

GCSE Biology B (Twenty First Century Science)
J257/03 Breadth in Biology (Higher)

Question Set 8

1 Amaya reads an article in a magazine which explains that genes code for the production of a taste receptor on the tongue.

Taste receptors are proteins.

(a) Complete the sentences to describe how a protein is made.

Use words from the list.

Each word can be used once, more than once, or not at all.

amino acids bases DNA fatty acids gene

genetic variant mitochondrion mRNA protein ribosome

A copy of the is made from

This molecule travels to in the cytoplasm.

Hereare joined together to form a protein.

A mutation would create a.....and therefore a different receptor.

[4]

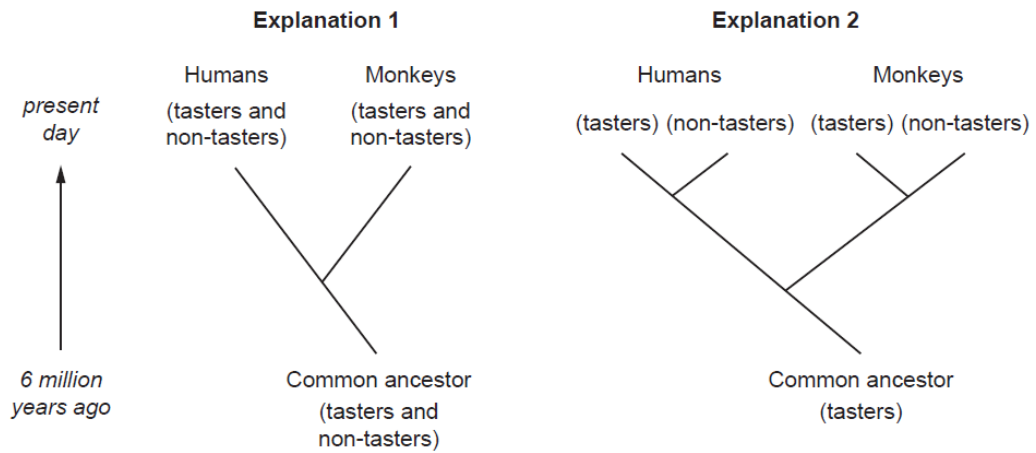
(b) Scientists think that a mutation created the type of receptor that allows someone to taste a bitter substance.

Explain how a mutation could affect the structure of the receptor protein.

[2]

(c) Monkeys also have different variants of the gene that affects how they taste bitterness.

Scientists have proposed two explanations for how the non-tasting variants could have evolved in humans and monkeys.



Scientists have discovered that the non-tasting variants in humans and monkeys have different DNA sequences, even though they have the same effect.

Which explanation of how they evolved is most likely to be correct?

Explain your answer.

[2]

Total Marks for Question Set 8: 8

OCR

Oxford Cambridge and RSA

Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge