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14-114ACL: STAT3 Leeporter™ Luciferase Reporter-HEK293 Cell Line

Application : Functional Assay

Description

The STAT3 Leeporter™ Luciferase Reporter cell line is a stably transfected HEK 293 cell line which expresses Renilla luciferase reporter under the transcriptional control of the STAT3 responsive promoter, so that the cell line is designed to measure the transcriptional activity of STAT3. As a transcription factor, Signal Transducer and Activator of Transcription 3 (STAT3) is activated through phosphorylation at tyrosine 705 in response to various cytokines including IL-6, interferons, epidermal growth factor, hepatocyte growth factor and leukemia inhibitory factor. The phosphorylated STAT3 forms homodimers or heterodimers with STAT1, and the dimers translocate to nucleus in which DNA binding/promoter induction occurs. The STAT3 induction by IL-6 as well as Oncostatin-M is shown in Figures 1 and 3.

Product Info

Amount :	1 Vial
Content :	Each vial contains 2 ~ 3 x 10^6 cells in 1 ml of 90% FBS + 10% DMSO.
Storage condition :	Immediately upon receipt, store in liquid nitrogen.

Application Note

Application:

- Monitor the STAT3 signaling pathway activity.
- Screen for activators or inhibitors of the STAT3 signaling pathway.

Culture conditions:

Cells should be grown at 37°C with 5% CO_2 using DMEM medium (w/ L-Glutamine, 4.5g/L Glucose and Sodium Pyruvate) supplemented with 10% heat-inactivated FBS and 1% Pen/Strep, plus 3 µg/ml of Puromycin (Note: Puromycin can be omitted during the reporter cell assays).

It is recommended to quickly thaw the frozen cells upon receipt or from liquid nitrogen in a 37°C water-bath, transfer to a tube containing 10 ml of growth medium without Puromycin, spin down cells, resuspend cells in pre-warmed growth medium without Puromycin, transfer resuspended cells to T25 flask and culture in 37°C-CO_2 incubator.

Leave the T25 flask in the incubator for 1~3 days without disturbing or changing the medium until cells completely recover viability and become adherent. Once cells are over 90% adherent, remove growth medium and passage the cells through trypsinization and centrifugation. At first passage, switch to growth medium containing Puromycin. Cells should be split before they reach complete confluence.

To passage the cells, detach cells from culture vessel with Trypsin/EDTA, add complete growth medium and transfer to a tube, spin down cells, resuspend cells and seed appropriate aliquots of cells suspension into new culture vessels. Subcultivation ration = 1:10 to 1:20 weekly. To achieve satisfactory results, cells should not be passaged over 16 times.

Functional validation:

For Research Use Only. Not for use in diagnostic/therapeutics procedures.

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A. Response of STAT3 Leeporter™ – HEK293 cells to IL-6 (Figure 1).

1. Harvest STAT3 Leeporter™ – HEK293 cells and seed cells into a white solid-bottom 96-well microplate in 100 µl of growth medium at 5 x 10^4 cells/well.

2. Incubate cells at 37°C in a CO_2 incubator for overnight.

3. The next day, stimulate cells with different concentrations of IL-6.

4. Incubate at 37°C in a CO_2 incubator for 16 hours.

5. Equilibrate the plate to room temperature for 10 minutes.

6. Add 50 µl of luciferase assay reagent (Abeomics, Cat #17-1101; Refer to the reagent datasheet for the detailed luciferase assay protocol) per well.

7. Read the plate in 1-5 minutes to measure luminescence using a microplate luminometer.

B. Inhibition of IL-6-induced STAT3 activity (Figure 2).

1. Harvest STAT3 Leeporter™ – HEK293 cells and seed cells into a white solid-bottom 96-well microplate in 100 ul of growth medium at 5 x 10^4 cells/well.

2. Incubate cells at 37°C in a CO_2 incubator for overnight.

3. The next day, pre-treat cells with different concentrations of anti-IL-6Ra antibody (MAB227, R & D Systems) for 1 hour.

4. Add 10 ng/ml IL-6 and incubate cells at 37°C in a CO_2 incubator for 16 hours.

5. Equilibrate the plate to room temperature for 10 minutes.

6. Add 50 µl of luciferase assay reagent (Abeomics, Cat #17-1101) per well.

7. Read the plate in 1-5 minutes to measure luminescence using a microplate luminometer.

C. Response of STAT3 Leeporter™ – HEK293 cells to Oncostatin-M (Figure 3).

1. Harvest STAT3 Leeporter™ – HEK293 cells and seed cells into a white solid-bottom 96-well microplate in 100 µl of growth medium at 5 x 10^4 cells/well.

2. Incubate cells at 37°C in a CO_2 incubator for overnight.

3. The next day, stimulate cells with different concentrations of Oncostatin-M.

4. Incubate at 37°C in a CO_2 incubator for 16 hours.

5. Equilibrate the plate to room temperature for 10 minutes.

6. Add 50 µl of luciferase assay reagent (Abeomics, Cat #17-1101) per well.

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7. Read the plate in 1-5 minutes to measure luminescence using a microplate luminometer.

LIMITED USE RESTRICTIONS:

THIS PRODUCT IS SOLELY FOR IN VITRO RESEARCH USE ONLY. NOT FOR DIAGNOSTIC OR THERAPEUTIC USE.

By use of this product, user agrees to be bound by the terms of this limited use statement.

This product is solely for Internal Research Purposes and not for Commercial Purposes. Commercial Purposes include, but are not limited to (1) use of the cell line in manufacturing; (2) use of the cell line to provide a service, information or data; (3) use of the cell line for therapeutic, diagnostic or prophylactic purposes; or (4) resale of the cell line whether or not such cell lines are resold for use in research. The buyer cannot sell, give or otherwise transfer this product to a third party.

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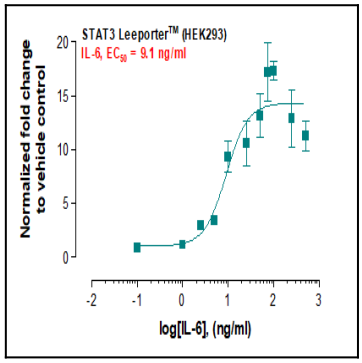


Fig-1. Induction of STAT3 activity by IL-6 in STAT3 Leeporter™ - HEK293 cells.

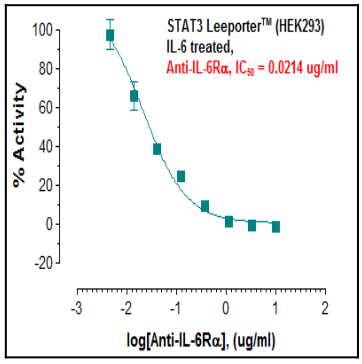


Fig-2. Inhibition of IL-6-induced STAT3 activity by anti-IL-6Ra antibody in STAT3 Leeporter™ - HEK293 cells.

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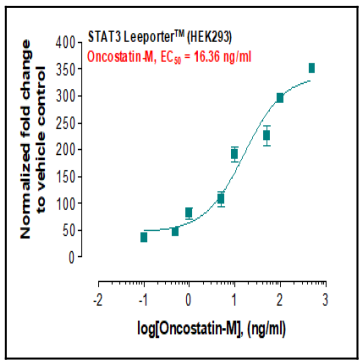


Fig-3. Induction of STAT3 activity by Oncostatin-M in STAT3 Leeporter™ - HEK293 cells.

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