3-Bromopyruvic acid

Cat. No.: HY-19992  
CAS No.: 1113-59-3  
Molecular Formula: C₃H₃BrO₃  
Molecular Weight: 166.96  
Target: Hexokinase; Apoptosis; Autophagy  
Pathway: Metabolic Enzyme/Protease; Apoptosis; Autophagy  
Storage: Powder -20°C 3 years  
4°C 2 years  
In solvent -80°C 6 months  
-20°C 1 month

SOLVENT & SOLUBILITY

In Vitro | H₂O ≥ 32 mg/mL (191.66 mM)  
* "≥" means soluble, but saturation unknown.

**Preparing Stock Solutions**

<table>
<thead>
<tr>
<th>Solvent Concentration</th>
<th>Mass</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>5.9895 mL</td>
<td>29.9473 mL</td>
<td>59.8946 mL</td>
<td></td>
</tr>
<tr>
<td>5 mM</td>
<td>1.1979 mL</td>
<td>5.9895 mL</td>
<td>11.9789 mL</td>
<td></td>
</tr>
<tr>
<td>10 mM</td>
<td>0.5989 mL</td>
<td>2.9947 mL</td>
<td>5.9895 mL</td>
<td></td>
</tr>
</tbody>
</table>

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

BIOLOGICAL ACTIVITY

Description

3-Bromopyruvate (Bromopyruvic acid) is an analogue of pyruvate and a potent hexokinase (HK)-II inhibitor with high tumor selectivity. 3-Bromopyruvate inhibits cell growth and induces apoptosis through interfering with glycolysis. 3-Bromopyruvate induces autophagy by stimulating ROS formation in breast cancer cells. Antimicrobial activities[1][2][3].

In Vitro

3-Bromopyruvate enhances TRAIL-induced apoptosis in breast cancer cells[2].  
3-Bromopyruvate (Bromopyruvic acid), a hexokinase II inhibitor, can induce apoptosis in hepatocellular carcinoma cells by inducing endoplasmic reticulum (ER) stress[2].  
3-Bromopyruvate inhibits ATP generation and upregulates the expression of DR5. 3-Bromopyruvate upregulates CHOP, GRP78 and the phosphorylation of AMPK and augments TRAIL-induced Bax and caspase-3 levels[2].  
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[2]

Cell Line: MCF-7 and MDA-MB-231 cells
Concentration: 40, 80, 160 or 320 µM
Incubation Time: 24 hours
Result: 3-Bromopyruvate (80 and 160 µmol/l) and TRAIL (400 ng/ml) significantly inhibited cell viability.

In Vivo
3-Bromopyruvate (8 mg/kg; i.p.; every 4 days for 28 days) shows a synergistic antitumor effect in MCF-7 cell xenografts in nude mice[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model: Female nude mice (BALB/c; 4-5-weeks old and 18-20 g)[2]
Dosage: 8 mg/kg
Administration: I.p.; every 4 days for 28 days
Result: Showed antitumor efficacy in tumor xenografts.

REFERENCES

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