

# Submitting Protocols

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This page provides instructions for adding protocols to the GUDMAP/RBK Data Explorer, based on the *Nature Protocols* format.

If you have any questions or feedback, please send them to your consortium's help email: [help@gudmap.org](mailto:help@gudmap.org) or [help@rebuildingakidney.org](mailto:help@rebuildingakidney.org)

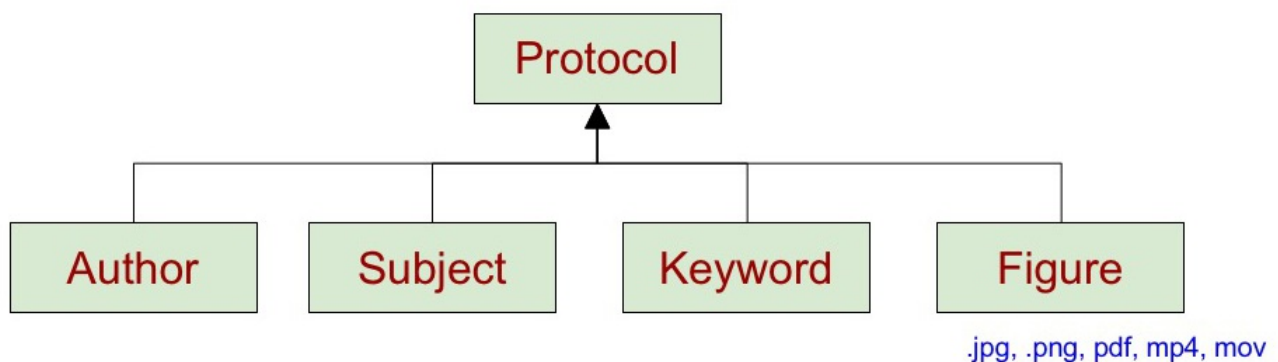
We also have the following training materials available:

- [Webinar Slides](#)
- [Webinar Replay 12/6/17 \(41:12\)](#)
- Tutorial Videos (Coming Soon)

## Schema

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# Protocol Model (Detailed)



Based on *Nature Protocols*

## Overview (READ FIRST)

Adding protocols involves the following steps:

1. Make sure you are in the correct Globus authentication group, [kidney-writers](#), and that you are logged in.
2. Create a base Protocol record (required).
3. Add at least one Subject Term (Required)
4. Add at least one Keyword (Required)
5. Add at least one contact Protocol Authors (Required)
6. Add Figures, Videos (optional)

**NOTE:** To update an existing protocol, go to the original protocol, click Edit in the header, make your changes and then make sure to update the *Version* field to the next number.

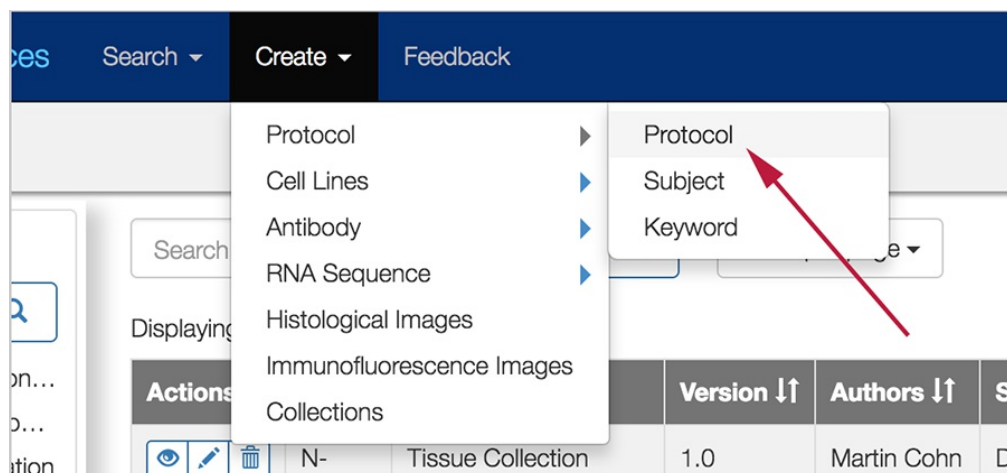
## Are you in the [kidney-writers](#) group? (Required)

If you haven't already done so, go to this link to join the group: <https://www.globus.org/app/groups/af0b4010-5b75-11e6-9575-22000aef184d/about>

You can find more details about this process at [Accessing GUDMAP and RBK Resources](#).

## 1. Create the base Protocol Record

- Make sure you are logged in.
- In the top navigation bar, click *Create > Protocol > Protocols*.



- The *Create Protocols Record* form appears (see excerpt below):

**GUDMAP/RBK Resources** Search Create Feedback cristina@globusid.org

### Create Protocol Record

\* indicates required field

Submit Data

+ ▼

Record Number	1
RID	<code>_ermrest.urlb32_encode(nextval("_ermrest.rid_seq"::regclass))</code>
* Title	<input type="text"/>
* Version	1.0
* Abstract	<div> <span>H</span> <span>B</span> <span>I</span> <span>🔗</span> <span>🖼️</span> <span>☰</span> <span>☷</span> <span>💬</span> <span>🔍</span> <span>👁️</span> <span>🔄</span> </div> <div></div>

