Iron Stain Kit Procedure (Bone Marrow Smears)

General Information

Iron stain is excellent for staining iron in bone marrow aspirate smears. It stains clearly the iron in reticulohistiocytes. The iron granules present within developing normoblasts are also very distinctly stained, and normal and abnormal sideoblests are clearly identifiable. Iron-containing inclusions in peripheral blood erythrocytes and hemosiderin in urinary sediment as free granules or within epithelial cells are also distinctly stained. This is the iron stain that should routinely be used in your Histology or Hematology Laboratory.

Packaging

Catalog#	Volume
5870	Iron Stain Kit, 1 quart
5830	Solution A
5800	Solution B1
5810	Solution B2
5820	Solution C

Store all solutions at Room Temperature

Working Solution

Reagent Preparation:

Fixative Vapor jar

1. Place a piece of filter paper in the bottom of a Coplin jar and moisten with *Solution A.*

Iron Stain *(Working Solution B)*

1. Mix 20.0 ml of *Solution B1* and 20.0 ml of *Solution B2* in a Coplin jar. Heat mixed solution for 15 minutes in 56ºC water bath.

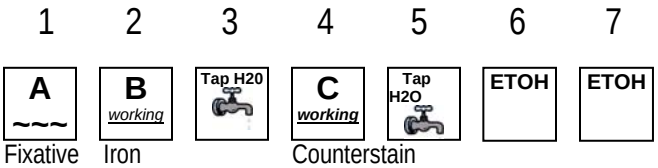
Counterstain (*Working Solution C*)

1. Add 1.5 ml of *Solution C* to a Coplin jar containing 50.0 ml of distilled water. This is stable for one day.

Staining Procedure

You should now have a staining setup that looks like:

Station:



Procedure:

1. Obtain bone marrow smear slides with ample spicules of bone marrow present.
2. Station 1: Fix smears in *Solution A* vapors for 5 minutes with lid covered.
3. Air dry slide for 5 minutes.
4. Station 2: Place smears in preheated *Working Solution B* in 56ºC water bath for 5 minutes.
5. Station 3: Rinse smears gently in tap water for 1 minute.
6. Station 4: Counterstain smears in *Working Solution C* for 5 minutes.
7. Station 5: Rinse in a tap water filled Coplin jar for 1 minute.
8. Stations 6 &7: Rinse in a series of two 100% Ethyl Alcohol Coplin jars for 5 seconds each.
9. Let air dry.
10. Place smears in Xylene for 1 minute, mount and label.

Results

Sideroblasts appear as nucleated red cells with pink cytoplasm which contains one or more small blue granules usually less than 1 micrometer in diameter. Reticulo endothelial iron appears as spherical, irregularly shaped, or finely granular blue particles in the cytoplasm; or the cytoplasm may be stained diffusely blue.

This stain can also be used on urine sediments to identify hemosiderin. Hemosiderin appears as free blue granules or as blue granules contained within the cytoplasm of epithelial cells of the urine sediment.