

Weaver Figures: 2.20, 2.15, 2.9, 3.14, 3.1, 3.2, 3.3, 3.7, 2.4

DNA Replication

Semi-conservative

Substrates—dNTP (dATP, dGTP, dCTP, dTTP)

Directionality

RNA Transcription

Transcription direction is defined by the sequence of the gene unit.
Different genes can be oriented in different directions on the DNA.
Only one strand of DNA is copied into mRNA.

Prokaryotes can encode many proteins on a single mRNA. (poly-cistronic)
Eukaryotes encode a single protein per mRNA (mono-cistronic)

Properties of the mRNA

Transient form of the genetic information

Single stranded (has polarity)

Can form base pairs with complementary sequence

Easily degraded by Rnases

Translation

Reading of three ribonucleotides (triplet codon) into an amino acid (or a peptide).

64 possible triplet codons encode 20 amino acids and STOP codons.

There are three possible reading frames—only one reading frame will be used for translation.

Translation is carried by the Ribosome.

Peptide bonds connect amino acids to generate polypeptides (or protein)

Protein structure

Q: What experiment did Hershey and Chase perform to prove that DNA, but not protein, encodes genetic information?