KimForest
金萬林企業股份有限公司





SpectraMax XPS & SpectraMax L Microplate Reader

金萬林企業股份有限公司
產品專員 王品竣 Pin

SpectraMax XPS Multi Mode Reader



Microplate

✓Fluorescense Intensity

✓ Time-Resolved Fluorescense

✓ Luminescence

*Top-read **and Bottom-read (cell based assay)**

SpectraMax XPS Specifications

- **Microplates:** 6, 12, 24, 48, 96, and 384 well

- **Light source:**
  - ✓ **Xenon flash lamp** (1 joule/ flash)
  - ✓ Lifetime of **1 billion flashes** ~ 1 million endpoint microplates

- **Wavelengths Supported**
  - ✓ Fluorescence Intensity: EX: **250 – 850** nm
    EM: **360 – 850** nm
  - ✓ Time-Resolved Fluorescence: **360 – 850** nm
  - ✓ Luminescence: **360 – 850** nm

SpectraMax XPS Specifications

- **Dual monochromators**
  - ✓ Two scanning monochromators determine optimal excitation and emission settings
  - ✓ No need for expensive filters

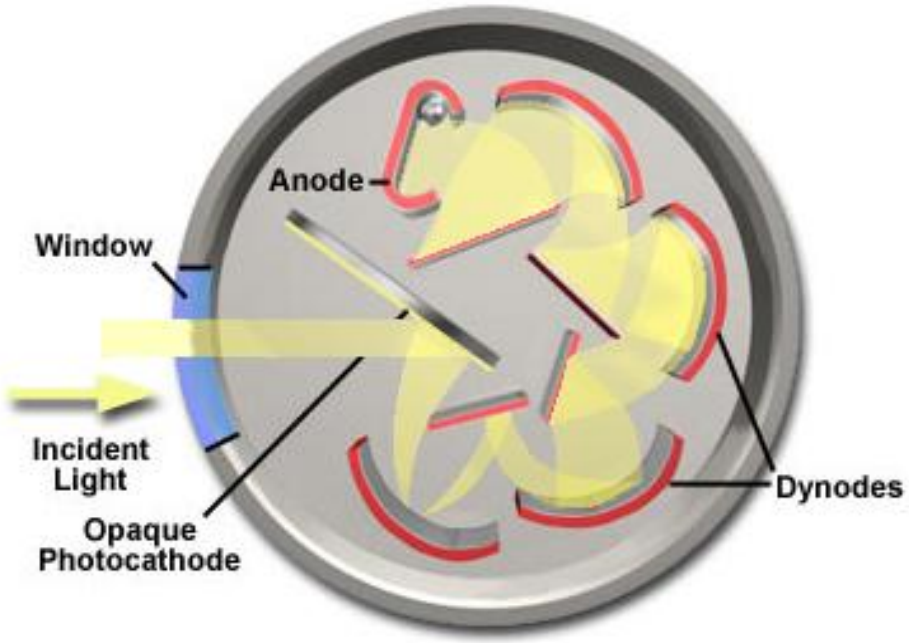
- **Detectors**
  - ✓ Photomultiplier (PMT)

- **Shaker time:** 1 to 999 seconds

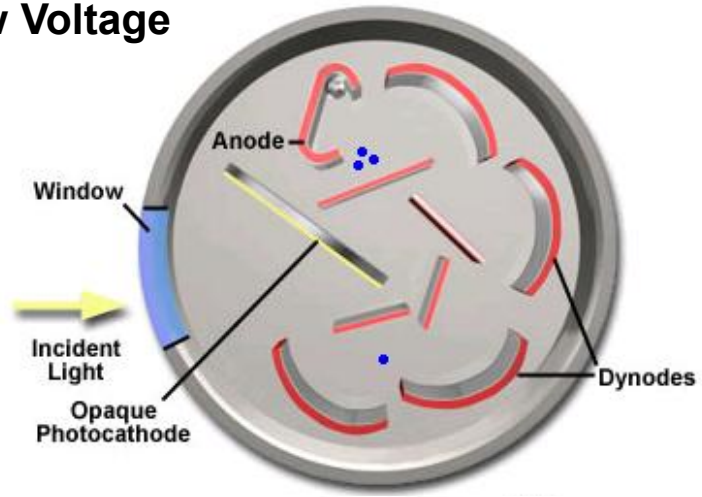
- **Temperature control:**
  - ✓ 4℃ above ambient to 45℃
  - ✓ Temperature regulation: 4 sensors

