Alkaline Phosphatase
from calf intestine

Catalog Number P4978
Storage Temperature –20 ºC

EC 3.1.3.1
Synonyms: Calf Intestinal Alkaline Phosphatase, (CIP)

Product Description
Calf Intestinal Alkaline Phosphatase (CIP) is commonly used to remove 5'-phosphate groups from DNA, RNA, and both ribo and deoxy-ribonucleoside triphosphates. Removal of 5'-phosphates is very useful in preventing self-ligation of cleaved DNA vectors. This property greatly reduces background (plasmids without insert) in cloning procedures.

This product is provided in a solution of 10 mM Tris-HCl, pH 8.2, 50 mM KCl, 1 mM MgCl₂, 0.1 mM ZnCl₂, and 50 % glycerol (storage buffer).

Activity: ~10,000 units/ml

Unit Definition: One unit will hydrolyze 1 µmole of ρ-nitrophenyl phosphate per minute at 37 ºC in diethanolamine buffer.

DNase: None detected
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DNase: None detected

Components
Alkaline Phosphatase 1 vial
(Catalog Number P4978)

10× CIP Buffer 1 vial
1 M NaCl, 0.5 M Tris-HCl, 0.1 M MgCl₂, and 0.01 M dithiothreitol, pH 7.9 at 25 ºC.
(Catalog Number C3225)

Precautions and Disclaimer
This product is 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.

Storage/Stability
Store the product at –20 ºC.

Procedures
Dephosphorylation of DNA
1. Prepare 1× CIP Reaction Buffer by 10-fold dilution of included 10× CIP Buffer (Catalog Number C3225).
2. Dissolve DNA in 1× CIP Reaction Buffer (0.5 µg DNA/10 µl).
3. For 5’ overhang DNA, add 0.1 unit/pmol; for 3’ overhang or blunt end DNA add 1 unit/pmol.
4. Incubate 60 minutes at 37 ºC.
5. Extract with phenol/chloroform² (Catalog Number P3803 or P2069) or gel purify the DNA.
   Note: Phenol extraction or gel purification makes heat inactivation unnecessary.
6. Recover the DNA by alcohol precipitation.²

Heat Inactivation
Greater than 95% of the activity can be inactivated by heating to 75 ºC for 10 minutes in the presence of 5 mM EDTA.

References
1. Moessner, E. et al., Z. Physiol. Chem. 361, 543.