IMGENEX
Innovations in Functional Genomics

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Polyclonal Antibody to Serotonin 5-HT7 Receptor

Catalog No : **IMG-368**
Formulation : 100 ug in 200 ul PBS containing 0.05% BSA and 0.05% sodium azide. Sodium azide is highly toxic.
Isotype : Rabbit IgG
Clone : N/A
Purification : Protein G Chromatography
Species React : Dog, Human, Mouse, Rat
Predicted React : Pig
Host : Rabbit

Application

Western blot analysis: 1-2 ug/ml

Storage

Store at 4°C, stable for 6 months. For long-term storage, aliquot and store at -20°C.

Recommended Positive Control: Brain

Background

Receptors for serotonin (5-hydroxytryptamine, 5-HT) are classified into seven major classes (5-HTR1-7), based on structural, functional and pharmacological criteria (Hoyer et al, 1994). The 5-HT7 receptor (5-HT7R) is a seven-transmembrane-domain G-protein-coupled receptor that has important roles in regulating diverse biological process in the central and peripheral nervous systems (reviewed in Hedlund and Sutcliffe, 2004). Receptors for serotonin (5-hydroxytryptamine, 5-HT) are classified into seven major classes (5-HT1-7), based on structural, functional and pharmacological criteria (Hoyer et al, 1994). Sequence alignment shows a high degree of interspecies 5-HT7R homology (>90%), and a low homology with other 5-HTRs.

Antigen

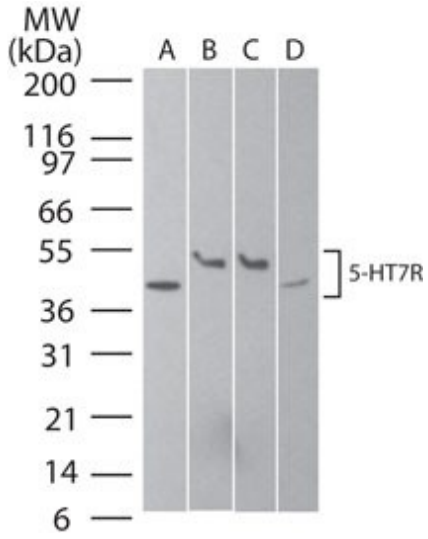
Amino acids 13-28 of the rat 5-HT7R (Genbank Accession no. AAA42134.1) protein were used as immunogen. This sequence is identical for 5-HT7R splice variants in the rat (5-HT7Ra/b/c), human (5-HT7Ra/b/d) and human 5-HT7, the mouse 5-HT7R. It is 93% conserved with dog 5-HT7Ra/b, and 81% conserved with pig 5-HT7R.

Application Notes

(1). In human brain, a 50 kDa band is observed.

(2). Both 45 kDa and 50 kDa bands have been observed in various human glioblastoma cell lines and in the human microglial MC-3 cell lines (refer to Mahe et al, 2004 and 2005). Bands in the 45-50 kDa range correspond to the predicted molecular weight for the 5HT7 receptor. The 5HT7 receptor also has putative sites for N-linked glycosylation and phosphorylation which may lead to variations in observed molecular weights.

(3). The 5HT7 antibody recognizes all described 5HT7 receptor splice variants (Mahe et al, 2004 and 2005).



Western blot analysis of 5-HT7R in A) human brain, B) mouse brain, C) rat brain, and D) human SK-N-SH neuroblastoma cell lysate using IMG-368 at 2 ug/ml.

Related Products

1. 20301 [Goat Anti-Rabbit HRP Conjugate]
2. IMG-5142A [Polyclonal Antibody to beta Actin]
3. IMG-5143A [Polyclonal Antibody to GAPDH]

Reference

1. Hedlund PB and JC Sutcliffe. 2004. Functional, molecular and pharmacological advances in 5-HT7 receptor research. Trends Pharmacol Sci. 25:481-486.
2. Hoyer D, DE Clarke, JR Fozard, PR Hartig, GR Martin, EJ Mylecharane et al. 1994. International Union of Pharmacology classification of receptors for 5-hydroxytryptamine (serotonin). Pharmacological Reviews 46:157-203.

Product Citations

1. Functional expression of the serotonin 5-HT7 receptor in human glioblastoma cell lines. Mahé C, M Bernhard, I Bobirnac, C Keser, E Loetscher, D Feuerbach, K Dev, and P Schoeffter.*Br. J. Pharmacol.*, 143:404-410 (2004). WB (Fig 3), 5-HT7aR stably transfected/untransfected CHO cells, human glioblastoma cell lines (T98G, H4 cells; U-373 MG; U-138 MG, DBTRG-05MG, U-87 MG, Hs 683, CCF-STTG1).
Notes: Two bands of ~45 and 50 kDa were seen in the 5-HT7a R stably transfected cells. Bands were not seen in the untransfected CHO cells. These two bands were also seen in all the glioblastoma cell lines, except for Hs 683 cells for which only the 50 kDa band was seen.
The specificity of the IMG-368 5-HT7R antibody was validated by WB using 5-HT7aR stably transfected CHO cells (Fig 3a).

2. Serotonin 5-HT7 receptors coupled to induction of interleukin-6 in human microglial MC-3 cells. Mahé C, E Loetscher, KK. Dev, I Bobirnac, U Otten, and P Schoeffter. *Neuropharmacology,*49:40-47 (2005). WB: Fig 3a (untransfected CHO cells/CHO cells transfected with the human 5-HT7aR), Fig 3b (untransfected CHO cells, human microglial MC-3 cells).
Notes: Two bands of ~45 and 50 kDa were seen in the 5-HT7aR tably transfected cells and the MC-3 cells. These bands were not seen in the untransfected CHO cells.
The specificity of the IMG-368 5-HT7R antibody was validated by WB using 5-HT7aR stably transfected CHO cells (Fig 3a).
3. Serotonin provides an accessory signal to enhance T cell activation by signaling through the 5-HT7 receptor. Leon-Ponte M, GP Ahern, and PJ O'Connel. *Blood* 109:3139-3146 (2007). **Imgenex antibodies cited for WB (mouse brain and hypothalamus tissue, mouse T cells purified from spleen, Fig 2): IMG-366 (5-HT1BR) and IMG-368 (5-HT7R).**
Note: Levels of 5-HT1BR and 5-HT7R increased following T-cell activation by Con A.
4. Biphasic regulation of mammary epithelial resistance by serotonin through activation of multiple pathways. Pai V, N Horseman. *J Biol Chem* Doi: 10.1074/jbc.M802476200 (2008). **WB (human mammary MCF10A cells), Fig. 1C.**
5. Mammary gland homeostasis employs serotonergic regulation of epithelial tight junctions. Stull MA, V Pai, AJ Vomachka, AM Marshall, GA Jacob and ND Horseman. PNAS 104:16708-16713 (2007). WB (human and mouse brain tissues, human MCF10A cells, primary mouse mammary epithelial cells):Fig 1Bii

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