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Zuschläge

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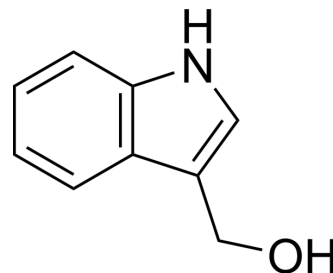
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Indole-3-carbinol

Cat. No.:	HY-N0170		
CAS No.:	700-06-1		
Molecular Formula:	C ₉ H ₉ NO		
Molecular Weight:	147.17		
Target:	NF-κB; Aryl Hydrocarbon Receptor; E1/E2/E3 Enzyme; Endogenous Metabolite		
Pathway:	NF-κB; Immunology/Inflammation; Metabolic Enzyme/Protease		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro	DMSO : 100 mg/mL (679.49 mM; Need ultrasonic)			
		Solvent Concentration	Mass	
			1 mg	5 mg
			10 mg	
Preparing Stock Solutions	1 mM	6.7949 mL	33.9743 mL	67.9486 mL
	5 mM	1.3590 mL	6.7949 mL	13.5897 mL
	10 mM	0.6795 mL	3.3974 mL	6.7949 mL
Please refer to the solubility information to select the appropriate solvent.				
In Vivo	<ol style="list-style-type: none"> Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (16.99 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (16.99 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (16.99 mM); Clear solution 			

BIOLOGICAL ACTIVITY

Description	Indole-3-carbinol (I3C) inhibits NF-κB activity and also is an Aryl hydrocarbon receptor (AhR) agonist, and an inhibitor of WWP1 (WW domain-containing ubiquitin E3 ligase 1).		
IC₅₀ & Target	NF-κB	AhR	Human Endogenous Metabolite
In Vitro	It is found that Indole-3-carbinol (I3C) inhibits the proliferation of THP-1 cells in a dose- and time dependent manner with minimal toxicity over normal monocytes. The AhR target genes (CYP1A1, IL1β) are overexpressed upon Indole-3-carbinol		

treatment ($p < 0.05$ to $p < 0.001$). The antiproliferative effects of Indole-3-carbinol are in association with programming cell death. Indole-3-carbinol downregulates BCL2 and upregulates FasR in THP-1 cells ($p < 0.05$ to $p < 0.001$). G1 cell cycle arrest is also observed using flow cytometry. G1-acting cell cycle genes (P21, P27 and P53) are overexpressed ($p < 0.05$ to $p < 0.001$), while CDK2 is downregulated upon Indole-3-carbinol treatment ($p < 0.01$ to $p < 0.001$)^[1]. Indole-3-carbinol suppresses NF- κ B activity and stimulates the p53 pathway in pre-B acute lymphoblastic leukemia cells^[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay ^[1]

THP-1 cells are cultured in RPMI 1640 supplemented with 10% FBS, 100 U/mL penicillin, 100 mg/mL streptomycin and 2 mM Glutamax in a fully humidified atmosphere with 5% CO₂. Cells ($2-5 \times 10^5$ mL⁻¹) are seeded in six well plates followed by resuspension in complete growth media. THP-1 monocyte cells are then treated with 10 ng/mL phorbol 12-myristate 13-acetate as a tumor promoter to induce stable differentiation into attaching macrophage-like cells and overexpression of AhR. The cells are then treated with varying concentrations of Indole-3-carbinol (1, 10 and 100 μ M, and 1 mM). THP-1 cells and enriching normal monocytes are seeded at 5×10^4 cells/well in 24-well plate with different concentrations of Indole-3-carbinol and observed for 24 and 48 h followed by MTT assay. The cells are incubated in triplicates in a final volume of 200 mL of Phenol Red free RPMI 1640 for 20 h. An aliquot of 20 mL of MTT solution (5 mg/mL) is added to each well and incubated for 4 h. Formazan crystals are formed. An amount of 300 mL DMSO is then added to each well as a cell lysis solution. Percentage of cell viability is assessed by spectrophotometry at 570 nm^[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Brain Behav Immun. 2020 Nov;90:108-137.
- Front Pharmacol. 06 June 2022.
- Fish Shellfish Immunol. 2023 Aug 26;109037.
- Molecules. 2018 Oct 11;23(10). pii: E2600.
- Dev Comp Immunol. 2021 Jun 12;123:104148.

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REFERENCES

- [1]. Mohammadi S, et al. Indole-3-carbinol induces G1 cell cycle arrest and apoptosis through aryl hydrocarbon receptor in THP-1 monocytic cell line. J Recept Signal Transduct Res. 2017 Oct;37(5):506-514.
- [2]. Safa M, et al. Indole-3-carbinol suppresses NF- κ B activity and stimulates the p53 pathway in pre-B acute lymphoblastic leukemia cells. Tumour Biol. 2015 May;36(5):3919-30.
- [3]. Lee YR, et al. Reactivation of PTEN tumor suppressor for cancer treatment through inhibition of a MYC-WWP1 inhibitory pathway. Science. 2019 May 17;364(6441). pii: eaau0159.

Caution: Product has not been fully validated for medical applications. For research use only.

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