



# BD FACSuite™ Software

## Quick Start Guide for Common Workflows

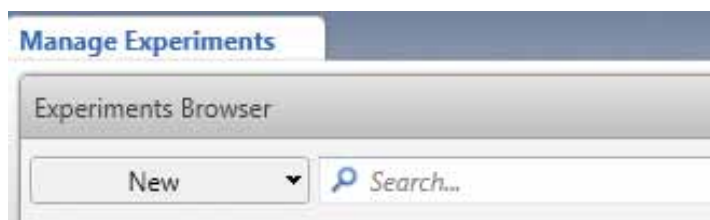
- **Create an Experiment**
- **Create an Assay**
- **Worklist Workflow**
- **Setup Workflows** (on reverse)

## Create an Experiment

Before running samples, an experiment should be created in the Experiment workspace. There are three ways to create an experiment.

### 1) Create a new experiment

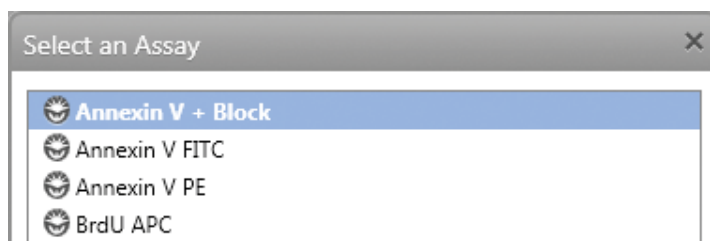
- Select the **Experiments** workspace from the navigation pane.
- Select **New** in the Experiment Browser.



A new experiment tab will open in the Experiment workspace with a default tube. By default, this tube is created using Lyse Wash Settings.

### 2) Create an experiment from an assay

- Select the **Experiments** workspace from the navigation pane.
- Select **New from Assay** within the Experiment Browser.
- Select an assay from the drop-down menu.

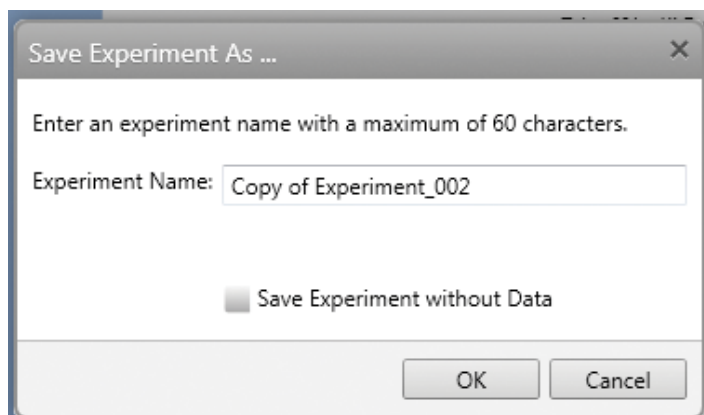


A new experiment is created with the name of the selected assay.

## Create an Experiment (continued)

### 3) Duplicate a saved experiment

- Select the **Experiments** workspace from the navigation pane.
- Select and right-click an existing experiment.
- Select **Save As**.
- Name the experiment. If applicable, select the **Save Experiment without Data** checkbox.



Note: Once you have created the experiment, refer to the [Setup Workflows](#) section and select an appropriate workflow for your experiment.

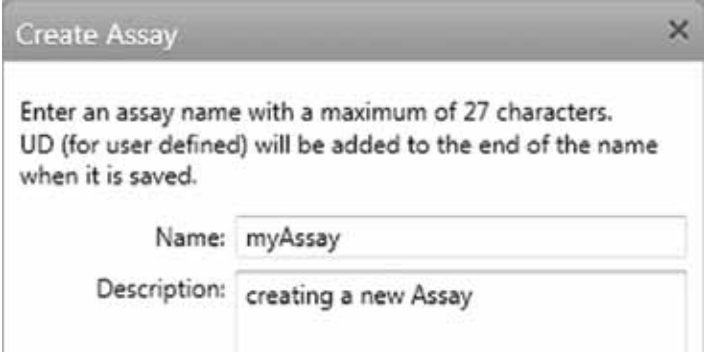
Once you create an experiment, you can create an assay from it.

