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Q70

Consider the following statements: 1. Adenoviruses have single-stranded DNA genomes whereas retroviruses have double-stranded DNA genomes. 2. Common cold is sometime caused by an adenovirus whereas AIDS is caused by a retrovirus. Which of the statements given above is/are correct? (a) 1 only (b) 2 only (c) Both 1 and 2 (d) Neither 1 nor 2 Official key: B.

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Explanation

(a)

1 only. Adenoviruses are dsDNA; retroviruses are RNA viruses, not dsDNA genomes as stated.

(b) Official key

2 only. Some common colds are **adenovirus**; AIDS is **HIV**, a retrovirus.

(c)

Both. Statement 1 swaps the nucleic acids.

(d)

Neither. Statement 2 holds.

Summary

- **Official key is (b) 2 only.** **Adenovirus**: double-stranded DNA. Retrovirus: RNA genome and reverse transcriptase. Cold can be **adenovirus**; AIDS is a retrovirus. Statement 1 is inverted.

Related possible facts

These can be asked in a future Prelims paper.

Adenovirus

dsDNA; also a COVID vaccine vector.

HIV

ssRNA retrovirus; AIDS.