Resource Summary Report

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BioTek Synergy HT Plate Reader

RRID:SCR_020536
Type: Tool

Proper Citation

BioTek Synergy HT Plate Reader (RRID:SCR_020536)

Resource Information

URL: https://www.biotek.com/resources/presentations/synergy-ht-a-multi-mode-microplate-reader-for-todays-high-performance-luminescence-research/

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Description: Luminescent assays are sensitive and quantitative tools commonly used for a variety of purposes in biomedical and pharmaceutical research. Quantitation of ATP can be used to detect and measure cellular growth, as well as bacterial contamination. Luminescent genetic reporting assays are widely used to study gene expression and cellular responses to external stimuli in Prokaryotic and Eukaryotic organisms. Dual-reporter assays use two independent reporter systems simultaneously to improve experimental accuracy. One reporter is used to measure the response resulting from the experimental conditions and is often referred to as the â€œexperimentalâ€? reporter. The second reporter is designed not to respond to the experimental conditions, acting as an internal control from which data generated by the experimental reporter can be normalized. Normalization of the data serves to compensate for variability caused by differences in transfection efficiency, cell viability, cell lysis, and pipetting. Promega's Dual-Luciferase System uses the activities of luminescent proteins (luciferases) from the firefly (Photinus pyralis) beetle and the sea pansy (Renilla renformis) to serve as an experimental and a control reporter respectively (See Figure 1). The Synergy HT Multi-Detection Reader (BioTek Instruments, Winooski, VT) is a robotic compatible microplate reader that can measure absorbance, fluorescence, and luminescence in all plate formats up to 384-well plates with performance in all three detection modes, that has recently been optimized for luminescence measurements (Figure 2). The Synergy HT utilizes a dual optics design that has both a monochromator/xenon flash system with a silicone diode detector for absorbance and a tungsten halogen lamp with blocking interference filters and a photomultiplier tube (PMT) detector for fluorescence. Reagent addition is accomplished by an optional external injector module, which controls two independent injector syringes. Each syringe is connected to a separate injector tip. Emitted luminescence is captured using either the top or bottom probes and measured using the

Synergy HT's low noise PMT operated in photon integration mode. Here we describe the use of a Synergy HT Multi-Detection Microplate Reader (BioTek Instruments) to perform dual-luciferase measurements with purified recombinant enzymes.

Resource Type: instrument resource

Keywords: Biotek, Microplate Reader, Instrument Equipment, USEDit

Funding:

Availability: Commercially available

Resource Name: BioTek Synergy HT Plate Reader

Resource ID: SCR_020536

Alternate IDs: Model_Number_Synergy HT

Record Creation Time: 20220129T080350+0000

Record Last Update: 20250420T015037+0000

Ratings and Alerts

No rating or validation information has been found for BioTek Synergy HT Plate Reader.

No alerts have been found for BioTek Synergy HT Plate Reader.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 5 mentions in open access literature.

Listed below are recent publications. The full list is available at FDI Lab - SciCrunch.org.

Bessa-Andrês C, et al. (2024) Mechanical stimulation-induced purinome priming fosters osteogenic differentiation and osteointegration of mesenchymal stem cells from the bone marrow of post-menopausal women. Stem cell research & therapy, 15(1), 168.

Tang Z, et al. (2023) Aberrant elevation of FTO levels promotes liver steatosis by decreasing the m6A methylation and increasing the stability of SREBF1 and ChREBP mRNAs. Journal of molecular cell biology, 14(9).

Liou GY, et al. (2023) Inflammatory and alternatively activated macrophages independently

induce metaplasia but cooperatively drive pancreatic precancerous lesion growth. iScience, 26(6), 106820.

Pan X, et al. (2022) Peptide PDHPS1 Inhibits Ovarian Cancer Growth through Disrupting YAP Signaling. Molecular cancer therapeutics, 21(7), 1160.

Pascual-Sabater S, et al. (2021) Preclinical testing of oncolytic adenovirus sensitivity in patient-derived tumor organoids. STAR protocols, 2(4), 101017.