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Product Information

Alkaline Phosphatase
from calf intestine

Catalog Number **P4978**
Storage Temperature –20 °C

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 $MgCl_2$, 0.1 mM $ZnCl_2$, and 50 % glycerol (storage buffer).

Activity: ~10,000 units/ml

Unit Definition: One unit will hydrolyze 1 μmole of *p*-nitrophenyl phosphate per minute at 37 °C in diethanolamine buffer.

DNase: None detected
Nickase: None detected
RNase: None detected

Components

Alkaline Phosphatase (Catalog Number P4978)	1 vial
10× CIP Buffer 1 M NaCl, 0.5 M Tris-HCl, 0.1 M $MgCl_2$, and 0.01 M dithiothreitol, pH 7.9 at 25 °C. (Catalog Number C3225)	1 vial

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 °C.

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 °C.
5. Extract with phenol/chloroform[2] (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 °C for 10 minutes in the presence of 5 mM EDTA.

References

1. Moessner,E. et al., Z. Physiol. Chem. **361**, 543.
2. Sambrook, J. et al., Molecular Cloning: A Laboratory Manual, Cold Spring Harbor Laboratory (1989), p 5.72, 6.22-6.47 and E.3-E.13.

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