



VENUS software
Simplifying automation

SLAS 2023

Hamilton Company

The measure of excellence



Automation



Laboratory



Process
Analytics



OEM



Medical

Hamilton Company

Liquid Handling Automation



VANTAGE



STAR



NIMBUS



PREP

VENUS software

VENUS software

Different users, different needs



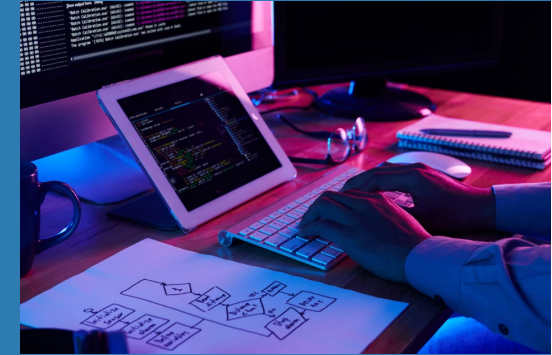
Lab Technician Lab Scientist

- Easy to operate
- Easy to program
- Easy to customize
- Remote monitoring



Applications Specialist

- Flexible programming
- Simplify redundant coding
- Easy to deploy
- Custom dialogs



Software Integrators / OEM

- Easy to connect
- Easy to deploy
- Remote monitoring
- API

EASY to operate

New user interface

Single point of access for all operations

VENUS 6.0.1

HAMILTON

Instrument: Simulation

Running: DNA Extraction



Home

Shortcuts

Run Control

Maintenance

Instrument Control

Trace Viewer

Run History

System Tools

Settings

Support

Microlab® STAR / VANTAGE

7:48:32 AM



1%
Running

DNA Extraction
DNA Extraction

Run History

Method	User	End Time	Status	
DNA Extraction	Cuevas_A	2/26/23, 7:47 AM	Finished	▶ Run Again
DNA Extraction	Cuevas_A	2/26/23, 6:49 AM	Finished	▶ Run Again
DNA Extraction	Cuevas_A	2/26/23, 6:48 AM	Finished	▶ Run Again
DNA Extraction	Cuevas_A	-	Paused	▶ Run Again
Demo1	Cuevas_A	2/25/23, 4:35 AM	Finished	▶ Run Again

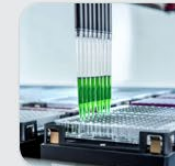
Frequently Used



GENOMICS

DNA Extraction

DNA Extraction from 24 to 96 blood samples.
**Get reagents from fridge #3 **



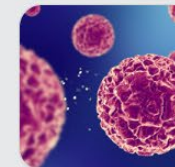
GENOMICS

qPCR setup



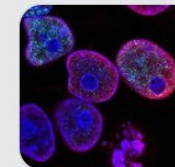
GENOMICS

Normalization



GENOMICS

Covid-19 RNA extract



CELL CULTURE

Cell media exchange

New user interface

Touch screen compatible



New user interface

One-Click method launch

The image displays the HAMILTON VENUS 6.0.1 software interface, illustrating the 'One-Click method launch' feature. The main dashboard shows a grid of method cards under the 'GENOMICS' group, including 'DNA Extraction', 'Plant DNA Extraction', 'Sample preparation', 'qPCR setup', and 'Covid-19 RNA extract'. A blue box highlights the 'DNA Extraction' card, and a blue arrow points from it to a detailed view of the method.

The detailed view of the 'DNA Extraction' method shows the following activities:

- 1 Transfer samples to reaction plate
- 2 Lyse
- 3 Bind
- 4 Wash
- 5 Elute and transfer to PCR plate

The interface also displays the instrument status as 'Running' with a remaining time of '20m 9s'. A schedule view shows the task duration from 7:55:22 AM to 8:15:30 AM. The HAMILTON logo is visible in the top left and bottom right corners.

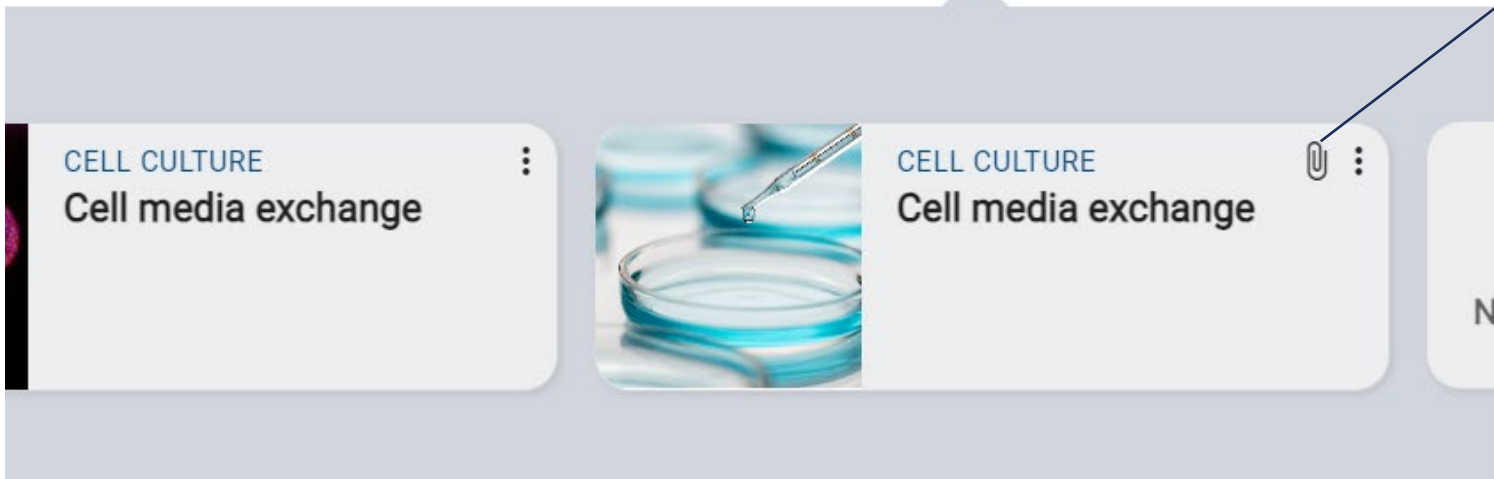
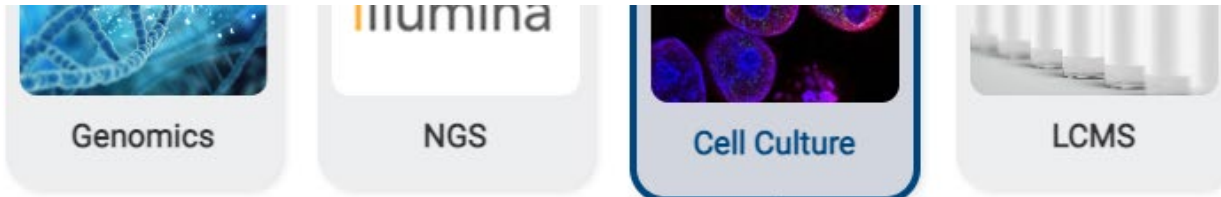
New user interface

Validation flag

The screenshot displays the HAMILTON VENUS 6.0.1 software interface. On the left is a navigation sidebar with options: Home, Shortcuts, Run Control, Maintenance, Instrument Control, Trace Viewer, Run History, System Tools, Settings, and Support. The main area shows a 'Groups' dropdown menu with 'Genomics' selected. Below this, there are shortcut cards for 'Genomics', 'NGS', and 'Cell'. A 'New Shortcut' button is visible at the bottom right of the main area. A modal window is open, showing a detailed view of the 'DNA Extraction' shortcut. The modal contains a DNA double helix image, the title 'GENOMICS DNA Extraction', and the description 'DNA Extraction from 24 to 96 blood samples. **Get reagents from fridge #3 **'. A green checkmark icon in the bottom right corner of the modal indicates that the shortcut has been validated. The background interface is dimmed.

New user interface

Attachments



documentation errors. Two ELx405™ HT Microplate Washers (BioTek Instruments, Winooski, VT) and four heated shakers were integrated into the deck of the STARlet for added workflow efficiency and convenience (see Deck Layout at end). Finally, in order to facilitate user-friendly operation, minimize operator intervention, and reduce input errors, the STARlet software was pre-programmed with the SMC™ workflow steps to create a standardized solution.

Using plasma samples and controls, we demonstrate that the assay-ready automated workstation delivers results on par with those achieved through manual methods, while maximizing assay reproducibility, reducing active labor time, and eliminating risks of error and variability from manual intervention.

Materials and Methods

Automated and manual workflows were compared using the SMC™ Interleukin 6 (IL-6) Immunoassay Kit (P/N 30-0572-01-TED), SMC™ Tumor Necrosis Factor (TNF-α) Immunoassay Kit (P/N 30-0571-01-TED), and SMC™ Interleukin 1-β (IL-1β) Immunoassay Kit (P/N 30-0573-01-TED) from MilliporeSigma. In each assay, the manufacturer's protocol was followed¹⁻³.

Standard, Sample, and Control Preparation

Standard protein curves were created manually as follows. IL-6 standard protein was thawed and diluted to 100 pg/mL in standard diluent to make the top standard, followed by ten 2-fold serial dilutions, down to 0.1 pg/mL. TNFα standard protein was thawed and diluted to 200 pg/mL in standard diluent to make the top standard, followed by ten 2-fold serial dilutions, down to 0.31 pg/mL. IL-1β standard protein was diluted to 50 pg/mL in standard diluent to make the top standard, followed by ten 2-fold serial dilutions, down to 0.05 pg/mL. Each standard curve also included a zero blank.

Human K2 EDTA plasma samples from five healthy individuals (Bioreclamation/VT P/N HMPLEDTA2, Westbury, NY) and 3 plasma controls (MilliporeSigma, Hayward, CA) were tested as described in Table 1. Three vials of each sample and plasma control were thawed, lightly mixed, and filtered through a 96-well, 1.2 μm Durapore® membrane filter plate (Millipore, #MSEVN1210) according to each kit protocol.

