MOLECULAR DEVICES
UNLEASH YOUR BRILLIANCE™

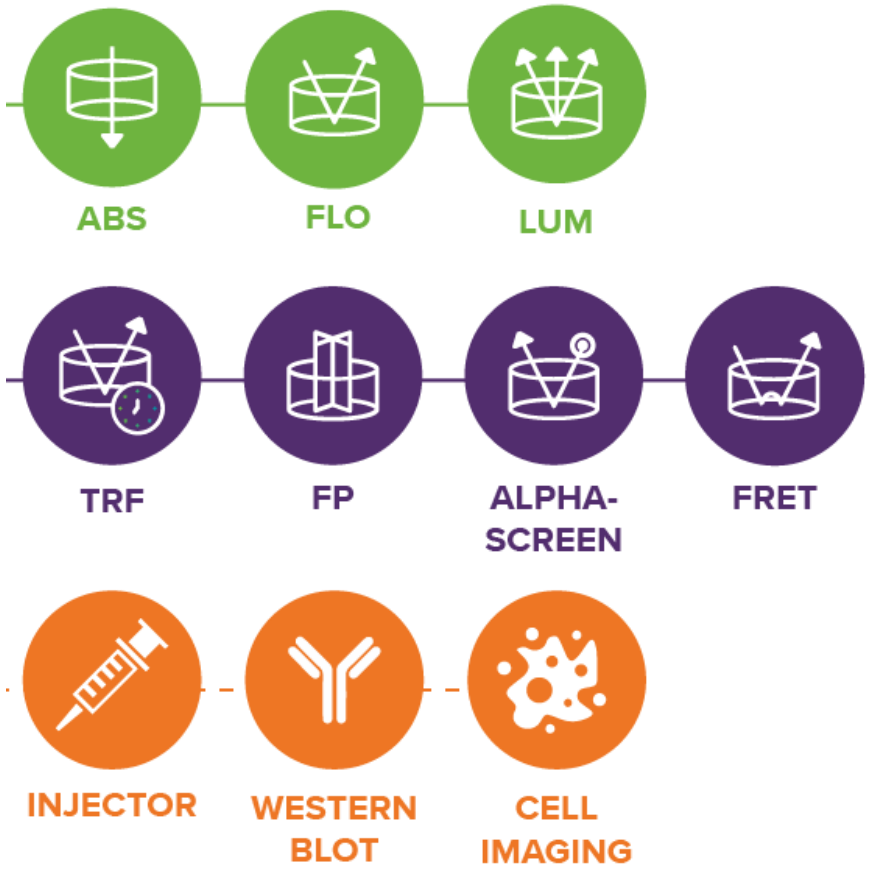
SpectraMax i3x

Multi-Mode Detection Platform
多功能光學測讀平台之操作與應用

金萬林企業股份有限公司

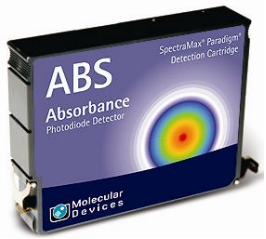
產品專員 陳雅琳 Debby

SpectraMax i3x Multi-Mode Detection Platform



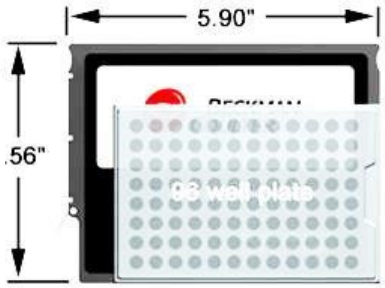
Cartridges – Future Ready

- **User-upgradeable within 2 minutes**
  - No messy upgrades
  - No instrument down time
  - Only cost – new cartridge
- **Applications (20 options)**
  - Injector cartridge
  - ScanLater™ (Western Blot)
  - AlphaScreen® (PE)
  - HTRF® (Cisbio)
  - Customization
  - And more

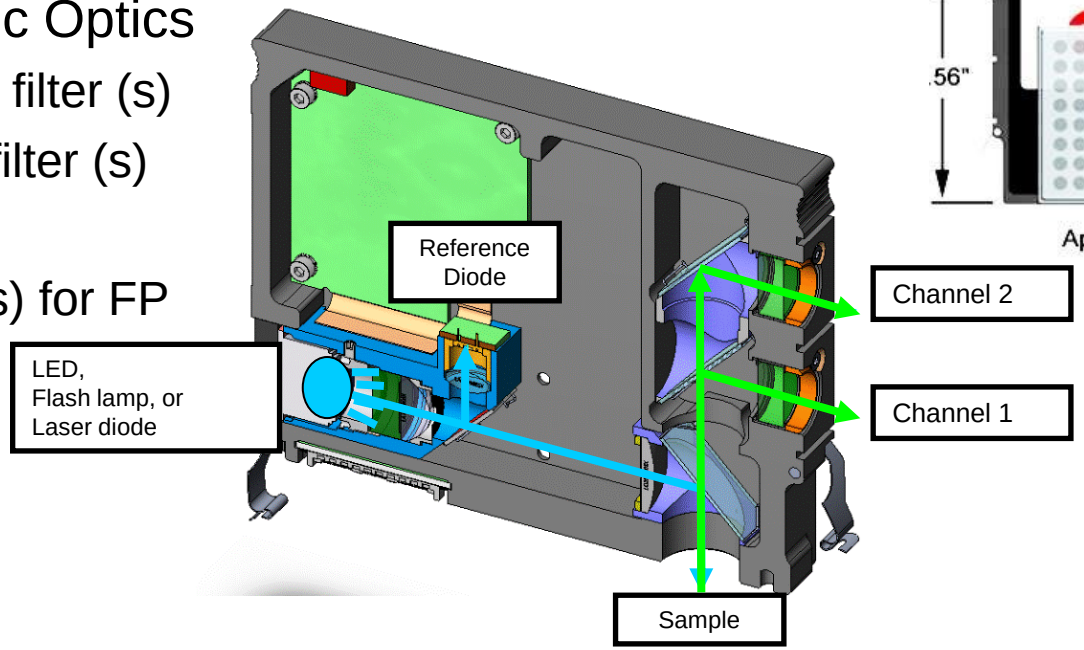


Each Cartridge Is One Microplate Reader

- **Detection Cartridges include:**
  - Optimal Light Source
    - AlphaScreen®: **laser diode**
    - FL: **LED**
  - Detection Specific Electronics
  - Label Specific Optics
    - Excitiation filter (s)
    - Emission filter (s)
    - Dichroics
    - Polarizer(s) for FP



Approximate Size

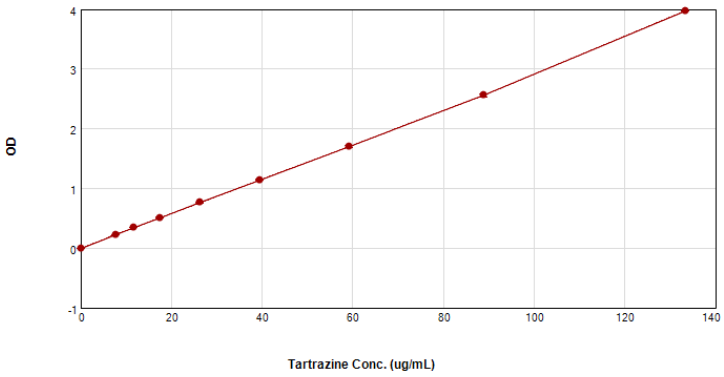


Technical Specifications

- **Microplates**: 6, 12, 24, 48, 96, and 384 wells
- **Light source**: Spectral Fusion Illumination (Xenon flash lamp + high-powered LEDs)
- **Wavelength selection**: 2x2 Monochromator Design
- **Detectors**: Silicon photodiode
  Cooled photomultiplier tube
- **Read types**: Endpoint, Kinetic, Spectrum scan, Well scan
- **Shaking**: Linear and Orbital (3 intensity)
- **Temp. control**: 4℃ above ambient to 45℃

Absorbance with SpectraMax i3x Platform

- Light source: **Xenon Flash Lamp**
- Detection: Photodiode
- Wavelength selection: Dual Monochromator
- Spectral Range: 230-1000 nm
- Read: top to bottom
- Bandwidth: 4nm
- **Performance**
  - System has less stray light than single Monochromator system
    - More sensitive
    - Linearity up to 4 OD

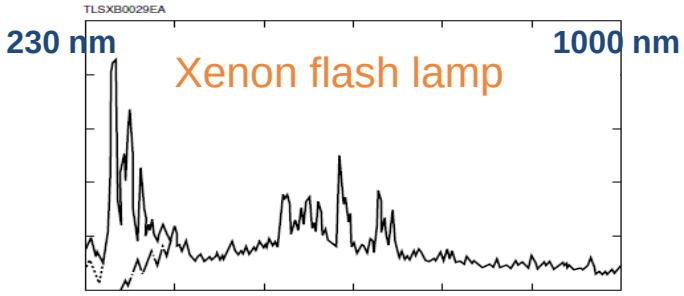


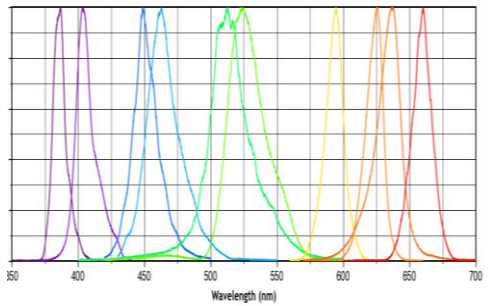
Fluorescence with SpectraMax i3x Platform

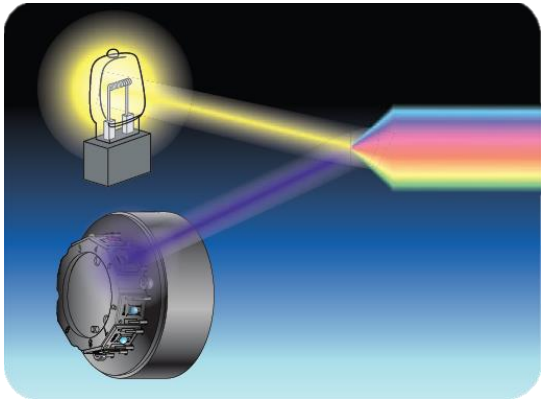
- Light source: **Spectral Fusion™ Illumination**
- Detection: PMT
- Wavelength selection: 2 x 2 Monochromator
- Spectral Range: 250-850 nm
- Read: Top and bottom
- Bandwidth: Ex 9 or 15 nm, Em 15 or 25 nm
- Performance
  - 2x2 Monochromator design in combination with Spectral Fusion™ Illumination allow this system to be
    - More sensitive
    - Higher dynamic range
    - Full spectral range

Unique Spectral Fusion™ Illumination

- **Revolutionary light source design**
  - Xenon flash lamp (**for deep UV**)
  - Intensified by LEDs in visible range
  - More powerful
- **Increased sensitivity**
  - Ultimately increasing the sensitivity of the system across the full spectrum
- **Auto LED**
- **High dynamic range for all conc. on one plate**
  - No need to reread
  - No saturation

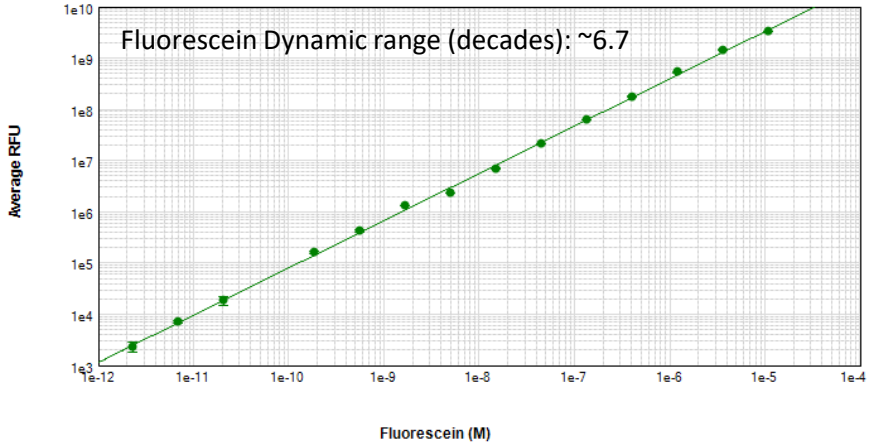


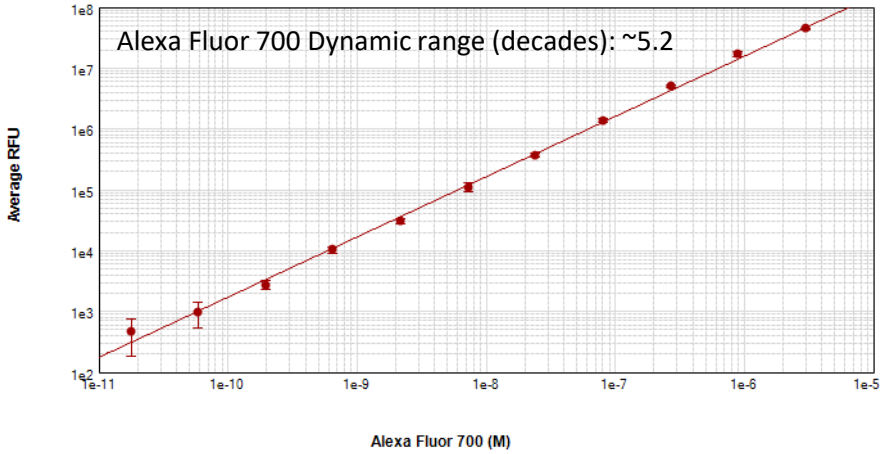




Extended Dynamic Range

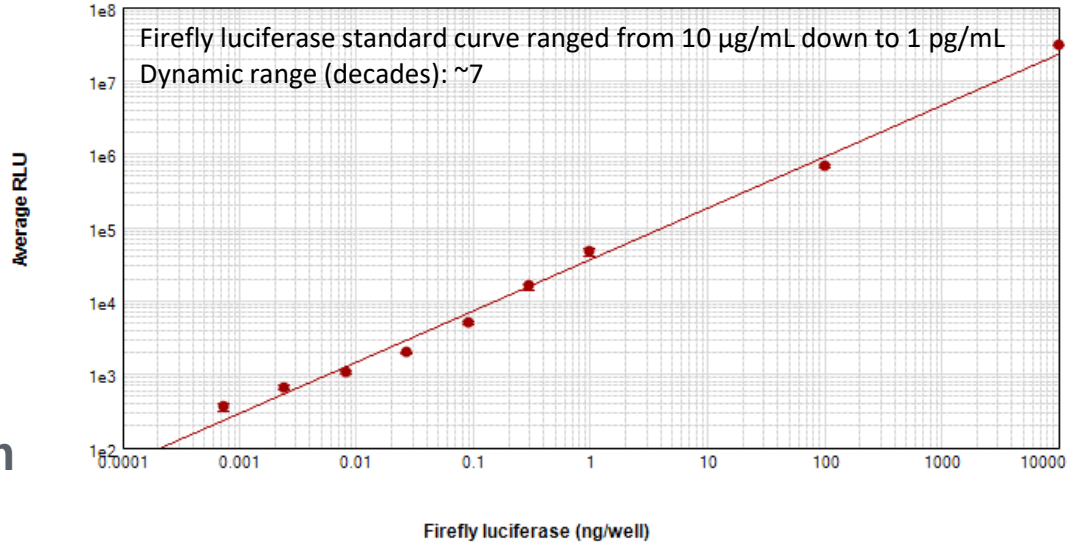
SpectraMax i3x Base System	Est. dyn. range (decades)
Alexa 430	> 4
Fluorescein	> 6
Alexa 700	> 5

