

Transcription & Translation

Biology

How a gene becomes a protein, in two stages.

From gene to polypeptide.

1

Transcription

RNA polymerase makes pre-mRNA from the template strand, in the nucleus.

2

Splicing

Introns removed, exons joined. Alternative splicing yields several proteins from one gene.

3

mRNA leaves the nucleus

Through a nuclear pore to a ribosome.

4

Translation

tRNA brings amino acids matching each codon.

5

Folding

The polypeptide folds; often modified in the ER and Golgi.

THE CODE

64 codons, 20 amino acids

Degenerate: several codons per amino acid

AUG starts; UAA, UAG, UGA stop

The genetic code is near-universal across life, which is itself strong evidence for common descent.