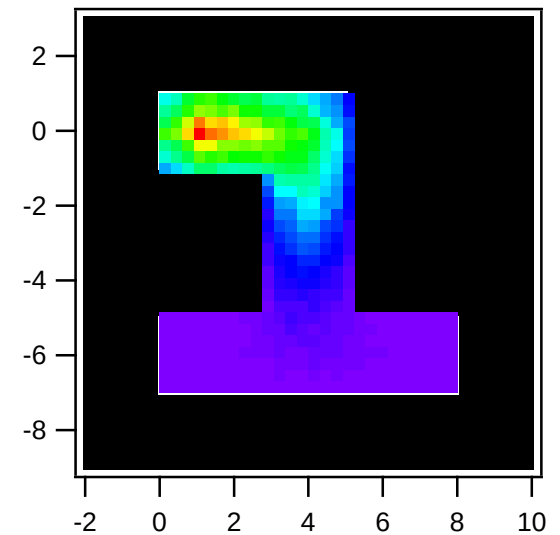
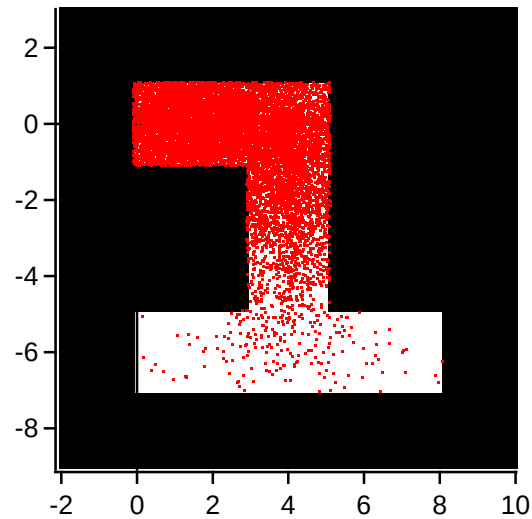
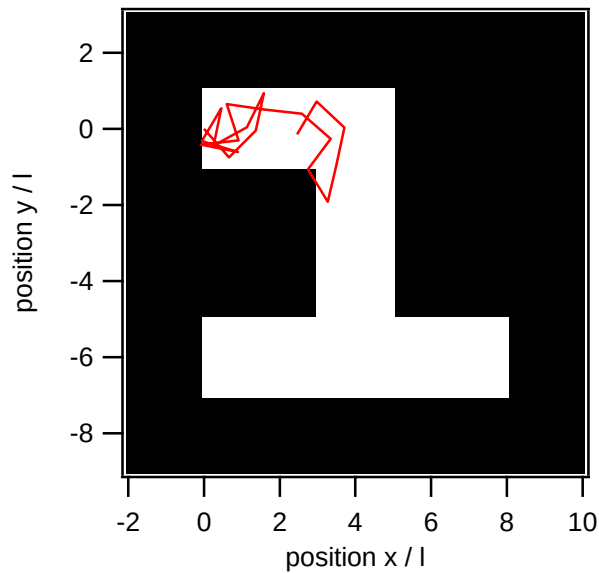
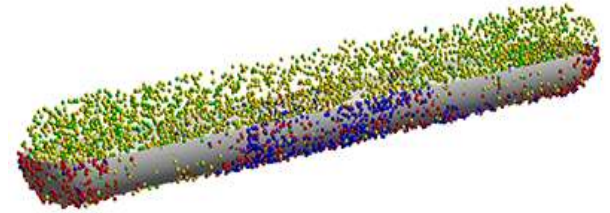


