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New England Biolabs
Certificate of Analysis

Product Name:	*RNA 5' Pyrophosphohydrolase (RppH)*
Catalog #:	*M0356S*
Concentration:	*5,000 units/ml*
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.*
Lot #:	*0021707*
Assay Date:	*07/2017*
Expiration Date:	*07/2019*
Storage Temp:	*-20°C*
Storage Conditions:	*200 mM NaCl, 20 mM Tris-HCl, 1 mM DTT, 0.1 mM EDTA, 50% Glycerol, 0.01% Triton®X-100, (pH 7.5 @ 25°C)*
Specification Version:	*PS-M0356S v1.0*
Effective Date:	*16 Nov 2017*

Assay Name/Specification (minimum release criteria)	**Lot #0021707**
Endonuclease Activity (Nicking) - A 50 µl reaction in NEBuffer 2 containing 1 µg of supercoiled PhiX174 DNA and a minimum of 25 units of RNA 5' Pyrophosphohydrolase (RppH) incubated for 4 hours at 37°C results in <10% conversion to the nicked form as determined by agarose gel electrophoresis.	**Pass**
Exonuclease Activity (Radioactivity Release) - A 50 µl reaction in NEBuffer 2 containing 1 µg of a mixture of single and double-stranded [^{3}H] *E. coli* DNA and a minimum of 25 units of RNA 5' Pyrophosphohydrolase (RppH) incubated for 4 hours at 37°C releases <0.1% of the total radioactivity.	**Pass**
Phosphatase Activity (pNPP) - A 200 µl reaction in 1M Diethanolamine, pH 9.8, 0.5 mM $MgCl_2$ containing 2.5 mM *p*-Nitrophenyl Phosphate (pNPP) and a minimum of 25 units of RNA 5' Pyrophosphohydrolase (RppH) incubated for 4 hours at 37°C yields <0.0001 unit of alkaline phosphatase activity as determined by spectrophotometric analysis.	**Pass**
Protein Purity Assay (SDS-PAGE) - RNA 5' Pyrophosphohydrolase (RppH) is ≥ 95% pure as determined by SDS-PAGE analysis using Coomassie Blue detection.	**Pass**
RNase Activity Assay (4 Hour Digestion) - A 10 µl reaction in NEBuffer 4 containing 40 ng of a 300 base single-stranded RNA and a minimum of 5 units of RNA 5' Pyrophosphohydrolase (RppH) is incubated at 37°C. After incubation for 4 hours, >90% of the substrate RNA remains intact as determined by gel electrophoresis using fluorescent detection.	**Pass**

Authorized by
Derek Robinson
16 Nov 2017

Inspected by
Bhairavi Jani
25 Jul 2017

ISO 9001 Registered Quality Management
ISO 14001 Registered Environmental Management
ISO 13485 Registered Medical Devices