

## Van Gieson Stain - Technical Memo

|                  |               |                |
|------------------|---------------|----------------|
| <b>SOLUTION:</b> | <b>500 ml</b> | <b>1 Liter</b> |
| Van Gieson Stain | Part 1404A    | Part 1404B     |

Additionally Needed:

|                                |            |
|--------------------------------|------------|
| Xylene, ACS                    | Part 1445  |
| Alcohol, Ethyl Denatured, 100% | Part 10841 |
| Alcohol, Ethyl Denatured, 95%  | Part 10842 |

**For storage requirements and expiration date refer to individual bottle labels.**

**APPLICATION:**

Newcomer Supply Van Gieson Stain is a connective tissue stain and/or counterstain that combines acid fuchsin and saturated picric acid, with acid fuchsin selectively staining collagen and osteoid tissue red and the picric acid component staining muscle, elastin, fibrin and cytoplasm yellow.

This stain solution is commonly used in elastic stains, referred to as the Verhoeff-Van Gieson (VVG) technique. Other procedures that use Van Gieson Stain include;

- Bile Stain, Hall's Method
- Colloidal Iron, Müller-Mowry Stain
- Sulfated Alcian Blue (SAB) Stain
- Van Gieson's Picric Acid-Fuchsin Stain

**METHOD:**

**Fixation:** Formalin 10%, Phosphate Buffered (Part 1090)

**Technique:** Paraffin sections cut at 4 microns

**Solutions:** All solutions are manufactured by Newcomer Supply, Inc.

All Newcomer Supply stain procedures are designed to be used with Coplin jars filled to 40 ml following the provided staining procedure.

**STAINING PROCEDURE:**

1. Deparaffinize sections thoroughly in three changes of xylene, 3 minutes each. Hydrate through two changes each of 100% and 95% ethyl alcohols, 10 dips each. Wash well with distilled water.
  - a. See Procedure Notes #1 and #2.
2. Proceed with selected stain procedure:
  - a. Verhoeff-Van Gieson (VVG) Elastic Stain
  - b. Bile Stain, Hall's Method
  - c. Colloidal Iron, Müller-Mowry Stain
  - d. Sulfated Alcian Blue (SAB) Stain
  - e. Van Gieson's Picric Acid-Fuchsin Stain
  - f. Or other appropriate stain procedure
3. Counterstain in Van Gieson Stain for 3 to 5 minutes.
  - a. See Procedure Note #3.
4. Dehydrate in two changes each of 95% and 100% ethyl alcohol. Clear in three changes of xylene, 10 dips each; coverslip with compatible mounting medium.

**RESULTS:**

|                                    |                                   |
|------------------------------------|-----------------------------------|
| Collagen                           | Red                               |
| Muscle, elastin, fibrin, cytoplasm | Yellow                            |
| Other tissue components            | Dependent on stain procedure used |

**PROCEDURE NOTES:**

1. Drain slides after each step to prevent solution carry over.
2. Do not allow sections to dry out at any point during procedure.
3. The picric acid element may act as a decolorizer in some procedures.
4. If using a xylene substitute, closely follow the manufacturer's recommendations for deparaffinization and clearing steps.

**REFERENCES:**

1. Bancroft, John D., and Marilyn Gamble. *Theory and Practice of Histological Techniques*. 6th ed. Oxford: Churchill Livingstone Elsevier, 2008. 146-147.
2. Carson, Freida L., and Christa Hladik. *Histotechnology: A Self-Instructional Text*. 3rd ed. Chicago, Ill.: American Society of Clinical Pathologists, 2009. 166-167.
3. Sheehan, Dezna C., and Barbara B. Hrapchak. *Theory and Practice of Histotechnology*. 2nd ed. St. Louis: Mosby, 1980. 189, 196.
4. Modifications developed by Newcomer Supply Laboratory.