PRODUCT HIGHLIGHTS

Worthington Biochemical Corporation

RIBONUCLEASE

Molecular Biology

Worthington Ribonucleases A & B are prepared from bovine pancreas and are offered in several grades to suit various applications. When Ribonuclease A is used to remove RNA during DNA isolation, the enzyme must be free of deoxyribonuclease activity to prevent damage to the DNA. Where other enzymes are used or where the goal is recovery of intact proteins, proteolysis must be prevented. These requirements are satisfied by our Molecular Biology Grade Ribonuclease (Code: RPDF). This and other ribonuclease preparations made by Worthington are described below.

Description	Activity	Code	Cat. No.	Size
RNase A, DNase and Protease Free Molecular Biology Grade. Supplied as a solution containing approximately 5mg/ml in 50% glycerol. Prepared specifically for use in purifying DNA plasmids. Each lot is assayed to be free of DNase and protease. Store at 2 - 8°C. Storage at –20°C is acceptable.	≥ 2,000 units per mg protein	**RPDF**	LS002131 LS002132 LS002130	1 mg 5 mg Bulk
Ribonuclease A, Purified A highly purified, lyophilized preparation which may contain aggregates as a result of lyophilization but which exhibits same specific activity as RASE (below). Store at 2 - 8°C. PROTECT FROM MOISTURE.	≥ 3,000 units per mg dry weight	**RAF**	LS005649 LS005650 LS005655	25 mg 100 mg Bulk
Ribonuclease A, Purified Solution Monomeric form, purified by method used for RAF (above) and further processed to remove aggregates. Available as a solution in 0.1 M phosphate buffer, pH 7.4 containing 0.1% v/v phenol as a preservative. Store at -20°C. REQUIRES SPECIAL SHIPPING. DRY ICE.	≥ 3,000 units per mg protein	**RASE**	LS005677 LS005679 LS005681	25 mg 100 mg Bulk
Ribonuclease A Chromatographically purified. Lyophilized. Store at 2 - 8°C. PROTECT FROM MOISTURE.	≥ 2,500 units per mg dry weight	**R**	LS003431 LS003433 LS003435	200 mg 1 gm Bulk
Ribonuclease B A partially purified preparation containing a mixture of RNASE A and RNASE B. A soluable, dialyzed lyophilized powder. Store at 2 - 8°C.	≥ 1,000 units per mg dry weight	**RB**	LS005710 LS005715	100 mg Bulk
Ribonuclease, Filtered Product Code: R, 0.22u filtered and lyophilized in vials to contain ≥ 100 mg. Store at 2 - 8°C. PROTECT FROM MOISTURE.	≥ 2,500 units per mg dry weight	**RS**	LS003438 LS003440 LS003441	1 vi 5 vi Bulk

Related Products

Albumin, Nuclease-Free • Deoxyribonuclease I • Deoxyribonucleic Acid and Related Products • Histones • Lysozyme
Nuclease, Micrococcal • Nuclease, S1 • Phosphatase, Alkaline • Phosphodiesterase I • Phosphodiesterase II • Proteinase K
Reverse Transcriptase, Recombinant HIV • Ribonuclease T1 • Ribonucleic Acid • *STEMxyme*™ 1 & 2 Collagenase/Neutral Protease Blends

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ISO9001 Certified

Ribonuclease T1, *Animal Origin Free*

Description	Activity	Code	Cat. No.	Size
Ribonuclease T1, Chromatographically Purified *Aspergillus oryzae* Highly purified. Supplied as a solution in 2.8M ammonium sulfate. Store at 2 - 8°C. REQUIRES SPECIAL SHIPPING. ICE PACK.	≥ 300,000 units per mg protein	**RT1S**	LS01485 LS01487 LS01488	100 ku 500 ku Bulk
Ribonuclease T1, Chromatographically Purified, Lyophilized Highly purified, microbial (non-mamalian) RNase prepared with non-animal components. Store at 2 - 8°C.	≥ 300,000 units per mg protein	**RT1L**	LS01490 LS01492 LS01494	500 ku 2500 ku Bulk

Pancreatic ribonuclease catalyzes cleavage of the phosphodiester bond between the 5'-ribose of a nucleotide and the phosphate group attached to the 3'-ribose of an adjacent pyrimidine nucleotide forming a 2', 3'-cyclic phosphate which may then be hydrolyzed to the corresponding 3'-nucleoside phosphate.

