

Managing Sample Characterizations - 2021-06-24

Access to sample characterizations

If you have read-only permissions, see [Access the Sample Characterization Summary](#). If you are a curator with appropriate security permissions, you can create, update, and delete characterizations.

This chapter describes how to review or ascribe characterizations to samples save in caNanoLab. Topics in this chapter include:

- [Sample Characterization Overview](#)
 - [Accessing the Sample Characterization Summary](#)
 - [Submitting Characterizations](#)
 - [Exporting Sample Information to JSON or XML](#)
- [Adding a Physico-Chemical Characterization](#)
 - [Defining Physico-Chemical Characterization Properties](#)
- [Adding an In Vitro Characterization](#)
 - [Defining In Vitro Characterization Properties](#)
- [Adding an In Vivo Characterization](#)
- [Adding an Ex Vivo Characterization](#)
- [Adding an Other Ex Vivo Characterization](#)
- [Adding Information to a Characterization](#)
 - [Defining the Characterization](#)
 - [Defining Characterization Design and Methods](#)
 - [Adding Data Findings to a Characterization](#)
 - [Adding Supporting Documents to a Characterization](#)
 - [Copying to Samples in the Same Primary Organization](#)
- [Additional Characterization Tasks](#)
 - [Printing Characterization\(s\)](#)
 - [Exporting Characterization\(s\) to a Spreadsheet](#)
 - [Editing a Characterization](#)
 - [Deleting a Characterization](#)

Sample Characterization Overview

Sample characterization describe distinctive characteristics or essential features of the sample determined through analytical methods and records information associated with sample properties. Samples can be characterized in caNanoLab by physical or chemical characteristics or by data derived under *in vitro* and *in vivo* conditions.

With the appropriate security permissions...

With the appropriate security permissions, you can

- Add a Physico-Chemical, In Vitro, In Vivo, Ex Vivo, or Other Ex Vv to a sample.
- Print, export, edit, copy, or delete a characterization and add a file to a characterization.

If the buttons do not display, you have read-only access to the item.

Accessing the Sample Characterization Summary

With read-only access, you can review a summary of characterization information and annotations added to the sample.

To access characterization functions in the Navigation Tree

1. Click **Samples** and **Search Existing Samples**.
2. Fill in criteria, and click **Search**.
3. Click **Edit** in the search results.
4. The Navigation Tree appears on the left sidebar and comprises functions which you can use to add annotations to the sample.

NAVIGATION TREE	<ul style="list-style-type: none"> • General Info appears after you click the sample name and displays the Update Sample page. • Composition defines Nanomaterial Entity, Functionalizing Entity, and Chemical Associations. • Characterization defines essential physical characteristics that identify the material and structural properties via the Protocol and Physico-Chemical, In Vivo, and In Vitro Characterization. • Publication displays articles, books chapters, reviews and reports already added to a sample. • Synthesis displays synthesis information for a sample.
GENERAL INFO	
COMPOSITION	
CHARACTERIZATION	
PUBLICATION	
SYNTHESIS	

5. Click **Characterization**.

The **All** tab displays characterizations already added to the sample by category. Additional tabs show annotations added to the sample for each subcategory.

Sample NEU-DDeshpandePR2008-06 Characterization
Print Export Help Glossary

All Physico-chemical Characterization In Vitro Characterization In Vivo Characterization

Physico-chemical Characterization Add

In Vitro Characterization Add

Cytotoxicity Edit

Assay Type apoptosis
Point of Contact NEU_DPS (Mansoor M Amiji)
Characterization Date N/A
Protocol N/A
Properties

Cell Line
SMC - smooth muscle cells

Design Description

The Vybrant® Apoptosis assay kit #4 contained YO-PRO-1 and propidium iodide, which was used to analyze the apoptotic activity by the flow cytometry. The smooth muscle cells were plated in six well plates at a cell density of 10 x 10⁶ cells per well. Apoptosis was induced in the cells by treating the cells with 2.0 and 20 nM of PTX and 200 nM and 1 microM of CER in aqueous solution and in PEO-PCL nanoparticles. A combined treatment of PTX loaded PEO-PCL nanoparticles with CER loaded PEO-PCL nanoparticles and PTX solution with CER solution was also administered. After 18 h of drug treatment, the cells were harvested using trypsin-EDTA and washed with cold PBS. The harvested cells were then suspended in 1 mL of PBS adjusting the cell density to 1 x 10⁶ cells per milliliter. To 1.0 mL of the assay volume, 1.0 microL of the YO-PRO®-1 and 1 microL of the propidium iodide solution were added for staining the cells. The controls used were smooth muscle cells treated with drug vehicles and then treated with YO-PRO®-1 and propidium iodide individually as well as in combination. The cells were then incubated over ice for 30 min. After incubation, the cells were analyzed over

[Return to top](#)

Submitting Characterizations

Once you access Characterizations in the Navigation Tree, you can add different types of information to the sample.

