



Simple Solution for Your Research

**Hito Hematoxylin Solutions**

**Hito Eosin-Y Aqueous Solution**

**Hito HE-Diff Solution**

**Hito Modified Scott's Tap Water Substitute 5xConcentrate**

**Hito Hematoxylin - Eosin-Y Stain Set**

**User Manual  
And  
Material Safety Data Sheet**

FOR IN VITRO RESEARCH USE ONLY

**Hitobiotec Corp.**





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## I. Introduction

H&E staining or hematoxylin & eosin staining, is a popular staining method in histology. It is the most widely used stain in medical diagnosis and research.

**Hito Hematoxylin Solution** is designed on the principle of the Gill's Hematoxylin method and in three ready-to-use formulation.

- Hito Hematoxylin Solution - Single Strength  
Recommended for cytological staining.
- Hito Hematoxylin Solution - Double Strength  
Recommended for counterstaining of immunohistochemistry and routine Histology.
- Hito Hematoxylin Solution - Triple Strength  
Recommended for histological staining of nuclei with shorter staining times.

Eosin Y is the most commonly used cytoplasmic stain, but Alcoholic Eosin Solutions are HIGHLY FLAMMABLE and HARMFUL, **Hito Eosin-Y Aqueous Solution** is a water base solution for fast and safe usage.

**Hito HE-Diff Solution** is water based and used for Hematoxylin staining differentiation.

The tap water in the traditional method is replaced by **Hito modified Scott's Tap Water Substitute**, which enables bluing up in a much shorter time and avoids tissue sections falling off from the slides.

For photo samples, please visit our web site at  
[www.hitobiotec.com](http://www.hitobiotec.com)

## II. Reagents

Store the solutions at room temperature

Reagents	Catalog No.	Volume
<b>Hito Hematoxylin Solution</b> Single Strength	HTSHS0111-1	500 ml
<b>Hito Hematoxylin Solution</b> Double Strength	HTSHS0111-2	500 ml
<b>Hito Hematoxylin Solution</b> Triple Strength	HTSHS0111-3	500 ml
<b>Hito Eosin-Y Aqueous Solution</b>	HTSHS0112	500 ml
<b>Hito HE-Diff Solution</b>	HTSHS0113	250 ml
<b>Hito Modified Scott's Tap Water Substitute 5xConcentrate</b>	HTSHS0106	250 ml
<b>Hito HE Stain Set</b>	<b>HTKGS1102</b>	Set
• Hito Hematoxylin Solution -Triple Strength	• HTSHS0111-3	• 500 ml
• Hito Eosin-Y Aqueous Solution	• HTSHS0112	• 500 ml
• Hito HE-Diff Solution	• HTSHS0113	• 250 ml
• Hito Modified Scott's Tap Water Substitute 5xConcentrate	• HTSHS0106	• 250 ml



### Note

Before using the Stains, please make sure you have the following **Required Equipment / Materials** in your lab (not included in the kit):

1. Cryostat or Microtome, Light microscope
2. Ethanol, xylene, double distilled or deionized water
3. Slides, Coverslips
4. Staining jars
5. Resinous mounting medium

### **III. Solutions Preparation**

1. Hito Hematoxylin Solutions are Ready-To-Use Solutions.
2. Hito Eosin-Y Aqueous Solution is Ready-To-Use Solution.
3. Hito HE-Diff Solution is Ready-To-Use Solution.
4. Hito Modified Scott's Tap Water Substitute 10xConcentrate is prepared by diluting 1 part of Hito Modified Scott's Tap Water Substitute 10xConcentrate with 9 parts of deionized water.

### **IV. Precautions:**

1. Normal precautions exercised in handling laboratory reagents should be followed.
2. Dispose of waste observing all local, state, provincial or national regulations. Refer to Material Safety Data Sheet for any updated risk, hazard or safety information.
3. The solutions are harmful. Harmful if swallowed. Irritating to eyes, respiratory system and skin. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Handle with gloves and wear suitable protective clothing.



## V. Staining Procedure

1. Deparaffin / defat and rehydrate the sections by placing the slides in xylene, 100% ethanol, 95% ethanol, 75% ethanol, 50% ethanol and then in double distilled water with 2 changes in each solvent, and 3 minutes during each change.
2. Stain in Hito Hematoxylin Solution-Triple Strength for 1-5 minutes depending on the desired intensity.
3. Rinse slides in Tap water for 1 minute.
4. Rinse slides in 1:5 diluted Hito Modified Scott's Tap Water Substitute for 1 minute.
5. Rinse slides in distilled water for 1 minute.
6. Differentiate with Hito HE-Diff Solution, 5-12 dips.



### Note

Differentiation should be carefully performed and requires some practical experience to ascertain the correct end-point, check under microscope and if over differentiated, return to Step 2.

