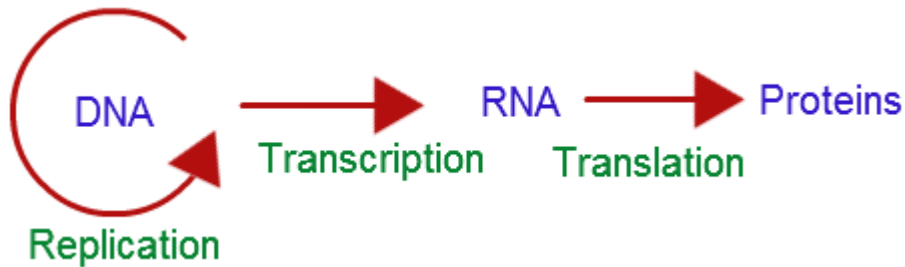


CENTRAL DOGMA



TRANSCRIPTION

At initiation

1. RNA polymerase binds to the promoter of a gene
2. DNA double strands separate by breaking the hydrogen bonds

At elongation

1. template strand of DNA strand serves as a template for ribonucleotides to base pair
2. RNA polymerase catalyses phosphoester bond formation between the ribonucleotides to form RNA
3. RNA is synthesized in a 5' to 3' direction.

At termination

1. the RNA polymerase reaches a sequence of bases in the DNA template called a terminator (*hasta la vista, baby.*)
2. this sequence signals the end of the gene; at that point, the polymerase molecule detaches from the RNA molecule and the gene

TRANSLATION

1. Each amino acid attaches to its proper tRNA (which corresponds to its anticodon) with the help of a specific enzyme and ATP.

At initiation:

1. mRNA, tRNA and ribosomes come together

At elongation:

1. in codon recognition, the anticodon of an incoming tRNA molecule, carrying its amino acid, base pairs with the mRNA codon.
2. in peptide bond formation, the ribosome catalyzes formation of the peptide bond, adding one more amino acid to the growing polypeptide chain.
3. in translocation, ribosome moves along the mRNA so codon recognition can start again and tRNA without amino acid could leave the ribosome.

At termination:

1. ribosome recognizes a stop codon on mRNA.
2. the polypeptide synthesis is terminated and released.

after all that crap [no need to know]: mRNA breaks down into free molecules, polypeptide chain goes into rough ER → vesicle(?) → golgi apparatus → out of the cell via pinocytosis