Product Description

**NUMBER** | **DESCRIPTION**
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28610 | Sulfo-SDTB, 50 mg

[Sulfo-succinimidyl-4-O-(4,4’-dimethoxytrityl)-butyrate]

Store this product dessicated at room temperature.

Introduction

A simple, qualitative method using Sulfo-succinimidyl-4-O-(4,4’-dimethoxytrityl)-butyrate (s-SDTB) for determining amino groups on matrices has been reported by Gaur and Gupta.\(^1\) This reagent has a molecular weight of 605.60. The reaction of this reagent with the amine groups on matrices results in stable bonds at alkaline conditions. 4,4’-dimethoxytrityl cation, which has a high absorbance at 498 nm and an extinction coefficient of 70,000 M\(^{-1}\) cm\(^{-1}\), is liberated as a result of this reaction, making this a highly sensitive procedure. The unbound reagent must be removed before the acidic developing solution can be added, therefore the applications of this assay are limited to testing solid phase supports, such as treated agarose and controlled pore glass. This assay procedure may be developed for amine estimation of soluble proteins by binding the protein of interest to microwell plates, which would allow the washing off of excess reagent without removing the protein.

In their report, Gaur and Gupta state the need for 4-dimethylaminopyridine (DMAP) as a catalyst for the reaction.\(^1\) However, research at Pierce has shown that the catalyst is unnecessary because the reaction proceeds rapidly at alkaline pH’s, and a much greater sensitivity is achieved in the absence of the catalyst.

Example Assay Protocol

Described below is a recommended assay protocol using sulfo-succinimidyl-4-O-(4,4’-dimethoxytrityl)-butyrate (s-SDTB) for determining amino groups on matrices.

**Materials**

A. Assay buffer (A): 50 mM sodium bicarbonate, pH 8.5.
B. Reagent B: 0.1 mM s-SDTB in assay buffer (A). Dissolve 3.03 mg of s-SDTB in 1.0 ml of DMF, dilute to 50 ml with assay buffer.

**Note:** This reagent is unstable in an aqueous solution for more than an hour due to hydrolysis of the material.
C. Developing solution (C): 51.4 ml of 70% perchloric acid + 46.0 ml deionized, distilled water (or Milli-Q water).

**Method**

1. Allow the reagents and solutions to warm to room temperature.
2. Pack a column with 1 ml of the sample matrix.

**Note:** Do not place a porous disc on the top of the gel bed.
3. Drain the column and equilibrate the gel with 8 ml of assay buffer (A).
4. Cap the bottom, add 1 ml of Reagent B to the column, and then cap the top.
5. Resuspend the gel and vigorously mix the column for 30 minutes at room temperature.
6. Remove the top and bottom caps sequentially from the column and drain the buffer.
7. Wash the gel with 12 ml of distilled, deionized water and cap the bottom of the column.
8. Add 1 ml of distilled or deionized water to the column and mix the gel into suspension to result in a 50% slurry.
9. Aliquot various amounts of the gel into separate test tubes, add 2.5 ml of Reagent C, and mix the gel into suspension.
10. If a pinkish to intense rusty orange color is obtained, the sample contains amines. If no color change is obtained, then the sample does not contain any detectable amine groups.

References
