

**Brian A. Provencher, Ph.D.**  
315 Turnpike Street. N. Andover MA 01845  
[ProvencherB@merrimack.edu](mailto:ProvencherB@merrimack.edu)  
(978) 837-5296

## EDUCATION

---

<u>Ph.D. in Organic Chemistry:</u> Advisor: Prof. Li Deng Thesis: Asymmetric Reactions with Phase-Transfer Catalysis by Cupreinium Salts	Brandeis University	Waltham, MA	2012
<u>M.S. in Chemistry:</u> GPA: 3.6	Brandeis University	Waltham, MA	2007
<u>B.S. in Chemistry (ACS certified):</u> GPA: 3.36 (Cum Laude) Senior Thesis: A Novel Approach to 3-Pyrrolidones	Merrimack College	North Andover, MA	2006

## PROFESSIONAL EXPERIENCE

---

<u>Merrimack College</u> <i>Assistant Professor of Chemistry and Biochemistry</i> <ul style="list-style-type: none"><li>• Classes taught: Chemistry for Health Professions I &amp; II (GOB), Organic Chemistry I &amp; II, Organic Chemistry Labs, General Chemistry Labs.</li><li>• Assisted students with questions pertaining to lecture and lab.</li><li>• Assisted with other departmental duties such as NMR maintenance and laboratory set-up.</li><li>• Participated in several student outreach activities including Mack Calls, the chemistry club, intramural soccer.</li></ul>	North Andover, MA	09/2014-present
<u>Organix Inc.</u> <i>Senior Scientist I (05/2014-08/2014)</i> <i>Postdoctoral Research Associate (03/2013-04/2014)</i> <ul style="list-style-type: none"><li>• Explored the structure-activity relationship (SAR) of novel compounds that act on the Central Nervous System (CNS) and have the potential to treat methamphetamine addiction.</li><li>• Designed and executed multi-step synthetic routes to several biologically active small molecules.</li><li>• Analyzed trends in the biological data in order to propose novel compounds for evaluation.</li><li>• Performed custom synthesis for client projects; delivered desired amounts of compounds to customers adhering to strict deadlines.</li><li>• Created reports and presentations on a weekly basis to keep the clients up-to-date.</li></ul>	Woburn, MA	03/2013 – 08/2014
<u>Harvard Medical School- McLean Hospital</u> <i>Postdoctoral Research Fellow- Medicinal Chemistry</i> <ul style="list-style-type: none"><li>• Designed and carried out multi-step synthetic routes to several opioid receptor agonists.</li><li>• Worked closely with a team of pharmacologists and behavioral scientists to improve the efficacy of our lead compound.</li><li>• Developed new pro-drugs and salt forms to improve the chemical and biological properties of aminothiazolomorphinans, a class of highly potent opioid agonists with numerous applications in treating diseases that affect the CNS.</li><li>• Presented at several internal meetings where I explained my project to non-chemists.</li><li>• Assisted with the preparation of SBIR and other private grants.</li><li>• Instructed and managed a summer undergraduate researcher.</li></ul>	Belmont, MA	12/2011 – 03/2013

Brandeis University

Waltham, MA

08/2006 – 11/2011

*Graduate Research Assistant*

- Synthesized, characterized and evaluated several bifunctional chiral phase-transfer catalysts.
- Discovered new transformations, which have provided access to previously inaccessible compounds.
- Prepared X-ray quality crystals of several phase-transfer catalysts for a structural study.
- Mentored undergraduate researchers within our lab; teaching them proper laboratory technique.
- Assisted with the preparation of NIH grants.
- Taught two sections of Organic Chemistry Laboratory per semester.
- Crafted pre-lab lectures detailing the theory and procedure of the week's experiment.
- Instructed undergraduate students on proper lab technique, reaction mechanisms and instrumentation including the interpretation of Nuclear Magnetic Resonance Spectroscopy (NMR).
- Held office hours to help the students review for their exams and discuss questions pertaining to laboratory or lecture.
- Received the Benjamin Rosenberg Teaching Fellowship and an "Excellence in Teaching" award.

Wyeth Pharmaceuticals

Cambridge, MA

05/2006 – 08/2006

*Medicinal Chemistry Summer Intern – Exploratory Team*

- Developed a new synthetic strategy to the pyrazolo[1,5- $\alpha$ ]pyrimidinone core, a key intermediate for several structure-activity relationship (SAR) studies.
- Synthesized and characterized over 40 small-molecule compounds in 3 months.
- Isolated and analyzed synthetic intermediates to elucidate the mechanism of the key cyclization step.

