

OCR (B) Biology GCSE

Topic B4.5: Should we use stem cells to treat damage and disease?

Flashcards

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How can stem cells be used in medicine?



How can stem cells be used in medicine?

- Stem cells collected
- Stem cells stimulated to differentiate into specific cell types e.g. heart muscle cells
- Specialised cells transplanted into the patient
- Used to treat damage or disease e.g. heart disease



Where can embryonic stem cells be collected from? (2)



Where can embryonic stem cells be collected from?
(2)

- Donor stem cells removed from embryos grown in vitro
- Patient's own stem cells removed from the umbilical blood before birth



What are the benefits of using stem cells in medicine? (4)



What are the benefits of using stem cells in medicine? (4)

- Treat damage or disease e.g. heart disease, type 1 diabetes
- Treat diseases that would otherwise be untreatable
- Used in scientific research
- Growing organs for transplants



What are the risks of stem cell use in medicine? (6)



What are the risks of stem cell use in medicine? (6)

- Transplanted stem cells could cause tumours
- Finding suitable stem cell donors is a difficult task
- Stem cells may be rejected by the body (immunosuppressants taken)
- Potential side effects
- Long term risks of using stem cells are unknown
- Stem cells may become contaminated during preparation and when transplanted, transmit infections to the patient, making them sicker



What are the ethical issues related to the use of stem cells in medicine? (2)



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- The embryos used to provide stem cells are destroyed which is seen as unethical and a waste of potential human life
- May lead to the reproductive cloning of humans

