

**APD857Mu01 100µg**  
**Active 4-Aminobutyrate Aminotransferase (ABAT)**  
**Organism Species: *Mus musculus* (Mouse)**  
***Instruction manual***

FOR RESEARCH USE ONLY  
NOT FOR USE IN CLINICAL DIAGNOSTIC PROCEDURES

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13th Edition (Revised in Aug, 2023)

## **[ PROPERTIES ]**

**Source:** Prokaryotic expression.

**Host:** *E. coli*

**Residues:** Ile236~Lys500

**Tags:** N-terminal His-tag

**Purity:** >95%

**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:** 7.8

**Predicted Molecular Mass:** 33.9kDa

**Accurate Molecular Mass:** 34kDa as determined by SDS-PAGE reducing conditions.

## **[ 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 ]**

```
IDIPS FDWPIAPFPR LKYPLEEFFT DNQEEEARCL EEVEDLIVKY RKKKRTVAGI IVEPIQSEGG
DNHASDDFFR KLRDIARKHG CAFLVDEVQT GGGCTGKFWA HEHWGLDDPA DVMTFSKMM TGGFFHKEEF
RPSAPYRIFN TWLGDP SKNL LLAEVINI IK REDLLNNVAR VGKTLTGLL DLQAQYPQFI SRVRGRGTFC
SFDTPDEAIR NKLIL IARNK GVV LGGCGDK SIRFRPTLVF RDHHAHLFLS IFSGILADFK
```

## **[ ACTIVITY ]**

4-Aminobutyrate Aminotransferase (ABAT) is a mitochondrial enzyme that catalyzes the conversion of  $\gamma$ -aminobutyric acid (GABA) to succinic semialdehyde in the GABA shunt pathway, playing a crucial role in neurotransmitter metabolism. It maintains GABA homeostasis by regulating its degradation, with dysfunction linked to neurological disorders like epilepsy and autism spectrum disorders. ABAT also participates in cellular energy metabolism through the TCA cycle. ABAT functionally interacts with Glutamate Decarboxylase 2 (GAD2) by forming a metabolic coupling where GAD2 synthesizes GABA from glutamate, and ABAT subsequently degrades it, jointly controlling synaptic GABA levels. Thus a functional ELISA assay was conducted to detect the interaction of recombinant mouse ABAT and recombinant rat GAD2. Briefly, ABAT was diluted serially in PBS with 0.01% BSA (pH 7.4). Duplicate samples of 100  $\mu$ l were then transferred to GAD2-coated microtiter wells and incubated for 1h at 37 °C. Wells were washed with PBST and incubated for 1h with anti-ABAT pAb, then aspirated and washed 3 times. After incubation with HRP labelled secondary antibody for 1h at 37 °C, wells were aspirated and washed 5 times. With the addition of substrate solution, wells were incubated 15-25 minutes at 37 °C. Finally, add 50  $\mu$ L stop solution to the wells and read at 450/630nm immediately. The binding activity of recombinant mouse ABAT and recombinant rat GAD2 was shown in Figure 1, the

EC50 for this effect is 0.03 $\mu$ g/mL.

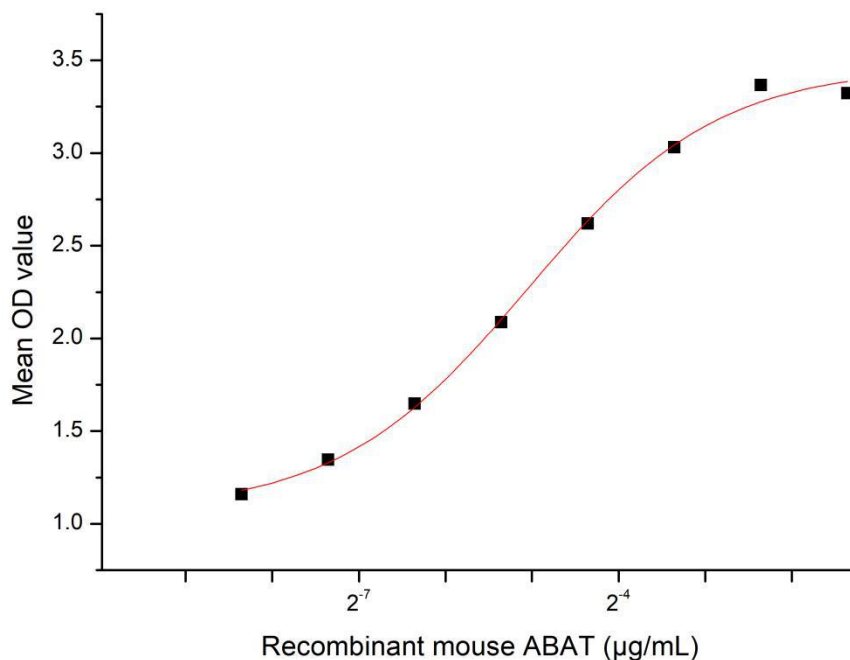


Figure 1. The binding activity of recombinant mouse ABAT and recombinant rat GAD2

## [ IDENTIFICATION ]

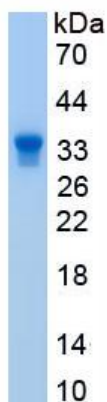


Figure 2. SDS-PAGE

Sample: Active recombinant ABAT, Mouse

## **[ 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.