PRODUCT INFORMATION

Kynurenic Acid-BSA
Ref: KynACRUO

1. FIELD OF USE
Kynurenic Acid-BSA can be used as microplate coating antigen in Indirect ELISAs and as magnetic nanoparticle coating antigen in Liquid Phase immunoassays, for the quantitative determination of immunoglobulins to conjugated Kynurenic Acid, in biological liquids.

2. MATERIAL SUPPLIED

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Clear polystyrene 2mL-microtube with o-ring seal screw attachment loop containing 1mg powder of Kynurenic Acid conjugated with BSA via 1-(3-dimethylaminopropyl)-3-ethylcarbodiimide (EDC)</td>
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3. GENERAL INSTRUCTIONS
- Dilute Kynurenic Acid-BSA powder in distilled water and stir gently for 15 min prior to use.

4. CAUTIOUS FOR USE
- For research use only. Not for use in diagnostic procedures.
- Respect usual handling precautions in laboratory.
- Dispose of waste observing all local, state, provincial or national regulations.

5. STORAGE AND STABILITY
- Microtubes are packed and sealed in a pouch with desiccant. They are shipped at ambient temperature.
- Upon receipt, store microtubes between +2 and +8°C in unopened pouches.
- See expiry date on packaging label.

6. BACKGROUND
The main route of catabolic tryptophan degradation is through kynurenine pathway (KP) (Beadle et al., 1947).

Three enzymes with different features have been implicated in the first step of tryptophan degradation along the kynurenine pathway (KP): Tryptophan-2, 3-dioxygenase (TDO), indoleamine 2, 3-dioxygenase 1 (IDO1) and indoleamine 2, 3-dioxygenase 2 (IDO2) (Van Baren and Van den Eynde, 2015). TDO is strongly expressed constitutively in the liver, where it is believed to be responsible for maintaining systemic TRP levels, and – albeit at lower levels – in neurons (Platten et al., 2015). IDO1, whose expression is inducible in most tissues, plays a key role in immunoregulation and the retrocontrol of immune responses (Van Baren and Van den Eynde, 2015). However, recent preclinical studies
propose an alternative route of TRP degradation to IDO1 in tumors, via TDO. Indeed, tumor cells and possibly specialized myeloid cells may express and catabolise TRP via TDO instead of or in addition to IDO1 (Platten et al., 2015). Less is known about the role of IDO2, the third enzyme of the pathway (Van Baren and Van den Eynde, 2015). Indeed, IDO2 is not as widely expressed as IDO1. That may be due to common genetic polymorphisms in IDO2 compromising or abolishing enzymatic activity. A cross-talk or cooperation between the functions of IDO1 and IDO2 may contribute in immune regulation (Metz et al., 2007).

Tryptophan catabolism achieved through the action of IDO(s) and TDO along the KP results in local accumulation of tryptophan catabolites, including kynurenine and its derivatives, depending on the presence of downstream enzymes in the KP. Although IDO(s) and TDO are located in the cytosol, the metabolic modifications they induce extend to the extracellular microenvironment because kynurenine derivatives readily cross the plasma membrane through specific transporters (Van Baren and Van den Eynde, 2015). Now, the immune system maintains the organism’s integrity and participates in homeostasis. This system responds to all disorders through the activation of specialized cells and through antibody production. Accordingly, the quantification of defined circulating antibodies is an indirect way of screening and monitoring the organism (Geffard et al., 2010).

Kynurenic Acid being among the major TRP metabolites via the KP activation (Duleu et al., 2008), the quantification of immunoglobulins directed against conjugated Kynurenic Acid is therefore relevant when performed in biological liquids from organisms which may present either neurotoxic or immunomodulatory activities due to immune activation (Geffard et al., 2010). For example, after parasitic and other infections, in neurological conditions (Badawy, 2013), in cancer, autoimmunity, transplant and allergy (Platten et al., 2015), where IDO(s) -and/or TDO- activity can be dramatically elevated to levels exerting a major controlling influence on TRP degradation throughout the body (Badawy, 2013). Thus, statistically significant (p≤0,01) abnormal high levels of IgA directed against conjugated Kynurenic Acid were found in human serum, in Amyotrophic Lateral Sclerosis (ALS), Alzheimer’s disease (AD) and Parkinson’s disease (PD) (Duleu et al., 2008, 2010).

Accordingly, the quantitative determination in biological liquids of immunoglobulins directed against conjugated Kynurenic Acid is an easy and reliable tool:

- For indirectly quantifying Kynurenic Acid
- When it comes to developing multi-biomarker disease activity (MBDA) tests, 1) for monitoring the evolution of chronic diseases such as mentioned above and 2) for evaluating the general effectiveness of combination poly-therapies used in the disease treatment.

7. BIBLIOGRAPHIC REFERENCES


