

# Product Sheet

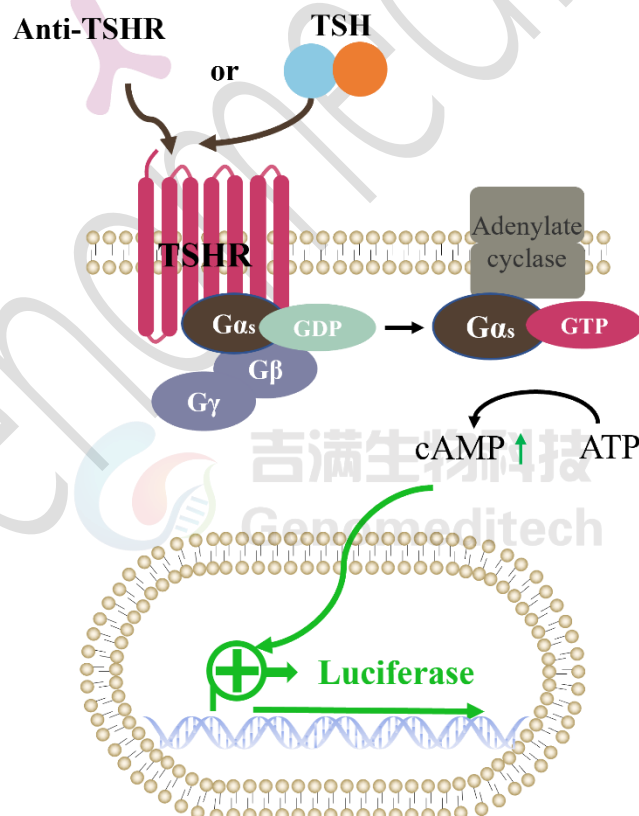
## H\_TSHR Reporter CHO-K1 Cell Line

Catalog number: GM-C39741

Version 3.3.1.260828

TSHR (Thyroid-Stimulating Hormone Receptor) is a transmembrane protein in the GPCR family, mainly expressed on thyroid follicular epithelial cells. It binds to TSH to activate the adenylyl cyclase pathway, promoting thyroid hormone (T3/T4) synthesis and release. Abnormal TSHR activation causes Graves' disease or thyrotoxicosis, while inactivation leads to primary hypothyroidism, requiring lifelong levothyroxine (LT4) therapy. Beyond thyroid regulation, TSHR influences fat metabolism, bone health, and energy balance, offering potential targets for treating obesity and osteoporosis.

H\_TSHR Reporter CHO-K1 Cell Line is a clonal stable CHO-K1 cell line constructed using lentiviral technology, constitutive expression of the TSHR gene, along with signal-dependent expression of a luciferase reporter gene. When the TSH protein or TSHR agonist binds to the receptor, 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 related drugs.



## Specifications

|                              |                                                                                                                            |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>Quantity</b>              | 5E6 Cells per vial, 1 mL                                                                                                   |
| <b>Product Format</b>        | 1 vial of frozen cells                                                                                                     |
| <b>Shipping</b>              | Shipped on dry ice                                                                                                         |
| <b>Storage Conditions</b>    | Liquid nitrogen immediately upon receipt                                                                                   |
| <b>Recovery Medium</b>       | F12K+10% FBS+1% P.S                                                                                                        |
| <b>Growth medium</b>         | F12K+10% FBS+1% P.S+4 µg/mL Blasticidin+4 µg/mL Puromycin                                                                  |
| <b>Note</b>                  | None                                                                                                                       |
| <b>Freezing Medium</b>       | 90% FBS+10% DMSO                                                                                                           |
| <b>Growth properties</b>     | Adherent                                                                                                                   |
| <b>Growth Conditions</b>     | 37°C, 5% CO <sub>2</sub>                                                                                                   |
| <b>Mycoplasma Testing</b>    | The cell line has been screened to confirm the absence of Mycoplasma species.                                              |
| <b>Safety considerations</b> | Biosafety Level 2                                                                                                          |
| <b>Note</b>                  | It is recommended to expand the cell culture and store a minimum of 10 vials at an early passage for potential future use. |

