Supporting Information

Surface Chemical Modification of Poly(dimethylsiloxane) for Stabilizing Antibody Immobilization and T cell Cultures

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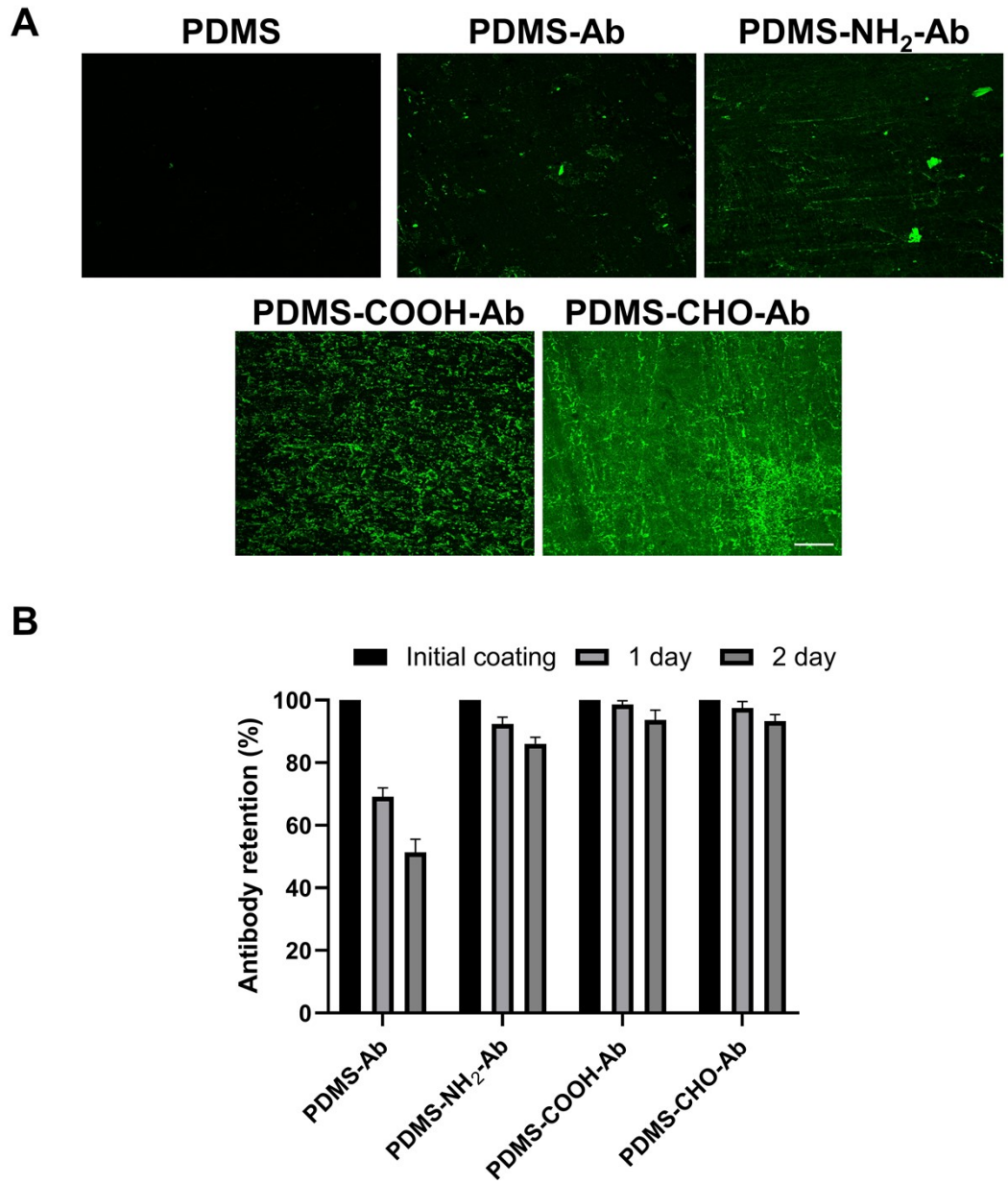
Table S1: Summary of the XPS results.



