



Nrf2 Luciferase Reporter-MCF7 Cell Line

Catalog number: RC1017

This package insert must be read in its entirety before using this product.
For research use only. Not for use in diagnostic procedures.

Nrf2 Luciferase Reporter-MCF7 Cell Line

Catalog Number: RC1017, **Storage:** Immediately upon receipt, store in liquid nitrogen. (Ship on dry ice.)

Contents: Each vial contains $2 \sim 3 \times 10^6$ cells in 1 ml of 90% FBS + 10% DMSO.

Description: The Nrf2 Luciferase Reporter cell line is a stably transfected MCF7 cell line which expresses Renilla luciferase reporter gene under the transcriptional control of the antioxidant response element (ARE). ARE is known to regulate expression and induction of various detoxifying enzyme genes in response to antioxidants and xenobiotics, and is primarily regulated by the Keap1-Nrf2 pathway in which induction and nuclear translocation of Nrf2 mediated by antioxidants and xenobiotics results in the binding of Nrf2 to ARE leading to the expression of defensive genes. The Nrf2 induction by dimethyl fumarate (DMF) is shown in Figure 1.

Applications: Functional Assay

Application Notes: Functional Assay, detecting the transcriptional activity of Nrf2

Application Details: Dilute the sample so that the expected range of concentrations fall within the detection range of this kit.

If the expected range of concentration is unknown, a pilot test should be conducted to decide the optimal dilution ratio for your samples.

Some PubMed article(s) citing the expression level of this target are as follows:

Boster Bio's internal QC testing used:

Application:

Monitor the Nrf2 induction activity. Screen for activators or inhibitors of the Nrf2 signaling pathway.

Culture conditions:

Cells should be grown at 37°C with 5% CO₂ using Eagle's Minimum Essential Medium (EMEM) supplemented with 10% FBS, 2 mM glutamine, 1% NEAA and 1% Pen/Strep, plus 3 µg/ml of Puromycin. 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-CO₂ incubator. Leave the T25 flask in the incubator for 2-4 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.

Functional validation:

A. Response of Nrf2 MCF7 cells to dimethyl fumarate (DMF). 1. Harvest Nrf2 MCF7 cells and seed cells into a white solid-bottom 96-well microplate in 100 µl of growth medium at 5×10^4 cells/well. 2. Incubate cells at 37°C in a CO₂ incubator for overnight. 3. The next day, stimulate cells with various concentrations of DMF. 4. Incubate at 37°C in a CO₂ incubator for 6-16 hours. 5. Add 50 µl of luciferase assay reagent per well. 6. Incubate at room temperature for 1-5 minutes and measure luminescence using a microplate luminometer.

Nrf2 Luciferase Reporter-MCF7 Cell Line (RC1017) Images

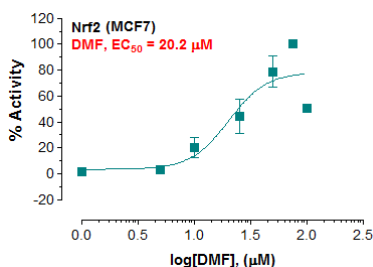


Fig: Induction of Nrf2 induction activity by DMF in Nrf2 MCF7 cells.

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