

## DATA SHEET

# Calcium assays for the FLIPR system



## Introduction

The FLIPR® Calcium Assay Kits have been the premier choice for measuring changes in intracellular calcium during drug discovery and research. Built as the most comprehensive calcium portfolio, the FLIPR and QBT™ Calcium Assay Kits deliver preoptimized, homogeneous, fluorescence-based formulations to expedite assay development and screening of GPCR and ion channel targets. We have many different kits and sizing options to meet all your research needs.

## Optimized homogeneous assays

This generous portfolio offers five formulations to surmount even your most difficult assays, including frozen, primary or stem cells; transient, endogenous or low-expression receptors; plus chemokines, allosteric modulators or partial agonists. Formulations match a unique fluorophore with our proprietary masking technology, providing optimal conditions for your target of interest (see 'No-wash workflow' on Page 2).

## KEY FEATURES

- Optimized no-wash assays
- Compatible with endogenous, primary or stem cell targets
- Rapid assay development
- Patented quench technology
- Largest signal window available
- Quench- or probenecid-free protocols



FLIPR system

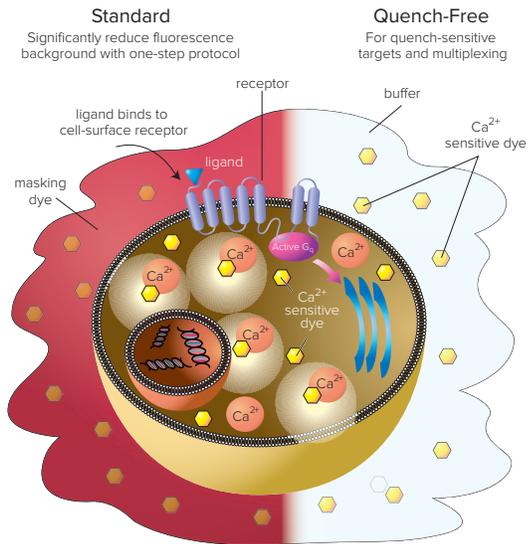
## Rapid assay development

Utilizing a mix-and-read procedure, cells are incubated with the assay kit and then transferred directly to the instrument for evaluation. No intermediate wash steps are required; thus, potential cell detachment, lowered cell competency and incomplete dye removal are eliminated. Protocols are pre-validated for use on the FLIPR® High-Throughput Cellular Screening System to conserve your time while quickly advancing future discoveries. This process will reduce your work by about 40%.

The FLIPR Calcium 6 and 6-QF Assay Kits, utilize a novel fluorescent indicator dye technology to provide the largest signal window on the market. They enable researchers to:

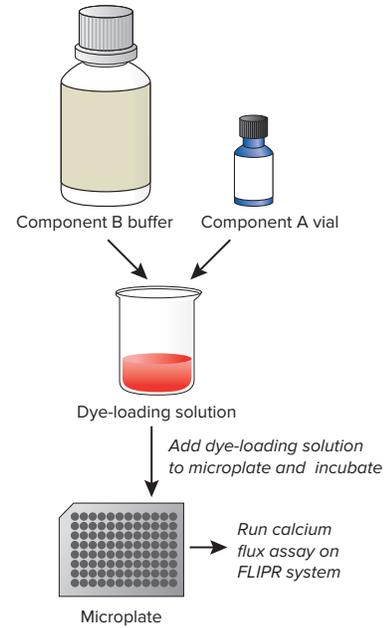
- Rekindle low signal screens; including endogenous, primary or stem cell targets
- Improve assay quality, with or without masking dye technology
- Multiplex assays using a quench-free option to better characterize signal pathways
- Study target behavior in the presence of organic anion transporters using a probenecid optional protocol

