

G(5')ppp(5')G RNA Cap Structure Analog



1-800-632-7799
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S1407S

25 A₂₆₀ units Lot: 0011109
Store at -20°C Exp: 9/14

G(5')ppp(5')G Sodium Salt

Description: The 5' terminal m⁷G cap present on most eukaryotic mRNAs promotes translation in vitro at the initiation level (1,2,3). For most RNAs, elimination of the cap structure causes a loss of stability, especially against exonuclease degradation (4), and a decrease in the formation of the initiation complex of mRNAs for protein synthesis (4,5). Certain prokaryotic mRNAs containing a 5' terminal cap structure are translated as efficiently as or more efficiently than eukaryotic mRNAs in

a eukaryotic cell-free protein synthesizing system (5). Also a cap requirement has been observed for splicing eukaryotic substrate RNAs (6).

A method using *E. coli* RNA polymerase primed with m⁷G(5')ppp(5')G or m⁷G(5')ppp(5')A for an efficient in vitro synthesis of capped RNAs has been developed by Contreas (7). Larger amounts of capped RNAs are produced by transcription systems using SP6 RNA polymerase primed with m⁷G(5')ppp(5')G (6).

Note: Addition of 106 µl water gives approximately a 10 millimolar solution.

Chromatographic Analysis:

HPLC HAISIL 300 C18 5 µm 50 x 10 mm
45 min linear grad .1M TEAB 0–20% CH₃CN
RT = 9.3 minutes

TLC PEI Cellulose:

0.35 M LiCl 3.5 M urea
mobility 0.29 vs xylene cyanol

Unit Definition:

MW = 788

ε₂₆₀ = ~23400

29.7 A₂₆₀ unit/mg

25 A₂₆₀ units = ~0.84 mg = ~1.06 micromoles
and when dissolved in 106 µl water is
approximately a 10 millimolar solution.

References:

1. Shatkin, A. J. (1978) *Cell* 9, 645–653.
2. Fillipowicz, W. (1978) *FEBS Lett* 96, 1–11.
3. Banerjee, A. K. (1980) *Microbiol. Rev.* 44, 175–205.
4. Miura, K. (1981) *Adv. Biophys.* 14, 205–238.
5. Shatkin, A. J. et al. (1977) *Nucleic Acids. Res.* 4, 3065–3081.
6. Konarska, M. M. et al. (18984) *Cell* 38, 731–736.
7. Contreas, R. et al. (1982) *Nucleic Acids. Res.* 10, 6353–6363.
8. Paterson, B. M. and Rosenberg, M. (1979) *Nature* 279, 696–701.

CERTIFICATE OF ANALYSIS

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