Monte Carlo Method

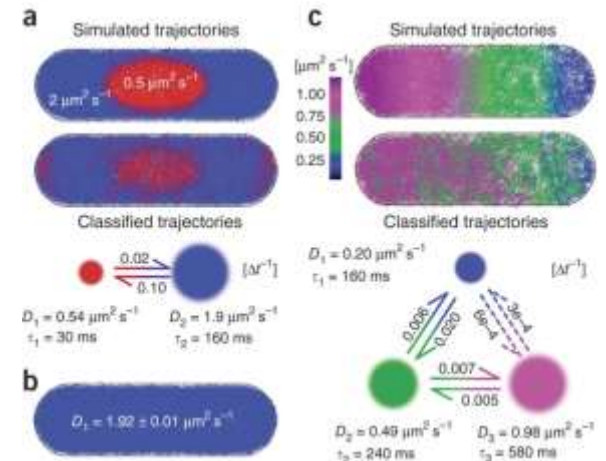
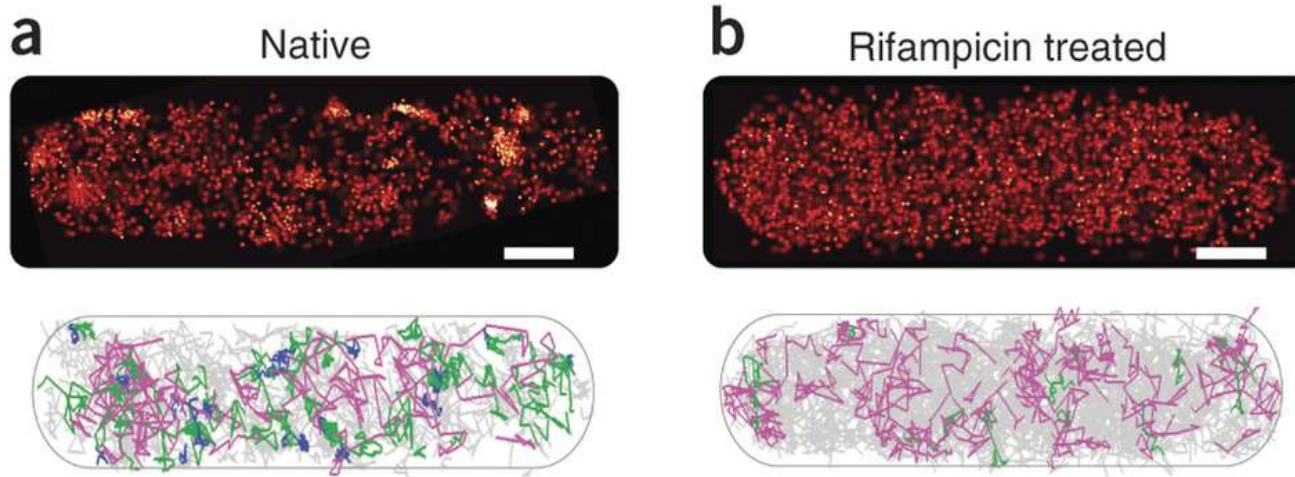
Random walk simulation of diffusion in microfluidic channel



Monte Carlo Method

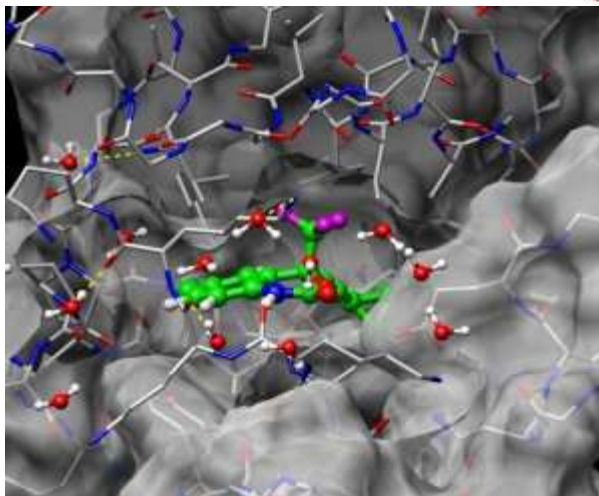
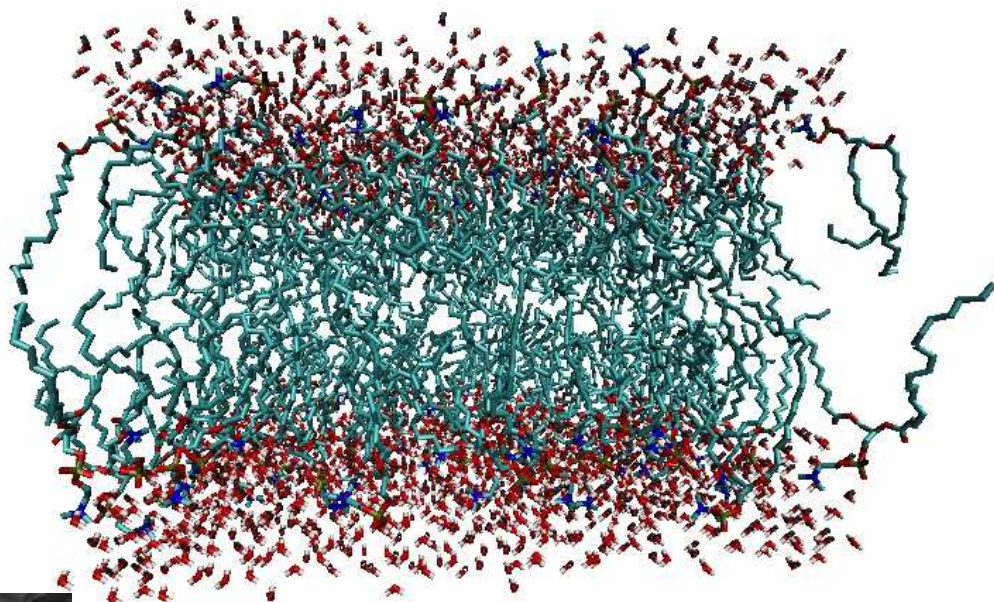
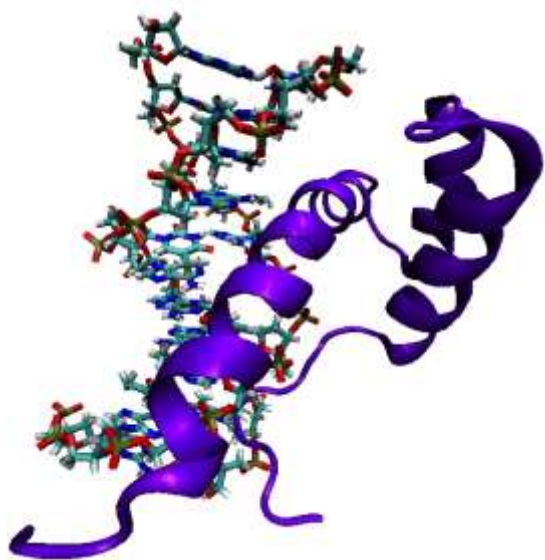


