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Computational Model for DNA Organization Mediated by Protein Interaction in Prokaryotes KARTHIK GARIMELLA, Hendrix College, SAVAN KHAREL, Davidson College — In Escherichia Coli, there are several mechanisms that drive chromosomal organization. We know through experiments that the E. Coli chromosome is condensed into highly structured regions known as macrodomains (MDs). One of the regions known as the Terminus undergoes DNA-bridging condensation that form loops between distant DNA sites and it is known to be mediated by a Terminus specific protein, which binds to specific markers within the Terminus region. In the absence of Terminus specific protein, however, the Terminus region is known to not condense nearly as much, which will likely impede several biological processes including DNA replication. In order to understand the molecular basis of protein mediation in vivo several models of Terminus specific segregation have been constructed in silico which model DNA as polymer chains.

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