

Myra Liquid Handler and Mic qPCR Thermal Cycler

User Guide

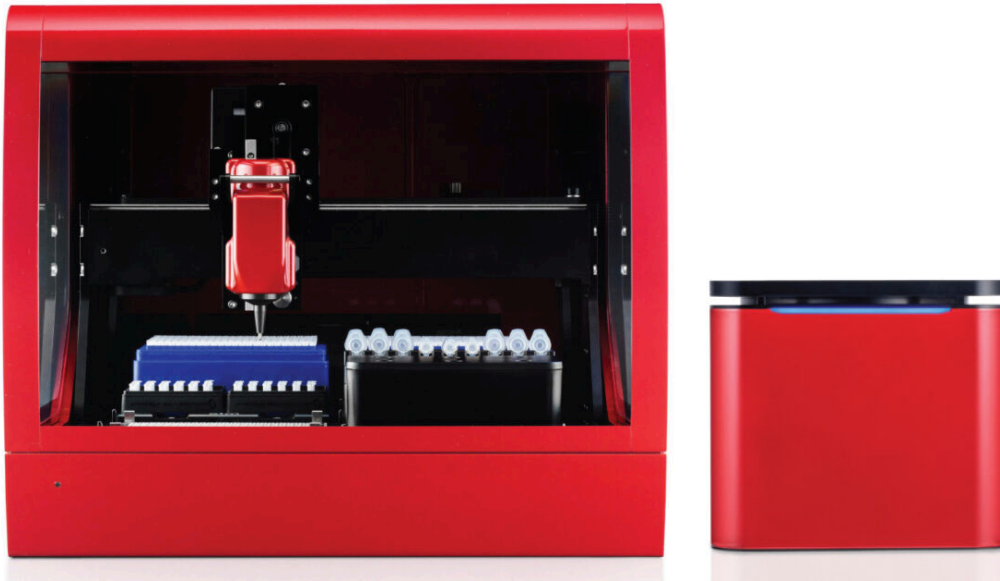
This user guide provides instructions for using Medicinal Genomics qPCR and RT-qPCR Detection Assays with the Bio Molecular Systems Myra Liquid Handler and Mic qPCR Instrument

Table of Contents

Overview	3
Using the Myra	4
Myra Setup for Positive Control	5
Myra Setup for Detection Assays	5
Using the Mic qPCR Thermal Cycler	11
Data Analysis	12

Overview

Medicinal Genomics has partnered with Bio Molecular Systems (BMS) to simplify, accelerate, and consolidate qPCR testing. The Myra Liquid Handling platform together with the Mic qPCR Instrument allows users to automate several processes in our workflow including creating the master mix, positive control dilutions, and qPCR setup.



Using the Myra



Figure 1: Labeled deck positions of the Myra.

To operate the Myra, open the BMS Myra or Workbench software and select the appropriate run template.

The list of current run templates validated for us on the Myra are referenced here:

<https://help.medicinalgenomics.com/en/what-methods-are-available-for-the-myra-liquid-handling-robot>

Myra Setup for Positive Control

1. Select the “Positive Control Dilution” Template to run on the Myra.
2. Remove the positive control tube you wish to dilute from the freezer and allow it to thaw, then vortex and spin down.
3. Place the positive control tube, nuclease free water, and empty labeled 1.5 mL tube onto the deck following the deck layout screen.

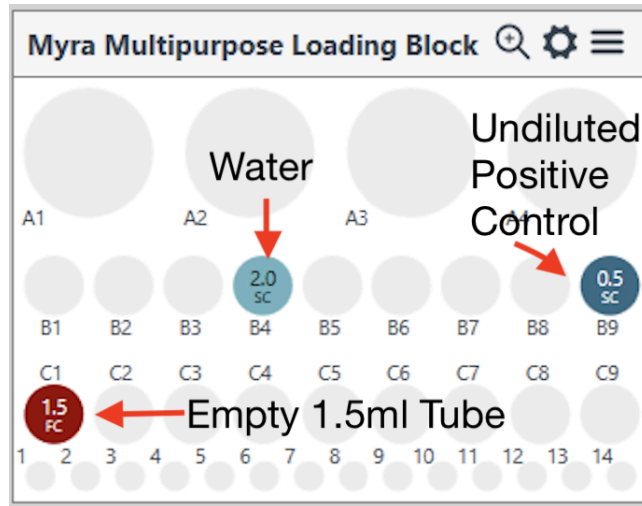


Figure 2: Deck Layout Screen for Positive Control Dilution

4. Connect to the Myra by using the icon in the upper right corner.

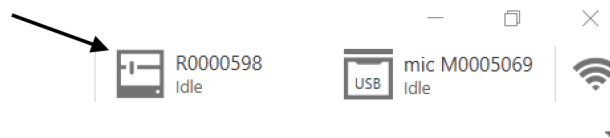


Figure 3: Connect to Myra Icon

5. Run the program using the play button.
6. At the end of the program, the labeled 1.5 ml tube will contain your diluted positive control.
Store diluted positive control at -20°C for up to 5 days or use or use immediately.

