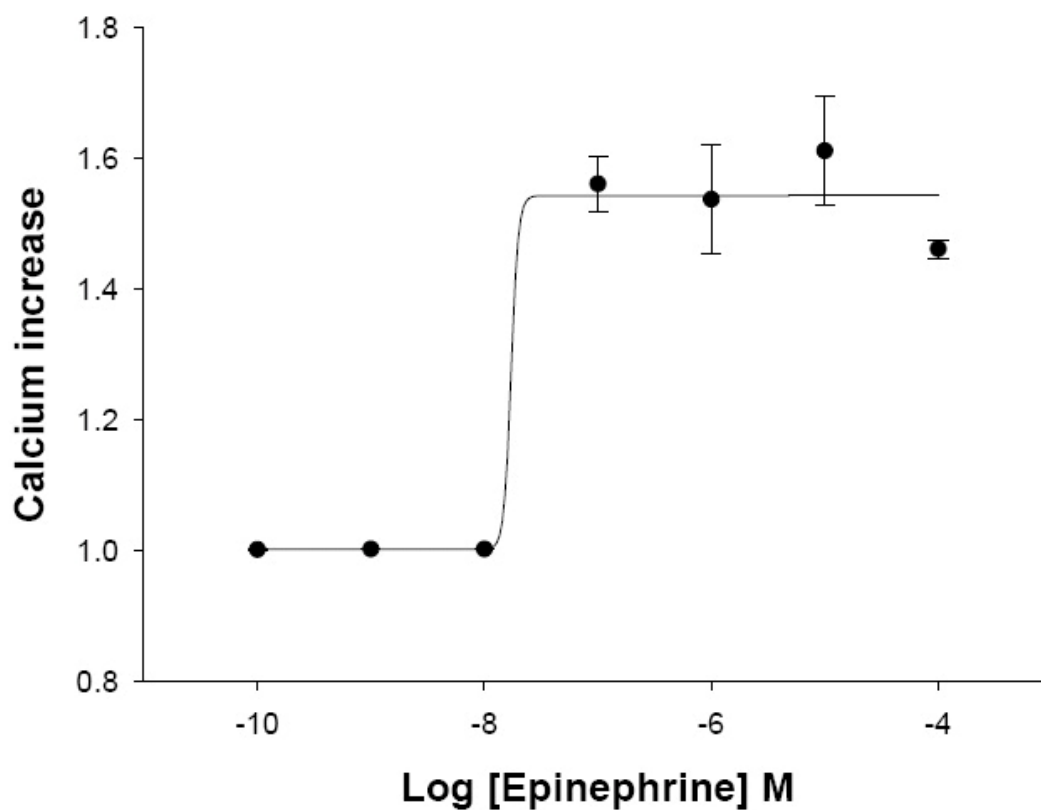


## HiTSeeker CELL LINES (LABEL-FREE GPCRS)

### -ALPHA-1A ADRENERGIC RECEPTOR CELL LINE -



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**Product name:** ADRA1A ( $\alpha_{1A}$  adrenoreceptor)/U2OS cell line

**Ec<sub>50</sub> Epinephrine:**  $1.7 \times 10^{-8}$  M

**Z':** 0.9 +/- 0.02

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## - ALPHA-1A ADRENERGIC RECEPTOR CELL LINE -

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<b>Product Name:</b>	ADRA1A ( $\alpha_{1A}$ adrenoreceptor)/U2OS
<b>Official Full Name:</b>	Alpha-1A adrenergic Receptor
<b>DNA Accesion Number:</b>	GenBank: NM_000680
<b>Host Cell:</b>	U2OS
<b>Format:</b>	Cryopreserved vials
<b>Resistance:</b>	Puromycin
<b>Size:</b>	<i>P30140</i> : 2 vials of $3 \times 10^6$ proliferative cells <i>P30140-DA</i> : 1 vial of $2.5 \times 10^6$ division-arrested cells
<b>Storage:</b>	Liquid Nitrogen

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### **Assay Briefly description**

Each vial of HiTSeeker ADRA1A contains U2OS cells stably expressing human alpha-1A adrenergic receptor with no tag.

HiTSeeker ADRA1A cell line has been designed to assay compounds or analyze their capability to modulate Alpha-1A adrenergic Receptor. When the agonist binds to ADRA1A a G protein is activated, which in turn, triggers a cellular response mediated by second messengers (Calcium).

This cell line has been validated measuring calcium increase in the cytosol. The high reproducibility of this assay allows monitoring ADRA1A activation process in High Throughput Screening.

