

## KAPPA light Chains CISH kit For *In vitro* Diagnostic Use.

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## 1 AVAILABLE PRODUCT FORMATS

Vitro Ref	Biocare Ref	Tests	Vitro Component Ref	Biocare Components Ref	Quantity x Volume
MAD-001895QHVSBC	EG022-VTR-CK-CE-NP	20	MAD-001895HSVS	EG022-VTR-CP-CE-NP	1 x 1.41mL
			MAD-001892QDVS	EG024-VTR-DIG-CE-NP	1 x 7mL
			MAD-011892QECVS	EG025-VTR-PK-CE-NP	1 x 14mL

Table 1. References and presentation

## 2 INTENDED PURPOSE OF THE PRODUCT

The KAPPA light Chains CISH kit is a qualitative automated test designed for the detection of kappa ( $\kappa$ ) light chain mRNA in formalin-fixed paraffin-embedded (FFPE) tissue specimens through chromogenic *in situ* hybridization (CISH). This test should be performed under the supervision of healthcare professionals trained in the interpretation of molecular and immunohistochemistry techniques. It is not intended to be used as a sole diagnostic procedure but as part of a comprehensive approach in patient management. This product is intended for people of all ages who require analysis of the detection of Kappa light chains expression by CISH technique.

## 3 SUMMARY AND EXPLANATION

Immunoglobulins (Igs) are composed of two heavy chains and two light chains, with each light chain containing a constant and a variable domain. During early B-cell development, gene rearrangements of the variable (V), diversity (D), and joining (J) regions result in the production of a functional immunoglobulin molecule. Heavy chain rearrangement occurs first (pro-B stage), followed by light chain rearrangement (pre-B stage).

Human B lymphocytes express one of two light chain isotypes: kappa ( $\kappa$ ) or lambda ( $\lambda$ ), but never both simultaneously. The  $\kappa$  gene is located on chromosome 2 and the  $\lambda$  gene on chromosome 22. Under normal conditions, about 60% of B cells express  $\kappa$ , and 40% express  $\lambda$  light chains. This balanced distribution produces a polyclonal expression pattern in reactive lymphoid tissue.

Like all malignant neoplasms, B-cell lymphomas are clonal proliferations arising from a single transformed B lymphocyte. As a result, they produce immunoglobulins containing only one type of light chain, either kappa ( $\kappa$ ) or lambda ( $\lambda$ ), a feature known as monoclonal expression. Consequently, assessing the  $\kappa/\lambda$  light chain ratio within a given cell population is a key diagnostic tool for determining clonality, and for distinguishing malignant B-cell lymphomas or plasma cell neoplasms from reactive, polyclonal proliferations.

The KAPPA light Chains CISH kit is designed for the *in situ* detection of Kappa ( $\lambda$ ) light chain mRNA in formalin-fixed, paraffin-embedded (FFPE) tissues using chromogenic *in situ* hybridization (CISH).



## 4 PRINCIPLE OF PROCEDURE

Chromogenic *In Situ* Hybridization (CISH) is a molecular technique used to detect specific nucleic acid sequences in formalin-fixed, paraffin-embedded (FFPE) tissue sections. The KAPPA light Chains CISH kit is designed for the automatic qualitative detection of mRNA of Kappa light chains in tissue specimens. The method is based on the hybridization of a labeled probe to complementary sequences within B-cells expressing mRNA Light chains. Following hybridization, the probe is visualized through an enzyme-conjugated detection system (peroxidase) and a chromogenic substrate (DAB). Enzymatic activation of the chromogen produces a visible reaction product at the hybridization site.

After chromogenic development, specimens may be counterstained and coverslipped. Results are interpreted using a standard light microscope.

## 5 RECONSTITUTION, MIXING, DILUTION

This product is provided in a ready-to-use format. It is not necessary to reconstitute, mix or dilute it.

