



ProFoldin

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INSTRUCTIONS

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S. aureus MurF Assay Kits

S. aureus MurF Assay Kit Plus-100

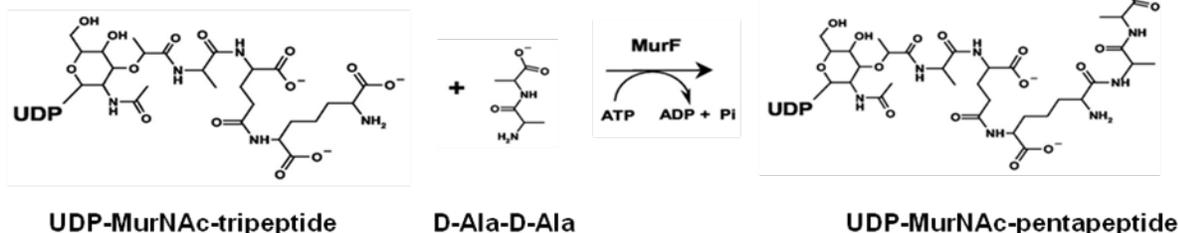
Catalog No. MURF100KS

S. aureus MurF Assay Kit Plus-500

Catalog No. MURF500KS

INTRODUCTION

MurF is the enzyme that catalyzes the last step in synthesis of UDP-MurNAc-pentapeptide in the pathway of peptidoglycan biosynthesis in bacteria. It is an essential enzyme and attractive target for anti-bacterial drug discovery. MurF adds a dipeptide D-Ala-D-Ala onto the MurE product UDP-MurNAc-tripeptide. The ligation reaction is coupled to the hydrolysis of ATP forming ADP and inorganic phosphate.



The *S. aureus* MurF Assay is based on measurement of the inorganic phosphate generated from the MurF reaction. The inorganic phosphate is detected by light absorbance at 650 nm. The assay reactions and detection can be performed by using 384-well or 96-well assay plates. Alternatively, the assay reaction can be carried out in Eppendorf tubes and the signal is measured using a cuvette. The high throughput assay can be used for screening inhibitors of *E. coli* MurF in drug discovery research. It may also be used for characterization of *E. coli* MurF.

The *S. aureus* MurF Assay Kit Plus-100 (Catalog No. MURF100KS) contains the reagents for 100 assays in a 384-well plate assay format including 400 μ l of 10 x Buffer, 33 μ l of 100 x UDP-MurNAc-tripeptide (UMAG-DAP), 33 μ l of 100 x D-Ala-D-Ala, 33 μ l of 100 x ATP, 33 μ l of 100 x *S. aureus* MurF (2000 nM) and 5 ml of Dye MPA3000 for phosphate detection.

The *S. aureus* MurF Assay Kit Plus-500 (Catalog No. MURF500KS) contains the reagents for 500 assays in a 384-well plate assay format including 2000 μ l of 10 x Buffer, 170 μ l of 100 x UDP-MurNAc-tripeptide (UMAG-DAP), 170 μ l of 100 x D-Ala-D-Ala, 170 μ l of 100 x ATP, 170 μ l of 100 x *S. aureus* MurF (2000 nM) and 25 ml of Dye MPA3000 for phosphate detection.

ASSAY PROTOCOL

The following assay protocol is based on the 384-well plate assay format. The reaction volume is 30 μ l



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and the final assay volume is 75 μ l. For 96-well plate assays, the reaction volume is 60 μ l and the final assay volume is 150 μ l. For detection using a cuvette, the reaction volume is 400 μ l and the final assay volume is 1000 μ l.

1. Reagent preparation:

For each 10 assay reactions,

- (1) Prepare 297 μ l of premix composed of 261 μ l of H₂O, 33 μ l of 10 x Buffer and 3.3 μ l of 100 x *S. aureus* MurF.
- (2) Prepare 33 μ l of 10 x Enzyme substrate by mixing 3.3 μ l of 100 x UMAG-DAP, 3.3 μ l of 100 x D-Ala-D-Ala, 3.3 μ l of 100 x ATP, and 23.1 μ l of water.

2. Reaction:

Mix 27 μ l of the premix with 3 μ l of the 10 x Enzyme substrate in each well. Incubate the reaction mixture at 37°C for 60 min.

3. Detection:

Add 45 μ l of the Dye MPA3000 into the 30 μ l of the reaction mixture. Incubate for 5 min. Measure the light absorbance at 650 nm.

Assay Protocol for enzyme inhibition

The assay can be optimized in terms of assay window, assay linearity and sensitivity to competitive inhibitors. ProFoldin offers HTS assay development service. For more information, please visit our website at <http://www.profoldin.com/services.html>.

Related Products

| | |
|--|-----------|
| <i>P. aeruginosa</i> MurF Assay Kit Plus-100 | MURF100KP |
| <i>E. coli</i> MurF Assay Kit Plus-100 | MURF100KE |
| <i>S. pneumoniae</i> MurF Assay Kit Plus-100 | MURF100KN |
| <i>E. coli</i> MurA Assay Kit Plus-100 | MURA100KE |
| <i>E. coli</i> MurC Assay Kit Plus-100 | MURC100KE |
| <i>S. pneumoniae</i> MurC Assay Kit Plus-100 | MURC100KN |
| <i>E. coli</i> MurD Assay Kit Plus-100 | MURD100KE |
| <i>P. aeruginosa</i> MurD Assay Kit Plus-100 | MURD100KP |
| <i>S. aureus</i> MurD Assay Kit Plus-100 | MURD100KS |
| <i>E. coli</i> MurE Assay Kit Plus-100 | MURE100KE |
| <i>E. coli</i> GlmU Assay Kit Plus-100 | GLU100KE |
| <i>E. coli</i> D-alanine ligase Assay Kit Plus-100 | DDA100KE |

More information of drug targets and enzyme assays

For more information of drug targets and enzyme assays, please visit www.profoldin.com or send emails to info@profoldin.com.