## Create an Assay

Creating an assay is required to run the samples using a worklist. Once you create an experiment, you can create an assay from it.

### 1) Create an Assay

- a. Open the experiment you plan to use to create an assay.
- b. Go to **File > Create Assay**.
- c. Name the assay.



Create Assay

Enter an assay name with a maximum of 27 characters.  
UD (for user defined) will be added to the end of the name  
when it is saved.

Name: myAssay

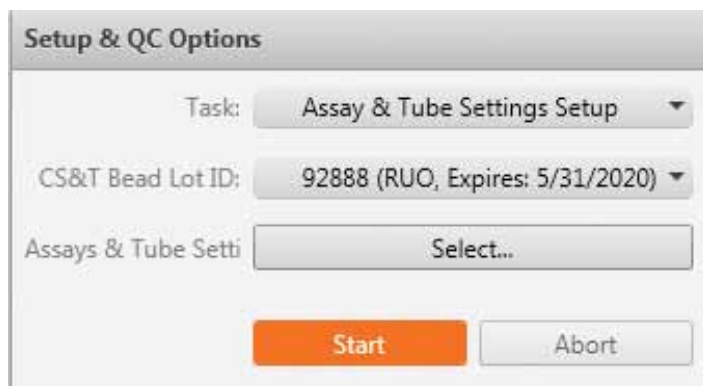
Description: creating a new Assay

Note: To create an assay, all tubes have to be associated with saved Tube Settings.

## Create an Assay (continued)

### 2) Update Assay and Tube Settings Setup

- Go to Setup & QC.
- Select **Assay & Tube Setting Setup** from the Task list.
- Select **CS&T Bead Lot ID**.
- Click **Select**.
- Select the assay you want to update.
- Click **Start**.



The screenshot shows a dialog box titled "Setup & QC Options". It contains three dropdown menus: "Task" (set to "Assay & Tube Settings Setup"), "CS&T Bead Lot ID" (set to "92888 (RUO, Expires: 5/31/2020)"), and "Assays & Tube Setti" (set to "Select..."). At the bottom, there are two buttons: "Start" (orange) and "Abort" (grey).

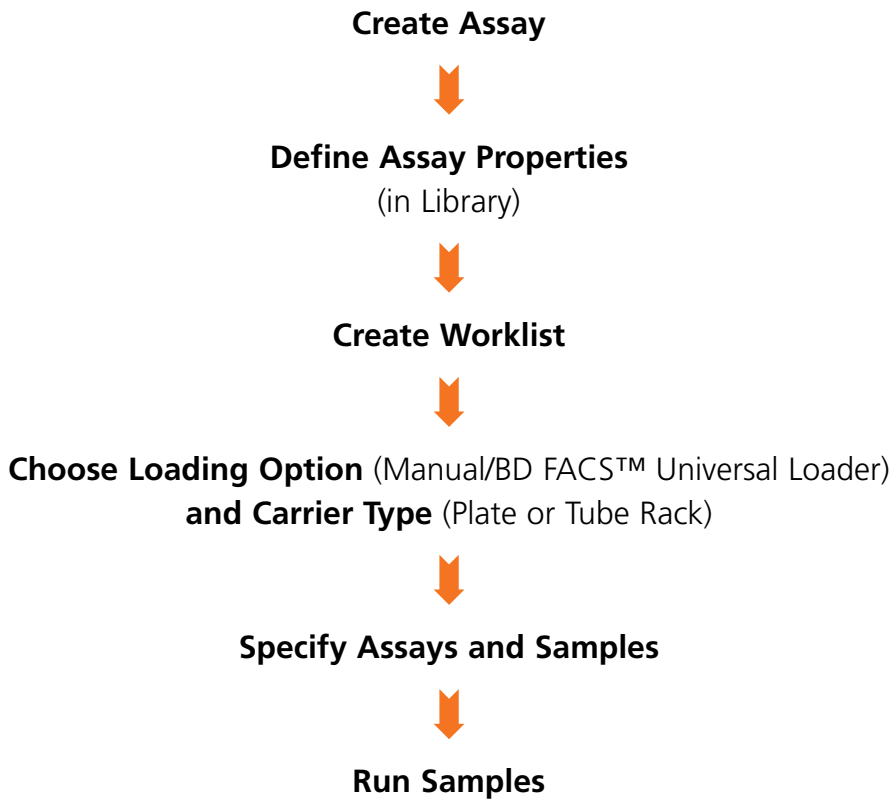
Note: This function updates Assay and Tube Settings based on current Performance QC. This update ensures that if the performance of your cytometer changes over time, your results will be consistent from experiment to experiment. To access this function, go to Setup & QC.

