Hematology

Definition
Hematology is the study of blood, blood-forming organs and blood diseases. Blood is made up of the following components:

1. Plasma: yellow-colored liquid component of blood, in which blood cells are suspended
2. Red blood cells (RBCs) or erythrocytes: the most common type of blood cell and the body’s principal means of delivering oxygen to the body tissues via the blood flow through the circulatory system. RBCs take up oxygen in the lungs and release it while squeezing through the body’s capillaries.
3. White blood cells (WBCs) or leukocytes: are cells of the immune system involved in defending the body against both infectious disease and foreign materials.
4. Platelets - circulate in the blood and are involved in hemostasis, leading to the formation of blood clots.

Role of molecular imaging
- Chromium-51 sodium chormate can be useful in determining red blood cell volume, red cell mass and red cell survival time.
- Iodine I-125 human serum albumin is indicated for use in determination of total blood and plasma volume.
- Iodine I-131 human serum albumin is useful in protein turnover studies.

<table>
<thead>
<tr>
<th>Radiopharmaceutical</th>
<th>Manufacturer</th>
<th>Trade names</th>
<th>Approved indications in adults</th>
</tr>
</thead>
</table>
| Chromium-51 sodium chromate | Bracco Diagnostics | Chromotope® | Use in determining:  
  - Red blood cell volume  
  - Red cell mass  
  - Red cell survival time & evaluating blood loss |
| Iodine I-125 human serum albumin | IsoTex Diagnostics | Jeanatope | Indicated for use in the determination of:  
  - Total blood  
  - Plasma volume |
| Iodine I-131 human serum albumin | IsoTex Diagnostics | Megatope | Protein turnover studies |

MSDS and package insert information