SMC™ Immunoassay Workflow

For each automated assay type, a 4 Row, Pyramid Bottom 292 mL High Profile Reagent Reservoir (E&K Scientific, P/N EK-2216) was loaded onto the STARlet with assay-specific reagents. Using 300 μL conductive non-filtered CO-RE tips (P/N 235950), a total of 100 μL of microparticles per well were added to four 96-well v-bottom polypropylene microplates (E&K Scientific, P/N EK2470, Santa Clara, CA), followed by 100 μL of each respective 12-point standard protein curve in triplicate. For each assay kit, 100 μL of sample or plasma control filtrate was added to each of the four microplates. The microplates were then incubated on the STARlet deck for two hours at 25°C with shaking to allow binding of the target biomarker. The assay plates were then transferred to the microplate washer, where the microbeads were magnetically retained, and unbound material was removed in a single wash step. After washing, 20 μL Alexa Fluor 647-labeled detection reagent was added to the wells, using 50 μL conductive non-filtered CO-RE tips (P/N 235947), and the microplates were incubated for one hour in order to bind the microbead-captured analyte. After incubation, the assay plates were again transferred to the microplate washer, where the microbeads were magnetically retained and washed four times in order to remove any unbound detection reagent. The microparticles were then automatically transferred from the 96-well assay microplates to new microplates to avoid eluting non-specific plate bound detection reagent. Detection reagent specifically bound to the target analyte was then eluted and transferred to a 384-well polypropylene microplate (ThermoFisher Scientific P/N 264573, Waltham, MA). The 384-well microplate was manually transferred to the Erenna® Instrument for detection. Alternatively the plate could also be read on the SMCxPro® Instrument.

The entire workflow was also performed using manual methods and one microplate per assay.

Three signal outputs were obtained from the Erenna® Instrument: Detected Events (DEs; low end signal), Event Photons (EPs; low end and mid-range signal), and Total Photons (TPs; high end signal). Using the SgxLink™ algorithm, unknown concentrations were interpolated from the standard curve.

1. SMC™ Human IL-6 High Sensitivity Immunoassay Kit: Immunoassay kit for the quantitative determination of Interleukin 6 (IL-6) in human EDTA plasma. MilliporeSigma, Hayward, CA, Dec 14, 2017. Kit P/N: 30-0572-01-TED.
 2. Erenna® SMC™ Human TNF-α Immunoassay kit for the quantitative determination of Tumor Necrosis Factor (TNF-α) in human EDTA plasma. MilliporeSigma, Burlington, MA, May 15, 2017. Kit P/N: 30-0571-01-TED.
 3. SMC™ IL-1β High Sensitivity Immunoassay Kit: Immunoassay kit for the quantitative determination of Interleukin 1β (IL-1β) in human EDTA plasma. MilliporeSigma, Burlington, MA, Dec 14, 2017. Kit P/N: 30-0573-01-TED.



New user interface

Run Control

VENUS 6.0.1

HAMILTON Instrument: Simulation

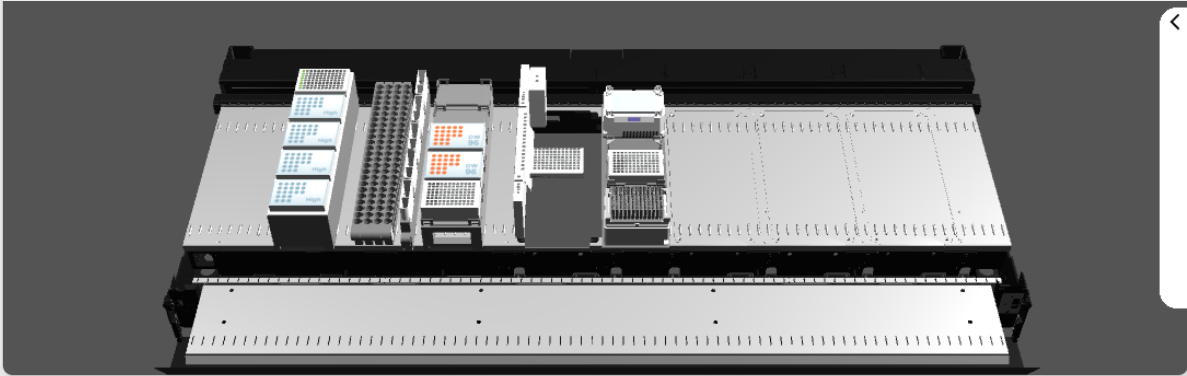
DNA Extraction
DNA Extraction
Running

20m 9s Elapsed 1s

Activities

- 1 Transfer samples to reaction plate
- 2 Lyse
- 3 Bind
- 4 Wash
- 5 Elute and transfer to PCR plate

Instrument



Schedule

Remaining time: 20m 9s

Tasks	7:55:22 AM	8:00:24 AM	8:05:26 AM	8:10:28 AM	8:15:30 AM
Task 1	Transfer ...	Lyse	Bind	Wash	Elute and transfer to PC...
Resources					
ML_STAR					
unit 1	Transfer ...	Lyse	Bind	Wash	Elute and transfer to PCR...

7:56:06 AM

New user interface

Run Control

VENUS 6.0.1

HAMILTON

Instrument: Simulation



Home

Shortcuts

Run Control

Maintenance

Instrument Control

Trace Viewer

Run History

System Tools

Settings

Support

DNA Extraction

DNA Extraction
Paused

6m 40s

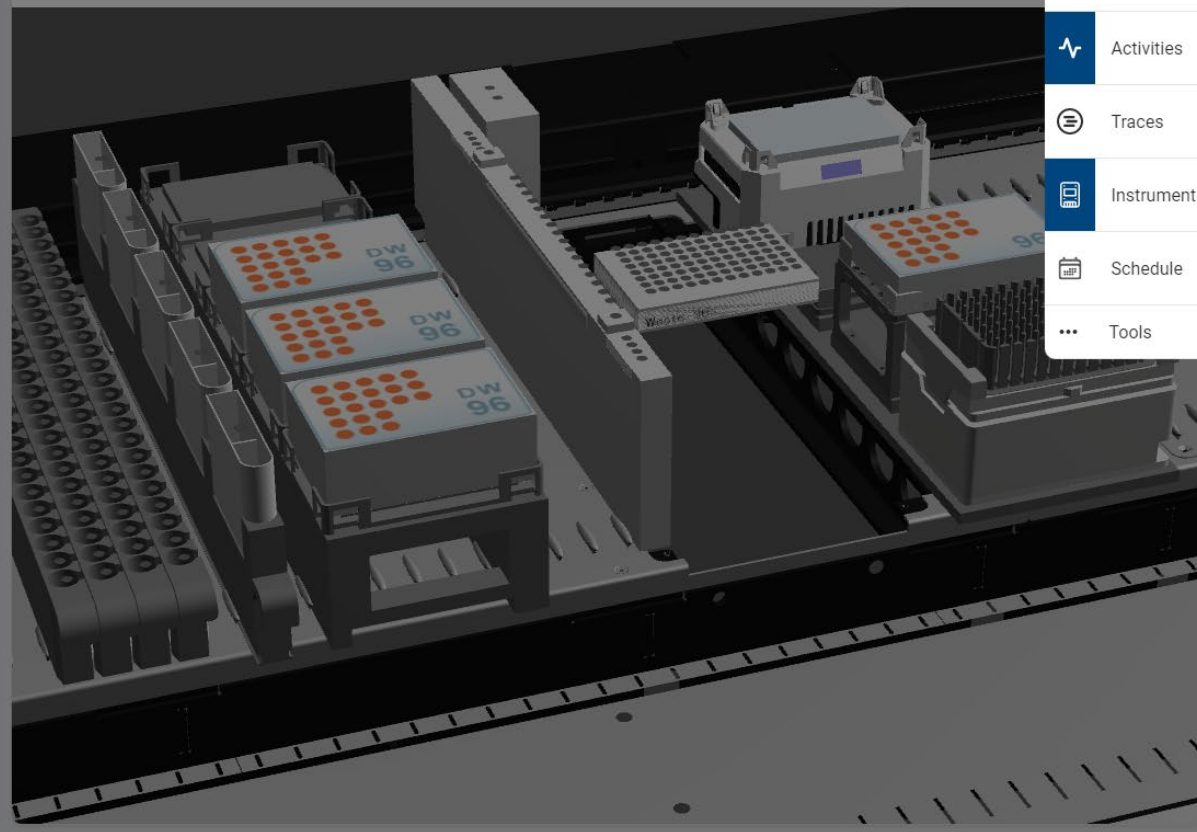
Elapsed
13s



Activities

- ✓ Transfer samples to reaction plate
Completed at: 2/26/23, 7:56 AM
- ✓ Lyse
Completed at: 2/26/23, 7:56 AM
- 3** Bind
- 4 Wash
- 5 Elute and transfer to PCR plate

Instrument



- Widgets
- Activities
- Traces
- Instrument
- Schedule
- Tools

New user interface

Run Control

The screenshot displays the Hamilton VENUS 6.0.1 Run Control interface. At the top left, the Hamilton logo and 'Instrument: Simulation' are visible. A navigation sidebar on the left includes Home, Shortcuts, Run Control (highlighted), Maintenance, Instrument Control, Trace Viewer, Run History, System Tools, Settings, and Support. The main area shows a 'DNA Extraction' run that is 'Paused'. A progress bar indicates '6m 40s' elapsed and 'Elapsed 14s'. Below this, an 'Activities' list shows: 1. Transfer samples to reaction plate (Completed at: 2/26/23, 7:56 AM), 2. Lyse (Completed at: 2/26/23, 7:56 AM), 3. Bind (current step, indicated by a blue circle and a progress bar), 4. Wash, and 5. Elute and transfer to PCR plate. To the right, an 'Instrument' view shows a 3D rendering of the instrument's deck with three 'DW 96' reaction plates and a PCR plate. A vertical toolbar on the right contains icons for navigation and control.

