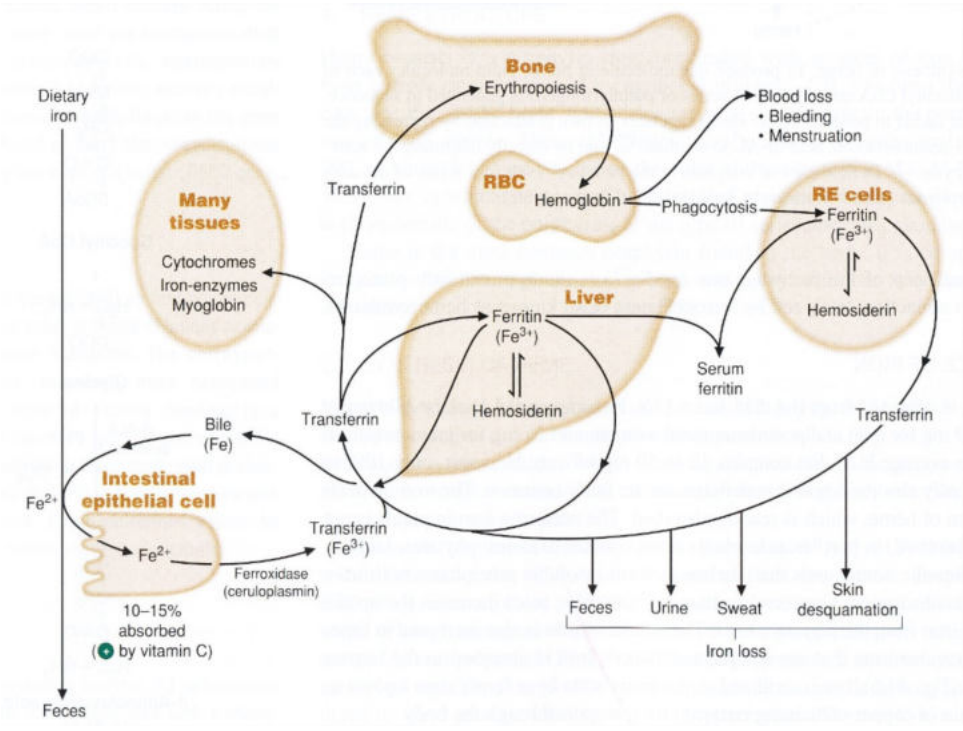
Iron metabolism & Hemoglobin catabolism



Learning Objectives

- Iron metabolism
- Hemoglobin catabolism (Fate of old RBCs)
- Prehepatic Jaundice

Iron (Fe^{+2}) Metabolism

Iron is essential for
formation of Heme part of Hemoglobin
and other heme containing substances

Iron (Fe^{+2}) Metabolism

Normal serum iron level (50-170 µ g/dL)