## Materials

| <b>Reagent</b>                                    | <b>Manufacturer/Catalogue No.</b>        |
|---------------------------------------------------|------------------------------------------|
| F12K                                              | BOSTER/PYG0036                           |
| Fetal Bovine Serum                                | ExCell/FSP500                            |
| Pen/Strep                                         | Thermo/15140-122                         |
| Blasticidin                                       | Genomeditech/ <a href="#">GM-040404</a>  |
| Puromycin                                         | Genomeditech/ <a href="#">GM-040401</a>  |
| Recombinant Human TSH                             | Novoprotein/DRA17                        |
| Anti-TSHR mIgG2a Antibody(KSAb2)                  | Genomeditech/ <a href="#">GM-87935AB</a> |
| GMOne-Step 2.0 Luciferase Reporter Gene Assay Kit | Genomeditech/ <a href="#">GM-040513</a>  |

## Figures

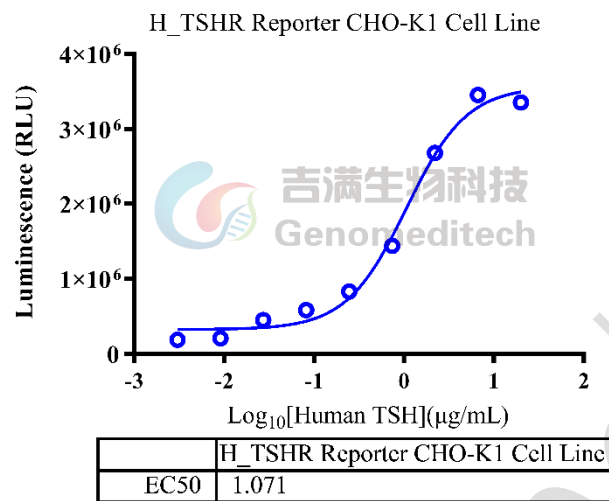


Figure 1 | Response to Recombinant Human TSH. The H\_TSHR Reporter CHO-K1 Cell Line (Cat. GM-C39741) at a concentration of 1E4 cells/well (96-well format) was stimulated with serial dilutions of Recombinant Human TSH (Novoprotein/DRA17) in assay buffer (F12K+1% FBS+1% P.S) for 16 hours. The firefly luciferase activity was measured using the Luciferase Reporter Assay Kit (Genomeditech). The maximum induction fold was approximately [18.9]. Data are shown by drug mass concentration.

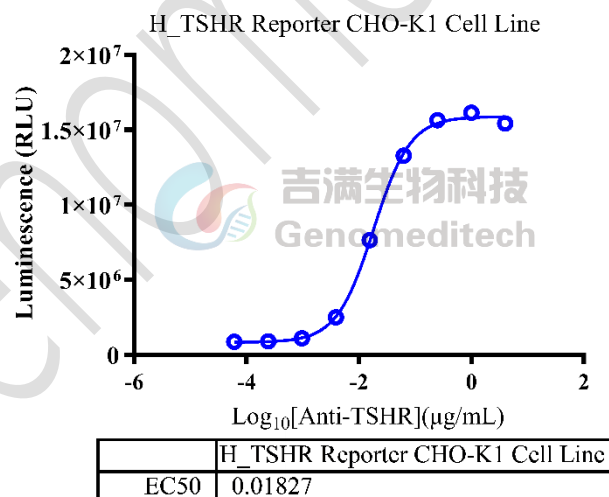


Figure 2 | Response to Anti-TSHR mIgG2a Antibody(KSAb2). The H\_TSHR Reporter CHO-K1 Cell Line (Cat. GM-C39741) at a concentration of 1E4 cells/well (96-well format) was stimulated with serial dilutions of Anti-TSHR mIgG2a Antibody(KSAb2) (Cat. [GM-87935AB](#)) in assay buffer (F12K+1% FBS+1% P.S) for 16 hours. The firefly luciferase activity was measured using the Luciferase Reporter Assay Kit (Genomeditech). The maximum induction fold was approximately [19.9]. Data are shown by drug mass concentration.

