Abstract Submitted
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The universality of nucleosome organization: from yeast to human RAZVAN CHEREJI, NIH — The basic units of DNA packaging are called nucleosomes. Their locations on the chromosomes play an essential role in gene regulation. We study nucleosome positioning in yeast, fly, mouse, and human, and build biophysical models in order to explain the genome-wide nucleosome organization. We show that DNA sequence alone is not able to generate the phased arrays of nucleosomes observed in vivo near the transcription start sites. We discuss simple models which can account for the formation of nucleosome depleted regions and nucleosome phasing at the gene promoters. We show that the same principles apply to different organisms. References: [1] RV Chereji, D Tolkunov, G Locke, AV Morozov - Phys. Rev. E 83, 050903 (2011) [2] RV Chereji, AV Morozov - J. Stat. Phys. 144, 379 (2011) [3] RV Chereji, AV Morozov - Proc. Natl. Acad. Sci. U.S.A. 111, 5236 (2014) [4] RV Chereji, T-W Kan, et al. - Nucleic Acids Res. (2015) doi: 10.1093/nar/gkv978 [5] RV Chereji, AV Morozov - Brief. Funct. Genomics 14, 50 (2015) [6] HA Cole, J Ocampo, JR Iben, RV Chereji, DJ Clark - Nucleic Acids Res. 42, 12512 (2014) [7] D Ganguli, RV Chereji, J Iben, HA Cole, DJ Clark - Genome Res. 24, 1637 (2014)

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