Abstract Submitted
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Acetylated histone H3 increases nucleosome dissociation[1] MAREK SIMON, Department of Physics, The Ohio State University, MRIDULA MANOHAR, JENNIFER OTTESEN, Department of Biochemistry, The Ohio State University, MICHAEL POIRIER, Department of Physics, The Ohio State University — Chromatin's basic unit structure is the nucleosome, i.e. genomic DNA wrapped around a particular class of proteins – histones – which due to their physical hindrance, block vital biological processes, such as DNA repair, DNA replication, and RNA transcription. Histone post-translational modifications, which are known to exist *in vivo*, are hypothesized to regulate these biological processes by directly altering DNA-histone interactions and thus nucleosome structure and stability. Using magnetic tweezers technique we studied the acetylation of histone H3 in the dyad region, i.e. at K115 and K122, on reconstituted arrays of nucleosomes under constant external force. Based on the measured increase in the probability of dissociation of modified nucleosomes, we infer that this double modification could facilitate histone chaperone mediated nucleosome disassembly *in vivo*.

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