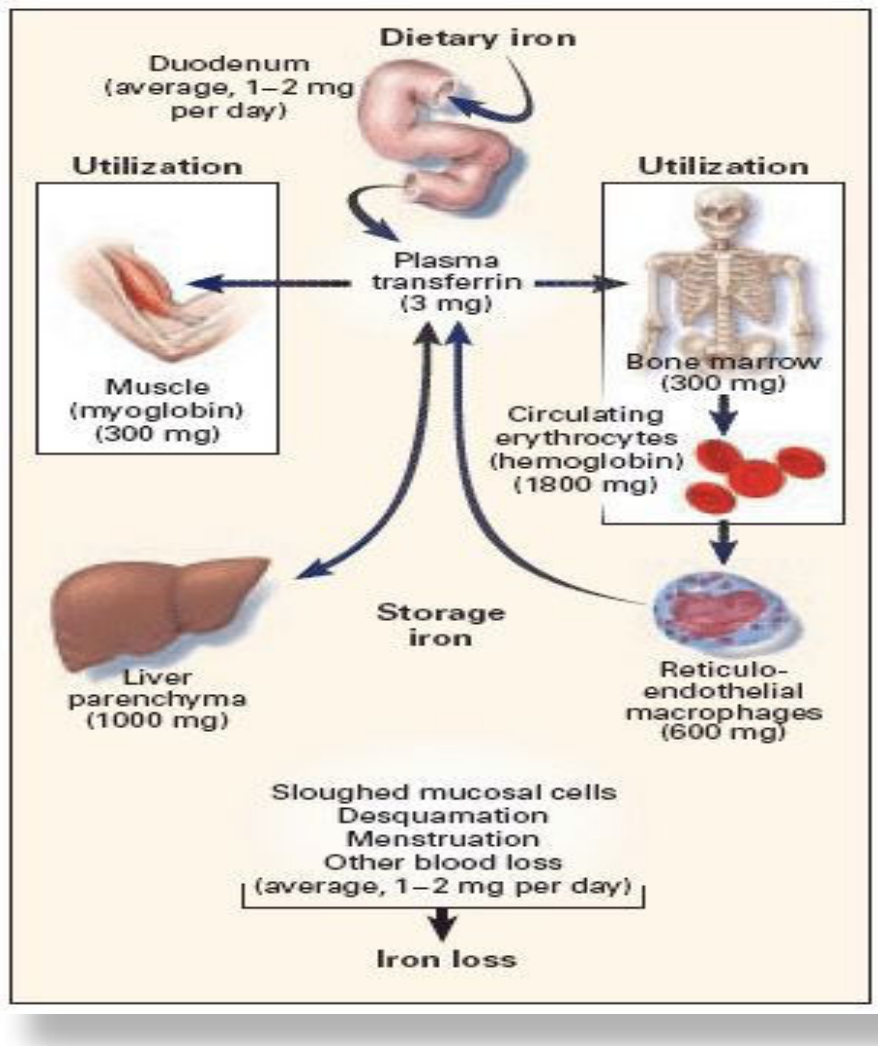
Total Iron Binding Capacity of blood (TIBC) – Nr : 240 – 450 µg/dL

