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BSCI:414 Lab 1--Benchling and PCR

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ABSTRACT

Lab 1 Overview
Discuss and Begin Lab Notebooks in Benchling
Import and Explore DNA in Benchling
Make primers in Benchling

PROTOCOL CITATION

Harley King 2020. BSCI:414 Lab 1--Benchling and PCR. **protocols.io** https://protocols.io/view/bsci-414-lab-1-benchling-and-pcr-bku6kwze

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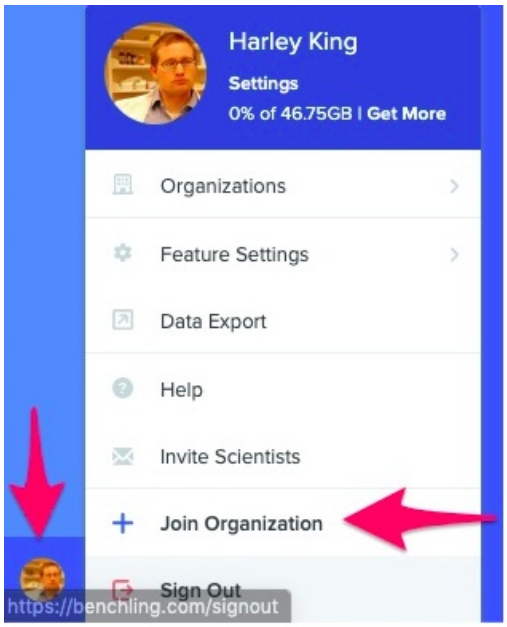
Benchling Lab Notebook Tutorial 10m

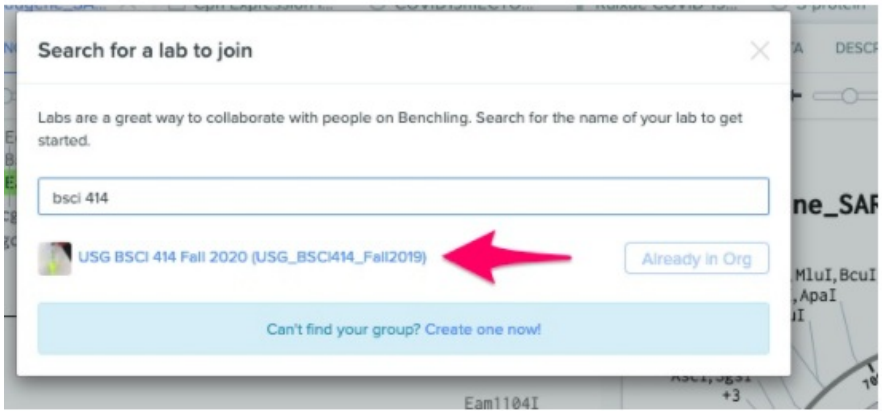
1 Introduce last semester's lab notebooks. 5m

2 Discuss features of a good lab notebook e.g. dates, navigation. 5m

Students Begin Lab Notebook 15m

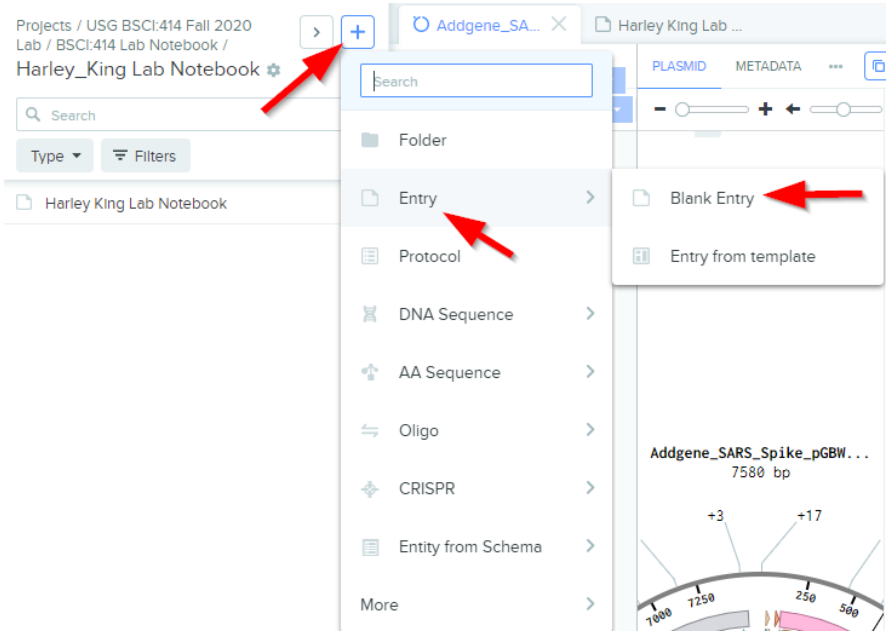
3 Sign into Benchling, join and find project "USG BSCI:414 Fall 2020 Lab". 15m





