

# SHORR'S SOLUTION

IVD In vitro diagnostic medical device



## Reagent for differentiating between eosinophilic and cyanophilic cells of cervical epithelium and for better visualization of sperm morphology

### INSTRUCTIONS FOR USE

REF Catalog number: SH-OT-100 (100 mL)

SH-OT-500 (500 mL)

SH-OT-1L (1000 mL)

SH-OT-2.5L (2500 mL)

#### Introduction

Shorr's solution is primarily used for hormonal cytodiagnostics of gynecology samples. During menstrual cycle hormones cause changes in vaginal epithelium, and staining smears of cytology samples using Shorr's solution enables differentiation between eosinophilic (acidophilic) and cyanophilic (basophilic) cells. Ratio between the cells provides the information about the influence of follicle stimulating hormone (FSH) and luteinizing hormone (LH): amount of eosinophilic cells is greater under the influence of follicle stimulating hormone (FSH), and amount of cyanophilic cells is greater under the influence of luteinizing hormone (LH). The solution is ready to use, and the staining procedure itself is rapid and simple. It is also used for better visualization of sperm morphology.

#### Product description

**SHORR'S SOLUTION** - Reagent for differentiating between eosinophilic and cyanophilic cells of cervical epithelium and for better visualization of sperm morphology

#### Other slides and reagents that may be used in staining:

- Dehydrating/rehydrating agent, such as BioGnost's alcohol solutions: Histanol 70, Histanol 80, Histanol 95 and Histanol 100
- Staining reagents used in histopathology and cytology, such as BioGnost's hematoxylin solutions: Hematoxylin M; Hematoxylin H or Hematoxylin HP Pap 1A
- Glass slides used in histology, pathology and cytology, such as VitroGnost SUPER GRADE or VitroGnost COLOR, or one of 30 (and more) BioGnost's glass slides.
- Covering agents for microscopic sections and mounting cover glass, such as BioGnost's BioMount, BioMount High, BioMount M, BioMount DPX, BioMount C, or universal BioMount New
- VitroGnost cover glass, dimensions range from 18x18 mm to 24x60 mm

#### Preparing the cytology smear for staining

There are two methods of collecting and preparing the cytological samples:

1. After collecting the cytological sample, place it on the microscope slide (VitroGnost), fixate it immediately with a fixative in a spray bottle (CitoSpray), dry it and keep until the staining process. Cytological sample may be fixated and kept until staining by immersing into 95% alcohol solution (Histanol 95) for a minimum of 30 minutes.
2. Using liquid-based cytology method (LBC) and brush for collecting cytological samples, fixate the sample immediately (CitoFix, CitoFix in transport containers) by removing the brush head and immersing it in the fixative. At the beginning of processing the sample, isolate the cells from the fixative (one of the methods is to centrifuge the fixative) and place them on the microscope slide equally in a single layer. Cytological sample prepared in such a way is ready for staining.

#### Cytology smears staining procedure

The first stage of staining procedure depends on the method the cytological sample was collected and fixated on the microscope slide.

If the sample is dry and previously fixed using CitoSpray, it is necessary to keep it in a 95% alcohol solution (Histanol 95) for 10 minutes in order to remove polyglycols. If the section was fixated with a 95% alcohol solution (Histanol 95), ignore this step.

1.	Stain using Shorr's solution	1-3 minutes
2.	Dehydrate using 70% alcohol (Histanol 70)	10 x 1 seconds
3.	Dehydrate using 80% alcohol (Histanol 80)	10 x 1 seconds
4.	Dehydrate using 95% alcohol (Histanol 95)	10 x 1 seconds
5.	Dehydrate using 100% alcohol (Histanol 100)	10 x 1 seconds
	Note for obtaining permanent sections: Dry the section on air (the sections must be completely dry) Apply BioMount covering/mounting medium onto the section after drying (BioMount, BioMount High, BioMount M, BioMount DPX, BioMount C or universal BioMount New). Cover the section with VitroGnost cover glass.	

