Genomeditech (Shanghai) Co.,Ltd.
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Product Sheet

H_CTLA4 Reporter Jurkat Cell Line

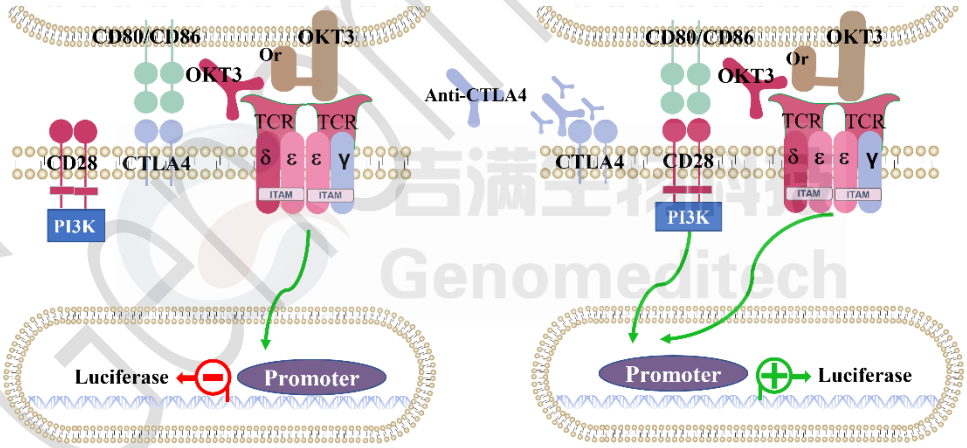
Catalog number: GM-C23902

Version 3.3.1.250116

CTLA-4 is an immune checkpoint primarily expressed on T cells, especially activated T cells and Tregs. It shares structural similarity with CD28 but binds B7-1 (CD80) and B7-2 (CD86) with higher affinity. Unlike CD28, CTLA-4 inhibits T cell activation by competing for B7, downregulating immune responses and maintaining homeostasis.

CTLA-4 acts as a negative regulator during T cell activation. It is upregulated, binds B7-1/B7-2, and recruits inhibitory molecules (e.g., SHP-2, PP2A) via ITIM/ITSM motifs. This disrupts TCR signaling, reduces T cell proliferation and cytokine production, and modulates dendritic cell function, weakening the immune response.

H_CTLA4 Reporter Jurkat Cell Line is a clonal stable Jurkat cell line constructed using lentiviral technology, constitutive expression of the CTLA4 gene, endogenously expression of the TCR-CD3 complex and CD28 gene, along with signal-dependent expression of a luciferase reporter gene. When T cells are stimulated by TCR (T-cell receptor) and CD80 binds to CD28, leading to the expression of luciferase. The CTLA4 competes with CD28 for CD80, blockade the expression of luciferase. Blockade antibodies can block this inhibitory signal transmission, restore the activation of T cells. 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 CTLA4.



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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
Growth medium	RPMI 1640+10% FBS+1% P.S+3.5 μg/mL Blasticidin+0.75 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
Blasticidin	Genomeditech/GM-040404
Puromycin	Genomeditech/GM-040401
Anti-H_CTLA-4 hIgG1 Antibody(Ipilimumab)	Genomeditech/GM-27203AB
Anti-CD3 epsilon hIgG1 Antibody [OKT-3 (muromonab)]	Genomeditech/GM-51478AB
GMOne-Step Luciferase Reporter Gene Assay Kit	Genomeditech/GM-040503

