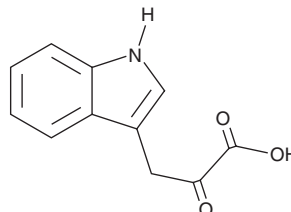


# PRODUCT INFORMATION

## Indole-3-pyruvic Acid

Item No. 29876

**CAS Registry No.:** 392-12-1  
**Formal Name:**  $\alpha$ -oxo-1H-indole-3-propanoic acid  
**Synonyms:** Indole-3-pyruvate, IPA, IPyr, NSC 88874  
**MF:**  $C_{11}H_9NO_3$   
**FW:** 203.2  
**Purity:**  $\geq 98\%$   
**UV/Vis.:**  $\lambda_{max}$ : 233, 326 nm  
**Supplied as:** A crystalline solid  
**Storage:**  $-20^\circ\text{C}$   
**Stability:**  $\geq 4$  years  
**Item Origin:** Synthetic



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

Indole-3-pyruvic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the indole-3-pyruvic acid in the solvent of choice, which should be purged with an inert gas. Indole-3-pyruvic acid is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of indole-3-pyruvic acid in these solvents is approximately 30 mg/ml.

Indole-3-pyruvic acid is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, indole-3-pyruvic acid should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Indole-3-pyruvic acid has a solubility of approximately 0.14 mg/ml in a 1:6 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

Indole-3-pyruvic acid is an endogenous metabolite of tryptophan and intermediate in the biosynthesis of the major auxin hormone, indole-3-acetic acid (IAA; Item No. 16954), in plants.<sup>1-3</sup> Indole-3-pyruvic acid (50 and 250  $\mu\text{M}$ ) activates the aryl hydrocarbon receptor (AhR) in a reporter assay.<sup>1</sup> It reduces UVB-induced cytotoxicity and the levels of COX-2 in HaCaT keratinocytes.<sup>4</sup> Topical administration of indole-3-pyruvic acid (100  $\mu\text{mol}$ ) reduces the severity of UVB-induced damage in mouse skin. Dietary administration of indole-3-pyruvic acid (0.1%) reduces diarrhea, colonic inflammation, and the colonic expression of *Il1b*, *Ifng*, *Tnfa*, and *Il12b* in a mouse model of T cell-mediated colitis.<sup>1</sup> It increases the time spent in the open arms of the elevated plus maze in mice when administered at a dose of 100 mg/kg.<sup>2</sup> It also reverses the anxiogenic effect of caffeine (Item No. 14118) and 3-hydroxy kynurenine, but not pentylenetetrazole (Item No. 18682) or phenylethylamine, in the elevated plus maze in mice.

### References

1. Aoki, R., Aoki-Yoshida, A., Suzuki, C., *et al.* Indole-3-pyruvic acid, an aryl hydrocarbon receptor activator, suppresses experimental colitis in mice. *J. Immunol.* **201(12)**, 3683-3693 (2018).
2. Lapin, I.P. and Politi, V. Anxiolytic effect of indole-3-pyruvic acid (IPA) in mice. *Pharmacol. Res.* **28(2)**, 129-134 (1993).
3. Mashiguchi, K., Tanaka, K., Sakai, T., *et al.* The main auxin biosynthesis pathway in Arabidopsis. *Proc. Natl. Acad. Sci. USA* **108(45)**, 18512-18517 (2011).
4. Aoki, R., Aoki-Yoshida, A., Suzuki, C., *et al.* Protective effect of indole-3-pyruvate against ultraviolet b-induced damage to cultured HaCaT keratinocytes and the skin of hairless mice. *PLoS One* **9(5)**, e96804 (2014).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

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