Arginine ELISA kit

Ref: IS-I-0400R

Arginine (ARG) is a basic non-essential amino acid well known to participate in physiological functions such as i) vascular tone homeostasis as contributing to the production of nitric oxide (NO) and ii) immune response control, through NO synthase (NOS) and Arginase enzymes, respectively.

The Arginine (Arg) ELISA kit allows for the determination of Arg in **serum** and **plasma** samples working with a sample volume of 20µL. The kit is easy to implement and well suited for both preclinical and clinical studies.

Sample type	Serum, Plasma, Cell culture
Capacity	96 tests
Sensitivity	2.1µM
Range	5.12 - 200µM
Assay time	Sample preparation 3h, ELISA overnight
Reactivity	Reacts with all species

INFORMATIONS

Product overview

Product name	L-Arginine ELISA kit
Description	Competitive ELISA kit for the quantitative measurement of Arginine (L-Arg) in **serum, plasma** and **cell culture** samples. **For research use only**
Format	96-well plate
Samples	Serum, Plasma, Cell culture
Minimal sample volume	20μL
Reactivity	Reacts with all species
Standard range	5.12 – 200μM
Sensitivity	2.1μM
Specificity	No significant cross-reactivity was observed with HomoArginine, Agmatine, L-Citruline, L-Ornithine, ADMA and SDMA
Assay time	Sample preparation 3h and ELISA overnight
Storage	Store at 2-8°C for up to 6 months
Datasheets	**Instructions for use**, **Material Safety Datasheet**

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PROTOCOLS

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Sample collection & storage	Serum: Do not use lipemic, haemolytic samples, as well as samples containing precipitates or fibrin strands Store samples at 2-8°C for up to 48h or -20°C for longer period (up to 6 months)
Sample preparation	Sample preparation (3 hours)
ELISA	L-Arginine antiserum overnight incubation, revelation and read steps (1h)
Detailed protocol	**Download instructions for use**

REFERENCES

**Product citation**

Product pictures
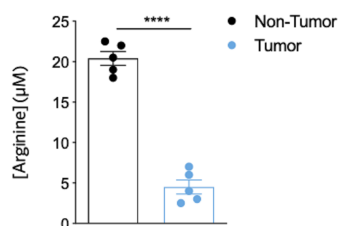
Arginine quantification in Tumor/Non Tumor microdialysate samples

Microdialysis was performed in MCA205-sarcoma tumor-bearing mice in both tumor and non-tumor regions and collected microdialysates were subjected to ARG quantification using IS-I-0400 ELISA kit. As expected, Arginine level was lower in the tumor compartment when compared to the subcutaneous counterpart, thereby evidencing high tumoral Arginase activity.**** $p<0.0001$
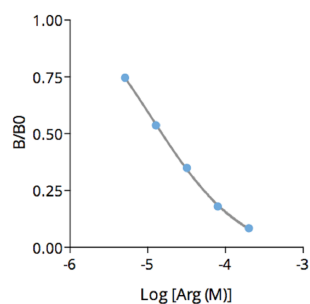
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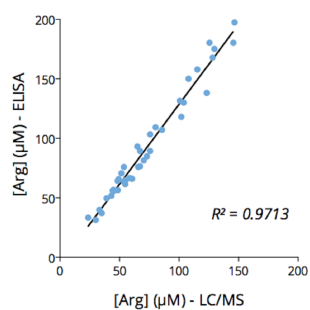
Cross-validation of Arginine ELISA and LC/MS data in human plasma samples

Arg was quantified in plasma samples from 40 human subjects either using IS-I-0400 ELISA kit or by liquid chromatography–mass spectrometry (LC/MS). Correlation coefficient of 0.9713 confirms the accuracy of the immunoassay.
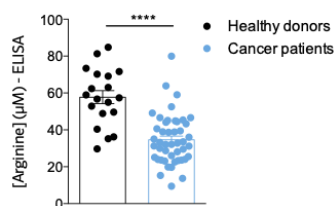

L-Arginine ELISA kit

Typical standard curve of Arginine ELISA

Typical standard curve obtained with the Arg ELISA kit. In this competitive enzyme immunoassay, optical density is inversely correlated with hArg levels within a linear range of 5.12 - 200μM. (example data - do not use for calculation)

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Arginine quantification in human plasma samples

ARG was quantified in human plasma samples from 19 healthy donors and 46 cancer patients from several histotypes using IS-I-0400 Arginine ELISA kit. As depicted, ARG level was lower in cancer patients than in healthy subjects thus arguing for an exagerated Arginase activity in cancer patients.**** p<0.0001.
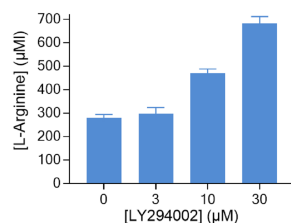

PI3K signaling pathway inhibition limits Arginase 1 activity of M2 polarized macrophages

During their polarization, M2 macrophages were treated with increasing concentrations of LY294002, a reference PI3K inhibitor. ELISA-based quantification of L-Arginine increase in the supernatants (using IS-I-0400 kit) highlighted a dose-dependent inhibition of Arginine catabolism.
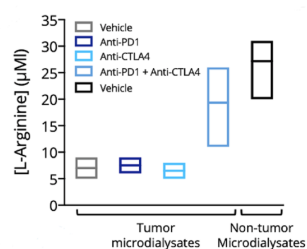
ELISA Arginine quantification in mouse 4T1 tumor and non-tumor microdialysates

Mice were implanted with 4T1 breast tumor cells and then exposed to either PD1 or CTLA4 blockade treatment each alone or in combination. They were then processed for tumoral vs. non-tumoral microdialysis sampling for the determination of L-Arginine levels, among other metabolites. ELISA-based quantification of L-Arginine (using IS-I-0400 kit) highlights the lower arginine level within the tumor microenvironment with respect to non-tumor compartment – underlining tumor arginine consumption. Also, this level seems not to be modulated upon single anti-PD1 or anti-CTLA4 agents – the 4T1 model being known as non-responsive to these monotherapies, while PD1/CTLA4 blockade combination is shown to bring this level back to that in the non-tumor compartment.
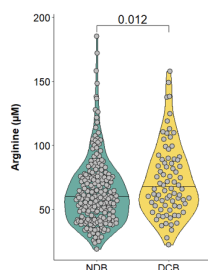
Arg metabolism is predictive of anti-PD(L)1 immunotherapy-treated patient outcome

Quantification of baseline plasmatic Arg in non-durable clinical benefit (NDB ; n= 214, green) and durable clinical benefit (DCB ; n= 80, yellow) patients. p value was calculated using Wilcoxon test.

Contact information

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To order, review, ask for technical support, visit product page at:

https://www.immusmol.com/shop/arginine-elisa-kit/