- [Adding a Physico-chemical Characterization](#)
- [Adding an In Vitro Characterization](#)
- [Adding an In Vivo Characterization](#)
- [Adding an Ex Vivo Characterization](#)
- [Adding an Other Ex Vivo](#)

If you have read-only access, you can [View a Characterizations Summary](#).



To enter an alternative to an option, select **other** if available and enter a value. The value is added to the list of options.

[Return to top](#)

Exporting Sample Information to JSON or XML

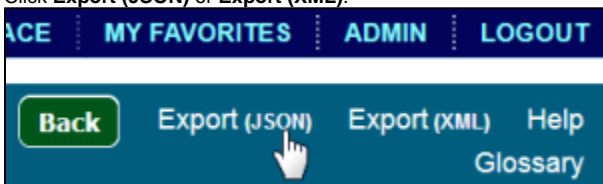
You can export a sample's general information, composition, characterization, publication, and synthesis information to JSON or XML.

To export sample information from the Navigation Tree

1. From the **Navigation Tree**, select **General Info**.

NAVIGATION TREE
GENERAL INFO
COMPOSITION
CHARACTERIZATION
PUBLICATION
SYNTHESIS

- Click **Export (JSON)** or **Export (XML)**.



- The system prompts you to download the information and specify a download location.

[Return to top](#)

Adding a Physico-Chemical Characterization

To add a physico-chemical characterization

- [Access a sample and characterization.](#)
- Click the **All** tab or the **Physico-Chemical Characterizations** tab and click **Add** next to Physico-chemical Characterization.
- Both tabs provide customizations based on your **Characterization Type*** selection.
- Follow these steps to fill in the characterization. Links are provided for additional details.


Section	What to Do
Physico-Chemical Characterization	Fill in the general information about the characterization. Note: When you are defining the characterization, to select an existing, non-standard Assay Type, select the Characterization Name, other_pc
Properties	If you select one of the following characterization types, you need to fill in additional properties. <ul style="list-style-type: none"> Physical State Shape Solubility Surface
Design and Methods	Complete the fields describing techniques and instruments used to derive the data.
Finding	Add data findings and supporting documentation relating to the sample. Import as many .csv files as you wish or add derived data manually. Click Add to expand the section, and add data findings and add supporting documents to the characterization.
Analysis and Conclusion	Enter any relevant analyses and conclusions reached by the data.
Copy to Other Samples with the Same Primary Organization	Select samples in the list to which you want this physico-chemical data transferred. This option copies files and data to one or more selected samples "owned" by the same point of contact.


When you are finished, click **Submit** to save the data to the sample.

[Return to top](#)

Defining Physico-Chemical Characterization Properties

If you selected one of the Characterization Names listed in the following table, the **Properties** section opens, and you must fill in additional information.

Characterization Name	Properties to Complete
Physical State	Select the Type of physical state .  Unknown macro: 'hide'

Shape	<div>  Unknown macro: 'hide' </div> <ol style="list-style-type: none"> 1. Select the Type of shape. 2. Enter the shape Aspect Ratio. 3. Enter the Minimum and Maximum Dimensions of the sample, and the units of measurement.
Solubility	<ol style="list-style-type: none"> 1. Select from the options or enter the name of the Solvent. 2. Enter appropriate values for the Critical Concentration, then select the appropriate units for those values. 3. Specify Yes or No to indicate whether the solvent Is Soluble?.
Surface	Specify Yes or No to indicate whether the surface Is Hydrophobic? .

[Return to top](#)

Adding an In Vitro Characterization

In vitro characterization allows you to add characterizations for the nanomaterial component of the sample derived from analytical techniques performed under *in vitro* conditions.

To add an *in vitro* characterization

1. [Access a sample and characterization.](#)
2. Click the **All** tab or the **In Vitro Characterizations** tab and click **Add** next to In Vitro Characterization.
3. Both tabs provide customizations based on your **Characterization Type*** selection.
4. Follow these steps to fill in the characterization. Links are provided for additional details.

