

# AssayMAP Protein Sample Prep Workbench

## Immobilization v3.0 Quick Start Guide



This guide is for users who have been trained in the proper use of the AssayMAP Bravo Platform and understand the safety guidelines in the [Bravo Platform Safety and Installation Guide](#). The procedures in this guide require the Protein Sample Prep Workbench. You can find more detailed instructions by going to the Literature Library in the Protein Sample Prep Workbench.

### Before you start

Each workbench application and utility has an Experiment Settings section that allows you to select an experiment ID and a method.

- An *experiment ID* is a database record that captures the steps executed and the settings used during each run of an application or utility. Any errors that may have occurred during a run are also recorded.

To create an experiment ID, you open the Experiments Editor by clicking

**Experiments Editor**

in any Workbench app or utility. For details, go to the

Literature Library and open [Using the Protein Sample Prep Workbench](#). In the browser that opens, click **Using Experiment IDs**.

- A *method* is a comprehensive collection of saved settings for an application or utility, which you can use to run the application or utility.

Experiment IDs and methods are required for compliance-enabled VWorks editions and optional for noncompliance-enabled VWorks editions.

VWorks edition	Experiment ID and method selection
VWorks Plus	Required
VWorks Standard	Optional

### Step 1. Design your run

Use the **Immobilization Reagent Volume Calculator** to:

- Determine reagent volume preparation requirements.
- Ensure labware selections are consistent with the volume requirements.

For in-depth assay development guidelines, see the [Immobilization v3.0 Users Guide](#) in the Literature Library of the Protein Sample Prep Workbench.

### Step 2. Prepare reagent plates

To minimize evaporation, fill the labware immediately before run time or keep them covered until you run the protocol.

#### CAUTION

**A small reagent volume excess is required in all labware types to ensure proper volume transfer.**

### Step 3. Prepare the system

Use the Reagent Volume Calculator to automatically include excess volume, or look up the recommended value for each allowable labware type in the [AssayMAP Labware Reference Guide](#), which is available in the Literature Library page of the workbench.

#### Step 3. Prepare the system



##### To prepare the system:

- 1 Check the levels of the wash station source and waste carboys. Then, fill or empty them as required.
- 2 If you have not already done so, turn on the AssayMAP Bravo Platform and accessories, and start the Protein Sample Prep Workbench.
- 3 Open the **System Startup/Shutdown** utility.  
*Note:* For detailed instructions, see the user guide for this utility.
- 4 If applicable, click **Select Experiment ID** to open the Experiments Editor.

	Select Experiment ID
	Select Method

- 5 In the **Experiments Editor**, select the **Experiment ID** that you want to use to capture the steps performed during this utility run, and then click **Use Selected**.

Experiment ID	Status	Date created
Immobilization Example	Not yet used	5/11/2022 11:23:07 AM
IntactMassAnalysis_ProjectABXZ	Open	2/1/2022 2:06:54 PM
IntactMassAnalysis 1.1_ProjectAB23	Not yet used	2/1/2022 2:07:56 PM

The Experiments Editor closes.


Immobilization Example	Select Experiment ID
	Select Method

- 6 In the form, click **Select Method** to locate and select a method for this utility. In the **Open File** dialog box, select the method, and click **Open**.
- 7 Confirm that the labware and accessories on the AssayMAP Bravo deck match the display in the **Deck Layout** area of the form.

#### CAUTION

To avoid a hardware crash and equipment damage, ensure that the wash station contains the white wide-bore chimneys when using the AssayMAP 25  $\mu$ L cartridges.

*Note:* The wash station wide-bore chimneys work for both 5- $\mu$ L and 25- $\mu$ L cartridges and are standard on wash stations purchased in 2020 onward. The wide-bore chimneys are white plastic, whereas the normal-bore chimneys are a semi-clear plastic. For details, see the [96 Channel Wash Station Maintenance Guide](#).

- 8 Click  **Run Startup** to start the run.

## WARNING

The Bravo head and tie bar will move during the Bravo Startup protocol. To prevent injury, keep clear of the device while it is in motion.

- 9 During the Startup protocol, verify that all the wash station chimneys have liquid flowing through them. If liquid is not flowing through the chimneys, see the [96 Channel Wash Station Maintenance Guide](#) for troubleshooting guidelines.