Patented AutoPMT Optimization System

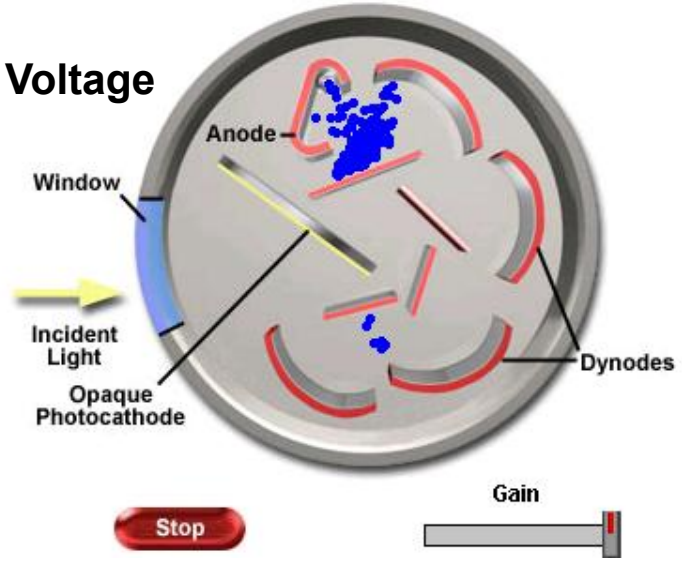
Photoelectric Effect



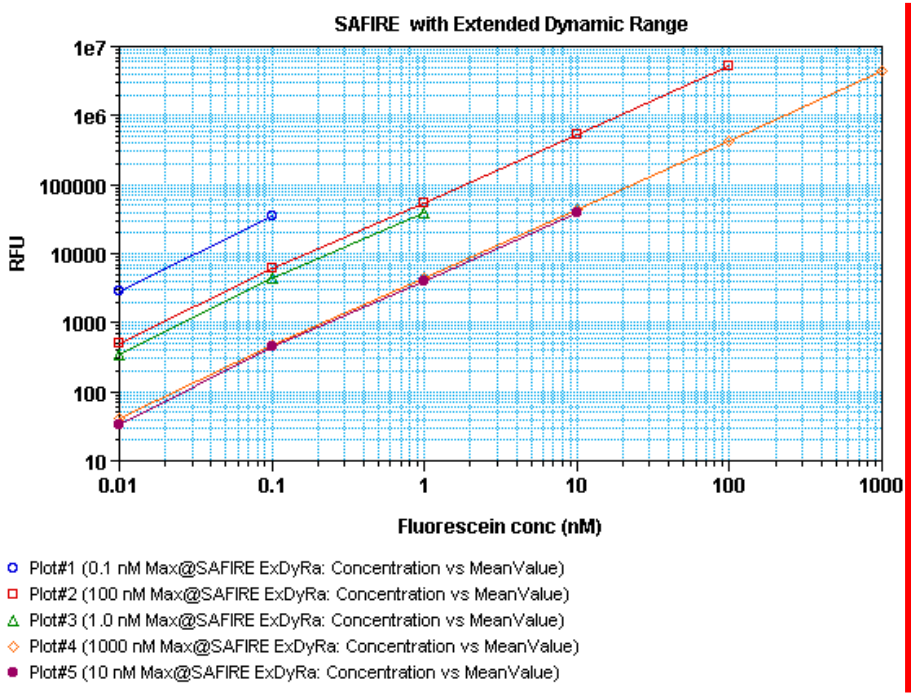
Low Voltage

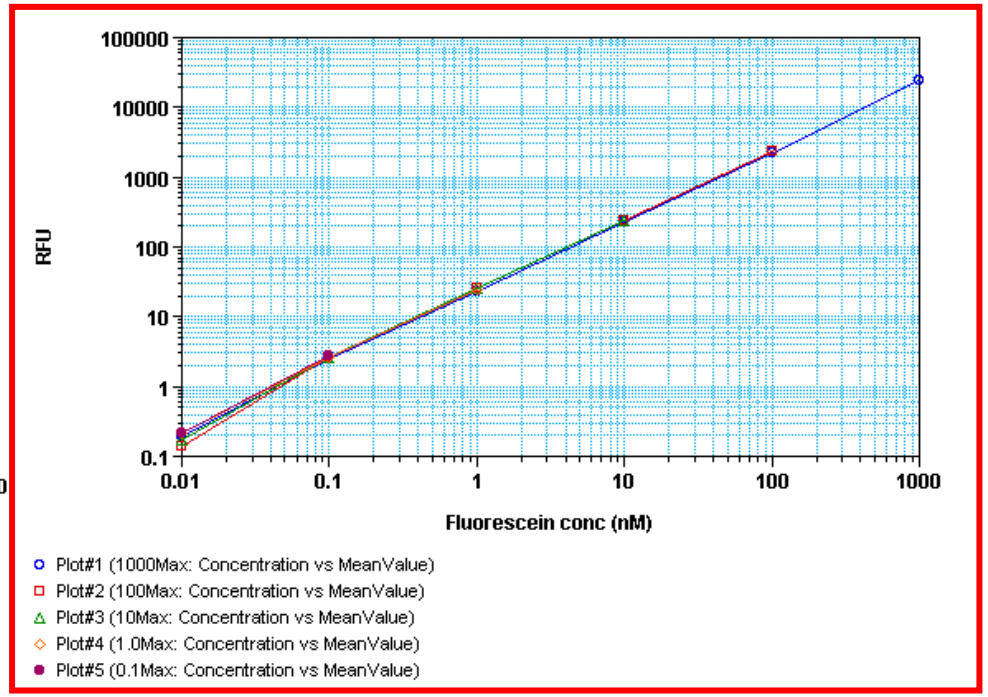


High Voltage



Patented AutoPMT Optimization System





✓自動切換最適電壓

–允許最大濃度範圍樣品在同一盤檢測中

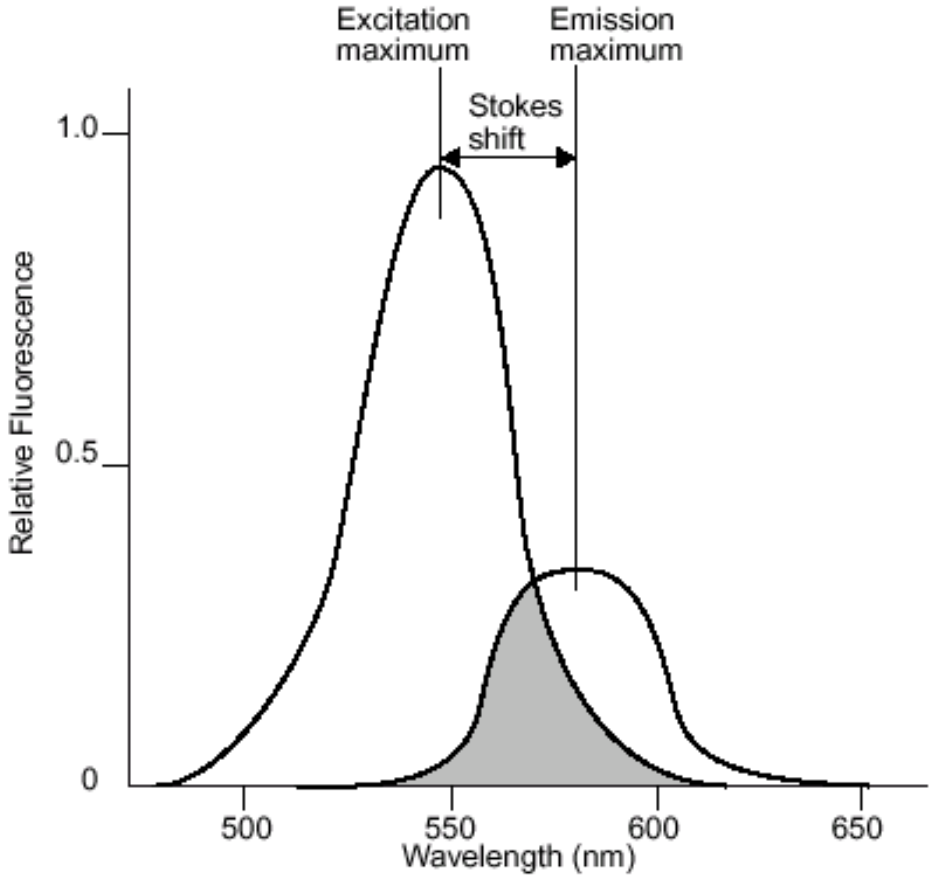
✓自動換算數據

–無須帶入不同曲線換算gain值，避免繁瑣工作

Auto Cutoff - Emission Cutoff Filter

Why Cut-Off Filters?

- Excitation light is **10,000 X** brighter than Emission light.
- Spectral separation needed to reduce interference of Ex with Em light.

