

# Leica MM Mitotic Index powered by MetaMorph®

## Analysis Software Drop-in for Leica MM AF

- Quantitation of mitotic and interphase cells
- Multi-parameter analysis of two probes
- Adaptive Background Correction™ for improved segmentation
- Cell-by-Cell measurements and data logging

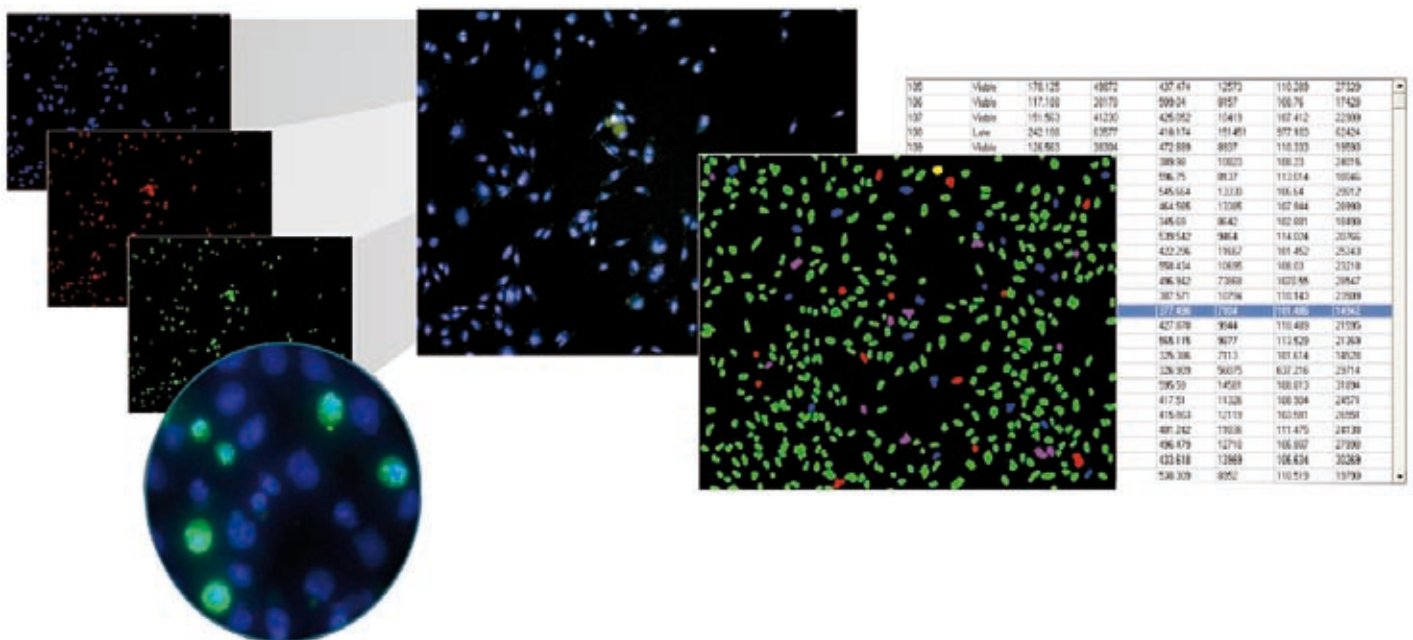
Cell-based assays for cell cycle status have become critical for oncology research. For example, potential anti-cancer therapeutics rely on arresting mitosis in cancerous cells to prevent uncontrolled proliferation.

In some forms of cancer, progression through mitosis can be stopped by merely disrupting the mitotic spindle. In others, the feedback is missing and cells proceed through mitosis without proper chromosome segregation and accumulate mutations. Cell-based assays provide an efficient method for modeling the effects of drugs on the cell cycle and quantitating the accumulation of cells in mitosis. The Leica MM Mitotic Index module for the Leica MM AF software is designed for the quantitative discrimination of mitotic and interphase cells.

