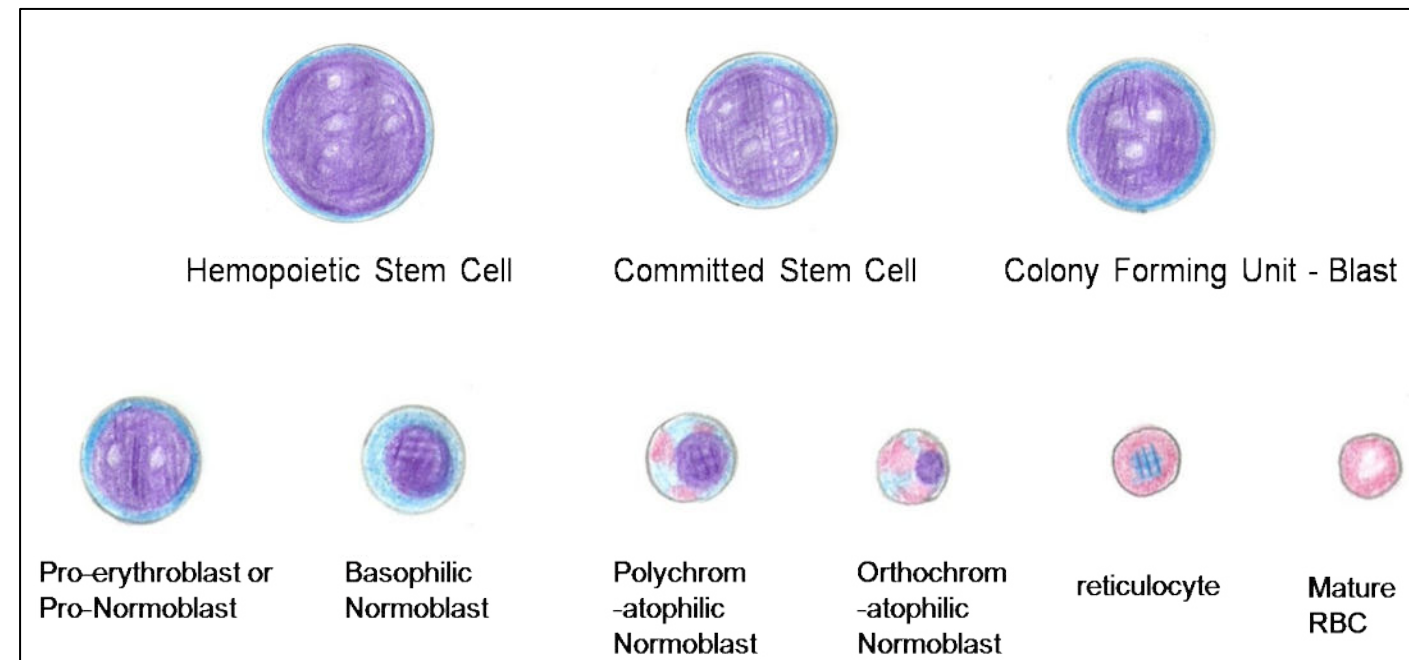


Erythropoiesis



Learning Objectives

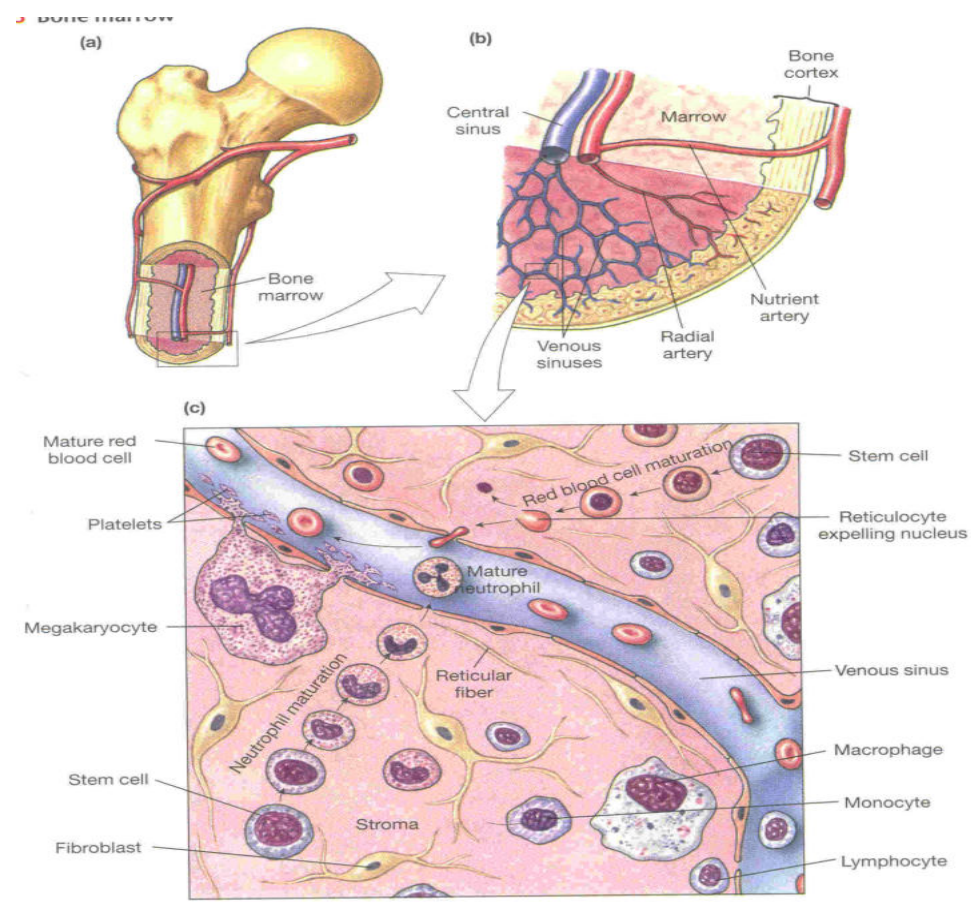
Stem cells

Process of erythropoiesis - site, stages

Factors affecting erythropoiesis

