

Supporting info

Understanding extracellular polymeric substances (EPS)-based hydrogel formation and properties at the nanoscale through MP-SPR and QCM-D techniques

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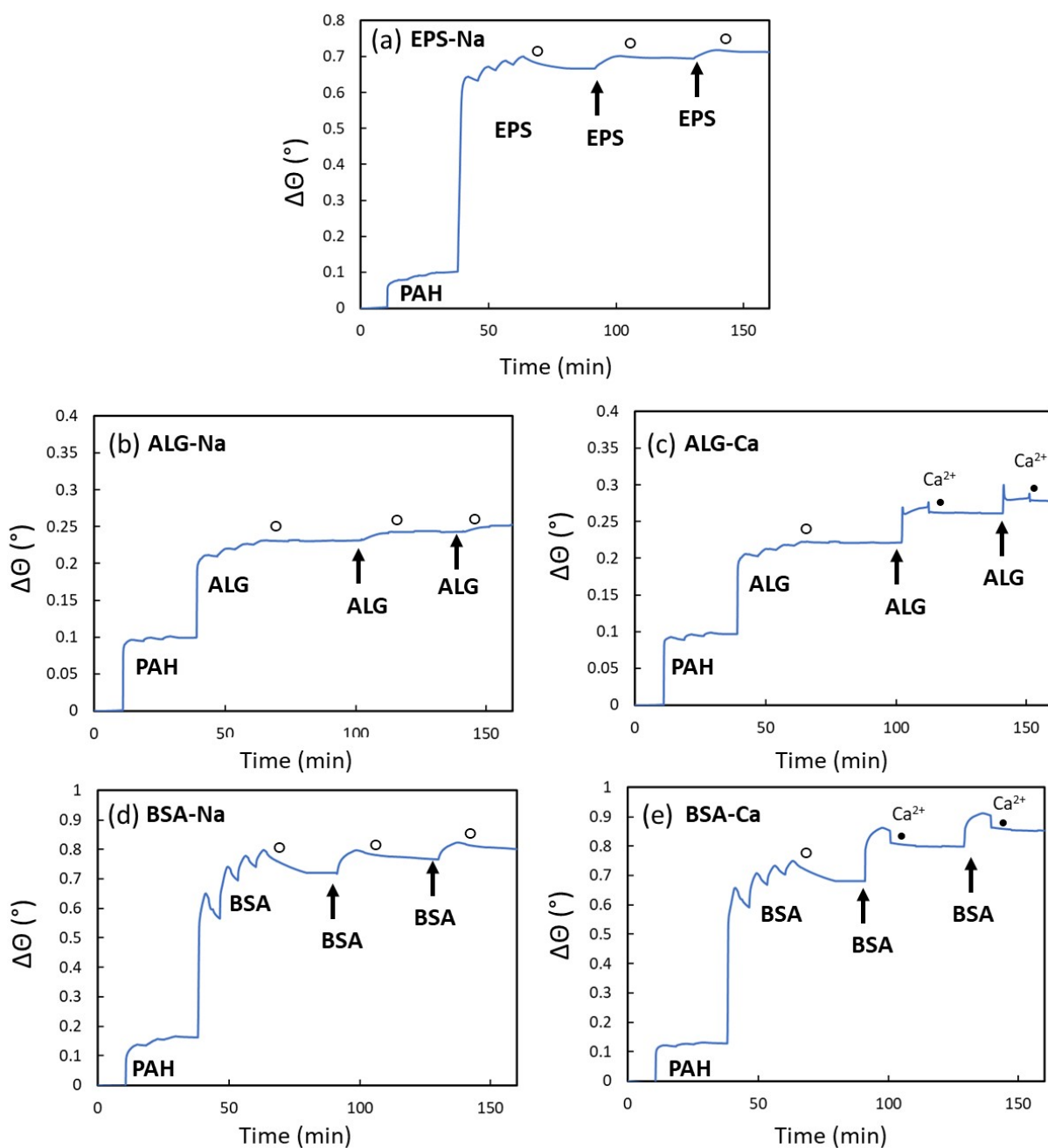


Fig. S1. $\Delta\Theta$ as a function of time during the fabrication of (a) EPS-Na, (b) ALG-Na, (c) ALG-Ca, (d) BSA-Na, and (e) BSA-Ca films on gold-coated glass sensors. ○ and ● indicate the NaCl (0.1 M) and CaCl₂ (0.03 M) injections. Arrows indicate polymer (EPS, ALG, or BSA at 0.1 g·L⁻¹) injections.

