

Search



Search

Type: Location ▾

Folder ▾

Filters

Group by ▾

Save

Clear

◀ ▶ 1-50 of 1159 items



Barcode

Name

Location

Modified

Schema

Part 1

4C002

4C EE&SB fridge transient storage

DTU Build...

10/12/2020

4°C Fridge

4C009

4C Fridge 00271

DTU Build...

09/08/2019

4°C Fridge

4C008

4C Fridge 01223

DTU Build...

4°C Fridge

4C014

4C Fridge 01233

DTU Build...

4°C Fridge

The Basics of

4C015

4C Fridge Aaron

BioInnovati...

15/04/2021

4°C Fridge

4C006

4C Fridge Adam

DTU Build...

4°C Fridge

4C005

4C Fridge ANALYTICS

DTU Build...

4°C Fridge

4C011

4C Fridge CFB00266

DTU Build...

4°C Fridge

An introduction to our **Laboratory Information Management System (LIMS)**

CFB01653

4C Fridge CFB01653

DTU Build...

19/11/2018

4°C Fridge

4C003

4C Fridge DSP1

DTU Build...

09/08/2018

4°C Fridge

Reach out when struggling with Benchling:

BRIGHT Benchling support
lims_support@bright.dtu.dk

Access Benchling:

bright.benchling.com

(login with DTU credentials. Access granted by HR)

Agenda

Introduction to Benchling
and best practices

~ 30 min

Hands-on

~ 15 min

Agenda

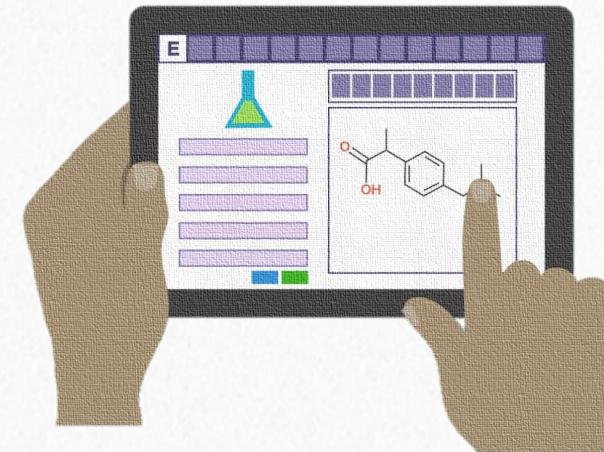
Introduction to Benchling
and best practices

~ 30 min

Hands-on

~ 15 min

What is a LIMS?



What is a LIMS?

L.I.M.S = Laboratory Information Management System

- It **keeps track of laboratory data** associated with samples and experiments
- At BRIGHT, we use **Benchling**, a Cloud-based platform



bright.benchling.com

Main functionalities

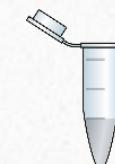
ELN

- Experiment notes
- Registration of samples



Sample storage

- Samples transfer in boxes/plates



Molecular Biology tools

- Import of sequences
- Plasmid design and annotation



Requests

- Sample submission for analysis
- Lab material order requests



Working with Benchling

Benefits

- Facilitates **passing over** of projects
- Fosters **collaboration**
- Promotes data capture in a **defined place** preventing its loss
- Make knowledge **findable**
- Promotes the adoption of **common practices** across research groups

Working with Benchling

Obstacles

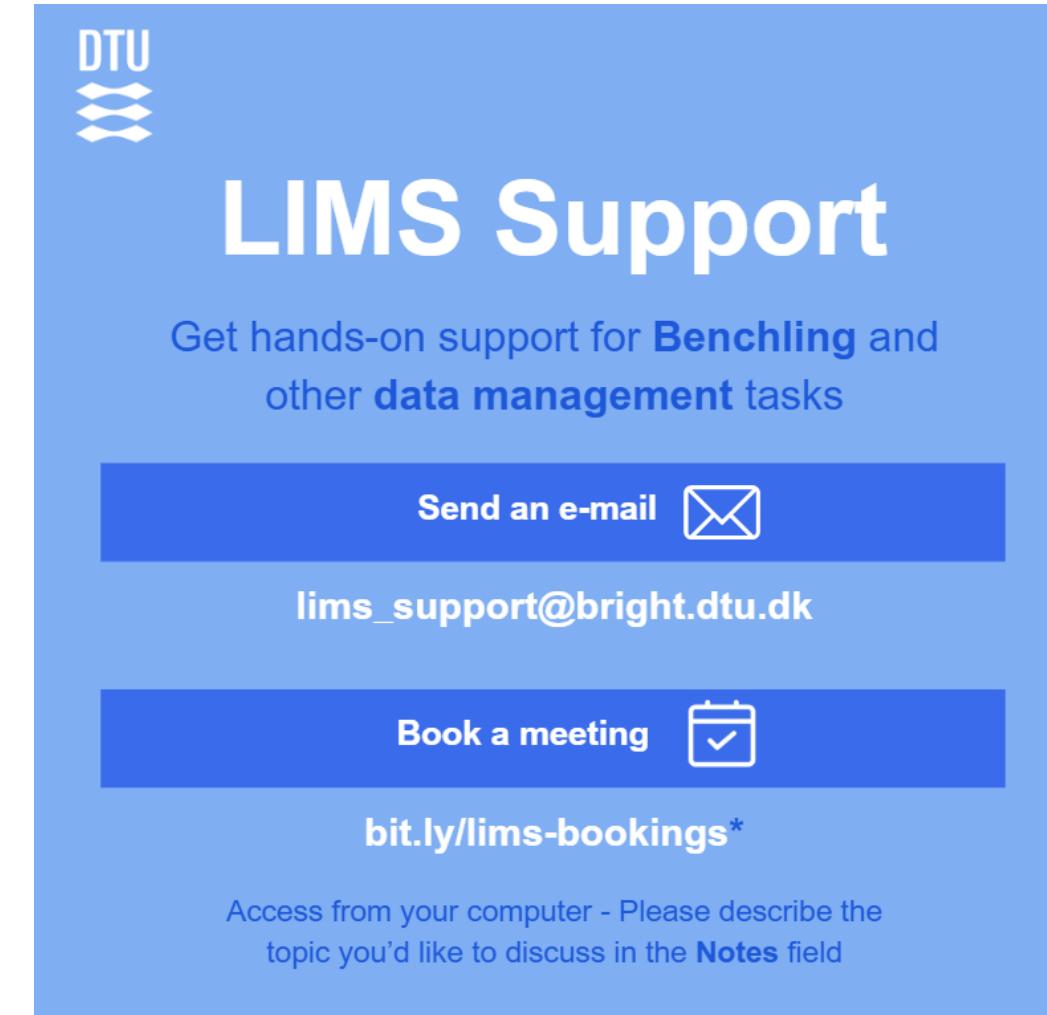
- Adapting to a **new way of working**
- **Software limitations** and “pain points”
- **Learning curve**
 - Many functionalities
 - Complex / confusing data model

Good practices

- ✓ Record all necessary information to make your experiment **clear to others** and reproducible
- ✓ Register important data (strains, media, plasmids...)
- ✓ Keep your project folders organized and use **clear names and descriptions**

Good practices

- ✓ Reach out if you're struggling when using the platform
- ✓ There might be a **quicker** and **easier** way to do what you are doing!



The image shows a landing page for LIMS Support. At the top left is the DTU logo. The main title is "LIMS Support" in large white letters. Below it is a subtitle: "Get hands-on support for Benchling and other data management tasks". There are two blue call-to-action buttons: one for sending an email with the address "lims_support@bright.dtu.dk" and another for booking a meeting with a link "bit.ly/lims-bookings*". A note at the bottom says "Access from your computer - Please describe the topic you'd like to discuss in the Notes field".

DTU

LIMS Support

Get hands-on support for **Benchling** and other **data management** tasks

Send an e-mail 

lims_support@bright.dtu.dk

Book a meeting 

bit.ly/lims-bookings*

Access from your computer - Please describe the topic you'd like to discuss in the **Notes** field

Check out our Benchling Resources wiki

☰ Benchling resources

- Contact us
- FAQ
- Benchling access
- Training for new employees
- Benchling Superusers
- Benchling core concepts

In-house services

- Order lab materials
- Submit samples to Analytics
- Submit samples to Pre-Pilot Plant
- Submit samples to DNA Foundry

Electronic Lab Notebook

Search...

> Page contents:

Welcome!
Benchling in a nutshell
Start exploring
More resources



Welcome!

The BRIGHT **Benchling Resources** page will help you navigate Benchling and successfully track and manage your experimental data during your time at BRIGHT.

Here you will find **step-by-step tutorials** and short **training videos** covering topics like:

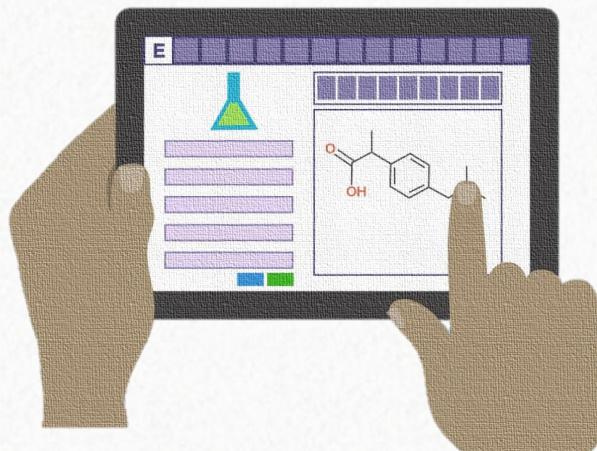
- How to access Benchling
- How to register data into the system
- How to submit requests for in-house services
- Highlights of new functionalities

Benchling in a nutshell

Benchling is an **online platform** that keeps your experimental data, electronic notebooks, and SOPs **all in one place**, making it easy to organize and link them together, and to share them with other researchers.

Here is an **overview of the main modules** in the system:

Getting started



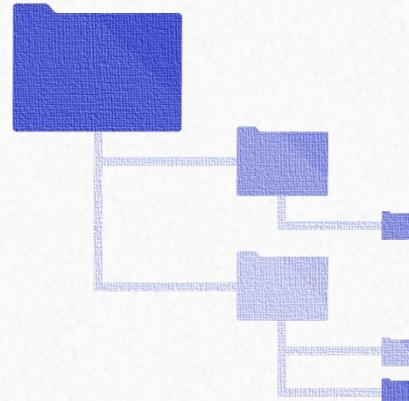
Step 1: Create your project folder

Step 2: Create your experiment ELN & register samples

Step 3: Navigate through your data

Step 1:

Create your project folder



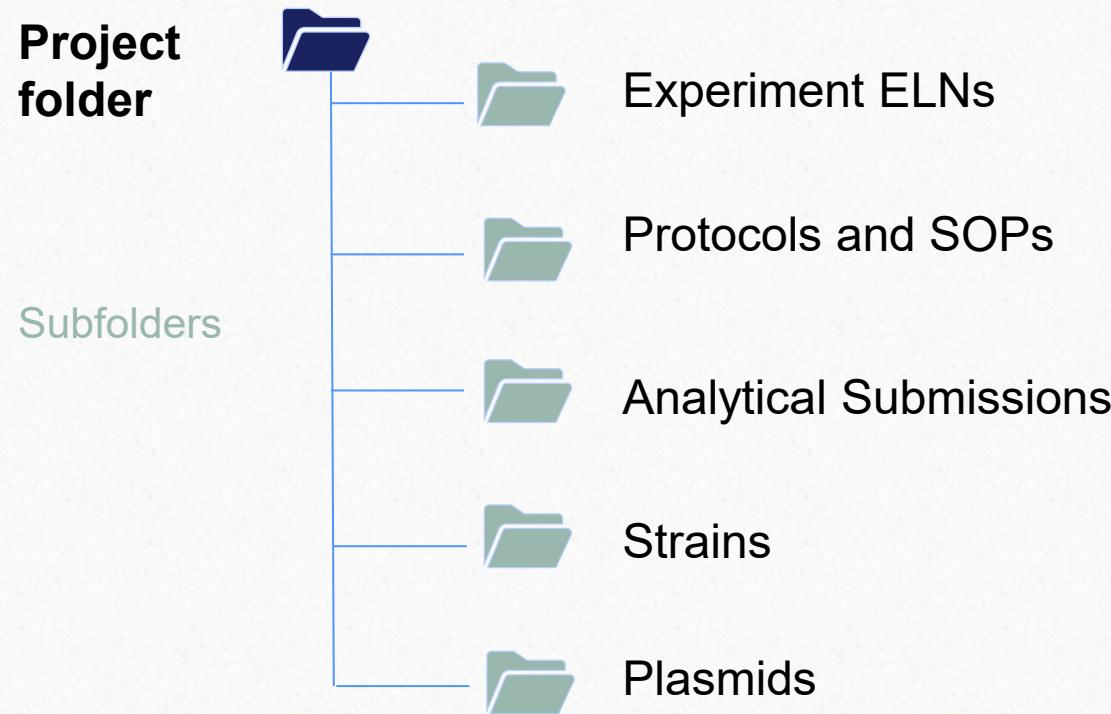
Project folder

Your Project folder will contain:

- ✓ your Electronic Notebook pages (called “Entries”) 
- ✓ your registry items (called “Entities”) strains, plasmids,...  