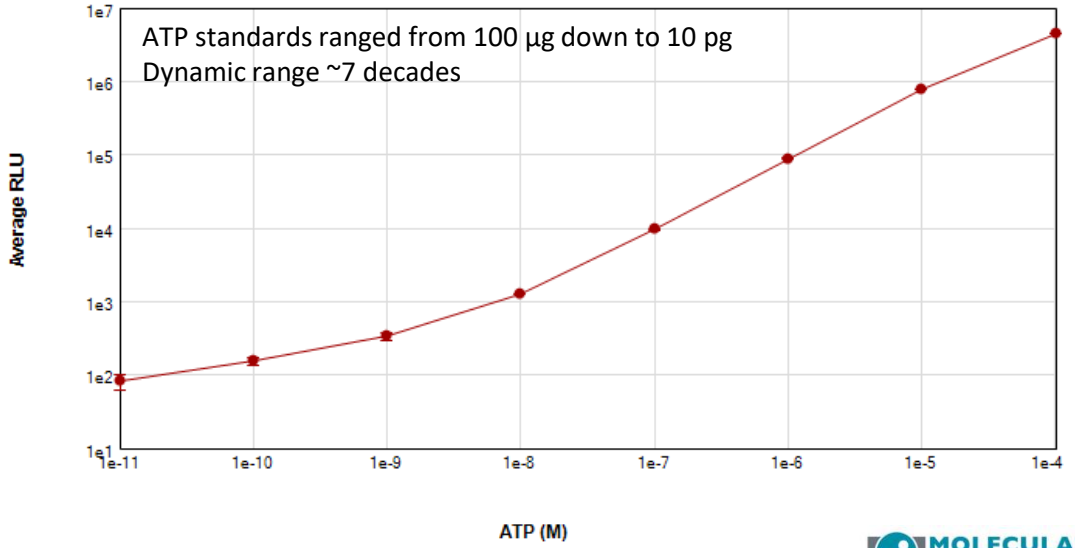




Luminescence with SpectraMax i3x system

- Detection: **Cooled PMT**
- Wavelength selection: Dual Monochromator for Em only
- Spectral Range: 300-850 nm
- Read: top only
- Bandwidth for Em: **15 or 25 nm**
- **Performance**:
  - Low instrument background
  - High sensitivity across the visible range (most applications)

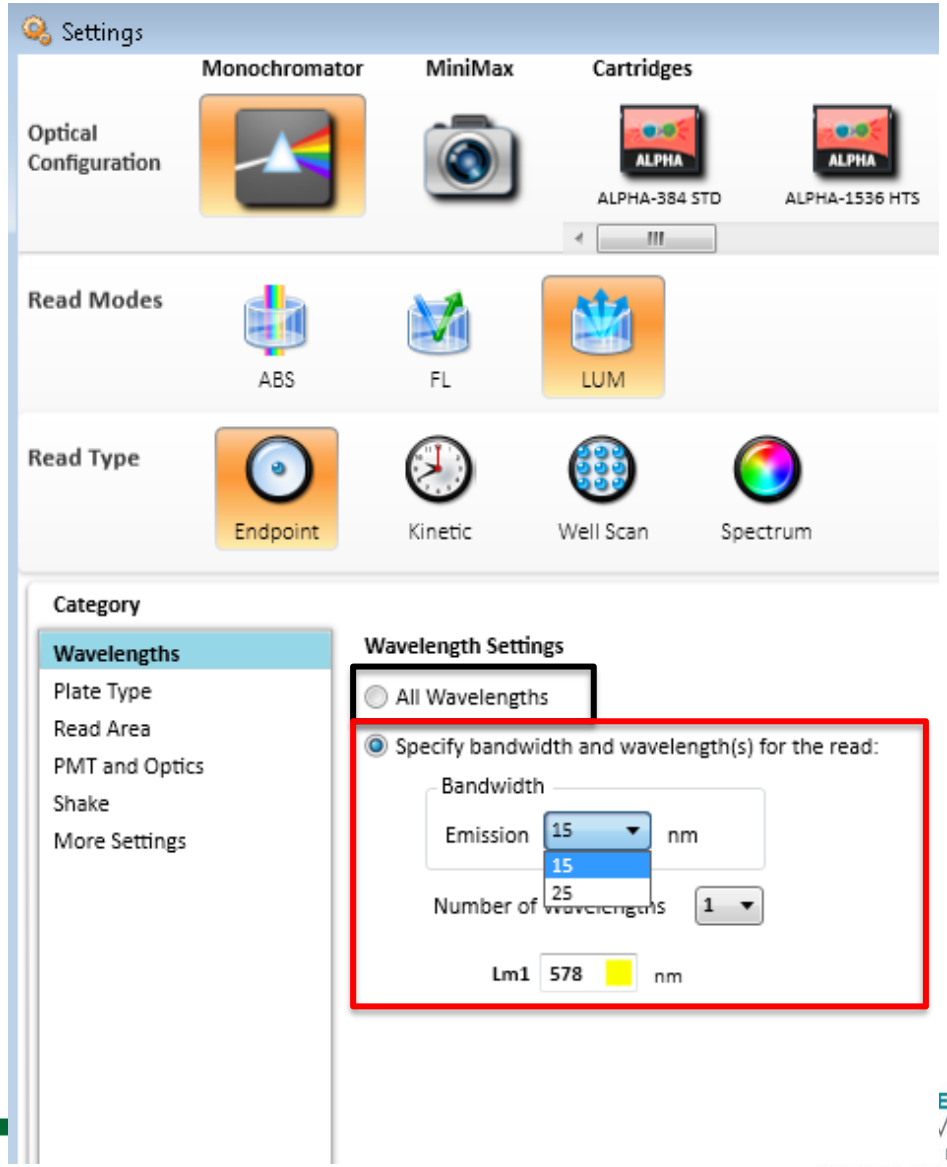




Luminescence with SpectraMax i3x system

- In SoftMax Pro two options for Emission:

1. Read at all wavelengths
2. Read at specific wavelengths (BRET)
   a) Choose the BW
   b) Choose up to 4 different wavelengths
   c) Choose the Wavelength