Hematopoiesis

The process of formation of new blood cells

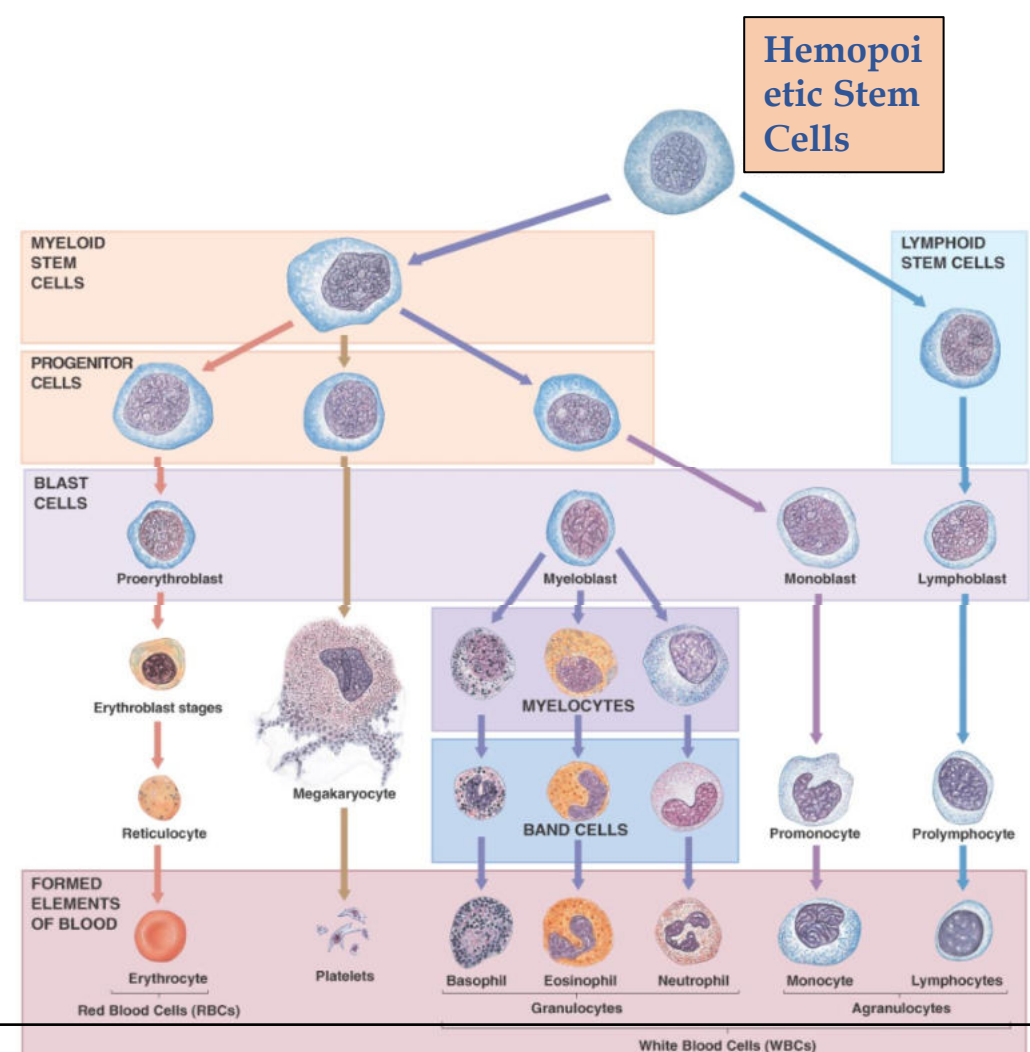


Lineage Cells of Hematopoiesis- HSCs

□ Blood (Hemopoietic) Stem Cells are divided into:

