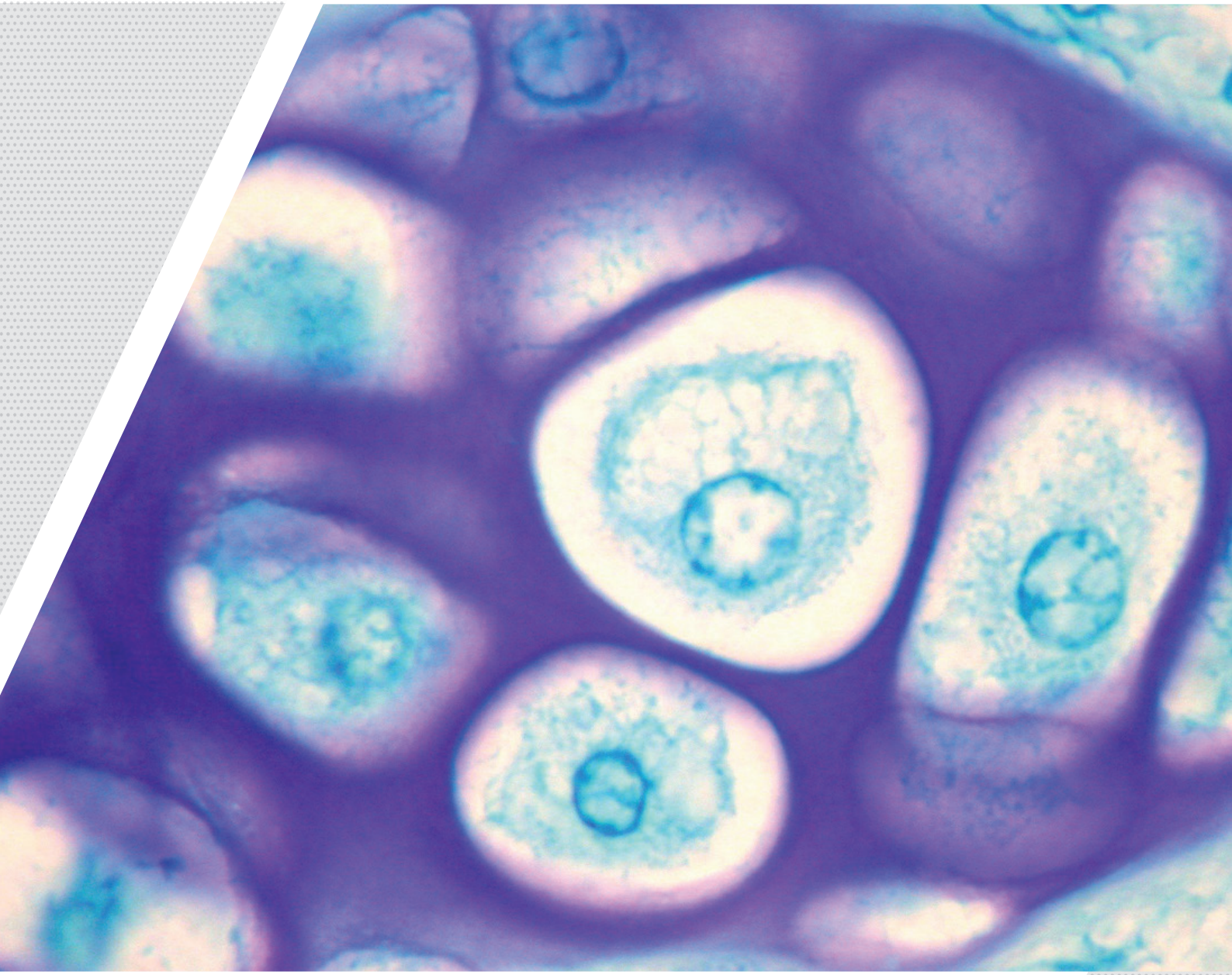
Reagents for Hospitals

Medical and Research Laboratories



ITW

PanReac AppliChem

ITW Reagents

Summary

PanReac AppliChem
ITW Reagents

About Us

The Origin

ITW Illinois Tool Works Inc. (NYSE: ITW) is a global industry company that delivers specialized expertise, innovative thinking and value-added products to meet critical customer needs in a variety of industries.

ITW, with approximately 14 billion dollars in global revenues, operates 7 major segments with businesses in 55 countries that employ approximately 45,000 employees. The company has a broad portfolio of more than 18,000 global patents and patent applications.

The ITW Reagents Division

In 2010, the ITW Reagents division was born integrated by the companies Panreac Química SLU (Spain) and Nova Chimica Srl (Italy), and later on by AppliChem GmbH (Germany). The division offers the highest quality and innovative products for analysis, research and production applications.

ITW Reagents markets its products worldwide through an extensive distribution network to more than 80 countries under the PanReac AppliChem brand. It has two production plants in Darmstadt (Germany) and Barcelona (Spain).

1912 ITW → 1941 Panreac Química → 1980 Nova Chimica → 1992 AppliChem

We are Everywhere

We can say that almost all products subject to human manipulation have undergone chemical analysis that guarantees their physical and chemical properties. Food, agrifood, medicines, cosmetics... and so many other products are subjected to chemical analysis. Our reagents can be found in any quality control and research laboratory.

Our range of Laboratory Chemicals include:

Analytical reagents
Reagents for volumetric analysis
Reagents and solvents for general applications
Reagents and solvents for HPLC
Reagents and solvents for GC
Reagents for metallic traces analysis
Analytical standards
Reagents and solvents for specific applications
Products for clinical diagnosis
Products for microbiology

Our range of Laboratory Biochemicals cover:

Cell Biology / Cell Culture
Protein Biochemistry and Electrophoresis
Nucleic Acid Biochemistry
General Biochemicals and Biological Buffers
Special Biochemicals

Service & Benefits

Exceptional know-how and a wide range of chemicals and biochemicals for a great diversity of applications.

European production committed to corporate social responsibility (CSR).

Efficient global distribution network to export our products worldwide to more than 80 countries.

Qualified management team fully committed to our business project.

Excellence

Our products are strictly controlled in our laboratories and meet the highest quality requirements. A multi-site Integrated Management System for Quality, Environment and Safety is implemented in all activities and processes.

ISO 9001:2015 | ISO 14001:2015 | OHSAS 18001:2007

Medical and Research Laboratories

Medical Laboratories are focused on applied science mainly on a production-like basis, as opposed to **Research Laboratories** that focus on basic science on an academic basis.

A Medical Laboratory or clinical laboratory is where tests are usually done on clinical specimens in order to obtain information about the health of a patient as pertaining to the **diagnosis**, treatment, and prevention of disease.

Research Laboratories use the conventional techniques for Genomics, Proteomics and Cell Culture procedures.

PanReac AppliChem Products for Hospital Laboratories:
- Medical Laboratories: Products for Microscopy.
- Research Laboratories: Products for Genomics, Proteomics and Cell Culture.

In the first part of the brochure we will focus on the Clinical Pathology and Microbiology laboratories according to the type of investigation and the main fields that use microscopy for the analysis: Citology, Haematology, Microbiology and Histology. At the end you will find reagents for Research Laboratories.

Medical Laboratories

In many countries there are mainly **two types** of **Medical Laboratories** as per the types of investigations carried out.

Hospital laboratories

Attached to a hospital to perform tests on patients. We can find 4 different types.

Clinical Pathology:
Hematology, Histopathology, Cytology, Routine Pathology.

Clinical Microbiology:
Bacteriology, Mycobacteriology, Virology, Mycology, Parasitology, Immunology, Serology.

Clinical Biochemistry:
Biochemical analysis, Hormonal assays, etc.

Molecular diagnostic laboratory or cytogenetics and molecular biology lab.

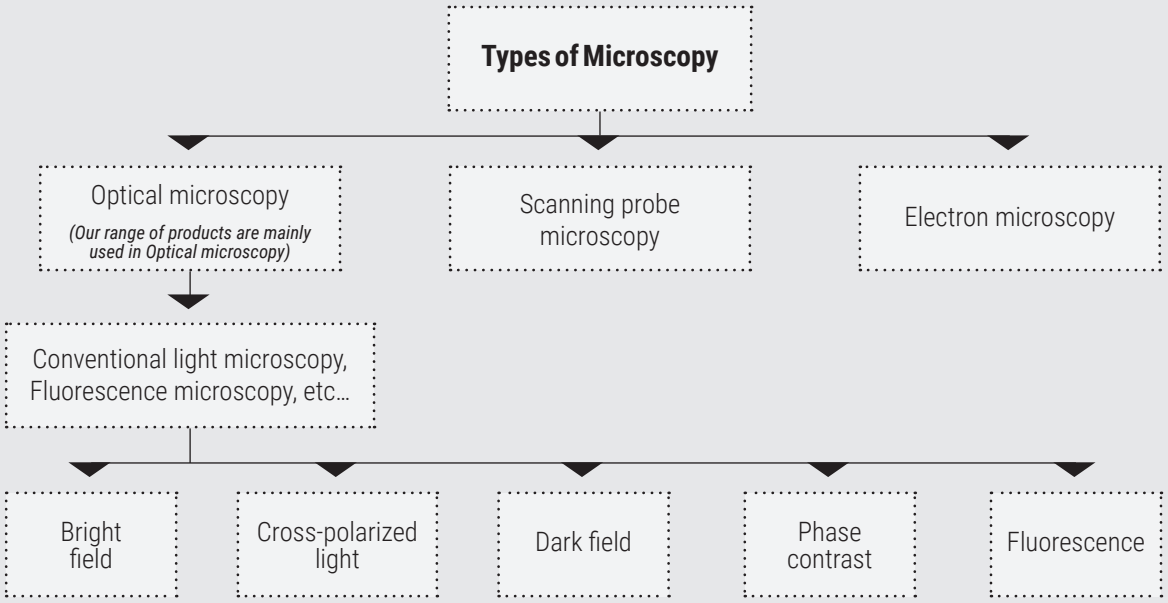
Outside clinical laboratories

For extremely specialized tests, sample may go to an external research laboratory

Microscopy

Introduction

The diagnosis and prognosis of numerous diseases can be facilitated by investigating cells and tissues under the **microscope**. This is the role of **histopathology in diagnostic medicine**.



PanReac AppliChem has a full range of products for histology, haematology and microbiology, which includes the most commonly used reagents in the process of preparing samples for examination under the microscope. With this range, all the stages of fixing, clearing, paraffin inclusion, staining and mounting are covered.

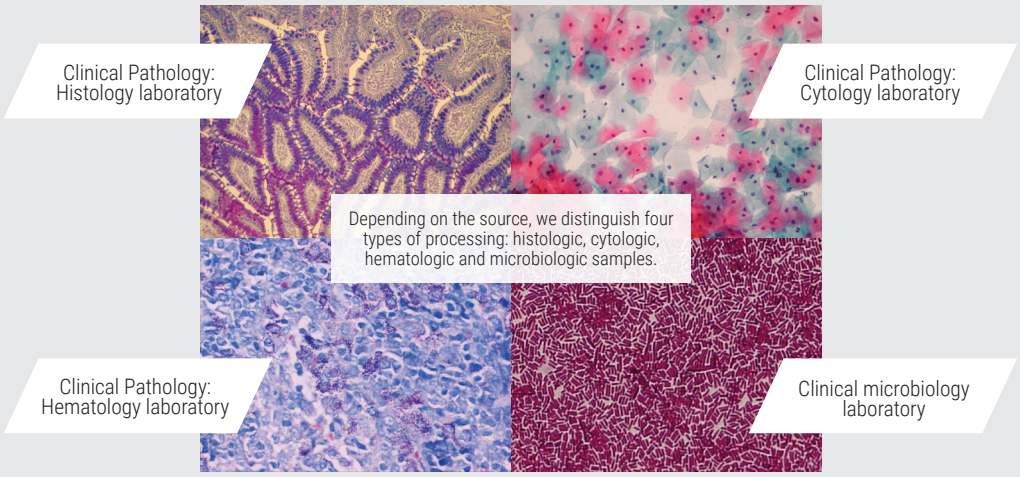
We also have a wide range of products for Research in different fields of Life Sciences for assays to be developed in hospital laboratories: genomics, proteomics and cell cultures.

The majority of the products used in microscopy technique are encompassed in the Clinical Diagnosis quality, with the CE mark in compliance with the provisions of the European Directive on products for "in vitro" diagnosis.

CE IVD

Sample Processing

Sample processing is the sum of operations aimed at the **study of cells and tissues**. Its final purpose is the microscopic observation and for this **we will obtain pieces or preparations** of small thickness.



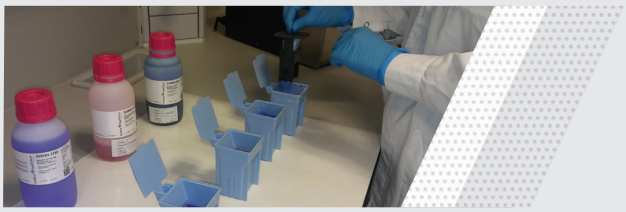
Getting the sample

Different sources

- **Biological fluids:** blood, urine, mucoses, etc...
- **Biopsies:** pieces of tissue obtained from a living subject.
- **Operated parts:** tissues that have been removed from the surgical interventions.
- **Necropsies:** pieces that are obtained from a corpse.

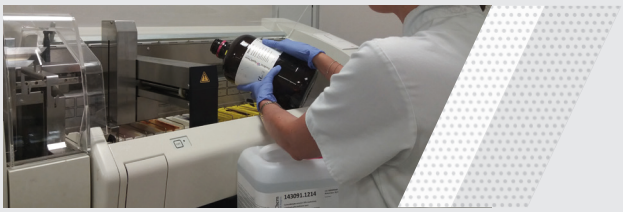
Types of processing

Manual Techniques



Manual processing is the most typical method in Hospital laboratories. Drying, inclusion, dehydrating and staining are made by hand. This implies the exposition to toxic vapors of the different components used during the process.

Automatic Sample Processing

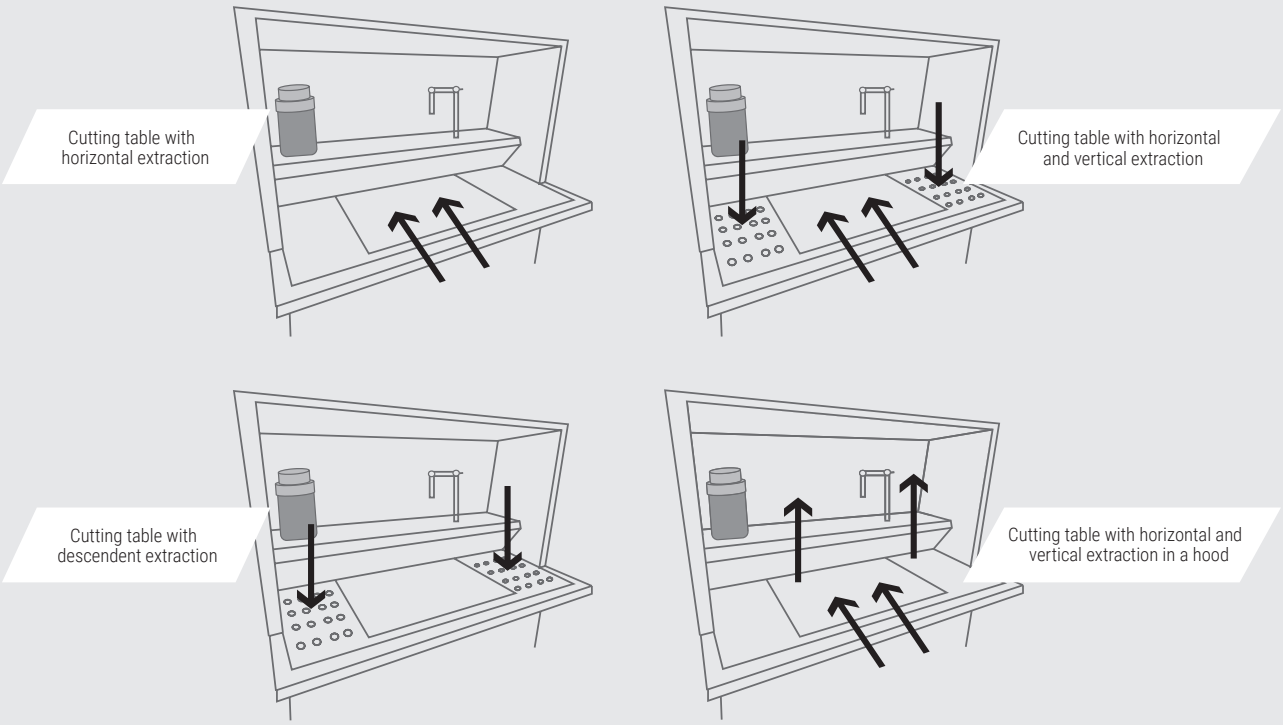


In big laboratories, automatic processing is carried out. In these cases, reagents used for the sample preparation is the same but usually, packaging is different. Main advantages are low exposure to chemicals, time saving and same conditions in all analysis.

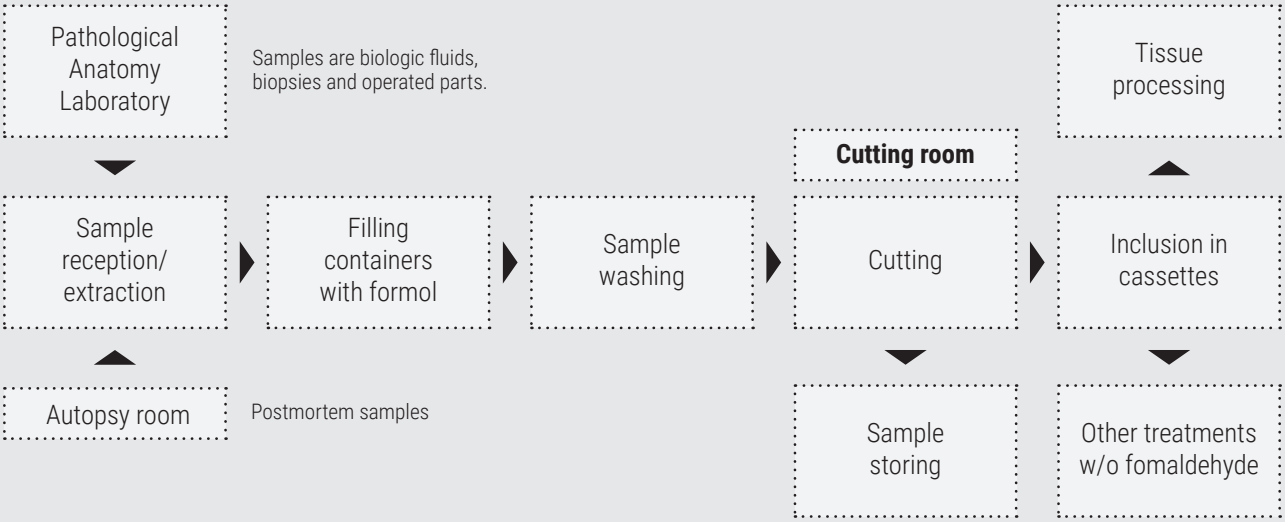
Pathological Anatomy Laboratory process

Pathological Anatomy laboratories are typically the facilities where cytologic and histologic samples are collected and processed for microscopy.

Formaldehyde is widely used in the laboratory of pathological anatomy for fixing and is typically handled on cutting tables with different aspiration systems.



From sampling to processing



Techniques and stages

Although most of the stages are common, some of the steps are exclusive only to one type of sample processing. For example, inclusion is only done on tissues and heat fixation only on blood samples.

Type of Sample	Fixing	Drying and Clearing	Inclusion	Cutting	Rehydration	Staining	Mounting	Microscopy
Histologic	●	●	●	●	●	●	●	●
Microbiologic Hematologic Cytologic	●					●	●	●

Fixing

Fixation, what is it?

