

Super-resolution by feedback imaging: Mechanisms of translocation through the nuclear pore complex

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In a eukaryotic cell, all traffic between the nucleus and the cytoplasm is regulated by the nuclear pore complex. Much is known about the structure of the nuclear pore complex. However, the mechanism that allows very large particle to pass through the pore is still debated. In this presentation I will discuss current models proposed for the opening and closing of the pore. I will present recent experimental evidence from my lab which poses strong constrains about possible mechanisms of translocation. I will describe a nanoimaging technique that has a very high time and spatial resolution. This technique is based on the observation of single molecules using feedback imaging. Using this approach we can observe the translocation of particles in great detail and reveal possible mechanisms of action of the nuclear pore complex.