Genomeditech (Shanghai) Co.,Ltd.
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Product Sheet

IFNα Reporter THP1 Cell Line

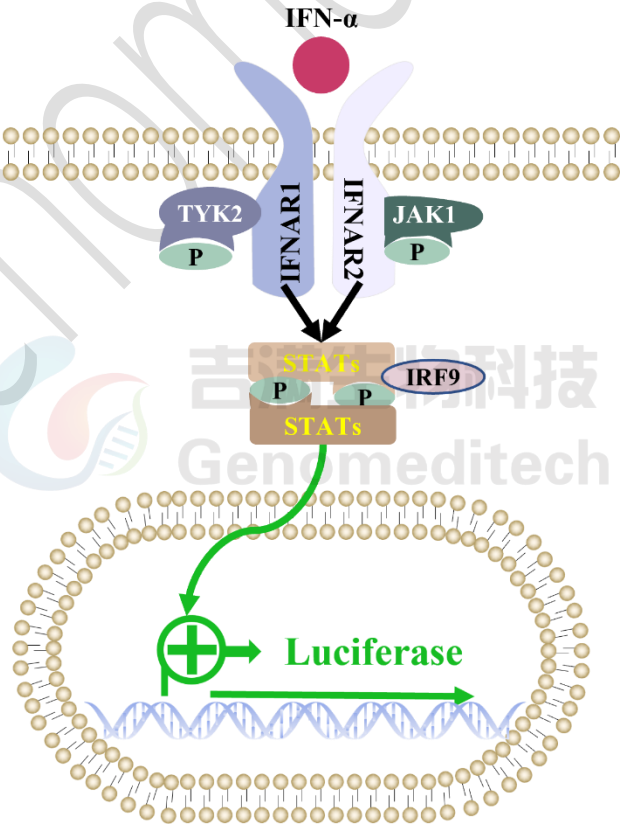
Catalog number: GM-C26128

Version 3.3.1.250106

Interferon alpha (IFNα) is a crucial cytokine in the interferon family, primarily produced by leukocytes and other immune cells. It enhances antiviral immunity by increasing host cell resistance to viruses and regulating immune responses. IFNα binds to cell surface interferon receptors, activating signaling pathways that promote the expression of antiviral genes, thus inhibiting viral replication and spread.

IFNα activates the JAK-STAT signaling pathway by binding to the interferon alpha/beta receptor (IFNAR). This activation leads to the phosphorylation of JAK kinases, which activate STAT proteins (like STAT1 and STAT2). The phosphorylated STAT proteins then move to the nucleus, binding to the promoters of interferon-stimulated genes (ISGs) to promote antiviral protein synthesis.

IFNα Reporter THP1 Cell Line is a clonal stable cell line constructed using lentiviral technology, along with signal-dependent expression of a luciferase reporter gene. When IFNα binds to IFNAR, it activates downstream signaling pathways, leading to the expression of luciferase. The luciferase activity measurement indicates the activation level of the signaling pathway and can thus be used to evaluate the in vitro effects of drugs related to IFNα.



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Specifications

Quantity	5E6 Cells per vial,1 mL
Product Format	1 vial of frozen cells
Shipping	Shipped on dry ice
Storage Conditions	Liquid nitrogen immediately upon receipt
Recovery Medium	RPMI 1640(ATCC)+20% FBS+1% P.S+0.05 mM β-Me
Growth medium	RPMI 1640(ATCC)+10% FBS+1% P.S+0.05 mM β-Me+2 μg/mL Blasticidin
Note	Cells should be cultured using ATCC/30-2001 RPMI 1640 medium or Growth medium from Genomeditech. The serum should be Cegrogen biotech/A0500-3010 or sourced from Gibco.
Freezing Medium	90% FBS+10% DMSO
Growth properties	Suspension
Growth Conditions	37°C, 5% CO_2
Mycoplasma Testing	The cell line has been screened to confirm the absence of Mycoplasma species.
Safety considerations	Biosafety Level 2
Note	It is recommended to expand the cell culture and store a minimum of 10 vials at an early passage for potential future use.

