invitrogen
by life technologies

$m^7G(5')ppp(5')G$ RNA Capping Analog

Cat. No. 15619-018 **Size: 25 OD_{260} units**
Store at -20°C.

Description:
The 5' terminal m^7G 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 $m^7G(5')ppp(5')G$ or $m^7G(5')ppp(5')A$ 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 $m^7G(5')ppp(5')G$ (6).

Unit Definition:
Addition of 137 µl of water gives approximately a 10 mM solution.

MW = 846 (2 Na, water not determined) E = 18,200
λmax = 254 nm 21.5 OD/mg

25 OD units = 1.16 mg = 1.37×10^{-6} moles
25 OD units dissolved in 137 µl of water = 10 mM solution

Doc. Rev.: 05/18/01

Quality Control:
This product has passed the following quality control assays: Determination of optical density and performance evaluation in an *in vitro* translation assay using CAT mRNA.

References:
1. Shatlin, A.J. (1978) *Cell 9*, 645.
2. Filipowicz, W. (1978) *FEBS Lett 96*, 1.
3. Banerjee, A.K. (1980) *Microbiol. Rev. 44*, 175.
4. Miura, K. (1981) *Adv. Biophys. 14*, 205.
5. Shatkin, A.J., *et al* (1977) *Nucleic Acids Res. 4*, 3065.
6. Konarska, M.M., *et al* (1984) *Cell 38*, 731.
7. Contreas, R., *et al* (1982) *Nucleic Acids Res. 10*, 6353.
8. Paterson, B.M. and Rosenberg, M. (1979) *Nature 279*, 696.