



**BIOGNOST**®

# LeukoGnost®

DIAGNOSTIC CYTOCHEMICAL STAINING KITS  
FOR THE DETECTION OF LEUKEMIA AND  
MYELOPROLIFERATIVE DISEASES



# LeukoGnost®

## CYTOCHEMICAL STAINING FOR THE DIFFERENTIATION OF LEUKEMIA AND MYELODYSPLASTIC SYNDROMES

Staining of blood and bone marrow smears is a known method for diagnostics of hematology disorders, used together with modern methods, such as flow cytometry and immunohistochemical techniques. Enzymatic cytochemical staining detects the location and activity of cellular substances and enzyme systems in cytoplasm of leukemia cells, which is important for setting different diagnoses. Besides differentiation of leukemia types, enzyme cytochemical staining techniques can be used in hematological tests for the differentiation of myelodysplastic syndromes (MDS).

LeukoGnost kits are enzymocytochemical kits used for staining of blood smears and bone marrow smears. It enables distinguishing of the lymphoid from the myeloid cell line and therefore lymphocytic from myelocytic leukemia. The main purpose of this type of staining is to detect cellular enzymes in the cytoplasm of the leukocytes.

In its portfolio BioGnost offers a complete selection of enzymocytochemical kits for diagnosis and classification of leukemias and myelodysplastic syndromes (MDS), as well as accompanying products (fixatives, counterstain for nuclei and water-based slide mounting medium). The enzymes whose identification is used in the diagnosis of leukemia are following: phosphatase (alkaline and acidic), esterase (specific and non-specific) and myeloperoxidase. Apart from detecting enzymes, tests that detect the reaction of periodic acid and Schiff's base in cells as well as reagents that cause Prussian (Berliner) blue reaction are also used for differentiation of leukemias and MDS.

## ADVANTAGES OF USING LEUKOGNOST KITS

- Easy and fast staining using stabilized ready-to-use reagents
- Reagent volume optimized for a precise number of tests
- Staining at room temperature
- Single fixative used in all kits
- Uniform staining intensity
- Quick and reliable results
- Long stability of reagents

## PRINCIPLE OF LEUKOGNOST STAINING

1. Fixation of the air-dried blood and bone marrow smears in LeukoGnost fixative
2. Wash with distilled water
3. Stain the slide with freshly prepared staining solution
4. Wash with distilled water
5. Counterstain with LeukoGnost HEM (hematoxylin reagent)
6. Wash with tap running water
7. Air dry and cover with BioMount Aqua

## APPLICATION OF LEUKOGNOST KITS

Kit	Name	Enzyme / Staining	Type of leukemia (According to FAB classification)
1	<b>LeukoGnost PAS</b>	Periodic acid-Schiff	erythroleukemia ( <b>M6</b> ) ( <b>AML</b> ) acute lymphocytic leukemia ( <b>ALL</b> )
2	<b>LeukoGnost SPE</b>	Specific esterase	acute myelomonocytic leukemia ( <b>M4Eo</b> ) acute promyelocytic leukemia ( <b>M3</b> ) ( <b>AML</b> )
3	<b>LeukoGnost NSE</b>	Non-specific esterase	acute myelomonocytic leukemia ( <b>M4</b> ) ( <b>AMML</b> ) acute monocytic leukemia ( <b>M5</b> ) ( <b>AML</b> )
4	<b>LeukoGnost MPO</b>	Myeloperoxidase (peroxidase)	acute myeloid leukemia ( <b>AML</b> )
5	<b>LeukoGnost ALP</b>	Alkaline phosphatase	chronic myeloid leukemia ( <b>CML</b> )
6	<b>LeukoGnost ACP</b>	Acid phosphatase	hairy-cell leukemia ( <b>CLL</b> ) T-cell acute lymphoblastic leukemia
7	<b>LeukoGnost SPENSE</b>	Specific and non-specific esterase	acute myelomonocytic leukemia ( <b>M4</b> ) ( <b>AMML</b> ) acute myeloid and monocytic leukemia ( <b>AML</b> )
8	<b>LeukoGnost PERLS</b>	Prussian (Berliner) blue	myelodysplastic syndrome ( <b>MDS</b> )

