abcam

Product datasheet

Ionotropic Agonists Kit ab120323

Overview

Product name

Ionotropic Agonists Kit

Specificity

A collection of 8 agonists, antagonists and potentiators at AMPA, Kainate and NMDA receptors. Products are freeze-dried to an exact weight so that addition of 1 ml or 0.5 ml of solvent provides a stock solution of 5 mM or 10 mM, respectively. The kit contains (S)-AMPA, (ab120005), (S)-5-Fluorowillardiine hydrochloride (ab120399), Cyclothiazide (ab120061), Aniracetam (ab120316), Kainic acid (ab120100), (S)-5-Iodowillardiine hydrochloride (ab120401), NMDA (ab120052) and D-serine (ab120048).

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Receptor

Description

AMPA

(*S*)-AMPA:

AMPA agonist.

Suggested Solvent: Water

AMPA

(*S*)-5-Fluorowillardiine hydrochloride:

Potent, selective AMPA receptor agonist. Displays higher affinity than AMPA at hGluR1 and hGlurR2, and displays greater selectivity for AMPA receptor subtypes over the kainate receptor hGluR5.

Suggested Solvent: Water

AMPA

Cyclothiazide:

Positive allosteric modulator of AMPA receptors. Produces a fast inhibition of AMPA receptor desensitization and a much slower potentiation of the AMPA current.

Suggested Solvent: DMSO

AMPA

Aniracetam:

Nootropic, positive allosteric modulator of AMPA receptors. Slows AMPA receptor deactivation and desensitisation. Antidepressant and anxiolytic *in vivo*.

Suggested Solvent: DMSO

Kainate

Kainic acid:

Prototypic agonist at the kainate class of ionotropic glutamate receptors. Potent excitant and neurotoxin, used to model epilepsy and neurodegenerative states.

Suggested Solvent: Water

Kainate

(*S*)-5-Iodowillardiine hydrochloride:

Selective GluK1 (formerly GluR5) kainate receptor agonist (EC_{50} = 83 µM). Partial agonist activity at GluK2 (formerly GluR6/KA2) receptors. Displays low affinity for AMPA and homomeric GluR6 and GluR7 receptors.

Suggested Solvent: DMSO

NMDA

NMDA:

Excitotoxic amino acid. Prototypic agonist at the ionotropic NMDA glutamate receptor which is involved in long-term potentiation, ischemia, and epilepsy.

Suggested Solvent: Water

NMDA

D-Serine:

Agonist at the NMDA glycine binding site and the inhibitory post-synaptic glycine receptor.

Suggested Solvent: Water

Notes

KIT

Properties

Storage instructions

Store at -20°C. Please refer to protocols.

Components	1 kit
ab120399 - (S)-5-Fluorowillardiine hydrochloride	1 vial
ab120401 - (S)-5-Iodowillardiine hydrochloride	1 vial
ab120005 - (S)-AMPA	1 vial
ab120316 - Aniracetam	1 vial
ab120061 - Cyclothiazide	1 vial
ab120048 - D-Serine	1 vial
ab120100 - Kainic acid	1 vial

Components	1 kit
ab120052 - NMDA	1 vial

Function	Ionotropic glutamate receptor. L-glutamate acts as an excitatory neurotransmitter at many synapses in the central nervous system. Binding of the excitatory neurotransmitter L-glutamate induces a conformation change, leading to the opening of the cation channel, and thereby converts the chemical signal to an electrical impulse. The receptor then desensitizes rapidly and enters a transient inactive state, characterized by the presence of bound agonist.
Tissue specificity	Widely expressed in brain.
Sequence similarities	Belongs to the glutamate-gated ion channel (TC 1.A.10.1) family. GRIA1 subfamily.
Post-translational modifications	Palmitoylated. Depalmitoylated upon glutamate stimulation. Cys-603 palmitoylation leads to Golgi retention and decreased cell surface expression. In contrast, Cys-829 palmitoylation does not affect cell surface expression but regulates stimulation-dependent endocytosis.
Cellular localization	Cell membrane. Endoplasmic reticulum membrane. Cell junction > synapse > postsynaptic cell membrane. Interaction with CACNG2 promotes cell surface expression.

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