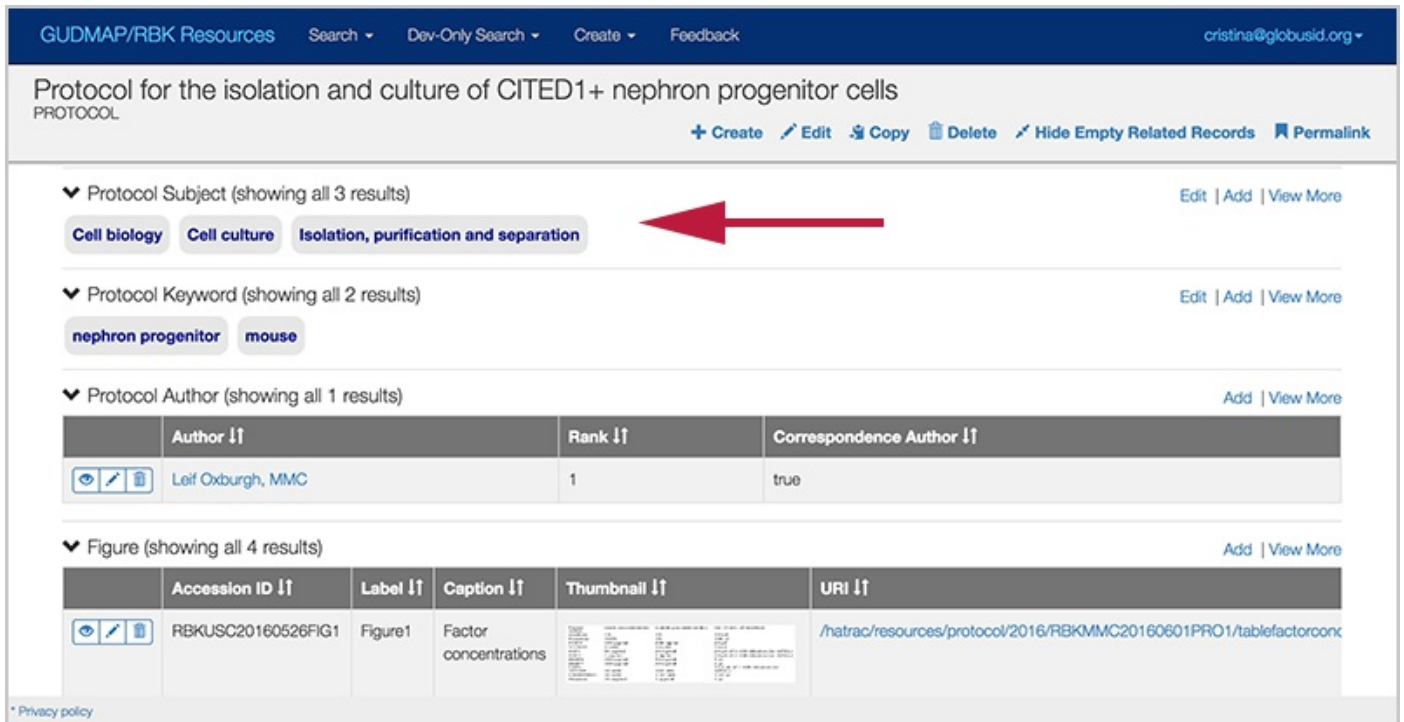
See screenshot of [full length form here](#).

- Fill in the fields. Note that the following fields are **required**: (You can format text using Markdown. [Find more information about formatting your larger text fields here](#).)
  - Title*: Please provide a concise but informative title that describes the protocol to unfamiliar users.
  - Abstract*: Add a short paragraph describing the protocol further
  - Procedure*: Enter the actual steps to perform the protocol.
  - Data Provider*: This is your lab's institution. If you need to add an institution, please contact the Hub.
  - Curation Status*: Choose either
    - In Preparation* (still drafting),
    - PI Review* (ready for internal approval), or
    - Submitted* (ready for Hub review). Your data will **not** be viewable publicly until approved for *Release* by the Hub. [For a complete description of the Curation Process, click here](#).
- When finished, scroll back to the top of the page and click *Submit Data*.

## 2. Add Subject Terms

Although only one Subject Term is required for a protocol, we **highly recommend adding two or three** to make your protocol easier to search.

- From the base protocol record you just created, scroll down until you see the section "Protocol Subject"



GUDMAP/RBK Resources Search Dev-Only Search Create Feedback cristina@globusid.org

Protocol for the isolation and culture of CITED1+ nephron progenitor cells  
PROTOCOL