### **About ADRA1A**

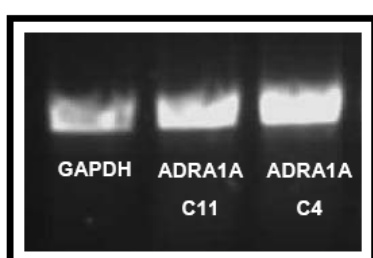
Alpha-1-adrenergic receptors (alpha-1-ARs) are members of the G protein-coupled receptor superfamily. There are 3 alpha-1-AR subtypes: alpha-1A, -1B and -1D, all of which signal through the Gq/11 family of G-proteins.

The  $\alpha(1)$ -adrenergic receptor (AR) subtypes ( $\alpha(1a)$ ,  $\alpha(1b)$ , and  $\alpha(1d)$ ) mediate some physiological effects of epinephrine and norepinephrine.

The  $\alpha_1$ -AR subtypes are expressed in several organs like brain or heart in which they modulate a diversity of functional effects such as modulation of neurotransmission, vasoconstriction, etc.

## Assay Characterization

Our expression plasmid contains the coding sequence of human ADRA1A protein. Our plasmid was transfected in U2OS cells. Resistant clones were obtained by limit dilution and receptor gene expression was tested by RT-PCR using GAPDH as internal control (Fig.1).



**Fig.1. GAPDH housekeeping gene and ADRA1A Clone 11 and Clone 4 RT-PCR.**

## Validation of ADRA1A cell line

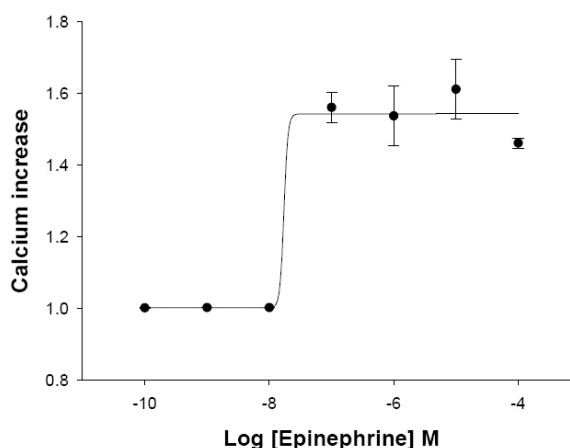
### Calcium assay:

Clone11: ( $EC_{50} = 1.7 \times 10^{-8} M$ )

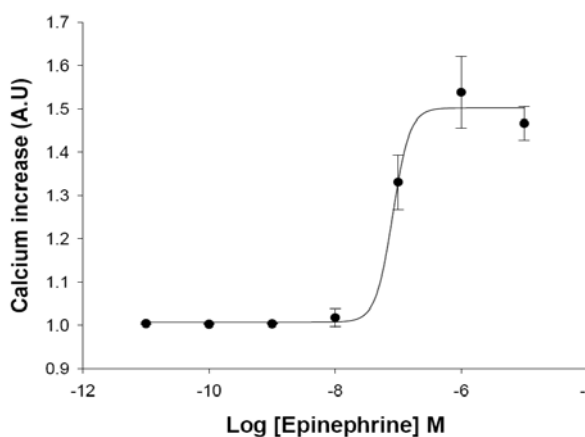
Clone 4: ( $EC_{50} = 8.2 \times 10^{-8} M$ )

A typical fluorescent calcium assay was performed using Fura-2/AM ratiometric. Calcium increase inside the cell was measured using the ratio of the fluorescence from Fura2 bound and not bound to the ion. Image acquisition was performed using a "BD Pathway 855" High-Content Bioimager from BD Biosciences.

Cells were incubated with Fura2-AM and treated with increasing Epinephrine concentrations.



**Fig.2. ADRA1A-Clone 11 dose response in calcium assay.** Cells were treated with **Epinephrine** concentrations ranging from 0 to 10  $\mu M$ , n=6. The  $EC_{50}$  for **Epinephrine** was  $\sim 1.7 \times 10^{-8} M$ . The calcium assay was validated with a  $Z' = 0.90 \pm 0.02$  for High Content Screening.



**Fig.3. ADRA1A-Clone 4 dose response in calcium assay.** Cells were treated with **Epinephrine** concentrations ranging from 0 to 10  $\mu M$ , n=6. The  $EC_{50}$  for **Epinephrine** was  $\sim 8.2 \times 10^{-8} M$ . The calcium assay was validated with a  $Z' = 0.72 \pm 0.02$  for High Content Screening.