Serum ferritin=Normal value – 25 -75 ng/mL

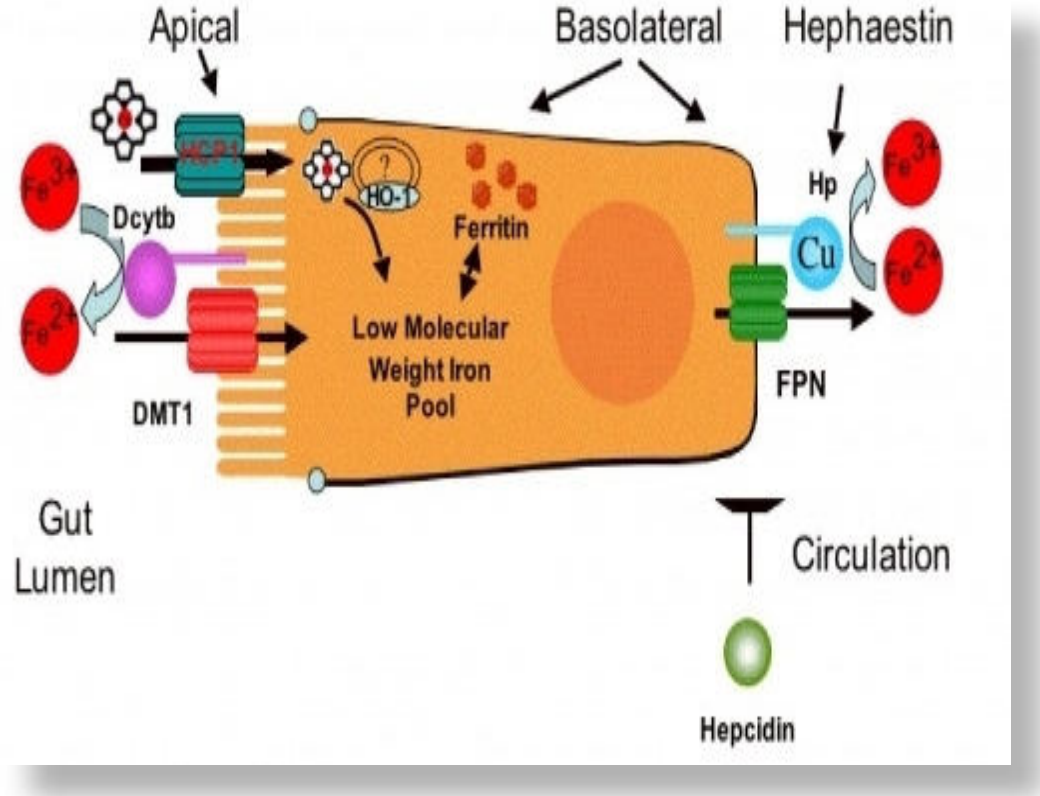
Iron (Fe^{+2}) Metabolism Distribution

The total body iron content is = **4 – 5 gm**

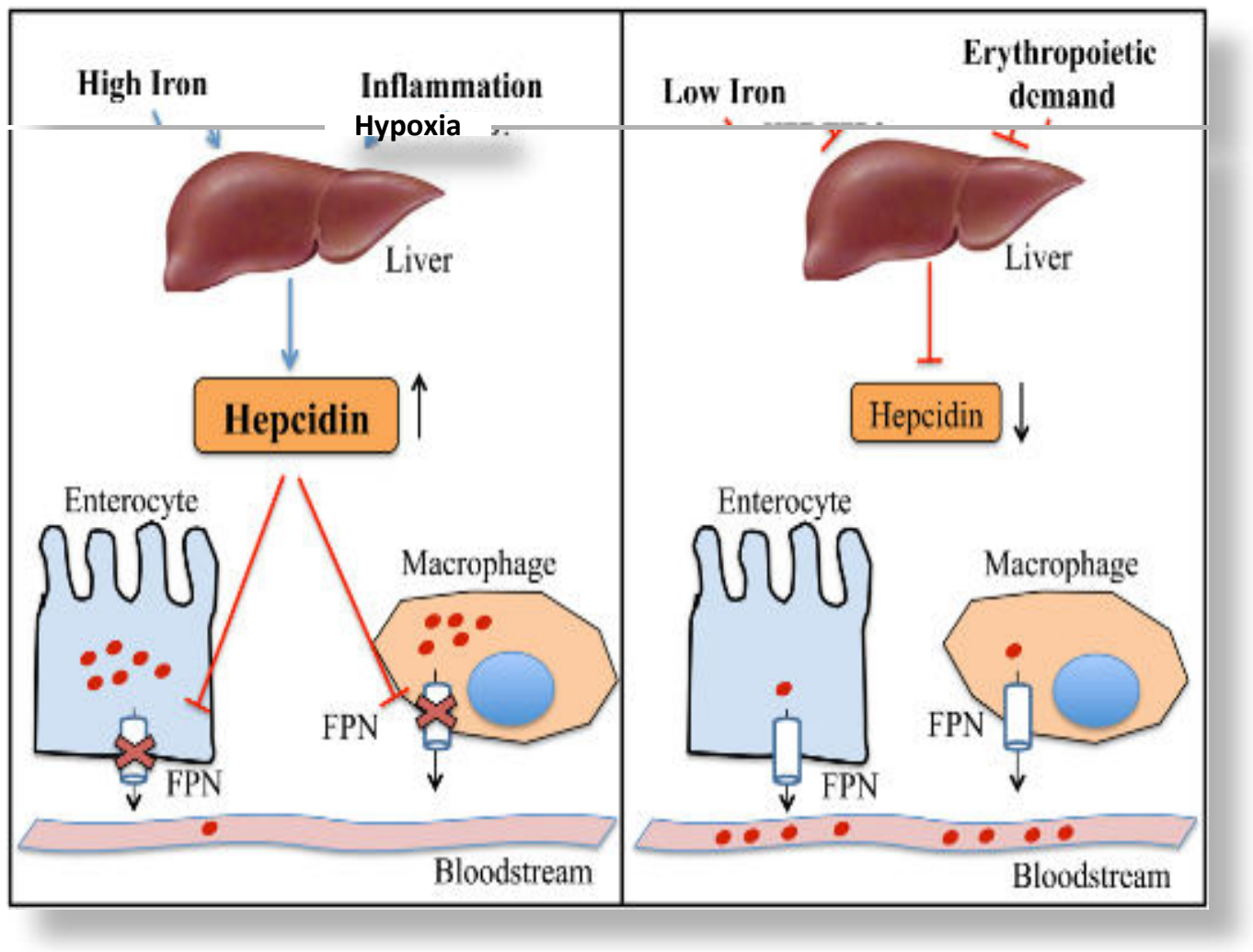
