

Recombinant *Pyrococcus abyssi* RNASEH2 protein

Cat. No. RNASEH2-01 **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant <i>Pyrococcus abyssi</i> RNASEH2 was expressed in <i>E. coli</i> .
Species	<i>Pyrococcus abyssi</i>
Source	<i>E. coli</i>
Description	RNase H2 Enzyme is a recombinant endoribonuclease that binds to RNA-DNA duplexes, and cleaves the RNA strand leaving a 5'phosphate and a 3'hydroxyl group. The RNase H2 enzyme differs from RNase H1 in that RNase H2 will cleave at a single ribonucleotide residue embedded within a heteroduplex. RNase H2 will not cleave single-stranded RNA.
Molecular Mass	27,573.6 daltons
Unit Definition	One enzymatic unit is the amount of enzyme needed to cleave 1 nmole of the DNA-RNA-DNA heteroduplex substrate S-rC14-1-15 per minute at 70 centigrade in Mg⁺⁺ Cleavage Buffer (10 mM Tris-HCl pH 8.0, 50 mM NaCl, 4 mM MgCl₂, 10µg/mL BSA) 5' CTCGTGAGGTGATGcAGGAGATGGGAGGCG 3' 3' GAGCACTCCACTACGTCCTCTACCCTCCGC 5'
Notes	Enzyme requirements: • monovalent cation: 50-75 mM K⁺/Na⁺ or 32 mM NH₄⁺ • divalent cation: 2-8 mM Mg⁺⁺, 0.6-1.5 mM Mn⁺⁺, or 0.5-0.75 mM Co⁺⁺ • pH 8.0-8.4 • nonionic detergent: 0.01% Triton X100 or 0.01% Tween 20

 Tel: 1-631-559-9269 1-516-512-3133

 Email: info@creative-biomart.com  Fax: 1-631-938-8127

 45-1 Ramsey Road, Shirley, NY 11967, USA

Temperature:

RNase H2 activity is optimal around 75 centigrade, with significant activity retained with temperatures as low as 50 centigrade. It retains maximal catalytic activity at 95 centigrade for over 30 minutes.

Substrates:

RNA-DNA duplex with as little as a single ribose-base embedded in a DNA strand. If the substrate contains a stretch of ribose bases, cleavage will occur at multiple sites within the RNA containing strand. In the case of a single RNA containing duplex, a 3'OH and a 5'phosphate containing oligonucleotides are produced. Example S-rC 14-1-15 (RNA base lowercase)

5' CTCGTGAGGTGATGcAGGAGATGGGAGGCG 3'

3' GAGCACTCCACTACGTCCTCTACCCTCCGC 5'

Cleavage products

5' CTCGTGAGGTGATG-OH 3'

/5Phos/cAGGAGATGGGAGGCG 3'

5'CGCCTCCCATCTCCTGCATCACCTCACGAG 3'

Maximal cleavage efficiency requires the positioning of the RNA base to be 8-10 bases in from the 5' end, and 4 or more bases from the 3' end.

Storage

Storage at -20 centigrade in low protein binding tubes.

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