In long-lived organisms a single DNA molecule may have to last about one hundred years or more. Furthermore, the information contained in the molecule is passed on to successive generations for millions of years with only small changes. Thus DNA molecule must have great stability. The sugar phosphate backbone of DNA is extremely stable. The C–C bonds in sugar are resistant to chemical attack under all conditions other than strong acid at high temperatures. Double helix structure of DNA hold identical information in both strands. That is, the base sequence of one strand is complementary to that of the other strand. In fact, in some cases a delicate changes are takes place in some bases, there exist in cells elegant repair systems that can remove an altered base and then by reading the sequence on the complementary strand, can replace the correct base. The bases are hydrophobic rings having charged groups that contain the genetic information. The hydrophobic nature of the bases causes the bases to accumulate so extensively that water-soluble compounds are almost completely unable to come into close contact with the “dry” accumulated bases.

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