MULTISCREEN™ STABLE CELL LINE
HUMAN RECOMBINANT RAT GPR91 RECEPTOR

PRODUCT INFORMATION

Catalog Number: Cr1144-1

Lot Number: Cr1144-1-040620

Quantity: 1 vial (3 x 10^6) frozen cells

Freeze Medium: Amsbio Cellbanker 2

Host cell: CHO-K1

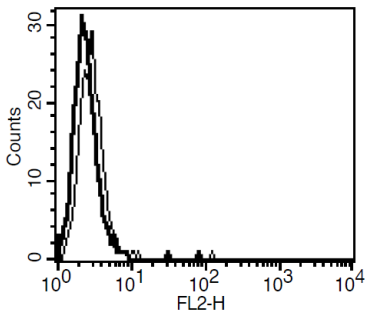
Transfection: Expression vector containing full-length rat GPR91 cDNA (GenBank Accession Number: AY612851.1) with FLAG tag sequence at N-terminus.

Recommended Storage: Liquid nitrogen upon receiving

Propagation Medium: DMEM/F12, 10% FBS, 10 µg/mL puromycin

Stability: In progress

Figure 4



Data sheet

Background: GPR91, also known as SUCNR1, is a G Protein-Coupled Receptor with 339 amino acids. It has been characterized as a receptor for Succinate, a citric acid cycle intermediate. Succinate plays a key role in energy metabolism. Local interstitial accumulation of Succinate has recently been reported to serve as an indicator of ischemic or diabetic organ damage in the brain, liver, and kidney. In diabetes patients, the accumulation of Succinate is detectable in the plasma, and more significantly in the renal tubular fluid and urine. It is therefore considered a potential new biomarker of local tissue damage. It has also been shown that Succinate increases blood pressure in animals. The Succinate-induced hypertensive effect involves the renin-angiotensin system that is shown to be absent in GPR91-deficient mice. There is a possible role for GPR91 in renovascular hypertension, a disease closely linked to atherosclerosis, diabetes and renal failure. In a recombinant system overexpressing GPR91, Succinate was shown to not only stimulate calcium mobilization and inositol phosphate (IP) accumulation through the stimulation of Gαq pathway but also to activate the Erk1/2 MAPK pathway and inhibit forskolin-stimulated cAMP accumulation through Gαi pathway.

Application: Functional assays

Figure 1

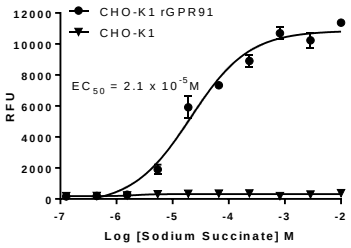


Figure 2

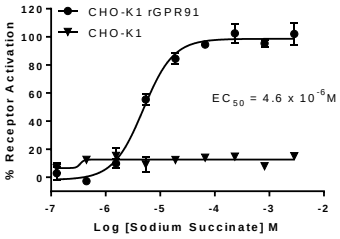


Figure 3

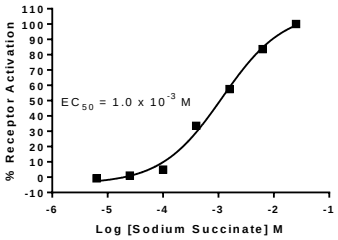


Figure 1. Dose-dependent stimulation of calcium flux upon treatment with ligand, measured with Multiscreen™ Calcium 1.0 No Wash Assay Kit (Multispan MSCA01). **Figure 2.** Dose-dependent inhibition of forskolin-stimulated intracellular cAMP accumulation upon treatment with ligand, measured with Multiscreen™ TR-FRET cAMP 1.0 No Wash Assay Kit (Multispan MSCM01). **Figure 3.** Dose response of intracellular IP1 accumulation upon treatment with ligand, measured with IP-one Tb kit. **Figure 4.** Receptor expression on cell surface measured by flow cytometry (FACS) using an anti-FLAG antibody. Thin line: parental cells; thick line: receptor-expressing cells.

References:

He, W., Miao, F. J., Lin, D. C., Schwandner, R. T., Wang, Z., Gao, J., Chen, J. L., Tian, H. and Ling, L. (2004) Citric acid cycle intermediates as ligands for orphan G-protein-coupled receptors. *Nature*, 429: 188-193.

Peti-Peterdi, J. (2010) "High glucose and renin release: the role of succinate and GPR91." *Kidney International*, 78(12):1214-7

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