CHAPTER 19
THE ORGANIZATION AND CONTROL OF EUKARYOTIC GENOMES

I. Introduction

A. Gene expression in eukaryotes has two main differences from the same process in prokaryotes.
   1. First, the typical multicellular eukaryotic genome is much larger than that of a bacterium.
   2. Second, cell specialization limits the expression of many genes to specific cells.

B. The estimated 35,000 genes in the human genome includes an enormous amount of DNA that does not program the synthesis of RNA or protein.

C. This DNA is elaborately organized.
   1. Not only is the DNA associated with protein to form chromatin, but the chromatin is organized into higher organizational levels.

D. Level of packing is one way that gene expression is regulated.
   1. Densely packed areas are inactivated.
   2. Loosely packed areas are being actively transcribed.

II. Eukaryotic Chromatin Structure

A. Chromatin structure