## 6 ADDITIONAL REQUIRED MATERIAL NOT SUPPLIED

### 6.1 Reagents and materials

- Cover, Biocare Ref NPRI10002L2, Vitro Ref. MAD-003983VS
- Dewax Solution, Biocare Ref. NPRI10001T280, Vitro Ref. MAD-004080VS
- DAB Enhancer, Biocare Ref. NPRI10005L2, Vitro Ref. MAD-001560QV
- Contrast Hematoxylin HDH3, Biocare Ref. NPRI10006L2, Vitro Ref. MAD-HDH3-100VS
- TBS Tween 20 Buffer 10X, Biocare Ref. NPRI10007MM, Vitro Ref. MAD-004077R-10
- Cleaning Solution 10X, Biocare Ref. NPRI10008MM, Vitro Ref. MAD-003931CSVS
- Probe Cleaning Kit, Biocare Ref. NPRI10009KC10, Vitro Ref. MAD-PCLK
- Master Polymer Plus Detection System, Biocare Ref. NPRI10010T135, Vitro Ref. MAD-000237QKVSBC
- IHC Treated Slides, Biocare Ref. NPRI10011, Vitro Ref. MAD-15-188-55/100
- Mixing Tubes, Biocare Ref. NPP20001, Vitro Ref. MAD-60732-100

### 6.2 Equipment

- NeoPATH Pro
- Optical microscope and/or digital scanner of histological slides

## 7 STORAGE AND STABILITY CONDITIONS

Component:	Use conditions
Storage conditions	Store at 2°-8°C and keep away from sources of intense heat/cold until the expiration date of the product.
In-use stability	Once open, keep at 2°-8°C until the expiration date of the product.



Component:	Use conditions
Shipping conditions	Shipment should be performed at 2-8°C).

Table 2. Storage and stability conditions.

The product is stable to the expiration date printed on the label when stored at 15°-25°C. Do not use after expiration date.

## 8 SPECIMEN PREPARATION

Paraffin Sections: Tissues fixed in *formalin* are suitable for use prior to paraffin embedding.

## 9 WARNINGS AND PRECAUTIONS

- **Read the instructions for use before using this product.** In case of atypical or unexpected results, please contact your Authorized Supplier/Distributor.
- **Professional Use.** This product is only intended for professional laboratory purposes, and it is not intended for pharmacological, domestic or any other type of use. When the product is used as an aid to diagnosis it should only be handled by trained users and in authorized laboratories.
- Do not use reagent after the expiration date printed on the label.
- **Rx Only Physician prescribed test.** This product is for professional use only on prescription by a physician or other healthcare professional.
- **Use:**
  - Specimens, before and after fixation, and all materials exposed to them, should be handled as if capable of transmitting infection and disposed of with proper precautions.
  - Microbial contamination of reagents may result in an increase in nonspecific staining or/and erroneous results.
  - Incubation times or temperatures other than those specified may give erroneous results. The user must validate any such change.
  - Do not use reagent after the expiration date printed on the label.
- **Serious incident.** Any serious incident related to the use of this product that involves or may involve a serious deterioration, temporary or permanent, of the state of health of a patient, user or other person, or even death, or a serious threat to public health, must be reported as soon as possible to the manufacturer by e-mail at [regulatory@vitro.bio](mailto:regulatory@vitro.bio) and to the competent Health Authority of the EU member state where the user or patient is established. If the user is located in USA, report any serious incidents related to this device by contacting the local distributor (information identified on the product labelling) and the applicable competent authority of the Member State. Incidents caused by misuse of the product or by the use of the product beyond the useful life established on its labeling will be the responsibility of the user.
- **The safety and disposal precautions are described in the Safety Data Sheet of this product.** The current version of the Safety Data Sheet (SDS) of this product can be downloaded in the web page [www.vitro.bio](http://www.vitro.bio) or requested at [regulatory@vitro.bio](mailto:regulatory@vitro.bio).
- **Waste disposal:** The handling of wastes generated by the use of the products commercialized by Vitro S.A. must be performed according to the applicable law in the country in which these products are being used. As reference, the following table indicates the classification of wastes generated by this kit according to the European Law, specifically according to the *European Commission Decision of December*

