AriaDNA

Real-time microchip PCR analyzer

Real-time RT-PCR microchip kit for qualitative RNA detection (Lyo Blank-RNA)

The microchip based real-time RT-PCR through recent advances has miniaturized the reaction volume to 1.2µl and offers rapid results. The dedicated microchips having lyophilized reagents allow the performance of diverse applications requiring only an addition of primers and probes for intended targets. End-users looking for an open system for customized one-step real-time RT-PCR applications for qualitative RNA detection can use the Lumex Instruments microchip kit, Lyo Blank-RNA (#007SO71).

This kit is compatible with target-specific one-step RT-PCR assays, allowing tailored detection solutions.

RT-PCR reagents are lyophilized in each microreactor and include Taq polymerase, Reverse transcriptase, and UDG enzymes, dNTPs (including dUTP), Mg^{2+}, buffer components, and stabilizers, making the Lyo Blank-RNA kit a user-friendly and cost-effective solution.

FEATURES AND ADVANTAGES

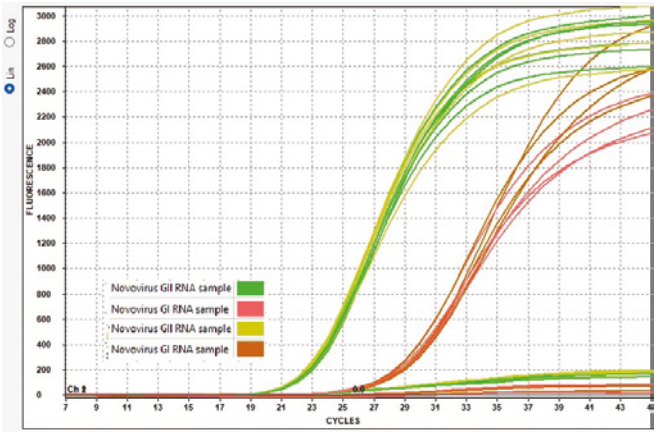
- Lyophilized one-step RT-PCR mastermix in each microreactor:
  - reduces number of pipetting operations;
  - faster PCR set up;
  - save plasticware (tips and tubes).
- Stabilized real-time RT-PCR reagents:
  - free from cold-block mastermix handling;
  - simplifies shipment & storage of the microchip kit;
  - shelf-life of microchips up to 6 months.
- Reduce primers and probes consumption up to 5 times.
- Protected from carryover contamination due to UDG enzyme.
- Cost effective open system solution for diverse RNA detection applications.

USER-FRIENDLY SOFTWARE

The software allows the acquisition of real-time RT-PCR data for two detection channels during operation of AriaDNA analyzer. A customized one-step RT-PCR project can be designed by the end user to detect probes with desired fluorescent dyes (FAM, Texas Red, Cy5, ROX) in singleplex or in duplex using a desired microchip layout. The software offers auto-interpretation of results, allows manual analysis of data, and prints a report in compliance with 21 CFR part 11 requirements.

Note: To prevent contamination, ensure a clean working environment and prefer a unidirectional workflow where separation of pre- and post amplification area is not possible. Keep dedicated sets of tools and plasticware for these area. Use filter tips to contain aerosols. Stocks in small-volume aliquots to minimize the risk of contaminating the entire stock solution. Change gloves frequently and ensure single-use.

APPLICATIONS OF Lyo Blank-RNA MICROCHIP KIT



Example of one-step real-time RT-PCR using Lyo Blank-RNA kit for RNA detection. Duplex RT-PCR assay for unknown samples on 2 targets: Norovirus GI (FAM) and Norovirus GII (TxR). Time of analysis: 45 min (45 cycles).

Design considerations:

- Panel of targets: as per the end-user design (recommended: 2 to 8 targets).
- Number of samples analyzed per microchip: Depends upon number of targets used in the design (achievable: 12 to 48 samples for the recommended range of targets).
- Layout of microchip: Any desired pattern for 48 microreactors (6×8) depending upon the number of targets and samples.
- Type of samples: RNA extracted from desired sample matrix.
- Reagents required:
  - *Taq*Man assays: user-designed primers and probes for each target. Singleplex or duplex assays are recommended. Compatible duplex dye pairs: FAM/TxR (recommended), FAM/Cy5, FAM/ROX.
  - RNA extraction kit: commercial RNA extraction and purification kit suitable for selected sample matrix is recommended.

Transportation: at temperatures from –20°C to +35 °C, not more than 10 days.
Storage: at temperatures from +2 to +8°C.
Expiration period: 6 months since the manufacturing date.

ANALYSIS WORKFLOW

1. RNA extraction step: Samples are treated to extract RNA using commercial RNA extraction and purification kit.
2. Real-time RT-PCR amplification step:
   a. Microchip loading: Mix primers and probes with extracted RNA and add the mixture into the microchip that contains lyophilized mastermix.
   b. Customized RT-PCR program: Insert the microchip into the AriaDNA analyzer and run the analysis with customized protocol on a computer.
3. Print report step: Obtain real-time RT-PCR auto-interpreted results in 30-45 minutes depending on the protocol. The report can be printed.

Disclaimer:
For research use only (RUO). Information in this document is subject to change without notice. We reserve the right to change, alter, or modify any product to enhance its performance and design. This kit is designed for in vitro qualitative detection of RNA. The purchase of this product includes a non-transferable right for using only this quantity of product for the purchaser's own use. Microchip is a single use device.