

Matrigel Process flow

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Gui Chen conduct the process

Process	Steps	Parameters	Note
Starting wafers	4inch (100) with 290nm SiO ₂		
Wafer cleaning	Piranha solution	Add H ₂ O ₂ to H ₂ SO ₄ with ratio 1:1	The temperature of solution will increase
	DI wafer rinse		
	N ₂ dry		
Photolithography	HMDS treatment		Improve PR adhesion
	S1813 spin coating	500rpm 30sec then 3000rpm 30sec	The rinse should cover ½ of the wafer
	Soft bake	Oven 90C 30min	Measure PR thickness with Nanospec
	Exposure	Intensity	
	Developing	Developer MF 319 30sec with shaking the beaker	Observe the pattern under microscope
	DI water rinse		
	N ₂ dry		
	Hard bake	Oven 120C 30min	To improve chemical resistance
Oxide etching	BOE ~3min	Etching rate 100nm/min	Need to wear protective equipment. The backside wafer should be hydrophobic once oxide is removed
	DI wafer rinse		
	N ₂ dry		
Remove PR	Acetone	1min	
	DI water rinse		
	N ₂ dry		
KOH etching	45% KOH@80C		Need to check etching rate
	DI water rinse		
	N ₂ dry		Measure the depth with dekteck
Remove oxide	BOE ~3min		
	DI water rinse		
	N ₂ dry		
PDMS mold	Mix 184 A:B with ratio 10:1	Pour 184 on the silicon wafer	The edge of the wafer should be tapped
	Vacuum	Wait overnight	Vacuum is used to removed bubbles
	Peel-off the mold Cut PDMS with a knife		The thickness of PDMS ~1mm
Matrigel molding	Put a droplet of matrigel on glass		Solvent? Volume?
	Place down PDMS mold		
	Vacuum, wait overnight		