Myra Setup for Detection Assays

1. Reference the Plant Sampling Guide for instructions on sampling using Quick Lysis or Pure Prep methods and the Quick Guide for the assay you are planning to run.

2. Remove the required reagents from the freezer to thaw.

Note: Plant Sampling Guide and Quick Guides are available at medicinalgenomics.com/product-literature

3. Open the Myra or Workbench software program, and select the desired template that corresponds to the assay.

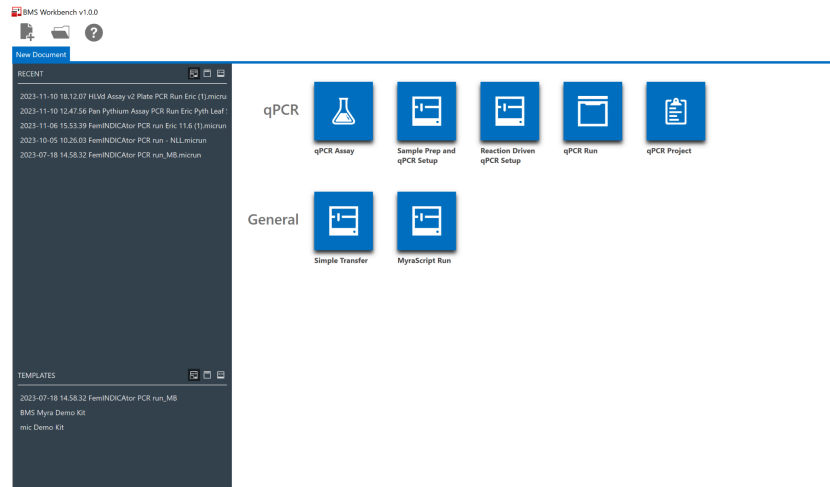


Figure 4: Template selection screen

4. Pipette 45 μ L of fresh nuclease free water into an empty 1.5 mL tube. This will be your no template control (NTC).
5. Connect to the Myra by using the icon in the upper right corner.

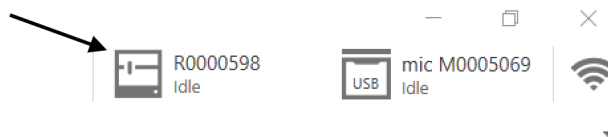


Figure 5: Connect to Myra Icon

6. The number of reactions will automatically be set to 48 for each instrument run (46 samples and 2 controls). To adjust the number of reactions, click on the “Reactions” tab and highlight the reactions you wish to remove. Right-click within the highlighted area, then select “Delete These Reactions”. Samples may be named at this time. Sample numbers or names are not relevant to the Positive Control Dilution template.

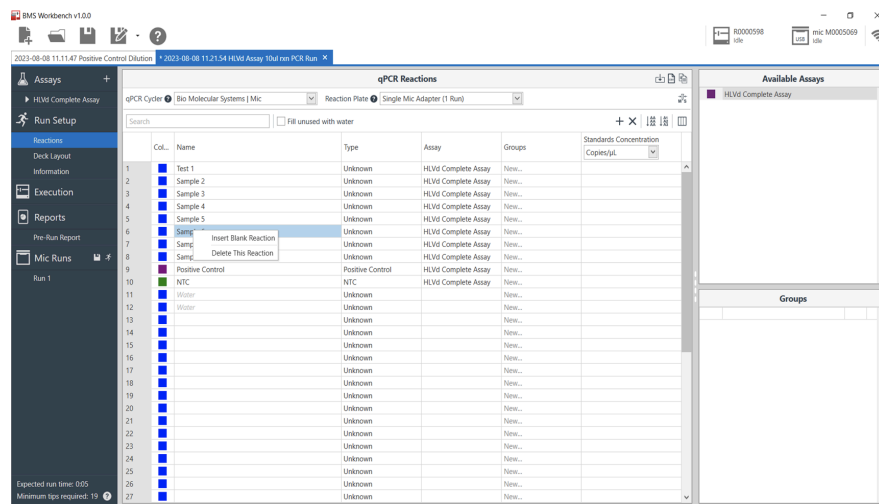


Figure 6: Reactions Tab

7. Remove the Myra Multipurpose Loading Block from 4°C storage and set up the Myra deck according to the Deck Layout screen. If the loading block is stored at 4°C until right before setting up a run, it will keep reagents cool while on the deck.
8. Hover over the tube positions to determine the location of each reagent as well as the lysed plant samples.