Section	What to Do
In Vitro Characterization	Fill in the general information about the characterization. Note: When you are defining the characterization, to select an existing, non-standard Assay Type, select the Characterization Name, other_vt.
Properties	If you select one of the following characterization names, you need to fill in additional properties. <ul style="list-style-type: none"> • Cytotoxicity • Enzyme Induction • Transfection
Design and Methods	Complete the fields describing techniques and instruments used to derive the data.
Finding	Add data findings and supporting documentation relating to the sample. Import as many .csv files as you wish or add derived data manually. Click Add to expand the section, and add data findings and add supporting documents to the characterization.
Analysis and Conclusion	Enter any relevant analyses and conclusions reached by the data.
Copy to Other Samples with the Same Primary Organization	Select samples in the list to which you want this physico-chemical data transferred. This option copies files and data to one or more selected samples "owned" by the same point of contact.

When you are finished, click **Submit** to save the data to the sample.

[Return to top](#)

Defining In Vitro Characterization Properties

If you selected one of the Characterization Names listed in the following table, the **Properties** section opens, and you must fill in additional information.

Characterization Name	Properties to Complete
Cytotoxicity	Enter the appropriate Cell Line.
Enzyme Induction	Enter the Enzyme Name of your choice.
Targeting	Enter the appropriate Cell Line.
Transfection	Enter the appropriate Cell Line.

[Return to top](#)

Adding an In Vivo Characterization

In vivo characterization allows you to add characterizations for the nanomaterial component of the sample that were derived from analytical techniques performed under *in vivo* conditions.

To add an in vivo characterization

1. [Access a sample and characterization.](#)
2. Click the **All** tab or the **In Vivo Characterizations** tab and click **Add** next to In Vivo Characterization.
3. Both tabs provide customizations based on your **Characterization Type*** selection.

Follow these steps to fill in the characterization. Links are provided for additional details.

Section	What to Do
In Vivo Characterization	Fill in the general information about the characterization. Note: When you are defining the characterization, to select an existing, non-standard Assay Type, select the Characterization Name, other_vv .
Design and Methods	Complete the fields describing techniques and instruments used to derive the data.
Finding	Add data findings and supporting documentation relating to the sample. Import as many .csv files as you wish or add derived data manually. Click Add to expand the section, and add data findings and add supporting documents to the characterization.
Analysis and Conclusion	Enter any relevant analyses and conclusions reached by the data.
Copy to Other Samples with the Same Primary Organization	Select samples in the list to which you want this physico-chemical data transferred. This option copies files and data to one or more selected samples "owned" by the same point of contact.

4. When you are finished, click **Submit** to save the data to the sample.

[Return to top](#)

Adding an Ex Vivo Characterization

To add an ex vivo characterization

1. [Access a sample and characterization.](#)
2. Click the **All** tab or the **Ex Vivo Characterizations** tab and click **Add** next to Ex Vivo Characterization.
3. Both tabs provide customizations based on your **Characterization Type*** selection.

Follow these steps to fill in the characterization. Links are provided for additional details.

Section	What to Do
Ex Vivo Characterization	Fill in the general information about the characterization. Note: When you are defining the characterization, to select an existing, non-standard Assay Type, select the Characterization Name, other_ex_vv
Design and Methods	Complete the fields describing techniques and instruments used to derive the data.
Finding	Add data findings and supporting documentation relating to the sample. Import as many .csv files as you wish or add derived data manually. Click Add to expand the section, and add data findings and add supporting documents to the characterization.
Analysis and Conclusion	Enter any relevant analyses and conclusions reached by the data.
Copy to Other Samples with the Same Primary Organization	Select samples in the list to which you want this physico-chemical data transferred. This option copies files and data to one or more selected samples "owned" by the same point of contact.

4. When you are finished, click **Submit** to save the data to the sample.

[Return to top](#)

Adding an Other Ex Vivo Characterization

To add an other ex vivo characterization

1. [Access a sample and characterization.](#)
2. Click the **All** tab or the **Other Ex Vivo Characterizations** tab and click **Add** next to Ex Vivo Characterization.
3. Both tabs provide customizations based on your **Characterization Type*** selection.

Follow these steps to fill in the characterization. Links are provided for additional details.

Section	What to Do
Other Ex Vivo Characterization	Fill in the general information about the characterization.
Design and Methods	Complete the fields describing techniques and instruments used to derive the data.
Finding	<p>Add data findings and supporting documentation relating to the sample. Import as many .csv files as you wish or add derived data manually.</p> <p>Click Add to expand the section, and add data findings and add supporting documents to the characterization.</p>
Analysis and Conclusion	Enter any relevant analyses and conclusions reached by the data.
Copy to Other Samples with the Same Primary Organization	Select samples in the list to which you want this physico-chemical data transferred. This option copies files and data to one or more selected samples "owned" by the same point of contact.