**HONORS & AFFILIATIONS**

- ACS member since 2005
- Member of NESACS since 2009
- Angewandte Chemie "Hot Paper" Distinction
- Benjamin Rosenberg Teaching Fellow
- Brandeis University Excellence in Teaching Award
- 2005 Merck/AAAS Research Fellow
- Merrimack Academic Merit Scholarship
- Merrimack College's James W. Kennedy Jr. Award
- Theta Delta Chi Fraternity's Porter Scholarship
- 2006 Pfizer Green Chemistry Conference
- 2006 New England Institute of Chemists Award
- Sigma Xi Honors Society

**PUBLICATIONS & PRESENTATIONS**

1. McGowan, C.; Provencher, B. Conversion of Classic Organic Laboratory Experiments to Microwave Speed. 33<sup>rd</sup> Northeast Regional Meeting of the ACS, July 14-17, **2005**.
2. McGowan, C., Leadbetter, N. Clean, Fast Organic Chemistry: Microwave-Assisted Laboratory Experiments. CEM **2006**. (Contributing Scientist)
3. Provencher, B.; A Novel Approach to 3-Pyrrolidones. B.S. Thesis, Merrimack College, North Andover, MA, May **2006**.
4. Gavrin, L.K.; Lee, A.; Provencher, B. A.; Masefski, W.W.; Huhn, S.D.; Ciszewski, G.M.; Cole, D.C.; McKew, J.C. Synthesis of Pyrazolo[1,5- $\alpha$ ]pyrimidinone Regioisomers. *J. Org. Chem.* **2007**, 72, 1043-1046.
5. Lee, A.; Gavrin, L.K.; Provencher, B. A.; McKew, J.C. Synthesis of Pyrazolo[1,5- $\alpha$ ]pyrimidinone Regioisomers. 223<sup>rd</sup> ACS National Meeting, March 25-29, **2007**.

6. Provencher, B. A.; Deng, L. Highly Enantioselective Phase Transfer Reactions with New Cinchonium Salts. 240<sup>th</sup> ACS National Meeting, August 22-26, **2010**.
7. Liu, Y.; Provencher, B. A.; Bartelson, K. J.; Deng, L. Asymmetric Darzens Reactions with a Phase Transfer Catalyst. *Chem. Sci.* **2011**, 2, 1301-1304.
8. Provencher, B. A.; Bartelson, K. J.; Liu, Y.; Foxman, B. M.; Deng, L. Structural Study-Guided Development of Versatile Phase Transfer Catalysts for Asymmetric Conjugate Additions of Cyanide. *Angew. Chem. Int. Ed.* **2011**, 50, 10565-10569. (Angewandte "Hot Paper" Distinction)
9. Provencher, B. A.; Bartelson, K. J.; Liu, Y.; Foxman, B. M.; Deng, L. Private Communication to the Cambridge Structural Database, CCDC 854181-854183. **2011**. (3 Crystal Structures)
10. Provencher, B.; Asymmetric Reactions with Phase-Transfer Catalysis with Cupreinium Salts. Ph.D. Thesis, Brandeis University, Waltham, MA, February, **2012**.
11. Chartoff, E. H.; Provencher, B. A.; Sromek, A. W.; Russell, S.; Knapp, B. I.; Bidlack, J. M.; Neumeyer, J. L. Comparison of the Morphinans Butorphan and MCL-420 with other High Affinity Kappa Opioid Receptor Agonists. 2<sup>nd</sup> Conference on the Therapeutic Potential of Kappa Opioids in Pain and Addiction. April 24-27, **2013**.
12. Provencher, B. A.; Sromek, A. W.; Russell, S.; Chartoff, E. H.; Knapp, B. I.; Bidlack, J. M.; Neumeyer, J. L. Comparison of the Pharmacological Activity of (-)-Butorphan (MCL-101) with its Enantiomer (+)-Butorphan (MCL-191). 2<sup>nd</sup> Conference on the Therapeutic Potential of Kappa Opioids in Pain and Addiction. April 24-27, **2013**.
13. Provencher, B. A.; Sromek, A. W.; Li, W.; Russell, S.; Chartoff, E. H.; Knapp, B. I.; Bidlack, J. M.; Neumeyer, J. L.; Synthesis and Pharmacological Evaluation Aminothiazolomorphinans at the Mu and Kappa Opioid Receptors. *J. Med. Chem.* **2013**. 56, 8872-8878.
14. Sromek, A. W.; Provencher, B. A.; Russell, S.; Chartoff, E. H.; Knapp, B. I.; Bidlack, J. M.; Neumeyer, J. L.; Preliminary Pharmacological Evaluation of Enantiomeric Morphinans. *ACS Chem. Neurosci.* **2014**, 5, 93-99.
15. Mullin, W.; DiPietro, A.; Provencher, B. A. "Synthesis of Novel  $\mu$ -Agonists for the Treatment of CNS Diseases" 1<sup>st</sup> Annual Merrimack College Creative Achievement Conference, N. Andover, MA May 2016.
16. Blanchard, J.; Fernandez, A.; Provencher, B.; Theberge, S.; Zwickau, B. "Incorporation of mobile technology into first-year chemistry courses at Merrimack College", 252<sup>nd</sup> ACS National Meeting & Exposition, Philadelphia, PA, August 21-25, 2016 PagesCHED-106
17. Gamache, C.; Provencher, B.A. "Synthesis of Novel  $\delta$ -Lactam Fentanyl Derivatives" 2<sup>nd</sup> Annual Merrimack College Creative Achievement Conference, N. Andover, MA May 2017.
18. Robinson, C.; Provencher, B. A. "Investigations into 3-step Syntheses" 2<sup>nd</sup> Annual Merrimack College Creative Achievement Conference, N. Andover, MA May 2017.
19. Eshleman, A. J.; Johnson, Robert, A.; Kryatova, O. P.; Nelson, J.; Provencher, B. A. Tian, J.; Meltzer, P. C.; "Arylpiperidinylquinazolines: potent transport inhibitors of the vesicular monoamine transporter" *Biochemical Pharmacology*, Submitted 09/2017.