+ Create Edit Copy Delete Hide Empty Related Records Permalink

▼ Protocol Subject (showing all 3 results) Edit Add View More

Cell biology Cell culture **Isolation, purification and separation**

▼ Protocol Keyword (showing all 2 results) Edit Add View More

nephron progenitor mouse

▼ Protocol Author (showing all 1 results) Add View More

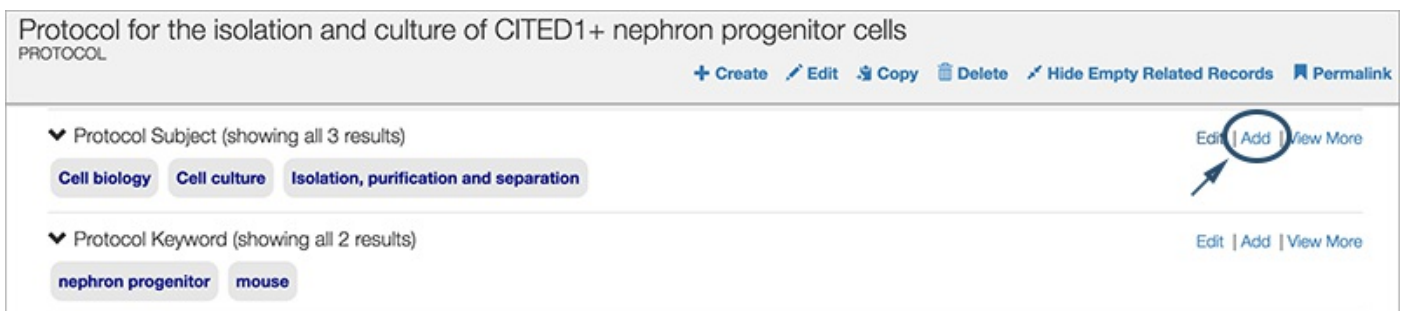
Author ↑↓	Rank ↑↓	Correspondence Author ↑↓
Leif Oxburgh, MMC	1	true

▼ Figure (showing all 4 results) Add View More

Accession ID ↑↓	Label ↑↓	Caption ↑↓	Thumbnail ↑↓	URI ↑↓
RBKUSC20160526FIG1	Figure1	Factor concentrations		/hattrac/resources/protocol/2016/RBKMMC20160601PRO1/tablefactorconc

\* Privacy policy

- Click the "Add" link in the upper right corner of the "Protocol Subject" section.



Protocol for the isolation and culture of CITED1+ nephron progenitor cells  
PROTOCOL

+ Create Edit Copy Delete Hide Empty Related Records Permalink

▼ Protocol Subject (showing all 3 results) Edit **Add** View More

Cell biology Cell culture Isolation, purification and separation

▼ Protocol Keyword (showing all 2 results) Edit Add View More

nephron progenitor mouse

- In the modal window, scroll through the list or start typing a term in the search box to narrow the results.

Choose Subject X

[Submit](#)

[Clear All](#) [X Cell biology](#)

Search  [Q](#) Items per page ▾

[+](#)

Displaying 17 of 17 Records

<input checked="" type="checkbox"/> All <input type="checkbox"/> None	Term ↑↓	Description ↑↓	Creation Time ↑↓	Last Modified Time ↑↓
<input checked="" type="checkbox"/>	Cell biology	Cell biology is the discipline of biological sciences that studies the structure, physiology, growth, reproduction and death of cells. Research in cell biology uses microscopic and molecular tools and examines all cell types, from unicellular organisms such as protozoa to the specialised cells that constitute multicellular organisms.	2017-10-31 18:42:30	2017-10-31 18:42:30
<input type="checkbox"/>	Cell culture	Cell culture is a method for growing or maintaining cells in vitro under controlled conditions. Primary cell cultures refer to dispersed cells that are cultured directly from tissues and have limited lifespan, whereas cell lines refer to immortalized cells that can be cultured indefinitely. (E.g. organoids, primary cell culture, and directed differentiation.)	2017-10-31 18:42:30	2017-10-31 18:42:30
<input type="checkbox"/>	Computational	Computational biology and bioinformatics is an interdisciplinary field that develops and applies computational methods to understand	2017-10-31 18:42:30	2017-10-31 18:42:30

- Click the checkboxes of your desired subject terms.
- When finished, click *Submit* in the upper right corner to save your data.
- Repeat for each subject term you wish to add.
- You can always navigate back to the record and click *Edit* and make changes to your record.

Search ▾ Create ▾ Feedback cristina@globusid.org ▾

## f CITED1+ nephron progenitor cells

[+ Create](#)
[Edit](#)
[Copy](#)
[Delete](#)
[Hide Empty Related Records](#)
[Permalink](#)

