

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



1-800-632-7799  
info@neb.com  
www.neb.com



S1406S 001121015101

# S1406S

25 A<sub>260</sub> units      Lot: 0011210  
Store at -20°C      Exp: 10/15

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

**Description:** The 5' terminal m<sup>7</sup>G 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 m<sup>7</sup>G(5')ppp(5')G or m<sup>7</sup>G(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 m<sup>7</sup>G(5')ppp(5')G (6).

**Note:** Addition of 92 µl water gives approximately a 10 millimolar solution.

### Chromatographic Analysis:

HPLC HAISIL 300 C18 5 µm 50 x 10 mm  
45 minute linear grad 0.1M TEAB 0–20% CH<sub>3</sub>CN  
RT = 11.2 minutes

### TLC PEI Cellulose:

0.35 M LiCl 3.5 M urea  
Mobility 0.42 vs xylene cyanol

### Unit Definition:

MW = 772

ε<sub>260</sub> = ~27100

35.1 A<sub>260</sub> units/mg

25 A<sub>260</sub> units = ~0.71 mg = ~0.92 micromoles and when dissolved in 92 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.

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