



Caroline Proulx



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Design, Synthesis, Folding and Function of Peptide Mimics

Research emphasis:

The Proulx lab develops chemistry for the rapid access of peptide mimic libraries, with particular focus on unnatural amino acid backbone compositions, *e.g.* azapeptides and *N*-substituted glycines (or peptoids). Our goal is to develop proteolytically stable peptide analogs with well defined secondary structures, in order to identify the bio-active conformations of peptides and develop new types of PPI inhibitors. We are also interested in discovering mild peptide ligation reactions, as well as conducting site-selective peptide and protein modifications.

Selected publications:

Proulx, C.; Yoo, S.; Connolly, M. D.; Zuckermann, R. N. Accelerated Submonomer Solid-Phase Synthesis of Peptoids Incorporating Multiple Substituted *N*-Aryl Glycine Monomers. *J. Org. Chem.* **2015**, *80*, 10490.

Proulx, C.; Picard, É.; Boeglin, D.; Pohankova, P.; Chemtob, S.; Ong, H.; Lubell, W. D. Azapeptide Analogs of the Growth Hormone Releasing Peptide 6 as Cluster of Differentiation 36 Receptor Ligands with Reduced Affinity for the Growth Hormone Secretagogue Receptor 1a. *J. Med. Chem.* **2012**, *55*, 6502.

Proulx, C.; Sabatino, D.; Hopewell, R.; Spiegel, J.; García Ramos, Y.; Lubell, W. D. Azapeptides and their Therapeutic Potential. *Future Med. Chem.* **2011**, *3*, 1139.

Sabatino, D.; Proulx, C.; Klocek, S.; Bourguet, C. B.; Boeglin, D.; Ong, H.; Lubell, W. D. Exploring Side-Chain Diversity by Submonomer Solid-Phase Aza-Peptide Synthesis. *Org. Lett.* **2009**, *11*, 3650.

Application:

- Peptide ligands;
- GPCRs;
- Combinatorial chemistry;
- Bio-orthogonal chemistry.

Collaboration potential:

- Synthesis of peptide mimic libraries;
- Understanding the effect of conformation on bio-activity in peptides;
- Developing protein-protein interaction (PPI) inhibitors.