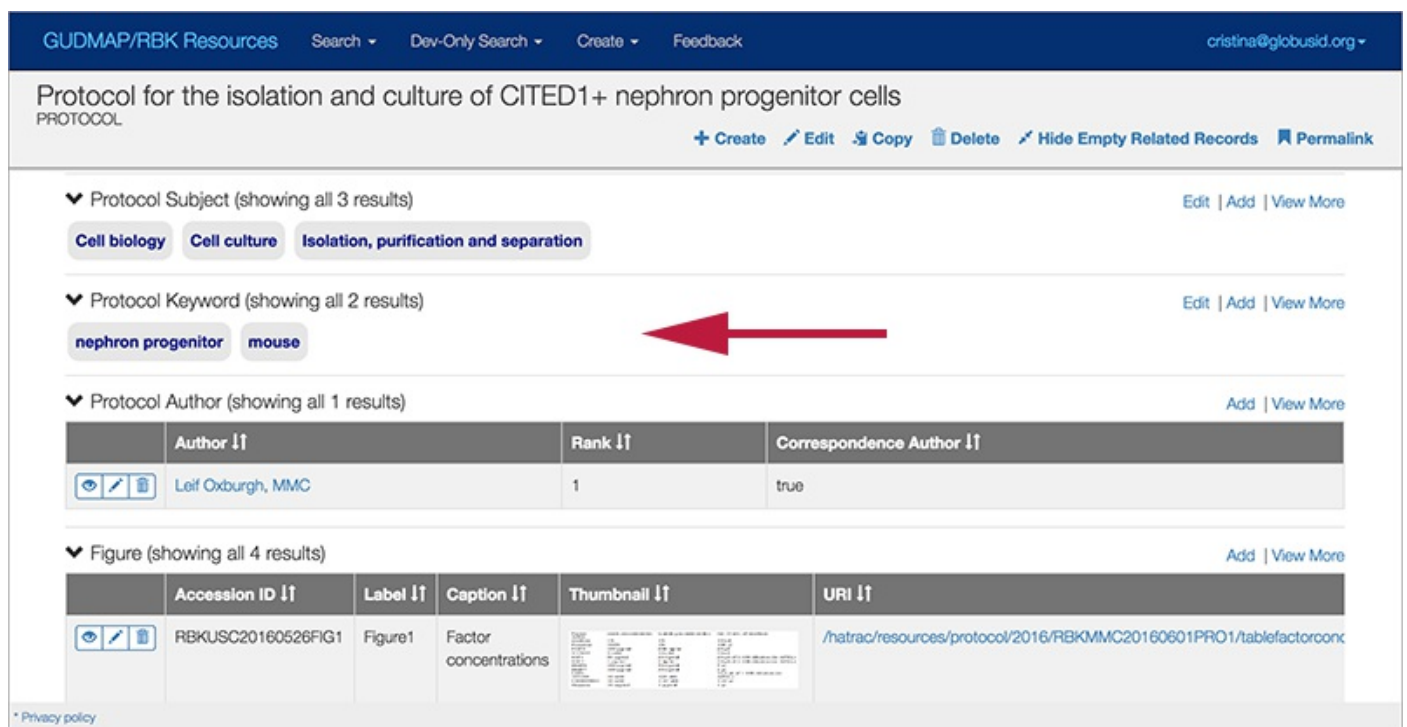
ure of CITED1+ nephron progenitor cells

### 3. Add Keywords

The process for adding Keywords is basically the same as for Subject Terms.

Although only one Keyword is required for a protocol, we **highly recommend adding two or three** to make your protocol easier to search.

- If you need **to add a keyword**, send email to **Todd Valerius** at [todd@valeriuslab.org](mailto:todd@valeriuslab.org). Please make sure you've searched the existing list before requesting a new term.
- From the base protocol record, scroll down until you see the section "Protocol Keyword"



GUDMAP/RBK Resources Search Dev-Only Search Create Feedback cristina@globusid.org

Protocol for the isolation and culture of CITED1+ nephron progenitor cells  
PROTOCOL

+ Create Edit Copy Delete Hide Empty Related Records Permalink




▼ Protocol Subject (showing all 3 results) Edit Add View More

Cell biology Cell culture Isolation, purification and separation





▼ Protocol Keyword (showing all 2 results) Edit Add View More

nephron progenitor mouse

▼ Protocol Author (showing all 1 results) Add View More

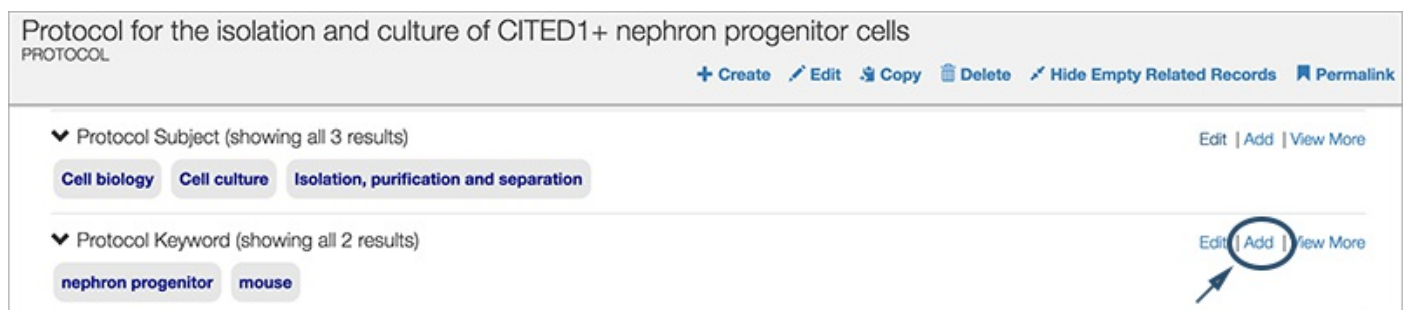
	Author ↑↓	Rank ↑↓	Correspondence Author ↑↓
  	Leif Oxburgh, MMC	1	true

▼ Figure (showing all 4 results) Add View More

	Accession ID ↑↓	Label ↑↓	Caption ↑↓	Thumbnail ↑↓	URI ↑↓
  	RBKUSC20160526FIG1	Figure1	Factor concentrations		/htrac/resources/protocol/2016/RBKMMC20160601PRO1/tablefactorcon

\* Privacy policy

- Click the "Add" link in the upper right corner of the "Protocol Keyword" section.



Protocol for the isolation and culture of CITED1+ nephron progenitor cells  
PROTOCOL

+ Create Edit Copy Delete Hide Empty Related Records Permalink

▼ Protocol Subject (showing all 3 results) Edit Add View More

Cell biology Cell culture Isolation, purification and separation

▼ Protocol Keyword (showing all 2 results) Edit Add View More

nephron progenitor mouse

- In the modal window, scroll through the list...

