EUROIMMUN Medizinische Labordiagnostika AG

EUROPattern

Computer-aided immunofluorescence microscopy (CAIFM)

- Fully automated microscopy and state-of-the-art result evaluation at the PC screen (cell substrates, tissues, recombinant and infected cells, EUROPLUS – also as Mosaics)
- Pattern recognition for ANA and ANCA, also mixed patterns and titers
- Separation of positive and negative results for Crithidia luciliae and recombinant cells
- Fast processing (maximally 20 seconds per image) and consolidation of results for each patient for paperless result reporting
- Digital archiving of fluorescence images and result reports
- Bidirectional transfer of data and results via the laboratory information system (LIS)

State-of-the art technology from the experts

Made in Germany – Made by EUROIMMUN

Magazine for 500 fields (A)

Automatic loading of slides

Data Matrix code reader

Regulated LED for >50,000 hours of constant light intensity (B)

High-resolution cameras

Precise optical system

Up to 3 different autofocus objectives

3D manual control

Real Drive hand control (C) (optional)

Oculars (optional)

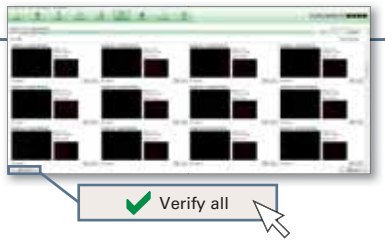
Paperless generation of result reports in three simple steps

User-friendly software

1

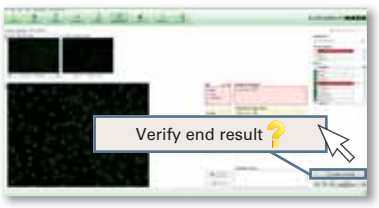
The EUROPattern Microscope automatically records the fluorescence images of all slides successively, without any further input from the laboratory staff. The fluorescence images can be viewed at once and verified directly at the monitor while the microscope continues with the image recording.

2



The negative samples are grouped together in a clearly arranged scroll-down view, also including the counterstaining . They can be quickly and reliably confirmed with a single mouse click. For strongly positive samples the software additionally suggests individual dilution series for follow-up requests.

3

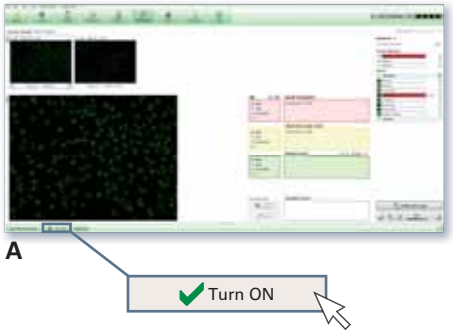


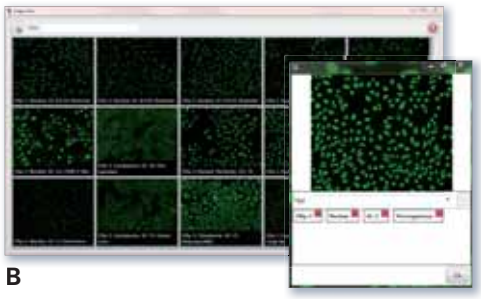
Positive and borderline samples are subsequently displayed separately, patient by patient, with all individual results grouped together in an overview. The user can either directly confirm the patterns and titers proposed by the system by mouse click or edit them easily if required – the final authority remains with the user.

The complete procedure from the generation of worklists to the interpretation of results and archiving of fluorescence images and results can be performed completely paperlessly. Results from previous analyses can be viewed in a well-arranged patient history.

More practice-oriented functionalities

- Intelligent management of all data and results as well as bidirectional communication with the LIS and automated systems is provided by the established and user-friendly laboratory management software EUROLabOffice.
- Extremely fast focusing, image acquisition and digital evaluation (maximally 20 seconds) allow for integration into the working routine of even large laboratories. Results can already be verified during the automated microscopy.
- Automated photographing of tissues for subsequent visual evaluation and archiving is also possible.
- With just one mouse click **(A)** the field for a sample can be automatically retrieved and examined manually in live mode at the microscope. When not in use the cLED switches off automatically in order to prevent fading of the fluorescence.
- Recorded fluorescence images can be annotated and saved with one mouse click in the EUROLabOffice Image Atlas **(B)** for reference or study purposes.





