

Crystal structure of *Deinococcus Radiodurans* RecO

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The RecFOR pathway has been shown to be essential for DNA repair through the process of homologous recombination in bacteria and, recently, to be important in the recovery of stalled replication forks following UV irradiation. RecO, along with RecR, RecF, RecQ and RecJ, are principal actors in this fundamental DNA repair pathway.

Here we present the three-dimensional structure of RecO from the extreme-radiation resistant bacterium, *Deinococcus radiodurans*. The crystal structure of *D. radiodurans* RecO (drRecO) reveals possible binding sites for DNA and for the RecO-binding proteins within its three discrete structural regions: an amino-terminal oligonucleotide/oligosaccharide binding (OB) domain, a helical bundle and a Cys₄ zinc finger motif. Furthermore, drRecO was found to form a stable complex with RecR and to bind both ssDNA and dsDNA. Mutational analysis confirmed the existence of multiple DNA binding sites within the protein.

Keywords: DNA repair, zinc finger motif, x-ray crystal structure