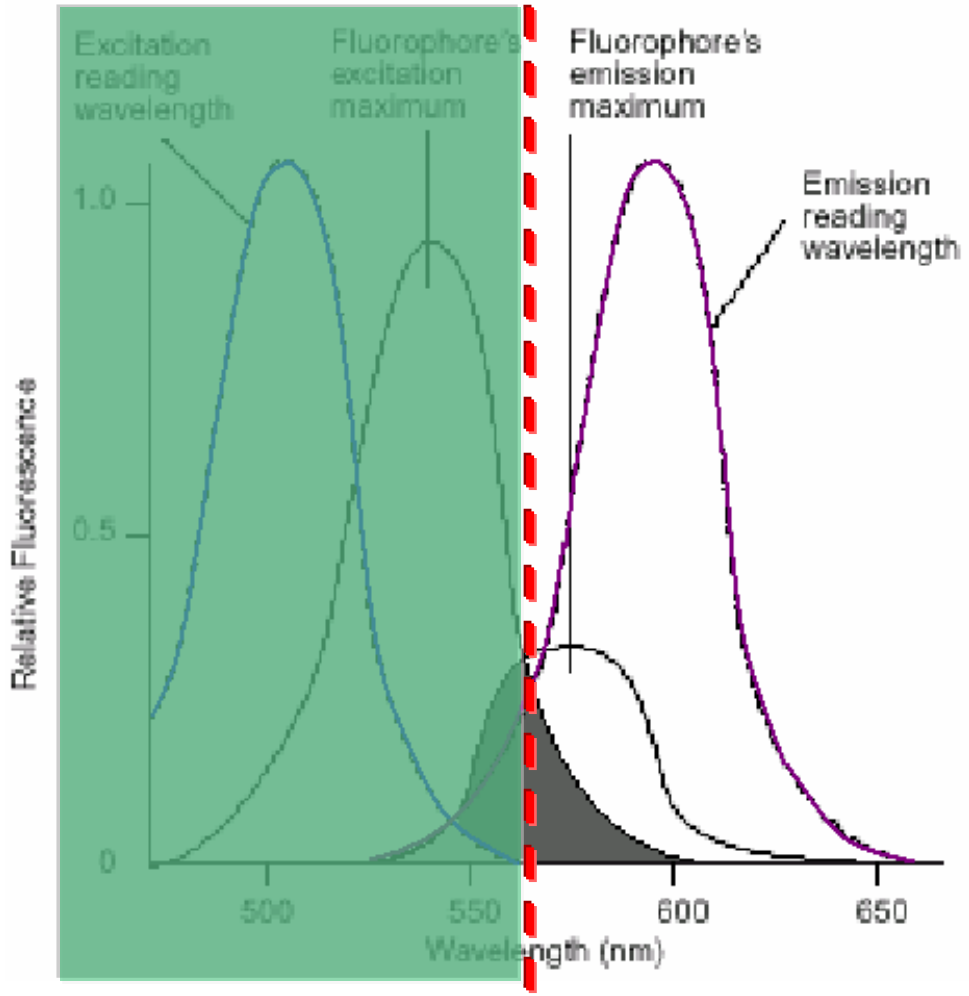


Auto Cutoff - Emission Cutoff Filter

Optimizing Wavelength Selection

- Using Ex wavelength below Ex max and Em wavelength above Em max may provide best signal/noise ratio.

- Cutoffs cause less Ex light mixing with Em light at the PMT.

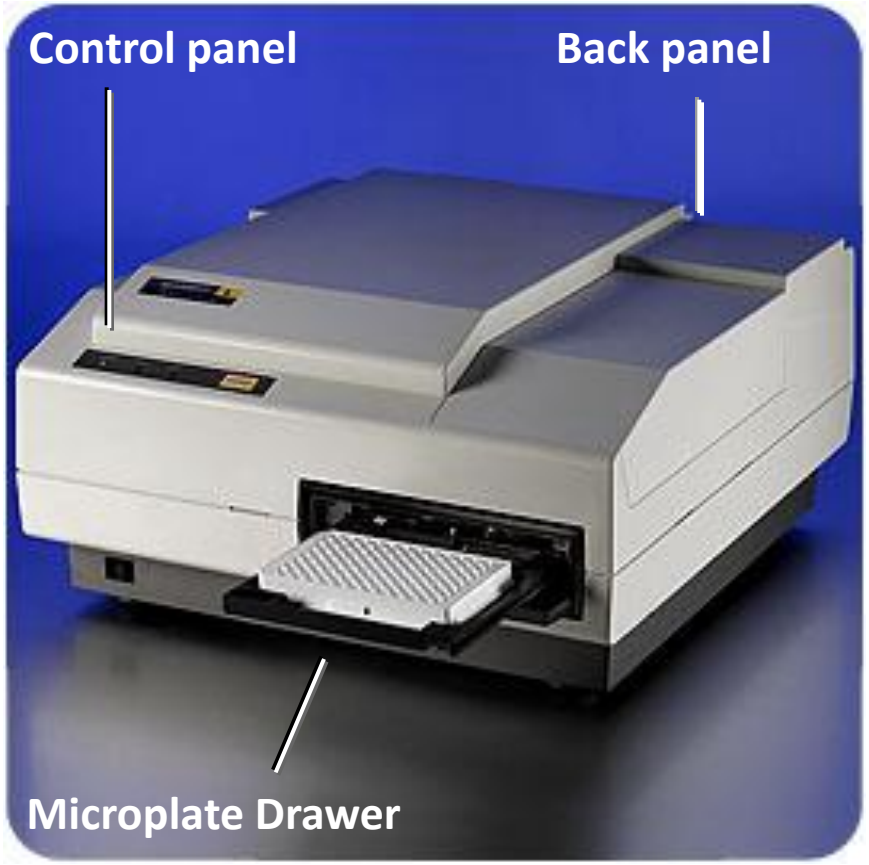


Cutoff filter

Applications of SpectraMax XPS

- **Fluorescence assays:**
  - ✓ Nucleic acid quantitation
  - ✓ Enzyme assay
  - ✓ ELISA
  - ✓ Cell proliferation & viability
  - ✓ GFP
  - ✓ FRET assay

