

BIOL 434/634
Spring, 2008
Written Critique of Journal Article
Due Date: May 1, 2008

Each student will prepare a written summary and analysis of a journal article chosen from the list below. One list of papers is for the students taking the course as BIOL 434 and the other list is for the students taking the course as BIOL 634. As described below, the written summary and analysis should follow the outline used in our class discussions of articles from the original scientific literature. Students must work independently. The papers should be typewritten with full sentences; they should be grammatically correct, without misspellings, and most importantly, in your own words. The summary and analysis should be a minimum of 6-8 pages and double-spaced. Links to the papers may be found at the bottom of the page containing the Reading list.

Format:

Background: Describe the important background information that set the stage for this paper.

Objective: What was the purpose of the work? What was the primary hypothesis being tested?

Strategy: What was the primary approach taken by the investigators?

Key Method(s): Describe one or two experimental approaches that were critical to the analysis.

Results: Describe and interpret the data presented by the authors. You should do each figure or table as we would in class. Point out important controls.

Discussion: What conclusions do the authors draw from their work? Do you agree? What is the importance of the work? Based on this work, what questions do you think should be addressed next?

Articles for BIOL 434 Students

Griffith, K. L., I. M. Shah, T. E. Myers, M. C. O'Neill, and R. E. Wolf, Jr. 2002. Evidence for "pre-recruitment" as a new mechanism of transcription activation in *Escherichia coli*: the large excess of SoxS binding sites per cell relative to the number of SoxS molecules per cell. *Biochem. Biophys. Res. Commun.* **291**:979-986.

Griffith, K. L. and R. E. Wolf, Jr. 2004. Genetic evidence for pre-recruitment as the mechanism of transcription activation by SoxS of *Escherichia coli*: the dominance of DNA binding mutations of SoxS. *J. Mol. Biol.* **344**:1-10.

Shah, I. M. and R. E. Wolf, Jr. 2006. Inhibition of Lon-dependent degradation of the *Escherichia coli* transcription activator SoxS by interaction with 'soxbox' DNA or RNA polymerase. *Mol. Microbiol.* **60**:199-208.

Articles for BIOL 634 Students

Shah, I. M. and R. E. Wolf, Jr. 2004. Novel protein-protein interactions between *Escherichia coli* SoxS and the DNA binding determinant of the RNA polymerase α subunit: SoxS functions as a co-sigma factor and redeploys RNA polymerase from UP-element-containing promoters to SoxS-

dependent promoters during oxidative stress. *J. Mol. Biol.* **343**:513-532.

Griffith, K. L., I. M. Shah and R. E. Wolf, Jr. 2004. Proteolytic degradation of the *Escherichia coli* transcription activators SoxS and MarA as the mechanism for reversing the induction of the superoxide (SoxRS) and multiple antibiotic resistance (Mar) regulons. *Mol. Microbiol.* **51**:1801-1816.

Shah, I.M. and R. E. Wolf, Jr. 2006. Sequence requirements for Lon-dependent degradation of the *Escherichia coli* transcription activator SoxS: identification of SoxS residues critical to proteolysis and specific inhibition of *in vitro* degradation by a peptide comprised of the N-terminal 21 amino acid residues. *J. Mol. Biol.* **357**:718-731.