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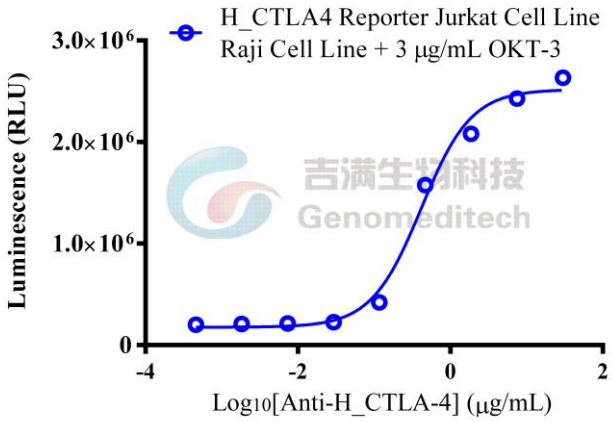
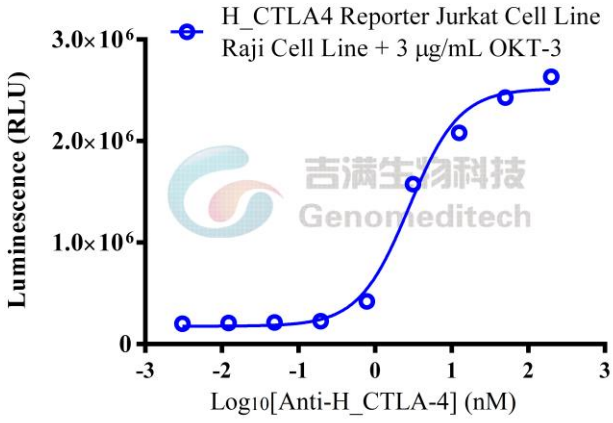
Figures



	H_CTLA4 Reporter Blockade Assay
EC50	0.4153

Figure 1 | Response to Anti-H_CTLA-4 hIgG1 Antibody. Serial dilutions of the Anti-H_CTLA-4 hIgG1 Antibody(Ipilimumab) (Cat. GM-27203AB) were incubated with 1E5 cells/well of the H_CTLA4 Reporter Jurkat Cell Line (Cat. GM-C23902) in a 96-well plate for 30 minutes, and then 2E4 cells/well Raji Cell Line and 300 ng/well of OKT-3 (Cat. GM-51478AB) were added. The mixture was incubated for an additional 6.5 hours. Firefly luciferase activity is then measured using the GMOne-Step Luciferase Reporter Gene Assay Kit (Cat. GM-040503). The results indicated a maximum blocking fold of approximately [13.2]. Data are shown by drug mass concentration.



	H_CTLA4 Reporter Blockade Assay
EC50	2.768

Figure 2 | Response to Anti-H_CTLA-4 hIgG1 Antibody. Serial dilutions of the Anti-H_CTLA-4 hIgG1 Antibody(Ipilimumab) (Cat. GM-27203AB) were incubated with 1E5 cells/well of the H_CTLA4 Reporter Jurkat Cell Line (Cat. GM-C23902) in a 96-well plate for 30 minutes, and then 2E4 cells/well Raji Cell Line and 300 ng/well of OKT-3 (Cat. GM-51478AB) were added. The mixture was incubated for an additional 6.5 hours. Firefly luciferase activity is then measured using the GMOne-Step Luciferase Reporter Gene Assay Kit (Cat. GM-040503). The results indicated a maximum blocking fold of approximately [13.2]. Data are shown by drug molar concentration.

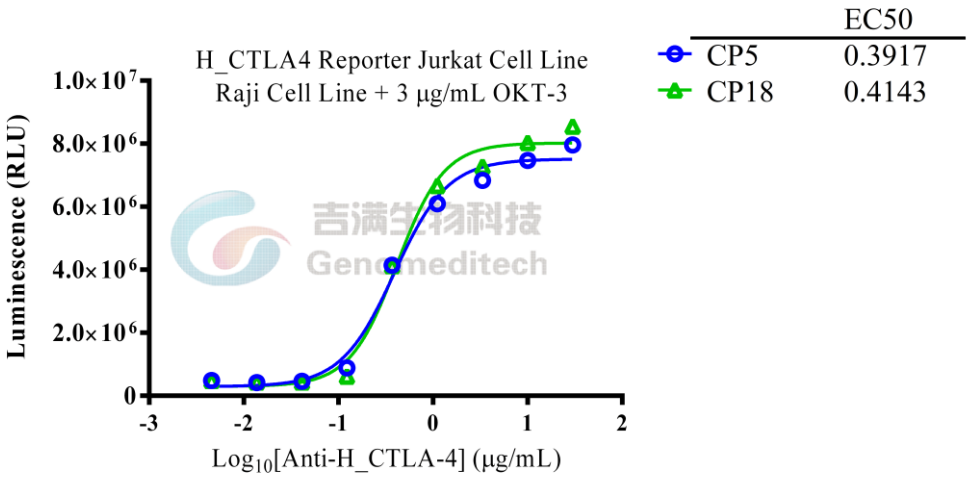
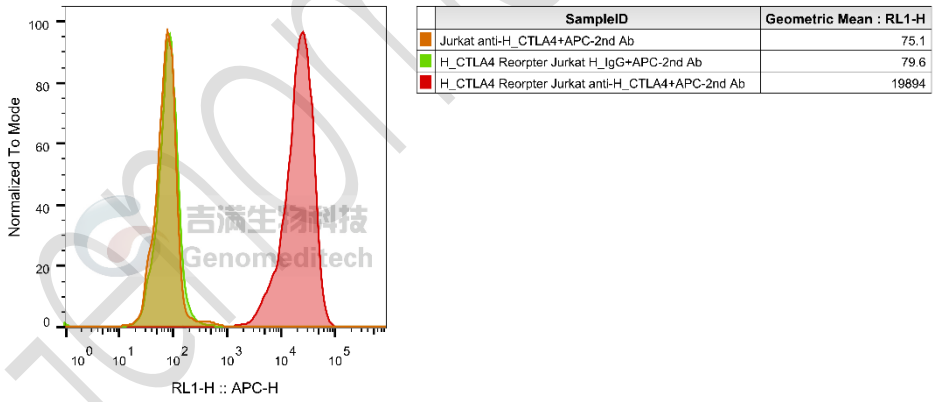