### 3) Define Assay Properties

- On the navigation pane, select the **Library** workspace and go to **Assay**.
- Find your assay under User-Defined.
- Select your assay and go to the **General**, **Export Results**, and **Report** tabs to make necessary changes.

The next step is to create a **Worklist**.

# Worklist Workflow



# Worklist Workflow

This workflow can be used for both a tube rack and a plate.

## 1) Set worklist preferences

- On the menu bar, go to **Tools > Preferences > Worklists**.
- Specify General, Export, and Print preferences for the worklist workspace.

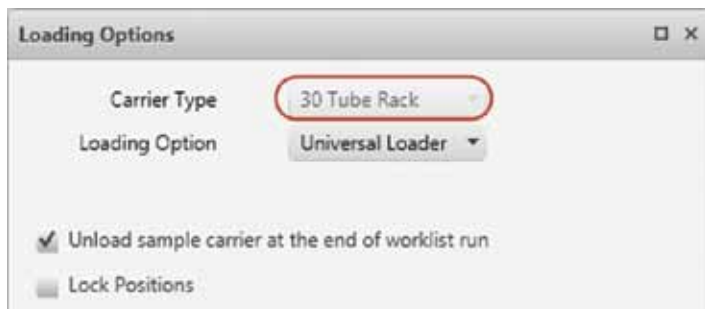


## 2) Create a new worklist

- Go to the **Worklist** workspace.
- On the menu bar, go to **File > New Worklist**.

## 3) Select a Carrier Type

- In the **Loading Options** panel, select the carrier type.



Note: If needed, tubes may be loaded manually.

## Worklist Workflow (continued)



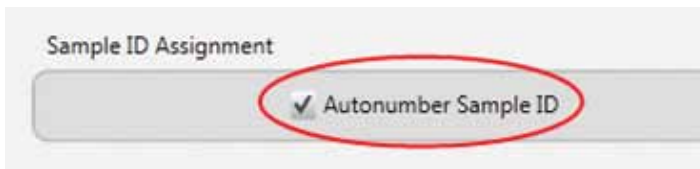
b. Create worklist entries by entering Tasks (Assays) and Sample IDs.

### 4) Create worklist entries

To specify a prefix for sample IDs in worklist entries, select the **Autonumber Sample ID** option in worklist preferences and follow these steps.

