

Movat Pentachrome Stain Kit

(Modified Russell-Movat)

Description:

The Movat Pentachrome Stain Kit (Modified Russell-Movat) is intended for use in histological demonstration of collagen, elastin, muscle, mucin and fibrin in tissue sections. This procedure is particularly useful when studying the heart, blood vessels and various vascular diseases.

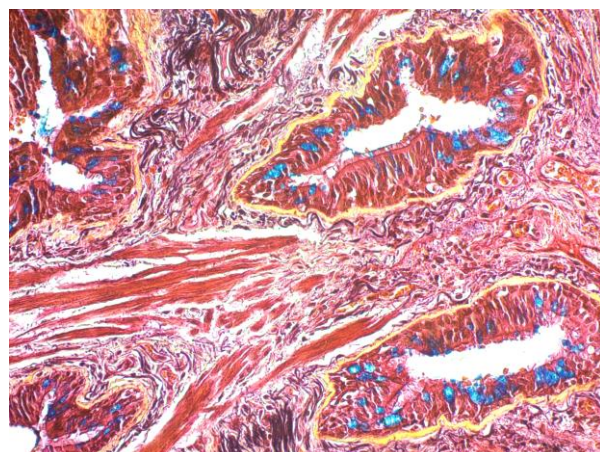
Elastic Fibers:	Black to Blue/Black
Nuclei:	Blue/Black
Collagen:	Yellow
Reticular Fibers:	Yellow
Mucin:	Bright Blue
Fibrin:	Bright Red
Muscle:	Red

Uses/Limitations:

Not to be taken internally.
For In-Vitro Diagnostic use only.
Histological applications.
Do not use if reagents become cloudy.
Do not use past expiration date.
Use caution when handling reagents.
Non-Sterile.

Control Tissue:

Lung, Skin, Colon, Heart
or any vascular tissue.



Ordering information regarding individual components
on back page!

Availability/Contents:

Item #	Kit Contents	Volume	Storage
HSV060	Hematoxylin Solution (5%)	60ml	18-25°C
FCC030	Ferric Chloride (10%, Aqueous)	30 ml	18-25°C
LIS030	Lugol's Iodine Solution	30 ml	18-25°C
FCB030	Ferric Chloride (2%) Differentiating Solution	30 ml	18-25°C
STB030	Sodium Thiosulfate Solution (5%)	30 ml	18-25°C
AAG030	Acetic Acid Solution (3%)	30 ml	18-25°C
AAE060	Acetic Acid Solution (1%)	60 ml	18-25°C
ANC030	Alcian Blue Solution, pH 2.5	30 ml	18-25°C
BSU030	Biebrich Scarlet – Acid Fuchsin Solution	30 ml	18-25°C
PGC060	Phosphotungstic Acid Solution (5%)	60 ml	18-25°C
MYQ030	Metanil Yellow Solution	30 ml	18-25°C
	Graduated Mixing Vial	Qty 1	

Storage: 18° C



25° C



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Precautions: Keep away from open flame.
Avoid contact with skin and eyes.
Harmful if swallowed.
Follow all Federal, State, and local regulations regarding disposal.
Use in chemical fume hood whenever possible.
Wear protective clothing.

Preparation of Reagents Prior to Beginning:


1. Prepare **working Elastic Stain Solution** by mixing in enclosed graduated vial:
 - User must provide a dropper or pipette for Lugol's Iodine Solution (**1 drop** = ~40µl)
 - We suggest making and using at least 1ml per slide as the solution is high in alcohol content and has the potential to dry out on the slide.

2 Parts Hematoxylin Solution (5%)
1 Part Ferric Chloride Solution (10%)
1 Part Lugol's Iodine Solution
 Example: 14 drops (560µl) + 7 drops (280µl) + 7 drops (280µl)
Total: 1120µl or 1.12ml
2. **Note:** Lugol's Iodine Solution will cause staining of all kit vials and labels over time. This does not adversely affect the performance of this product and is merely cosmetic in nature.
3. **Note:** Removal of mercury deposits is not required for tissues that have been fixed in mercury containing fixatives since it will be removed by the staining solution.

Procedure (Standard):

1. Deparaffinize sections if necessary and hydrate to distilled water.
2. Stain tissue section with working Elastic Stain Solution for 20 minutes.
Note: Working Elastic Stain Solution has a high alcohol content and will evaporate when using the dropper method. Check slide periodically during staining and add solution as required. Do Not allow reagent to dry on tissue.
3. Rinse in running tap water until no excess stain remains on slide.
4. Differentiate by applying Ferric Chloride (2%) Differentiating Solution dropwise while allowing stain to drip off the slide. We suggest starting with 10-20 drops. Rinse with tap water.
5. Check slides microscopically for proper differentiation. Repeat step 4 if required.
6. Rinse in 2 changes of distilled water.
7. Apply 5-10 drops of Sodium Thiosulfate Solution (5%) and incubate for 1 minute.
8. Rinse in tap water for 2 minutes followed by 2 changes in distilled water.
9. Apply 5-10 drops of Acetic Acid Solution (3%) and incubate for 2 minutes to equilibrate tissue prior to staining with Alcian Blue Solution, pH 2.5.

