Supporting Information

Carboxylated Nanoparticle Surfaces Enhance Association with Mucoid *P. aeruginosa* Biofilms

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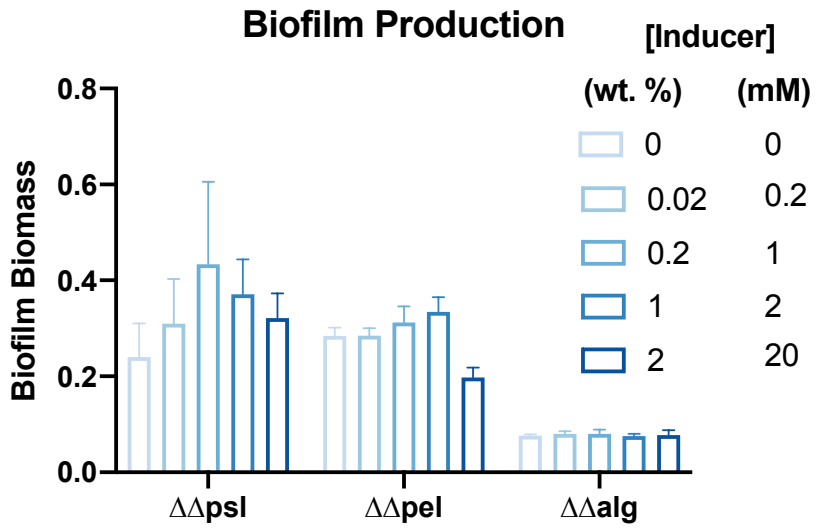

Figure S1. Variable biofilm biomass production based on inducer concentration for all three strains. An inducer concentration of 0.2 weight % arabinose was chosen for ΔΔpsl and ΔΔpel, whereas an inducer concentration of 1 mM IPTG was chosen from ΔΔalg. The chosen concentrations, as shown in green, are due to maximized biomass production and previous literature results. N = 12 technical replicates.

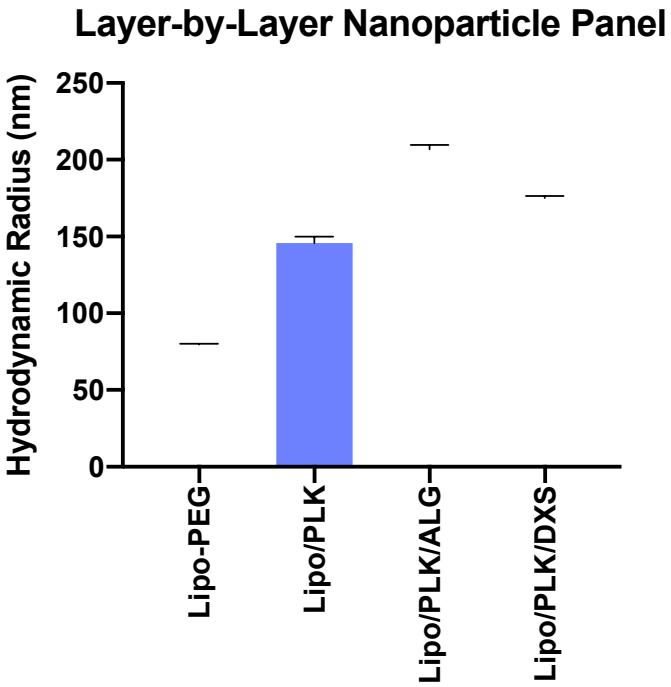

Figure S2. The low polydispersity index (< 0.3) of LbL NPs indicates monodispersity. N = 3 technical replicates of the same NP synthesis.

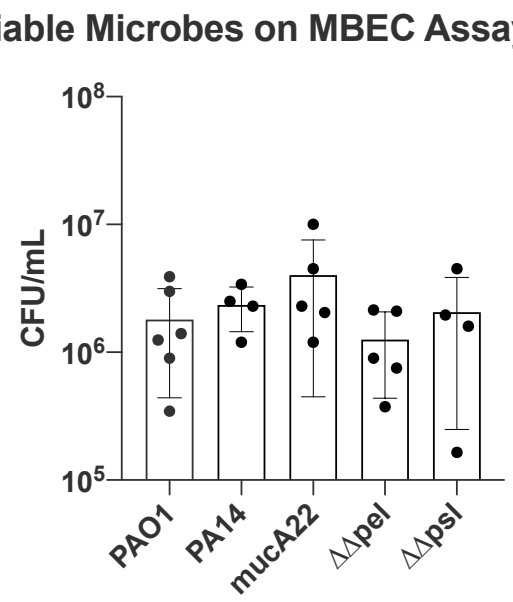

Figure S3. Insignificant biofilm CFU/mL differences between strains grown on the MBEC Assay Kit for 48 hours. N = 4-6 technical replicates.

