Supporting information

Hydrophilic Composite Elastomeric Mold for High-Resolution Soft Lithography

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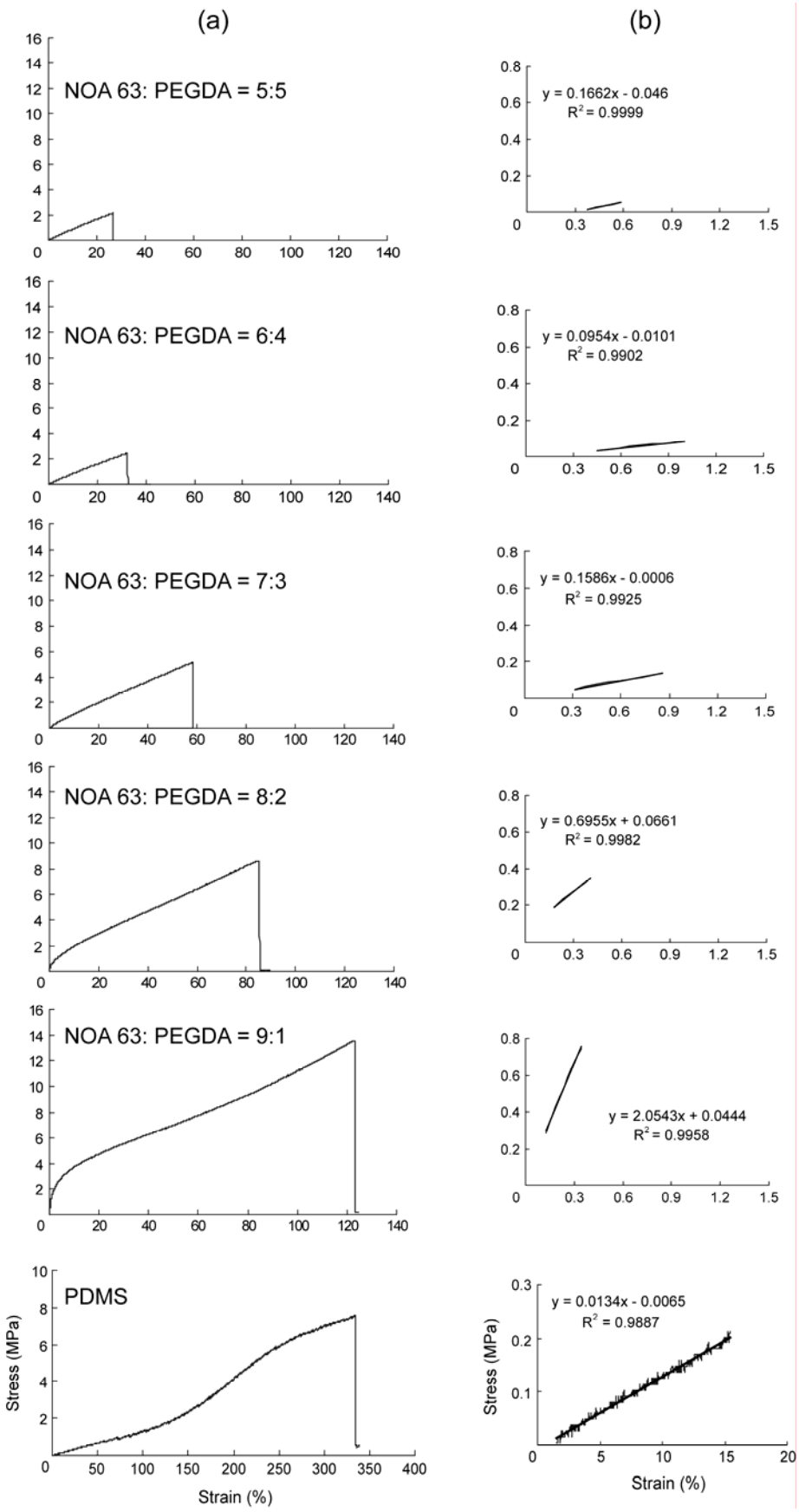
(a)
(b)
NOA 63: PEGDA = 5:5
y = 0.1662x - 0.046
R² = 0.9999
NOA 63: PEGDA = 6:4
y = 0.0954x - 0.0101
R² = 0.9902
NOA 63: PEGDA = 7:3
y = 0.1586x - 0.0006
R² = 0.9925
NOA 63: PEGDA = 8:2
y = 0.6955x + 0.0661
R² = 0.9982
NOA 63: PEGDA = 9:1
y = 2.0543x + 0.0444
R² = 0.9958
PDMS
y = 0.0134x - 0.0065
R² = 0.9887
Stress (MPa)
Strain (%)
Stress (MPa)
Strain (%)

Figure S1. (a) The stress-strain curves for the composite molds fabricated from various blending ratios of NOA 63 and PEGDA and that for PDMS. (b) The Young's modulus was obtained by measuring the slope of the axial stress-strain curve in the elastic region. The measurements were repeated five times and one representative stress-strain curve which exhibits the closest to the average value was chosen for each blending ratio.