Ribonuclease A has a molecular weight of 13,700 daltons. It operates in an optimum pH range of 7.0 - 7.5. Since Molecular Biology Grade Ribonuclease A (Code: RPDF) is essentially free of DNase and protease activities, this product is useful in removing RNA from DNA in nucleic acid work and where other enzymes are used or where intact proteins must be recovered. Ribonuclease is inhibited by heavy metal ions and it is competitively inhibited by DNA. The inhibitory effect of denatured DNA is much greater than that of native nucleic acid. The enzyme is assayed according to the method of Kalnitsky et al., (1959). The rate of hydrolysis of yeast RNA at pH 5.0 is determined by measuring the amount of acid soluble oligonucleotide released under defined conditions.

Stability: Molecular Biology Grade product (Code: RPDF) is stable at least 2 years at 2 - 8°C or -20°C. **Product Code: RASE** is stable 2–3 years at -20°C. Other grades of RNase A are stable 2-3 years at 2 - 8°C.

Storage: **Codes: R, RB, RAF, RT1L and RT1S:** Store at 2 - 8° C. Protect from moisture. **Code: RASE:** Store at -20°C to maintain monomeric form. **Code: RPDF:** Store at 2 - 8°C. Storage at –20°C is acceptable.

Unit Definitions: **RNase A/RNase B:** 1 unit causes an increase in absorbance of 1.0 at 260 nm at 37°C and pH 5.0 when yeast ribosomal RNA is hydrolyzed to acid soluble oliognucleotides. **One Kunitz unit equals 50 Worthington units.**

Code: RT1S/RT1L: One Unit releases the equivalent of one A260 of acid-soluble products at 37°C, pH 7.5, from yeast RNA in 15 minutes.

Technical Notes: Special care should be given to handling of the enzyme because of its affinity for glass surfaces.

The enzyme remains active but aggregates upon lyophilization and in solution at temperatures ≥ 2°C at low ionic strength. Heating solutions of RNase A to inactivate DNase may not be satisfactory since RNase activity may be lost if precipitate formation occurs and heat treated DNase may reactivate over time.

Product Code: RPDF is suitable as supplied for applications requiring minimal DNase and protease levels and needs no further treatment. Product Code: RAF can be used without treatment in some applications. To heat-treat RAF, use 10 mM acetate pH 5.0 with or without 15 mM $CaCl_2$ for 15 minutes at 100°C or longer at 80°C. Product may precipitate if heated at neutral pH. Heat treatment of Product Code: RASE will precipitate product due to the presence of phosphate.

References

Kalnitsky, G., Hummel, J.P., and Dierks, C.: Some Factors Which Affect the Enzymatic Digestion of Ribonucleic Acid. *J. Biol. Chem., 234*, 1512 (1959).

Related Products

Albumin, Nuclease-Free • Deoxyribonuclease I
Deoxyribonucleic Acid and Related Products
Deoxyribonuclease Recombinant
Histones • Lysozyme • Nuclease, Micrococcal • Nuclease, S1
Phosphatase, Alkaline • Phosphodiesterase I • Phosphodiesterase II
Proteinase K • Reverse Transcriptase, Recombinant HIV • Ribonucleic Acid
STEMxyme™ 1 & 2 Collagenase/Neutral Protease Blends

Complete Catalog, Tissue Dissociation Guide and Enzyme Manual available online at:

Worthington-Biochem.com
TissueDissociation.com