SpectraMax L Microplate Reader



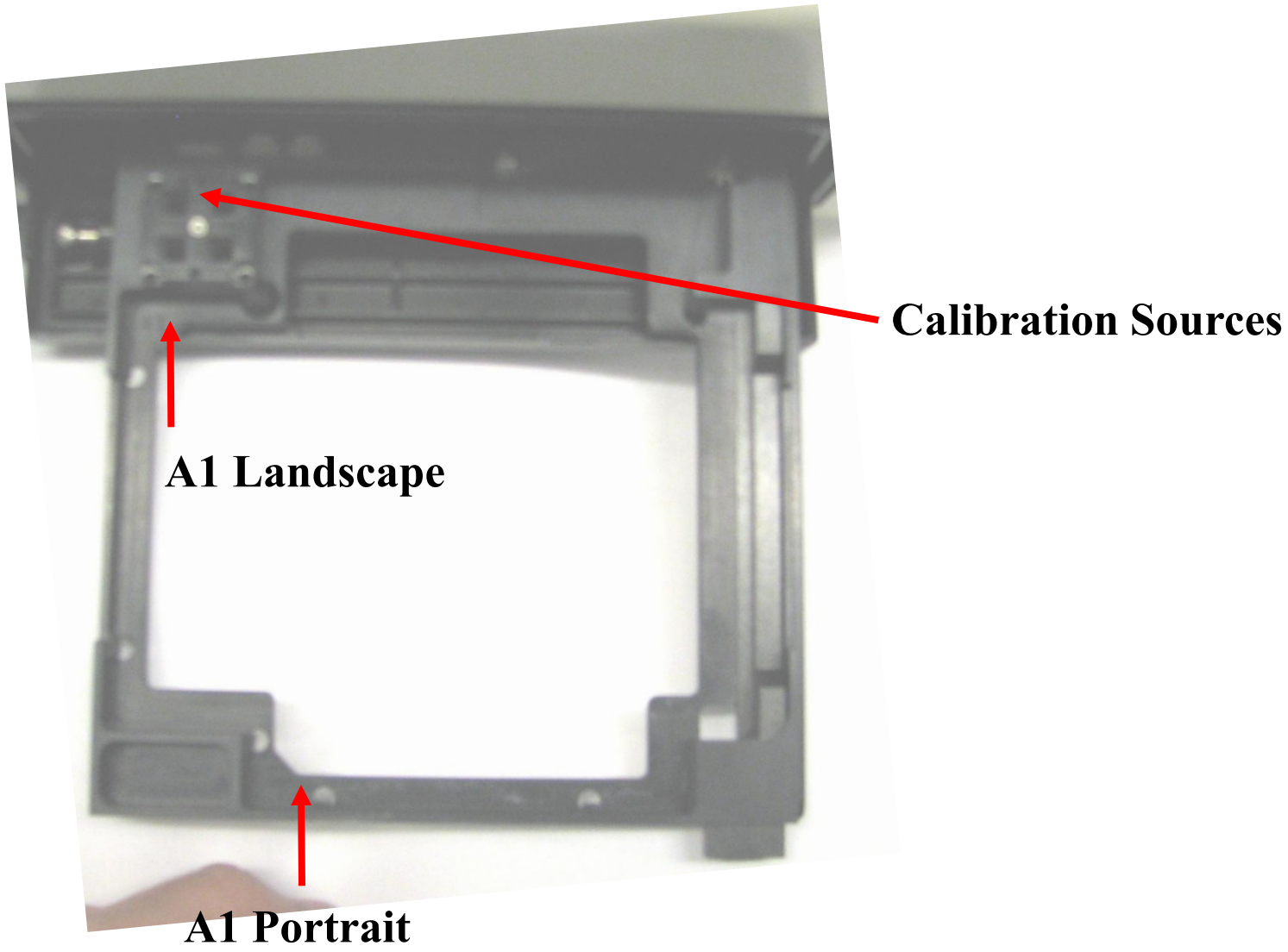
Wavelength:
380 – 630 nm

Microplate formats:
96 and 384 well

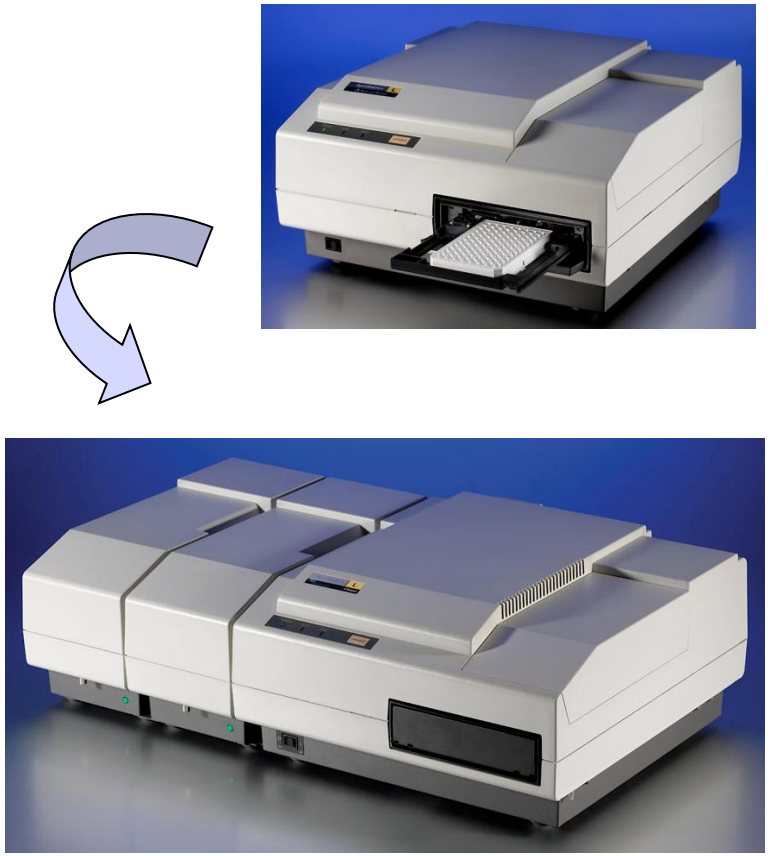
Read mode:
Top read - Luminescence

Read type:
- Endpoint
- Dual-Read
- Kinetic
- Fast Kinetic

Plate Drawer



Features of SpectraMax L



(1) Auto-PMT :

- High sensitivity luminescence detection <0.2 fg firefly luciferase per well
- Simultaneous photon counting and analog detection for extended dynamic range

(2) Aperture Design :

Low Background and crosstalk

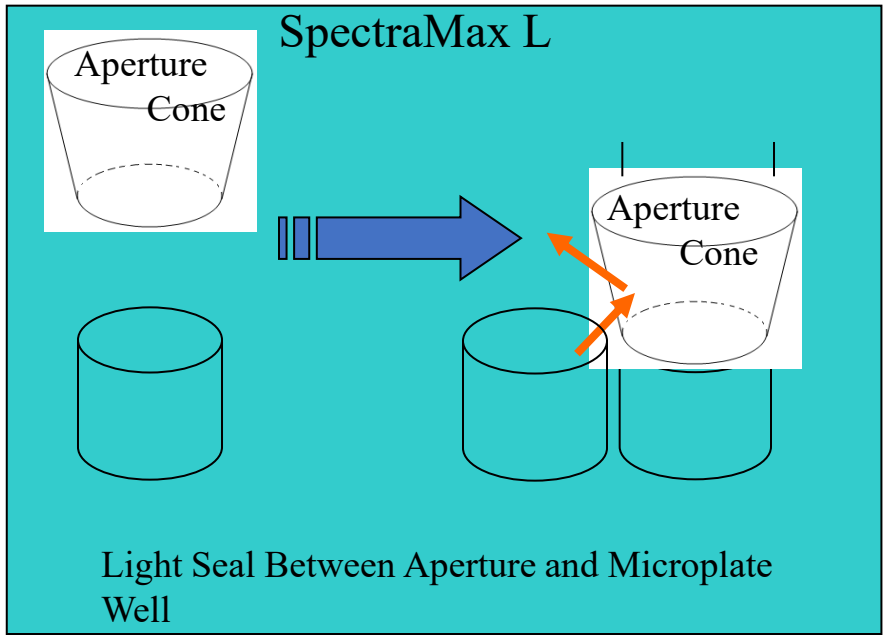
- $3x10^{-5}$ (white plate)

(3) Upgradeable :

- Dual injectors for flash luminescence
- Multi-detector configurations for higher throughput

