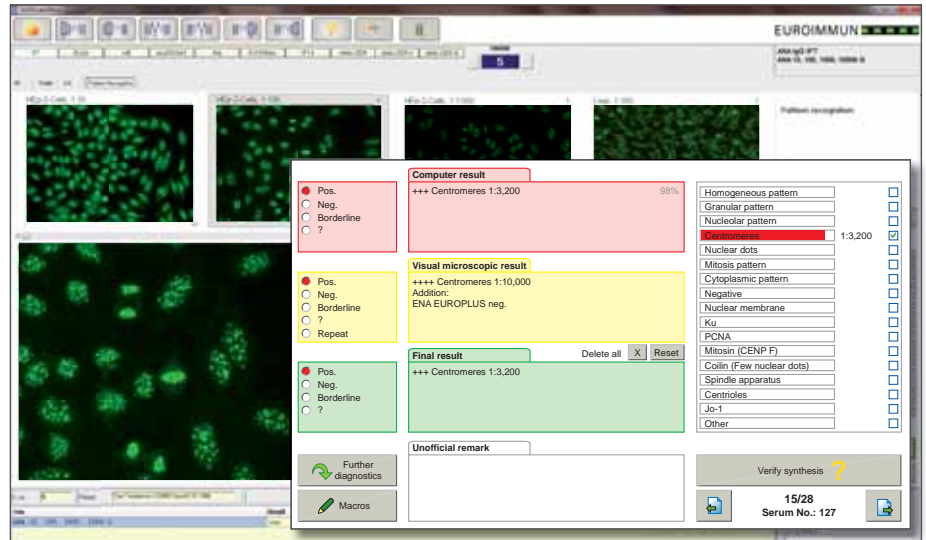




EUROPattern: Software for image recording and interpretation of IIFT patterns in autoimmune diagnostics



EUROPattern Microscope



Representation of results in EUROPattern

Introduction

Indirect immunofluorescence is an indispensable technique for autoimmune diagnostics. However, the evaluation is time-consuming and demands high proficiency from laboratory staff. In order to provide diagnostic laboratories with maximum support, EUROIMMUN has developed **EUROPattern**, a system for recording immunofluorescence images and – in the detection of anti-nuclear antibodies – for largely automated evaluation of indirect immunofluorescence tests.

Automated image recording and archiving

The newly designed **EUROPattern Microscope** can automatically process up to 500 application spots in succession (10 carrier plates with 50 fields each). The mechanical stage moves into a magazine for 10 carrier plates, selects one of them and places it accurately below the objective. The microscope drives to the substrate positions, autofocuses and takes images of the preparations by means of a camera.

In addition to cultured cells, organs such as liver, kidney or stomach are also suitable as substrates. Diagnosis can be made visually at the screen or, in problem cases, results can be verified retrospectively directly at the microscope. For this, EUROPattern

Microscope selects the relevant substrate positions at the push of a button.

Most tissues can be interpreted visually by laboratory staff. For the determination of anti-nuclear antibodies a virtually fully automated evaluation has been developed.

Automated classification

At present the software is able to evaluate IIFT patterns for incubated HEp-2/HEp-2010 cells. The interpretation of further substrates is in the planning stage. EUROPattern classifies the images as positive, negative or borderline and identifies the patterns. The recorded images are allocated to known fluorescence patterns and the fluorescence intensity is determined. The classification is based on a training database of more than 115,000 reference images,

which have been interpreted previously by numerous experts. EUROPattern uses modern classification methods and can identify almost any pattern combination.

If a sample has been incubated in different dilutions, the software merges the results of the individual analyses into one report containing the recognised patterns and the antibody titer. The final result and the fluorescence image are displayed together on the screen to be verified by the diagnostician with one mouse click.

EUROLabOffice

EUROPattern is designed to supplement the laboratory management system EUROLabOffice. It can be smoothly integrated into existing work processes and easily combined with other automation solutions.

- Automatic evaluation of incubated HEp-2/HEp-2010 slides
- Classification of fluorescence patterns: homogeneous, granular, nuclear dots, nucleolar, centromere, mitotic, cytoplasmic, negative, nuclear membrane
- Identification of pattern combinations
- Reference database containing more than 115,000 pictures
- Confidence values indicating the reliability of results
- Appraisal of individual results by laboratory doctor
- High-throughput processing: up to 500 application spots in succession
- Integration into EUROLabOffice