

APE801Hu01 100µg
Active Glutamate Receptor, Ionotropic, AMPA 1 (GRIA1)
Organism Species: *Homo sapiens* (Human)
Instruction manual

FOR RESEARCH USE ONLY
NOT FOR USE IN CLINICAL DIAGNOSTIC PROCEDURES

13th Edition (Revised in Aug, 2023)

[PROPERTIES]

Source: Prokaryotic expression.

Host: *E. coli*

Residues: Gln37~Gly375

Tags: N-terminal His and GST Tag

Purity: >80%

Endotoxin Level: <1.0EU per 1µg (determined by the LAL method).

Buffer Formulation: PBS, pH7.4, containing 0.01% Sarcosyl, 5%Trehalose .

Original Concentration: 200µg/mL

Applications: Activity Assays.

(May be suitable for use in other assays to be determined by the end user.)

Predicted isoelectric point: 8.2

Predicted Molecular Mass: 73.0kDa

Accurate Molecular Mass: 65kDa as determined by SDS-PAGE reducing conditions.

Phenomenon explanation:

The possible reasons that the actual band size differs from the predicted are as follows:

1. Splice variants: Alternative splicing may create different sized proteins from the same gene.
2. Relative charge: The composition of amino acids may affects the charge of the protein.
3. Post-translational modification: Phosphorylation, glycosylation, methylation etc.
4. Post-translation cleavage: Many proteins are synthesized as pro-proteins, and then cleaved to give the active form.
5. Polymerization of the target protein: Dimerization, multimerization etc.

[USAGE]

Reconstitute in 10mM PBS (pH7.4) to a concentration of 0.1-1.0 mg/mL. Do not vortex.

[STORAGE AND STABILITY]

Storage: Avoid repeated freeze/thaw cycles.

Store at 2-8°C for one month.

Aliquot and store at -80°C for 12 months.

Stability Test: The thermal stability is described by the loss rate. The loss rate was determined by accelerated thermal degradation test, that is, incubate the protein at 37°C for 48h, and no obvious degradation and precipitation were observed. The loss rate is less than 5% within the expiration date under appropriate storage condition.

[SEQUENCE]

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                                         QEHA AFRFALSQLT
EPPKLLPQID IVNISDSFEM TYRFCSQFSK GVYAIFGFYE RRTVNMLTSF
CGALHVCFIT PSFPVDTSNQ FVLQLRPELQ DALISIIDHY KWQKFVYIYD
ADRGSLVLQK VLDTAAEKNW QVTAVNILT TEEGYRMLFQ DLEKKKERLV
VVDCESERLN AILGQIIKLE KNGIGYHYIL ANLGFMDIDL NKFESGANV
TGFQLVNYTD TIPAKIMQW KNSDARDHTR VDWKRPKYTS ALTYDGVKVM
AEAFQSLRRQ RIDISRRGNA GDCLANPAVP WGQGIDIQRA LQQVRFEGLT
GNVQFNEKGR RTNYTLHVIE MKHDG
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[ACTIVITY]

Glutamate Receptor, Ionotropic, AMPA 1 (GRIA1) is a key subunit of AMPA receptors that mediates fast excitatory synaptic transmission in the brain. It forms heterotetrameric complexes with other subunits like GRIA2, which critically regulates receptor function. While GRIA1-containing receptors exhibit calcium permeability, co-assembly with GRIA2 reduces calcium influx and stabilizes receptor expression at synapses. This GRIA1-GRIA2 interaction ensures balanced synaptic plasticity, underlying learning and memory processes. Dysfunction of this

