

Todd M. Doran

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EDUCATION

- 2011–present The Scripps Research Institute; Jupiter, FL.
Postdoctoral Research Associate
- Research Advisor: Prof. Thomas Kodadek
 - Research Project: ***Identification of synthetic antigen surrogates for autoantibodies associated with type 1 diabetes for diagnostic and therapeutic applications***
- 2007–2011 University of Rochester; Rochester, NY.
Ph.D., Chemistry, Exp. May 2012
Sherman Clark Fellow, 2007–2010, Weissberger Fellow, 2010–2011
- Research Advisor: Professor Bradley L. Nilsson
 - Research Project: ***Effect of amino acid hydrophobicity, aromaticity, and molecular volume on amyloid peptide self-assembly***
 - Research Project: ***Role of turn nucleation on amyloid- β self-assembly***
- 2005–2007 University at Buffalo, The State University of New York; Amherst, NY.
M.B.A., Finance, May 2007
- 2001–2005 University at Buffalo, The State University of New York; Amherst, NY.
B.S., Chemistry with Honors and Highest Distinction, summa cum laude, May 2005
B.S. Medicinal Chemistry with Honors and Highest Distinction, summa cum laude, May 2005
- Research Advisor: Professor Richard P. Cheng
 - Research Project: ***Determination of helix propensity of fluorinated amino acids***

RESEARCH EXPERIENCE

- 2007–present University of Rochester; Rochester, NY
Research Assistant (Professor Bradley L. Nilsson)
- Clarified the role of hydrophobicity, aromaticity and steric profile in model amyloid peptides.
 - Synthesized photoswitchable amyloid peptides with reversible properties.
 - Developed peptide-based inhibitors of A β -induced neurotoxicity.
- 2002–2004 State University of New York at Buffalo; Amherst, NY
Research Assistant (Professor Richard P. Cheng)
- Measured thermodynamic parameters for folding of coiled-coil peptides to determine helix propensity of natural and nonnatural amino acids.

DISTINCTIONS

- Chemistry Alumni Summer Organic Fellowship (SUNY at Buffalo), 2003
- Ralph F. Theuer Scholarship (SUNY at Buffalo), 2004
- Departmental Award in Medicinal Chemistry - Highest Distinction (SUNY at Buffalo)
- Departmental Award in Chemistry - Highest Distinction (SUNY at Buffalo), 2005
- Sherman Clark Fellowship (University of Rochester), 2007–2010
- Weissberger Memorial Fellowship (University of Rochester), 2010–present
- American Peptide Symposium Travel Award, 2011
- Young Investigator Poster Competition 2nd Place Winner (American Peptide Symposium), 2011

TEACHING EXPERIENCE

- 2007–2008 University of Rochester; Rochester, NY
Graduate Teaching Assistant, W. D. Walters Teaching Award
- Sophomore Organic Chemistry Lab
 - Graduate Organic Reactions Workshop
- 2005–2006 State University of New York at Buffalo; Amherst, NY
Graduate Teaching Assistant
- Introduction to Computers and Statistics Recitation
- 2005 State University of New York at Buffalo; Amherst, NY
Undergraduate Teaching Assistant
- Sophomore Organic Chemistry Recitation and Lab

