

FLIPR Tetra Aequorin Option

For real-time fluorescent and luminescent cellular assays

KEY FEATURES

- **Fluorescent and luminescent assay detection in one instrument**
- **Simplified assay protocols lower costs**
- **Flexible protocols extend walk-away capability**
- **Proven, reliable instrument platform**

The FLIPR® Tetra System from Molecular Devices is the industry-standard platform for real-time kinetic cellular assays. The addition of an aequorin option expands the FLIPR Tetra System's assay capabilities to include luminescent calcium mobilization. With this option, researchers now have a reliable, high-throughput screening (HTS) instrument capable of detecting dim photoproteins as well as bright fluorescent dyes.

The user-configurable FLIPR Tetra System is easy to run and with the aequorin camera gives researchers unmatched flexibility. For example, the gain control not only provides researchers with the capability to detect fluorescence and luminescence on one system, but it also adjusts the luminescence sensitivity to the assay's intensity. This adjustment helps to avoid camera saturation problems with some of the brighter cell lines or densities. The aequorin option is also compatible with the standard FLIPR Tetra System optics to monitor a variety of traditional fluorescence assays, including calcium mobilization and membrane potential.

Delivering cells in suspension is a key factor in reducing assay costs and increasing unattended throughput on the FLIPR Tetra System. The cell suspension option includes a spinner flask which maintains cells in uniform suspension in a dark, room-temperature environment—optimal conditions for photoproteins. Cells are then pumped into a user-installable reservoir just prior to pipettor aspiration and immediately returned to the spinner flask. This back-and-forth motion keeps the cells uniformly suspended, which facilitates consistent results with low noise over extended runs. Furthermore, recirculating cells to the spinner flask lowers the volume used, minimizing cell culture requirements.

Proven FLIPR® System pipettor heads simultaneously transfer cells from the universal cell suspension reservoir to the read plate in up to a 1536-well format. This action simplifies the assay protocol by eliminating the need for cell plating, thereby reducing costs associated with consumable consumption and additional personnel. Multiple flask sizes are available to scale the

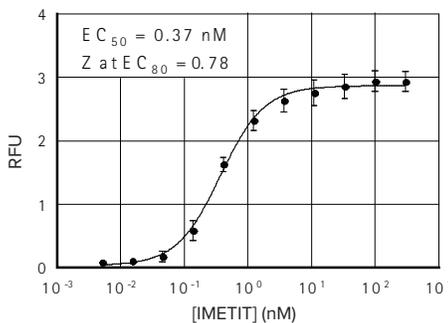


Figure 1. Fluorescence detection. IMETIT-induced calcium mobilization in Photina CHO H3 cells plated in 384-well microplates, detected by FLIPR Tetra with Aequorin camera.*

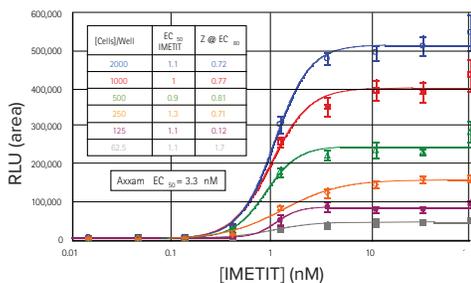


Figure 2. Luminescence detection. Varying densities of Photina CHO H3 cells in 384-well, adherent luminescent assay.* Cells were induced with IMETT in 384-well microplates.

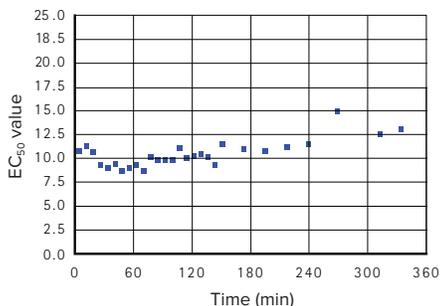


Figure 3. Suspension performance. EC₅₀ values of Photina CHO H3 cells in 100 384-well microplates were monitored over 6 hours in luminescent suspension assay.*

* Photina cells were provided by Axxam Spa., Milan, Italy.

For specific configurations please contact your local sales representative.

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volume for assay development or high-throughput screening. Easy access to the external cell module allows flasks to be exchanged in under five minutes.

A reliable robotic interface allows the FLIPR Tetra System to be integrated with many third-party robotic systems which in combination with the cell suspension feature can provide over six hours of unattended suspension testing.

The system's intuitive ScreenWorks® Software provides the tools required to optimize system performance to user specifications. Cell handling protocols can be adjusted for different cell lines by fine tuning the cell mixing and pipetting parameters.

The user-defined cleaning protocols allow the use of up to four wash solvents to facilitate automated cleaning of the instruments and components, preventing cross-contamination. In addition, the cell suspension reservoir is autoclavable.

Ordering information

FLIPR Tetra System camera options:

- Standard camera (FI only)
- Aequorin camera (FI and Lum)

Cell Suspension option:

- (1) Cell reservoir
- (1) External cell handling module
- (1) 250 mL spinner flask*
- (1) 1 L spinner flask*
- (2) Fluid bottles*

* Additional spinner flasks and fluid bottles available.

Technical specifications

Aequorin camera

Camera type	Intensified CCD
FI & Lum detection	<ul style="list-style-type: none"> • Regulated through software interface • FI compatible with existing optics combinations*
Data acquisition rate	3 Hz
Ratiometrics	Up to 4 EX/EM pairs per experiment
Data acquisition rate for ratiometric emission	1 Hz (2EX/EM pairs)
Fluorescence sensitivity	5 nM fluorescein with Z' ≥ 0.5
Luminescence sensitivity	5,000 M5 AequoZen FroZen cells in 384-well format with Z' ≥ 0.5
Dynamic range	4.8 log (1 measurement) 6.9 log (2 measurements)

Cell suspension

This option consists of a user-installable cell reservoir and an external cell module for flask storage and mixing.

Cell reservoir	Autoclavable
Compatible formats	96-, 384-, and 1536-well
Stir flasks	250 mL, 0.5 L, 1 L, 3 L

To minimize the cell volume used, cells can be re-circulated to the spinner flask or directed to one of four fluid bottles or waste bottle.

*For available EX and EM optics, check the FLIPR Tetra System brochure or contact your local sales representative.