## Proprietary chemistry and formulation



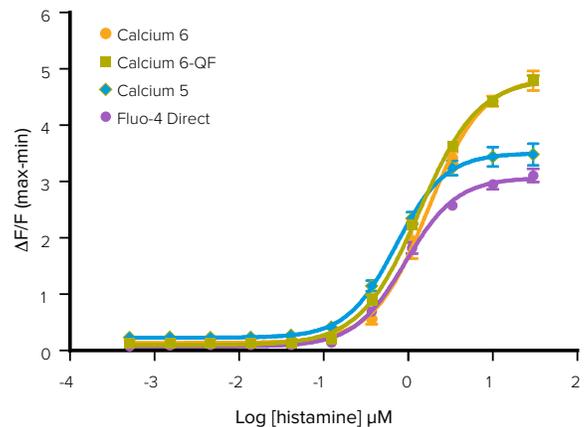
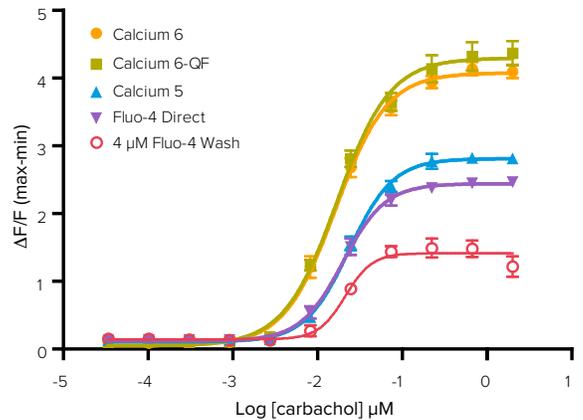
**Increase in cytosolic Ca<sup>2+</sup> can be detected by the FLIPR system using calcium-sensitive dye indicators.** Each calcium assay kit utilizes a unique calcium sensitive dye that is absorbed into the cell's cytoplasm during incubation. Upon target activation, intracellular calcium is released and binds to the dye, which increases fluorescence intensity. Molecular Devices calcium kits utilize an extracellular masking technology to block background fluorescence and increase your assay's signal window. FLIPR Calcium 6-QF Assay Kit is the key exception, as it enables high assay performance without a masking technology for quench-sensitive applications.

## No-wash workflow for high-throughput assays



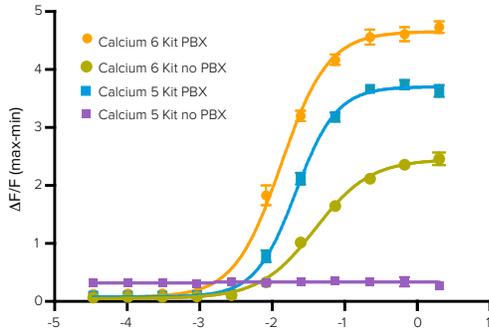
**Easy protocol setup.** The FLIPR Calcium Assay Kits reduce assay time for 20 plates from ~ five hours to three hours.

## FLIPR Calcium 6 Assay Kit provides best-in-class data



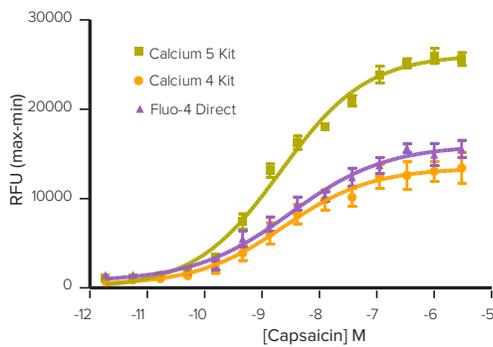
**FLIPR Calcium 6 Assay Kit: highest signal-to-noise ratio.** Comparison of FLIPR Calcium 6 Assay Kits to other calcium indicators was measured using agonism of the muscarinic receptor on CHO M1 cells (left) and agonism of endogenous histamine H1 receptor on HeLa cells (right).

## FLIPR Calcium 6 Assay Kit is the best solution for probenecid-sensitive assays



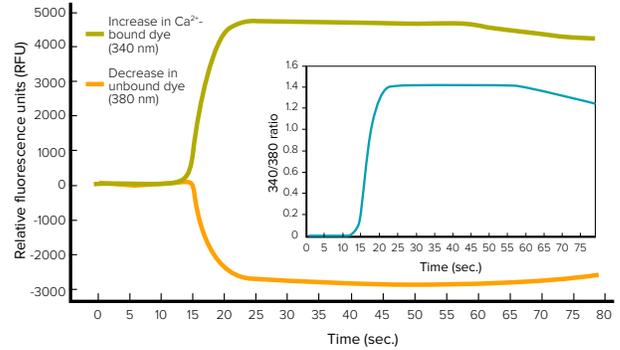
**Anion exchange protein resistance.** Our novel fluorophore is more resistant to organic anion exchange proteins, and enables FLIPR Calcium 6 Assay Kit to produce a stronger signal in the absence of probenecid, while conserving  $EC_{50}$  values and Z-factors at  $EC_{80} > 0.5$ . Data for CHO-M1 cells are pictured.

