

Product Information

Anti-A₁ Adenosine Receptor

produced in rabbit, affinity isolated antibody

Catalog Number **A4104**

Product Description

Anti-A₁ Adenosine Receptor (A₁AR) is produced in rabbit using as immunogen a synthetic peptide conjugated to KLH. The peptide corresponds to the third cytoplasmic loop of human A₁ adenosine receptor. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-A₁ Adenosine Receptor specifically recognizes A₁ adenosine receptor in human brain neurons by immunohistochemistry with formalin-fixed, paraffin-embedded tissues. The immunizing peptide has 100% homology with the rat and mouse genes. Other species reactivity has not been confirmed.

Adenosine receptors (ARs) are members of the 7-transmembrane domain G protein-coupled receptor superfamily. Structural, biochemical and pharmacological analyses of the AR genes and protein has led to the discovery of four distinct AR subtypes (A₁, A_{2a}, A_{2b}, A₃).^{1,2} Activation of ARs mediates several receptor subtype-specific physiological processes including cardiac rate, smooth muscle tone, platelet aggregation, inflammation, cell growth and death, and neurotransmission.

The A₁AR is a glycoprotein of MW 36-40 kDa that can activate G_i and G_o proteins *in vitro*. In intact cells, agonist occupation of the A₁AR has been shown to cause pertussis toxin-sensitive inhibition of adenylyl cyclase activity and, in some systems, a stimulation of phospholipase C resulting in mobilization of intracellular calcium stores. Activation of K⁺ channels by A₁AR has been intensively studied in relation to its dramatic effects on the cardiovascular system. In white adipocytes, A₁AR inhibits lipolysis and stimulates glucose uptake. Other tissues also express A₁AR including kidney and testis. A₁AR protein is highly expressed in brain (especially cerebellum, hippocampus, thalamus, and cortex) and spinal cord and in part, modulates neurotransmitter release.^{2,3}

ESTs have been isolated from brain, breast, eye, kidney, salivary gland, and testis libraries.

Reagent

Supplied as a solution of 1 mg/ml in phosphate buffered saline, pH 7.7, containing 0.01% sodium azide as a preservative.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunohistochemistry: a minimum working concentration of 20 µg/ml is determined using human brain, neurons.

Note: In order to obtain best results and assay sensitivities of different techniques and preparations, we recommend determining optimal working dilutions by titration test.

References

1. Rorke, S. and Holgate S.T., Targeting adenosine receptors: novel therapeutic targets in asthma and chronic obstructive pulmonary disease, *Am. J Respir. Med.*, **1**, 99-105 (2002).

2. Fredholm, B.B., et al., International Union of Pharmacology. XXV. Nomenclature and classification of adenosine receptors, *Pharmacol Rev.*, **53**, 527-552 (2001).

3. Dhalla, A.K., et al., Pharmacology and therapeutic applications of A1 adenosine receptor ligands, *Curr. Top. Med. Chem.*, **3**, 369-385 (2003).

This product is manufactured by MBL International Corporation

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