Distribution in body-



Iron Regulation in body –happens at the level of absorption-HOW

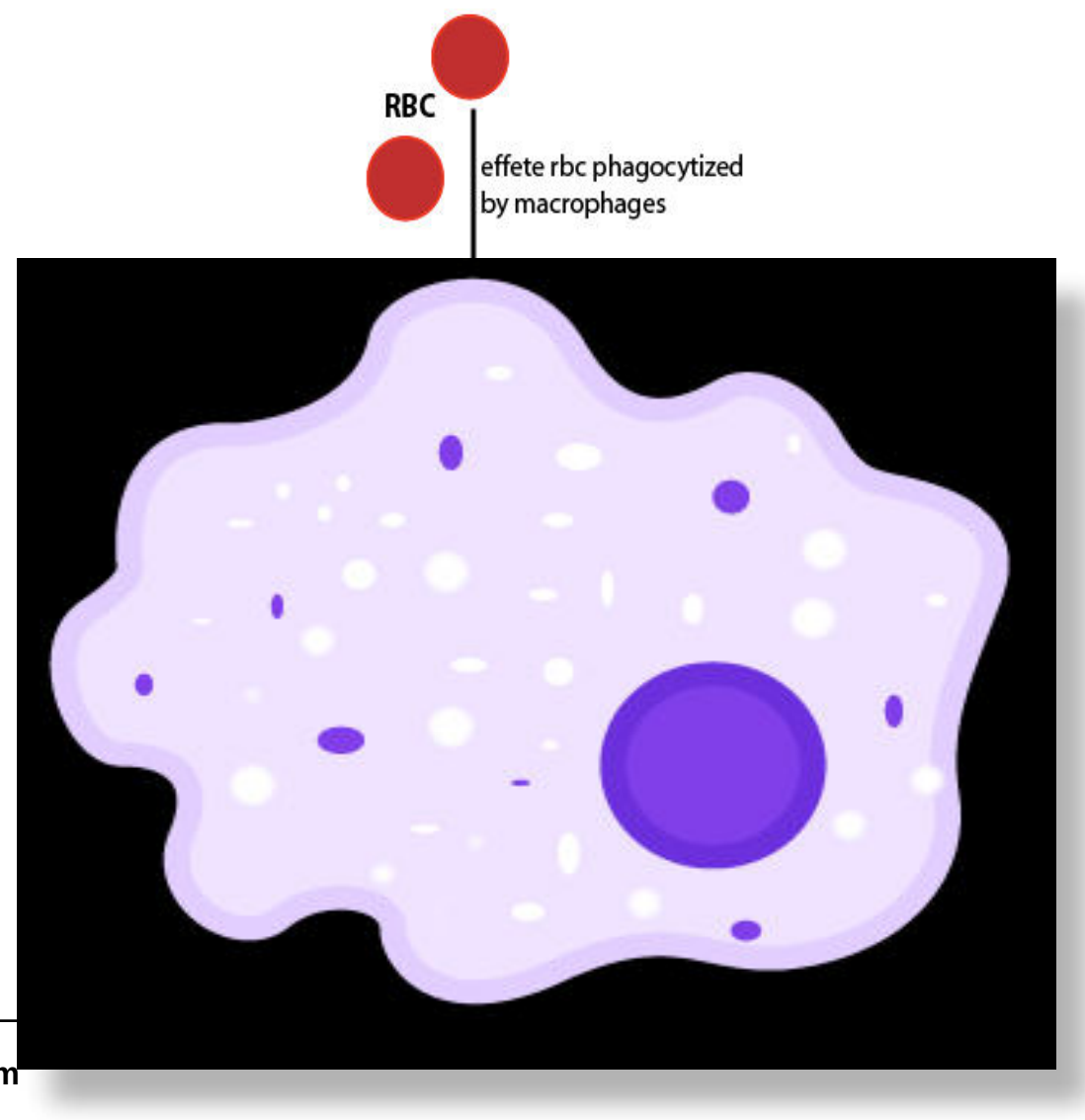


HEPCIDIN is the key regulator of iron in our body by regulating its absorption and release