ECULAR VICES BRILLIANCE

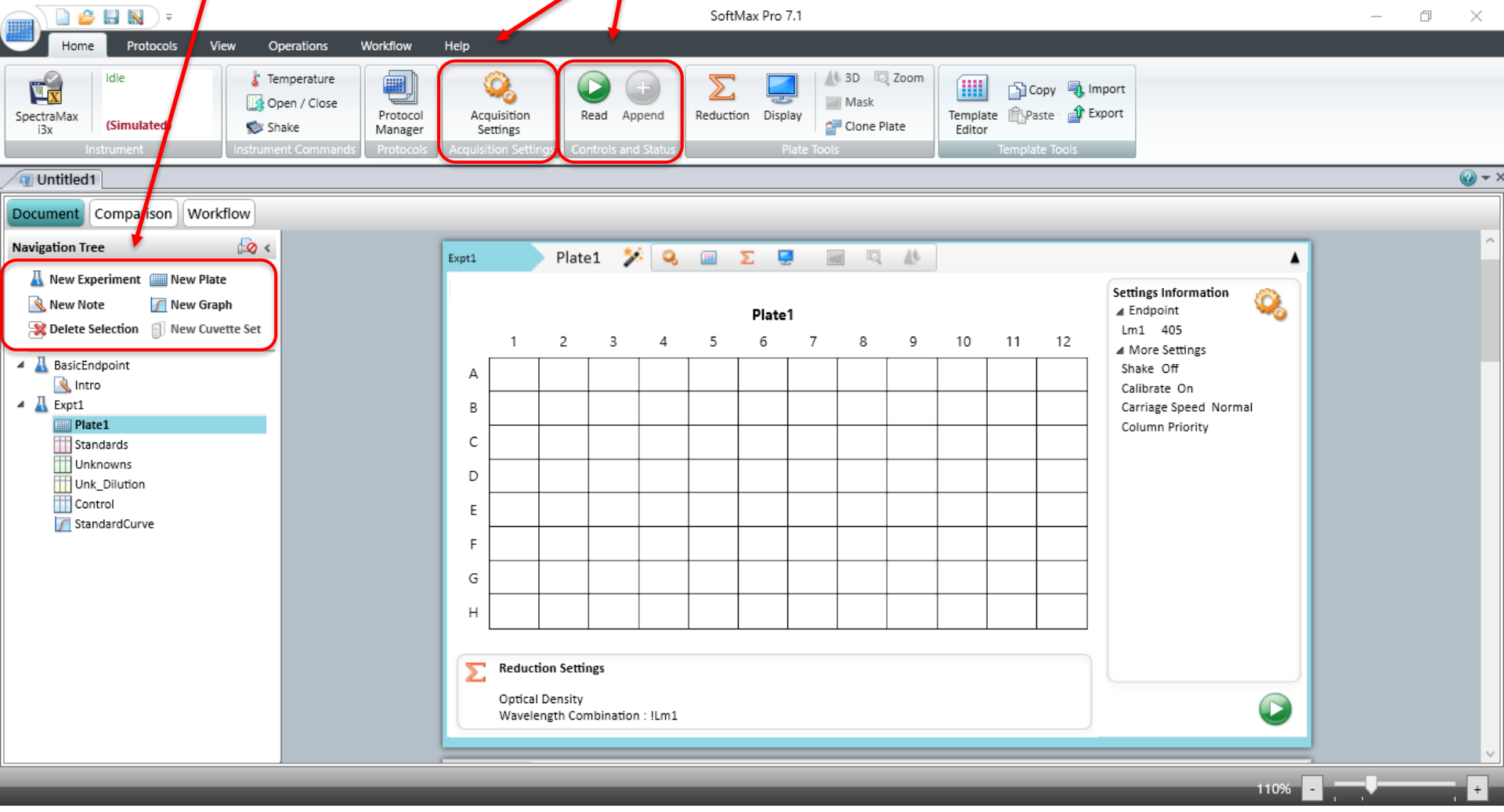
SoftMax Pro 7 Software

SoftMax Pro 7 Data Acquisition and Analysis Software

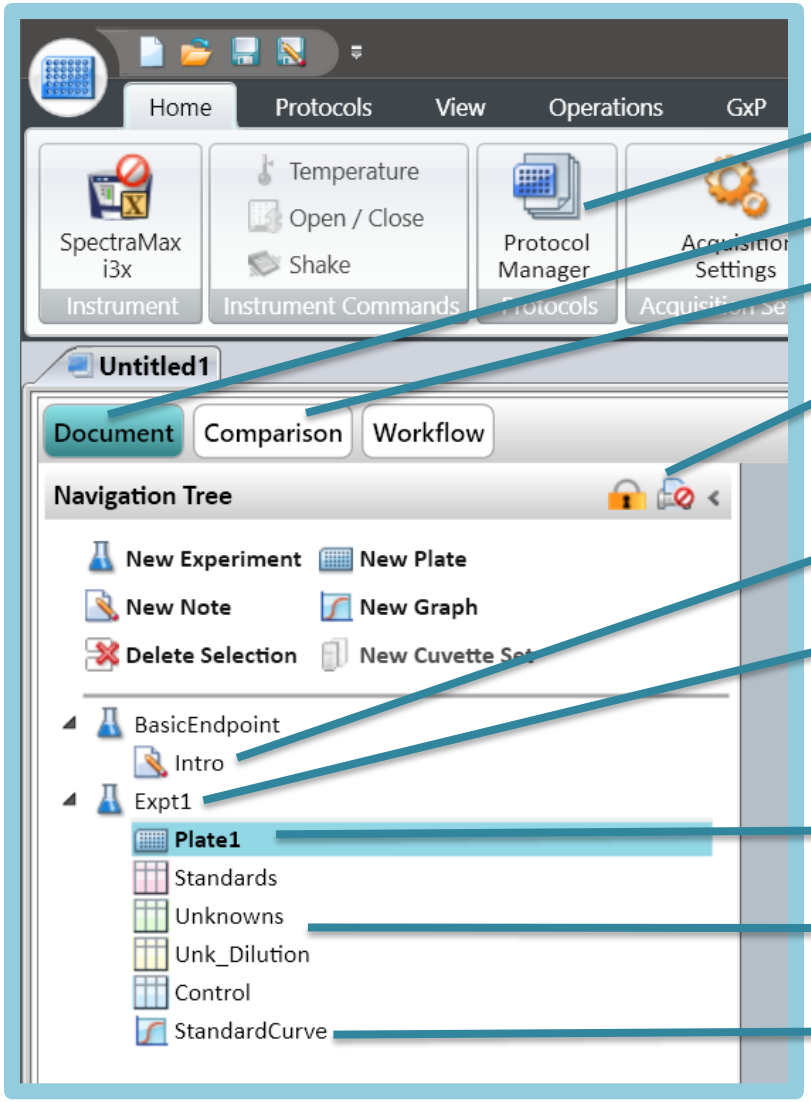
Software Interface

The New Experiment icons moved into the Navigation Tree

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



Project Oriented Interface



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

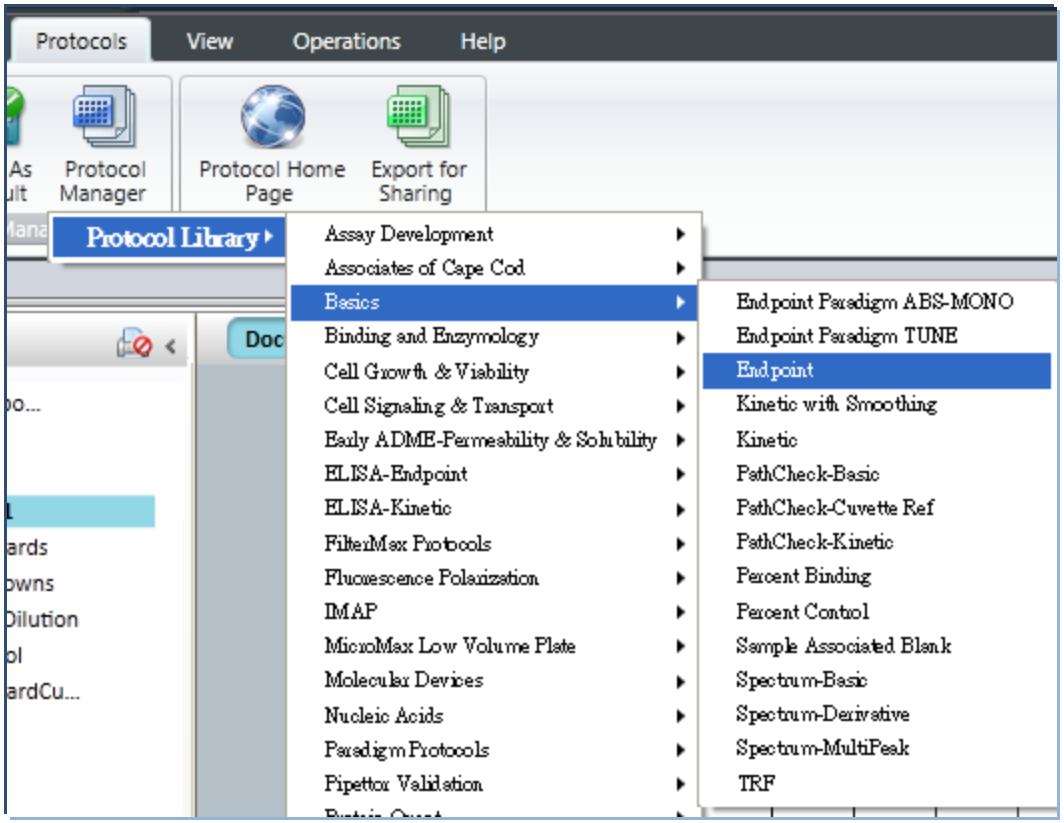
原始資料(Raw Data)

分析資料(Meta Data)

曲線擬合/統計

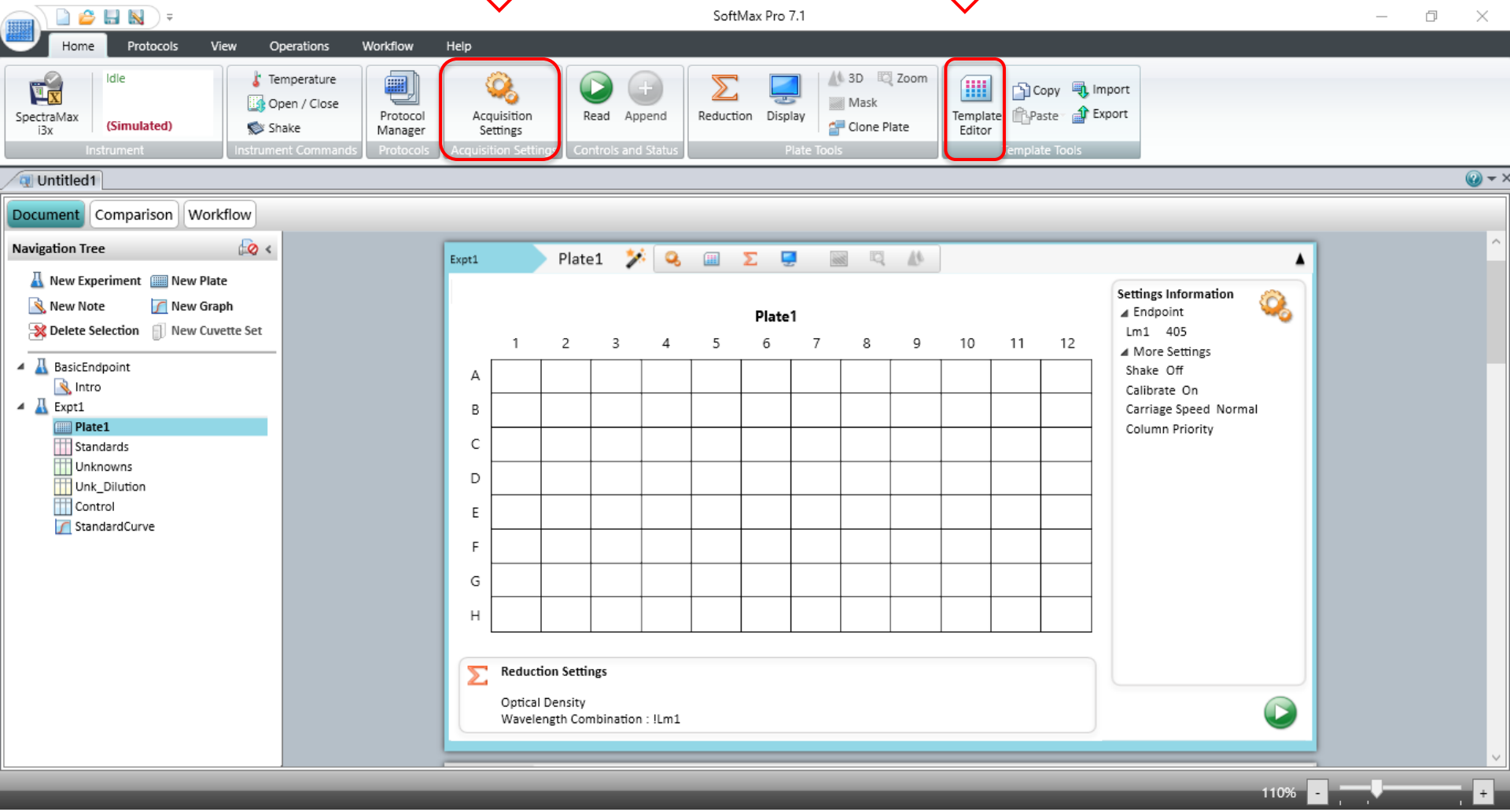
Ready-to-run Protocols

- Assay methods set up as ready-to-run protocols
- Over 160 customizable protocols available
- Customers can save files as “protocols” to simplify repeated experiments in the future.



硬體設定

分析設定


SoftMax Pro 7.1
Home
Protocols
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Workflow
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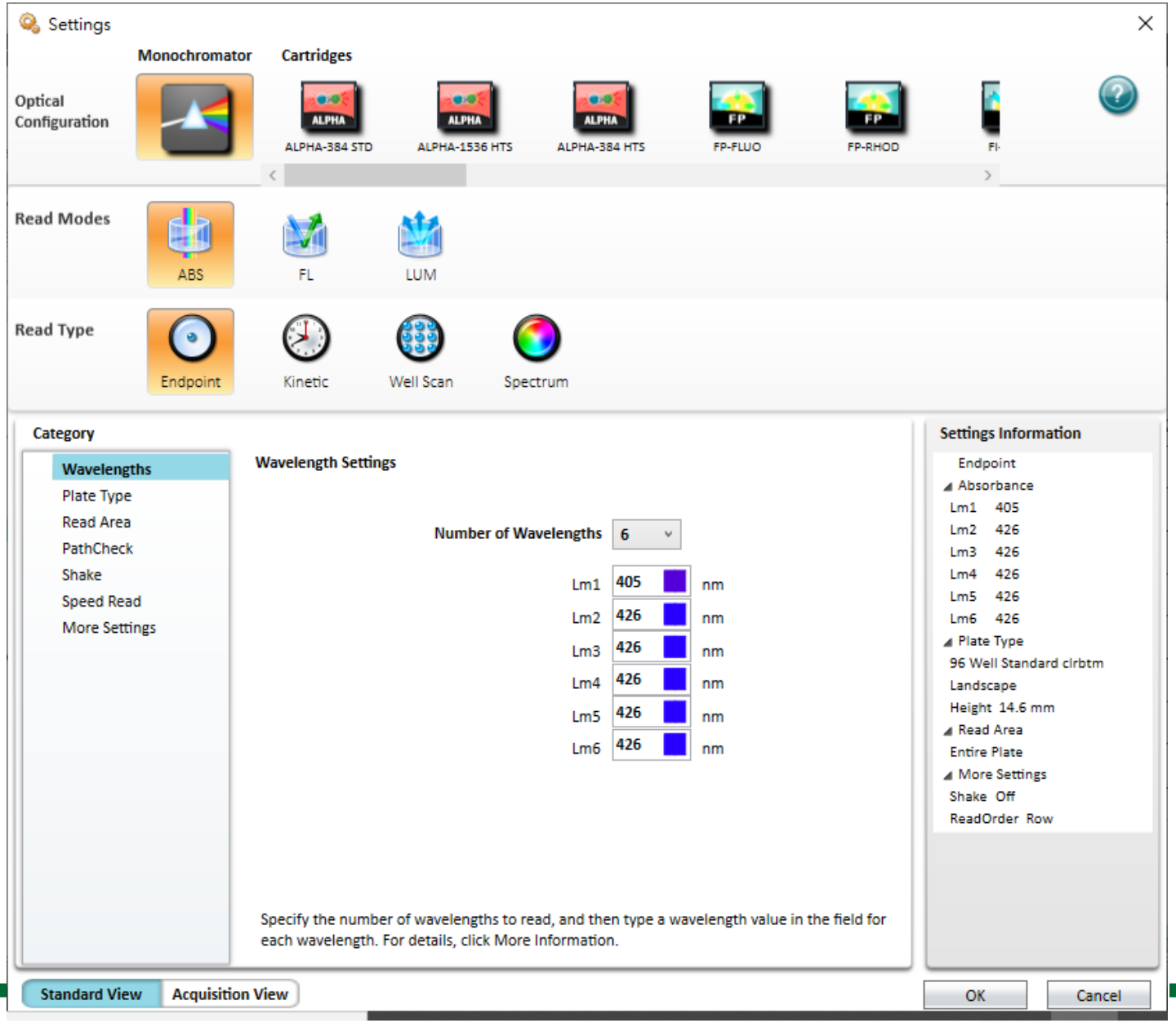
SpectraMax i3x
Idle
(Simulated)
Instrument
Temperature
Open / Close
Shake
Instrument Commands
Protocol Manager
Protocols
Acquisition Settings
Read
Append
Controls and Status
Reduction
Display
3D
Zoom
Mask
Clone Plate
Plate Tools
Template Editor
Copy
Paste
Import
Export
Template Tools
Untitled1
Document
Comparison
Workflow
Navigation Tree
New Experiment
New Plate
New Note
New Graph
Delete Selection
New Cuvette Set
BasicEndpoint
Intro
Expt1
Plate1
Standards
Unknowns
Unk_Dilution
Control
StandardCurve
Expt1
Plate1
Plate1
1 2 3 4 5 6 7 8 9 10 11 12
A
B
C
D
E
F
G
H
Settings Information
Endpoint
Lm1 405
More Settings
Shake Off
Calibrate On
Carriage Speed Normal
Column Priority
Reduction Settings
Optical Density
Wavelength Combination : !Lm1
110%

