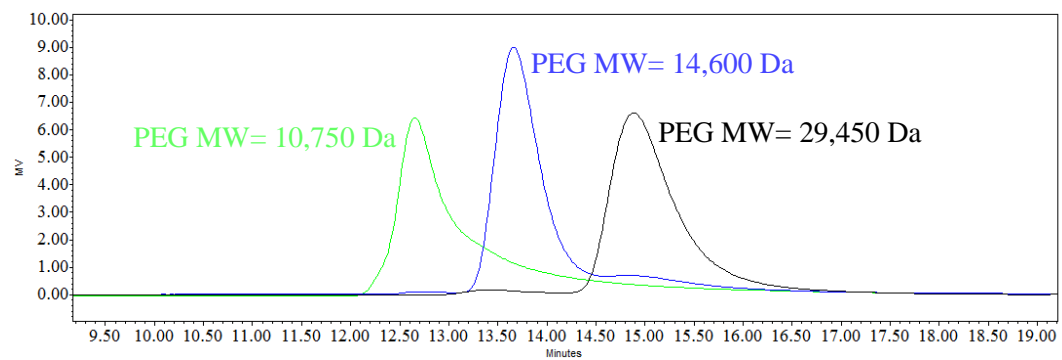
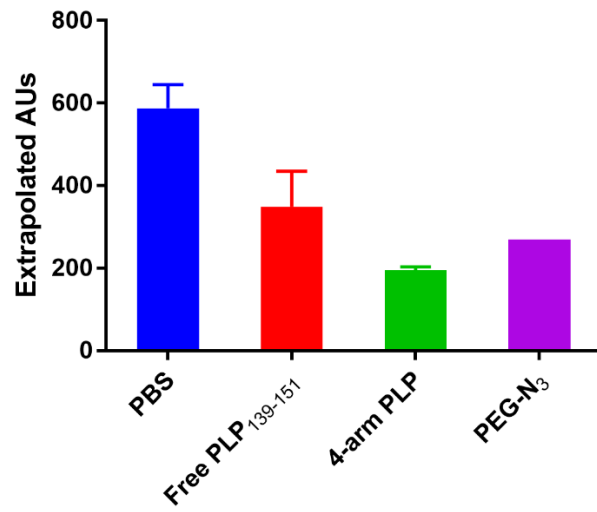


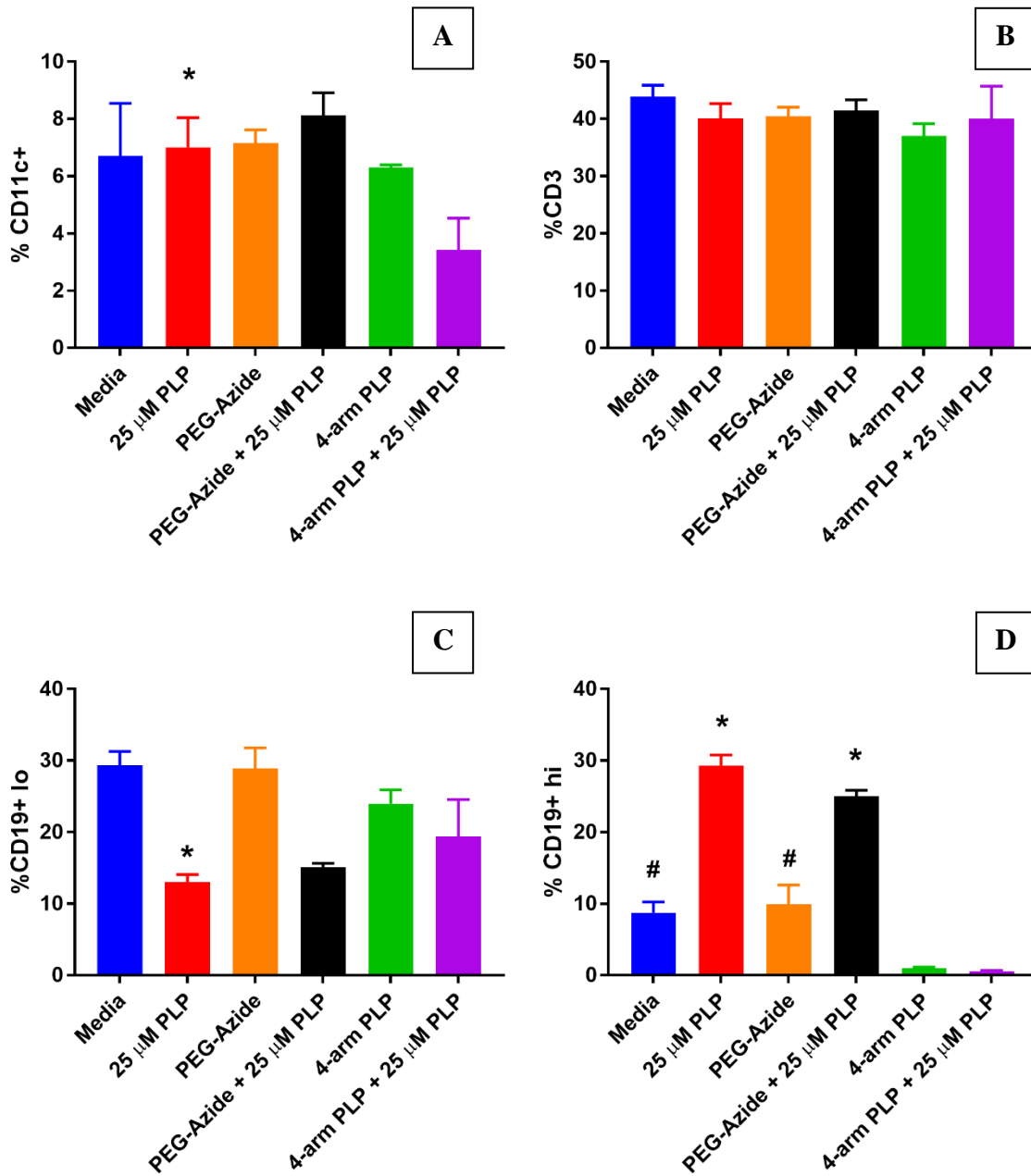
## Supplementary Information



