

Sequence of nucleotides (nitrogen bases) in mRNA that contains information for protein synthesis (translation).

Definition ↑

- Triplet
- Non-ambiguous
 - Degenerate
 - Comma less
 - Universal
 - Comma less

Features ↑

Genetic Code

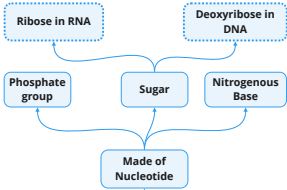
Polynucleotide Chain

Human Genome Project

Molecular Basis of Inheritance

Hershey and chace exp

Search for genetic material



- To identify all the estimated genes in human DNA
- To determine the sequences of the 3 billion base pairs
- To provide tools for data analysis

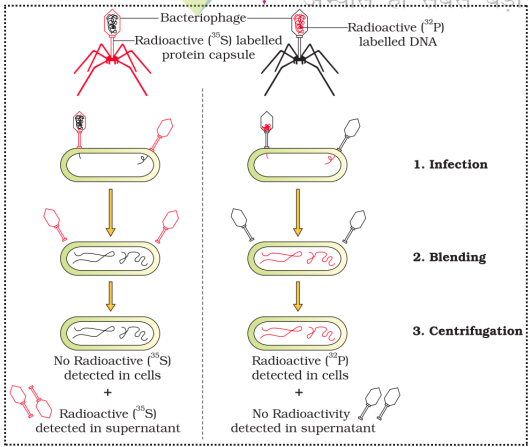
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Biochemical Nature

Griffith Exp

- Discovered by Oswald Avery, Colin MacLeod and Maclyn McCarty.
- Conclusion: DNA is the hereditary material

- S-strain → Inject into mice → Mice die
- R-strain → Inject into mice → Mice live
- S-strain (Heat killed) → Inject into mice → Mice live
- S-strain (Heat killed) + R-strain (live) → Inject into mice → Mice die
- Conclusion: Some 'transforming principle', transferred from heat-killed S-strain to R-strain.



1. Infection

2. Blending

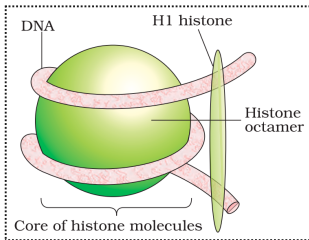
3. Centrifugation

No Radioactive (³⁵S) detected in cells

Radioactive (³²P) detected in cells

Radioactive (³⁵S) detected in supernatant

No Radioactivity detected in supernatant



- Structural gene
- Operator gene
- Promoter gene
- Repressor
- Inducer

Central Dogma

Gene expression and regulation

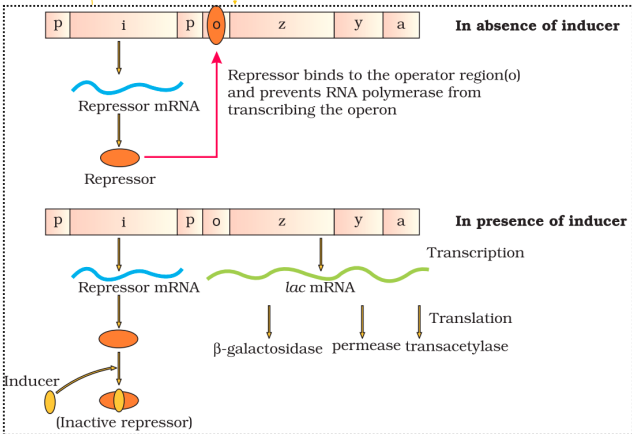
Molecular Basis of Inheritance

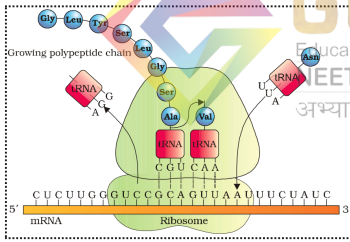
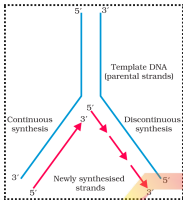
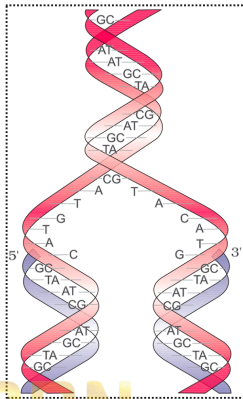
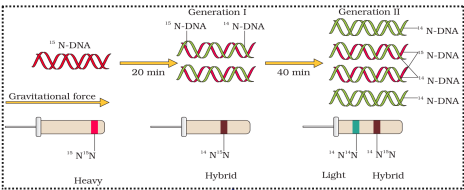
DNA packaging Nucleosome

The operon controlling lactose metabolism

Lac Operon

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