José Arcadio Rodríguez-Martínez

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EDUCATION

2009	Ph.D. Chemistry	University of Puerto Rico-Río Piedras
2001	B.Sc. Chemistry	University of Puerto Rico-Río Piedras

RESEARCH

2004 – 2009 University of Puerto Rico-Río Piedras

Dr. rer. nat. Kai Griebenow
Thesis Title: Improving the *in vitro* stability of proteins by PEGylation

Studies of the effect of PEGylation on protein *in vitro* stability for biomedical applications. The work consists of covalent modification of proteins with poly(ethylene glycol) and the characterization of enzymatic activity, protein stability, protein structure, and protein structural dynamics. Parameters, such as the degree of PEGylation and the PEG molecular weight, were varied.

2002 – 2004 University of Puerto Rico-Río Piedras
Eugene S. Smotkin, Ph.D.

Research consisted of improving the design of the reactor module of Laser-Activated Membrane Introduction Mass Spectrometry (LAMIMS). LAMIMS is a high-throughput screening device for the characterization of heterogeneous catalysts.

1999 – 2001 University of Puerto Rico-Río Piedras
Osvaldo Rosario, Ph.D.

Worked as an undergraduate on the method development for the extraction and analysis of volatile organic compounds from sea water. The extraction was carried out using solid-phase extraction; analysis was done with gas choromatography/mass spectrometry.

SPECIAL COURSES, WORKSHOPS AND LABORATORY TECHNIQUES

2008 New England Biolabs, Inc. Molecular Biology Workshop; Design of Experiments Graduate Course at UPR; Enzymatic Assays; Fluorescence Spectroscopy; CD Uv/Vis; FT-IR; HPLC; Differential Scanning Calorimetry; Technical Drawing

PUBLICATIONS, PRESENTATIONS, AND POSTERS

Publications

1. Rodríguez-Martínez, J. A.; Rivera-Rivera, I.; Solá, R. J.; Griebenow, K. Enzymatic activity and thermal stability of PEG-α-chymotrypsin conjugates. *Biotechnology Letters* 2009 31 (6) 883-887.

2. Rodríguez-Martínez, J. A.; Solá, R. J.; Castillo, B.; Cintrón, H. R.; Rivera-Rivera, I.; Barletta, G; Griebenow, K. Stabilization of α-chymotrypsin upon PEGylation correlates with reduced structural dynamics. *Biotechnology and Bioengineering 2008*, 101 (6) 1142-1149. **Highlighted by Biotechnology and Bioengineering and by Staying Current: Formulations of Biopharmaceuticals.**

3. Solá, R. J.; Rodríguez-Martínez, J. A.; Griebenow, K. Modulation of protein biophysical properties by chemical glycosylation: biochemical insights and biomedical implications. *Cellular and Molecular Life Sciences* 2007, 64 (16) 2133-2152.

4. Nayar, A.; Kim, Y. T.; Rodríguez, J.; Willis, R.; Galloway, D. B.; Falih, F.; Smotkin E. S. High speed laser activated membrane introduction mass spectrometric evaluation of bulk methylcyclohexane dehydrogenation catalysts. *Applied Surface Science* 2004, 223 (1-3), 118-123.

Oral presentations

1. Rodríguez-Martínez, J. A.; Rivera-Rivera, I.; Griebenow, K Prevention of benzyl alcohol-induced aggregation of chymotrypsinogen by PEGylation. Presented at 2009 Southeastern Regional Meeting of the American Chemical Society, San Juan, Puerto Rico, October 23, 2009.

2. Rodríguez-Martínez, J. A.; Solá, R. J.; Castillo, B.; Cintrón, H. R.; Rivera-Rivera, I.; Barletta, G; Griebenow, K. Increasing α-Chymotrypsin Thermodynamic Stability upon Covalent Modification with Poly(ethylene glycol) Correlates with Reduced Structural Dynamics. Presented at the 28th Latin American Chemical Congress, San Juan Puerto Rico, July 30, 2008.

3. Rodriguez-Martínez, J. A.; Morales, R.; Rosario, O. Source of Apportionment of Toxic Organic Compounds Associated to Fine Organic Aerosols in Cataño, Puerto Rico. Presented at the 36th ACS Junior Technical and 21st Puerto Rico Interdisciplinary Scientific Meeting, Pontificia Universidad Católica, Ponce, PR, March 2001.

Posters

1. Rodríguez-Martínez, J. A.; Rivera-Rivera, I.; Griebenow, K. "Protein PEGylation prevents benzyl-alcohol induced aggregation." Presented at the 2009 Annual Meeting of the American Society for Biochemists and Molecular Biologists, New Orleans, Louisiana, USA. March 23rd, 2009. Poster LB301.
2. Rodríguez-Martínez, J. A.; Solá, R. J.; Castillo, B.; Cintrón, H. R.; Rivera-Rivera, I.; Barletta, G; Griebenow, K. Increasing α-chymotrypsin thermodynamic stability upon PEGylation correlates with reduced structural dynamics. Presented at the 237th National Meeting of the American Chemical Society, Salt Lake City, UT, March 24, 2009; Poster BIOL94.
3. Rodríguez-Martínez, J. A.; Solá, R. J.; Castillo, B.; Cintrón, H. R.; Rivera-Rivera, I.; Flores, G. M.; Griebenow, K Increased protein stability upon PEGylation correlates with reduced native state structural flexibility. Presented at the 2007 Protein Stability Conference, Breckenridge, CO, USA July 20, 2007.
4. Rodríguez-Martínez, J. A.; Kim, Y. T.; Nayar, A.; Galloway, D. B.; Smotkin E. S. Laser Activated Membrane Introduction Mass Spectrometry. Presented at PITTCON 2004, Chicago, IL March 9, 2004.

5. Rodríguez-Martínez, J. A.; Kim, Y. T.; Nayar, A.; Galloway, D. B.; Smotkin E. S. Laser activated membrane introduction mass spectrometry. Presented at the 27th ACS Senior Technical Meeting, Quebradillas, PR, November, 2003.
6. Rodríguez, J. A.; Morales, R.; Rosario, O. Source apportionment study for the caribbean submicron organic aerosols. Presented at the 21st Annual American Association for Aerosol Research Conference Charlotte, NC, USA, October 7-11, 2002.
7. Rodríguez, J. A.; Morales, R.; Rosario, O.; Reyes, D.; Jiménez, B. Source of apportionment of toxic organic compounds associated to fine aerosols in Cataño, Puerto Rico. Presented at the 228th National Meeting of the American Chemical Society, San Diego, CA, April 2001; Poster CHED U207.
8. Rodríguez, J. A.; Morales, R.; Rosario, O. Possible source for the tropical submicron organic aerosols. Presented at the Louis Stokes Colorado Alliance for Minority Participation Colorado Research Conference, Ft. Collins, CO, July 27-30, 2000.
9. Rodríguez, J. A.; Morales, R.; Reyes, D.; Jiménez, B.; Rosario, O. Source apportionment of toxic compounds associated to fine aerosols in Cataño, Puerto Rico. Presented at the National Minority Research Symposium, Washington D.C. November 9, 2000.

AWARDS AND SOCIETIES

- NIH-RISE Graduate Fellowship (2006-2009)
- U.S. Department of Education GAAN Fellowship (2002-2005)
- Merck Index Award (2001)
- NIH-MARC Undergraduate Fellowship (2000-2001)
- PR LS-AMP Undergraduate Fellowship (1999-2000)
- American Chemical Society member since 2001
- American Society for Biochemistry and Molecular Biology member since 2006