

## ***Procedure for making SU-8-2100 masters in the BMMSL***

### **Clean and spin**

- 1) Turn spinner ON and center wafer on 3" chuck.
- 2) Engage vacuum using the foot pedal. Make sure wafer is centered by setting the spin speed at a low RPM value and observing the wafer. Adjust as necessary.
- 3) Set speed to 3500 RPM and spray wafer with acetone twice followed by isopropyl alcohol (IPA) twice. Let the wafer spin for a 20 seconds.
- 4) Place wafer on a 125 °C hotplate. Let bake 10 min. Remove wafer and place on a clean wipe.
- 5) Turn hotplate OFF then ON and let cool to 65 °C. Set hotplate temperature to 65 °C.
- 6) Center wafer on 3" chuck.
- 7) Turn dispensing unit ON and place a grey dispensing tip on the SU-8 syringe. Attach the syringe to the dispensing unit.
- 8) Set dispensing unit pressure to 8 PSI and time to 90 s.
- 9) Use the foot pedal to start dispenser. Starting in the center of the wafer, dispense SU-8 in a swirl outward until timer stops.
- 10) Disengage vacuum on the spinner. Set timer knob to 40 s.
- 11) Engage vacuum. Slowly turn speed knob to 500 RPM (100 RPM/sec) and allow the wafer to spin for the remainder of the 40 seconds. Set speed knob back to zero RPM. Set timer to 20 sec.
- 12) Engage vacuum. Ramp to 2000 RPM over 8 seconds (250 RPM/sec).
- 13) When wafer stops, turn spin speed down to 0 and timer up to 120. Disengage vacuum.
- 14) Engage vacuum, set the wafer spinning at a very slow speed (60 RPM), and remove edge bead in one of two ways: A) With a weigh spatula, or B) with an acetone-soaked swab.
- 15) Disengage vacuum, remove wafer, and wipe off any SU-8 tendrils or excess SU-8 on the bottom of the wafer.
- 16) Place wafer on a 4" wafer on the hotplate. Once all wafers are on the hotplate, set it to 95 °C for 120 min and cover with aluminum lid. Enable AUTO OFF. It takes about 1 h for the hotplate to cool to room temperature.

### **Expose (using Blak-Ray B-100A UV Lamp)**

- 17) Turn on the UV lamp and let warm up for 15 minutes.
- 18) Once the hotplate is cool (step 16), carefully separate 3" wafers from 4" wafers using a razor blade.
- 19) On the exposure tray, build a sandwich with wafer, film, and filter glass. Make sure the emulsion (dull) side of the mask is down.
- 20) Place wafer sandwich under lamp for 90 seconds.
- 21) Place wafer back on hotplate. When all wafers have been positioned, set hotplate to 95 °C for 120 min. Enable AUTO OFF.

## **Develop**

- 22) When done, separate 3'' wafers from 4'' wafers; pour just enough SU-8 developer in a crystallization dish to cover the wafer; place one wafer in dish and periodically swirl until all unexposed PR is removed; wait 3 additional minutes; on the second wafer, wait 5 min once all SU-8 is gone.
- 23) Rinse with IPA; if white residue appears, rinse with acetone (2-3 sec) and then with IPA; blow dry with nitrogen.

## **Hard Bake**

- 24) Bake on hotplate at 150C for 50 min.

Last updated 3/03/2006  
Prepared for the Tiny Biotoools Lab

### **Change log**

3/3/06 GMW - Cover with aluminum lid