

How to use the MAUI Hybridization System

The MAUI Hybridization System (www.biomicro.com) allows mixing of the labeled probe on the array surface. We have found that this leads to brighter signal and less of a gradient in intensity across the surface of the array. This is especially helpful with large arrays (32-tip or 48-tip). By using this system, more data can be attained due to much larger signal to noise ratios and gains in sensitivity allowing rare mRNAs to be detected.

We have been working with the SC mixers.

You can also find a more detailed Users Guide at the BioMicro website:
(<http://www.biomicro.com/docu.html>).

Prior to Starting

- 1.) Preheat the MAUI System to desired temperature by turning on the heat block – switch on front.

Probe Preparation

- 2.) Prepare 45-50uL probe sample in a 0.5mL eppendorf tube. We use an SSC/SDS mix as outlined in our other protocols. Boil for 2 minutes. Place at RT.

Slide Preparation

- 3.) Slide array into Assembly Jig– label end first. Remove adhesive backing from the Mixer and adhere Mixer to slide surface, being careful to press down at edges only. Remove array from Assembly Jig. Use plastic block (brayer) to fully seal all edges. Once fully adhered, the edges should appear darker upon visual inspection.

Loading Probe onto Array

- 4.) Load positive displacement tip on M-100 pipetman while pipet injector is depressed fully. It will make a “popping” noise once it is loaded, and the plunger will move upon depressing/compressing the pipet injector button.
- 5.) Lower pipet tip into probe mixture. Aspirate the probe mixture enough to see liquid in the pipet tip, then dispense the liquid to eject the air bubble in the pipet tip near the plunger. Once bubble is removed, proceed to fully aspirate probe into pipet tip.
- 6.) Press pipet tip firmly down on right fill port hole (near thumb holder). Pressure used should slightly bend the pipet tip, but not the Mixer. Dispense probe quickly into Mixer while holding Pipetman in vertical position. Once excess probe starts extruding through the vent port, quickly remove the pipet tip from the fill port.
- 7.) Press a black port plug onto the fill port. Use the wooden handled Port Plug Tool to push the port plug in place. Hold device securely and twist

while pulling plug holder in opposite direction. Plug should break from holder. Check to see that the plug appears firmly in place. Repeat with the vent port.

Setting up Hybridization Unit

- 8.) Place array in MAUI slide bay and press lid closed.
- 9.) Turn on pump -- switch on top of pump housing -- after placing arrays in the Maui. Choose Mix Mode 'D' -- best for SSC/SDS hybs like ours -- should already be selected. The lights for each chamber will illuminate -- should get green lights where there are arrays, amber lights in other chambers. Moisten the yellow hydration pad, and place on top of arrays. Close the black lid.

- Leave arrays for the desired time. Up to now, we have been using our standard incubation times. We believe that because the samples are actively mixed on the slide surface, one could likely hyb for a shorter period and receive the same results.

Breaking down the array

- 10.) We have been removing the array from the unit, placing the array back into the Slide Jig, and twisting the mixer off of the slide surface. Then we place the array in our standard wash solutions.