

Kynurenine/Tryptophan ratio in low-volume samples

Kynurenine/Tryptophan ratio ELISA pack

Ref. ISE-2227

Composed of two distinct ELISA kits - L-Kynurenine ELISA kit BA-E-2200 and L-Tryptophan ELISA kit BA-E-2700 - the pack enables the easy determination of Kynurenine/Tryptophan ratio in cell culture supernatant, serum and plasma samples. With a minimal sample volume as low as 20 μ L per kit, the pack is particularly well suited for longitudinal studies in mice.

SCIENTIFIC BACKGROUND

The kynurenine-tryptophan ratio (KTR) is a key marker of tryptophan catabolism along the kynurenine pathway, through the enzymatic activity of indoleamine 2,3-dioxygenase (IDO1/2) or tryptophan 2,3-dioxygenase (TDO2). KTR has been described to be increased in a wide range of pathological contexts, including cancers, infectious diseases, as well as neurological disorders. In some instances, KTR might also serve as a clinically relevant, noninvasive, predictive biomarker.

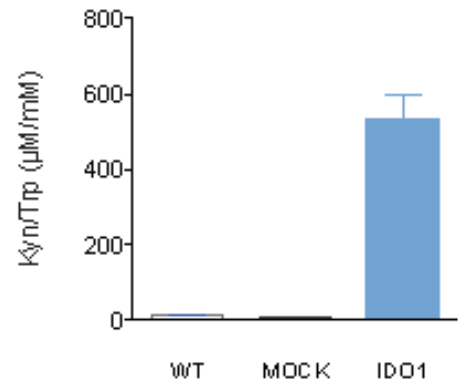
ASSAY SPECIFICATIONS

Format	2 x 96-well kits
Species reactivity	Any species
Samples	Cell culture supernatant, plasma, serum
Sample volume	20 μ L/kit
Sensitivity	LoD KYN: < 45.7 ng/mL LoD TRP: < 1.2 μ g/mL
Assay time	Sample preparation: 1,5h ELISA: Overnight

REPRESENTATIVE RESULTS

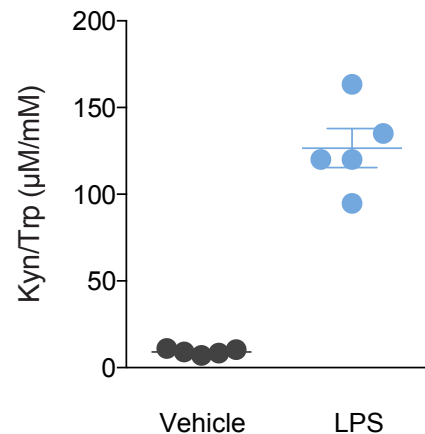
KYN/TRP ratio in cell culture supernatant

Murine CT26 colorectal cancer cell line was modified to stably express indoleamine 2,3 dioxygenase (IDO1). Empty-vector transfected cell line (MOCK) as well as parental CT26 cell line (Wilde Type) was used as negative controls. These different cell lines were cultured in 24-well plates for 48 hours. Kynurenine and Tryptophan were then measured by mean of ELISA and KTR ratio was calculated. As shown here, KTR level was higher in the IDO1-overexpressing cell line than in the MOCK or wild type (WT) CT26 cell lines.



KYN/TRP ratio in mouse plasma samples

C57BL/6 mice were exposed to 10mg/kg of LPS or with PBS for 24 hours. Mice (n=5/experimental group) were bled at the tail vein using EDTA-Monovette®. Kynurenine and Tryptophan were quantified using ELISA kits. As an inducer of inflammatory response, LPS triggered a significant increase in plasmatic KTR level.



KYN/TRP ratio in human plasma samples

Kynurenine and Tryptophan were quantified using ELISA kits in plasma from 62 patients with various types of cancers and 19 age-matched and sex-matched healthy subjects. As expected, cancer patients display higher KTR ratio when compared to healthy subjects. It also permits the stratification of cancer patients according to KTR values - High and Intermediate (Int) - thus warranting its potential use as a clinical biomarker.

