

Myoglobin protein sequence analysis

- 1) Print and assemble the sperm whale myoglobin amino acid sequence provided. Do you see a difference between your sequence and the one in the paper? What is it and discuss the possible reason for it.
- 2) Use Table 5 of the H.C. Watson paper to annotate the sequence with secondary structure. How many alpha helices are there in this protein? How are they indicated?
- 3) How many beta sheets are there in this protein? How are they indicated?
- 4) How many regions with no identifiable secondary structure are there? How are they indicated?
- 5) Identify all the prolines in the sequence. How many are there? Where are they in relation to the secondary structure? Discuss with your team the possible significance of your findings.
- 6) Myoglobin is a very compact protein. From your reading of the Watson paper and your understanding of protein folding, why do you think myoglobin folds into such a tightly packed molecule?
- 7) Print and assemble the human myoglobin sequence. Align the human and sperm whale myoglobin sequences and note the differences. Do the number of differences surprise you in any way? How? Where in the sequence do you find the greatest (and the fewest) number of differences?