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Scanning Electrochemical Microscopy Mapping of Neurotransmitter Release Sites from Model Neurons

Jennifer A. Schreiber
Illinois Wesleyan University

Melinda Baur, Faculty Advisor
Illinois Wesleyan University

Poster Presentation P33

SCANNING ELECTROCHEMICAL MICROSCOPY MAPPING OF NEUROTRANSMITTER RELEASE SITES FROM MODEL NEURONS

Jennifer A. Schreiber and Melinda Baur*
Chemistry Department, Illinois Wesleyan University

Scanning Electrochemical Microscopy (SECM) was used to image the topography of model neurons in the constant height mode while simultaneously measuring neurotransmitter concentration using amperometry in the collector mode. The probe of the SECM was a fabricated 5 µm carbon-fiber electrode. The electrode was calibrated to determine the distance to the surface. Topographical imaging was accomplished by moving the electrode systematically across the surface. Multiple topographical images were obtained before and after stimulation of the model neurons with KCl. Neurotransmitters norepinephrine and dopamine were detected by setting the electrode to an oxidizing potential (+0.8 v). After stimulation, neurotransmitter release was detected amperometrically during topographical mapping. Download this file and use it as a template.