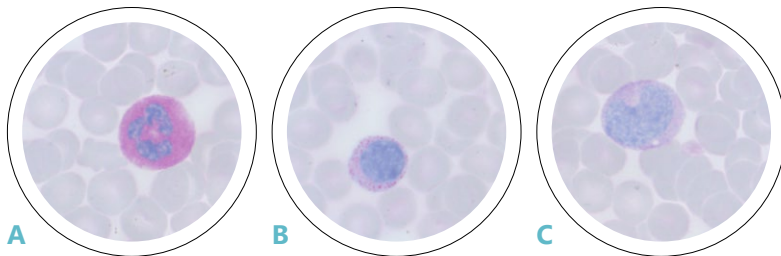
# LeukoGnost PAS

Product code: LKG-PAS (for at least 100 tests)

Kit for detection of periodic acid-Schiff reaction in leukocytes, used in diagnosis of **acute lymphatic leukemia (ALL)** and **erythroleukemia**.

Reagents included with LeukoGnost PAS kit:

Reagents	REF	Volume (for 100 tests)
Reagent 1 Periodic acid, LeukoGnost	PKL-OT-100	2x100 mL
Reagent 2 Sodium metabisulfite, LeukoGnost	NMLKG-OT-10	2x10 mL
Reagent 3 HCl reagent, LeukoGnost	HCLLP-OT-10	2x10 mL
Reagent 4 BioSchiff Forte	BSF-OT-100	2x100 mL



LeukoGnost PAS positive reaction with neutrophils (A), lymphocytes (B) and monocytes (C) in leukemic blood smear.

# LeukoGnost SPE

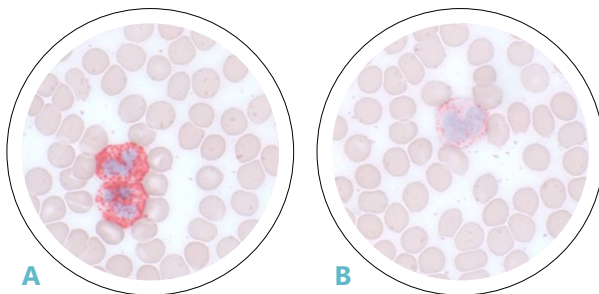
Product code: LKG-SPE (for at least 100 tests)

Kit for detection of specific esterase activity (Leder stain, chloroacetate esterase) in leukocytes, used to differentiate **acute myelomonocytic leukemia (M4Eo)** and **hypergranular promyelocytic leukemia (M3)** from other leukemias.

Reagents included with LeukoGnost SPE kit:

Reagents	REF	Volume (for 100 tests)
Reagent 1 Sodium nitrite, solution	NAN-OT-5	5 mL
Reagent 2 Pararosaniline, solution	PARA-OT-3	3 mL
Reagent 3 SPE buffer	FOP-OT-100	2x100 mL
Reagent 4 SPE substrate	NASD-OT-10	10 mL

LeukoGnost SPE positive neutrophils (A) and monocyte (B) in leukemic blood smear.





# LeukoGnost NSE



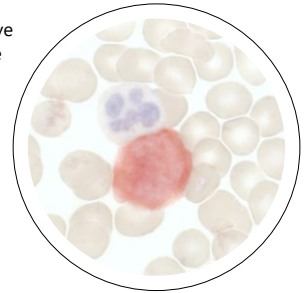
Product code: LKG-NSE (for at least 100 tests)

Kit for detection of non-specific esterase activity in leukocytes, most suitable for identifying monoblastic types of leukemia (*acute myelomonocytic leukemia* and *acute monocytic leukemia*).

Reagents included with LeukoGnost NSE kit:

Reagents	REF	Volume (for 100 tests)
Reagent 1 Sodium nitrite, solution	NAN-OT-5	5 mL
Reagent 2 Pararosaniline, solution	PARA-OT-3	3 mL
Reagent 3 NSE buffer	NSEP-OT-100	2x100 mL
Reagent 4 NSE substrate	NAFA-OT-10	10 mL
Reagent 5 NSE inhibitor	NAFO-OT-15	3x15 mL

LeukoGnost NSE positive monocyte and negative neutrophil in leukemic blood smear.



# LeukoGnost MPO



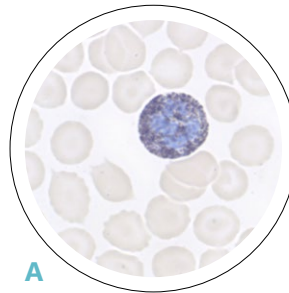
Product code: LKG-MPO (for at least 100 tests)

Kit for detection of myeloperoxidase (peroxidase) activity in leukocytes, used in diagnosis of *acute myeloid leukemia (AML)*.