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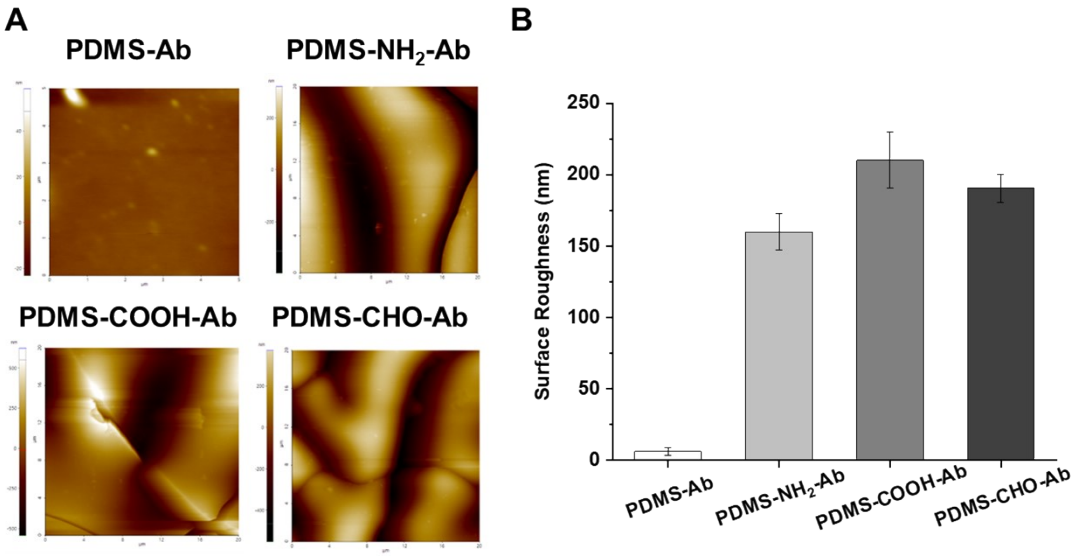