## FLIPR Calcium 5 Assay Kit uses a different formulation enabling shorter incubation time



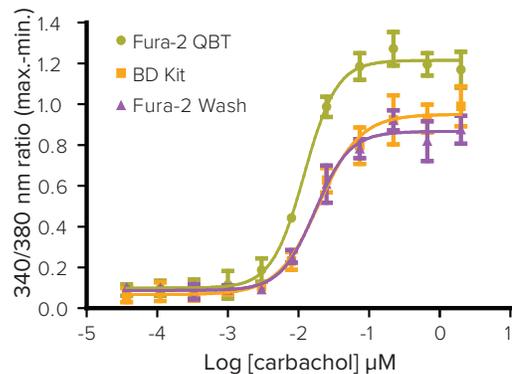
**FLIPR Calcium 5 Assay Kit signal window comparison in hTRPV1-HEK-293.** The ChanTest hTRPV1-HEK-293 cell line is stably transfected with a constitutively expressed human TRPV1 transient receptor potential channel. Cells were incubated with dye for one hour, then ligand was added during detection on the FLIPR system to cause an influx of calcium and an increase in fluorescence.

## Fura-2 ratiometric option for automated data normalization

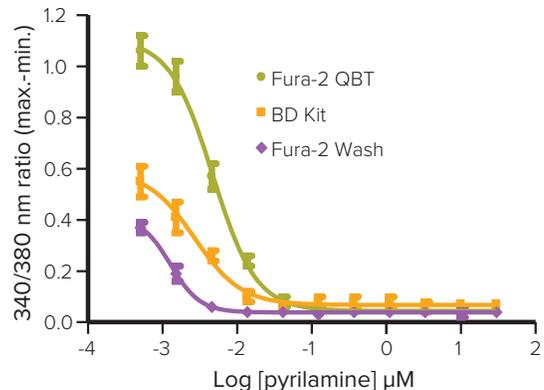


**Fura-2 QBT Calcium Kit ratiometric analysis.** Fura-2 QBT Dye is excited at 340 nm and 380 nm, with emission at 510 nm. Upon calcium flux, the cytoplasm's calcium concentration increases, causing the fluorescence intensity of calcium-bound Fura-2 at 340/510 nm to increase proportionately. In contrast, the 380/510 nm intensity declines in parallel with the diminishing concentration of unbound dye. By ratioing signal traces from the two wavelengths, artifacts associated with uneven dye distribution and cell number variation are minimized because they affect both measurements equally.

### Agonism of the muscarinic M1 receptor in CHO-M1 cells



### Antagonism of the histamine H1 receptor in HeLa cells



**The Fura-2 QBT Calcium Kit provides the largest 340/380 nm ratio signal window.** This is a direct comparison to BD Ratiometric Calcium Kit and the traditional Fura-2 wash assay.

## Solutions for all your calcium assay needs

Your need	Our solution
I have probenecid-sensitive assay	FLIPR Calcium 6 Assay Kit
I need short incubation times	FLIPR Calcium 5 Assay Kit
I need ratiometric data	Fura-2 QBT Calcium Kit

## Deciding on the right kit for your assay?

Product	Description	Part number
FLIPR Calcium 6 & 6-QF Assay Evaluation Kit	Calcium 6: 2 vials/kit + Component B Buffer <i>(sufficient for 2 plates; 1 vial = 1 plate)</i> Calcium 6-QF: 2 vials/kit + Component B Buffer <i>(sufficient for 2 plates; 1 vial = 1 plate)</i>	R8194
FLIPR Calcium 4, 5, 6 Assay Evaluation Kit	3 vials/kit + Component B Buffer <i>(sufficient for 3 plates; 1 vial = 1 plate)</i>	R8172
Fura-2 QBT Calcium Evaluation Kit	2 vials/kit <i>(sufficient for 2 plates; 1 vial = 1 plate)</i>	R6139*