Storage: 18° C  25° C

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10. Shake off excess Acetic Acid and without rinsing, apply 5-10 drops of Alcian Blue Solution, pH 2.5 and incubate for 25 minutes.
11. Rinse in tap water for 2 minutes followed by 2 changes in distilled water.
12. Apply 5-10 drops of Biebrich Scarlet / Acid Fuchsin Solution and incubate for 2 minutes.
13. Rinse slide in 2 changes of distilled water.
14. Apply several drops Acetic Acid Solution (1%) for 5-10 seconds with agitation.
15. Rinse quickly in distilled water.
16. Differentiate slide in 2 changes of 5-10 drops Phosphotungstic Acid Solution (5%) for 3-7 minutes each.
17. Rinse quickly in distilled water.
18. Apply 5-10 drops of Acetic Acid Solution (1%) for 1 minute. This step is important for removing Phosphotungstic acid bound to the tissue.
19. Shake off excess Acetic Acid Solution (1%) and without rinsing apply 5-10 drops of Metanil Yellow Solution and incubate for 15 minutes.
20. Rinse slide in absolute alcohol. Dehydrate in absolute alcohol.
21. Clear, and mount in synthetic resin.

References:

1. Movat, H.Z. Demonstration of all connective tissue elements in a single section, Arch Pathology, 1955 Volume 60, page 289.

Troubleshooting:

- 1. Elastin:** If finer elastin fibers are expected but not seen, decrease number of dips or incubation time in the Ferric Chloride solution (FCB) on step 4. We would suggest under-differentiating at first to locate all available elastin, and then increasing differentiation with subsequent slides if a greyish appearance is left on the tissue due to under-differentiation
- 2. Muscle and Collagen:** The final stains of the procedure (Biebrich Scarlet – Acid Fuchsin Solution and Metanil Yellow Solution) are a trichrome-type of staining that is quite sensitive to incubation time and temperature. The “differentiating solution” (Phosphotungstic Acid Solution (5%)) on step 16 is also sensitive to incubation time and temperature:


Collagen is colorless, not yellow: decrease incubation time of differentiating solution Phosphotungstic Acid Solution (5%) (PGC) on step 16. Increase incubation time in Metanil Yellow solution (step 19). Ensure incubation step in acetic acid (step 18) is performed.

Collagen is red, not yellow: increase incubation time in differentiation solution Phosphotungstic Acid Solution (5%) (PGC) on step 16.


Muscle and background are too yellow: decrease incubation time in Metanil Yellow solution (step 19)

- 3. Metanil Yellow precipitation:** If any solid is noticed in the Metanil Yellow Solution this is to be expected and should not affect performance. The dye is present near saturated concentrations. If removing solid is preferred, gently warm and shake to re-dissolve solid or filter at no smaller than 3µm.

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Bulk Reagent Ordering Information and Current Pricing at www.scytek.com

Description:	Catalog #	Volume
Hematoxylin Solution (5%)	HSV250	250 ml
	HSV500	500 ml
	HSV999	1000 ml
Ferric Chloride Solution (10%)	FCC125	125 ml
	FCC500	500 ml
	FCC999	1000 ml
Lugol's Iodine Solution	LIS125	125 ml
	LIS500	500 ml
	LIS999	1000 ml
Ferric Chloride (2%) Differentiating Solution	FCB125	125 ml
	FCB500	500 ml
	FCB999	1000 ml
Sodium Thiosulfate Solution (5%)	STB125	125 ml
	STB500	500 ml
	STB999	1000 ml
Acetic Acid Solution (3%)	AAG125	125 ml
	AAG500	500 ml
	AAG999	1000 ml
Acetic Acid Solution (1%)	AAE125	125 ml
	AAE250	250 ml
	AAE500	500 ml
	AAE999	1000 ml
Alcian Blue Solution, pH 2.5	ANC125	125 ml
	ANC250	250 ml
	ANC500	500 ml
	ANC999	1000 ml
Biebrich Scarlet – Acid Fuchsin solution	BSU125	125 ml
	BSU500	500 ml
	BSU999	1000 ml
Phosphotungstic Acid Solution (5%)	PGC250	250 ml
	PGC500	500 ml
	PGC999	1000 ml
Metanil Yellow Solution	MYQ125	125 ml
	MYQ500	500 ml
	MYQ999	1000 ml

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