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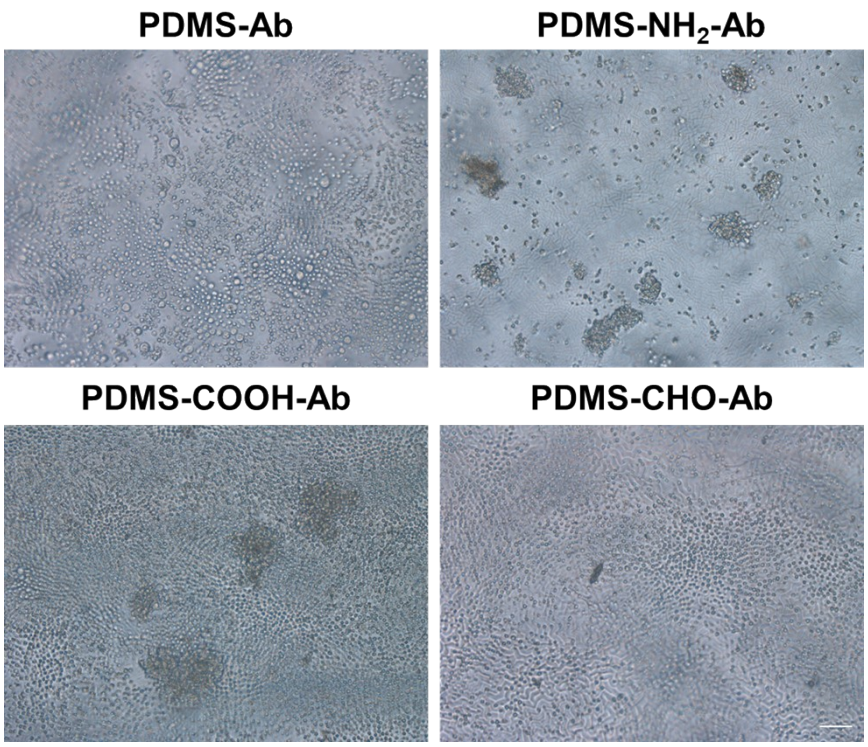
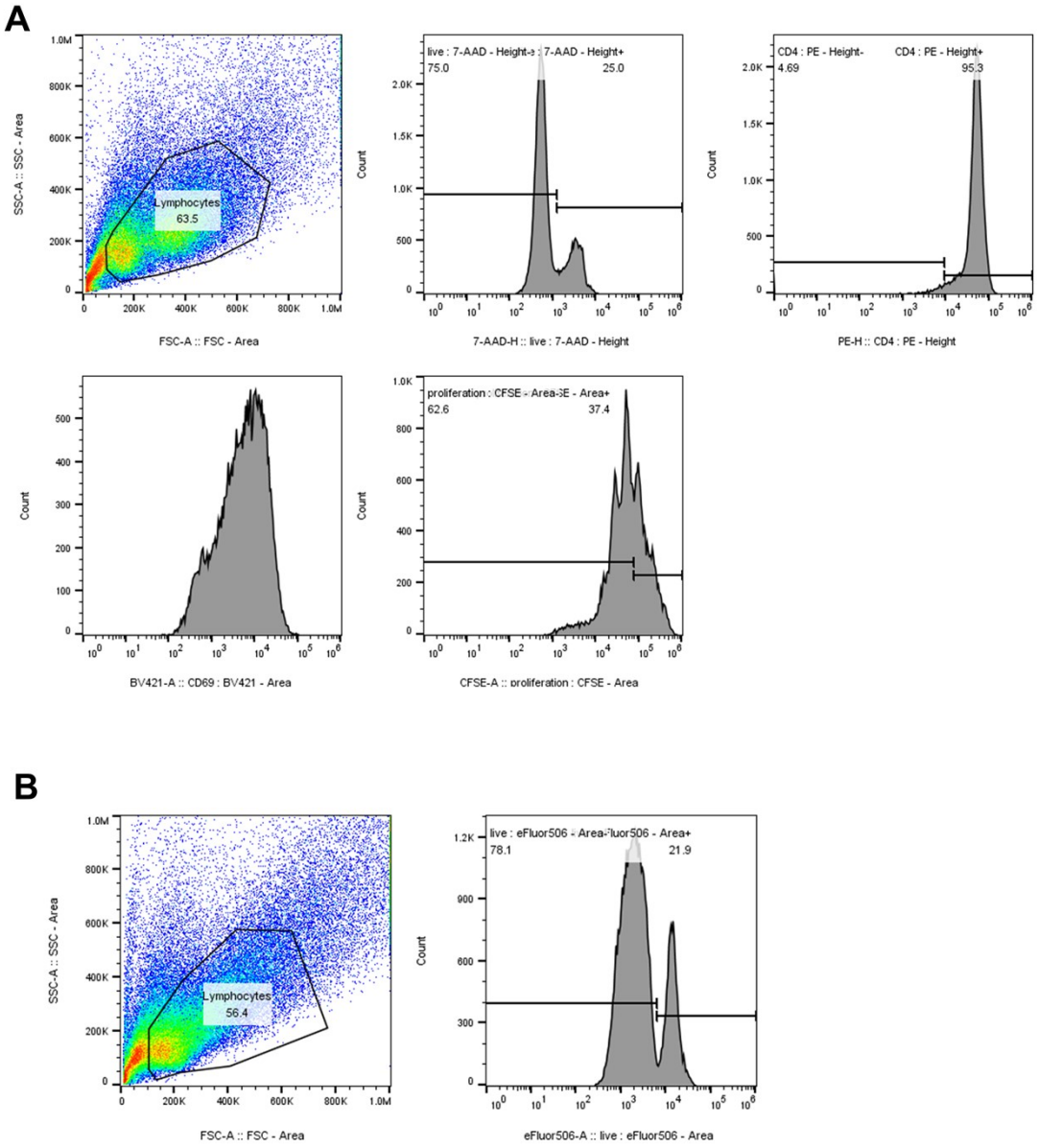


Figure S3：Representative bright-field microscopy images of mouse T cells cultured with various PDMS surfaces.

Scale bars = 50 μm.