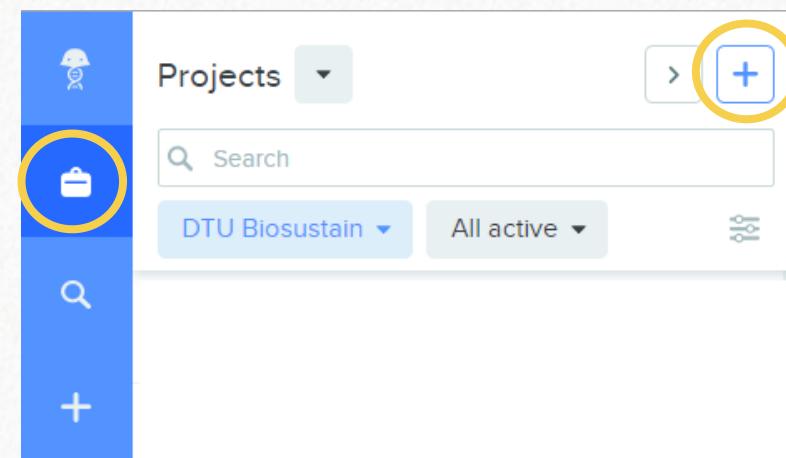
Example of folder structure



Project folder

To create a New Project:

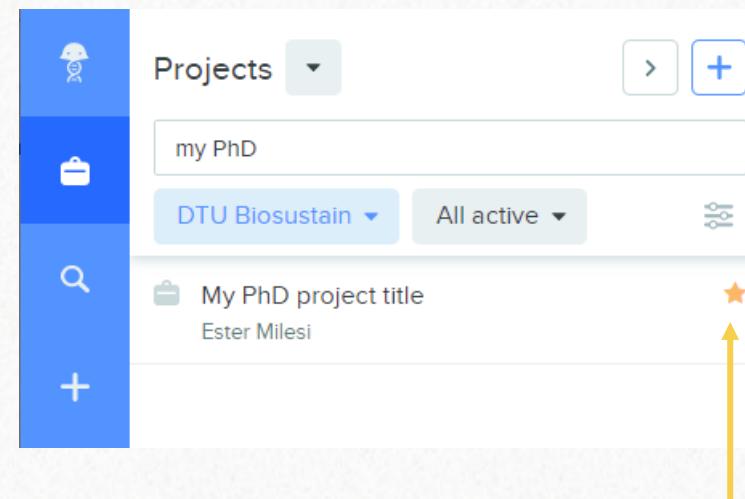
- Click on the “Project” icon
- Click on the “+” icon
- Give the folder a clear name
(e.g., your PhD project title)



Project folder

Star ★ your Project:

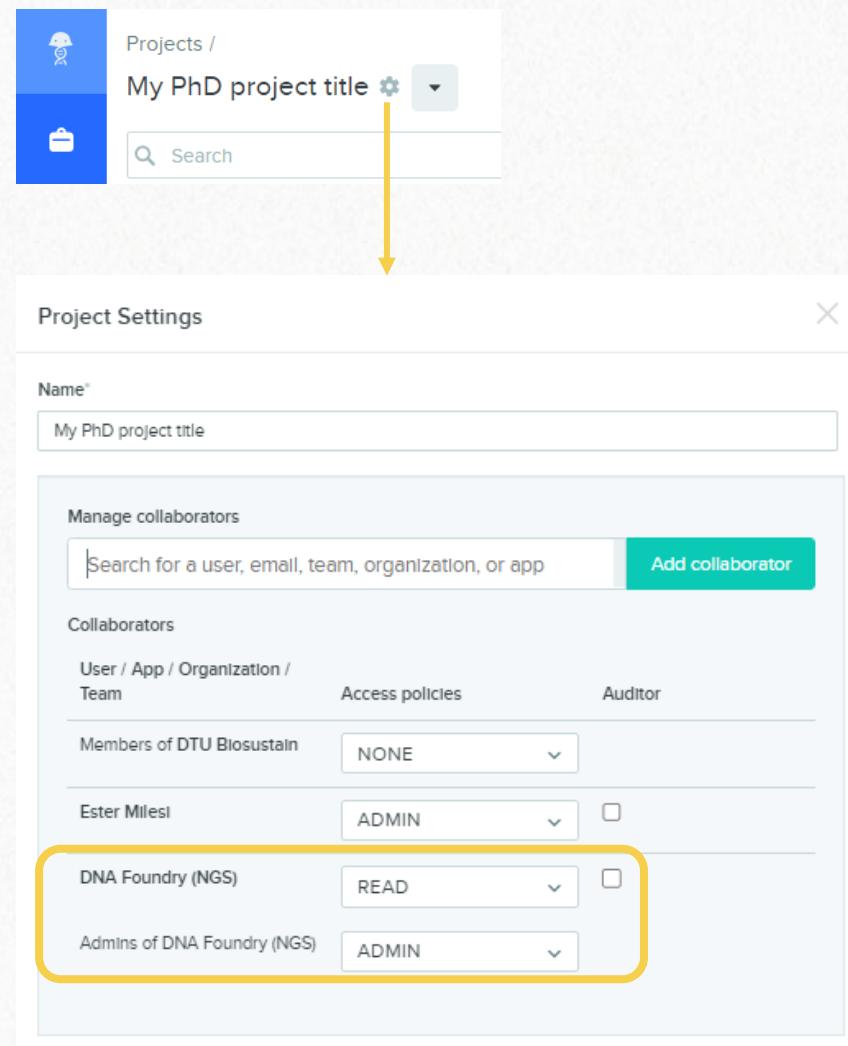
- This way, it will appear on top of every other Project that you have access to



Project folder

Give access to your team

- Almost all Research groups have a **Benchling Team**
- When possible, add **your Team** among the collaborators of the Project
- Keep the access to “**NONE**” for BRIGHT



The screenshot shows the 'Project Settings' page for a project named 'My PhD project title'. A yellow arrow points from the top navigation bar to the 'Project Settings' section. The 'Manage collaborators' section includes a search bar and a 'Add collaborator' button. Below it, the 'Collaborators' table lists users and their access levels:

User / App / Organization / Team	Access policies	Auditor
Members of DTU Biosustain	NONE	
Ester Milesi	ADMIN	<input type="checkbox"/>
DNA Foundry (NGS)	READ	<input type="checkbox"/>
Admins of DNA Foundry (NGS)	ADMIN	<input type="checkbox"/>

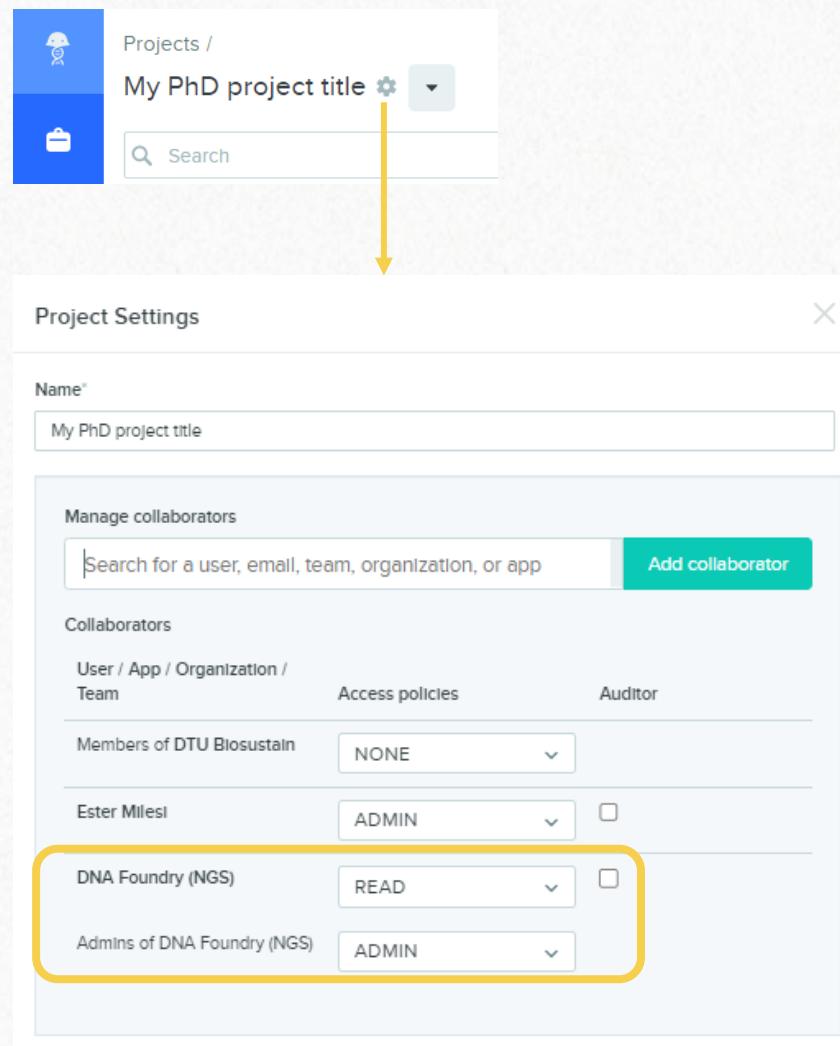
The row for 'DNA Foundry (NGS)' is highlighted with a yellow box.



Project folder

Benefits

- ✓ You don't have to add each member one-by-one
- ✓ When new researchers join the Team, **they get automatically access to all shared Project folders**



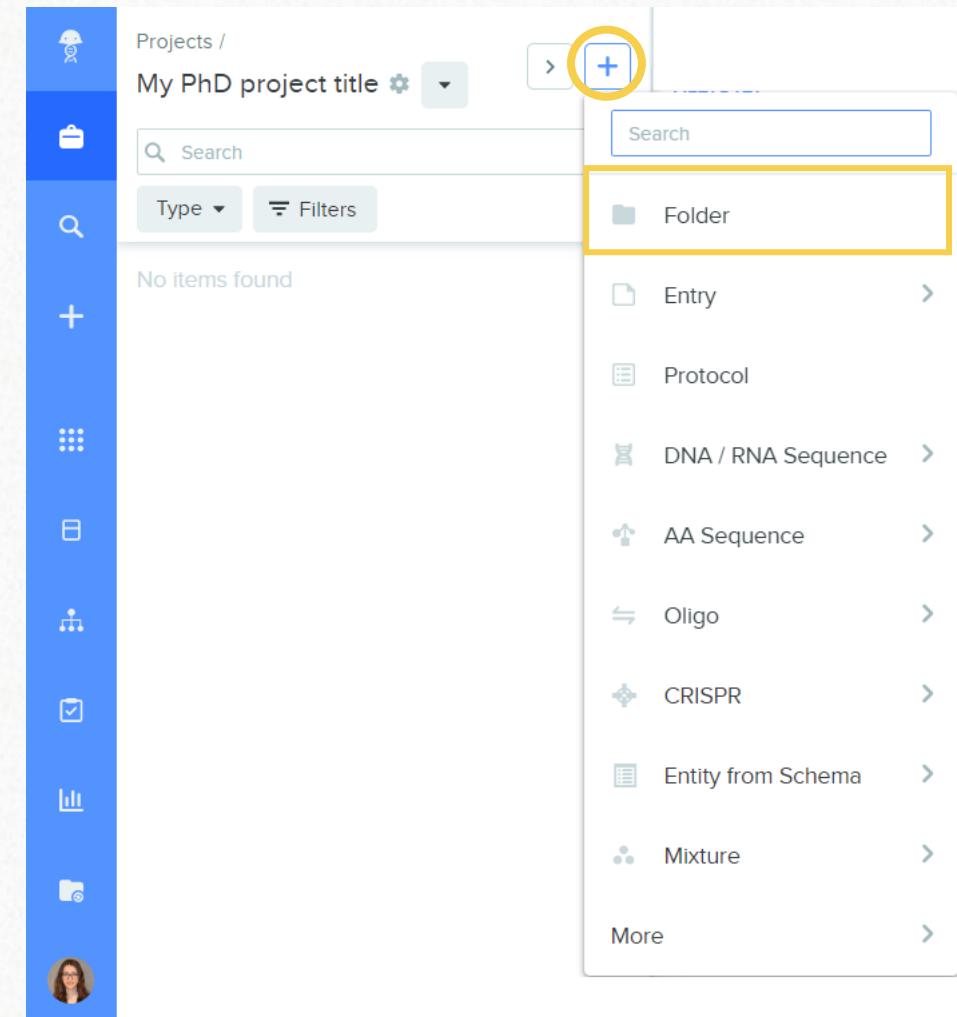
The screenshot shows the 'Project Settings' page for a project named 'My PhD project title'. A yellow arrow points from the top navigation bar to the 'Manage collaborators' section. This section includes a search bar, an 'Add collaborator' button, and a table of collaborators. The table has three columns: 'User / App / Organization / Team', 'Access policies', and 'Auditor'. The first row shows 'Members of DTU Biosustain' with 'NONE' selected in the access policy dropdown. The second row shows 'Ester Milesi' with 'ADMIN' selected. The third row, which is highlighted with a yellow box, shows 'DNA Foundry (NGS)' with 'READ' selected. The fourth row shows 'Admins of DNA Foundry (NGS)' with 'ADMIN' selected.