Choose Keyword

X

No Item Selected

Submit

Search

Q

Items per page ▾

+

Displaying 25 of 59 Records

<input checked="" type="checkbox"/> All <input type="checkbox"/> None	Term ↑↓	Description ↑↓	Last Modified Time ↑↓
<input type="checkbox"/>	3D culture		2017-06-06 13:32:18
<input type="checkbox"/>	3D imaging		2017-02-08 17:19:50
<input type="checkbox"/>	Adult podocytes		2017-06-06 15:40:14
<input type="checkbox"/>	Adult vascular endothelium		2017-06-06 15:41:40
<input type="checkbox"/>	antibodies		2017-02-08 17:19:50
<input type="checkbox"/>	bladder		2017-04-17 12:46:09
<input type="checkbox"/>	Cell dissociation	protocol for generating a single cell suspension from tissue or organ	2017-08-24 11:48:24
<input type="checkbox"/>	cell enrichment		2017-04-17 12:39:54
<input type="checkbox"/>	cell maintenance		2017-04-17 12:40:26

OR

...start typing a term in the search box to narrow the results.

Choose Keyword

X

No Item Selected

Submit

bladd

X

Q

Items per page ▾

+

Displaying 1 of 1 Records

<input checked="" type="checkbox"/> All <input type="checkbox"/> None	Term ↑↓	Description ↑↓	Last Modified Time ↑↓
<input type="checkbox"/>	bladder		2017-04-17 12:46:09



- Click the checkboxes of your desired keywords.
- When finished, click *Submit* in the upper right corner to save your data.

Choose Keyword

Clear All

✕ bladder

Items per page ▼

+

Submit

×

Displaying 25 of 82 Records

<input checked="" type="checkbox"/> All <input type="checkbox"/> None	Term ↓↑	Description ↓↑	Last Modified Time ↓↑
<input type="checkbox"/>	3D culture		2017-06-06 13:32:18
<input type="checkbox"/>	3D imaging		2017-02-08 17:19:50

- Note that until you change the *Curation Status* field to *Submitted*, you can keep going back to a record to edit and submit (save) as much as you like.



## 4. Add Protocol Authors

- From your new protocol record, scroll down until you see the section "Protocol Authors".

GUDMAP/RBK Resources Search Dev-Only Search Create Feedback cristina@globusid.org

Protocol for the isolation and culture of CITED1+ nephron progenitor cells  
PROTOCOL

[+ Create](#) [Edit](#) [Copy](#) [Delete](#) [Hide Empty Related Records](#) [Permalink](#)




▼ Protocol Subject (showing all 3 results) Edit | Add | View More

[Cell biology](#) [Cell culture](#) [Isolation, purification and separation](#)





▼ Protocol Keyword (showing all 2 results) Edit | Add | View More

[nephron progenitor](#) [mouse](#)

▼ Protocol Author (showing all 1 results) Add | View More

	Author ↑↓	Rank ↑↓	Correspondence Author ↑↓
  	Leif Oxburgh, MMC	1	true

▼ Figure (showing all 4 results) Add | View More

	Accession ID ↑↓	Label ↑↓	Caption ↑↓	Thumbnail ↑↓	URI ↑↓
  	RBKUSC20160526FIG1	Figure1	Factor concentrations		/hattrac/resources/protocol/2016/RBKMMC20160601PRO1/tablefactorconc

\* Privacy policy

- Click the "Add" link in the upper right corner of the "Protocol Authors" section.

▼ Protocol Author (showing all 1 results) → [Add](#) [View More](#)

	Author ↑↓	Rank ↑↓	Correspondence Author ↑↓
  	Leif Oxburgh, MMC	1	true

The 'Create Protocol Author Record' tab appears.

RBK/GUDMAP Resources
Search
Dev-Only Search
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Feedback
cristina@globusid.org

### Create Protocol Author Record

\* indicates required field

Submit Data

+

▼

Record Number	1
Rank	1
Correspondence Author	false
* Author	Select a value
Record ID	_ermrest.urlb32_encode(nextval('_ermrest.rid_seq'::regclass))
RCB	Automatically generated

- Fill out the fields.

RBK/GUDMAP Resources
Search
Dev-Only Search
Create
Feedback
cristina@globusid.org

### Create Protocol Author Record

\* indicates required field

Submit Data

+

▼

Record Number	1
Rank	1
Correspondence Author	false
* Author	Select a value
Record ID	_ermrest.urlb32_encode(nextval('_ermrest.rid_seq'::regclass))
RCB	Automatically generated

- In the *Correspondence Author* field, select 'false' or 'true' to indicate whether this author is the contact person for this protocol.
- In the *Author* field, click "Select a value". In the modal window (next image), Search for the person you want to add and select them.

Choose Person

X

Search

Q

Items per page ▼

+

Displaying 25 of 241 Records

Select	Full Name ↓↑	Email ↓↑	Institution	ORCID ↓↑
<input type="checkbox"/>	Bruce Conklin	<a href="mailto:bconklin@gladstone.ucsf.edu">bconklin@gladstone.ucsf.edu</a>		
<input type="checkbox"/>	Cristina Williams	<a href="mailto:cristina@isi.edu">cristina@isi.edu</a>		
<input type="checkbox"/>	Hongsuda Tangmunarunkit	<a href="mailto:hongsuda@isi.edu">hongsuda@isi.edu</a>		
<input type="checkbox"/>	Laura Pearlman	<a href="mailto:laura@isi.edu">laura@isi.edu</a>		
<input type="checkbox"/>	sanjay jain	<a href="mailto:sanjayjain@wustl.edu">sanjayjain@wustl.edu</a>		
<input type="checkbox"/>	Pumin Zhang	<a href="mailto:pzhang@bcm.tmc.edu">pzhang@bcm.tmc.edu</a>		
<input type="checkbox"/>	Anil Jegga	<a href="mailto:anil.jegga@cchmc.org">anil.jegga@cchmc.org</a>		
<input type="checkbox"/>	Albert Kim	<a href="mailto:albert.kim@med.usc.edu">albert.kim@med.usc.edu</a>	University of Southern California	
<input type="checkbox"/>	Qiuyu Guo	<a href="mailto:qiuyuguo@usc.edu">qiuyuguo@usc.edu</a>		

- If you cannot find the author, click the "+" button to create a new author record.