Fixation interrupts degradation processes after cell death, trying to preserve tissue / cell architecture and composition as close as possible to how it was in the living organism.

- It is the most essential stage
- Fixation ≠ Conservation
- There is no universal method of fixation

How does it act?

Denaturing and insolubilizing (tissue) proteins, which blocks autolysis by enzyme inactivation.

Note: Autolysis is cellular enzymatic autodigestion, after the exit of lysosomal contents into the cytoplasm by rupture of delimiting membrane of these organelles.

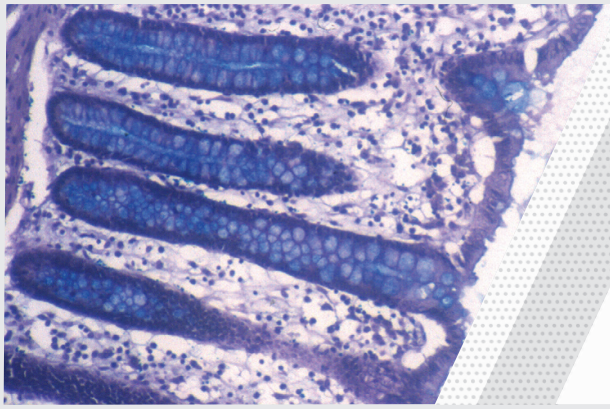
Types of action

Physical agents

- Instant freezing (ie. isopentane at -50 ° C)
- Freeze drying (freeze-drying by sublimation of water)
- Cryo-substitution (freezing and replacement of water by fixative liquid)

Chemical Agents

- Simple fixative agents
- Mixtures of fixatives



Chemical Agents Key features

- Block immediately the autolysis
  - Penetration rate
  - Fixing speed
- Microbiocidal effect (prevent putrefaction)
- Cause NO shrinkage or distortion
- Promoting inclusion, cutting and staining (mordant effect)

Types of Chemical Fixative Agents

Simple Fixatives (Substances):

- Ethanol
- Formaldehyde
- Glutaraldehyde
- Osmium Tetroxide
- Uranyl acetate

Fixative Mixtures:

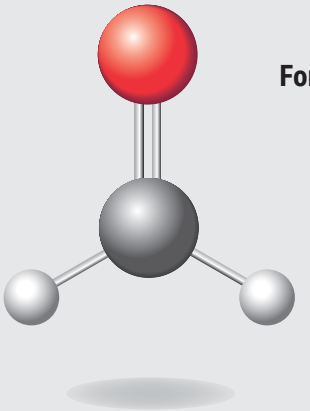
- Fixative B5
- Zenker Fixative
- Bouin Liquor
- Carnoy's solution
- Ethanol:Ether 1:1

There is **no ideal fixative,** all fixing agents currently available offer advantages and disadvantages that will make them suitable for different types of samples and studies.

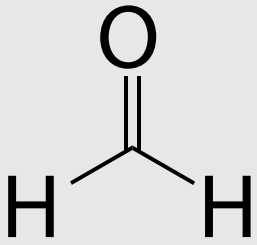
The fixation rate of a chemical agent is not always in agreement with its rate of penetration: **formaldehyde** is a fixative that penetrates relatively quickly in the tissue and, nevertheless, fixes it with a certain slowness.

The fastest fixatives are alcohol and acetone. The formaldehyde has a fixation rate of 0.9 – 1 mm / hour and the picric acid 0.3 mm / hour.

Formaldehyde, is the better known Chemical Agent used as Fixation media.



Formaldehyde



Formaldehyde Fixation Procedure

The fixation of the samples should take place according to the size and the characteristics of the tissue. In order to obtain an optimum fixation, this must be done as soon as possible after the extraction of the sample from the tissue. The penetration of formaldehyde into tissue is related to temperature.

1. The pieces of tissue are introduced into formalin solution 3.7 - 4.0%.
2. Place samples in a sufficiently wide container (to avoid spills and allow good handling) with a volume of fixative of at least 20 times greater than that of the sample.
3. Although not essential, constant and gentle agitation is recommended.
4. Time of impregnation: it will depend on the size of the sample and the temperature (with heat the fixation is faster but of lower quality).

5. In a refrigerated environment, the fixation is slower but the cold reduces the processes of degradation while fixation occurs. This is why it is usually done at room temperature or at 4 °C and adjust the setting time according to the nature of the sample and the chosen temperature.
6. The fixing time is usually a few hours at room temperature (for small samples), and up to 12 hours or more, if the fixation is carried out at 4 °C.
7. Once the fixing process is finished, it is recommended to perform three washes of at least 5 minutes in running water.

Fixing

Formaldehyde pre-dosed: Histofix® Preservative ready to use

Formaldehyde is widely used in the laboratory of pathological anatomy.

There is **a significant exposure by workers** (0.2-0.8 ppm TWA 15 min) in many hospitals (example Spain)

Exposure to formaldehyde may cause adverse health effects (irritation, sensory disturbances and cancer).

Since 2014 there are new international rules for the handling of formol in laboratories.

Commission Regulation (EU) 2015/491 amending Regulation (EU) No 605/2014

- New rules for **classification** and **labeling** of **dangerous substances**
- **Precautionary statements** and use of these substances

Formaldehyde is one of the substances affected. Most important change:

Warning → **Danger**

Histofix® Preservative in ready-to-use bottles is formaldehyde presented in **individual doses** to avoid handling, thus **reducing exposure time.** Each bottle is prefilled to about half of its capacity, for fixation and storage of tissue specimens. It is also available in **pink** colored formalin for a better visualization of **small specimens.** This new colored solution improves the visibility of grey or whitish small samples allowing a greater efficiency of laboratory technicians in the different stages of the histological process.

Safety: No manipulation is required, eliminating any problems associated with product toxicity. Any spillage is avoided owing to the excellent hermetic design of the containers.
Quality: The high quality and stability of our formaldehyde enables effective and reproducible fixation.
A wide-range of formats: Available in different sizes, thus allowing users to select the most suitable size for their samples.

Product code	Product name	Specifications	CAS number	Pack size
256462.0905	**Histofix® Preservative ready to use for clinical diagnosis** CE	Assay: 3.7-4.0% Formaldehyde pH 6.8-7.2 Methanol (w/v): 1-1.5%	50-00-0	45x10 mL
256462.0955				44x20 mL
256462.0962				45x30 mL
256462.0961				45x40 mL
256462.0967				24x75 mL
256462.0943				16x125 mL
256462.0944				12x200 mL
256462.09149				10x600 mL
256462.09118				4x1.5 L
256462.0931				3 L
257462.0905	**Histofix® Preservative ready to use (pink) for clinical diagnosis**	Assay: 3.7-4.0% Formaldehyde pH 6.8-7.2 Methanol (w/v): 1-1.5%	50-00-0	45x10 mL
257462.0962				45x30 mL

Histofix® is a trademark of Panreac Quimica SLU

Reagents for Fixing

Product code	Product name	Composition	Application	CAS number	Pack size
254102.1611	**Bouin Liquor for clinical diagnosis**	Picric Acid moistened with ~33% H_2O ..... 1.125 g Acetic Acid glacial ..... 5 mL Formaldehyde 35-40% ..... 25 mL Water ..... 77 mL	Fixative for preserving soft and delicate structures, used as a mordant in various trichrome procedures		1 L
251086.1211	**Ethanol absolute for clinical diagnosis*** CE		Fixation by tissue dehydration. High rate of penetration and fixation, and bactericidal effect (good preservative)	64-17-5	1 L
251086.1212					2.5 L
251086.9914					5 L
251086.1214					5 L
251086.1215					10 L
251086.1315					10 L
212801.1211	**Ethanol absolute partially denatured technical grade***	Contains 0.3% of Diethyl Phthalate and 2 ppm of Bitrex	Fixation by tissue dehydration. High rate of penetration and fixation, and bactericidal effect (good preservative)	64-17-5	1 L
212801.1214					5 L
212801.2814					5 L
212801.1315					10 L
212801.0716					25 L
147194.1212	**Ethanol 99.8% denatured with IPA, MEK and Bitrex pure***	Contains per 100 L: 1 L IPA, 1 L MEK and 1 g Bitrex	Fixation by tissue dehydration. High rate of penetration and fixation, and bactericidal effect (good preservative)	64-17-5	2.5 L
147194.1214					5 L
147194.1215					10 L
147194.0716					25 L
251085.1212	**Ethanol 96% v/v for clinical diagnosis*** CE		Fixation by tissue dehydration. High rate of penetration and fixation, and bactericidal effect (good preservative)	64-17-5	2.5 L
251085.1214					5 L
212800.1214	**Ethanol 96% v/v partially denatured technical grade***	Contains 0.3% of Diethyl Phthalate and 2 ppm of Bitrex	Fixation by tissue dehydration. High rate of penetration and fixation, and bactericidal effect (good preservative)	64-17-5	5 L
212800.1315					10 L
212800.0716					25 L
147195.1211	**Ethanol 96% denatured with IPA, MEK and Bitrex pure***	Contains per 100 L: 0.96 L IPA, 0.96 L MEK and 0.96 g Bitrex	Fixation by tissue dehydration. High rate of penetration and fixation, and bactericidal effect (good preservative)	64-17-5	1 L
147195.1212					2.5 L
147195.1214					5 L
147195.0716					25 L
192695.1211	**Ethanol 70% v/v (BP) pharma grade***		Fixation by tissue dehydration. High rate of penetration and fixation, and bactericidal effect (good preservative)	64-17-5	1 L
192695.1212					2.5 L
192695.1214					5 L
192695.1315					10 L
192695.0516					25 L
147196.1212	**Ethanol 70% denatured with IPA, MEK and Bitrex pure***	Contains per 100 L: 0.7 L IPA, 0.7 L MEK and 0.7 g Bitrex	Fixation by tissue dehydration. High rate of penetration and fixation, and bactericidal effect (good preservative)	64-17-5	2.5 L
147196.1214					5 L
147196.1215					10 L

**Check availability in your country*

>>

PanReac AppliChem
ITW Reagents

Fixing

Product code	Product name	Composition	Application	CAS number	Pack size
254101.1210	**Fixing for fast staining (Panoptic No. 1) for clinical diagnosis**	Crystal Violet ..... 2 mg Methanol s.q.m. ..... 1 L	Fixing solution for further panoptic staining		500 mL
254101.1212					2.5 L
253572.1211	**Formaldehyde 30-36% w/v concentrated buffered to pH 7 stabilized with methanol for clinical diagnosis** CE		Concentrated formalin, to be diluted with water or with buffer solution to the working concentration	50-00-0	1 L
253572.1214					5 L
252931.1211	**Formaldehyde 3.7-4.0% buffered to pH 7 and stabilized with methanol for clinical diagnosis** CE		Ready-to-use formalin	50-00-0	1 L
252931.1212					2.5 L
252931.1214					5 L
252931.9914					5 L
252931.1215					10 L
252931.1315					10 L
252931.0715					10 L
252931.0716					25 L
143091.1214	**Formaldehyde solution 10% neutralized, stabilized with methanol pure**			50-00-0	5 L
143091.1215					10 L
253857.1611	**Glutaraldehyde solution 25% for clinical diagnosis**		Fixing reagent for electronic microscopy	111-30-8	1 L
256462.0905	**Histofix® preservative ready to use for clinical diagnosis** CE 	Formaldehyde ..... 3.7-4.0% Methanol 1-1.5%	Ready-to-use formalin, prefilled formalin containers	50-00-0	45x10 mL
256462.0955					44x20 mL
256462.0962					45x30 mL
256462.0961					45x40 mL
256462.0967					24x75 mL
256462.0943					16x125 mL
256462.0944					12x200 mL
256462.09149					10x600 mL
256462.09118					4x1.5 L
256462.0931					3 L
257462.0905	**Histofix® preservative ready to use (pink) for clinical diagnosis** CE 	Formaldehyde ..... 3.7-4.0% Methanol 1-1.5%	Prefilled containers with pink colored ready-to use formalin for a better visualization of small specimens.	50-00-0	45x10 mL
257462.0962					45x30 mL
123501.1611	**Isopentane for analysis**		Fixative for cryosubstitution	78-78-4	1 L
214632.1214	**Embalming mixture technical grade**	Phenol 90% ..... 12.5 mL Ethanol 96% ..... 62.5 mL Formaldehyde 35-40% .... 7.5 mL Glycerol ..... 17.5 mL	For corpse embalming		5 L
214632.0716					25 L

Decalcifiers

Decalcification is a process of complete removal of calcium salt from the tissues like bones and teeth and other calcified tissues to assure that the specimen is soft enough to facilitate cutting with a microtome and **without interfering with the subsequent staining** process.

What are they?

- Strong acids
  - Nitric acid
  - Hydrochloric acid
- Organic weak acids
  - Formic acid
  - Acetic acid
  - Trichloroacetic acid
- Chemical chelating agents
  - EDTA

It is considered that decalcification is finished when the object is soft and is able to be cut quite easily.

Time control
Longer duration → cell destruction
Minor duration → difficult microtome sections

How to control decalcification?
Physical methods (touch) → subjectivity
Radiological methods → expensive instrumental
Chemical methods (detection of Ca^{2+}) → test of calcium oxalate

Keys of decalcifying process

- Complete fixation before decalcifying
- Optimal concentration
- Optimal volume (1:20)
- Blocks suspended in container center
- Ideal temperature 25°C
- Gentle shaking
- Ion Exchange Resin
- Washing with neutralizing solutions
- Time control

Reagents for decalcification

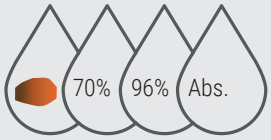
Product code	Product name	Composition	Application	Pack size
256284.0922	**Histofix® marrow decalcifier for clinical diagnosis**	Solution A fixative ..... 3x100 mL Solution B decalcifier .. 3x100 mL	Marrow decalcifier	Pack
256239.1211	**Histofix® decalcifier 1 for clinical diagnosis**		Slow decalcifier and fixing agent	1 L
256238.1211	**Histofix® decalcifier 2 for clinical diagnosis**		Medium decalcifier for fixed tissues	1 L
256237.1211	**Histofix® decalcifier 3 for clinical diagnosis**		Fast decalcifier for fixed tissues	1 L

Drying and Clearing

Drying is the complete removal of water from the specimen or tissue sample so that it can be properly embedded in the inclusion media other than water soluble. Fixed and washed pieces are taken to 96% alcohol and then to absolute alcohol for a variable time, usually one and a half hour in each bath.

Drying/Dehydrating Key points

- Do not alter tissue structures
- Miscible with the clearing agent
- Quick
- Minimal hardening
- Not toxic



What must be considered?

- Graduation of the alcohols
- Volume and number of dehydration baths
- Duration of dehydration

Volume and number of dehydration baths

It is not necessary that the volume of alcohol is too high. In general, a bath volume 10 times greater than the volume of the sample is usually recommended. It is recommended to multiply the number of baths because they involve:

- Less permanence in the bath.
- Lower saturation of water in alcohol.
- Better control over the degree of dehydration.
- Lower risk of tissue disruption.

Duration of dehydration

It is based on the volume of the tissue fragments and their content in water, taking into account that ***dehydration must be complete***, and prolonged exposure causes a hardening of the tissues.

Graduation of alcohols

In practice, the dehydration operation is carried out using a series of ***ascending gradient alcohols (50, 70, 80, 95, 100%),*** since the abrupt action of a highly graded alcohol on the tissue would cause a marked retraction of this one.

The use of more or less long series of different gradation alcohols, as well as the decision to start the process in medium or low grade alcohol, will be based on ***personal experience,*** the fragility of the tissues to be included and the type of fixative agent used.

PanReac AppliChem
ITW Reagents

Drying and Clearing

Reagents for Drying

Product code	Product name	Composition	CAS number	Pack size
251086.1211	**Ethanol absolute for clinical diagnosis*** CE		64-17-5	1 L
251086.1212				2.5 L
251086.9914				5 L
251086.1214				5 L
251086.1215				10 L
251086.1315				10 L
212801.1211	**Ethanol absolute partially denatured technical grade***	Contains 0.3% of Diethyl Phthalate and 2 ppm of Bitrex	64-17-5	1 L
212801.1214				5 L
212801.2814				5 L
212801.1315				10 L
212801.0716				25 L
147194.1212	**Ethanol 99.8% denatured with IPA, MEK and Bitrex pure***	Contains per 100 L: 1 L IPA, 1 L MEK and 1 g Bitrex	64-17-5	2.5 L
147194.1214				5 L
147194.1215				10 L
147194.0716				25 L
251085.1212	**Ethanol 96% v/v for clinical diagnosis*** CE		64-17-5	2.5 L
251085.1214				5 L
212800.1214	**Ethanol 96% v/v partially denatured technical grade***	Contains 0.3% of Diethyl Phthalate and 2 ppm of Bitrex	64-17-5	5 L
212800.1315				10 L
212800.0716				25 L
147195.1211	**Ethanol 96% denatured with IPA, MEK and Bitrex pure***	Contains per 100 L: 0.96 L IPA, 0.96 L MEK and 0.96 g Bitrex	64-17-5	1 L
147195.1212				2.5 L
147195.1214				5 L
147195.0716				25 L
192695.1211	**Ethanol 70% v/v (BP) pharma grade***		64-17-5	1 L
192695.1212				2.5 L
192695.1214				5 L
192695.1315				10 L
192695.0516				25 L
147196.1212	**Ethanol 70% denatured with IPA, MEK and Bitrex pure***	Contains per 100 L: 0.7 L IPA, 0.7 L MEK and 0.7 g Bitrex	64-17-5	2.5 L
147196.1214				5 L
147196.1215				10 L

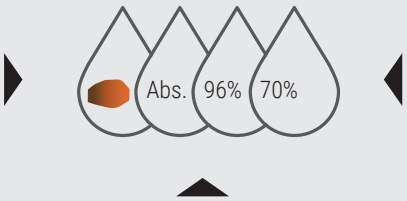
**Check availability in your country*

PanReac AppliChem
ITW Reagents

Drying and Clearing

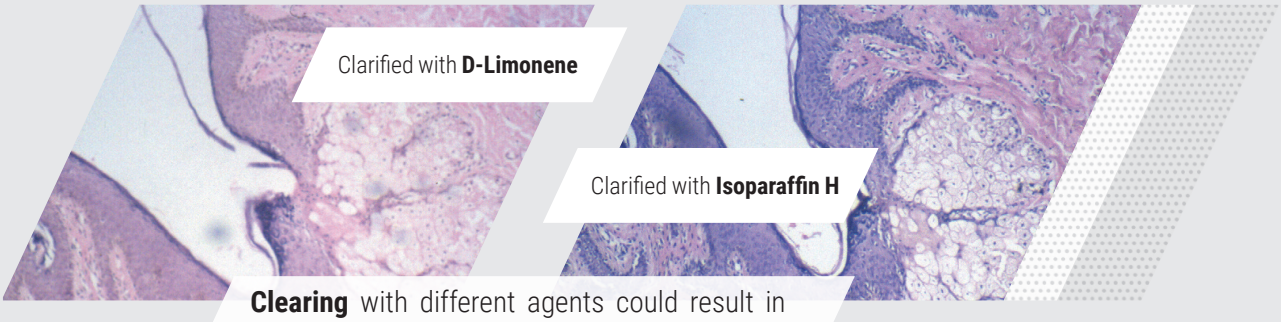
Clearing process is the replacement of the dehydrating agent with a substance miscible with the embedding medium to be used.

It is intended that the whole histopathological piece is embedded in a liquid chemical agent, in which the inclusion medium can be dissolved, and thus penetrate the tissue.



The general technique of handling the clearing agents includes successive baths of variable duration depending on the characteristics of the agent and the part.

