



## 2C-310

Gill 2, (haematoxylin)  
In-vitro diagnostic agent

### Description

The product 2C-310 is a ready-to-use solution for professional users in cytology and histology. It is a staining solution mixed with acetic acid.

The product comes in 1 pack size: 2C-310.01000 (1l bottle)

### Main components

Haematoxylin (C.I. 75290)	4.0 g/l
Aluminium sulphate ( $\text{Al}_2(\text{SO}_4)_3 \times 18 \text{ H}_2\text{O}$ )	1.6 g/l
Acetic acid ( $\text{CH}_3\text{COOH}$ )	27g/l

### Purpose

Gill II (haematoxylin) is used for the examination of cytological and histological sample material such as smears or histological sections. It is a ready-to-use dye solution for professional users. It can be used for Papanicolaou (PAP) staining, which is predominantly used in gynaecological cytology for carcinoma diagnosis.

### Sample material and sample preparation

Sampling may only be carried out by qualified personnel. All samples must be processed with state-of-the-art technology. All samples must be clearly labelled.

Sample material: Gynaecological and non-gynaecological sample material from cytology (urine sediment, sputum, smears from fine needle aspiration biopsies, irrigation fluids, imprints, effusions) as well as sections of human tissue (3–5  $\mu\text{m}$  thickness) after fixation, for instance by buffered formol and fixation mixtures with ethanol and formalin and subsequent embedding in paraffin.

### Test principle

The Papanicolaou stain is a polychrome stain that requires other dyes besides haematoxylin.

The principle of PAP staining consists of nuclear staining and polychrome cytoplasmic staining. Haematoxylin is used for nuclear staining.

Following nuclear staining, polychrome cytoplasmic staining is performed. In a first step, it consists of staining with orange solution, which stains the keratinised squamous cells in particular. The second and last step of the plasma staining is done with the use of a polychrome solution of eosin, light green and bismarck brown. This enables differentiated visualisation of mature and immature squamous cells.

### Staining

Histological sections must be deparaffinised before staining.



Transfer sections or smear specimens via a descending ethanol series into distilled water.

The ready-to-use staining solution should be filtered before use.

The staining can be progressive or regressive: Progressive staining involves staining to the end point and then bluing in tap water. In regressive staining, a longer staining ("overstaining") with haematoxylin is carried out first in order to differentiate acidically after blueing in tap water.

Polychrome cytoplasmic staining can be performed after nuclear staining. After staining, the samples are transferred to xylene via an ascending ethanol series.

The samples can be covered with a synthetic covering medium for subsequent examination under a microscope.

To ensure the differentiability of the target structures, suitable control specimens should be kept along with the staining.

The usual staining protocols known from literature must be used.

Staining may only be carried out by qualified personnel.

## Result

### Cytoplasm

- basophil (immature epithelial cells): blue-green
- acidophilic (mature epithelial cells): red-orange
- eosinophil: reddish

Cell nuclei: blue to dark purple

Erythrocytes: red  
Bacteria: grey-blue  
Trichomonads: grey-green

## Precautionary measures

When removing the product, care must be taken to avoid contamination of the storage vessel. Once the solution has been removed, it must not be returned to the canister. If turbidity or solids appear, discard the product. The product is intended for single use and must not be reused.

## Storage and shelf life

Store the unopened containers in a dry place at 15 to 25 °C, avoiding direct sunlight. The shelf life is 2 years. See also the best-before date (BBD) on the label. Once the containers have been opened, the shelf life corresponds to the best-before date, as long as the storage conditions are observed and the solution is handled properly.

## Safety notice

If any serious incidents occur in connection with the product, please report them to the manufacturer and the national authority.



## Literature

Romeis, Mikroskopische Technik, Editors: Maria Mulisch, Ulrich Welsch, 2010, Springer Spektrum, 18th edition



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