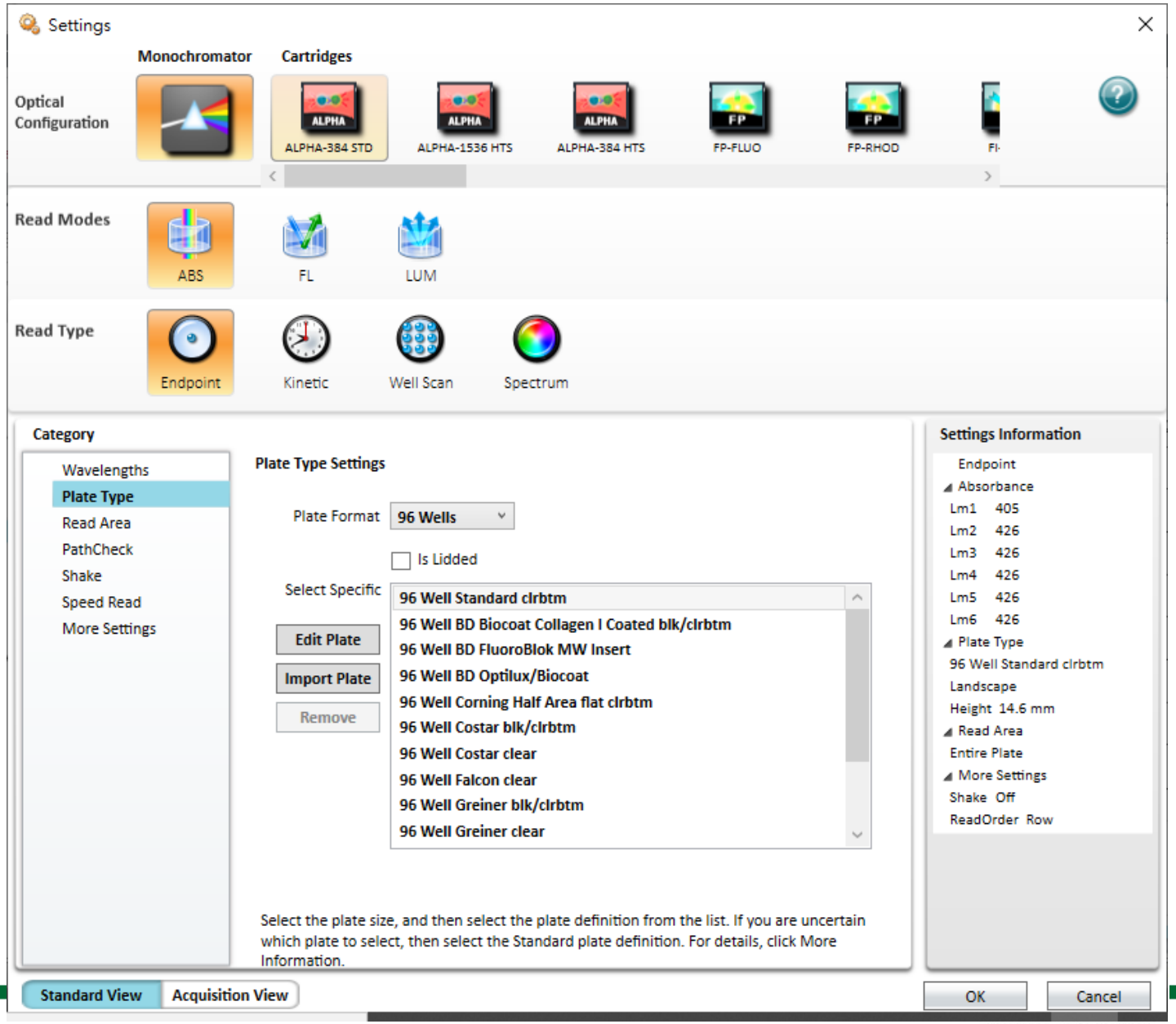
Absorbance

Wavelengths



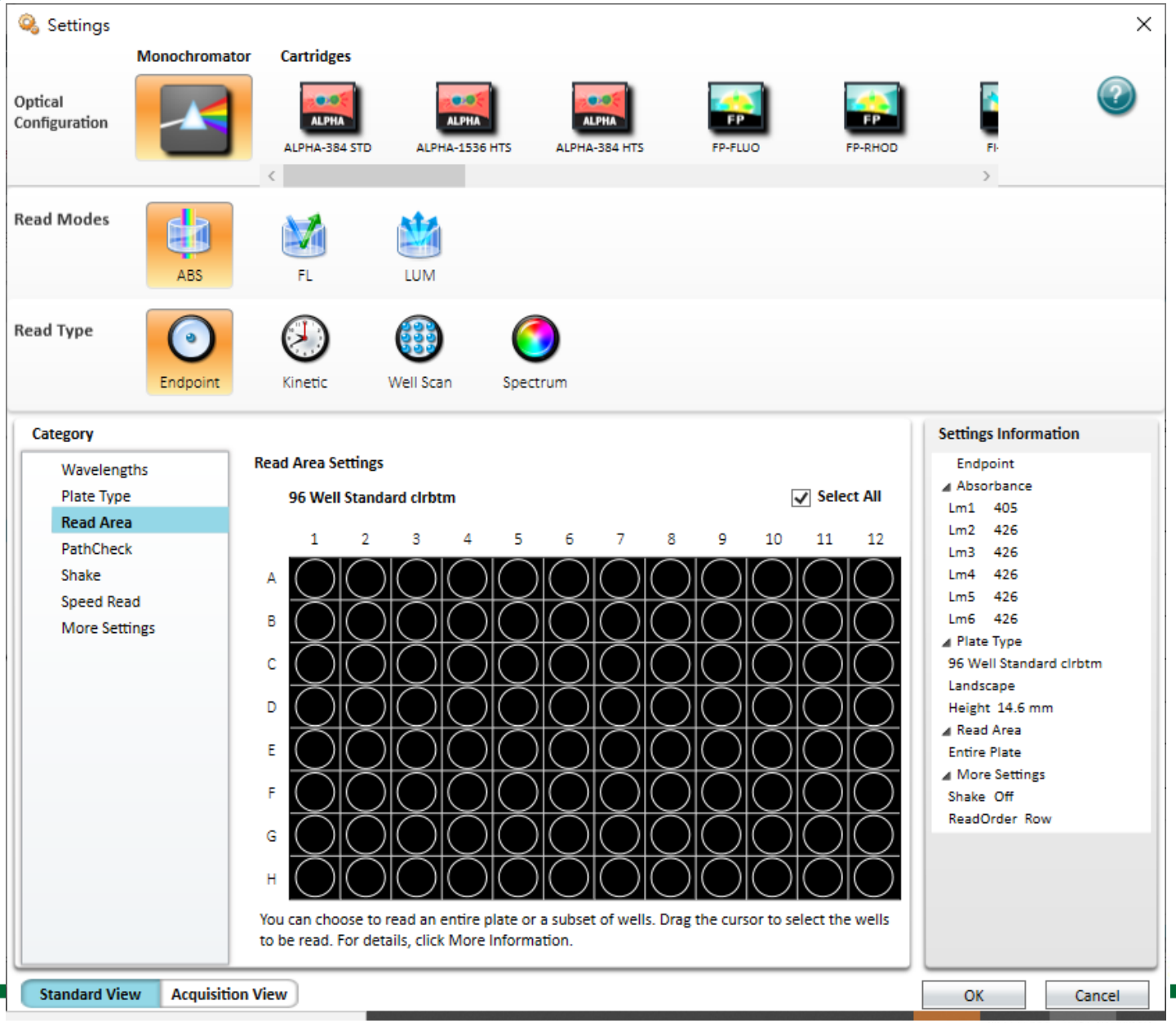
Absorbance

Plate Type



Absorbance

Read Area



Absorbance

PathCheck

Settings

Monochromator

Cartridges

Optical Configuration

ALPHA-384 STD

ALPHA-1536 HTS

ALPHA-384 HTS

FP-FLUO

FP-RHOD

Read Modes

ABS

FL

LUM

Read Type

Endpoint

Kinetic

Well Scan

Spectrum

Category

Wavelengths

Plate Type

Read Area

PathCheck

Shake

Speed Read

More Settings

PathCheck Settings

PathCheck

Path Check normalizes your absorbance values to a 1 cm path length based on the near-infrared absorbance of water. For details, click More Information.

