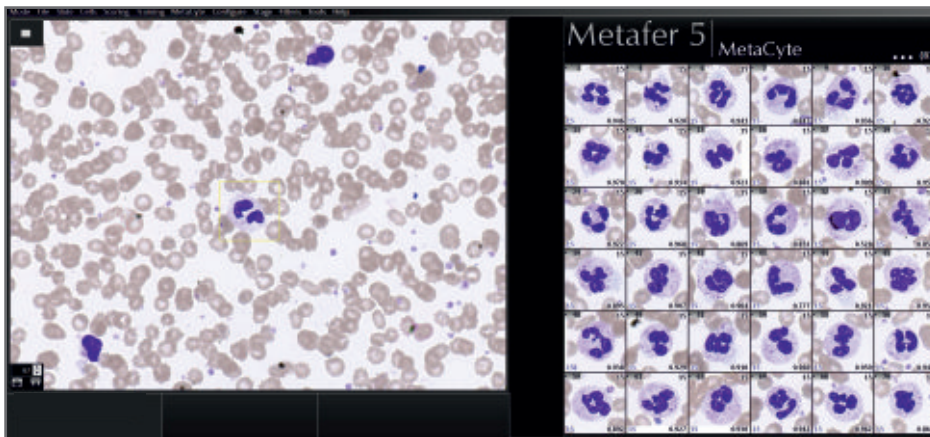


**HemScore
DNN**

Artificial Intelligence
for
Automated
White Blood Cells
Classification

HEMATOLOGY

INTELLIGENT BLOOD CELLS CLASSIFICATION



Metafer detecting and classifying WBCs

The Metafer WBCs classifier supports:

- **AI-assisted counting and classification** of a large number of WBCs classes on blood samples which are stained by **Wright's stain**
- Cells detection and analysis in around 3 minutes¹ (using the **Cool Cube 4c**² camera)
- **Up to 800** slides automated scan, with MetaSystems **SlideFeeder x80**³
- Easy and quick review of results by **RapidScore**

Note

The results produced by the DNN are highly dependent on the quality of preparations. We recommend a workflow for sample production and staining that is as standardized as possible.

The **White blood cells** (WBCs) differential count is a widely performed hematological test for blood cancers diagnostic, and infection diseases detection. Often, due to variability of WBCs, manual microscopy of samples stained by **Wright's stain** is recommended, allowing better detection of subtle changes in cell morphology, and thus a better classification.

MetaSystems has developed a new algorithm based on a **Deep Neural Network** (DNN), and trained with thousands of pre-classified data, for an AI-assisted classification of WBCs.

HEMATOLOGY



Available Classes for Classification

- Large granular lymphocytic cells
- Neoplastic lymphocytes
- Reactive lymphocytes
- Lymphocytes
- Plasma cells
- Smudge cells
- Hairy cells
- Mononucleosis cells
- Myeloblasts
- Promyelocytes
- Myelocytes
- Meta-myelocytes
- Atypical promyelocytes
- Banded neutrophils
- Segmented neutrophils
- Basophilic granulocytes
- Eosinophilic granulocytes
- Normoblasts
- Monocytes
- Artifacts



MAGAZINES

Slide frame magazines hold 16 frames with 5 slides each (80 slides in total). A fully equipped SlideFeeder x80³ hosts 10 magazines plus one bar code reader.

Each magazine is portable and can easily be taken to the work-bench for loading.



FEEDER MODULE

The rotating module of the SlideFeeder x80³ delivers the slide frames to the motorized stage.

The device runs unattended and is prepared for 24/7 operation - including intelligent priority sample handling.



AUTOOILER

If the current workflow requires the use of an immersion oil objective, the automated oil dispensing device (AutoOiler⁴) is engaged.

Detailed sample dependent macros control optimal oil dispersal for each sample.



CAMERAS

The Cool Cube cameras² are designed with excellent imaging and automation in mind.

These provide seamless automated integration with Metafer enabling optimal performance.

MICROSCOPE

High precision research grade fully motorized microscope equipped with a stepping motor stage enables found objects to be precisely recorded and relocated.

Objective: 40x Oil

Light: Transmitted Light

SOFTWARE

The PC based Metafer software controls the scanning hardware and provides a convenient user interface prepared for all-day, routine use. Thanks to the exceptional classifier concept each Metafer provides the optimal balance between flexibility and standardization.



IN-DEPTH ANALYSIS BY THE POWER OF CELL MATCHING



HEMATOLOGY

Metafer is also able to use the **Match Cells functionality** to combine transmitted light and fluorescent scans into a single gallery.

First, the application scans slides stained with Giemsa for the detection and selection of specific cell types/groups, then it rescans the same slides after they have been de-stained and stained again with different Immuno-fluorescent antibodies or FISH probes.

By pairing side by side results from Giemsa and fluorescent staining, Metafer helps physicians providing morphology and molecular data they need to perform an in-depth analysis.

It is also possible to scale the gallery image to show the entire FOV, making the review process easier and faster.





MetaSystems

Innovative Solutions for
Automated Imaging

EUROPE

Germany, Altlussheim
info@metasystems-international.com

Italy, Milan
info@metasystems-italy.com

AMERICA

USA, Medford
info@metasystems.org

Argentina, Buenos Aires
info@metasystems-latam.com

ASIA

China, Hong Kong
info@metasystems-asia.com

China, Taizhou
info@metasystems-china.com

India, Bangalore
info@metasystems-india.com

CONTACT



info@metasystems-international.com
www.metasystems-international.com



Notes

For Research Use Only (RUO). Metafer for the DNN based Classification of White Blood Cells is not intended for diagnostic use.

- 1. Based on 100 cells from samples with appropriate density and on a computer providing proper specification to run the DNN based calculations.*
- 2. Cool Cube cameras are products from ABS GmbH, Germany.*
- 3. SlideFeederx80 is a product from IML, Germany.*
- 4. AutoOiler is a product from IML, Germany.*