HEMATOLOGY

WBCs Classification

DNN

Artificial Intelligence for Automated White Blood Cells Classification
White blood cells (WBCs) differential count is a widely performed hematological test for blood cancers diagnostic, inflammation and infection diseases detection. Often, due to variability of WBCs, manual microscopy of samples 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.

The Metafer WBCs classifier supports:

- AI-assisted counting and classification of a large number of WBCs classes from Wright's-stained blood specimens
- Cells detection and analysis in around 3 minutes*
- Up to 800 slides automated scan, with MetaSystems SlideFeeder x80
- Easy review of results

* Based on 100 cells from samples with appropriate density and on a computer providing proper specifications to run the DNN based calculations.

Note
For Research Use Only - not to be used in diagnostic procedures.
Available Classes for Classification

- Large granular lymphocytic cells
- Neoplastic lymphocytes
- Reactive lymphocytes
- Lymphocytes
- Plasma cells
- Hairy cells
- Smudge cells
- Mononucleosis cells
- Myeloblasts
- Promyelocytes
- Myelocytes
- Meta-myelocytes
- Atypical promyelocytes
- Banded neutrophils
- Segmented neutrophils
- Basophilic granulocytes
- Eosinophilic granulocytes
- Normoblasts
- Monocytes
- Artifacts
**Autooiler**
If the current workflow requires the use of an immersion oil objective, the automated oil dispensing device is engaged.
Detailed sample dependent macros control optimal oil dispersal for each sample.

**Feeder Module**
The rotating module of the SlideFeeder x80 delivers the slide frames to the motorized stage of Metafer.
The device runs unattended and is prepared for 24/7 operation - including intelligent priority sample handling.

**Magazines**
Metafer’s slide frame magazines hold 16 frames with 5 slides each (80 slides in total). A fully equipped SlideFeeder x80 hosts 10 magazines plus one bar code reader.
Each magazine is portable and can easily be taken to the workbench for loading.
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

CAMERAS
MetaSystems CoolCube cameras are designed with excellent imaging and automation in mind. These provide seamless automated integration with Metafer enabling optimal performance.

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.