

Product Sheet

H_IL-21 Reporter 293 Cell Line

Catalog number: GM-C43436

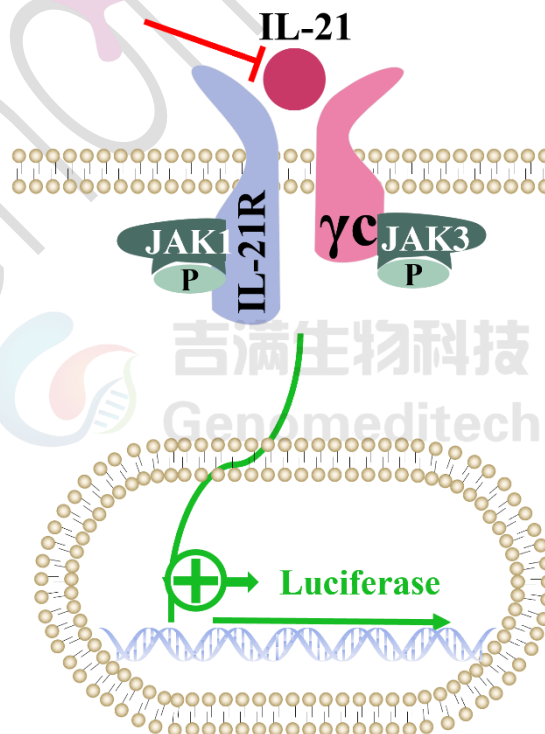
Version 3.3.1.260701

IL-21 (Interleukin-21) is a cytokine produced by T cells, particularly CD4⁺ T cells, and natural killer (NK) cells. It is crucial for the immune system, promoting B cell proliferation and antibody production, enhancing T cell activity, and regulating NK cell function. IL-21 is linked to various immune-related diseases, making it a potential therapeutic target.

The IL-21 signaling pathway is activated through its receptor IL-21R, which, upon binding with IL-21, activates the tyrosine kinases JAK1 and JAK3. This activation leads to the phosphorylation of STAT3 and STAT5, which then translocate to the nucleus to regulate genes involved in cell proliferation, survival, and differentiation.

H_IL-21 Reporter Cell Line is a clonal stable cell line constructed using lentiviral technology, constitutive expression of the human IL-21R α and IL2RG genes, along with signal-dependent expression of a luciferase reporter gene. Upon binding of IL-21 to the IL-21R α chain, the IL2RG chain is recruited to form the functional receptor complex, thereby activating downstream signaling pathways, leading to the expression of luciferase. Blockade antibodies can inhibit this signal transmission. 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 IL-21.

Anti-IL21



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	DMEM+10% FBS+1% P.S
Growth medium	DMEM+10% FBS+1% P.S+4 µg/mL Blasticidin+150 µg/mL Bleomycin+400 µg/mL G418+125 µg/mL Hygromycin+0.75 µg/mL Puromycin
Note	None
Freezing Medium	90% FBS+10% DMSO
Growth properties	Adherent
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.
Puromycin	Genomeditech/ GM-040401
Blasticidin	Genomeditech/ GM-040404
Bleomycin	Genomeditech/ GM-040407
G418	Genomeditech/ GM-040402
Hygromycin	Genomeditech/ GM-040403
Pen/Strep	Thermo/15140-122
Fetal Bovine Serum	ExCell/FSP500
DMEM	Gibco/C11995500BT
Recombinant Human IL-21 Protein	SinoBiological/10584-HNAE
GMOne-Step 2.0 Luciferase Reporter Gene Assay Kit	Genomeditech/ GM-040513
Anti-CD132(IL2RG) hIgG4 Antibody(REGN7257)	Genomeditech/ GM-52334AB
APC anti-human CD360 (IL-21R) Antibody	Biolegend/376105
Anti-IL21 hIgG1 Reference Antibody (Avibio)	Genomeditech/GM-88333MAB

