

BEN KESHET

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EDUCATION**University of Maryland, Baltimore County (UMBC), 2005 - Present**

Ph.D. Candidate, Chemical and Biochemical Engineering, GPA: 3.73

Elucidation of key amino acids in β -Amyloid interaction with cell, under the direction of Dr. Theresa Good.

Expected Graduation May 2010

The Hebrew University, Jerusalem, Israel, 2001 - 2004

B.S. 2004, Physics, Chemistry (minor), GPA: 3.5

Awards:

- Undergraduate admission merit award (2001)
- Undergraduate excellence award (2002)
- Jerusalem City Council award (2002)

LICENSURE AND CERTIFICATION

Biochemical Regulatory Engineering (2008): A 4 course program providing in-depth understanding of biopharmaceutical development process under FDA regulations. The courses included topics such as QA & QC, validation, and cGMP. Projects included reading and processing full FDA and NIH guidelines, writing SOPs, and designing a biotech facility.

RESEARCH EXPERIENCE

- Doctorate research: Elucidation of key amino acids in β -Amyloid interaction with cell. Dr. Theresa Good, Advisor, UMBC.
Used computational and experimental tools to examine the role of β -amyloid structure, at both the macro- and residue level, on interactions of the protein with neurons that contribute to neurotoxicity associated with Alzheimer's disease. Used spectroscopic tools such as hydrophobicity specific dyes, Congo red absorbance and circular dichroism, along with electron microscopy to examine protein structure. Developed novel algorithms to examine for the first time the computational docking of a variety of ligands suspected to prevent β -amyloid toxicity as a tool to elucidate protein residues involved in β -amyloid biological activity. Used chemical modification followed by mass spectrometry to target specific residues and used radiochemical and spectroscopic methods to examine ligand-protein binding. Optimized various spectroscopic and flow cytometry assays to examine the role of residue modification on β -amyloid biological activity. Computationally screened libraries of small molecules for their ability to bind to β -amyloid cell surface loci identified via chemical modification, and then tested molecules predicted to be the best binders for ability to prevent β -amyloid toxicity in a cell culture model.
- Undergraduate research project: Correlations between various observed parameters of Gamma Ray

Bursts (Astrophysics). Dr. Tsvi Piran, Advisor, The Hebrew University, Jerusalem. Developed a Monte Carlo simulation of Gamma Ray Bursts in order to find correlations between different parameters, to increase understanding of relationships of bursts, black-hole and star formation rates. Parameters were sampled using probability functions according to empirically observed distributions such as red-shift and distance. Simulated the real bursts detectors while accounting for background noise, detection frequency, detection thresholds and detection spectra. Validated model against available experimental data and other computational models.

- Skills: Cell culture, MALDI TOF MS, transmission electron microscopy, radiochemical and spectroscopic techniques, flow cytometry, computational skills including molecular docking, Monte Carlo simulation, LabView and Origin.

WORK EXPERIENCE

- Teaching Assistant (2005-2008)
 - Teaching assistant at UMBC: Chemical Engineering Analysis, Chemical Engineering Problem Solving and Experiment Design, and Biochemical Engineering Laboratory.
 - Supervised sophomore level laboratory in basic chemical engineering principles including simple calorimetry, sterling engines and pumps. Facilitated discussion sessions and graded homework assignments.
 - Supervised ELISA experiments in senior level biochemical engineering laboratory. Set up experiment, helped prepare laboratory instruction documents, and supervised students during lab session. Graded laboratory reports.
- Editor, Yoel Geva, (2005)
 - Edited and wrote quantitative section questions for Psychometric Entrance Test, an Israeli inter-university test for undergraduate programs (equivalent to the U.S. SAT exam).
- Shift Manager, Ministry of Education Call Center, (2002-2004)
 - Supervised six employees in a call center for schools at outdoor activities.
 - Directed educational institutions on security and safety regulations of outdoor activities.
 - Managed emergency events of educational institutions, coordinated between rescue teams, medical teams and high ranking officials.
- Officer, Israeli Air Force, (1997-2000)
 - Communicated and instructed field and headquarter units. Led inquiries of military activities. Helped implement new guidelines in units.
 - Commanded and trained up to 10 cadets per class in officer training. Mentored cadets in leadership and management skills.
 - Designed content and instructed classes. Evaluated cadets' performance in tasks and provided feedback for written exams and leadership simulations.

PUBLICATIONS

Luiz C Salay, Wei Qi, Ben Keshet, Lukas K Tamm, Erik J Fernandez, 2009. *Membrane interactions of a self-assembling model peptide that mimics the self-association, structure and toxicity of A β (1-40)*, Biochimica et Biophysica Acta (submitted).

Ben Keshet, In Hong, Theresa Good, 2009. *Can size alone explain some of the differences in toxicity between A β oligomers and fibrils?* Protein Science (to be submitted).

Ben Keshet, Theresa Good, 2009. *Structurally distinct A β toxicity inhibitors share the same binding site on A β fibrils* (in preparation)

PRESENTATIONS

Ben Keshet, Theresa Good, *A β neurotoxicity: Role of aggregate size and elucidation of key amino acids*, 236 ACS annual meeting, 2008, Philadelphia.

Ben Keshet, Theresa Good, *Elucidation of key amino acids in β -Amyloid interaction with cells*, International Conference on Alzheimer's Disease (ICAD), 2008, Chicago.

Ben Keshet, Theresa Good, *Can the A β intermediate be similar to the fibril but more toxic?* , 2007 annual AIChE meeting, 2007, Salt Lake city.

Ben Keshet, Theresa Good, *Is the neurotoxicity of A β governed by diffusion?*, Biophysical Society 51st Annual Meeting, 2007, Baltimore.