Product Information

Bone Alkaline Phosphatase from Human Bone Osteosarcoma Cells

Lyophilized, ≥ 2000 u/mg protein

SAE0156

Product Description

Mammalian alkaline phosphatases are a group of membrane-bound glycoprotein isoenzymes that are attached to the cell membrane by a hydrophobic glycosyl-phosphatidylinositol (GPI) anchor.[1,2] The bone alkaline phosphatase (BAP) isozyme is expressed from the gene for tissue-nonspecific alkaline phosphatase, which is also expressed in liver and kidney. These three isoforms form the majority of alkaline phosphatases that circulate in serum. All three forms share the same amino acid sequence. However, they have different carbohydrate and lipid modifications that provide unique properties according to the source tissue.[1,2]

Bone alkaline phosphatase, also known as ostase, is synthesized by osteoblasts and is involved in the calcification of bone matrix. However, its precise role in bone formation process is still unknown. It is a highly specific marker of the bone-forming activity of osteoblasts. High activity of bone alkaline phosphatase is observed in serum in several bone diseases, such as Paget's disease, osteoporosis, ricket disease, bone metastatic carcinoma, and others. Physiological bone growth can also contribute to increased levels of bone alkaline phosphatase in serum.[1,3]

This product is purified from human osteosarcoma Saos-2 cells, an established cell line with high basal alkaline phosphatase activity.[4] Before purification, alkaline phosphatase is released from the cell membrane by enzymatic cleavage of the GPI anchor.

Unit Definition

One unit will hydrolyze 1.0 µmole of *p*-nitrophenyl phosphate to *p*-nitrophenol and inorganic phosphate per minute at pH 9.8 at 37 °C.

Storage/Stability

Store the lyophilized product at –20 °C.

Reconstituted product should be stored in working aliquots at –20 °C. Repeated freezing and thawing is not recommended. Do not store in a frost-free freezer.

Preparation Instructions

- Reconstitute the vial contents with 120-150 µL of warm water (37 °C).
- Vortex until all the vial contents have dissolved completely.
- Place the vial into 37 °C for 5-10 minutes or overnight at 2-8 °C.
- Before sampling, mix again by vortexing.
- This solution can be stored at 2-8 °C for up to 24 hours.
- For extended storage, freeze in working aliquots at –20 °C.

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

References

1. Sharma, U. *et al*., *Indian J. Clin. Biochem.*, **29(3)**, 269-278 (2014).
2. Millán, J.L., *Purinergic Signal*, **2(2)**, 335-341 (2006).
3. Roudsari, J.M., and Mahjoub, S., *Caspian J. Intern. Med.*, **3(3)**, 478-483 (2012).
4. Murray, E. *et al*., *J. Bone Miner. Res.*, **2(3)**, 231-238 (1987).

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