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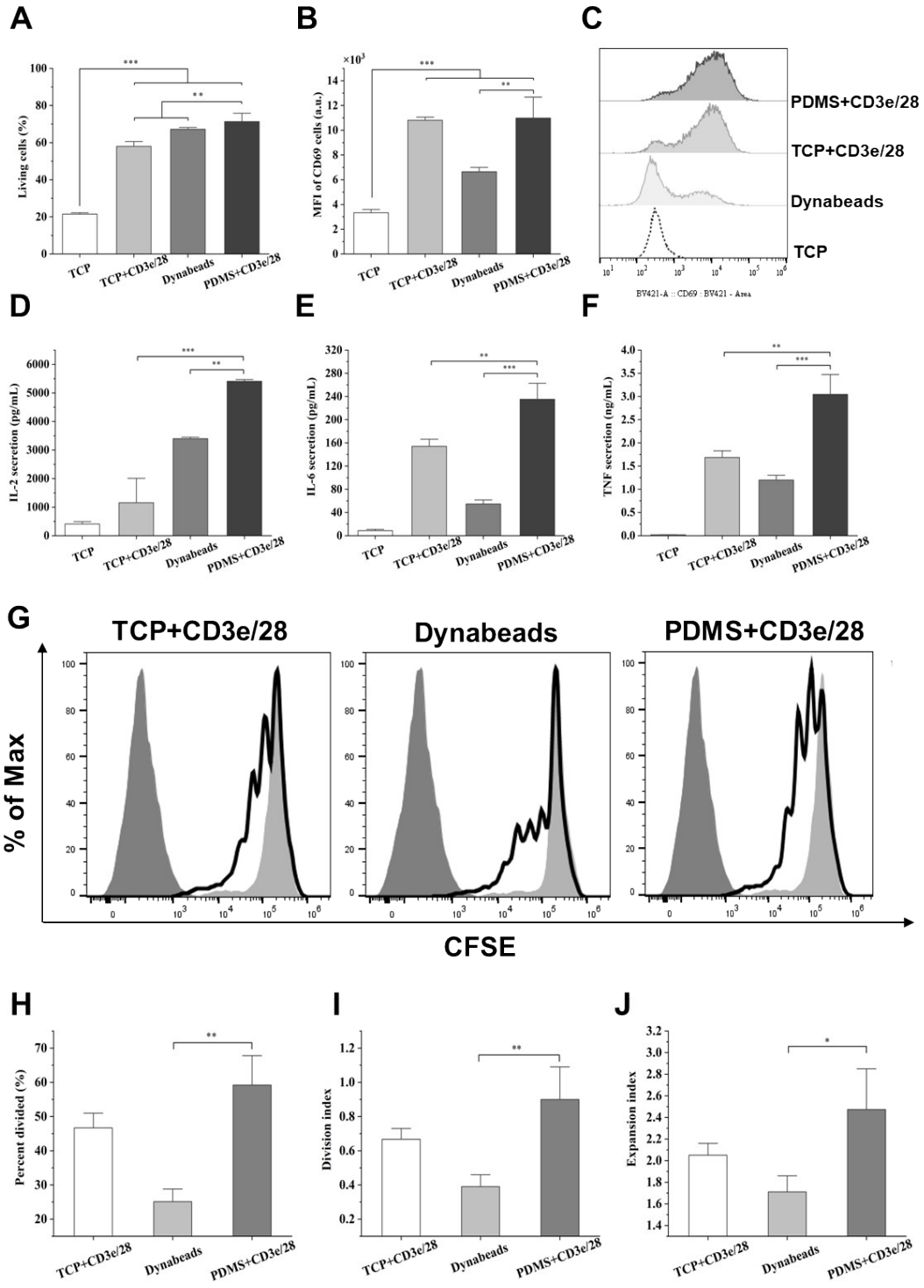

Figure S5. Enhanced T cell activation and proliferation by CD3/CD28 activating antibody immobilized on PDMS. Purified CD4+ T cells were cultured in different conditions, including TCP group, CD3e/CD28 antibody coated on TCP (TCP + CD3/CD28), CD3/CD28 antibody coated on PDMS (PDMS + CD3/CD28) and Dynabeads for 3 days and then the viability, activation and proliferation of T cells was detected. (A) Viability of T cells detected by FACS. (B) Mean fluorescence intensity of CD69 expression. (C) Representative FACS plot of CD69 staining. IL-2 (D), IL-6 (E), and TNF (F) secretion in the culture supernatants was detected. (G) Representative CFSE dilution in T

cells in different conditions. The peak of light gray indicates control with no antibody coatings (TCP). The peak of dark gray indicates nonlabeled cells. (H) Percentage of divided T cells, (I) Division index (average number of divisions), and (J) Expansion index (fold-expansion of the whole cells) in different conditions were measured. Bars are mean ± standard deviation (n=3). Statistical significance was determined by one-way ANOVA with Turkey's test ($\alpha = 0.05$, * denotes $p < 0.05$, ** denotes $p < 0.01$, and *** denotes $p < 0.001$).