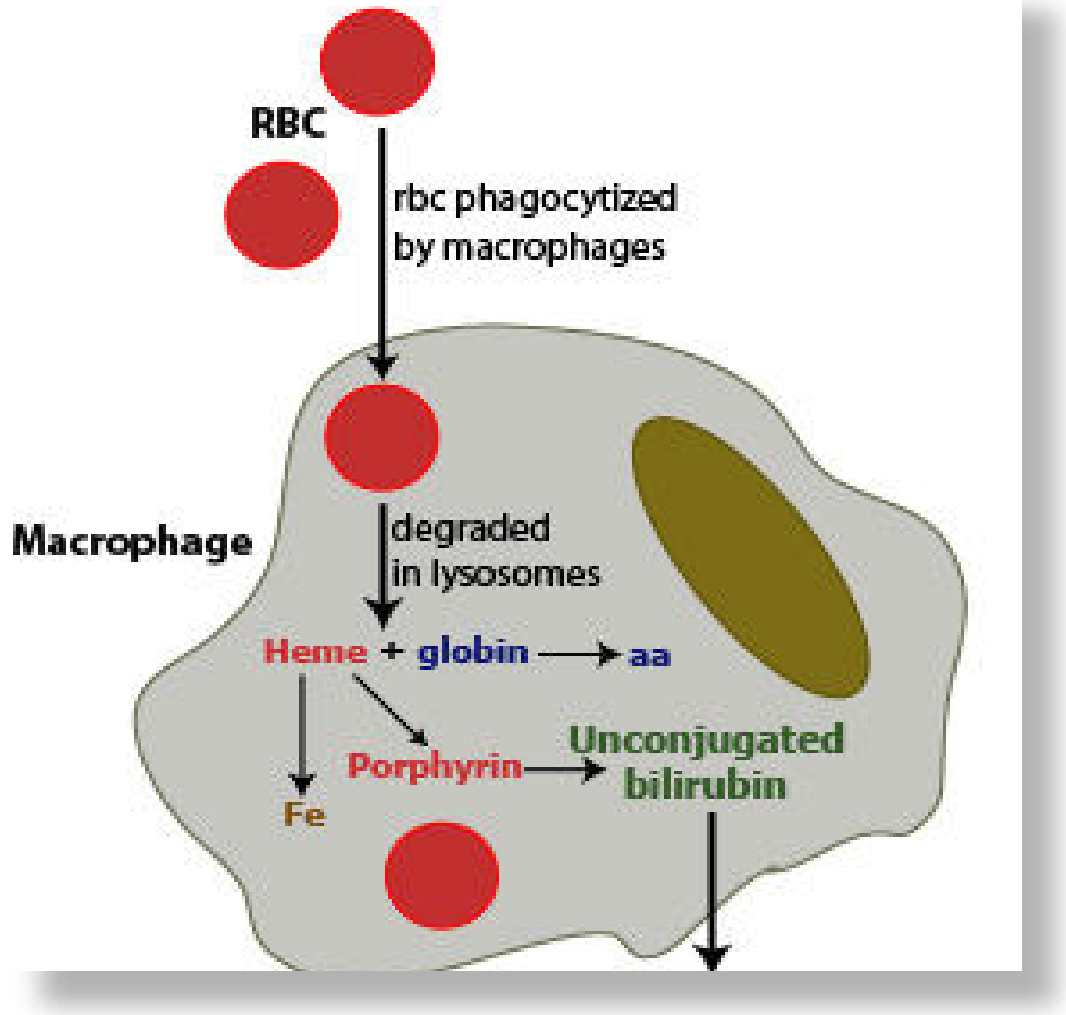


Hemoglobin Catabolism (destruction of old RBCs)

