

## Zinc Finger RasMol Exercise

1. Search protein data bank for the pdb file 1ZAA.
2. Download the file to your RasMol folder
3. Review Structure Summary Page
4. Start RasMol and open 1ZAA in RasMol
5. Change the background color  
RasMol> background white
6. There are 3 zinc fingers in this file bound to a section of DNA. We only want to look at Zinc Finger #1. Restrict the display to only show Zinc Finger #1 (amino acids 4-31) on chain C  
RasMol> restrict \*c and (4-31)
7. Display zinc finger #1 in the alpha carbon backbone format  
Chose backbone from the display menu pull-down bar  
RasMol>backbone 250
8. Center the molecule  
RasMol> center \*c and (4-31)
9. Display Zinc ion in relation to the zinc finger  
RasMol>select zn  
RasMol> spacefill  
This will bring up 3 zinc ions. Since there are 3 zinc fingers included within this pdb file, there are 3 zinc ions. We only wish to display the zinc ion that is coordinated to the zinc finger we have displayed on the screen.  
Click on the other 2 zinc ions to identify their numbers.  
RasMol> select zn202 or zn203  
RasMol> spacefill off
10. Display sidechains for the histidine and cysteines coordinating the zinc ion  
RasMol> select \*c and (4-31) and his  
RasMol>spacefill 200  
RasMol>wireframe 250  
RasMol> select \*c and (4-31) and cys
11. Display the sidechain for Phe16  
RasMol> select \*c and phe16  
RasMol>spacefill 200  
RasMol>wireframe 250
12. Display the sidechain for Leu22  
RasMol>select \*c and leu22  
RasMol>spacefill 200  
RasMol>wireframe 250
13. Display the sidechain for Arg18  
RasMol>select \*c and arg18  
RasMol>spacefill 200  
RasMol>wireframe 250