New user interface

Run Control

VENUS 6.0.1

HAMILTON Instrument: Simulation

Home
Shortcuts
Run Control
Maintenance
Instrument Control
Trace Viewer
Run History
System Tools
Settings
Support

DNA Extraction
DNA Extraction
Paused

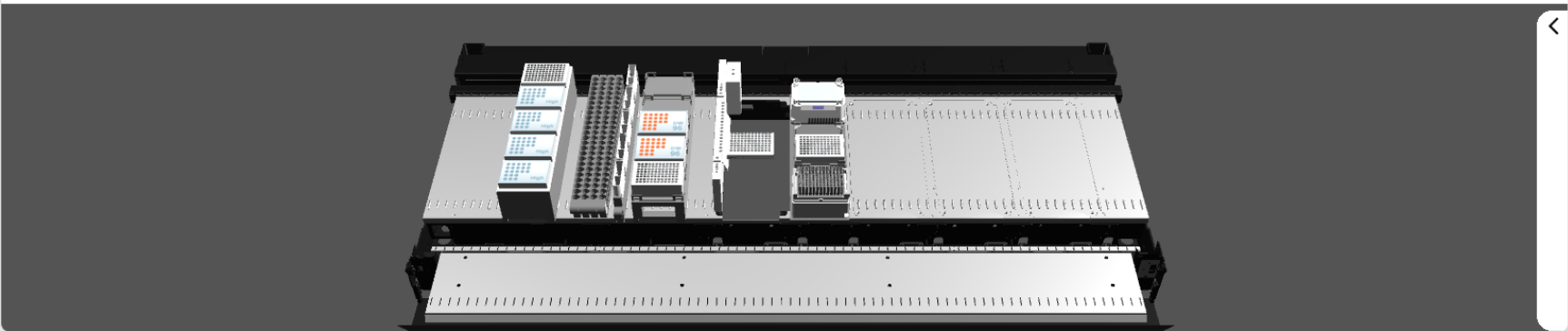
11m 48s Elapsed 13s

Traces

```
2023-02-26 07:56:13.487 0006 Microlab® STAR / VANTAGE : Dispense - start;
2023-02-26 07:56:14.111 0006 Microlab® STAR / VANTAGE : Dispense - complete; > channel 1: Plate_Reaction, A1, 20.0 uL > channel 2: Plate_Reaction, B1, 20.0 uL > channel 3: Plate_Reaction, C1, 20.0 uL > channel 4: Plate_Reaction, D1, 20.0 uL > channel 5: Plate_Reaction, E1, 20.0 uL > channel 6: Plate_Reaction, F1, 20.0 uL > channel 7: Plate_Reaction, G1, 20.0 uL > channel 8: Plate_Reaction, H1, 20.0 uL
2023-02-26 07:56:14.124 0006 Microlab® STAR / VANTAGE : Dispense - start;
2023-02-26 07:56:14.608 0006 Microlab® STAR / VANTAGE : Dispense - complete; > channel 1: Plate_Reaction, A2, 20.0 uL > channel 2: Plate_Reaction, B2, 20.0 uL > channel 3: Plate_Reaction, C2, 20.0 uL > channel 4: Plate_Reaction, D2, 20.0 uL > channel 5: Plate_Reaction, E2, 20.0 uL > channel 6: Plate_Reaction, F2, 20.0 uL > channel 7: Plate_Reaction, G2, 20.0 uL > channel 8: Plate_Reaction, H2, 20.0 uL
2023-02-26 07:56:14.624 0006 Microlab® STAR / VANTAGE : Dispense - start;
2023-02-26 07:56:15.102 0006 Microlab® STAR / VANTAGE : Dispense - complete; > channel 1: Plate_Reaction, A3, 20.0 uL > channel 2: Plate_Reaction, B3, 20.0 uL > channel 3: Plate_Reaction, C3, 20.0 uL > channel 4: Plate_Reaction, D3, 20.0 uL > channel 5: Plate_Reaction, E3, 20.0 uL > channel 6: Plate_Reaction, F3, 20.0 uL > channel 7: Plate_Reaction, G3, 20.0 uL > channel 8: Plate_Reaction, H3, 20.0 uL
2023-02-26 07:56:15.118 0006 Microlab® STAR / VANTAGE : Dispense - start;
2023-02-26 07:56:15.598 0006 Microlab® STAR / VANTAGE : Dispense - complete; > channel 1: Buffer, 1, 0.0 uL > channel 2: Buffer, 2, 0.0 uL > channel 3: Buffer, 3, 0.0 uL > channel 4: Buffer, 4, 0.0 uL > channel 5: Buffer, 5, 0.0 uL > channel 6: Buffer, 6, 0.0 uL > channel 7: Buffer, 7, 0.0 uL > channel 8: Buffer, 8, 0.0 uL
2023-02-26 07:56:15.605 0006 Microlab® STAR / VANTAGE : TipEject - start;
2023-02-26 07:56:15.683 0006 Microlab® STAR / VANTAGE : TipEject - complete; > channel 1: VStarWaste 16Dns AAA1 > channel 2: VStarWaste 16Dns AAA1 > channel 3: VStarWaste 16Dns AAA1 >
```

Auto-scroll

Instrument



New user interface

Run Control

The screenshot displays the Hamilton Run Control software interface for an ELISA Test workflow. The interface is organized into several key sections:

- Header:** Features the Hamilton logo, a user profile icon labeled "(Admin)", and a help icon.
- Navigation Sidebar:** Includes icons for Home, Shortcuts, Run Control (highlighted), Maintenance, Instrument Control, Trace Viewer, Run History, System Tools, Settings, and Support.
- Workflow Status:** Shows "ELISA Test ResourcesTest Workflow Complete" with a large blue progress bar at 100% and a play button.
- Activities Panel:** Lists completed steps for ELISA Plate 3, 4, and 5:
 - Pipette samples (Completed at: 1/17/23, 3:28 PM)
 - Move to incubator (Completed at: 1/17/23, 3:28 PM)
 - Incubate (Completed at: 1/17/23, 3:29 PM)
 - Move to Washer (Completed at: 1/17/23, 3:29 PM)
 - Wash (Completed at: 1/17/23, 3:29 PM)
 - Move to trash (Completed at: 1/17/23, 3:29 PM)
- Traces Panel:** Displays a log of system messages and commands, including "End method - progress" and "End method - complete".
- Schedule Panel:** Shows a Gantt chart titled "Remaining time: 0s" with a timeline from 3:27:32 PM to 3:29:47 PM. It visualizes the sequence of operations (Pipette, Incubate, Wash) for five ELISA plates.

New user interface

Maintenance

VENUS 6.0.1

HAMILTON

- Home
- Shortcuts
- Run Control
- Maintenance**
- Instrument Control
- Trace Viewer
- Run History
- System Tools
- Settings
- Support

Microlab® STAR / VANTAGE
Instrument Maintenance Program

Track Gripper
Instrument Maintenance Program

Maintenance Report History Time Period 1/27/2023 – 2/26/2023

File Name	Process	Date / Time	Instrument
VOVDailyMaintenance_2023-02-14_13-40-36_Summary.pdf	Daily Maintenance	2/14/2023, 1:40:40 PM	Vantage
VOVDailyMaintenance_2023-02-14_05-49-26_Summary.pdf	Daily Maintenance	2/14/2023, 5:49:28 AM	Vantage
VOVDailyMaintenance_2023-02-13_06-50-13_Summary.pdf	Daily Maintenance	2/13/2023, 6:50:16 AM	Vantage
VOVDailyMaintenance_2023-02-10_09-48-56_Summary.pdf	Daily Maintenance	2/10/2023, 9:48:58 AM	Vantage
VOVDailyMaintenance_2023-02-09_11-22-00_Summary.pdf	Daily Maintenance	2/9/2023, 11:22:02 AM	Vantage

Items per page: 5 1 – 5 of 5

New user interface

Maintenance

VENUS 6.0.1

HAMILTON

- Home
- Shortcuts
- Run Control
- Maintenance**
- Instrument Control
- Trace Viewer
- Run History
- System Tools
- Settings
- Support

Maintenance Report History

File Name	Process	Date / Time
VOVDailyMaintenance_2023-02-14_13-40-36_Summary.pdf	Daily Maintenance	2/14/2023, 1:40
VOVDailyMaintenance_2023-02-14_05-49-26_Summary.pdf	Daily Maintenance	2/14/2023, 5:49
VOVDailyMaintenance_2023-02-13_06-50-13_Summary.pdf	Daily Maintenance	2/13/2023, 6:50
VOVDailyMaintenance_2023-02-10_09-48-56_Summary.pdf	Daily Maintenance	2/10/2023, 9:48
VOVDailyMaintenance_2023-02-09_11-22-00_Summary.pdf	Daily Maintenance	2/9/2023, 11:22

Page 1 of 2

HAMILTON
ROBOTICS

Daily Maintenance Report

Instrument Name:	Microlab® STAR / VANTAGE	Date: 2023-02-14
Instrument Serial No.:	1344	Time: 13:40
Instrument User Software Version:	6.0.1.3799	
Operator:	1	
Report File:	VOVDailyMaintenance_2023-02-14_13-40-36	

1000ul Channel:

- Tightness Check: successful
- cLLD Check: successful
- Alignment Check: successful

5ml Channel: not installed

- Tightness Check:
- cLLD Check:
- Alignment Check:

MagPip Channel: not installed

- Internal Check:
- Sensor Check:
- Tightness Check:
- cLLD Check:
- Positioning Check:
- Piston Friction Check:

Process Status: **successful**

Operator: _____ Date: _____ Signature: _____

Supervisor: _____ Date: _____ Signature: _____

New user interface

Instrument Control



New user interface

Run History

VENUS 6.0.1

HAMILTON Instrument: ML_STAR() Loaded: DNA Extraction

Status: All Time Period: All

Method	Start Time ↓	Duration	Instrument	Status	
DNA Extraction C:\Program Files (x86)\HAMILTON\Methods	2/26/23, 7:55 AM	30m 18s	Microlab® STAR / VANTAGE S/N 0000	Aborted	▼
DNA Extraction C:\Program Files (x86)\HAMILTON\Methods	2/26/23, 7:54 AM	33s	Microlab® STAR / VANTAGE S/N 0000	Finished	▼
DNA Extraction C:\Program Files (x86)\HAMILTON\Methods	2/26/23, 7:48 AM	31s	Microlab® STAR / VANTAGE S/N 0000	Finished	▼
DNA Extraction C:\Program Files (x86)\HAMILTON\Methods	2/26/23, 7:46 AM	47s	Microlab® STAR / VANTAGE S/N 0000	Finished	▼
DNA Extraction C:\Program Files (x86)\HAMILTON\Methods	2/26/23, 6:48 AM	33s	Microlab® STAR / VANTAGE S/N 0000	Finished	▼
DNA Extraction C:\Program Files (x86)\HAMILTON\Methods	2/26/23, 6:47 AM	1m 19s	Microlab® STAR / VANTAGE S/N 0000	Finished	▼
DNA Extraction C:\Program Files (x86)\HAMILTON\Methods	2/25/23, 3:43 PM	-	Microlab® STAR / VANTAGE S/N 0000	Paused	▼
Demo1 C:\Program Files (x86)\HAMILTON\Methods	2/25/23, 4:35 AM	24s	Microlab® STAR / VANTAGE S/N 0000	Finished	▼
DNA Extraction C:\Program Files (x86)\HAMILTON\Methods	2/25/23, 4:15 AM	43s	Microlab® STAR / VANTAGE S/N 0000	Finished	▼

