



# EUROPattern

## Computer-aided immunofluorescence microscopy (CAIFM)



- ✓ Fully automated microscopy and state-of-the-art result evaluation at the PC screen (ANA, ANCA, Crithidia, tissues, transfected and infected cells, EUROPLUS – also as Mosaics)
- ✓ Pattern recognition for ANA and ANCA, including combinations of patterns, with titer designation
- ✓ Separation of positive and negative results for Crithidia and transfected cells
- ✓ Fast, automatic processing of up to 500 analysis positions successively – up to 200 fields in only 1 hour
- ✓ Automatic identification of slides via matrix codes
- ✓ Pencilless entry of findings and consolidation of results for each patient
- ✓ Real-time access to images and microscopy
- ✓ Archiving of images and results
- ✓ Complete integration into existing laboratory software (LIS)



## State-of-the-art technology from the experts

Made in Germany – made by EUROIMMUN

Magazine for 500 fields

Automatic loading of slides

Matrix-code reader

Regulated LED for >50,000 h of constant light intensity

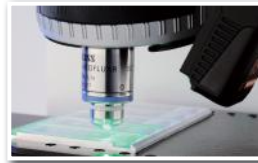
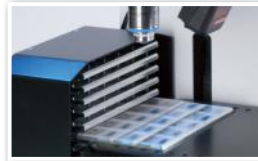
High-definition cameras

