Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B

Supplemental Data

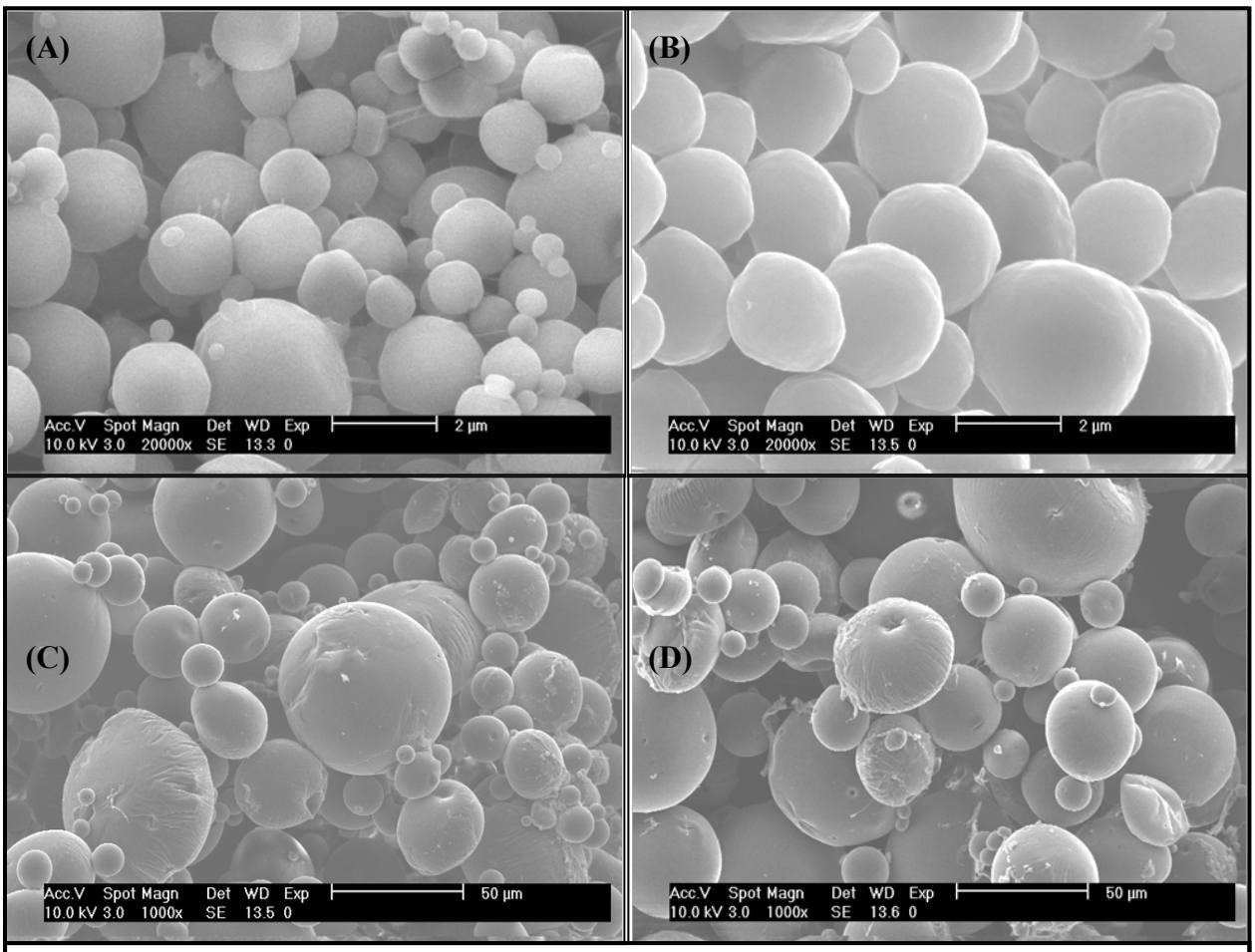

Figure S1. Representative scanning electron micrographs of (A) RAPA MPs, (B) RA MPs, (C) TGF-β1 MPs and, (D) IL-10 MPs.