The screenshot shows a table titled "Worklist Entries" with the following data:

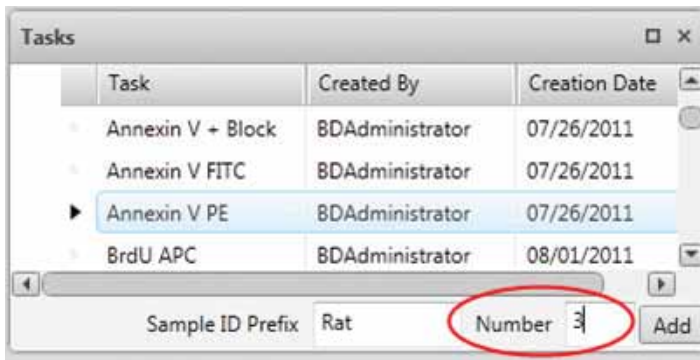
	Sample ID	Task	Status	Location	Sample Carrier
1	001	Two Tube Assay UD	Approved	82-83	001
2	002	Two Tube Assay UD	Approved	84-85	001





## Worklist Workflow (continued)

a. In the **Tasks** panel, select a task to add to the worklist.



b. In the **Sample ID Prefix** field at the bottom of the panel, enter a name.

c. In the **Number** field, enter the number of tasks you want to add and click **Add**.

d. The tasks are added to the worklist with the prefix you entered.

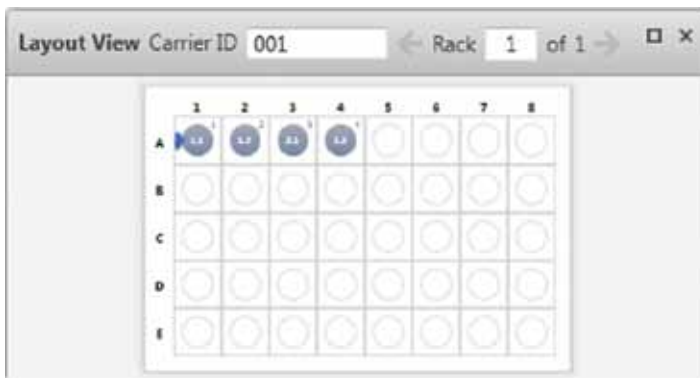
The screenshot shows a 'Worklist Entries' table with three entries. The 'Sample ID' column is circled in red.

	Sample ID	Task	Status
▶ 1	Rat_001	Annexin V PE	Ready
▶ 2	Rat_002	Annexin V PE	Ready
▶ 3	Rat_003	Annexin V PE	Ready

## Worklist Workflow (continued)

### 5) Specify Layout and mixing options in Properties

a. In the **Layout View**, right-click and select **Display Properties**.



b. Specify Layout options on the **General** tab. When the carrier is a plate, the notch positions on the plate must match the notch positions in the **Plate Properties**. Choose the location of the notch placement.

## Worklist Workflow (continued)

c. Specify mixing options on the **Mixing** tab.

Rack Properties: Rack 001

General **Mixing**

Read Rack Bar Code Label

Rack Layout

Linear  
Horizontal

Don't use edge positions

Number of empty positions between tubes: 0

Number of empty positions between entries: 0

Apply settings to multiple carriers

Apply to all carriers in list

Rack 001

Apply Settings

Rack Properties: Rack 001

General **Mixing**

Initial Mixing

Initial Mixing

Duration: 4

Intensity: 1400

Restore Default

Interim Mixing

Interim Mixing

Interim Type: Time

Interval: 10

Duration: 1

Intensity: 1100

Restore Default

Apply settings to multiple carriers

Apply to all carriers in list

Rack 001

Apply Settings

Note: Select **Apply to All** to apply layout and mixing options to multiple carriers.

## Worklist Workflow (continued)

### 6) Run samples

The following options are available to run samples:

- a. **Run All** will run all samples on the carrier.
- b. **Run from Pointer** will run all samples starting from the selected sample.
- c. **Run Selected** will run the samples that are selected in the Layout View.

To increase the preview time between samples, use the Stop Timer button as needed.

**Note:** By default, the preview time is set to 10 seconds. To modify the default value, go to **Tools > Preferences > Worklist** tab on the menu bar.

### 7) Batch analysis

After data acquisition, using batch analysis in the Worklist Workspace, you can reanalyze data, reprint reports, and export statistics.

