→ Understanding complexity of sequences.
→ Understanding relative proportion of single copy and repetitive sequence.

Euchromatin and Heterochromatin:

The term euchromatin and heterochromatin was coined by Emil and Heitz in 1928. Complex combination of DNA and proteins that makes up chromosome which is generally found inside the nuclei of eukaryotic cell known as chromatin. They are the parts of chro-matin.

Types of chromatin:

Chromatin are of two types ——

1. Euchromatin
2. Heterochromatin

1. Euchromatin:

→ Euchromatin is the tightly packed from the Chromatin that is rich in gene concentration.
→ It is often under the active transcription.
→ It composes the most active portion of

the genome is euchromatin.

* In euchromatin the wrapping is loose so that the raw DNA may be accessed
* The basic structure of chromatin is an elongated open 10nm microfibril as noted by electron microscopy.

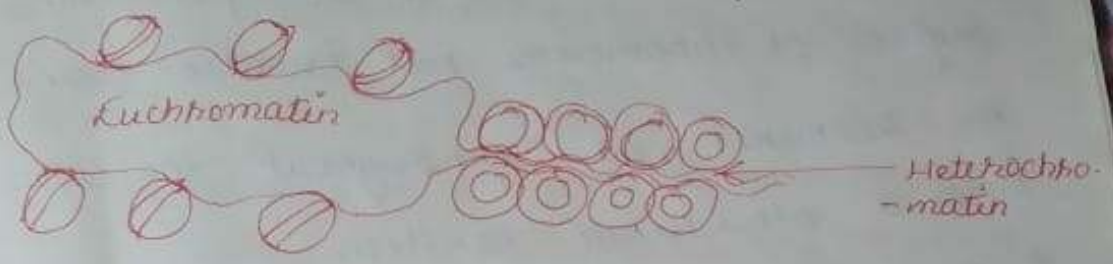
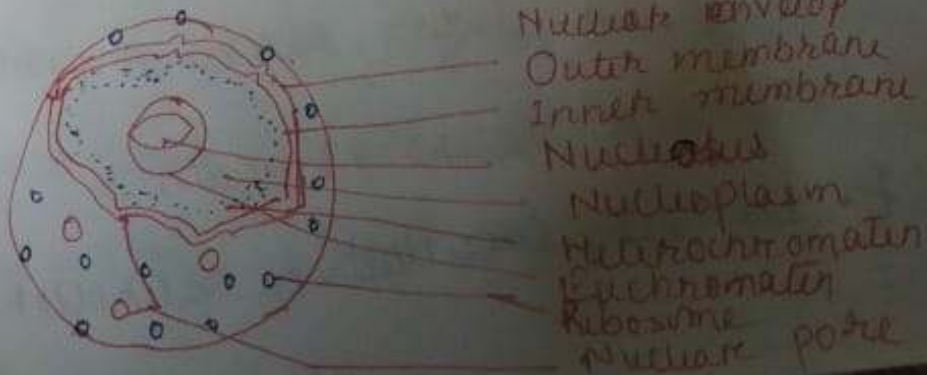


Fig: Euchromatin and heterochromatin

Heterochromatin:

Hetero chromatin are tightly packed form of DNA or condensed DNA, which comes in multiple varieties. These varieties lie on a continuum between the two extremes of constitutive hetero-chromatin and facultative heterochromatin. Both play a role in the expression of genes



Heterochromatin are of two types :

1) Constitutive heterochromatin :

→ Constitutive heterochromatin domains are regions of DNA found throughout the chromosomes of eukaryotes.

→ Heterochromatin is found at pericentromeric regions of chromosome but is also found at the telomeres and throughout the chromosome.

→ Has a structural function.

→ Made up of satellite DNA

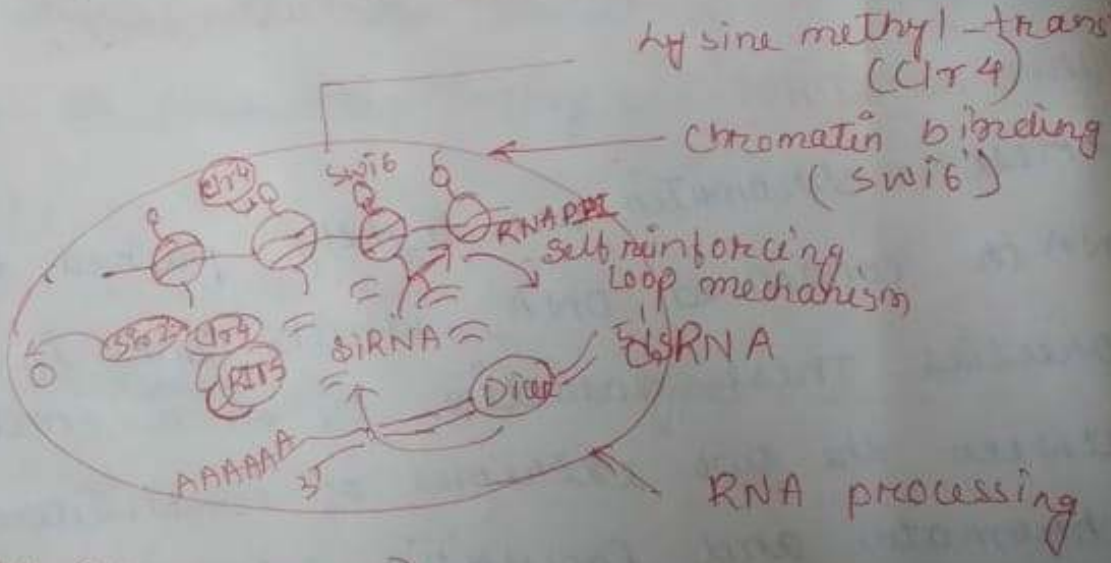


Fig : Constitutive heterochromatin

ii) Facultative heterochromatin :

→ In contrast facultative heterochromatin consists

of euchromatin that takes on the staining and compactness characteristics of heterochromatin during same phase of development.

→ The inactive X-chromosomes is made up of facultative heterochromatin.

→ It may be convert to euchromatin depending upon requirement.