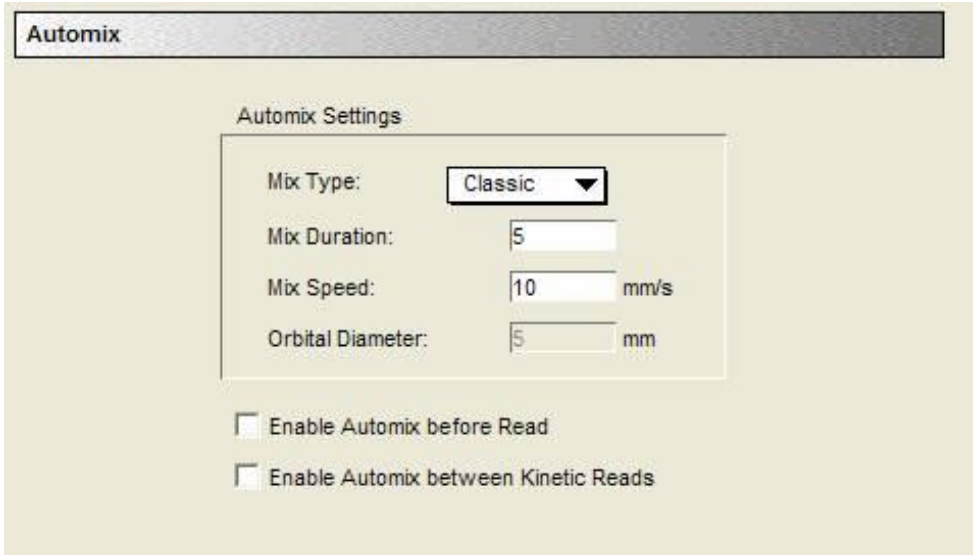
SpectraMax L Aperture Design

- By design, the SpectraMax® L luminometer offers **higher sensitivity** and **lower crosstalk** by capturing the maximum amount of light from a test well and physically limiting light from adjacent wells.
- The aperture design does limit the types of plates that can be used on the system. (see known issues)



Four Mode Mixing

- **Classic**
  - Same as AutoMix on most SpectraMax readers
  - Shakes along axis from front of instrument to back
- **Single Axis**
  - Shakes along same axis as Classic, but frequency doesn't change
- **Dual Axis**
  - Shakes In "L" pattern
- **Orbital**
  - Shakes in Circle pattern



SpectraMax® L Applications

- ELISAs and Immunoassays
- Reporter Gene Assays
- Bioluminescence Resonance Energy Transfer (BRET)
- Enzyme Assays
- Cell Viability, Proliferation, and Cytotoxicity
- Aequorin Assays
- ATP Detection
- Mycoplasma monitoring