The Run buttons are the controls for batch analysis.

The Stop Timer button can be used to pause between data files.

## **Setup Workflows**

For step-by-step instructions on how to choose and complete a Setup Workflow, please turn this Quick Start Guide around and follow the instructions.

# Setup Workflows: Overview

From the following five options, choose the setup workflow that matches your needs.

Workflow	Scenario	What is required?
<b>Default</b> (Lyse Wash)	Use when no adjustments need to be made to PMTVs and compensation values.	No action required
<b>Custom 1</b> (Modify Lyse Wash)	Use when adjustments to PMTVs, including FSC or SSC, are necessary, but the experiment will not be repeated.	Adjust PMTVs as desired
<b>Custom 2</b> (Modify Lyse Wash and Save)	Use when adjustments to PMTVs, including FSC or SSC, are necessary, and the experiment will be repeated.	Create Tube Settings
<b>Custom 3</b> (User-Defined Reference Settings)	Use when customized PMTVs and compensation values are necessary or if fluorochromes that do not exist in the spillover matrix are used.	Create Reference Settings
<b>Custom 4</b> (Save Modified Reference Settings)	Use when existing Reference Settings require adjustments, and the experiment will be repeated.	Save modified Reference Settings

# Setup Workflows: Step-by-step

Each setup workflow has a unique set of steps.

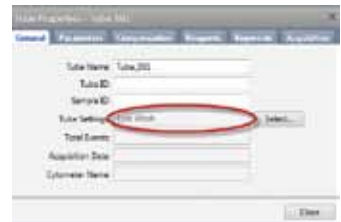
Default (Lyse Wash)	Custom 1 (Modify Lyse Wash)	Custom 2 (Modify Lyse Wash and Save)	Custom 3 (User-Defined Reference Settings)	Custom 4 (Save Modified Reference Settings)
Create tube	Create tube	Create tube	Create tube	Select tube
	Optimize PMTVs	Optimize PMTVs	Optimize PMTVs	Adjust compensation
		Create Tube Settings	Create user-defined Reference Settings by acquiring single-color compensation controls	Save Modified Reference Settings
Acquire data	Acquire data	Acquire data	Acquire data	Acquire data

## Default (Lyse Wash) Workflow

Use this workflow when no adjustments need to be made to default PMTVs and compensation values. The default tube setting called Lyse Wash is available in the BD FACSuite Library Lyse Wash (settings are designed for white blood cells but may work for many cell types).

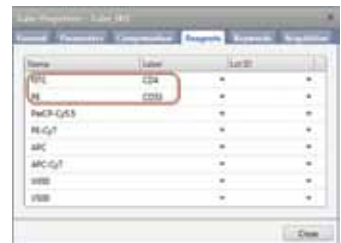
### 1) Create a tube in an experiment

Default Lyse Wash Tube Settings are automatically assigned to a new tube.



### 2) Label reagents as needed

Specify reagent labels. Note: You can add, remove, or modify parameters (detectors) as needed.



### 3) Set acquisition criteria

Set acquisition criteria including Select Time Stopping Rule or Gate Criteria, if needed.

### 4) Acquire data





# Custom 1: Modify Lyse Wash

Use this workflow if modifications are needed to the PMTVs and you do not want to save the modifications. This workflow is ideal for experiments created for one-time use.

## 1) Create a tube in an experiment

Default Lyse Wash Tube Settings are automatically assigned to a new tube.

## 2) Optimize PMTVs

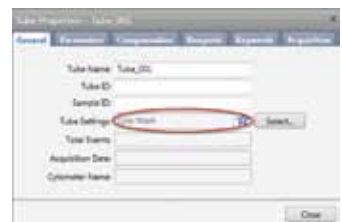
In this step, you can optimize PMTVs while previewing your cell sample in a worksheet. As PMTVs are adjusted, BD FACSuite software automatically adjusts spillover values.

You can add, remove, or modify parameters (detectors) as needed.

