

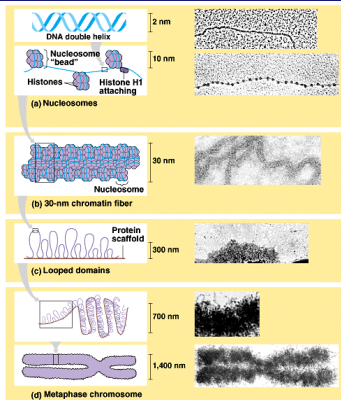
CHAPTER 19 GENE EXPRESSION



SIGNALS CONTROLLING GENE EXPRESSION

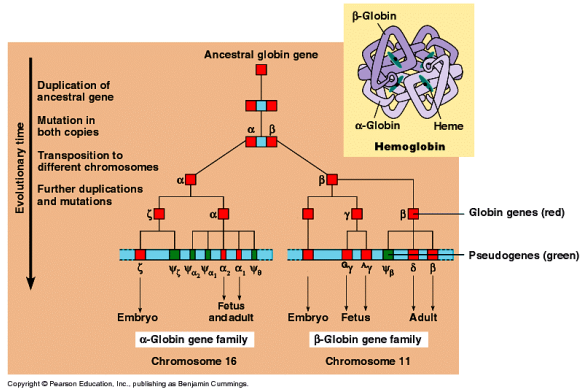
- ▶ **CHROMOSOME PUFFS**
- ▶ **FOUND IN INSECT LARVAE**
- ▶ **THEIR SHAPE MAKES DNA MORE ACCESSIBLE FOR TRANSCRIPTION AND TRANSLATION**
- ▶ **ECDYSONE: HORMONES MADE FOR MOLTING IN INSECTS**

Figure 19.1 Levels of chromatin packing



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Figure 19.3 The evolution of human α -globin and β -globin gene families



ALTERING GENE EXPRESSION

- ▶ GENE AMPLIFICATION
- ▶ INCREASE r-RNA SYNTHESIS ON THE RIBOSOMES
- ▶ INCREASE PROTEIN SYNTHESIS
- ▶ USED IN CHEMOTHERAPY

Figure 19.4 The effect of a transposon on flower color

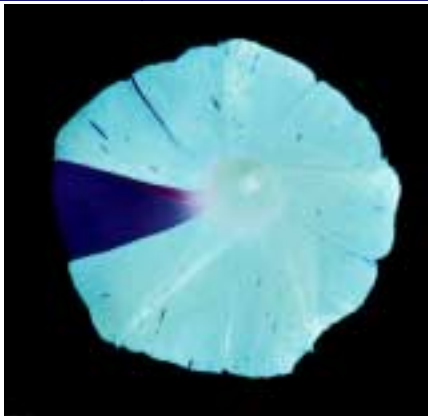


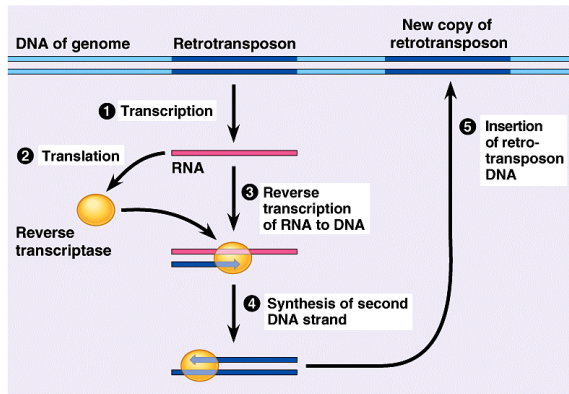
Figure 19.x2 Transposons in corn



REARRANGEMENTS IN THE GENOME

- ▶ TRANSPOSONS-”JUMPING GENES”
- ▶ IMMUNOGLOBULINS (Ig)-5 types
- ▶ B LYMPHOCYTES (WBC)
- ▶ INDIVIDUALS WITH DISTINCTIVE GENOMES
- ▶ DNA METHYLATION/ADDING CH3 GROUPS TO DNA
- ▶ HUNTINGTONS DISEASE

Figure 19.5 Retrotransposon movement



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Figure 19.6 DNA rearrangement in the maturation of an immunoglobulin (antibody) gene

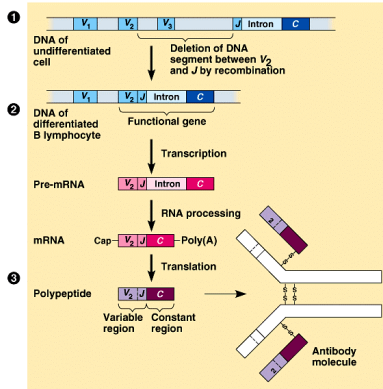
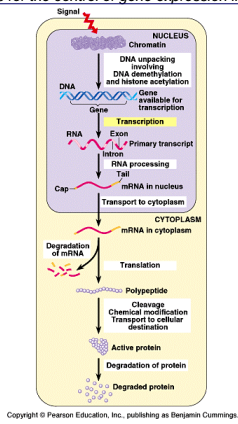


Figure 19.7 Opportunities for the control of gene expression in eukaryotic cells



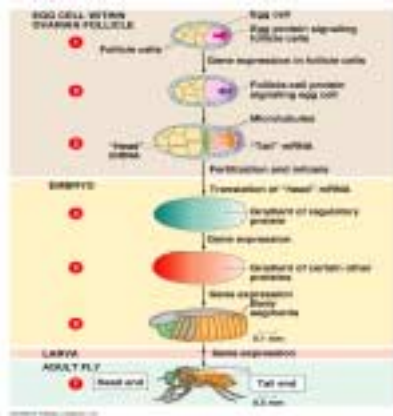


Figure 19.14 Signaling pathways that regulate cell growth (Layer 3)

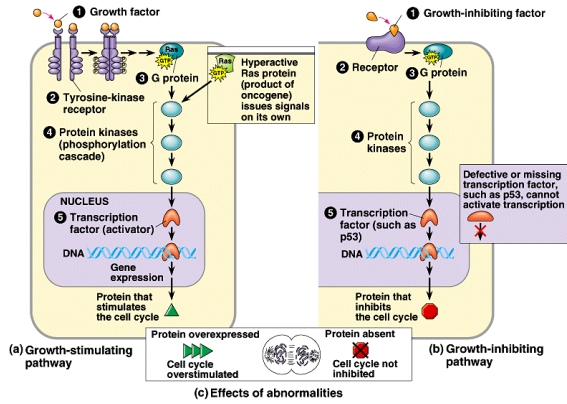
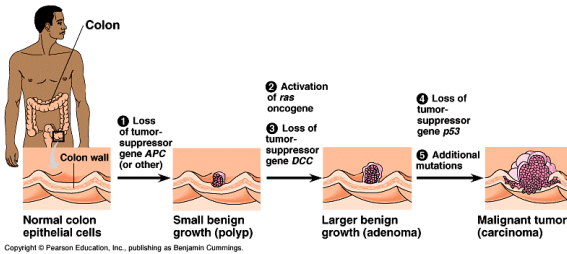


Figure 19.15 A multi-step model for the development of colorectal cancer



INHERITANCE OF MUTATION

- ▶ TUMOR REPRESSOR GENES ON CHR 12
- ▶ COLON CANCER -APC GENE CHR 5
- ▶ BREAST CANCER :CHR 17- BRCA1
- ▶ CHR.15-BRCA2
- ▶ CAN INTERFERONS HELP SUPPRESS THIS PROCESS?
