

Description

A do-it-yourself cell-based ELISA reagent kit that allows users to develop their own assay for any target protein for which a mouse primary antibody is available. The kit provides all components except the target-specific Ab1. Target protein is measured fluorimetrically at $\lambda_{ex/em} = 530/585$ nm and normalised to total cellular protein measured at 360/450 nm in the same well.

Specifications

Detection Method	Cell-Based ELISA (FL530/585 nm, 360/450 nm)
Sample Type	Cells
Species Reactivity	Human, mouse, rat and more, depending on choice of primary antibody
Assay Time	Assay takes 6.5 hrs; hands-on time 2.5 hrs
Kit Size	100 Assays
Equipment Required	Microplate reader
Storage	-20°C
Shelf Life	6 months
Shipping	Gel Pack

Kit Components

Component	Quantity	Storage
Stock Wash Buffer	25 mL	-20°C
Blocking Buffer	25 mL	-20°C
Protein Stain	6 mL	-20°C
Dye Reagent	120 μ L	-20°C
Ab1 (mouse, target dependent)	not provided	-20°C
Ab2 (goat anti-mouse IgG-HRP (gM-HRP))	10 μ L	-20°C

Ordering Information

Assay Genie Cat. No.	Pack Size
BA0239	100 Assays

Assay Procedure

Note: This is a sample protocol. Protocols are batch/lot specific - always follow the instructions supplied with your kit.

1. Prepare 1x Wash Buffer by diluting Stock Wash Buffer 40-fold with dH₂O (e.g. 10 mL Stock Wash Buffer + 390 mL dH₂O). Reserve 6 mL for the Detection step. Assay samples in triplicate or more, and include a Protein Blank (no cells) and a Sample Blank (cells with no Ab1, only Ab2).
2. Culture and treat cells. Seed 100 μ L of 1-3 $\times$ 10⁴ adherent cells (or 4-10 $\times$ 10⁴ suspension cells) per well of a black 96-well culture plate; add 100 μ L cell-free media into three wells for the Protein Blank. Incubate overnight at 37°C, then treat cells as desired.
3. Fix cells (caution: formaldehyde is toxic; use a chemical hood and appropriate protection). For adherent cells, replace media with 100 μ L 4% formaldehyde; for suspension cells, add 100 μ L 8% formaldehyde to the pellet. Incubate 20 min at room temperature, then wash twice with 200 μ L 1x Wash Buffer.
4. Quench. Add 100 μ L Quench Buffer (2.2 mL 3% H₂O₂ + 8.8 mL 1x Wash Buffer) per well; incubate 20 min at room temperature, then wash three times with 200 μ L 1x Wash Buffer.

5. Block. Add 100 µL Blocking Buffer per well; incubate 1 hr at room temperature.
6. Add Primary Antibody (Ab1). Perform a pilot titration (e.g. 1:500 - 1:5000) to determine the optimal Ab1 dilution. Add 50 µL Blocking Buffer to Sample Blank wells and 50 µL diluted Ab1 to Sample wells; incubate 90 min at room temperature (or overnight at 2-8°C) with gentle shaking, then wash three times.
7. Add Secondary Antibody (Ab2). Prepare Ab2 in Blocking Buffer at 1:1000; add 50 µL to all wells; incubate 90 min at room temperature with gentle shaking.
8. Detection. Wash four times with 200 µL 1× Wash Buffer. Prepare HRP Substrate (60 µL Dye Reagent + 6 mL 1× Wash Buffer + 6 µL 3% H₂O₂), add 50 µL per well and incubate 30 min at room temperature in the dark. Add 50 µL Protein Stain per well and incubate a further 5 min in the dark.
9. Read the plate at $\lambda_{ex}/\lambda_{em}$ = 530/585 nm for target protein and at $\lambda_{ex}/\lambda_{em}$ = 360/450 nm for total protein.

Calculation

Calculate the mean target fluorescence at 530/585 nm for the Sample Blank ("No Ab1" wells, F_Target.Blank) and Sample wells (F_Target.Sample), and the mean total protein fluorescence at 360/450 nm for the Protein Blank (F_Protein.Blank) and Sample wells (F_Protein.Sample). $\Delta F_{Target} = F_{Target.Sample} - F_{Target.Blank}$; $\Delta F_{Protein} = F_{Protein.Sample} - F_{Protein.Blank}$. Normalised Target = $(\Delta F_{Target} / \Delta F_{Protein}) / (\Delta F_{Target} / \Delta F_{Protein})_O$, where $(\Delta F_{Target} / \Delta F_{Protein})_O$ is the control reference value (e.g. time zero or untreated wells).

Notes

- To avoid cross-contamination, change pipette tips between additions of each reagent or sample; use of a multi-channel pipette and separate reservoirs is recommended.
- It is recommended that samples be assayed in triplicate or more.
- Two blanks in triplicate are required: a Protein Blank (no cells) and a Sample Blank (cells with no Ab1, only Ab2), used to determine background fluorescence for total protein and target protein respectively.
- Reagents are for research use only. Refer to the MSDS for detailed safety information.

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Technical specifications are based on manufacturer documentation and may be updated. Protocols shown are summaries - always follow the instructions supplied with your kit/lot.