**APA875Mu01 100μg**
**Active Carbonic Anhydrase I (CA1)**
**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:** Asp15~Gln223
**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% SKL, 5%Trehalose .
**Original Concentration:** 200μg/mL
**Applications:** Cell culture; Activity Assays.
(May be suitable for use in other assays to be determined by the end user.)
**Predicted isoelectric point:** 6.5
**Predicted Molecular Mass:** 24.1kDa
**Accurate Molecular Mass:** 24kDa 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 2-8ºC for one month.
Aliquot and store at -80ºC for 12 months.

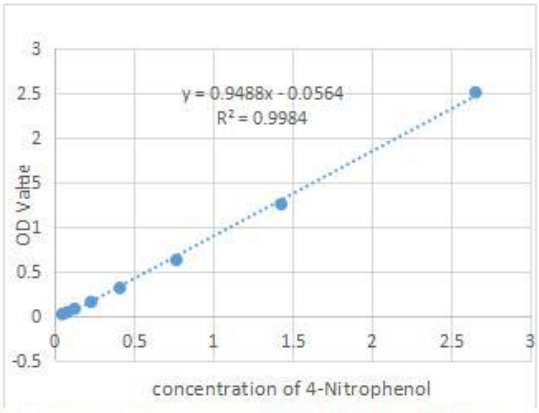
**Stability Test:** The thermal stability is described by the loss rate. The loss rate was determined by accelerated thermal degradation test, that is, incubate the protein at 37ºC for 48h, and no obvious degradation and precipitation were observed. The loss rate is less than 5% within the expiration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

## [ SEQUENCE ]

DQWSKL YPIANGNNQS PIDIKTSEAN HDSSLKPLSI
SYNPATAKEI VNVGHSFHVI FDDSSNQSVL KGGPLADSYR LTQFHFHWGN
SNDHGSEHTV DGTRYSGELH LVHWNSAKYS SASEAISKAD GLAILGVLMK
VGPANPSLQK VLDALNSVKT KGKRAPFTNF DPSSLLPSSL DYWTYFGSLT
HPPLHESVTW VICKDSISLS PEQ

## [ ACTIVITY ]

Carbonic Anhydrase (CA) catalyzes the reversible reaction of CO2 + H2O = HCO3- + H+, which is fundamental to many processes such as respiration, renal tubular acidification and bone resorption. CA1 is a cytosolic enzyme with the highest levels in erythrocytes and is a very early marker for erythroid differentiation. The activity of recombinant mouse CA1 was measured by its ability to hydrolyze 4-Nitrophenyl acetate (4-NPA) to 4-Nitrophenol. The reaction was performed in 12.5 mM Tris, 75 mM NaCl, pH 7.5 (assay buffer), initiated by addition 50 μL of various concentrations of CA1 (diluted by assay buffer) to 50 μL of 2 mM substrate 4-NPA (100 mM stock in Acetone, diluted by assay buffer). Incubated at 37℃ for 5min, then read at a wavelength of 400 nm.




| 4-Nitrophenol (product)mM | OD400nm |
|---|---|
| 0.01953125 | 0.045 |
| 0.0390625 | 0.076 |
| 0.078125 | 0.123 |
| 0.15625 | 0.227 |
| 0.3125 | 0.409 |
| 0.625 | 0.766 |
| 1.25 | 1.426 |
| 2.5 | 2.653 |

**Figure 1. The standard curve of 4-Nitrophenol**

One unit of enzyme activity is defined as the 1 μg of enzyme required to convert 1 pmol of 4-Nitrophenyl acetate to 4-Nitrophenol in 1min at 37°C. The specific activity of recombinant mouse CA1 is > 3 pmol/min/μg.

Specific Activity (pmol/min/μg)= $\frac{\Delta OD * F}{T * N}$

△OD=Adjusted for Substrate Blank

F=Conversion Factor (convert from standard curve of 4-Nitrophenol)

T= Time

N=Amount of enzyme

## [ IDENTIFICATION ]

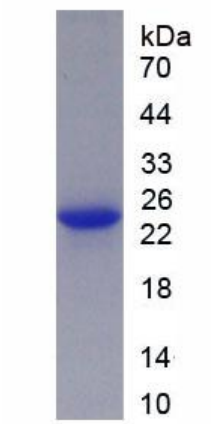



**Figure 2. SDS-PAGE**

**Sample: Active recombinant CA1, 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.