

Abstract Submitted
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The influence of ionic strength on DNA diffusion in gel networks¹

YUANXI FU, AH-YOUNG JEE, HYEONG-JU KIM, STEVE GRANICK, Institute for Basic Science — Cations are known to reduce the rigidity of the DNA molecules by screening the negative charge along the sugar phosphate backbone. This was established by optical tweezer pulling experiment of immobilized DNA strands. However, little is known regarding the influence of ions on the motion of DNA molecules as they thread through network meshes. We imaged in real time the Brownian diffusion of fluorescent labeled lambda-DNA in an agarose gel network in the presence of salt with monovalent or multivalent cations. Each movie was analyzed using home-written program to yield a trajectory of center of the mass and the accompanying history of the shape fluctuations. One preliminary finding is that ionic strength has a profound influence on the slope of the trace of mean square displacement (MSD) versus time.

¹The influence of ionic strength on DNA diffusion in gel networks

Yuanxi Fu
Institute for Basic Science

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