

## ACTOne™ Human Glucagon-Like Peptide-1 Receptor (GLP1R) Super-Sensitive Stable Cell Line

**Catalog Number:** CL-01-GLP1R-Super

**Product Type:** Stable Cell Line

**Cell Line Name:** ACTOne™ GLP1R-Super

**Host Cell Line:** HEK-293 CNG

**Target Receptor:** Human Glucagon-Like Peptide-1 Receptor (GLP1R)

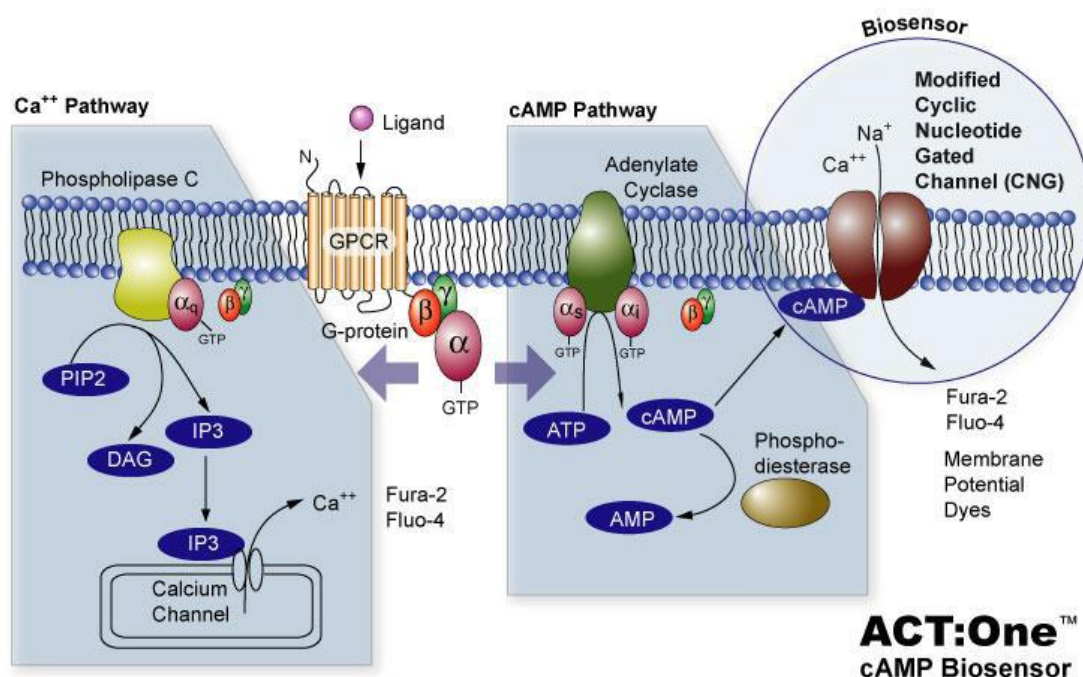
**GenBank Accession Number:** NM\_002062

### Product Description

The ACTOne™ GLP1R Super-Sensitive Stable Cell Line is a HEK-293 CNG derivative engineered to express recombinant human glucagon-like peptide-1 receptor (GLP1R). A newly screened and selected clone exhibits an EC<sub>50</sub> of approximately **0.25 nM**, representing a more than four-fold increase in sensitivity compared with our standard ACTOne™ GLP1R stable cell line (Catalog No. CL-01-GLP1R; EC<sub>50</sub> ≈ 1.16 nM). This enhanced sensitivity makes the cell line particularly well suited for screening highly potent agonists, partial agonists, and allosteric modulators targeting GLP1R for next-generation obesity, diabetes, and metabolic disease therapeutics.

These cells contain a modified cyclic nucleotide-gated (CNG) channel that opens in response to elevated intracellular cAMP, triggering ion flux and membrane depolarization. This response is quantifiable using fluorescent membrane potential dye (Cat# CA-M165) or calcium-responsive dye (Cat# CA-C155).

The assay supports both endpoint and kinetic measurements of cAMP signaling and is compatible with FLIPR and fluorescence microplate readers.



