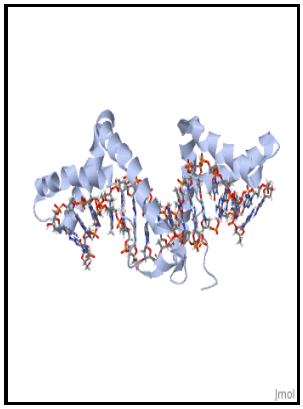
Structure and DNA binding of HMG boxes

Universityof Portsmouth, School of Biological Sciences - The crystal structure of the Sox4 HMG domain



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-Structure and DNA binding of HMG boxes
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Tags: #DNA #Bend #Angle #and #Binding #Affinity #of #an #HMG #Box #Increased #by #the #Presence #of #Short #Terminal #Arms

Structural analysis and DNA binding of the HMG domains of the human mitochondrial transcription factor A

All reactions contained 100 nM DNA. We are grateful to the other members of the laboratory Parinaz Aliahmad, Olivia Goularte, Peggy Han and Jian-Ming Yang for valuable discussion during the preparation of this manuscript and to Olivia Goularte for technical assistance.

A critical role in structure

However, the structure of an HMG box bound to DNA is not presently available.

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Although there is similarity between the two structures, negative charged electrostatic surface potential in the concave face of the molecule of box 5 exhibits great difference compared to that of box 1 and other HMG boxes with known structures. D Calculated sedimentation coefficient distributions for the full-length h-mtTFA.

HMG

An N-terminal GST fusion with box B mtTFA 110—179 was tested for its ability to interact with the various deletion constructs of h-mtTFA mtTFA 1-109, mtTFA 1—79, mtTFA 1—80—204, mtTFA 110—204, mtTFA 110—179, mtTFA 80—179, mtTFA 1—95 and mtTFA 96—179 in 50 mM HEPES—Na pH 7. HMGB1 and UBF-1 contain multiple HMG-box motifs, although only one is shown indicated by decimal in Fig. One group of HMG-box proteins recognizes structural features of DNA with low or absent sequence specificity.

DNA binding by single HMG box model proteins — NYU Scholars

The heterogeneous subunit assay introduced by Hope and Struhl was used to determine the stoichiometry of h-mtTFA bound to the LSP promoter DNA. A tyrosine located eight residues C-terminal to this proline in mLEF-1 residue 372 in , binds in the minor groove and serves, in part, to fix this change in direction of the polypeptide chain.

DNA binding by single HMG box model proteins

As well as being the first structure of an HMG-box di-domain bound to DNA, this provides the first structure of the B domain of HMGB1 bound to DNA. Human homologues of the three additional murine genes have also been identified Fig.

Solution structure of a DNA

Each of the HMG boxes and the C-terminal tail were evaluated for their ability to bind to the LSP DNA. Isolation and characterization of human cDNA clones encoding a high mobility group box protein that recognizes structural distortions to DNA caused by binding of the anticancer agent cisplatin. Here we clearly showed that in the absence of DNA, h-mtTFA exists as a monomer , and that it assembles as a dimer on a short segment of the mitochondrial promoter.

WDHD1

However, if the N-terminal extension alone is added to the parent box, K d rises slightly, i.

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