

In which of the following cells involved in erythropoiesis does hemoglobin synthesis begin?

- a. Orthochromatic erythroblast
- ☒ b. Polychromatophilic erythroblast
- c. Reticulocyte
- d. Basophilic erythroblast
- e. Proerythroblast

Which of the following can be used to describe megakaryocytes?

- a. Multinucleated
- b. Formed by fusion of haploid cells
- c. Precursors to bone marrow macrophages
- d. A minor but normal formed element found in the circulation
- e. Possess dynamic cell projections from which one type of formed element is released

Which cytoplasmic components are the main constituents of the dark precipitate that forms in reticulocytes upon staining with the dye cresyl blue?

- a. Golgi complexes
- b. Hemoglobin
- c. Nucleoli
- d. Nuclear fragments
- e. Polyribosomes

Which process occurs during granulopoiesis but not during erythropoiesis?

- a. Cells lose their capacity for mitosis
- b. Euchromatin content increases
- ☒ c. Nucleus becomes increasingly lobulated
- d. Overall cell diameter decreases
- e. Overall nuclear diameter decreases

What fate often awaits granulocytes that have entered the marginating compartment?

- a. Undergo mitosis
- ☒ b. Crossing the wall of a venule to enter connective tissue
- c. Cannot reenter the circulation
- d. Differentiate into functional macrophages
- e. Begin to release platelets

What is the earliest stage at which specific granulocyte types can be distinguished from one another?

- a. Myelocyte
- b. Band form
- c. Reticulocyte
- d. Metamyelocyte
- e. Promyelocyte

Which cell type is capable of further mitosis after leaving the hemopoietic organ in which it is formed?

~~a.~~ Basophil

~~b.~~ Eosinophil

c. Reticulocyte

d. Lymphocyte

~~e.~~ Neutrophil

no nucleus $\therefore$ No Mitosis

3rd + (1)

Shortly after her birth a baby is diagnosed with a mutation in the erythropoietin receptor gene which leads to familial erythrocytosis (familial polycythemia). During the seventh to ninth months of fetal development, the primary effect on her red blood cell production was in which of the following?

- a. Liver
- b. Yolk sac
- c. Spleen
- d. Thymus
- ☒ e. Bone marrow

A 54-year-old man presents with recurrent breathlessness and chronic fatigue. After routine tests followed by a bone marrow biopsy he is diagnosed with lymphocytic leukemia. Chemotherapy is administered to remove the cancerous cells, which also destroys the precursor cells of erythrocytes. To reestablish the erythrocytic lineage, which of the following cells should be transplanted?

- a. Reticulocytes /
- b. Orthochromatophilic erythroblasts /
- c. Megakaryoblasts
- ☒ d. Basophilic erythroblasts /
- e. Metamyelocytes

A smear of blood from a 70-year-old leukemia patient reveals a larger than normal population of cells that have large, round nuclei with 1 or 2 nucleoli. The cytoplasm of these cells shows azurophilic granules.¹⁰_{gran.} Which of the following forms of leukemia would you suspect?

- ☒ a. Promyelocytic leukemia
- b. Basophilic leukemia
- c. Lymphoblastic leukemia
- d. Stem cell leukemia
- e. Eosinophilic leukemia