Ac-DEVD-CHO

Cat. No.: HY-P1001
CAS No.: 169332-60-9
Molecular Formula: C₂₀H₃₀N₄O₁₁
Molecular Weight: 502.47
Sequence: N-Acetyl-Asp-Glu-Val-Asp-al
Sequence Shortening: Ac-DEVD-al
Target: Caspase
Pathway: Apoptosis
Storage: Powder -80°C 2 years
         -20°C 1 year
         In solvent -80°C 6 months
         -20°C 1 month

SOLVENT & SOLUBILITY

In Vitro

H₂O : ≥ 50 mg/mL (99.51 mM)
* “≥” means soluble, but saturation unknown.

Preparation of Stock Solutions

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Mass 1 mg</th>
<th>Mass 5 mg</th>
<th>Mass 10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>1.9902 mL</td>
<td>9.9508 mL</td>
<td>19.9017 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.3980 mL</td>
<td>1.9902 mL</td>
<td>3.9803 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.1990 mL</td>
<td>0.9951 mL</td>
<td>1.9902 mL</td>
</tr>
</tbody>
</table>

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

BIOLOGICAL ACTIVITY

Description
Ac-DEVD-CHO is a specific Caspase-3 inhibitor with a Kᵢ value of 230 pM.

IC₅₀ & Target

<table>
<thead>
<tr>
<th>Caspase 3</th>
<th>Caspase-8</th>
<th>Caspase-7</th>
<th>Caspase-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.23 nM (Kᵢ)</td>
<td>0.92 nM (Kᵢ)</td>
<td>1.6 nM (Kᵢ)</td>
<td>12 nM (Kᵢ)</td>
</tr>
<tr>
<td>Caspase-1</td>
<td>Caspase-6</td>
<td>Caspase-9</td>
<td>Caspase-4</td>
</tr>
<tr>
<td>18 nM (Kᵢ)</td>
<td>31 nM (Kᵢ)</td>
<td>60 nM (Kᵢ)</td>
<td>132 nM (Kᵢ)</td>
</tr>
<tr>
<td>Caspase-5</td>
<td>Caspase-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>205 nM (Kᵢ)</td>
<td>1710 nM (Kᵢ)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
To ascertain the role of caspase-3 in SLNT-induced apoptosis, a caspase-3 inhibitor (Ac-DEVD-CHO) is used. The addition of Ac-DEVD-CHO significantly prevents SLNT-induced apoptosis (from 32.91±1.21% decreases to 15.88±1.58% while NC and Ac-DEVD-CHO groups are 6.45±0.96%, 7.77±0.79%, respectively)[2]. The apoptosis rates of cells pretreated with zVAD-fmk (5.32%) or Ac-DEVD-CHO (7.43%) decrease obviously after hypericin-mediated PDT treatment[3]. Remarkably, 10 μmol/L Ac-DEVD-CHO partially blocks the effect of SIN-induced apoptosis and reduces the number of apoptotic nuclei. These effects of SIN are blocked by the caspase-3 inhibitor Ac-DEVD-CHO.

Camptothecin (4 μM), a positive control, increases caspase-3 activity, which is also blocked by Ac-DEVD-CHO[4].

Compare with model group, in CI group, the concentrations of serum BUN are decreased significantly at all time points after operation and those of Cr are decreased significantly at 6 hours, then restored to those of the sham group at 12 hours and 24 hours; the concentrations of serum TNF-α, IL-6 are decreased and those of IL-10 are elevated significantly at all time points. [TNF-α (μg/L) 6 hours: 436.2±64.2 vs. 653.6±8.9, 12 hours: 233.4±85.4 vs. 579.7±137.1, 24 hours: 151.0±90.3 vs. 551.0±119.8, IL-6 (μg/L) 6 hours: 1033.2±345.8 vs. 1 595.3±159.4, 12 hours: 366.3±68.3 vs. 1 330.7±249.8, 24 hours: 241.2±208.4 vs. 815.3±572.7, IL-10 (μg/L) 6 hours: 366.3±68.3 vs. 1 330.7±249.8, 24 hours: 366.3±68.3 vs. 1 330.7±249.8, IL-10 (μg/L) 6 hours: 366.3±68.3 vs. 1 330.7±249.8, 24 hours: 366.3±68.3 vs. 1 330.7±249.8, 12 hours: 37.2±5.0 vs. 24.5±4.3, 24 hours: 38.3±5.5 vs. 18.2±1.6, all P<0.05]; the renal cell apoptosis rates are decreased significantly at all time points: apoptosis rates 6 hours: (13.9±3.2)% vs. (18.3±1.4)%, 12 hours: (10.5±3.6)% vs. (15.9±3.5)%, 24 hours: (8.4±1.8)% vs.(12.5±2.1)%[5].

OCLs are incubated with RANKL and treated with 0.5 mM SIN with or without the specific caspase-3 inhibitor Ac-DEVD-CHO (10 μM) for 24 h. At the end of the treatment, the cells are washed with PBS and are stained for 15 min with 10 μM Hoechst 33258 dye. Images of the stained cells are captured with a fluorescent microscope. The differences are evaluated by counting the number of cells with apoptotic nuclear condensation in each well[4].

One hundred and two male mice are subjected to cecal ligation and puncture or sham operation. The animals are assigned into three equal groups (n=34) according to random number table: sham group, model group, and caspase-3 inhibitor (CI) group. Thirty minutes before CLP, Ac-DEVD-CHO (4 μg/g) is injected subcutaneously in CI group. The levels of blood urea nitrogen (BUN) and creatinine (Cr) are determined, and the concentrations of tumor necrosis factor-α (TNF-α), interleukins (IL-6 and IL-10) are measured by enzyme linked immunosorbent assay (ELISA), the renal cell apoptosis rate is determined by flow cytometry. The 4-day and 7-day survival rates of three groups of mice are observed[5].

Customer Validation


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References


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