User / App / Organization / Team	Access policies	Auditor
Members of DTU Biosustain	NONE	
Ester Milesi	ADMIN	<input type="checkbox"/>
DNA Foundry (NGS)	READ	<input type="checkbox"/>
Admins of DNA Foundry (NGS)	ADMIN	

Creating subfolders

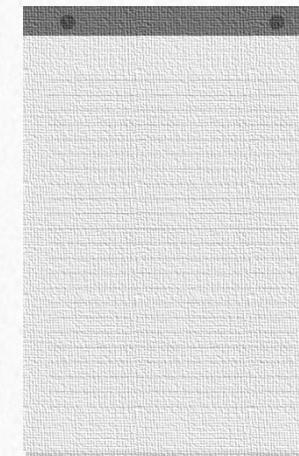
To create a subfolder:

- Enter your newly created Project
- Click on the “+” icon
- Select “Folder”



Step 2:

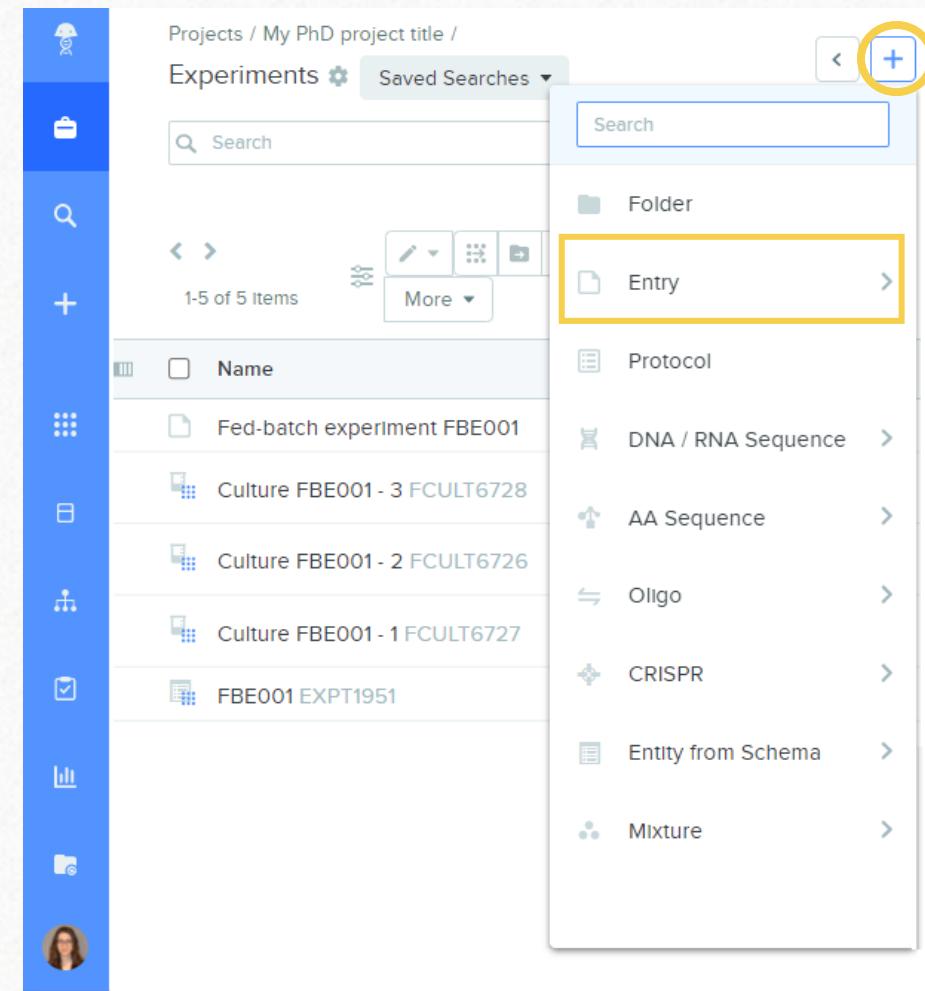
Create your experiment ELN & create samples



Electronic notebook

To create a new Entry:

- Go to the relevant folder (e.g., “Experiments”)
- Click on the “+” icon
- Select “Entry”



Electronic notebook

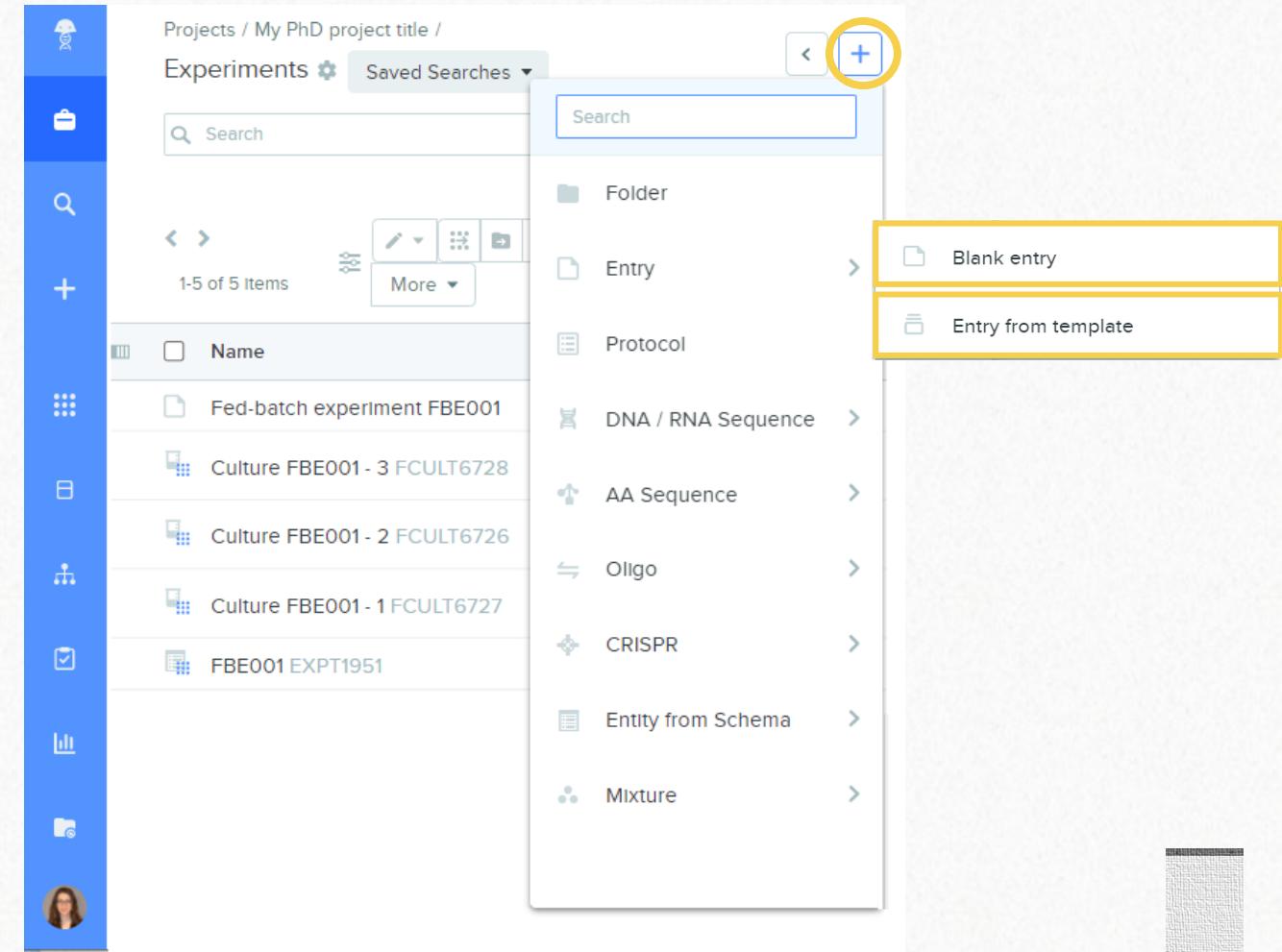
Option 1:

Blank entry

Option 2:

New Entry from Template

--- you can create your own!



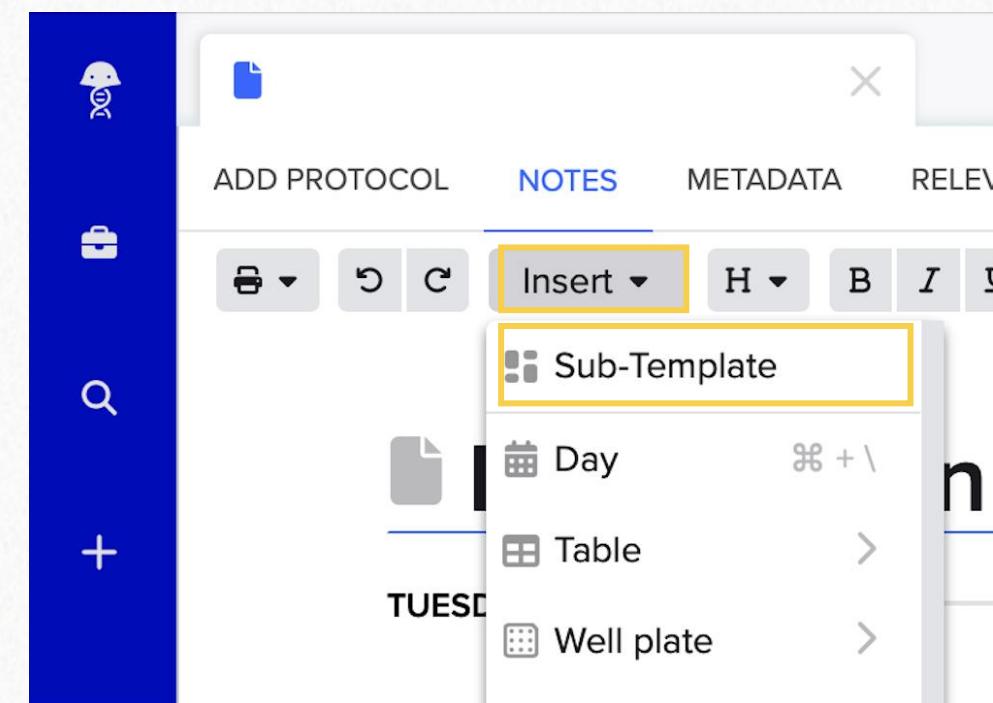
The screenshot shows the BRIGHT software interface for creating a new entry. On the left, there's a vertical toolbar with various icons. The main area displays a list of existing experiments under the heading 'Experiments'. A search bar and a '+' button are at the top. A context menu is open on the right, listing options like 'Folder', 'Entry', 'Protocol', etc., with two items highlighted in yellow: 'Blank entry' and 'Entry from template'. The '+' button in the top right corner is also circled in yellow.

Electronic notebook

Option 3:

Blank entry + Sub-Template

--- you can create your own!

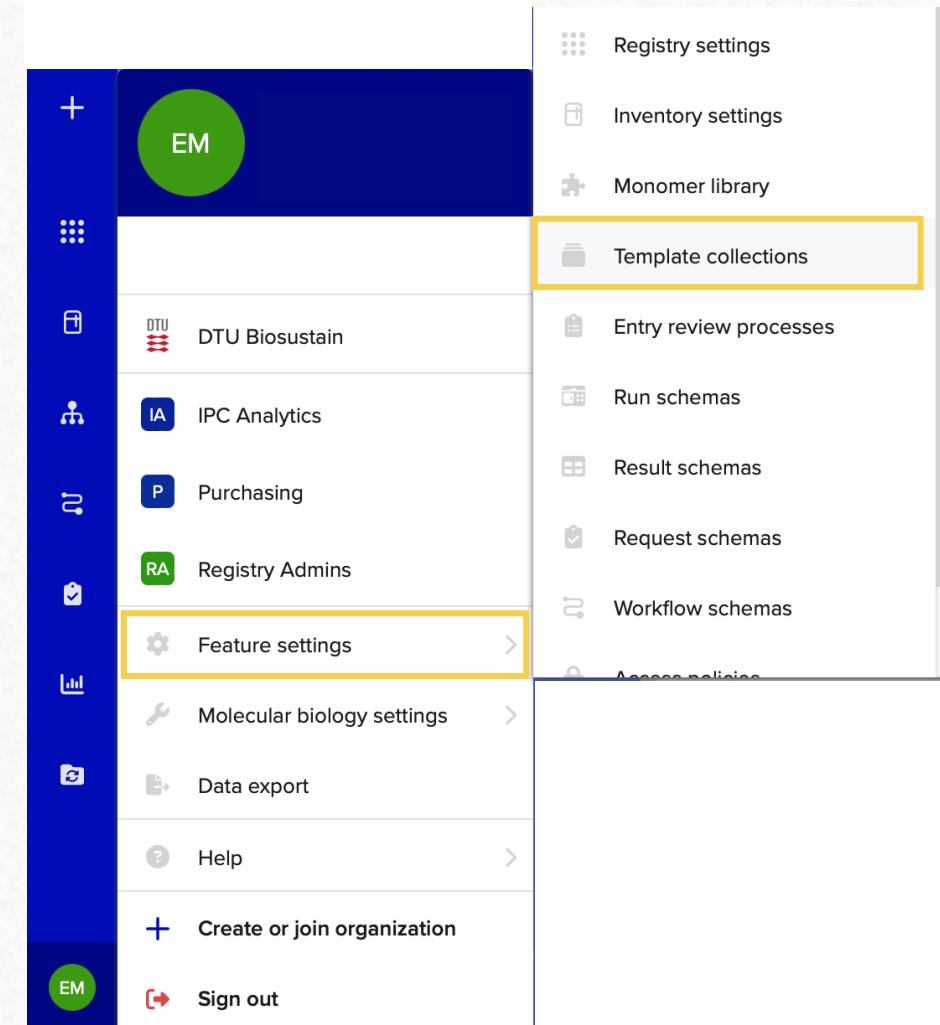


Electronic notebook

To create a Template or a Sub-template:

- Go to your profile
- Go to Feature settings
- Go to Template collections

Create your own!



Electronic notebook

To create a Template or a Sub-template:

- Go to your profile
- Go to Feature settings
- Go to Template collections

Create your own!

