

Cellular Differentiation

4. Which row in the table describes research and therapeutic uses of stem cells?

	Research use	Therapeutic use
A	to repair damaged tissue	to study how diseases develop
B	to test drugs	to provide information on cell differentiation
C	to study how diseases develop	to repair damaged tissue
D	to provide information on cell differentiation	to test drugs

6. Which row in the table describes meristems?

	Found in	Type of cell present
A	animal	specialised
B	animal	unspecialised
C	plant	specialised
D	plant	unspecialised

15. Each type of human cell has a different structure and function because

- A only some of their genes are expressed
- B they contain different genes
- C some genes are lost during differentiation
- D some genes are gained during differentiation.

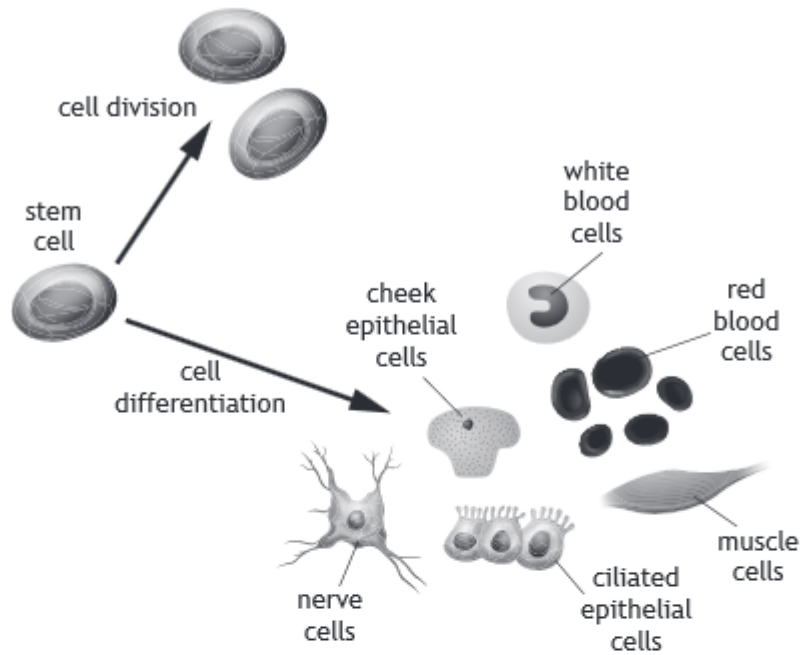
16. The list describes some uses of stem cells.

- 1 Studying how cells differentiate
- 2 Researching the development of Parkinson's disease
- 3 Producing skin for skin grafts
- 4 Bone marrow transplants

Which of these uses are **not** therapeutic?

- A 1 only
- B 1 and 2 only
- C 2 and 4 only
- D 3 and 4 only

3. Stem cells are unspecialised cells which can be found in embryonic and adult tissue.



- (a) Explain how the diagram above indicates that the stem cell shown is an embryonic and not a tissue (adult) stem cell. 1
-
-
- (b) After a stem cell differentiates, only certain genes are expressed. Explain how this results in different cell types. 1
-
-
- (c) Give one therapeutic use of stem cells. 1
-
-
- (d) State one ethical issue relating to the use of embryonic stem cells. 1
-