

## Enhancing the protein resistance of silicone via surface-restructuring PEO-silane amphiphiles with variable PEO length

Marc A. Rufin,<sup>a</sup> John A. Gruetzner,<sup>a</sup> Matthew J. Hurley,<sup>a</sup> Melissa L. Hawkins,<sup>a</sup>  
 Elizabeth S. Raymond,<sup>b</sup> Jeffery E. Raymond,<sup>c</sup> and Melissa A. Grunlan<sup>\*,a,d</sup>

<sup>a</sup>Department of Biomedical Engineering, <sup>b</sup>Department of Neuroscience and Experimental Therapeutics, <sup>c</sup>Department of Chemistry, <sup>d</sup>Department of Materials Science and Engineering  
 Texas A&M University, College Station, TX 77843-3120

\*E-mail: mgrunlan@tamu.edu

**Table S1.** Static water contact angles (°) measured on surface-grafted silicon wafers. Each value reported is the average and standard deviation of measurements performed in triplicate on four identically prepared samples (12 measurements total).

		$\theta_{\text{static}} @ 15 \text{ sec}$	$\theta_{\text{static}} @ 2 \text{ min}$
<b>Siloxane-control</b>		91.6 ± 3.7	89.7 ± 4.6
<b>n = 3</b>	<b>Control</b>	59.0 ± 2.3	56.5 ± 1.7
	<b>Amphiphile</b>	95.2 ± 0.7	93.7 ± 0.7
<b>n = 8</b>	<b>Control</b>	44.3 ± 1.1	42.3 ± 1.2
	<b>Amphiphile</b>	89.7 ± 2.1	87.9 ± 2.2
<b>n = 16</b>	<b>Control</b>	39.8 ± 2.9	37.1 ± 3.0
	<b>Amphiphile</b>	79.5 ± 7.5	76.8 ± 8.4

**Table S2.** Static water contact angles (°) measured on bulk-modified silicone films. Each value is the average and standard deviation of three water droplets measured on the same film.

	<b>Unmodified silicone</b>	<b>Siloxane-control</b>	<b>n = 3</b>		<b>n = 8</b>		<b>n = 16</b>	
			<b>Control</b>	<b>Amphiphile</b>	<b>Control</b>	<b>Amphiphile</b>	<b>Control</b>	<b>Amphiphile</b>
<b>Initial</b>	114.8 ± 1.1	115.9 ± 0.6	111.6 ± 1.6	117.1 ± 0.7	112.6 ± 0.4	117.2 ± 0.6	115.3 ± 1.0	115.2 ± 3.3
<b>15 sec</b>	114.6 ± 1.1	111.6 ± 0.2	108.0 ± 1.2	94.9 ± 0.8	104.9 ± 0.6	63.6 ± 0.4	114.4 ± 0.8	110.0 ± 1.1
<b>30 sec</b>	114.4 ± 1.1	109.3 ± 0.3	104.3 ± 1.0	90.9 ± 0.6	102.6 ± 0.7	46.9 ± 0.6	111.3 ± 1.1	104.2 ± 0.4
<b>1 min</b>	114.2 ± 1.0	107.2 ± 0.3	101.8 ± 1.0	88.3 ± 0.4	100.7 ± 0.9	38.5 ± 0.7	107.4 ± 0.7	90.7 ± 1.4
<b>2 min</b>	113.2 ± 1.2	105.0 ± 0.2	99.3 ± 0.9	85.9 ± 0.3	99.1 ± 1.1	32.0 ± 0.5	105.2 ± 0.6	66.4 ± 0.9
<b>3 min</b>	111.1 ± 1.7	103.5 ± 0.3	97.7 ± 0.9	84.3 ± 0.4	97.8 ± 1.3	29.0 ± 0.5	103.6 ± 0.5	56.6 ± 0.8

**Table S3.** Fluorescence intensity measured on bulk-modified silicone films before (absolute) and after normalizing all values to the signal measured on unmodified silicone.

		Absolute	Normalized
<b>Unmodified</b>		2280.56 ± 41.03	100.00 ± 1.80
<b>Siloxane-control</b>		2162.79 ± 28.75	94.84 ± 1.26
<b>n = 3</b>	<b>Control</b>	2314.98 ± 41.91	101.51 ± 1.84
	<b>Amphiphile</b>	3013.66 ± 30.90	132.15 ± 1.36
<b>n = 8</b>	<b>Control</b>	3303.40 ± 146.60	144.85 ± 6.43
	<b>Amphiphile</b>	1.98 ± 1.18	0.09 ± 0.05
<b>n = 16</b>	<b>Control</b>	1438.91 ± 976.56	63.09 ± 42.82
	<b>Amphiphile</b>	4.21 ± 1.27	0.18 ± 0.06