Template Collections > My templates

Search All items Filtering by: Not archived Create ▾

« < > » 1-4 of 4 items

NAME	TYPE	AUTHOR	CREATED

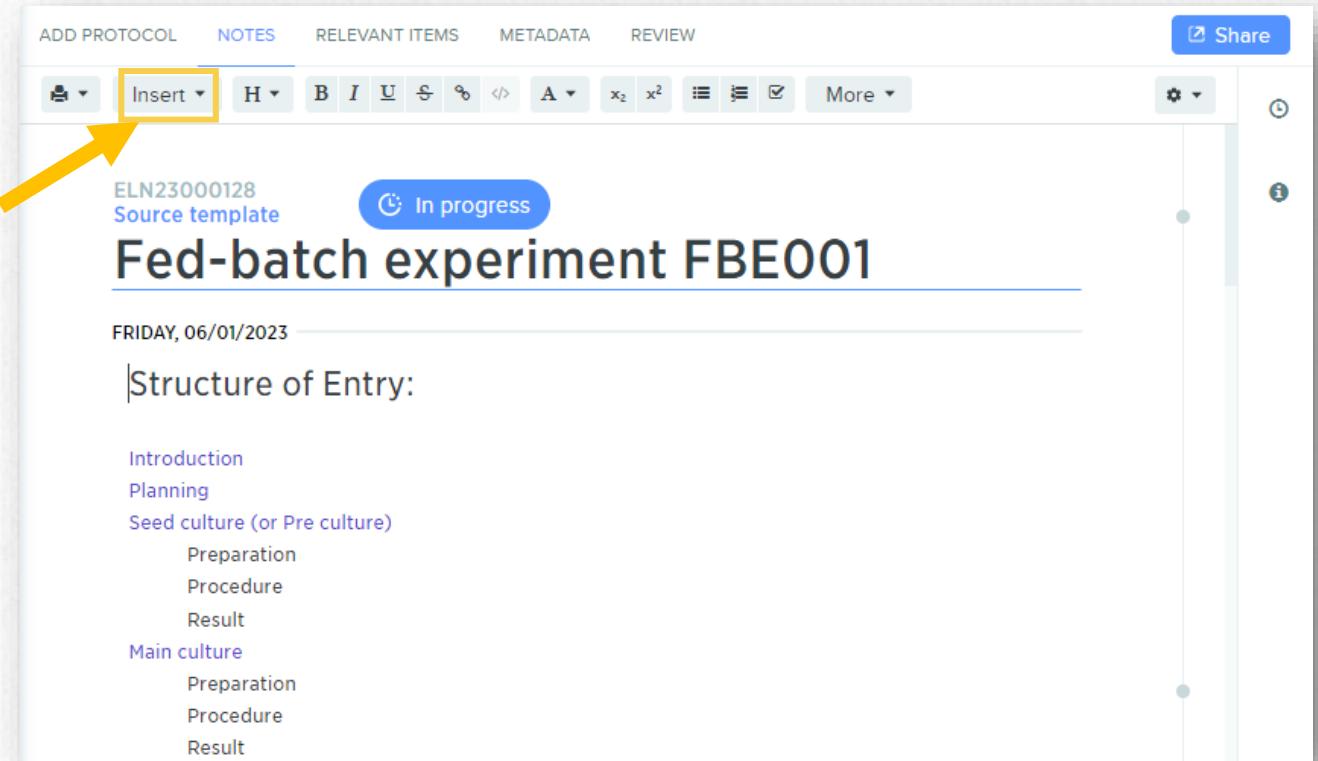
Template
Sub-template

Electronic notebook

In your Entry you can:

- Take **notes**
- Add **attachments/files**
- Create **tables**

Click on **Insert** to see the whole list of options



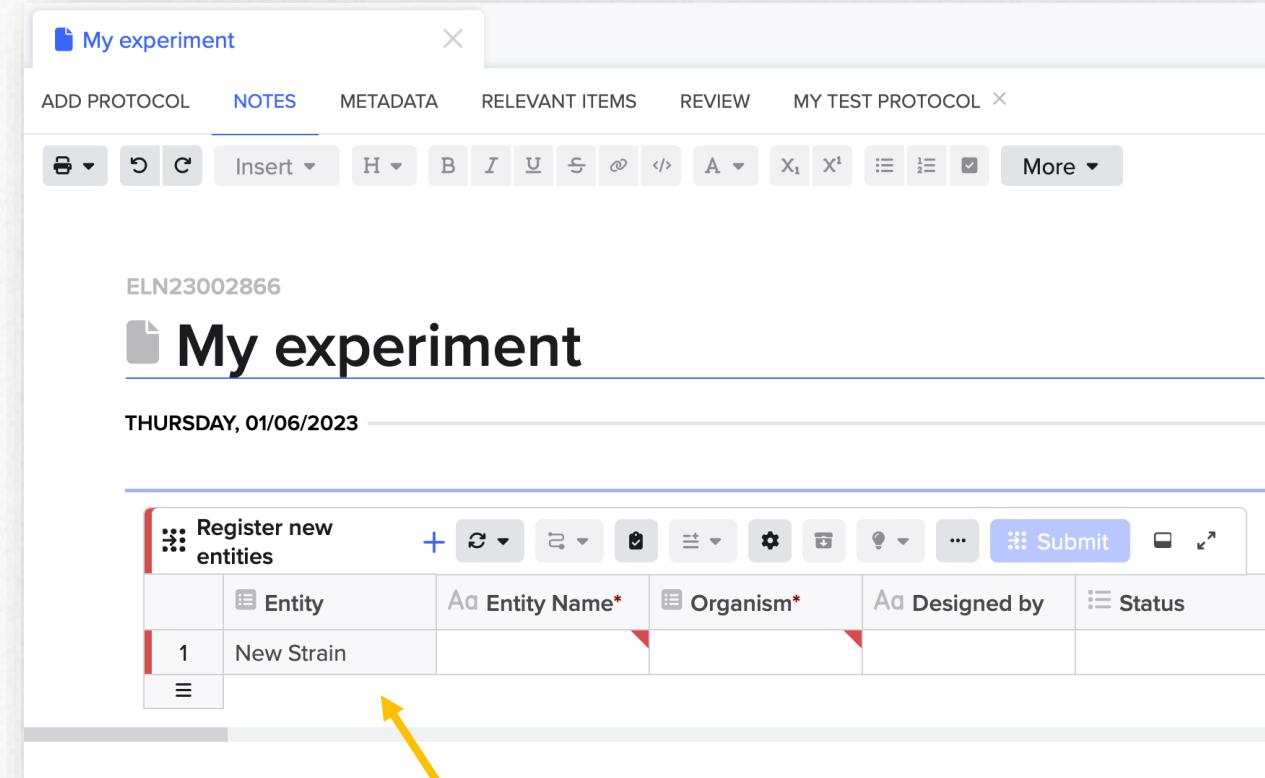
The screenshot shows a software interface for an electronic notebook. At the top, there's a navigation bar with tabs: ADD PROTOCOL, NOTES, RELEVANT ITEMS, METADATA, and REVIEW. To the right of the tabs is a 'Share' button. Below the navigation bar is a toolbar with various icons for text styling (bold, italic, underline, etc.) and other functions. A yellow arrow points to the 'Insert' button in the toolbar, which is highlighted with a yellow box. In the main content area, there's a header 'Fed-batch experiment FBE001' with a status bubble saying 'In progress'. Below the header, it says 'FRIDAY, 06/01/2023'. The main text area is titled 'Structure of Entry:' and lists several sections: Introduction, Planning, Seed culture (or Pre culture) with sub-sections Preparation, Procedure, Result, Main culture with sub-sections Preparation, Procedure, Result, and a small note 'ELN23000128 Source template'.

Electronic notebook

In your Entry you can:

- Register strains, media, etc. using **Registration tables**
- Assign **storage location** to registered entities

= more of this in the *Hands-on*



The screenshot shows a software window titled "My experiment". At the top, there are tabs for "ADD PROTOCOL", "NOTES" (which is selected), "METADATA", "RELEVANT ITEMS", "REVIEW", and "MY TEST PROTOCOL". Below the tabs is a toolbar with various icons for file operations and text styling. The main content area has a header "ELN23002866" and a section title "My experiment". A date "THURSDAY, 01/06/2023" is displayed. At the bottom, there is a table titled "Register new entities" with the following data:

	Entity	Entity Name*	Organism*	Designed by	Status
1	New Strain				

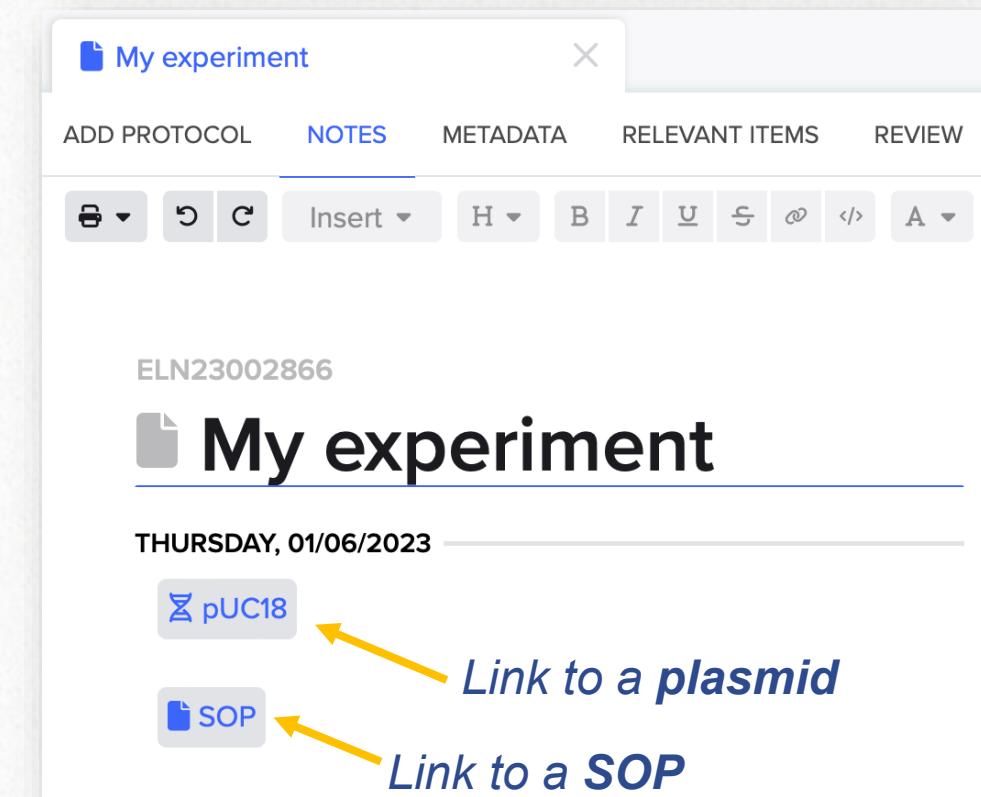
A **Registration table** for strains

Electronic notebook

In your Entry you can:

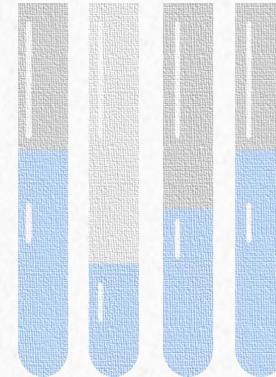
- Tag your plasmids, sequences, etc. (everything that you create)
- Tag another ELN or SOP

To tag an object, type **@...**



Step 3:

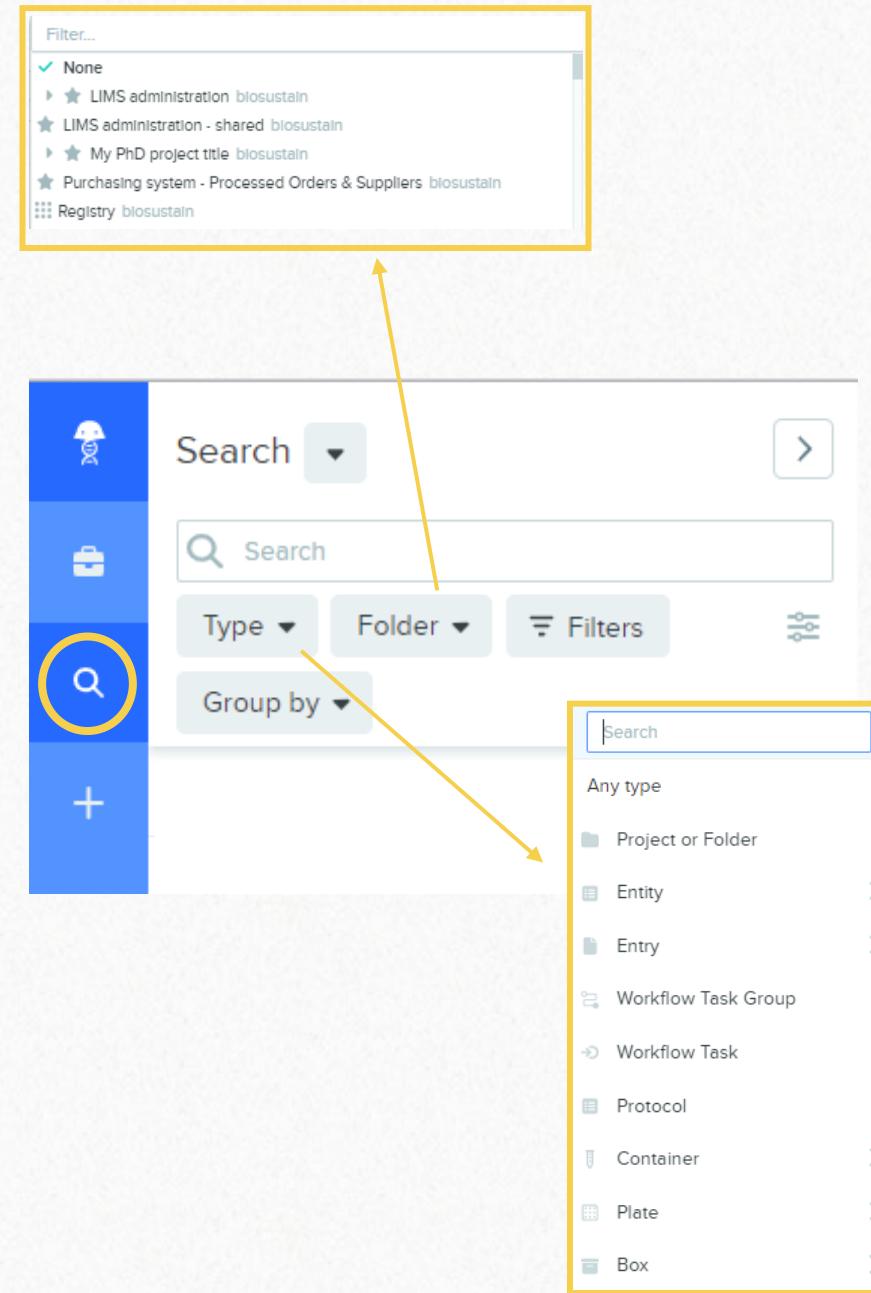
Navigate through your data



Global search

It allows to search through all your data and filter by:

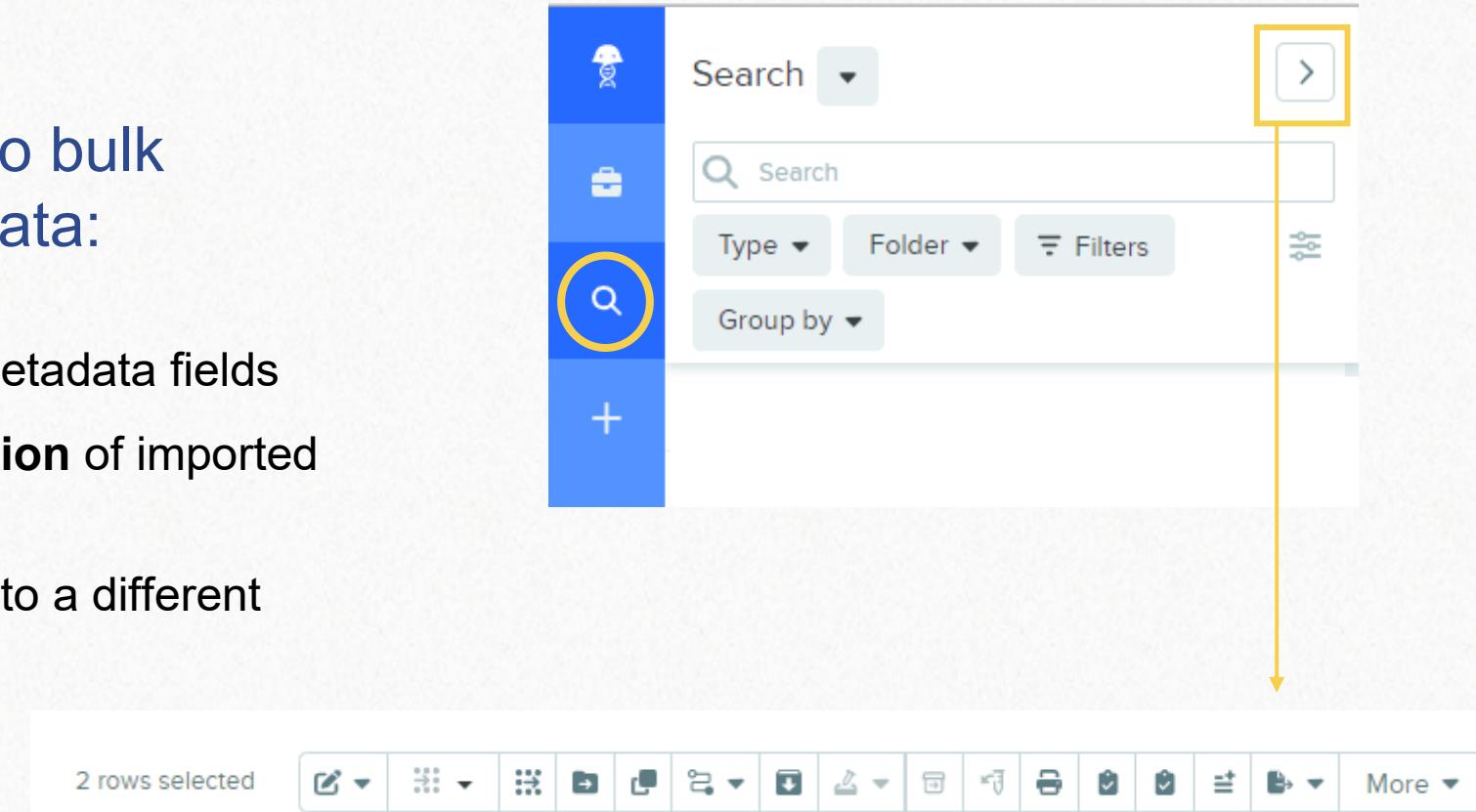
- Data type (samples, boxes...)
- Folder
- Metadata field



Global search

Expand view to do bulk actions on your data:

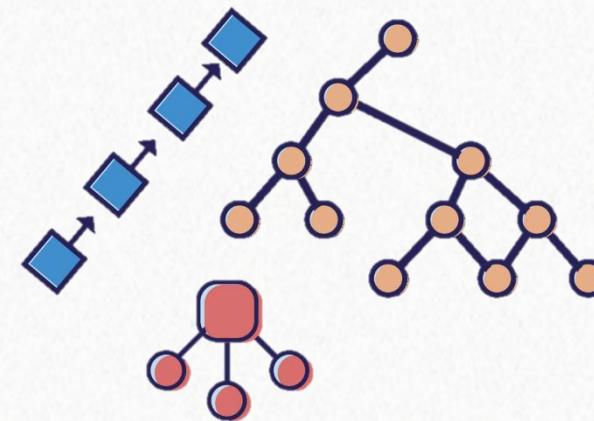
- Bulk **edit** of metadata fields
- Bulk **registration** of imported sequences
- Bulk **transfer** to a different folder
- Bulk **archive**



The screenshot shows the Global search interface with a sidebar on the left containing icons for user profile, search, filters, and more. The main area has a search bar with a magnifying glass icon (circled in yellow), a 'Type' dropdown, a 'Folder' dropdown, and a 'Filters' button. A large orange arrow points from the 'More' button at the bottom right towards the bulk action icons. At the bottom, there's a toolbar with various icons and a message '2 rows selected'.



Benchling entities: what you need to know



Registering entities: what to consider

1. Entities can store different information

Entity types that can store:

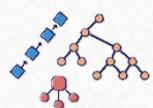
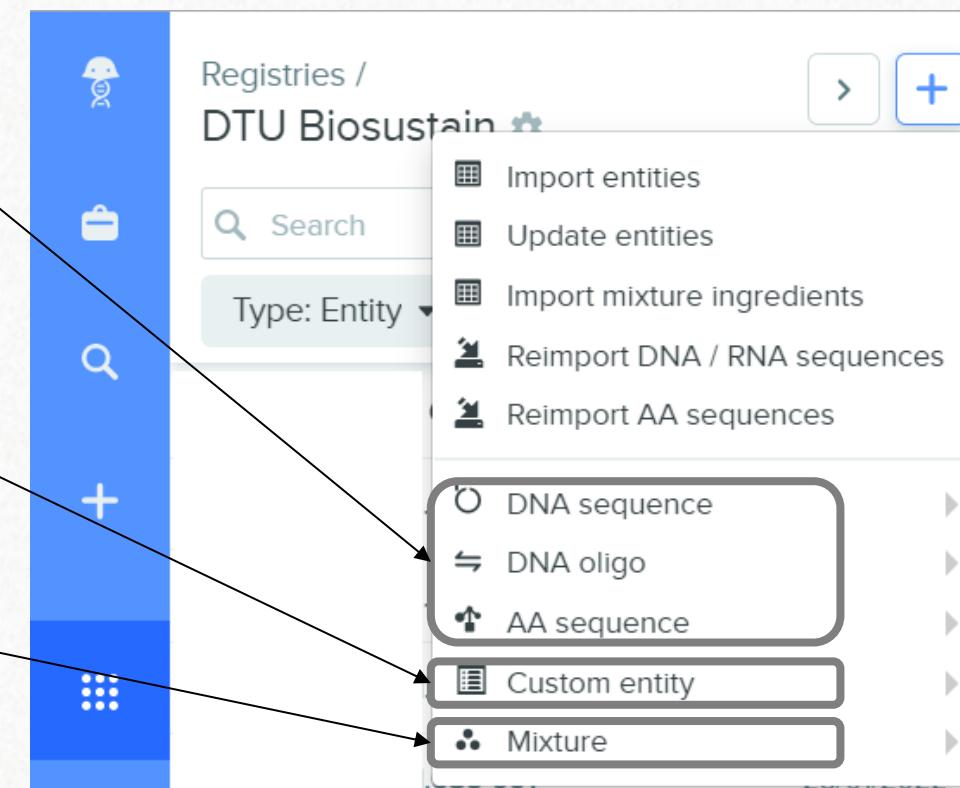
- metadata
- a sequence

Entity type that can store:

- metadata

Entity type that can store:

- metadata
- media ingredients and recipe



Entity types that can store:

- metadata
- a sequence

-  DNA sequence
-  DNA oligo
-  AA sequence

Sequence

Training plasmid esterm

SEQUENCE MAP

BsaXI TfiI PvuII

gcccccaatacgcaaaaccgcctcccccgcgttggccattatcataatgcacgtggcacaggtttcccg
cgccgggttatgcgtttggcgagagggggcgcaaccggtaagtaattactgcgaccgtgttccaaaggcg

10 20 30 40 50 60 70

actggaaagcgggcagtggcgcaacgcaattaatgtgagtttagtcactcattaggcacccaggcttacac
tgacccttcggcgctactcgcttgcgttaattacactcaatcgagtggataatccgtgggtccgaaatgt

80 90 100 110 120 130 140

ttagatgttccggctgtatgttgtgtgaattgtgagccgataacaatttacacaggaaacagctatgacca
aaatacgaaggccgagcatacaacacacttaacactcgccattgttaagtgtgcctttgcataactgtt

150 160 170 180 190 200 210 220

LacO M13-rev

HindIII BspMI BfuAI SphI PstI SalI AccI XbaI BamHI SmaI KpnI SacI HincII TspMI BsoBI XmaI AvI Eco53kI BceAI ApoI BanII Acc65I

teattacgccaagtttgcattgcctgcggactcttagaggatccccggatccggatccggatccggatccgg
actaatcggttgcacgttgcggatccggatccggatccggatccggatccggatccggatccggatccgg

230 240 250 260 270 280 290

BmrI

gtcgtttacaacgtgtactggaaaaccctggcgttaccaacttaatgccttgcggatccggatccggatccgg
cagaaaaatgtgcggactgaccctttggggccatgggttgaattacggaaacgtgttagggggaa

300 310 320 330 340 350 360 370

M1...d

LINEAR MAP PLASMID DESCRIPTION METADATA RESULTS ...

Training plasmid esterm Registry

Authors Ester Milesi

Project Location New Users Training

Registry IDs PL7248 DTU Biosustain

Created 04/04/2022 14:07

Aliases +

This entity has no aliases.

Schema Plasmid

Cannot change schema of registered entities

FIELD VALUE AUTO-FILL PARTS

Responsible person/group LIMS support

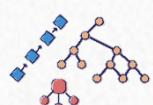
Usage This is a training plasmid

Status Planned

Parent plasmids Training parent plasmid

Cloning sites

Antibiotic resistance



Entity types that can store:

- metadata

 Custom entity

METADATA STRAIN BATCH RELEVANT ITEMS DESCRIPTION RESULTS Share

Estermttest_01
DTU Biosustain Registry

Authors: Ester Milesi Project location: Experiments

Registry ID: STRAIN25640 Registered in: Strains registration 21/03/2024 Esterm

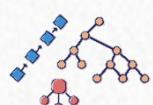
Created: 21/03/2024 13:44

Aliases: + This entity has no aliases.

Schema: Strain Edit

Cannot change schema of registered entities

FIELD	VALUE
Organism	Escherichia coli
Designed by	
Status	
Host strain	
Parent strain	Strainesterm02
Clonal or population?	



Entity types that can store:

- metadata
- media ingredients and recipe

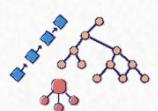


**Component list
(with amount)**

Recipe

Metadata

METADATA	RELEVANT ITEMS	DESCRIPTION	MEDIUM WITH RECIPE	MEDIUM PREP	RESULTS															
My medium DTU Biosustain Registry	Authors Registry ID MEDIUM1420 DTU Biosustain	Project location Inventory	Created																	
Aliases + <p>This entity has no aliases.</p>																				
Medium with Recipe Ingredients ⓘ <p>Ingredients Specified: per L</p> <table border="1"> <thead> <tr> <th>COMPONENT</th> <th>CATALOG #</th> <th>TARGET AMOUNT</th> <th>UNITS</th> <th>NOTES</th> </tr> </thead> <tbody> <tr> <td>D-glucose</td> <td></td> <td></td> <td>g/L</td> <td></td> </tr> <tr> <td>Synthetic Complete</td> <td></td> <td></td> <td>Units/L</td> <td></td> </tr> </tbody> </table>						COMPONENT	CATALOG #	TARGET AMOUNT	UNITS	NOTES	D-glucose			g/L		Synthetic Complete			Units/L	
COMPONENT	CATALOG #	TARGET AMOUNT	UNITS	NOTES																
D-glucose			g/L																	
Synthetic Complete			Units/L																	
Medium with Recipe Instructions <p>Enter text here or type / to insert</p>																				

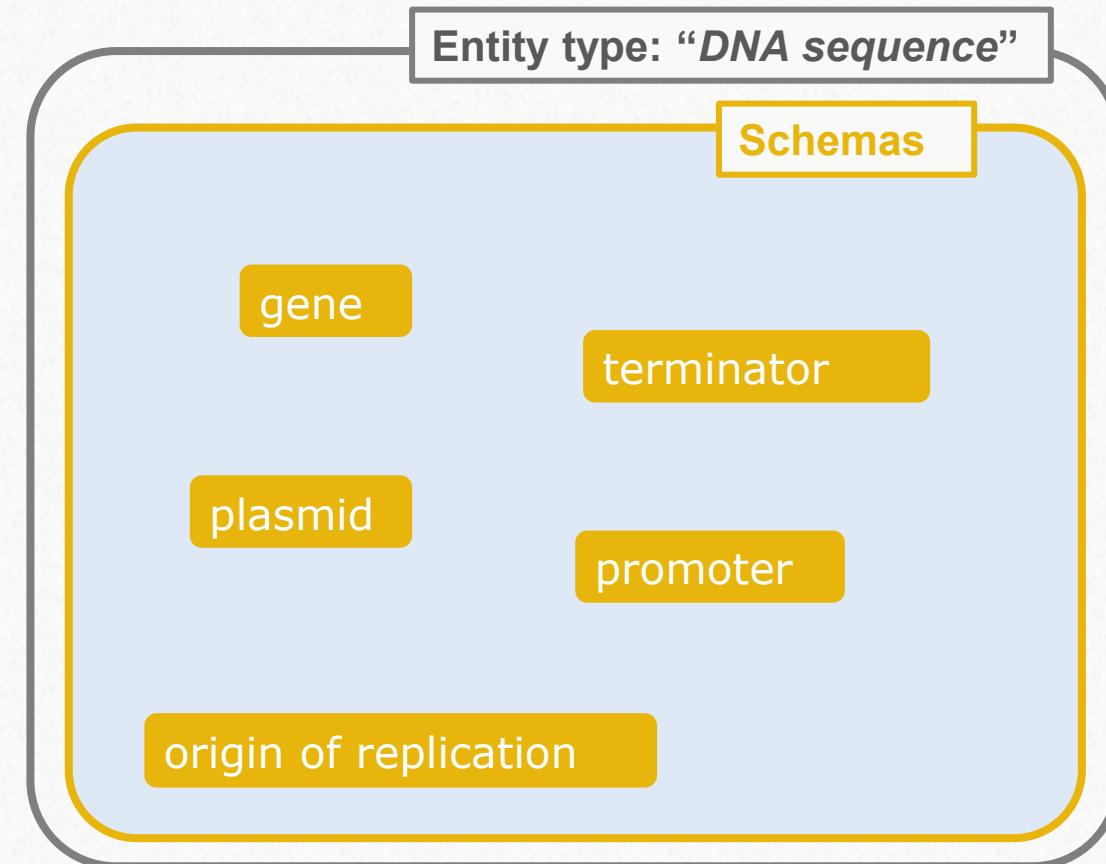


Registering entities: what to consider

2. Entities are assigned a “schema”

→ The “**type**” only tells you which information the entity stores

The various sample types are described by “**schemas**”

