

Assignment 1 (due April 12 by 5 pm):

The paper by Yang and colleagues describes characterization of the BRCA2 homolog, Brh2. They provide evidence that Brh2 promotes assembly of Rad51 filament and that this role could explain how BRCA2 proteins function in DSB repair.

The recombination assays described in the paper require the single-stranded DNA binding protein RPA. Explain the multiple effects that RPA is thought to have on Rad51 filament assembly. In one experiment, the authors use *E. coli* SSB in place of RPA. What is the role of this experiment in the logic of the paper?

The authors also conclude that Brh2 preferentially promotes Rad51 filament formation at ssDNA-dsDNA junctions. Furthermore, they infer that these filaments grow specifically to coat the 3' ssDNA overhang. How would their results differ if this specific polarity of filament growth had not been observed? They suggest from their structural work that this polarity could be due to nucleation by BRC-bound Rad51. Do you find this model attractive, unattractive, or unnecessary? Explain your position on this issue.

Directions:

The answers to the questions should be in the form of a **2 page essay with Title, double spaced, using #12 font size with one inch margins on top, bottom, left, and right. All papers should be left justified. No excuses!**

The essay should synopsise the important points of the paper that pertain to the question (no more than two paragraphs) and propose an answer to the questions posed. The quality of the answer will depend on the **quality of the supporting arguments** as well as the **quality of the presentation**.

Criteria for evaluation:

1. □ The student introduced the paper's topic effectively through a concise and clear summary of the key conclusions that can be made based on the experiments presented in the reading assignment.
2. □ The paper demonstrated a clear understanding of the experiments presented in the reading assignment.
3. □ The paper presented an insightful perspective to the study question(s). Answers were well supported with logical arguments based on the data in the paper.
4. □ The study question(s) were answered in the space allowed.
5. □ The paper:
 - a. was well organized with informative topic sentences, effective transitions, and clear expression of ideas;
 - b. had a logical flow; and
 - c. demonstrated correct grammar and mechanics.