



**RNA**  
**5' Pyrophosphohydrolase**  
**(RppH)**




M0356S 001140316031



1-800-632-7799  
info@neb.com  
www.neb.com

**M0356S**



**200 units**      **5,000 U/ml**      **Lot: 0011403**  
**RECOMBINANT**    **Store at -20°C**    **Exp: 3/16**

**Description:** The bacterial RNA 5' Pyrophosphohydrolase (RppH) removes pyrophosphate from the 5' end of triphosphorylated RNA to leave a 5' monophosphate RNA (1). The RppH protein was also known as NudH/YgdP which can split Ap<sub>5</sub>A to ADP and ATP (2).

**Source:** An *E. coli* strain containing a clone of the *E. coli* RppH gene.

Supplied in: 200 mM NaCl, 0.1 mM EDTA, 20 mM Tris-HCl (pH 7.5), 1 mM DTT, 0.01% Triton X-100 and 50% glycerol.

**Applications:**

- Convert RNA transcript (ppp-RNA) to 5' monophosphate RNA (p-RNA) for 5' RNA ligation or for removal by XRN-1.
- RNA 5' end structure analysis.

**Reagents Supplied with Enzyme:**  
10X NEBuffer 2

**1X NEBuffer 2:**  
50 mM NaCl  
10 mM Tris-HCl  
10 mM MgCl<sub>2</sub>  
1 mM dithiothreitol  
pH 7.9 @ 25°C

**Unit Definition:** One unit is the amount of enzyme that converts 1 µg 300 mer RNA transcript into a XRN-1 digestible RNA in 30 minutes at 37°C.

**Quality Control Assays**

**RNase Assay:** Incubation of a 10 µl reaction containing 5 units of RppH with 40 ng of 300 mer RNA transcript for 4 hours at 37°C resulted in less than 10% degradation of RNA as determined by denaturing PAGE analysis.

**Endonuclease Assay:** Incubation of a 10 µl reaction containing 5 units of RppH with 300 ng of supercoiled plasmid for 4 hours at 37°C produced less than 10% nicked or linear molecules as determined by agarose gel electrophoresis.

**Exonuclease Assay:** Incubation of a 50 µl reaction containing 25 units of RppH with 1 µg of a mixture of single and double-stranded [<sup>3</sup>H] *E. coli* DNA for 4 hours at 37°C released < 0.5% of the total radioactivity.

**Phosphatase Activity:** Incubation of a 100 µl reaction containing 25 units of RppH with 4-nitrophenyl phosphate under standard conditions (NEBuffer 2) at 37°C for 4 hours, no phosphatase activity was detected.

**Notes On Use:**


Since RppH is active in the presence of Mg<sup>2+</sup>, it can be incubated with RNA ligase or XRN-1.

**References:**


1. Deana, A. et al. (2008) *Nature*, 451, 355–358.
2. Bessman, M.J. et al (2001) *JBC*, 276, 37834.

CERTIFICATE OF ANALYSIS

**RNA**  
**5' Pyrophosphohydrolase**  
**(RppH)**




M0356S 001140316031



1-800-632-7799  
info@neb.com  
www.neb.com

**M0356S**



**200 units**      **5,000 U/ml**      **Lot: 0011403**  
**RECOMBINANT**    **Store at -20°C**    **Exp: 3/16**

**Description:** The bacterial RNA 5' Pyrophosphohydrolase (RppH) removes pyrophosphate from the 5' end of triphosphorylated RNA to leave a 5' monophosphate RNA (1). The RppH protein was also known as NudH/YgdP which can split Ap<sub>5</sub>A to ADP and ATP (2).

**Source:** An *E. coli* strain containing a clone of the *E. coli* RppH gene.

Supplied in: 200 mM NaCl, 0.1 mM EDTA, 20 mM Tris-HCl (pH 7.5), 1 mM DTT, 0.01% Triton X-100 and 50% glycerol.

**Applications:**

- Convert RNA transcript (ppp-RNA) to 5' monophosphate RNA (p-RNA) for 5' RNA ligation or for removal by XRN-1.
- RNA 5' end structure analysis.

**Reagents Supplied with Enzyme:**  
10X NEBuffer 2

**1X NEBuffer 2:**  
50 mM NaCl  
10 mM Tris-HCl  
10 mM MgCl<sub>2</sub>  
1 mM dithiothreitol  
pH 7.9 @ 25°C

**Unit Definition:** One unit is the amount of enzyme that converts 1 µg 300 mer RNA transcript into a XRN-1 digestible RNA in 30 minutes at 37°C.

**Quality Control Assays**

**RNase Assay:** Incubation of a 10 µl reaction containing 5 units of RppH with 40 ng of 300 mer RNA transcript for 4 hours at 37°C resulted in less than 10% degradation of RNA as determined by denaturing PAGE analysis.

**Endonuclease Assay:** Incubation of a 10 µl reaction containing 5 units of RppH with 300 ng of supercoiled plasmid for 4 hours at 37°C produced less than 10% nicked or linear molecules as determined by agarose gel electrophoresis.

**Exonuclease Assay:** Incubation of a 50 µl reaction containing 25 units of RppH with 1 µg of a mixture of single and double-stranded [<sup>3</sup>H] *E. coli* DNA for 4 hours at 37°C released < 0.5% of the total radioactivity.

**Phosphatase Activity:** Incubation of a 100 µl reaction containing 25 units of RppH with 4-nitrophenyl phosphate under standard conditions (NEBuffer 2) at 37°C for 4 hours, no phosphatase activity was detected.

**Notes On Use:**

Since RppH is active in the presence of Mg<sup>2+</sup>, it can be incubated with RNA ligase or XRN-1.

**References:**

1. Deana, A. et al. (2008) *Nature*, 451, 355–358.
2. Bessman, M.J. et al (2001) *JBC*, 276, 37834.

CERTIFICATE OF ANALYSIS