CMP-N-acetylneuraminic Acid Synthetase

recombinant from E.coli

CMP-N-acetylneuraminic acid synthetase (EC 2.7.7.43) catalyzes the formation of CMP-N-acetylneuraminic acid (CMP-NANA) and inorganic pyrophosphate from CTP and N-acetylneuraminic acid. It is useful for production of CMP-NANA for use as a donor molecule in sialic acid transferase reactions and in coupled transferase reactions.

Specifications
> 2 U/mg > 9 U/mL

Formulation
1 mM sodium phosphate pH 7.5, sterile filtered

Stability
Stable at least 12 months when stored at 4°C. Several days exposure to ambient temperature will not reduce activity.

Product Description
Molecular Weight
46,000 Daltons

Purity
CMP-N-acetylneuraminic acid synthetase is tested for contaminating protease as follows: 10 µg of denatured BSA is incubated for 24 hours at 37°C with 2 µL of enzyme.

SDS-PAGE analysis of the treated BSA shows no evidence of degradation.

The production strain of E. coli has been extensively tested and does not produce any detectable glycosidases.

Specificity
CMP-N-acetylneuraminic acid synthetase will activate N-glycolylneuraminic acid as well as many other derivatives of N-acetylneuraminic acid (see ref 2).

Reagents
- 5X Reaction buffer is 200 mM Tris-HCl pH 9.5
- 200 mM MgCl₂

Activity Definition:
One unit CMP-N-acetylneuraminic acid synthetase is defined as the amount that will produce one micro-mole of CMP-NANA per minute at 37°C and pH 9.5 from CTP and N-acetylneuraminic acid, both at 8 mM.

Suggestions for Use
Large scale production of CMP-NANA.

From ref 2.

2.2 g CTP (3.1 mM)
1 g N-acetylneuraminic acid (3.2 mM)
8 U CMP-N-acetylneuraminic acid synthetase in 50 mL of 50 mM Tris HCl pH 8.5, 50 mM MgCl₂

Incubate for 3.5 hr at 22°C with stirring and maintain the pH at 8.5 with addition of 1 N NaOH.

Filter out any precipitate. To the supernatant, add 9 volumes ethanol and collect the precipitate by centrifugation at 10,000 x g for 10 minutes. Dry under vacuum. Yield ~ 90% at 95% purity.

References


Order Information

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<tr>
<th>Catalog No.</th>
<th>Product Description</th>
<th>Package Size</th>
<th>Temperature</th>
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<td>CMP-N-acetylneuraminic Acid Synthetase recombinant from E.coli</td>
<td>60 µL</td>
<td>4°C</td>
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