Settings Information

Endpoint

Absorbance

Lm1 405

Lm2 426

Lm3 426

Lm4 426

Lm5 426

Lm6 426

Plate Type

96 Well Standard clrbtm

Landscape

Height 14.6 mm

Read Area

Entire Plate

More Settings

Shake Off

ReadOrder Row

Standard View

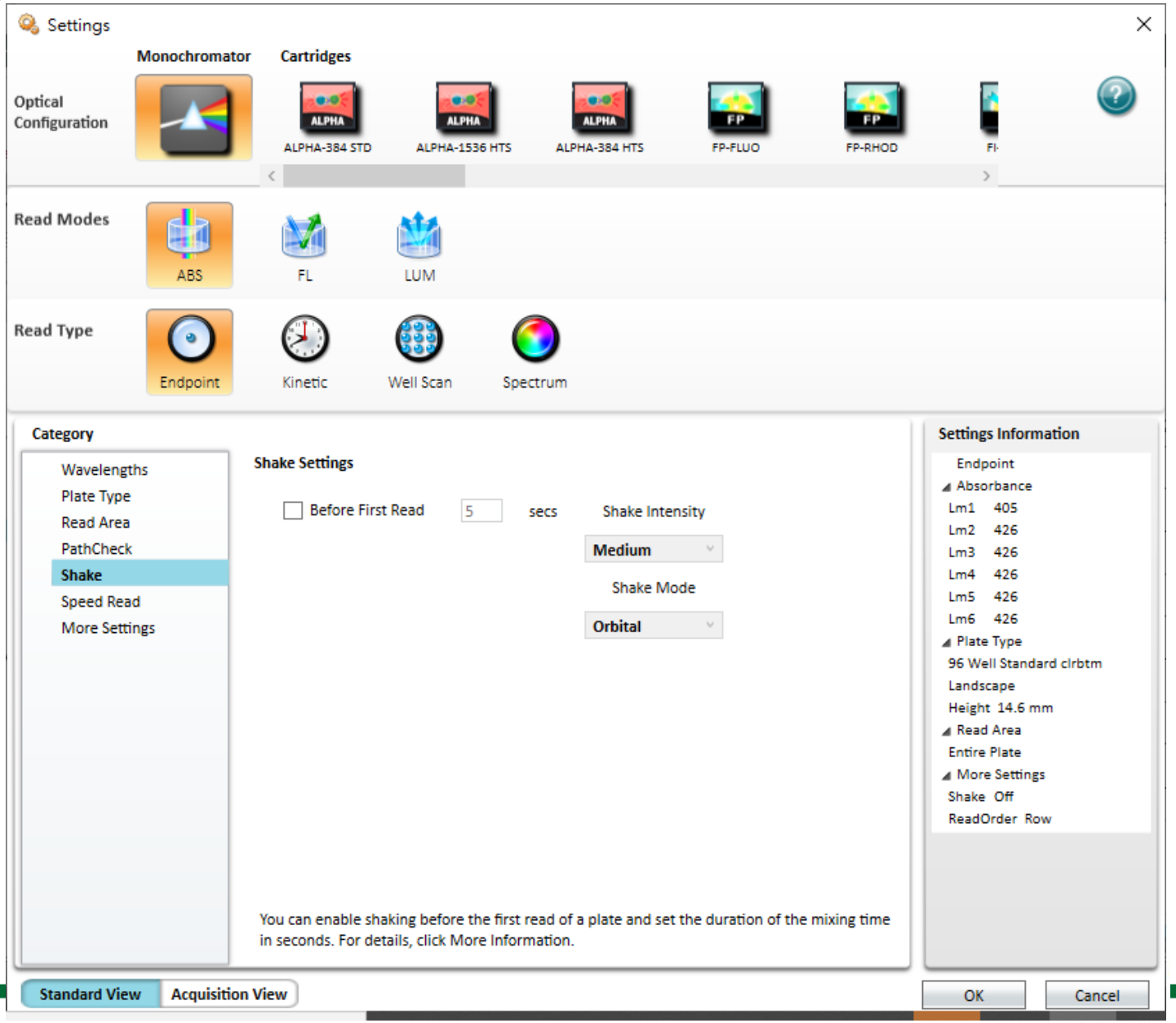
Acquisition View

OK

Cancel

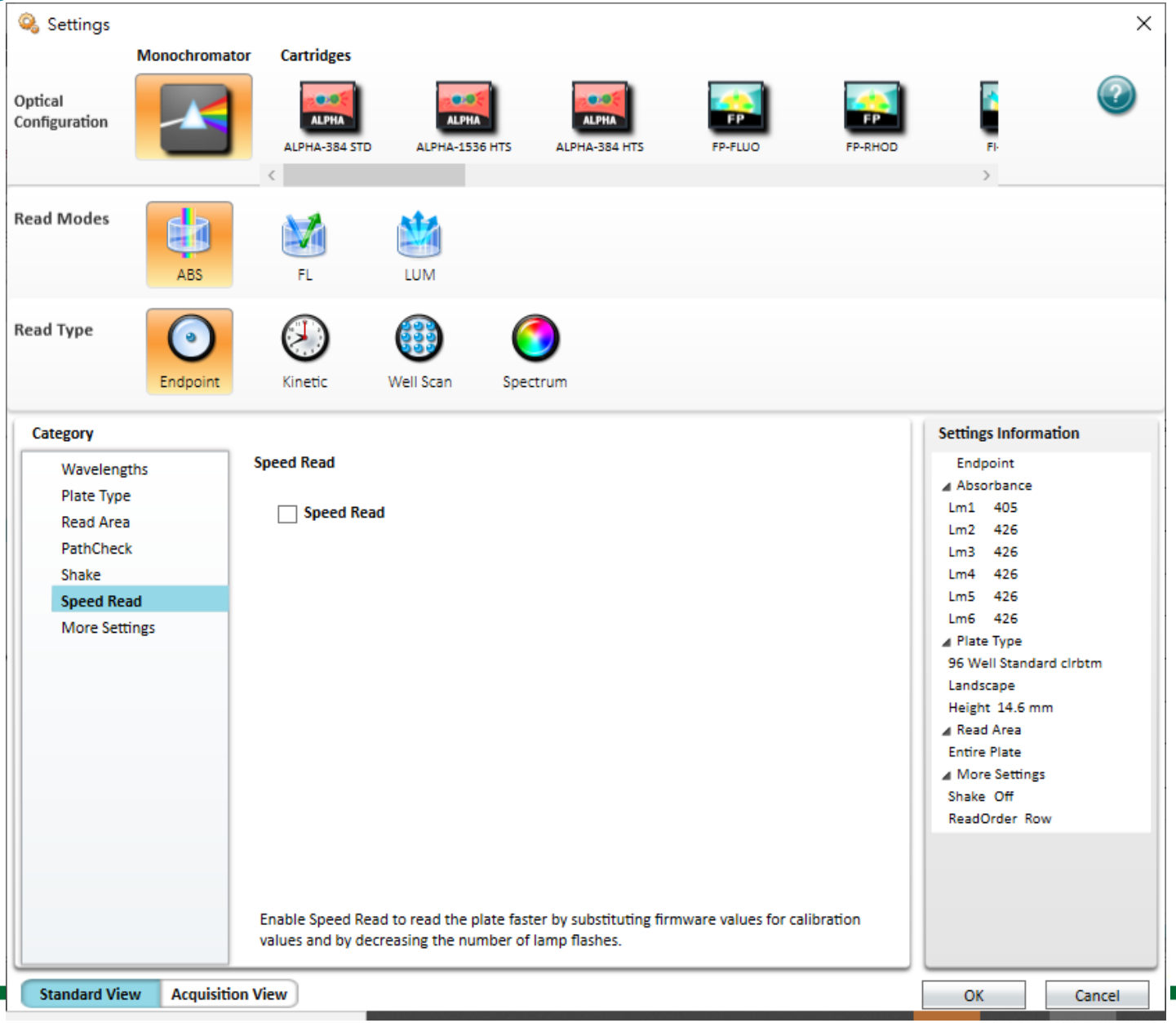
Absorbance

Shake



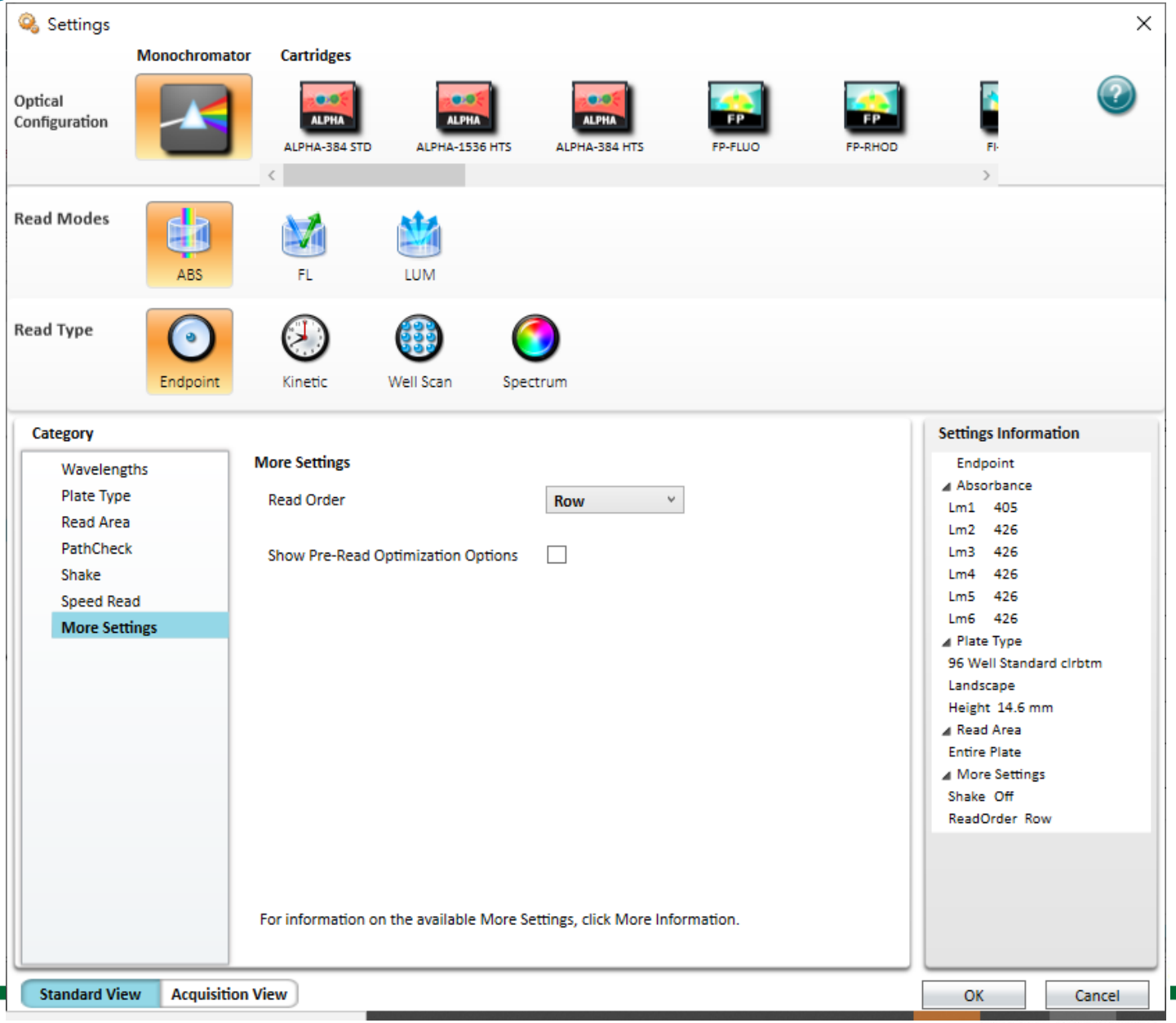
Absorbance

Speed Read

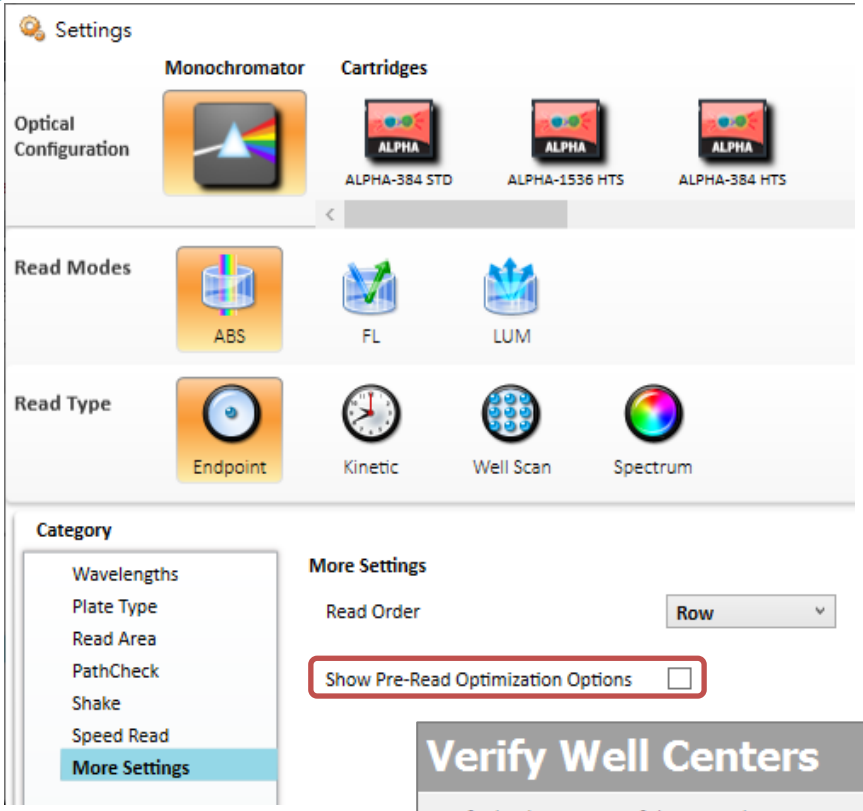


Absorbance

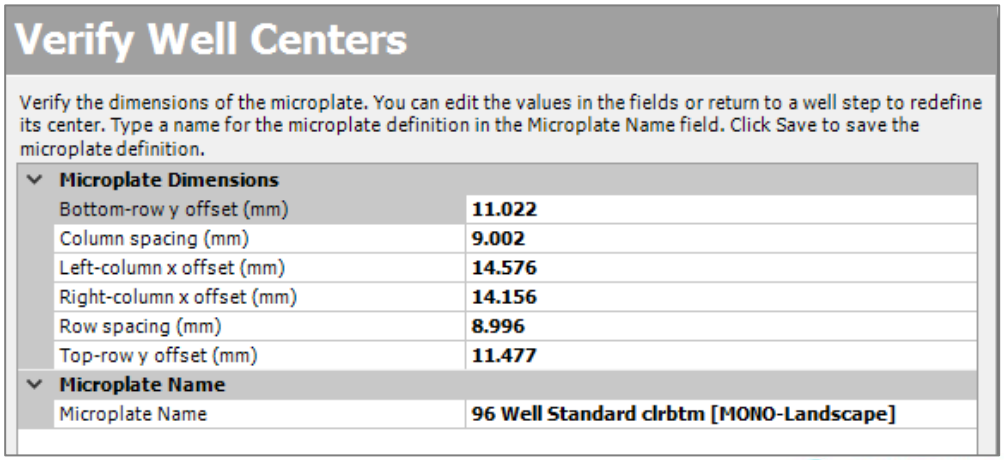
More Setting



Absorbance



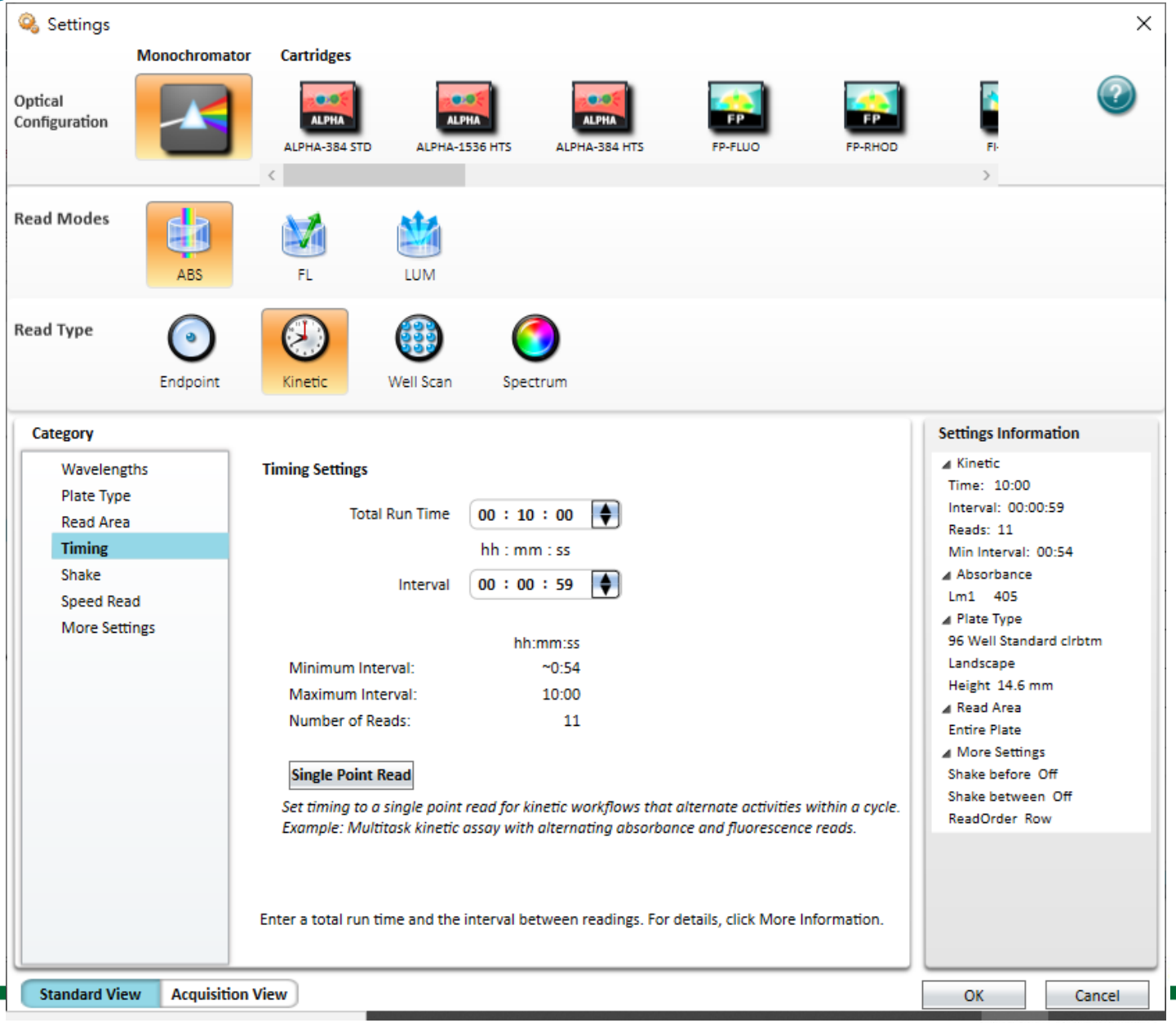
More Setting



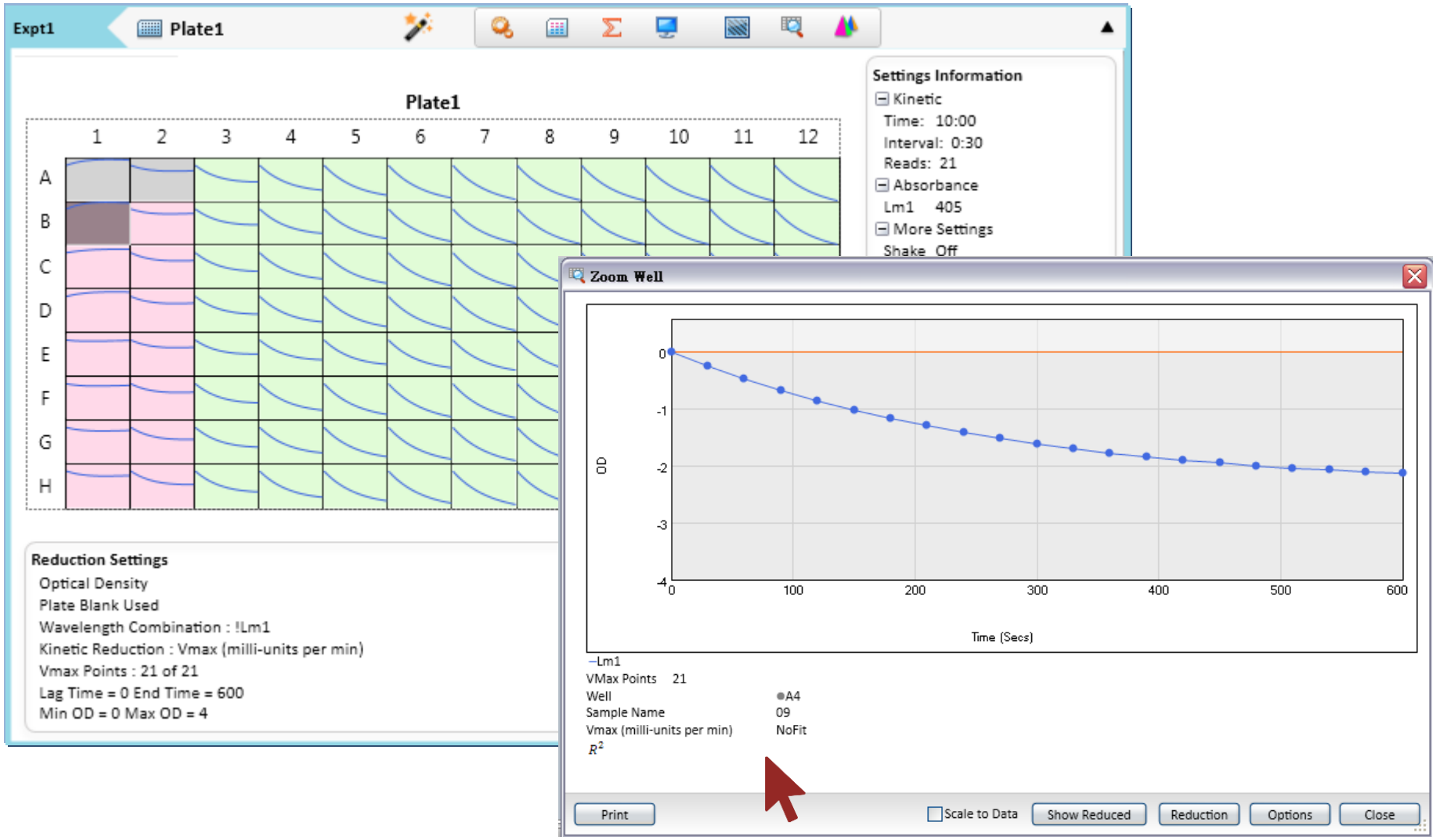
Absorbance

Kinetic

Timing



Absorbance



