

PREFACE

In somatic cells, DNA is normally wrapped around the histones octamer to form nucleosomes that eventually give rise to a solenoid DNA structure. Unlike somatic cells, in mammalian sperm, the development of spermatids into mature spermatozoa is accomplished by a series of structural and chemical modifications including a gradual replacement of lysine-rich histones by transition proteins and then by protamines which bind more tightly to DNA than histones, which results in compaction of chromatin in the sperm nucleus, a process which is termed 'sperm chromatin condensation'. The nucleus of sperm contributes half of the offspring genomic material and any abnormalities of sperm DNA and chromatin can lead to failures in the reproductive process. Many factors including intra and extra testicular factors may be involved in sperm chromatin and DNA anomalies. This book also examines the several techniques that have been devised in order to study chromatin and DNA defects in human spermatozoa.