

# Leica MM Neurite Outgrowth

powered by MetaMorph®

## Analysis Software Drop-in for Leica MM AF

- Cell-by-Cell measurement
- Multiparameter analysis
- Adaptive Background Correction™ for improved cell quantitation

Leica MM AF provides a platform for neurite outgrowth experiments including both image acquisition and image analysis.

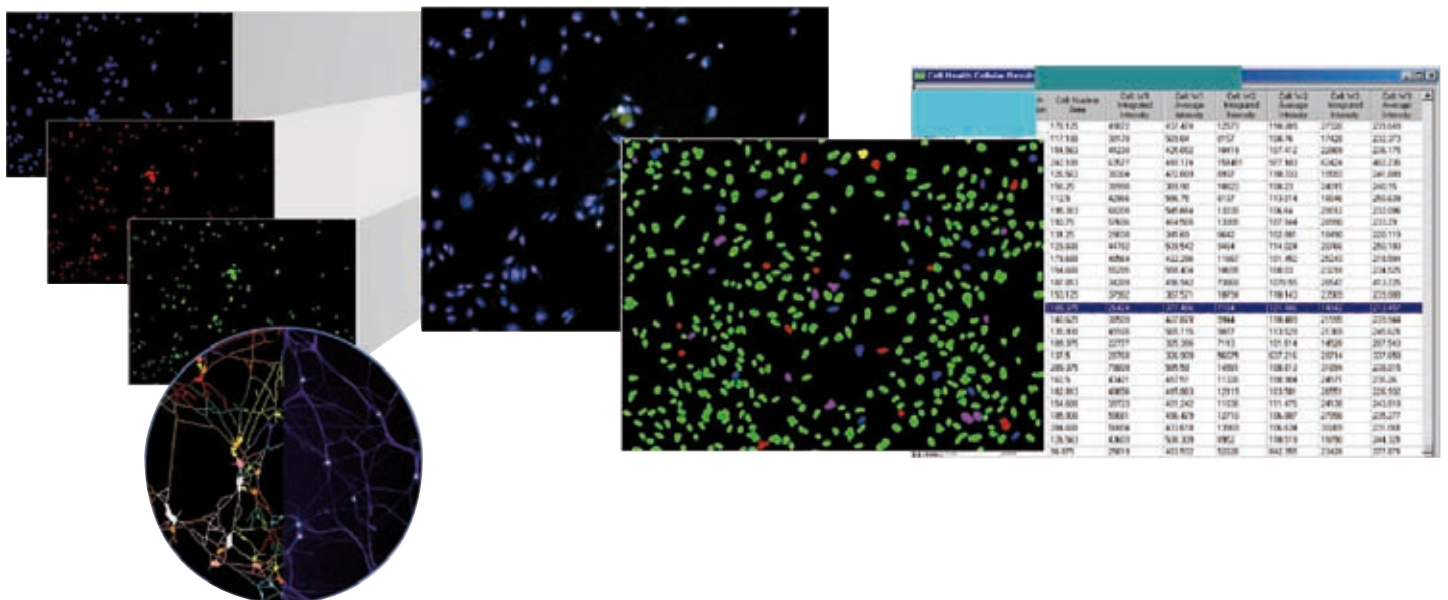
Neurite outgrowth is the extension of axonal processes from the cell body and is a natural part of early development. Inhibition or stimulation of neurite outgrowth is implicated in a broad range of CNS disorders or injuries including stroke, Parkinson's disease, Alzheimer's disease and spinal cord injuries.

The Leica MM Neurite Outgrowth for the Leica MM AF is designed to facilitate the analysis of neurite outgrowth experiments. This straightforward application module helps standardize results compared to traditional methods.

The module has an intuitive interface to minimize setup efforts and at the same time enables you to customize the settings and measurements to obtain the best possible results specific to the type of cells used in your experiments.

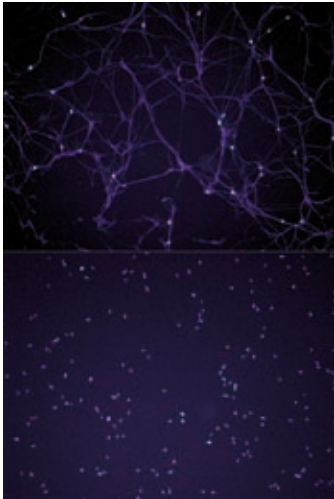
With the flexibility of the software, researchers are able to choose whether or not to use nuclear stains. The use of nuclear stains ensures a one-to-one correlation between nuclei and cell bodies.

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



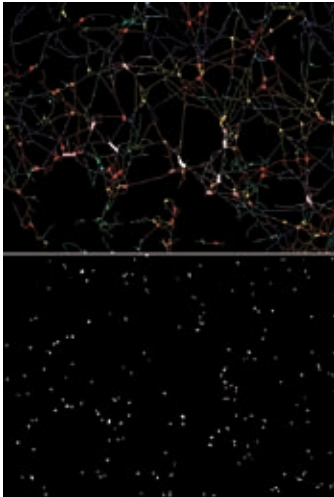
Living up to Life





**Image acquisition**

Image acquisition with Leica MM AF. Top image: neurites, bottom image: nuclear stain (optional).



**Image analysis**

Each filament is assigned to a cell body. All the filaments and cell bodies are then measured.

Number of cells	Total filaments	Total Processes	Total Branches	Total Cell Body Area	Total Cell Body Area	Total Cell Body Area	Total Cell Body Area	Total Cell Body Area	Total Cell Body Area
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9
10	10	10	10	10	10	10	10	10	10

Data export for further analysis

**Easy Configuration for analysis**

Five easy steps allow you to get started in minutes:

1. Select the image of interest
2. Choose the illumination (transmitted or fluorescence)
3. Set classification limits for cell bodies
4. Select optional nuclear stain feature
5. Set classification limits for outgrowths

**Interactive data display**

Once the module is run, the Cellular Results table allows you to interactively view an individual cell's 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 Leica MM Neurite Outgrowth module can be incorporated into a Leica MM AF journal to increase the customization and automation of your analysis.

**Multi-parameter analysis**

The application module can generate a number of field or cell-by-cell parameters. Field measurements include:

Measurement options include:

- Number of cells
- Total outgrowth
- Mean outgrowth per cell
- Total processes
- Mean processes per cell
- Total branches
- Mean branches per cell
- Total cell body area
- Mean cell body area
- Straightness of processes
- Cells exhibiting significant growth
- Percentage of cells exhibiting significant growth

**Powerful data export capabilities**

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

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