Choose Person

X

Search

Q

Items per page ▼

+

Displaying 25 of 241 Records

Select	Full Name ↓↑	Email ↓↑	Institution	ORCID ↓↑
<input type="checkbox"/>	Bruce Conklin	<a href="mailto:bconklin@gladstone.ucsf.edu">bconklin@gladstone.ucsf.edu</a>		
<input type="checkbox"/>	Cristina Williams	<a href="mailto:cristina@isi.edu">cristina@isi.edu</a>		

A "Create Person Record" tab appears.

RBK/GUDMAP Resources

Search ▾

Dev-Only Search ▾

Create ▾

Feedback

cristina@globusid.org ▾

Create Person Record

\* indicates required field

Submit Data

+ ▾

Record Number	1
First Name	<input type="text"/>
Middle Initials	<input type="text"/>
Last Name	<input type="text"/>
* Full Name	<input type="text"/>
* Email	<input type="text"/>
Institution	<div>Select a value ▾</div>
ORCID	<input type="text"/>

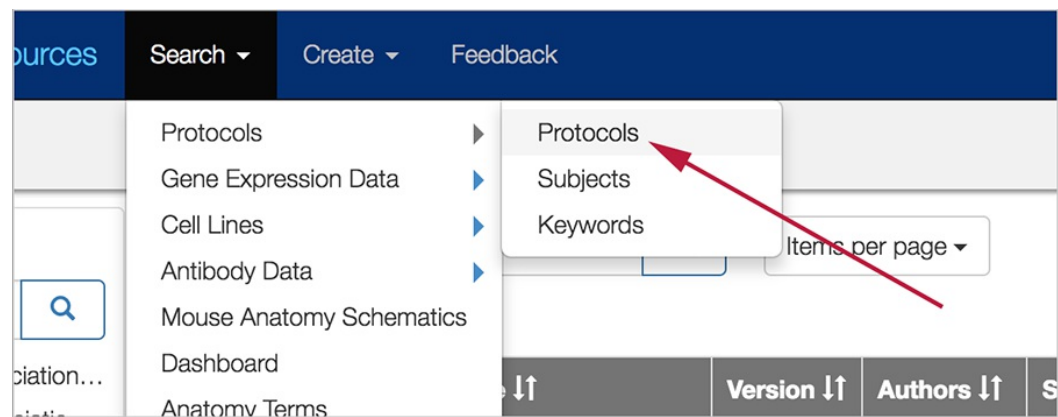
- Add the author's full name and email address at the minimum.
- Click **Submit Data**. Close this tab.
- In the previous tab and click the checkbox to select the new author, and click **Submit Data**.

## 5. Add Figures

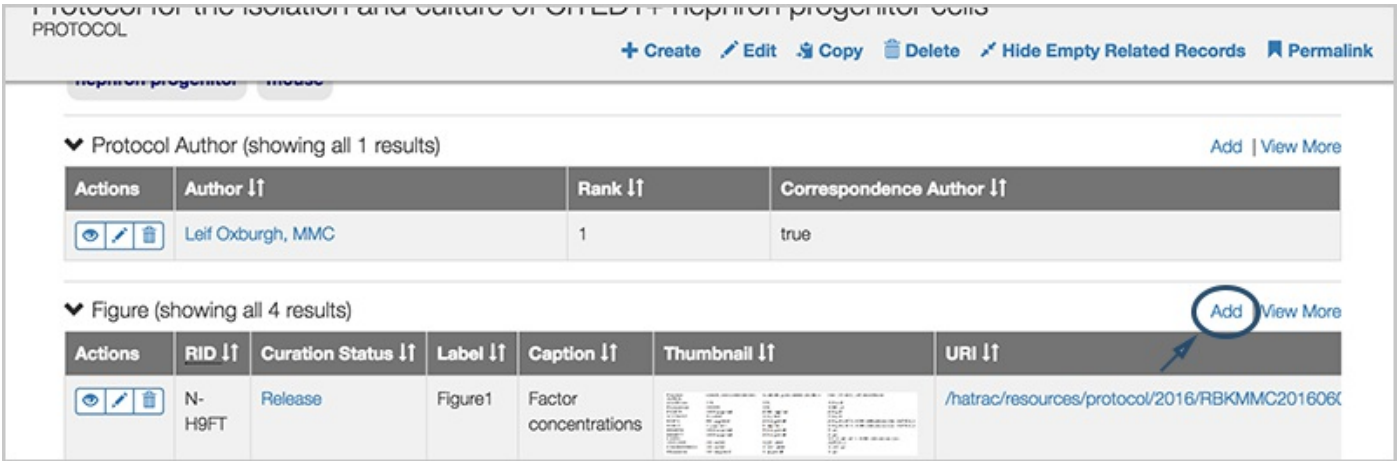
Note: The 'Figures' section was primarily intended for adding images to a protocol but is also useful for videos or other supplemental files. For simplicity, we'll refer to image files below.