partnership contributes to neurological disorders including epilepsy and cognitive impairment. Thus a functional binding ELISA assay was conducted to detect the interaction of recombinant human GRIA1 and recombinant human GRIA2 . Briefly, biotin-linked GRIA1 were diluted serially in PBS, with 0.01% BSA (pH 7.4). Duplicate samples of 100 μ l were then transferred to GRIA2-coated microtiter wells and incubated for 1h at 37 $^{\circ}$ C . Wells were washed with PBST 3 times and incubation with Streptavidin-HRP for 30min, then wells were aspirated and washed 5 times. With the addition of substrate solution, wells were incubated 15-25 minutes at 37 $^{\circ}$ C . Finally, add 50 μ l stop solution to the wells and read at 450nm immediately. The binding activity of recombinant human GRIA1 and recombinant human GRIA2 was shown in Figure 1, the EC₅₀ for this effect is 0.116 μ g/mL.

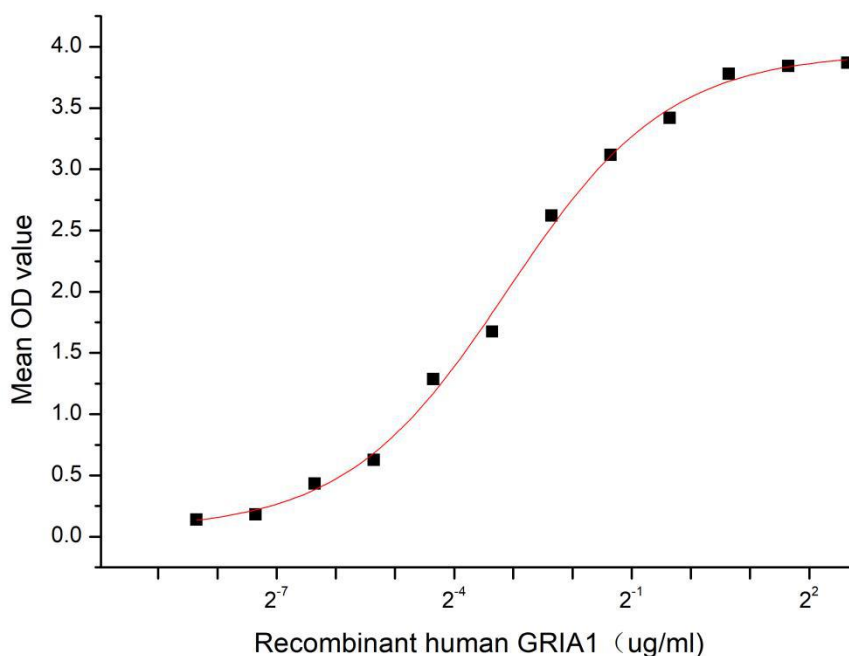


Figure 1. The binding activity of recombinant human GRIA1 and recombinant human GRIA2

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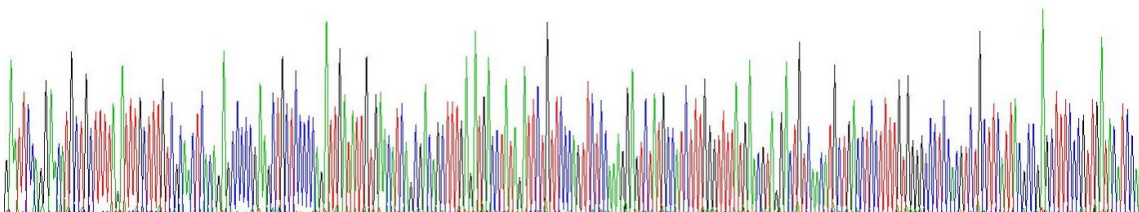


Figure 2. Gene Sequencing (extract)

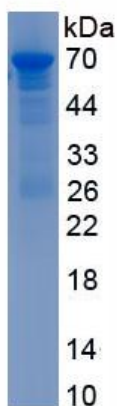


Figure 3. SDS-PAGE

Sample: Active recombinant GRIA1, Human

[IMPORTANT NOTE]

The kit is designed for research use only, we will not be responsible for any issue if the kit was used in clinical diagnostic or any other procedures.