

ORDERING INFORMATION

CAT. No.	SIZE	PACKAGE CONTENT
BC1600400	8 rxns of 50 µl	LyoBead RT-RPA exo 2X RPA Reconstitution Buffer X 20X RPA Reaction Initiator PCR tube-cap strip
BC1600401	96 rxns of 50 µl	LyoBead RT-RPA exo 2X RPA Reconstitution Buffer X 20X RPA Reaction Initiator PCR tube-cap strip

COMPONENT	COMPOSITION
LyoBead RT-RPA exo	Optimized and freeze-dried RT-RPA formulation for a reaction of 50 µl.
2X RPA Reconstitution Buffer X	Optimized 2X RPA Reconstitution and Reaction Buffer for setting up RPA Master Mix.
20X RPA Reaction Initiator	Optimized 20X RPA Reaction Initiator for starting RPA amplification process.
PCR tube-cap strip	Strip of caps for PCR tubes (PP, highly transparent, flat cap, suitable for qPCR)

STORAGE

Store at room temperature or below (until expiry date)

FEATURES

- Ready-to-use lyophilized format
- Ultra-Rapid Amplification
- Robust performance across applications

APPLICATIONS

- Rapid amplification for pathogen detection and environmental testing
- Excellent deployability with minimal lab infrastructure
- Compatible with various readouts such as real-time, fluorescence and lateral flow
- Suitable for both research and assay development

DESCRIPTION

The biotechrabbit™ 2X RT-RPA exo Master Mix is a convenient high-performance solution for real-time rapid RNA amplification under isothermal conditions. Designed to operate at constant low temperatures between 37 °C and 42 °C, it eliminates the need for thermal cycling and enables sensitive detection in as little as 10 to 20 minutes. This ultra-rapid performance significantly streamlines workflows, making it ideal for time-critical diagnostics.

The mix comes in a ready-to-use, lyophilized format that is pre-formulated and stable for ambient transport and storage. No cold chain is required, allowing for easy deployment in point-of-care and field-based settings where refrigeration may not be available. The master mix is carefully optimized for sensitive and specific fluorescence-based detection, enabling real-time monitoring of amplification with minimal hands-on time. Its formulation supports efficient target recognition and strong signal clarity, even in complex sample types. A proprietary reverse transcriptase, engineered for the isothermal amplification temperature range, drives accurate and efficient cDNA synthesis within the reaction.

Given its excellent robustness, the mix delivers high efficiency and specificity across diverse sample types, including crude extracts. This makes it suitable for a wide range of applications, from clinical diagnostics to environmental monitoring, where performance and flexibility are key.

PROTOCOL

Notes

- Target specific PCR primer sequences with extension of their length can be used as RPA primers.
- For efficient amplification under isothermal conditions, design amplicons between 110 – 200 bp.
- Shorter amplicons generally yield faster and more robust amplification under isothermal conditions
- Amplicon lengths should not exceed 400 bp.
- Primers should have a length between 30 – 35 nt (not longer than 45 nt) with a GC content between 30 – 60 %
- Probe should have a length between 48 – 52 nt

Prevention of contamination

When assembling the reactions, care should be taken to eliminate the possibility of contamination with undesired RNA, DNA and nucleases.

- Use separate clean areas for preparation of samples and reaction mixtures.
- Wear fresh gloves. Use sterile tubes and pipette tips with aerosol filters for assay setup.
- Use only water and reagents that are free of RNA, DNA and nucleases.
- With every assay setup, perform a contamination control reaction that does not include a template.

About the 20X RPA Reaction Initiator

The 20X RPA Reaction Initiator triggers the reaction immediately upon contact with the Master Mix. To prevent premature initiation, it is essential to keep the Initiator separate from the Master Mix until just before the reaction begins. For optimal workflow, prepare the final reaction tube containing the RPA Master Mix in advance. Then, pipette 2.5 µl of the 20X RPA Reaction Initiator into the lid of this reaction tube. Avoid mixing the contents yet. Close the tube and briefly spin it down using a mini centrifuge. This step mixes the Initiator with the Master Mix and starts the reaction. Immediately after centrifugation, place the tube into the thermal cycler to begin incubation.

2X RT-RPA exo Master Mix, lyophilized



BASIC PROTOCOL

COMPONENT	VOLUME	FINAL CONCENTRATION
LyoBead RT-RPA exo	1 cake	1X
2X RPA Reconstitution Buffer X	25 µl	1X
Primers and Probes	Variable	Variable
Template	Variable	Variable
Nuclease free water	add up to 47.5 µl	
Transfer the complete volume of the mix to a reaction tube of your choice, then add (into the tube lid): Alternatively, keep the mix in the original tube and use the provided lid.		
20X RPA Reaction Initiator	2.5 µl	1X
Total volume	50 µl	

- Close the tube and briefly spin it in a centrifuge to initiate the reaction
- Recommended reaction conditions: 37 °C – 42 °C for 10-30 minutes
- It is also recommended to try different amplification conditions depending on the target
- The mix is compatible with a wide range of fluorescence detection instruments

- NOTE: The 8-strip of lids has been included to allow users to securely close the reaction tubes after reconstitution if desired.

RELATED PRODUCTS

2X RPA basic Master Mix, lyophilized (BC1600100)
2X RPA exo Master Mix, lyophilized (BC1600200)
2X RT-RPA basic Master Mix, lyophilized (BC1600300)

LYO-ready Exonuclease III, 100 U/µl (BR1500101)
LYO-ready T6 UvsX DNA Recombinase, 5 mg/ml (BR1500201)
LYO-ready T4 UvsY Protein, 2 mg/ml (BR1500301)
LYO-ready RB69 Gene 32 Protein, 10 mg/ml (BR1500401)
LYO-ready T4 Gene 32 Protein, 10 mg/ml (BR1500501)

CERTIFICATE OF ANALYSIS

Quality Control

Functional assay

The performance of the reconstituted LyoBead is confirmed by an RPA reaction.

Quality confirmed by: Head of Quality Control

SAFETY INSTRUCTIONS

For safety instructions please see Safety Data Sheets (SDS)

Sicherheitshinweise finden Sie in den Sicherheitsdatenblättern (SDB) unter www.biotechrabbit.com/support/documentation.html

USEFUL HINTS

- Visit Applications at www.biotechrabbit.com for more products and product selection guides.
- Most biotechrabbit products are available in custom formulations and bulk amounts.
- In case any customization is required, please contact biotechrabbit via oem@biotechrabbit.com.

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