

2.2: Cell division and stem cells

Mitosis

- enables organisms to grow and replace worn out cells and repair damaged tissues
- produces two daughter cells that are genetically identical and have the same number of chromosomes as the mother cell
- if uncontrolled, causes cancer

Meiosis

- enables the formation of gametes
- produces four daughter cells that are genetically different and have half the number of chromosomes of the mother cell

Stem cells

- the cells in mature tissues that do not lose the ability to differentiate in both plants and animals
- able to treat damaged or diseased tissue
- provide a medical tool

The benefits of using your own stem cells

- no rejection
- no need to find a donor
- no need for tissue typing

The use of embryonic stem cells

- raises particular ethical issues

The bodies of multicellular organisms

- consist of a variety of different cells that are adapted for particular functions, which originate from undifferentiated stem cells that have the capacity to develop into specialised cells