E. coli Ribonuclease H (RNase H), with Reaction Buffer

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

Shipping and Storage: Ship at 4℃ or -20℃ and store at -20℃

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

Specific Activity: ~100,000 U/mg protein

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

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℃.

Reagents Supplied with Enzyme:

RNaseH Reaction Buffer (10 X): 100 mM Tris-HCl (pH 8.0), 100 mM $MgCl_2$, 500 mM NaCl, 10 mM DTT, 500 ug/ml BSA (Bovine Serum Albumin) （＃02-Rnb）

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

Backgroud::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)

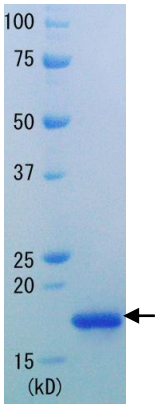

Figure. SDS-PAGE analysis of *E.coli* RNaseH

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