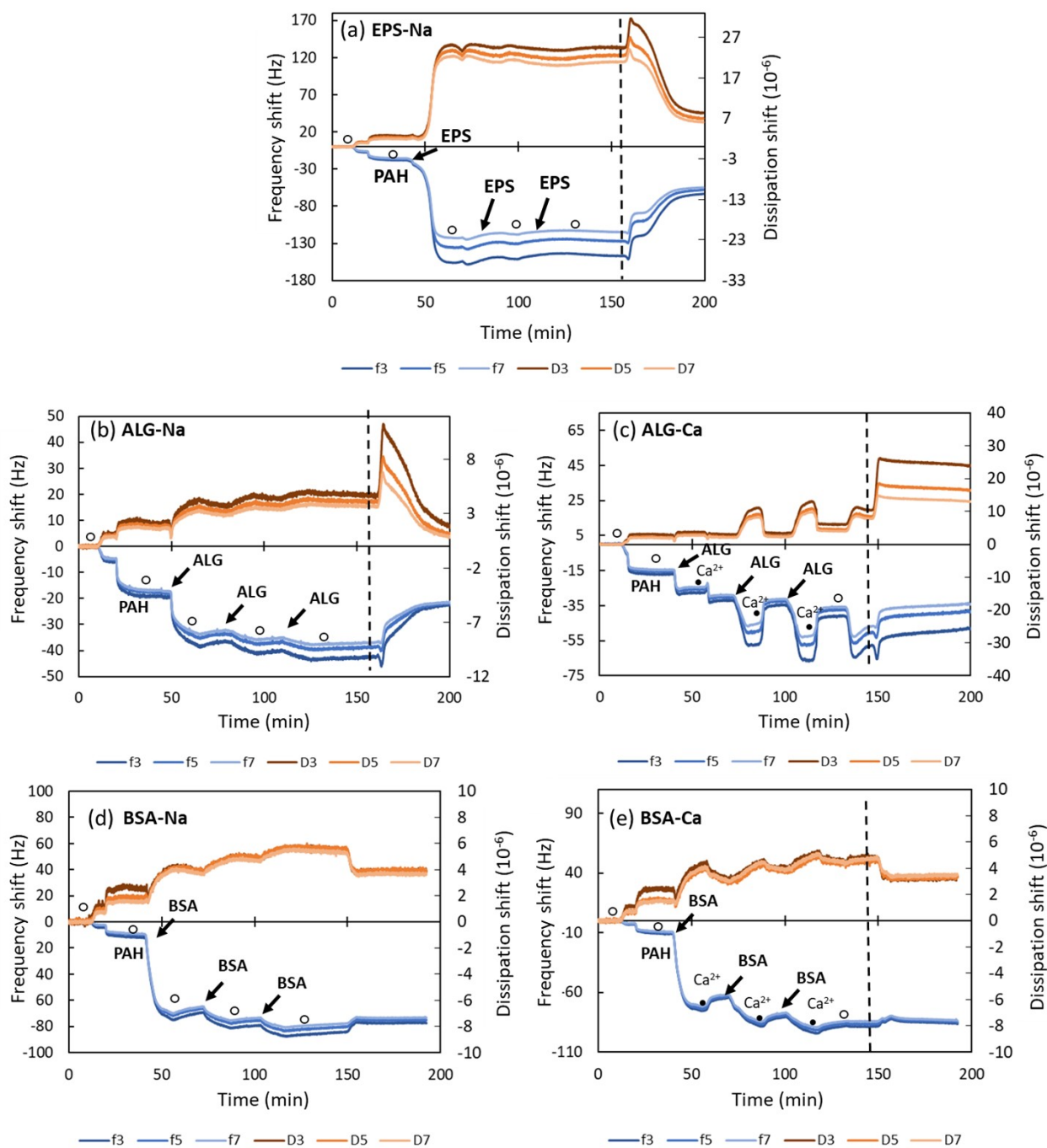


Fig. S2. Δf and ΔD for overtones (3, 5, and 7) as a function of time of the fabrication of (a) EPS-Na, (b) ALG-Na, (c) ALG-Ca, (d) BSA-Na, and (e) BSA-Ca on gold-coated quartz crystals. o and • indicate the NaCl (0.1 M) and CaCl_2 (0.03 M) injections. Arrows indicate polymer (EPS, ALG, or BSA at $0.1 \text{ g} \cdot \text{L}^{-1}$) injections.

Table S1. Mass and thickness of EPS, ALG, and BSA films from QCM-D and MP-SPR.

