



Ready-to-run microchips for identification of African swine fever using real-time PCR analyzer AriaDNA

African swine fever virus (ASFV), a large double-stranded DNA agent causes complex, hemorrhagic, and contagious disease in domestic and wild swine leading to significant socio-economic impact. In the early diagnosis of ASFV, passive surveillance involving clinical signs and fatality data of swine is considered pivotal. However, for a rapid and early diagnosis, the surveillance must have adequate laboratory support in detection & identification of AFSV. The recommended tests for virus detection include enzyme-linked immunosorbent assay (ELISA), and PCR assays. Although ELISA allows large-scale testing of the samples, has been reported as having lower analytical sensitivity than that of conventional or real-time PCR tests.

To improve the desired rapidity, cost-effectiveness, sensitivity, and specificity of the detection process, Lumex is offering ready-to-run microchip kits with real-time PCR analyzer AriaDNA. This technology has ability to run pathogen testing both in the laboratory and on swine farms. In addition, for reliable results, a set of positive & negative controls for each of the pathogen, internal control (IC) as an internal inhibition monitor that is amplified in parallel with the target DNA are also included in the microchip.



ADVANTAGES

- Microchip qPCR with 10 times lower reagent consumption
- Increased specificity for difficult templates thanks to uniform temperature in microchip wells
- Ready-to-run microchips with panels of the test pathogens minimizes operator errors
- Simplifies master mix preparation for the panels of pathogens - needs just addition of DNA sample into the microchip
- Fast temperature transitions complete qPCR run in less than 35 min and shorten qPCR analysis time to result
- Simple shipment & storage of the microchip kits thanks to stabilized lyophilized reagents
- Customizable panels of pathogens in the ready-to-run microchip



USER FRIENDLY SOFTWARE

Designed to acquire real-time PCR data and allows simplified operation steps. It offers auto-interpretation of results in view of IC, allows manual analysis of data, and prints three layers of report in compliance with 21 CFR part 11 of the regulations.

FLUORESCENCE DETECTION

AriaDNA 2 is two-channel analyser: 1. FAM/SYBR Green, and 2. ROX/CY5

Channel 1 (FAM) 1. *African Swine Fever Virus (ASF2)*

Channel 2 (Cy5) 1. Internal Control (IC)

Test panel of pathogens



African Swine Fever Virus (ASF2-F); Internal control (IC-C), C- (Negative control sample); C+ (Positive control sample). Maximally 28 samples can be tested as n=1 in one microchip. The microchip can be tested as n=2 or more but the number of samples will correspondingly reduce.

ANALYSIS FLOW CHART

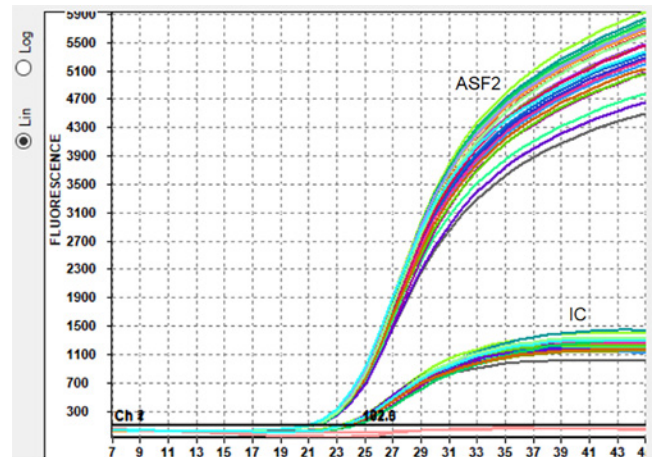
- 1 Extract DNA from the test samples using suitable DNA extraction and purification kit
- 2 Add extracted DNA samples into the microchip reactors
- 3 Insert the microchip into the AriaDNA analyzer and run the analysis with the software on a computer
- 4 Obtain real-time PCR results and print report in 35 minutes

RESULTS

- 1 Real-time PCR data for up to 28 samples with a panel of 1 pathogen
- 2 Detection limit equals 1×10^3 PFU in 1 mL of the sample

For research use only (RUO).

Amplification plots



1. ASF2-F (African Swine Fever Virus)
2. IC (Internal control)

CBRN Protection TCT B.V.

Schoutenstraat 54
2596 SM 's-Gravenhage,
The Netherlands
Phone: (06) 51506684
e-mail: y.ryzhykau@cbrnprotectiontct.org
www.cbrnprotectiontct.org