**Note:** The blue star appears when one or more of these elements are modified—PMTVs, Threshold, Flow Rate, Area Scaling Factor, or Window Extension.



Name	A	H	W	Voltage	Threshold
FL1	+ *	...	...	215.0	10000
FL2	+ *	...	...	280.0	10000
FL3	+ *	...	...	420.0	10000
FL4	+ *	...	...	420.0	10000
FL5	+ *	...	...	480.0	10000
FL6	+ *	...	...	600.0	10000
FL7	+ *	...	...	510.0	10000
FL8	+ *	...	...	410.0	10000
FL9	+ *	...	...	100.0	10000
FL10	+ *	...	...	480.0	10000



## Custom 1: Modify Lyse Wash (continued)

### 3) Go to Tube Properties > Reagents tab

Label reagents as needed.

### 4) Go to Tube Properties > Acquisition tab

Specify Time Stopping Rule and Gate Criteria as needed.

### 5) Acquire data

Note: To create additional tubes using the same settings, there are three different methods:

1. Use the **Next** button;
2. Use the **Duplicate without data** option; or
3. Use the **New Tube** button and choose the Tube Settings in the Tube Properties.

## Custom 2: Modify Lyse Wash and Save

Use this workflow when adjustments are needed to PMTVs and the experiment will be repeated in the future. This workflow is ideal for routine experiments that will be repeated using the same settings.

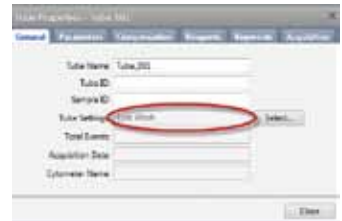
### 1) Create a tube in an experiment

Default Lyse Wash Tube Settings are automatically assigned to a new tube.

### 2) Optimize PMTVs

In this step, you can optimize PMTVs while previewing your cell sample in a worksheet. As PMTVs are adjusted, BD FACSuite software automatically adjusts spillover values.

**Note:** Select Preview to view your sample while modifying the settings. Be sure not to acquire data in the tube before creating your Tube Settings. Tube Settings cannot be created from a tube that contains saved data. If you do record data, there is a Clear Tube option to use before creating Tube Settings.



The screenshot shows the 'Optimize' worksheet with a table of PMTV settings. The table has columns for 'Name', 'A', 'H', 'M', 'Voltage', and 'Threshold'. The data is as follows:

Name	A	H	M	Voltage	Threshold
FL1	+	+	+	215.0	10000
FL2	+	+	+	280.0	10000
FL3	+	+	+	420.0	10000
PE	+	+	+	430.0	10000
PerCP-Cy5.5	+	+	+	480.0	10000
PE-Cy7	+	+	+	600.0	10000
APC	+	+	+	510.0	10000
APC-Cy7	+	+	+	410.0	10000
V402	+	+	+	100.0	10000
V500	+	+	+	480.0	10000



## Custom 2: Modify Lyse Wash and Save (continued)

### 3) Go to Tube Properties > Reagents tab

Label reagents as needed.

### 4) Go to Tube Properties > Acquisition tab

Specify Time Stopping Rule and Gate Criteria as needed.

### 5) Acquire data

Note: To create additional tubes using the same settings, there are three different methods:

1. Use the **Next** button;
2. Use the **Duplicate without data** option; or
3. Use the **New Tube** button and choose the Tube Settings in the Tube Properties.

On subsequent days, update your Tube Settings using the Assay & Tube Settings Setup option in the Setup & QC Workspace.

## Custom 3: User-Defined Reference Settings

Use this workflow when customized PMTVs and compensation values are necessary or if fluorochromes that do not exist in the existing spillover matrix are used.

