

Opiate Receptor- like 1 (OPRL1) ACTOne™ Stable Cell Line

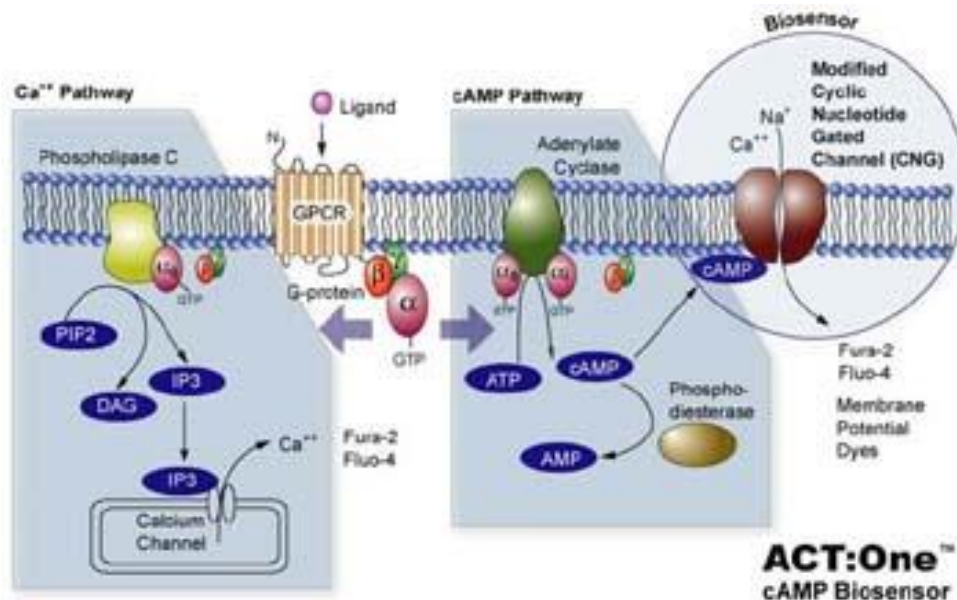
CATALOG NUMBER: CL-11-OPRL1

Introduction

Opiate Receptor- like 1 (OPRL1) is also known as nociceptin receptor (NOP), orphanin FQ receptor or kappa-type 3 opioid receptor. The OPRL1 is a G protein-coupled receptor whose natural ligand is known as nociceptin or orphanin FQ, a 17 amino acid neuropeptide. This receptor is involved in the regulation of numerous brain activities, particularly instinctive and emotional behaviors.

Description

Human OPRL1 ACTOne™ is a HEK-293 CNG cell line that expresses recombinant human OPRL1. HEK-293 CNG cells express a modified CNG (Cyclic Nucleotide Gated) channel that opens in response to elevated intracellular cAMP levels and consequently result in ion flux (often detectable by calcium-responsive dye, Cat# CA-C155) and cell membrane depolarization which can be easily measured with fluorescent Membrane Potential Dye (Cat# CA-M165). The assay allows both end-point and kinetic measurement of intracellular cAMP changes with a FLIPR, or a fluorescence microplate reader.



Parental Cells

HEK-293 CNG cells (originally developed by BD Biosciences by introducing CNG in HEK-293 cells) (Cat# CL-03-PC20)

Gene/Enzyme Introduced

OPRL1 (Genbank Accession No. P41146)

Applications

- cAMP dependent assay for Gi-coupled human OPRL1
- cell based high-throughput screening of human OPRL1 inhibitors

Functional Test

- this cell line has been tested positive for OPRL1 specific response
- surviving rate: More than 2.5 million/vial on the second day after thawing

- the receptor specific activity is stable for 10 weeks continuous passage

Mycoplasma Contamination Test

This lot of cells has been tested and found to be free of mycoplasma contamination.

Content

- Stable cells: 1 mL (1 x 10⁶ cells/mL in 70% DMEM, 20% FBS, 10% DMSO)

Growth Properties

Adherent

Cell Culture Medium

- Growth medium: DMEM-10% FBS supplemented with 250 µg/ml G418, 1 µg/ml Puromycin
- Freezing medium: 10% DMSO, 90% complete cell culture medium

Storage

Remove the frozen cells from the dry ice packaging and immediately place the cells at a temperature below -130°C, preferably in liquid nitrogen vapor, until ready for use.

Data Analysis

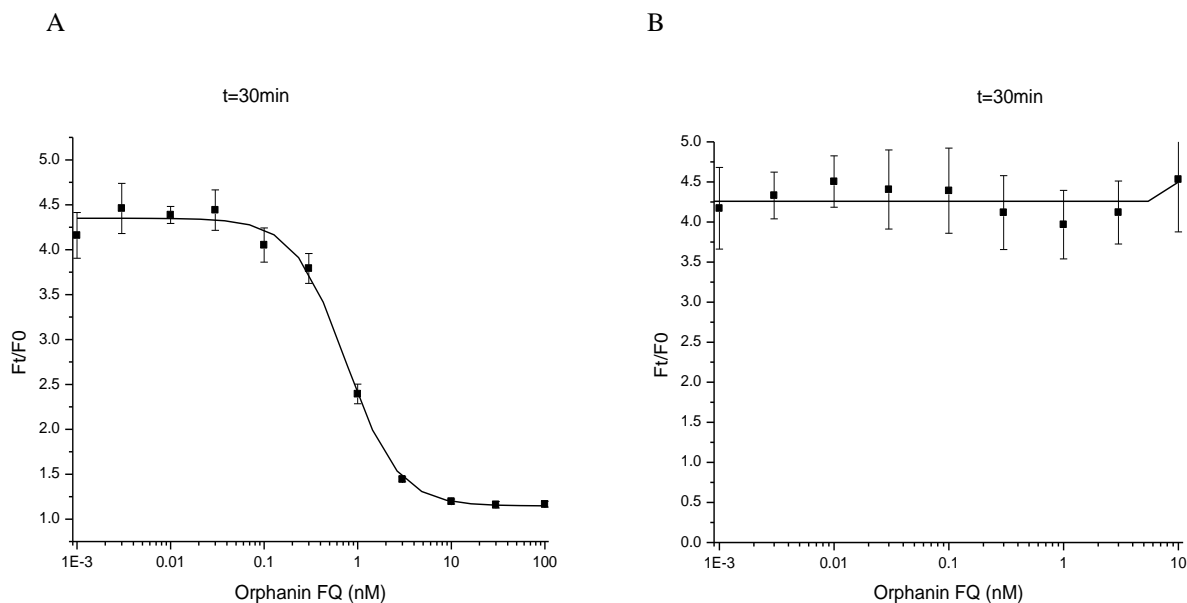


Figure 1. Response of ACTOne™ OPRL1 cell line & parental cell line to ORPHANIN FQ.

ACTOne™ OPRL1 cells and parental cells (Cat# CL-03-PC20) 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, two readings were obtained prior to and 30 min after the addition of ORPHANIN FQ. Ratios of the two readings (F/F₀) are plotted in the figure.

- Dose response curve of ORPHANIN FQ in ACTOne™ OPRL1 cell line. EC₅₀ = 0.75 nM in the presence of PDE inhibitor Ro 20-1724 and β-adrenoceptor agonist isoproterenol.
- Parental cells do not respond to ORPHANIN FQ.

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