4. When you are finished, click **Submit** to save the data to the sample.

[Return to top](#)

Adding Information to a Characterization

The following procedures apply to any Characterization Type when you are adding or editing a characterization.

Defining the Characterization


When you are adding a characterization, fill in the following characterization information.

Complete	How to
Characterization Type*	This is already filled in with Physico-Chemical , In Vivo , Ex Vivo , or Other Ex Vv (required) when you click the tab of the same name or add one from the All tab.
Characterization Name*	<p>Select the name of the characterization (required).</p> <div> <p>i Character Type Notes</p> <ul style="list-style-type: none"> • Physico-Chemical: If you select Cytotoxicity, Enzyme Reduction, Target, or Transfection, you have to complete additional properties. To create an existing, non-standard Assay Type, select other_pc. • In Vitro: If you select Cytotoxicity, Enzyme Reduction, Target, or Transfection, you have to complete additional properties. To select an existing, non-standard Assay Type, select other_vt. • In Vivo: To select an existing, non-standard Assay Type, select other_vv. • Ex Vivo: To select an existing, non-standard Assay Type, select other_ex_vv. </div> <p>To create a new, non-standard Assay Type</p> <ol style="list-style-type: none"> 1. Select other. 2. Enter a New Characterization Name and click Add, and the new characterization is added the Characterization Name list. <div> <p>Characterization Name *</p> <div> <p>other</p> <p>New Characterization Name:</p> <p><input type="text" value="NewExampleName"/></p> <p>Add Cancel</p> </div> </div>

Assay Type	Select an assay type from the list that populates automatically based on the Characterization Name. To add an Assay Type 1. Select other . 2. Enter a New Assay Type and click Add , and the new Assay Type is added to the list.
Protocol Name – Version	If available, select a protocol from which the data is derived. If displayed, click the hyperlink to the protocol text file to open or save the file.
Characterization Source	Select or enter the source from which the characterization data is derived, such as a vendor or a laboratory (NCL).
Characterization Date	Select or enter the date the characterization was made (dd/mm/yyyy).

Defining Characterization Design and Methods

When you are adding a characterization, fill in the following design, methods, and techniques used.

Design and Methods Field	Description
Design and Methods Description	Enter a description for the characterization design and methods. <div>  Adding extra lines If you include an extra line between text in the Characterizations free text, Design and Methods Description, the line separation is preserved when you save or update the characterization. </div>
Technique and Instrument	Click Add to expand the page where you can select and enter information regarding the technique and instrument used to derive the sample.
Technique*	Select the technique (required).
Abbreviation	When you select a technique, Abbreviation populates automatically if an abbreviation is known. If not, enter an abbreviation.
Description	Enter a description of the technique and instrument.
Instrument	Click Add to expand the Instruments panel. Enter or select identifying information about the instrument used to obtain data. <ul style="list-style-type: none"> • Select the instrument Manufacturer. • Enter the instrument Model Name. • Enter the model Type.

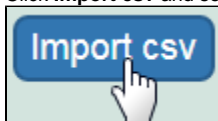
When you are finished, click **Save** or **Cancel** to close the section without saving.

[Return to top](#)

Adding Data Findings to a Characterization

To add findings to a characterization, you can add data directly to Data and Conditions by creating columns and adding data manually or you can import as many .csv files as needed. Information can include laboratory conditions, pH, or temperature. You can add as many files as you wish.

1. Add data values to Data and Conditions.
 - a. To import a file of data values
 - i. Save the spreadsheet of data values to a csv (comma-separated value) file.
 - ii. Click **Import csv** and select and follow the prompts to add the data file to the Findings Info.



- iii. The columns and data are added to Data and Conditions.
- b. To add the data values manually
 - i. Specify the number of **columns** and **rows** for the matrix, and click **Update**.

Finding Info

Data and Conditions

2 columns 3 rows

Update

- ii. Add the data values to the rows.

i Whether you imported or added information manually, you can preface each data value with one of the following: Maintain the default, equal to (=), or select greater than (>), less than (<), or infinity (approximate).

Constant Value

For boolean column value type, please enter 1 for true, 0 for false

Remove Save Cancel

>	23.0	>	23.0	>	23.0	Delete
~	12.0	~	12.0	=	12.0	Delete

Files Add

2. To define a column, click an underlined column heading.

Finding Info

Data and Conditions

Column Data

Column 1

The Column Definition panel displays.