7. Rinse slides in distilled water for 1 minute.
8. Rinse slides in 1:5 diluted Hito Modified Scott's Tap Water Substitute for 1-3 minutes.
9. Rinse slides in distilled water for 1 minute.
10. Stain in Hito Eosin-Y Aqueous Solution for 30 seconds - 3 minutes.
11. Rinse briefly in 75% ethanol.
12. Place slides in 95% ethanol 2 times, 5-30 seconds each.
13. Place slides in 100% ethanol 2 times, 3 minutes each.
14. Clear in xylene, 2 times, 3 minutes each, and apply coverslip over sections using xylene based resinous mounting medium.
15. Allow to dry. The slide can be viewed after drying by bright field microscopy.

## VI. Material safety data sheet (MSDS)

Date Updated: 12/11/2017  
Version 1.3

### 1. Product and Company Information

**Product Name and Product No.** Hito HE Stain Set - HTSHS0114  
Hito Hematoxylin Solution - HTSHS0111  
Hito Eosin-Y Aqueous Solution - HTSHS0112  
Hito H-Diff Solution - HTSHS0113  
Hito Modified Scott's Tap Water Substitute  
(5xConcentrate) - HTSHS0106

**Brand** Hitobiotec

**Company Address** Hitobiotec Corp.  
P.O.Box 7528  
Kingsport, TN 37664  
USA

**Technical Phone:** 423-520-6880

**Emergency Phone:** 423-520-6880

### 2. Composition and Information on Ingredient

<b>Substance Name</b>	<b>CAS #</b>	<b>SARA 313</b>
Hito HE Stain Set	None	No
<b>Ingredient Name</b>	<b>CAS #</b>	<b>SARA 313</b>
WATER	7732-18-5	No
Eosin-Y	241-409-6	No
Hematoxylin	517-28-2	No
Ethylene glycol	107-21-1	No
Aluminium sulphate hexadecahydrate	16828-11-8	No
Magnesium sulfate	10034-99-8	No
PROPRIETARY COMPONENT(S)	none	No

### 3. Hazards Identification

#### EMERGENCY OVERVIEW

Harmful if swallowed. Causes skin irritation. Causes eye irritation. May cause respiratory irritation

**HMIS RATING**

HEALTH: 1                      FLAMMABILITY: 0                      REACTIVITY: 0

**NFPA RATING**

HEALTH: 1                      FLAMMABILITY: 0                      REACTIVITY: 0

**Potential Health Effects**

Inhalation      May be harmful if inhaled. Causes respiratory tract irritation.

Skin              May be harmful if absorbed through skin. Causes skin irritation.

Eyes              Causes eye burns, eye irritation.

Ingestion      Causes burns if swallowed.

**4. FIRST AID MEASURES****General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance.  
Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing give artificial respiration

**In case of skin contact**

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**5. FIRE-FIGHTING MEASURES****Flammable properties**

Flash point                                      no data available

Ignition temperature                                      no data available

**Suitable extinguishing media**

Use water spray, dry chemical or carbon dioxide.

**Special protective equipment for fire-fighters**

Wear self contained breathing apparatus for fire fighting if necessary.

## 6. ACCIDENTAL RELEASE MEASURES

### **Personal precautions**

Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Evacuate personnel to safe areas.

### **Environmental precautions**

Do not let product enter drains.

### **Methods for cleaning up**

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

### **Handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

### **Storage**

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

no data available

### **Personal protective equipment**

#### **Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### **Hand protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### **Eye protection**

Safety glasses with side-shields conforming to EN166

#### **Hygiene measures**

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form liquid

### Safety data

pH no data available

Melting point no data available

Boiling point no data available

Flash point no data available

Ignition temperature no data available

Lower explosion limit no data available

Upper explosion limit no data available

Water solubility no data available

## 10. STABILITY AND REACTIVITY

### Storage stability

Stable under recommended storage conditions. Avoid Light.

### Materials to avoid

no data available

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulphur oxides, Aluminum oxide

## 11. TOXICOLOGICAL INFORMATION

**Acute toxicity** no data available

**Irritation and corrosion** no data available

**Sensitisation** no data available

### Signs and Symptoms of Exposure

no data available

### Potential Health Effects

**Inhalation** May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

**Skin** Causes skin burns.

**Eyes** Causes eye burns.

**Ingestion** Toxic if swallowed.

## 12. ECOLOGICAL INFORMATION

### **Elimination information (persistence and degradability)**

no data available

### **Ecotoxicity effects**

no data available

### **Further information on ecology**

no data available

## 13. DISPOSAL CONSIDERATIONS

### **Product**

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

### **Contaminated packaging**

Dispose of as unused product.

## 14. TRANSPORT INFORMATION

### **DOT (US)**

Not dangerous goods

### **IMDG**

Not dangerous goods

### **IATA**

Not dangerous goods

## 15. OTHER INFORMATION

### **Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Hitobiotech, Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. Read Terms & Conditions page on our website for additional terms and conditions of sale.



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