

Products for:

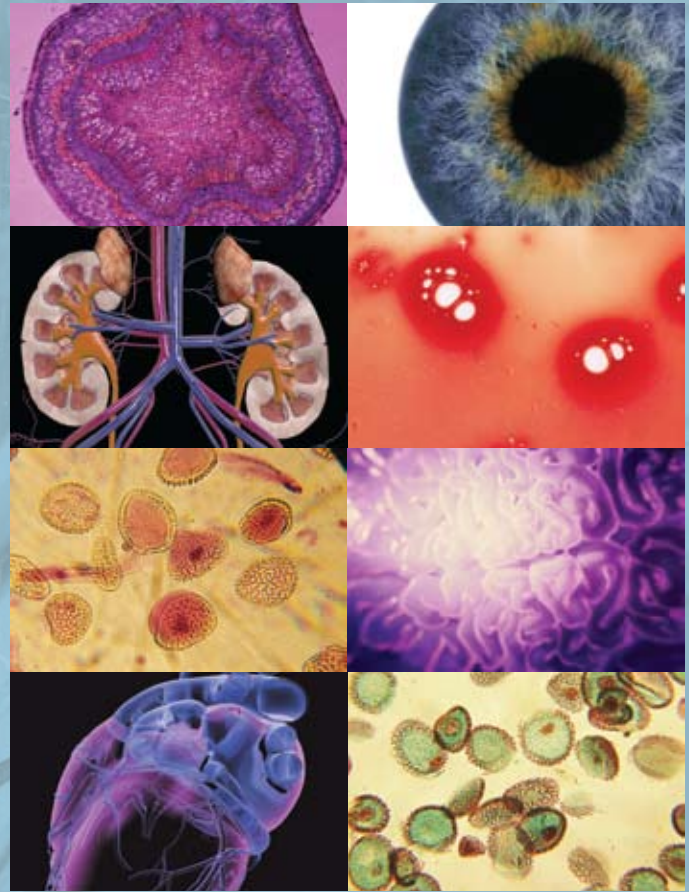
Fixation

Processing

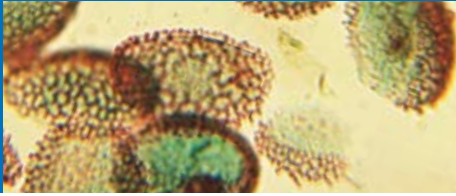
Embedding

Sectioning

Staining



## Histology



Histology – The study of the microscopic anatomy of cells and tissues. It is performed by examining thin slices of tissue under a microscope. Histology is an essential tool of biology and medicine.

## Technical Procedures Involve:

- Fixation
- Processing
- Embedding
- Sectioning
- Staining

## Fixation

- Explanation:
  - A fixative alters tissue by stabilizing the protein so that it is resistant to further changes. In this way, fixatives are used to preserve tissue from degradation and to maintain the structure of the cells inclusive of sub-cellular components such as cell organelles (e.g. nucleus, endoplasmic reticulum, mitochondria).
- Key Products:
  - 10% neutral buffered formalin
  - Formaldehyde, 37%
  - Formaldehyde, 10%
  - Formalde-fresh solution (low-odor 10% formalin)
- Differentiators:
  - Extensive line of common fixatives
  - “Use Tested” by an independent histology lab
  - ISO 9002 cGMP facility.

## Processing

- Explanation:
  - Tissues must go through a dehydration step to replace water with the material that will be used for embedding so that the tissue samples adhere to the embedding material. The most common technique is paraffin wax embedding.
  - Samples are immersed in multiple baths of progressively more concentrated ethanol to remove water (dehydrate) from the tissues, followed by a clearing agent (such as xylene) to remove the alcohol, and finally hot molten paraffin wax which replaces the xylene and infiltrates the tissue.

- Key Products:
  - Tissue Prep paraffin wax
  - Solvents (xylene, acetone, methanol, 2-propanol (isopropanol, toluene, tetrahydrofuran)
  - Reagent alcohol (ethanol)
- Differentiators:
  - Manufactured in an ISO 9002 cGMP facility
  - Various ease of use packaging configurations which include FisherLOCK tamper evident caps, EcoSafPak shipper, F-Style bottle
  - Specially filtered for use in histology applications

## Embedding

- Explanation:
  - Tissue samples are placed into molds along with liquid embedding material which is then allowed to harden. The hardened blocks containing the tissue samples are then ready to be sectioned.
  - Embedding can also be accomplished using frozen, non-fixed tissue in a water-based medium, usually a water-based glycol or resin.
- Key Products:
  - Tissue Prep embedding media
  - Permount
  - Cal-Ex decalcifying solution
  - Histo-Prep mold release spray
- Differentiators:
  - Superior embedding compounds for sectioning of tissues for M.P. 56°-57°C & 55° - 57°C

