



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human CDA Protein
Catalog Number: hRP-1716
Manufacturer: LD Biopharma, Inc.

Introduction

Human Cytidine deaminase (CDA) gene encodes an enzyme involved in pyrimidine salvaging. The encoded protein forms a homotetramer that catalyzes the irreversible hydrolytic deamination of cytidine and deoxycytidine to uridine and deoxyuridine, respectively. It is one of several deaminases responsible for maintaining the cellular pyrimidine pool. Mutations in this gene are associated with decreased sensitivity to the cytosine nucleoside analogue cytosine arabinoside used in the treatment of certain childhood leukemias. Recent data indicated that CDA can convert 5hmdC and 5fdC into variants of uridine that are incorporated into DNA, resulting in accumulation of DNA damage, and ultimately, cell death in cancer cells. Targeting the nucleotide salvage pathway such as CDA through controlling metabolism of oxidized epigenetic bases becomes a new therapeutic option for cancers such as pancreatic cancer, that have CDA over-expression and are resistant to treatment with other cytidine analogues.

Full-length human CDA cDNA (145 aa) gene was constructed using gene synthesis technology with codon optimization. A tag of 31 aa (T7/His/TEV cleavage site) was fused to CDA N-terminal. This protein was expressed in E.coli as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

Gene Symbol: CDA (CDD)
Accession Number: NP_001776.1
Species: Human
Size: 50 µg / Vial
Composition: 1.0 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.
Storage: In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.



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Key References

Melania Zauri, et al., *CDA directs metabolism of epigenetic nucleosides revealing a therapeutic window in cancer*. Nature. doi:10.1038 / nature 14948. (2015)

Serdjebi C, et al., *Rapid deaminator status is associated with poor clinical outcome in pancreatic cancer patients treated with a gemcitabine-based regimen*. Pharmacogenomics 14 (9), 1047-1051 (2013)

Vincenzetti S, et al., *Site directed mutagenesis as a tool to understand the catalytic mechanism of human cytidine deaminase*. Protein Pept. Lett. 20 (5), 538-549 (2013)

Gran C, et al., *Growth inhibition of granulocyte-macrophage colony-forming cells by human cytidine deaminase requires the catalytic function of the protein*. Blood 91 (11), 4127-4135 (1998)

Applications

1. May be used for in vitro CDA protein mediated epigenomic pathway (5hmdC mediated uridine variants in DNA repair pathway) in cancer cells regulation study in various cancer cells with “ProFectin” reagent based intracellular delivery of this protein.
2. May be used as specific protein substrate for kinase and ubiquitin (Sumo pathway) related enzyme functional screening assays.
3. May be used for CDA protein-protein interaction mapping.
4. Potential biomarker protein, by monitoring CDA expression level in tumor tissue may guide anti-cancer chemotherapy, such as selection of cytidine analogues.
5. As immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHHENLYFQGGFEFAQKRPACTLKPECVQQLLVCSQEAKKSAYCPYSHF
PVGAALLTQEGRIFKGCNIENACYPLGICAERTAIQKAVSEGYKDFRAIAIASDMQDDFI SPCG
ACRQVMREFGTNWPVYMTKPDGTYIVMTVQELLPSSFGPEDLQKTQ