

Curriculum Vitae
PEARL Y. AKAMINE

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Degrees

Ph.D., Chemistry. University of California, San Diego. La Jolla, CA. 2002.

M.S., Chemistry. University of California, San Diego. La Jolla, CA. 1998.

B.S., Physics/Biophysics. University of California, San Diego. La Jolla, CA. 1993. Cum Laude.

Research Experience

Bioanalyst with Jose Lasalde. University of Puerto Rico, Molecular Sciences Research Center, San Juan, PR, USA. Development of Analytic Tools for the Quality Analysis of an HIV Vaccine Candidate. Aug 2014 – Present.

Postdoctoral Investigator with José Rodríguez Medina. University of Puerto Rico School of Medicine, Department of Biochemistry, San Juan, PR, USA. Identified myosin type II binding partners by an integrated yeast two-hybrid system to further understand budding yeast cell division and to develop potential antifungal agents. Jan 2009 – Jul 2012.

Research Associate with Edmund Kunji. Medical Research Council – The Dunn Human Nutrition Unit, Cambridge, UK. Conducted expression and crystallization trials of a GTP/GDP mitochondrial transporter to understand its function. Jan 2004 – Jun 2007.

Research Associate with Ingo Greger. Medical Research Council – Laboratory of Molecular Biology, Neurobiology Division, Cambridge, UK. Solved the crystal structure of the extracellular domain of the glutamate receptor to understand the effect of assembly and dimerization in memory formation. Feb 2003 – Dec 2003.

Research Associate with Philip Evans. Medical Research Council – Laboratory of Molecular Biology, Structural Studies Division, Cambridge, UK. Investigated structure-function of endocytosis auxiliary proteins. Tested auxilin for phospholipid binding to understand recruitment to vesicles. Tried to cocrystallize epsin and ubiquitin to understand vesicle targeting. Oct 2002 – Dec 2003.

Graduate Student with Nguyen-Huu Xuong and Susan S. Taylor. University of California San Diego, Department of Chemistry and Biochemistry, La Jolla, CA, USA. Studied the ligand-binding structural features of the c-AMP dependent protein kinase by protein crystallography and inhibition studies. Sep 1996 – Jun 2002.

Laboratory Technician with Gregory J. del Zoppo. The Scripps Research Institute, Department of Molecular and Experimental Medicine, La Jolla, CA, USA. Studied effects of ischemia/reperfusion on transcription and protein expression in brain. Jun 1993 - Jun 1996.

