

Public Abstract

First Name:Emily

Middle Name:Ann

Last Name:Schmidt

Adviser's First Name:Renee

Adviser's Last Name:Jiji

Co-Adviser's First Name:

Co-Adviser's Last Name:

Graduation Term:SS 2008

Department:Chemistry

Degree:MS

Title:Spectroscopic Investigations of the Beta-Amyloid Peptide

The focus of this project is two-fold: examining the native structures of three different fragments of the beta-amyloid (A-beta) peptide, and attempting to overcome some of the difficulties encountered in such an examination. The first part uses two different spectroscopic methods to compare the native structures of the hydrophilic A-beta(1-16) fragment, the hydrophobic A-beta(25-40) fragment, and the longer A-beta(1-40) fragment. The second part focuses on replacing the counter-ion used in peptide purifications, including the purification of the A-beta peptide, with a counter-ion that is less likely to alter the secondary structure and will not interfere with vibration-based spectroscopic studies. The third part highlights an attempt to improve upon current methods of peptide concentration estimation. Many experimental measurements require an accurate estimate of peptide concentration, which can prove to be particularly problematic for peptides such as A-beta that are not easily soluble in aqueous solvents.