Integrating Nanotechnology with Cell Biology and Neuroscience

INCBN IGERT Seminar

Monday, 2 February 2009, 2:30 pm

Speaker: Diane Lidke
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Single Molecule Studies of FcεRI Dynamics Using Quantum Dot Probes

Single particle tracking using bright and photostable quantum dots (QDs) provides information about protein dynamics on living cells with high spatial (~10 nm) and temporal (>30 Hz) resolution. Single QD tracking of the high affinity IgE receptor (FcεRI) on living rat basophilic leukemia cells has revealed new insights into the roles of receptor dynamics and membrane partitioning in the regulation of antigen response. New single QD tracking techniques and analyses provide evidence that actin modulates receptor diffusion and binding response and that immobilization is a consequence of direct crosslinking rather than activation state.