

GCSE Biology A (Gateway)

J247/02 B4-B6 and B7 Foundation (Foundation Tier)

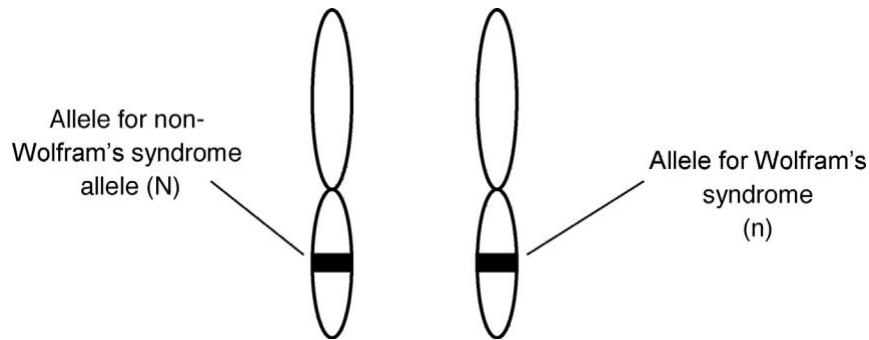
Question Set 6

1

Wolfram's syndrome is a genetic disorder.

- It is caused by a recessive allele (n).
- In people with Wolfram's syndrome, a protein does not function correctly.

The diagram shows a pair of chromosomes from a person called Kai.



(a) Complete these sentences.

[2]

Kai does **not** have Wolfram's syndrome.

This is because his genotype is Nn heterozygous

This means that the probability of any one of his sperm having the Wolfram's allele is 0.5

[2]

(b) (i) Layla is expecting a baby.
Kai is the father.

Complete this genetic diagram.

		<u>Kai</u>	
		N	n
Layla	<u>N</u>	NN	Nn
	<u>n</u>	Nn	nn

(ii) Wolfram's syndrome can affect the production of hormones from the pancreas.

Layla and Kai's doctor tells them that there is a chance that their baby will have problems controlling its blood glucose level.

Explain why the doctor thinks this.

[4]

Use information from part (b)(i) and your biological knowledge.

The baby may be nn so there is a 1/4 chance of the baby being affected. This means the baby's pancreas won't produce insulin and so won't be able to control blood glucose levels.

Total Marks for Question Set 6: 8

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