

CURRICULUM VITAE

Connor T. Murphy, Ph.D.

Business Address:

201 Wood Street
Pittsburgh, PA 15222

Citizenship: United States of America

EDUCATION and TRAINING

Undergraduate

9/2001 - 5/2005; Dickinson College
Carlisle, PA
B.S. Biology
Advisor: Dr. Janet Wright
Cum Laude

Graduate

8/2005 - 8/2010; Carnegie Mellon University
Pittsburgh, PA
Ph.D. Biological Sciences
Advisor: Dr. Bruce Armitage

APPOINTMENTS and POSITIONS

Academic

8/2010 - 12/2010; Carnegie Mellon University
Mellon College of Science
Pittsburgh, PA
Postdoctoral Associate
Department of Chemistry
Advisor: Dr. Bruce Armitage

2/2011 – 12/2014; University of Pittsburgh
Graduate School of Public Health
Pittsburgh, PA
Postdoctoral Associate
Department of Environmental and Occupational Health
Advisor: Dr. Patricia Opresko

Professional

2/2015 – 8/2017; Hunt Optics and Imaging dba B&B Microscopes
Pittsburgh, PA
Imaging and Microscopy Specialist

8/2017 - Present; Point Park University
School of Arts and Sciences
Pittsburgh, PA
Laboratory Associate
Department of Natural Sciences and Engineering

MEMBERSHIP in PROFESSIONAL and SCIENTIFIC SOCIETIES

2008 – 2010; Charter Member, Center for Nucleic Acids Science and Technology
(Carnegie Mellon University)

2010 – 2014; Member, American Chemical Society

2023 – Present; Member, American Society of Brewing Chemists

Research Interest: My research interests are at the intersection of chemistry and biology. Previous work has used small synthetic molecules known as peptide nucleic acids (PNAs) that target features of DNA. We customized these molecules to display desirable characteristics and evaluated their performance as a result of our modifications. We have demonstrated that we can change the selectivity and other aspects of the PNAs. Recently I have been doing work on the chemistry of brewing and have studied a phenomenon known as hop creep, an undesirable secondary fermentation in the brewing process.

SELECTED PEER REVIEWED PUBLICATIONS

1. Lusvarghi S, **Murphy CT**, Roy S, Tanious FA, Sacui I, Wilson WD, Ly DH, Armitage BA. Loop and backbone modifications of peptide nucleic acid improve g-quadruplex binding selectivity. Journal of the American Chemical Society. 2009 Dec 30; 131 (51):18415-24. PMCID: PMC2819988. PMID: 19947597. (First two authors share primary authorship)
2. Pham H, **Murphy CT**, Sureshkumar G, Ly DH, Opresko P, Armitage BA. Cooperative hybridization of γ PNA miniproboscopes to a repeating sequence motif and application to telomere analysis. Org Biomol Chem. 2014 Oct 7;12(37):7345-54. (First two authors share primary authorship).
3. **Murphy CT**, Armitage BA, Gupta A, Opresko P. Hybridization of G-quadruplex-forming peptide nucleic acids to guanine-rich DNA templates inhibits DNA polymerase η extension. Biochemistry. 2014 Aug 19;53(32):5315-22.
4. **Murphy CT**, Nye J, Johnson G. An Investigation of Enzymes and Microbes in Hop Creep. Manuscript in preparation.

SELECTED PRESENTATIONS

1. **Murphy CT**, Armitage BA.
Formation of PNA/DNA and PNA/RNA Heteroquadruplexes: Moving toward a biological impact.
Poster presented at: The First International Meeting on G-quadruplex DNA; 2007 April 21-24; Louisville, KY.
2. **Murphy CT**, Roy S, Armitage BA.
Synthesis of cell-permeable G-rich PNAs for the purpose of targeting biologically relevant G-quadruplex forming motifs in cells.
Presented at: National Meeting of the American Chemical Society; 2010 March 21-24; San Francisco, CA.
3. **Murphy CT**, Armitage BA, Opresko P.
Hybridization of G-Quadruplex Forming PNAs to Guanine-Rich DNA Templates Inhibits DNA Polymerase η Extension.
Presented at: 2013 CNAST Symposium; 2013 April 27; Pittsburgh, PA.
4. **Murphy CT**, Roy S, Armitage BA, Opresko P.
Synthesis, Design, and Analysis of Guanine Quadruplex Targeting Molecules.
Presented at: Dickinson College; 2013 September 25; Carlisle, PA.
5. **Murphy CT**, Nye J, Johnson G.
Identifying the Root Cause of Dry Hop Creep
Presented at: 2023 ASBC Meeting; 2023 June 5; Pittsburgh, PA.

SELECTED MENTORING AND ADVISING

1/2009 - 12/2009; Alanna Schwartz; Carnegie Mellon University
Peptide Nucleic Acid Chemistry/Biochemistry

6/2011 - 8/2011; Vera Filatova; University of Pittsburgh
Fluorescence Staining and Microscopy

1/2018 - 5/2018; Colton Hurley; Point Park University
Laboratory Assistant

9/2022 - 12/2022; Sasaya Hamer Pennisi; Point Park University
Laboratory Assistant

10/2022 - 5/2023; Jaelyn Nye; Point Park University
Laboratory Research