	ALG		BSA		EPS	
	Na	Ca	Na	Ca	Na	Ca
$\Gamma_{\text{QCM-D}}$ (ng·cm ⁻²)	943 ± 59	1378 ± 17	3484 ± 521	2398 ± 645	3824 ± 923	3752 ± 733
Γ_{SPR} (ng·cm ⁻²)	230 ± 14	223 ± 12	502 ± 43	519 ± 45	485 ± 154	474 ± 51
$d_{\text{QCM-D}}$ (nm)	9.2 ± 0.6	13.4 ± 0.1	33.8 ± 5.3	23.5 ± 4.7	37.1 ± 8.9	34.4 ± 9.1
d_{SPR} (nm)	2.0 ± 0.9	2.0 ± 0.9	4.7 ± 1.2	4.8 ± 1.2	4.5 ± 1.4	4.4 ± 1.3
H ₂ O _{SPR/QCM} (%)	76	84	86	78	87	87

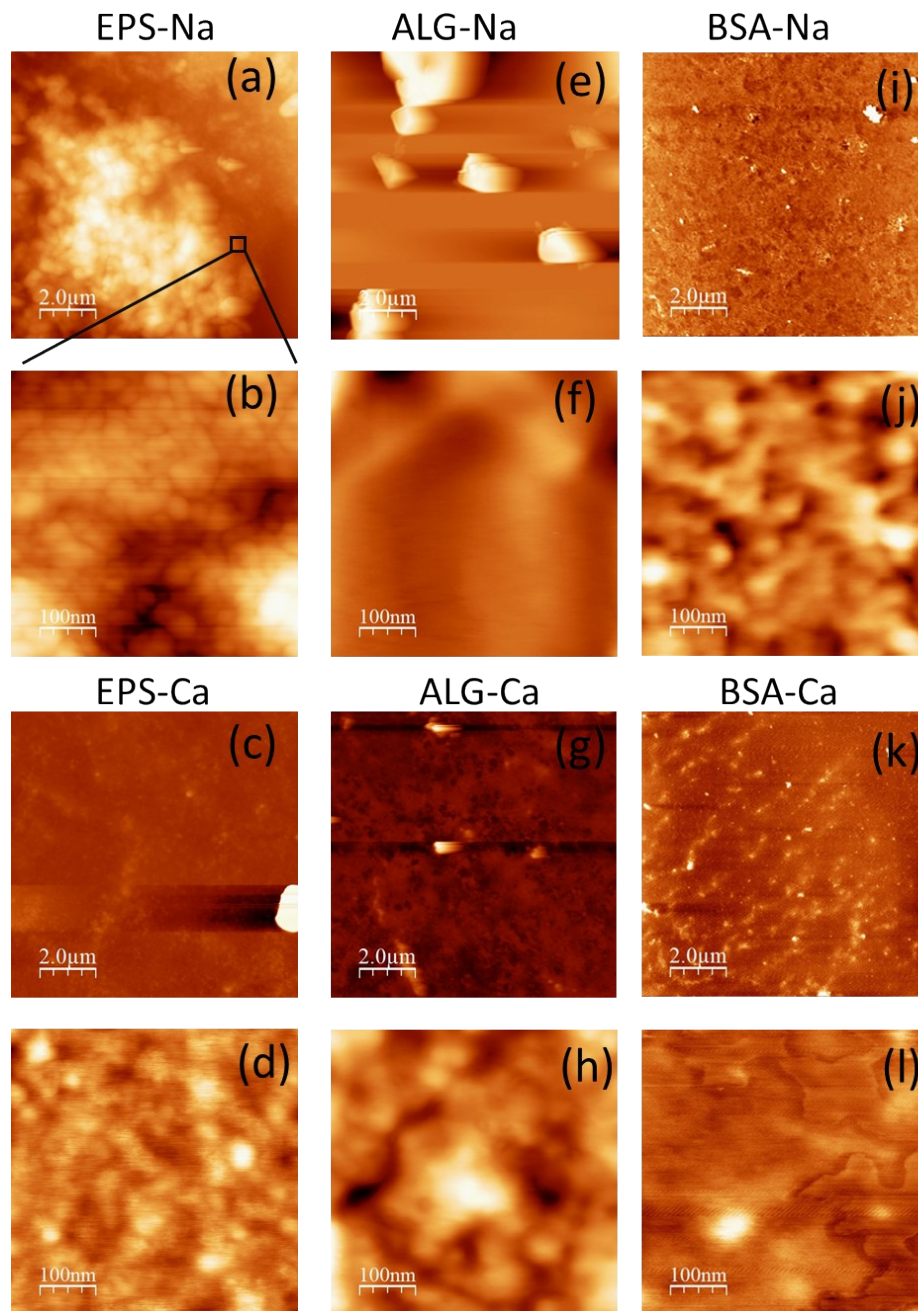


Fig. S3. AFM representative topographic images of EPS-Na at (a) 2 μm and (b) 100 nm, EPS-Ca at (c) 2 μm and (d) 100 nm, ALG-Na at (e) 2 μm and (f) 100 nm, ALG-Ca at (g) 2 μm and (h) 100 nm, BSA-Na at (i) 2 μm and (j) 100 nm (j), and BSA-Ca at (k) 2 μm and (l) 100 nm (j) on mica surfaces.