Vasoactive Intestinal Peptide Receptor 1 (VIPR1) ACTOne™ Stable Cell Line

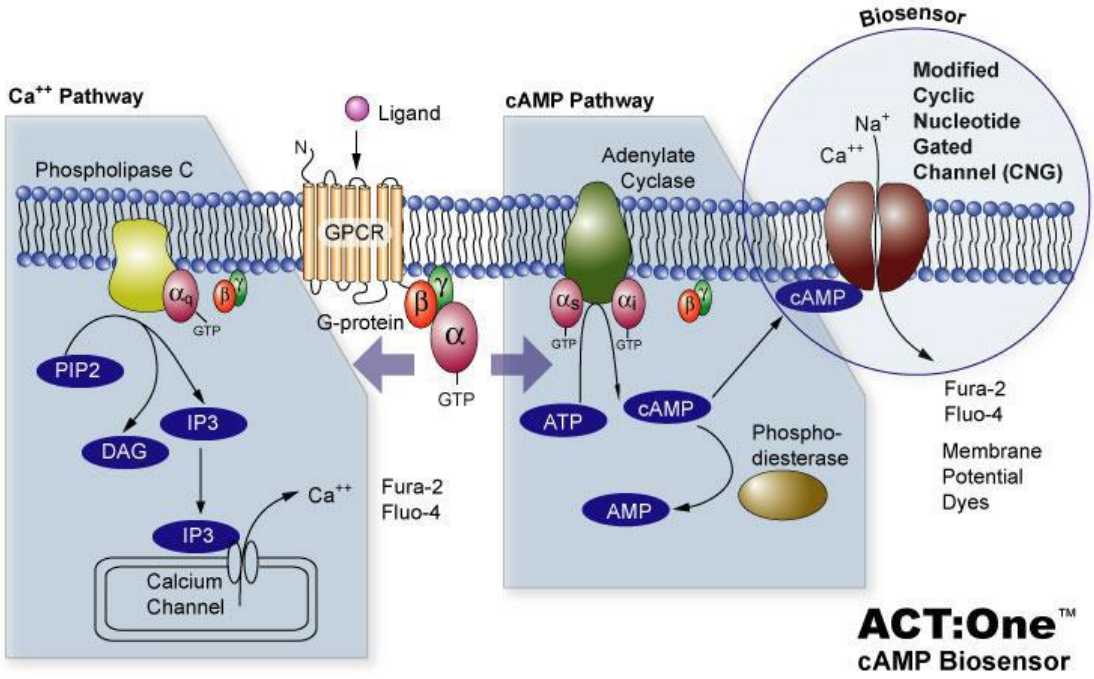
CATALOG NUMBER: CL-01-VIPR1

Introduction

VIPR1 is a receptor for vasoactive intestinal peptide (VIP), a small neuropeptide. Vasoactive intestinal peptide is involved in smooth muscle relaxation, exocrine and endocrine secretion, and water and ion flux in lung and intestinal epithelia. Its actions are affected through integral membrane receptors associated with a guanine nucleotide binding protein which activates adenylate cyclase.

Description

Human VIPR1 ACTOne™ is a HEK293-CNG cell line that expresses recombinant human VIPR1. HEK293-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 FDSS, 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-PC10)

Gene/Enzyme Introduced

VIPR1 (Genbank Accession No. XP_003226)

Applications

- cAMP dependent human VIPR1 receptor cell based assay
- cell based high-throughput screening of human VIPR1 receptor agonists/antagonists

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Functional Test

- this cell line has been tested positive for VIPR1 receptor 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 VIPR1 receptor cells: 1 mL (1 x 10^6 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 Example

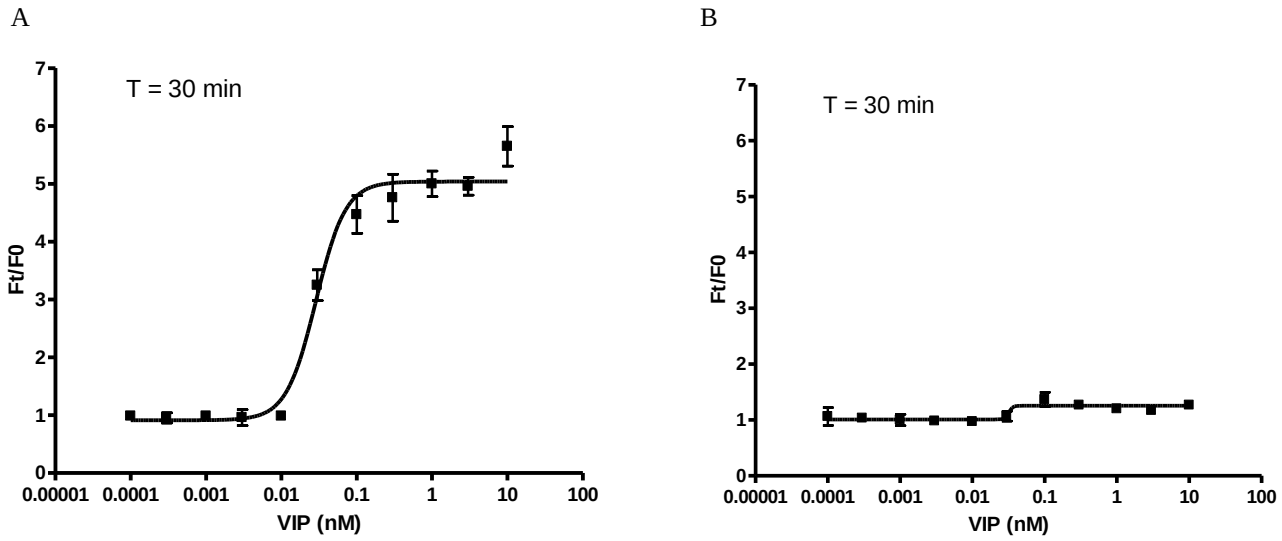

Figure 1. Response of ACT*One*™ VIPR1 cell line & parental cell line to VIP.

ACTOne™ VIPR1 receptor cells and parental cells (Cat# CL-03-PC10) 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 VIP. Ratios of the two readings (F/F0) are plotted in the figure.

A. Dose response curve of VIP in ACT*One*™ VIPR1 cell line. EC50 = 29 nM in the presence of PDE inhibitor Ro 20-1724 and EC50 = 190 pM in the absence of Ro20-1724.

B. Parental cells do not respond to VIP.

Notice to Purchaser

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