TECHNICAL DATA SHEET

THUNDER™ Phospho-STAT3 (Y705) TR-FRET Cell Signaling Assay Kit

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CATALOG NUMBERS

KIT-STAT3P-100 (100 tests)
KIT-STAT3P-500 (500 tests)
KIT-STAT3P-2500 (2500 tests)
KIT-STAT3P-5000 (5000 tests)
KIT-STAT3P-10000 (10000 tests)

Store at -80°C
For research use only.
Not for use in diagnostic procedures.

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PRODUCT DESCRIPTION

This assay kit measures intracellular levels of **phospho-STAT3 (Y705)** protein in cell lysates using a simple, rapid and sensitive immunoassay based on the homogeneous (no-wash) THUNDER™ TR-FRET technology. The kit is compatible with both adherent and suspension cells.

SPECIFICITY

This assay kit contains two specific and selective antibodies, one that recognizes **STAT3** phosphorylated at **Tyr705** and another that recognizes an invariant epitope of **STAT3**.

SPECIES REACTIVITY

Human (Swiss-Prot Acc.: P40763; Entrez-Gene Id: 6774).

Other species should be tested on a case-by-case basis.

TR-FRET ASSAY PRINCIPLE

The **Phospho-STAT3 (Y705)** assay kit is a homogeneous time-resolved Förster resonance energy transfer (TR-FRET) sandwich immunoassay (Figure 1). The THUNDER™ Cell Signaling assay workflow consists of 3 steps (Figure 2). Following cell treatment, cells are first lysed with the specific Lysis Buffer provided in the kit. Then **Phospho-STAT3 (Y705)** in the cell lysates is detected with a pair of fluorophore-labeled antibodies in a simple "add-incubate-measure" format (single-step reagent addition; no wash steps). One antibody is labeled with a donor fluorophore (Europium chelate; Eu-Ab1) and the second with a far-red acceptor fluorophore (FR-Ab2). The binding of the two labeled antibodies to distinct epitopes on the target protein takes place in solution and brings the two dyes into close proximity. Excitation of the donor Europium chelate molecules with a flash lamp (320 or 340 nm) or a laser (337 nm) triggers a FRET from the donor to the acceptor molecules, which in turn emit a TR-FRET signal at 665 nm. Residual energy from the Eu chelate generates light at 615 nm. The signal at 665 nm is proportional to the concentration of **Phospho-STAT3 (Y705)** in the cell lysate. Data can be expressed as either the signal at 665 nm or the 665 nm/615 nm ratio.

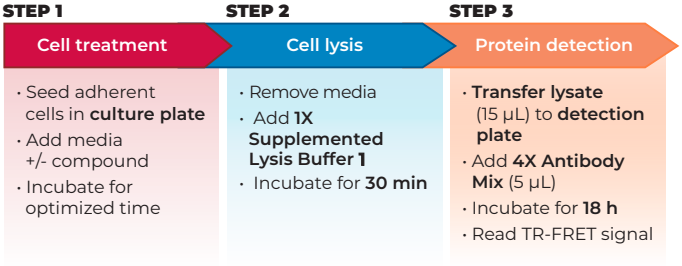

Figure 2 Assay workflow using the 2-plate (transfer) protocol.

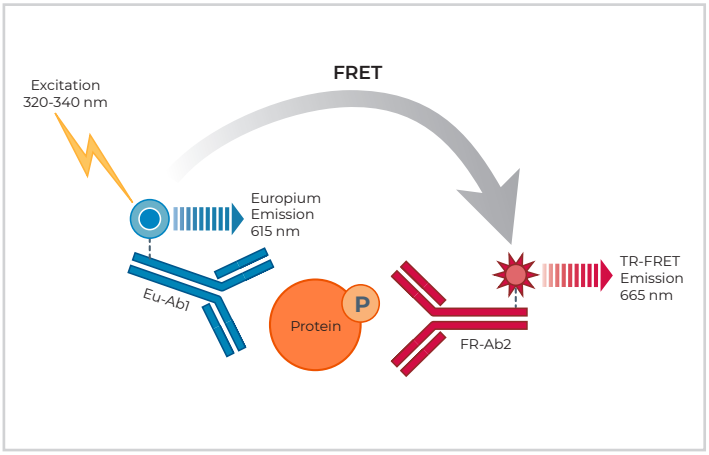

Figure 1 Schematic representation of the TR-FRET cell signaling assay principle.

