

***E. coli* Ribonuclease H (RNase H), Functional**

02-060 1,000 units , 02-060-5 5 x 1,000 units

Shipping and Storage: Ship at 4°C or -20°C and store at -20°C

Product: Recombinant full-size functional *E.coli* RNase H (=RNaseHI) over-expressed in *E. coli* and highly purified. MW is 17.6 kDa. (# 02-Rnh)

Applications

- 1) Removal of mRNA in DNA/RNA hybrid prior to the synthesis of the second strand of cDNA (1, 2)
- 2) Removal of poly (A) tails from mRNA after hybridization with oligo (dT) (3)
- 3) Oligodeoxyribonucleotide-directed site-specific cleavage of RNA (4)

Form: 50 units/ul in 20mM Tris-HCl (pH 7.5), 100mM KCl, 1mM DTT, 50% Glycerol

Specific Activity: ~100,000 units/mg protein

Unit Definition: 1 unit is defined as the amount of the enzyme that hydrolyzes 1 nmol of the RNA in ³H-labeled M13 DNA/RNA hybrid to acid-soluble ribonucleotides in 20 min at 37°C.

Quality Assurance: Greater than 95% protein determined by SDS-PAGE (CBB staining)
Endo- and exo-DNase activities and RNase activity were not detected with 100 U/ml RNaseH in 50 ul reaction at 37°C.

Reagents Supplied with Enzyme:

RNaseH Reaction Buffer (10 X): 100 mM Tris-HCl (pH 8.0), 100 mM MgCl₂, 500 mM NaCl, 10 mM DTT, 500 ug/ml BSA (Bovine Serum Albumin) (# 02-Rnb)

***Caution:** To avoid contamination of trace amounts of nucleic acids in BSA, use reaction buffer that does not contain BSA and use RNaseH at higher concentrations.

Background: **Ribonuclease H (RNase H)** is an endoribonuclease which specifically degrades the RNA strand of an RNA/DNA hybrid, leaving the DNA strand and unhybridized RNA intact.

Data Link: UniProtKB/Swiss-Prot [P0A7Y4](#) (RNH_ECOLI)

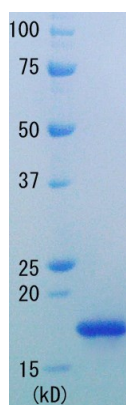


Figure. SDS-PAGE analysis of *E.coli* RNaseH

Reference: This product has been used in the following publications.

1. Satoh Y et al. A novel testis-specific long noncoding RNA, Tesra, activates the Prss42/Tessp-2 gene during mouse spermatogenesis. [Biol Reprod.](#) 2019 Mar 1;100(3):833-848. PMID: [30379984](#)
2. Takahashi H et al. RNase H-assisted RNA-primed rolling circle amplification for targeted RNA sequence detection. [Sci Rep.](#) 2018 May 17;8(1):7770. PMID: [29773824](#)
3. Kake S et al. Death-associated protein kinase 3 controls the tumor progression of A549 cellsthrough ERK MAPK/c-Myc signaling. [Oncol Rep.](#) 2017 Feb;37(2):1100-1106. PMID: [28075459](#)

Useful References

1. Gubler U (1987) "Second-strand cDNA synthesis: mRNA fragments as primers." *Method Enzymol* **152**: 330-335 PMID: [3309563](#)
2. Sambrook J & Russell DW (2001) *Molecular Cloning*, Chapter 11 "Preparation of cDNA Libraries and Gene Identification". CSHL Press
3. Vournakis JN *et al* (1975) "Electrophoretic patterns of deadenylylated chorion and globin mRNAs." *Proc.Natl.Acad.Sci.USA* **72**: 2959-2963 PMID: [1059086](#) ←
4. Donis-Keller H (1979) "Site specific enzymatic cleavage of RNA." *Nucleic Acids Res.* **7**: 179-192 PMID: [386279](#)