Its purpose is not, as its name seems to indicate, to make the tissue **transparent**, although in some cases this may occur.



Clearing with different agents could result in different contrast and sharpness of the sample.

Reagents for Clearing

Product code	Product name	Characteristics	Application	CAS number	Pack size
253139.1612	**Citrosol (Substitute of Xylene) for clinical diagnosis** CE	Density 20/4 ..... 0.841-0.843 Specific rotation α 20/D ... +113 - +120°	Clearing on limonene base	5989-27-5	2.5 L
253139.1214					5 L
255069.2711	**Isoparaffin H (Substitute of Xylene) for clinical diagnosis** CE	Density 15/4 ..... 0.765	Clearing on isoparaffinic base	90622-58-5	1 L
255069.2714					5 L
131745.1611	**Toluene (Reag. Ph. Eur.) for analysis, ACS, ISO**	Density 20/20 ..... 0.865-0.870	Clearing on toluene base	108-88-3	1 L
131745.1612					2.5 L
131745.0314					5 L
131745.0616					25 L
251769.2711	**Xylene, mixture of isomers for clinical diagnosis** CE	Density 20/4 ..... 0.862-0.867	Clearing on xylene base	1330-20-7	1 L
251769.1612					2.5 L
251769.2714					5 L

Inclusion

Embedding media

Embedding consists in replacing the water of the tissue by a liquid medium capable of solidifying under the **appropriate temperature conditions,** in order to provide the sample with adequate **consistency and homogeneity** to obtain very thin translucent sections by means of an instrument called a **microtome**.

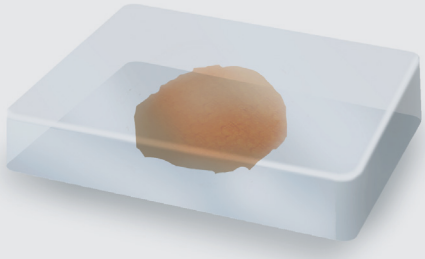
The basis of the process lies in the complete **occupation** with this medium of the **intra and extracellular spaces** initially filled by the intratisular water.

Depending on the thickness of the cuts to be obtained, the type of tissue and the cutting temperature (the room temperature must be 30 to 35 °C lower than the paraffin melt), one or the other type of paraffin will be used. Typically, paraffins commonly used have a melting temperature of 54 °C to 58 °C.

The **ultimate purpose** of the process is to provide the anatomical piece with **sufficient homogeneity and hardness** to obtain fine sections of quality.

Paraffins are wax-like substances composed of mixtures of long-chain saturated hydrocarbons that can be obtained with a wide variation in their melting point (40 °C to 70 °C).

Embedding (Infiltration and inclusion) is definitively optimized in **paraffin.**



Example of histologic procedure times

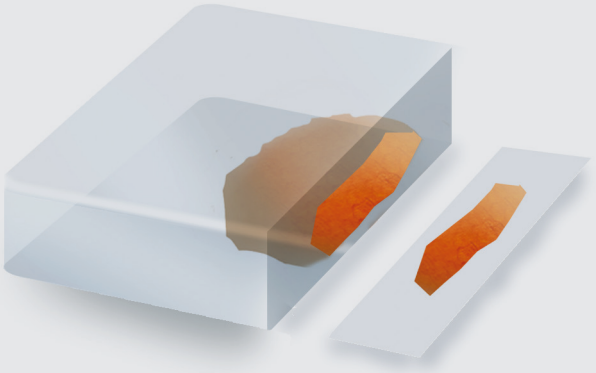
Stage	Baths	Processing time
Fixing	Formol	
Dehydration	Ethanol 70%	2 hours
	Ethanol 96%	2 hours
	Ethanol absolute	2 hours
	Ethanol absolute	1 hour
	Ethanol absolute	1 hour
Clearing	Xylene/Citrosol/Isoparaffin H	1 hour
	Xylene/Citrosol/Isoparaffin H	1 hour
	Xylene/Citrosol/Isoparaffin H	1 hour
Inclusion	Paraffin	1 hour
	Paraffin	1 hour
	Paraffin	2 hours

Reagents for Embedding

Product code	Product name	Composition / Application		CAS number	Pack size
253209.1211	**Paraffin M.P. 51-53°C pellets for clinical diagnosis**	For both infiltration and/or embedding		8002-74-2	1 kg
256993.0933	**Paraffin M.P. 55-58°C plasticized + DMSO pellets for clinical diagnosis** CE	DMSO increases the rate of penetration of paraffin and provides additional preservation, the addition of polymers prevents sprinkling, air-filled slits between the paraffin crystals that can adversely affect the sectioning procedure		8002-74-2	6x1 kg
256993.0415					10 kg
253211.0914	**Paraffin M.P. 56-58°C pellets for clinical diagnosis** CE	For both infiltration and/or embedding		8002-74-2	5 kg
213206.0911	**Paraffin M.P. ~ 42-44°C pieces technical grade**	Low melting point, near to corporal temperature		8002-74-2	1 kg
213206.0914					5 kg
256876.3408	**Paraffin cleaner for clinical diagnosis** CE	Isoparaffin H .... 425 mL 1-Propanol ..... 75 mL	Microtomes cleaner used in the processing of human tissue		6x100 mL

Cutting

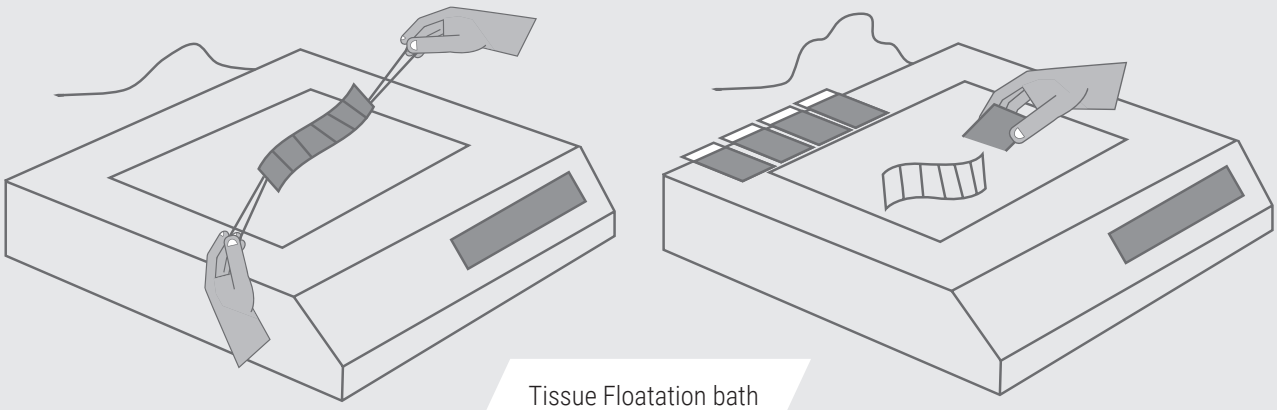
Paraffin-included tissues are reduced to cuts thin enough (4-6 microns) to allow the passage of light to examine it under a microscope. This is done with a **microtome**: a mechanical instrument that is used to make micrometric sections of tissue.



Typically it is, along with the staining, the task in which more hours are invested.

The section is made with instruments called microtomes, and is intended to obtain translucent preparations that can be stained and observed under an optical microscope.

Once the tissue is cut, the cut is set onto a slide where the processing continues with deparaffination and staining. For this purpose, cut paraffin slices containing the tissue are deposed on a warm water bath and "fished" with the glass slides.



Tissue Floatation bath

Rehydration

Deparaffinization-Hydration

Deparaffinization-Hydration is the process of removing the inclusion medium from paraffin-embedded tissue sections and rehydrating for proper penetration of the dyes.

Example of Deparaffinization-Hydration times

Stage	Baths	Processing time
Deparaffinization	Xylene/Citrosol/Isoparaffin H	10 min
	Xylene/Citrosol/Isoparaffin H	10 min
	Xylene/Citrosol/Isoparaffin H	10 min
Hydration	Ethanol absolute	1-2 min
	Ethanol 96%	1-2 min

Reagents for Deparaffinization-Hydration

Product code	Product name	CAS number	Pack size
253139.1612	**Citrosol (Substitute of Xylene) for clinical diagnosis** CE	5989-27-5	2.5 L
253139.1214			5 L
251086.1211	**Ethanol absolute for clinical diagnosis*** CE	64-17-5	1 L
251086.1212			2.5 L
251086.9914			5 L
251086.1214			5 L
251086.1215			10 L
251086.1315			10 L
212801.1211	**Ethanol absolute partially denatured technical grade***	64-17-5	1 L
212801.1214			5 L
212801.2814			5 L
212801.1315			10 L
212801.0716			25 L
147194.1212	**Ethanol 99.8% denatured with IPA, MEK and Bitrex pure***	64-17-5	2.5 L
147194.1214			5 L
147194.1215			10 L
147194.0716			25 L
251085.1212	**Ethanol 96% v/v for clinical diagnosis*** CE	64-17-5	2.5 L
251085.1214			5 L
212800.1214	**Ethanol 96% v/v partially denatured technical grade***	64-17-5	5 L
212800.1315			10 L
212800.0716			25 L

Product code	Product name	CAS number	Pack size
147195.1211	**Ethanol 96% denatured with IPA, MEK and Bitrex pure***	64-17-5	1 L
147195.1212			2.5 L
147195.1214			5 L
147195.0716			25 L
192695.1211	**Ethanol 70% v/v (BP) pharma grade***	64-17-5	1 L
192695.1212			2.5 L
192695.1214			5 L
192695.1315			10 L
192695.0516			25 L
147196.1212	**Ethanol 70% denatured with IPA, MEK and Bitrex pure***	64-17-5	2.5 L
147196.1214			5 L
147196.1215			10 L
255069.2711	**Isoparaffin H (Substitute of Xylene) for clinical diagnosis** CE	90622-58-5	1 L
255069.2714			5 L
251769.2711	**Xylene, mixture of isomers for clinical diagnosis** CE	1330-20-7	1 L
251769.1612			2.5 L
251769.2714			5 L

**Check availability in your country*

Staining

Dyes for microscopy

What are they?

Generally, all tissues of animal origin are colorless unless they contain some type of pigment, in which case they adopt the color provided by the latter (pigment).

Dyes are substances that in contact with a suitable support, join it in an enduring manner transmitting its color to it.

Microscopic photography with its intensity of color and contrast is basically determined by the quality of the solution (stability, pH, concentration, etc ...) as well as by the technical procedure used.

Dyes are used in microscopy when there is a need to visualize the components of animal and plant tissues.

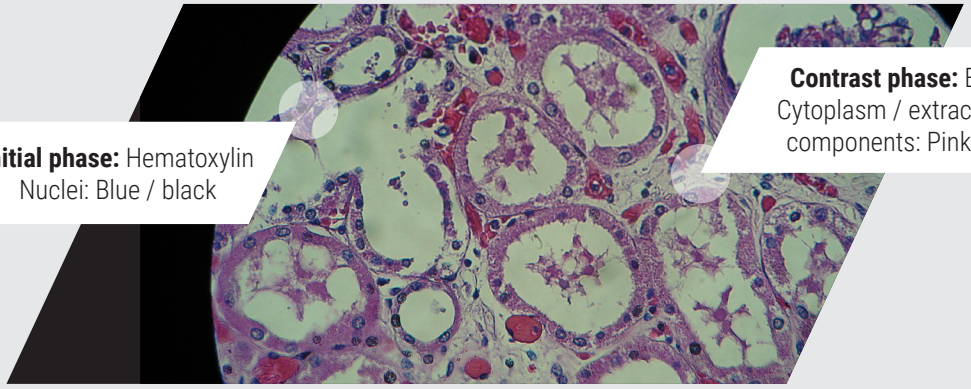
Microscopy dyes are used mainly in **histology, cytology and microbiology** but also in other analytical techniques.

There are two types of microscopy dyes:

- **Natural Dyes** obtained in the form of extracts from certain plants or insects.
  - Nuclear: Hematoxylin and Carmine
  - Cytoplasmic: Safranin and Orcein
- **Synthetic Dyes** mostly derived from aniline.
  - Nuclear: Methyl Green, Basic Fuchsin, Cresyl Violet
  - Cytoplasmic: Eosin, Phloxine

Hematoxylin-Eosin Stain: routine staining of whole tissues

There are multiple variants of Hematoxylin-Eosin Stain. This stain is always composed by two phases:



Hematoxylins

Dye or stain	Features
Carazzi's Hematoxylin	Oxidizer: Sodium Iodate Auxochrome: Aluminum Potassium Sulfate Glycerin: Provides longer solution life
Gill's Hematoxylin	Oxidizer: Sodium Iodate Auxochrome: Aluminium Sulfate Acid: Glacial Acetic Acid that slows oxidation
Harris Hematoxylin	It is the most frequently used hematoxylin stain in the routine staining of cell nuclei, mainly due to its stability (preserved from 6 to 12 months) and its ease of handling. Oxidizer: Mercury (II) Oxide Auxochrome: Aluminum Potassium Sulfate Ethanol 96%: gives great stability
Mayer's Hematoxylin	Hematoxylin lacquer very selective to color nuclear chromatin and, because it is a progressive staining, does not require further differentiation. Oxidizer: Sodium Iodate Auxochrome: Aluminum Potassium Sulfate
Weigert's Hematoxylin	This ferric hematoxylin is very useful for performing nuclear staining when it is necessary to complete the staining with strongly acid solutions specific for the cytoplasm and extracellular tissue components capable of dissolving the conventional aluminum-containing hematoxylin lacquers. This occurs with most of the trichrome colorations of connective tissue. The two Weigert solutions are mixed so that chromogen (hematoxylin) and mordant (iron III chloride) are linked and bound to the tissue.

Note: An auxochrome is a group of atoms as bivalent or trivalent metal salts that increase dyeing ability of the dye.

Eosins

Dye or stain	Features
Eosin Y	It is the most often used, also known as eosin Y ws, eosin yellowish, Acid Red 87, C.I.45380, bromoeosine, bromofluoresceic acid, D&C Red No. 22. It has a very slightly yellowish cast. Eosin Y is a tetrabromo derivative of fluorescein.
Eosin B	Eosin bluish, Acid Red 91, C.I. 45400, Saffrosine, Eosin Scarlet, or imperial red. It has a very faint bluish cast. Eosin B is a dibromo dinitro derivative of fluorescein.

Staining

Reagents for Staining

Powdered dyes

Product code	Product name	Application	CAS number	Pack size
254584.1604	**Alcian Blue 8 GX (C.I. 74240) for clinical diagnosis**	For histology, PAS-Alcian Blue staining, certified by the Biological Stain Commission	33864-99-2	5 g
254584.1606				25 g
253708.1606	**Aniline Blue WS (C.I. 42755) for clinical diagnosis**	For collagen staining	28631-66-5	25 g
251758.1608	**Brilliant Green (C.I. 42040) for clinical diagnosis**	Vegetal tissue staining	633-03-4	100 g
131165.1604	**Bromophenol Blue (Reag. USP, Ph. Eur.) for analysis, ACS**	Proteins staining	115-39-9	5 g
131165.1606				25 g
131167.1604	**Bromothymol Blue (Reag. USP) for analysis, ACS**	Vital staining	76-59-5	5 g
131167.1606				25 g
A3480,0025	**Coomassie® Brilliant Blue G-250 (C.I. 42655)**	For electrophoresis	6104-58-1	25 g
A1092,0025	**Coomassie® Brilliant Blue R-250 (C.I. 42660)**	For electrophoresis	6104-59-2	25 g
A1092,0100				100 g
251762.1606	**Crystal Violet (C.I. 42555) for clinical diagnosis**	Bacteria staining	548-62-9	25 g
A1001,0010	**DAPI BioChemica**		28718-90-3	10 mg
A1001,0025				25 mg
A1001,0100				100 mg
251299.1606	**Eosin Yellowish (C.I. 45380) for clinical diagnosis** CE	Vital staining and plasma staining	17372-87-1	25 g
253982.1606	**Erythrosin B (C.I. 45430) for clinical diagnosis**	Proteins, antigen-antibody reactions fluorescent dye	16423-68-0	25 g
251331.1605	**Fuchsin Acidic Disodium Salt (C.I. 42685) for clinical diagnosis**	Blood smear staining	3244-88-0	10 g
251332.1606	**Fuchsin Basic (C.I. 42510) for clinical diagnosis**	Nucleus and Koch's bacilli staining	632-99-5	25 g
251332.1608				100 g
251332.1610				500 g
251765.1606	**Gentian Violet (C.I. 42535+42555) for clinical diagnosis**	Bacteria staining according to Gram	548-62-9	25 g
251765.1609				250 g
251337.1608	**Giemsa stain for clinical diagnosis**	Blood smears and protozoos staining	51811-82-6	100 g
251344.1604	**Hematoxylin 1-hydrate (C.I. 75290) for clinical diagnosis**	Vaginal smear staining	517-28-2	5 g
251344.1606				25 g
251246.1605	**Indigo Carmine (C.I. 73015) for clinical diagnosis**	Nucleus and glycogen staining	860-22-0	10 g

>>

PanReac AppliChem
ITW Reagents

Staining

Product code	Product name	Application	CAS number	Pack size
251761.1608	**Malachite Oxalate Green (C.I. 42000) for clinical diagnosis**	Cytoplasm of vegetal cells staining	2437-29-8	100 g
251170.1606	**Methylene Blue (C.I. 52015) for clinical diagnosis** CE	Bacteriology and cytology	61-73-4	25 g
251170.1608				100 g
251170.1609				250 g
251170.0914				5 kg
251704.1604	**Methyl Green (C.I. 42585) for clinical diagnosis**	Bacteria staining	14855-76-6	5 g
251324.1604	**Orcein for clinical diagnosis**	Chromosome staining	1400-62-0	5 g
251324.1606				25 g
251604.1608	**Rhodamine B (C.I. 45170) for clinical diagnosis**	Fluorescent staining	81-88-9	100 g
A4439,0050	**Rose Bengal (C.I. 45440)**		632-69-9	50 g
251622.1607	**Safranine O (C.I. 50240) for clinical diagnosis** CE	Nucleus staining, according to Gram	477-73-6	50 g
251176.1604	**Toluidine Blue O (C.I. 52040) for clinical diagnosis**	Nucleus and mucosae staining	6586-04-5	5 g
251767.1606	**Wright's Eosin-Methylene Blue dye for clinical diagnosis**	Blood smear staining		25 g

Dyes in solution

Product code	Product name	Composition	Application	Pack size
253998.1210	**Blue for fast staining (Panoptic No. 3) for clinical diagnosis**	Azur B ..... 2 g Buffer solution pH 7 s.q.m. ..... 1 L	Blood smear staining or medullary smear staining	500 mL
253998.1212				2.5 L
255298.1610	**Carazzi's Hematoxylin solution for clinical diagnosis** CE	Hematoxylin ..... 0.1 g Aluminium Potassium Sulfate 12-hydrate ..... 5 g Sodium Iodate ..... 0.02 g Glycerol ..... 20 mL Water s.q.m. ..... 100 mL	Solution for Hematoxylin-Eosin staining, in human and gynaecological samples	500 mL
255298.1212				2.5 L
253999.1210	**Eosin for fast staining (Panoptic No. 2) for clinical diagnosis**	Eosin Yellowish ..... 0.8 g Buffer solution pH 7 s.q.m. ..... 1 L	Blood smear staining or medullary smear staining	500 mL
253999.1212				2.5 L
173149.1207	**Eosin Yellowish solution 2%**	Eosin Yellowish ..... 20 g Water s.q.m. ..... 1 L	Solution for Hematoxylin-Eosin staining	50 mL
176161.1207	**Eosin Yellowish hydroalcoholic solution 2%**	Eosin Yellowish ..... 2 g Ethanol 96% ..... 50 mL Water ..... 50 mL	Solution for Hematoxylin-Eosin staining	50 mL