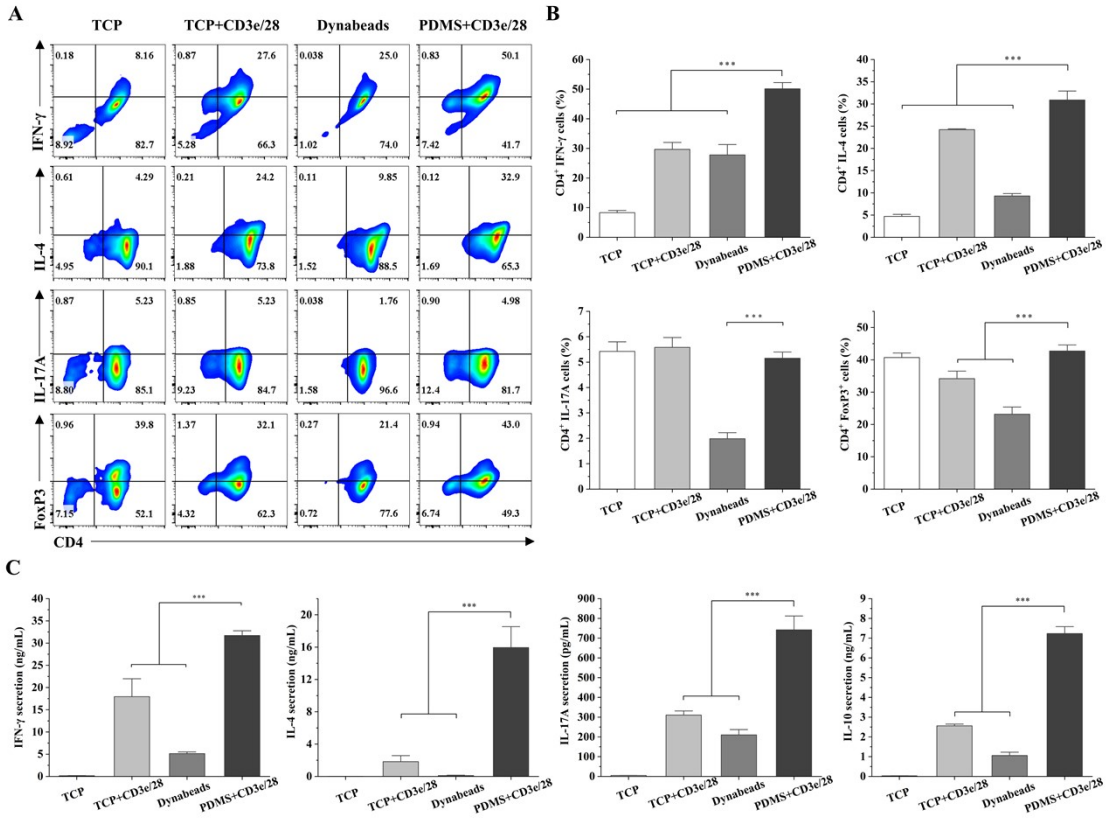

Figure S6. PDMS substrates enhance Th1 and Th2 cell differentiation. (A) Cells were stained for intracellular IFN-γ, IL-4, IL-17A, and Foxp3 expression. (B) The results from (A) are presented as mean ± SD (n=3). (C) The concentration of various cytokines from the cells culture in different conditions was analyzed by cytometric bead array (n=3 per group). Statistical significance was determined by one-way ANOVA with Turkey's test ($\alpha = 0.05$, *** denotes $p < 0.001$).

Table 1 Summary of the XPS results

Sample	Total element (atom%)			
	C1s	O1s	Si2p	N1s
PDMS	50.05	26.94	23.01	—
Activated PDMS	34.64	40.10	25.26	—
PDMS-NH_2	57.56	23.51	17.04	1.89
PDMS-CHO	67.16	18.33	13.15	1.37
PDMS-COOH	50.67	30.74	16.91	1.69