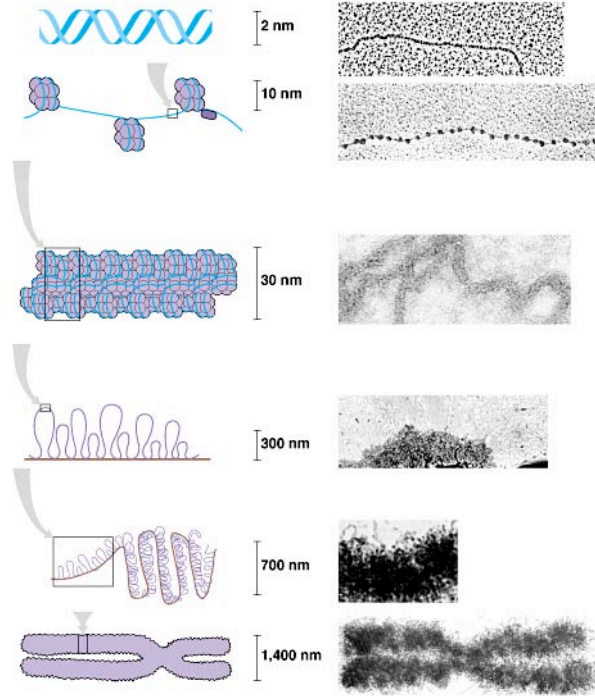


AP: CHAPTER 19: CONTROL OF EUKARYOTIC GENOME

1. Outline the levels of DNA packing within the eukaryote nucleus.



2. What is the difference between heterochromatin and euchromatin? Which is transcribed?

3. Which regions of the chromosome will typically be in the form of heterochromatin?

4. How do the coding regions and genome sizes of prokaryotes and eukaryotes compare?

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5. Much of mammalian non-coding DNA is in the form of _____

6. What is the cause of Fragile X?

7. What is the cause of Huntington's disease?

8. Discuss an example of interspersed repetitive DNA?

9. What is a multigene family?

10. Multigene families are hypothesized to have evolved from...

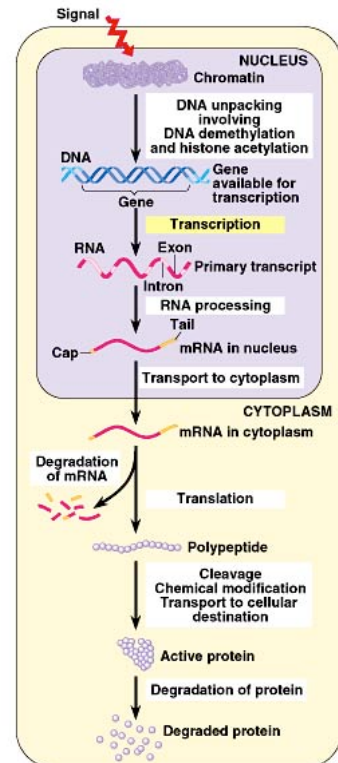
11. How is the globulin multigene family an adaptive to mammals?

12. Explain how gene amplification can regulate gene expression.

13. How can transposons alter gene expression?

14. How do immunoglobulin genes code for a seemingly infinite variety of antibodies?

15. Review the opportunities for gene regulation in eukaryotes in the diagram.



16. Where is the most important step in gene regulation?

17. Describe the effect of each of the following control mechanisms.

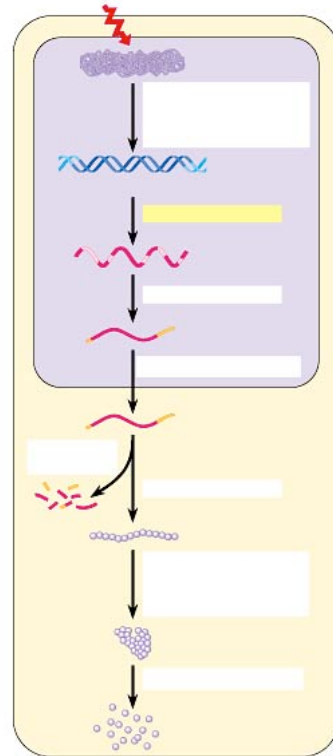
- a. DNA methylation _____
- b. Histone acetylation _____
- c. Transcription factors _____
- d. Control elements _____
- e. Enhancers _____
- f. Activators _____
- g. DNA-binding domain _____

18. How does alternative RNA splicing affect gene expression?

19. How does RNA degradation affect gene expression?

20. How does protein processing and degradation affect gene expression?

21. Identify the opportunities to regulate gene expression in eukaryotes.



22. Typically, what happens to cell function when cells become cancerous?

23. What is a proto-oncogene? What happens to them when cancer occurs?

24. List the three events that can turn proto-oncogenes into oncogenes.

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25. Identify and describe mutations in specific proteins that can lead to cancer.

26. What is p53?

27. Why is it said that cancer formation is a multi-step process?