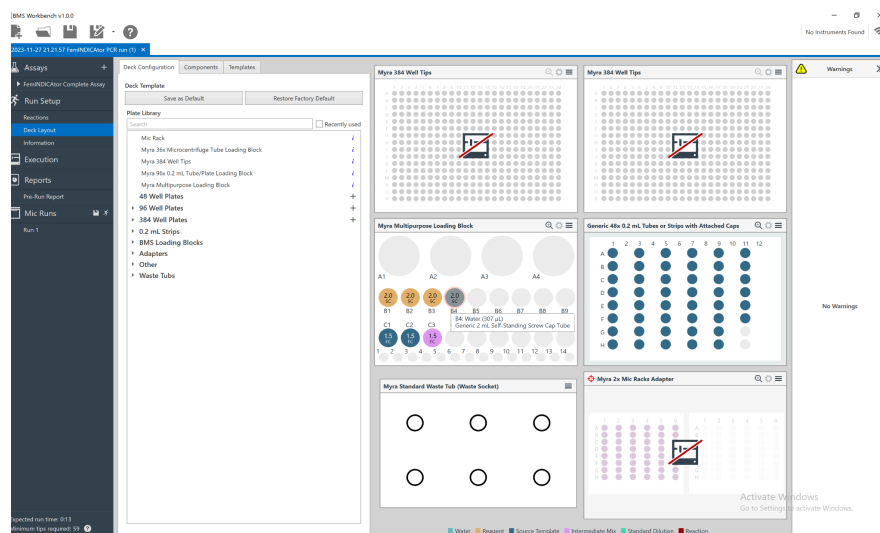


Figure 7: Deck Layout Screen

9. Once the deck setup is complete, click on the Play icon to start the instrument. A “Save As” screen will allow users to save their run with a unique name.



Figure 8: Play icon

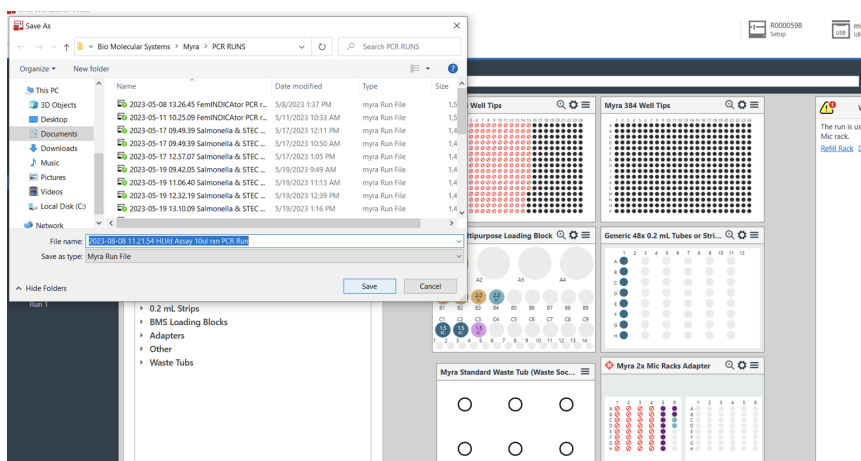


Figure 9: “Save As” screen

10. A pre-run checklist will appear. Check off the boxes as the steps are completed and click “Start” to initiate the run.

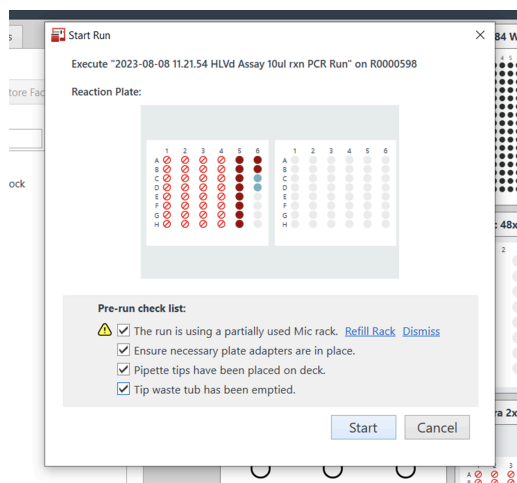


Figure 10: Pre-run checklist

11. Allow the instrument to run to completion.
12. Once the run has been completed, your Mic tubes will contain the Master mix and lysed samples. Cap the reaction tubes using the manual capper or the Rapid Cap device.

