

# Product Information

**IDO1, human**recombinant, expressed in *Escherichia coli*Catalog Number **SAE0096**

Storage Temperature –20 °C

Synonyms: Indoleamine 2,3-dioxygenase 1, IDO-1

**Product Description**

Indoleamine 2,3-dioxygenase (IDO) is a heme-containing enzyme, with a molecular mass of ~45 kDa,<sup>1</sup> that is induced by INF- $\gamma$  and catalyzes the conversion of tryptophan to *N*-formyl-L-kynurenine.<sup>2</sup> This leads to the depletion of tryptophan and results in T-cell and dendritic cell inactivation.<sup>3</sup> Two isoforms of IDO exist, IDO1 and IDO2, with IDO1 as the far more active isoform of the two, and thus the more extensive subject of investigation.<sup>4</sup> The nature of the heme binding in IDO1 has been studied.<sup>5</sup> Crystal studies of a recombinant form of human IDO1 have been reported.<sup>6</sup>

IDO1 activity has been identified as an important immune escape pathway in tumor cells. Inhibition of IDO1 has been found to delay cancer growth and enhance dendritic vaccines.<sup>4</sup> Inhibition of IDO1 is of interest because of the proposed role of IDO1 in the pathogenesis of conditions such as cancer, hypotension, and neurodegenerative disorders, and its potential to aid cancer immunotherapy and organ transplant.<sup>4</sup>

This recombinant version of human IDO1 is expressed in *Escherichia coli* with a 6 $\times$  histidine tag introduced at the N-terminus of the protein. The purified IDO1 is lyophilized from a solution containing 10 mM Trizma® buffer, pH 7.0, with 500 mM NaCl, and a carbohydrate carrier.

Unit definition: 1 unit of enzyme hydrolyzes 1.0 pmole of L-Tryptophan to *N*-formyl-L-kynurenine per minute at pH 6.5 at 37 °C.

**Precautions and Disclaimer**

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.<sup>1</sup>

**Preparation Instructions**

It is recommended to reconstitute the IDO1 in 200  $\mu$ L of water. Resuspend the lyophilized IDO1 by gentle pipetting or tapping. **Do not vortex.** Briefly centrifuge after reconstitution. Solutions in water should be stored in frozen aliquots to avoid freeze-thaw cycles, which can adversely affect the IDO1 activity.

**Storage/Stability**

Store the product at –20 °C. The product is stable for at least 2 years as supplied.

**References**

1. Tone, S. *et al.*, *Nucleic Acids Res.*, **18(2)**, 367 (1990).
2. Soliman, H. *et al.*, *Cancer J.*, **16(4)**, 354-359 (2010).
3. Meisel, R. *et al.*, *Blood*, **103(12)**, 4619-4621 (2004).
4. Bilir, C., and Sarisozen, C., *J. Oncol. Sci.*, **3(2)**, 52-56 (2017).
5. Nelp, M.T. *et al.*, *Proc. Nat. Acad. Sci. USA*, **115(13)**, 3249-3254 (2018).
6. Sugimoto, H. *et al.*, *Proc. Nat. Acad. Sci. USA*, **103(8)**, 2611-2616 (2006).

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