Figure 3 | The passage stability of response to Anti-H_CTLA-4 hIgG1 Antibody. Serial dilutions of the Anti-H_CTLA-4 hIgG1 Antibody(Ipilimumab) (Cat. GM-27203AB) were incubated with 1E5 cells/well of the passage 5 and 18 of H_CTLA4 Reporter Jurkat Cell Line (Cat. GM-C23902) in a 96-well plate for 30 minutes, and then 2E4 cells/well Raji Cell Line and 300 ng/well of OKT-3 (Cat. GM-51478AB) were added. The mixture was incubated for an additional 6.5 hours. Firefly luciferase activity is then measured using the GMOne-Step Luciferase Reporter Gene Assay Kit (Cat. GM-040503). Data are shown by drug mass concentration.



SampleID	Geometric Mean : RL1-H
Jurkat anti-H_CTLA4+APC-2nd Ab	75.1
H_CTLA4 Reorpter Jurkat H_IgG+APC-2nd Ab	79.6
H_CTLA4 Reorpter Jurkat anti-H_CTLA4+APC-2nd Ab	19894

Figure 4 | H_CTLA4 Reporter Jurkat Cell Line (Cat. GM-C23902) was determined by flow cytometry using Anti-H_CTLA-4 hIgG1 Antibody(Ipilimumab) (Cat. GM-27203AB).

Cell Recovery

Recovery Medium: RPMI 1640+10% FBS+1% P.S

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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 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+10% FBS+1% P.S+3.5 μg/mL Blasticidin+0.75 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 1.5 - 2E6 cells/mL, subculture the cells. Do not allow the cell density to exceed 2E6 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.

Medium Renewal: Every 2 to 3 days

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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

CTLA4:CD80:CD86	
H_CD80 aAPC CHO-K1 Cell Line	H_CD80 PDL1 aAPC CHO-K1 Cell Line
H_CTLA4 PD-1 Reporter Cell Line	Canine_CTLA4 CHO-K1 Cell Line
Cynomolgus_CTLA4 HEK-293 Cell Line	H_CTLA4 CHO-K1 Cell Line
H_CTLA4 HEK-293 Cell Line	H_CTLA4 Jurkat Cell Line
Anti-CTLA4 hIgG1 Reference Antibody (Ipibio)	Anti-CTLA-4/PD-1 hIgG1 Bispecific Antibody(Cadonilimab)
Anti-H_CD80 hIgG1 Antibody(Galiximab)	Anti-H_CTLA-4 hIgG1 Antibody(Ipilimumab)
Anti-mouse CTLA4 mIgG2b Antibody(9D9)	Anti-mouse CTLA4 Syrian Hamster IgG2 Antibody(9H10)
Biotinylated Mouse CTLA4 Protein; His-Avi Tag	Mouse CTLA4 Protein; His Tag

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