



The Genetic Code



DNA

- Base pairing rules:
 - Adenine pairs with Thymine
 - Guanine pairs with Cytosine



RNA

- Base pairing rules:
 - Adenine pairs with Uracil
 - Guanine pairs with Cytosine



Identify the Complimentary DNA Strand:

- ATGGTCACA
- TACCAGTGT
- CGATAGACT
- GCTATCTGA



Identify the Complimentary RNA Strand:

- ATGGTCACA
- UACCAGUGU
- CGATAGACT
- GCUAUCUGA



mRNA to Amino Acids...

- The RNA compliment to DNA is called mRNA.
- mRNA is read in codons.
- Codons are read with the Genetic Code Chart to identify the Amino Acid coded for.
- There are 20 Amino Acids, but there are 64 combinations using the Genetic Code Bases.



The Genetic Code

The genetic code table shows the mapping of mRNA codons to amino acids. The table is organized by the first base of the codon (U, C, G, A) and then by the second and third bases. The amino acids listed include Alanine, Arginine, Asparagine, Aspartic acid, Cysteine, Glutamic acid, Glutamine, Glycine, Histidine, Isoleucine, Leucine, Lysine, Methionine, Phenylalanine, Proline, Serine, Threonine, Tryptophan, Tyrosine, and Stop codons (UAG, UGA, UAA).

Identify the Amino Acids:

• UACCAGUGU

Tyr, Gln, Cys

The genetic code table is used to identify the amino acids for the mRNA sequence UACCAGUGU. The sequence is read in three codons: UAC, CAG, and UGU. UAC codes for Tyrosine (Tyr), CAG codes for Glutamine (Gln), and UGU codes for Cysteine (Cys).

Identify the Amino Acids:

• GCUAUCUGA

Ala, Ileu, End

The genetic code table is used to identify the amino acids for the mRNA sequence GCUAUCUGA. The sequence is read in three codons: GCU, AUC, and UGA. GCU codes for Alanine (Ala), AUC codes for Isoleucine (Ileu), and UGA is a stop codon (End).

Proteins:

- Organic molecules made up of series of amino acids linked together.
- Show the specimen's traits.

The graphic shows a DNA double helix structure, representing the genetic material that encodes proteins.