>>

Staining

Product code	Product name	Composition	Application	Pack size
256879.1210	**Eosin Yellowish alcoholic solution 1% for clinical diagnosis** CE	Eosin Yellowish ..... 10 g Acetic Acid glacial ..... 1 mL Water ..... 50 mL Ethanol 96% ..... 1 L	Solution for Hematoxylin-Eosin staining, in human and gynecological samples	500 mL
256879.1212				2.5 L
251301.1609	**Eosin Yellowish hydroalcoholic solution 1% for clinical diagnosis** CE	Eosin Yellowish ..... 1 g Ethanol absolute ..... 10 mL Water ..... 90 mL	Solution for Hematoxylin-Eosin staining, in human and gynecological samples	250 mL
251301.1211				1 L
254101.1210	**Fixing for fast staining (Panoptic No. 1) for clinical diagnosis**	Crystal Violet ..... 2 mg Methanol s.q.m. ..... 1 L	Blood smear staining or medullary smear staining	500 mL
254101.1212				2.5 L
251766.1609	**Gentian Violet Phenique for clinical diagnosis**	Gentian Violet ..... 0.67 g Phenol ..... 2.05 g Ethanol absolute ..... 11.7 mL Water ..... 100 mL	Bacteria staining according to Gram-Nicolle	250 mL
251338.1608	**Giemsa's Azur-Eosin-Methylene Blue solution (slow) for clinical diagnosis** CE	Azur-Eosin-Methylene Blue dye according to Giemsa ..... 0.5 g Methanol ..... 50 mL Glycerol ..... 50 mL	Blood smear and protozoos staining	100 mL
251338.1610				500 mL
251338.1611				1 L
251338.1612				2.5 L
252532.1609	**Gram-Hucker's Crystal Violet Oxalate solution for clinical diagnosis** CE	Crystal Violet ..... 20 g Ammonium Oxalate ..... 8 g Ethanol ..... 200 mL Water ..... 800 mL	Bacteria staining according to Gram-Hucker	250 mL
252532.1211				1 L
252531.1209	**Gram-Hucker's Safranine O solution for clinical diagnosis** CE	Safranine O ..... 0.25 g Ethanol absolute ..... 10 mL Water s.q.m. ..... 100 mL	Bacteria staining according to Gram-Hucker	250 mL
252531.1211				1 L
253949.1610	**Harris Hematoxylin solution for clinical diagnosis** CE	Mercury(II) Oxide yellow ..... 250 mg Hematoxylin ..... 500 mg Aluminium Potassium sulfate 12-hydrate ..... 10 g Ethanol 96% ..... 16 mL Water ..... 88 mL	Solution for Hematoxylin-Eosin staining, in human and gynaecological samples	500 mL
253949.1611				1 L
253949.1612				2.5 L
256991.1610	**Harris Hematoxylin modified solution for clinical diagnosis** CE		Solution for Hematoxylin-Eosin staining, in human and gynaecological samples, mercury free	500 mL
256991.1212				2.5 L

>>

Staining

Product code	Product name	Composition	Application	Pack size
251172.1209	**Kühne's Methylene Blue Phenicated solution for clinical diagnosis**	Methylene Blue ..... 9 g Ethanol absolute ..... 90 mL Phenol ..... 26 mL Water ..... 1 L	Determination of size and shape of bacteria present in samples of human origin	250 mL
251172.1211				1 L
253724.1608	**Lactophenol Blue solution for clinical diagnosis**	Methyl Blue ..... 50 mg Phenol ..... 25 g L(+)-Lactic Acid ..... 20.8 mL Glycerol ..... 39.5 mL Water s.q.m. ..... 100 mL	Staining of fungi	100 mL
254766.1610	**Mayer's Hematoxylin solution for clinical diagnosis**	Hematoxylin ..... 1.0 g Aluminium Potassium Sulfate 12-hydrate ..... 50 g Sodium Iodate ..... 0.2 g Chloral hydrate ..... 50 g Citric Acid anhydrous ..... 1 g Water ..... 1 L	Nuclear staining for cytology	500 mL
254766.1211				1 L
251416.1610	**May Grünwald's Eosin-Methylene Blue solution for clinical diagnosis**	May Grünwald's Eosin-Methylene Blue dye ..... 0.25 g Methanol s.q.m. ..... 100 mL	Blood smear staining	500 mL
251416.1611				1 L
251416.1612				2.5 L
281618.1208	**Methyl Red solution 0.1% for volumetric analysis**	Methyl Red ..... 1 g Ethanol 70% ..... 1 L	Indicator dye	100 mL
251993.1208	**Orcein solution A hydroacetic-hydrochloric solution for clinical diagnosis**	Orcein ..... 2.0 g Acetic Acid ..... 45.8 mL Hydrochloric Acid 1 mol/L ..... 8.3 mL Water ..... 45.8 mL	Chromosome staining	100 mL
251994.1208	**Orcein solution B hydroacetic solution for clinical diagnosis**	Orcein ..... 2.0 g Acetic Acid ..... 55 mL Water ..... 55 mL	Chromosome staining	100 mL
253594.1610	**Papanicolaou's Solution EA 50 for clinical diagnosis**	Light Green SF yellowish ..... 58 mg Bismark Brown R ..... 40 mg Eosin Yellowish ..... 0.225 g Phosphotungstic Acid hydrate . 0.17 g Acetic Acid glacial ..... 0.1 g Methanol ..... 93 mL Water ..... 7 mL	For cytology, cytoplasm staining	500 mL
253594.1611				1 L
253594.1612				2.5 L

>>

Staining

Product code	Product name	Composition	Application	Pack size
253892.1610	**Papanicolaou's Solution OG 6 for clinical diagnosis** CE	Orange G ..... 0.2 g Phosphotungstic Acid hydrate .0.02 g Ethanol absolute ..... 88.5 mL Water ..... 11.5 mL	For cytology, cytoplasm staining of mature and keratinized cells	500 mL
253892.1611				1 L
253892.1612				2.5 L
251588.1211	**Schiff's Reagent for clinical diagnosis**	Pararosaniline .....0.1 g Sodium Sulfite solution 10% ..... 10 mL Hydrochloric Acid 35% ..... 3 mL Water ..... 50 mL	For detection of carbohydrate	1 L
253453.1210	**Weigert's Hematoxylin solution A for clinical diagnosis**	Hematoxylin ..... 1 g Ethanol absolute ..... 100 mL	Nucleus staining	500 mL
253454.1210	**Weigert's Hematoxylin solution B for clinical diagnosis**	Iron(III) Chloride 30% aqueous solution ..... 4 mL Hydrochloric Acid 35% ..... 1 mL Water s.q.m. ..... 100 mL	Nucleus staining	500 mL
251333.1609	**Ziehl-Neelsen Carbol-Fuchsin Basic solution for clinical diagnosis** CE	Basic Fuchsin ..... 0.74 g Phenol ..... 5 mL Ethanol absolute ..... 10 mL Water s.q.m. ..... 100 mL	Bacteria staining according to Gram-Nicolle and Ziehl-Neelsen, contrast dye	250 mL
251333.1611				1 L

Mounting

Mounting and immersion media

Mounting media interposes between the slide and the coverslip to avoid the contact of the preparation with the environmental air to preserve the sample.

Immersion media are liquids that are frequently natural oils and which have a defined refractive index. It is important that the **refractive index** (nD) is about 1.5, the figure for glass. This enables a homogeneous oil immersion to be achieved.

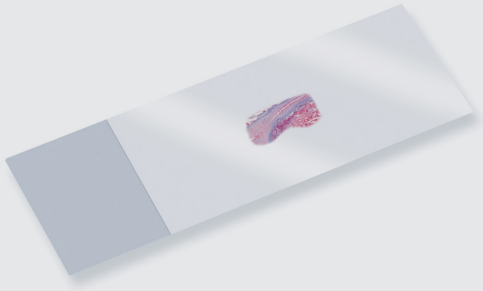
Key Factors:

1. Index refraction Mounting medium = Index refraction Clearing agent

2. Chemical compatibility Clearing agent – Mounting medium

Once the preparations have been cleared, they must be **definitively mounted**. Mounting agents can be aqueous and non-aqueous; the type used depends on the protocol involved.

The mounting media should be chosen being the refractive index as close as possible to that of the liquid impregnating the cut tissue.



Mounting media

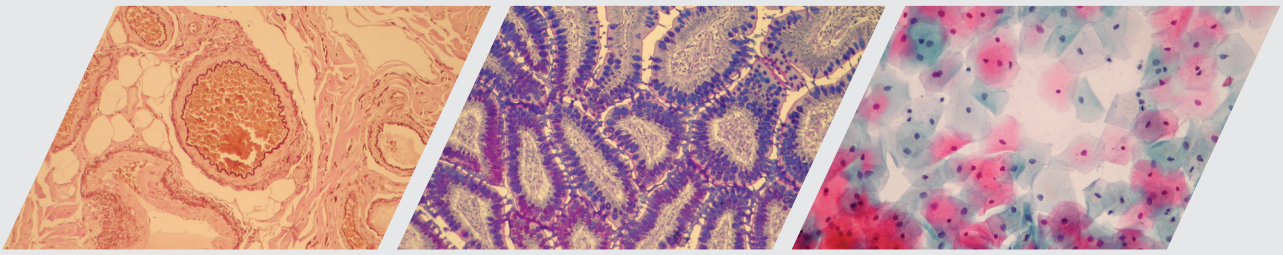
Product code	Product name	Refractive Index (20 °C) n^{20}_D	Application	CAS number	Pack size
251179.1608	**Canada Balsam for clinical diagnosis** CE	1.520 - 1.523	Natural vegetable resin for mounting	8007-47-4	100 mL
251179.1611					1 L
255254.1608	**DPX, mounting medium fast (toluene base) for clinical diagnosis**	1.515 - 1.525	Non-aqueous mounting medium		100 mL
255254.1610					500 mL
253681.0008	**Eukitt®, mounting medium for clinical diagnosis**	1.493 - 1.496	Adhesive and specimen preservative that can be used manually and in automated cover slipping equipment, fast drying		100 mL
253681.0010					500 mL
255598.0010	**Histofluid®, mounting medium for clinical diagnosis**	1.493 - 1.496	Histofluid is a transparent acrylic adhesive dissolved in xylene that hardens quickly, it does not fluoresce		500 mL
255811.0008	**Mounting Medium for substitutes of xylene for clinical diagnosis**		For mounting samples cleared with substitutes of xylene		100 mL

Immersion media

Product code	Product name	Refractive Index (20 °C) n^{20}_D	Application	CAS number	Pack size
A6586,0100	**Immersion Oil from cedarwood**	1.496 - 1.516	Immersion oil for microscopy		100 mL
251002.1207	**Immersion Oil for clinical diagnosis**	1.477 - 1.481	Immersion oil for microscopy	8001-79-4	50 mL
251002.1208					100 mL

Reagents for Histology

Histology is the study of the cellular organization of body tissues and organs. The **light microscope** is the tool used most widely for clinical applications of histology. However, the advent of the **electron microscope** greatly extended the detail at which subcellular structure can be studied. Thus, histology now embraces the study of the structures of both **tissue and cells,** and the **relationship between these structures and physiological function.**



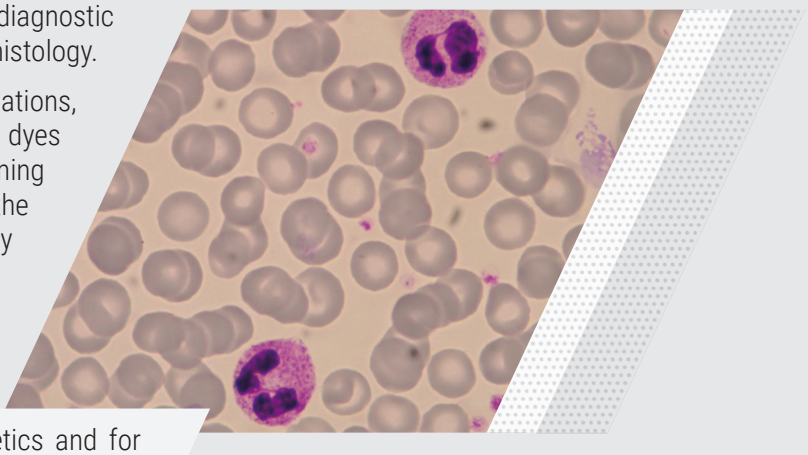
Many **staining techniques** were initially developed empirically to analyze **sections of tissue**. Staining and recognition of cell nuclei, cytoplasm and intracellular and extracellular components became possible thanks to the development of increasingly specific staining mixtures.

Classic techniques are still adequate in most cases of diagnoses. In few cases nevertheless, when the diagnosis can not be considered trustable, additional methods should be used. Later on **differential staining and visualization techniques** were developed. These allowed to evaluate the morphological criteria and the additional functional properties, which makes the diagnosis more reliable. These techniques include histochemical staining, immunohistochemical methods, DNA hybridization, fluorescent in situ hybridization, PCR, flow cytometry, etc.

Giemsa stain

Giemsa stain is frequently used for diagnostic purposes in the areas of hematology and histology.

In histology and clinic-cytological applications, Giemsa's staining without additional dyes is used as an extended overview staining method. In this method, the color of the various cell components is influenced by pretreatment of the specimen material. Here, cell nuclei appear in various blue shades.

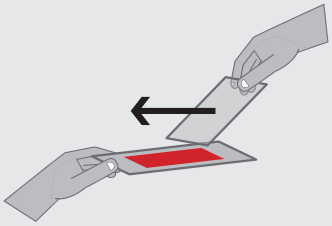


Giemsa stain is used in cytogenetics and for the histopathological diagnosis of malaria and other parasites.

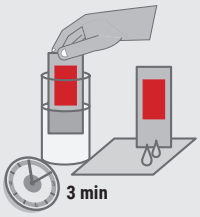
Giemsa stain

Product code	Product name	Composition	Application	Pack size
251338.1608	**Giemsa's Azur-Eosin-Methylene Blue solution (slow) for clinical diagnosis** CE	Azur-Eosin-Methylene Blue dye according to Giemsa ..... 0.5 g Methanol ..... 50 mL Glycerol ..... 50 mL	Diagnosis of malaria and other parasites	100 mL
251338.1610				500 mL
251338.1611				1 L
251338.1612				2.5 L

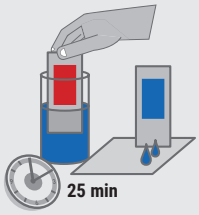
Giemsa staining procedure



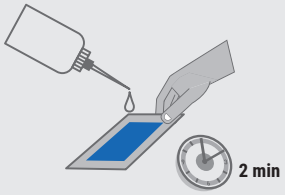
1. Once the sample has been extended on a slide, let it air dry (1-2 h approx.).



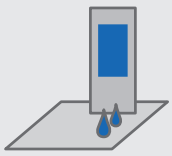
2. Fix the slide with methanol for 3 min. Drain and let it air dry.



3. Stain with Giemsa's Azur-Eosin-Methylene Blue solution diluted with Buffer solution, pH 7.2 (1:10) for 25 min.



4. Wash with Buffer solution, pH 7.2 for 2 min.



5. Let it air dry in a vertical position.

6. Observe under a microscope.

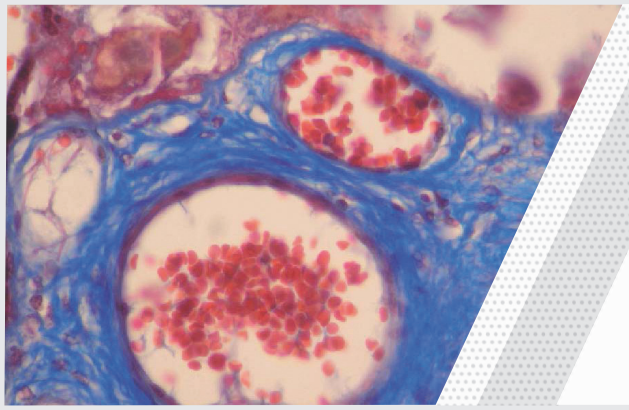
Results

Erythrocytes	Salmon pink
Platelets	Violet

Type of leukocytes	Nucleus	Cytoplasm	Granules
Neutrophils	Red - violet	-	Violet
Eosinophils	Red - violet	-	Red - brown
Basophils	Red - violet	-	Dark violet to black
Monocytes	Red - violet	Blue - gray	-
Lymphocytes	Violet	Blue	-

Masson's Trichrome staining

Masson Trichrome Kit is indicated for connective tissue staining. It colors gametes, nuclei, neurofibres, neuroglia, collagen and keratin.



Masson's Trichrome kit is indicated for staining connective tissue. **It stains gametes, nuclei, nerve fibres, neuroglias, collagen, keratin and intracellular fibres.** It can also be used to obtain a negative image of the Golgi apparatus.

Collagen fibres are the most common elements found in connective tissue. They play a basic support role and are synthesized by numerous cell elements in the organism, including fibroblasts.

Main advantages

- All reagents used during staining are ready for use
- Supplied in easy-to-use 30 mL dropper bottles.
- Optimal sample staining.
- Sufficient quantity to perform up to 100 tests.
- No additional equipment required.
- The kit is stable for 10 months. Store the product at between 15 °C and 25 °C.

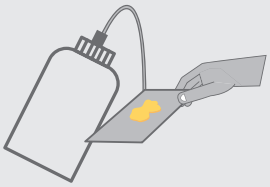
CE IVD

Masson's trichrome stain with aniline blue contains four different dyes:

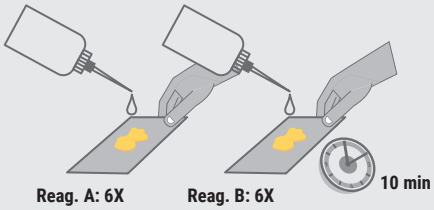
- Weigert's iron hematoxylin for the nucleus.
- Picric acid for the erythrocytes.
- A mixture of acid dyes for the cytoplasm.
- Aniline blue for the connective tissue.

Product code	Product name	Composition	Application	Pack size
256692.0922	**Masson's Trichrome Kit for clinical diagnosis** CE	Reag. A: Hematoxylin sol. B (Weigert) ..... 30 mL Reag. B: Hematoxylin sol. A (Weigert) ..... 30 mL Reag. C: Picric acid alcoholic solution ..... 30 mL Reag. D: Biebrich Scarlet solution ..... 30 mL Reag. E: Phosphomolybdic acid solution ... 30 mL	Indicated for connective tissue staining	1 kit (100 tests)

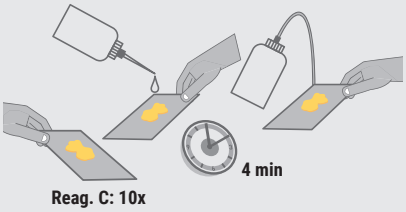
Masson's staining procedure



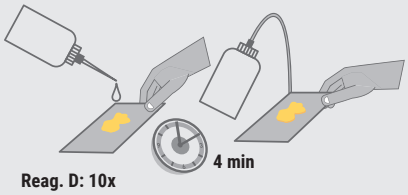
1. Deparaffin and hydrate the histological section until distilled water is achieved.



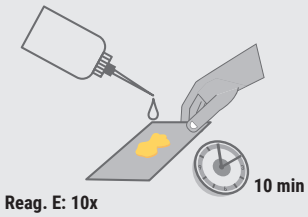
2. Add 6 drops of Reagent A to the preparation. Add 6 drops of Reagent B. Allow to react for 10 minutes.



