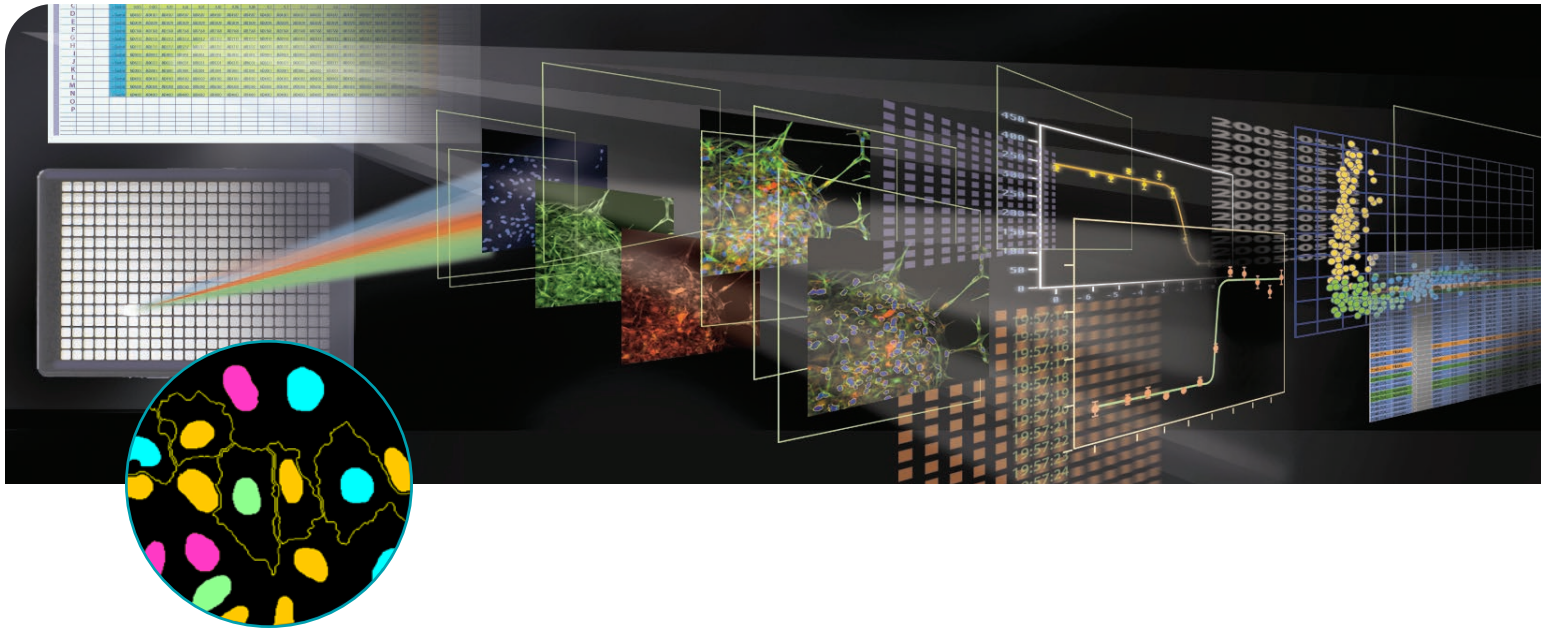# Molecular Devices

MetaXpress Software Multi-Wavelength Cell Scoring Application Module

ANALYSIS SOFTWARE DROP-IN FOR METAXPRESS SOFTWARE

→ IDENTIFICATION OF SUB-
POPULATIONS OF CELLS

→ MULTI-PARAMETER ANALYSIS
OF UP TO SEVEN WAVELENGTHS

→ ADAPTIVE BACKGROUND
CORRECTION FOR IMPROVED
SEGMENTATION

→ FIELD AND CELL-BY-CELL
MEASUREMENTS

The Multi-Wavelength Cell Scoring Application Module for MetaXpress® Software from Molecular Devices is designed for the scoring of cells with up to seven fluorescent stains.

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

The module utilizes Adaptive Background Correction (ABC) which adapts the detection algorithm to the local intensity ranges between and within cells to provide the most robust segmentation available in an image-based screening system. ABC enables probe detection even with highly variable background fluorescence within a single image.

