Cell type	Origin	Longevity
Fibroblast	Local mesenchymal cells	Permanent
Macrophages	Hematopoietic stem cells in bone marrow. Transported to site of action by blood	Permanent (Several months)
Mast cells	Hematopoietic stem cells in bone marrow. Transported to site of action by blood	Permanent
Plasma cells	Hematopoietic stem cells in bone marrow. Transported to site of action by blood	Permanent (10-20 days)
Leukocytes	Hematopoietic stem cells in bone marrow. Transported to site of action by blood	Transient apoptose after few hours or days.

Cells of connective tissue

Fibroblasts

- Most common cell in connective tissue
- Secrete collagen and elastin, GAGs multiadhesive glycoproteins and proteoglycans for the ground substance
- Fibroblasts can be divided into 2 categories:
  - **Fibroblasts** – Actively transcribing fibroblasts with large, transparent nucleus, abundant RER, irregular shape
  - **Fibrocyte** – Quiescent, smaller, darker nucleus, little RER, spindle shape
- Fibroblasts are involved in wound repair
  - In adults they rarely undergo division, but can be sensitive to growth factors if damage to organ is detected
  - These fibroblasts are known as **myofibroblasts**

Medical application

- In tissues that divide poorly – e.g. the heart – fibroblasts fill the spaces caused by damages such as ischemia, forming dense, irregular **scar tissue**
- **Myofibroblasts** have contractile function similar to smooth muscle (because they have abundant actin) which helps wounds close up

Adipocytes

- Functions include cytoplasmic storage of lipids and neutral fats, production of heat (especially in infants), and cushioning and insulating the skin and other organs.
- Very important for metabolism by storing substrates for energy formation