

# HEMATOXYLIN G3



IVD In vitro diagnostic medical device

Classified acc. to Regulation (EU) 2017/746 - Class A device

## Modified hematoxylin for nuclear staining acc. to Gill

High-intensity new generation reagent for progressive staining in histopathology and cytology

### INSTRUCTIONS FOR USE

<b>BASIC UDI-DI</b>	385889212HPC30708STARVF						
<b>EMDN code</b>	W01030708						
<b>REF</b>	<b>Catalog number</b>	<b>Volume</b>	<b>UDI-DI</b>	<b>REF</b>	<b>Catalog number</b>	<b>Volume</b>	<b>UDI-DI</b>
	HEMG3-OT-100	100 mL	03858888823368		HEMG3-OT-1L	1000 mL	03858888820053
	HEMG3-OT-500	500 mL	03858888823375		HEMG3-OT-2.5L	2500 mL	03858888823382



#### Intended use and test principle

BioGnost's Hematoxylin G3 is a high stability reagent and one of the formulations of hematoxylin used in histopathology and cytology for precise staining of cell nuclei. Compared to Hematoxylin G1, Hematoxylin G3 stains the preparations with a stronger intensity so that the time to achieve the desired results is shorter. Hematoxylin G3 is ideal for darker, more intense staining of cell nuclei of cytological smears or histological preparations, although it is also often used for contrast staining in immunohistochemistry. Unlike other hematoxylin formulations, Gill hematoxylin also stain goblet cells in the epithelium of the small intestine and the respiratory epithelium of the respiratory tract. Hematoxylin is obtained by extraction from logwood tree (*Haematoxylon campechianum L.*). By oxidizing hematoxylin into hematein and binding it with metal ions (mordants), hematein becomes an indispensable nuclear stain. The positively charged hematein-mordant complex binds to the negatively charged phosphate ions of nuclear DNA, producing the characteristic blue staining. Gill hematoxylin solutions are specific hematoxylin solutions used for staining goblet cells, chromatin of normal and abnormal cells in tissue sections or cytological smears. BioGnost's Hematoxylin G1, G2, and G3 are partially oxidized, stabilized with glycols, and contain aluminum ions. They provide excellent staining results for the nuclear membrane, nucleoplasm and nucleolus.

#### Product description

- **HEMATOXYLIN G3** – Reagent for progressive nuclear staining in histology and cytology. Contains optimally oxidized hematoxylin, glycol stabilizers and antioxidants

#### Additional reagents and materials that can be used in the method

- Fixatives, such as BioGnost's neutral buffered formaldehyde solutions: Formaldehyde NB 4%, Formaldehyde NB 10%
- Dehydration/rehydration agents such as BioGnost's alcohol solutions: Histanol 70, Histanol 80, Histanol 95, and Histanol 100
- Clearing agents, such as BioClear xylene or BioClear New, an aliphatic hydrocarbon-based xylene substitute
- Infiltration and embedding agents such as BioGnost's granulated paraffins BioWax 52/54, BioWax 56/58, BioWax Plus 56/58, BioWax Blue
- Microscopic slide covering agents and cover glass mountants such as BioGnost's BioMount, BioMount High, BioMount M, BioMount New, BioMount New Low, BioMount DPX, BioMount DPX High, BioMount DPX Low, BioMount DPX New, BioMount C, BioMount Aqua
- VitroGnost slides and coverslips for use in histopathology and cytology
- Immersion oils such as BioGnost's Immersion Oil, Immersion Oils types A, C, FF, 37, or Immersion Oil Tropical Grade
- Contrast staining reagents such as BioGnost's eosin solutions
- Nuclei bluing reagents such as BioGnost's Bluing reagent or Scott's solution

#### Preparation of histological sections for staining

- Fix (Formaldehyde NB 4%, Formaldehyde NB 10%) and process the tissue sample
- Embed the tissue in a paraffin block (BioWax 52/54, BioWax 56/58, BioWax Plus 56/58, BioWax Blue)
- Cut the paraffin block into 4-6 micron thin slices and mount on a VitroGnost microscope slide