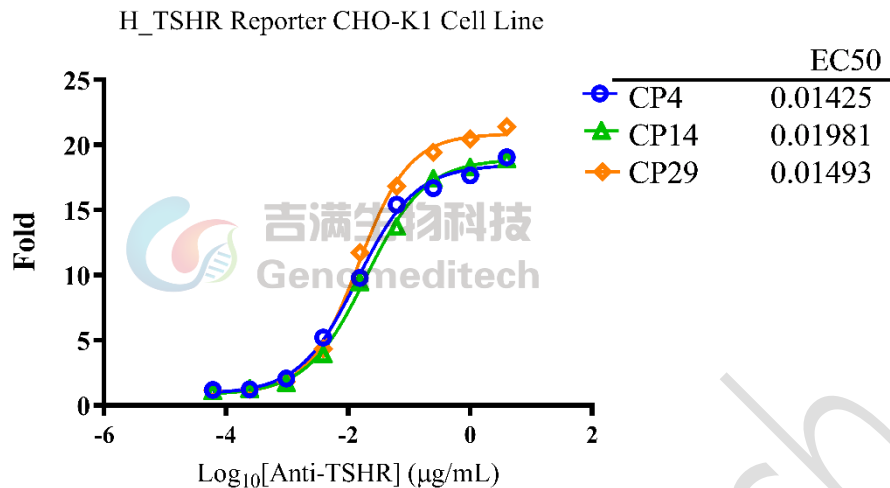


Figure 3 | The passage stability of response to Anti-TSHR mIgG2a Antibody(KSAb2). The passage 4, 14, and 29 of H\_TSHR Reporter CHO-K1 Cell Line (Cat. GM-C39741) at a concentration of 1E4 cells/well (96-well format) were stimulated with serial dilutions of Anti-TSHR mIgG2a Antibody(KSAb2) (Cat. [GM-87935AB](#)) in assay buffer (F12K+1% FBS+1% P.S) for 16 hours. The firefly luciferase activity was measured using the Luciferase Reporter Assay Kit (Genomeditech). Data are shown by drug mass concentration.

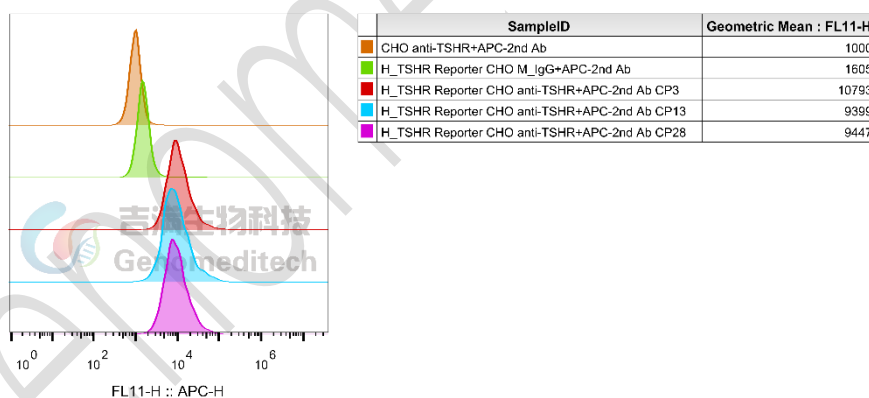


Figure 4 | The passage stability of the H\_TSHR Reporter CHO-K1 Cell Line (Cat. GM-C39741) was determined by flow cytometry using Anti-TSHR mIgG2a Antibody(KSAb2) (Cat. [GM-87935AB](#)).

