

Solutions

Each answer shows the steps, then the **result**.

2.1

- No

2.2

- At the gene's promoter

2.3

- Blocks transcription of a gene

3.1 B

- a repressor

3.2

(a)

- The cell makes the digesting enzymes only when they are useful, saving energy and resources when lactose is absent

(b)

- Regulatory proteins switch the genes on or off in response to the lactose signal

3.3

- Different cell types express different sets of genes; regulation turns the right genes on in each cell, so the same genome can produce specialized cells