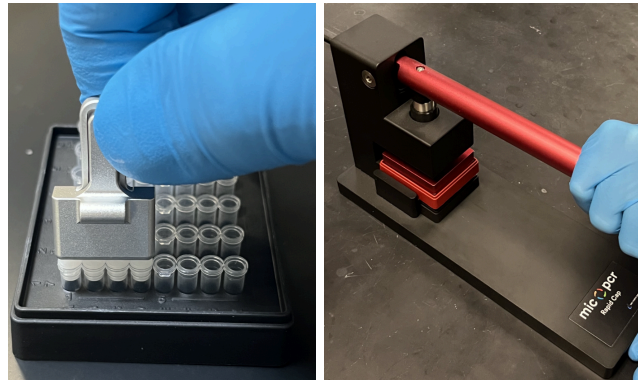


Figure 11: Capping with manual capper (left) and Rapid Cap device (right)

13. Load the Mic qPCR thermal cycler with the capped reaction tubes. Pay extra close attention to the way you hold the Mic tube plates when loading the Mic. Make sure the little tab on the tubes is aiming in. If running fewer than 46 samples (48 total reactions) ensure that water balance Mic tubes are loaded into all unused sample locations. Replace the magnetic clamp and close the Mic lid when all tubes are loaded.

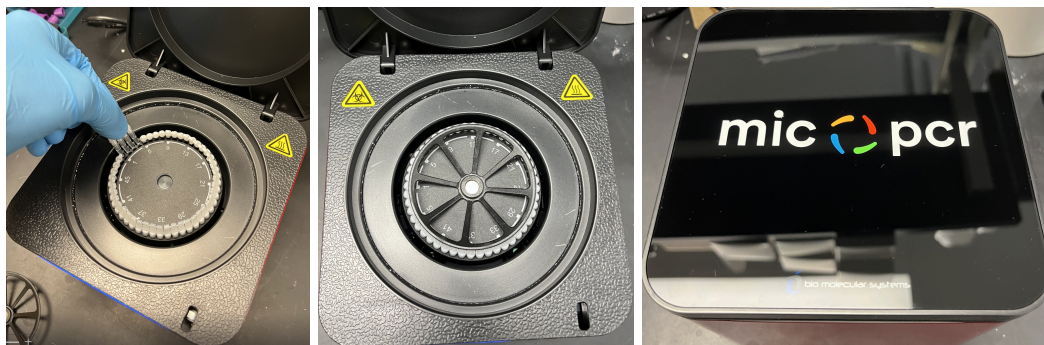


Figure 12: Loading the Mic

Note: Do not use old reaction tubes in the unused sample location. Not all assay reaction volumes are identical. Ensure that the proper volume of water is used in the blank tubes for each assay. Refer to the assay's corresponding Quick Guide for proper volumes.

14. Cap the reagent tubes and sample tubes on the Myra. If another Myra run will not be performed right away, place the reagents and samples in the freezer for storage or on ice for use within the same day.
15. Click the running man figure to export the data to the Mic software.

