

Product Fact Sheet

Metafer MetaCyte

System for automated multiparametric cell analysis

MetaCyte fills the gap between fast, yet sometimes inflexible flow cytometers and microscope based imaging systems. MetaCyte combines MetaSystems' proven scanning platform Metafer with the latest multi colour analysis and feature extraction algorithms. MetaCyte analyses cell features in single cell preparations and tissue sections, under fluorescent light conditions or in the brightfield mode. Sophisticated image processing algorithms cope with poor slide conditions or weak signals. Flexible cell selection based on the counter stain information is used to identify cells or tissue section regions that are suitable for analysis. More than 120 features per color channel, including intensity, morphology, and texture information, can automatically be extracted in real time. During the scan an image gallery of the analyzed objects is being built up. Histogram or scatter plot diagrams of selected features are displayed and updated on the fly. Interactive gating extracts exactly the subpopulation of cells that match the wanted criteria.

Hardware

- Fully automated, walk-away operation (providing automated shutdown of computer, microscope and peripherals)
- Small footprint computer-microscope-solution with no additional boxes or motor cases
- Motorized 8-slide stepping-motor scanning stage as standard (optionally with 80-slides feeder)
- Network-ready: seamless integration of Isis FISH imaging stations or remote Relosys relocation systems

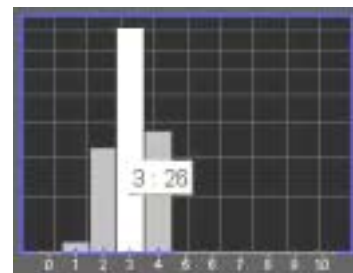
Scanning

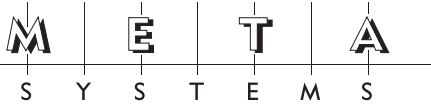
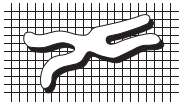
- Flexible classifier concept: adaptable to different magnifications, preparations, staining, and specimen
- Integrated training software for automated classifier adaptation to various conditions
- Definition of various search windows including round areas (i.e., for cytopsin preparations) and split-field definitions
- High-speed autofocus with slide surface map generation
- Automatic integration time adjustment (for fluorescence microscopy) or light adjustment (for brightfield)
- Automated cell segmentation in the counterstain mode of single-cell preparations using morphological parameters
- Tissue section analysis with interactive region selection or region segmentation with 'Tile Sampling'
- Automatic image acquisition with up to six colour channels

- Extended focus images provide 3D-analysis possibility of cells and cell nuclei
- Many image processing algorithms available to cope with poor background or signal conditions
- Automated feature extraction: over 120 analysis parameters measure cell features like size, intensity, signal counts, signal distribution and more.
- Live gallery display of detected objects and position markers in the search window during the scan
- Automatic storage of gallery images, position and quality data, and feature measurement results in one file

Analysis

- Simple on-click relocation of cells with the gallery
- Fast interactive selection of objects in the gallery (cells may be selected, rejected or deleted), and interactive correction of analysis results
- Live display of search results as histogram or scatter plot: up to 5 different features may be logically linked together (including position data)





Options and Upgrades

- Gating of subpopulations: cells can be selected by their features and distributed into subpopulation classes
- Live display of feature values in the gallery
- Sorting of objects by feature
- Integrated report generator for fast documentation: free layout adaptation and data display possibilities
- Printout of search protocols and coordinate lists for relocation on other manual microscopes
- Increasing the capacity with the optional automated 80-slides feeder
- Automatic high-magnification image acquisition with AutoCapt; image export into standard graphics file formats or into Isis FISH imaging software possible
- Connection to inverted microscope for high content screening possible
- Software module for automatic analysis of single cell gel electrophoresis ('Comet') assay: unattended scoring of DNA damage data and Comet FISH

