Low LOD 1-Step RT-qPCR Mix

Specialized for automated, multiplex assays detecting blood-borne viruses for blood bank and organ donor testing

Suitable Application

Blood Banking

Transmission of viral infections through organ transplants and the transfusion of blood products has been known for decades but was considered to be an unavoidable consequence of a life-saving treatment. Molecular testing has helped reduce the number of viral transfusion-transmitted infections due to its superior sensitivity and specificity over other testing methods. However, unique to blood banking and organ donor testing is the challenge of detecting viruses during the window period before seroconversion. PCR inhibitors traditionally found in blood samples have posed a significant challenge in developing molecular assays that can detect low level viremia in early stage infections.

Meridian's new Low LOD 1-Step RT-qPCR Mix has been specifically developed for highly reproducible first-strand cDNA synthesis and qPCR in a single tube. It is formulated with an antibody-mediated hot-start DNA polymerase and uses the latest advances in buffer chemistry and enhancers. Containing dUTP, it is ideal for automated multiplex testing of viruses such as HCV, HBV, HIV-1, HIV-2, HAV and Parvovirus B19. Low LOD 1-Step RT-qPCR Mix has already been successfully adopted for a CE-IVD Marked NAT Blood Banking assay.

Low LOD 1-Step RT-qPCR Mix

- Suitable for detecting purified RNA and DNA viruses at very low titers
- Novel buffer system optimized for multiplex assays
- Perform first-stand DNA synthesis and qPCR in a single tube

PRODUCT	CAT NO.	VOLUME	REACTIONS
Low LOD 1-Step RT-qPCR Mix	MDX025	10 mL	1,000 Rxn
		100 mL	10,000 Rxn

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Product Highlights

Sensitive and reproducible detection of low-level viremia for both RNA viruses (HCV, HIV-1, HIV-2 and HAV) and DNA viruses (HBV and Parvovirus B19).

Figure 1: Sensitive multiplex qPCR for simultaneous detection of DNA and RNA viruses
22 replicates of each extract dilution were tested in multiplex qPCR reactions using the Low LOD 1-Step RT-qPCR Mix and the limit of detection hit rate was determined as a percentage of positive amplifications. The multiplex reactions were HAV, HBV, HCV and an extraction control and HIV-1, HIV-2, Parvovirus B19 and an extraction control. Results illustrate that Low LOD 1-Step RT-qPCR Mix can be used in multiplex reactions with both RNA and DNA viral templates, making it suitable for monitoring viral load for different types of virus.