SoftMax Pro 7 *Features*

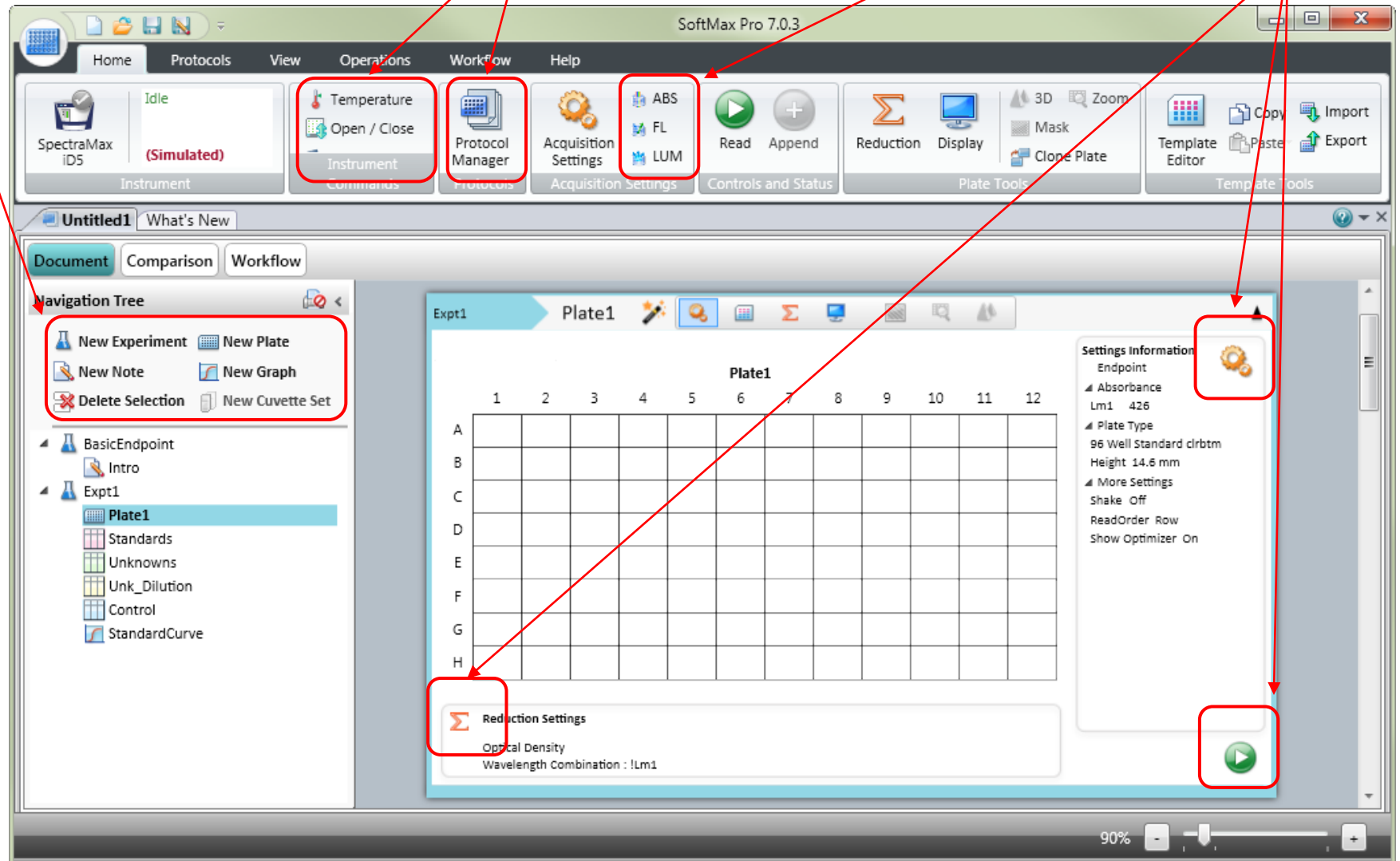
Software Interface

The New Experiment icons moved into the Navigation Tree

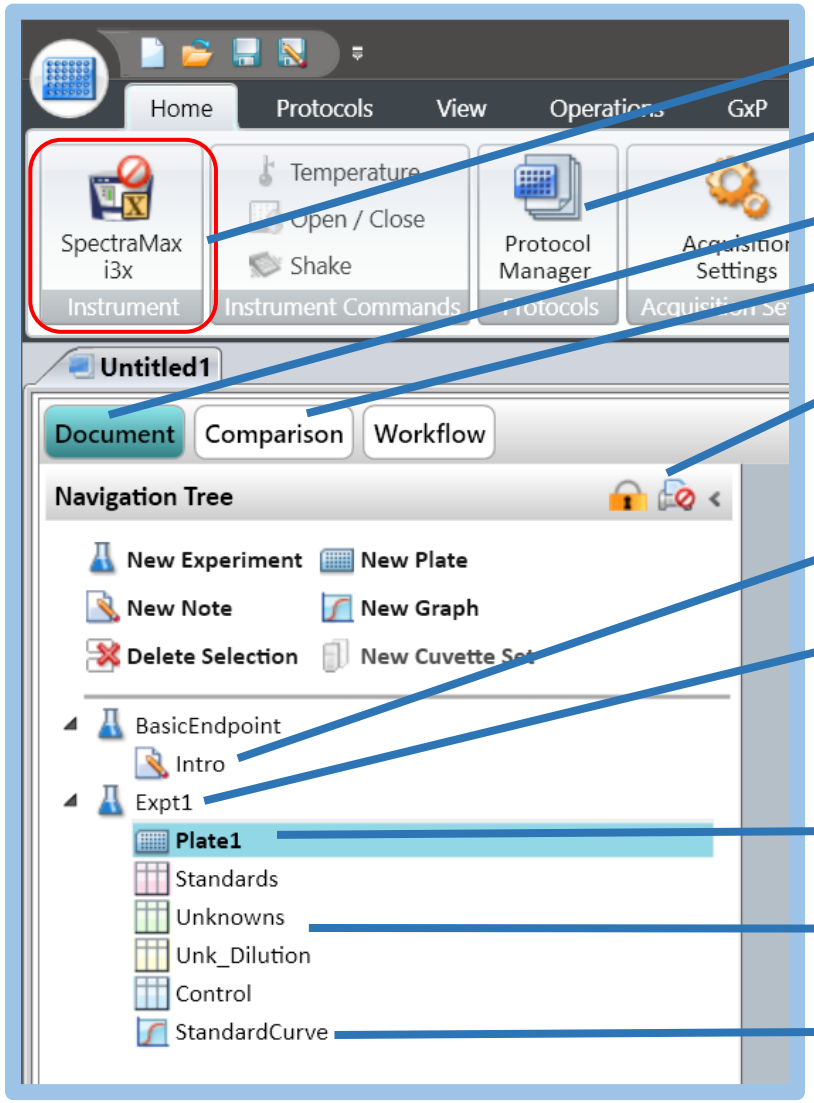
Frequently used Icons moved from the operations tab into the Home tab

New Quick Start reads

Easy access buttons



Project Oriented Interface



軟體連線情況

檔案管理

分頁模式

比較模式

可獨立設定"編輯性" or "是否列印"

註解/摘要報告

不同實驗混編

原始資料(Raw Data)

分析資料(Meta Data)

曲線擬合/統計

Advanced Acquisition

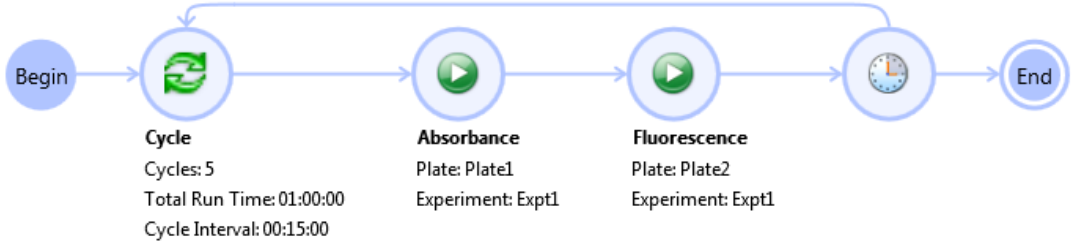


Multitask Kinetics Benefits

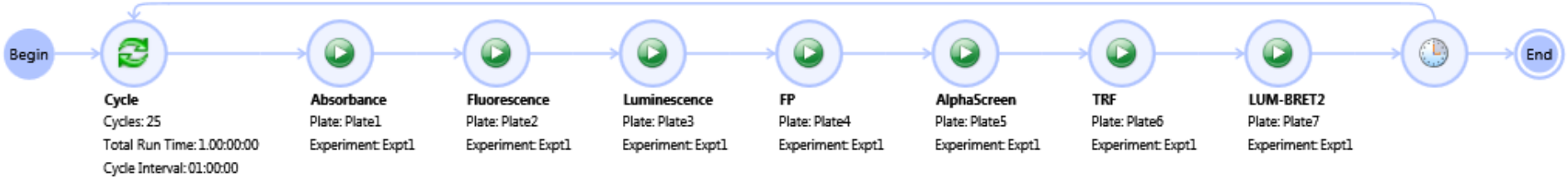
- Customize kinetic cycle tasks using the new Workflow Editor
  - **Say goodbye to Excel Workflows!**
- Run multi-day kinetic assays
- Works with all supported readers that have kinetic mode

Multitask Kinetics Benefits

- **Set up multi-mode kinetic reads**
  - Alternate between absorbance and fluorescence

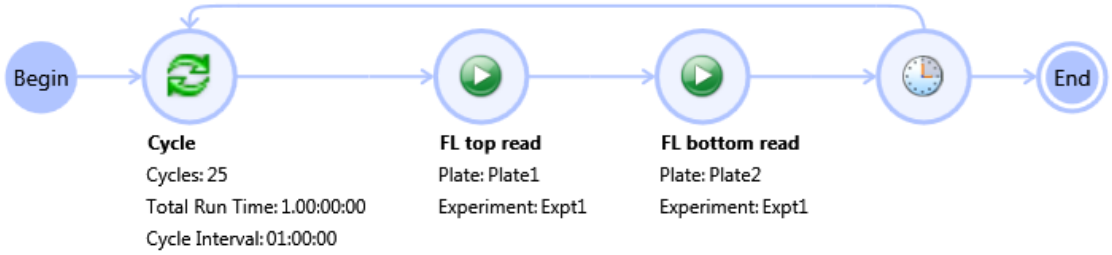


  - Alternate between absorbance, fluorescence, luminescence, FP, TRF, cartridges, etc

