FLOW CYTOMETRY

Sample Prep

1. Define the flow cytometry cell treatment, analyses and specific conditions available for experimentation.

Cell Treatments		Analysis	Conditions	
[X] Fixed Cells	[ ] Live Cells	Dye/Stain	Dye/Stain Name	
[ ] Fixed Cells	[X] Live Cells	Antibody-labeling	Antibody Name	x
[X] Fixed Cells	[X] Live Cells	*Select Analysis*	*Conditions*	x

ADD

BACK

SAVE AND CONTINUE

Notes: I'm just showing what would appear in the last drop down menu / text box even though this instructor only has two analyses each with one condition.

If the instructor selects both fixed and live cells here, then both treatment/ analysis/condition combinations will be shown on later pages.

The condition text box is grayed out until an analysis is selected. The text within the conditions text box updates with suggestions on how to fill the text box in once the analysis is selected. For example, if the user selects Dye/Stain, the italicized gray text will say "PI, DAPI".

The first row cannot be deleted, but other added rows can be deleted.

Analyze

2. Define the flow cytometry histogram for each sample.

This is the cell treatment/analysis/condition combination, populated from the first page.

A. Fixed cells, Dye/Stain, Dye/Stain Name

Edit | Copy to other sample(s)

1. Strain A, Treatment A, 100 ng/mL, 30 C

Select from a template | Draw new histogram

2. Strain A, Treatment A, 100 ng/mL, 37 C

Select from a template | Draw new histogram

3. Strain A, Treatment B, 200 ng/mL, 30 C

Select from a template | Draw new histogram

4. Strain A, Treatment B, 200 ng/mL, 37 C

Select from a template | Draw new histogram

5. Strain B, Treatment A, 100 ng/mL, 30 C

Select from a template | Draw new histogram

6. Strain B, Treatment A, 100 ng/mL, 37 C

Select from a template | Draw new histogram

B. Live cells, Antibody-labeling, Antibody Name

1. Strain A, Treatment A, 100 ng/mL, 30 C

Select from a template | Draw new histogram

This list of samples continues for all of the samples with this treatment combination, then the next treatment combination, if applicable, will follow.

The samples for this question are grouped by Cell Treatment/ Analysis/Conditions as the instructor is more likely to want to copy/paste a histogram by analysis/conditions than by sample.

There are two options for each sample: Select from a preset histogram OR Draw their own histogram. Once a histogram is selected or drawn, the instructor can edit it.

The edit and copy functionalities on this page are grayed out until a histogram is selected for a sample.

When the instructor selects one of the buttons, then a pop up window appears - see next two pages to see what the windows look like. The edit functionality is shown on the third page.

Once the instructor selects a histogram, then the instructor can edit the histogram as needed - see Page 5 for the edit window.

Once the instructor closes the pop up window (shown on the next 3 pages) then the histograms will be previewed next to the sample name. The edit and copy functionalities can then be selected.

Right now the edit icon is a pencil, but it may be better suited as something else so it doesn't look like a "draw" icon.

BACK

SAVE AND CONTINUE

Notes: If the instructor selects “select from template”, then the pop up window will open on the “Select histogram template” page. The instructor can navigate to the next sample within this window without having to close the pop up window after each sample. This popup window will contain all of the samples for a particular treatment/analysis/ condition combination. The instructor can also edit the histogram or draw a new one for each sample.
As more template histograms are put in this window, we will need to think about a way to sort them - perhaps a drop down menu at the top and the user can select the organism (yeast vs mammalian) and/or analysis performed (cell cycle analysis, etc). For right now, we have added a radio button for the instructor to search the templates by organism type.
Each of the histograms in this window is a button. There should also be a hover state when hovering over a histogram.

This window will have three different modes - one to select a template, one to draw a new histogram, and one to edit a histogram. The buttons on the previous page will still access this popup window but the appropriate selection will be made. The edit functionality is not selectable until a histogram has been selected for a sample. There needs to be something in the upper right corner to switch between these modes - a toggle switch or buttons or a slider.