1. Myeloid stem cells or
2. Lymphoid stem cells

In bone marrow

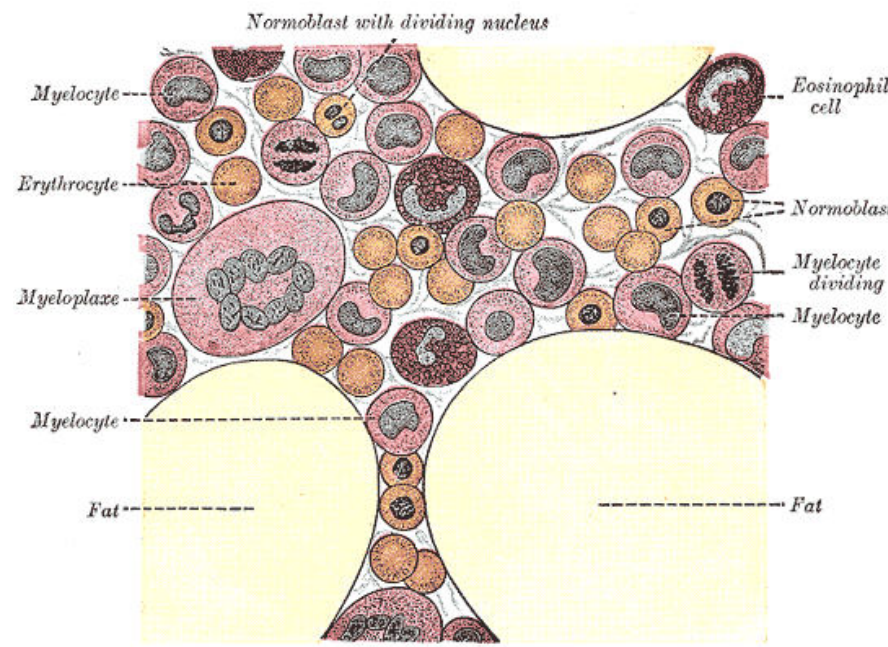




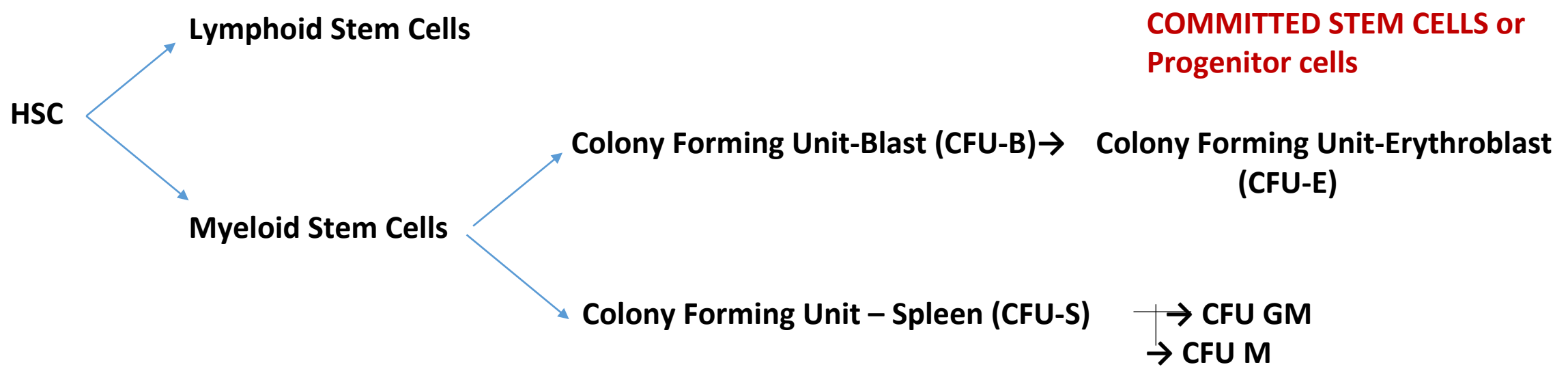
Characteristics of Bone Marrow

One of the largest organs in body.

