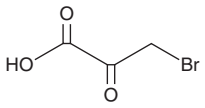
PRODUCT INFORMATION

3-Bromopyruvic Acid

Item No. 19068

CAS Registry No.: 1113-59-3
Formal Name: 3-bromo-2-oxo-propanoic acid
Synonyms: 3-BP, β-Bromopyruvic acid, NSC 11731, NSC 62343
MF: $C_3H_3BrO_3$
FW: 167.0
Purity: ≥95%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

3-Bromopyruvic acid (3-BP) is supplied as a crystalline solid. A stock solution may be made by dissolving the 3-bromopyruvic acid in the solvent of choice, which should be purged with an inert gas. 3-BP is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 3-BP in ethanol is approximately 16 mg/ml and approximately 25 mg/ml in DMSO and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of 3-BP can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 3-BP in PBS, pH 7.2, is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

3-BP is an alkylating agent and an antimetabolite of pyruvate that is metabolized through glutathione conjugation.[1,2] It decreases proliferation of hepatocellular carcinoma BEL-7402 cells that express hexokinase II, an isoform of hexokinase overexpressed in many cancers.[3,4] 3-BP reduces tumor growth and induces tumor necrosis in a hepatocellular carcinoma mouse xenograft model when administered at a dose of 50 mg/kg per day, six days per week, for three weeks.[3]

References

1. Sadowska-Bartosz, I., Szewczyk, R., Jaremko, L., *et al.* Anticancer agent 3-bromopyruvic acid forms a conjugate with glutathione. *Pharmacol. Rep.* **68(2)**, 502-505 (2016).
2. El Sayed, S.M., Baghdadi, H., Zolaly, M., *et al.* The promising anticancer drug 3-bromopyruvate is metabolized through glutathione conjugation which affects chemoresistance and clinical practice: An evidence-based view. *Med. Hypotheses* **100**, 67-77 (2017).
3. Gong, L., Wei, Y., Yu, X., *et al.* 3-Bromopyruvic acid, a hexokinase II inhibitor, is an effective antitumor agent on the hepatoma cells: *In vitro* and *in vivo* findings. *Anticancer Agents Med. Chem.* **14(5)**, 771-776 (2014).
4. Lis, P., Dylag, M., Niedźwiecka, K., *et al.* The HK2 dependent "Warburg Effect" and mitochondrial oxidative phosphorylation in cancer: Targets for effective therapy with 3-bromopyruvate. *Molecules* **21(12)**, E1730 (2016).

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