



**LD Biopharma, Inc.**  
9924 Mesa Rim Road Suite B  
San Diego, CA 92121  
Tel: 858-876-8266  
<http://www.ldbiopharma.com>

## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human ACY1 Protein  
**Catalog Number:** hRP-0905  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

Human aminoacylase-1 (ACY1) gene encodes a cytosolic, homodimeric, zinc-binding enzyme that catalyzes the hydrolysis of acylated L-amino acids to L-amino acids and an acyl group, and has been postulated to function in the catabolism and salvage of acylated amino acids. This gene is located on chromosome 3p21.1, a region reduced to homozygosity in small-cell lung cancer (SCLC), and its expression has been reported to be reduced or undetectable in SCLC cell lines and tumors. The amino acid sequence of human aminoacylase-1 is highly homologous to the porcine counterpart, and this enzyme is the first member of a new family of zinc-binding enzymes. Mutations in this gene cause aminoacylase-1 deficiency; a metabolic disorder characterized by central nervous system defects and increased urinary excretion of N-acetylated amino acids. Alternative splicing of this gene results in multiple transcript variants. Read-through transcription also exists between this gene and the upstream ABHD14A (abhydrolase domain containing 14A) gene, as represented in GeneID:100526760.

Full-length mature human Aminoacylase-1 (408 aa, Isoform\_a) gene was constructed with 15 aa N-terminal T7 tag and 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:** ACY1 (ACY-1; ACY1D)  
**Accession Number:** NP\_000657  
**Species:** Human  
**Size:** 50 µg / Vial  
**Composition:** 0.25 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, arginine, DTT and Glycerol.  
**Storage:** In Liquid. Keep at -20°C for long term storage. Product is stable at 4 °C for at least 30 days.



**LD Biopharma, Inc.**  
9924 Mesa Rim Road Suite B  
San Diego, CA 92121  
Tel: 858-876-8266  
<http://www.ldbiopharma.com>

## Key References

Long, P.M., et al., *Differential aminoacylase expression in neuroblastoma*. Int. J. Cancer 129 (6), 1322-1330 (2011)

Sommer, A., et al., *The molecular basis of aminoacylase 1 deficiency*. Biochim. Biophys. Acta 1812 (6), 685-690 (2011)

## Applications

1. May be used for in vitro ACY1 mediated acylated L-amino acids hydrolysis regulation study with "ProFectin" based intracellular delivery of this protein.
2. May be used as specific substrate protein for kinase and ubiquitin (Sumo pathway) related enzyme functional screening assays.
3. May be used for mapping ACY1 protein-protein interaction.
4. May be used as antigen for specific antibody production.

## Quality Control

1. Purity: > 90% by SDS-PAGE.

## Recombinant Protein Sequence

MASMTGGQQMGRGEFMTSKGP EEEHPSVTLFRQYLRI RTVQPKPDYGA AVAFFEETARQLGLGC  
QKVEVAPGYVVTVLTWPGTNPTLSSILLNSHTDVVPV FKEHWSHDPFEAFKDSEGYIYARGAQD  
MKCVSIQYLEAVRRLKVEGHRFPRTIHM TFVPDEEVGGHQGMELFVQRPEFHALRAGFALDEGI  
ANPTDAFTVFYSERSPWVVRVTSTGRPGHASRFMEDTAAEKLHKVVNSILAFREKEWQRLQSNP  
HLKEGSVTSVNLTKLEGGVAYNVI PATMSASFDFRVAPDVDFKAFEEQLQSWCQAAGEGV TLEF  
AQKWMHPQVTP TDDSNPWAAFSRVCKDMNLTLEPEIMPAATDNRYIRAVGVPALGFSPMNRTP  
VLLHDHDERLHEAVFLRGVDIYTRLLPALASVPALPSDS