In the nucleus of higher eukaryotes, proteins and nucleic acids are nonrandomly distributed and constitute distinct nuclear bodies that control specific nuclear processes such as biogenesis of ribosomes, regulation of gene expression, pre-mRNA splicing, and modification and assembly of ribonucleoprotein complexes. The compartmentalized organization of the nucleus is considered to provide one of the cellular bases for the sophisticated regulation of gene expression found in the higher eukaryotes. Interestingly, recent studies revealed that certain long non-protein-coding RNAs accumulate in specific nuclear bodies and regulate the function of the nuclear bodies by serving as architectural components or controlling the localization or dynamics of associating protein components. This book focuses on cytological, biochemical, and molecular biological methods to identify and examine the function of each nuclear body, with an emphasis on the analysis of long noncoding RNAs.

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