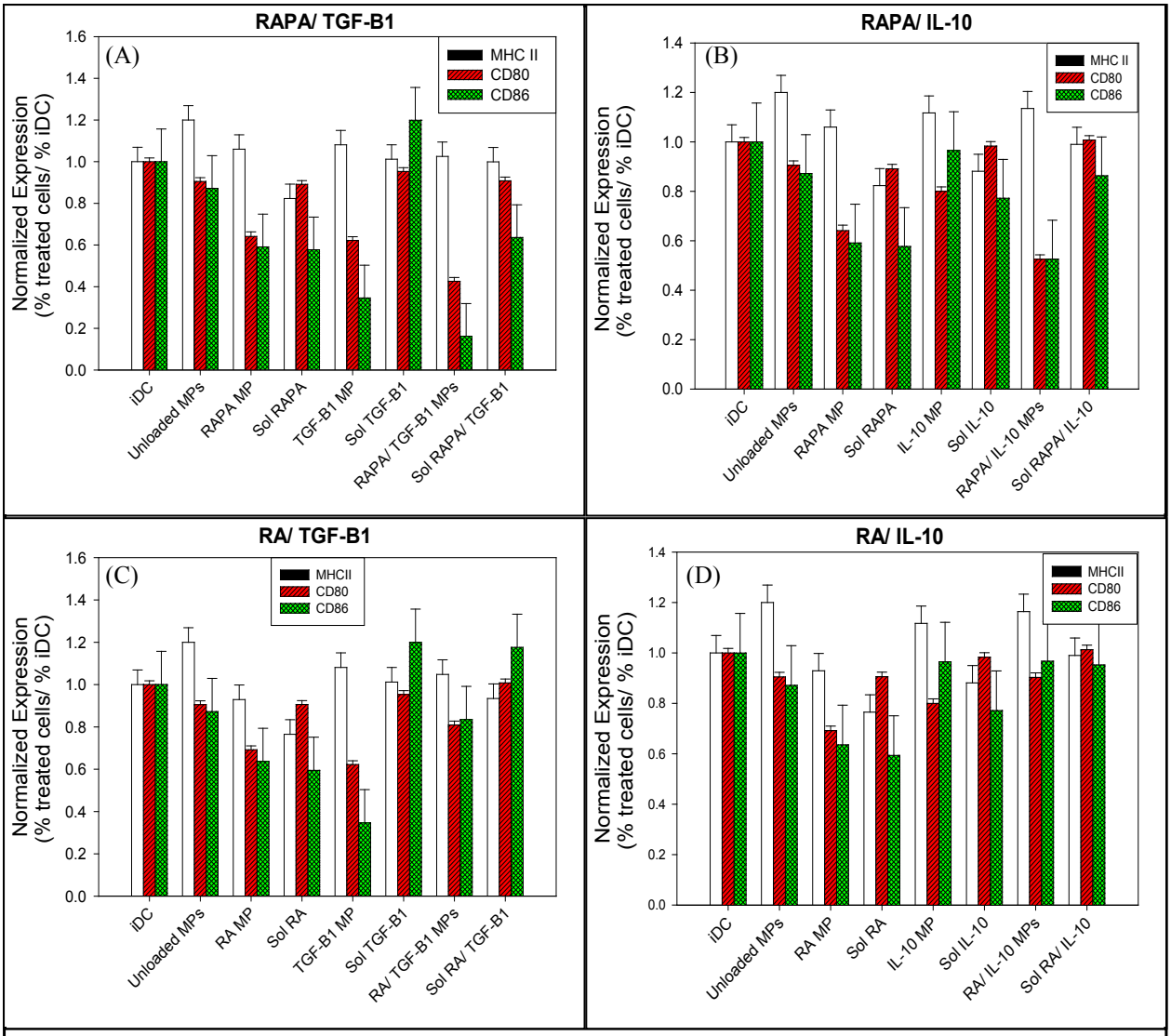

Figure S2. Dual microparticle (MP) systems result in reduced levels of surface expression of MHC II and costimulatory markers (CD80, CD86) relative to immature dendritic cells (iDCs). Combinations of immunomodulatory phagocytosable MPs (RAPA MP, RA MP) and un-phagocytosable MPs (TGF-β1 MP, IL-10 MP) were investigated. Unloaded MPs and soluble equivalent doses were included as controls. The percent positive cells for activation markers in a treatment group, normalized to the iDC group are shown (Panels A – D).