Reduction of V_{Max} and Km

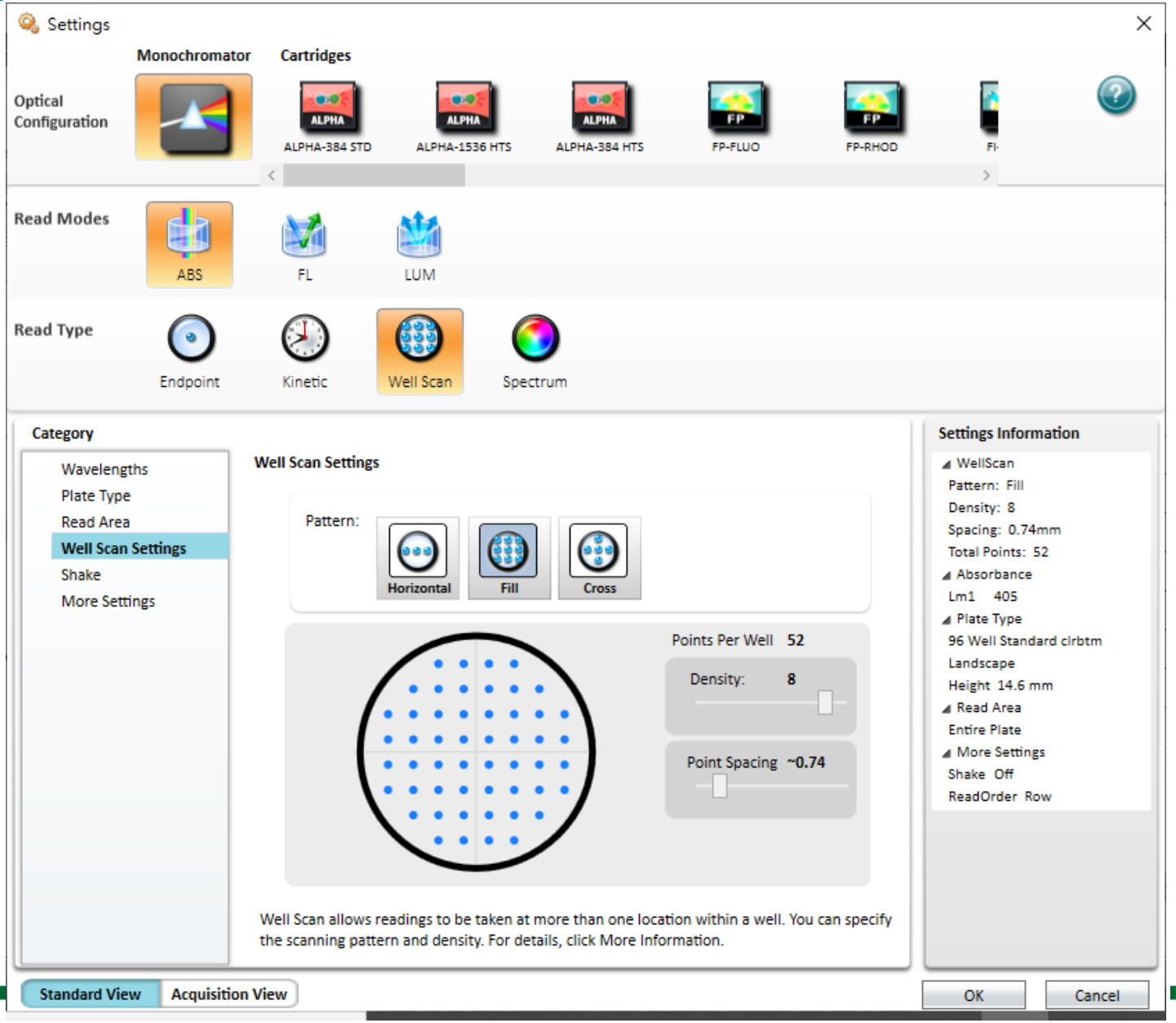
MOLECULAR DEVICES
UNLEASH YOUR BRILLIANCE™

KIMFOREST ENTERPRISE CO.,LTD.

Absorbance

Well Scan

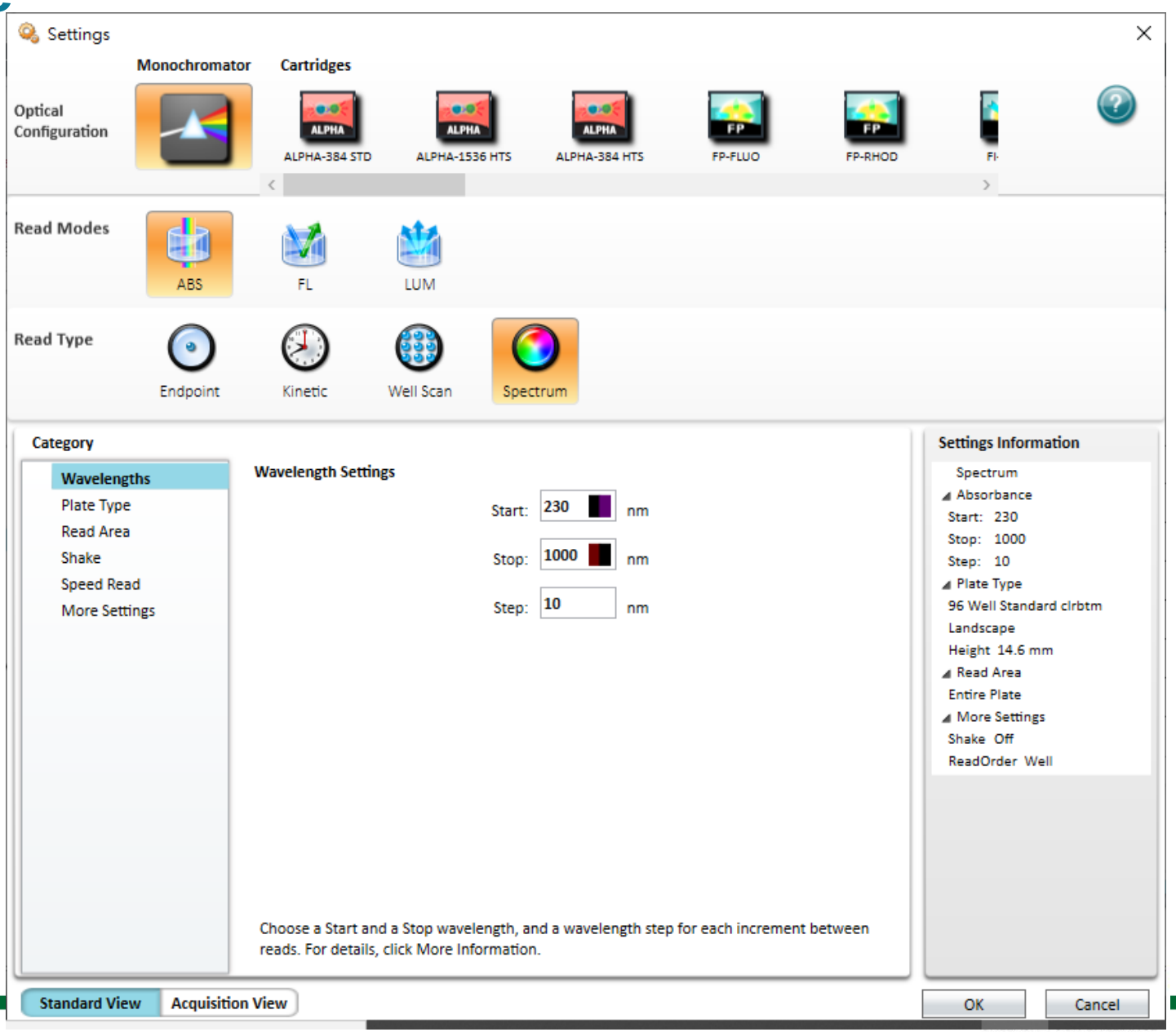
Well Scan Setting



Absorbance

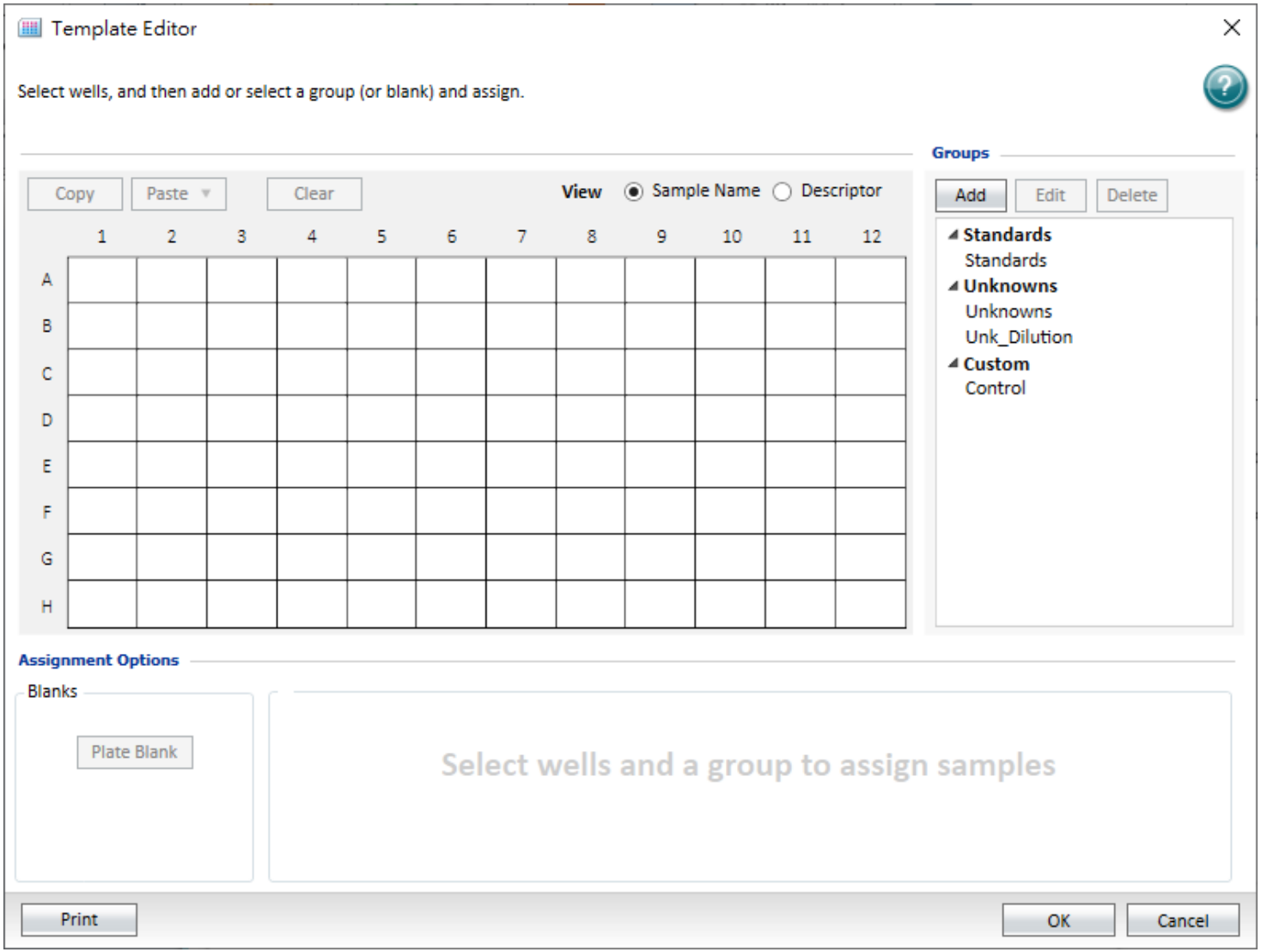
Spectrum

Wavelengths



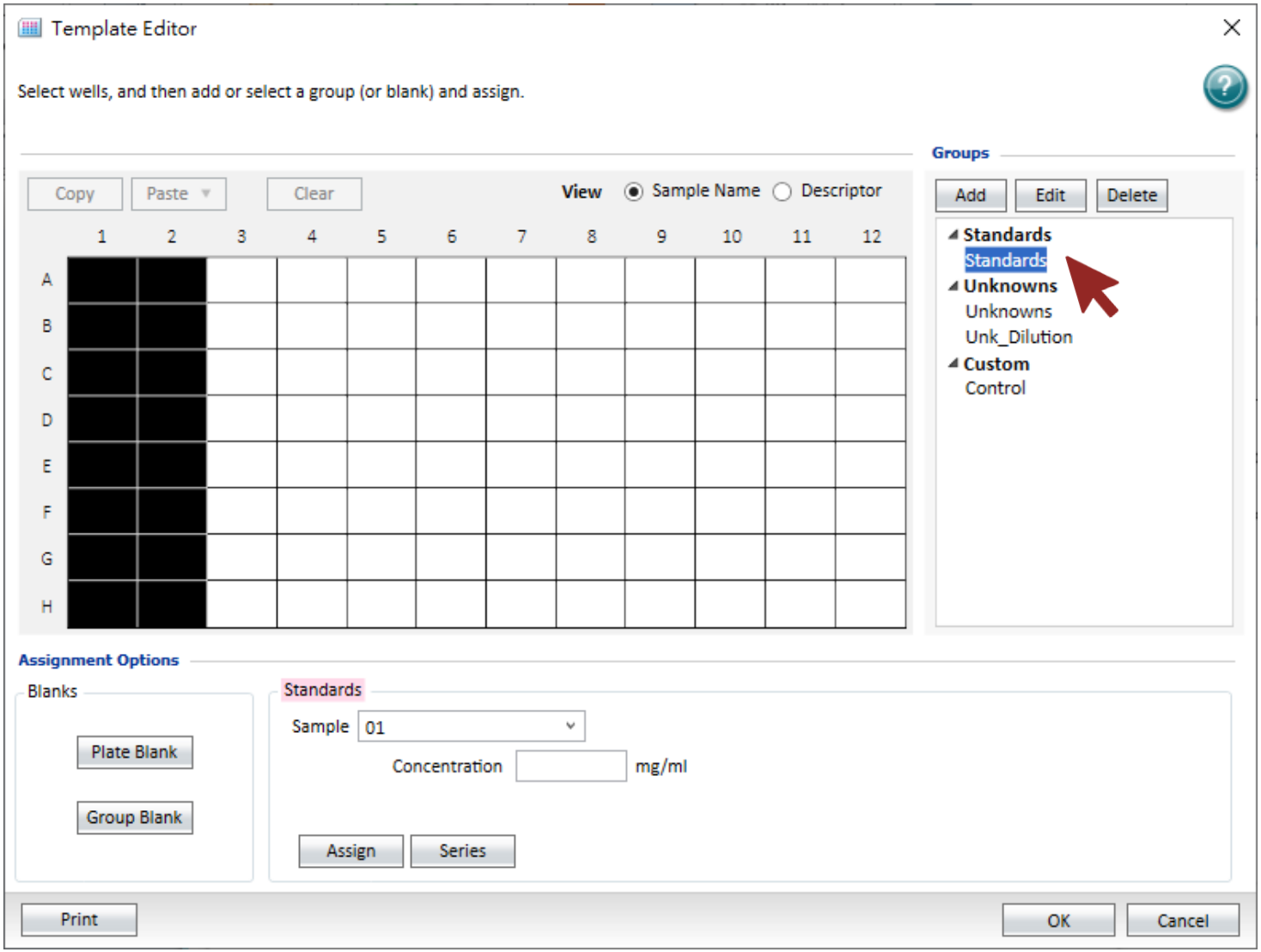
分析設定

Template
Editor


Template Editor
Select wells, and then add or select a group (or blank) and assign.
Copy
Paste
Clear
View
Sample Name
Descriptor
1 2 3 4 5 6 7 8 9 10 11 12
A
B
C
D
E
F
G
H
Groups
Add
Edit
Delete
Standards
Standards
Unknowns
Unknowns
Unk_Dilution
Custom
Control
Assignment Options
Blanks
Plate Blank
Select wells and a group to assign samples
Print
OK
Cancel

