L-Glutamine ELISA kit – High Sensitivity – Plasma, Serum, Supernatant

Ref: IS-I-1100R

Glutamine (Gln) is an abundant non-essential amino acid that is involved in several physiological functions including the regulation of the immune system . However, in some disease conditions, Gln metabolism can be highly dysregulated. In cancer, Gln is highly consumed by tumor cells as to fulfill their bioenergetic and biosynthetic requirements for proliferation. Targeting Gln catabolism - mainly Glutaminase - is currently investigated as a therapeutic approach to circumvent high Gln consumption by cancer cells and maintain a sufficient level in the microenvironment for an effective anti-tumor immune response.
The IS-I-1100 Gln ELISA kit allows for the determination of L-Glutamine in plasma and serum, originating from either preclinical or clinical samples, of a volume as low as 10µL and with a sensitivity of 3µM.

Sample type	Plasma, Serum, Cell supernatant
Capacity	96 tests
Sensitivity	3µM
Range	21 - 3125µM
Assay time	Sample preparation 3h, ELISA overnight
Reactivity	Reacts with all species

INFORMATIONS

Product overview

Product name	Glutamine ELISA kit
Description	Competitive ELISA kit for the quantitative measurement of L-Glutamine (Gln) in plasma and serum samples. **For research use only**
Format	96-well plate
Samples	Plasma, Serum, Cell supernatant
Minimal sample volume	10µL
Reactivity	Reacts with all species
Standard range	21 – 3125µM
Sensitivity	3µM
Specificity	No significant cross-reactivity was observed with Ornithine, Arginine, Asparagine, D-Glutamine and L-Glutamic acid
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**

For research use only – Do not use for diagnostic

PROTOCOLS

Sample collection & storage	EDTA Plasma 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-Glutamine antiserum overnight incubation, revelation and read steps (1h)
Detailed protocol	**Download instructions for use**

REFERENCES

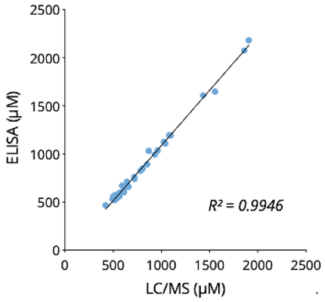
Selected articles on Glutamine

- Michio Miyajima, Amino acids: key sources for immunometabolites and immunotransmitters, Int Immunol, June 2020
- Wang et al. Targeting Glutaminolysis: New Perspectives to Understand Cancer Development and Novel Strategies for Potential Target Therapies, Front Oncol., Oct 2020
- Varghese et al. The glutaminase inhibitor CB-839 (Telaglenastat) enhances the anti-melanoma activity of T cell mediated immunotherapies, Mol Cancer Ther, Dec 2020

Product pictures

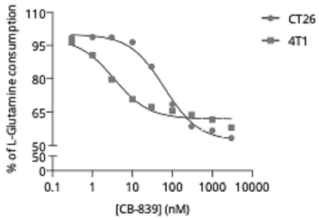
Glutamine (Gln) ELISA kit

Validated IS-I-1100 ELISA kit allows for the determination of L-Glutamine (Gln) in plasma samples of a volume as low as 10µL and with a sensitivity of 3µM.



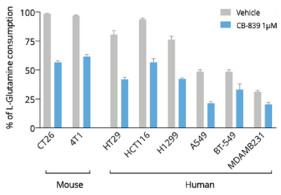
Cross-validation of Glutamine ELISA and LC/MS data in human plasma samples

Gln was quantified in human plasma samples from 40 healthy subjects using IS-I-1100 ELISA kit or by LC/MS. Correlation study showed R2=0.9946, thereby confirming the accuracy of the immunoassay.



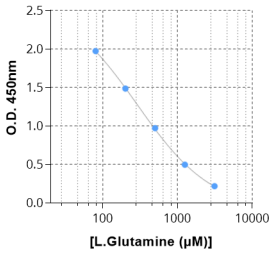
Murine tumor cell lines degrade Glutamine to support their high proliferating rate in a Gls1 dependent manner.

Mouse 4T1 breast and CT26 colorectal cancer cell lines were treated with increasing concentrations of Gls1 inhibitor (CB-839) for 48 hours and at the end of the treatment period, cell culture supernatants were collected for Glutamine quantification using our ELISA kit (#IS-I-1100). As shown here, both cell lines harbor a high Glutamine consumption rate which is dose dependently reverted by Gls1 blockade. Also, it's noteworthy that Gls1 blockade by CB-839.



Tumor cell lines from both murine and human origins degrade Glutamine to support their high proliferating rate in a Gls1 dependent manner.

Cancer cell lines were seeded and were then left untreated or exposed to a specific Gls1 inhibitor (CB-839 at 1µM). At the end of treatment duration, culture supernatants were collected and processed for Glutamine quantitation by ELISA (#IS-I-1100). As depicted here, the different tumor cell lines harbored a variable Glutamine consumption rate - being higher in murine than in human tumor cell lines. Among the different human cell lines, a higher rate of Glutamine degradation is observed for colorectal (HT29 & HCT116) followed by lung (H1299 & A549) and then breast (BT-549 & MDA-MB231) cancer cell lines. Also, it's noteworthy that Gls1 blockade by CB-839 only partially reversed Glutamine consumption, thus indicating the participation of another catabolic pathway, more presumably Gls2.



Typical standard curve of Glutamine ELISA

Contact information

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

https://www.immusmol.com/shop/l-glutamine-elisa-kit/