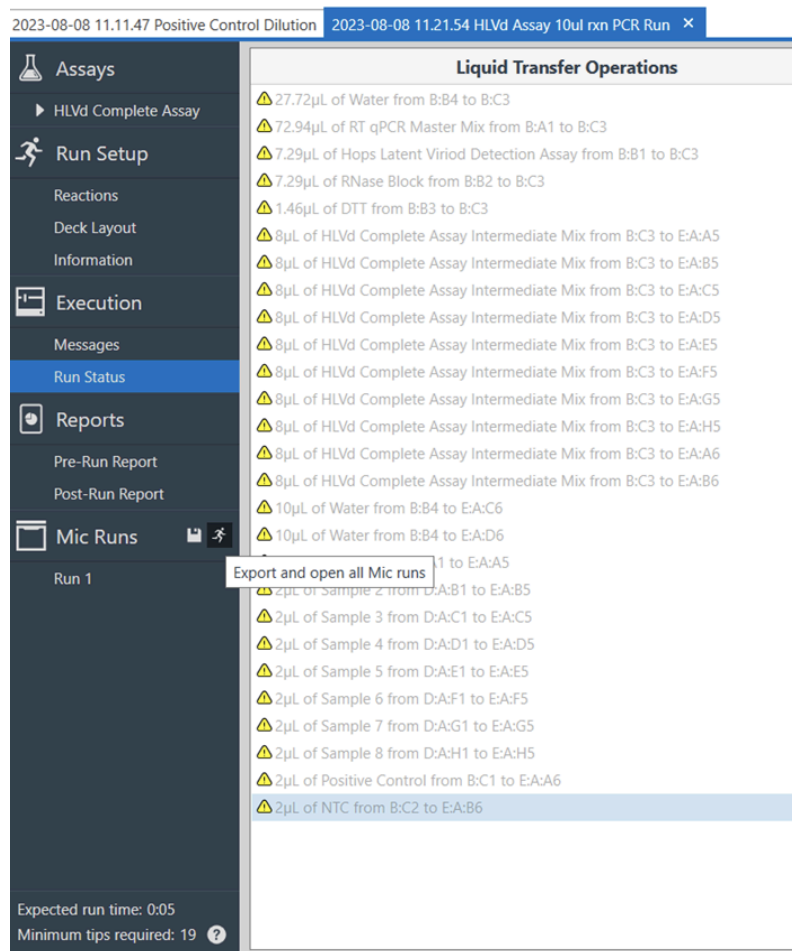


Figure 13: Exporting data to the Mic

Using the Mic qPCR Thermal Cycler

1. After exporting the Myra run to the Mic, a new tab will appear with your Mic run.

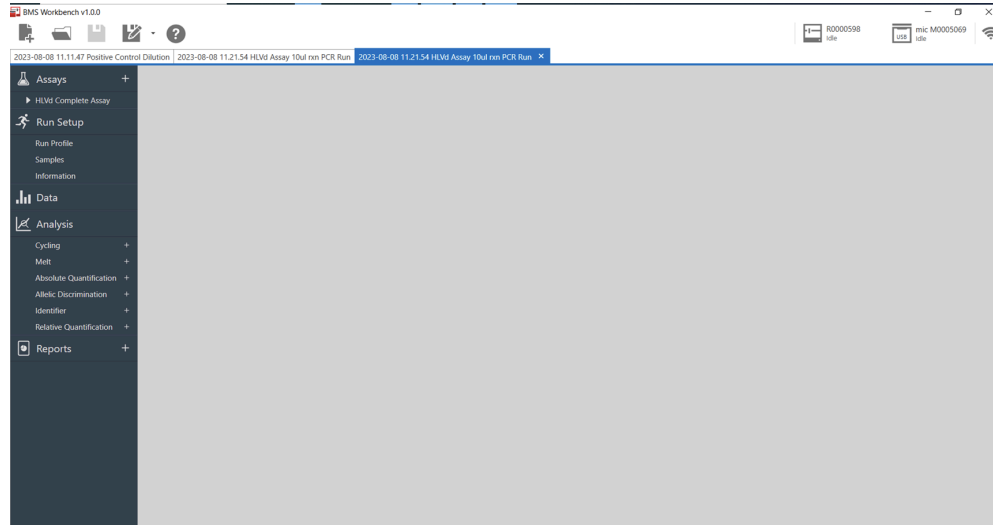


Figure 14: Selecting the Mic run tab

2. Click on the Mic icon in the upper right-hand corner, and select “Start run” from the menu that appears.

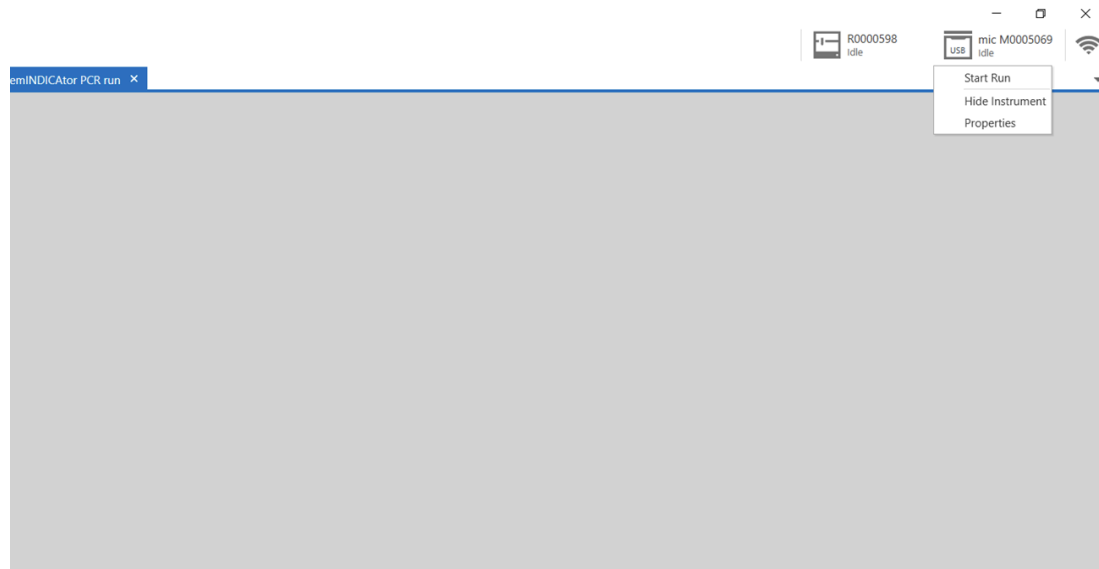


Figure 15: Starting Mic run

3. A pop-up will appear asking for the reaction volume, which will be auto-filled with the correct volume. Close the lid and the instrument will start.