This is what the pop up window to select a histogram will look like:

A. Fixed cells, Dye/Stain, Dye/Stain Name

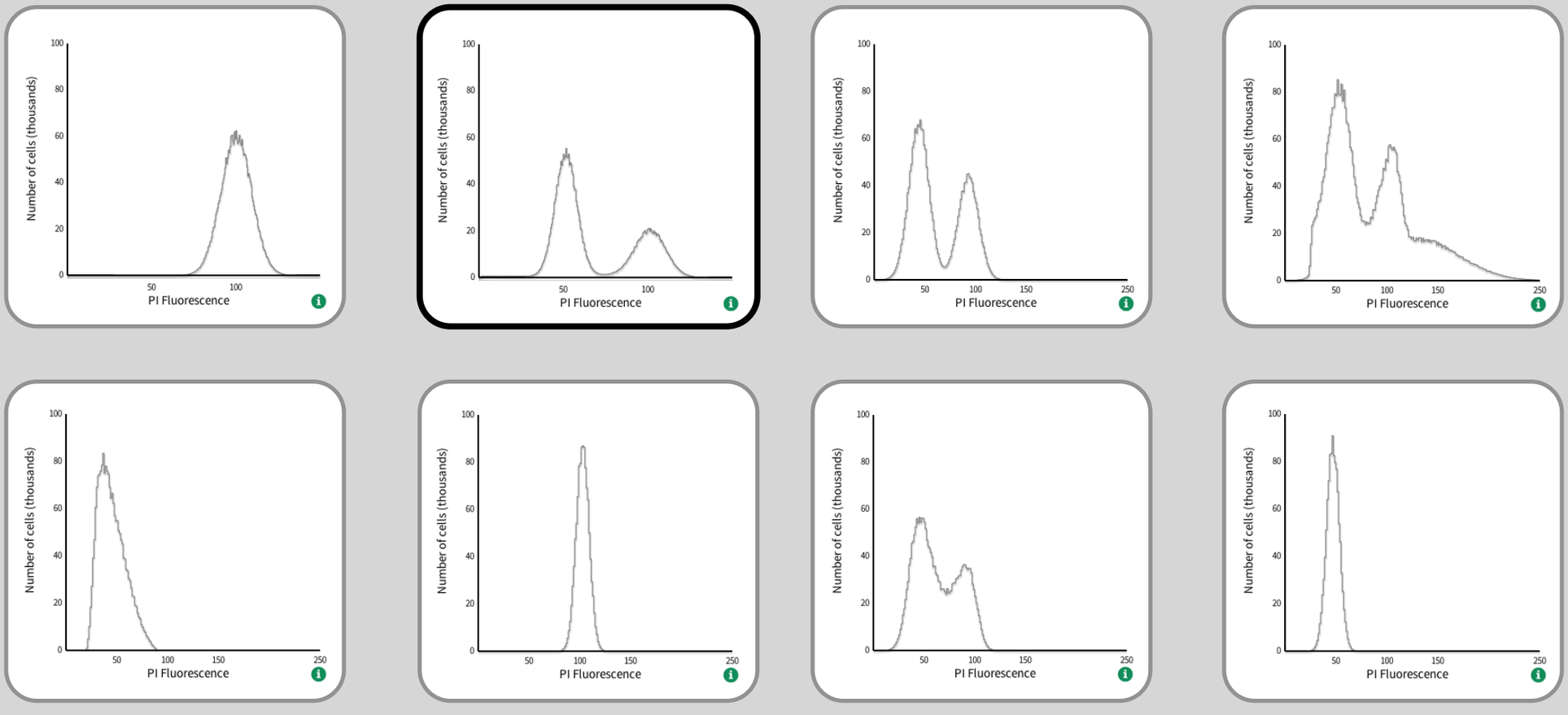
Sample Name PREVIOUS NEXT

Select histogram — Draw new histogram — Edit histogram

X

SELECT HISTOGRAM TEMPLATE:

Search by organism type: [X] Haploid [ ] Diploid



SAVE SELECTION & EDIT SAVE

Notes: If the instructor selects to draw a new histogram, then the pop up window will appear with the create new histogram functionality.
The instructor can select the number of peaks from the drop down menu and this will populate the graph on the right. The graph will have red dots along it that the instructor can use to drag the curve into the correct position. Once the instructor clicks “Save” then the editable function will disappear, but the instructor can select the “Edit” icon to edit the curve. The instructor can also move the graph left and right.
A histogram with labeled axes and default scale will be generated. The instructor can then edit the axes and axis scale.
The editing tools has a feature to move the curve left and right and also an edit function to drag the curve into position.