New user interface

Run History

VENUS 6.0.1

HAMILTON

Home Shortcuts Run Control Maintenance Instrument Control Trace Viewer **Run History** System Tools Settings Support

Status All Time Period All

Method	Start Time ↓	Duration	Instrument	Status
DNA Extraction C:\Program Files (x86)\HAMILTON\Methods	2/26/23, 8:48 AM	8s	Microlab® STAR / VANTAGE S/N 0000	Aborted
DNA Extraction C:\Program Files (x86)\HAMILTON\Methods	2/26/23, 7:55 AM	30m 18s	Microlab® STAR / VANTAGE S/N 0000	Aborted
C:\Program Files (x86)\HAMILTON\Methods\DNA Extraction.hsl				
Cuevas_A		Start Time Feb 26, 2023, 7:55:58 AM	▶ Run Again	✎ Open in Method Editor
Microlab® STAR / VANTAGE S/N 0000 SIMULATION		End Time Feb 26, 2023, 8:26:17 AM	📄 View Trace	📁 Open method location
Aborted		Duration 30m 18s	🔧 Create diagnostics file	
DNA Extraction C:\Program Files (x86)\HAMILTON\Methods	2/26/23, 7:54 AM	33s	Microlab® STAR / VANTAGE S/N 0000	Finished
DNA Extraction C:\Program Files (x86)\HAMILTON\Methods	2/26/23, 7:48 AM	31s	Microlab® STAR / VANTAGE S/N 0000	Finished
DNA Extraction C:\Program Files (x86)\HAMILTON\Methods	2/26/23, 7:46 AM	47s	Microlab® STAR / VANTAGE S/N 0000	Finished
DNA Extraction C:\Program Files (x86)\HAMILTON\Methods	2/26/23, 6:48 AM	33s	Microlab® STAR / VANTAGE S/N 0000	Finished
DNA Extraction	2/26/23, 6:47 AM	1m 10s	Microlab® STAR / VANTAGE	Finished

New user interface

One-click diagnostics file

The screenshot displays the HAMILTON VENUS 6.0.1 software interface. A 'Create Diagnostics File' dialog box is open, prompting the user to 'Select the files to include'. Three options are available, each with a checkmark: 'Method pkg', 'Run Trace', and 'Additional Logs'. The 'Save' button is highlighted in blue. In the background, a table lists run results with columns for Duration, Instrument, and Status. A context menu is open over one of the 'Aborted' entries, showing options: 'Run Again', 'View Trace', 'Create diagnostics file', 'Open in Method Editor', and 'Open method location'. An arrow points to the 'Create diagnostics file' option.

Duration	Instrument	Status
8s	Microlab® STAR / VANTAGE S/N 0000	Aborted
30m 18s	Microlab® STAR / VANTAGE S/N 0000	Aborted
33s	Microlab® STAR / VANTAGE S/N 0000	Finished
31s	Microlab® STAR / VANTAGE S/N 0000	Finished
47s	Microlab® STAR / VANTAGE S/N 0000	Finished
33s	Microlab® STAR / VANTAGE S/N 0000	Finished
1m 10s	Microlab® STAR / VANTAGE S/N 0000	Finished

New user interface

System Tools

VENUS 6.0.1 Instrument: ML_STAR() Loaded: DNA Extraction

HAMILTON

Home
Shortcuts
Run Control
Maintenance
Instrument Control
Trace Viewer
Run History
System Tools
Settings
Support

VENUS Applications

- Method Editor
- Liquid Class Editor
- Labware Editor
- HSL Editor
- System Configuration Editor
- Run Control
- Hamilton Version

VENUS Folders

- Labware**
VENUS software labware definitions for carriers, racks, tubes, and consumables.
- Library**
VENUS software library files.
- Log Files**
Run traces and STAR communication logs.
- Methods**
Method files.
- Driver Log Files**
Default location of VENUS driver log files.

New user interface

Automatic run history clean up

The screenshot displays the HAMILTON user interface. On the left is a navigation sidebar with the following items: Home, Shortcuts, Run Control, Maintenance, Instrument Control, Trace Viewer, Run History, System Tools, Settings (highlighted in blue), and Support. The main content area has two tabs: 'General' and 'Shortcuts'. Under the 'Shortcuts' tab, there is a checked checkbox for 'System'. Below this is a 'Recent' section with a 'Display last:' dropdown set to '5' and a 'Clear Recent List' button. The 'Run History Management' section is highlighted with a red box and contains the following options: a checked checkbox for 'Auto-Cleanup run logs older than' with a dropdown set to '7 days' and a 'Cleanup Now' button; an unchecked radio button for 'Delete Permanently'; and a selected radio button for 'Move to this folder' with a dropdown menu open showing options: '7 days', '15 days', '1 month', '2 months', '3 months', '6 months', and '12 months'. Below the dropdown is a 'Folder Path' input field. At the bottom of the main area, there is a 'Theme' section with a 'Light' dropdown and a 'Network' section with the text 'Vector API Address' and the URL 'http://localhost:51745/api/v1/vector/'.

EASY to customize

Customize Dark/light theme

The image displays two versions of the HAMILTON VENUS 6.0.1 software interface, one in light theme and one in dark theme. Both screens show a dashboard for a Microlab STAR / VANTAGE instrument.

Light Theme Screenshot:

- Header: HAMILTON VENUS 6.0.1, Cuevas_A (Admin)
- Instrument Status: Microlab® STAR / VANTAGE, 8:48:58 AM, Idle
- Run History Table:

Method	User	End Time	Status	
DNA Extraction	Cuevas_A	2/26/23, 8:48 AM	Aborted	▶ Run Again
DNA Extraction	Cuevas_A	2/26/23, 8:26 AM	Aborted	▶ Run Again
DNA Extraction	Cuevas_A	2/26/23, 7:55 AM	Finished	▶ Run Again
DNA Extraction	Cuevas_A	2/26/23, 7:48 AM	Finished	▶ Run Again
DNA Extraction	Cuevas_A	2/26/23, 7:47 AM	Finished	▶ Run Again
- Frequently Used: DNA, PCR, Pipetting, Cells
- Navigation: Home, Shortcuts, Run Control, Maintenance, Instrument Control, Trace Viewer, Run History, System Tools, Settings, Support

Dark Theme Screenshot:

- Header: HAMILTON VENUS 6.0.1, Cuevas_A (Admin)
- Instrument Status: Microlab® STAR / VANTAGE, 8:49:17 AM, Idle
- Run History Table:

Method	User	End Time	Status	
DNA Extraction	Cuevas_A	2/26/23, 8:48 AM	Aborted	▶ Run Again
DNA Extraction	Cuevas_A	2/26/23, 8:26 AM	Aborted	▶ Run Again
DNA Extraction	Cuevas_A	2/26/23, 7:55 AM	Finished	▶ Run Again
DNA Extraction	Cuevas_A	2/26/23, 7:48 AM	Finished	▶ Run Again
DNA Extraction	Cuevas_A	2/26/23, 7:47 AM	Finished	▶ Run Again
- Frequently Used:
 - GENOMICS DNA Extraction: DNA Extraction from 24 to 96 blood samples. **Get reagents from fridge #3**
 - GENOMICS qPCR setup
 - GENOMICS Normalization
 - GENOMICS Covid-19 RNA extract
- Navigation: Home, Shortcuts, Run Control, Maintenance, Instrument Control, Trace Viewer, Run History, System Tools, Settings, Support

Customize

Custom shortcuts, images and text

Edit Shortcut

Title (required) *
DNA Extraction

Description (Optional)
DNA Extraction from 24 to 96 blood samples.
**Get reagents from fridge #3 **

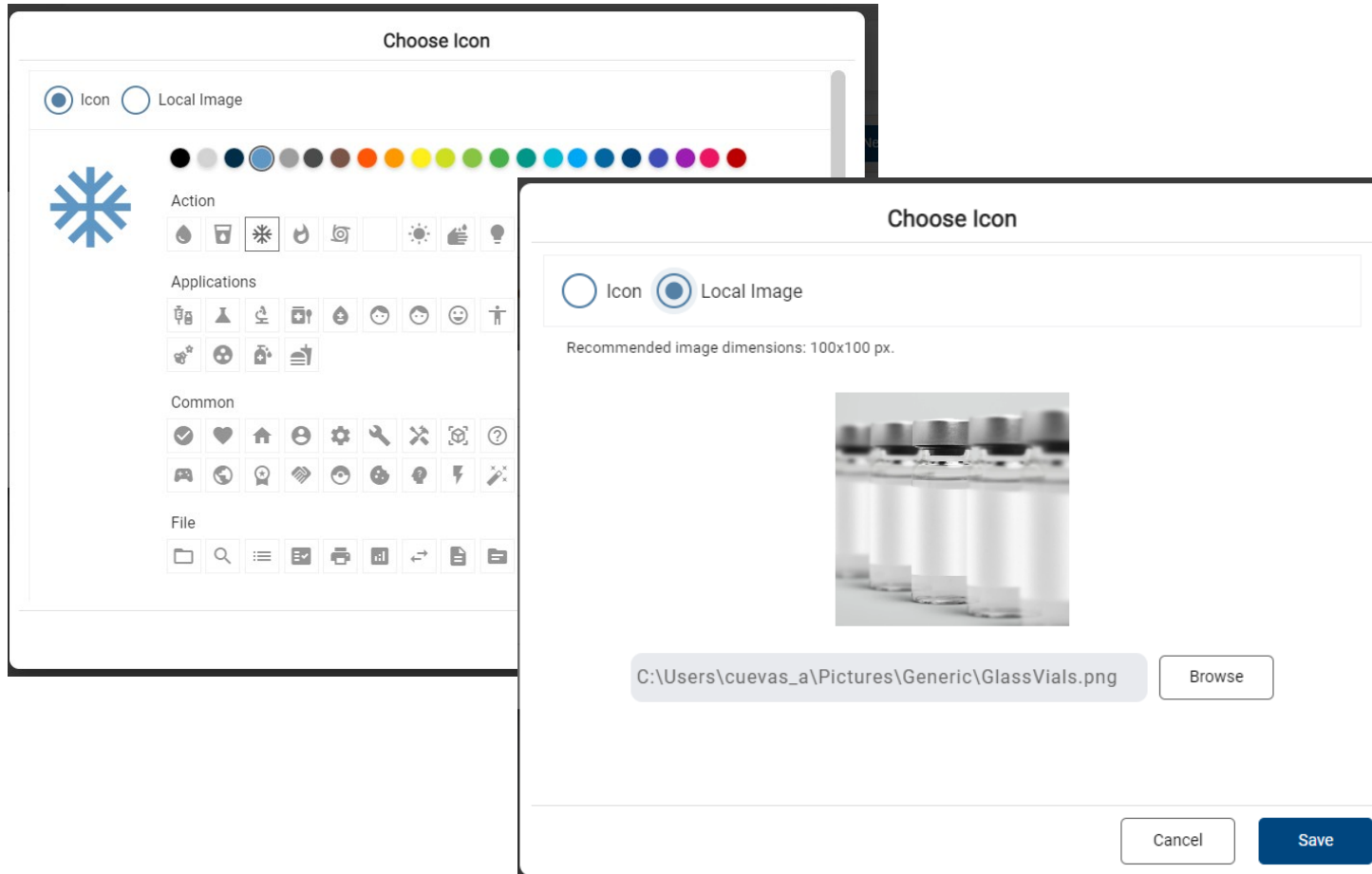
C:\Program Files (x86)\HAMILTON\Methods\DNA Extraction.hsl

