



DNA may be present in coiled and folded manner. It is referred that the thickness of chromosome is usually hundred times that of DNA and the length of DNA found in chromosome is several hundred times than the length of chromosome. So, the manner of coiling and folding of DNA within the chromosome is a matter of debate. However, dozens of important models have been put forward in this context.

The important one -

- (2) Folded Fibre Model - by E. J. Dupraw (1965)
- (21) Simple multistranded model -
By Steijverssen (1961)
- (22) R₁ multistranded Model - By R₁ (1966)
- (17) Tag loss side chain model
By Taylor's (1957)
- (16) Freese Taylor Model - Freese (1958)
- (17) Coiled model - Nobel
- (11) R₁ modified model R₁ (1967)
- (14) Single Stranded Model

The majority supports
However go in favour of single
stranded Model.

Histone: - These are five fractions
of histones such as H₁, H_{2A}, H_{2B},
H₃ and H₄ as designated by Lewis
(1975). These histones isolated from
diverse materials show considerable
similarity.

R.N.A (Ribose Nucleic acid)

Although the R.N.A is -
reduced or absent in metaphase
chromosome but it is present
in onion & liliun - by kaufman (1948)

R.N.A generally is a single
stranded polymer of nucleotide
chain. The only difference from
DNA is that, the thymine base
is replaced by Uracil and deoxy
ribose sugar is replaced by Ribose
sugar in RNA.

Histone: - There are five types of Histone. Such as H₁, H_{2a}, H_{2b}, H₃, H₄ as designated by Lewis in 1975. Histones play a structural role in chromatin reconstitution. However recently regulatory role of histones have also been elucidated.

Non Histone: -

~~There are five types of histones~~
The no. of non histones varies from 12 to 20 in a variety of organism. These protein regulate the activity of specific gene. Gilmore and Paul (1973) suggested that specific non histone proteins switch on specific genes. Groner et al (1975) and Barol et al (1974) confirmed the above experiment.

Ultra Structure:

Electron microscopy reveals that chromosome has very fine fibrils having thickness of 20-40 Å. Since DNA is 20 Å wide, there is possibility that a single fibril corresponds to a single DNA molecule.

It is presumed that a single chromatid has a single long DNA molecule or —