10^{11} - 10^{12} Cells are daily formed to be taken to the periphery through blood vessels



Steps of Erythropoiesis



- MSC ▪ CFU-B ▪ CFU-E
- Pronormoblast
- Basophilic normoblast
- Polychromatophilic Normoblast
- Orthochromatophilic Normoblast
- Reticulocyte
- Mature Red Blood Cell

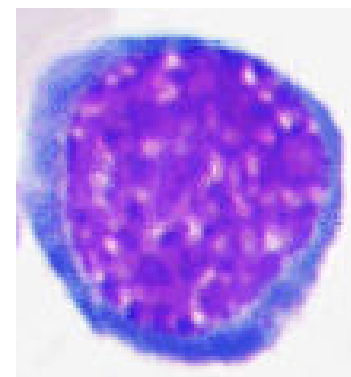
Stages of Erythropoiesis

Pronormoblast (Proerythroblast)



Stages of Erythropoiesis

Early Normoblast (basophilic normoblast)



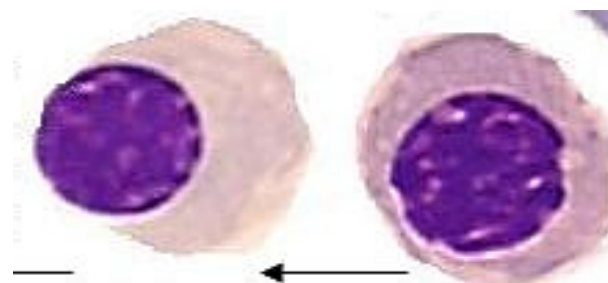
Stages of Erythropoiesis

Intermediate normoblast (polychromatic normoblast)



Stages of Erythropoiesis

Late Normoblast (Orthochromatic Normoblast)

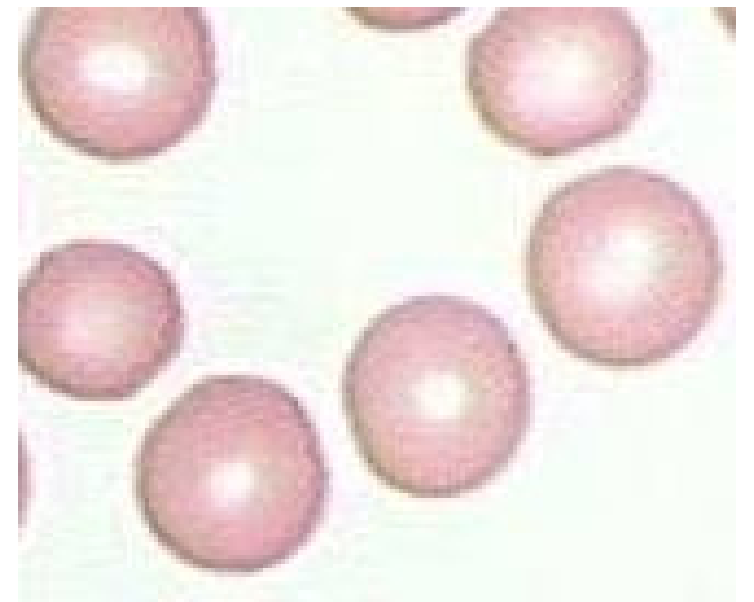


Stages of Erythropoiesis

Reticulocyte



Mature RBC



Factors regulating Erythropoiesis

- Φ Growth or Developmental Factors
- Φ Nutritional Factors
- Φ Hormonal Factors
- Φ Healthy Liver and Bone marrow

Self Assessment

- 1) After birth all blood cells except are formed in bone marrow.
- 2) In adults hemopoietic bone marrow is confined to axial skeleton andof humerus & femur.
- 3) Interleukinsto convert PHSC to Committed Progenitor cells.
- 4)can be stimulated to form any cell in the body.
- 5) Hemoglobin first appears instage of Erythropoiesis.
- 6) In early normoblast stage of Erythropoiesis, cell cytoplasm is stained by dye.
- 7) Erythropoietin is secreted fromof kidney.
- 8)are important in the maturation of the RBCs.
- 9) RBCs do not contain a nucleus, endoplasmic reticulum and
- 10) 1 gm of hemoglobin contains.....iron.

Thank you