SFB 960-/BZR – Kolloquium

02 June 2022, 14:00h
Biology, H 53

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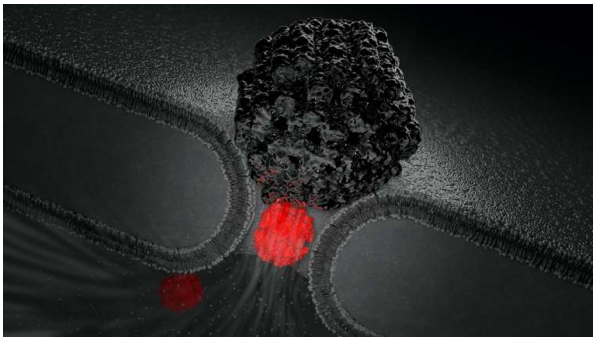
Abstract

Proteins are the molecular makers in our body. Researchers successfully identified a vast proteome, a dense web of metabolic interactions, and thousands of static 3D structures. But the essential molecular dynamics causing protein function are still challenging to detect – yet they are our key to understanding the energetics of protein systems.

I will present our results from optical and electrical single-molecule experiments. FRET allows us to watch single proteins at work in real time [1,2], and with our DyeCycling approach, we aim to break the current photobleaching limit in single-molecule FRET studies [3]. In addition, we recently developed the NEOtrap, a new label-free technique to monitor the time evolution of single native proteins electrically, using nanopores [4]. Our goal is to push beyond current detection limits to learn how protein function arises at the nanoscale.



[1] Hellenkamp, Schmid, et al. (2018) Nature Methods
[2] Schmid, Hugel (2020) eLife
[3] Vermeer, Schmid (2022) bioRxiv
[4] Schmid, Stömmer, Dietz, Dekker (2021) Nature Nanotechnology

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