

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



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S1407S 001110914093

# S1407S

1  $\mu$ mol Lot: 0011109

Store at  $-20^{\circ}\text{C}$  Exp: 9/14

### G(5')ppp(5')G 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).

### Quality Controls

The purity and identity of G(5')ppp(5')G (Cap Analog) is  $\geq 95\%$  as determined by HPLC analysis and mass spec respectively.

The RNA Cap Structure Analog is functionally tested for recognition by an RNA Polymerase and its incorporation into a run-off transcript.

**Molecular Formula:** C<sub>20</sub>H<sub>27</sub>N<sub>10</sub>O<sub>18</sub>P<sub>3</sub> (Free Acid)

**Molecular Weight:** 788.41 g/mol (Free acid)

**Extinction Coefficient:**  $\lambda_{260} = \sim 23,400 \text{ Lmol}^{-1} \text{ cm}^{-1}$

**Note:** Addition of 100  $\mu$ l water gives approximately a 10 mM 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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