

Structural and Solution Studies of *E. coli* Dps: A DNA Binding and Protecting Protein

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Introduction: Fast growing organisms, such as *E. coli*, which spends much of their life cycle in a nutrient poor environment, require an effective response to unfavorable environmental conditions that threaten its genome. Under these conditions new protein production in response to environmental stress is not an effective countermeasure. Dps protects DNA both by condensation of the chromosome and binding and probably oxidizing Fe(II) into Fe(III), thereby preventing the production of highly reactive OH⁻ free radicals. By expressing large amounts of Dps upon entering the stationary phase an effective response to oxidative damage of the chromosome is provided.

Materials and Methods: We have studied several crystal forms of Dps mutants, and WT Dps with and without Zn bound.

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