

**Protein resistance efficacy of PEO-silane amphiphiles:
Dependence on PEO-segment length and concentration in silicone**

Marc A. Rufin,^a Mikayla E. Barry,^a Paige A. Adair,^a Melissa L. Hawkins,^a
Jeffery E. Raymond,^b and Melissa A. Grunlan^{*,a,c}

^aDepartment of Biomedical Engineering, ^bDepartment of Chemistry,
and ^cDepartment 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 silicone bulk-modified with $n = 3$. Each value is the average and standard deviation of three water droplets measured on the same film.

	<u>Unmodified</u>	<u>5 μmol</u>	<u>10 μmol</u>	<u>25 μmol</u>	<u>50 μmol</u>	<u>100 μmol</u>
t=0	115.7 \pm 0.7	115.1 \pm 1.2	112.6 \pm 0.6	114.4 \pm 0.5	116.5 \pm 0.7	114.1 \pm 0.8
15 sec	115.7 \pm 0.5	115.0 \pm 0.9	112.7 \pm 0.4	101.7 \pm 0.5	92.3 \pm 0.4	84.4 \pm 0.7
30 sec	115.5 \pm 0.5	115.0 \pm 1.0	106.1 \pm 0.4	96.1 \pm 0.7	89.8 \pm 0.5	82.7 \pm 0.8
1 min	115.2 \pm 0.5	108.8 \pm 0.7	100.7 \pm 0.4	93.1 \pm 0.6	88.3 \pm 0.4	81.2 \pm 0.7
2 min	113.9 \pm 0.7	104.9 \pm 0.6	97.3 \pm 0.2	91.2 \pm 0.6	86.7 \pm 0.4	79.6 \pm 0.8
3 min	112.6 \pm 0.4	102.6 \pm 0.6	95.6 \pm 0.4	90.1 \pm 0.7	85.6 \pm 0.3	78.4 \pm 0.8
4 min	111.9 \pm 0.4	101.1 \pm 0.7	94.5 \pm 0.4	89.1 \pm 0.7	84.6 \pm 0.3	77.3 \pm 0.8
5 min	109.7 \pm 0.7	100.1 \pm 0.7	93.5 \pm 0.5	88.2 \pm 0.7	83.7 \pm 0.3	76.2 \pm 0.8

Table S2. Static water contact angles (°) measured on silicone bulk-modified with $n = 8$. Each value is the average and standard deviation of three water droplets measured on the same film.

	<u>Unmodified</u>	<u>5 μmol</u>	<u>10 μmol</u>	<u>25 μmol</u>	<u>50 μmol</u>	<u>100 μmol</u>
t=0	115.7 \pm 0.7	116.5 \pm 2.4	117.1 \pm 0.5	115.8 \pm 0.2	118.5 \pm 1.8	119.8 \pm 0.8
15 sec	115.7 \pm 0.5	115.0 \pm 1.1	117.1 \pm 0.6	97.8 \pm 2.0	70.9 \pm 2.0	45.8 \pm 0.6
30 sec	115.5 \pm 0.5	115.0 \pm 1.1	111.2 \pm 0.4	77.7 \pm 0.5	53.7 \pm 1.2	38.0 \pm 0.6
1 min	115.2 \pm 0.5	111.0 \pm 1.0	102.5 \pm 0.6	61.8 \pm 1.0	45.8 \pm 1.2	32.8 \pm 0.2
2 min	113.9 \pm 0.7	106.8 \pm 0.7	89.7 \pm 1.7	50.0 \pm 0.8	39.3 \pm 0.8	29.5 \pm 0.3
3 min	112.6 \pm 0.4	103.7 \pm 0.5	80.4 \pm 0.4	44.4 \pm 1.0	35.3 \pm 0.6	27.5 \pm 0.3
4 min	111.9 \pm 0.4	100.6 \pm 0.6	75.4 \pm 0.5	40.7 \pm 0.8	32.6 \pm 0.3	26.1 \pm 0.3
5 min	109.7 \pm 0.7	98.1 \pm 0.7	71.6 \pm 0.4	37.7 \pm 0.6	30.2 \pm 0.4	24.9 \pm 0.3

Table S3. Static water contact angles (°) measured on silicone bulk-modified with $n = 16$. Each value is the average and standard deviation of three water droplets measured on the same film.

	<u>Unmodified</u>	<u>5 μmol</u>	<u>10 μmol</u>	<u>25 μmol</u>	<u>50 μmol</u>	<u>100 μmol</u>
t=0	115.7 \pm 0.7	115.8 \pm 0.4	117.1 \pm 0.7	114.8 \pm 1.1	115.5 \pm 0.9	114.7 \pm 2.2
15 sec	115.7 \pm 0.5	115.7 \pm 0.4	117.0 \pm 0.9	114.8 \pm 0.9	110.7 \pm 0.7	97.9 \pm 9.9
30 sec	115.5 \pm 0.5	115.5 \pm 0.4	116.9 \pm 1.0	109.3 \pm 1.0	103.2 \pm 3.5	90.7 \pm 8.8
1 min	115.2 \pm 0.5	115.3 \pm 0.5	112.2 \pm 0.7	104.8 \pm 0.6	93.9 \pm 4.9	75.9 \pm 4.8
2 min	113.9 \pm 0.7	109.8 \pm 0.3	109.1 \pm 0.6	97.9 \pm 0.5	75.5 \pm 2.8	58.8 \pm 1.2
3 min	112.6 \pm 0.4	108.3 \pm 0.5	107.0 \pm 0.7	90.4 \pm 0.5	64.9 \pm 1.4	49.3 \pm 2.9
4 min	111.9 \pm 0.4	107.2 \pm 0.5	105.2 \pm 0.6	82.7 \pm 0.2	58.7 \pm 0.9	45.1 \pm 1.7
5 min	109.7 \pm 0.7	106.1 \pm 0.6	103.4 \pm 0.6	75.8 \pm 0.1	54.4 \pm 0.8	41.8 \pm 1.0

Table S4. Fluorescence intensity measured on unmodified and bulk-modified silicone films before (absolute) and after normalizing all values to the signal measured on unmodified silicone.

		Absolute	Normalized
Unmodified		1769.98 \pm 102.20	100.00 \pm 5.77
5 μmol	n = 3	1465.25 \pm 51.25	82.78 \pm 2.90
	n = 8	698.70 \pm 44.96	39.47 \pm 2.54
	n = 16	83.62 \pm 9.10	4.72 \pm 0.51
10 μmol	n = 3	1243.34 \pm 80.01	70.25 \pm 4.52
	n = 8	3.65 \pm 0.89	0.21 \pm 0.05
	n = 16	24.43 \pm 9.25	1.38 \pm 0.52
25 μmol	n = 3	1726.23 \pm 121.68	97.53 \pm 6.87
	n = 8	3.52 \pm 0.24	0.20 \pm 0.01
	n = 16	8.52 \pm 2.01	0.48 \pm 0.11
50 μmol	n = 3	1984.62 \pm 102.27	112.13 \pm 5.78
	n = 8	5.06 \pm 1.25	0.29 \pm 0.07
	n = 16	3.27 \pm 0.99	0.18 \pm 0.06
100 μmol	n = 3	1603.22 \pm 98.78	90.58 \pm 5.58
	n = 8	2.31 \pm 0.27	0.13 \pm 0.01
	n = 16	4.26 \pm 0.67	0.24 \pm 0.04