

# **Virtual DNA Laboratory Instructions and Tips**

Hello and welcome! You are about to enter a virtual DNA Lab where you will be able to practice your skills at preparing a sample for one of three massively parallel sequencing (MPS) workflows.

## **Here are a few tips for working in the Virtual DNA Lab:**

### Moving around the lab

- Your viewpoint will initially be set to an optimal location for the work you are about to perform.
- If you move your mouse cursor to the edges of the screen, your view will rotate in that direction. This will be useful for looking at equipment further down the lab bench.
- You can also move around using the ARROW KEYS and the letters A, D, W, and S.
  - Use UP and DOWN arrow keys to MOVE FORWARD and BACK.
  - Use LEFT and RIGHT arrow keys to TURN LEFT and RIGHT.
  - Use the A and D keys to STEP SIDEWAYS to the LEFT and RIGHT.
  - Use the W and S keys to LOOK UP or DOWN.

### Identifying Items

- Items can be identified by the object identifier text in the bottom middle of the screen, which is displayed by moving the mouse cursor over the item.
- Tubes and especially their caps are small and sometimes hard to see so be sure to take note of the object identifier text to help locate the item you want to work with.

### Protocol Tips

- Throughout the sequencing workflows, you will vortex and incubate samples. A green message at the top of your screen will indicate when you can proceed in the protocol after these processes.
- To guide you through the sequencing workflows, please refer to the protocols in your workbook as well as the text at the bottom of the screen. When you have successfully completed a step in the protocol, this text will update with the next step.

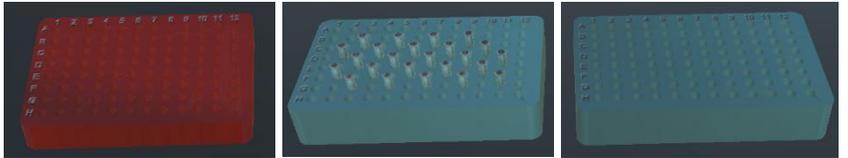
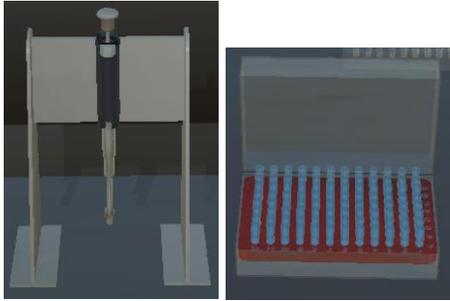
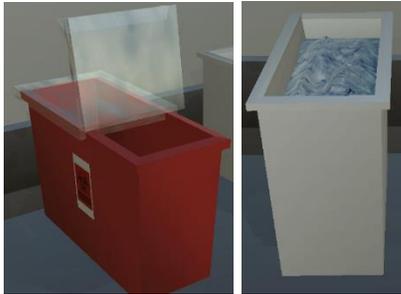
### Operating Tubes