#### Hematoxylin-eosin (HE) manual\* staining procedure, progressive

1.	Deparaffinize in xylene (BioClear) or xylene substitute (BioClear New)	3 exchanges, 2 min each
2.	Rehydrate in 100% alcohol (Histanol 100)	2 exchanges, 5 and 3 min
3.	Rehydrate in 95% alcohol (Histanol 95)	2 min
4.	Rehydrate in distilled/demineralized water	2 min
5.	Stain with Hematoxylin G3	3-5 min *10 min for optimal mucin staining
	Note: If precipitation occurs in the solution or if a metallic sheen has formed on the surface, the reagent must be filtered before use	
6.	Immerse the slide in distilled/demineralized water until the release of color from the slide stops	
7.	Make nuclei turn blue using Scott's solution or Bluing reagent	1 min
	Note: Stop bluing after the nuclei turn blue. If Scott's solution or Bluing reagent are unavailable, rinse the slides under running tap water for 3-5 minutes	
8.	Immerse the slide in distilled/demineralized water	
9.	If an alcoholic solution of eosin is used, immerse the slide in 95% alcohol (Histanol 95). If an aqueous solution of eosin is used, skip this step	
10.	Stain with one of the eosin counterstain solutions until optimal staining of the preparation is achieved.	15 s - 2 min
	Note: Staining slides with alcoholic eosin solutions produces an intense eosinophilic color much faster (within 15 seconds), whereas exposure of the preparation to aqueous eosin solutions is recommended for 90 seconds to 2 minutes.	
11.	Rinse under running tap water Note: If an alcoholic eosin solution is used as a counterstain, skip this step.	2 min
12.	Dehydrate in 95% alcohol (Histanol 95)	2 exchanges of 10-15 dips
13.	Dehydrate in 100% alcohol (Histanol 100)	3 exchanges of 10-15 dips
14.	Clear in xylene (BioClear) or xylene substitute (BioClear New)	2 exchanges, 2 min each

Immediately after clearing, apply an appropriate BioMount covering/mounting medium. If BioClear xylene was used, use one of BioGnost's xylene-based mountants (BioMount, BioMount High, BioMount M, BioMount DPX, BioMount C, or universal BioMount New). If BioClear New xylene substitute was used, the appropriate mountant is BioMount New. Cover the section with a VitroGnost cover glass.

\* The procedure for automatic staining with the hematoxylin-eosin (HE) method is available in the Instructions for Use of BioGnost products Hem Diff, Hem Diff Strong and BioBluing buffer.

### Result

Nuclei - dark blue

Cytoplasm, collagen, elastin, erythrocytes – shades of pink (when staining with Eosin Contrast: shades of red-pink)

Goblet cells (mucins), cartilage matrix – blue-purple

### Limitations

This product is intended for professional laboratory use for diagnostic purposes only. Deviations from the staining procedure described in BioGnost's instructions for use may cause variations in the results.

### Sample preparation and diagnostics

Use only appropriate instruments for collecting and preparing the samples. Process the samples using modern technology and mark them clearly. It is necessary to follow the manufacturer's instructions for use. To avoid errors, staining and diagnosis may only be performed by qualified personnel. Use a microscope that complies with medical diagnostic laboratory standards.

If a serious incident occurs during use or as a result of its use, please report it to the manufacturer or authorized representative and competent authority.

### Safety at work and environmental protection


Handle the product in accordance with occupational health and environmental protection guidelines. Used and expired solutions must be disposed of as special waste following national guidelines. Reagents used in this procedure can pose a danger to human health. The examined tissue samples are potentially infectious, therefore it is necessary to implement human health protection measures in accordance with good laboratory practice guidelines. It is mandatory to read and act according to the information and warning signs printed on the product label, instructions for use, and in the safety data sheet, which is available on request.

### Storage, stability, and shelf life












Upon receipt, store the product in a dry place and well-closed original packaging at a temperature of +15 °C to +25 °C. Do not freeze or expose to direct sunlight. After first opening, the product can be used until the specified expiry date, if stored properly. The production date and expiration date are printed on the product label.

### References

- Gill, GW, Frost, JK, Miller, K.A. (1974): A new formula for half-oxidized hematoxylin formula that neither overstains nor requires differentiation. *Acta Cytol.* 1974;18:300-301.
- Gill, G.W. (2006): Enviro-Pap: an environmental friendly, economical, and effective Pap stain. *Lab. Med.* 37: p. 105-108.
- Papanicolaou, G.N. (1954): A new procedure for staining vaginal smears. *Science.* 95: p. 438-439.
- Sheehan DC et Hrapchak, BB (1980): *Theory and Practice Histotechnology*, 2nd ed., St. Louise: CV Mosby Co.

Warnings and precautions regarding the materials contained in the product:	
	<p>H302 Harmful if swallowed.</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection. P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.</p>

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 Manufacturer	 Batch code	 Consult instructions for use	 European conformity
 Date of manufacture	 Catalogue number	 Caution	 Unique device identifier
 Use-by date	 Temperature limit	 <i>In vitro</i> diagnostic medical device	

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Version	Description / reason for change	Date
14	Revised acc. to Regulation (EU) 2017/746 - IVDR	09/04/2026