

Kelly A. Daggett, Ph.D.

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Education:

- 2010-present The Rockefeller University, New York, NY.
Postdoctoral associate in Molecular Biology and Biochemistry.
- 2009 University of Maryland, College Park, MD.
Ph.D. in Chemistry.
- 2004 Manhattan College, Riverdale, NY.
B.S. in Biochemistry.

Research Interests:

Protein evolution, genetic incorporation of unnatural amino acids, chemical biology, bio-organic chemistry

Research Experience:

- 2010 – present: The Rockefeller University, New York, NY; Advisor: Prof. Thomas Sakmar
- Use of unnatural amino acid mutagenesis technology to probe the molecular mechanism of GPCR signaling.
- 2004 – 2009: University of Maryland, College Park, MD; Advisor: Prof. T. Ashton Cropp
- Development of a novel mutagenesis method for studying protein structure and function by efficiently scanning both natural and unnatural amino acids throughout a protein coding sequence.
 - Creating only in-frame mutations or deletions by adapting a linker or transposon to be reading frame selectable.
 - Investigating protein-protein interactions through use of a prokaryotic two-hybrid system.
 - General skills: PCR, cloning, chromosomal knockout, protein expression and purification, organic synthesis.
- 2002- 2004: Manhattan College, Riverdale, NY
- Small scale synthesis of meso-substituted porphyrins, tetra-, tri- and di- anisyl followed by chromatography separation, developed for use in the undergraduate organic lab.
 - Developing a small scale synthesis of triaryl methane dyes to demonstrate electrophilic aromatic substitution and Friedel-Crafts reactions in the undergraduate organic lab.

Honors and Awards:

- Distinguished Teaching Assistant 2007 - 2008
- GAANN Teaching Fellow, August 2006 – August 2007
- Chemistry Honors Medal, Manhattan College, 2004
- Sigma Xi, Research Honor Society, Manhattan College, 2004
- Howard Hughes Medical Grant, Summer 2003
- Gamma Sigma Epsilon, Chemistry Honor Society, 2003

Publications:

Daggett, K.A., Layer, M. and Cropp, T.A. A General Method for Scanning Unnatural Amino Acid Mutagenesis. *ACS Chem. Biol.* **2009**, *4*, 109.

Wilkins, B.J., Daggett, K.A. and Cropp, T.A., Peptide Mass Fingerprinting Using Isotopically Encoded Photo-crosslinking Amino Acids. *Mol Biosyst.* **2008**, *4*, 934.

McCullagh, J.V. and Daggett, K.A. Synthesis of Triarylmethane and Xanthene Dyes Using Electrophilic Aromatic Substitution Reactions. *J Chem Educ.* **2007**, *84*, 1799.

Patent:

Cropp, T.A. and Daggett, K.A., "A Rapid Method for Scanning Amino Acid Mutagenesis", US Pat. Application filed April 30, 2008.

Selected Poster Presentations:

Daggett, K.A. and Cropp, T.A. "A General Method for Scanning Photoreactive Amino Acids" *238th ACS National Meeting*, Washington DC. August 2009.

Daggett, K.A. and Cropp, T.A. "A General Method for Single-Residue Scanning Protein Mutagenesis" *National Cancer Institute, Chemistry of Biological Processes Symposium*, Frederick, MD. August 2008.

Daggett, K.A. and Cropp, T.A. "Codon Scanning Mutagenesis: A general method for single-residue scanning protein mutagenesis" *Maryland Interface of Chemistry and Biology Meeting*, College Park, MD. April 2008.

Daggett, K.A.; Wilkins, B.J. and Cropp, T.A. "A Novel Random Mutagenesis Method and the Incorporation of an Isotopic Label into a Protein" *Experimental Biology Annual Meeting*, Washington DC. April 2007.

Teaching Experience:

- 2004-2007: Teaching Assistant for Organic Chemistry Lab 1 & 2 and Organic Chemistry Lecture I, for majors and non-majors; Taught laboratory skills, supervised experiments, helped students develop problem solving, developed review guides and clarified misconceptions from lectures. Held lectures for >200 students.
- 2006-2007: Observed lectures at various institutes, was observed by a professor while holding lectures to >200 students, and developed clicker questions for first semester organic chemistry. (GAANN fellowship).