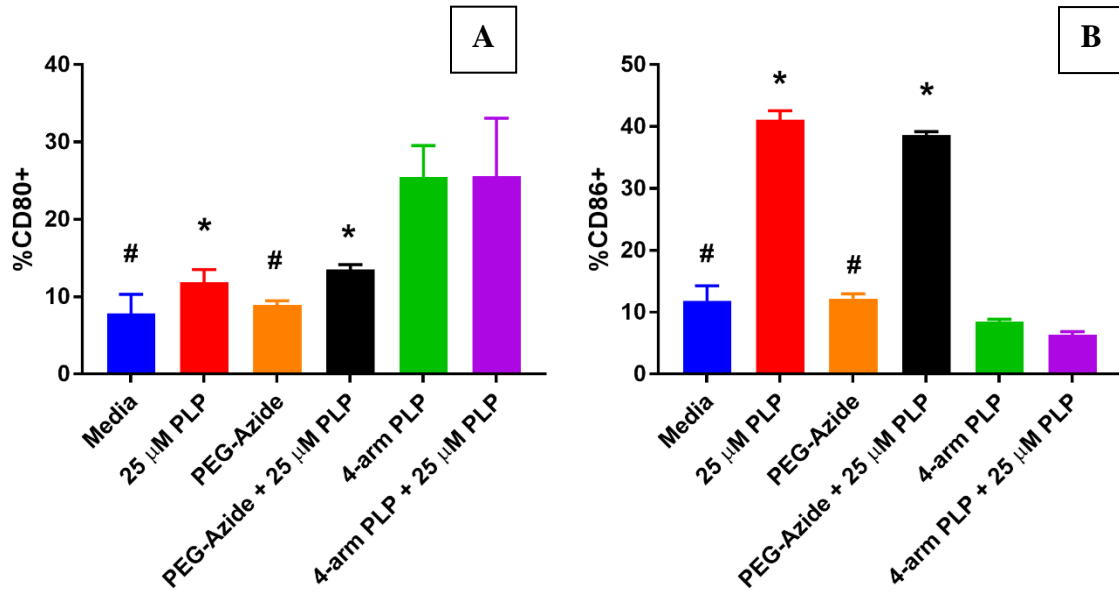
**Figure S1.** SEC chromatograms of PEG standards.



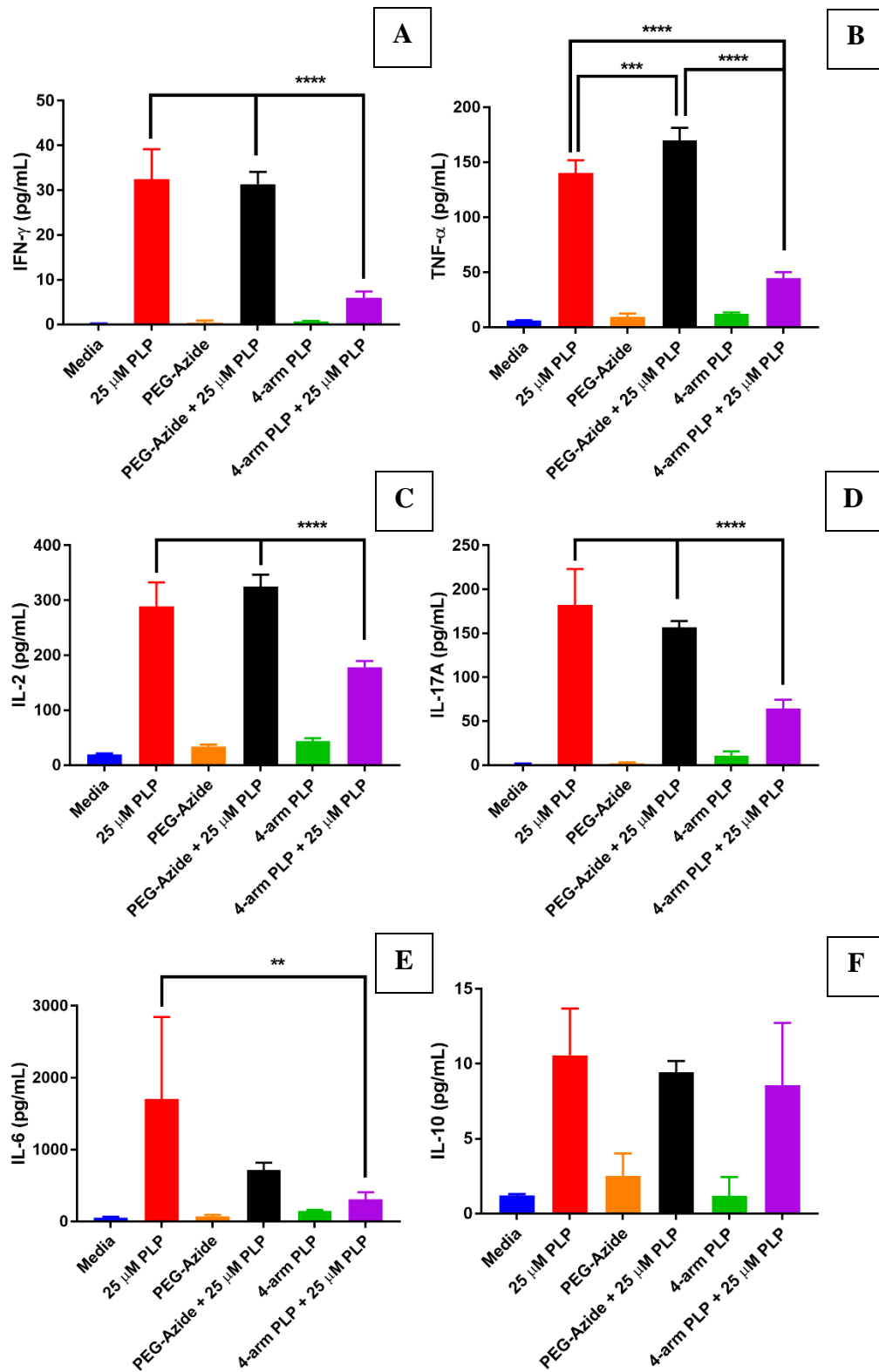
**Figure S2.** PLP<sub>139-151</sub>-specific IgG antibody titers in EAE mouse serum detected by ELISA following one-hour incubation with (A) PBS (B) Free PLP<sub>139-151</sub> (C) 4-arm PLP<sub>139-151</sub> and (D) 20 kDa 4-arm PEG-N<sub>3</sub>.



**Figure S3.** Percent of total singlet splenocytes expressing (A) CD11c (B) CD3 (C) CD19<sup>lo</sup> and (D) CD19<sup>hi</sup> following *in vitro* incubation for 72 hours with (I) media (II) 25  $\mu$ M free PLP<sub>139-151</sub> (III) 20 kDa 4-arm PEG-N<sub>3</sub> (IV) 20 kDa 4-arm PEG-N<sub>3</sub> + 25  $\mu$ M free PLP<sub>139-151</sub> (V) 4-arm PLP<sub>139-151</sub> and (VI) 4-arm PLP<sub>139-151</sub> + 25  $\mu$ M free PLP<sub>139-151</sub>. Data is presented as mean  $\pm$  SD. N=3, \* represents significance from 4-arm PLP<sub>139-151</sub> + 25  $\mu$ M free PLP<sub>139-151</sub>. # represents significance from 4-arm PLP<sub>139-151</sub>.