Optional Attachments (+)

Cancel Save

Customize

Custom shortcuts, images and text




Customize Attachments

General Shortcuts

New Group

Edit Shortcut

 Choose Icon

Title (required) *

Cell media exchange

Description (Optional)

C:\Program Files (x86)\HAMILTON\Methods\WorkFlow2.hsl

File/Method Folder

Optional Attachments (+)

X C:\Users\cuevas_a\Documents\G456 cell media preparation.pdf

Browse

Cancel Save

Customize

Shortcuts organization and visibility

VENUS six

HAMILTON

(Admin) ?

General Shortcuts

New Group

^ Illumina NGS

New Shortcut

Illumina 16S rRNA
C:\Vector\RunMaster\Methods\DemoError.hal

method

Nextera Flex for Enrichment
C:\Vector\RunMaster\Methods\ResourcesTest Workflow.hal

method

Validation reports
C:\Vector\RunMaster\Methods\Documents

folder

^ Kingfisher Presto

New Shortcut

Method 1
C:\Vector\RunMaster\Methods\ResourcesTest Workflow.wfl

workflow

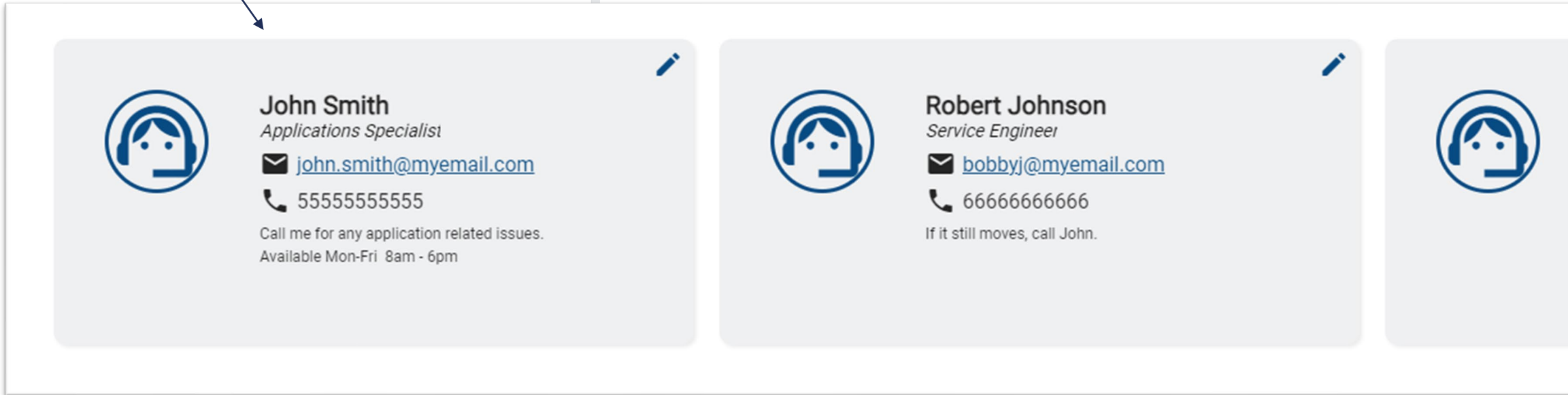
NIMBUS Presto supermethod
C:\Vector\RunMaster\Methods\ResourcesTest Workflow.wfl

workflow

Activate Windows
Go to Settings to activate Windows.

Customize

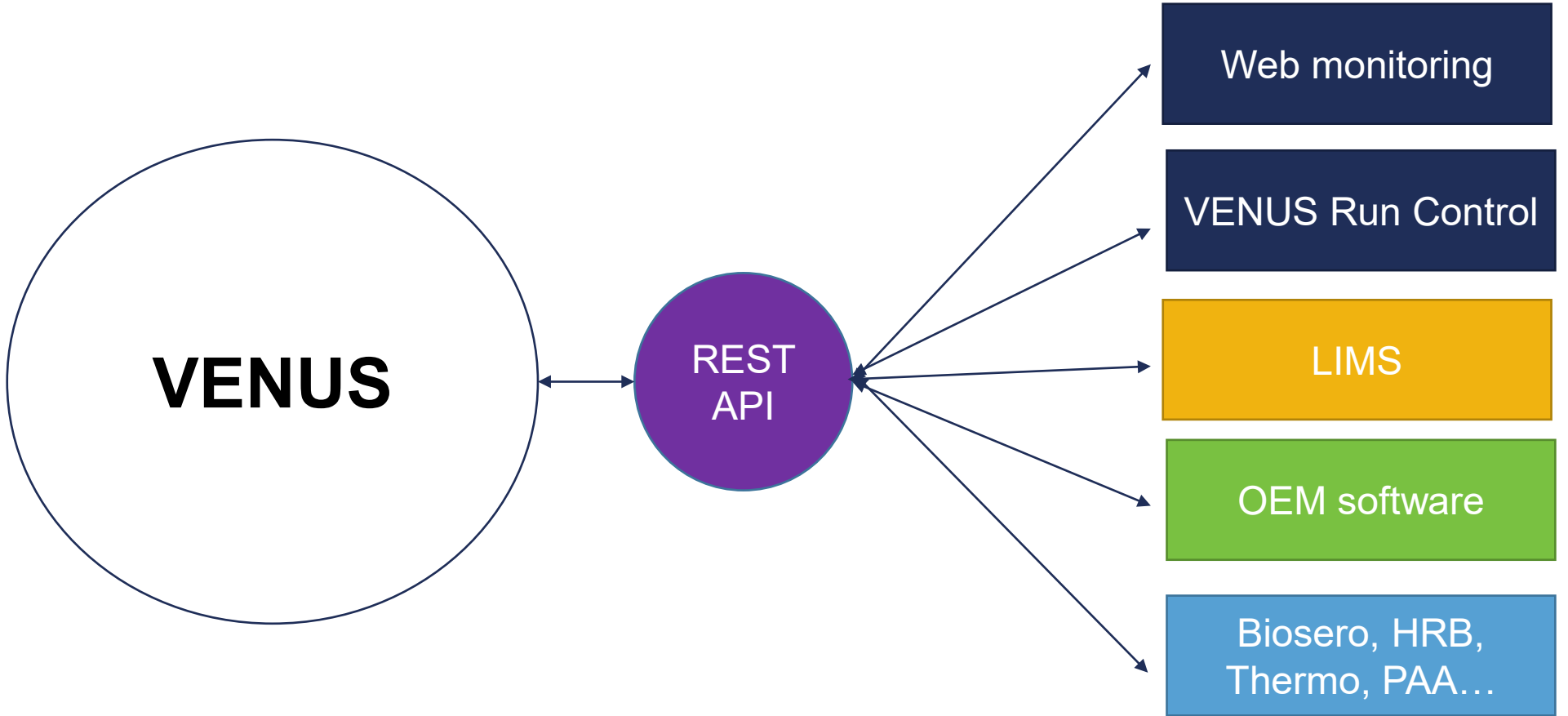
Support contact cards



EASY to connect

Connect

New REST API



Connect API

Swagger Supported by SMARTBEAR Select a definition Hamilton.WebAPI.Host v1

WebAPI.Host v1 OAS3

<http://localhost:51745/swagger/v1/swagger.json>

Devices ^

- GET** `/api/v1/vector/devices/deck-layout/{deviceId}` Get deck layout for the loaded method. ∨
- POST** `/api/v1/vector/devices/instrument-configuration` Get instrument configuration data. ∨
- GET** `/api/v1/vector/devices/registered` Gets a set of registered devices. ∨
- GET** `/api/v1/vector/devices/runtime` Gets a set of devices used in a currently loaded method (runtime devices). ∨
- POST** `/api/v1/vector/devices/control-panel/runtime` Opens the Control Panel for a Vector Device. This method uses a device defined in runtime (on method load). ∨
- POST** `/api/v1/vector/devices/control-panel/registered` Opens the Control Panel for a Vector Device. This method uses a device from the registry. ∨