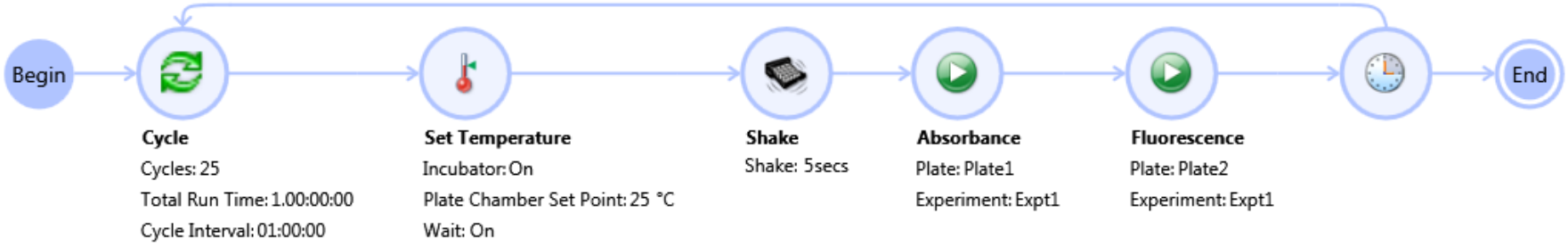


Multitask Kinetics Benefits

- **Can’t decide if top read is better than bottom read? Try both!**



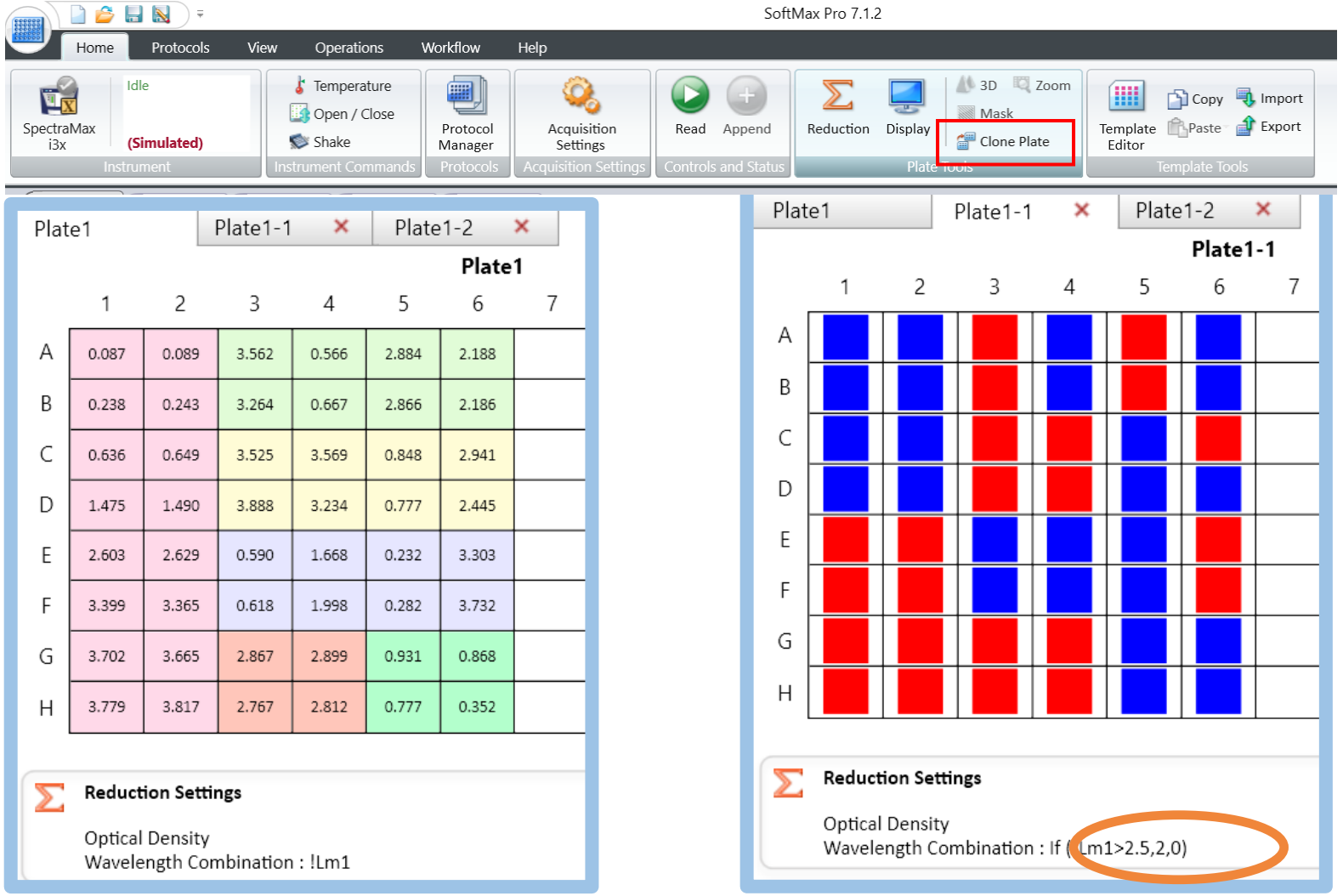
- **Add in tasks: delay, shake, open drawer**



