

iTRANSFUSEFACTSHEET

all about blood

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I NEED TO KNOW ABOUT DNA

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What is DNA?

Deoxyribonucleic acid (DNA) is a molecule that contains the genetic codes that make all living things unique.

Where did my DNA come from?

DNA is passed from adults to their offspring during reproduction. You inherit half your nuclear DNA from your father and half from your mother.

Does the Blood Service test DNA?

We test every donation for Hepatitis B Viral DNA. Testing viral DNA enables us to detect this virus in donors sooner than other available tests.

We also use DNA for Human Leucocyte Antigen (HLA) typing of blood/apheresis/solid organ/stem cell donors and recipients awaiting transplantation/transfusion to find the most compatible matches.

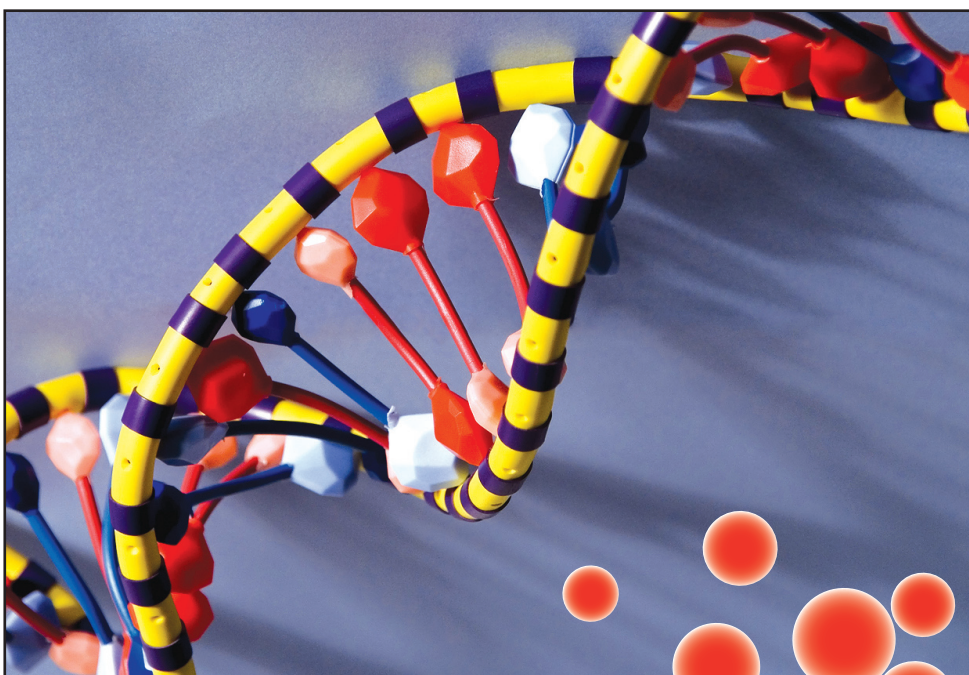
Where is DNA located?

The majority of DNA is located in the cell's nucleus. In humans, DNA is in every cell in our body apart from mature red cells and platelets.

Every animal, plant, bacteria and many viruses contain DNA. You would be surprised how similar our DNA is compared to other species.

What does DNA do?

DNA is the boss of each cell. It contains the instructions for growth, development, survival and reproduction. DNA sequences tell the cells which proteins to make, and these proteins determine a cell's function. Even a small change in the DNA sequence can cause 'wrong' proteins to be made and the cell will not function as it should.



What does DNA look like?

Scientists use the term “double helix” to describe DNA's winding, two-stranded chemical structure (pictured) which enables the molecule to copy itself with great precision.

During cell division the DNA helix unwinds and splits down the middle, becoming two single strands. These strands are copied and transferred to new cells.

What are genes?

Each DNA sequence is known as a gene. The strands of genes are placed together into long lines called *chromosomes*. An organism's complete set of nuclear DNA is called its *genome*. The full sequences of genomes have been studied for several organisms – most famously humans – in the *human genome project*.

PACKFACT

The human genome contains about 20,000 genes on 23 pairs of chromosomes.



How was DNA discovered?

DNA was first observed in the late 1800s, but it wasn't until 1953 that its structure and biological importance became clear. James Watson, Francis Crick, Maurice Wilkins and Rosalind Franklin figured out the structure of DNA whilst studying X-ray diffraction patterns and building models.

The information contained in this fact sheet is not intended to be medical or professional advice. The disclaimer found at transfusion.com.au applies to this fact sheet.

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