Report Option - Listeria and Advanced Biofilm Genetics and Applications

Paper: van der Veen & Abee, "Importance of SigB for Listeria monocytogenes Static and Continuous Flor Biofilm Formation and Disinfectant Resistance," in *Applied and Env. Microbiology*, 2010, p. 7854-7860.

Section One – Big Picture:

a. Using your textbook, describe the general features of biofilms, formation steps, examples, and advantages. What additional information about biofilms is expanded by the paper introduction? Why is understanding biofilms important to applied microbiology?
b. Using your textbook and other sources that you cite, describe what sigma factors are and their diversity. Next, use your textbook to explain the SOS response. Finally, why is understanding sigma factors and SOS response important to applied microbiology?

Section Two – Strains and Basic Expression Studies:

a. Using the paper, name and describe all strains used – including their experimental purposes. Additionally, describe all different growth conditions employed and how each was achieved.
b. Using the paper, describe ALL ways that sigB gene expression was studied – including describing the methods, naming the tables and/or figures that pertain to each, and the take-home messages from each experiment.

Section Three – Microbial Control and Resistance Studies:

a. Using the paper, describe how resistance studies were carried out, including naming and describing the specific antimicrobial compounds, their target/pathway, and what this paper suggested about Listeria responses.
b. Using the paper, carefully and thoroughly explain AND relate all graphs and summary data tables about resistance studies – emphasizing strains, controls, and growth state. What do each convey in terms of their take-home message about Listeria, biofilms, and responses?