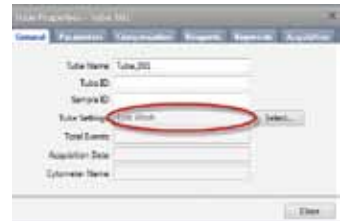
### 1) Create a tube in an experiment

Default Lyse Wash Tube Settings are automatically assigned to a new tube.

### 2) Optimize PMTVs

In this step you can optimize PMTVs while previewing your cell sample in a worksheet. As PMTVs are adjusted, BD FACSuite software automatically adjusts spillover values.

**Note:** Select Preview to view your sample while modifying the settings. Be sure not to acquire data into the tube before creating your Tube Settings. Tube Settings cannot be created from a tube that contains saved data. If you do record data, there is a Clear Tube option to use before creating Tube Settings.

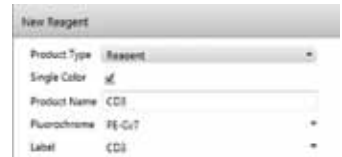


Name	A	H	M	Voltage	Threshold
FITC	45	55	55	215.0	50000
PE	45	55	55	280.0	50000
APC	45	55	55	420.0	50000
PE	45	55	55	420.0	50000
APC-Cy5.5	45	55	55	480.0	50000
PE-Cy7	45	55	55	600.0	50000
APC	45	55	55	510.0	50000
APC-Cy7	45	55	55	410.0	50000
V500	45	55	55	100.0	50000
V500	45	55	55	480.0	50000

## Custom 3: User-Defined Reference Settings (continued)

### 3) Add a lot-specific reagent to the Library (Optional)

- a. Go to **Library > Beads & Reagents > Reagents**.
- b. Select **Add** to add a reagent.
- c. Specify the following for the reagent:
  - Product Type
  - Single Color (checkbox)
  - Product Name (marker + fluorochrome)
  - Fluorochrome
  - Label (marker)



The 'New Reagent' dialog box contains the following fields:

- Product Type: Reagent
- Single Color:
- Product Name: CD3
- Fluorochrome: PE-Cy7
- Label: CD3



The 'Add/Edit Lot ID' dialog box contains the following fields:

- Lot ID: 12345
- Expiration Date: 9/30/2014

Buttons: OK, Cancel

Note: To create additional tubes using the same settings, there are three different methods:

1. Use the **Next** button;
2. Use the **Duplicate without data** option; or
3. Use the **New Tube** button and choose the Tube Settings in the Tube Properties.

## Custom 3: User-Defined Reference Settings (continued)

### 4) Create Reference Settings

- a. Right-click on a tube within the experiment and select **Create Reference Settings**.
- b. Add the fluorochrome of interest.
- c. Specify the Label and Lot ID as needed.
- d. Select the location of Unstained Reference Particles.



**Note:** Select **FC (Fluorescence Control)** if using cells.

- e. Click the **Next** button to acquire the fluorescence controls.
- f. After acquisition, name the Reference Settings and click **Finish** to create Reference Settings.

### 5) Go to Tube Properties > Reagents tab

Label reagents as needed.

### 6) Go to Tube Properties > Acquisition tab

Specify Time Stopping Rule and Gate Criteria as needed.

### 7) Acquire data

**Note:** To create additional tubes using the same settings, there are three different methods:

1. Use the **Next** button;
2. Use the **Duplicate without data** option; or
3. Use the **New Tube** button and choose the Tube Settings in the Tube Properties.

On subsequent days, update your Tube Settings using the Assay & Tube Settings Setup option in the Setup & QC Workspace.

## Custom 4: Save Modified Reference Settings

Use this workflow when existing reference settings require adjustments and the experiment will be repeated.

### 1) Select a tube within the experiment

Right-click on the tube and select **Tube Properties**.

### 2) Remove labels

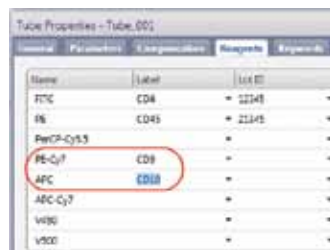
Remove non-lot-specific labels assigned to parameters for which compensation will be adjusted.