Column Definitions

Column Type *

Column Name *

Column Value Type

Column Value Unit

Constant Value

For boolean column value type, please enter 1 for true, 0 for false

Reset Save Cancel

3. Select a **Column Type**, Datum or Condition.
4. Select a **Column Name** or select **other** and add a new one.

**Column Notes**

You can add up to three cell viability Column Names, including **cell viability**, **cell viability B**, and **cell viability C**. You can further identify the column with the Column Value Type.

- a. For Column Type, **Datum**, the following characterization(s) display customized **Column Name** options.

Characterization Type	Column Type and Column Name Option(s)
Physico-Chemical	<ul style="list-style-type: none"> • Molecular – Molecular Weight • Purity – % purity for sample • Relaxivity – R1, R2, T1, T2 • Size – PD1, Peak N, RMS size, Z Average • Surface – charge, zeta potential
In Vitro	Enzyme Induction – % of Control
In Vivo	Click Other to name the column yourself.

- b. For Column Type, **Condition**, all characterizations provide the **Column Name** options in the left column of the following table. The Column Name autopopulates the **Condition Property** options in the right column.

Column Type, Condition Autopopulates Column Name	Column Name Autopopulates Condition Property
Centrifugation	N/A
Culture Media	media type, serum percentage
Electromagnetic Radiation	bandwidth, frequency, time, wavelength
Freeze Thaw	N/A
Long Term Storage	lyophilized, time
Lyophilization	time
pH	N/A
Sample concentration	N/A
Short Term Storage	lyophilized, time
Solvent Media	ion concentration, ionic strength, molecular formula, osmolality, serum percentage, with serum
Sonication	number of pulses, pulse duration
Temperature	N/A

5. To further identify a column, select a **Column Value Type**.



Once the column information is saved, the Column Type is shown in parentheses after the Column Name, such as **cell viability (mean)**.

6. Select a **Column Value Unit**, or select **other** and add one.
 7. If you want the same value to fill all rows in a column, add a **Constant Value**.

**For Column Value Type, boolean**

For Column Value Type, **boolean**, enter a Constant Value of 1 for true and 0 for false.

8. Click **Save**, and the column(s) are updated.



If needed, click **Set Column Order** to change the order of the column headings in the matrix.

9. Click **Save** in the Finding section.

[Return to top](#)

Adding Supporting Documents to a Characterization

To add results in the form of supporting documents, such as a graphic, spreadsheet or images to a characterization

 You can add as many files as you wish.

1. In the Finding section of the characterization, next to **Files**, click **Add**.
2. Upload, browse, and select the file or enter the file's URL where the document is located.
3. Complete the following.
 - a. Select the **File Type** (required), Document, Graph, Image, Movie, or Spreadsheet.
 - b. Enter the **File Title** (required).
 - c. Specify **Keywords** to associate with the file
 - d. Enter a **Description** of additional information of the file.
4. Click **Submit** to add the file(s) to the sample.

[Return to top](#)

Copying to Samples in the Same Primary Organization


The composition files and/or derived data for a sample can be copied to other samples from the same primary point of contact.


1. From the **All** tab's characterizations summary, click **Edit** at the right of a characterization section.
2. The Characterization opens and at the bottom of the page, in the **Copy to other samples...** section, select one or more samples with the same primary point of contact.
3. Click **Also copy finding data and conditions?**.
4. Click **Submit** to copy the characterization.

[Return to top](#)

Additional Characterization Tasks

The following table lists tasks that require Curator privileges.

 If a button does not display, you have read-only access to the data.

Task	How to
Printing Characterization(s)	To print the characterization(s), from the All tab characterization summary, click Print at the top right of the page.
Exporting Characterization (s) to a Spreadsheet	<div>To export the characterization(s) to a spreadsheet, from the All tab characterization summary, click Export at the top right of the page.</div> <div> To export all sample information to JSON or XML, see Exporting Sample Information to JSON or XML</div>
Editing a Characterization	<ol style="list-style-type: none">1. From the All tab's characterizations summary, click Edit at the right of the characterization section you want to change.2. The Characterization opens and you can edit it as needed.

Deleting a Characterization



Deleting a characterization

This deletes a characterization(s) from the selected sample. If the characterization(s) was copied to other samples, the characterization is not removed from those samples.

To delete a characterization for a selected sample

1. From the **All** tab's characterizations summary, click **Edit** at the right of a characterization section.
2. The Characterization opens, and click **Delete**.
3. The deleted characterization is placed in the sample archive for historical purposes.

[Return to top](#)