBC)
2006 University of Rochester, Department of Chemistry, Rochester, NY
2006 University of Michigan, Department of Chemistry, Ann Arbor, MI