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# CELL AND MOLECULAR BIOLOGY

## DNA to protein

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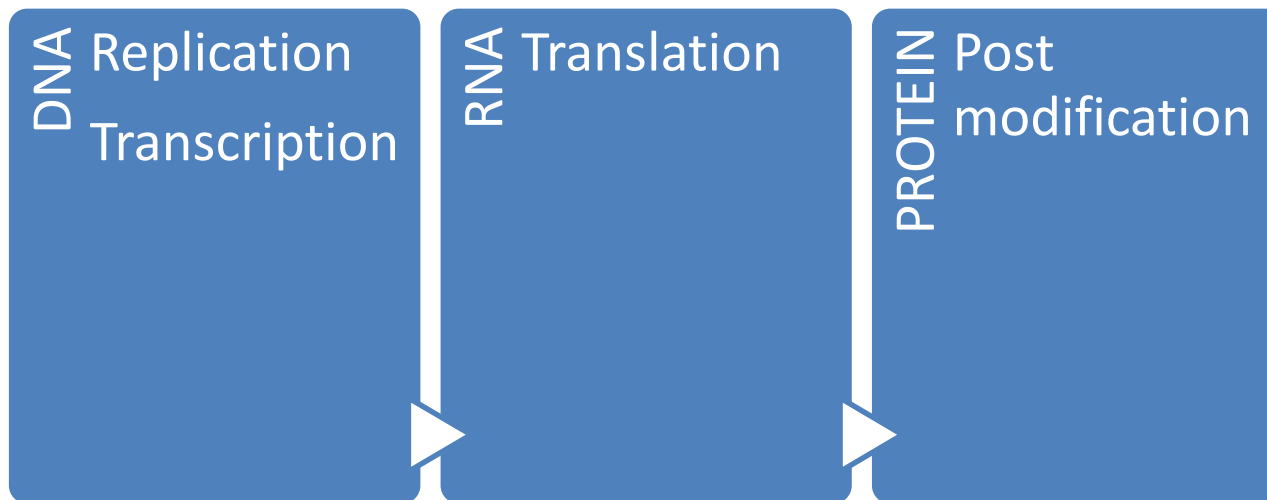


*DNA to protein*

*by Noor Suhana Binti Adzahar*

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# Pathway from DNA to Protein



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## DNA replication

- each strand of the original double-stranded DNA molecule serves as template for the **reproduction of the complementary strand**.
- **two identical DNA molecules** have been produced from a single double-stranded DNA molecule.



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## Transcription

- When a cell needs to make a particular protein, an activation signal stimulates an enzyme (**DNA helicase**) to **unwind** the DNA in the region of the appropriate gene.
- "**coding strand**" becomes a template for building **messenger RNA (mRNA)**.



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## Translation

- **mRNA** moves out from the nucleus and into the cytoplasm to initiate the translation process.
- mRNA then interacted with **ribosomes** and **transfer RNA (tRNA)**.
- Each tRNA contains a **triplet of nucleotide bases** (anticodon code) and the corresponding **amino acid**



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## RNA splicing

RNA splicing is a process that

- **removes non-coding regions (introns)** and
- **joins protein coding exons** in a primary transcript.



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