

Ribonuclease R (rnr) protein, E.coli (His)

Cat. No.:	HY-P700300
Synonyms:	Ribonuclease R; rnr; RNase R; Protein VacB; vacB; yjeC
Species:	E.coli
Source:	E. coli
Accession:	P21499 (M1-E813)
Gene ID:	948692
Molecular Weight:	Approximately 90 kDa

PROPERTIES

AA Sequence

MSQDPFQERE	AEKYANPIPS	REFILEHLTK	REKPASRDEL
AVELHIEGEE	QLEGLRRRLR	AMERDGQLVF	TRRQCYALPE
RLDLVKGTVI	GHRDGYGFLR	VEGRKDDLYL	SSEQMKTCIH
GDQVLAQPLG	ADRKGRREAR	IVRVLVPKTS	QIVGRYFTEA
GVGFVVPDDS	RLSFDILIPP	DQIMGARMGF	VVVVELTQRP
TRRTKAVGKI	VEVLGDNMGT	GMAVDIALRT	HEIPYIWPQA
VEQQVAGLKE	EVPEEAKAGR	VDLRDLPLVT	IDGEDARDFD
DAVYCEKKRG	GGWRLWVAIA	DVSYYVRPST	PLDREARNRG
TSVYFPSQVI	PMLPEVLSNG	LCSLNPQVDR	LCMVCEMTVS
SKGRLTGYKF	YEAVMSSHAR	LTYTQVWHIL	QGDQDLREQY
APLVKHLEEL	HNLVKVLDKA	REERGGISFE	SEEAKFIFNA
ERRIERIEQT	QRNDAHKLIE	ECMILANISA	ARFVEKAKEP
ALFRIHDKPS	TEAITSFRSV	LAELGLELPG	GNKPEPRDYA
ELLESVADRP	DAEMLQTMLL	RSMKQAIYDP	ENRGHFGLAL
QSYAHFTSPI	RRYPDLTLHR	AIKYLLAKEQ	GHQGNTTETG
GYHYSMEEML	QLGQHCSMAE	RRADEATR DV	ADWLKCDFML
DQVGNVFKGV	ISSVTGFGFF	VRLDDLFIDG	LVHVSSLDND
YYRFDQVGQR	LMGESSGQTY	RLGDRVEVRV	EAVNMDERKI
DFSLISSERA	PRNVGKTARE	KAKKGDAGKK	GKKRRQVGKK
VNFEPDSAFR	GEKKTPKKAA	KKDARKAKKP	SAKTQKIAAA
TKAKRAAKKK	VAE		

Biological Activity

Measured by its ability to digest RNA, it reacted at 37°C for 30 minutes under a certain reaction system, and was identified by agar-gel electrophoresis. The optimal reaction concentration measured under the above conditions was 120 µg/mL-240 µg/mL.

Appearance

Solution

Formulation

Supplied as a 0.2 µm filtered solution of 50 mM Tris, 100 mM NaCl, 1 mM DTT, 0.1 mM EDTA, 50% Glycerol, 0.1% TX-100, pH 7.5.

Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconstitution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice

DESCRIPTION

Background

Ribonuclease R (RNase R) is a 3'-5' exoribonuclease that plays a crucial role in the maturation of structured RNAs, including rRNAs, tRNAs, and SsrA/tmRNA. It acts by releasing 5'-nucleoside monophosphates during the degradation process. Additionally, in the stationary phase, RNase R is involved in post-transcriptional regulation, specifically in the modulation of ompA mRNA stability. It exhibits processive activity, shortening RNA molecules to di- and trinucleotides. Interestingly, RNase R also possesses helicase activity, which is distinct from its RNase function. During starvation, RNases 2 and R (rnb and RNase R) contribute to the degradation of rRNA. However, under normal growth conditions, RNase R, along with PNPase, plays a more significant role in quality control of rRNA. These enzymes work together to ensure proper functioning and integrity of rRNA during steady-state growth. Additionally, RNase R is required for the expression of virulence genes in enteroinvasive strains of E. coli.

Caution: Product has not been fully validated for medical applications. For research use only.

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