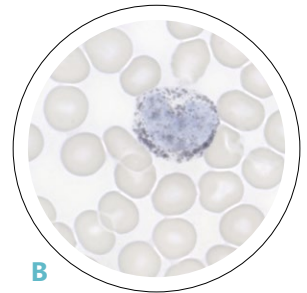
Reagents included with LeukoGnost MPO kit:

Reagents	REF	Volume (for 100 tests)
Reagent 1 MPO buffer	PBSL-OT-100	2x100 mL
Reagent 2 MPO substrate	4K1N-OT-10	10 mL
Reagent 3 Hydrogen peroxide, solution	VPO-OT-10	10 mL

LeukoGnost MPO positive reaction with neutrophil (A) and monocyte (B) in leukemic blood smear.



A



B



# LeukoGnost ALP



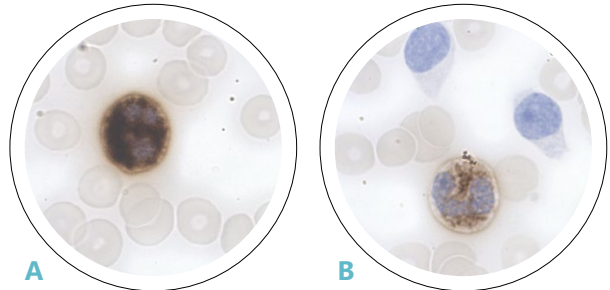
Product code: LKG-ALP (for at least 100 tests)

Kit for detection of alkaline phosphatase activity in leukocytes, used to differentiate a **chronic myelogenous leukemia (CML)** from leukemoid reaction and other myeloproliferative disorders.

Reagents included with LeukoGnost ALP kit:

Reagents	REF	Volume (for 100 tests)
Reagent 1 Sodium nitrite, solution	NAN-OT-5	5 mL
Reagent 2 Variamin Blue B, solution	VAR-OT-3	3 mL
Reagent 3 ALP buffer	TRIS-OT-100	2x100 mL
Reagent 4 ALP substrate	NAF-OT-10	2x10 mL

Different staining intensity in leukemic neutrophils with LeukoGnost ALP kit.



# LeukoGnost ACP

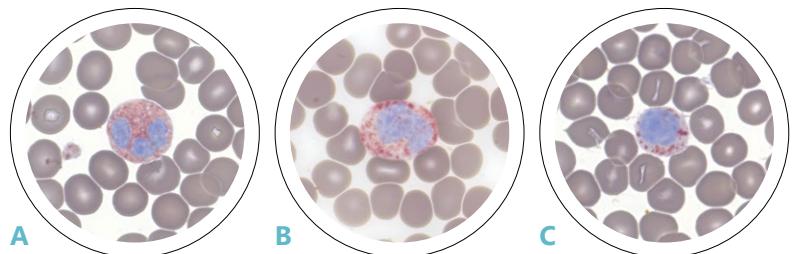


Product code: LKG-ACP (for at least 50 tests)

Kit for detection of acid phosphatase activity in leukocytes, used to diagnose **acute T-lymphoblastic leukemia** in the bone marrow smears and for diagnosis of **hairy-cell leukemia**.

Reagents included with LeukoGnost ACP kit:

Reagents	REF	Volume (for 100 tests)
Reagent 1 Sodium nitrite, solution	NAN-OT-5	5 mL
Reagent 2 Fast Garnet GBC, solution	FGGBC-OT-2	2 mL
Reagent 3 ACP buffer	NAP-OT-100	100 mL
Reagent 4 ACP substrate	NASBI-OT-5	5 mL
Reagent 5 ACP inhibitor	NATA-OT-10	2x10 mL



LeukoGnost ACP positive neutrophil (A), monocyte (B) and lymphocyte (C) in leukemic blood smear.



# LeukoGnost SPENSE



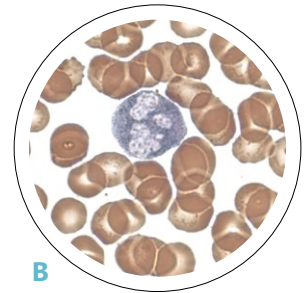
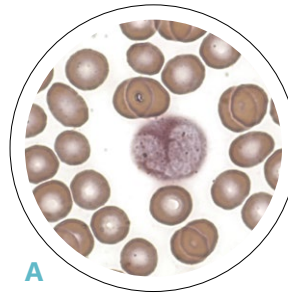
Product code: LKG-SPENSE (for at least 50 tests)

Kit for simultaneous detection of both, specific and non-specific esterase activity in leukocytes, used to diagnose *acute myeloid* and *monocytic leukemia (AML)*.

