STAADIUM™ PeptiZide L-Pyr, Patent pending

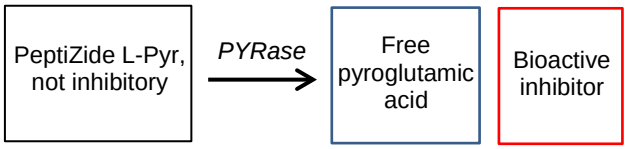
Cat. No. Z-4005_P00

M.W. 343.4 g/mol

Introduction

STAADIUM™ PeptiZide L-Pyr is an enzyme-responsive inhibition substrate acting on pyroglutamyl aminopeptidase (PYRase) positive bacteria.

The non-inhibitory compound containing an L-pyroglutamyl enzyme labile group is cleaved by PYRase, leading to the release of a bioactive compound.



The growth of PYRase expressing microorganism is inhibited, while microorganisms that do not express this enzyme are not affected.

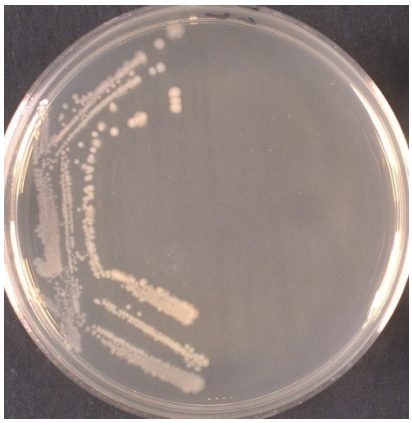
STAADIUM™ PeptiZide L-Pyr can be used as enzyme-specific selective supplement in agar plates and as an enrichment agent in broth culture. For example, it can be used to suppress *Citrobacter freundii* on diagnostic agar plates for Salmonella.

Application example, agar

Nutrient Agar (5 g/L peptone, 2 g/L yeast extract, 1 g/L meat extract, 5 g/L sodium chloride, 15 g/L agar, pH 7.4) was autoclaved and allowed to cool to 50°C, then 1 mM PeptiZide L-Pyr was added from a concentrated stock solution. A control plate was prepared similarly, but did not contain PeptiZide L-Pyr. Freshly grown *Salmonella Enteritidis* ATCC 13076 (S.e.) and *Citrobacter freundii* ATCC 8090 (C.f.) were diluted to an optical density (600 nm) of 0.1 in sterile saline and streaked-out. Plates were incubated at 37°C for 23 h.

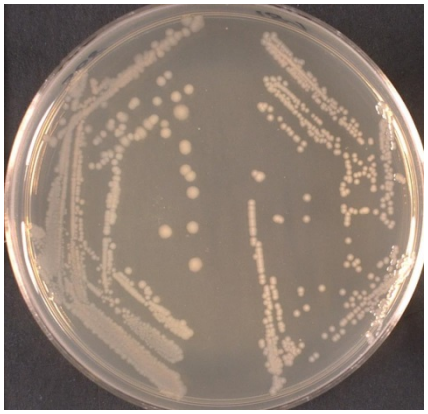
1 mM PeptiZide L-Pyr

S.e. *C.f.*



Control (no inhibitor added)

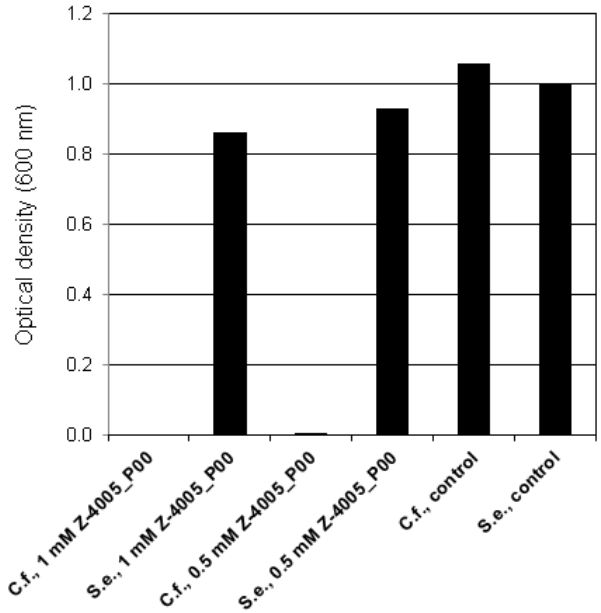
S.e. *C.f.*



Application example, broth

Nutrient Broth (5 g/L peptone, 2 g/L yeast extract, 1 g/L meat extract, 5 g/L sodium chloride, pH 7.4, 3 mL in glass tubes) was autoclaved and allowed to cool to room temperature, then 0.5 mM or 1 mM PeptiZide L-Pyr (Z-4005_P00) was added. Control tubes did not contain PeptiZide L-Pyr. Freshly grown *Salmonella Enteritidis* ATCC 13076 (S.e.) *Citrobacter freundii* ATCC 8090 (E.c.) were inoculated at approximately 10^6 CFU/mL. Tube cultures were incubated at 37°C and 150 rpm. Growth was determined by measuring optical density at 600 nm, OD_{600} of sterile medium was subtracted.

Growth after 24 h:



Growth of *Citrobacter freundii* was completely suppressed by addition of 1 mM PeptiZide L-Pyr to broth medium or agar plates while growth of *Salmonella enteritidis* was not affected.

Technical information

Instructions for use:

Add PeptiZide L-Pyr as concentrated suspension prepared in dimethyl formamide or dimethyl sulfoxide

Solubility:

≥ 25 mM in dimethyl formamide

≥1 mM in aqueous solution (media)

Stock Suspension:

Prepare a 100 mM (34.3 mg/mL) stock suspension in dimethyl formamide (DMF) or dimethyl sulfoxide (DMSO). The Suspensions are auto-sterile

Recommended working concentration:

0.5 - 1 mM, 0.17 - 0.34 g/L (5 to 10 mL of 100 mM stock suspension per L)

Notes:

A. In some cases the addidtion of 0.4% w/v Tween® 80 and 0.3 mM $FeCl_3$ $6H_2O$ may enhance growth of PYRase negative organisms due to inactivation of released inhibitor.

B. When STAADIUM™ GalactoZide I is used as an enrichment agent in broth culture, addition of phosphate buffer at 25-100 mM and $FeCl_3$ $6H_2O$ at 0.3-1 mM is recommended in order to protect PYRase-negative organisms from released inhibitor.

2017-11-16