Figures

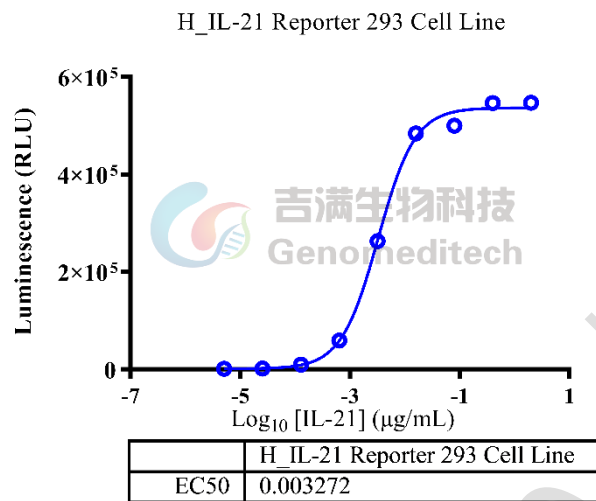


Figure 1 | Response to Human IL-21 Protein. H_IL-21 Reporter 293 Cell Line (Cat. GM-C43436) at a concentration of 1.5E4 cells/well (96-well format) was stimulated with serial dilutions of Human IL-21 Protein (SinoBiological/10584-HNAE) in assay buffer (DMEM+1% FBS+1% P.S) for 16 hours. The firefly luciferase activity was measured using the Luciferase Reporter Assay Kit (Genomeditech).

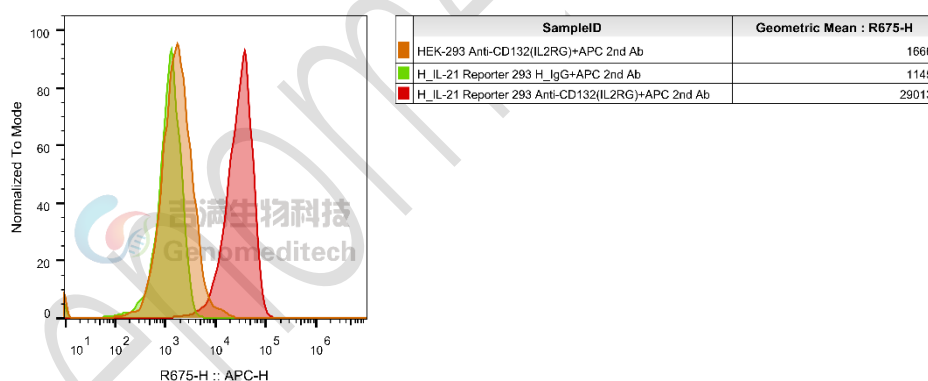


Figure 2 | H_IL-21 Reporter 293 Cell Line (Cat. GM-C43436) was determined by flow cytometry using Anti-CD132(IL2RG) hIgG4 Antibody(REGN7257)(Genomeditech/[GM-52334AB](#)).

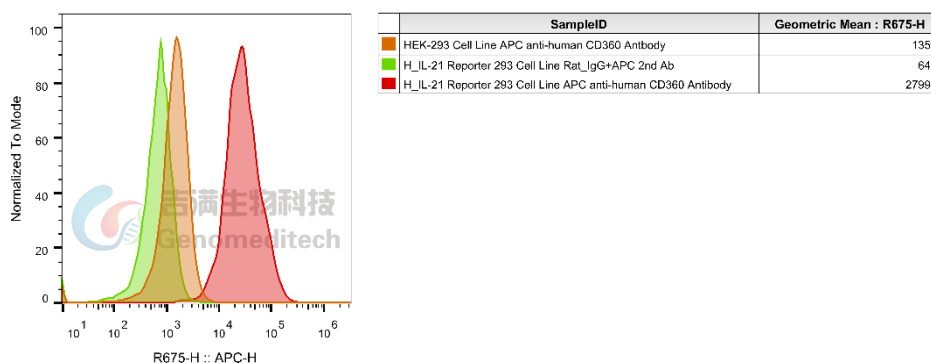


Figure 3 | H_IL-21 Reporter 293 Cell Line (Cat. GM-C43436) was determined by flow cytometry using APC anti-human CD360 (IL-21R) Antibody (Biolegend/376105)