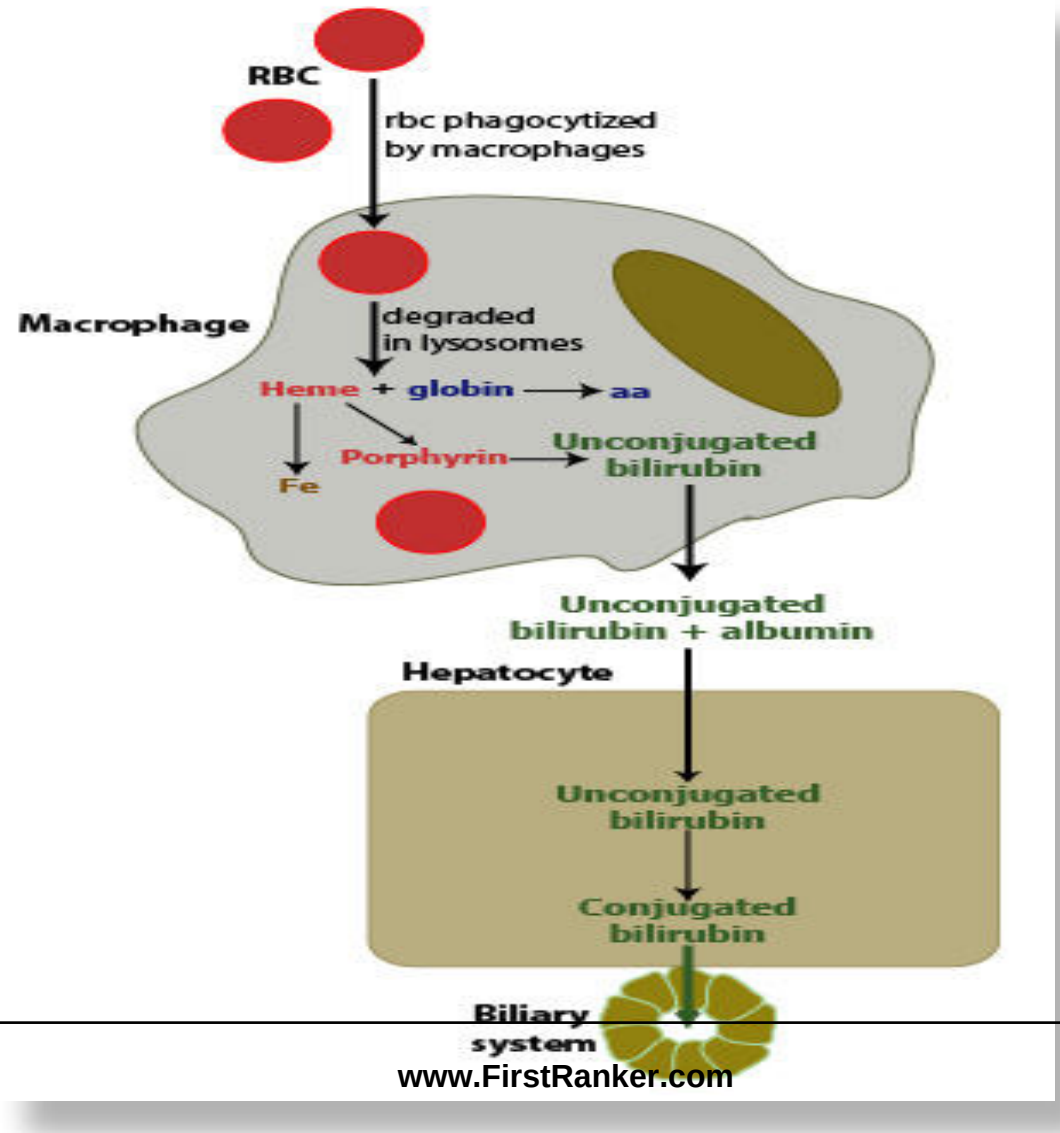
- Red cell destruction usually occurs after an average life span of **120 days**
- The cells are removed **extravascularly** by macrophages specially in the **spleen** but also in bone marrow and liver.



