**Chapter Overview**

**Chapter 9: Transcriptional Regulation and Epigenetics**

The preceding chapter discussed the mechanisms of RNA synthesis and processing in both prokaryotic and eukaryotic cells. This chapter deals with the *regulation* of transcription, which is the primary level at which gene expression is controlled. Regulation of transcription is fundamental to all aspects of cell behavior, from the utilization of nutrients by bacteria to the complex behavior of neurons in the human brain. The mechanisms that determine patterns of gene expression in eukaryotes are multifaceted, including epigenetic control by modification of chromatin. The complex networks that regulate gene expression determine the normal behavior of the many different cell types in the human body. And as one might expect, abnormalities of transcriptional regulation underlie many common diseases, including multiple types of cancer.