

## **A-130    G IEMSA STAIN - RICKETTSIA**

**Fixation:**    **10% Buffered Neutral Formalin** (F-113) OR **Zenker's** (F-155)

**Sections:**    Cut paraffin section @ 6 microns

**Staining:**

1. Deparaffinize and hydrate to distilled water.
2. If Zenker's is used as a fixative, remove the "Zenker Crystals" (mercuric chloride) by placing in **Lugol's Iodine** (A-130-5) or **Gram's Iodine** (A-130-5A) for 15 minutes. Rinse in tap water and place in **Sodium Thiosulfate, 5%** (A-130-6) for 3 minutes. Wash in tap water for 15 minutes. Rinse in distilled water.
3. Mordant in **Phosphate Buffer Solution** (A-130-3) for one hour.
4. Leave in **Giemsa Working Solution** (A-130-1A) overnight.  
To prepare Giemsa Working:  
Mix:    1 part    **Giemsa Stock** (A-130-1)  
         50 parts    **Phosphate Buffer-pH 6.8** (A-130-3)
5. Rinse in the **Phosphate Buffer Solution** (A-130-3).
6. Dip in **Acetic Acid, 0.2%** (A-130-4) for 1 minute.
7. Rinse again in the **Phosphate Buffer Solution** (A-130-3).
8. Differentiate in **Rosin Alcohol Working Solution** (A-130-2A). Carefully check the sections with a microscope to observe the coloration of the rickettsiae to violet granules. This may take up to 3 minutes.
9. Dehydrate in absolute alcohol and clear in Xylene. Perform three changes of each.
10. Mount in **Permount** (M-18).

**Stain Results:**

Rickettsia	Violet
Nuclei	Blue
Cytoplasm, connective tissue	Pink
Erythrocytes	Salmon

**Note:** The differentiation of step 8 is the most critical and only if this is properly done can one expect good results. An electron microscope may be necessary as the rickettsiae are very small, 0.2-0.3  $\mu$  wide to 0.2-1.0  $\mu$  long.

**References:**

AFIP Manual of Histological Staining Methods, 3rd ed., Ed. L. Luna: New York McGraw Hill Publications, c. 1968, p. 235.  
Clark, G.: Staining Procedures, Williams and Wilkins Co., Baltimore, 3<sup>rd</sup> Ed., c. 1973, p. 289.