Complement virus detection workflow with an automated liquid handling system

Automated qPCR reaction set up for SARS-CoV-2 detection with the QIAGEN® *artus*® SARS-CoV-2 Prep&Amp UM Kit on the epMotion® 5075* liquid handler

Quantitative real time PCR is the gold standard method for COVID-19 testing across the globe. Streamlining reaction set up to simplify qPCR assay is crucial for reliable and high throughput screening of patient derived samples. The QIAGEN® *artus*® SARS-CoV-2 Prep&Amp UM Kit optimised on the epMotion 5075®* liquid handler is the perfect solution for SARS-CoV-2 detection workflow.

Features

> Dispensing tools (1-channel and 8-channel) supporting volume ranges from 0.2 – 1000 uL and gripper function for labware transport

> Optical sensor for detecting liquid, labware and tips (type and quantity)

> Automatic exchange of all tools

> Integrated thermal module for reliable temperature incubation

> Intuitive epBlue software for programming supported by Multicon PC controller

> Optional CleanCap with UV lamp and air filter for decontamination

> Integrated LED for visual feedback of the system status

Advantages

> **Enhance throughput:** Process up to 96 samples for qPCR set up with no manual intervention

> **Ensure reproducibility:** Calibrated dispensing tools with optimized pipetting accuracy evades manual errors

> **Minimize contamination:** Fully autoclavable dispensing tools and additional UV lamp and air filter option guarantees sample/user safety

> **Improve productivity:** Pre-optimised kit protocols with on-deck incubation facility spares time for scientific thinking

> **Maximize Flexibility:** 1-channel and 8-channel dispensing tools supports working with various plate and tube formats

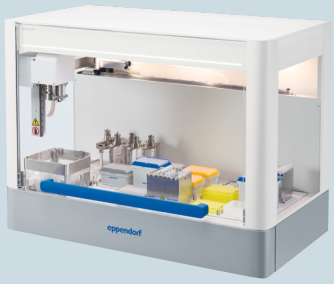
*For Research Use only

Workflow overview

Fig 1. Schematic overview of the common Viral RNA based workflows

Steps performed on the epMotion

Protocol Overview



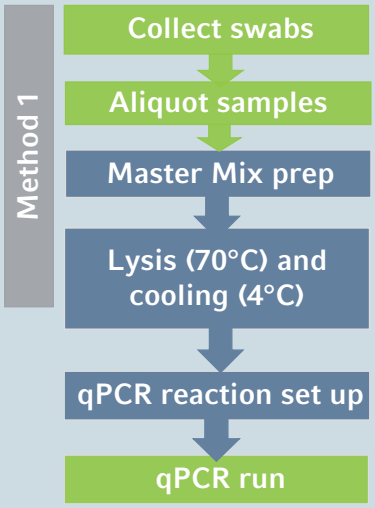


Fig 2. SARS – CoV2 RNA extraction from nasal swab using *artus*® SARS-CoV-2 Prep&Amp UM Kit optimised on the epMotion® 5075 liquid handler

On-deck setup Off-deck setup

Worktable Configuration

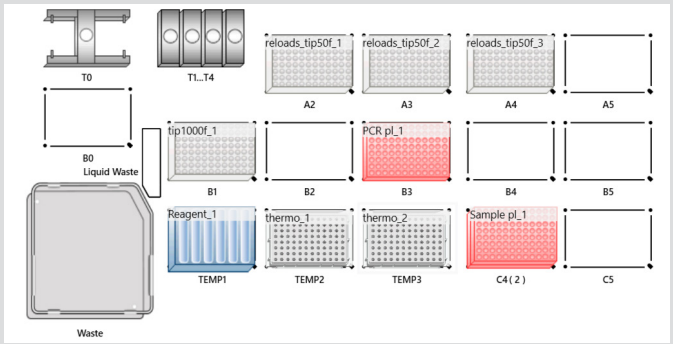


Fig. 3 Deck layout of *artus*® SARS-CoV-2 Prep&Amp UM Kit optimised on the epMotion® 5075 liquid handler

Tip consumption for 96 (93 samples+3 Control) samples
1000f tips: 4, 50f tips: 195

Application data

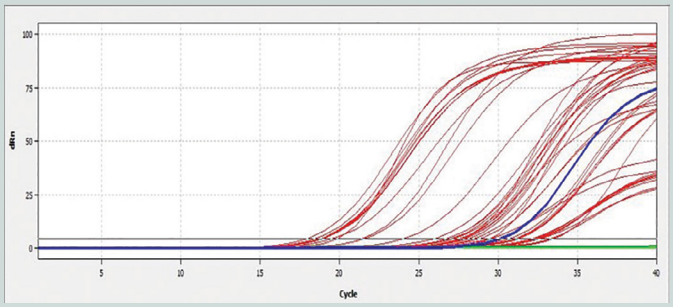


Fig 4. Representative amplification curves of SARS-CoV2 RNA genome targets, gene N1 and gene N2 detected in the fluorescence channel FAM.
Red: positive samples, **Green:** Negative samples, **Blue:** Positive control

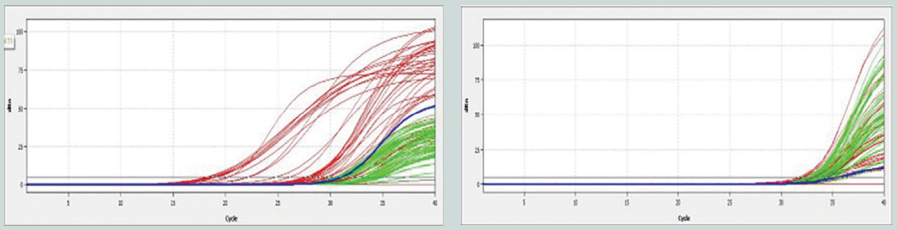


Fig 5. Representative amplification curves for validating the RT-PCR run: (left) sampling control RNaseP in Hex(yellow) channel and (right) Internal RNA control in Cy5(red) channel.

*Developed on a predecessor model, but thanks to the migration feature, this method can easily be transferred to the newest generation of epMotion®

Contact Sales Specialist for more details

Name: Position:

Phone: Email:

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