

Product Information

L-Lactate Dehydrogenase A, human
recombinant, expressed in *Escherichia coli*

Catalog Number **SAE0049**
Storage Temperature -20°C

CAS RN 9001-60-9

EC 1.1.1.27

Synonyms: L-Lactic Dehydrogenase, LDH, LDHA, LDHM, L-LDH, (S)-Lactate: NAD⁺ oxidoreductase, LAD, LD.

Product Description

L-lactate dehydrogenase (LDH) is an enzyme that catalyzes the conversion of lactate to pyruvate. This is an important step in cellular energy production.¹ Many different types of cells in the body contain this enzyme. Some of the organs relatively rich in LDH are the heart, kidney, liver, and muscle.²

Cell death causes release of LDH from cells. Normal blood LDH levels vary with age, being higher in childhood due to bone growth.³ Nearly every type of cancer, as well as many other diseases, can cause elevated LDH levels. Therefore, this marker cannot be used to diagnose a particular type of cancer. LDH levels can be used to monitor treatment of some cancers, including testicular cancer, Ewing's sarcoma, non-Hodgkin's lymphoma, and some types of leukemia. Elevated LDH levels can be caused by a number of noncancerous conditions, including heart failure, hypothyroidism, anemia, and lung or liver disease.^{4,5}

In particular, lactic dehydrogenase A (LDHA) is mainly found in skeletal muscle, and for that reason is known as the M subunit. LDHA has been reported to have roles in such processes as aerobic and anaerobic glycolysis, gene transcription, regulation of channel complexes and of cell cycles, and brain development.⁶

This product is recombinant human LDHA expressed in *E. coli* and has a predicted molecular mass of 37.5 kDa. The product is in a buffered solution containing 20 mM HEPES, pH 7.5, with 200 mM NaCl and 10% glycerol.

Unit definition: One unit will convert 1.0 μmole of pyruvate to lactate per minute at pH 7.5 at 37°C .

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store the product at -20°C . After thawing divide into aliquots and store at -20°C . Do not store at $2-8^{\circ}\text{C}$ for longer than 8 hours. Repeated freezing and thawing is not recommended. Do not store in a frost-free freezer.

References

1. Madern, D., Molecular evolution within the L-malate and L-lactate dehydrogenase super-family. *J. Mol. Evol.*, **54**(6), 825-840 (2002).
2. Engel, W., *et al.*, Genetic polymorphism of lactate dehydrogenase isoenzymes in the carp (*Cyprinus carpio*) apparently due to a null allele. *Biochem. Genet.*, **8**(3), 281-289 (1973).
3. Butt, A.A., *et al.*, Serum LDH level as a clue to the diagnosis of histoplasmosis. *AIDS Read*, **12**(7), 317-321 (2002).
4. Xu, H.N., *et al.*, Is Higher Lactate an Indicator of Tumor Metastatic Risk? A Pilot MRS Study Using Hyperpolarized ^{13}C -Pyruvate. *Acad. Radiol.*, **21**(2), 223-231 (2014).
5. Kim, H.S., *et al.*, High lactate dehydrogenase 5 expression correlates with high tumoral and stromal vascular endothelial growth factor expression in gastric cancer. *Pathobiology*, **81**(2), 78-85 (2014).
6. Valvona, C.J., *et al.*, The Regulation and Function of Lactate Dehydrogenase A: Therapeutic Potential in Brain Tumor. *Brain Pathol.*, **26**(1), 3-17 (2016).

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