Materials

Reagent	Manufacturer/Catalogue No.
RPMI 1640(ATCC)	ATCC/30-2001
Fetal Bovine Serum	Cegrogen biotech/A0500-3010
Pen/Strep	Thermo/15140-122
2-Mercaptoethanol(β-Me)	gibco/21985-023
Blasticidin	Genomeditech/GM-040404
Recombinant Human IFN-α2 (carrier-free)	BioLegend/592702
GMOne-Step Luciferase Reporter Gene Assay Kit	Genomeditech/GM-040503

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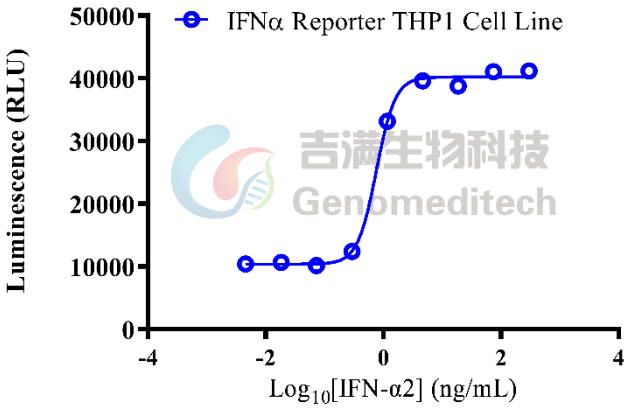
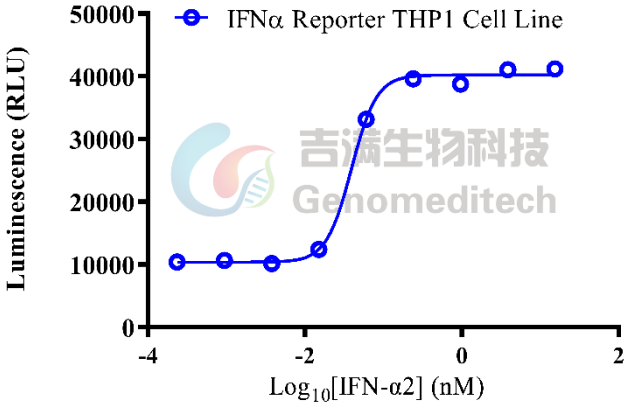
Figures



	IFNα Reporter THP1 Cell Line
EC50	0.7642

Figure 1 | Response to Recombinant Human IFN-α2. The IFNα Reporter THP1 Cell Line (Cat. GM-C26128) at a concentration of 1E5 cells/well (96-well format) was stimulated with serial dilutions of Recombinant Human IFN-α2 (BioLegend/592702) in assay buffer (RPMI 1640(ATCC) + 1% FBS + 1% P.S) for 16 hours. The firefly luciferase activity was measured using the GMOne-Step Luciferase Reporter Gene Assay Kit (Cat. GM-040503). The maximum induction fold was approximately [4.0]. Data are shown by drug mass concentration.



	IFNα Reporter THP1 Cell Line
EC50	0.03939

Figure 2 | Response to Recombinant Human IFN-α2. The IFNα Reporter THP1 Cell Line (Cat. GM-C26128) at a concentration of 1E5 cells/well (96-well format) was stimulated with serial dilutions of Recombinant Human IFN-α2 (BioLegend/592702) in assay buffer (RPMI 1640(ATCC) + 1% FBS + 1% P.S) for 16 hours. The firefly luciferase activity was measured using the GMOne-Step Luciferase Reporter Gene Assay Kit (Cat. GM-040503). The maximum induction fold was approximately [4.0]. Data are shown by drug molar concentration.

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Cell Recovery

Recovery Medium: RPMI 1640(ATCC)+20% FBS+1% P.S+0.05 mM β-Me

To insure the highest level of viability, thaw the vial and initiate the culture as soon as possible upon receipt. If upon arrival, continued storage of the frozen culture is necessary, it should be stored in liquid nitrogen vapor phase and not at -70°C. Storage at -70°C will result in loss of viability.

a) Thaw the vial by gentle agitation in a 37°C water bath. To reduce the possibility of contamination, keep the O-ring and cap out of the water. Thawing should be rapid (approximately 2 - 3 minutes).
b) Remove the vial from the water bath as soon as the contents are thawed, and decontaminate by dipping in or spraying with 70% ethanol. All of the operations from this point on should be carried out under strict aseptic conditions.
c) Transfer the vial contents to a centrifuge tube containing 5.0 mL complete culture medium. And spin at approximately 176 x g for 5 minutes. Discard supernatant.
d) Resuspend cell pellet with the recommended complete medium. And dispense the suspension into an appropriate culture flask and initially place the flask in an upright position after thawing.
e) Incubate the culture at 37°C in a suitable incubator. A 5% CO_2 in air atmosphere is recommended if using the medium described on this product sheet.

