

2023 Bi H1 Q7

Section: DNA and the Genome

Topic: Gene Expression

Question Summary

The question gives two genes (Gene 1 and Gene 2) that both influence how quickly a drug (Warfarin) is metabolised. It provides a table of recommended Warfarin doses based on each patient's genotype combination, and asks for the correct dose for a patient with GA for Gene 1 and C3C3 for Gene 2.

Worked Solution

From the table:

Gene 1	Gene 2	Dose (mg/day)
GA	C3C3	0.8

Step-by-step reasoning:

1. Identify the correct genotype row and column.
 - Gene 1 = GA (middle row)
 - Gene 2 = C3C3 (last column)
2. Read across the row and column intersection.
 - At GA (row) and C3C3 (column), the table shows 0.8 mg/day.

■ Answer: A — 0.8 mg/day

Revision Tips

- Genotype refers to the combination of alleles for one gene.
- When more than one gene influences a trait (like metabolism), both must be considered together.
- Homozygous means having two identical alleles (e.g. C₃C₃).
- Heterozygous means having two different alleles (e.g. GA).
- Tables like this are common in genetics questions — always find the row for one gene and the column for the other.