## Optimizing your assay for your target?

Product	Description	Part number
FLIPR Calcium 6 Assay Explorer Kit	10 vials/kit + Component B Buffer <i>(sufficient for 10 plates; 1 vial = 1 plate)</i>	R8190
FLIPR Calcium 6-QF Assay Explorer Kit	10 vials/kit + Component B Buffer <i>(sufficient for 10 plates; 1 vial = 1 plate)</i>	R8192
FLIPR Calcium 5 Assay Explorer Kit	10 vials/kit + Component B Buffer <i>(sufficient for 10 plates; 1 vial = 1 plate)</i>	R8185
FLIPR Calcium 4 Assay Explorer Kit	10 vials/kit + Component B Buffer <i>(sufficient for 10 plates; 1 vial = 1 plate)</i>	R8142
Fura-2 QBT Calcium Explorer Kit	10 vials/kit + Component B Buffer <i>(sufficient for 10 plates; 1 vial = 1 plate)</i>	R8197*

### To Order

Phone: +1-800-635-5577, select #2  
Email: [om@moleculardevices.com](mailto:om@moleculardevices.com)

## Need medium to large screens?

Product	Description	Part number
FLIPR Calcium 6 Assay Bulk Kit	10 vials/kit <i>(sufficient for 100 plates; 1 vial = 10 plates)</i>	R8191
FLIPR Calcium 6-QF Assay Bulk Kit	10 vials/kit <i>(sufficient for 100 plates; 1 vial = 10 plates)</i>	R8193
FLIPR Calcium 5 Assay Bulk Kit	10 vials/kit <i>(sufficient for 100 plates; 1 vial = 10 plates)</i>	R8186
FLIPR Calcium 4 Assay Bulk Kit	10 vials/kit <i>(sufficient for 100 plates; 1 vial = 10 plates)</i>	R8141
Fura-2 QBT Calcium Bulk Kit	10 vials/kit <i>(sufficient for 100 plates; 1 vial = 10 plates)</i>	R8198*

## Ready for fully automated screens?

Product	Description	Part number
FLIPR Calcium 6 Assay Express Kit	2 vials/kit <i>(sufficient for 100 plates; 1 vial = 50 plates)</i>	R8195
FLIPR Calcium 6-QF Assay Express Kit	2 vials/kit <i>(sufficient for 100 plates; 1 vial = 50 plates)</i>	R8196
FLIPR Calcium 5 Assay Express Kit	2 vials/kit <i>(sufficient for 100 plates; 1 vial = 50 plates)</i>	R8187
FLIPR Calcium 4 Assay Express Kit	2 vials/kit <i>(sufficient for 100 plates; 1 vial = 50 plates)</i>	R8143

## Running low on FLIPR tips?

Product	Description	Part number
FLIPR Pipette Tips	Black, non-sterile, 96-well 50 racks/case	9000-0762
FLIPR Pipette Tips	Clear, non-sterile, 96-well 50 racks/case	9000-0761
FLIPR Pipette Tips	Black, non-sterile, 384-well 50 racks/case	9000-0764
FLIPR Pipette Tips	Clear, non-sterile, 384-well 50 racks/case	9000-0763

\*If you are interested in the Fura-2 QBT Calcium Kit, it will require the following optics: FLIPR Fura-2 Optics Kit part number: 0200-6271  
Includes the 335-345 nm LED module, 380-390 nm LED module, and the 475-535 emission filter for the FLIPR system

### Contact Us

Phone: +1.800.635.5577  
Web: [www.moleculardevices.com](http://www.moleculardevices.com)  
Email: [info@moldev.com](mailto:info@moldev.com)  
Check our website for a current listing of worldwide distributors.

### Regional Offices

USA and Canada +1.800.635.5577  
United Kingdom +44.118.944.8000  
Europe\* 00800.665.32860  
China +86.4008203586  
Taiwan/Hong Kong +886.2.2656.7585  
Japan +81.3.6362.9109  
South Korea +82.2.3471.9531  
India +91.73.8661.1198  
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