

Cells

Cells are the building blocks of every living organism. Some simple organisms, like yeast or bacteria, consist of just a single cell. More complicated organisms, like worms, flies and humans, consist of a large number of cells. An adult human contains around ten million million of them.

Our cells come in many different types

There are many types of cell: skin cells, muscle cells, liver cells, brain cells. All have adapted to do different jobs. Anatomists have catalogued about 210 different types of human cell. They vary enormously in size and shape (Fig.1 *Different types of cells*). Most are too small to see without a microscope, but some are quite large. For instance, some of our nerve cells are long threads that reach from our brain right down the spinal column. Cells also vary in how they are assembled into tissues. Some tissues consist of tightly packed cells glued to one another, like frogspawn. In others the cells are held together by non-cellular material between them, like bricks in a wall held together by mortar. Some cells, like blood cells, live free.

Everything that we do is the result of cells functioning

We can metabolise our food because liver and other cells produce the necessary enzymes, while pancreas cells produce the insulin that keeps our metabolism in balance. We can move because nerve cells transmit electrical impulses to muscle cells to tell them to contract. We resist infection because white blood cells attack invading bacteria. We can reproduce because we produce egg or sperm cells.

Every cell is the result of division of an earlier cell

The only way a new cell can be formed is from a previously existing cell. Each person once consisted of a single cell, the fertilised egg. That cell divided into two, then four, eight, sixteen and so on. An unbroken chain of cell divisions links every cell of your body back through many generations of cells, back to that one original cell. That in turn was the result of cell divisions in your parents' bodies that produced the egg and the sperm cells. In fact, this chain of cell divisions links right back through the generations, through evolutionary time, back to the first ever living cell on earth, billions of years ago. How that cell arose is a very interesting question – there are lots of theories, but nobody knows! All genetics depends on the mechanics and results of cell division.

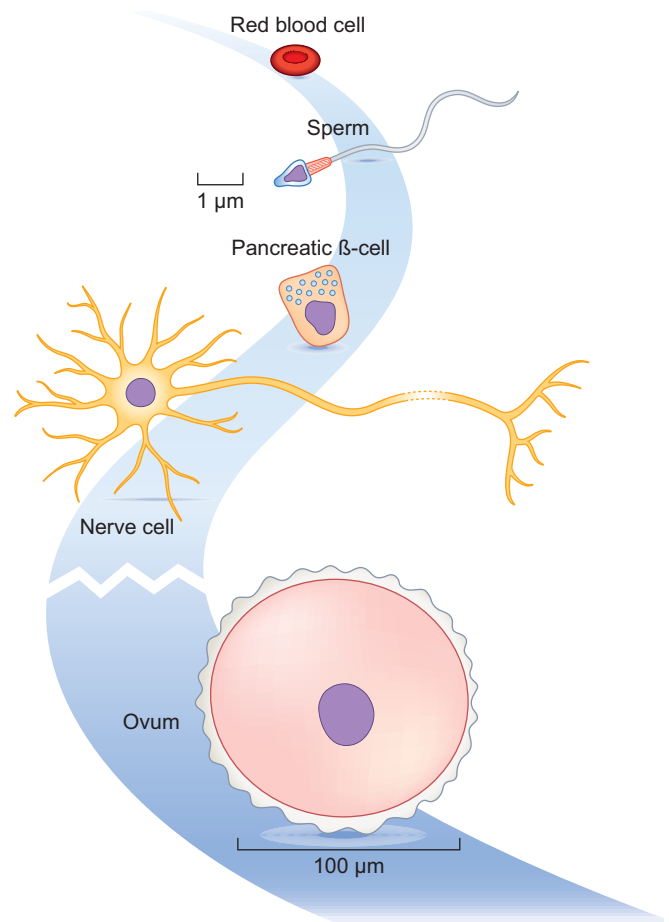


Fig. 1 Different types of cells

Related factsheets in the series

- Cell division and the cell cycle
- Functions of cells