Super-resolution single particle tracking (SPT-PALM) of Hfq protein in *E. coli*



Persson et al. Extracting intracellular diffusive states and transition rates from single-molecule tracking data. *Nature Methods* 10, 265–269 (2013)

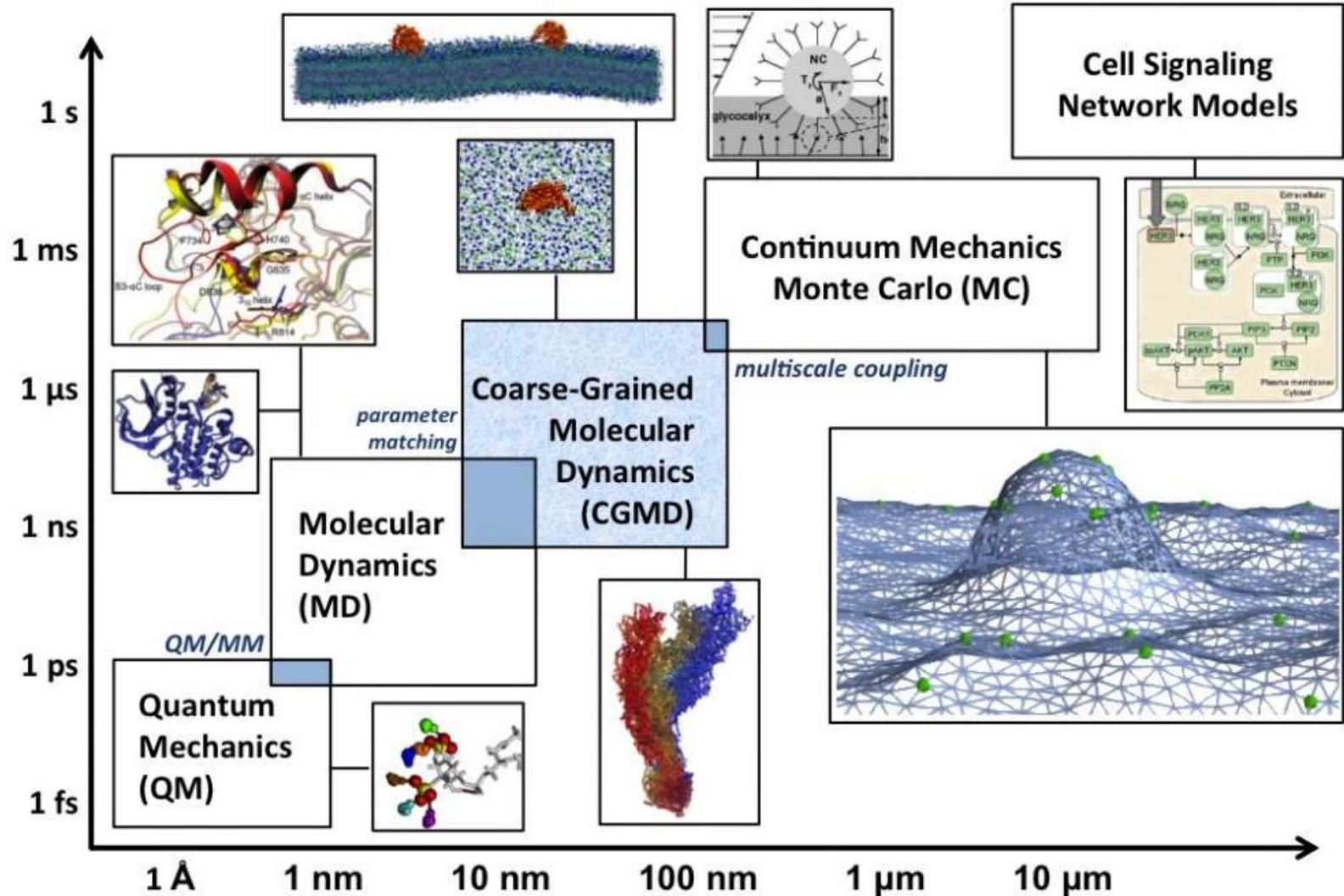
Molecular Dynamics



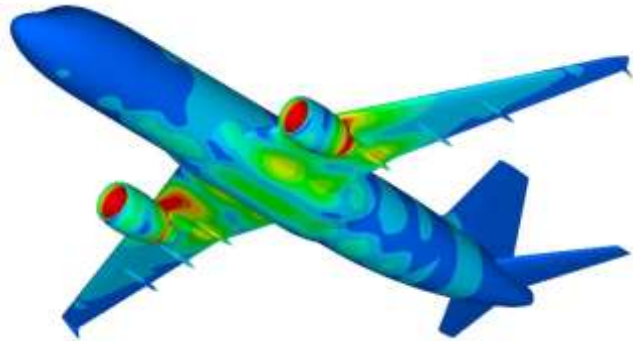
<http://zarbi.chem.yale.edu/>

