APD002Hu01 100μg
Active Lysyl tRNA Synthetase (KARS)
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: Arg323~Arg553
Tags: N-terminal His-tag
Purity: >90%
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: 4.8
Predicted Molecular Mass: 30.2kDa
Accurate Molecular Mass: 30kDa 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]

RNEGIDLT HNPEFTTCEF YMAYADYHDL
MEITEKMVSG MVKHITGSYK VTYHPDGPEG QAYDVDFTPP FRRINMVEEL
EKALGMKLPE TNLFETEETR KILDDICVAK AVECPPPRTT ARLLDKLVGE
FLEVTCINPT FICDHPQIMS PLAKWHRSKE GLTERFELFV MKKEICNAYT
ELNDPMRQRQ LFEEQAKAKA AGDDEAMFID ENFCTALEYG LPPTAGWGMG
IDR

[ACTIVITY]

Lysyl-tRNA Synthetase (KARS) is an essential enzyme that catalyzes the attachment of lysine to its cognate tRNA during protein synthesis, ensuring accurate translation of the genetic code. As a member of the aminoacyl-tRNA synthetase (aaRS) family, KARS plays a critical role in maintaining cellular protein homeostasis. Beyond its canonical function, KARS exhibits non-canonical roles in immune signaling, angiogenesis, and viral defense. It exists in both cytoplasmic and mitochondrial forms, contributing to protein synthesis in multiple cellular compartments. KARS binds to AIMP1 as part of the multi-tRNA synthetase complex (MSC), where this interaction helps regulate enzyme activity and coordinate cellular processes related to protein synthesis.Thus a functional ELISA assay was conducted to detect the interaction of recombinant human KARS and recombinant mouse AIMP1. Briefly, KARS was diluted serially in PBS with 0.01% BSA (pH 7.4). Duplicate samples of 100 μl were then transferred to AIMP1-coated microtiter wells and incubated for 1h at 37℃. Wells were washed with PBST and incubated for 1h with anti-KARS pAb, then aspirated and washed 3 times. After incubation with HRP labelled secondary antibody for 1h at 37℃, wells were aspirated and washed 5 times. With the addition of substrate solution, wells

were incubated 15-25 minutes at 37℃. Finally, add 50 μL stop solution to the wells and read at 450/630nm immediately. The binding activity of recombinant human KARS and recombinant mouse AIMP1 was shown in Figure 1, the EC50 for this effect is 0.015ug/mL.

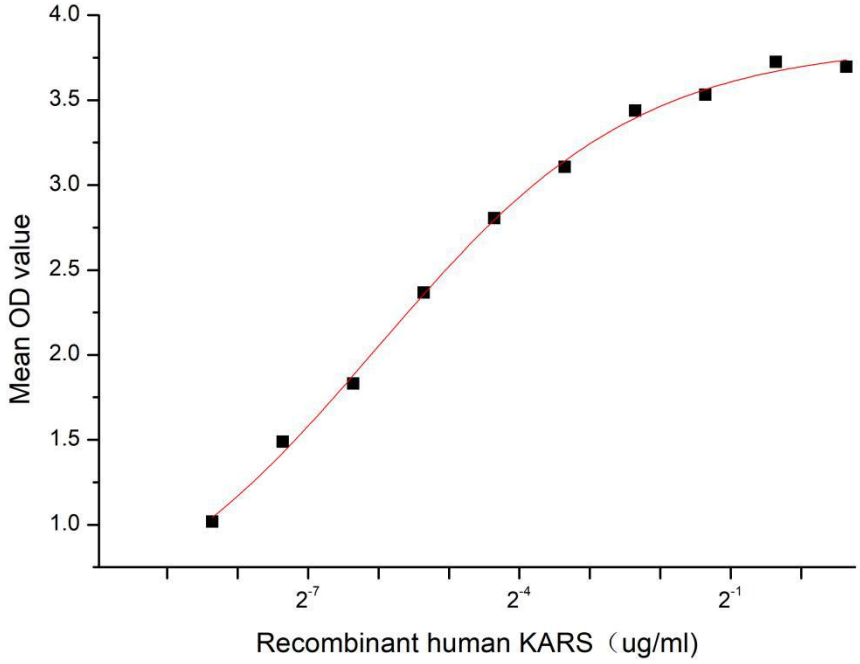

Figure 1. The binding activity of recombinant human KARS and recombinant mouse AIMP1

[IDENTIFICATION]

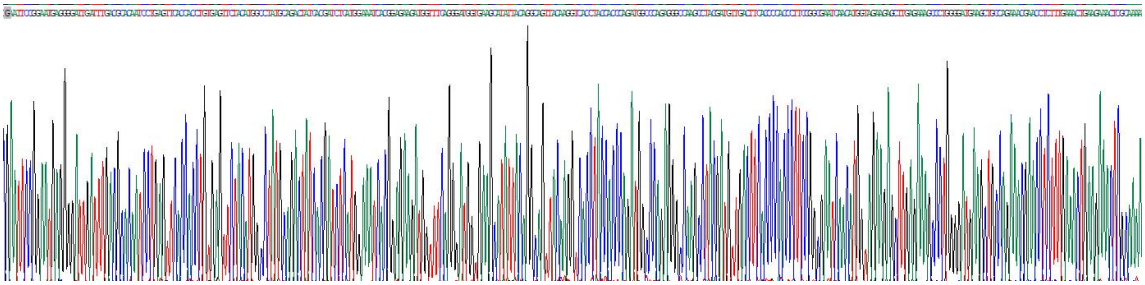

Figure 2. Gene Sequencing (extract)

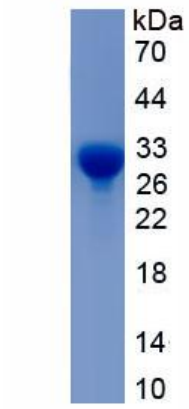

Figure 3. SDS-PAGE

Sample: Active recombinant KARS, 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.