This is what the pop up window to draw a histogram will look like:

A. Fixed cells, Dye/Stain, Dye/Stain Name

Sample Name PREVIOUS NEXT

Select histogram | Draw new histogram | Edit histogram

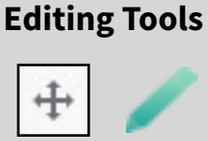
X

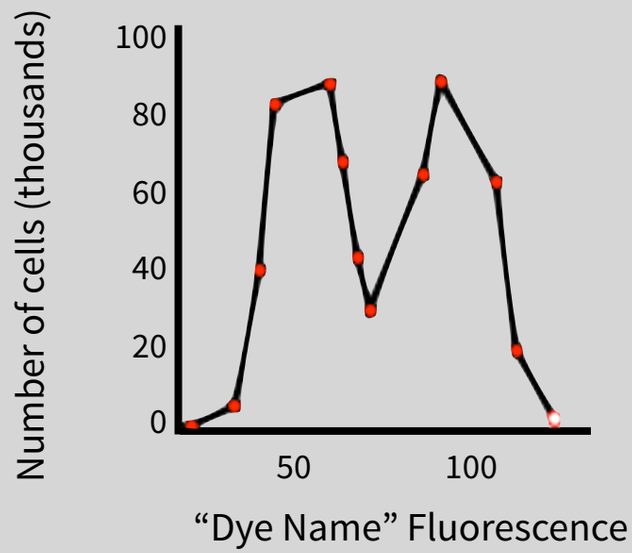
CREATE NEW HISTOGRAM:

Histogram specifications

Number of peaks

Editing Tools





Notes: The axis range should be editable as well as the axes labels.

SAVE

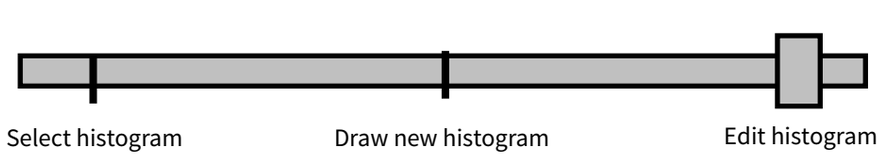
Notes: This is the edit function. The instructor will have access to the editing features. The instructor can drag points along the curve into the desired place.

This is what the pop up window to edit a histogram will look like:

A. Fixed cells, Dye/Stain, Dye/Stain Name

Sample Name

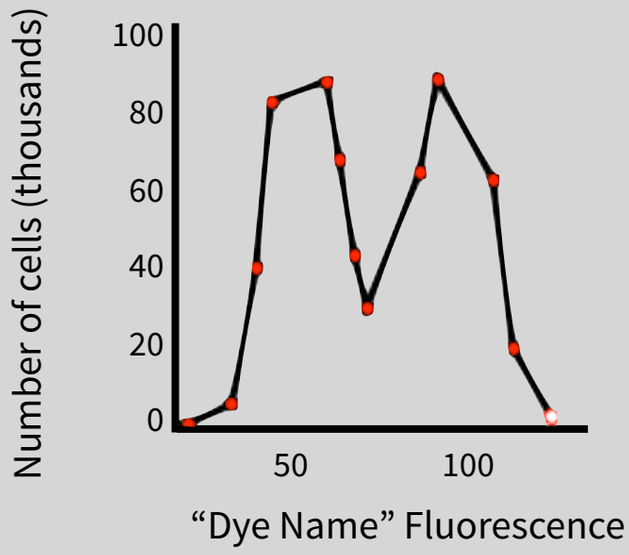
PREVIOUS NEXT



X

EDIT HISTOGRAM:

Editing Tools



Notes: The axis range should be editable as well as the axes labels.

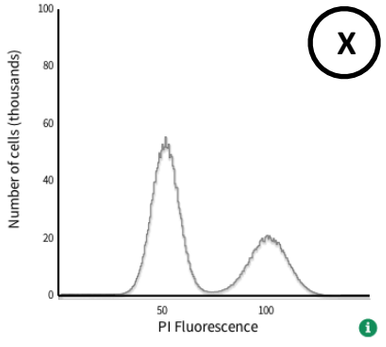
SAVE

Analyze

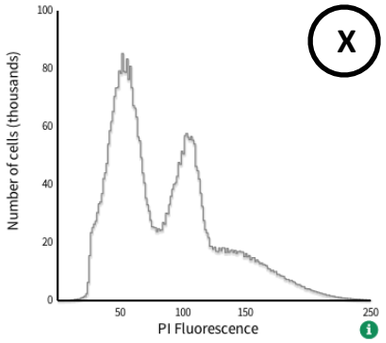
2. Define the flow cytometry histogram for each sample.

