PYMOL COMPUTER LAB HOMEWORK

Use the GAL4 structure (PDB code 3COQ) to answer these questions:

1. Interactions of Basic Amino acids with DNA
2. Electrostatic interactions (“Salt Bridges”)

ARGININEs 15, 46 and 51 and LYSINE 17 interact directly with the phosphate backbone of the DNA

Measure and record ionic bond distances between protein and DNA.

Which Specific DNA residues are involved in this type of interactions?

1. Basic amino acids interact directly with the bases

Measure and record bond distances between LYS 18 and the nearest base.

(Donor to Acceptor)

C) Watson-Crick pairs

Select DNA base pairs C14 (chain D) and G28 (chain E)

Measure and record hydrogen bonds distances (Donor to Acceptor)

1. Select DNA base pairs A11 and T31

Measure and record hydrogen bonds distances (Donor to Acceptor)

1. PI Aromatic bonds:
2. Measure the distance between 2 consecutive bases

Select residues A9 and C10 (chain D) . Measure and record the distance between bases.

(use the closest atoms)