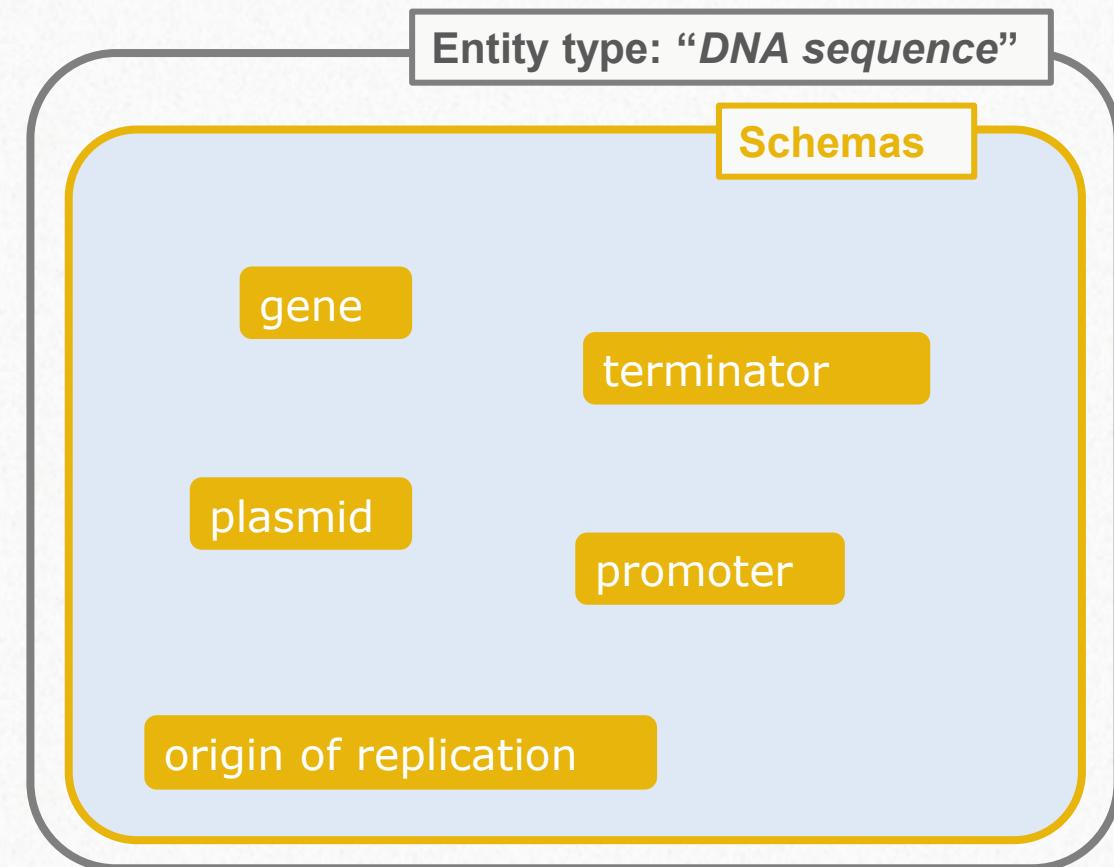


Registering entities: what to consider

2. Entities are assigned a “schema”

A schema specifies:

- sample type
- required information to fill-in
- **links** to other schemas

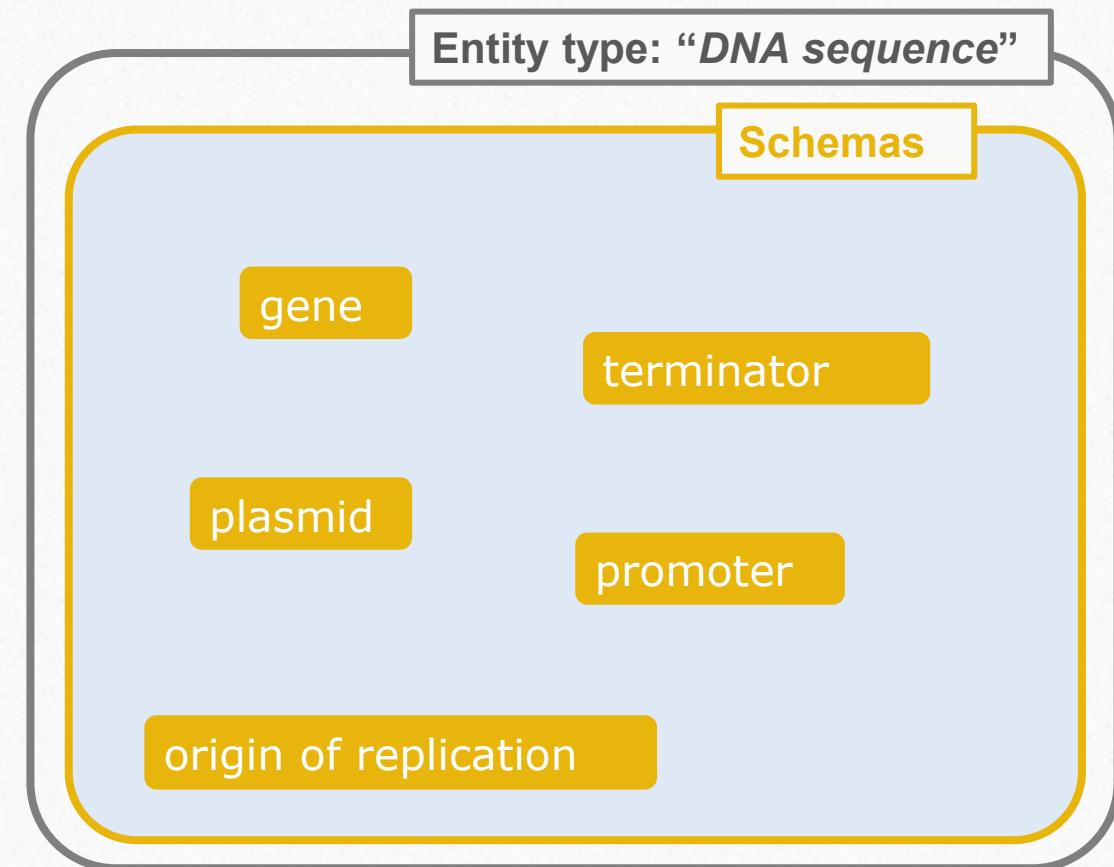


Registering entities: what to consider

2. Entities are assigned a “schema”

A schema specifies:

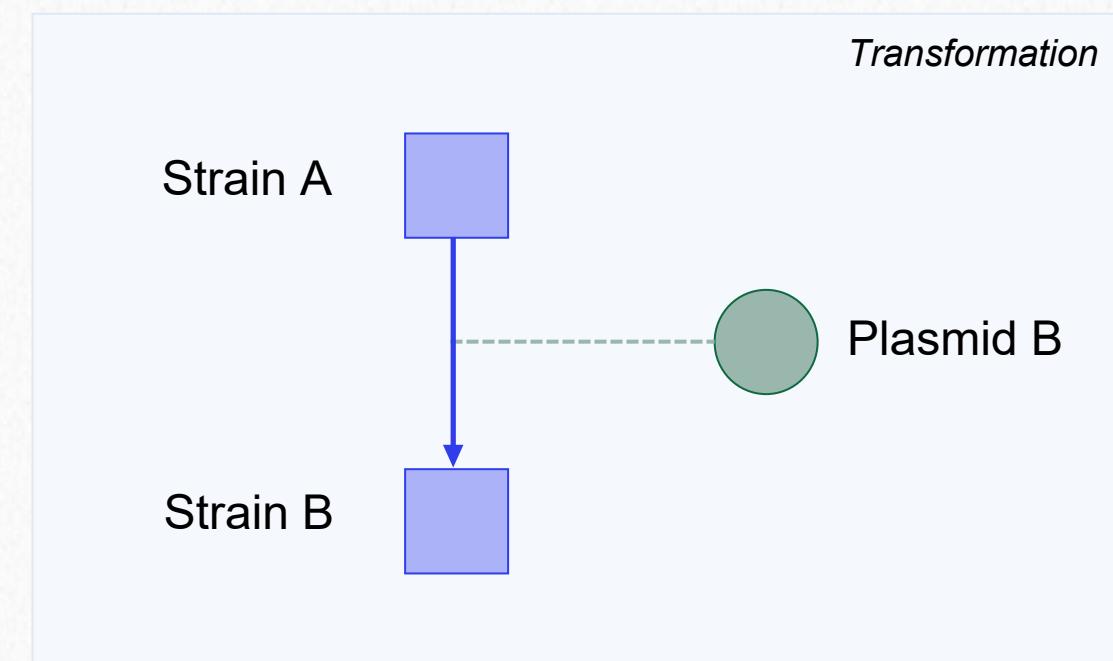
- sample type
- required information to fill-in
- links to other schemas



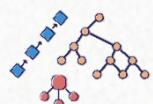
Registering entities: what to consider

2. Entities are assigned a “schema”

For example, the schema “**Strain**” can link to another strain (parent) and to a plasmid



Links  allow to track the sample “history”

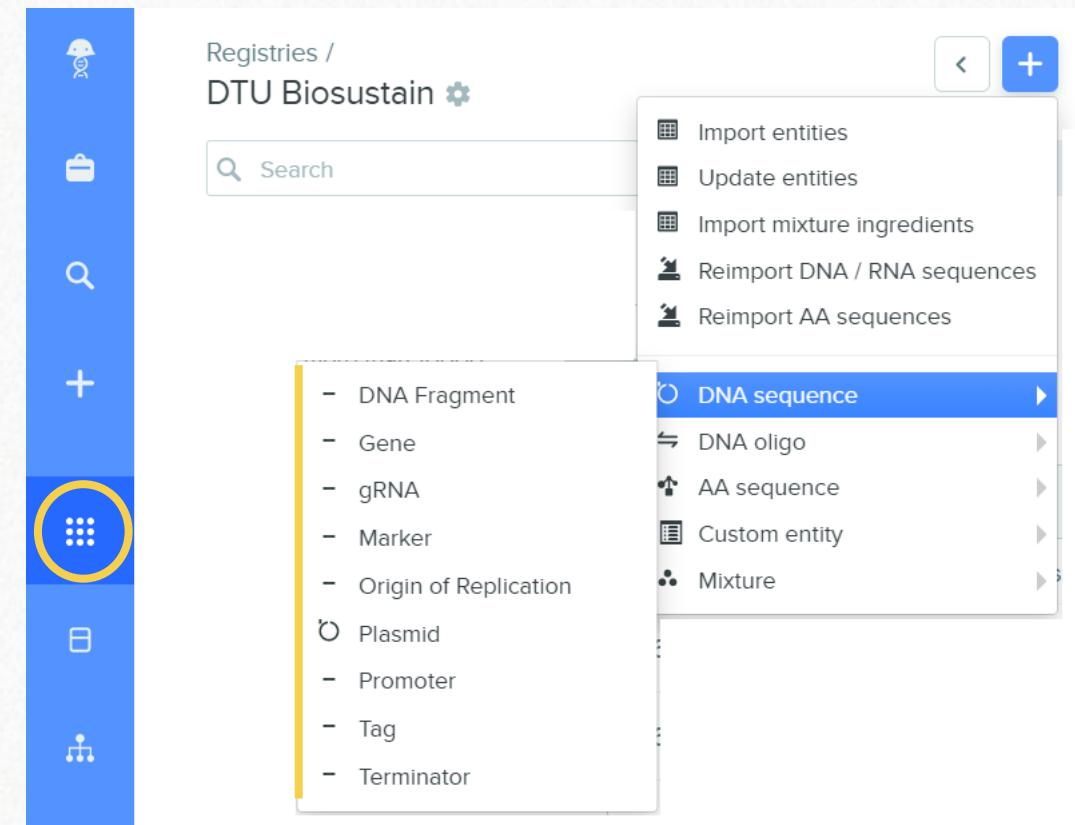


Registering entities: what to consider

3. You can create entities 1-by-1 or in bulk

To create entities 1-by-1:

- Go to Registry > Click on the “+” icon
- Select the **entity type** e.g., “**DNA sequence**”
- Select the **schema** e.g., “**Plasmid**”