Note: If the cover isn't closed, the program will not start.

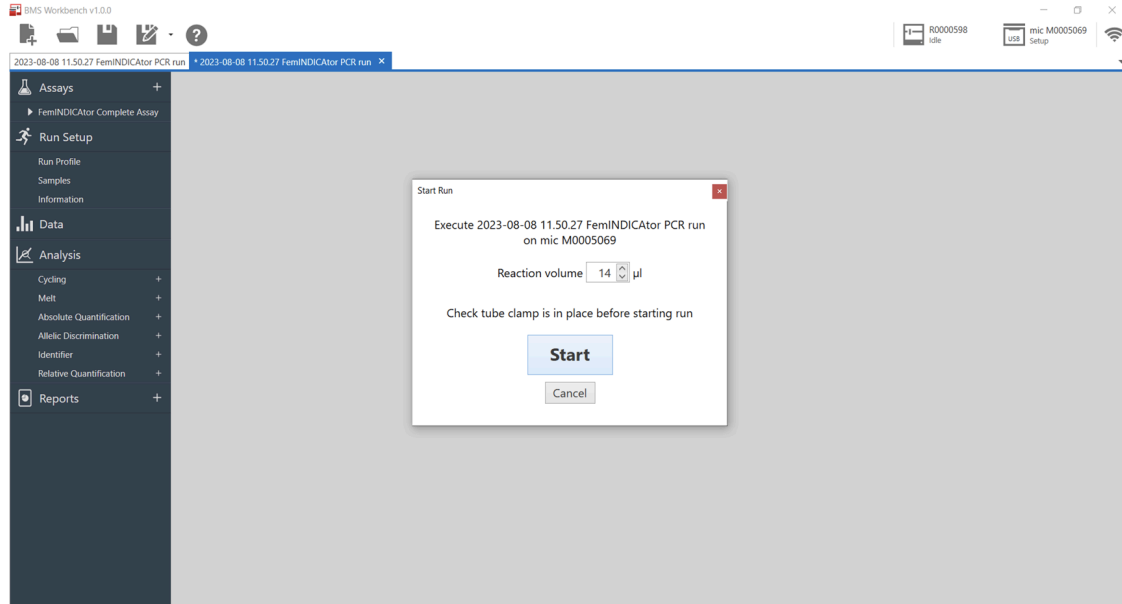


Figure 16: Pre-run pop-up screen

4. Let the Mic run to completion before analyzing the data.

Data Analysis

1. When the run has completed, click on the “+” sign next to the “Cycling” tab and select “Internal Cannabis Control”. The selection will appear under the “Cycling” tab. Next, select the assay that was run (i.e., FemINDICator, *Fusarium*, HLVd, etc.).

