Microbiology - Microbial Genetics

Transcription
Translation
The Genetic Code

The Genetic Code

- The genetic code is a **nonoverlapping triplet** code.
- The code is **degenerate** in that some amino acids are encoded by more than one **codon**.
- Three codons - UAA, UAG and UGA - are **nonsense codons** signalling termination of protein synthesis.
1. Components needed to begin translation come together.

2. On the assembled ribosome, a tRNA carrying the first amino acid is paired with the start codon on the mRNA. A tRNA carrying the second amino acid approaches.

3. At the P site, the first amino acid is released. Peptide bond forms. 

4. The first amino acid joins to the second by a peptide bond, and the first tRNA is released.

5. The ribosome moves along the mRNA until the second tRNA is in the P site, and the process continues.

6. The ribosome continues to move along the mRNA, and new amino acids are added to the polypeptide.
Eukaryotic mRNA is processed from the original transcript

1. A gene composed of exons and introns is transcribed to RNA by RNA polymerase.
2. Processing involves ribozymes and proteins in the nucleus to remove the intron-derived RNA and splice together the exon-derived RNA into mRNA.
3. After further modification, the mature mRNA travels to the cytoplasm, where it directs protein synthesis.

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