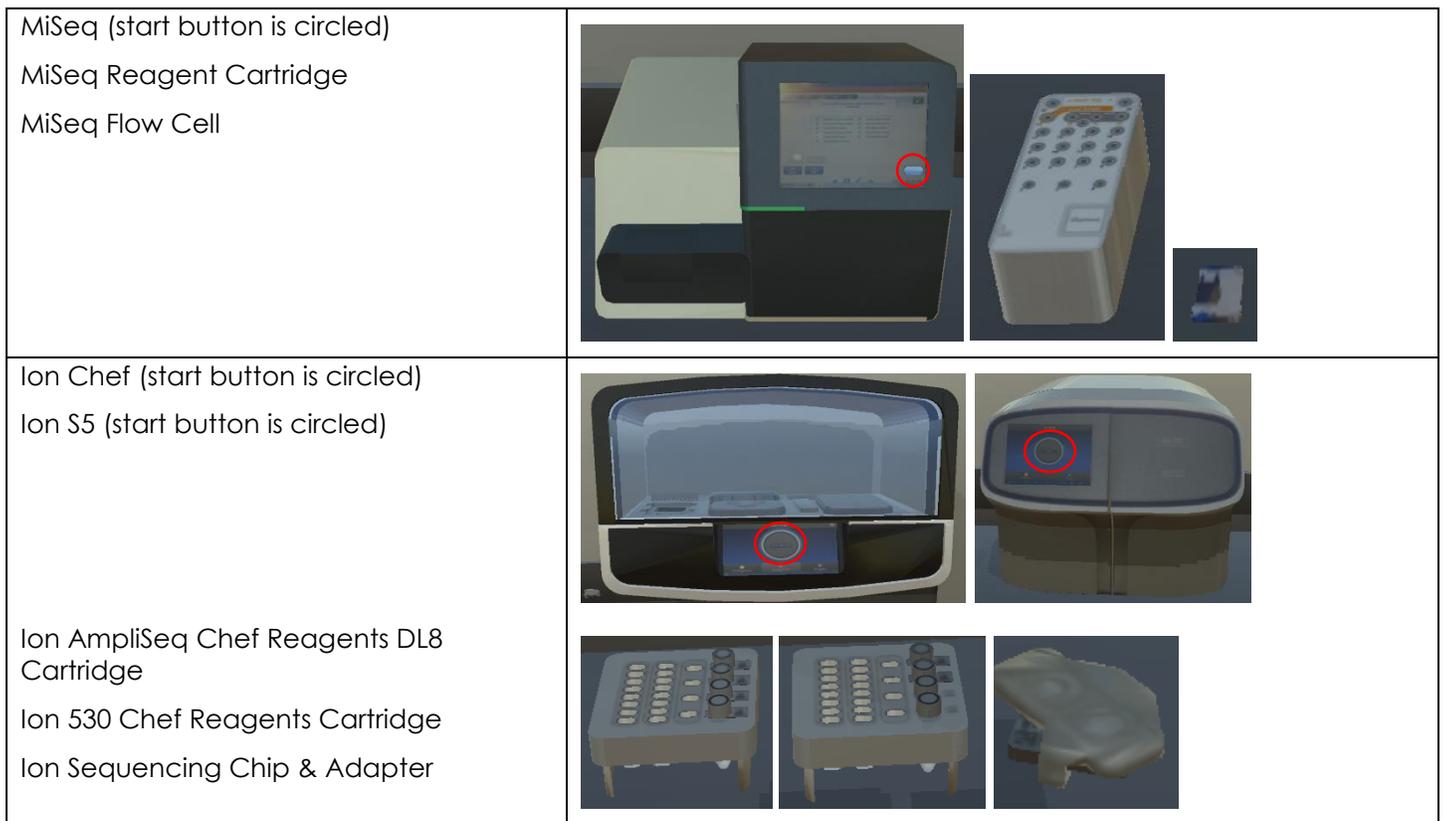
- When moving tubes from the master rack to the working rack, we ask that you use the same well number that the tube came from. Tube number and ID are displayed by moving the mouse cursor over the tube. Tube 1 will be found on the left side of the rack in the front row.
- To open the cap on a tube, just click on the cap with the mouse cursor. Be sure to click only the cap of the tube.

### Pipetting

- When you pick up the pipette, the bottom end of the pipette becomes the hotspot for picking up pipette tips, pipetting to/from tubes and plate wells, discarding pipette tips in the biohazard box, and identifying objects in the lab.
- To attach a new pipette tip to the pipette, first make sure the pipette tip box is open, then you only need to touch the bottom end of the pipette to any pipette tip in the box.
- To withdraw liquid from a tube or plate well, simply touch the tube or plate with the pipette hotspot. To dispense liquid into a tube or plate well, simply touch the tube or plate with the pipette hotspot. In both cases, when you are successful at hitting your pipetting target, you will briefly see a green message at the top of your screen. Once this message is displayed, you can proceed to the next step.

# Laboratory Items

<p>96-Well Plate Master Tube Rack Working Tube Rack</p>	
<p>Pipette &amp; Pipette Rack Pipette Tip Box</p>	
<p>Minifuge Vortex Magnetic Stand</p>	
<p>Biohazard Box Ice-Water Bath</p>	
<p>Microplate Shaker (start button is circled) Thermal Cycler (start button is circled) Thermomixer</p>	
<p>Plate Centrifuge (start button is circled)</p>	



### Tube Positions in the Master Tube Rack

Note: the number of tubes will differ between the three workflows but the order of tubes in the rack will always be the same