A simple interface minimizes setup efforts and analysis settings can be configured once and saved for future use or customized to fit a specific experiment. Segmentation parameters are set for each wavelength and the analysis is run across the well, selected wells, the entire plate or multiple plates.

Multiple Wavelengths
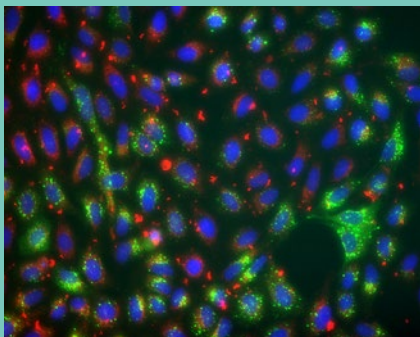
MetaXpress Software provides a flexible integrated solution for multi-wavelength image acquisition and analysis. Up to seven wavelengths can be analyzed simultaneously by the module. U2OS rat β-arrestin 2-RrGFP cells treated with 1 μm isoproterenol. Blue: Hoechst 33342, red: Anti-Phospho-Histone H3 (Ser28), green: vesicles highlighted using the Transfluor® Assay.

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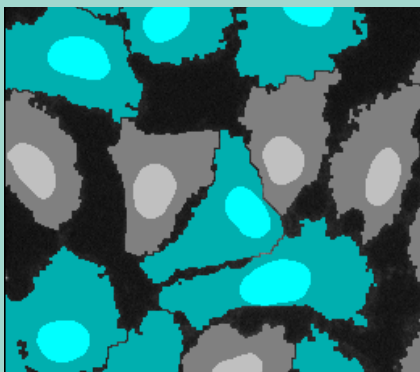
Detection of cells uses Adaptive Background Correction and displays interactive graphics on the original images indicating scoring for each wavelength for immediate verification of accuracy. The module also generates a segmentation image.

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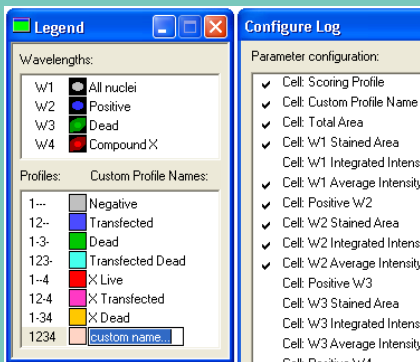
Wavelength and profile naming, graphics colors and measurement parameters can all be customized to match the biology of your experiment. All settings can be saved for future experiments.

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 a cell in the image highlights the data for the selected cell in the table.

Cell: Custom Profile Name	Cell: Total Area	Cell: W1 Stained Area	Cell: W2 Stained Area	Cell: W2 Average Intensity
Negative	1685.37	180.549	1685.37	345.958
Transfected	3627.01	426.621	3627.01	358.413
Transfected	2920.82	433.173	2920.82	358.03
Transfected	4011.4	769.519	4011.4	400.648
Transfected	2992.9	208.942	2992.9	326.461
Transfected	3627.73	535.096	3627.73	358.143
Transfected	3418.06	540.92	3418.06	403.517
Negative	2323.85	546.016	2323.85	466.242
Negative	1708.67	475.398	1708.67	449.467

CUSTOMIZATION THROUGH MACROS

MetaXpress Software is seamlessly integrated with the power and flexibility of MetaMorph® Software and its sophisticated and powerful macros that record and perform a series of tasks without the need for a programming language.

VALIDATED DATA

Development of application modules includes research and testing with a library of in-house and third-party data sets.

POWERFUL DATA EXPORT CAPABILITIES

All measurements can be directly exported to ORACLE®, Microsoft® SQL, a text file or Microsoft® Excel®.

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

ORDERING INFORMATION

Multi-Wavelength Cell Scoring Application Module for MetaXpress
Part Number: 9500-0038

SALES AND SUPPORT

→ USA & Canada +1-800-635-5577
→ Brazil +55-11-3616-6607
→ China (Beijing) +86-10-6410-8669
→ China (Shanghai) +86-21-6887-8820
→ Germany 00800 665 32860
→ Japan (Osaka) +81-6-7174-8831
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