



1 Article

2 **Supplementary Information**

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4 **S1. P-values from one-way ANOVA and multiple comparisons on and between sample groups**

5 p-values from statistical analyses performed using one-way ANOVA and multiple comparisons
6 between sample groups are presented in Table S1. More information on these statistics can be
7 presented in Supplemental Information.

8 Table S1: p-values from statistical analyses performed on Young's Modulus and Adhesion Force, by
9 sample and between sample groups.

		One-way ANOVA	Multiple comparisons to native		
			20min	1h	2h
Young's Modulus					
	Overlap	0.187	0.136	0.825	0.517
	Gap	0.235	0.397	0.159	0.049
Adhesive Force					
	Overlap	0.000	0.001	0.001	0.001
	Gap	0.000	0.001	0.001	0.001

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11 **S2. Statistical analyses on the Young's modulus of the overlap region of the native and antibody-**
12 **treated collagen fibrils**

13 *S2.1 One-way ANOVA*

Descriptives
Young's Modulus of Overlap

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
0	40	1.1428	.14000	.02214	1.0980	1.1875
20	40	1.1918	.15040	.02378	1.1436	1.2399
60	40	1.1500	.12009	.01899	1.1116	1.1884
120	40	1.1215	.17027	.02692	1.0670	1.1760
Total	160	1.1515	.14717	.01163	1.1285	1.1745

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ANOVA
Young's Modulus of Overlap

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.104	3	.035	1.619	.187
Within Groups	3.340	156	.021		
Total	3.444	159			

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16 S2.2 Post Hoc Tests

Multiple Comparisons
Young's Modulus of Overlap
LSD

(I) binding time	(J) binding time	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0	20	-.04900	.03272	.136	-.1136	.0156
	60	-.00725	.03272	.825	-.0719	.0574
	120	.02125	.03272	.517	-.0434	.0859
20	0	.04900	.03272	.136	-.0156	.1136
	60	.04175	.03272	.204	-.0229	.1064
	120	.07025*	.03272	.033	.0056	.1349
60	0	.00725	.03272	.825	-.0574	.0719
	20	-.04175	.03272	.204	-.1064	.0229
	120	.02850	.03272	.385	-.0361	.0931
120	0	-.02125	.03272	.517	-.0859	.0434
	20	-.07025*	.03272	.033	-.1349	-.0056
	60	-.02850	.03272	.385	-.0931	.0361

*. The mean difference is significant at the 0.05 level.

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18 S3. Statistical analyses on the Young's modulus of the gap region of the native and antibody-
19 treated collagen fibrils

20 S3.1 One-way ANOVA

Descriptives
Young's Modulus of Gap

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
0	40	1.2200	.15004	.02372	1.1720	1.2680
20	40	1.2503	.16074	.02542	1.1988	1.3017
60	40	1.2705	.13066	.02066	1.2287	1.3123
120	40	1.2908	.19030	.03009	1.2299	1.3516
Total	160	1.2579	.16005	.01265	1.2329	1.2829

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ANOVA
Young's Modulus of Gap

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.109	3	.036	1.434	.235
Within Groups	3.964	156	.025		
Total	4.073	159			

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26 S3.2 Post Hoc Tests

Multiple Comparisons
Young's Modulus of Gap
LSD

(I) binding time	(J) binding time	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0	20	-.03025	.03564	.397	-.1007	.0402
	60	-.05050	.03564	.159	-.1209	.0199
	120	-.07075*	.03564	.049	-.1412	-.0003
20	0	.03025	.03564	.397	-.0402	.1007
	60	-.02025	.03564	.571	-.0907	.0502
	120	-.04050	.03564	.258	-.1109	.0299
60	0	.05050	.03564	.159	-.0199	.1209
	20	.02025	.03564	.571	-.0502	.0907
	120	-.02025	.03564	.571	-.0907	.0502
120	0	.07075*	.03564	.049	.0003	.1412
	20	.04050	.03564	.258	-.0299	.1109
	60	.02025	.03564	.571	-.0502	.0907

*. The mean difference is significant at the 0.05 level.

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28 **S4. Statistical analyses on the Adhesion force of the overlap region of the native and antibody-**
29 **treated collagen fibrils**

30 S4.1 One-way ANOVA

Descriptives
Adhesive Force of Overlap

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
0	40	4.5000	.60000	.09487	4.3081	4.6919
20	40	5.3000	.80224	.12685	5.0434	5.5566
60	40	6.7000	.50230	.07942	6.5394	6.8606
120	40	8.2000	.40064	.06335	8.0719	8.3281
Total	160	6.1750	1.53192	.12111	5.9358	6.4142

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ANOVA
Adhesive Force of Overlap

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	317.900	3	105.967	299.254	.000
Within Groups	55.240	156	.354		
Total	373.140	159			

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36 S4.2 Post Hoc Tests

Multiple Comparisons
Adhesive Force of Overlap
LSD

(I) binding time	(J) binding time	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0	20	-.80000*	.13306	.000	-1.0628	-.5372
	60	-2.20000*	.13306	.000	-2.4628	-1.9372
	120	-3.70000*	.13306	.000	-3.9628	-3.4372
20	0	.80000*	.13306	.000	.5372	1.0628
	60	-1.40000*	.13306	.000	-1.6628	-1.1372
	120	-2.90000*	.13306	.000	-3.1628	-2.6372
60	0	2.20000*	.13306	.000	1.9372	2.4628
	20	1.40000*	.13306	.000	1.1372	1.6628
	120	-1.50000*	.13306	.000	-1.7628	-1.2372
120	0	3.70000*	.13306	.000	3.4372	3.9628
	20	2.90000*	.13306	.000	2.6372	3.1628
	60	1.50000*	.13306	.000	1.2372	1.7628

*. The mean difference is significant at the 0.05 level.

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38 S5. Statistical analyses on the Adhesion force of the gap region of the native and antibody-
39 treated collagen fibrils

40 S5.1 One-way ANOVA

Descriptives
Adhesive Force of Gap

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
0	40	4.8000	.60383	.09547	4.6069	4.9931
20	40	5.0000	.70274	.11111	4.7753	5.2247
60	40	5.3000	.40000	.06325	5.1721	5.4279
120	40	5.6000	.20631	.03262	5.5340	5.6660
Total	160	5.1750	.59389	.04695	5.0823	5.2677

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ANOVA
Adhesive Force of Gap

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14.700	3	4.900	18.473	.000
Within Groups	41.380	156	.265		
Total	56.080	159			

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45 S5.2 Post Hoc Tests

Multiple Comparisons
Adhesive Force of Gap
LSD

(I) binding time	(J) binding time	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0	20	-.20000	.11516	.084	-.4275	.0275
	60	-.50000*	.11516	.000	-.7275	-.2725
	120	-.80000*	.11516	.000	-1.0275	-.5725
20	0	.20000	.11516	.084	-.0275	.4275
	60	-.30000*	.11516	.010	-.5275	-.0725
	120	-.60000*	.11516	.000	-.8275	-.3725
60	0	.50000*	.11516	.000	.2725	.7275
	20	.30000*	.11516	.010	.0725	.5275
	120	-.30000*	.11516	.010	-.5275	-.0725
120	0	.80000*	.11516	.000	.5725	1.0275
	20	.60000*	.11516	.000	.3725	.8275
	60	.30000*	.11516	.010	.0725	.5275

*. The mean difference is significant at the 0.05 level.