



Erdem Karatekin, Associate Professor
Cellular & Molecular Physiology | Molecular Biophysics &
Biochemistry | Nanobiology Institute
Yale University West Campus
850 West Campus Drive, ISTC 220C
West Haven, CT 06516
(203) 737 3286 erdem.karatekin@yale.edu



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POST DOCTORAL POSITION AVAILABLE:

A post-doctoral position is available immediately in the Karatekin lab, at the Department of Cellular and Molecular Physiology, Yale University. We study molecular mechanisms regulating neurotransmitter release and synaptic vesicle recycling using biochemical reconstitution, live cell measurements, and a range of biophysical and imaging approaches, including electrophysiology and optical tweezers. Visit our web page for recent publications and further information (<http://campuspress.yale.edu/karatekinlab/>).

Neurotransmitters and hormones are released every time a vesicle filled with such cargo fuses with the plasma membrane of a neuron or endocrine cell. Release is triggered by calcium and regulated by the speed with which a nanometer-sized fusion pore opens and the subsequent evolution of the pore (pores can flicker open-close repeatedly, remain stable, or open abruptly), but little is understood about molecular mechanisms governing pore nucleation and dynamics. Building upon approaches recently developed in the lab, the candidate will (1) study how fusion pores open and dilate in response to calcium with well-defined membrane and protein components so that the contribution of each component and the overall molecular mechanisms can be understood, (2) dissect mechanisms contributing to kinetics and cooperativity of rapid calcium-triggered exocytosis, with a particular focus on the release machinery in photoreceptors. Techniques and tools used will include electrophysiology, nanodiscs (artificial disc-shaped phospholipid bilayers) reconstituted with SNARE and Synaptotagmin proteins, engineered cells expressing fusogens with flipped topology on their surfaces, single-particle fluorescence microscopy, and ultraviolet flash photolysis (for rapid elevation of calcium).

Problem-solving skills, analytical thinking, motivation, initiative, creativity, and good communication skills are essential. Expertise in two or more of the following areas is desirable: membrane biophysics, electrophysiology (especially coupled with UV uncaging of calcium or other compounds), cell biology/physiology, optics, molecular biology and biochemistry, quantitative analysis. Candidates with a background in physics, engineering or a related field are especially encouraged to apply.

Our lab is multidisciplinary, with 5-8 members, and offers a collegial, inclusive, and supportive environment. It is located at the Nanobiology Institute at Yale's West Campus (westcampus.yale.edu). Dr. Karatekin holds a primary appointment at the Department of Cellular and Molecular Physiology, and a secondary appointment at the Department of Molecular Biophysics and Biochemistry; we interact closely with both departments. The scientific environment at the West Campus and both departments is exceptionally rich and highly collaborative.

If interested, please send (as pdf files) a cover letter briefly describing your research interests, a curriculum vitae (including a publications list), and full contact information for three references to erdem.karatekin@yale.edu.