A. Fixed cells, Dye/Stain, Dye/Stain Name

Sample	Edit	Copy to other sample(s)
1. Strain A, Treatment A, 100 ng/mL, 30 C		



2. Strain A, Treatment A, 100 ng/mL, 37 C



3. Strain A, Treatment B, 200 ng/mL, 30 C

Select from a template **Draw new histogram**

This list of samples continues for all of the samples with this treatment combination, then the next treatment combination, if applicable, will follow.

BACK **SAVE AND CONTINUE**

Notes: If the instructor selects edit then a pop up window will appear just like on page 5 with the editing controls to edit the histogram curves.

I'm not sure how the instructor selects a new histogram from a template. Does the instructor first delete the selected histogram and then use one of the buttons when they reappear, or can the instructor access the templates in the popup window that appears if the instructor selects "edit"?

If the instructor deletes the histogram then the original selection buttons will re-appear.

The edit icon will be disabled prior to a histogram being selected. Same goes for the copy to other samples button - the radio button doesn't work until a histogram is selected for a sample.

If the instructor selects "copy to other samples" then a pop up window appears and the instructor can check the names of other samples to which a histogram should be applied. See page 7.

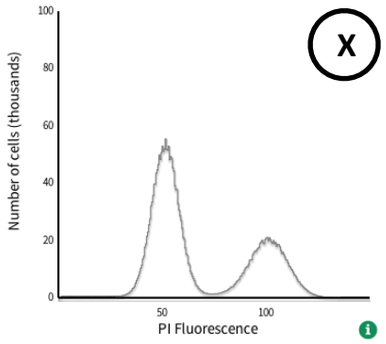
Analyze

2. Define the flow cytometry histogram for each sample.

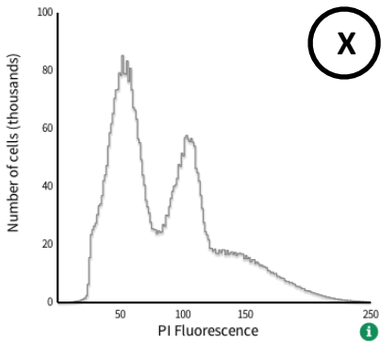
A. Fixed cells, Dye/Stain, Dye/Stain Name

Sample **Edit** **Copy to other sample(s)**

1. Strain A, Treatment A, 100 ng/mL, 30 C



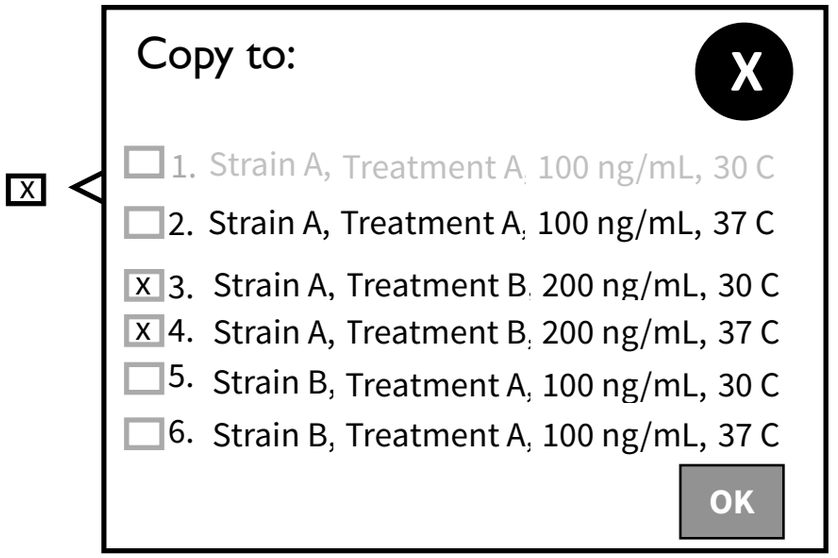
2. Strain A, Treatment A, 100 ng/mL, 37 C



3. Strain A, Treatment B, 200 ng/mL, 30 C

Select from a template **Draw new histogram**

This list of samples continues for all of the samples with this treatment combination, then the next treatment combination, if applicable, will follow.



If the instructor selects “copy to other samples” then a pop up window appears and the instructor can check the names of other samples to which a histogram should be applied.

BACK **SAVE AND CONTINUE**