## Step 4. Set up the cartridges



### To set up the cartridges:

- 1 Open the **Cartridge Transfer** utility.  
*Note:* For detailed instructions, see the user guide for this utility.
- 2 If applicable, click **Select Experiment ID** to open the Experiments Editor.
- 3 In the **Experiments Editor**, select the **Experiment ID** that you want to use to capture the steps performed during this utility run, and then click **Use Selected**.

Immobilization Example	Select Experiment ID
	Select Method

- 4 In the form, click **Select Method** to select and load the method for this utility.
- 5 Confirm that the labware and accessories on the AssayMAP Bravo deck match the display in the **Deck Layout** area of the form.
- 6 Click  **Run Protocol** to start the run.

## Step 5. Run the application



### To run the application:

- 1 Open the **Immobilization v3.0** app.  
*Note:* For detailed instructions, see the user guide for this app.
- 2 If applicable, click **Select Experiment ID** to open the Experiments Editor.
- 3 In the **Experiments Editor**, select the **Experiment ID** that you want to use to capture the steps performed during this application run, and then click **Use Selected**.

Immobilization Example	Select Experiment ID
	Select Method

- 4 In the form, click **Select Method** to select and load the method for this application.  
*Note:* Agilent provides a method with default settings for each cartridge size. Each default method file name has the cartridge size as a prefix.  
To modify the selected method, proceed to step 5. Otherwise, go to [step 6](#).
- 5 To create or modify a method:

## Step 5. Run the application

*VWorks Plus*. Administrator or technician privileges are required to create or modify methods.

- a** In the **Application Settings** area, specify the cartridge settings:

Number of Full Columns of 5 $\mu$ L Cartridges 1

- Select the cartridge size from the **Number of Full Columns of** list: **5  $\mu$ L Cartridges** or **25  $\mu$ L Cartridges**.
- In the box, type the number of full columns in the cartridge holder at deck location 2. Default: 1 (Range: 1–12).

The position of the columns of cartridges in the tip seating station must match the positions of the samples and solutions in the plates on the deck. For details, see the application user guide.

- b** Select the remaining **Application Settings**. For help, see the following [Application Settings](#) section.

- c** In the **Labware Table** of the form, select the labware for your run.

- d** To save the method, click Save Method. In the **Save File As** dialog box, type the file name and click **Save**.

*Note:* Agilent recommends that you use the cartridge size (5  $\mu$ L or 25  $\mu$ L) as a prefix to the name so that you know if the method matches the cartridge size in use.

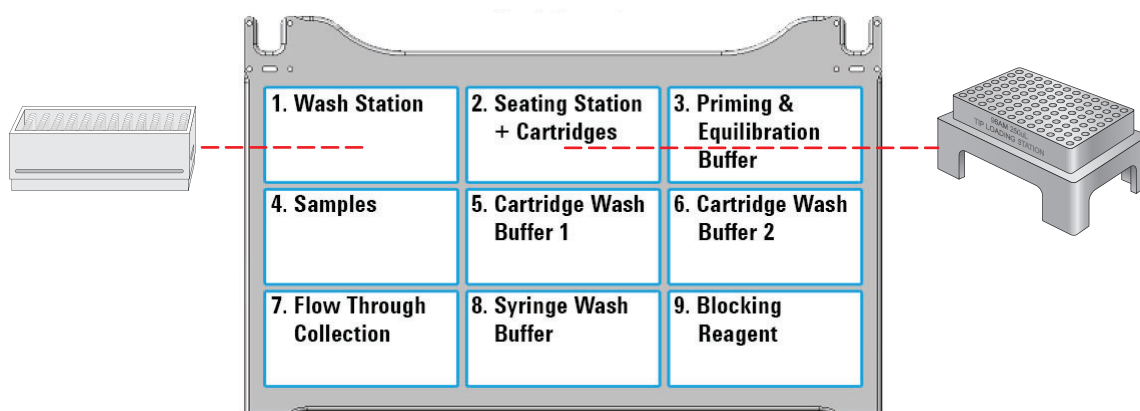
*VWorks Plus.* You must save the method before you can run it.

### WARNING

The probes of the Bravo 96AM Head are sharp and can scratch you if they brush across your hand. A probe scratch can expose you to any contaminants remaining on the probes. Be careful to avoid touching the probes.

*Note:* The Greiner PCR plates are not compatible with the 25  $\mu$ L cartridges at deck location 7.


- 6** Ensure the accessories, filled reagent plates, and collection plates are at the assigned deck locations, as shown in the **Deck Layout** of the form.



