

Unravelling the Organization of Chromatin

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The bacterial genome is folded and compacted into a body referred to as the nucleoid due to the activity of nucleoid-associated proteins (NAP's). These proteins generally bind to DNA with low sequence specificity and/or complex binding mechanisms. These properties make it hard to address their architectural effects on DNA using classical biochemical bulk approaches. Single-molecule visualization and micromanipulation techniques such as atomic force microscopy and optical tweezers, however, permit us to study these proteins in great detail (when bound at non-specific sites) and to determine their modes of binding, kinetics and structural stability. This *in vitro* knowledge and information from *in vivo* experiments combines into a detailed picture of the overall organization of the nucleoid.