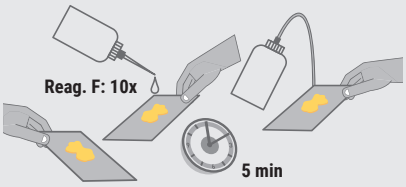
3. Without washing, drain the preparation and add 10 drops of Reagent C. Allow to react for 4 minutes. Wash rapidly (3-4 seconds) with distilled water.



4. Add 10 drops of Reagent D. Allow to react for 4 minutes. Wash with distilled water.



5. Add 10 drops of Reagent E. Allow to react for 10 minutes.



6. Without washing, drain the preparation and add 10 drops of Reagent F. Allow to react for 5 minutes. Wash with distilled water.

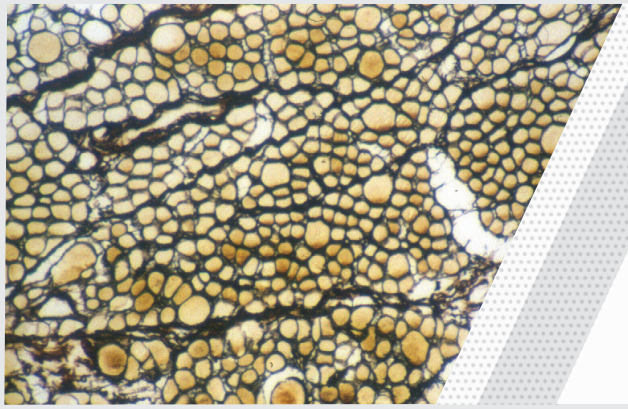
7. Dehydrate using an increasing series of alcohols. Immerse in absolute alcohol for 1 minute. Rinse with xylene, mount and observe under the microscope.

Results

Nuclei and gamets	Black
Cytoplasm, keratin, muscle fibers, acidophilic granulations	Red
Collagen, mucus, basophilic pituitary granulations	Blue
Hypophysis delta cell granules	Blue-violet
Erythrocytes	Yellow

PanReac AppliChem
ITW Reagents

Reticulin fiber Staining Kit



Reticulin is a mesh of fine fibers which provide support to the tissues. The Reticulin Kit is used for visualizing the presence of reticulin by impregnation with a silver salt.

The tissue is first oxidized and sensitized with iron alum, which is replaced with a silver salt. The silver is then reduced with a formaldehyde solution, which shows up the metallic silver. Finally, the excess silver which has not been reduced is dissolved using a sodium thiosulphate solution.

If the process has been carried out correctly, the background of the preparation will be almost colorless and the reticulin fibers and nerve fibers will be stained brownish-black and the collagen will be yellow.

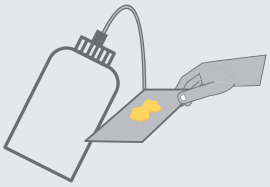
Product code	Product name	Composition	Application	Pack size
255115.0922	**Reticulin Kit for clinical diagnosis** CE	Reag. A: Potassium Permanganate solution ..... 25 mL Reag. B: Acid solution ..... 25 mL Reag. C: Oxalic Acid solution ..... 25 mL Reag. D: Ferric Ammonium Sulfate solution ..... 25 mL Reag. E: Ammoniacal Silver Nitrate solution ..... 25 mL Reag. F: Formaldehyde solution ..... 25 mL Reag. G: Sodium Thiosulfate solution ..... 25 mL	For visualizing the presence of reticulin in tissues	1 kit (50 tests)

Main advantages

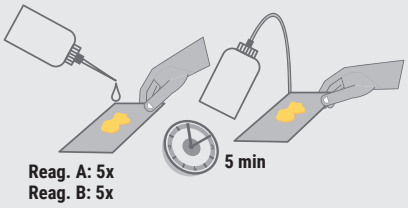
- All reagents required for staining are ready for use.
- Provided in convenient, easy-to-use dropper bottles.
- Optimal sample staining.
- Quantity sufficient for 50 tests.
- No need for extra equipment.
- The Reticulin Kit is stable for 1 year.
- For in vitro diagnostic use only.
- Store between 2 °C and 8 °C.

CE IVD

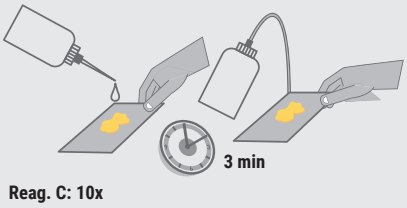
Reticulin fiber staining procedure



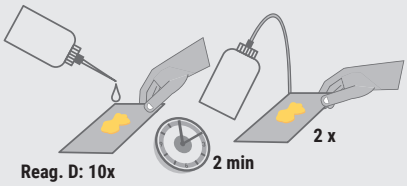
1. Hydrate the section to distilled water.



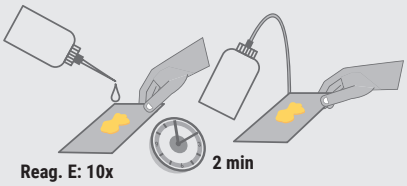
2. Put 5 drops of Reagent A on the section and add 5 drops of Reagent B: let it work for 5 minutes. Rinse the slide in distilled water.



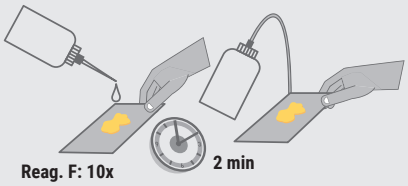
3. Put on the section 10 drops of Reagent C, let it work for 3 minutes and rinse in distilled water.



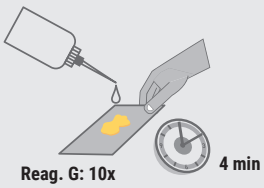
4. Put on the section 10 drops of Reagent D, let it work for 2 minutes. Rinse twice in distilled water.



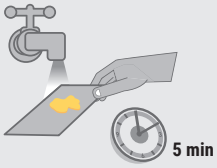
5. Impregnate the section with 10 drops of Reagent E, let it work for 2 minutes and rinse in distilled water.



6. Develop putting on the section 10 drops of Reagent F, let it work for 2 minutes. Rinse in distilled water.



7. Put on the section 10 drops of Reagent G, let it work for 4 minutes.



8. Wash in running tap water for 5 minutes.

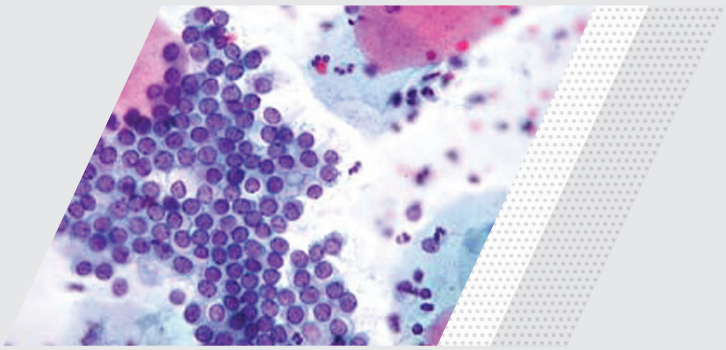
9. Dehydrate on the ascending scale of alcohol, clear in xylene and mount.

Results

Reticulin and nervous fibers	Black
Connective tissue	Brown
Collagen	Yellow

Reagents for Cytology

Cytology is a technique used to differentiate tumors from other degenerative or inflammatory diseases.



The advantages of the cytologic method:

1. Samples easy to obtain for analysis
2. Relatively easy to process the samples
3. Highly specific and precise

These advantages that make cytology suitable for screening, have already led to a very important reduction in the incidence of cervical cancer.

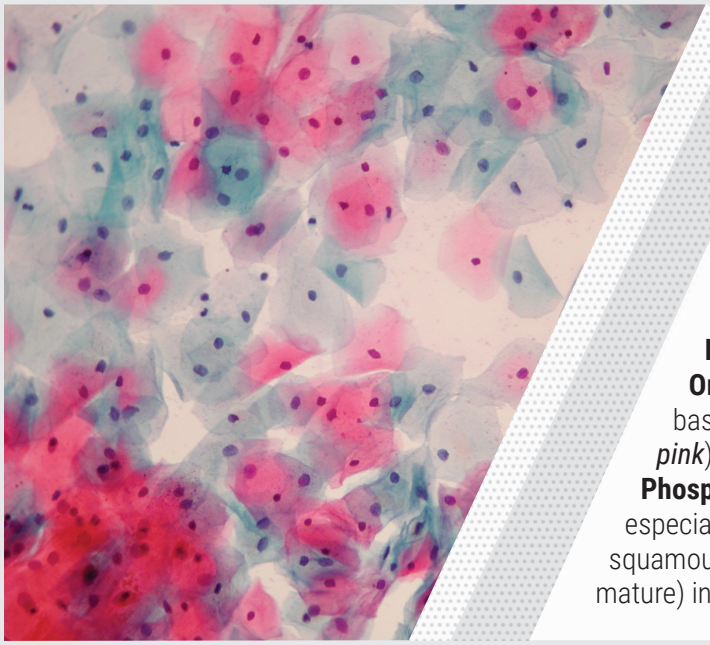
The degree of acceptance of gynecological cytology has been achieved mainly thanks to the work done during the first half of the 20th century by Dr. George N. Papanicolaou.

Papanicolaou Stain

Early detection of cervical or vaginal cancer.

This technique involves the use of three different solutions: Hematoxylin, Papanicolaou OG solution and Papanicolaou solution EA.

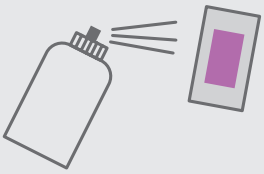
Hematoxylin is the chosen nuclear staining, basically allows to reveal the nuclei of the cells present in the sample. **Harris Hematoxylin** is typically used.



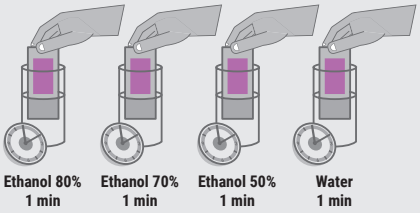
Papanicolaou's Solution EA 50, contains **Yellowish Eosin** that stains cytoplasm of mature squamous cells, hair cells and erythrocytes into ***pink-orange*** and **Bismark Brown R** that stains mucin and **light Green SF** that stains squamous non-superficial cells (immature or partially mature) into ***greenish-blue.***

Papanicolaou's Solution OG 6, contains **Orange G**, a synthetic acid dye that reveals basic compounds such as prekeratine (that stains ***pink***) or keratin (that stains ***bright orange***) and **Phosphotungstic acid**, that has a mordant function, especially important for Green Light SF that stains squamous non-superficial cells (immature or partially mature) into ***greenish-blue***.

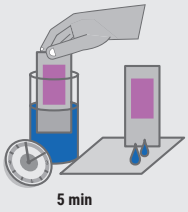
Papanicolaou Staining procedure



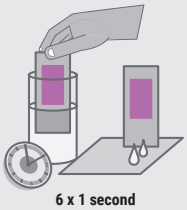
1. Fix the sample with spray.



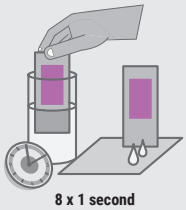
2. Submerge successively in alcohol 80%, alcohol 70%, alcohol 50% and water, 1 minute in each liquid.



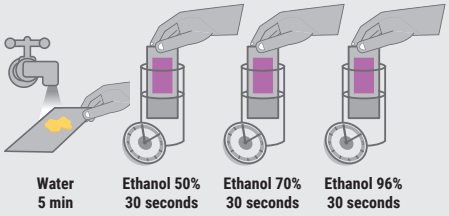
3. Stain with Harris Hematoxylin solution for approximately 5 minutes.



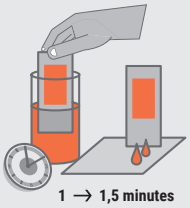
4. Immerse in water 6 times for 1 second.



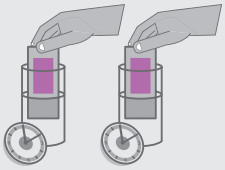
5. Submerge in 0.5% Hydrochloric Acid, 8 times for 1 second.



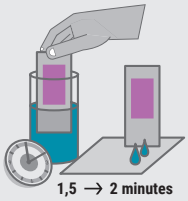
6. Rinse with tap water for 5 minutes, and pass the sample through successive grade alcohols, 50%, 70%, 80% and 96% for 30 seconds in each of them.



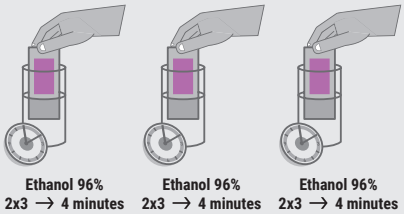
7. Stain with Papanicolaou OG 6 for 1 to 1.5 minutes.



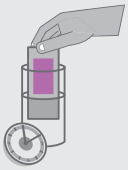
8. Wash the excess dye in two 96% ethanol baths by immersing the preparation 2 times in each of 3 to 4 seconds.



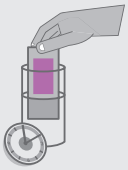
9. Stain with Pap Smear or EA 50 for 1.5 to 2 minutes.



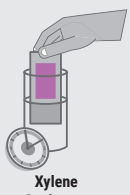
10. Wash in 3 different containers of ethanol 96% v/v by immersing the preparation 2 times of 3 to 4 seconds in each of them.



11. Wash in absolute ethanol for 30 seconds.



12. Immerse the preparation for 4 minutes in a 1:1 bath of Xylene, mixture of isomers and absolute ethanol.



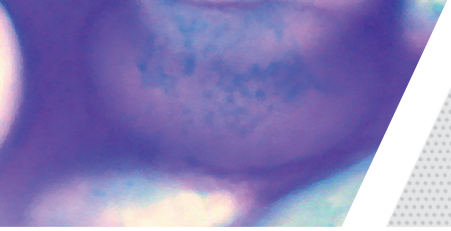
13. Rinse with Xylene, mixture of isomers by immersing the preparation for 3 minutes in a bath.

14. Mount with Mounting medium and observe under a microscope.

Reagents for Papanicolaou Staining

Product code	Product name	Composition	Application	CAS number	Pack size
251085.1212	**Ethanol 96% v/v for clinical diagnosis*** CE		Fixing, dehydrating	64-17-5	2.5 L
251085.1214					5 L
253949.1610	**Harris Hematoxylin solution for clinical diagnosis** CE	Mercury(II) Oxide yellow ..... 250 mg Hematoxylin ..... 500 mg Aluminium Potassium sulfate 12-hydrate ..... 10 g Ethanol 96% ..... 16 mL Water ..... 88 mL	Solution for Hematoxylin-Eosin staining, in human and gynaecological samples		500 mL
253949.1611					1 L
253949.1612					2.5 L
253594.1610	**Papanicolaou's Solution EA 50 for clinical diagnosis** CE	Light Green SF yellowish ..... 58 mg Bismark Brown R ..... 40 mg Eosin Yellowish ..... 0.225 g Phosphotungstic Acid hydrate .. 0.17 g Acetic Acid glacial ..... 0.1 g Methanol ..... 93 mL Water ..... 7 mL	Cytoplasm staining		500 mL
253594.1611					1 L
253594.1612					2.5 L
253892.1610	**Papanicolaou's Solution OG 6 for clinical diagnosis** CE	Orange G ..... 0.2 g Phosphotungstic Acid hydrate .. 0.02 g Ethanol absolute ..... 88.5 mL Water ..... 11.5 mL	Cytoplasm staining of mature and keratinized cells		500 mL
253892.1611					1 L
253892.1612					2.5 L
131074.1211	**Water for analysis, ACS**		Cleaning, rinsing	7732-18-5	1 L
131074.1212					2.5 L
131074.1214					5 L
131074.1315					10 L
131074.0716					25 L
131074.0718					60 L
131074.0719					200 L

**Check availability in your country*



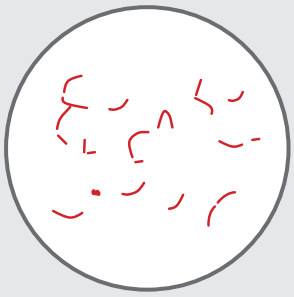
PanReac AppliChem
ITW Reagents

Reagents for Clinical Microbiology

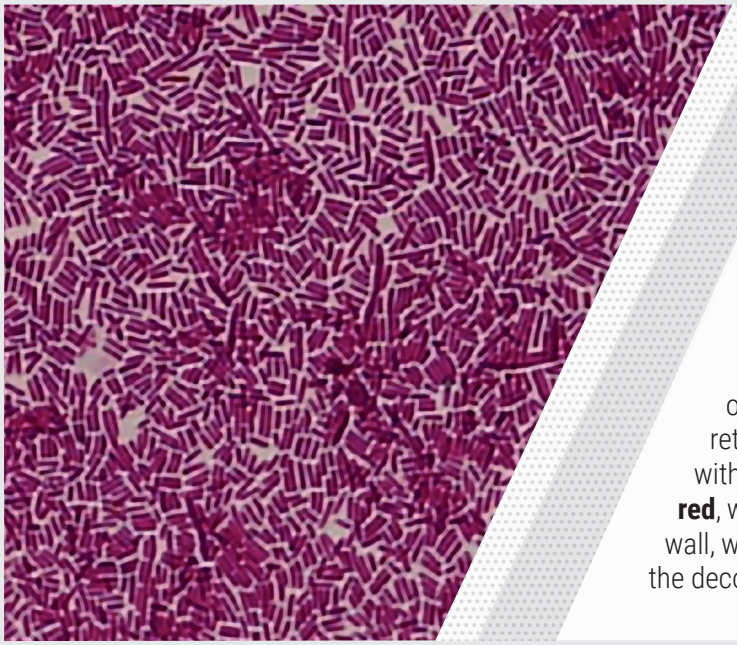
Microbiology is an independent discipline within the scope of **clinical diagnosis** and **industrial quality control.** In order to make microorganisms suitable for microscopic analysis they have to be stained with suitable dyes. Gram-staining and the detection of mycobacteria are of particular importance. Bacterial staining, with the exception of supra-vital staining (e.g. fluorescent staining), is carried out on heat-fixed cells.

Gram Staining
For differentiation of gram positive and gram negative bacteria.

Gram positive bacteria

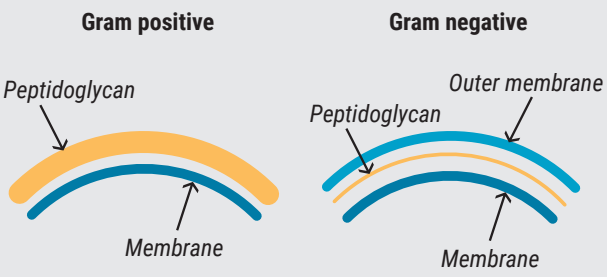


Gram negative bacteria



Gram staining is a common technique used to differentiate two large groups of bacteria based on their different cell wall constituents. The Gram stain procedure distinguishes between **Gram positive and Gram negative** groups by coloring these cells red or violet. **Gram positive bacteria stain violet** due to the presence of a thick layer of peptidoglycan in their cell walls, which retains the crystal violet these cells are stained with. Alternatively, **Gram negative bacteria stain red**, which is attributed to a thinner peptidoglycan wall, which does not retain the crystal violet during the decoloring process.

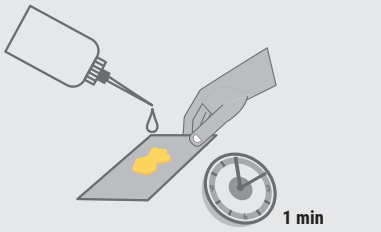
Gram–Hucker stain is the most widely used stain in microbiology to differentiate between Gram-positive and Gram-negative bacteria on the basis of their color retention.