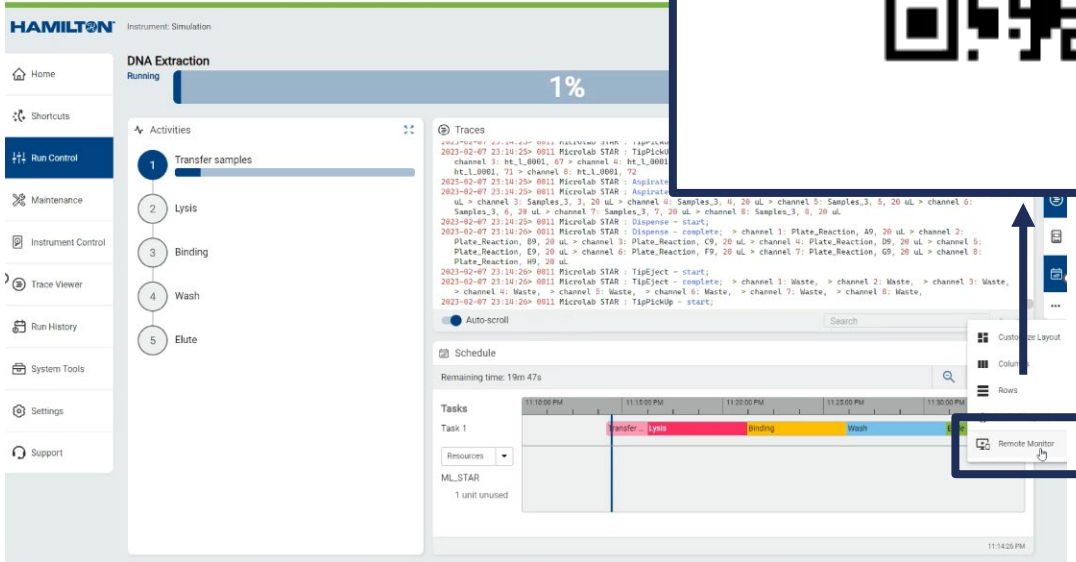
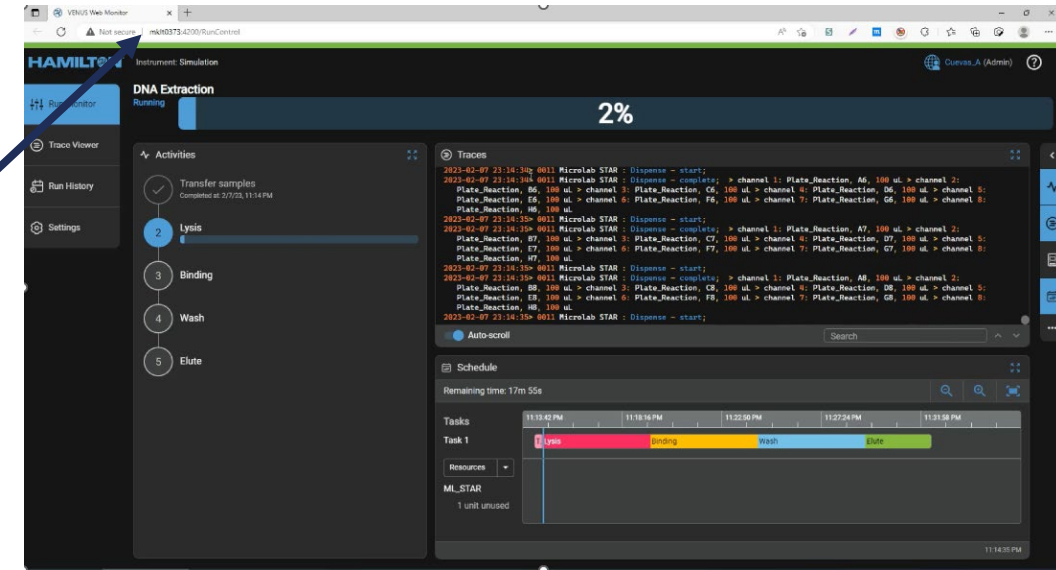
Error ^

- POST** `/api/v1/vector/error/register-runtime-error-handler/{deviceId}` Register for runtime errors with the given deviceId/instrument. ∨
- POST** `/api/v1/vector/error/unregister-runtime-error-handler/{deviceId}` Remove the registration for the runtime errors. ∨
- POST** `/api/v1/vector/error/end-device-messagebox` Responds to a message box error recovery request issued from a particular device. ∨
- POST** `/api/v1/vector/error/end-device-error-recovery` Responds to an array of error recovery arguments issued from a particular device. ∨

FileManager ^

Connect

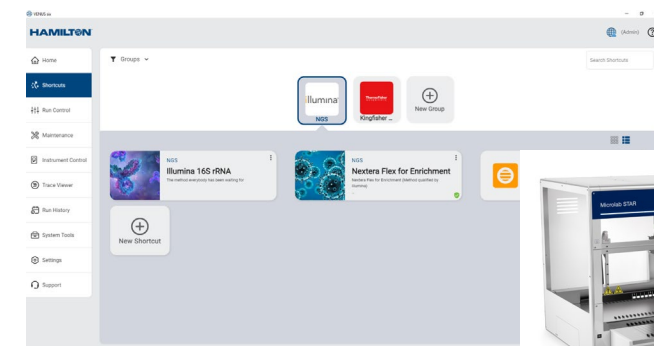
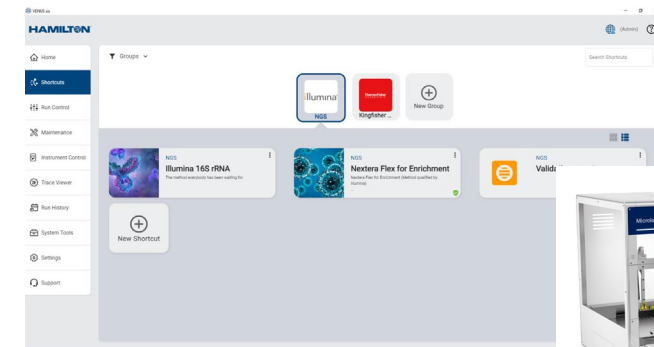
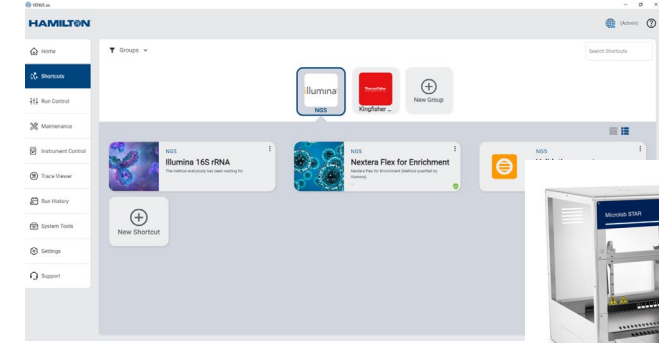
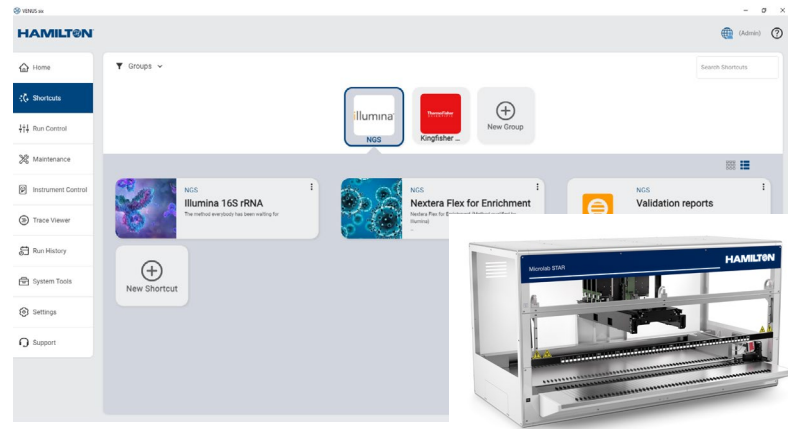
Remote run monitoring



EASY to deploy

Deploy

Easy export/import to multiple systems



EASY to program

Power Steps

Easy to Program



Transfer Samples

General 1:1 transfers for sample tube distribution, plate copy, sample dilutions and more



