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Single-Molecule Studies of Hyaluronic Acid Conformation SARAH INNES-GOLD, JOHN BEREZNEY, OMAR SALEH, Univ of California - Santa Barbara — Hyaluronic acid (HA) is a charged linear polysaccharide abundant in extracellular spaces. Its solution conformation and mechanical properties help define the environment outside of cells, play key roles in cell motility and adhesion processes, and are of interest for the development of HA biomaterials. Intra-chain hydrogen bonds and electrostatic repulsion contribute to HAs physical structure, but the nature of this structure, as well as its dependence on solution electrostatics, are not well-understood. To address this problem, we have investigated HA conformation and mechanical properties under a range of solution conditions systematically designed to affect charge screening or hydrogen bonding. We used magnetic tweezers to apply biological-scale stretching forces to individual HA chains under varying solution conditions.

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