<http://www.matysiaklab.umd.edu/>

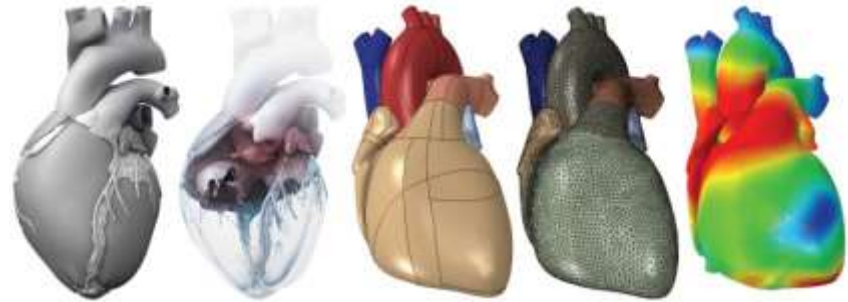
Multiscale modeling enables spanning range of time and length scales



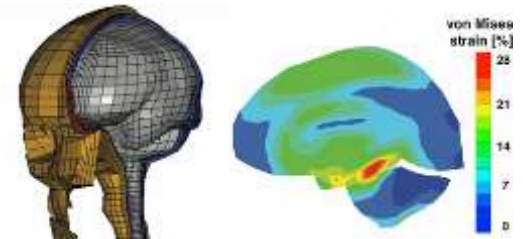
Finite Element Modelling



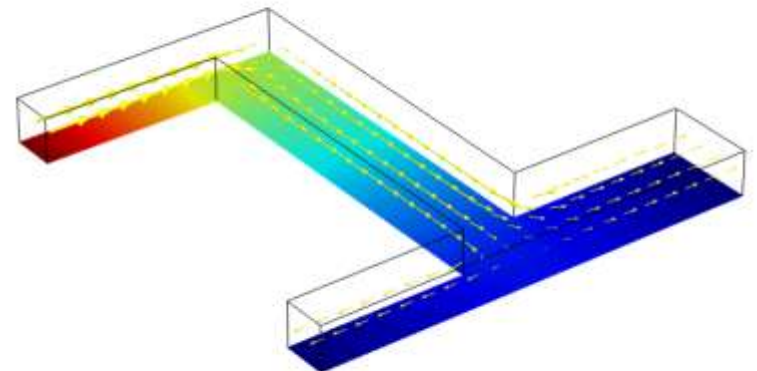
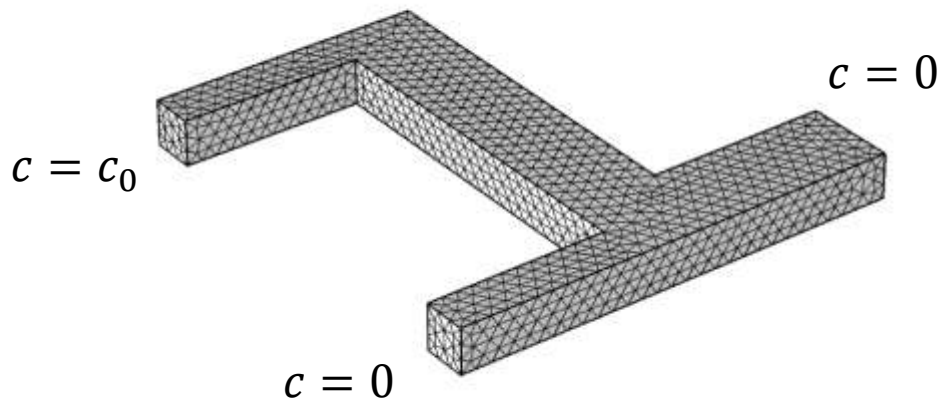
<http://www.stressebook.com/finite-element-analysis-in-a-nut-shell/>



