**Indole-3-carbinol**

**Cat. No.:** HY-N0170  
**CAS No.:** 700-06-1  
**Molecular Formula:** C₉H₉NO  
**Molecular Weight:** 147.17  
**Target:** NF-κB; Aryl Hydrocarbon Receptor; E1/E2/E3 Enzyme  
**Pathway:** NF-κB; Immunology/Inflammation; Metabolic Enzyme/Protease  
**Storage:**  
- Powder: -20°C for 3 years, 4°C for 2 years  
- In solvent: -80°C for 6 months, -20°C for 1 month

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**SOLVENT & SOLUBILITY**

**In Vitro**  
DMSO: 150 mg/mL (1019.23 mM; Need ultrasonic and warming)

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Mass (mg)</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparing Stock Solutions</td>
<td></td>
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</tr>
<tr>
<td>1 mM</td>
<td>6.7949 mL</td>
<td>33.9743 mL</td>
<td>67.9486 mL</td>
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</tr>
<tr>
<td>5 mM</td>
<td>1.3590 mL</td>
<td>6.7949 mL</td>
<td>13.5897 mL</td>
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</tr>
<tr>
<td>10 mM</td>
<td>0.6795 mL</td>
<td>3.3974 mL</td>
<td>6.7949 mL</td>
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</tr>
</tbody>
</table>

Please refer to the solubility information to select the appropriate solvent.

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**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**  
| In Vitro | NF-κB | AhR |

**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 programing 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-κB activity and stimulates the p53 pathway in pre-B acute lymphoblastic leukemia cells[2].
**PROTOCOL**

**Cell Assay**

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 (2-5×10⁵ 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 μM, and 1 mM). THP-1 cells and enriching normal monocytes are seeded at 5×10⁴ 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.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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**REFERENCES**


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

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