

Modified Van Gieson (VG) Staining Kit

Catalog No.: RA20135

Basic Information

Product name	Modified Van Gieson (VG) Staining Kit
Sizes	50 mL
Storage	2-8 °C, keep away from light
Shipping	Shipped with ice pack
Validity	12 months

Product Introduction

Collagen fibers are the most widely distributed and abundant fibers in connective tissue, found extensively in various organs, especially in the skin, sclera, and tendons. The principle of Van Gieson collagen fiber staining is related to the size of anionic dye molecules and tissue permeability. Molecular size is reflected by molecular weight: smaller molecules penetrate dense, low-permeability tissues more easily, while larger molecules can only enter loose, high-permeability tissues. Phosphomolybdic acid (PA) has the smallest molecular weight, followed by acid fuchsin and ponceau, while light green has the largest. After VG staining, muscle fibers appear yellow, and collagen fibers appear red.

EnkiLife Modified Van Gieson (VG) Staining Solution uses Celestine Blue and Mayer' s Hematoxylin for nuclear staining, resulting in better staining quality and longer storage stability. Ponceau S is used for collagen staining, which is fade-resistant. It is commonly used to distinguish collagen fibers from muscle fibers, to differentiate collagen-derived tumors from muscle-derived tumors, and to observe tissue or organ damage, repair, and fibrosis.

Product Components

Components	4x 50mL
Reagent (A): Celestine Blue Staining Solution	50 mL
Reagent (B): Mayer' s Hematoxylin Staining Solution	50 mL
Reagent (C): Acidic Ethanol Differentiation Solution	50 mL

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Reagent (D): Improved VG dye solution	D1: Ponceau S Staining Solution	5 mL
	D2: Phosphomolybdic Acid (PA) Saturated Solution	45 mL
Before use, mix D1 and D2 at a ratio of 1:9 to prepare the modified VG staining solution. Do not prepare in advance.		

Materials Required (Not Supplied)

1. 10% formalin fixative, distilled water, graded ethanol, xylene or eco-friendly dewaxing and clearing solution, neutral balsam.

Experimental procedure

1. Fix tissue in 10% formalin fixative, dehydrate routinely, and embed in paraffin.
2. Cut sections to 4–5 μm thickness. Dewax with xylene or dewaxing solution and hydrate to water.
3. Apply Celestine Blue staining solution dropwise for 2–3 min, then rinse briefly with water.
4. Apply Mayer's Hematoxylin staining solution dropwise for 2–3 min, then rinse briefly with water.
5. Differentiate with acidic ethanol differentiation solution for 1–2 s, then rinse with running water for 10 min.
6. Apply freshly prepared modified VG staining solution dropwise for 1–2 min.
7. Rinse quickly with water, then rapidly differentiate and dehydrate with 95% ethanol.
8. Dehydrate with absolute ethanol 3 times, 5–10 s each.
9. Clear with xylene or clearing solution 3 times, 1–2 min each, then mount with neutral balsam.

Staining Results

Component	Color
Collagen fibers	Bright red
Muscle fibers, cytoplasm and erythrocytes	Yellow
Nuclei	Blue-brown

Notes

1. Acidic ethanol differentiation is typically 1–2 s. After differentiation and rinsing with running water, observe under a microscope. If nuclear staining is too dark, differentiate again for 0.5–1 s. If too light,

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- restain with Celestine Blue and Mayer' s Hematoxylin, then differentiate again with acidic ethanol.
2. Modified VG staining solution consists of D1 and D2. Mix in the required ratio (1:9) before use. For tissues with low collagen content, a 1:7 ratio may be used.
 3. After modified VG staining, washing with water or 95% ethanol should be done quickly to avoid washing off Ponceau S and PA.
 4. After modified VG staining, you may skip water rinse and directly apply 95% ethanol for differentiation, followed by rapid dehydration with absolute ethanol. This may result in brighter colors, but uneven differentiation may occur. Therefore, a quick water rinse followed by 95% ethanol differentiation is recommended.
 5. Use reagents promptly after opening to avoid affecting experimental results.
 6. For safety and health, wear lab coats and disposable gloves during operation.

This product is for research use only!