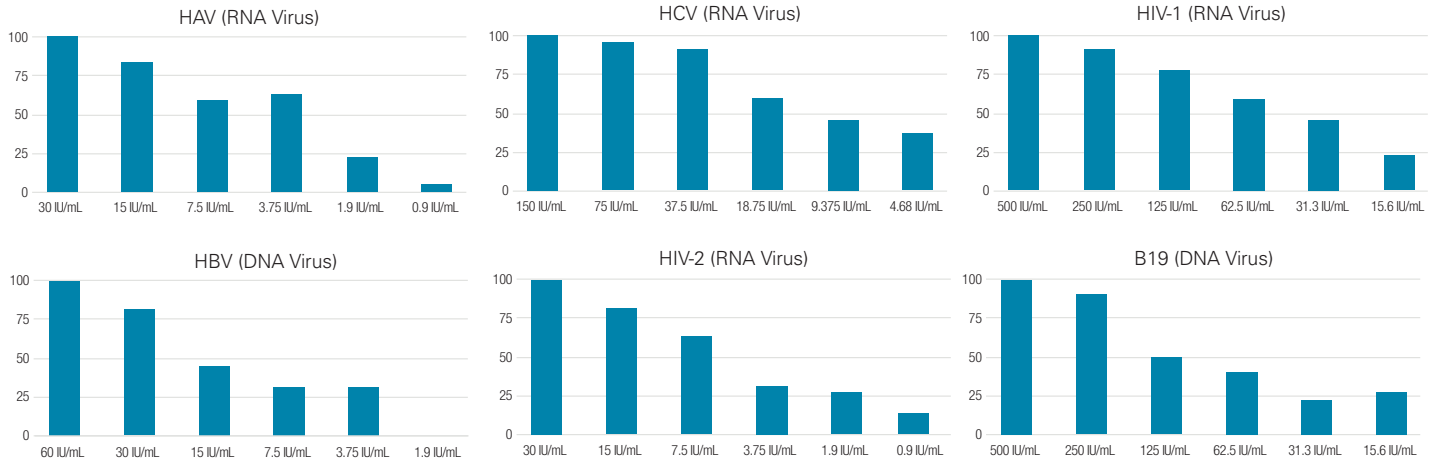
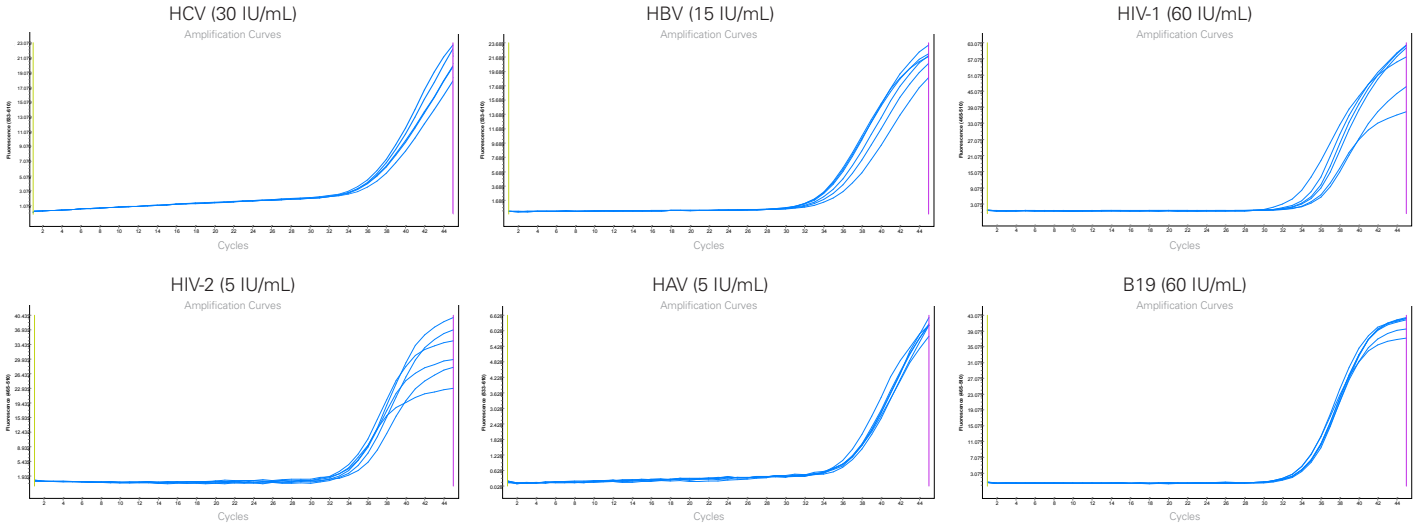


Figure 2: Low limit of detection (LOD) for both RNA and DNA virus
24 replicates of purified blood viral extracts were tested in singleplex qPCR reactions using the Low LOD 1-Step RT-qPCR Mix at the indicated IU/mL. The singleplex reactions were HAV, HBV, HCV, HIV-1, HIV-2, Parvovirus B19. The amplification curve results illustrate that Low LOD 1-Step RT-qPCR Mix can be used with both RNA and DNA viruses as low as 5 IU/mL.



Ordering information:

USA
E: info@meridianlifescience.com
Toll free: +1 800 327 6299

UK
E: info.uk@bioline.com
Tel: +44 (0)20 8830 5300

Germany
E: info.de@bioline.com
Tel: +49 (0)3371 60222 00

France
E: info.fr@bioline.com
Tel: +33 (0)1 42 56 04 40

美国迈迪安生命科学公司
电子邮件: vivian.li@meridianlifescience.com
电话: +86-159-1103-0750

Australia
E: info.au@bioline.com
Tel: +61 (0)2 9209 4180

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