Cell Freezing

Freezing Medium: 90% FBS+10% DMSO

a) Centrifuge at 176 x g for 3 minutes to collect cells.
b) Resuspend the cells in pre-cooled freezing medium and adjust the cell density to 5E6 cells/mL.
c) Aliquot 1 mL into each vial.
d) Place the vial in a controlled-rate freezing container and store at -80°C for at least 1 day, then transfer to liquid nitrogen as soon as possible.

Cell passage

Growth medium: RPMI 1640(ATCC)+10% FBS+1% P.S+0.05 mM β-Me+2 μg/mL Blasticidin

During the first two passages after cell thawing, use the recovery medium. Once the cell status stabilizes, switch to growth medium containing antibiotics.

a) When the cell density reaches 8E5 cells/mL, subculture the cells. Do not allow the cell density to exceed 1E6 cells/mL.
b) It is recommended to use T-25 flasks for subculturing.
c) These cells are suspension cells, and it is recommended to use the "half-medium change" method to maintain optimal cell conditions during passaging.
d) During passaging, you can directly add fresh growth medium to the culture flask, gently pipette to resuspend the cells, and then transfer the cell suspension to a new T-25 flask for continued culture.

Subcultivation Ratio: Maintain cultures at a cell concentraion between 2.5E5 and 8E5 viable cells/mL.

Medium Renewal: Every 2 to 3 days

Notes

a) After thawing, cell growth is slow, and there will be a significant amount of cellular debris in the background. As the cells recover, the background will gradually become cleaner, with a recovery period estimated at 1 to 1.5 weeks.

b) These cells are sensitive to cell density, so please ensure that cell density is maintained within an appropriate range during culture and passaging.

c) The culture medium for these cells must be supplemented with β-mercaptoethanol. Failure to add this supplement may negatively affect cell status.

d) Cells should be cultured using ATCC/30-2001 RPMI 1640 medium or complete medium purchased from Geomeditech. The serum used should be the same as specified in the manual or Gibco serum.

Related Products

CD40：CD40L	
H_CD40(TNFRSF5) Reporter 293 Cell Line	H_CD40(TNFRSF5) Reporter Jurkat Cell Line
Cynomolgus_CD40 CHO-K1 Cell Line	Cynomolgus_CD40L CHO-K1 Cell Line
H_CD40(TNFRSF5) CHO-K1 Cell Line	H_CD40(TNFRSF5) HEK-293 Cell Line
H_CD40L CHO-K1 Cell Line	H_CD40L HEK-293 Cell Line
Anti-H_CD40 hIgG1 Antibody(APX005M)	Anti-H_CD40 hIgG1 Antibody(ravagalimab)
Anti-H_CD40L hIgG1 Antibody(dapirolizumab)	Anti-H_CD40L hIgG1 Antibody(frexalimab)
Biotinylated Human CD40 Protein; His-Avi Tag	Cynomolgus CD40 Protein; His Tag
Human CD40 Protein; His Tag	Human CD40L Protein; His Tag
IFN-α	
IFNα Reporter HEK-293 Cell Line	IFNα Reporter MDCK Cell Line
IFN-γ	
GAS Reporter HCT116 Cell Line	
BCMA:BAFFR:TACI	
H_BAFFR Jurkat Blockade Reporter Cell Line	H_BAFFR Reporter Cell Line
H_BCMA Reporter Cell Line	H_TACI Reporter Cell Line
Cynomolgus_BCMA CHO-K1 Cell Line	H_BCMA CHO-K1 Cell Line
H_BCMA HEK-293 Cell Line	
Anti-BAFF hIgG1 Antibody(belimumab)	Anti-BAFFR hIgG1 Antibody(ianalumab)
Anti-BCMA hIgG1 Antibody(Belantamab)	Anti-BCMA hIgG1 Antibody(SEA-BCMA)
Anti-BCMA hIgG4 Antibody(BCMB69)	
Biotinylated Human BAFF Protein; His-Avi Tag	Cynomolgus BAFF Protein; His Tag
Human BAFF Protein; His Tag	Mouse BAFF Protein; His Tag
BDCA2(CLEC4C)	
H_BDCA2 Reporter Jurkat Cell Line	Cynomolgus_BDCA2 CHO-K1 Cell Line
Cynomolgus_BDCA2 Jurkat Cell Line	H_BDCA2 CHO-K1 Cell Line
H_BDCA2 HEK-293 Cell Line	H_BDCA2 Jurkat Cell Line

Anti-H_BDCA2 hIgG1 Antibody(Litifilimab)	
Cynomolgus BDCA2 Protein; His Tag	Human BDCA2 Protein; His Tag

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