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Product Sheet

H_IL-21 Reporter Cell Line

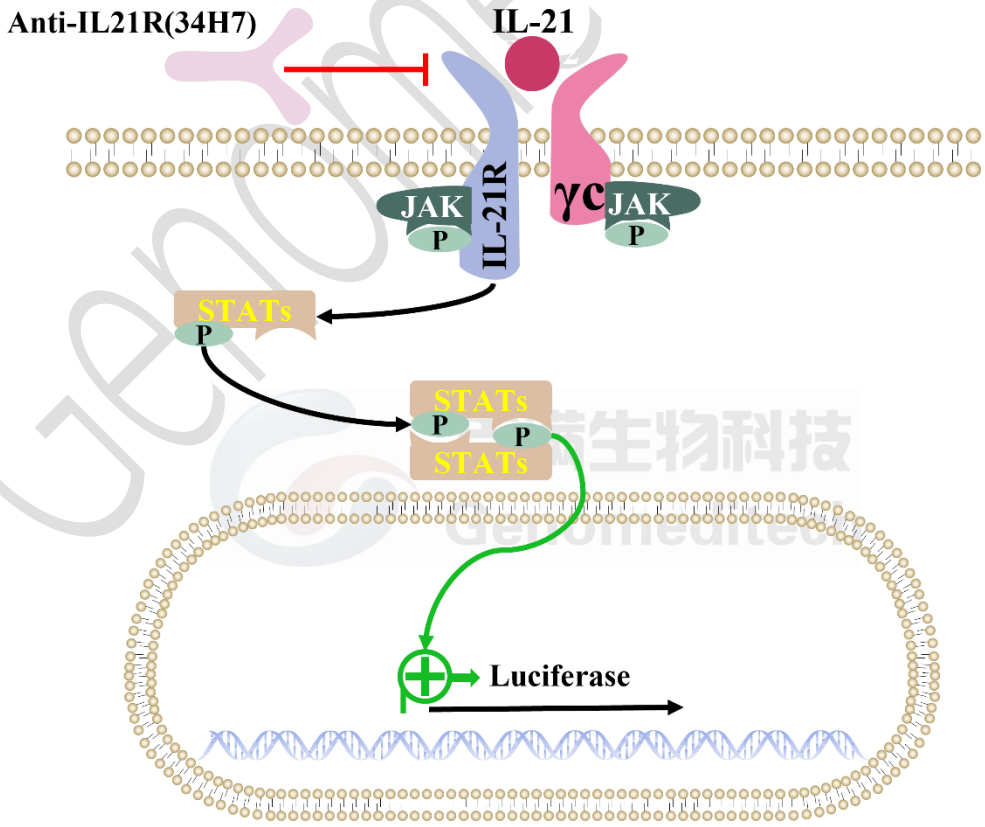
Catalog number: GM-C15762

Version 3.3.1.241226

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 gene, along with signal-dependent expression of a luciferase reporter gene. When IL-21 binds to IL-21R, it activates 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.



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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+10% FBS+1% P.S+8 ng/mL M_IL3
Growth medium	RPMI 1640+10% FBS+1% P.S+8 ng/mL M_IL3+5 μg/mL Blasticidin+0.25 μg/mL Puromycin
Note	None
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	VivaCell/C3010-0500
Fetal Bovine Serum	Cegrogen biotech/A0500-3010
Pen/Strep	Thermo/15140-122
Recombinant Mouse IL-3 (C-6His)	Novoprotein/CP39
Blasticidin	Genomeditech/GM-040404
Puromycin	Genomeditech/GM-040401
Human Interleukin-21 / IL-21 Protein	Sino Biological/10584-HNAE
GMOne-Step Luciferase Reporter Gene Assay Kit	Genomeditech/GM-040503

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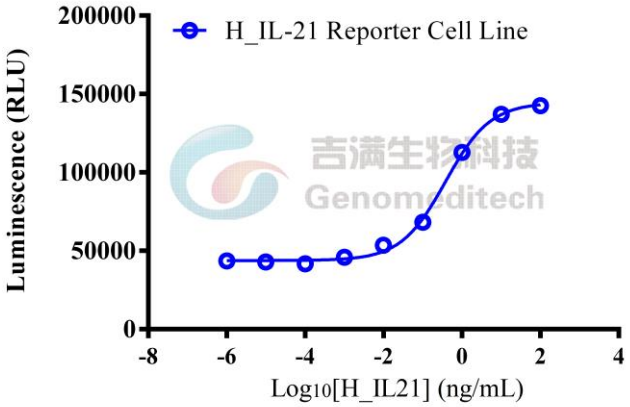
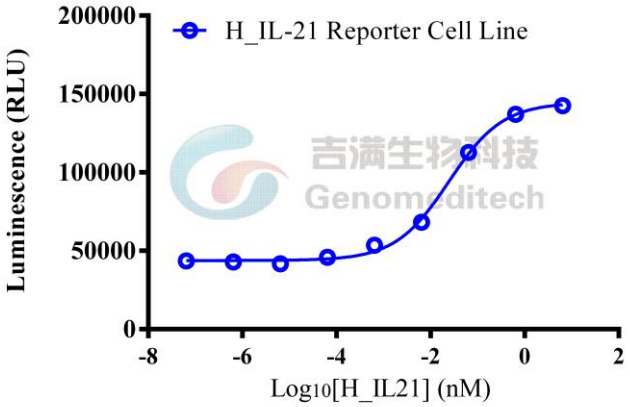
Figures



	H_IL-21 Reporter Cell Line
EC50	0.3829

Figure 1 | Response to Human Interleukin-21/IL-21 Protein. The H_IL-21 Reporter Cell Line (Cat. GM-C15762) at a concentration of 1E5 cells/well (96-well format) was stimulated with serial dilutions of Human Interleukin-21/IL-21 Protein (Sino Biological/10584-HNAE) in assay buffer (RPMI 1640 + 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 [3.3]. Data are shown by drug mass concentration.



	H_IL-21 Reporter Cell Line
EC50	0.02455

Figure 2 | Response to Human Interleukin-21/IL-21 Protein. The H_IL-21 Reporter Cell Line (Cat. GM-C15762) at a concentration of 1E5 cells/well (96-well format) was stimulated with serial dilutions of Human Interleukin-21/IL-21 Protein (Sino Biological/10584-HNAE) in assay buffer (RPMI 1640 + 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 [3.3]. Data are shown by drug molar concentration.

Cell Recovery

Recovery Medium: RPMI 1640+10% FBS+1% P.S+8 ng/mL M_IL3

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 1-2 T-25 culture flasks.
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 vials 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+10% FBS+1% P.S+8 ng/mL M_IL3+5 μg/mL Blasticidin+0.25 μg/mL Puromycin

Approximately 48-72 hours after the initial thawing, the cells can be passaged for the first time. After this initial passage, the culture medium can be adjusted to growth medium supplemented with antibiotics. If cells are not passaged within 48 hours, it is recommended to add some fresh recovery medium and place the flask horizontally.

a) When the cell density reaches 1 - 1.2E6 cells/mL, subculture the cells. Do not allow the cell density to exceed 1.4E6 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 3E5 and 1E6 viable cells/mL.

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Medium Renewal: Every 2 to 3 days

Notes

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

b) During the first passage, pay attention to the nutrient supply; if not subculturing, make sure to add fresh recovery medium every other day as needed.

Related Products

IL-21	
Membrane Bound H_IL21 K562 Cell Line	

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