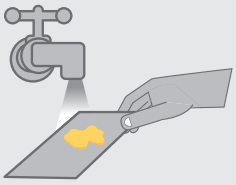
Gram–Nicolle stain is a differential staining in which the Basic Carbolic Fuchsin is used as an alternative contrast dye to Safranin to reveal certain Gram-negative microorganisms which, although colored, do so very faintly.

Example Gram Positive: Bacillus, Listeria, Staphylococcus, Streptococcus, Enterococcus, Clostridium and Mycoplasma.
Example gram Negative: Cyanobacteria, spirochaetes, and green sulfur bacteria.

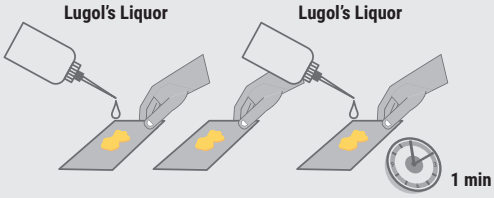
Gram staining procedure



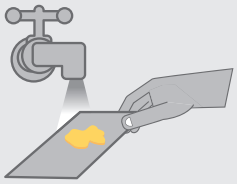
1.



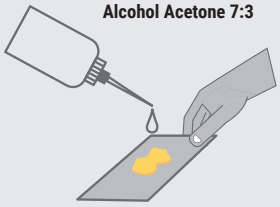
2.



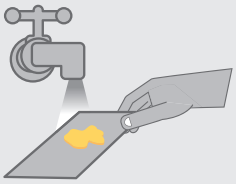
3.



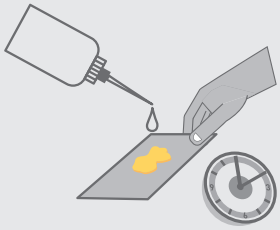
4.



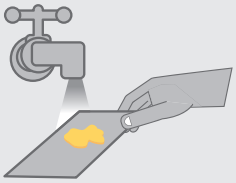
5.



6.



7.



8.

9.

For Gram Hucker Procedure:
Step 1: Cover the preparation with Cristal Violet Oxalate Gram-Hucker solution for 1 minute.
Step 7: Cover the preparation with Safranine O solution according to Gram-Hucker for 1 minute.

For Gram Nicolle Procedure:
Step 1: Cover the preparation with the Carbolic Gentian Violet for 1 to 5 minutes.
Step 7: Coat with Carbolic-Fuchsin Basic solution according to Ziehl diluted for 30 seconds.

Results

Gram Hucker	Gram (+)	Blue violet
	Gram (-)	Orange
Gram Nicolle	Gram (+)	Blue violet
	Gram (-)	Red

Gram Hucker Staining Kit

For differentation of gram positive and gram negative bacteria.

PanReac AppliChem offers all the reagents required for this staining, in kit format, with easy-to-use dropper bottles. The kit meets the CE marking requirements for in vitro diagnostic medical devices

Main advantages

- Easy-to-use 100 or 250 mL dropper.
- Easy, clean liquid dosing.
- Optimal bacterial staining.
- Supplied in a practical case with handle.

CE IVD

Product code	Product name	Composition	Pack size
256649.0922	**Gram-Hucker's Staining Kit (droppers) for clinical diagnosis** CE	Alcohol-Acetone 7:3 ..... 250 mL Lugol's liquor ..... 100 mL Gram-Hucker's Safranine O solution ..... 100 mL Gram-Hucker's Crystal Violet Oxalate solution ..... 100 mL	1 kit

Reagents for Gram Staining

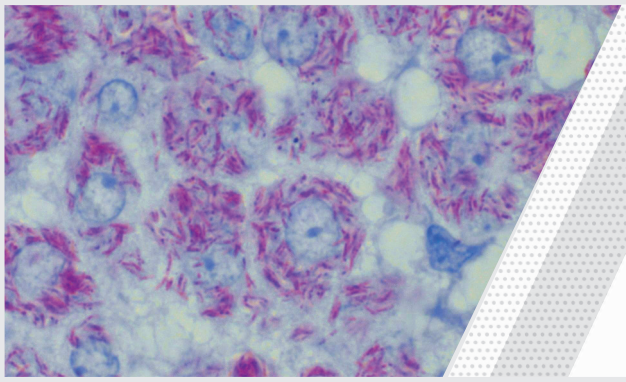
Product code	Product name	Composition	Gram Hucker	Gram Nicolle	CAS number	Pack size
251803.1211	**Alcohol-Acetone 7:3 for clinical diagnosis** CE	Ethanol absolute ..... 70 mL Acetone ..... 30 mL	●	●		1 L
251762.1606	**Crystal Violet (C.I. 42555) for clinical diagnosis**		●		548-62-9	25 g
252532.1609	**Gram-Hucker's Crystal Violet Oxalate solution for clinical diagnosis** CE	Crystal Violet ..... 20 g Ammonium Oxalate ..... 8 g Ethanol ..... 200 mL Water ..... 800 mL	●			250 mL
252532.1211						1 L
251085.1212	**Ethanol 96% v/v for clinical diagnosis*** CE		●	●	64-17-5	2.5 L
251085.1214						5 L
251766.1609	**Gentian Violet Phenique for clinical diagnosis**	Gentian Violet ..... 0.67 g Phenol ..... 2.05 g Ethanol absolute ..... 11.7 mL Water ..... 100 mL		●		250 mL

**Check availability in your country*

>>

Product code	Product name	Composition	Gram Hucker	Gram Nicolle	CAS number	Pack size
256977.1609	**Lugol's Liquor with 0.33% of Iodine (diluted) for clinical diagnosis** CE	Iodine ..... 0.333 g Potassium Iodide ..... 0.666 g/L Water s.q.m. ..... 100 mL	●	●		250 mL
251774.1608	**Lugol's Liquor with 0.4% of Iodine (diluted) for clinical diagnosis**	Potassium Iodide ..... 0.66 g Iodine ..... 0.4 g Water s.q.m. ..... 100 mL	●	●		100 mL
251774.1609						250 mL
251774.1611						1 L
257041.1608	**Lugol's Liquor with 5% of Iodine (concentrated) for clinical diagnosis**	Iodine ..... 5 g Potassium Iodide ..... 10 g Water s.q.m. ..... 100 mL	●	●		100 mL
257041.1610						500 mL
257041.1611						1 L
131091.1211	**Methanol (Reag. Ph. Eur.) for analysis, ACS, ISO**		●	●	67-56-1	1 L
131091.1611						1 L
131091.1212						2.5 L
131091.1612						2.5 L
131091.1214						5 L
131091.0716						25 L
251622.1607	**Safranine O (C.I. 50240) for clinical diagnosis** CE		●	●	477-73-6	50 g
252531.1209	**Gram-Hucker's Safranine O solution for clinical diagnosis** CE	Safranine O ..... 0.25 g Ethanol absolute ..... 10 mL Water s.q.m. ..... 100 mL	●			250 mL
252531.1211						1 L
131074.1211	**Water for analysis, ACS**		●	●	7732-18-5	1 L
131074.1212						2.5 L
131074.1214						5 L
131074.1315						10 L
131074.0716						25 L
131074.0718						60 L
131074.0719						200 L
251333.1609	**Ziehl-Neelsen Carbol-Fuchsin Basic solution for clinical diagnosis** CE	Basic Fuchsin ..... 0.74 g Phenol ..... 5 mL Ethanol absolute ..... 10 mL Water s.q.m. ..... 100 mL		●		250 mL
251333.1611						1 L

Ziehl-Neelsen Stain - Acid fast bacilli staining



The Ziehl–Neelsen stain, also known as the acid-fast stain is a special bacteriological stain used to identify acid-fast organisms, mainly *Mycobacteria*. *Mycobacterium tuberculosis* is the most important of this group because it is responsible for tuberculosis.

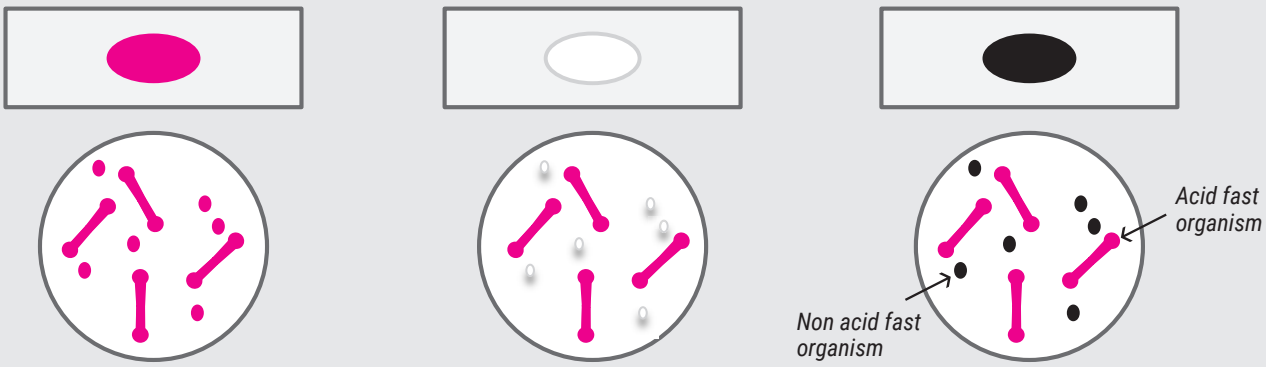
Ziehl-Neelsen staining procedure

1. Color with Ziehl-Neelsen Carbol-Fuchsin Basic solution according to Ziehl for 30 min at room temperature.

2. Decolor with 8:2 alcohol-hydrochloric acid until the sections appear pale pink.

3. Contrast by immersing the foil in the solution of methylene blue diluted for 30 seconds.

4. Dehydrate rapidly with 96% ethanol and absolute ethanol, 2 changes each, rinse with 2 xylene changes, 2 minutes each.

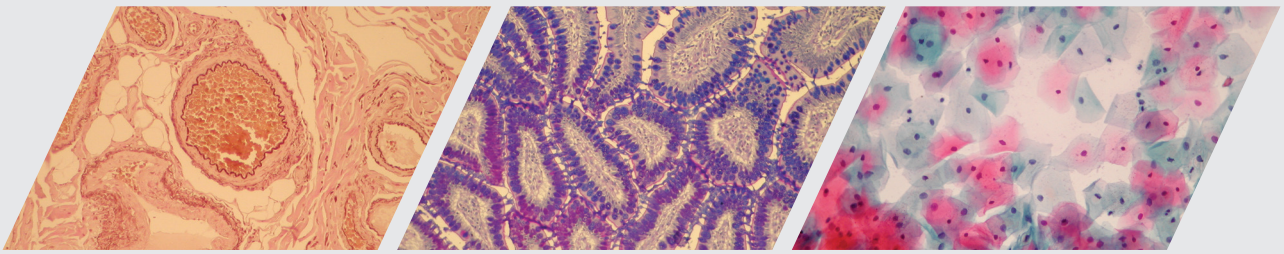


Results

Acid-fast bacilli	Red
Erythrocytes	Orange yellow
Other Tissue Elements	Blue

Reagents for Ziehl-Neelsen Staining

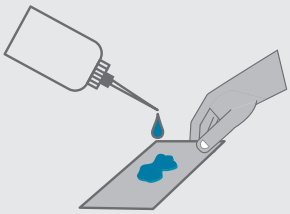
Product code	Product name	Composition	Application	CAS number	Pack size
251804.1210	**Alcohol-Hydrochloric 8:2 for clinical diagnosis** CE		Decoloring agent		500 mL
257097.1211	**Hydrochloric Acid-Alcohol - Mixture (0.75% HCl) solution for clinical diagnosis**		Decoloring agent		1L
251170.1606	**Methylene Blue (C.I. 52015) for clinical diagnosis**		Coloring agent (blue)	61-73-4	25 g
251170.1608					100 g
251170.1609					250 g
251170.0914					5 kg
131074.1211	**Water for analysis, ACS**		Cleaning, rinsing	7732-18-5	1 L
131074.1212					2.5 L
131074.1214					5 L
131074.1315					10 L
131074.0716					25 L
131074.0718					60 L
131074.0719					200 L
251333.1609	**Ziehl-Neelsen Carbol-Fuchsin Basic solution for clinical diagnosis** CE	Basic Fuchsin ..... 0.74 g Phenol ..... 5 mL Ethanol absolute ..... 10 mL Water s.q.m. ..... 100 mL	Staining solution (red)		250 mL
251333.1611					1 L



Other staining solutions used for clinical microbiology

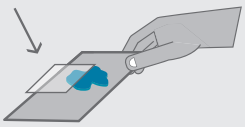
Product code	Product name	Composition	Application	Pack size
251172.1209	**Kühne's Methylene Blue Phenicated solution for clinical diagnosis**	Methylene Blue ..... 9 g Ethanol absolute ..... 90 mL Phenol ..... 26 mL Water ..... 1 L	Determination of size and shape of bacteria present in samples of human origin.	250 mL
251172.1211				1 L
253724.1608	**Lactophenol Blue solution for clinical diagnosis**	Methyl Blue ..... 50 mg Phenol ..... 25 g L(+)-Lactic Acid ..... 20.8 mL Glycerol ..... 39.5 mL Water s.q.m. ..... 100 mL	Staining of fungi, the material is stained in a single step and fungi appear dark blue	100 mL

Lactophenol Blue procedure



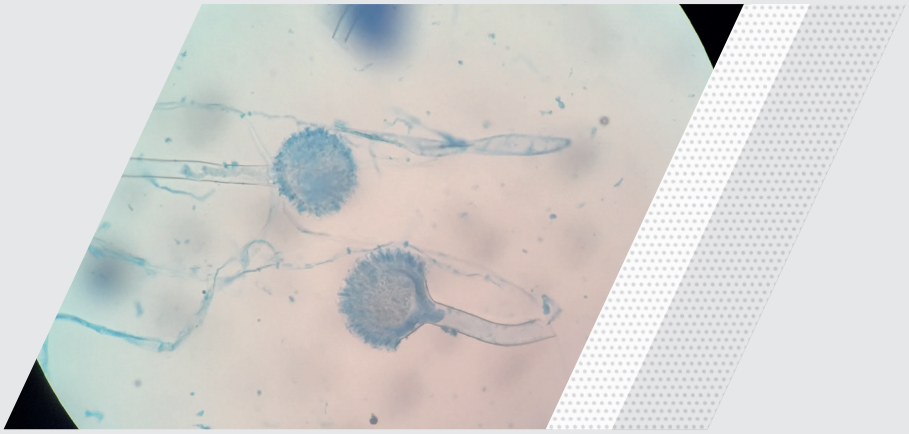
1. Place a drop of Lactophenol Blue solution in the center of a slide.

2. Remove a fragment of the fungus colony from the colony edge using a needle.



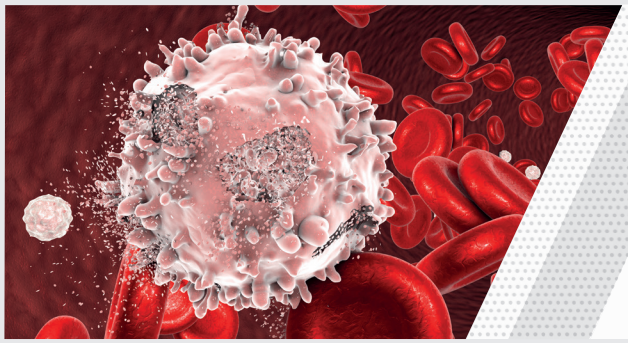
3. Place the fragment in the drop of stain. Apply a coverslip. Do not push down or tap the cover slip.

4. Examine the preparation under low and high magnification for the presence of characteristic mycelia and fruiting structures. Fungi appear dark blue. Diagnostics should be established only by authorized and qualified persons.



Reagents for Hematology

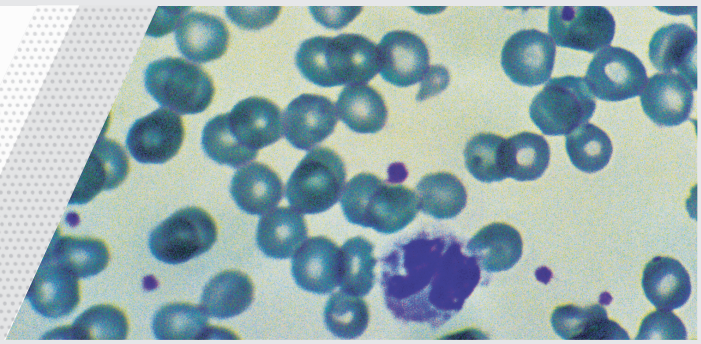
Pappenheim panoptic staining and staining according to Giemsa, Wright or Leishman have long been standard techniques in haematological diagnostic procedures. Previously, virtually all blood samples were analyzed using such staining methods. Nowadays, most of the samples are analyzed using semi-automatic or fully automatic hematological systems capable of determining all the necessary parameters for diagnosis. Pathological or suspicious blood and bone marrow smears are subjected to classical differential analysis using stains.



Haematological staining is a group of processes that lead to the coloring of the structures that make up the **blood cells.** The objective of this is to increase the contrast between these structures and their surrounding medium, therefore allowing the cells to be observed microscopically with greater ease.

Kit for Fast Staining in Haematology (Fast Panoptic)

Fast staining in haematology is used for the diagnosis and characterization of leukocytes. It allows **easy and fast staining.** The kit contains solutions for the fast staining of blood smears through **successive immersion** in each of them.



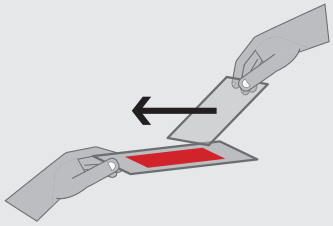
Compared to classic staining methods, where the dye is extended over the smear, this kit uses an immersion method, where the smear is submerged in the dye solution for a fixed period of time.

Results of a quality equal to classic staining methods (May Grünwald-Giemsa or Pappenheim) are obtained in only a few seconds.

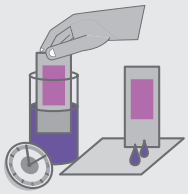
Main advantages

- Quick and easy staining of the cell structures.
- All the reagents prepared ready to use.
- Very good stability: the kit is stable for 3 years when stored between 15 ºC and 25 ºC.

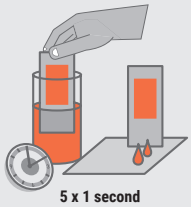
Kit for Fast Staining in Haematology (Fast Panoptic) procedure



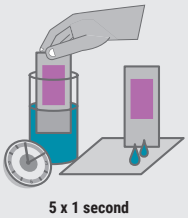
1. Once the sample has been extended on a slide, let it air dry.



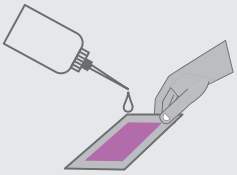
2. Submerge the slide in a receptacle with the Fixative for fast staining (Panoptic No. 1) 5 times for 1 second each time. Drain the excess liquid over filter paper.



3. Submerge in another receptacle with the Eosin for fast staining (Panoptic No. 2) 5 times for 1 second each time. Drain.



4. Submerge in another receptacle with the Blue for fast staining (Panoptic No. 3) 5 times for 1 second each time. Drain.



5. Rinse the smear with Buffer solution, pH 7.2.

6. Dry and examine under the microscope.

Note: Depending on the type and thickness of the sample, the immersion time in the dyes can be varied.