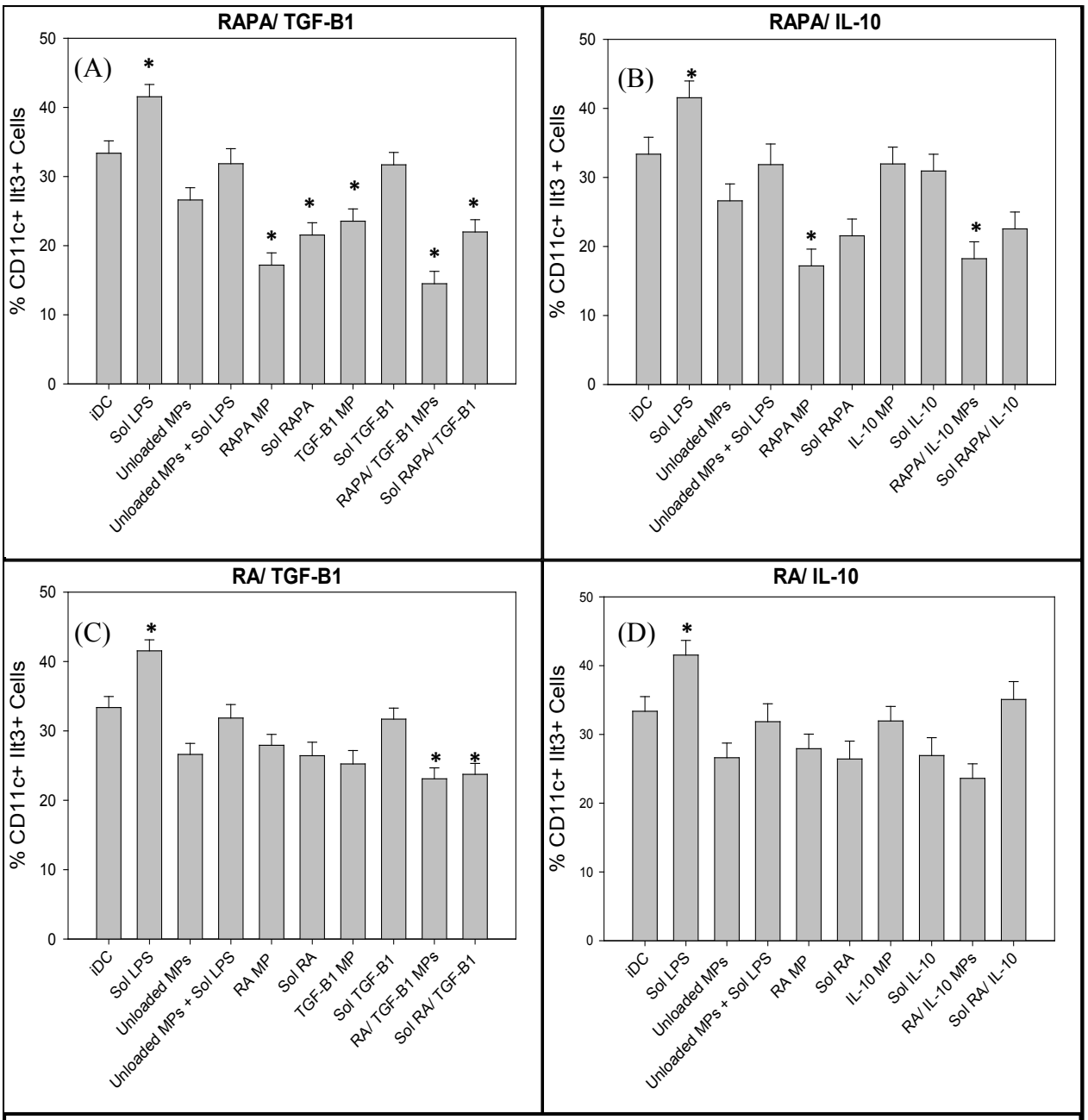

Figure S3. Culturing dendritic cells (DCs) with dual MP systems results in differential and reduced levels of expression of inhibitory receptor, Ilt3. Combinations of immunomodulatory phagocytosable MPs (RAPA MP, RA MP) and un-phagocytosable MPs (TGF-β1 MP, IL-10 MP) were investigated. Unloaded MPs and soluble equivalent doses were included as controls. Pair-wise significant differences from the immature DC (iDC) group are denoted by the * symbol ($p \leq 0.05$).