Reagents included with LeukoGnost SPENSE kit:

Reagents	REF	Volume (for 100 tests)
Reagent 1 Sodium nitrite, solution	NAN-OT-5	5 mL
Reagent 2 Fast Blue RR/Fast Garnet GBC, solution	FBFG-OT-2	2 mL
Reagent 3 SPE buffer	FOP-OT-100	100 mL
Reagent 4 SPE substrate	NASD-OT-5	5 mL
Reagent 5 Fast Garnet GBC, solution	FGGBC-OT-2	2 mL
Reagent 6 NSE buffer	NSEP-OT-100	100 mL
Reagent 7 NSE substrate	NAFA-OT-5	5 mL
Reagent 8 NSE inhibitor	NAFO-OT-10	2x10 mL
Reagent 9 Methyl Green, solution	MGR-OT-100	100 mL

Specifically stained monocyte (A) and neutrophil (B) with LeukoGnost SPENSE kit.



# LeukoGnost PERLS



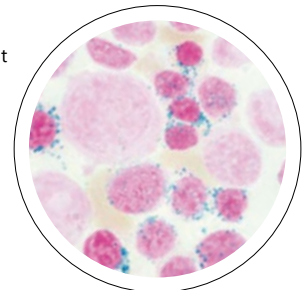
Product code: LKG-PERLS (for at least 100 tests)

Kit for detection of Prussian (Berliner) blue reaction (insoluble iron/hemosiderin in siderocytes), used in hematological tests for the differentiation of *myelodysplastic syndromes (MDS)*.

Reagents included with LeukoGnost PERLS kit:

Reagents	REF	Volume (for 100 tests)
Potassium hexacyanoferrate, solution	KHC-OT-100	100 mL
HCL reagent, LeukoGnost Perls	HCLL-OT-100	100 mL
Nuclear Fast Red (Kernechtrot) reagent	KR-OT-100	100 mL

Blue precipitate in granules as a result of Prussian blue reaction.





# Sudan Black B



Product code: SBBH-K-100 (for at least 100 tests)

Kit for staining neutrophil granules in blood smears and bone marrow smears, used for *determining myelocytic* and *myelomonocytic leukemia*.

Reagents included with Sudan Black B kit:

Reagents	REF	Volume (for 100 tests)
Sudan Black B reagent	SBB-OT-100	2 x 100 mL
Hematoxylin G3	HEMG3-OT-100	100 mL
Glutaraldehyde, 4% buffered solution	G4-OT-75	75 mL
Acetone for histology	AC-25	25 mL

# Sudan Black B ECO



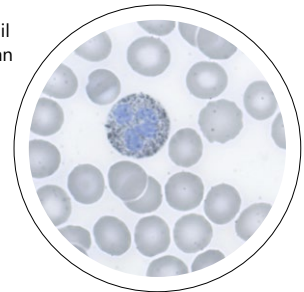
Product code: SBBE-100T (for at least 100 tests)

Phenol-free kit for staining neutrophil granules in blood smears and bone marrow smears, more reliable and safer product compared to other kits of the same type and purpose.

Reagents included with Sudan Black B ECO kit:

Reagents	REF	Volume (for 100 tests)
Sudan Black B fixative	SBBF-100	100 ml
Sudan Black B reagent, phenol free	SBBP-OT-100	100 ml
LeukoGnost HEM	LKH-OT-100	100 ml

Positive neutrophil stained with Sudan Black B ECO kit.



