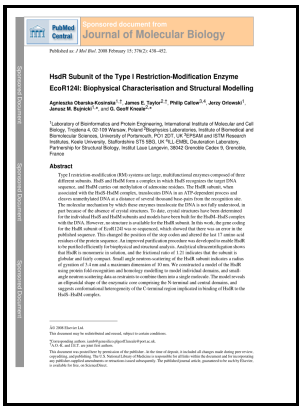
Biochemical and biophysical characterisation of the domain structure of the HsdS subunit of EcoR124I

University of Portsmouth, Institute of Biomedical and Biomolecular Sciences - fragment structure of a putative HsdR subunit of a type I restriction enzyme from Vibrio vulnificus YJ016: implications for DNA restriction and translocation activity



Description: -
-Biochemical and biophysical characterisation of the domain structure of the HsdS subunit of EcoR124I
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Recycling of protein subunits during DNA translocation and cleavage by Type I restriction

DNA translocation by a QxxxY mutant. Nuclease motifs in the HsdR subunit of Type I enzymes.

Biochemical and biophysical characterisation of the genetically engineered Type I restriction

An investigation of the structural requirements for ATP hydrolysis and DNA cleavage by the EcoKI type I DNA restriction and modification enzyme. EcoR124I that were produced by misincorporation mutagenesis within the central conserved region of hsdS , we have mapped all previously identified DNA-binding mutants of TRD2 and produced a detailed analysis of the location of surface-modifiable lysines. INTRODUCTION Type I restriction and modification R-M systems are encoded by three genes.

structure of M.EcoKI Type I DNA methyltransferase with a DNA mimic antirestriction protein

The DNA molecules are shown as yellow stick. Unlike the DNA, Ocr should be visible in EM experiments.

fragment structure of a putative HsdR subunit of a type I restriction enzyme from Vibrio vulnificus YJ016: implications for DNA restriction and translocation activity

In the absence of ATP, the binding of the first HsdR is relatively efficient K 1,app 5 min at 25°C. Very thin connections between the domains could be seen in some negative stain images, but these are not well resolved in the subsequent 3D map due to the low resolution. Acta Crystallogr D Biol Crystallogr 66: 479—485.

Structure and operation of the DNA

Cleavage of a one-site circular DNA is believed to result from the collision of HsdRs originating from the same EcoR124I complex, that bidirectionally translocate the entire length of the plasmid DNA. Following DNA cleavage, the HsdR subunits appear unable to dissociate even though the DNA is linear, suggesting a tight interaction with the cleaved product.

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