Hexokinase

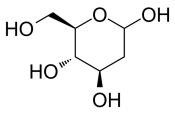
Hexokinases (HK) play a central role in cellular glucose metabolism. Hexokinasescatalyse the first obligatory step of glucose metabolism, the ATP-dependent phosphorylation of glucose (Glc) to yield glucose-6-phosphate (Glc-6-P). In addition to maintaining the downhill concentration gradient that permits facilitated glucose entry into cells, this reaction constitutes the first step of all major pathways of glucose utilization, including glycolysis, the pentose phosphate pathway, (PPP) and glycogenesis. As such hexokinases are uniquely positioned to influence the extent and direction of glucose flux within the cell. The PPP represents the principal cellular source of NADPH and plays important roles in redox homeostasis, anabolism and nucleotide synthesis (Rib-5-P, ribulose 5-phosphate). Similarly, glycolysis and glycogenesis play important roles in energy metabolism and storage, respectively. Other important cellular functions, including hexosamine and nucleotide sugar generation for glycosaminoglycan and glycoprotein biosynthesis, also require Glc-6-P as a precursor (UDP-Glc, uridine diphosphate glucose; UDP-GlcNAc, uridine diphosphate N-acetylglucosamine).

Hexokinase Inhibitors

2-Deoxy-D-glucose

(2-DG; 2-Deoxy-D-arabino-hexose; D-Arabino-2-deoxyhexose) **Cat. No.:** HY-13966

2-Deoxy-D-glucose is a glucose analog that acts as a competitive inhibitor of glucose metabolism, inhibiting **glycolysis** via its actions on **hexokinase**.

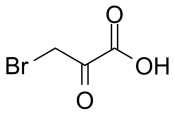


Purity: ≥98.0%
Clinical Data: Phase 1
Size: 500 mg, 1 g, 5 g

3-Bromopyruvic acid

(Bromopyruvic acid; Hexokinase II Inhibitor II, 3-BP) **Cat. No.:** HY-19992

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.

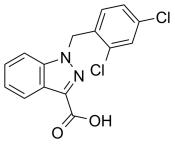


Purity: 98.00%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 500 mg, 1 g, 5 g, 10 g, 25 g

Lonidamine

(AF-1890; Diclondazolic Acid; DICA) **Cat. No.:** HY-B0486

Lonidamine (AF-1890), an antitumor agent, is a **hexokinase**, **mitochondrial pyruvate carrier** (K_i 2.5 μM in isolated rat liver mitochondria) and **plasma membrane monocarboxylate transporters** inhibitor, which also inhibits mitochondrial complex Ⅱ.

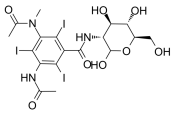


Purity: 99.45%
Clinical Data: Phase 3
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg

Metrizamide

(Amipaque) **Cat. No.:** HY-W000133

Metrizamide (Amipaque) is used as the contrast medium for angiography in neuroradiological investigations. Metrizamide inhibits human brain hexokinase.



Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg