

## **DNA synthesis**

**DNA:** Carries all the information needed to make the cells protein

It can implement the organisms' characteristics and functions

The DNA structure is very helpful. Iran's in antiparallel strands; but strands can unzip and serve as templates

When cells reproduce, they form daughter cells.

### **Enzymes used in DNA synthesis**

DNA GYRAZE – makes a nick at the DNA's double helix and each side separates

DNA HELICASE unwinds the DNA strands

SINGLE STRAND BINDING PROTEINS temporarily bind to keep the strands separated

DNA POLYMERASE walks on the DNA strand adding new nucleotides to each strand with complementary bases

Subunits of DNA POLYMERASES proofreads the new DNA

DNA LIGASE seals up the fragments into a long strand

### **Different cells multiply at different rates**

Some cells are constantly dividing – nail, hair and bone marrow cells

Some stop after a while – brain; muscles; heart

Some only divide when repairing injury- skin; liver

DNA synthesis occurs in the S phase of the cell cycle

Failure to correct the DNA synthesis could result in cancer