



ProFoldin

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INSTRUCTIONS

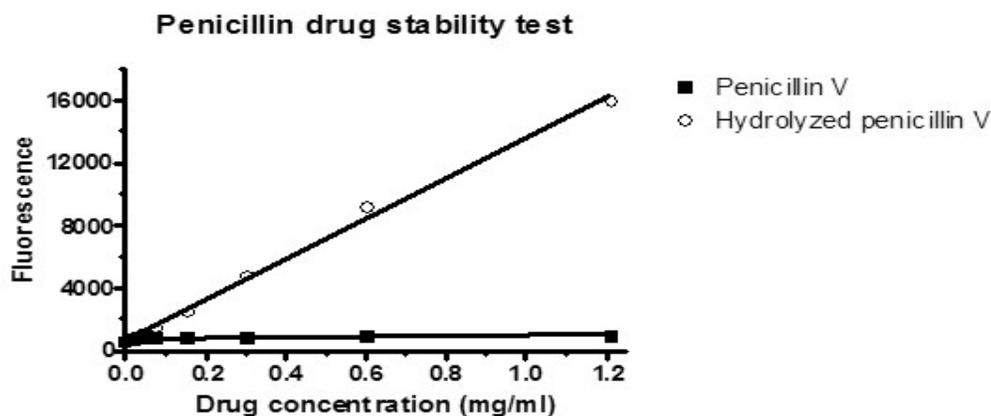
ProFoldin Penicillin Drug Stability Test Kit

Catalog Number **PST100**

INTRODUCTION

Penicillin drugs such as Penicillin G and Penicillin V can be hydrolyzed to form penicilloic acid during storage or transportation due to various reasons including the following: (1) the temperature is too high; (2) the solution pH is not optimal for stabilization; or (3) the sample contains lactamase. The hydrolyzed penicillin drug molecule is thermodynamically more stable than the non-hydrolyzed one but completely inactive in antimicrobial functions.

The Penicillin Drug Stability Test Kit (Catalog number PST100) provides a reagent that quickly detects the hydrolyzed form of penicillin drugs including the commonly used Penicillin G and Penicillin V. The assay reagent, Dye PST, interacts with alpha-amino acids which are the hydrolysis products of penicillin drugs and generates fluorescence at 535 nm with excitation wavelength at 485 nm. The background signal with the non-hydrolyzed penicillin drugs is very low. The kit can be used to detect hydrolysis of penicillin drugs. It can also be used to detect the lactamase activity using penicillin as a substrate.



Each kit (Catalog number PST100) contains 0.5 ml of the 10 x PST dye. It is for 100 assays using 96-well plates or micro-cuvettes.

PROTOCOL

The penicillin drug solution and buffer should not contain EDTA, DTT, amino acids or other strong metal chelators or thiols.



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Standard curve for hydrolyzed and non-hydrolyzed Penicillin V

- (1) Prepare 2-fold serial dilution of Penicillin V and its hydrolysis product, phenoxymethylpenicilloic acid, starting from a 1 mg/ml solution in 10 mM HEPES buffer, pH 8.0. Prepare the 1 x PST dye by dilution of the 10 x PST dye 10-fold with water. Note: Phenoxymethylpenicilloic acid is commercially available.
- (2) Mix 100 μ l of the drug sample with 50 μ l of the 1 x PST dye for 2 min.
- (3) Read the fluorescence at 535 nm with excitation at 485 nm. Plot the correlation between the drug concentration and fluorescence values.

Data Analysis

Plot the fluorescence intensity **Fc** and the hydrolyzed penicillin concentration [**Hydrolyzed penicillin**] to generate the linear standard curve.

$$\mathbf{F_c} = \mathbf{a} [\mathbf{Hydrolyzed\ penicillin}] + \mathbf{b}$$

Where the **Fc** values are from experimental data, the **a** and **b** values are from the linear fitting between the **Fc** values and the Hydrolyzed penicillin concentrations.

Detection of Penicillin V hydrolysis

Follow the same procedure to measure the fluorescence intensity **Fc** values from the unknown samples. Calculate the hydrolyzed penicillin concentrations in the unknown samples using the **Fc** values from the unknown samples and the **a** and **b** values from the standard curve.

$$[\mathbf{Hydrolyzed\ penicillin}] = (\mathbf{F_c} - \mathbf{b}) / \mathbf{a}$$

RELATED PRODUCTS

MPX200	MicroGram Polymyxin Assay Kit
CIP100	MicroGram Ciprofloxacin Assay Kit
CPT200	MicroMolar Cisplatin Assay Kit
OPT200	MicroMolar Oxaliplatin Assay Kit
VAN100	MicroGram Vancomycin Assay Kit
CFZ200	MicroGram Carfilzomib Assay Kit
HIS200	MicroMolar Histidine Assay Kit
CAK1000	Coenzyme A Assay Kit
EDTA200	MicroMolar EDTA Assay kit
DAK1000	Detergent assay kit
LIP1000	MicroGram Lipid Assay Kit

For more concentration assays of various drugs, biochemical molecules and inorganic ions, please visit our website at www.profoldin.com.