#### Result

Nuclei - brown-red

Cyanophilic (basophilic) cytoplasm - blue-green

Eosinophilic (acidophilic) cytoplasm - red

## Sperm staining procedure

1.	Prepare a glass slide that will contain a thin smear of the stained sperm sample	
2.	Smear the sample on the slide	
	Note: smear the sample according to the standardized method used in the laboratory or according to the following instructions:	
	1. Transfer 20 $\mu$ L of ejaculate onto the marked glass slide using the pipette and form a line on the center of the slide	
	2. Cover the slide using another glass slide so the drop spreads evenly. Separate the slides by pulling them horizontally in opposite directions, thus creating two test slides	
	3. Dry the preparation	
3.	Fix the section in 70% alcohol (Histanol 70)	1 min
4.	Stain the section with Hematoxylin M	5 min
5.	Rinse the section under tap water	3 min
6.	Immerse the section in 70% alcohol (Histanol 70)	10 seconds
7.	Immerse the section in 95% alcohol (Histanol 95)	10 seconds
8.	Stain using Shorr's solution	1 min
9.	Immerse the section in 95% alcohol (Histanol 95)	2 x 10 seconds
10.	Immerse the section in 100% alcohol (Histanol 100)	3 x 1 seconds
	Note for obtaining permanent sections: Dry the section on air (the sections must be completely dry) Apply BioMount covering/mounting medium onto the section after drying (BioMount, BioMount High, BioMount M, BioMount DPX, BioMount C or universal BioMount New). Cover the section with VitroGnost cover glass.	

## Result

Head of sperm; nuclei - blue

Acrosome - hues of blue

Neck of sperm - red

Tail of sperm (sperm tail colored red is indicative of low sperm motility, while sperm tail colored blue is indicative of normal sperm motility) - red or blue

The following must be displayed as percentage:

- anomalies of sperm structural elements: head, midpiece, and tail
- agglutinates and aggregates
- leukocytes, erythrocytes, non-matured sex cells and epithelial cells
- normal shapes of sperm cells

## Note

Time periods of staining processes are not entirely standardized in clinical and laboratory practical experience. Time periods specified in the instruction approximately correspond to a longtime work practice with optimal results. Intensity of staining depends on the period of immersion in the dye. Real staining protocol depends on personal requests and priorities.

## Preparing the sample and diagnostics

Use only appropriate instruments for collecting and preparing the samples. Process the samples with modern technology and mark them clearly. Follow the manufacturer's instructions for handling. In order to avoid mistakes, the staining procedure and diagnostics should only be conducted by authorized and qualified personnel. Use only microscope according to standards of the medical diagnostic laboratory.

## Safety at work and environmental protection

Handle the product in accordance with safety at work and environmental protection guidelines. Used solutions and out of date solutions should be disposed of as special waste in accordance with national guidelines. Chemicals used in this procedure could pose danger to human health. Tested tissue specimens are potentially infectious. Necessary safety measures for protecting human health should be taken in accordance with good laboratory practice. Act in accordance with signs and warnings notices printed on the product's label, as well as in BioGnost's material safety data sheet.














## Storing, stability and expiry date

Keep Shorr's solution in a tightly closed original package at temperature between +15°C and +25°C. Keep in dry places, do not freeze and avoid exposing to direct sunlight. Date of manufacture and expiry date are printed on the product's label.

## References

1. Papanicolaou, G.N. (1941): Some improved methods for staining vaginal smears. J Lab Clin Med.
2. Papanicolaou, G.N. (1942): A new procedure for staining vaginal smears. Science.
3. Carson, F.L., Hladik C. (2009): Histotechnology: A self-instructional text, 3<sup>rd</sup> ed. ASCP Press.

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	Refer to the supplied documentation		Storage temperature range		Number of tests in package		Product code		European Conformity
	Refer to supplied instructions		Keep away from heat and sunlight		Valid until		Lot number		Manufacturer
	For <i>in vitro</i> diagnostic use only		Keep in dry place		Caution - fragile				

 BIOGNOST Ltd.  
Medjugorska 59  
10040 Zagreb  
CROATIA  
www.biognost.com