分析設定

1. 圈選區塊
2. 指定類型



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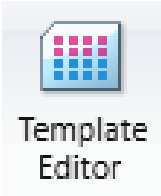
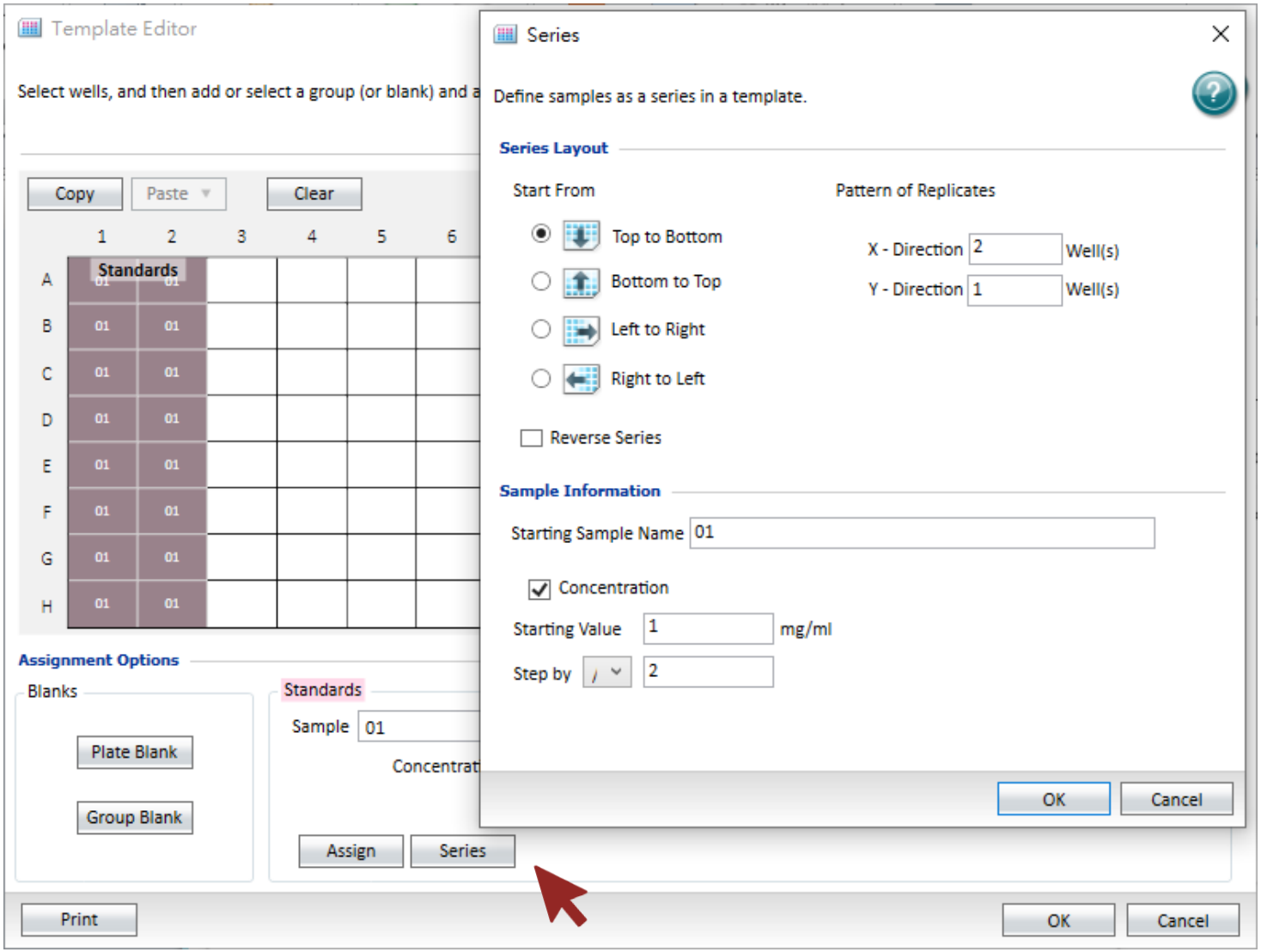


1. 圈選區塊
2. 指定類型
3. 樣本分布 (Series)



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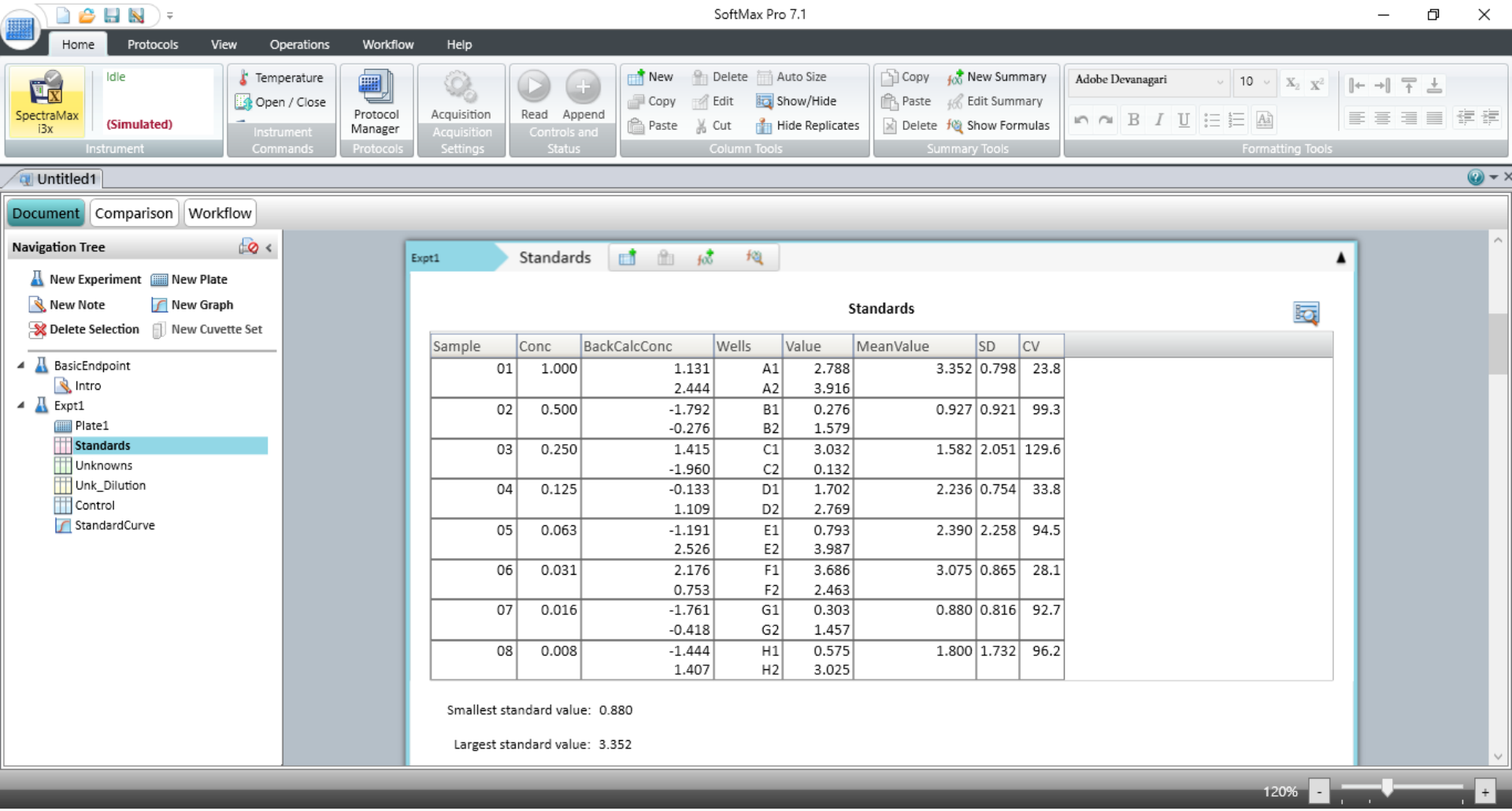
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(Simulated)
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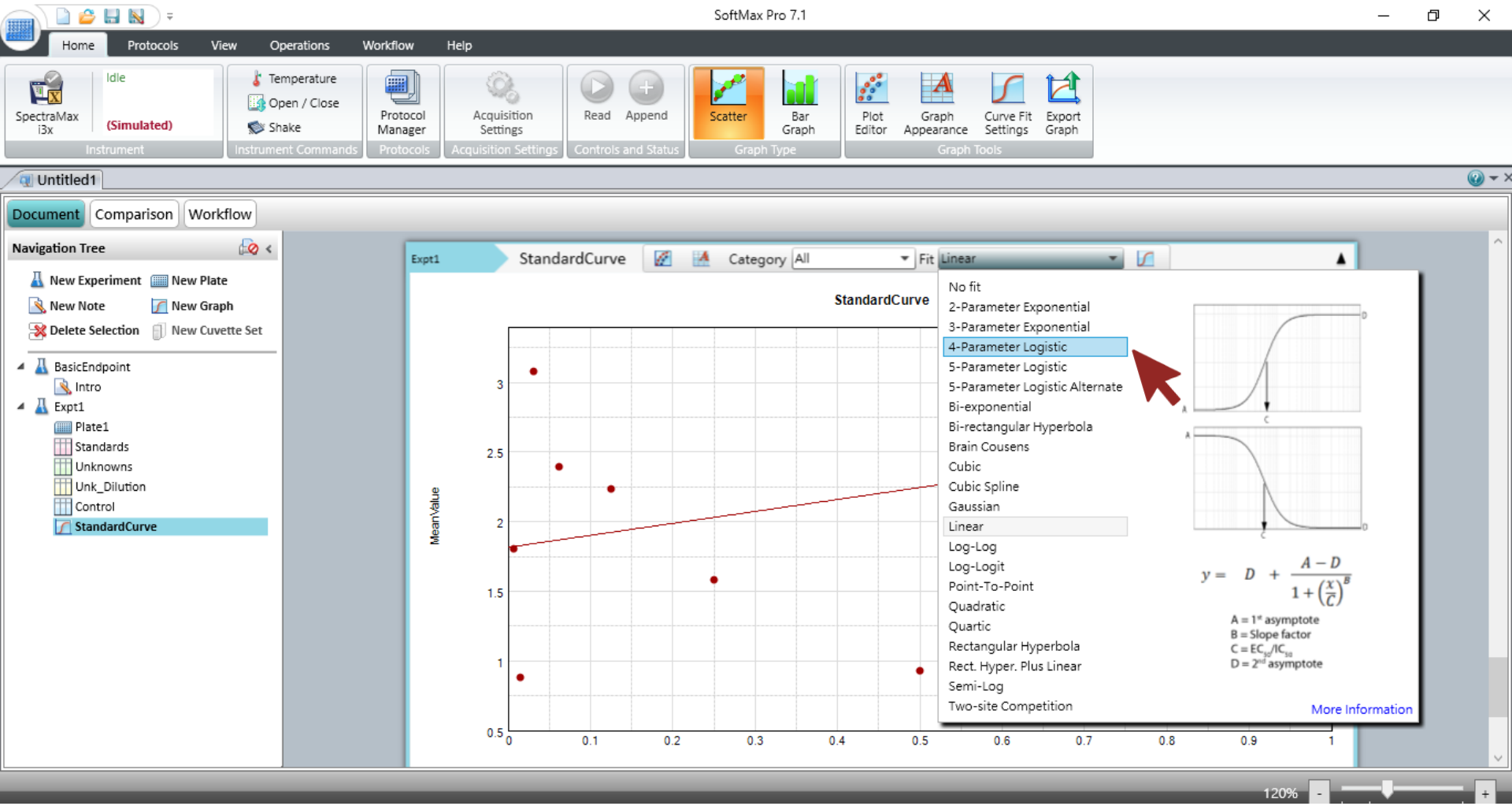
Open / Close
Instrument Commands
Protocol Manager
Protocols
Acquisition
Acquisition Settings
Read
Append
Controls and Status
New
Delete
Auto Size
Copy
Edit
Show/Hide
Paste
Cut
Hide Replicates
Column Tools
Copy
New Summary
Paste
Edit Summary
Delete
Show Formulas
Summary Tools
Adobe Devanagari
10
Formatting Tools
Untitled1
Document
Comparison
Workflow
Navigation Tree
New Experiment
New Plate
New Note
New Graph
Delete Selection
New Cuvette Set
BasicEndpoint
Intro
Expt1
Plate1
Standards
Unknowns
Unk_Dilution
Control
StandardCurve
Expt1
Standards
Standards
Sample Conc BackCalcConc Wells Value MeanValue SD CV
01 1.000 1.131 A1 2.788 3.352 0.798 23.8
2.444 A2 3.916
02 0.500 -1.792 B1 0.276 0.927 0.921 99.3
-0.276 B2 1.579
03 0.250 1.415 C1 3.032 1.582 2.051 129.6
-1.960 C2 0.132
04 0.125 -0.133 D1 1.702 2.236 0.754 33.8
1.109 D2 2.769
05 0.063 -1.191 E1 0.793 2.390 2.258 94.5
2.526 E2 3.987
06 0.031 2.176 F1 3.686 3.075 0.865 28.1
0.753 F2 2.463
07 0.016 -1.761 G1 0.303 0.880 0.816 92.7
-0.418 G2 1.457
08 0.008 -1.444 H1 0.575 1.800 1.732 96.2
1.407 H2 3.025
Smallest standard value: 0.880
Largest standard value: 3.352
120%