### 3) Adjust the compensation

Adjust compensation values as needed.

### 4) Select Save Modified Reference Settings

Right-click on the tube within the experiment and select **Tube Properties**. Then select **Save Modified Reference Settings**.





## Custom 4: Save Modified Reference Settings (continued)

### 5) Name Reference Settings

In the **Name** field, provide a name for the Reference Settings to be modified.

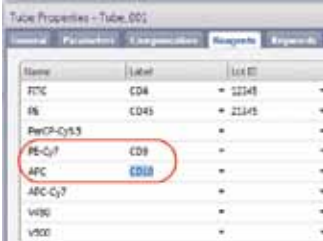
Note: If you began with Lyse Wash/Lyse No Wash (LW/LNW) Reference Settings, you must give them a new name. It is helpful to supply a meaningful description to help differentiate the new Reference Settings from others.

### 6) Select Finish

Note: Modified Reference Settings are saved in the Library with associated Tube Settings and adjusted compensation.

### 7) Add any labels back to the tube properties

### 8) Acquire data



Name	Label	Is a RT
FITC	CD4	22348
PE	CD45	22348
PerCP-Cy5.5		
PE-Cy7	CD8	
APC	CD133	
APC-Cy7		
V490		
V500		

On subsequent days, update your Tube Settings using the Assay & Tube Settings Setup option in the Setup & QC Workspace.

---

## BD Biosciences Regional Offices

### Australia

Toll Free 1800 656 100  
Tel 61.2.8875.7000  
Fax 61.2.8875.7200  
[bdbiosciences.com/anz](http://bdbiosciences.com/anz)

### Canada

Tel 866.979.9408  
Fax 888.229.9918  
[bdbiosciences.com/ca](http://bdbiosciences.com/ca)

### China

Tel 86.21.3210.4610  
Fax 86.21.5292.5191  
[bdbiosciences.com/cn](http://bdbiosciences.com/cn)

### Europe

Tel 32.2.400.98.95  
Fax 32.2.401.70.94  
[bdbiosciences.com/eu](http://bdbiosciences.com/eu)

### India

Tel 91.124.2383566  
Fax 91.124.2383224/25/26  
[bdbiosciences.com/in](http://bdbiosciences.com/in)

### Japan

**Nippon Becton Dickinson**  
Toll Free 0120.8555.90  
Fax 81.24.593.3281  
[bd.com/jp](http://bd.com/jp)

### Latin America/Caribbean

Toll Free 0800.771.71.57  
Tel 55.11.5185.9688  
[bdbiosciences.com/br](http://bdbiosciences.com/br)

### New Zealand

Toll Free 0800 572.468  
Tel 64.9.574.2468  
Fax 64.9.574.2469  
[bdbiosciences.com/anz](http://bdbiosciences.com/anz)

### Singapore

Tel 65.6690.8691  
Fax 65.6860.1593  
[bdbiosciences.com/sg](http://bdbiosciences.com/sg)

### United States

US Orders 855.236.2772  
Technical Service 877.232.8995  
Fax 800.325.9637  
[bdbiosciences.com](http://bdbiosciences.com)

Office locations are available on our websites.

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

© 2014 Becton, Dickinson and Company. All rights reserved. No part of this publication may be reproduced, transmitted, transcribed, stored in retrieval systems, or translated into any language or computer language, in any form or by any means electronic, mechanical, magnetic, optical, chemical, manual, or otherwise, without prior written permission from BD Biosciences.

Purchase does not include or carry any right to resell or transfer this product either as a stand alone product or as a component of another product. Any use of this product other than the permitted use without the express written authorization of Becton, Dickinson and Company is strictly prohibited. Product availability and prices are subject to change without notice.

BD, BD Logo and all other trademarks are property of Becton, Dickinson and Company. © 2014 BD

---