

- Explain briefly, in terms of intermolecular forces, why an analogue of DNA could not be made with phosphorus atoms replacing some nitrogen atoms, while still retaining a double-helical structure.

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The double helical structure is held together by hydrogen bonding between the cytosine and guanine (C≡G) and the adenine and thymine (A=T) base pairs.

No H-bonding would occur if the electronegative N atoms in these bases were replaced with P atoms.