	1	2	3	4	5	6	7	8	9	10	11	12
A	○	○	○	○	○	○	○	○	○	○	○	○
B	○	○	○	○	○	○	○	○	○	○	○	○
C	○	○	21	○	22	○	23	○	24	○	25	○
D	○	16	○	17	○	18	○	19	○	20	○	○
E	○	○	11	○	12	○	13	○	14	○	15	○
F	○	6	○	7	○	8	○	9	○	10	○	○
G	○	○	1	○	2	○	3	○	4	○	5	○
H	○	○	○	○	○	○	○	○	○	○	○	○

## Corrections to Protocols

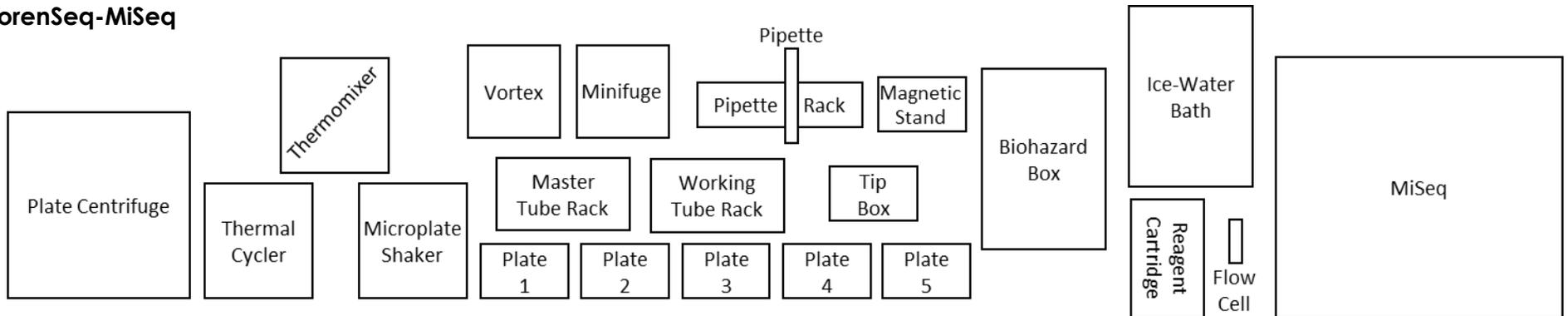
### ForenSeq DNA Signature Prep

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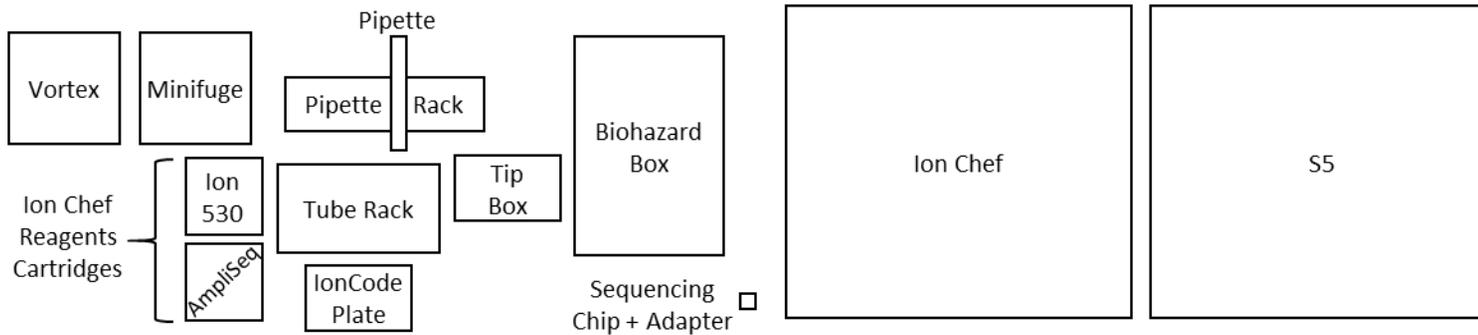
- 4 Transfer library to **NWP** plate
  - a Pick up **PLP** plate & place on magnetic stand (this assures no SPBs remain in the sample); vignette will play automatically
  - b Pick up pipette & tip
  - c Transfer library from PLP plate well A1 to NWP plate well A1
  - d Discard pipette tip & place pipette on pipette rack
  - e Discard PLP plate

# Laboratory Layouts

## ForenSeq-MiSeq



## Ion AmpliSeq



## PowerSeq-MiSeq