15m

4 Begin your own lab notebook by:
1. Creating folder entitled "FirstName LastNameLab Notebook" under Projects/USG BSCI:414 Fall 2020 Lab/"
2. Clicking "+" sign and "Entry>Blank Entry". Entitle this the same as the folder e.g. Harley King Lab Notebook"
3. Begin by including a link to this protocol.



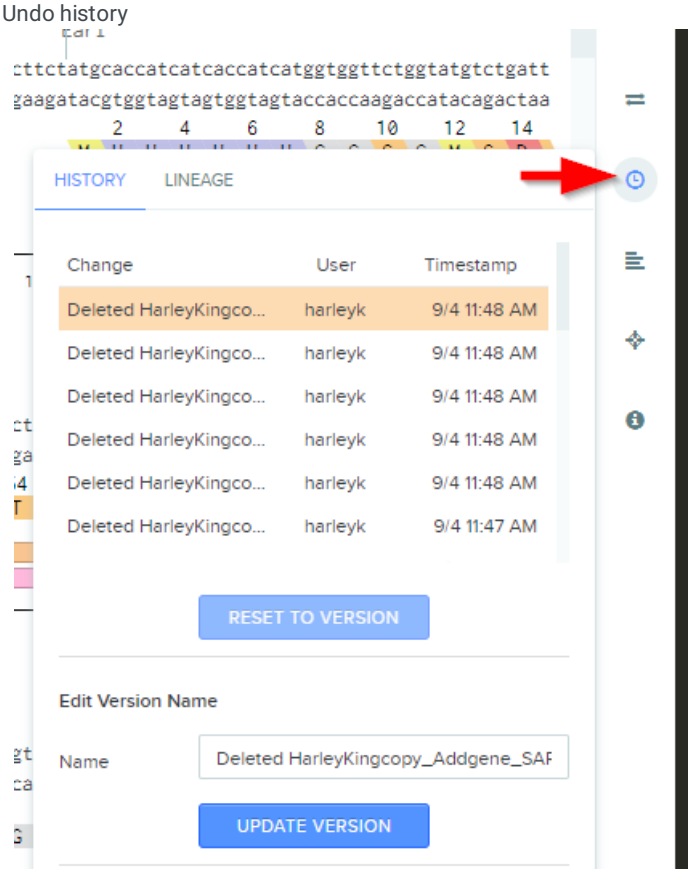
Create a Benchling Lab Notebook using Entry>Blank Entry

Benchling DNA Tutorial 15m

5 Overview of Benchling sequences 15m

1. Importing DNA
2. Copying/pasting DNA
3. Understanding DNA features
4. Undo history

5.



6 Students Import DNA sequences 30m

1. Create a new folder called "FirstName LastName Lab 1" under "Projects/USG BSCI:414 Fall 2020 Lab/Lab 1"
2. Import a DNA sequence and attempt the following:
   - Delete part of the DNA.
   - Undo the deletion.
   - Add bases to the DNA.
   - Delete the additional bases.
   - Do crazy stuff and then use the "Undo History" to reset the plasmid back to its original state.