PUBLICATIONS

1. Olsen, J. S.; Brown, C.; Capule, C. C.; Rubinshtein, M.; **Doran, T. M.**; Srivastava, R. K.; Feng, C.; Nilsson, B. L.; Yang, J.; Dewhurst, S., Amyloid-binding Small Molecules Efficiently Block SEVI (Semen-derived Enhancer of Virus Infection)- and Semen-mediated Enhancement of HIV-1 Infection. *J. Biol. Chem.* **2010**, *285*, 35488–35496.
2. Senguen, F. T.; Lee, N. R.; Gu, X.; Ryan, D. M.; **Doran, T. M.**; Nilsson, B. L., Probing aromatic, hydrophobic, and steric effects on the self-assembly of an amyloid- β fragment peptide. *Mol. BioSyst.* **2011**, *7*, 486–496.
3. Senguen, F. T.; **Doran, T. M.**; Anderson, E. A.; Nilsson, B. L., Clarifying the influence of core amino acid hydrophobicity, secondary structure propensity, and molecular volume on amyloid- β 16–22 self-assembly. *Mol. BioSyst.* **2011**, *7*, 497–510.
4. Ryan, D. M.; **Doran, T. M.**; Nilsson, B. L., Stabilizing self-assembled Fmoc-F₅-Phe hydrogels by co-assembly with PEG-functionalized monomers. *Chem. Commun.* **2011**, *47*, 475–477.
5. Easterhoff, D.; DiMaio, J. T. M.; **Doran, T. M.**; Dewhurst, S.; Nilsson, B. L., Enhancement of HIV-1 Infectivity by Simple, Self-Assembling Modular Peptides. *Biophys. J.* **2011**, *100*, 1325–1334.
6. Ryan, D. M.; **Doran, T. M.**; Anderson, S. B.; Nilsson, B. L., Effect of C-Terminal Modification on the Self-Assembly and Hydrogelation of Fluorinated Fmoc-Phe Derivatives. *Langmuir* **2011**, *27*, 4029–4039.
7. **Doran, T. M.**; Kamens, A. J.; Byrnes, N. K.; Nilsson, B. L., Role of Amino Acid Hydrophobicity, Aromaticity, and Molecular Volume on IAPP(20–29) Amyloid Self-Assembly *Proteins* **2011**, *in press*.
8. Ryan, D. M.; **Doran, T. M.**; Nilsson, B. L., Complementary π - π Interactions Induce Multicomponent Co-assembly into Functional Fibrils. *Langmuir* **2011**, *27*, 11145–11156.
9. **Doran, T. M.**; Anderson, E. A.; Latchney S. E.; Opanashuk, L. A.; Nilsson, B. L., Turn Nucleation Perturbs Amyloid- β Self-Assembly and Cytotoxicity. **2012**, *J. Mol. Biol.*, *in press*.
10. **Doran, T. M.**; Ryan, D. M.; Nilsson, B. L., Photocontrol of Self-Assembled Peptide Hydrogel Rigidity. **2012**, *submitted*
11. **Doran, T. M.**; Anderson, E. A.; Latchney S. E.; Opanashuk, L. A.; Nilsson, B. L., An Azobenzene Photoswitch Sheds Light on Turn Nucleation in Amyloid- β Self-Assembly. **2012** *ACS Chem. Neurosci.*, *in press*.

NATIONAL MEETINGS

1. **Doran, T. M.**; Anderson, E. A.; Latchney, S. E.; Opanashuk, L. A.; Nilsson, B. L., Probing the Effect of turn nucleation on amyloid self-assembly using β -turn peptidomimetics. Proceedings of the 22nd American Peptide Symposium, San Diego, CA, United States, June 25–30, 2011 (2011)*
*Selected: Rapid-Fire Oral Presentation, Won: 2nd Place Poster Comp. (Peptides in Immunology and Disease)
2. **Doran, T. M.**; Kamens, A. J.; Byrnes, N. K.; Nilsson, B. L., Probing Early Events in Peptide Self-Assembly with Nonnatural Amino Acids. Abstracts of Papers, 240th ACS National Meeting, Boston, MA, United States, August 22–26, 2010 (2010)*
*Selected: Sci-Mix Poster Presentation
3. Nilsson, B. L.; Ryan, Derek M.; Bowerman, Charles J.; **Doran, Todd M.**; Senguen, F. Timur., Aromatic vs. hydrophobic contributions to amyloid peptide self-assembly. Abstracts of Papers, 238th ACS National Meeting, Washington, DC, United States, August 16–20, 2009 (2009)

PROCEEDINGS

1. Nilsson, B. L.; Bowerman, C. J.; DiMaio, J. T. M.; **Doran, T. M.** Design and application of bioactive materials derived from simple self-assembling peptides. **2011** In *Peptides: Building Bridges. Proceedings of the Twenty-Second American Peptide Symposium* (Michael Lebl, Editor), pp. 176-177, American Peptide Society, Prompt Scientific Publishing, San Diego, CA.
2. DiMaio, J. T. M.; Easterhoff, D.; **Doran, T. M.**; Dewhurst, S.; Nilsson, B. L. Enhancement of HIV-1 infectivity by amyloid peptides. **2011** In *Peptides: Building Bridges. Proceedings of the Twenty-Second American Peptide Symposium* (Michael Lebl, Editor), pp. 364-365, American Peptide Society, Prompt Scientific Publishing, San Diego, CA.
3. **Doran, T. M.**; Nilsson, B. L. Probing the effect of turn nucleation on amyloid self-assembly using β -turn peptidomimetics. **2011** In *Peptides: Building Bridges. Proceedings of the Twenty-Second American Peptide Symposium* (Michael Lebl, Editor), pp. 366-367, American Peptide Society, Prompt Scientific Publishing, San Diego, CA.