**Applications**

- Functional cAMP assays for Gs-coupled GLP1R
- High-throughput screening of GLP1R agonists and antagonists
- Receptor pharmacology, signaling pathway analysis, and therapeutic target validation studies

**Functional Validation**

- **GLP1R-specific response:** Confirmed
- **Post-thaw viability:** >2.5 million cells/vial on Day 2
- **Receptor activity stability:** Maintained over 10 weeks of continuous passage
- **Mycoplasma status:** Negative (tested lot-specific)

**Product Format**

- **Volume:** 1 mL
- **Cell Density:**  $1 \times 10^6$  cells/mL
- **Cryopreservation Medium:** 70% DMEM, 20% FBS, 10% DMSO

**Growth Characteristics**

- **Culture Type:** Adherent
- **Growth Medium:** DMEM + 10% FBS, supplemented with 250 µg/mL G418 and 1 µg/mL Puromycin
- **Freezing Medium:** 10% DMSO in complete growth medium

**Subculturing Protocol**

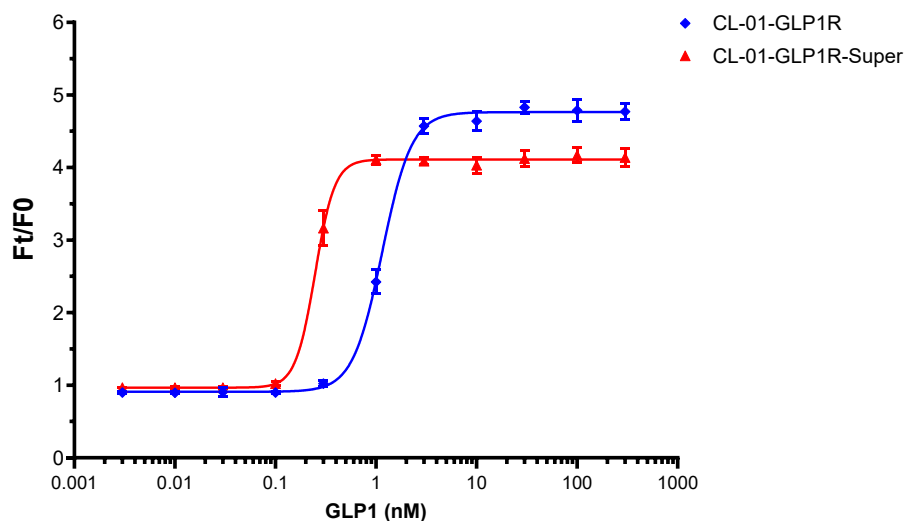
1. Thaw Cryovial in 37 °C water bath (1-2 min).
2. Decontaminate vial with 70% ethanol.
3. Transfer contents to a 75 cm<sup>2</sup> flask with 20 ml of complete DMEM growth medium.
4. Replace medium after 24 hours.
5. Remove and discard culture medium next day and then add fresh DMEM complete medium.
6. Monitor daily; passage at 90% confluence (1:3 split).
7. Use 0.25% trypsin-0.53 mM EDTA for detachment (15-20 min at 37°C).
8. Centrifuge at 250 x g for 5-10 minutes.
9. Resuspend and seed at  $4-6 \times 10^4$  viable cells/cm<sup>2</sup>.
10. Incubate at 37°C, 5% CO<sub>2</sub>.

**Freezing & Storage Instructions**

1. Trypsinize cells and resuspend in freezing medium at  $2.5 \times 10^6$  cells/mL.
2. Aliquot 1 mL per cryovial.
3. Freeze overnight at -80°C in a cryo container.
4. Transfer to vapor-phase liquid nitrogen ( $\leq -130^\circ\text{C}$ ) for long-term storage.



## Data Summary



|           | CL-01-GLP1R | CL-01-GLP1R-Super |
|-----------|-------------|-------------------|
| Bottom    | 0.9101      | 0.9668            |
| Top       | 4.764       | 4.111             |
| LogEC50   | 0.06254     | -0.6050           |
| HillSlope | 2.964       | 4.456             |
| EC50      | 1.155       | 0.2483            |
| Span      | 3.854       | 3.144             |

**Figure 1. Comparison of ACTOne™ GLP1R Super-Sensitive Cell Line and Standard GLP1R Stable Cell Line.**

ACTOne™ GLP1R super-sensitive cells standard GLP1R stable cells were plated overnight in 20 µl culture medium on a 384-well Biocoat plate. The next day, cells were dye-loaded with 20 µl/well of 1x Dye-loading solution (membrane potential dye kit, Cat# CA-M165). After 2 hours of incubation at room temperature, Fluorescence was measured immediately before and 30 minutes after GLP-1 addition. Ratios of the two readings (F/F0) are plotted in the figure.

## Notice to Purchaser

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