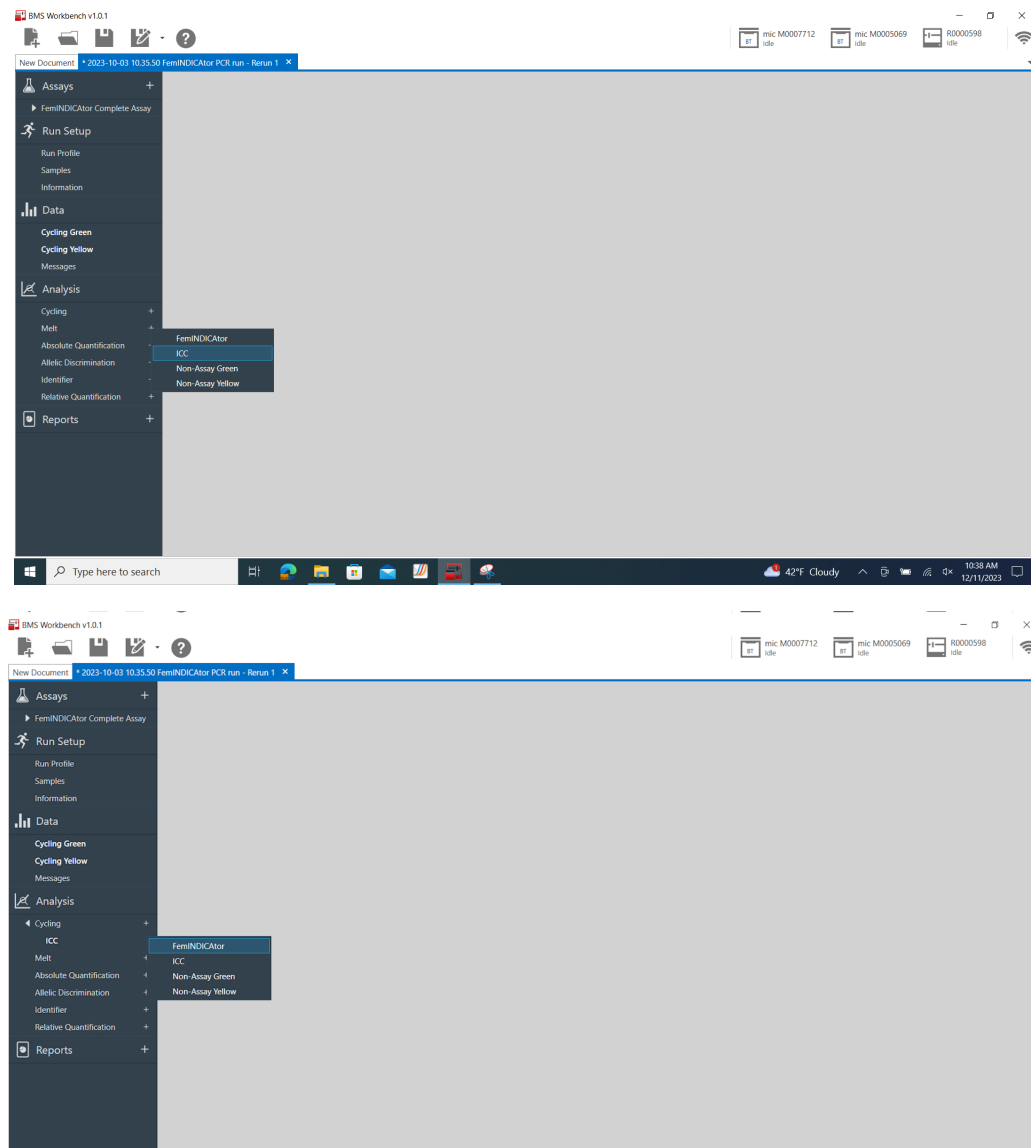


Figure 17: Select Cycling Analysis

- When these have been expanded, select the “+” sign next to the “Identifier” tab and select the available report.

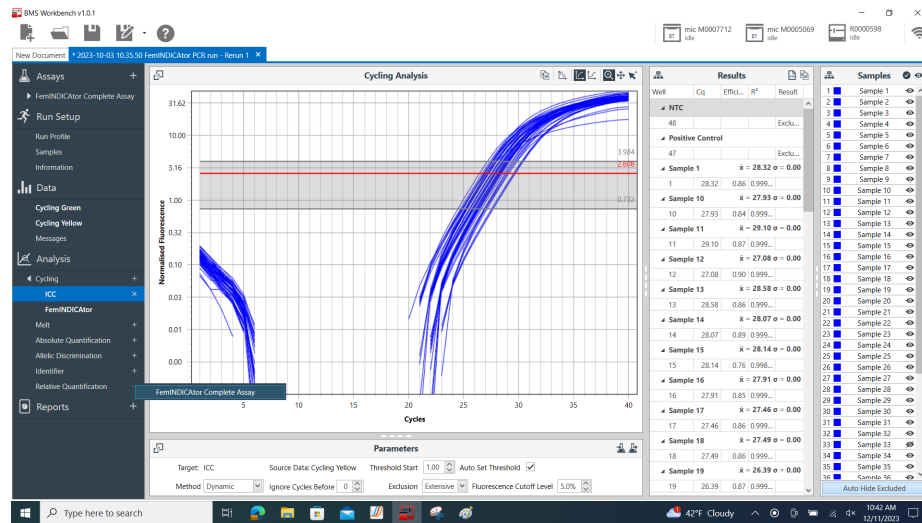


Figure 18: Select the Identifier Report

- If the automatic calls are blank, then one of the cycles is out of threshold. To fix this, find “Ignore Cycles Before” in the “Parameters” section, and increase the value one whole number at a time until a gray bar appears on the graph as seen in Figure 18. Repeat for all targets as necessary.