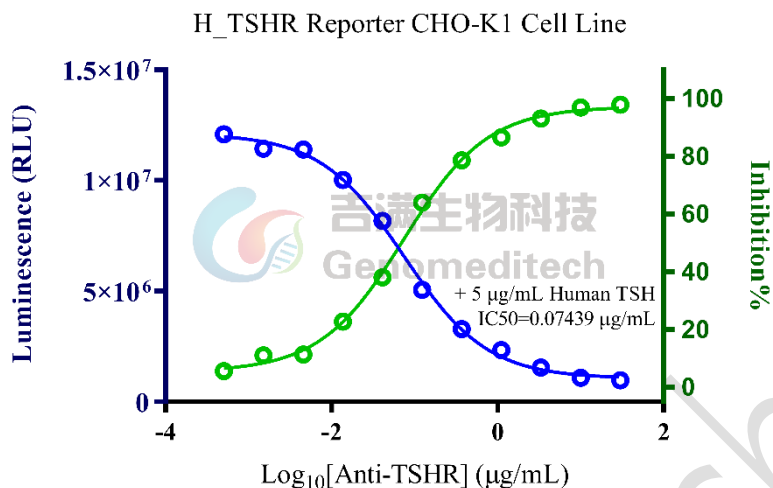


Figure 5 | Inhibition of Recombinant Human TSH-induced reporter activity by Anti-TSHR hIgG1 Antibody (K1-70). Serial dilutions of the Anti-TSHR hIgG1 Antibody (K1-70)(Cat. GM-89065AB) were incubated with 1E4 cells/well of the H\_TSHR Reporter CHO-K1 Cell Line (Cat. GM-C39741) in a 96-well plate for 1 hour in assay buffer (F12K+1% FBS+1% P.S). Subsequently, the Recombinant Human TSH (novoprotein/DRA17) at a density of 5 μg/mL was added, and the coculture proceeded for an additional 15 hours. Firefly luciferase activity was then measured using the Luciferase Reporter Assay Kit (Genomeditech) (left Y-axis, relative luminescence units), with inhibition percentages shown on the right Y-axis. Data are shown by drug mass concentration.

## Cell Recovery

Recovery Medium: F12K+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 x 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<sub>2</sub> 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 x g for 3 minutes to collect cells.
- Resuspend the cells in pre-cooled freezing medium and adjust the cell density to 5E6 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: F12K+10% FBS+1% P.S+4 µg/mL Blasticidin+4 µg/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.

- 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 2 to 3 minutes 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.
- Incubate cultures at 37°C.

**Subcultivation Ratio: A subcultivation ratio of 1:4 - 1:5 is recommended**

**Medium Renewal: Every 2 to 3 days**

## Notes

- After the stabilization of the cell condition, there will be fewer dead cells post-passage, the cell growth rate will tend to stabilize, cell morphology will become uniform, and the cells will appear robust.

## Related Products

| IGF-1R                                                   |                                                               |
|----------------------------------------------------------|---------------------------------------------------------------|
| <a href="#">H_IGF-1R Reporter Cell Line</a>              | <a href="#">H_IGF-1R CHO-K1 Cell Line</a>                     |
| <a href="#">H_IGF-1R HEK-293 Cell Line</a>               |                                                               |
| <a href="#">Anti-IGF-1R hIgG1 Antibody(teprotumumab)</a> | <a href="#">Anti-IGF1R hIgG1 Reference Antibody (Dalobio)</a> |
| <a href="#">Human IGF-1 Protein; His Tag</a>             |                                                               |
| TSHR                                                     |                                                               |
| <a href="#">H_TSHR Reporter HEK-293 Cell Line</a>        | <a href="#">Cynomolgus_TSHR HEK-293 Cell Line</a>             |
| <a href="#">H_TSHR CHO-K1 Cell Line</a>                  | <a href="#">H_TSHR HEK-293 Cell Line</a>                      |

|                                  |                            |
|----------------------------------|----------------------------|
| Mouse_TSHR HEK-293 Cell Line     | Rat_TSHR HEK-293 Cell Line |
| Anti-TSHR mIgG2a Antibody(KSAb2) |                            |

## License Agreement:

**By purchasing and using this cell line product, the user voluntarily agrees to accept and abide by the following policies:**

- This cell line product is restricted to research use only and shall not be used for any commercial purposes.
- This product is strictly prohibited from being used in the diagnosis or treatment of human or animal diseases, and shall not be directly used in experiments involving humans.
- Users and their contractors engaged for their benefit may use this material and its derivatives only within the agreed research scope; modification of the material is not permitted, nor may it be distributed, sold, transferred, or otherwise provided to any other entity (including affiliates).
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