Excellent agreement between CAIFM* and conventional evaluation

- The complete concept of the reliable, state-of-the-art soft- and hardware ensures comprehensive qualitative integrity for all your results and traceability of all information, including archived images.
- The Data Matrix codes of the slides ensure correct assignment of the sample positions to their respective results, irrespective of the loading order of the slides.
- Fading of the fluorescence is prevented by focusing in transmitted light.
- The regulated EUROIMMUN cLED guarantees standardised excitation light and reproducible fluorescence emissions.
- The special counterstaining allows reliable quality control for all fluorescence images during result interpretation.
- Thresholds and sensitivities can be adjusted to pattern-specific, local diagnostic standards.
- Reliable technical and scientific support is provided. In case of unclear results, the anonymised data required for fast and targeted help can be made available by the user to the EUROIMMUN Support Team automatically.

*Computer-aided immunofluorescence microscopy

ANA pattern		Identified pattern (automatic pattern recognition)	
	n	n	%
Homogen.	33	27	81.8
Granular	130	123	94.6
Nucleolar	45	43	95.6
Centromeres	4	4	100
Nuclear dots	2	2	100
Cytoplasmic	58	54	93.1
ANA neg.	79	77	97.5
Total	**351**	**330**	**94.0**

EUROPattern n = 351	Visual evaluation	
	Positive	Negative
Positive	272	2
Negative	0	77
Agreement	99.4 %	
κ value	0.984	
Sensitivity	**100 %**	
Specificity	**97.5 %**	
Pos. prediction value	99.3 %	
Neg. prediction value	100 %	

Voigt et al. Clin Dev Immunol (2012)

Performance features of EUROPattern

Automated microscopy

- Automatic identification of slides via Data Matrix codes
- Very fast transmitted-light focusing and image acquisition (maximally 20 seconds per image) for cell substrates, tissues, recombinant and infected cells and EUROPLUS – also as Mosaics

Automated image evaluation

- Automatic consolidation of individual results to one final result per patient
- ANA: pattern recognition and titer determination (homogeneous, granular, nuclear dots, centromeres, nuclear membrane, cytoplasmic, negative, including all mixed pattern combinations)
- ANCA: pattern recognition and titer determination for screening and confirmatory tests together on one Mosaic (cANCA, pANCA, atypical ANCA; including all mixed pattern combinations)
- Crithidia luciliae, recombinant cells and EUROPLUS: Separation of positive and negative results
- Configuration adjustments to laboratory-specific values (e.g. sensitivity)

Approval of result reports by experts

- Efficient verification of negative samples with one mouse click
- Computer-aided suggestions for the dilution of strongly positive samples
- Convenient entry of result reports by the expert at the computer
- Live microscopy in manual operation can be directly activated from the result report view
- Transmission of results to laboratory information system (LIS)

Scope of delivery

- EUROPattern Microscope (incl. cameras, cLED, Data Matrix code reader, 20x objective, 3D manual control)
- Optional: oculars, 10x objective, 40x objective, Real Drive manual control
- Magazine and carrier for automatic supply of slides (500 fields)
- PC system, including control software for the EUROPattern Microscope, high-resolution monitor
- EUROPattern pattern recognition and result entry software
- EUROLabOffice (IIFT version, including a specially configured server system)

Technical data

- Width x depth x height: approx. 51 cm x 66 cm x 85 cm
- Weight: approx. 82 kg
- Power supply: 110–240 V, 60 W, 50/60 Hz
- cLED light source for epi-fluorescence microscopy
  - Constant excitation light source (460–490 nm), life span >50,000 h
- LED light source for transmitted-light microscopy
  - Constant light source (620 - 630 nm), life span >50,000 h

Subject to changes

EUROIMMUN AG · 23560 Luebeck (Germany) · Seekamp 31 · Telephone +49 451 58550 · Fax 5855591 · E-mail euroimmun@euroimmun.de

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