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# ProductInformation

**Acylase I**
**From porcine kidney**

Product Number **A3010**
Storage Temperature -20 °C

## Product Description

EC Number: 3.5.1.14
CAS Number: 9012-37-7
Molecular Weight: 86 kDa[1]
Synonyms: N-Acylamino acid amidohydrolase, Aminoacylase

Acylase I from porcine kidney is a dimer consisting of 2 equal subunits of 43 kDa. Each subunit contains 12 sulfhydryl groups and 2 disulfide bonds. The enzyme also has a divalent ion ($Zn^{2+}$) associated with it.[1]

Acylase from porcine kidney catalyzes the following reaction:
N-acyl-L-amino acid + $H_2O \rightarrow$ a carboxylate + L-amino acid.

The enzyme hydrolyzes a variety of N-acyl-L-amino acids and dehydropeptides containing dehydroalanyl residues. N-acyl-D-amino acids and dehydropeptides other than dehydroalanine are not hydrolyzed. The following compounds are hydrolyzed by acylase I: chloroacetyl-L-amino acids, L-leucinamide, chloroacetyldehydroalanine, glycyl-L-amino acids, and glycyldehydroalanine.[2] Aminoacylase is widely used as a reagent to resolve amino acid racemates. The $K_m$ for acyl amino acids have been reported in the literature: Ac-L-Met (0.99 mM), Ac-L-Glu (10.2 mM), and Ac-L-Phe (5.5 mM).[3]

Aminoacylase from pig kidney is activated[4] by $Zn^{2+}$ and $Co^{2+}$ and inhibited by SH blocking reagents, disulfide reducing reagents, N-tosyl-L-alanine, DL-norleucine, and N-tosyl-L-lysine chloromethylketone.[5]

## Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

## Preparation Instructions

This enzyme is soluble in potassium phosphate buffer, pH 7.0, (1 mg/ml), yielding a clear solution.

## References

1. Hernandez, A., and Pina, E., A Simplified Purification Method of Aminoacylase I. Prep. Biochem., **19**, 247-249 (1989).
2. Enzyme Handbook, 1st ed., **II**, Barman, T. E., ed., Springer-Verlag (Berlin, Germany: 1969), p. 656.
3. Henseling, J., and Rohm, K. R., Unusual Solvent Isotope Effects Of the Aminoacylase-catalyzed Hydrolysis Of Acetylamino Acids. FEBS Lett., **219**, 27-30 (1987).
4. Greenstein, J.P., Dehydropeptidases from kidney. Meth. Enzymol., **II**, 109-119 (1955).
5. Enzyme Handbook, **4**, Schomberg, D., and Salzmann, M., eds., Springer-Verlag (Berlin, Germany: 1991), EC 3.5.1.14, pp. 1-4 (1991).

TMG/RXR 6/06