Technical Data Sheet

β-Glycerophosphate disodium salt pentahydrate

for biochemistry

Order number: 1135

β-Glycerophosphate (syn. BGP; 1,3-dihydroxypropan-2-yl dihydrogen phosphate; glycerol-2-phosphate) is a water-soluble, reversible inhibitor of serine-threonine phosphatases. Often, β -Glycerophosphate is used as an additive for cell culture media and lysis buffers in combination with other phosphatase/protease inhibitors for broad-spectrum inhibition of post-translational protein modifications.
Phosphatases (= phosphate group-removing enzymes), together with protein kinases, play a central role in the regulation of cellular signaling pathways. While protein kinases specifically transfer γ-phosphate from ATP to proteins (more specifically to contained serine, threonine and tyrosine residues), phosphatases remove these phosphate residues again. Phosphorylation is the most common post-translational modification of proteins.

Applications

β-Glycerophosphate serves very different purposes in biological research. On the one hand, it is of course used in its function as a phosphatase inhibitor. On the other hand, ß-Glycerophosphate is also used as a general source of inorganic phosphate (e.g. in cell culture media) and as a buffer substance.
β-Glycerophosphate is a component of M17 medium for Lactococcus cultures. M17 is applied for isolating milk streptococci from yogurt and other milk products. β-Glycerophosphate buffers the medium and prevents the pH from dropping due to the acid produced during the fermentation of lactose. β-Glycerophosphate also has the side effect that it suppresses the growth of Lactobacillus bulgaricus, which enables targeted isolation of S. thermophilus from yogurt.
β-Glycerophosphate is used in the development of hydrogels and scaffolds used in tissue engineering as well as in cell growth and differentiation.
β-Glycerophosphate promotes bone matrix mineralization/calcification and in-vitro osteogenic differentiation of bone marrow-derived stem cells.
As a phosphatase inhibitor, β-Glycerophosphate is commonly added to kinase reaction buffers.

We recommend preparing a 1 M aqueous stock solution (306 mg β-glycerophosphate sodium salt pentahydrate / ml water). Dissolve the powder in the required amount of water, sterilize by filtration, aliquot and freeze at -20 °C. Stock solutions are stable for up to 3 months at -20°C.
The typical working concentration varies between 1 and 100 mM.

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Storage and Stability

The powder is stored at 2-8°C or -20°C. Shipment may be at room temperature.

Related products

1110	Agarose Basic for biochemistry
1531	DNA Marker 1 kb (lyophilized)
1530	DNA Marker 100 bp (lyophilized)
1112	HEPES buffer grade for biochemistry
1125	Tris Xtrapure for biochemistry
1165	Tris hydrochloride for biochemistry
2151	Bicine for biochemistry
1269	Tricine for biochemistry
1086	MES monohydrate for biochemistry
1111	DTT for biochemistry
1123	Protein Ladder (11-245 kDa), prestained for molecular biology
1126	Albumin Fraction V for molecular biology
1277	SDS Xtrapure for biochemistry
1275	Glycine for biochemistry

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