Biology

Cell differentiation

- Differentiation is the process where a cell changes to become specialised for a job
- Example stem cells can turn into to different cells with special function
- osteoCycles are known as bones cells
- Neurones are called brain cells
- It mature animal differentiated cells mainly repair or replace old cells such as skin cells

Cells that are not specialised are called stem cell

example of specialised cells

Nerve cell

- Nerve cell has a long shape and branched ends to connect with others
- Nerve cell function is to carry electrical signals around the body

Muscle cell

- The structure of muscle cell is long
- there are many mitochondria for energy
- The function is to contract quickly to cause movement

Root hair cell

- Now it is in the plants for absorption

- It structure is long hair growing from a root surface
- The function is to absorb water and mineral from the soil

phloem and xylem cells

- The structure of phloem cell is tube like
- xylem is a Hollow centre
- Phloem is the subshell structure
- Function is to transport water at food through the plant

Stem cells

- Stem cells are called unspecialised cells in human
- embryotic stem cells from fertilized egg
- All cells start the same
- They can become any type of cell by switching gene on or off
- Signal from other cells tell them which genes to switch
- They form all body parts skin eyes heart liver

Adult stem cells

Adult stem cells are found in brain eyes blood heart liver skin muscles

They can only become certain related cells not all

For example bone marrow Stems cells it will only become blood cells and immune cells

Medical uses of stem cells

- Adults stem cells already used in treatments
- Bone marrow transplant will replace faulty blood cell
- Embryotic step cells could replace faulty blood cells its future
- For example insulin cells for diabetes
- Nerve cells for paralysis

Stem cells in plants

- Cell division happens in meristems
- Meristems They are called the tips of roots and shoots
- Meristems self stay unspecialised and can make any plant any time
- As cell move away from the tip they specialise like they become in large vacuole

Uses of plant stem cells

- They make clones
- they grow more plants
- they grow plants with useful feature