

Preparing Poly-lysine Slides for Microarrays Protocol

DeRisi Lab, UC San Francisco, June 2001

The following protocol is for coating 180 slides with poly-l-lysine.

- Be sure slide racks are bent slightly inwards in the middle to hold slides more securely.
- Do NOT use powdered gloves at any time during this protocol.
- To avoid dust, try to keep slides covered or submerged in solution at all times.
- Have at least two batches of poly-lysine slides per printing.
- Use calcium and magnesium free PBS in this protocol.
- Use only glass beakers for this protocol.

Caution: Wear eye protection, gloves, and lab coat.

Materials

NaOH pellets

95% EtOH

Gold Seal Microslides

Metal slide racks (Shandon Lipshaw)

Plastic slide box

MilliQ H₂O

1X PBS (filtered)

poly-l-lysine

Protocol

1. Prepare wash solution (wear eye protection, gloves, and lab coat):
 - a. dissolve 200g NaOH pellets in 800 ml H₂O
 - b. add additional NaOH pellets until solution is saturated
 - c. add 1200 ml 95% EtOH
 - d. add additional H₂O until solution clears
2. Rinse slide dishes completely with H₂O. Add one rack of Gold Seal Microslides (30 slides/rack) per slide dish.
3. Pour wash solution over slides and cover. Shake gently for at least 1 hour, but less than overnight. (This wash removes any residual oil and debris from these "precleaned" slides).
4. Rinse each rack individually with tap-distilled water for about 30 seconds, making sure to rinse both surfaces of each slide. After rinsing, submerge the racks in a 4 L beaker filled with MilliQ H₂O. Stack the racks so they all fit in the same beaker. It is best to let the slides sit overnight in H₂O to ensure the removal of all NaOH.

5. Prepare the poly-lysine solution in individual slide dishes
 - 285 ml H₂O
 - 35 ml 1X PBS (filtered)
 - 30 ml poly-l-lysine
6. Remove each rack from 4 L beaker of H₂O, drain briefly, and submerge in poly-lysine solution. Shake gently for 30 to 60 minutes.
7. Rinse each rack individually by removing from poly-lysine, draining briefly, and submerging in a fresh 4 L beaker of H₂O. Twist the rack gently back and forth to rinse, then place it in the centrifuge.
8. Spin in tabletop centrifuge (GS-6KR) at 530 rpm for 2 minutes to dry. (It is not a bad idea to wipe down the inside of the centrifuge before you spin. This will remove dust that could otherwise wind up on your slides.)
9. Dry slides in vacuum oven for 10 - 30 minutes at 50 °C.
10. Store slides in a clean plastic box for AT LEAST 14 days before spotting DNA. We do NOT recommend using slides that are more than 4 months old. The hydrophobicity of a slide can be tested by watching a drop of water slide down its surface.

Note: It is possible to re-use poly-lysine solution if you are preparing several batches of slides; Simply filter and store at 4 °C in a plastic container.