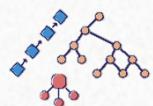
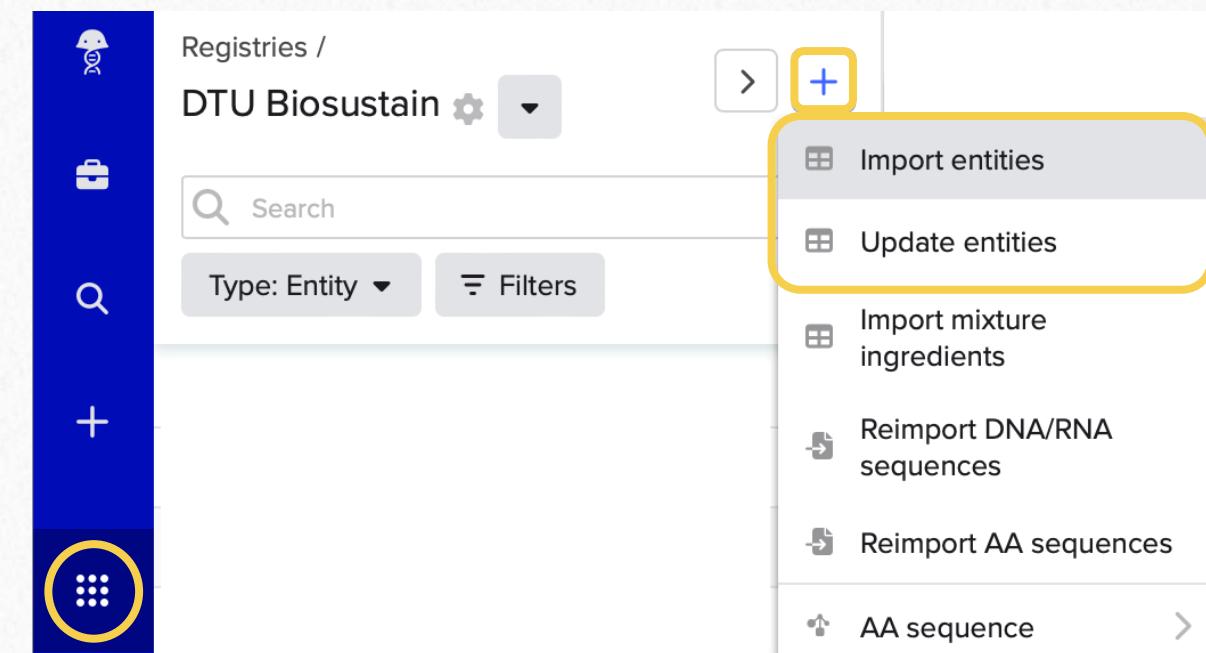
Registering entities: what to consider

3. You can create entities 1-by-1 or in bulk

To create entities in bulk:

- Upload a **spreadsheet**
Select *import or update entities*

(make sure that the values in the cells are the one that Benchling expects)



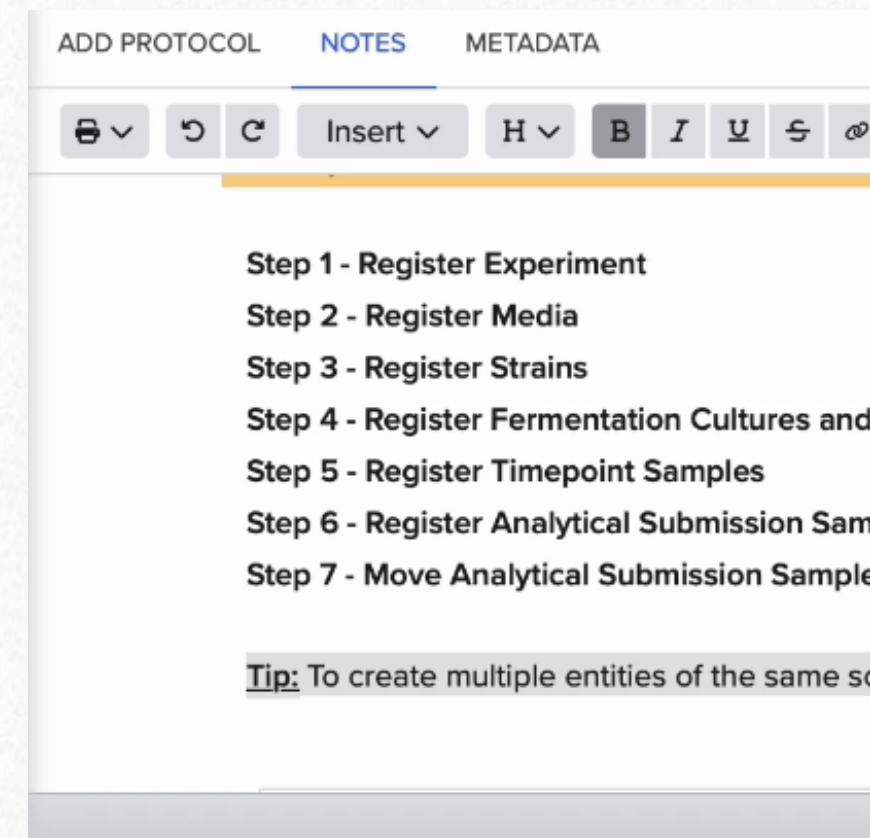
Registering entities: what to consider

3. You can create entities 1-by-1 or in bulk

To create entities in bulk:

- Use a registration table directly in the **Electronic Notebook**

Click “**Insert**” > “Registration table” >
Select Schema



Registering entities: what to consider

4. Some entities have “batches” schemas

Batches = physical samples

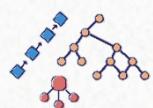
- When storing your sample long-term, create **batches** in **Benchling**
- This helps your team to track where samples are stored

Plasmid

Strain

Plasmid batch

Strain batch

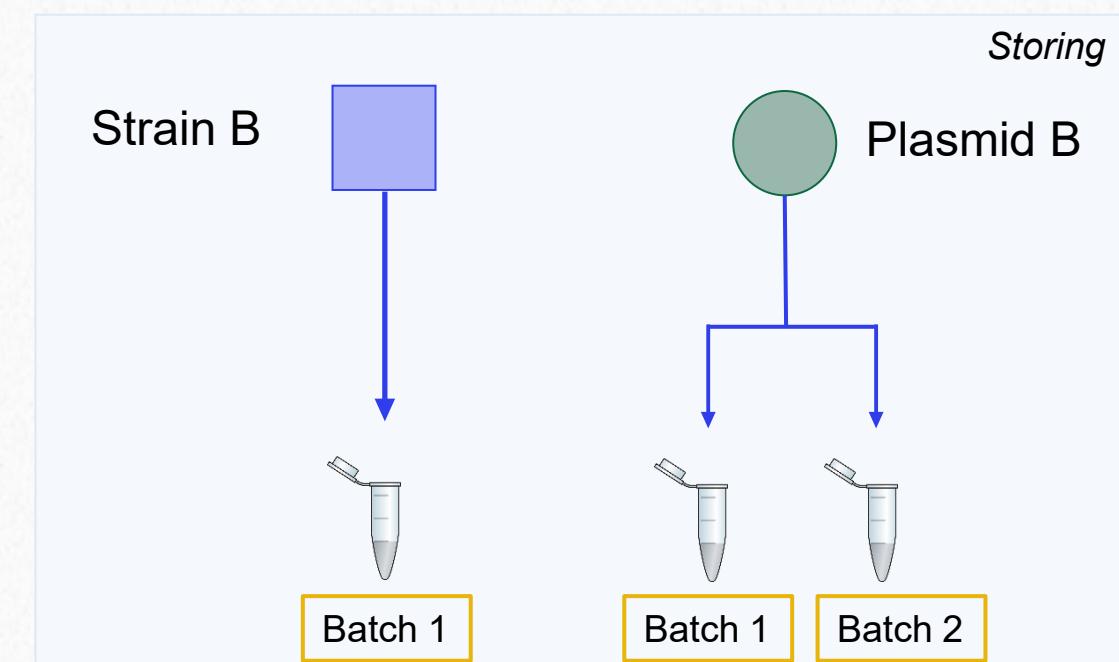


Registering entities: what to consider

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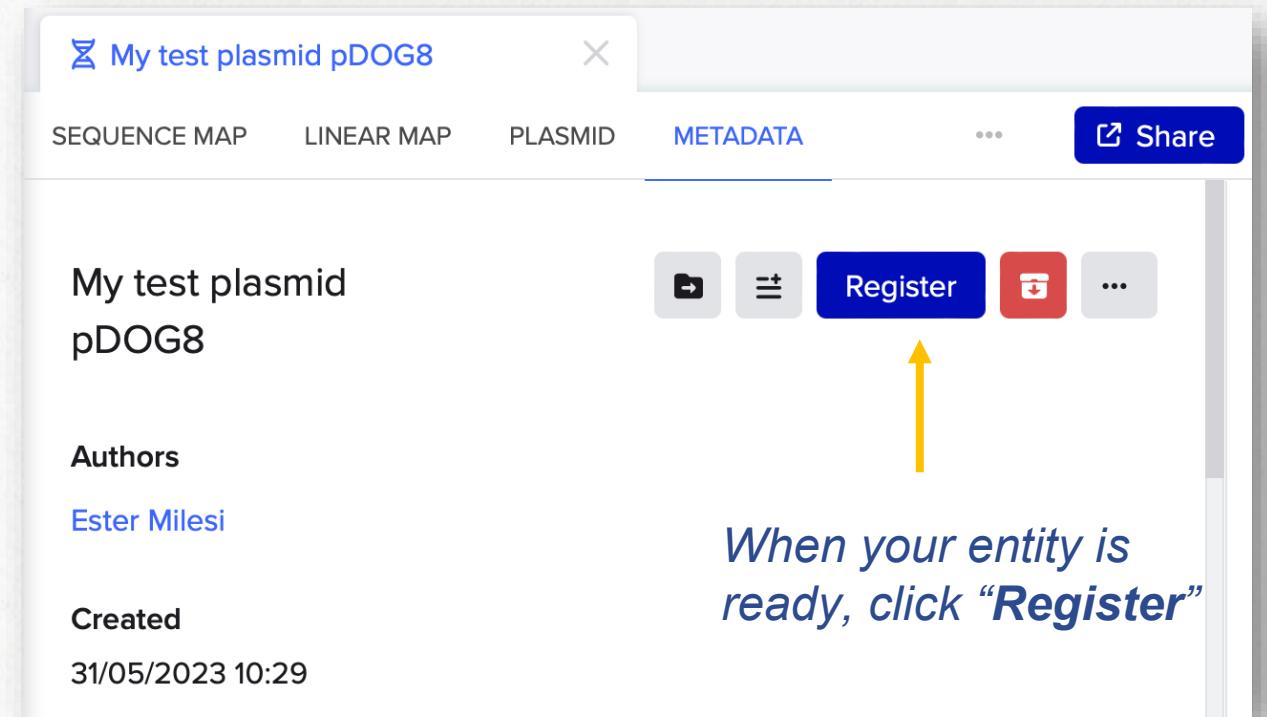


Registering entities: what to consider

5. Entities can exist outside of the Registry

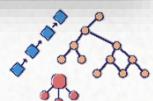
Sometime, entities are not automatically registered

- In order to register an entity, you need to **select the Schema** (entity type)
- Registering the entity will add a **unique identifier** to your sample



The screenshot shows a modal window titled "My test plasmid pDOG8". The window has tabs for "SEQUENCE MAP", "LINEAR MAP", "PLASMID", and "METADATA". The "METADATA" tab is selected. Below the tabs, there is a title "My test plasmid pDOG8" and a "Register" button. To the right of the "Register" button is a red "Save" button. A yellow arrow points from the text "When your entity is ready, click \"Register\"" to the "Register" button. The modal also contains fields for "Authors" (Ester Milesi) and "Created" (31/05/2023 10:29).

When your entity is ready, click "Register"

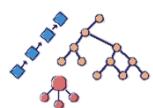


Good practices

(If you haven't done this consistently during your project)

At the end of your project:

- ✓ **Re-organize** your registered samples and entries and **give access** to your team
- ✓ Register **important strains/other samples** and their **location**, and print the label for the Box before moving it in the freezer



Storage:

track your samples

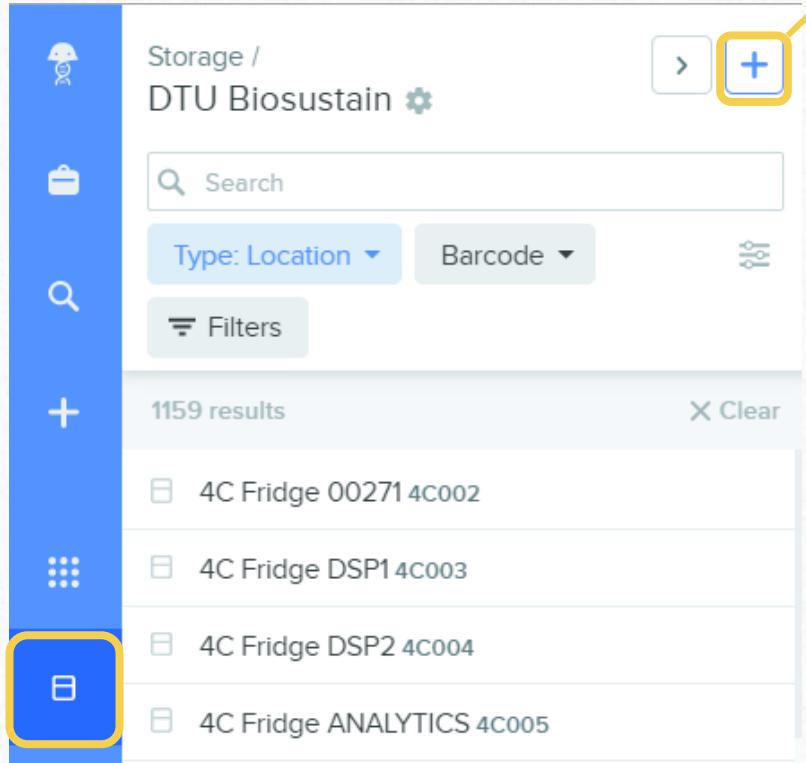


The Inventory

Benchling allows you to track the location of your samples

Room > Fridge > Box > Vial

If your fridge/location is not registered, let RDM support know



The screenshot shows the Benchling inventory interface. On the left is a vertical sidebar with icons for Home, Locations, Samples, and a plus sign. The main area has a header "Storage / DTU Biosustain" with a search bar, type dropdown (set to Location), barcode dropdown, and filter button. It displays "1159 results" and a list of locations:

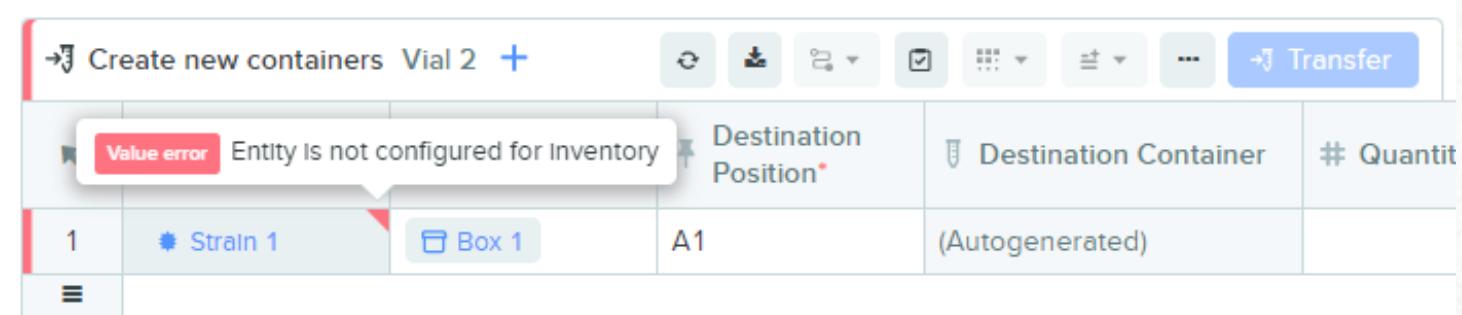
- 4C Fridge 00271 4C002
- 4C Fridge DSP1 4C003
- 4C Fridge DSP2 4C004
- 4C Fridge ANALYTICS 4C005

A yellow arrow points to the blue "+" button in the top right corner of the header, with the text "Create new box/plate/vial" above it.

