

PROBLEM SET 1

Bi 410/510 Model Organisms

Due 4/15/14 at class time

These questions concern the paper referenced below. Please be concise in your answers but provide sufficient detail to demonstrate that you understand the issues under discussion. Use your own words; don't quote from the paper

“Mutations of a *mutS* Homolog in Hereditary Nonpolyposis Colorectal Cancer”

Leach et al.

Cell, 75:1215 – 1225 (1993)

1. What is HNPCC?
2. What kinds of mutations are commonly found in HNPCC tumors?
3. What are polymorphic markers?
4. What evidence ruled out SOS as a candidate gene?
As on the general advice above, be specific enough in your answer to show that you understand. Don't just quote the paper; describe experiments in your own words.
5. Why did the authors decide to look at *mutS* as a candidate gene?
6. What do you consider to be the strongest evidence that the authors have identified the correct locus affected in the HNPCC patients under study?
7. The authors wonder why mutation of *hMSH2* causes primarily colorectal (and a few other) cancer. I don't really understand the possibility they put forth. Do you have a possibility you could suggest?