Create and Run Virtual PCR Tutorial 15m

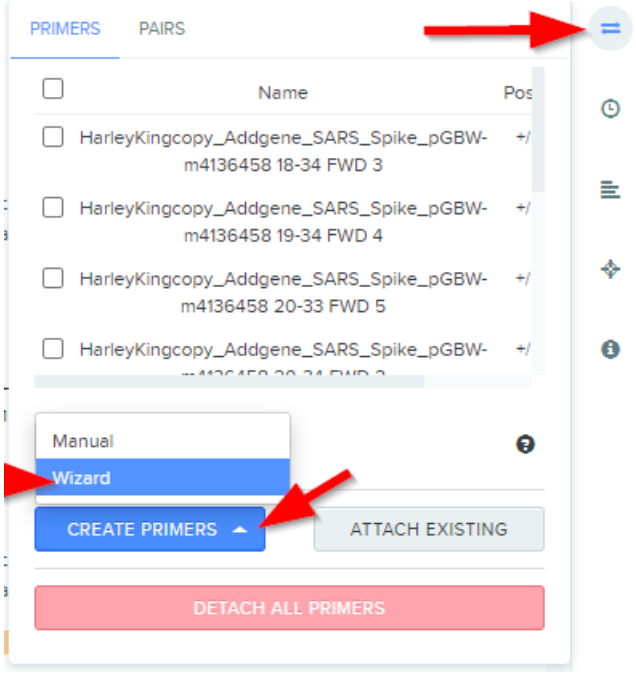
7 Import DNA sequence
Make primers

15m

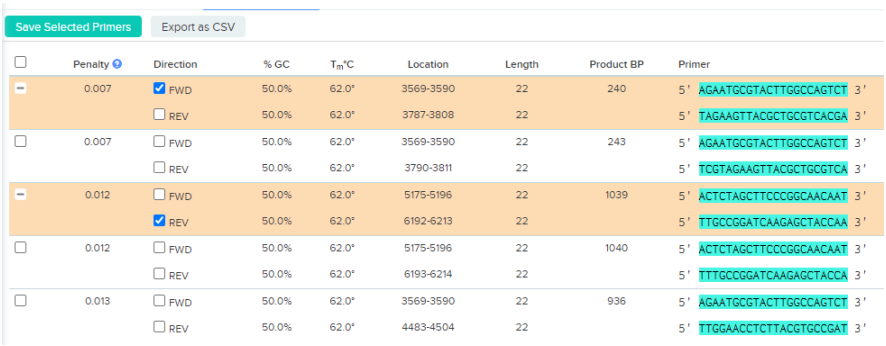
Students Create and Run Virtual PCR 1h

8 1h

1. Into your lab 1 folder, copy the sequence "Addgene_SARS_Spike_pGBW-m4136458" from "Projects/USG BSCI:414 Fall 2020 Lab/". Put your name in front of the sequence e.g. "HarleyKingcopy_Addgene_SARS_Spike_pGBW-m4136458".
2. Select a sequence from this plasmid < 3kb
3. Select primer icon from right side then "CREATE PRIMERS" then "Wizard".
4. The target range can be any shift-selected bp region or you can enter numbers like 0 to 3000. click "Generate Primers".
5. With luck, a few primer options will appear on the next screen. Notce that each contains a forward "FWD" and reverse "REV" primer. Both are necessary for successful PCR.
6. Select one "FWD" and one "REV" primer with a checkmark. Select "Save Selected Primers". In the box that pops up, save them to your Lab 1 folder.
7. Return to "Sequence Map". Scroll through the sequence and find your primers. Rename the primers by right clicking>Edit and changing the name.
8. Shift select between the primers. How many bp is the fragment? Note this in your lab notebook.



Select primer icon, then "Create Primers" then "Wizard".



Select 1 "FWD" primer and 1 "REV" primer.

Update Lab Notebooks

9 In your lab notebook, use "@ mention" to link the name of your plasmid. Also link the renamed primers. Note how many bp your PCR fragment is.