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Answers

Down's syndrome

Answers to practice exam questions on pp. 2–6

Martin Rowland

- 1 During meiosis 1 / metaphase 1 and anaphase 1, homologous chromosomes pair and separate (into two separate cells).
During meiosis 2 / anaphase 2, sister chromatids separate (into two separate cells).
A person with translocation Down's syndrome has only two copies of chromosome 14, so normal meiosis 1 and meiosis 2 can occur.
The presence of three homologous chromosomes 21 prevents meiosis 1 and meiosis 2 from occurring.
- 2 (Some) cells from the fetus cross the placenta into the mother's bloodstream.
(Fetal) body cells / white blood cells contain nuclei.
So chromosomal abnormalities (of the fetus) can be seen (using an optical microscope).

Linking cell division to genetics

Answers to practice exam questions on pp. 26–30

Marcus Allen

- 1 **a** $((820 + 794) \div 2018) \times 100 = 80\%$.
b $((199 + 205) \div 2018) \times 100 = 20 \text{ LMU}$.
- 2

Y	S	X	W
15	14	6	

How e-cigarettes can ruin your smile

Answers to practice exam questions on pp. 34–37

Martin Rowland

- 1 Moist
 Neutral pH
 Stable temperature / 32°C to 34°C
 Low oxygen concentration
- 2 **a** Purple: (inner / outer) cell membrane
 Blue: capsule
 b 70S ribosome