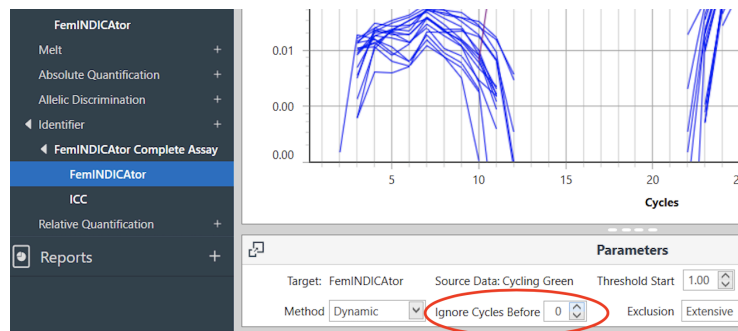


Figure 19: Adjust the Cycle Thresholds

- To review an automatic report, click the “+” sign next to the “Identifier” tab then select the relevant “Complete Assay”. This feature will call the samples tested as detect, non-detect, or inconclusive based on the qPCR data. These results will be displayed on the right side of the screen.

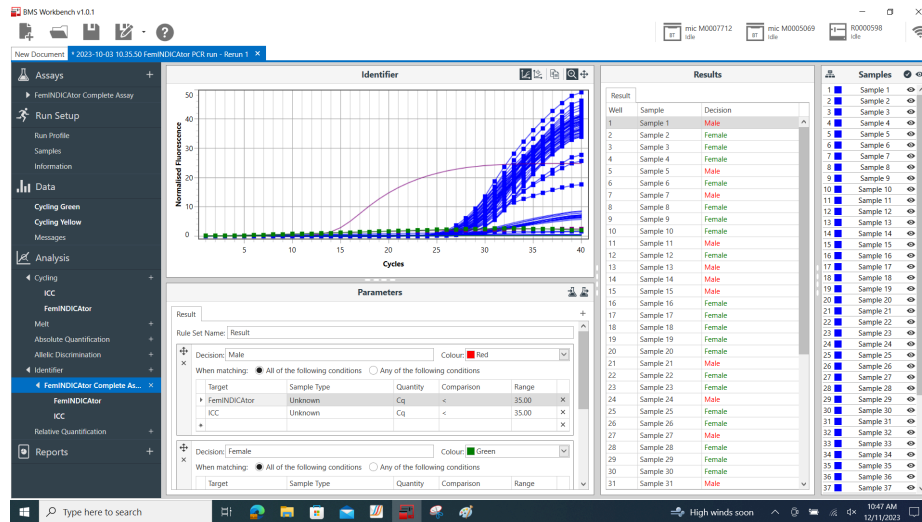


Figure 20: View the Automatic Report

- Data may be exported by selecting the “Report” tab, then clicking the Export icon.

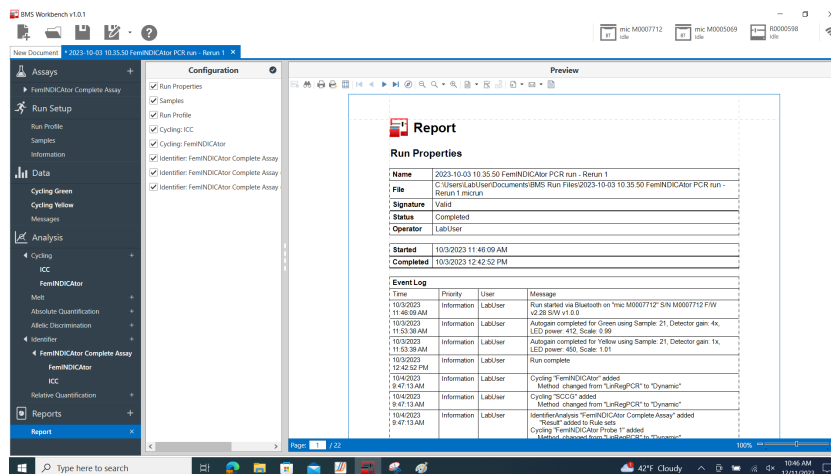


Figure 21: Export Data

REVISION HISTORY

Version	Date	Description
v1	December 2023	Platform Launch

DISCLAIMER

This test was developed, and its performance characteristics determined by Medicinal Genomics Company, for laboratory use. Any deviations from this protocol are not supported by MGC. The results may vary based on laboratory conditions.

LIMITED USE LABEL LICENSE

This product is covered by at least one or more claims of US patent applications, which are exclusively licensed to Medicinal Genomics Corporation. This product is sold strictly for the use of the buyer, and the buyer is not authorized to transfer this product [or any materials made using this product] to any third party.

© 2024 Medicinal Genomics Corporation. All rights reserved.

* All Trademarks are property of their respective owners.