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Technical Data Sheet: THP-1 NFAT-LUC2

ATCC® Number	TIB-202-NFAT-LUC2™
Organism	*Homo sapiens*
Tissue/Disease Source	Acute Monocytic Leukemia
Product Description	THP-1 cell line (ATCC TIB-202™) is commonly used to study human monocyte and macrophage activities, functions, innate immune mechanisms and signaling pathways. This luciferase reporter cell line was derived from parental line TIB-202 by stably expressing firefly luciferase gene (luc2) under control of a nuclear factor of activated T-cells (NFAT) promoter. This cell line was established through lentiviral transduction and single cell cloning. The cells, upon stimulation, express high levels of enzymatically active luciferase protein, which can be detected via *in vitro* bioluminescence assays. This reporter cell line is useful for monitoring the activity of calcium signal transduction pathways that regulate a wide range of cell responses including immune cell activation.
Application	Enabling sensitive and quantitative assessment of signal transduction makes this reporter cell line ideal for *in vitro* bioluminescence assays to study immune response in human monocytes, development of new drugs, and safety evaluation of new chemicals and drugs.

Luciferase Expression

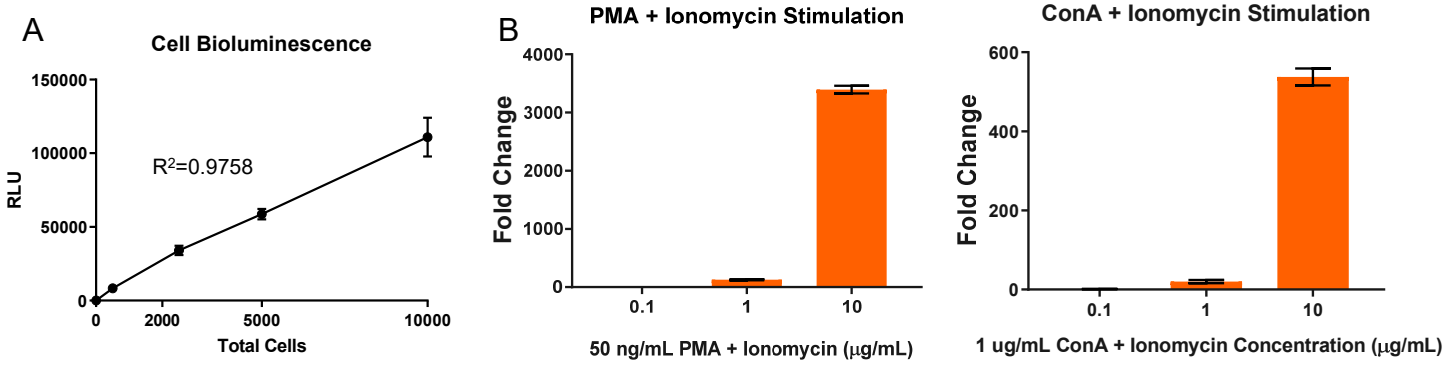
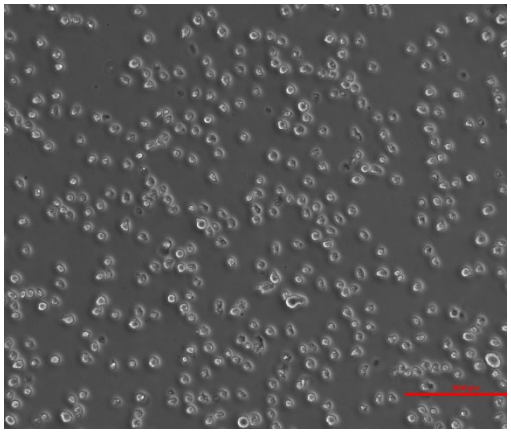


Figure 1: Linearity of luminescence and *in vitro* quantification of luciferase activity of THP-1 NFAT-LUC2. Cells were seeded in a 96-well plate, after stimulating overnight, bioluminescence signals were detected using Bright-Glo™ (Promega®) and a luminometer (Glomax™). Error bars show standard deviation (n=3). (A) Cells were seeded at indicated cell numbers and stimulated with 50 ng/mL of PMA and 10 µg/mL of Ionomycin to determined the linear correlation of bioluminescence intensity with cell numbers. (B) Serial dilution of stimulus reagents (PMA and Ionomycin or ConA and Ionomycin) to demonstrate dose response sensitivity of the NFAT promoter.

Cell Morphology

THP-1
(TIB-202™)



THP-1 NFAT-LUC2
(TIB-202-NFAT-LUC2™)

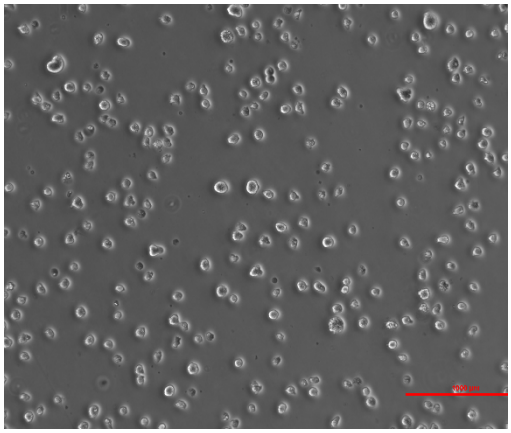


Figure 2: Cell morphology of THP-1 parental and THP-1 NFAT-LUC2. Cells were maintained in ATCC recommended culture conditions. Cell morphology was observed under microscopy and images were captured by digital camera. Red bar represents 1000 µm.