

Exercise walk-through

6.4

Translation

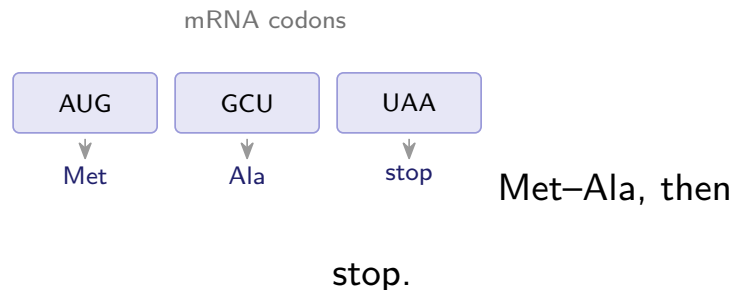
AP Biology

Translation

A **ribosome** reads mRNA three bases at a time. Each **codon** names one amino acid.

- **AUG = start** (Met);
UAA/UAG/UGA = **stop**
- **tRNA** RNA **anticodon**
delivers the amino acid

The **genetic code** is nearly universal – evidence of a **common ancestor**.



Exercises 2.1-2.3

2.1 How many bases make one codon?

[1]

2.2 What is the start codon?

[1]

2.3 What part of a tRNA pairs with the mRNA codon?

[1]

Exercises 2.1-2.3

2.1 How many bases make one codon? [1]

2.1

- Three
-

2.2 What is the start codon? [1]

2.2

- AUG
-

2.3 What part of a tRNA pairs with the mRNA codon? [1]

2.3

- The anticodon

Exercise 3.1

3.1 During translation, the amino acids are joined by the

[1]

☐

A nucleus

B ribosome

C mitochondrion

D DNA polymerase

Exercise 3.1

3.1 During translation, the amino acids are joined by the

[1]

☐

A nucleus

B ribosome

C mitochondrion

D DNA polymerase

3.1 B

- the ribosome

Exercise 3.2 (a)

3.2 An mRNA reads 5'-AUG-CCU-GGA-UAA-3' (AUG=Met, CCU=Pro, GGA=Gly, UAA=stop).

(a) Give the amino-acid sequence made.

[2]

Exercise 3.2 (a)

3.2 An mRNA reads 5'-AUG-CCU-GGA-UAA-3' (AUG=Met, CCU=Pro, GGA=Gly, UAA=stop).

(a) Give the amino-acid sequence made.

[2]

(a)

- Met-Pro-Gly

Exercise 3.2 (b)

3.2 An mRNA reads 5'-AUG-CCU-GGA-UAA-3' (AUG=Met, CCU=Pro, GGA=Gly, UAA=stop).

(b) Explain what happens at the UAA codon.

[1]

Exercise 3.2 (b)

3.2 An mRNA reads 5'-AUG-CCU-GGA-UAA-3' (AUG=Met, CCU=Pro, GGA=Gly, UAA=stop).

(b) Explain what happens at the UAA codon.

[1]

(b)

- UAA is a stop codon, so translation ends and the polypeptide is released

Exercise 3.3

3.3 Explain why the near-universal genetic code allows a human gene to be expressed in a bacterium. [2]

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3.3

- Because the code is essentially universal, the bacterium's ribosomes read the same codons for the same amino acids, so a human gene is translated into the correct protein