KIT COMPONENTS

	100 points*	500 points*
Eu-labeled phospho-STAT3 (Y705) antibody (Eu-Ab1)	5 µL	25 µL
Acceptor-labeled phospho-STAT3 (Y705) antibody (FR-Ab2)	20 µL	100 µL
Lysis Buffer 1 (5X)	1 mL	5 mL
Detection Buffer (10X)	50 µL	250 µL
Positive control cell lysate	100 µL	200 µL
Phosphatase Inhibitor Cocktail (100X)	50 µL	250 µL

* The number of assay points is based on an assay volume of 20 µL in half-area 96-well or low-volume 384-well assay plates using the kit components at the recommended concentrations (refer to the User Manual).

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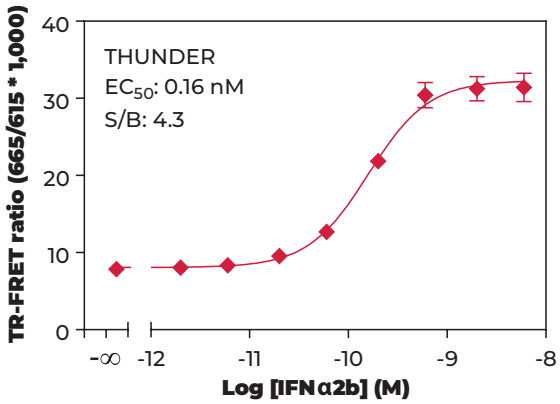
Phospho-STAT3 (Y705)

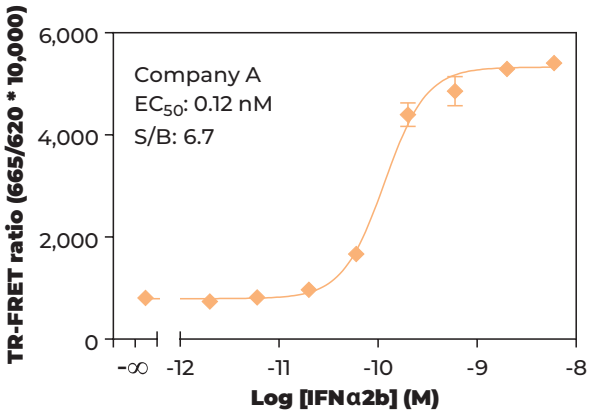
KIT BENCHMARKING – COMPARISON TO OTHER TR-FRET TECHNOLOGIES

As part of assay validation, the THUNDER™ Phospho-STAT3 (Y705) Assay Kit was benchmarked against two competitive TR-FRET assay technologies (Companies A and B). Specifically, the 3 different assays were compared side-by-side for their capacity to detect phospho-STAT3 (Y705) stimulation upon HeLa cell treatment with INFα2b using the 2-plate assay protocol. All reagents were prepared according to each manufacturer's recommendations. Following cell treatment, cells were lysed with the corresponding kit's 1X Lysis Buffer supplemented with phosphatase inhibitors. Lysates were then tested on the same white 384-well assay plate and according to the corresponding kit's standard protocol. The plate was read on an EnVision® (lamp excitation) following 18 hours of incubation. Data show that the 3 TR-FRET assays exhibited comparable sensitivity (EC_{50} values). The Company A assay showed a higher S/B ratio.

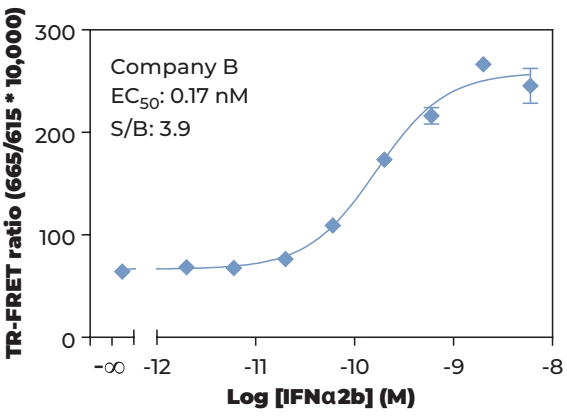
THUNDER™ PHOSPHO-STAT3 (Y705) ASSAY KIT



COMPANY A PHOSPHO-STAT3 (Y705) ASSAY KIT



COMPANY B PHOSPHO-STAT3 (Y705) ASSAY KIT



FOR MORE INFORMATION ON DEVELOPING AND OPTIMIZING TR-FRET CELL SIGNALING ASSAYS, CONSULT THE USER MANUAL.

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