**CAUTION**

Incorrect labware selections and improperly seated labware can cause hardware collisions, resulting in equipment damage. Ensure that the selections in the Labware Table exactly match the physical labware present on the Bravo deck. Also ensure that all labware are properly seated within the alignment features of their respective platepads.

## Step 6. Clean up after each run

- 7 Click  to start the run.

To monitor the progress of the run, check the **Status** box in the upper right corner of the form.

### To clean up after the run:


- 1 Remove used labware from the deck.
- 2 Discard leftover reagents appropriately.
- 3 *Optional.* Conduct stringent washing of the syringes:

- a Open the **Syringe Wash** utility .

*Note:* For detailed instructions, see the user guide for this utility.

- b If applicable, click **Select Experiment ID** to open the Experiments Editor.
- c In the **Experiments Editor**, select the **Experiment ID** that you want to use to capture the steps performed during this utility run, and then click **Use Selected**.

Immobilization Example	Select Experiment ID
	Select Method

- d Click **Select Method** to select and load the method for this utility.
- e Confirm that the labware and accessories on the AssayMAP Bravo deck match the display in the **Deck Layout** area of the form.
- f Click  to start the run.

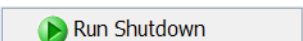
## Step 7. Shut down at end of day



### To shut down at the end of the day:

- 1 Open the **System Startup/Shutdown** utility.  
*Note:* For detailed instructions, see the user guide for this utility.
- 2 If applicable, click **Select Experiment ID** to open the Experiments Editor.
- 3 In the **Experiments Editor**, select the **Experiment ID** that you want to use to capture the steps performed during this utility run, and then click **Use Selected**.

Immobilization Example	Select Experiment ID
	Select Method

- 4 Click **Select Method** to select and load the method for this utility.
- 5 Remove everything from the deck except the 96AM Wash Station (deck location 1), the 96AM Cartridge & Tip Seating Station (deck location 2), and if applicable, the Syringe Storage Liquid (deck location 7).
- 6 Click .

- 7 After the Shutdown protocol has completed, turn off the power at the AssayMAP Bravo Platform and the accessories.
- 8 Close the Protein Sample Prep Workbench software.

## Application Settings

The following table provides an overview of the Application Settings section in the Immobilization v3.0 app.

**Experiment Settings**

Select Experiment ID:

Select Method:

Number of Full Columns of:

Step	Conduct Step?	Volume (µL)	Flow Rate (µL/min)	Wash Cycles
Initial Syringe Wash	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Prime	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Equilibrate	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Load Samples	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Collect Flow Through	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Cup Wash 1	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Internal Cartridge Wash 1	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Collect Flow Through	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Load Blocking Reagent	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Collect Flow Through	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Cup Wash 2	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Internal Cartridge Wash 2	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Collect Flow Through	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Stringent Syringe Wash	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Re-Equilibrate	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Final Syringe Wash	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Deck Layout**

Station	Description
1. Wash Station	
2. Seating Station + Cartridges	
3. Priming & Equilibration Buffer	
4. Samples	
5. Cartridge Wash Buffer 1	
6. Cartridge Wash Buffer 2	
7. Flow Through Collection	
8. Syringe Wash Buffer	
9. Blocking Reagent	

**Labware Table**

Deck Location	Labware Type
1	96AM Wash Station
2	96AM Cartridge & Tip Seating Station + Cartridges
3	No Labware
4	No Labware
5	No Labware
6	No Labware
7	No Labware
8	No Labware
9	No Labware

**Status**

Run Protocol

Pause

Clear All

Toggle Full Screen

App Library

Utility Library

Workflow Library

Experiments Editor

Add Experiment Note

Save Method

**Table Application Settings overview**

Steps*	Description	Cartridge size	Volume (µL)	Flow Rate (µL/min)	Wash Cycles
Initial Syringe Wash	Washes syringes at the wash station (deck location 1).	5 µL:	–	–	3
		25 µL:	–	–	3
		Range:	–	–	0–10
Prime	Aspirates Priming Buffer (deck location 3) into the syringes, and then dispenses it through the cartridges into the wash station (deck location 1).	5 µL:	100	300	1
		25 µL:	250	300	1
		Range:	0–250	0.5–500	0–10
Equilibrate	Aspirates Equilibration Buffer (deck location 3) into the syringes, and then dispenses it through the cartridges into the wash station (deck location 1).	5 µL:	50	10	1
		25 µL:	250	10	1
		Range:	0–250	0.5–500	0–10
Load Samples	Aspirates samples (deck location 4) into the syringes, and then dispenses them through the cartridges into the Flow Through Collection plate (deck location 7) or into the wash station (deck location 1).	5 µL:	100	5	3
		25 µL:	100	5	3
		Range:	0–1000	0.1–500	0–10