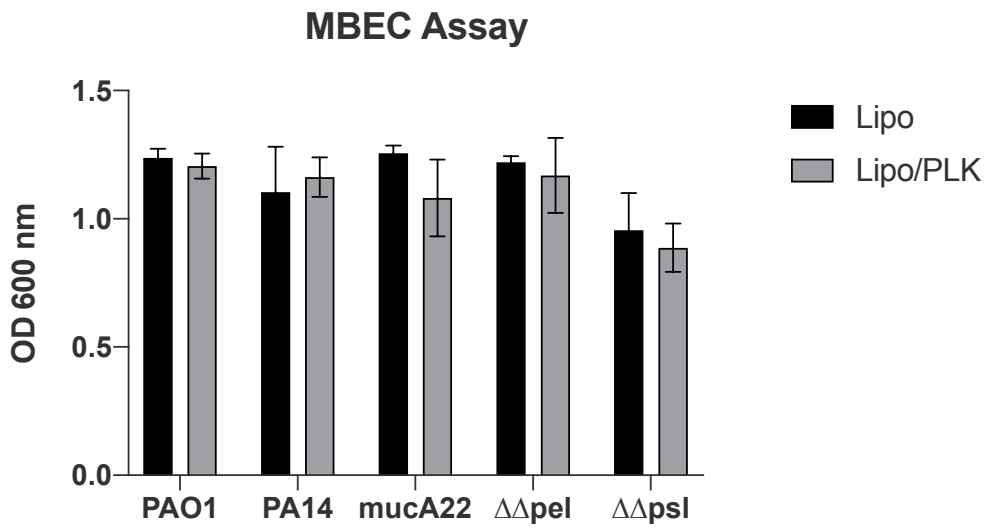

Figure S4. Liposomes and Lipo/PLK formulations are compatible with biofilms. Liposomes and Lipo/PLK formulations were tested for the MBEC at 50 µg/mL, and showed little to no inhibitory activity, as seen by high OD_{600} measurements. N = 12 technical replicates.

