

Technical Data Sheet: THP-1 GAS-LUC2

ATCC® Number	TIB-202-GAS-LUC2™
Organism	<i>Homo sapiens</i>
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 (<i>luc2</i>) under control of a gamma-activated site (GAS) promoter through lentiviral transduction and single cell cloning. The cells, upon stimulation with interferons (IFNs), especially IFN γ , express high levels of enzymatically active luciferase protein, which can be detected via <i>in vitro</i> bioluminescence assays. This reporter cell line is useful for monitoring the activity of IFN-induced GAS signal transduction pathways.
Application	Enabling sensitive and quantitative assessment of signal transduction makes this reporter cell line ideal for <i>in vitro</i> bioluminescence assays to study immune response in human monocytes, development of new drugs, and safety evaluation of new chemicals and drugs.

Luciferase Expression

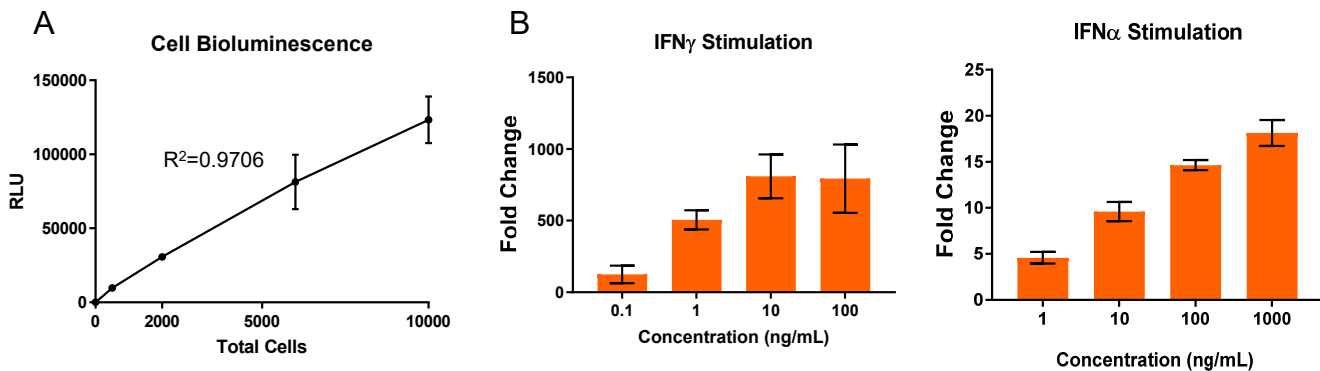
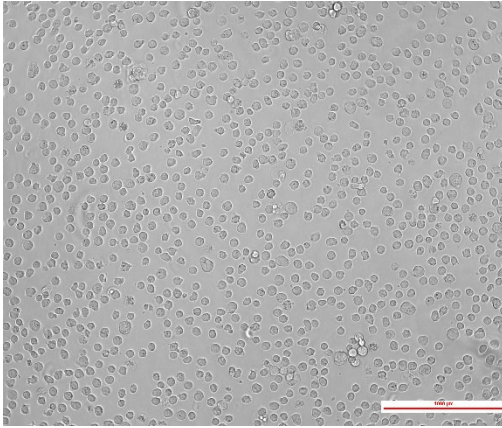


Figure 1: Linearity of luminescence and of *in vitro* quantification of luciferase activity of THP-1 GAS-LUC2. Cells were seeded in a 96-well plate, after stimulating overnight, bioluminescence signals were detected using Bright-glo™ (Promega®) and a luminometer (Glomax™). Error bars show standard deviation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

Cell Morphology

THP-1
(TIB-202™)



THP-1 GAS-LUC2
(TIB-202-GAS-LUC2™)

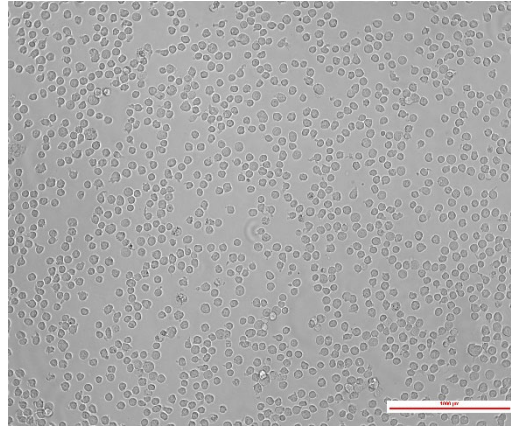


Figure 2: Cell morphology of THP-1 parental and THP-1 GAS-LUC2. Cells were maintained in ATCC recommended culture conditions. Cell morphology was observed under microscopy and images were captured by digital camera. Red bar represents 1000 µm.