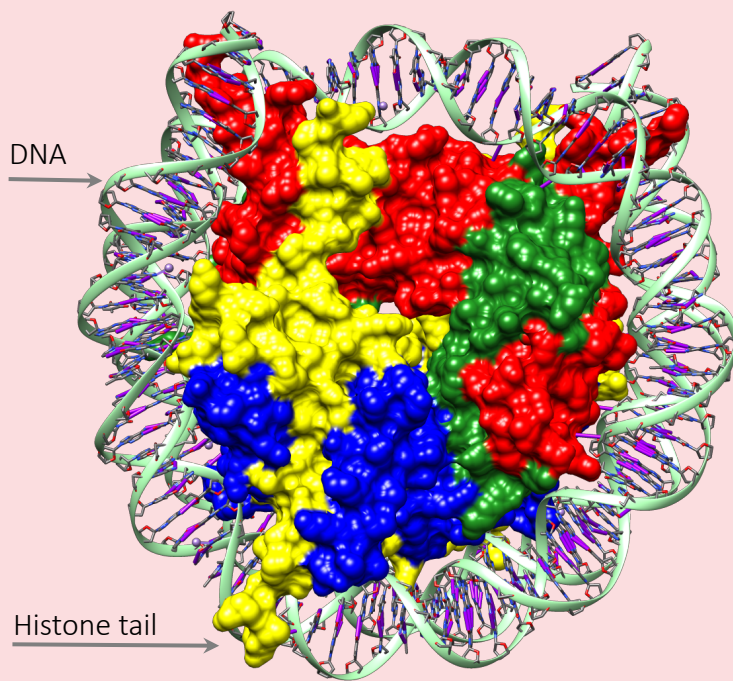


# COMPONENT OF DNA PACKAGING

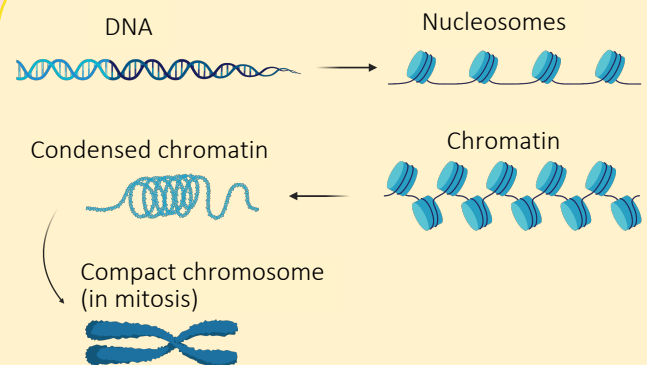
6JR1



**Histone core**  
(octet of histone proteins, consisting of  
2 copies each of **H2A**, **H2B**, **H3**, **H4**)

## Nucleosome

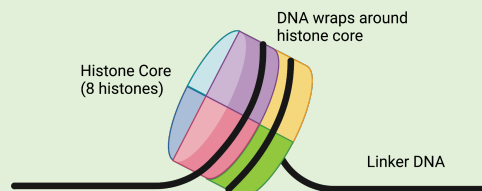
- fundamental organizational units of **chromatin**
- complex of **histone** proteins and **DNA**



Nucleosomes allow DNA packaging in nucleus

## STRUCTURE

- histones are small positively charged proteins
- eight histone molecules interact to form core of the nucleosome
- extending from core are **histone tails**, amino-termini of the histones
- DNA (~146 bp) wraps around each histone core about 1.67 times
- ~54 bp of DNA (**linker DNA**) between each nucleosome histone core



## FUNCTION

- allows for **condensation** (packing) of chromatin to fit in the nucleus
- histone tails interact with histone tails from adjacent nucleosomes which enables DNA packing
- DNA in chromosomes is condensed up to 10,000X

## Role in Gene Expression

- **covalent modification** (addition of methyl or acetyl groups) on histone tails weakens the histone/DNA interactions
- DNA becomes less condensed, exposing sites on DNA for gene expression