## Sectioning

- Explanation:
  - The tissue is then sliced into very thin (0.5 – 10 microns; 1000 microns = 1mm) sections using a machine called a microtome. These slices, usually thinner than the average cell, are then placed on a glass slide for staining.
  - Frozen tissue embedded in a freezing medium is cut on a microtome in a cooled machine called a cryostat.
- Key Products:
  - Microtome, glass slides, cryostat

## Staining

- Explanation:
  - Routine Staining: This is done to give contrast to the tissue being examined. Hematoxylin and Eosin (H&E) are the most commonly used stains in histology. Hematoxylin is combined with a metal mordant, such as aluminum, and the hematoxylin-aluminum complex is used to stain cell nuclei blue/black. Eosin is the most widely used counterstain in the routine staining of tissue sections. The best staining with eosin occurs at pH 4.5 to 5, and when used properly at least three shades of pink can be obtained. Erythrocytes, collagen, and the cytoplasm of epithelial or muscle cells should stain different shades of pink using eosin.
  - Special staining: There are many other techniques that have been used to selectively stain cells and cellular components.
- Key Products:
  - Gill's hematoxylin stain & Harris hematoxylin stain
  - Eosin Y
  - Crystal violet
  - Safranin O and Wright's stain

- Differentiators:
  - Certification on each label
  - ISO 9002 Certified manufacturing facility
  - Lot to lot consistency
  - "Use Tested" by an independent lab to ensure superior staining in histological applications

## Special Packaging Solutions

### What are the benefits?

- Rectangular-shaped bottles to maximize shelf and bench space
- Can be shipped without cushioning material to minimize waste
- Strong enough to withstand UN performance tests
- Includes a tamper evident cap
- Preferred by histology customers

## Histology Products Selection Guide

### Analytical Reagents for Fixation

Product	Catalog No.	Size	Package
Formaldehyde, 37% By Weight, Histological	<b>F75P-1GAL</b>	1 gallon	Poly Bottle
	<b>F75P-20</b>	20L	PolyPac
Formaldehyde Solution, 10% w/w	<b>SF96-20</b>	20L	PolyPac
Formaldehyde, Para (certified)	<b>O4042-500</b>	500g	Poly Bottle
Formaldehyde, 37% By Weight (With Preservative/Certified ACS)	<b>F79-1</b>	1L	Amber Glass
	<b>F79-20</b>	20L	Rigid Poly Bottle/ Corrugated Box
	<b>F79-200</b>	200L	Poly Drum
	<b>F79-4</b>	4L	Amber Glass
	<b>F79-500</b>	500mL	Amber Glass
	<b>F79P-20</b>	20L	Poly Pac
	<b>F79P-4</b>	4L	Poly Bottle
	<b>T353-500</b>	500g	Poly Bottle
Formaldehyde, Para (Laboratory)	<b>F77-20</b>	20L	Rigid Poly Bottle/ Corrugated Box
	<b>F77-200</b>	200L	Steel Drum/Poly Liner
	<b>F77P-20</b>	20L	PolyPac
	<b>F77P-4</b>	4L	Poly Bottle
	<b>SF98-20</b>	20L	PolyPac
Formalin Solution, 10% (Histological)	<b>SF98-4</b>	4L	Poly Bottle
	<b>SF99-20</b>	20L	PolyPac
Formalin, Buffered, 10% (Acetate Buffer/Certified)	<b>SF99-4</b>	4L	Poly Bottle
	<b>SF100-20</b>	20L	PolyPac
Formalin, Buffered, 10% (Phosphate Buffer/Certified)	<b>SF100-200</b>	200L	Poly Drum
	<b>SF100-4</b>	4L	Poly Bottle
	<b>SF94-20</b>	20L	PolyPac
Formalde-Fresh Solution (Low-Odor, 10% Formalin)	<b>SF94-4</b>	4L	Poly Bottle (Certified)
	<b>SF93-20</b>	20L	PolyPac
Formalde-Fresh Solution, Buffered (Low-Odor, 10% Formalin) (Phosphate Buffered)	<b>SF93-4</b>	4L	Poly Bottle
	<b>SF95-4</b>	4L	Amber Glass
	<b>SF95-4</b>	4L	Amber Glass
FisherFresh Concentrate; Application: Specially filtered for use in tissue processors. Low-odor formalin formulation for fixing and preserving biologic specimens permanently. Pleasant to use. For fixing fresh tissues, dilute with 6.5 parts water. For preserving specimens indefinitely, dilute with 13 parts water			



