ApE activity _ pMSH2 plasmid_part 7 (cognate site and HA tag)

Created by Dr. Dongfang Wang, April 2014

Group assignment:
In this exercise, you will (1) identify the cognate site of your mutation in human MSH2, and (2) identify the location of a particular tag.

Instruction:

Part I.

1. Open your ApE file for pMSH2 plasmid, identify the MSH2 ORF, translate the ORF to protein sequence. This ORF contains _____ amino acids.
2. Go to NCBI, find the human MSH2 protein sequence. The accession number for this record is _____. The human MSH2 protein contains _____ amino acids.
3. Align the two protein sequence (MSH2 encoded by pMSH2, and human MSH2). Which position (e.g. the 124th amino acid) in the human MSH2 is the cognate site of the mutation your group studied this semester?
4. Follow the instruction from http://hongqinlab.blogspot.com/2014/03/msh2-ucsc-genome-browers.html. Can you find the cognate site you identified on the genome browser? The position of the cognate site is on _____.

Part II.

1. Go to NCBI, find the yeast MSH2 protein sequence. The accession number for this record is _____. The yeast MSH2 protein contains _____ amino acids.
2. Align the two protein sequence (MSH2 encoded by pMSH2, and yeast MSH2). Are there gaps in the alignment? These gaps are at position _____ and _____ of the pMSH2-encoded MSH2 protein.
3. Copy the protein sequence from the region where the two protein sequences don't line up, use Google or BlastP to identify the name of the sequence. The sequence is _____. Its function is _____. There are _____copies of this sequence in the pMSH2-encoded MSH2 protein.