分析設定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Read
Append
Controls and Status
Scatter
Bar Graph
Graph Type
Plot Editor
Graph Appearance
Curve Fit Settings
Export Graph
Graph Tools
Untitled1
Document
Comparison
Workflow
Navigation Tree
New Experiment
New Plate
New Note
New Graph
Delete Selection
New Cuvette Set
BasicEndpoint
Intro
Expt1
Plate1
Standards
Unknowns
Unk_Dilution
Control
StandardCurve
Expt1
StandardCurve
Category
All
Fit
Linear
StandardCurve
MeanValue
No fit
2-Parameter Exponential
3-Parameter Exponential
4-Parameter Logistic
5-Parameter Logistic
5-Parameter Logistic Alternate
Bi-exponential
Bi-rectangular Hyperbola
Brain Cousens
Cubic
Cubic Spline
Gaussian
Linear
Log-Log
Log-Logit
Point-To-Point
Quadratic
Quartic
Rectangular Hyperbola
Rect. Hyper. Plus Linear
Semi-Log
Two-site Competition
More Information
120%

Formula system

Immu Assay demo | TEST_A

TEST_A

Sample	Wells	COL1	Value	MeanValue	Risk Class 風險評比
01	A3	1	3.562	3.413	危險
	B3		3.264		
02	A4	2	0.566	0.617	未檢出
	B4		0.667		
03	A5	3	2.884	2.875	偏高
	B5		2.866		
04	A6	4	2.188	2.187	正常
	B6		2.186		

judgement criteria description (公式寫法)
//巢狀條件式，與Excel寫法極為相近

MeanValue>DUL@Positive,"危險",If (MeanValue>DLL@Positive,If ("偏高",If (MeanValue<NDL@Negtive,"未檢出","正常")))

- 檢出值 > Pos上限者 ==> 危險
- 檢出值 > Pos下限者 ==> 偏高
- 檢出值 < Pos下限者 ==> 正常
- 檢出值 < Neg限者 ==> 未檢出

Formula ☑ Syntax Helper

MeanValue>DUL@Positive,"危險",If (MeanValue>DLL@Positive,If ("偏高",If (MeanValue<NDL@Negtive,"未檢出","正常")))

Mathematical | Statistical | Comparison | Condition | Peak analysis | Array analysis

Sample	Wells	Sample#	Lm_run	OD_read	PEAK_Judge
01	B1	1	401	2.527	-
			431	3.174	PEAK@2
			461	0.726	
			491	0.090	
			521	2.352	
			551	3.661	PEAK@6
			581	0.441	PEAK@7
			611	2.039	
			641	3.771	PEAK@9
			671	3.093	
			701	2.783	
			731	2.488	-

Number of read point 12

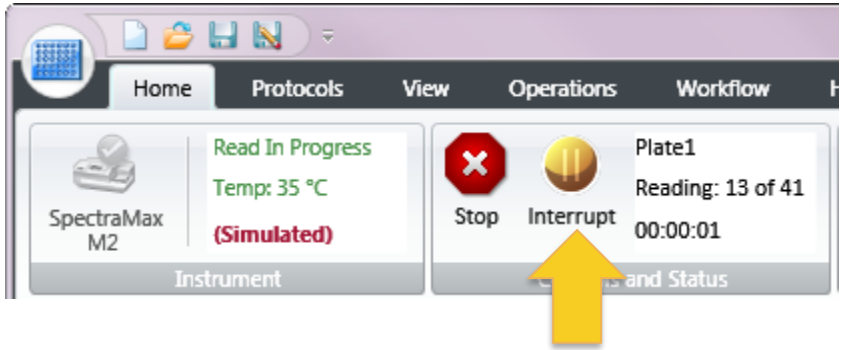
SoftMax Pro 7 Software

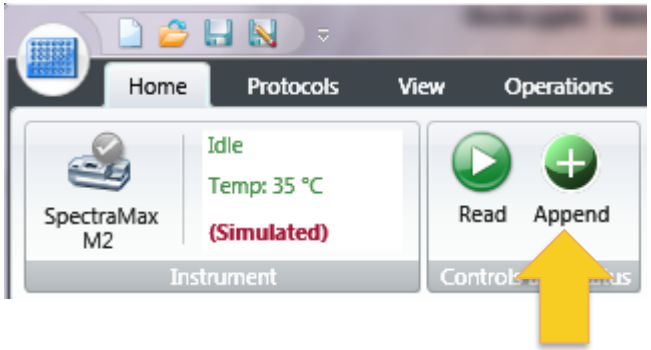
Advanced Acquisition

- Discontinuous kinetics
- Multitask kinetics via the workflow editor
- Graph menu reorganization
- Standard and GxP version

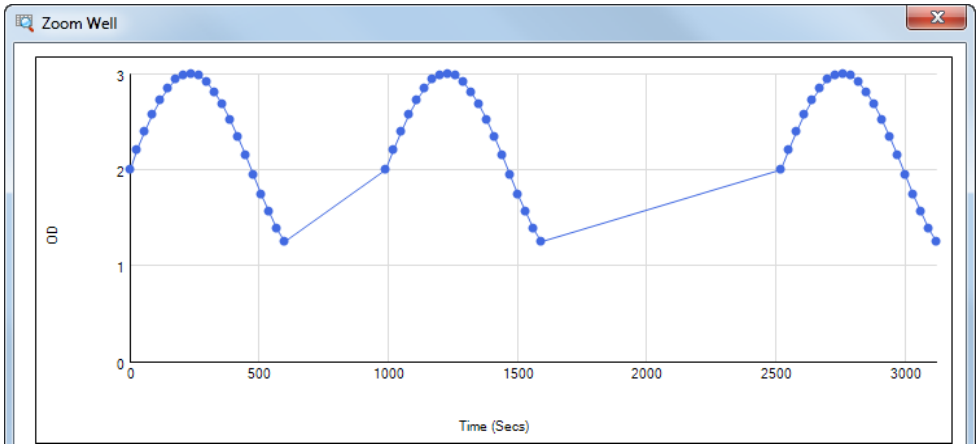
Discontinuous Kinetics Benefits

- Easy buttons



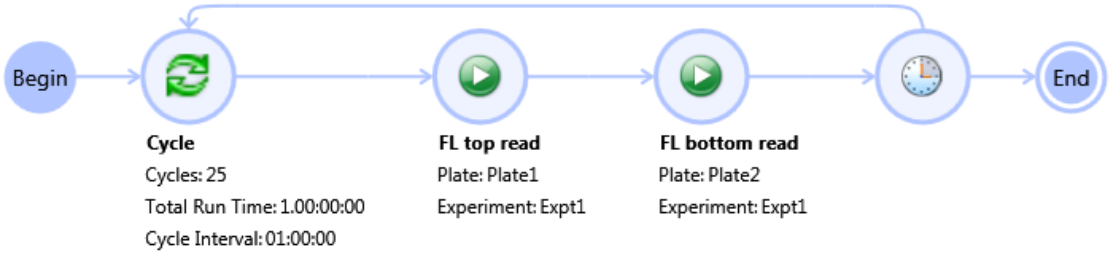


- Data appends to same set of kinetic data points
  - Accurate time stamps
  - Easy data reduction

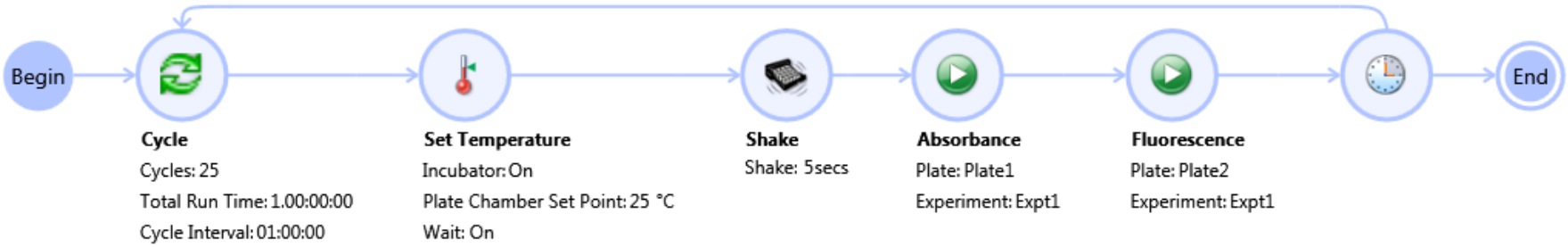


Multitask Kinetics Benefits

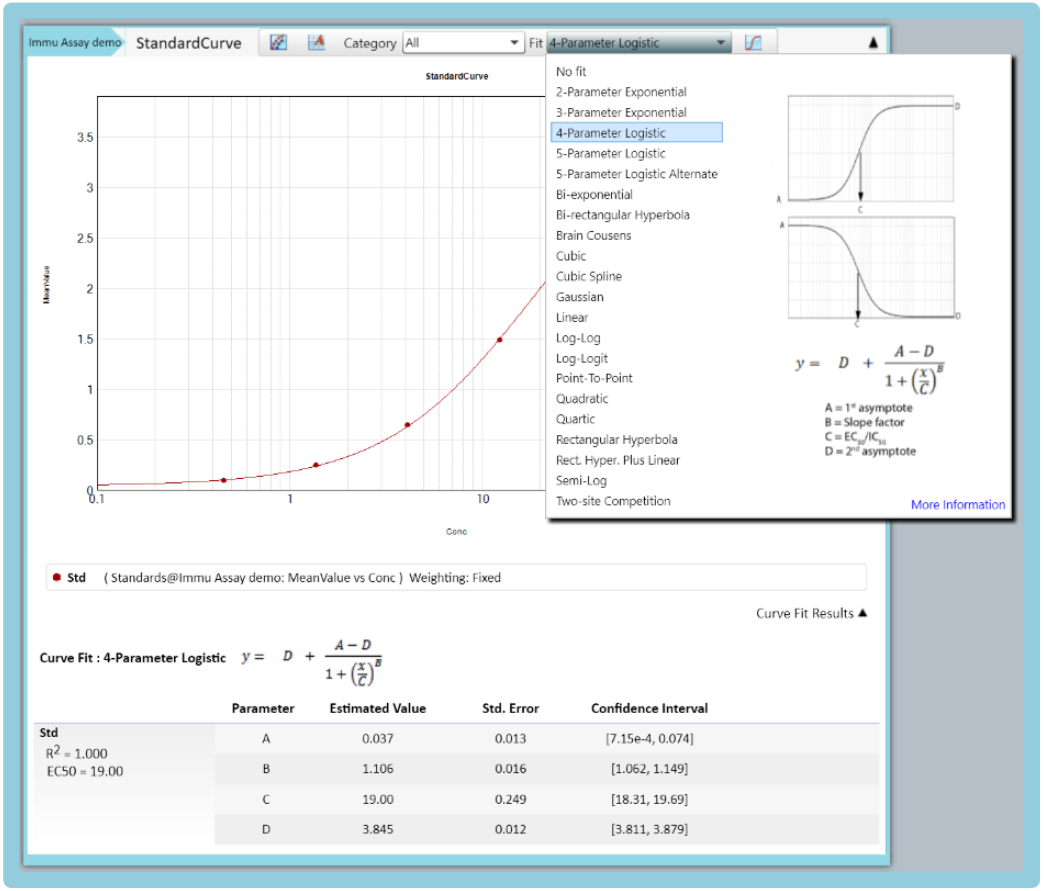
- **Can't decide if top read is better than bottom read? Try both!**

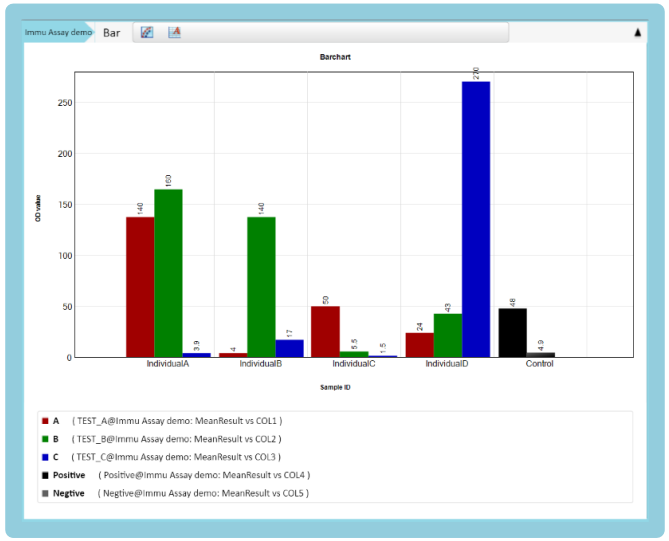


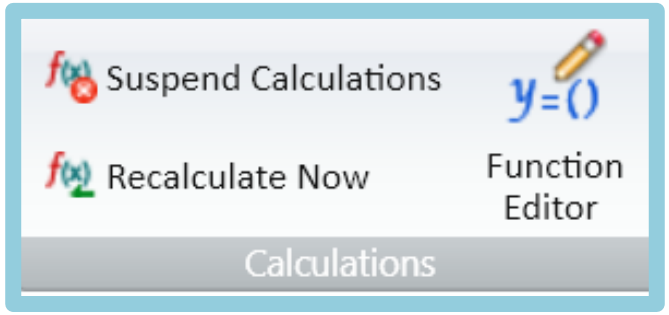
- **Add in tasks: delay, shake, open drawer**



Adaptable Graph system







21 Predefined Curve Fitting

Bar Chart

New Function Editor

Service Team

金萬林企業股份有限公司

產品技術應用服務

- 侯沛庠 MD 產品服務時間 06 年
- 劉儀君 MD 產品服務時間 05 年
- 陳雅琳 MD 產品服務時間 02 年
- 黃士宣 MD 產品服務時間 02 年

維修工程師

- 王佑毓 MD 產品維修年資 13 年
- 陳彥良 MD 產品維修年資 04 年
- 呂紹麟 MD 產品維修年資 03 年
- 陳建因 MD 產品維修年資 09 年

Molecular Devices台灣分公司

資深產品應用經理

- Pluck Chou

維修工程師

- Matt Chen

Your success is our success

Thank you for your attention

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點數破萬
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PerkinElmer For the Better

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UNLEASH YOUR BRILLIANCE