## Analytical Reagents for Processing

Product	Catalog No.	Size	Package
TissuePrep® Embedding Media (Certified), Paraffin Wax	<b>T565</b>	2.3kg	Carton
Xylenes (Histological)	<b>X3P-1GAL</b>	1 gallon	Poly
	<b>X3S-20</b>	20L	Steel Pail
	<b>X3S-200</b>	200L	Steel Drum
	<b>X3S-4</b>	4L	SafeTin
	<b>X3-F1GAL</b>	1 gallon	Poly Rectangular Container
Acetone (Histological)	<b>A16F-1GAL</b>	1 gallon	Poly Bottle
	<b>A16P-4</b>	4L	Poly Bottle
	<b>A16S-20</b>	20L	Steel Pail
	<b>A16S-4</b>	4L	SafeTin
Methanol (Histological)	<b>A433F-1GAL</b>	1 gallon	Poly Bottle
	<b>A433P-4</b>	4L	Poly Bottle
	<b>A433S-20</b>	20L	Steel Pail
	<b>A433S-200</b>	200L	Steel Drum
	<b>A433S-4</b>	4L	SafeTin
2-Propanol (Histological)	<b>A426F-1GAL</b>	1 gallon	Poly Bottle
	<b>A426P-4</b>	4L	Poly Bottle
	<b>A426S-20</b>	20L	Steel Pail
	<b>A426S-200</b>	200L	Steel Drum
	<b>A426S-4</b>	4L	SafeTin
1,4-Dioxane (Histological)	<b>D56S-4</b>	4L	SafeTin
Toluene (Histological)	<b>T326F-1GAL</b>	1 gallon	Poly Bottle
	<b>T326P-4</b>	4L	Poly Bottle
	<b>T326S-20</b>	20L	Steel Pail
Tetrahydrofuran (Histological)	<b>T400-20</b>	20L	Steel Pail
	<b>T400-4</b>	4L	Amber Glass
	<b>T400-500</b>	500mL	Amber Glass
Ethanol, CDA 19 (Clear, Colorless Liq./Histological)	<b>A406-20</b>	20L	Steel Pail
	<b>A406F-1GAL</b>	1 gallon	Poly Bottle
	<b>A406P-4</b>	4L	Poly Bottle
Ethanol, Anhydrous (Clear, Colorless Liq./Histological)	<b>A405-20</b>	20L	Steel Pail
	<b>A405F-1GAL</b>	1 gallon	Poly Bottle
	<b>A405P-4</b>	4L	Poly Bottle
Alcohol, Reagent, Histological	<b>A962-200</b>	200L	Steel Drum
	<b>A962-4</b>	4L	Amber Glass
	<b>A962F-1GAL</b>	1 gallon	Poly Bottle
	<b>A962P-4</b>	4L	Poly Bottle
	<b>A962S-4</b>	4L	SafeTin

