

Hycult biotechnology

HUMAN ARGINASE-I (L-ARGINASE) ELISA Kit

Catalog No. HK322

Quantity : 2 x 96 determinations

Description Arginase-I (liver-type arginase, L-arginine ureahydrolase, or L-arginine amidinohydrolase) is an hydrolytic enzyme that converts arginine to ornithine and urea. Ornithine is the precursor for praline, an essential amino acid for collagen synthesis and for poly-amines, key components in cell growth and differentiation.

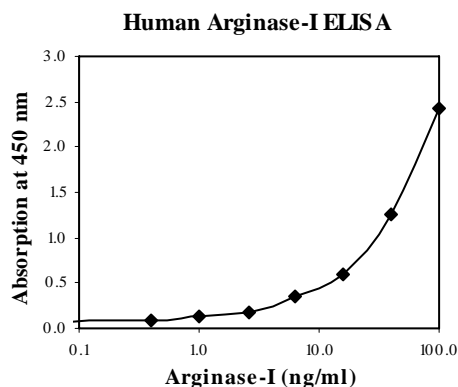
Arginase exists as two forms designated arginase-I and arginase-II which are encoded by different genes. Although arginase-I and arginase-II have similar enzyme activities, they differ in pI and immunological reactivity. Human arginase-I (liver-type arginase) is a 35 kD protein circulating in blood probably as a homotrimer. Liver-type arginase is most abundant expressed in mammalian liver, but is also found in non-hepatic tissues, for instance red blood cells, lactating mammalian glands, and the kidney. In addition to its involvement in ammonia detoxification via the urea cycle, arginase plays a role in other processes, for instance macrophage-mediated cytotoxicity due to arginase release and inhibition of lymphocyte proliferation in vitro. It shows high activity in growing tissues, wound healing, proliferating lymphocytes and tumors. Furthermore, arginase acts as a modulator of the immune response. Besides this arginase plays a role in allergen challenged lungs, in autoimmune inflammation in the central nervous system and in acute liver injury.

In plasma of healthy individuals arginase-I is present in levels of 1.8 – 30 ng/ml, which increases approximately 10 fold during acute phase responses.

Application The human arginase-I (L-arginase) ELISA has been developed for the quantitative measurement of both natural and recombinant arginase-I in serum, plasma and cell culture medium. In serum or plasma samples, arginase-I can be measured accurately if samples are diluted at least 2 times. Most reliable results are obtained if EDTA plasma is used. The use of heparin plasma samples is not advised.

- Features**
- Minimum concentration which can be measured is 0.4 ng/ml human arginase-I.
 - Measurable concentration range of 0.4-100 ng/ml.
 - Working volume of 100 µl/well.

Typical standard curve



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Principle

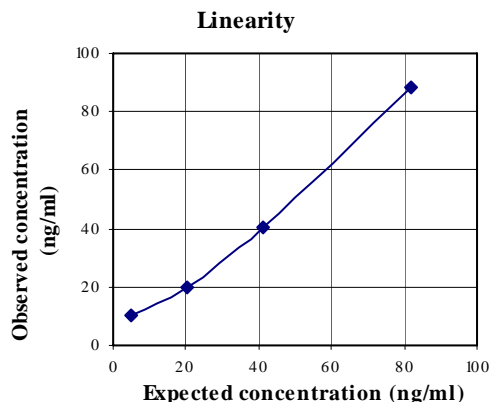
- The human arginase-I ELISA is a ready-to-use solid-phase enzyme-linked immunosorbent assay based on the sandwich principle with a working time of 3½ hours.
- The efficient format of 2 plates with twelve disposable 8-well strips allows free choice of batch size for the assay.
- Samples and standards are captured by a solid bound specific antibody.
- Biotinylated tracer antibody will bind to captured human arginase-I.
- Streptavidin-peroxidase conjugate will bind to the biotinylated tracer antibody.
- Streptavidin-peroxidase conjugate will react with the substrate, tetramethylbenzidine (TMB).
- The enzyme reaction is stopped by the addition of citric acid.
- The absorbance at 450 nm is measured with a spectrophotometer. A standard curve is obtained by plotting the absorbance (linear) versus the corresponding concentrations of the arginase-I standards (log).
- The human arginase-I concentration of samples, which are run concurrently with the standards, can be determined from the standard curve.

Storage and stability

Product should be stored at 4°C. Under recommended storage conditions, product is stable for at least six months. After reconstitution the reagents are stable for 1 month if stored at 2-8°C. After reconstitution the standard is stable for 24 hours. For longer stability we recommend to store aliquots at -20°C. Stored at -20°C the standard will be stable for 1 month.

Linearity

The linearity of the assay was determined by serially diluting a sample containing 335 ng/ml human arginase-I. The diluted samples were measured in the assay. The line obtained a slope of 1.044 and a correlation coefficient of 0.995.



Precautions

For research use only. Not for use in or on humans or animals or for diagnostics. It is the responsibility of the user to comply with all local/state and Federal rules in the use of this product. Hbt is not responsible for any patent infringements that might result with the use of or derivation of this product.

References

1. Ikemoto, M et al; A useful ELISA system for human liver-type arginase, and its utility in diagnosis of liver diseases. Clin Biochem 2001, 34: 455
2. Debats, I et al; Infected chronic wounds show different local and systemic arginine conversion compared with acute wounds. J Surg Res 2006, 134: 205

Also available

HK502	Chicken IgY ELISA kit, 2 x 96 determinations
HK505	Duck IgY ELISA kit, 2 x 96 determinations

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