The process of adding image files to a protocol is two-fold: you add the file to the *Figures* section and then embed it where desired in the base protocol.

- Make sure you are logged in, then navigate to the protocol where you want to add the figure (in the navigation bar, click *Search > Protocol > Protocol*).



- Scroll down to the *Figures* section and click **Add**. A new tab appears with a form.



- Fill in the fields and then upload your figure in the *URI* field by clicking **Submit File**, navigating to your file and clicking **Open**.

RBK/GUDMAP Resources
Search
Create
Feedback
cristina@globusid.org

Create Figure Record
Submit Data
+
v

\* indicates required field

Record Number	1
RID	<code>_ermrest.urlb32_encode(nextval('_ermrest.rid_seq'::regclass))</code>
Protocol Title	Protocol for the isolation and culture of CITED1+ nephron progenitor cells
* Label	
Caption	
* URI	No file Selected <span>Select file</span>
* Curation Status	In Preparation <span>x</span> <span>v</span>

















- Save the record by clicking *Submit Data*. Your figure now appears in the *Figures* section.

## 6. Embed Figure in the Protocol

Note you can only embed an image file. For video files, you may only add a link to the URI for the figure (for information on how to add a link, see [Formatting with Markdown](#)).

- In the *Figures* section, copy the *URI* field (the link to the image on our system).

▼ Figure (showing all 4 results) Add | View More

Actions	RID ↑↓	Curation Status ↑↓	Label ↑↓	Caption ↑↓	Thumbnail ↑↓	URI ↑↓
  	N-H9FT	Release	Figure1	Factor concentrations		<a href="/natrac/resources/natrac/2016/RBKMMC201606/">/natrac/resources/natrac/2016/RBKMMC201606/</a>
  	N-H9FW	Release	Figure2	Conical tubes		<a href="/natrac/resources/natrac/2016/RBKMMC201606/">/natrac/resources/natrac/2016/RBKMMC201606/</a>
  	N-H9FY	Release	Figure3	Meniscus effect		<a href="/natrac/resources/natrac/2016/RBKMMC201606/">/natrac/resources/natrac/2016/RBKMMC201606/</a>
  	N-H9G0	Release	Figure4	Optimal passage density		<a href="/natrac/resources/natrac/2016/RBKMMC201606/">/natrac/resources/natrac/2016/RBKMMC201606/</a>

*Right click the URI*

- Open Link in New Tab
- Open Link in New Window
- Open Link in Incognito Window
- Save Link As...
- Copy Link Address**
- Copy Print...
- Evernote Web Clipper
- Save To Pocket
- Save to Zotero
- Inspect
- Speech

*Copy address*

- Scroll back up to the top of the protocol and click **Edit**.

Search ▾ Create ▾ Feedback cristina@globusid.org ▾

### f CITED1+ nephron progenitor cells

[+ Create](#) [✎ Edit](#) [📄 Copy](#) [🗑 Delete](#) [✂ Hide Empty Related Records](#) [🔖 Permalink](#)

ure of CITED1+ nephron progenitor cells



- In the desired field, use the following Markdown format (similar to a markdown link but with an exclamation point at the beginning):

`![alt text](URI-of-image-you-uploaded)`

that the desired cell density per ml is achieved for plating.

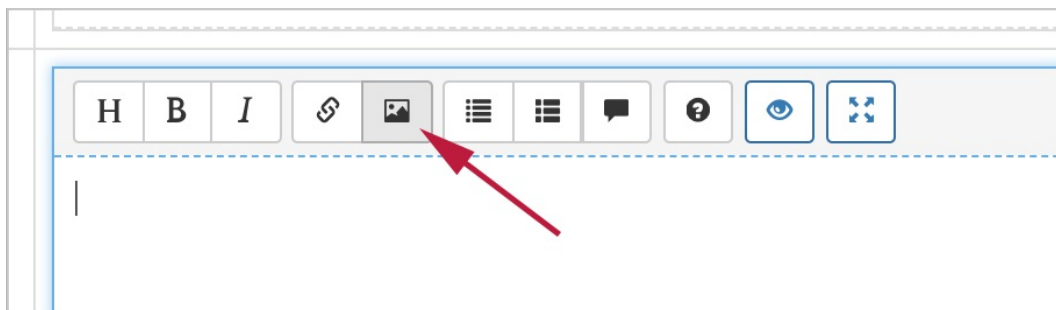
Note: To prevent clustering of cells near the edge of the well, which will result in earlier cellular overgrowth and the need for more frequent passaging, it is highly recommended to initially plate the cells in a high volume of NPEM. This will reduce the meniscus effect, which results in a higher cell density at the edge of the well due to the greater vertical column height of cells in suspension.

`![meniscuseffect.jpg](/hatrac/resources/protocol/2016/RBKMMC20160601PRO1/meniscuseffect.jpg)`

Figure3: The meniscus effect at different culture medium volumes in a 24 well plate. The ratio of the meniscus height (yellow) to total vertical height (red) at well edge decreases at higher volumes.

The following volumes can be used as a guide:

You can also click the Images icon in the formatting toolbar and paste the URL in the popup window.



- Your figure now appears in the text field.