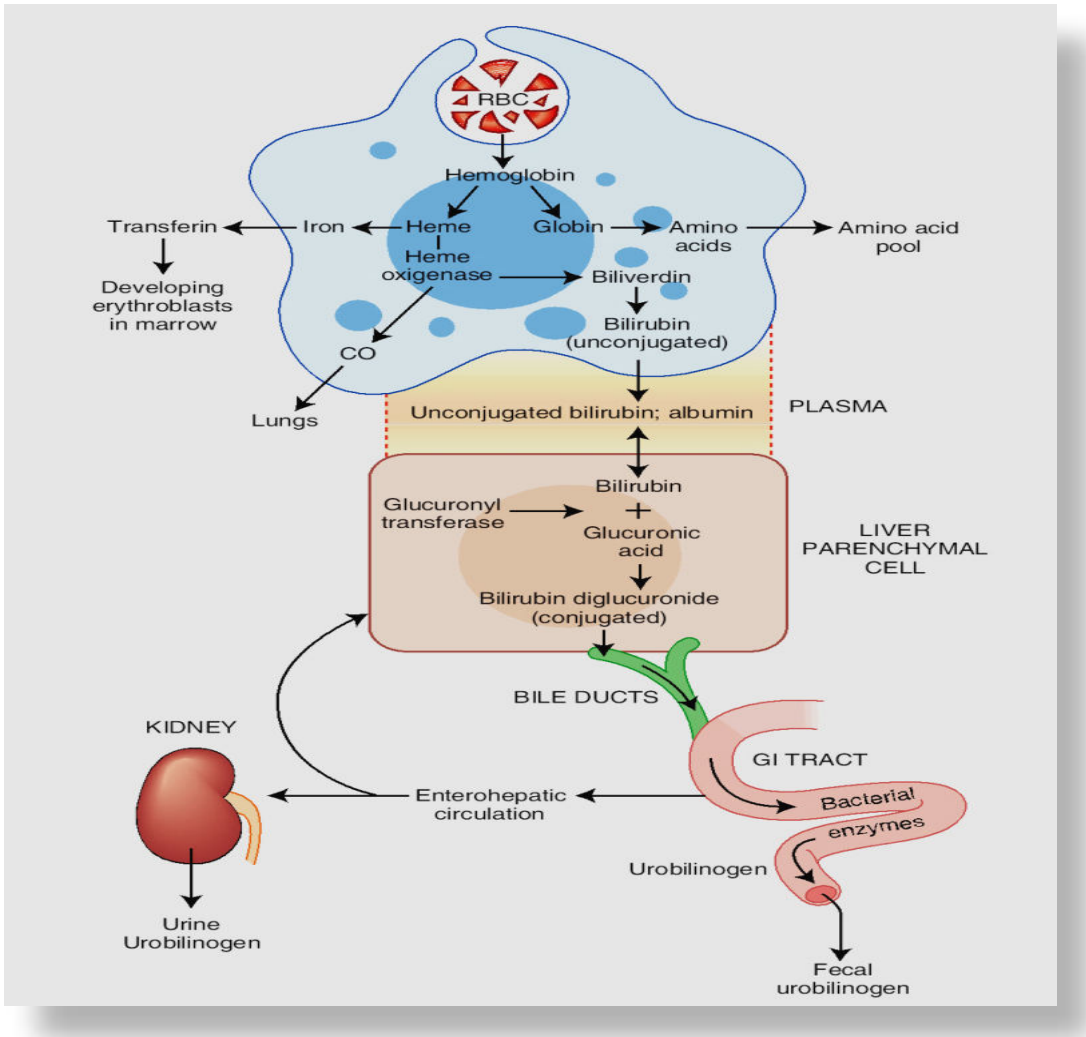
Hemoglobin Catabolism (destruction of old RBCs)



Hemoglobin Catabolism (destruction of old RBCs)



Hemoglobin Catabolism (destruction of old RBCs)



