Production of Grooved Template for LCL grafts

Materials:

Isopropyl alcohol purchased from Sigma Aldrich

PGMEA purchased from Sigma Aldrich

SU-8 MicroSpray photoresist aerosol can purchased from MicroChem (store in refrigerator)

PDMS grooved 1x1x5 micron grooved molds obtained from Drexel

Methods

Initial setup:

1. Remove SU8 MicroSpray from refrigerator 1 hour prior to use

2. Preheat ovens to 95° C

3. Construct aluminum foil setup in hood to prevent splattering of MicroSpray

Coating:

1. Shake MicroSpray can vigorously 10 times, wait 5 minutes.

2. Clean drill bit by rinsing in isopropyl alcohol (never use water)

3. Place drill bit in drill and rotate at slowest speed while spraying the MicroSpray. Hold can 3 in. from surface. Perform this step in the aluminum foil setup in the hood.

4. Wait 5-10 minutes for bubbles on the drill bit surface to disappear.

Baking and annealing:

1. Bake coated drill bit for 10 minutes at 95° C.

2. Carefully wrap PDMS mold around drill bit and roll to ensure the grooves have been impressed.

3. Remove PDMS layer

4. Expose coated drill bit to UV light (250 mJ/cm^2 350-450 nm)

5 Bake again for 3 minutes at 95 C.

6. Develop for 5 minutes in SU-8 developer (PGMEA) by submerging drill bit in a graduated cylinder filled with PGMEA and swirling.

7. Dry, return to developer if white residue is visible on drill bit. Dry and repeat if necessary.

By: Rebecca Margolies