The Inventory

Storable samples include:

- Batches
(e.g., “Strain batch”)
- Fermentation cultures
- Submission samples
(e.g., for analysis)



A screenshot of a laboratory management software interface. At the top, there's a toolbar with various icons and a button labeled "Transfer". Below the toolbar is a table titled "Create new containers Vial 2". The table has columns for "Destination Position*", "Destination Container", and "# Quantit". A row in the table shows a value of "1" in the first column, "Strain 1" in the second, and "Box 1" in the third. In the fourth column, under "Destination Position*", there is a dropdown menu with "A1" selected. A tooltip box appears over the "Destination Position*" column header, displaying the error message "Value error Entity is not configured for Inventory".

Create new containers Vial 2			Transfer
	Destination Position*	Destination Container	# Quantit
1	Strain 1	Box 1	A1 (Autogenerated)
Value error Entity is not configured for Inventory			

Error showed in an Inventory table **in the Notebook** when trying to move a “Strain” in a Vial instead of a “Strain batch”

The Inventory

Benchling allows you to track the volume or concentration in of each vial

- Example of a **Box** in Benchling

Update quantity

Current quantity	New quantity*	New units*
Not specified	20	uL

Training box esterm

METADATA RESULTS

Training box esterm

Barcode 81BOX984
Location DTU Building 220 / Training Location

1	2	3	4	5	6	7	8	9	
A	1	2	3	4	5	6	7	8	9
B	10	11	12	13	14	15	16	17	18
C	19	20	21	22	23	24	25	26	27
D	28	29	30	31	32	33	34	35	36
E	37	38	39	40	41	42	43	44	45
F	46	47	48	49	50	51	52	53	54
G	55	56	57	58	59	60	61	62	63
H	64	65	66	67	68	69	70	71	72
I	73	74	75	76	77	78	79	80	81

Fill containers Actions

Position	Container	Quantity
1 A1	Training vial e	20 uL
2 A2	Training vial fc	40 uL

Position 2 (A2)

Barcode VIAL25349 Quantity 40 uL
No contents in Position 2 (A2).

Lastly:
Archiving

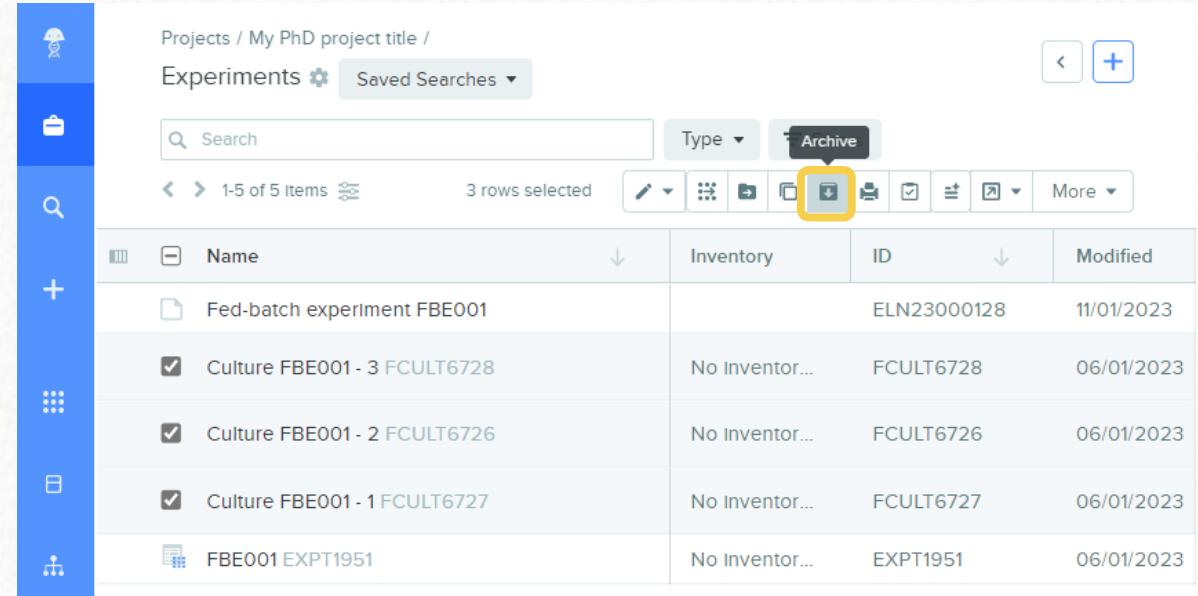


Archiving entities

Nothing can be deleted but only archived

- You can archive
 - ✓ Project folders
 - ✓ ELN entries
 - ✓ Entities

If you created them **by mistake** or if they are not relevant



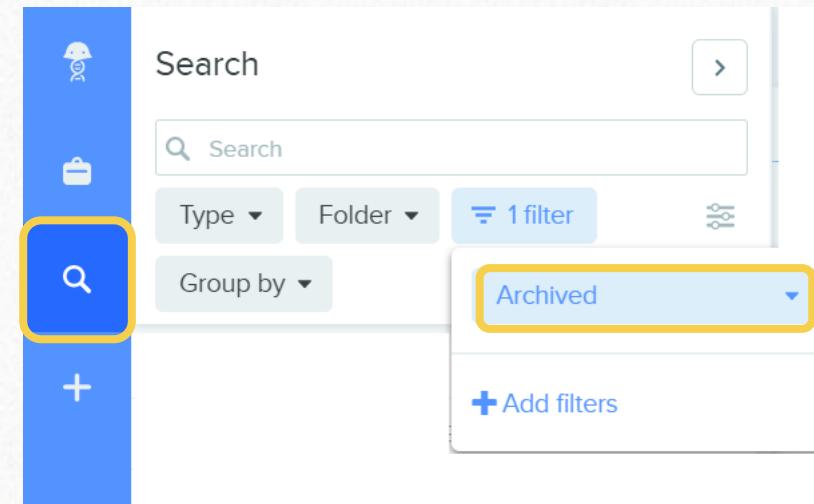
Name	Inventory	ID	Modified
Fed-batch experiment FBE001		ELN23000128	11/01/2023
Culture FBE001 - 3 FCULT6728	No Inventor...	FCULT6728	06/01/2023
Culture FBE001 - 2 FCULT6726	No Inventor...	FCULT6726	06/01/2023
Culture FBE001 - 1 FCULT6727	No Inventor...	FCULT6727	06/01/2023
FBE001 EXPT1951	No Inventor...	EXPT1951	06/01/2023



Archiving entities

It is still possible to go through archived items and unarchive them 

- In the search tab, filter by “Archive” status



Questions?



Agenda

Introduction to Benchling
and best practices

~ 30 min

Hands-on

~ 15 min

Agenda

Introduction to Benchling
and best practices

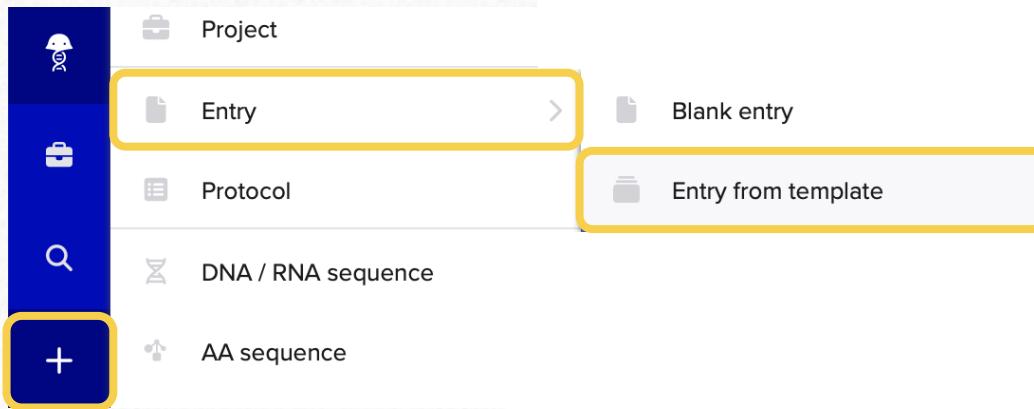
~ 30 min

Hands-on

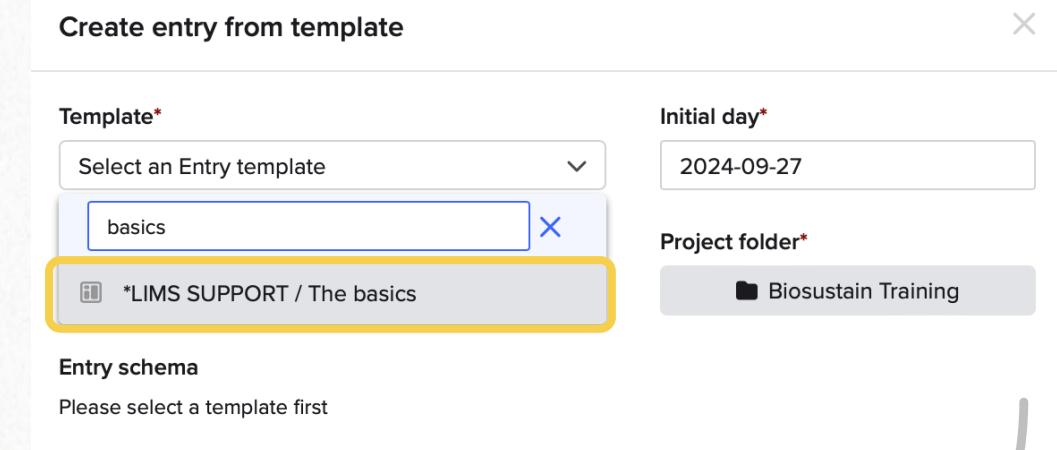
~ 15 min

Explore the Notebook functionalities

1 CREATE ENTRY FROM TEMPLATE

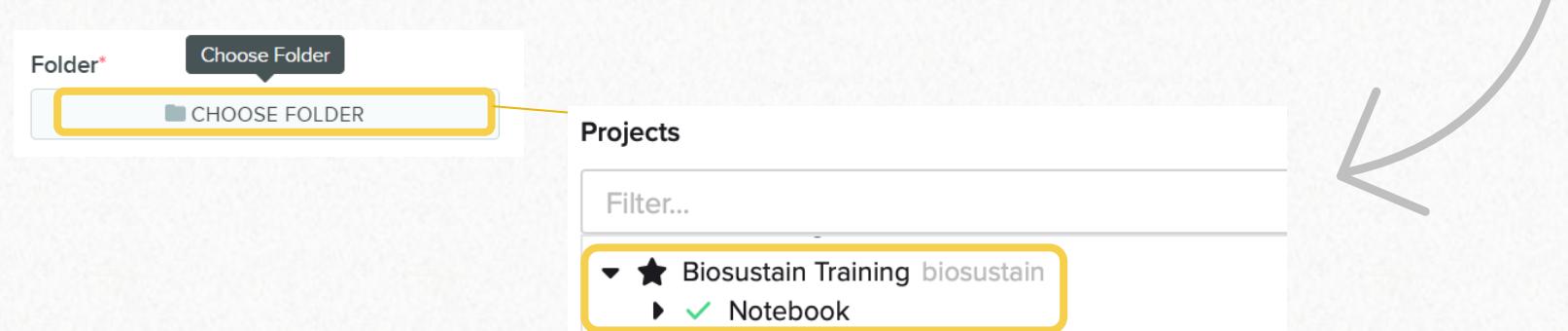


2 CHOOSE "THE BASICS" TEMPLATE



The screenshot shows the 'Create entry from template' dialog box. It includes fields for 'Template*' (set to 'Select an Entry template') and 'Initial day*' (set to '2024-09-27'). The 'Project folder*' field is set to 'Biosustain Training'. In the center, there is a search bar with 'basics' typed in, and below it, a list of templates. The first item in the list, '*LIMS SUPPORT / The basics', is highlighted with a yellow box. A blue circle with the number 2 is positioned above the dialog box.

3 SAVE IT IN THE BIOSUSTAIN TRAINING FOLDER



Questions?