Publications

Research Papers

1. E Santiago-Cartagena, S González-Crespo, V Vélez, N Martínez, J Snider, M Jessulat, H Aoki, Z Minic, **P Akamine**, I Mejías, LM Pérez, BC Rymond, M Babu, I Stagljjar, JR Rodríguez-Medina. (2019) Identification of Functional Testing of Novel Interacting Protein Partners for the Stress Sensors Wsc1p and Mid2p of *Saccharomyces cerevisiae*. *G3* 9(4):1085-1102
2. E Santiago, **P Akamine**, J Snider, V Wong, M Jessulat, V Deineko, A Gagarinova, H Aoki, Z Minic, S Phanse, A San Antonio, LA Cubano, BC Rymond, M Babu, I Stagljjar, JR Rodríguez-Medina. (2016) Novel Interactome of *Saccharomyces cerevisiae* Myosin Type II Identified by a Modified Integrated Membrane Yeast Two-Hybrid (iMYTH) Screen. *G3* 6(5):1469-74
3. G Pagán-Mercado, E Santiago-Cartagena, **P Akamine**, JR Rodríguez-Medina. (2012) Functional and genetic interactions of TOR in the budding yeast *Saccharomyces cerevisiae* with myosin type II-deficiency (*myo1Δ*). *BMC Cell Biology* 13:13.
4. ME Rivera-Ruiz, JF Rodríguez-Quñones, **P Akamine**, JR Rodríguez-Medina. (2010) Post-transcriptional regulation in the *myo1Δ* mutant of *Saccharomyces cerevisiae*. *BMC Genomics* 11:690
5. S Badireddy, G Yunfeng, M Ritchie, **P Akamine**, J Wu, CW Kim, SS Taylor, L Qingsong, K Swaminathan, GS Anand. (2010) Cyclic AMP analog blocks kinase activation by stabilizing inactive conformation: Conformational selection highlights a new concept in allosteric inhibitor design. *Mol Cell Proteomics*. Nov 16. [Epub ahead of print]
6. ER Kunji, M Harding, PJ Butler, **P Akamine**. (2008) Determination of the molecular mass and dimensions of membrane proteins by size exclusion chromatography. *Methods*. 46(2):62-72.
7. IH Greger, **P Akamine**, L Khatri, EB Ziff. (2006) Developmentally regulated, combinatorial RNA processing modulates AMPA receptor biogenesis. *Neuron*. 51(1):85-97.
8. **P Akamine**, Madhusudan, LL Brunton, HD Ou, J Canaves, NH Xuong, SS Taylor. (2004) Balanol analogs probe conformational malleability of cAMP-dependent protein kinase catalytic subunit. *Biochemistry*. 43(1):85-96.
Biochemical characterization of three natural product analogs that selectively inhibit PKA over PKC. The crystal structure of each inhibitor complexed with PKA catalytic subunit highlight common features of PKA specific inhibitors.
9. **P Akamine**, Madhusudan, J Wu, NH Xuong, LF Ten Eyck, SS Taylor. (2003) Dynamic features of cAMP-dependent protein kinase revealed by apoenzyme crystal structure. *Journal of Molecular Biology*. 327(1):159-171.
The structure of the unliganded PKA catalytic subunit shows that residues for MgATP binding and phosphoryl transfer are preformed. This platform appears to be stabilized by

a hydrophobic core, which provides a network for communicating nucleotide binding to the substrate-binding site.

10. Madhusudan, **P Akamine**, NH Xuong, SS Taylor. (2002) Crystal structure of a transition state mimic of the catalytic subunit of cAMP-dependent protein kinase. *Nature Structure Biology* 9(4):273-277.
11. CF Wong, PH Hünenberger, **P Akamine**, N Narayana, T Diller, JA McCammon, SS Taylor, NH Xuong. (2001) Computational analysis of PKA-balanol interactions. *Journal of Medicinal Chemistry* 44(10):1530-9.
12. N Narayana, **P Akamine**, NH Xuong, SS Taylor. (1998) Crystallization and preliminary X-ray analysis of the unliganded recombinant catalytic subunit of cAMP-dependent protein kinase. *Acta Crystallographica D* 54:1401-1404.
13. HP Haring, **P Akamine**, R Habermann, JA Koziol, GJ del Zoppo. (1996) Distribution of integrin-like immunoreactivity of primate brain microvasculature. *Journal of Neuropathology and Experimental Neurology* 55(2):236-245.

Reviews

14. DA Johnson, **P Akamine**, E Radzio-Andzelm, Madhusudan, SS Taylor. (2001) Dynamics of cAMP-dependent protein kinase. *Chemical Reviews* 101(8):2243-2270.
15. CS Smith, E Radzio-Andzelm, Madhusudan, **P Akamine**, SS Taylor. (1999) The catalytic subunit of cAMP-dependent protein kinase: prototype for an extended network of communication. *Progress in Biophysics and Molecular Biology* 71:313-341.

Teaching Experience

Lecture Module for Graduate Class, Biochemistry of Proteins. Structural Insights Into Function: A Structural Tour of Protein Kinases and other Signaling Molecules. University of Puerto Rico School of Medicine, Department of Biochemistry, San Juan, PR, USA. May 2011 and Mar 2012.

Lecture Module for the Graduate Class, Biochemistry of Proteins. Protein Crystallography: One Way to Determine Three-Dimensional Macromolecular Structure. University of Puerto Rico School of Medicine, Department of Biochemistry, San Juan, PR, USA. Feb 2012, Sept 2013, Mar 2015 and Mar 2017.

Teaching Assistant, University of California San Diego, CA, USA. Led one introductory chemistry discussion, one introductory chemistry laboratory, and one organic chemistry discussion section. Spring 1997, Fall 1997, and Winter 1999.