Advanced Analysis



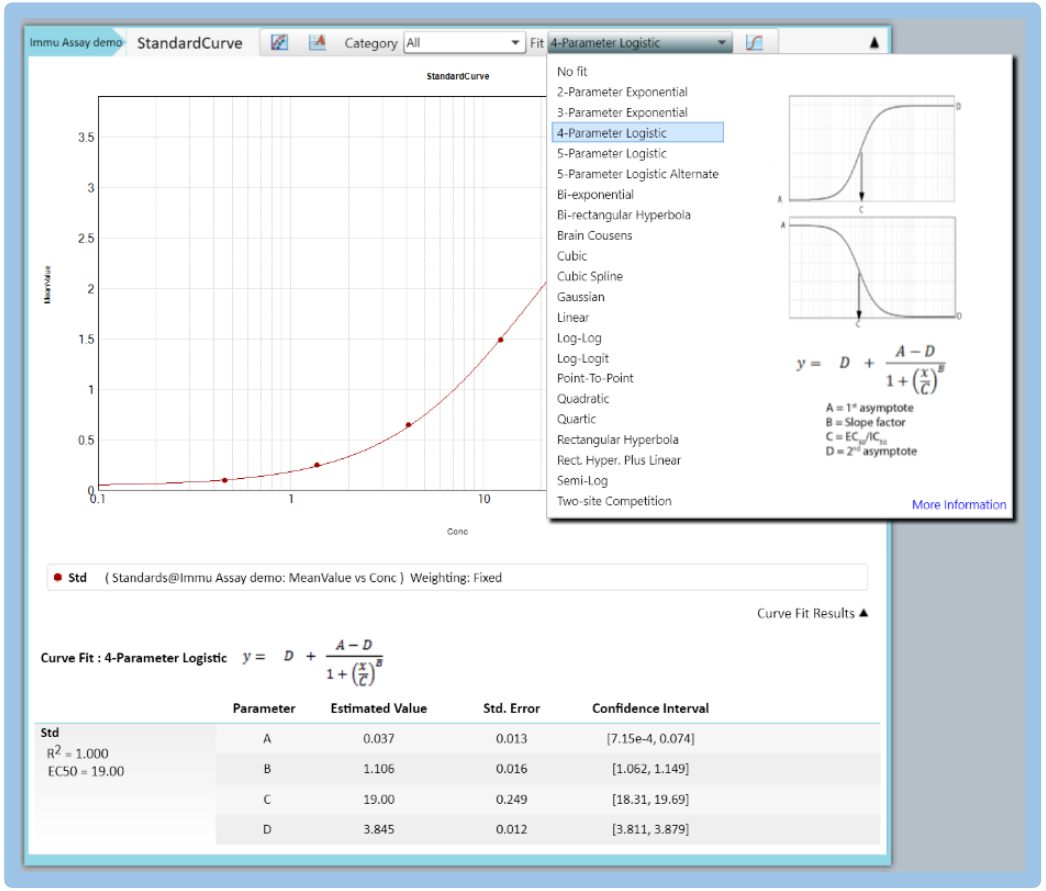
Powerful Formula system

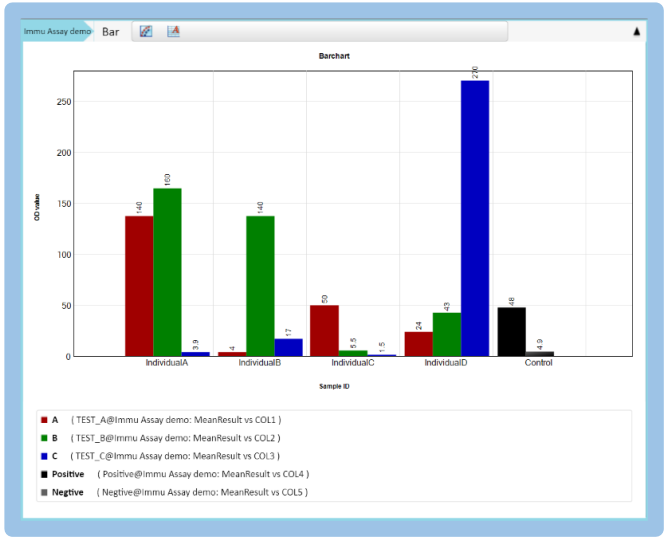


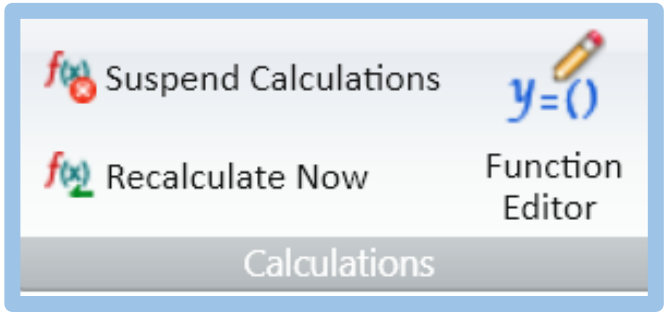
✓ RAW data

✓ QC Dashboard

Adaptable Graph system





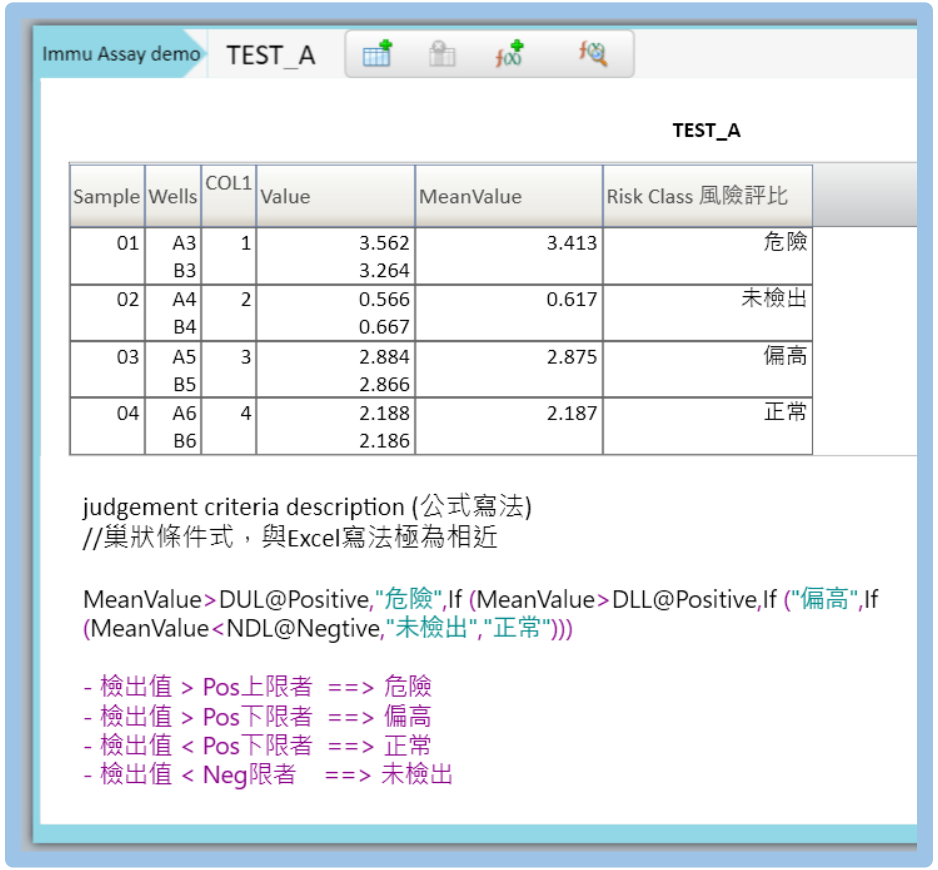


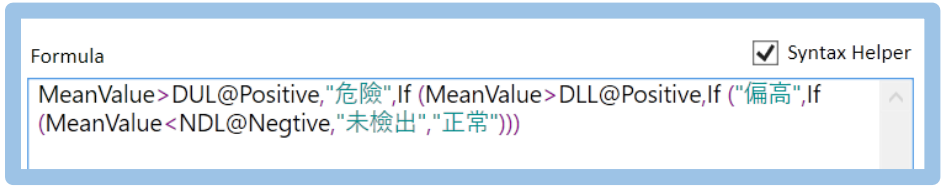
21 Predefined Curve Fitting

Bar Chart

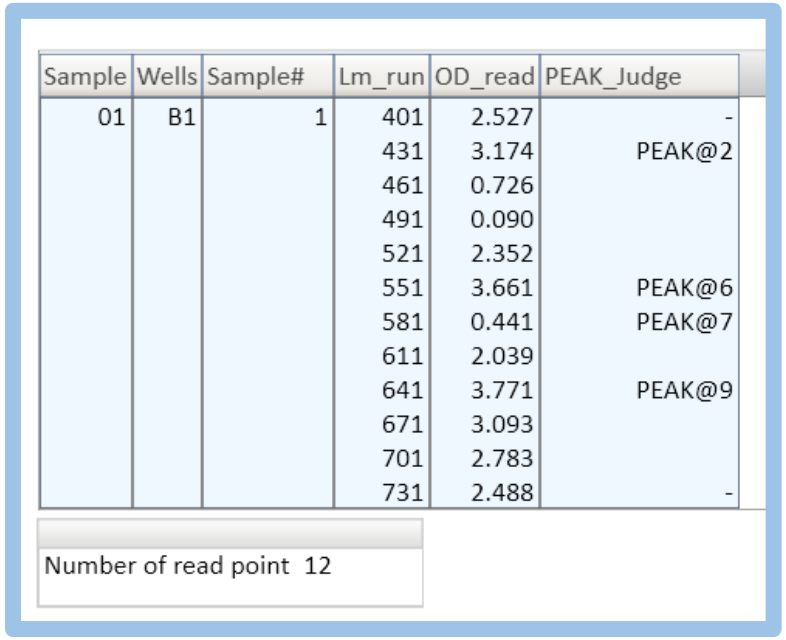
New Function Editor

Powerful Formula system





- Mathematical
- Statistical
- Comparison
- Condition
- Peak analysis
- Array analysis



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Thank you for your attention!

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