Supplementary Information

CpG Molecular Structure Controls Mineralization of Calcium Phosphate Nanoparticles and their Immunostimulation Efficacy as Vaccine Adjuvants

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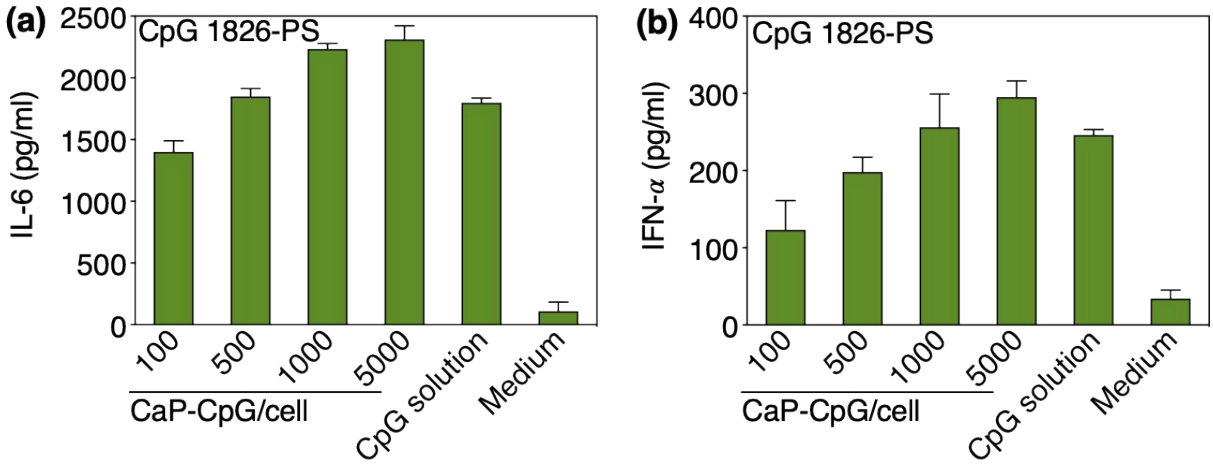

Fig. S1. Immunostimulatory effect of the CaP's formed in the presence of CpG 1826-PS (40 μg/mL). The IL-6 and IFN-α values were almost similar to free CpG-1826-PS, indicating these nanoparticles did not induce considerable immunostimulation. There was not statistically significant differences between free CpG-1826-PS as compared to all other samples tested here.

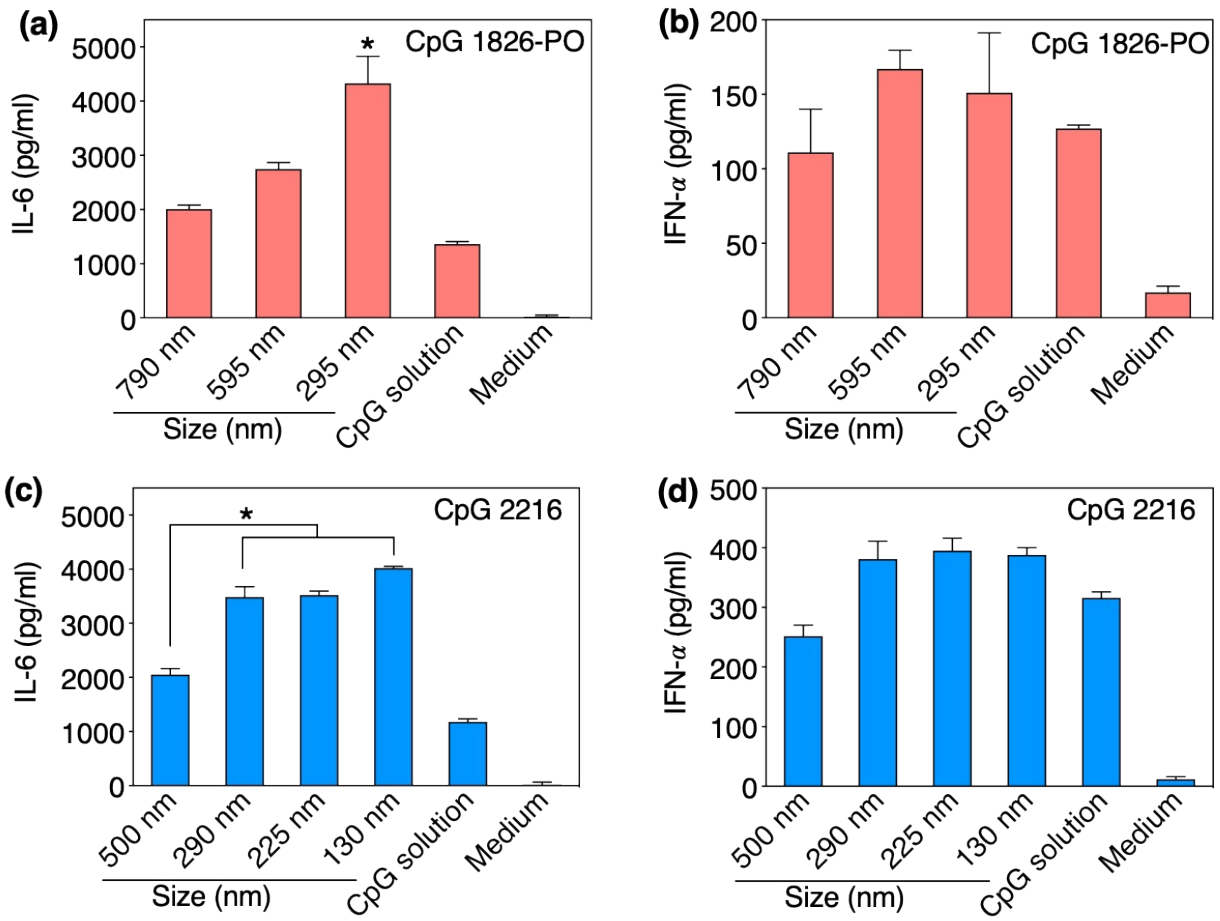
(a)
CpG 1826-PO
IL-6 (pg/ml)
5000
4000
3000
2000
1000
0
*
790 nm
595 nm
295 nm
Size (nm)
CpG solution
Medium
(b)
CpG 1826-PO
IFN-α (pg/ml)
200
150
100
50
0
790 nm
595 nm
295 nm
Size (nm)
CpG solution
Medium
(c)
CpG 2216
IL-6 (pg/ml)
5000
4000
3000
2000
1000
0
*
500 nm
290 nm
225 nm
130 nm
Size (nm)
CpG solution
Medium
(d)
CpG 2216
IFN-α (pg/ml)
500
400
300
200
100
0
500 nm
290 nm
225 nm
130 nm
Size (nm)
CpG solution
Medium

Fig. S2. The effect of hydrodynamic size on immunostimulation performance of CaP's mineralized in the presence of CpG 1826-PO (a and b) or CaP CpG 2216 (c and d) [CaP-CpG/cell ratio ~ 1000]. CaP's with larger hydrodynamic sizes had relatively lower immunostimulation, due to their reduced uptake. The asterisk denotes the significantly greater amount of IL-6 production as compared to all other samples ($a = 0.05$). There was no statistically significant difference in IL-6 production between nanoparticles smaller than 290 nm shown in part (c).