18, 2014 amending decision 2000/532/CE on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council:

POTENTIAL WASTE GENERATED AFTER USING THIS PRODUCT	ELW* CODE	TYPE OF WASTE ACCORDING TO ELW*
Container for reagents used classified as dangerous (according to the Safety Data Sheet).	150110	"Containers containing waste or contaminated by dangerous substances"
Aqueous liquid waste containing hazardous substances (not solvents).	161001	"Liquids generated from the use of automatic IHC/HIS instruments: - Waste deposit of immunostainers. - used PT-Module buffers"
Consumables (tubes, tips, etc.). Any element that has been in contact with tissue samples.	180103	"Waste whose collection and disposal is subject to special requirements in order to prevent infection"
Liquids containing solvents (xylol, haematoxylin, alcohol, eosin), generated from immunostaining techniques.	160506	"Laboratory chemicals consisting of or containing dangerous substances, including mixtures of laboratory chemicals".

Table 3. Classification of waste generated by the use of this kit according to the European Legislation. \*ELW: *European Legislation of Waste*.

**\*Note: This classification is included as a general guideline of action, being under the final responsibility of the user the accomplishment of all the local, regional, and national regulations on the disposal of this type of materials.**

## 10 INSTRUCTIONS FOR USE

11 Place the reagents in the NeoPATH Pro before starting the CISH process on the instrument. Select the appropriate protocol from the instrument menu and follow the on-screen instructions.

## 12 TROUBLESHOOTING

Follow the CISH recommendations according to NeoPATH Pro protocol. If atypical results occur, contact Vitro's Regulatory Department at [regulatory@vitro.bio](mailto:regulatory@vitro.bio).

## 13 LIMITATIONS

- Results must be interpreted by qualified healthcare professional in the context of patient's clinical history, symptoms, and other diagnostic findings.
- The correct performance of the test depends on the quality of the sample.
- NeoPATH Pro and the ancillary reagents should be used with formalin-fixed paraffin-embedded tissue sections. The use of any other type of sample may generate erroneous results and its performance must be verified beforehand.
- Tissue staining is dependent on the handling and processing of the tissue prior to staining. Improper



fixation, freezing, thawing, washing, drying, heating, sectioning or contamination with other tissues or fluids may produce artifacts, antibody trapping, or false negative results. Inconsistent results may be due to variations in fixation and embedding methods, or to inherent irregularities within the tissue.

- Excessive or incomplete counterstaining may compromise proper interpretation of results.
- The manufacturer provides this reagent for use following the instructions for CISH on prepared tissue sections. Any deviation from recommended test procedures may invalidate declared expected results; appropriate controls must be employed and documented. Users who deviate from recommended test procedures must accept responsibility for interpretation of patient results under these circumstances.
- Tissues from individuals infected with hepatitis B virus and containing hepatitis B surface antigen (HBsAg) may exhibit nonspecific staining with horseradish peroxidase.

#### 14 PERFORMANCE CHARACTERISTICS

The intra-run and inter-run reproducibility of the KAPPA light Chains CISH kit performance was evaluated by staining slides containing the same tissue on different instruments, operators, and on different days. The staining results were consistent across all conditions, demonstrating 100% concordance in tissue samples and performing as expected.











#### 15 BIBLIOGRAPHY

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## 16 LABEL AND BOX SYMBOLS

Explanation of the symbols of the product label and box:

	<i>In vitro</i> diagnostic medical device		Expiration date
	Catalog number		Temperature limit
	Lot code		Manufacturer
	Refer to the instructions for use		Safety data sheet
	Distributor		Importer

## 17 CHANGELOG

Date	Description
2025-08-08	Creation of the document.