Results

Red blood cells	Grayish pink
Platelets	Violet blue
Blood parasites	Nucleus pale pink and cytoplasm blue

Type of leukocytes	Nucleus	Cytoplasm	Granules
Neutrophils	Pink - violet	-	Violet
Eosinophils	Pink - violet	-	Red - brown
Monocytes	Pink - violet	Blue - gray	-
Lymphocytes	Pink - violet	Blue	-

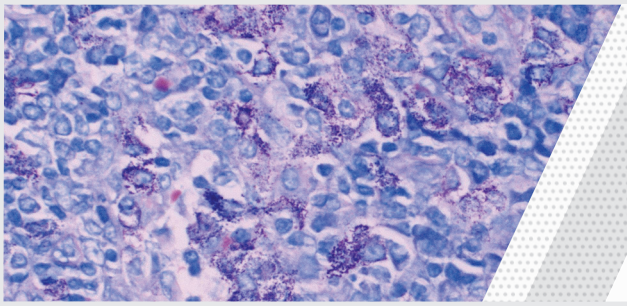
Reagents for Fast Staining in Hematology (Panoptic)

Product code	Product name	Composition	Application	Pack size
254807.0922	**Kit for Fast Staining in Haematology (Fast Panoptic) for clinical diagnosis**	Blue for fast staining (Panoptic No. 3) ..... 500 mL Eosin for fast staining (Panoptic No. 2) .... 500 mL Fixing for fast staining (Panoptic No. 1) ... 500 mL	Characterization of leukocytes	1 kit
253998.1210	**Blue for fast staining (Panoptic No. 3) for clinical diagnosis**	Azur B ..... 2 g Buffer solution pH 7 s.q.m. .....1 L	Staining solution (blue)	500 mL
253998.1212				2.5 L
253999.1210	**Eosin for fast staining (Panoptic No. 2) for clinical diagnosis**	Eosin Yellowish ..... 0.8 g Buffer solution pH 7 s.q.m. ..... 1 L	Staining solution (red)	500 mL
253999.1212				2.5 L

>>

Product code	Product name	Composition	Application	Pack size
254101.1210	**Fixing for fast staining (Panoptic No. 1) for clinical diagnosis**	Crystal Violet ..... 2 mg Methanol s.q.m. ..... 1 L	Fixing solution	500 mL
254101.1212				2.5 L
252164.1211	**Buffer Solution pH 7.2 for clinical diagnosis**	Potassium di-Hydrogen Phosphate ..... 40 mg di-Sodium Hydrogen Phosphate 12-hydrate ..... 151 mg Water s.q.m. ..... 100 mL	Buffer solution	1 L

May Grünwald-Giemsa or Pappenheim stain

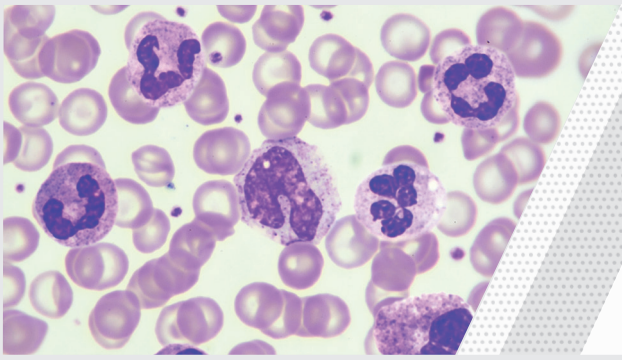


Alternatively, blood samples can be stained via the Pappenheim method using a **combination of May-Grünwald's solution and Giemsa's solution.**

Pappenheim stain products

Product code	Product name	Composition	Application	Pack size
251338.1608	**Giemsa's Azur-Eosin-Methylene Blue solution (slow) for clinical diagnosis** CE	Azur-Eosin-Methylene Blue dye according to Giemsa ..... 0.5 g Methanol ..... 50 mL Glycerol ..... 50 mL	Differential blood staining; demonstration of blood parasites and protozoa (dilute approx. 1:20)	100 mL
251338.1610				500 mL
251338.1611				1 L
251338.1612				2.5 L
251416.1610	**May Grünwald's Eosin-Methylene Blue solution for clinical diagnosis** CE	May Grünwald's Eosin-Methylene Blue dye ..... 0.25 g Methanol s.q.m. ..... 100 mL	Differential blood staining	500 mL
251416.1611				1 L
251416.1612				2.5 L
252164.1211	**Buffer Solution pH 7.2 for clinical diagnosis**	Potassium di-Hydrogen Phosphate .... 40 mg di-Sodium Hydrogen Phosphate 12-hydrate ..... 151 mg Water s.q.m. ..... 100 mL	Buffer solution	1 L
131091.1211	**Methanol (Reag. Ph. Eur.) for analysis, ACS, ISO**		Fixative agent	1 L
131091.1611				1 L
131091.1212				2.5 L
131091.1612				2.5 L
131091.1214				5 L
131091.0716				25 L

Wright's stain



The **Wright staining method** is one of the standard techniques in hematological diagnostic procedures. Because it helps to **easily distinguish blood** cells it became a widely used technique for counting **white blood cells,** a routine technique used when infections are suspected.

The staining of the nuclei of the cells is made by the interaction of Eosin Y on one side and the complexation Azur B-DNA. The intensity of the stain depends on the **ratio Azur B and Eosin Y.**

Staining times, the pH value of the solutions and buffers may affect the results.

Product code	Product name	Application	Pack size
251767.1606	**Wright's Eosin-Methylene Blue dye for clinical diagnosis**	Stain widely used for white blood cell counting	25 g

Other products for Hematology

Product code	Product name	Application	CAS number	Pack size
253295.2711	**Copper(II) Sulfate solution d.1.055 for clinical diagnosis**	Determination of blood density	7758-98-7	1 L
253296.2711	**Copper(II) Sulfate solution d.1.053 for clinical diagnosis**	Determination of blood density	7758-98-7	1 L

Auxiliary Products

General Reagents

Product code	Product name	CAS number	Pack size
131008.1211	Acetic Acid glacial (Reag. USP, Ph. Eur.) for analysis, ACS, ISO	64-19-7	1 L
131008.1611			1 L
131008.1212			2.5 L
131008.1612			2.5 L
131008.1214			5 L
141008.1211	Acetic Acid glacial (USP, BP, Ph. Eur.) pure, pharma grade	64-19-7	1 L
141008.1611			1 L
141008.1212			2.5 L
141008.1612			2.5 L
141008.1214			5 L
141008.9914			5 L
141008.0716			25 L
122703.1611	Acetic Acid 96% for analysis	64-19-7	1 L
122703.1612			2.5 L
361881.1611	Acetonitrile for UV, IR, HPLC, ACS	75-05-8	1 L
361881.1612			2.5 L
361881.0516			25 L
251820.1208	Biuret's Reagent for clinical diagnosis		100 mL
131015.1210	Boric Acid for analysis, ACS, ISO	10043-35-3	500 g
131015.1211			1 kg
131015.1214			5 kg
252317.1611	Brij® 35 aqueous solution 30% w/v for clinical diagnosis	9002-92-0	1 L
363312.1611	tert-Butyl Methyl Ether for UV, IR, HPLC	1634-04-4	1 L
363312.1612			2.5 L
131252.1611	Chloroform stabilized with ethanol (Reag. USP, Ph. Eur.) for analysis, ACS, ISO	67-66-3	1 L
131252.1612			2.5 L
131252.0537			30 L
141278.1609	Collodion solution 4% w/v (USP) pure, pharma grade		250 mL
141278.1611			1 L
141278.0616			25 L
361254.1611	Dichloromethane stabilized with ~ 20 ppm of amylene for UV, IR, HPLC, GPC, ACS	75-09-2	1 L
361254.1612			2.5 L
361254.16153			4 L
132056.1604	2,6-Dichlorophenol Indophenol Sodium Salt 2-hydrate (Reag. Ph. Eur.) for analysis, ACS	620-45-1	5 g
132770.0311	Diethyl Ether stabilized with ~ 6 ppm of BHT (Reag. USP, Ph. Eur.) for analysis, ACS, ISO	60-29-7	1 L
132770.1612			2.5 L
132770.0314			5 L
132770.0515			10 L
132770.0316			25 L
132770.0537			30 L
322551.1611	Diethyl Ether stabilized with ethanol for pesticide analysis	60-29-7	1 L
131293.1608	4-(Dimethylamino) Benzaldehyde (Reag. Ph. Eur.) for analysis, ACS	100-10-7	100 g

>>

Product code	Product name	CAS number	Pack size
131669.1209	**EDTA Disodium Salt 2-hydrate (Reag. Ph. Eur.) for analysis, ACS**	6381-92-6	250 g
131669.1210			500 g
131669.1211			1 kg
131669.0914			5 kg
131669.0416			25 kg
NC808005000	**Ethanol absolute denatured pure (pink colored) ***	64-17-5	5 L
NC202005000	**Ethanol 94% denatured pure (pink colored) ***	64-17-5	5 L
321318.1611	**Ethyl Acetate for pesticide analysis**	141-78-6	1 L
321318.1612			2.5 L
321318.16153			4 L
321318.0515			10 L
142085.1611	**Eucalyptol (USP) pure, pharma grade**	470-82-6	1 L
251563.1210	**Fehling's A Reagent for clinical diagnosis** CE		500 mL
251563.1211			1 L
251564.1210	**Fehling's B Reagent for clinical diagnosis** CE		500 mL
251564.1211			1 L
251567.1609	**Folin-Ciocalteu's Reagent for clinical diagnosis**		250 mL
131030.1611	**Formic Acid 98% for analysis, ACS**	64-18-6	1 L
131030.1612			2.5 L
131030.0716			25 L
212520.1210	**General Absorbent technical grade**		500 g
212520.0914			5 kg
141341.1210	**D(+)-Glucose anhydrous (USP, BP, Ph. Eur.) pure, pharma grade**	50-99-7	500 g
141341.1211			1 kg
141341.0914			5 kg
141341.0416			25 kg
151339.1211	**Glycerol, 99% for synthesis**	56-81-5	1 L
151339.1214			5 L
131340.1209	**Glycine (Reag. USP) for analysis, ACS**	56-40-6	250 g
131340.1211			1 kg
131340.0914			5 kg
141340.1211	**Glycine (USP, BP, Ph. Eur.) pure, pharma grade**	56-40-6	1 kg
141340.0914			5 kg
141340.0416			25 kg
362063.1611	**n-Hexane for UV, IR, HPLC**	110-54-3	1 L
362063.1612			2.5 L
132063.1611	**n-Hexane (Reag. USP, Ph. Eur.) for analysis, ACS**	110-54-3	1 L
132063.1612			2.5 L
141020.1611	**Hydrochloric Acid 37% (USP-NF, BP, Ph. Eur.) pure, pharma grade**	7647-01-0	1 L
141020.1612			2.5 L
141020.1214			5 L
141020.0739			20 L
141020.0716			25 L

** Only available in Italy*

>>

Product code	Product name	CAS number	Pack size
181021.1211	**Hydrochloric Acid 1 mol/L (1N) volumetric solution**	7647-01-0	1 L
181021.1214			5 L
181021.1315			10 L
181021.0716			25 L
141077.1211	**Hydrogen Peroxide 33% w/v (110 vol.) stabilized (USP, BP, Ph. Eur.) pure, pharma grade**	7722-84-1	1 L
141077.1214			5 L
141077.0716			25 L
141771.1608	**Iodine resublimed pearls (USP, BP, Ph. Eur.) pure, pharma grade**	7553-56-2	100 g
141771.1609			250 g
141771.1611			1 kg
141771.1614			5 kg
141771.0416			25 kg
121079.1211	**Isoamyl Alcohol according to Gerber for analysis**	123-51-3	1 L
121079.1212			2.5 L
121079.0716			25 L
252908.1608	**Kovacs' Reagent for clinical diagnosis**		100 mL
141375.1210	**D(+)-Lactose 1-hydrate (USP-NF, BP, Ph. Eur.) pure, pharma grade**	10039-26-6	500 g
141375.1211			1 kg
141375.0914			5 kg
142067.1210	**D(-)-Mannitol (USP, BP, Ph. Eur.) pure, pharma grade**	69-65-8	500 g
142067.1211			1 kg
142067.0914			5 kg
142067.0416			25 kg
701091.1611	**Methanol for LC-MS**	67-56-1	1 L
701091.1612			2.5 L
131041.1210	**Oxalic Acid 2-hydrate (Reag. USP, Ph. Eur.) for analysis, ACS, ISO**	6153-56-6	500 g
131041.1211			1 kg
131041.0416			25 kg
146257.1211	**Light liquid Paraffin (USP-NF, BP, Ph. Eur.) pure, pharma grade**	8042-47-5	1 L
146257.1212			2.5 L
141451.1211	**Paraformaldehyde (DAC) pure, pharma grade**	30525-89-4	1 kg
141323.1611	**Phenol 90% aqueous solution (USP) pure, pharma grade**	108-95-2	1 L
141323.0716			25 L
131615.1604	**Phenol Red (Reag. USP) for analysis, ACS**	143-74-8	5 g
131615.1607			50 g
131032.1211	**ortho-Phosphoric Acid 85% for analysis, ACS, ISO**	7664-38-2	1 L
131032.1212			2.5 L
131032.1214			5 L
131032.0716			25 L
141048.1610	**Picric Acid moistened with ~ 33% of H_2O (Reag. Ph. Eur.) pure**	88-89-1	500 g
141048.1214			5 kg
251049.1610	**Picric Acid saturated solution for clinical diagnosis**	88-89-1	500 mL
131490.1210	**Potassium Carbonate (Reag. USP, Ph. Eur.) for analysis, ACS, ISO**	584-08-7	500 g
131490.1211			1 kg

>>

PanReac AppliChem
ITW Reagents

Product code	Product name	CAS number	Pack size
131509.1210	**Potassium di-Hydrogen Phosphate for analysis, ACS**	7778-77-0	500 g
131509.1211			1 kg
131509.1214			5 kg
131509.0416			25 kg
131512.1209	**di-Potassium Hydrogen Phosphate anhydrous (Reag. Ph. Eur.) for analysis, ACS**	7758-11-4	250 g
131512.1211			1 kg
121515.1210	**Potassium Hydroxide 85% pellets for analysis**	1310-58-3	500 g
121515.1211			1 kg
121515.1214			5 kg
131632.1210	**Sodium Acetate 3-hydrate (Reag. USP) for analysis, ACS, ISO**	6131-90-4	500 g
131632.1211			1 kg
131632.0416			25 kg
131648.1210	**Sodium Carbonate anhydrous (Reag. USP, Ph. Eur.) for analysis, ACS**	497-19-8	500 g
131648.1211			1 kg
131648.0914			5 kg
131648.0416			25 kg
141648.1211	**Sodium Carbonate anhydrous (USP-NF, BP, Ph. Eur.) pure, pharma grade**	497-19-8	1 kg
141648.0914			5 kg
141648.0416			25 kg
131659.1210	**Sodium Chloride for analysis, ACS, ISO**	7647-14-5	500 g
131659.1211			1 kg
131659.1214			5 kg
131659.0416			25 kg
131655.1210	**tri-Sodium Citrate 2-hydrate for analysis, ACS**	6132-04-3	500 g
131655.1211			1 kg
131655.1214			5 kg
131655.0416			25 kg
131679.1210	**di-Sodium Hydrogen Phosphate anhydrous (Reag. Ph. Eur.) for analysis, ACS**	7558-79-4	500 g
131679.1211			1 kg
131679.0914			5 kg
131679.0416			25 kg
122507.1210	**di-Sodium Hydrogen Phosphate 2-hydrate for analysis**	10028-24-7	500 g
122507.1211			1 kg
122507.1214			5 kg
131965.1210	**Sodium di-Hydrogen Phosphate 1-hydrate (Reag. Ph. Eur.) for analysis, ACS**	10049-21-5	500 g
131965.1211			1 kg
131687.1210	**Sodium Hydroxide pellets (Reag. USP) for analysis, ACS, ISO**	1310-73-2	500 g
131687.1211			1 kg
131687.1214			5 kg
131687.0416			25 kg
131721.1211	**Sodium Thiosulfate 5-hydrate for analysis, ACS**	10102-17-7	1 kg
131721.0416			25 kg
121096.1210	**Starch from Potato soluble (Reag. USP, Ph. Eur.) for analysis**	9005-84-9	500 g
121096.1211			1 kg
121096.0416			25 kg

>>

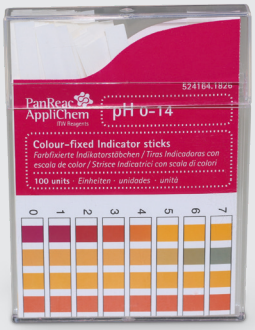
Product code	Product name	CAS number	Pack size
131621.1210	**D(+)-Sucrose for analysis, ACS**	57-50-1	500 g
131621.1211			1 kg
131621.0914			5 kg
131621.0416			25 kg
212805.1611	**Sweet Almonds Oil technical grade**		1 L
131067.1608	**Trichloroacetic Acid (Reag. USP, Ph. Eur.) for analysis, ACS**	76-03-9	100 g
131067.1609			250 g
131067.1611			1 kg
131067.0914			5 kg
252373.1611	**Trichloroacetic Acid solution 20% w/v for clinical diagnosis**	76-03-9	1 L
131940.1211	**Tris for analysis, ACS**	77-86-1	1 kg
141003.1209	**Vaseline Oil (USP, BP, Ph. Eur.) pure, pharma grade**	8012-95-1	250 mL
141003.1211			1 L
141003.1214			5 L
141003.0716			25 L
211757.1209	**Vaseline Soft technical grade**		250 g
211757.1211			1 kg
211074.1211	**Water technical grade**	7732-18-5	1 L
211074.1214			5 L
211074.0715			10 L
211074.0716			25 L

pH Indicator strips

Product code	Product name	Application	Pack size
524164.1826	**Non bleeding sticks pH 0-14 (gradation 1.0)**	Universal pH indicator	100 strips
524167.1826	**Non bleeding sticks pH 0.0-6.0 (gradation 0.5)**	Acid pH indicator	100 strips
524165.1826	**Non bleeding sticks pH 4.5-10.0 (gradation 0.5)**	Neutral pH indicator	100 strips
524168.1826	**Non bleeding sticks pH 7.0-14.0 (gradation 0.5)**	Alkali pH indicator	100 strips

pH-determination quick, easy, safe

- Safe analysis by long plastic handle
- Several test pads for exact results
- No bleeding due to color bounded indicator dyes



Cleaning agents for laboratory DERQUIM®

Product code	Product name	Application	Pack size
503574.1211	**DERQUIM® + Universal Detergent LIQUID**	Detergent for general use. Cleaning of glass, plastic and metal equipment.	1 L
503574.1246			4 L
MACHINE WASHING			
502603.1245	**DERQUIM® LA 11 Slightly alkaline SOLID**	For gentle cleaning of delicate materials	2 kg
502603.0415			10 kg
502604.1245	**DERQUIM® LA 12 Alkaline SOLID**	Strong cleaning agent, for the removal of dry residues, burnt residues, starch, proteins, etc.	2 kg
502604.0415			10 kg
502605.0415	**DERQUIM® LA 13 Alkaline with detergents SOLID**	Strong cleaning agent specially for fatty acids	10 kg
502606.1246	**DERQUIM® LA 14 Slightly alkaline LIQUID**	Good cleaning agent for machines with liquid dosing, for gentle cleaning of delicate materials	4 L
502606.0716			25 L
502607.1246	**DERQUIM® LA 15 Alkaline LIQUID**	Strong cleaning agent for machines with liquid dosing, for the removal of dry residues, burnt residues, starch, proteins, etc.	4 L
502608.1246	**DERQUIM® LA 21 Acid, with phosphoric acid LIQUID**	Pre-wash for residues of proteins, organic bases, carbonates, hydroxides, etc. Gentle removal of residues in the main wash. As a neutralizer in the post-wash.	4 L
502609.1246	**DERQUIM® LA 22 Acid, with citric acid LIQUID**	Pre-wash for residues of proteins, organic bases, carbonates, hydroxides, etc. Gentle removal of residues in the main wash. As a neutralizer in the post-wash.	4 L
503468.0415	**DERQUIM® SALT (Sodium Chloride lumps)**	Salt for laboratory automatic washing machines, to prevent limescale deposits	10 kg
MANUAL WASHING			
502600.1246	**DERQUIM® LM 01 Alkaline LIQUID**	General detergent for very contaminated items, also for bench tops, suitable for ultrasonic cleaning	4 L
502601.1246	**DERQUIM® LM 02, Phosphate-free LIQUID**	Special for cleaning of precision equipment made of glass, quartz, and sensitive metals, suitable for ultrasonic cleaning	4 L
502601.1315			10 L
502601.0716			25 L
502602.1246	**DERQUIM® LM 03 Alkaline, Phosphate-free LIQUID**	General detergent for very contaminated items, suitable for ultrasonic cleaning	4 L

DERQUIM® (derived from Detergentes Químicos in Spanish, that means Chemical Detergents) is the brand of ITW Reagents for laboratory cleaning agents. The DERQUIM® product line has been specially made for laboratory glassware and equipment.