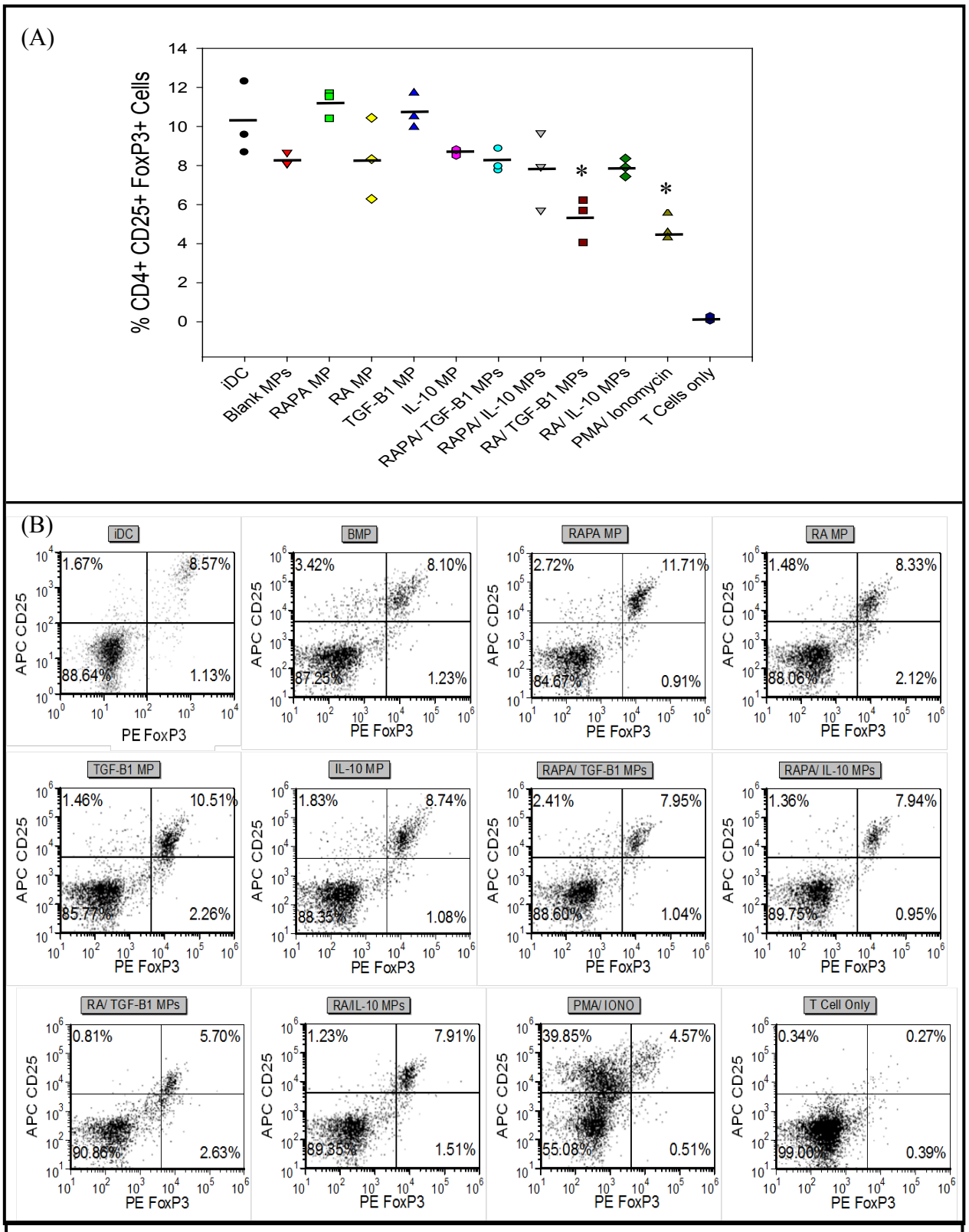

Figure S4. Dendritic cells (DCs) treated with dual MP systems maintain Treg levels, but do not support increased Treg levels over immature DCs. Briefly, different systems of MPs were incubated with C57Bl6 DCs for 2 d followed by washing to remove unbound MPs. Subsequently, freshly-isolated Balbc CD4+ T cells were added to culture wells and co-cultured in a mixed lymphocyte coupling for 3 d. Cells were then immuno-stained using antibodies against CD4, CD25 and FoxP3. Data shown represents the percent of CD4+ CD25+ Fox P3+ T cells as determined by flow cytometry. Pair-wise significant