Pathology Decision Support System

e-Pathologist® IHC*  * Immuno-histo-chemistry

Description

NEC’s original image-recognition technology selects the areas of suspected cancer for quantitative IHC analysis, and indicates the positive ratio in each area automatically. This software makes it possible to do quantitative analysis without human intervention. Pathology diagnosis is categorized by two sections. As shown in Fig.1, one pathology diagnosis is for the definition of cancer during first detailed examination after judged “abnormal” by cancer screening. The other pathology diagnosis is for selection of cancer treatment during second detailed examination after judged “cancer or malignancy” by first detailed examination. e-Pathologist Quantitative IHC Analysis Software is used for the second pathology diagnosis of breast cancer.

Features & Benefits

- Prevention of analysis result falsification
- Log record of analysis and access
- Data import of slide-related case information
- Multiple search functions (Analysis situation, Analysis result, Case)
- Deployment in accordance with user operation
- Improves consistency of pathology tests through objective measurements

- Expedites operations through fully automatic measurements
- Automatic making report of diagnosis result
- Digital archiving of slide images and analysis results
- Reduction of operation cost

Fig.1: Pathology diagnosis flow
**Technical Excellence**

The target measuring area is selected automatically from an IHC pathology slide image, which has been digitized by a slide scanner. The positive ratio is calculated by evaluating the cells in the area, which is then outlined with a color corresponding to the result. e-Pathologist provides the function of highly accurate extraction of cell nuclei and cell membranes and automatic removal of stroma areas in target regions for measurement. Then positive, weakly positive, and negative cells are counted by the system. The analysis results are shown with red and green marker.

**Whole Slide Mode**
All areas of suspected cancer are extracted automatically, and the positive ratio is indicated in each area.

**Spot Mode**
Spots are selected within each area of suspected cancer, and the positive ratio is indicated in each spot.

**Fig.2:** Analysis results of breast PgR
(Blue: 0-1%, Green: 1-20%, Yellow: 20-50%, Orange: 50-80%, Pink: 80-100%)

**Fig.3:** Analysis result for breast PgR
(Red: positive, Green: negative)
Reference

Automated gastric cancer diagnosis on H&E-stained sections, Training a classifier on a large scale with multiple instance machine learning.


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Dawn of the digital diagnosis assisting system, can it open a new age for pathology?

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Characterization of chromatin texture by contour complexity for cancer cell classification.

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