Kuhl Lab, Stanford
http://biomechanics.stanford.edu/Main_Page

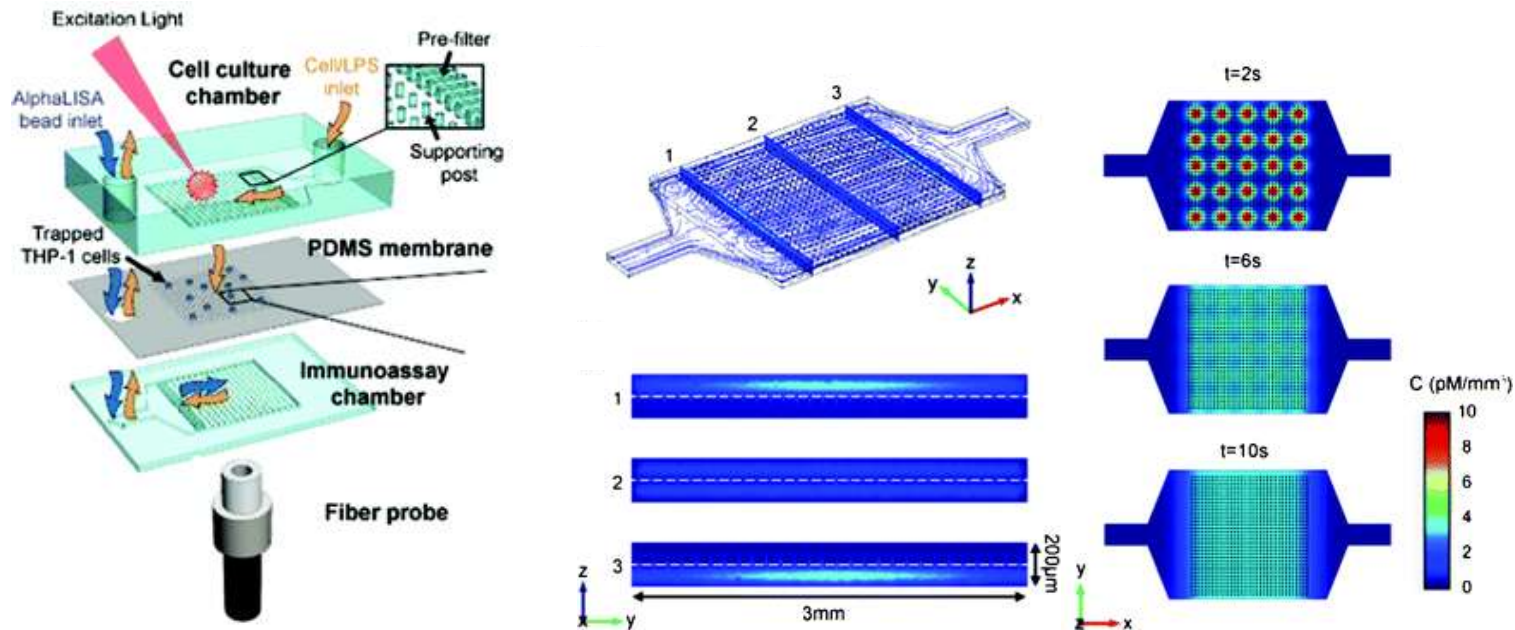


Example: time-dependent diffusion in microfluidic channel



Finite Element Modelling

Example: FEM-based optimization of microfluidic ELISA-chip



Huang *et al. Lab Chip* **12**, 4093-4101 (2012)

Example: SICM cell stiffness measurement

Rheinlaender *et al. Soft Matter* **9**, 3230-3236 (2013)