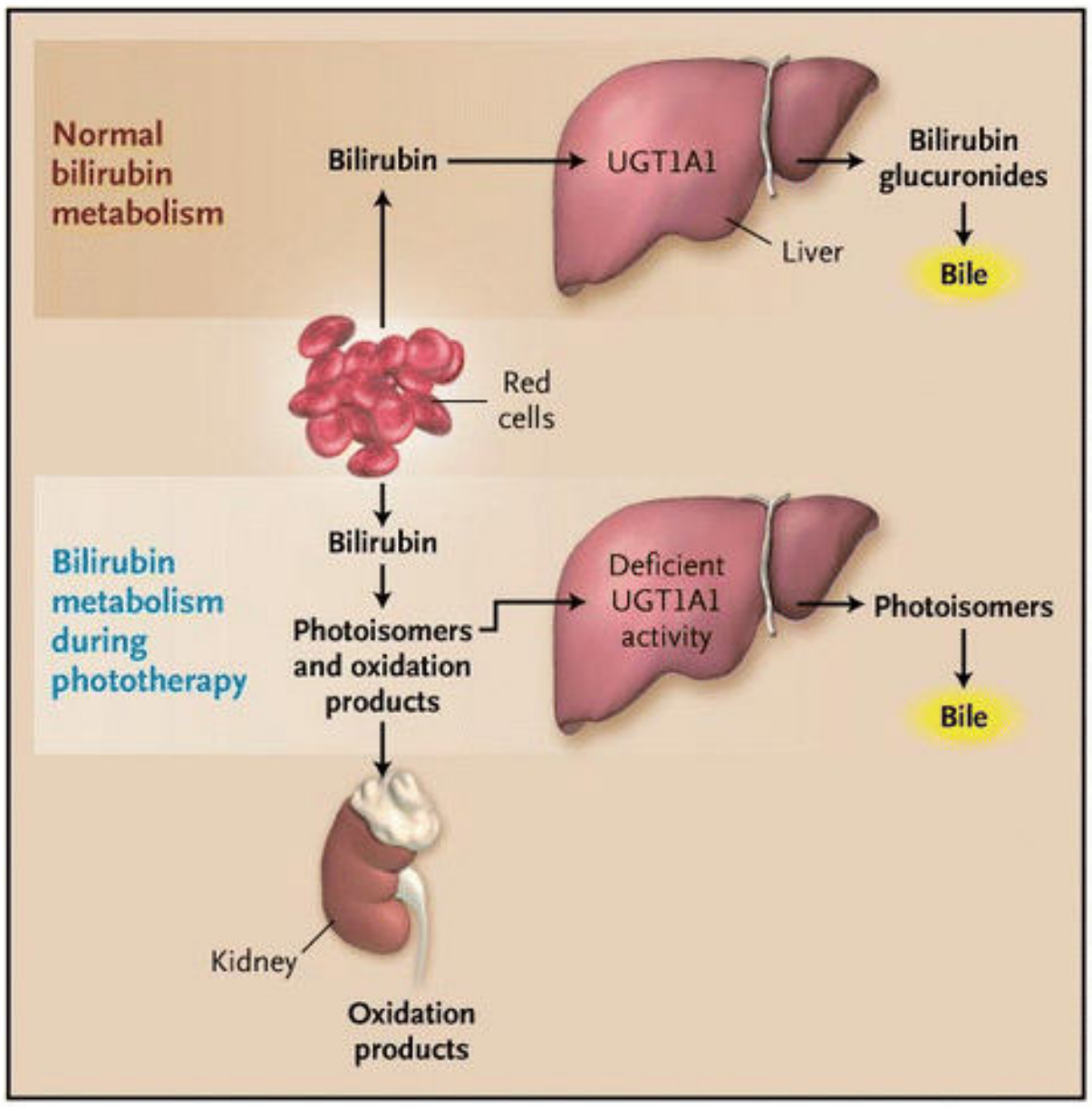
Hemoglobin Catabolism - Jaundice

Jaundice is also called icterus. It is yellow discoloration of the skin, subcutaneous tissue and bulbar sclera, due to an increase of bile pigments in the blood

Normal levels vary slightly from lab to lab; they range from about 0.2 – 1.2 mg/dL.

According to causes of Jaundice-
Pre-hepatic Jaundice
Hepatic Jaundice
Obstructive Jaundice

Hemoglobin Catabolism - Jaundice



Self Assesment

1. Normal serum iron level is----------

2. Total Iron Binding Capacity of blood (TIBC) – Nr value----------

3. Serum ferritin=Normal value ----------

4. Low levels of ferritin are indicative of ----------

5. Normal Iron distribution to Hb is ----------(g), to Myoglobin ----------(g)and to Ferritin--------(g)

6. Avg daily intake - about ---------- mg and the amount of iron absorbed is normally about ----------% or ---------- mg.

7. Avg daily loss is about ----------mg through ----------

8. Excess iron combines with----------forming tissue ferritin in macrophages in ----------mainly and ----------.

Thank you