# HISTOLOGY



## Analytical Reagents for Staining

Product	Catalog No.	Size/Description	Package
Hematoxylin (Certified Biological Stain)	H345-100	100g	Amber Glass
	H345-25	25g	Amber Glass
Fisherbrand® Gill Method Hematoxylin Stains	CS400-1D	1L, Stain 1	Poly Bottle
	CS400-4D	4L, Stain 1	Poly Pac
	CS401-1D	1L, Stain 2	Poly Bottle
	CS401-4D	4L, Stain 2	Poly Pac
	CS402-1D	1L, Stain 3	Poly Bottle
	CS402-4D	4L, Stain 3	Poly Pac
Fisherbrand Harris Modified Method Hematoxylin Stains (with acetic acid)	SH26-4D	4L	Poly Bottle
	SH26-500D	500mL	Poly Bottle
Fisherbrand Harris Modified Method Hematoxylin Stains	SH30-4D	4L	Poly Bottle
	SH30-500D	500mL	Poly Bottle
Fisher Scientific® Gill's Modified EA Papanicolaou Stain	CS405-4D	4L	Amber Glass
	CS405-500D	500mL	Amber Glass
Fisher Scientific Gill's Modified OG-6 Papanicolaou Stain	CS406-4D	4L	Amber Glass
Eosin Y, 1% Solution in Water	SE23-500D	500mL	Amber Glass
Eosin Y, Alcoholic 0.25% Solution	SE22-500D	500mL	Amber Glass
Giemsa Stain (Powder/Certified Biological Stain)	G146-10	10g	Amber Glass
	G146-5	5g	Amber Glass
Wright's Stain (Powder/Certified Biological Stain)	W35-100	100g	Amber Glass
	W35-25	25g	Amber Glass
Neutral Red (Certified Biological Stain)	N129-25	25g	Amber Glass
Orcein (Synthetic) (Certified Biological Stain)	O268-10	10g	Amber Glass
Rose Bengal Disodium Salt (Certified Biological Stain)	R323-25	25g	Amber Glass
Phloxine B (Certified Biological Stain)	P387-25	25g	Amber Glass
Sudan IV (Certified Biological Stain)	S667-25	25g	Amber Glass
Carmine (Certified Biological Stain)	C579-25	25g	Amber Glass
Pararosaniline Hydrochloride (Certified Biological Stain)	P389-25	25g	Amber Glass
Auramine O (Certified Biological Stain)	A968-25	25g	Amber Glass
Eosin B (Certified Biological Stain)	E514-25	25g	Amber Glass
Safranin O (Certified Biological Stain)	S670-100	100g	Amber Glass
	S670-25	25g	Amber Glass
Eosin Y (Certified Biological Stain)	E511-100	100g	Amber Glass
	E511-25	25g	Amber Glass
Orange G (Certified Biological Stain)	O267-25	25g	Amber Glass
Methyl Green (Certified Biological Stain)	M295-25	25g	Amber Glass
Malachite Green Oxalate (Certified Biological Stain)	M290-25	25g	Amber Glass
Fast Green FCF (Certified Biological Stain)	F99-10	10g	Amber Glass
	BP123-10	10g	Amber Glass
Light Green SF, Yellowish (Certified Biological Stain)	O3382-25	25g	Amber Glass
Indigo Carmine (Certified Biological Stain)	I166-25	25g	Amber Glass
Fuchsin Basic (Pararosaniline/Certified Biological Stain)	F98-10	10g	Amber Glass
Thionin (Certified Biological Stain)	T409-25	25g	Amber Glass
Toluidine Blue O (Certified Biological Stain)	T161-25	25g	Amber Glass
Fuchsin Acid (Certified Biological Stain)	F97-25	25g	Amber Glass
Methylene Blue (Certified Biological Stain)	M291-100	100g	Amber Glass
	M291-25	25g	Amber Glass
Crystal Violet (Certified Biological Stain)	C581-100	100g	Amber Glass
	C581-25	25g	Amber Glass
Brilliant Green (Certified Biological Stain)	B422-25	25g	Amber Glass

### Analytical Reagents and Equipment for Sectioning

Product	Catalog No.	Size/Description	Package
Fisher Scientific® Tissue Path® High-Profile Microtome Blades	22-030-530	0.012"	
	22-244-028	0.033"	
Fisherbrand® Superfrost® Plus and ColorFrost® Plus Microscope Slides	12-550-15	75 x 25mm, white	
	12-550-17	75 x 25mm, blue	
	12-550-18	75 x 25mm, green	
	12-550-19	75 x 25mm, pink	
	12-550-20	75 x 25mm, yellow	
	22-230-891	75 x 25mm, gold	
	22-230-892	75 x 25mm, burnt orange	
	22-230-890	75 x 25mm, aqua	
	12-550-16	75 x 25mm, lilac	
Fisherbrand® Extra-thick Microscope Slides	22-267-005	3 x 1.5", plain glass	
	22-267-013	3 x 2", plain glass	
	22-267-062	3 x 1", frosted both ends	
	22-267-096	1.2mm thick	
Fisher Scientific Permount® Mounting Medium	SP15-100	100mL	Amber Bottle
	SP15-500	500mL	Amber Bottle
Thermo Scientific® Microm HM 525UV Cryostat	956634DH	With EC70 disposable blade holder system	
	956634KH	With knife holder system	
Thermo Scientific Cryotome SME/E Cryostats	0620E/110	Cryotome E Electronic Cryostat	
	77-200-002	Cryotome SME Special Motorized Electronic Cryostat	

### Analytical Reagents for Embedding

Product	Catalog No.	Size	Package
TissuePrep® Embedding Media (Certified), Paraffin Wax	T565	2.3kg	Carton
Fisherbrand HistoPrep® Frozen Tissue Embedding Media	SH75-125D	125mL	Plastic Bottle
TissuePrep 2 Micron (Certified)	T555-2	2kg	Carton
Fisher Scientific Permount Mounting Medium	SP15-100	100mL	Amber Bottle
	SP15-500	500mL	Amber Bottle
Fisher Scientific Permount Adhesive	S70104	100mL	Amber Bottle
Cal-Ex® Decalcifier	CS510-10D	10L	PolyPac
	CS510-1D	1L	Poly Bottle
Cal-Ex II Fixative/Decalcifier	CS511-1D	1L	Poly Bottle
	CS511-4D	4L	Poly Bottle
Fisherbrand HistoPrep Mold Release	SH70-250D	250mL	Plastic Bottle
Wax Out™ Cleaning Solution	SW20-4	4L	Safe Tin
Tissue Dry Dehydrant	SH5-4	4L	Safe Tin

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