

Exercise walk-through

6.3

Transcription and RNA Processing

AP Biology

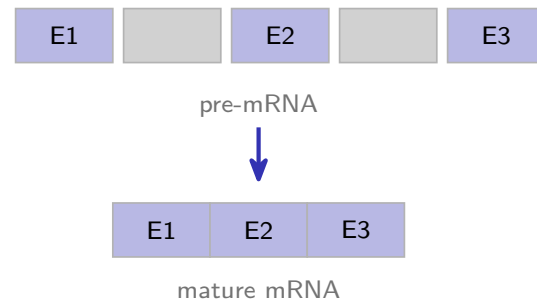
Transcription and RNA processing

Transcription : RNA

polymerase RNA copies one DNA strand into **mRNA** RNA (U replaces T).

- add a **cap** and **poly-A tail**
- **splicing** removes **introns** , joins **exons**

Alternative splicing lets one gene make several proteins.



Exercises 2.1-2.3

2.1 What enzyme carries out transcription?

[1]

2.2 Transcribe the template 3'-TACG-5' into mRNA.

[2]

2.3 What is removed during splicing?

[1]

Exercises 2.1-2.3

2.1 What enzyme carries out transcription? [1]

2.1

- RNA polymerase
-

2.2 Transcribe the template 3'-TACG-5' into mRNA. [2]

2.2

- mRNA 5'-AUGC-3'
-

2.3 What is removed during splicing? [1]

2.3

- Introns

Exercise 3.1

3.1 During RNA processing, the parts removed from the pre-mRNA are the [1]

☐

A exons

B introns

C caps

D tails

Exercise 3.1

3.1 During RNA processing, the parts removed from the pre-mRNA are the [1]

☐

A exons

B introns

C caps

D tails

3.1 B

- introns

Exercise 3.2 (a)

3.2 A gene is transcribed and processed.

(a) State two modifications made to the mRNA.

[2]

Exercise 3.2 (a)

3.2 A gene is transcribed and processed.

(a) State two modifications made to the mRNA.

[2]

(a)

- Any two: adding a 5' cap, adding a poly-A tail, splicing out introns

Exercise 3.2 (b)

3.2 A gene is transcribed and processed.

(b) Distinguish introns from exons.

[2]

Exercise 3.2 (b)

3.2 A gene is transcribed and processed.

(b) Distinguish introns from exons.

[2]

(b)

- Exons are the coding parts kept in the mRNA; introns are non-coding parts spliced out

Exercise 3.3

3.3 Explain why processing is needed before the mRNA leaves the nucleus.

[2]

Exercise 3.3

3.3 Explain why processing is needed before the mRNA leaves the nucleus. [2]

3.3

- Processing (cap, tail, splicing) stabilizes the mRNA and removes non-coding introns, so the mature mRNA can be exported and correctly translated