

Leica MM Multi Wavelength Cell Scoring powered by MetaMorph®

Analysis Software Drop-in for Leica MM AF

- Multi-Parameter analysis of up to seven wavelengths
- Identification of subpopulations of cells
- Adaptive background correction™ for improved segmentation
- Field and Cell-by-Cell measurements

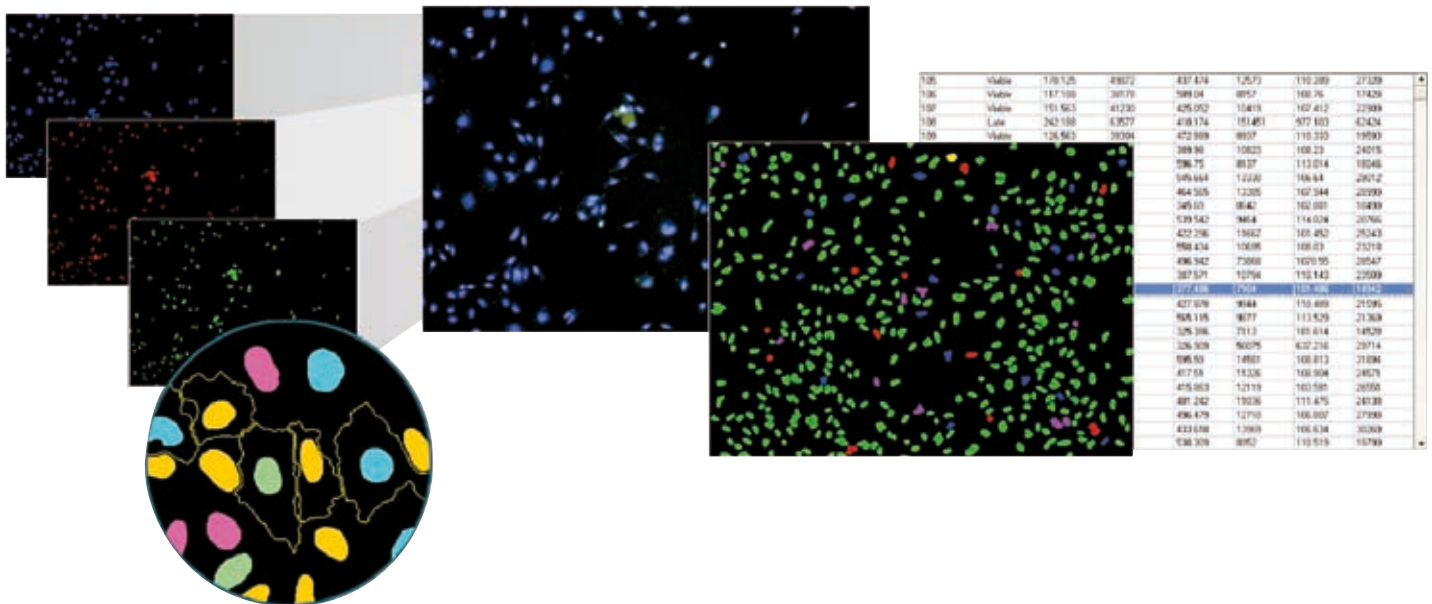
The Leica MM Multi Wavelength Cell Scoring Application Module for Leica MM AF software is designed for the scoring of cells with up to seven fluorescent stains.

This flexible module is ideal for counting and logging measurements of cells in multiple wavelength experiments. Using a fluorescent marker for the nucleus and additional markers for the cytoplasm or the entire cell, each wavelength is analyzed and cells are assigned scoring profiles for the presence or absence of each marker.

The module makes a number of additional cell-by-cell measurements including per-wavelength number and percentage of cells scored as positive or negative, scoring profiles, area and intensity.

The module utilizes Adaptive Background Correction adapting the cell detection algorithm to the local intensity ranges between and within cells to provide the most robust segmentation available. This technique enables probe detection even with highly variable background fluorescence within a single image.

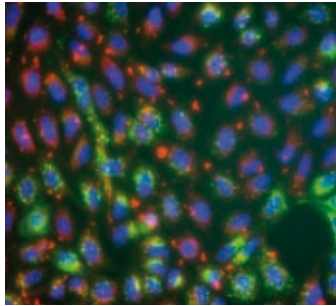
The simple interface minimizes setup efforts and at the same time enables users to customize the settings and measurements to obtain the best possible results specific to the type of cells used in the experiments.



Living up to Life

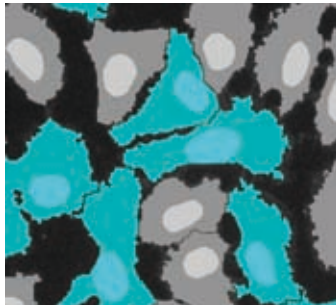
Multiple wavelengths

Leica MM AF provides a flexible integrated solution for multi wavelength image acquisition and analysis. Up to seven wavelengths can be analyzed simultaneously by the module. U2OS rat β -arrestin 2-RrGFP cells treated with 1 μ m isoproterenol. Blue: Hoechst 33342, red: Anti-Phospho-Histone H3 (Ser28), green: Transfluor@ vesicles.



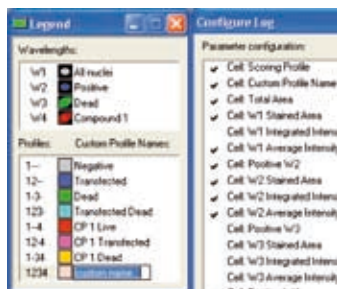
Accurate segmentation

Detection of cells uses Adaptive Background Correction and displays interactive graphics on the original images indicating scoring for each wavelength for immediate verification of accuracy. The module also generates a segmentation image.



Customization

Wavelength and profile naming, graphics colors and measurement parameters can all be customized to match the biology of your experiment. All settings can be saved for future experiments.



Configuration for analysis

Set the number of wavelengths used and repeat the following steps for each wavelength:

1. Select the image of interest
2. Choose the stained area (nucleus, cytoplasm, or both)
3. Specify approximate minimum and maximum widths of the objects to be detected
4. Adjust detection sensitivity by specifying the intensity above local background
5. Set positive scoring criterion (minimum stained area)
6. Optionally specify the reporting parameters

Interactive data display

Once the analysis is run, the Cellular Results table allows you to interactively view individual cells' data. Clicking one or multiple cells in the image highlights the data for the selected cell(s) in the table.

Customization through journaling

Journals are sophisticated and powerful macros that record and perform a series of tasks without the need for a programming language. The modules can be incorporated into a Leica MM AF journal to increase the customization and automation of your analysis.

Multi-parameter analysis

Field measurements include:

- Wavelength-specific count and percentage of negative and positive cells
- Scoring profile counts

Cell-by-cell measurements include:

- Wavelength-specific stained area, and integrated and average intensities
- Scoring profile

Powerful data export capabilities

All measurements can be directly exported to a text file or Microsoft® Excel® for further analysis.

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