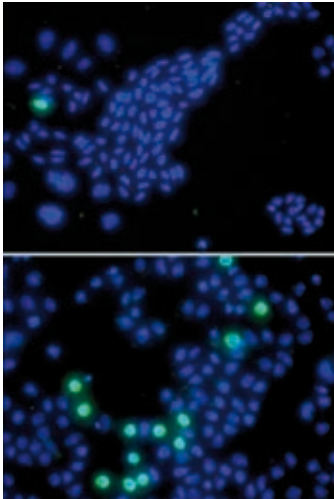
Cells are labeled with a DNA stain and a fluorescent mitosis-specific marker, such as immunofluorescence staining for Histone 3 S10 phosphorylation. Two different wavelengths are acquired and the images are analyzed with the Leica MM Mitotic module.

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.

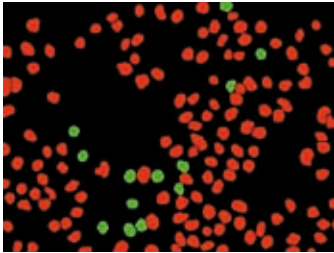
The simple interface minimizes setup efforts and at the same time enables users to customize the settings and measurements to obtain the best possible results specific to the type of cells used in the experiments.



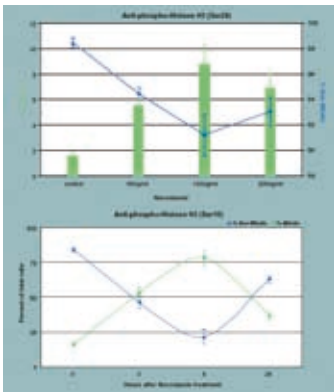
Living up to Life



**Multiple probe acquisition**  
CHO-K1 cells treated with Nocodazole for 18 hours before staining with anti-phospho-Histone H3 (Ser28). Top: control, bottom: 50 ng/ml Nocodazole.



**Image analysis**  
The Leica MM Mitotic Index module identifies mitotic cells (green) and interphase cells (red).



**Export data for further analysis**

## Easy Configuration for analysis

1. Select the nuclear stain image
2. Specify the cell size range
3. Set the intensity above local background
4. Select the mitotic nuclear stain image
5. Set the intensity above local background
6. Optionally choose 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.

	Cell Mitotic Classification	Cell Total Area	Cell W1 Integrated Intensity	Cell W1 Average Intensity	Cell W2 Integrated Intensity	Cell W2 Average Intensity
43	Interphase	168.643	89009	211.423	70810	168.195
44	Interphase	169.444	89187	210.844	77930	183.995
45	Mitotic	171.046	114743	268.719	206074	492.609
46	Mitotic	171.046	140726	348.304	268296	629.328
47	Interphase	171.046	105017	245.941	73914	172.164
48	Interphase	171.847	93174	217.189	78084	182.014
49	Interphase	172.649	124008	287.722	85750	198.956
50	Interphase	173.049	105020	243.102	70969	164.28
51	Interphase	173.45	108178	249.834	69106	159.598
52	Mitotic	176.254	141599	321.816	209759	476.725
53	Mitotic	177.456	141173	318.675	325934	734.975
54	Interphase	179.458	111718	249.371	69350	154.799
55	Interphase	179.859	109715	244.354	79252	176.508
56	Interphase	182.663	91144	199.877	71049	155.809
57	Interphase	182.663	104651	229.498	80520	176.579
58	Interphase	184.265	95559	207.737	70712	153.722
59	Interphase	185.066	97737	211.552	71664	155.117

## 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

The application module generates a number of field or cell-by-cell parameters, including:

- Count of mitotic and non-mitotic nuclei
- Percentage of mitotic and non-mitotic nuclei
- Total and mean nuclei area of mitotic and non-mitotic cells
- Wavelength-specific integrated and average intensities of mitotic and non-mitotic nuclei

## Powerful data export capabilities

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

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