Add Reagent

Distribute reagents with single or multi-dispenses



Serial Dilution

Perform serial dilutions in plates and tubes



Hit Picking

Transfer specific samples from a worklist



Replicates

Create replicas of source sample tubes or full plate patterns

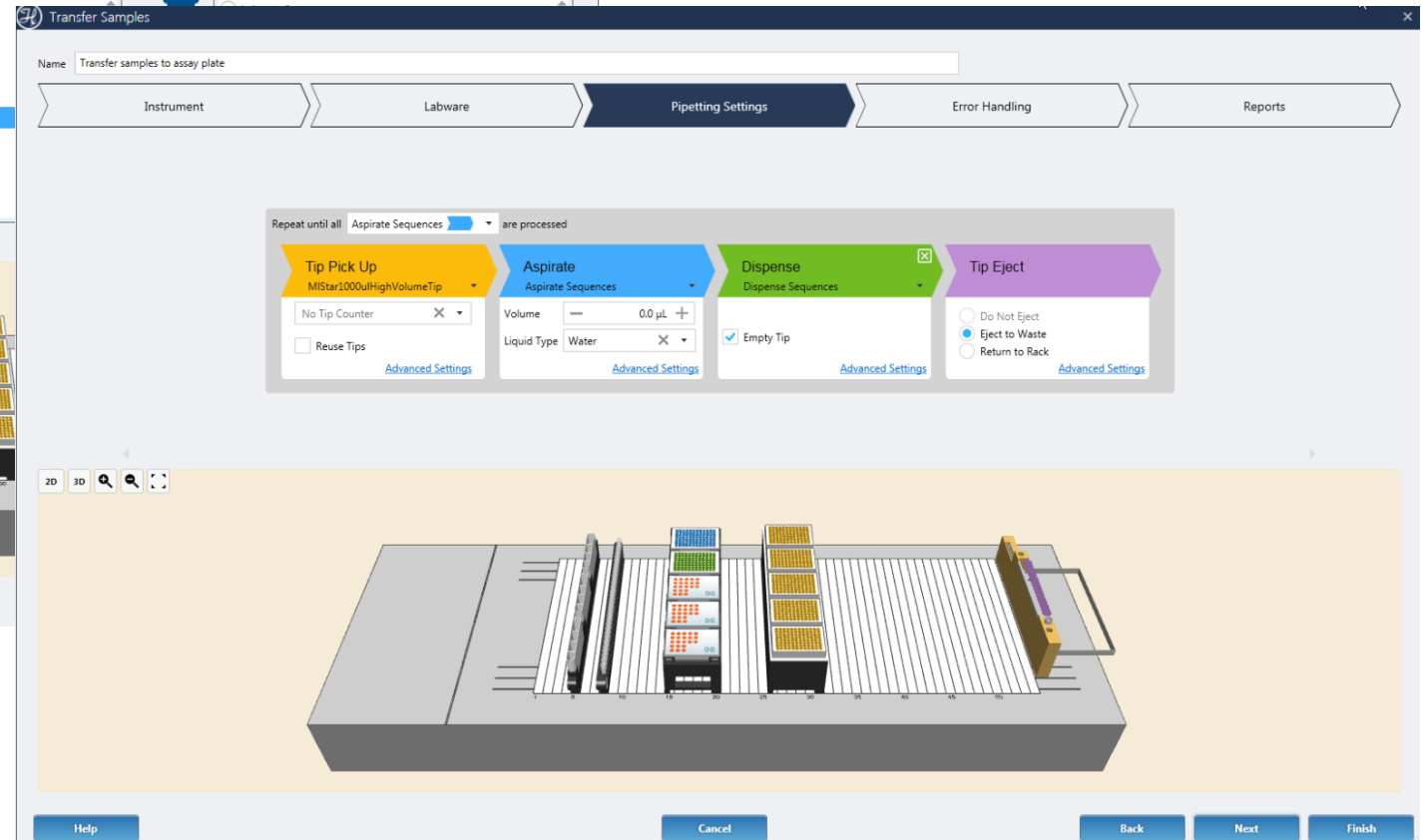
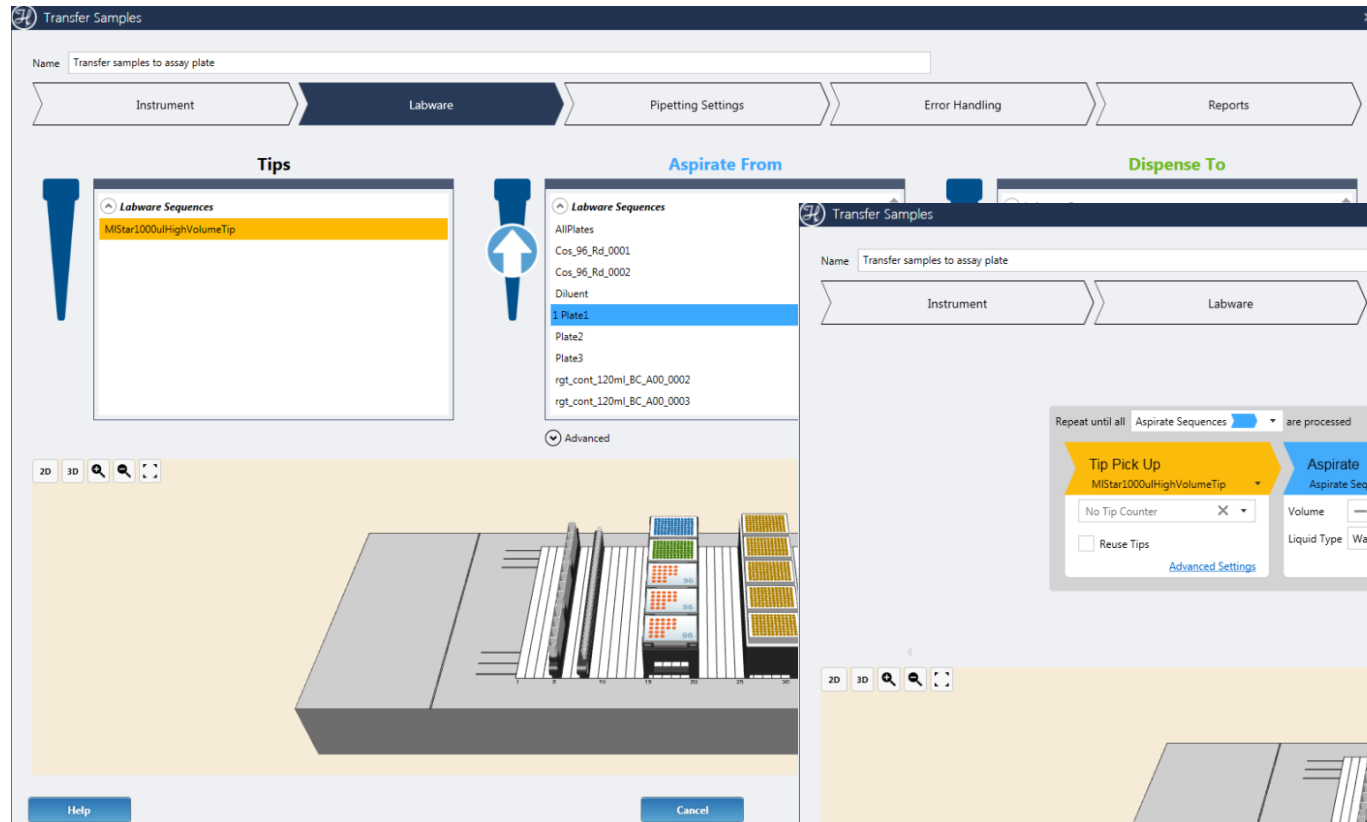


Load and Match

Load carriers and find barcoded samples from a given worklist

Power Steps

Easy to program



Power Steps

Error handling made easy

- On-screen help
- Simplified recovery options for new users

The screenshot displays the 'Transfer Samples' software interface. At the top, a navigation bar includes 'Instrument', 'Labware', 'Pipetting Settings', 'Error Handling' (which is highlighted), and 'Reports'. Below this, there are three error categories: 'Tip Pickup Errors', 'Aspiration Errors', and 'Dispense Errors'. Under 'Aspiration Errors', the error 'There is not enough liquid' is highlighted with a red box. A red arrow points from this error to a dropdown menu that is open, showing options: 'Show recovery dialog', 'Retry', and 'Exclude the channel'. Another red arrow points from the 'There is not enough liquid' error to a larger help dialog box. This dialog box contains the text: 'Set recovery action if the liquid available to aspirate is less than the aspirate volume.' and features an illustration of a pipette tip with a 'Not enough' warning icon. At the bottom of the interface, there are buttons for 'Help', 'Cancel', 'Back', 'Next', and 'Finish'.

Power Steps - Simple but flexible

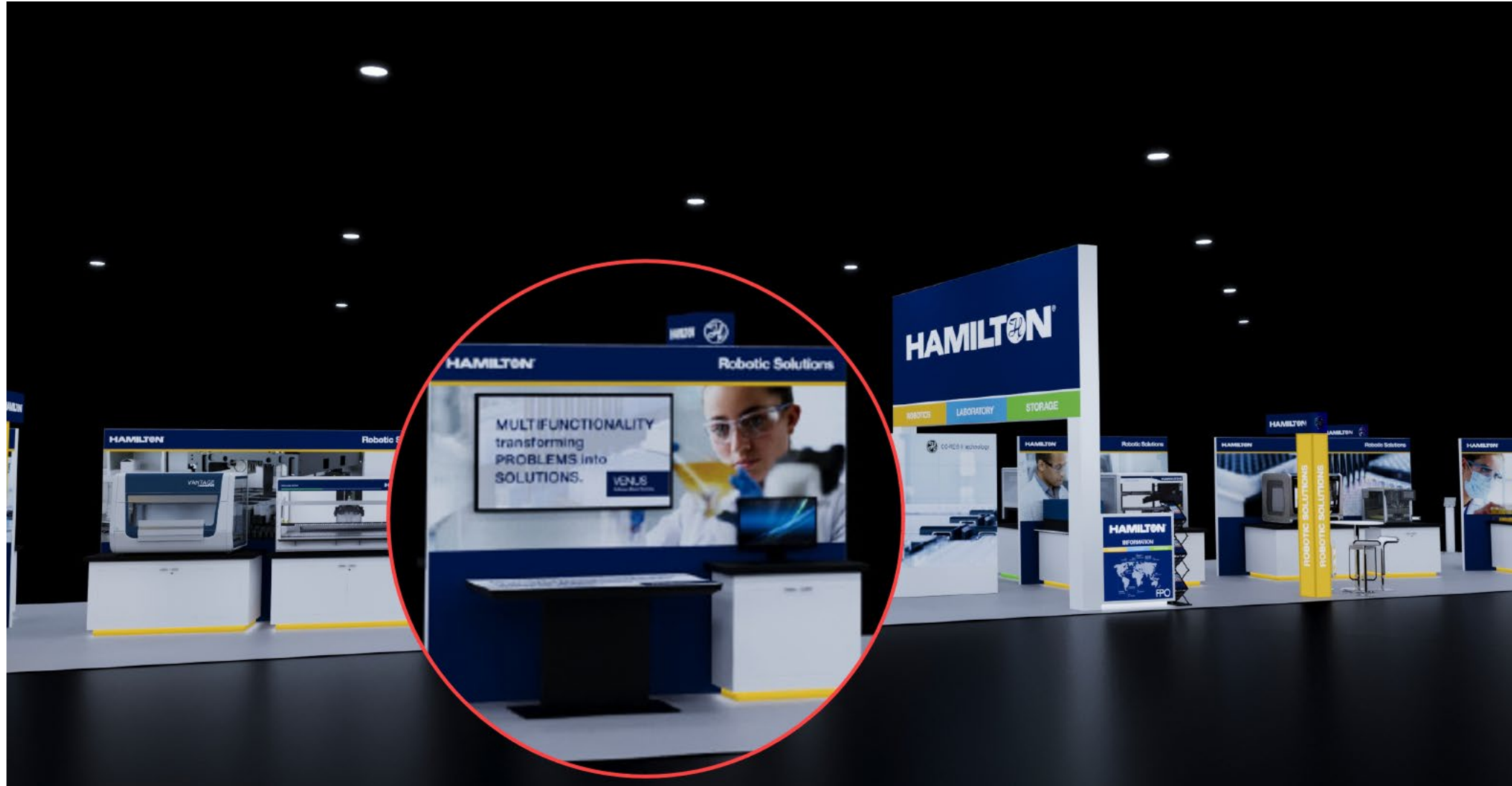
Optional pipetting report

- Create a full report of the pipetting actions in the step with one click

The screenshot shows the Hamilton Transfer Samples software interface. The 'Reports' step is highlighted in the navigation bar. Below the navigation bar, there is a 'Create report(s) at' field with a file path and a 'Browse' button. A red box highlights the 'Add Report' button, with a red arrow pointing to it. Below the 'Add Report' button is a 'Help' button. The main area of the interface displays a table with the following columns: C, D, E, F, G, H, I, J, K, L, M, N. The table contains 34 rows of data, each representing a pipetting action. The first row is a header row, and the subsequent rows contain details such as LabwareID, TPositionID, TPositionBC, TStatusSur, TSumStateDescription, TVolume, SRackBC, SLabwareId, SPosit, SPositic, ActionDate, Time, and UserName.