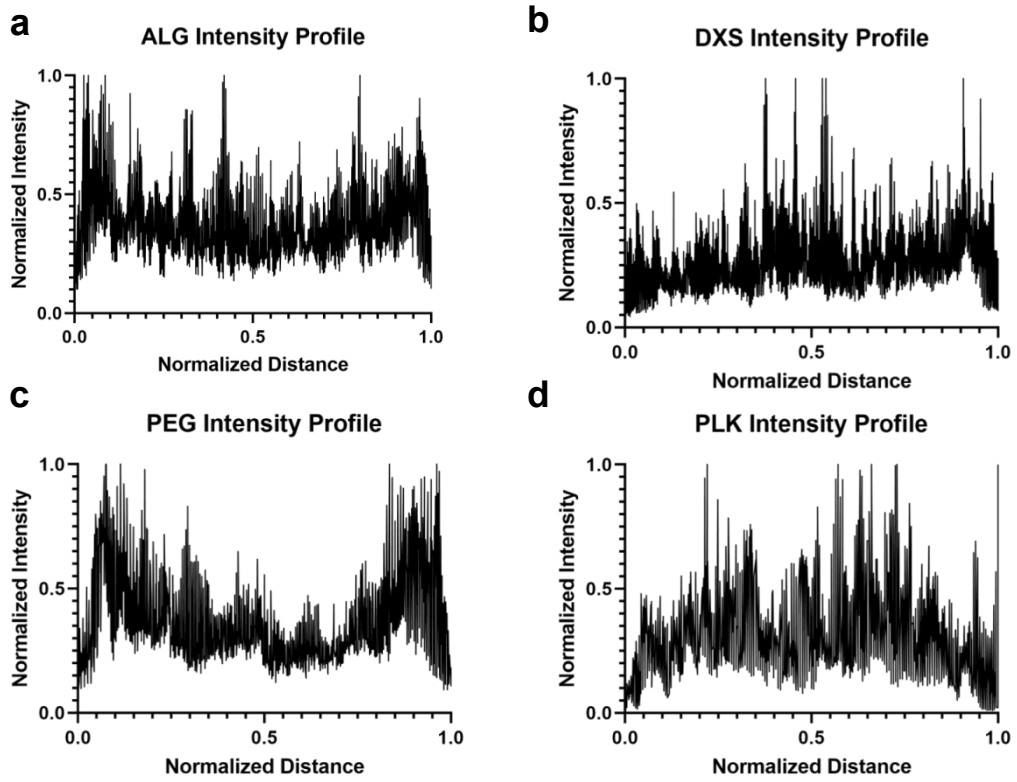

Figure S5. Pixel profile plots of all four NP systems interacting with biofilms produced by mucA22. Pixel intensity profiles for **a** ALG, **b** DXS, **c** PEG, and **d** PLK are the aggregate of five evenly spaced line width profile intensities of N = 3 selected mucA22 produced biofilm technical replicate images. Pixel intensity is normalized within each LbL NP, and not against other NP systems.

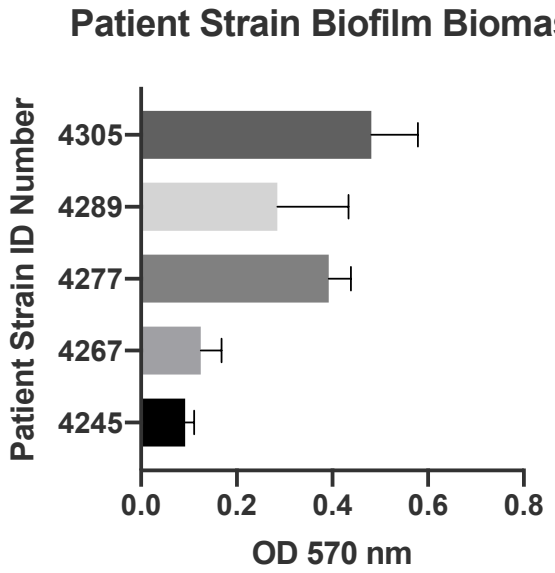

Figure S6. Crystal violet staining of patient strains. N = 3 biological replicates with at least 8 technical replicates in each, where bars and error bars are averages and standard deviations, respectively.

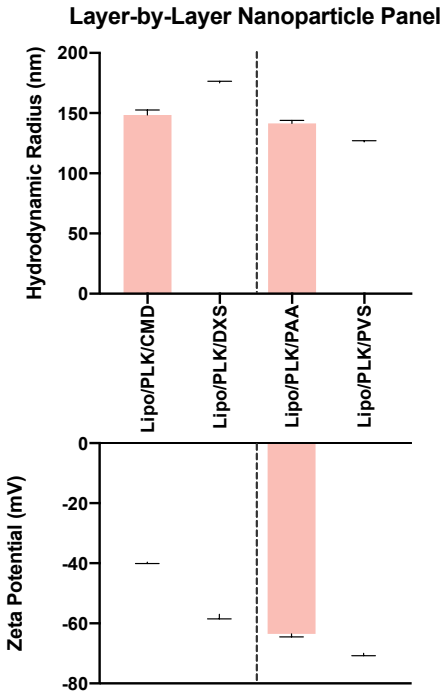

Figure S7. Size and zeta potential measurements of DXS and CMD, PVS and PAA are indistinguishable. N = 3 technical replicates for nanoparticle physiochemical characterization, where bars and error bars are averages and standard deviations, respectively.

Table S1. List of bacteria strains used, and their relative polysaccharide production during biofilm maturation. All strains besides PA14 are isogenic with a PAO1 background.

Strain name [shorthand name used]	Psl	Pel	alginate
PAO1 [PAO1]	+	+	+
PA14 [PA14]	-	+	+
Δ*algD*, Δ*pslA-O*, Δ*pelA-G* [ΔΔΔ]	-	-	-
pDO300_mucA22 [mucA22]	+	+	+++
Δ*wspF* [ΔwspF]	+++	+++	+++
Δ*algD*, Δ*pelA-G*, (pBAD*pslA-O*) [ΔΔpsl]	inducible	-	-
Δ*algD*, Δ*pslA-O*, (pBAD*pelA-G*) [ΔΔpel]	-	inducible	-
Δ*algD*, Δ*pelA-G*, *pslA-O* (p*AlgU*) [ΔΔalg]	-	-	inducible