DERQUIM® products can be used for manual cleaning (LM series named from Spanish Lavado Manual) or automatic dishwashers, (LA series named from Spanish Lavado Automático). Also, solid and liquid agents are available for different purposes. Acidic or basic composition can be chosen for elimination of inorganic and organic contaminants, respectively.

Find more information about the whole product line on http://www.itwreagents.com/download_file/info_point/IP-045/en/IP-045_en.pdf

PanReac AppliChem
ITW Reagents

Research Laboratories

Many hospitals also have Research Laboratories that focus on basic science on an academic basis. These laboratories use the conventional techniques for Genomics, Proteomics and Cell Culture procedures.

Reagents for Genomics

Research into how genetic variants can guide successful **treatments** will become part of routine medical practice and records. Nucleic acid isolation, PCR, cloning, sequencing, electrophoresis, blotting are the main techniques used in genomics.

On **PCR techniques, nucleic acid decontamination** in the work station and in the whole laboratory is essential to preserve correct results.

ExitusPlus™ technology assures complete decontamination and it is:

- **Non dangerous** for health
- **Non corrosive** for surfaces
- **Biodegradable**

PCR

Product code	Product name	Application	Pack size
A5231,0200	**SuperHot Taq DNA Polymerase**	Complex genomic or cDNA templates, low copy number targets, large numbers of thermal cycles, multiplex PCR	200 U
A8510,1017	**Water PCR tested, DNA free, for molecular biology**	Universal solvent for PCR	10 x 1.7 mL

DNA Decontamination

Product code	Product name	Application	Pack size
A7409,0100	**DNA-ExitusPlus™ IF**	Decontamination solution for the removal of DNA and RNA contaminations	100 mL
A7409,0500			500 mL
A7409,1000RF			1 L
A7409,2500RF			2.5 L
A7409,5000			5 L
A7153,0500	**RNase-ExitusPlus™**	Decontamination removal solution for RNase	500 mL
A7153,1000RF			1 L
A7153,2500RF			2.5 L

Gel electrophoresis

Product code	Product name	Application	CAS number	Pack size
A9555,1000	**DNA-Dye NonTox**	Ethidium bromide substitute		1 mL
A2114,0100	**Agarose low EEO (Agarose Standard)**	Recommended for the preparation of analytical and preparative gels with a very good resolution of nucleic acid fragments with sizes larger than 1000 bp	9012-36-6	100 g
A2114,0250				250 g
A2114,0500				500 g
A3470,0050	**DNA ladder 100bp (lyophilised)**	DNA Size Standard for Gel Electrophoresis		50 µg

Nucleic Acid Isolation

Product code	Product name	Application	CAS number	Pack size
A3830,0025	**Proteinase K**	Proteinase K is used to destruct proteins in cell lysates	39450-01-6	25 mg
A3830,0100				100 mg
A3830,0500				500 mg
A3778,0010	**DNase I**	Used in molecular biology techniques like digestion of DNA, in the RNA purification or generating "random nicks" for "nick translation" or 'footprint'-assays, or investigations on chromatin	9003-98-9	10 mg
A3778,0050				50 mg
A3778,0100				100 mg
A3778,0500				500 mg
A4972,0001	**Lysozyme for molecular biology**	Used to lyse *E. coli* for the isolation of plasmid-DNA	9001-63-2	1 g
A4972,0010				10 g
A4051,0100	**TRItidy G™**	Ready-to-use solution for the simultaneous isolation of RNA, DNA and proteins		100 mL
A4051,0200				200 mL

PanReac AppliChem
ITW Reagents

Cloning Assays

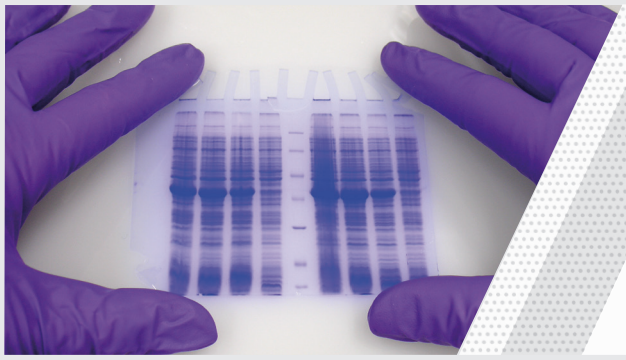
Product code	Product name	Application	CAS number	Pack size
A4773,0005	**IPTG for molecular biology** 	The most commonly used synthetic inductor of the Lac-operon since it is both active at very low concentrations and not subject to enzymatic degradation	367-93-1	5 g
A4773,0025				25 g
A4978,0500	**X-Gal for molecular biology**	It is used for the identification of lacZ+ bacteria, especially for the assay of β-galactosidase, expressed from recombinant vectors	7240-90-6	500 mg
A4978,0001				1 g

Buffers and Solvents

Product code	Product name	Application	CAS number	Pack size
A2264,0500	**Tris for molecular biology** 	Tris is the most commonly used buffer in biological research, component of TBE, TAE and TE Buffers	77-86-1	500 g
A2264,1000				1000 g
A2264,5000				5 kg
A5097,0500	**EDTA for molecular biology**	EDTA is a chelator of calcium, magnesium and zinc ions and therefore may inhibit metallo proteases	60-00-4	500 g
A3701,1000PE	**Acetic Acid 100% BioChemica**	Component of TAE Buffer for electrophoresis	64-19-7	1 L
A3701,2500PE				2.5 L

Reagents for Proteomics

Although genomics has delivered major advances in **cancer prognostics**, treatment and diagnostics, it still only provides a static image of the situation. To study more dynamic molecular entities, proteomics has been introduced into the cancer research field more than a decade ago. Currently, however, the impact of clinical proteomics on patient management and clinical decision-making is low and the implementations of scientific results in the clinic appear to be scarce.



The search for cancer-related biomarkers with proteomics however, has major potential to improve risk assessment, early detection, diagnosis, prognosis, treatment selection and monitoring. Main techniques used in **proteomics are electrophoresis and blotting.**

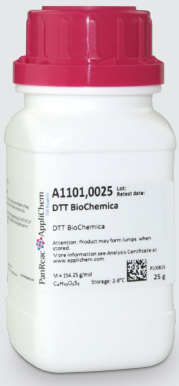
Products for electrophoresis and blotting

Product code	Product name	Application	CAS number	Pack size
GEL ELECTROPHORESIS COMPONENTS				
A1672,0500	**Acrylamide 4K solution (30%) - Mix 37.5:1**	For most applications in the electrophoresis of nucleic acids or proteins, polyacrylamide gels are prepared from 30% or 40% stock solutions with a ratio Acrylamide : Bisacrylamide of 29:1 or 37.5:1		500 mL
A1672,1000				1 L
A1142,0250	**Ammonium Peroxodisulfate (APS) BioChemica**	Ammonium persulfate (APS) serves as the initiators of the polymerization of Acrylamide	7727-54-0	250 g
A1067,0500	**Glycine for molecular biology** 	One of the most commonly used buffer in the polyacrylamide gel electrophoresis for proteins is based on the work of Laemmli	56-40-6	500 g
A1067,1000				1 kg
A1067,5000				5 kg
A2572,0250	**SDS BioChemica**	For SDS polyacrylamide gels	151-21-3	250 g
A2572,0500				500 g
A2572,1000				1 kg
A1148,0025	**TEMED**	Enhancer of the polymerization (cross-linking) of acrylamide and bisacrylamide in gel electrophoresis	110-18-9	25 mL
A1148,0100				100 mL
A1086,0500	**Tris ultrapure**	One of its most important applications is the use as an electrophoresis buffer (e.g. TBE, see A1417 and A0972 or TAE, see A1416 and A1691) for polyacrylamide and agarose gel electrophoresis, respectively	77-86-1	500 g
A1086,1000				1 kg
A1086,5000				5 kg
A1086,9010				10 kg

>>

Product code	Product name	Application	CAS number	Pack size
BLOCKING AGENTS				
A1391,0025	**Albumin Fraction V (pH 7.0)** 	Applied as a blocking agent for blocking unbound surfaces of blotting membranes in immunoblots or ELISAs, also used for the dilution of antisera and antibody-stock solutions	9048-46-8	25 g
A1391,0050				50 g
A1391,0100				100 g
A1391,0250				250 g
A1391,0500				500 g
A1391,1000				1 kg
A7099,0125	**Blocking Buffer I**	Saturates free binding capacities on plastic consumables and other surfaces like ELISA plates and blotting membranes, thus a reduction of unspecific binding on surfaces can be achieved		125 mL
A7099,0500				500 mL
TRANSFER MEMBRANE				
A5239,3030R	**Pure Nitrocellulose unsupported 0.45 µm Transfer Membrane**	Used for Southern and Northern blots; Dot/ Slot blots, Western blots and immunoblotting		30 cm x 3 m Roll
PROTEIN DETECTION				
A3417,1200	**CheLuminate-HRP PicoDetect**	Kit for medium and poorly expressed proteins		1 kit (1200 cm^2)
A3417,5000				1 kit (5000 cm^2)
A1092,0025	**Coomassie® Brilliant Blue R-250 (C.I. 42660)**	One of the most commonly used stains for proteins, after their separation by polyacrylamide gel electrophoresis	6104-59-2	25 g
A1092,0100				100 g
A2935,0500	**Ponceau S solution**	For the staining of proteins immobilized on nitrocellulose filters, it is particularly suitable for reversible staining of proteins on transfer membranes during immunoblotting		500 mL
GENERAL BIOCHEMICALS FOR PROTEIN PURIFICATION, ELECTROPHORESIS AND WESTERN BLOTTING				
A8889,0500	**Protein Marker VI (10 – 245) prestained**	Protein Gel Electrophoresis Size Marker, Blue-Green-Red Protein Ladder		500 µL
A3701,1000PE	**Acetic Acid 100% BioChemica**	For protein staining solution preparation	64-19-7	1 L
A3701,2500PE				2.5 L
A1101,0005	**DTT BioChemica**	It may substitute for β-mercaptoethanol in almost all experiments at three to four fold lower concentrations. DTT is less toxic, its odor is less intensive and it doesn't form mixed disulfides like β-mercaptoethanol	3483-12-3	5 g
A1101,0025				25 g
A1101,0100				100 g

Product code	Product name	Application	CAS number	Pack size
A1108,0100	**β-Mercaptoethanol Molecular biology grade**	Reducing agent used for the reduction of proteins during sample preparation, it prevents protein oxidation and acts as a denaturing agent of ribonucleases	60-24-2	100 mL
A1108,0500				500 mL
A3493,1000PE	**Methanol BioChemica**	For western blotting	67-56-1	1 L
A3493,5000				5 L
A4974,0100	**Tween® 20 for molecular biology**	For blocking buffers	9005-64-5	100 mL
A4974,0250				250 mL
A4974,0500				500 mL
A4974,1000				1 L
A1360,5000	**Urea BioChemica**	For Tris Urea gels, for protein staining solution preparation	57-13-6	5 kg
A1360,9010				10 kg
A9191,0100	**PBS tablets pH 7.4 (for 500 mL)**	Used in a wide range of applications including Tissue culture/ Cell culture; Sample dilution/ Protein dilution; Immunoassays/ Immuno-histochemistry; Microbiology		100 Tabs



Reagents for Cell Culture

Cell Biology focuses on the work with living organisms. Cells are used as they are the basic unit of life and make it easier to investigate questions that by using complex organism could not be and would also be unethical. Cell Biology is mainly used to investigate metabolic processes, signaling pathways, reactions to substances, but is also very important in cancer research. There are big connections to Genetics, Biochemistry, Molecular Biology, Immunology and Developmental Biology.

In Cell Culture it is important to work clean as contaminations are very frustrating for the scientist and in the end also very expensive. PanReac AppliChem offers a variety of products for prevention, detection and fighting against contamination.

Banish cell culture contamination

Product code	Product name	Application	Pack size
MYCOPLASMA PREVENTION			
A5230,0500	**Incubator-Clean™**	Spray for incubators that prevents contamination with fungi, molds, bacteria, mycoplasma and viruses	500 mL
A5219,0100	**Incuwater-Clean™** 	100X ready-to-use solution to prevent contamination for the incubator's water bath	100 mL
A9390,0250	**Aquabator-Clean™ (100X)** 	Intended for disinfecting various kinds of water baths from bacteria and fungi	250 mL
MYCOPLASMA DETECTION			
A3744,0020	**PCR Mycoplasma Test Kit**	Designed to detect the presence of mycoplasma contaminating biological materials by conventional PCR, includes internal control	1 kit (20 tests)
A9019,0025	**qPCR Mycoplasma Test Kit**	Based on a 5-Nuclease probe assay for qPCR, which is established as the method of choice for highest sensitivity in the detection of Mycoplasma and Acholeplasma contamination	1 kit (25 tests)
A1001,0010	**DAPI BioChemica**	The most popular application of DAPI is its use as a reagent to detect mycoplasma or virus DNA in the cell culture	10 mg
A1001,0025			25 mg
A1001,0100			100 mg
MYCOPLASMA ELIMINATION			
A8360,0010	**Myco-1 & 2 Set**	Myco-1 is based on the antibiotic Tiamulin, and Myco-2 is based on Minocycline, a Tetracycline derivative, both are generally used sequentially in combination	1 set
A8366,0002	**Myco-4**	Myco-4 is a combination of standard antibiotics and biological reagents that integrate into the mycoplasma membrane and compromise its integrity	2 kits/ treatments

How to order

Distributors

For ordering our high-quality products please contact your local distributor.
ITW Reagents has distributors in the countries as follows:

Algeria
Argentina
Armenia
Australia
Austria
Bangladesh
Belarus
Belgium
Bosnia and Herzegovina
Brazil
Bulgaria
Chile
China
Colombia
Croatia
Czech Republic
Denmark
Ecuador
Egypt
Finland
France
Germany
Greece
Hong Kong-China
Hungary
Iceland
India
Indonesia
Ireland
Israel
Italy
Ivory Coast
Japan
Jordan
Kazakhstan
Kuwait
Lithuania
Mexico
Montenegro
Morocco
Netherlands
New Zealand
Norway
Pakistan
Paraguay
Peru
Poland
Portugal
Romania
Russia
Saudi Arabia
Senegal
Serbia
Slovakia
Slovenia
South Korea
Spain
Sweden
Switzerland
Taiwan
Thailand
Tunisia
Turkey
Ukraine
United Kingdom
United States
Uruguay
Vietnam

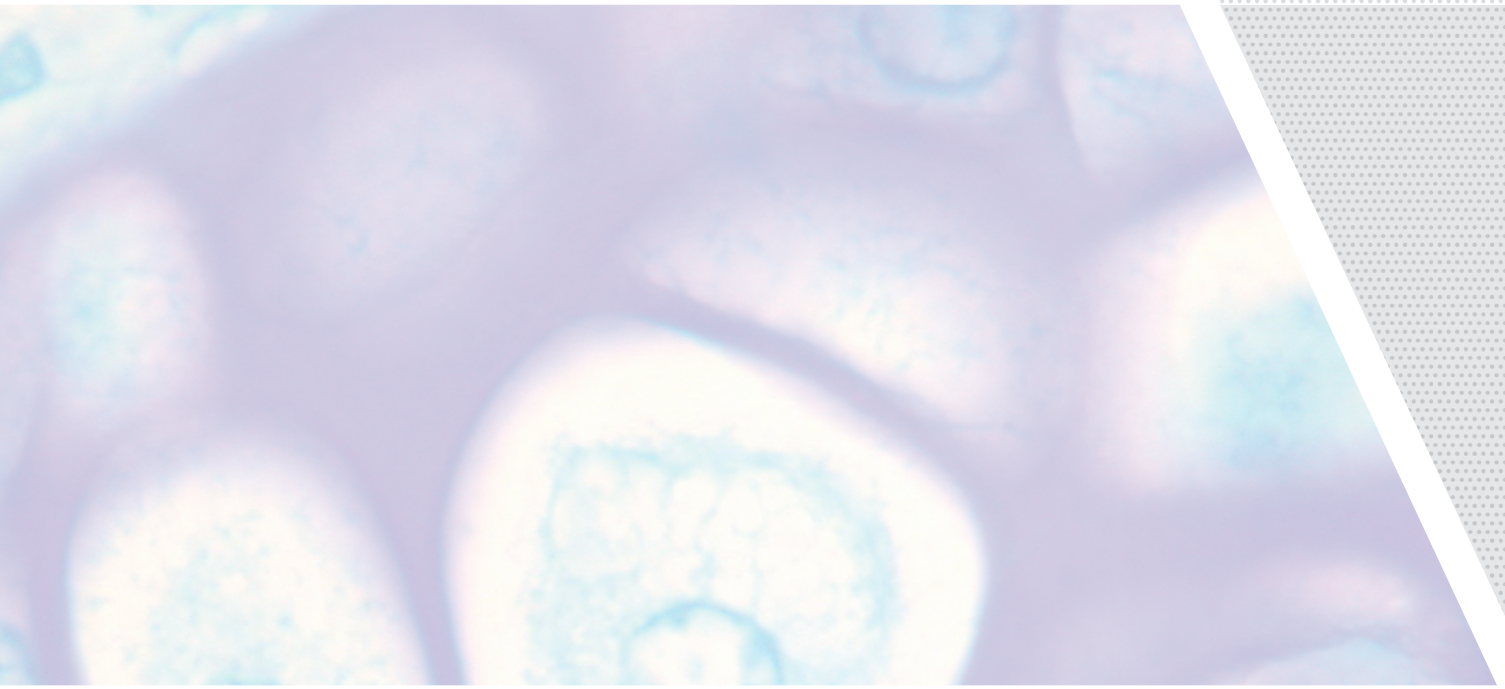
For further contact details of our distributors please visit
itwreagents.com

or contact our Customer Service at
customerservice.de@itwreagents.com
customerservice.es@itwreagents.com
customerservice.it@itwreagents.com

Customers - Webshop

Authorized customers from Spain, Portugal, Austria, France and Germany can order via our webshop directly on **itwreagents.com**

A193,EN;202006



PanReac AppliChem
ITW Reagents

AppliChem GmbH
Ottoweg 4 · DE-64291 Darmstadt · Germany · Phone +49 6151 9357 0 · Fax +49 6151 9357 11
info.de@itwreagents.com

Nova Chimica Srl
Via G. Galilei, 47 · I-20092 Cinisello Balsamo · (Milano) Italy · Phone +39 02 66045392 · Fax +39 02 66045394
info.it@itwreagents.com

Panreac Química SLU
C/ Garraf 2, Polígono Pla de la Bruguera · E-08211 Castellar del Vallès · (Barcelona) Spain · Phone +34 937 489 400 · Fax +34 937 489 401
info.es@itwreagents.com

www.itwreagents.com