

Study Guide
Chapter 28
Regulation of Gene expression

1. What are Housekeeping Genes, constitutive genes, inducible genes repressible genes, specificity factors, repressors, activators, operons, negative regulation, positive regulation, a regulon, an upstream activator sequence
2. How do e coli express several constitutive genes at different levels simultaneously?
3. Describe the lac operon. What genes are involved? What proteins are involved? What do these proteins do? How is it turned on and off? What are the different operators in this system etc.
4. Describe how glucose levels may turn on and off many genes at a regulon level
5. Describe the ara operon. What genes are involved? What proteins are involved? What do these proteins do? How is it turned on and off? What are the different operators in this system etc. Describe the details of some of hte protein DNA interactions involved in the regulation of these operon.
6. How can proteins find a unique sequence of DNA without actually separating the two stands of DNA ?
7. Describe the three most common DNA binding domains found in proteins
8. Describe the different protein-protein binding domains found in DNA regulatory proteins?
9. Describe the attenuation method of gene regulation as observed in the trp operon?
10. How is the SOS response system controlled in E coli?
11. How is the synthesis of ribosomes, rRNA and ribosomal protein regulated?
12. What is recombinational control of gene expression, give one example of this kind of control
12. What are some changes that occur in chromosomal structure as genes are expressed?
13. What are the three classes of Eukaryotic Transcriptional activators? How are they the same? Different?
14. Describe the regulation of the genes required for galactose metabolism in yeast.
15. How do steroid hormones modulate gene expression in eukaryotes
16. How does translational repression occur in eukaryotes?