C	D	E	F	G	H	I	J	K	L	M	N	
TLabwareId	TPositionId	TPositionBC	TStatusSur	TSumStateDescription	TVolume	SRackBC	SLabwareId	SPosit	SPositic	ActionDate	Time	UserName
1	HHS_DWP_2mL	A1	bc000001	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	1	1	2011-09-02	10:33:59	HamiltonCo
2	HHS_DWP_2mL	B1	bc000002	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	2	2	2011-09-02	10:33:59	HamiltonCo
3	HHS_DWP_2mL	C1	bc000003	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	3	3	2011-09-02	10:33:59	HamiltonCo
4	HHS_DWP_2mL	D1	bc000004	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	4	4	2011-09-02	10:33:59	HamiltonCo
5	HHS_DWP_2mL	E1	bc000005	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	5	5	2011-09-02	10:34:00	HamiltonCo
6	HHS_DWP_2mL	F1	bc000006	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	6	6	2011-09-02	10:34:00	HamiltonCo
7	HHS_DWP_2mL	G1	bc000007	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	7	7	2011-09-02	10:34:00	HamiltonCo
8	HHS_DWP_2mL	H1	bc000008	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	8	8	2011-09-02	10:34:00	HamiltonCo
9	HHS_DWP_2mL	A2	bc000009	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	9	9	2011-09-02	10:34:01	HamiltonCo
10	HHS_DWP_2mL	B2	bc000010	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	10	10	2011-09-02	10:34:01	HamiltonCo
11	HHS_DWP_2mL	C2	bc000011	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	11	11	2011-09-02	10:34:01	HamiltonCo
12	HHS_DWP_2mL	D2	bc000012	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	12	12	2011-09-02	10:34:01	HamiltonCo
13	HHS_DWP_2mL	E2	bc000013	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	13	13	2011-09-02	10:34:01	HamiltonCo
14	HHS_DWP_2mL	F2	bc000014	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	14	14	2011-09-02	10:34:01	HamiltonCo
15	HHS_DWP_2mL	G2	bc000015	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	15	15	2011-09-02	10:34:01	HamiltonCo
16	HHS_DWP_2mL	H2	bc000016	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	16	16	2011-09-02	10:34:01	HamiltonCo
17	HHS_DWP_2mL	A3	bc000017	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	17	17	2011-09-02	10:34:02	HamiltonCo
18	HHS_DWP_2mL	B3	bc000018	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	18	18	2011-09-02	10:34:02	HamiltonCo
19	HHS_DWP_2mL	C3	bc000019	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	19	19	2011-09-02	10:34:02	HamiltonCo
20	HHS_DWP_2mL	D3	bc000020	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	20	20	2011-09-02	10:34:02	HamiltonCo
21	HHS_DWP_2mL	E3	bc000021	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	21	21	2011-09-02	10:34:03	HamiltonCo
22	HHS_DWP_2mL	F3	bc000022	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	22	22	2011-09-02	10:34:03	HamiltonCo
23	HHS_DWP_2mL	G3	bc000023	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	23	23	2011-09-02	10:34:03	HamiltonCo
24	HHS_DWP_2mL	H3	bc000024	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	24	24	2011-09-02	10:34:03	HamiltonCo
25	HHS_DWP_2mL	A4	bc000025	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	25	25	2011-09-02	10:34:03	HamiltonCo
26	HHS_DWP_2mL	B4	bc000026	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	26	26	2011-09-02	10:34:03	HamiltonCo
27	HHS_DWP_2mL	C4	bc000027	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	27	27	2011-09-02	10:34:03	HamiltonCo
28	HHS_DWP_2mL	D4	bc000028	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	28	28	2011-09-02	10:34:03	HamiltonCo
29	HHS_DWP_2mL	E4	bc000029	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	29	29	2011-09-02	10:34:04	HamiltonCo
30	HHS_DWP_2mL	F4	bc000030	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	30	30	2011-09-02	10:34:04	HamiltonCo
31	HHS_DWP_2mL	G4	bc000031	0 Correct pipetting	200	-----	SMP_CAR_32_12x75_A00_0001	31	31	2011-09-02	10:34:04	HamiltonCo
32	HHS_DWP_2mL	H4	bc000032	0 Not used	1E+09	-----	-----	-----	-----	-----	-----	HamiltonCo
33	HHS_DWP_2mL	A5	bc000033	0 Not used	1E+09	-----	-----	-----	-----	-----	-----	HamiltonCo
34	HHS_DWP_2mL	A5	bc000033	0 Not used	1E+09	-----	-----	-----	-----	-----	-----	HamiltonCo

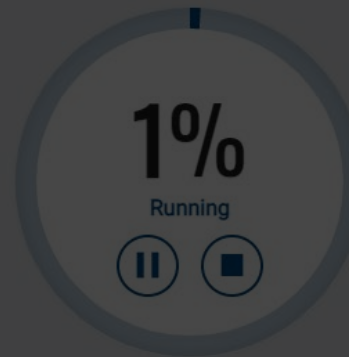
SLAS 2023 – Booth #1011



- Home
- Shortcuts
- Run Control
- Maintenance
- Instrument Control
- Trace Viewer
- Run History
- System Tools
- Settings
- Support

Microlab® STAR / VANTAGE

7:48:32 AM



DNA Extraction
DNA Extraction

Thank You!

Run History

Method	User	End Time	Status	
DNA Extraction	Cuevas_A	2/26/23, 7:47 AM	Finished	▶ Run Again
DNA Extraction	Cuevas_A	2/26/23, 6:49 AM	Finished	▶ Run Again
DNA Extraction	Cuevas_A	2/26/23, 6:48 AM	Finished	▶ Run Again
DNA Extraction	Cuevas_A	-	Paused	▶ Run Again
Demo1	Cuevas_A	2/25/23, 4:35 AM	Finished	▶ Run Again

Frequently Used



GENOMICS
DNA Extraction

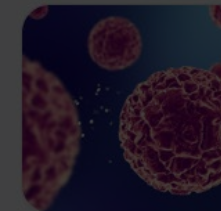
DNA Extraction from 24 to 96 blood samples.
**Get reagents from fridge #3 **



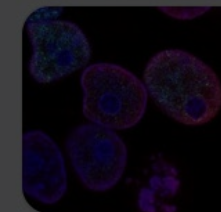
GENOMICS
qPCR setup



GENOMICS
Normalization

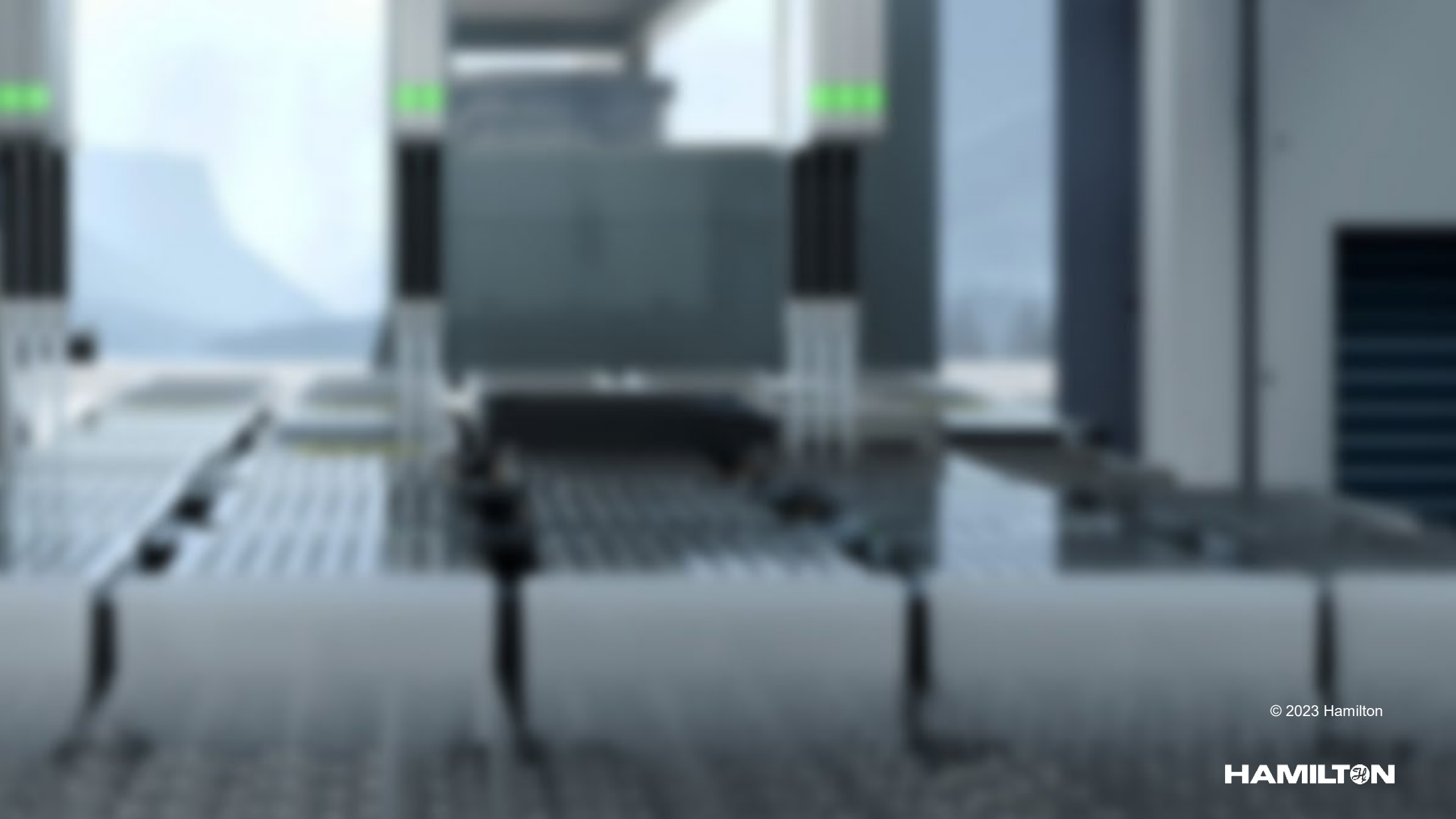


GENOMICS
Covid-19 RNA extract



CELL CULTURE
Cell media exchange

Booth 1011



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