RiboLock RNase Inhibitor

Catalog Number EO0381, EO0382, EO0384

Pub. No. MAN0012010 **Rev.** C.00

WARNING! Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. Safety Data Sheets (SDSs) are available from **thermofisher.com/support.**

Product description

Thermo Scientific RiboLock RNase Inhibitor inhibits the activity of RNases A, B and C by binding them in a noncompetitive mode at a 1:1 ratio. It does not inhibit eukaryotic RNases: T1, T2, U1, U2, CL3 as well as prokaryotic RNases I and H.

Contents and storage

Cat. No.	Contents	Source	Molecular Weight	Amount	Storage
EO0381	RiboLock RNase Inhibitor	*E.coli* cells with a cloned gene encoding a mammalian ribonuclease inhibitor.	49.6 kDa monomer	2500 U, 40 U/µL	-25 °C to -15 °C
EO0382				4 x 2500 U, 40 U/µL	
EO0384				24 x 2500 U, 40 U/µL	

Applications

- Inhibition of RNA degradation in the following:
  - *in vitro* transcription (1);
  - cDNA synthesis (2);
  - *in vitro* translation (3);
  - isolation of mammalian cell fractions that contain mRNA-protein complex (3);
  - RNA amplification (4).
- RNA purification and storage.
- Separation and identification of specific ribonuclease activities (5).
- Studies of tumor suppression (6).

Definition of Activity Unit

One unit of the RiboLock™ RNase Inhibitor inhibits the activity of 5 ng of RNase A by 50 %.
Inhibitor activity is assayed in the following mixture:
100 mM Tris-HCl (pH 7.5), 1.2 mM EDTA, 0.1 mg/mL BSA, 100 ng/mL RNase A, 0.1 mg/mL [^{3}H]-RNA, 50 mg/mL yeast RNA, 8 mM DTT.

Storage Buffer

The protein is supplied in: 20 mM HEPES-NaOH (pH 7.5), 50 mM NaCl, 8 mM DTT, 0.03 % (v/v) ELUGENT Detergent and 50% (v/v) glycerol.

Inhibition and Inactivation

- Inhibitors: common denaturants (SDS, urea and all oxidizing reagents (p-chloromercuribenzoate, dissolved oxygen, ions in their higher oxidation states) strongly inhibit RiboLock RNase Inhibitor and release the RNase bound.
- Inactivated by heating at 75 °C for 10 min. Residual activity detectable after 10 min heating at 70 °C.

Note

- DTT provided in the Storage Buffer ensures stability during long term storage, but is not necessary for inhibitor activity.
- Recommended concentration – 1 U/µL of a reaction mixture.

References

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2. Martynoff, G., et al., Synthesis of a full length DNA complementary to thyroglobulin 33S messenger RNA, Biochem. Biophys. Res. Commun., 93, 645-653, 1980.
3. Scheele, G., Blackburn, P., Role of mammalian RNase inhibitor in cell-free protein synthesis, Proc. Natl. Acad. Sci. USA, 76, 1898-1902, 1979.
4. Van Gelder., et al., Amplified RNA synthesized from limited quantities of heterogeneous cDNA. Proc. Natl. Acad. Sci. USA, 87, 1663-1667, 1990.
5. Eichler, D.C., et al., Effect of human placental ribonuclease inhibitor in cell-free ribosomal RNA synthesis, Biochem. Biophys. Res. Commun., 101, 396-403, 1981.
6. Polakowski, I.J., et al., A ribonuclease inhibitor expresses anti-angiogenic properties and leads to reduced tumor growth in mice, Amer. J. Pathol., 143, 507-517, 1993.

Limited product warranty

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