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Protocol for the isolation and culture of CITED1+ nephron progenitor cells
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Permalink

### Cell plating and culture (when plating freshly harvested cells use 25,000/cm<sup>2</sup>)

- Suggested cell seeding density is between 5,000 and 25,000 cells per cm<sup>2</sup>. Increase the volume of NPC suspension with NPEM such that the desired cell density per ml is achieved for plating.

Note: To prevent clustering of cells near the edge of the well, which will result in earlier cellular overgrowth and the need for more frequent passaging, it is highly recommended to initially plate the cells in a high volume of NPEM. This will reduce the meniscus effect, which results in a higher cell density at the edge of the well due to the greater vertical column height of cells in suspension.

Figure3: The meniscus effect at different culture medium volumes in a 24 well plate. The ratio of the meniscus height (yellow) to total vertical height (red) at well edge decreases at higher volumes.

The following volumes can be used as a guide:

Medium volume for various well sizes: 96 well plate – 200  $\mu$ l  
24 well plate – 2 ml  
6 well plate – 4 ml

- Immediately prior to plating, remove Matrigel from the culture plate wells using a vacuum aspirator connected to a sterile pipette tip and immediately

## 7. Reviewing and Submitting Protocols

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**Note:** By the hard launch of the new GUDMAP site in April, there will be dashboards and email notifications to make this process more straightforward. In the meantime, here is how a project's PI or designated reviewer can find their project's data with a Curation Status of "PI Review"

- Make sure you are logged in.
- From the navigation bar, click *Search > Protocol > Protocols*.
- In the faceting sidebar on the left, scroll to **Curation Status** and choose *PI Review*. Note: Keep in mind that the data submitter may have forgotten to set the Curation Status field, in which case the status would still be *In Preparation*.
- In the faceting sidebar, scroll to **Principal Investigator** and choose your project's PI. Now you should see the data you need to review.
- When your record is approved internally, change *Curation Status* to *Submitted* to send it to the Hub (click here for the full [Curation Workflow](#)).

## 8. Deleting Protocols

Before you can delete a protocol, you must first unlink (delete) any records associated with it. This means 'un-linking' the keywords, subject terms and authors.

- First, make sure you navigate to the protocol you wish to delete and are logged in.
- Scroll down below the base protocol until you see the 'Protocol Subject', 'Protocol Keywords', 'Protocol Authors' and 'Figures' sections.

Protocol for the isolation and culture of CITED1+ nephron progenitor cells  
PROTOCOL

+ Create Edit Copy Delete Hide Empty Related Records Permalink

▼ Protocol Subject (showing all 3 results) Edit | Add | View More

Cell biology Cell culture Isolation, purification and separation

▼ Protocol Keyword (showing all 2 results) Edit | Add | View More

nephron progenitor mouse

▼ Protocol Author (showing all 1 results) Add | View More

Author ↑↓	Rank ↑↓	Correspondence Author ↑↓
Leif Oxburgh, MMC	1	true

▼ Figure (showing all 4 results) Add | View More

Accession ID ↑↓	Label ↑↓	Caption ↑↓	Thumbnail ↑↓	URI ↑↓
RBKUSC20160526FIG1	Figure1	Factor concentrations		/atrac/resources/protocol/2016/RBKMMC20160601PRO1/tablefactorconc

\* Privacy policy

- For the 'Protocol Subject' and 'Protocol Keywords' sections, click *Edit* in the upper right corner of the section.

Protocol for the isolation and culture of CITED1+ nephron progenitor cells  
PROTOCOL

+ Create Edit Copy Delete Hide Empty Related Records Permalink

▼ Protocol Subject (showing all 3 results) Edit | Add | View More










Cell biology Cell culture Isolation, purification and separation

▼ Protocol Keyword (showing all 2 results) Edit | Add | View More

nephron progenitor mouse




Then click the "x" icon in the Actions columns to delete (un-link) each and every record in that section.

▼ Protocol Subject (showing all 3 results) Display | Add | View More









	Term ↑↓	Description ↑↓	Creation Time ↑↓	Last Modified Time ↑↓
  	Cell biology	Cell biology is the discipline of biological sciences that studies the structure, physiology, growth, reproduction and death of cells. Research in cell biology uses microscopic and molecular tools and examines all cell types, from unicellular organisms such as protozoa to the specialised cells that constitute multicellular organisms.	2017-10-26 16:33:45	2017-10-26 16:33:45
  	Cell culture	Cell culture is a method for growing or maintaining cells in vitro under controlled conditions. Primary cell cultures refer to dispersed cells that are cultured directly from tissues and have limited lifespan, whereas cell lines refer to immortalized cells that can be cultured indefinitely. (E.g. organoids, primary cell culture, and directed differentiation.)	2017-10-26 16:33:45	2017-10-26 16:33:45
  	Isolation, purification and separation	Isolation, separation and purification refer to techniques used to isolate, concentrate or purify cells, viruses, cell fractions, organelles or biological macromolecules (e.g. proteins, protein complexes, chromatin, nucleic acids, carbohydrates or lipids) for subsequent analysis.	2017-10-26 16:33:45	2017-10-26 16:33:45

- For the 'Protocol Authors' and 'Figures' sections, click the 'garbage can' icon to delete each and every record in that section.

▼ Protocol Author (showing all 1 results) Add | View More

	Author ↑↓	Rank ↑↓	Correspondence Author ↑↓
  	Leif Oxburgh, MMC	1	true

▼ Figure (showing all 4 results) Add | View More

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