differences from the immature DC (iDC) group are denoted by the * symbol ($p \leq 0.05$).

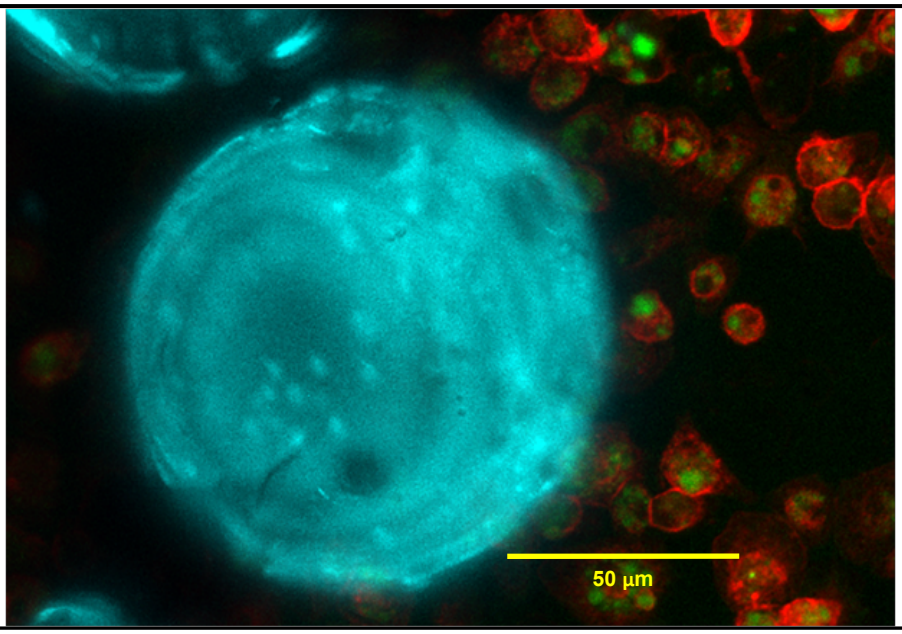

Figure S5. Confocal laser scanning microscopy was used to confirm the phagocytosable and non-phagocytosable behaviors of the respective microparticles. DCs were incubated 7-diethyl,4-aminomethylcoumarin-loaded phagocytosable MPs (green) and rhodamine-loaded non-phagocytosable MP (cyan) for 24 h, fixed and stained for the actin cytoskeleton (red). This image shows the x - y optical section demonstrating the ability of DCs to engulf the phagocytosable MPs, but not the unphagocytosable MPs.