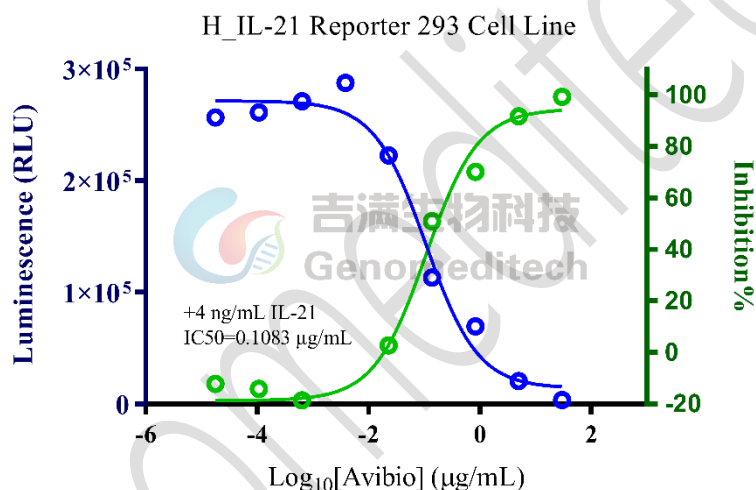


Figure 4 | Inhibition of Human IL-21 Protein-induced reporter activity by Anti-IL21 hlgG1 Reference Antibody (Avibio). Serial dilutions of Anti-IL21 hlgG1 Reference Antibody (Avibio)(Cat. GM-88333MAB) was incubated with 1.5E4 cells/well of the H_IL-21 Reporter 293 Cell Line (Cat. GM-C43436) in a 96-well plate for 1 hour in assay buffer (DMEM +1% FBS+1% P.S). Subsequently, the Human IL-21 Protein (SinoBiological/10584-HNAE) was added to each well at a final concentration of 4 ng/mL, and the coculture proceeded for an additional 16 hours. Firefly luciferase activity is then measured using the Luciferase Reporter Assay Kit (Genomeditech)(left Y-axis, relative luminescence units), with inhibition percentages shown on the right Y-axis.

Cell Recovery

Recovery Medium: DMEM+10% FBS+1% P.S

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.

- 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).
- 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.
- Transfer the vial contents to a centrifuge tube containing 5.0 mL complete culture medium and spin at approximately $176 \times g$ for 5 minutes. Discard supernatant.
- Resuspend cell pellet with the recommended recovery medium. And dispense into appropriate culture dishes.
- 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

- Centrifuge at $176 \times g$ for 3 minutes to collect cells.
- Resuspend the cells in pre-cooled freezing medium and adjust the cell density to 5×10^6 cells/mL.
- Aliquot 1 mL into each vial.
- 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: DMEM+10% FBS+1% P.S+4 $\mu\text{g/mL}$ Blasticidin+150 $\mu\text{g/mL}$ Bleomycin+400 $\mu\text{g/mL}$ G418+125 $\mu\text{g/mL}$ Hygromycin+0.75 $\mu\text{g/mL}$ Puromycin

For the first 1 to 2 passages post-resuscitation, use the recovery medium. Once the cells have stabilized, switch to a growth medium.

- Subculturing is necessary when the cell density reaches 80%. It is recommended to perform subculturing at a ratio of 1:3 to 1:4 every 2-3 days. Ensure that the density does not exceed 80%, as overcrowding can lead to reduced viability due to compression.
- Remove and discard culture medium.
- Briefly rinse the cell layer with PBS to remove all traces of serum that contains trypsin inhibitor.
- Add 1.0 mL of 0.25% (w/v) Trypsin-EDTA solution to dish and observe cells under an inverted microscope until cell layer is dispersed (usually within 30 to 60 seconds at 37°C).
- Note: To avoid clumping do not agitate the cells by hitting or shaking the flask while waiting for the cells to detach. Cells that are difficult to detach may be placed at 37°C to facilitate dispersal.
- Add 2.0 mL of growth medium to mix well and aspirate cells by gently pipetting.
- After centrifugation, resuspend the pellet and add appropriate aliquots of the cell suspension to new culture vessels.

h) Incubate cultures at 37°C.

Subcultivation Ratio: A subcultivation ratio of 1:3 - 1:4 is recommended

Medium Renewal: Every 2 to 3 days

Notes

- Upon initial thawing, a higher number of dead cells is observed, which is a normal phenomenon. Significant improvement is seen after adaptation. Once the cells reach a stable state, the number of dead cells decreases after subculturing and the cell growth rate becomes stable.
- Ensure that the cell density does not exceed 80%, as overcrowding may lead to reduced viability due to compression.

Related Products

IL-21	
H_IL-21 Reporter Cell Line	Membrane Bound H_IL21 K562 Cell Line

License Agreement:

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