

# Hematotoxicology

# Blood Production

- Blood must be continually made, and thus it is a common target of xenobiotics. The half-life of the erythrocyte (red blood cell, RBC) is about 50-55 days. Other cells, such as memory T and B cells must live for many years.
- **Liver** is the source of many proteins found in blood and is the initial site for blood progenitors during development, later in the fetal developmental period the **bone marrow** becomes the source of the cellular components of blood. At birth, bone marrow contains the stem (pluripotent progenitor) cells and various stages of maturing blood cells. Umbilical cord blood contains circulating progenitor cells and can be used for transplantation, and it is a source for tox studies.
- Chemical and physical agents can impair the production of the cellular elements that make up the blood (red and white cells)
- Chemical and physical agents can reduce the lifespan of the cellular elements that make up the blood (red and white cells)
- A few agents (biological therapeutics) can cause increased production of blood cells

# Progenitors and differentiated blood cells