Precise optical system

Ocular on request

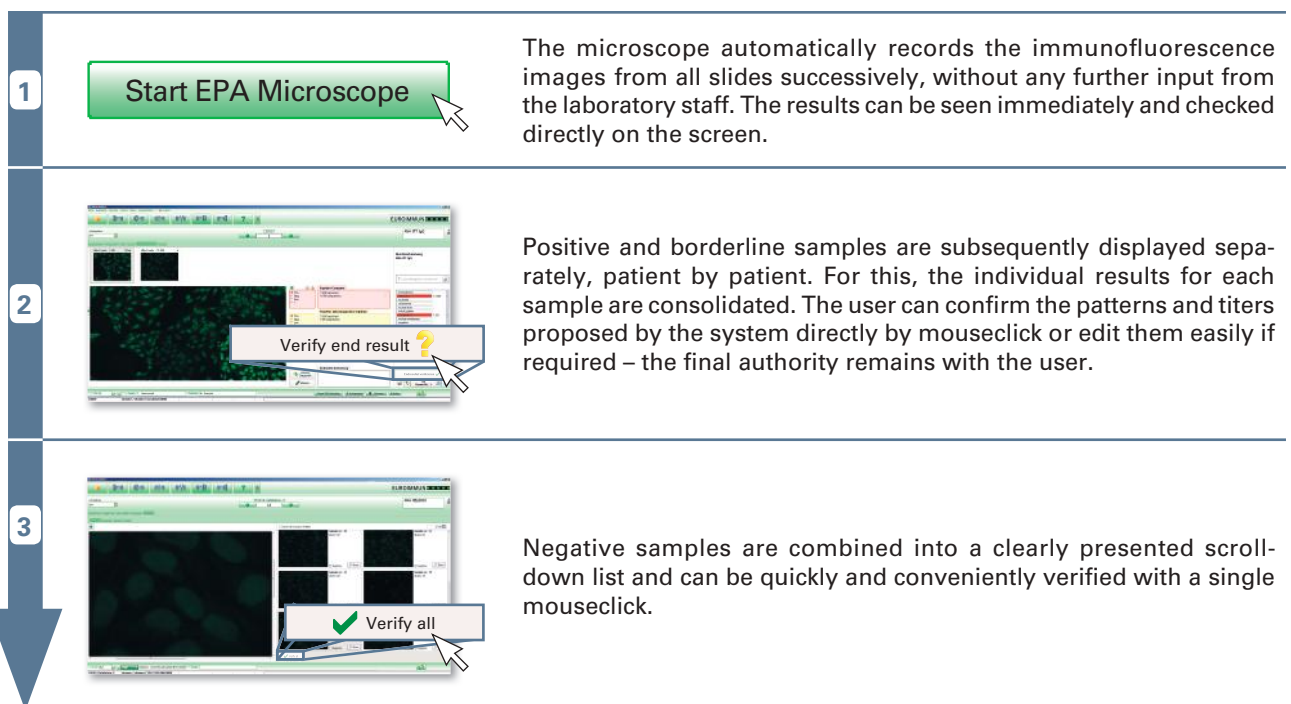
3D manual control

High-quality workmanship



## Paperless generation of results in three simple steps

Application-oriented and sophisticated software

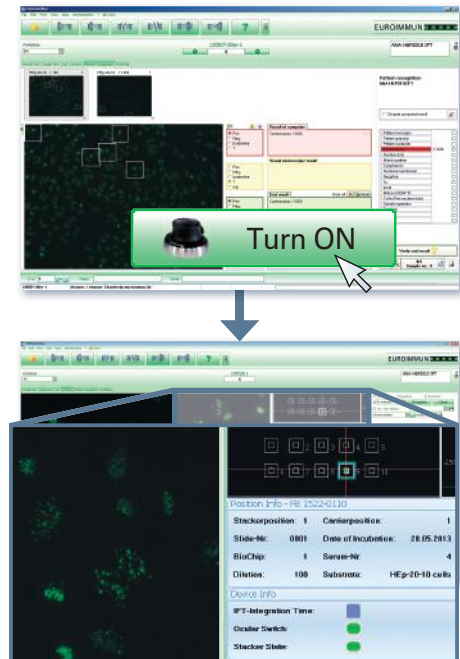


The complete procedure from result evaluation to archiving is performed paperlessly. Results from previous analyses are displayed. If follow-up investigations are needed, these can be selected by mouseclick.



## More practice-oriented functionalities

- ✓ Intelligent management of all data and results and bidirectional communication with the laboratory information management system and laboratory instruments is provided by the established and user-friendly laboratory management software EUROLabOffice.
- ✓ Fast focusing and digital evaluation of up to 200 fields per hour allows for efficient integration into the working routine of large laboratories. Results can already be verified during the automated microscopy.
- ✓ Automated photographing of tissues for subsequent visual evaluation and/or archiving is also possible.
- ✓ With just a mouseclick the field for a sample can be automatically retrieved and examined in live mode. When not in use the cLED switches off automatically in order to prevent substrate fading.
- ✓ As a further option, the metaphase cells can be visually highlighted to facilitate interpretation of results.



## Excellent agreement between CAIFM\* and conventional evaluation

- ✓ The sophisticated overall concept (state-of-the-art analysis technology and reliable software and hardware) provides qualitative integrity for all your results and ensures high traceability of findings and data, including archived images.
- ✓ The matrix codes of the slides ensure correct assignment of the sample positions to their respective results, irrespective of the loading order of the slides.
- ✓ A special counterstaining enables reliable focusing.
- ✓ For reliable recognition of ANA patterns, the EUROPattern software draws on a database of 115,000 authenticated cell images and compares over 170 different characteristics. For each pattern the cut-off values can be adapted to local diagnostic standards.
- ✓ Reliable support is provided for both technical and scientific aspects. It can be activated directly in the result view for the patient sample that shows an unclear result. All anonymous data required for classification are automatically compressed by the software and transmitted to the EUROIMMUN support team for fast and targeted support.
- ✓ Standardised light intensities from the regulated EUROIMMUN cLED, no FITC fading (main focusing using transmitted light) and integrated calibration of fluorescence emissions.

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

EUROPattern n=351	Visual evaluation	
	Positive	Negative
Positive	272	2
Negative	0	77
Agreement	99.4%	
κ-value	0.984	
<b>Sensitivity</b>	<b>100%</b>	
<b>Specificity</b>	<b>97.5%</b>	
Pos. predictive value	99.3%	
Neg. predictive value	100%	

Voigt et al. Clin Dev Immunol (2012)

\*Computer-aided immunofluorescence microscopy



## Performance features of EUROPattern

### Automated microscopy and image evaluation

- Automatic identification of slides via matrix codes
- Automated microscopy and individual result evaluation by the laboratory expert at the computer screen (ANA, ANCA, Crithidia, tissues, transfected and infected cells, EUROPLUS – also as Mosaics)
- Pattern recognition for ANA and ANCA
- Separation of positive and negative results for Crithidia and transfected cells
- Classification of fluorescence patterns: homogeneous, granular, nuclear dots, nucleolar, centromere, cytoplasmic, nuclear membrane, negative (reference database with 115,000 cell images of samples from a large reference laboratory)
- Recognition of combinations of patterns (including the titer for each pattern component)
- Consolidation of findings into one result per patient
- Laboratory-specific configuration of the evaluation system
- Integration into the laboratory management system EUROLabOffice

### Live microscopy and manual operation

- Authorisation of all individual results by the laboratory expert
- Efficient “batchwise” verification of negative samples
- Simple navigation to the desired reaction field directly from the result view
- Operation of the mechanical stage and focusing by means of 3D manual control
- Protection from fading through automatic switch-off of the light source

### Scope of delivery

- EUROPattern microscope (including camera, cLED, matrix-code reader, 20x objective, 3D manual control; oculars optional)
- Magazine and carrier for automatic loading of slides (500 analysis positions)
- PC system including navigation software for the microscope, high-definition monitor
- EUROPattern software for pattern recognition and result entry
- 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
  - Constant excitation light source (460-490 nm), life span > 50,000 h
- LED light source for transmitted light
  - Constant light source (550 nm), life span > 50,000 h

Subject to changes

