

P70534

Nomad Biosensors™ comprise a family of genetically encoded fluorescent sensors designed to monitor the signaling of G protein-coupled receptors (GPCRs) in cell-based assays.

Nomad Biosensors™ are engineered to measure the intracellular dynamics of second messengers such as calcium (Ca²⁺ Nomad), cAMP (cAMP Nomad), or diacylglycerol (DAG Nomad) upon GPCR activation. Additionally, β -arrestin signaling can also be studied using these biosensors. Nomad Biosensors™ can be combined in the same cell line for multiplex assays.

Prior to GPCR activation, the biosensors are localized in the plasma membrane. Upon ligand binding, the sensors undergo a conformational change that leads to an increase in fluorescence intensity and their relocalization within the vesicular trafficking pathways of the cells.



cAMPNOMAD ADRA2A

cAMP Assay

Product Name: cAMPNomad-ADRA2A cell line

Reference: P70534

Gene Name: α 2A-adrenoceptor (ADRA2A)

cDNA Accession Number: NM_000681 with the following exception G855A (silent mutation)

Host Cell Line: U2OS

Selection Markers: Geneticin (G418) + Hygromycin

Cell Quantity: > 3x10⁶ cells/vial

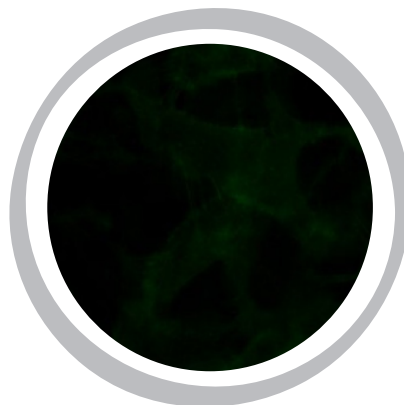
Storage Conditions: Liquid Nitrogen

About cAMPNomad-ADRA2A

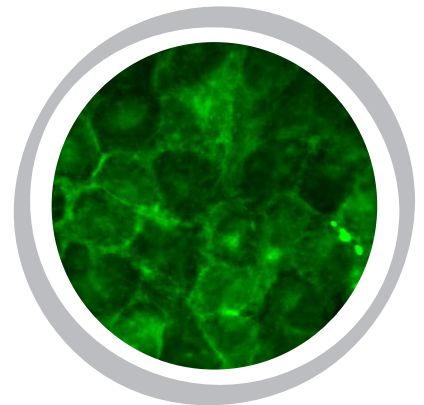
Nomad cell lines are a reliable system for studying G protein-coupled receptor (GPCR) signaling in living cells.

Optimized for the integration into High Content Screening (HCS) and High Throughput Screening (HTS) workflows, cAMPNomad-ADRA2A cell line stably express green cAMPNomad Biosensor along with the α 2A-adrenoceptor (ADRA2A).

Control



UK 14,304



cAMP Agonism & Antagonism Assays

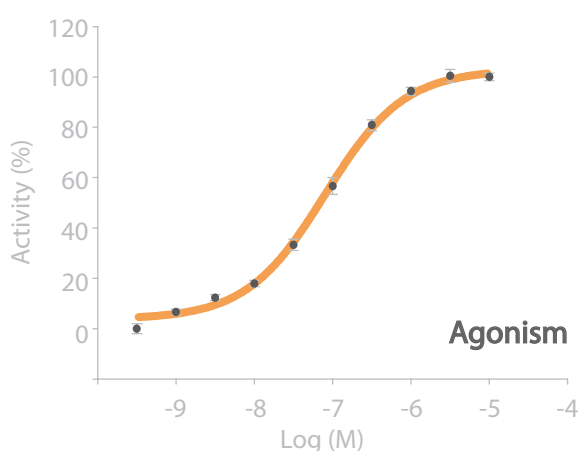
The $cAMP$ Nomad-ADRA2A cell line was plated in a 96-well plate and incubated for a minimum of 4 hours and up to 24 hours at 37°C with 5% CO₂ to allow the cells to attach to the plate surface.

Agonism Assay: Cells were incubated with UK 14,304 diluted in a serum-reduced medium for 20–24 hours.

Antagonism Assay: Cells were incubated with 2-Methoxyidazoxan diluted in 3 μ M UK 14,304 serum-reduced medium for 20–24 hours.

The increase (Agonism Assay) or decrease (Antagonism Assay) in the fluorescence intensity of the green $cAMP$ Nomad biosensor (% Activity) was detected and analyzed using a microplate reader.

EC₅₀ UK 14,304: 8.15×10^{-8} M
Z': 0.90 +/- 0.01



IC₅₀ 2-Methoxyidazoxan: 7.41×10^{-8} M
Z': 0.96 +/- 0.01

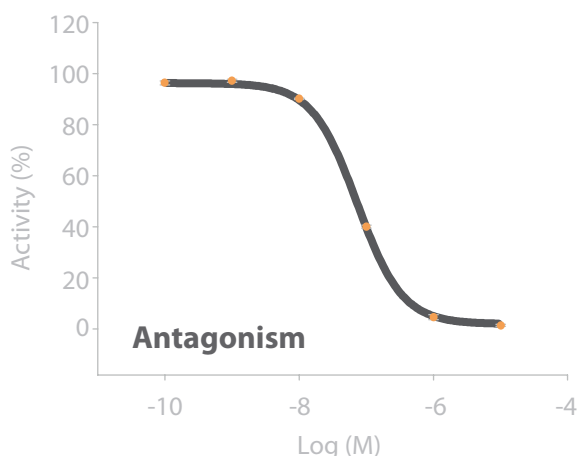


Figure 1. Dose-response curves for ADRA2A agonists.

Top: concentration response curve for UK 14,304 in the agonism assay.

Bottom: concentration response curve for 2-Methoxyidazoxan for the antagonism assay.

The % Activity corresponds to the fluorescence intensity emitted by the Nomad biosensors normalized against the controls.