Steps*	Description	Cartridge size	Volume (µL)	Flow Rate (µL/min)	Wash Cycles
Collect Flow Through	If selected, collects the sample flow-through in the Flow Through Collection plate (deck location 7). If not selected, discards the sample flow-through to waste in the wash station (deck location 1).	–	–	–	–
Cup Wash 1	Rinses the cartridge cups with Cartridge Wash Buffer 1 (deck location 5), and then discards the liquid into the wash station (deck location 1).	5 µL:	25	–	3
		25 µL:	25	–	3
		Range:	0–100	–	0–10
Internal Cartridge Wash 1	Aspirates Cartridge Wash Buffer 1 (deck location 5) into the syringes, and then dispenses it through the cartridges into the Flow Through Collection plate (deck location 7) or into the wash station (deck location 1).	5 µL:	50	10	3
		25 µL:	250	10	3
		Range:	0–250	0.5–500	0–10
Collect Flow Through	If selected, collects the Internal Cartridge Wash 1 flow-through in the Flow Through Collection plate (deck location 7). If not selected, discards the Internal Cartridge Wash 1 flow-through into the wash station (deck location 1).	–	–	–	–
Load Blocking Reagent	Aspirates Blocking Reagent (deck location 9) into the syringes, and then dispenses it through the cartridges into the Flow Through Collection plate (deck location 7) or into the wash station (deck location 1).	5 µL:	50	5	3
		25 µL:	250	5	3
		Range:	0–250	0.1–500	0–10
Collect Flow Through	If selected, collects the Blocking Reagent flow-through in the Flow Through Collection plate (deck Location 7). If not selected, discards the Blocking Reagent flow-through into the wash station (deck location 1).	–	–	–	–
Cup Wash 2	Rinses the cartridge cups with Cartridge Wash Buffer 2 (deck location 6) and discards the liquid into the wash station (deck location 1).	5 µL:	25	–	3
		25 µL:	25	–	3
		Range:	0–100	–	0–10
Internal Cartridge Wash 2	Aspirates Cartridge Wash Buffer 2 (deck location 6) into the syringes, and then dispenses it through the cartridges into the Flow Through Collection plate (deck location 7) or into the wash station (deck location 1).	5 µL:	50	10	3
		25 µL:	250	10	3
		Range:	0–250	0.5–500	0–10
Collect Flow Through	If selected, collects Internal Cartridge Wash 2 flow-through in the Flow Through Collection plate (deck location 7). If not selected, discards Internal Cartridge Wash 2 flow-through into the wash station (deck location 1).	–	–	–	–

## Contacting Agilent Technologies

Steps*	Description	Cartridge size	Volume (µL)	Flow Rate (µL/min)	Wash Cycles
Stringent Syringe Wash	Aspirates Syringe Wash Buffer (deck location 8) into the syringes, and then discards the liquid into the wash station (deck location 1).	5 µL:	50	–	2
		25 µL:	50	–	2
		Range:	0–250	–	0–10
Re-Equilibrate	Aspirates Equilibration Buffer (deck location 3) into the syringes, and then dispenses it through the cartridges into the wash station (deck location 1).	5 µL:	50	10	1
		25 µL:	250	10	1
		Range:	0–250	0.5–500	0–10
Final Syringe Wash	Washes the syringes at the wash station (deck location 1).	5 µL:	–	–	3
		25 µL:	–	–	3
		Range:	–	–	0–10

\*Practical value ranges for the steps listed in this table and factors to consider when changing the default values can be found in the user guide for this application. Go to the *Assay development guidelines and protocol notes* topic and see the *Protocol stepwise guidelines* section.

A complete list of the robotic movements executed during a run can also be found in the user guide in the *Assay development guidelines and protocol notes* topic. See the *Automation movements during the protocol* section for details.

### Contacting Agilent Technologies

Web: <https://www.agilent.com>

Contact page: <https://www.agilent.com/en/contact-us/page>

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