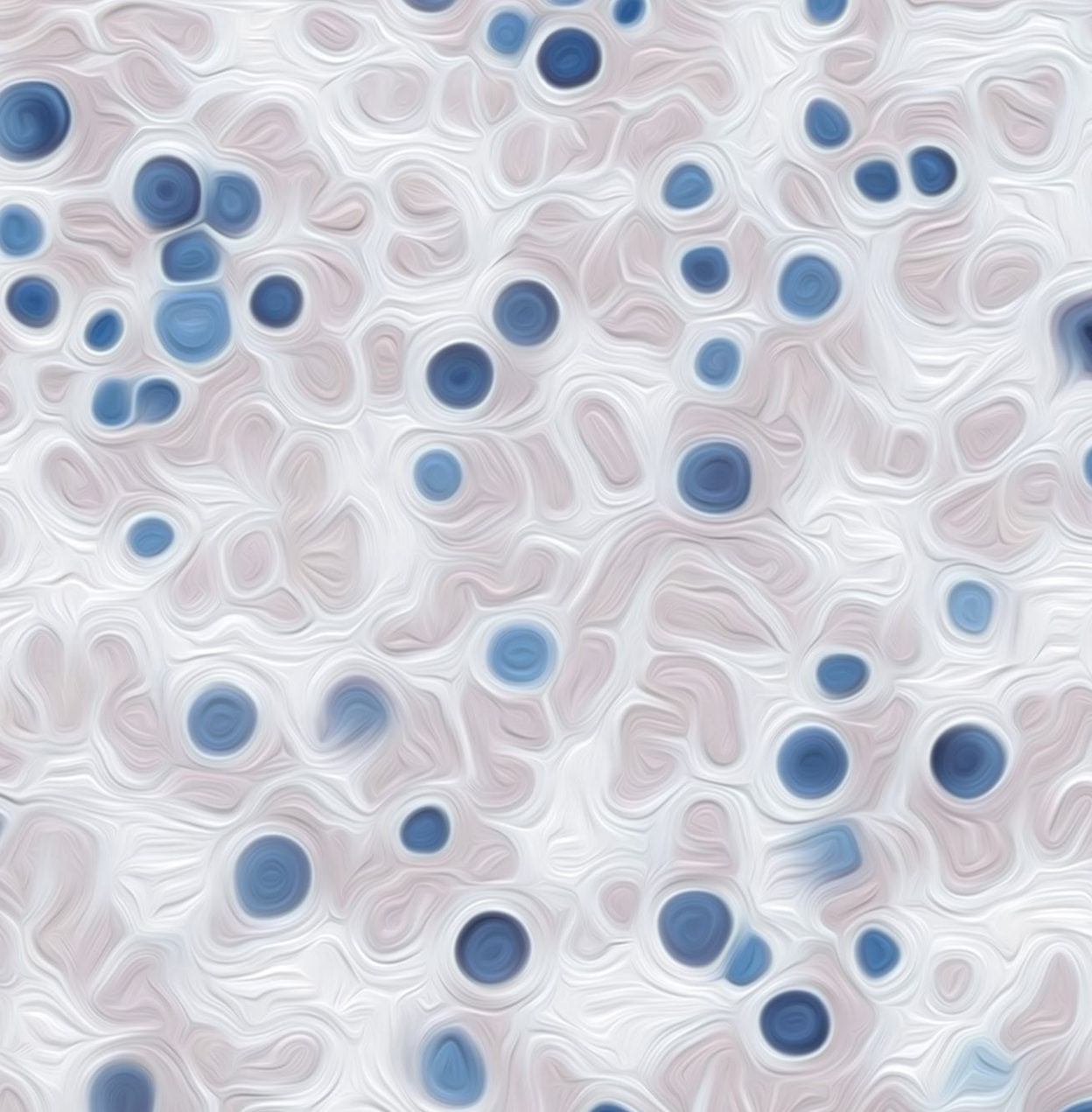
## ADDITIONAL REAGENTS

Additional reagents greatly complement LeukoGnost kits-can be purchased separately or as a kit (LeukoGnost PLUS) containing a fixative, hematoxylin stain and a water-based mounting medium.

Reagent		Product Code	Package size
<b>LeukoGnost Fixative</b>	alcohol free fixative based on acetone and formalin	LKF-500	500 mL
<b>LeukoGnost Fixative GL</b>	formalin free fixative based on acetone and glyoxal	LFGL-500	500 mL
<b>LeukoGnost Fixative ECO</b>	formalin free fixative based on acetone and citrate buffer	LFEC-500	500 mL
<b>LeukoGnost HEM</b>	hematoxylin solution used as a nuclei counterstain	LKH-OT-100	100 mL
		LKH-OT-250	250 mL
		LKH-OT-500	500 mL
<b>Biomount Aqua</b>	water-based medium for mounting cover slides and permanent storage of stained slides	BMA-30	30 mL
		BMA-100	100 mL
		BMA-250	250 mL
		BMA-500	500 mL
<b>LeukoGnost PLUS Kit</b>	set of reagents for use with LeukoGnost kits; contains LeukoGnost Fixative, LeukoGnost Hematoxylin and BioMount Aqua	LKG-PLUS	for at least 100 tests







**BioGnost Ltd.**

For development, manufacture and  
marketing of pharmaceuticals

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