Table 1. Mechanical characteristics of NOA 63-PEGDA composite molds and PDMS obtained from the stress-strain curves.

NOA 63-PEGDA = 5:5

	Tensile strength (MPa)	Elongation at break (%)	Young's modulus (MPa)
1	1.96	22.8	14.7
2	2.14	26.4	16.6
3	1.84	21.0	12.3
4	1.79	26.6	13.2
5	2.34	27.5	13.4
Avg	2.01	24.9	14.0
Stnd dev	0.20	2.51	1.49

NOA 63-PEGDA = 6:4

	Tensile strength (MPa)	Elongation at break (%)	Young's modulus (MPa)
1	2.03	33.5	7.36
2	2.73	36.3	9.66
3	2.41	31.8	9.54
4	2.01	27.6	11.1
5	2.51	34.8	9.70
Avg	2.34	32.8	9.47
Stnd dev	0.28	2.99	1.20

NOA 63-PEGDA = 7:3

	Tensile strength (MPa)	Elongation at break (%)	Young's modulus (MPa)
1	5.14	58.0	15.9
2	5.08	58.8	17.9
3	3.63	46.8	12.3
4	3.42	46.6	16.2
5	3.57	46.1	16.0
Avg	4.17	51.3	15.7
Stnd dev	0.77	5.84	1.83

NOA 63-PEGDA = 8:2

	Tensile strength (MPa)	Elongation at break (%)	Young's modulus (MPa)
1	7.88	104.7	28.5
2	7.21	101.2	27.8
3	6.04	80.02	29.0
4	8.62	85.04	69.6
5	10.7	104.2	73.7
Avg	8.09	95.0	45.7
Stnd dev	1.56	10.04	21.2

NOA 63-PEGDA = 9:1

	Tensile strength (MPa)	Elongation at break (%)	Young's modulus (MPa)
1	15.6	124.1	151.6
2	14.2	130.9	142.7
3	13.0	119.0	148.7
4	10.6	115.2	158.6
5	13.5	122.8	205.4
Avg	13.4	122.4	161.4
Stnd dev	1.64	5.27	22.6

PDMS

	Tensile strength (MPa)	Elongation at break (%)	Young's modulus (MPa)
1	7.66	341.5	1.70
2	7.29	311.2	1.55
3	7.41	331.3	1.22
4	7.59	334.3	1.34
Avg	7.49	329.6	1.45
Stnd dev	0.15	11.24	0.19

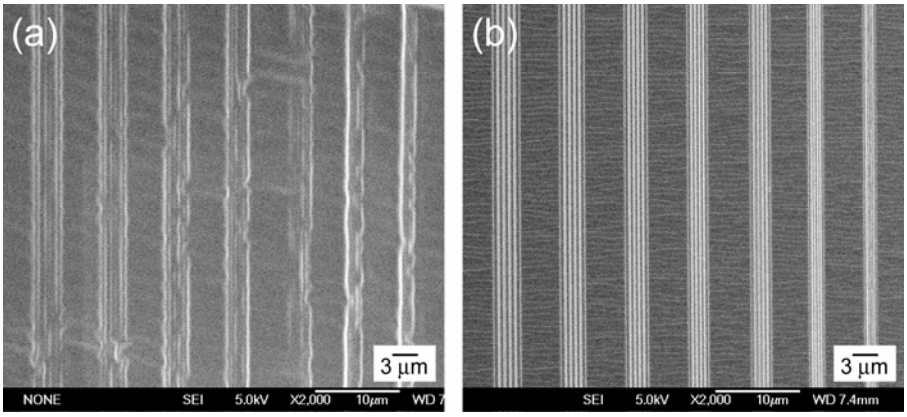

Figure S2. SEM images of nanoscale line patterns formed on the surface of (a) PDMS mold and (b) 6:4 (w/w) NOA 63-PEGDA composite mold. The depth of the line patterns is 200 nm and the smallest line width is 160 nm.