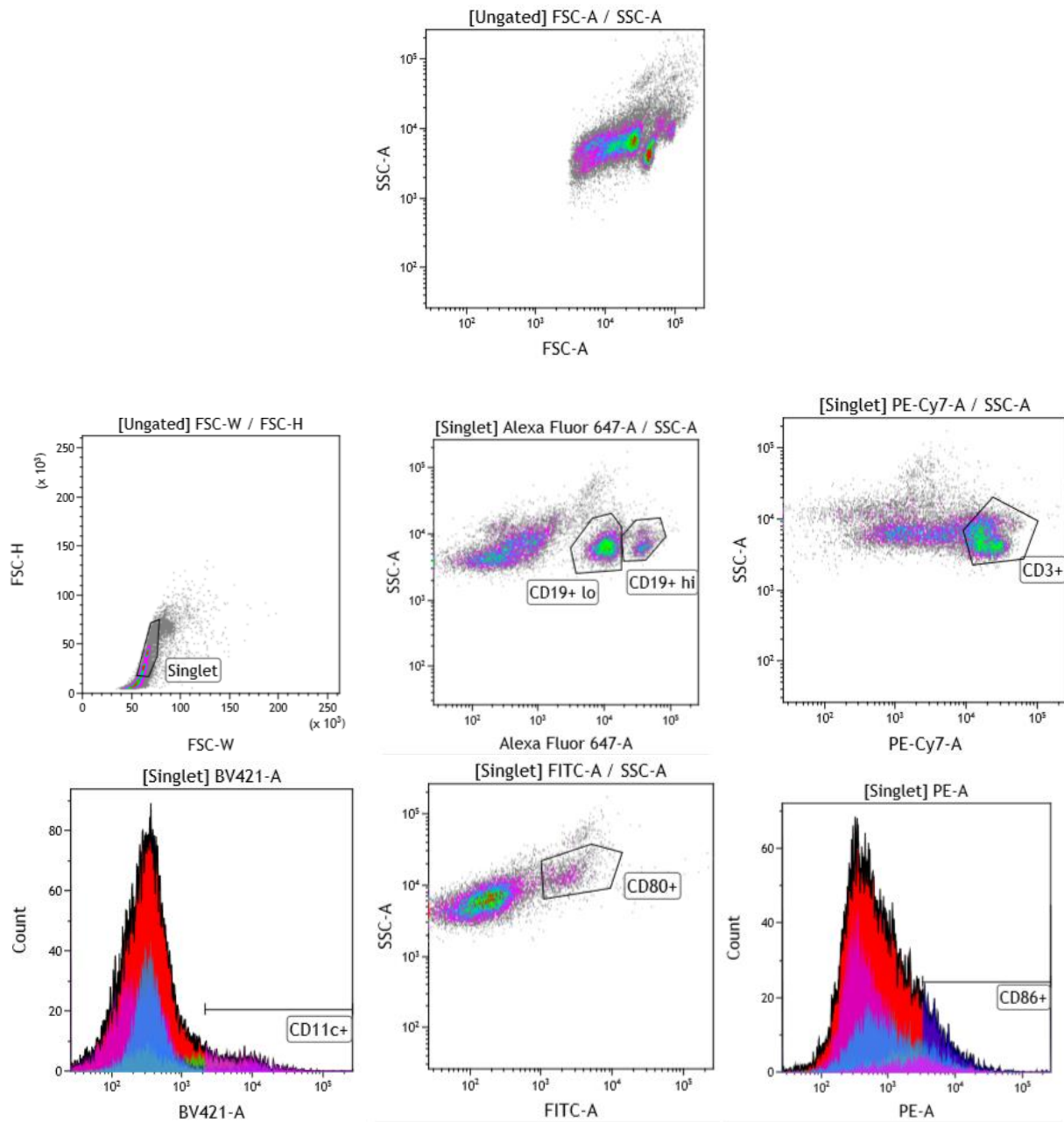


**Figure S4.** Percent of total singlet splenocytes expressing (A) CD80 and (B) CD86 following *in vitro* incubation for 72 hours with (I) media (II) 25  $\mu$ M free PLP<sub>139-151</sub> (III) 20 kDa 4-arm PEG-N<sub>3</sub> (IV) 20 kDa 4-arm PEG-N<sub>3</sub> + 25  $\mu$ M free PLP<sub>139-151</sub> (V) 4-arm PLP<sub>139-151</sub> and (VI) 4-arm PLP<sub>139-151</sub> + 25  $\mu$ M free PLP<sub>139-151</sub>. Data is presented as mean  $\pm$  SD. N=3, \* represents significance from 4-arm PLP<sub>139-151</sub> + 25  $\mu$ M free PLP<sub>139-151</sub>. # represents significance from 4-arm PLP<sub>139-151</sub>.

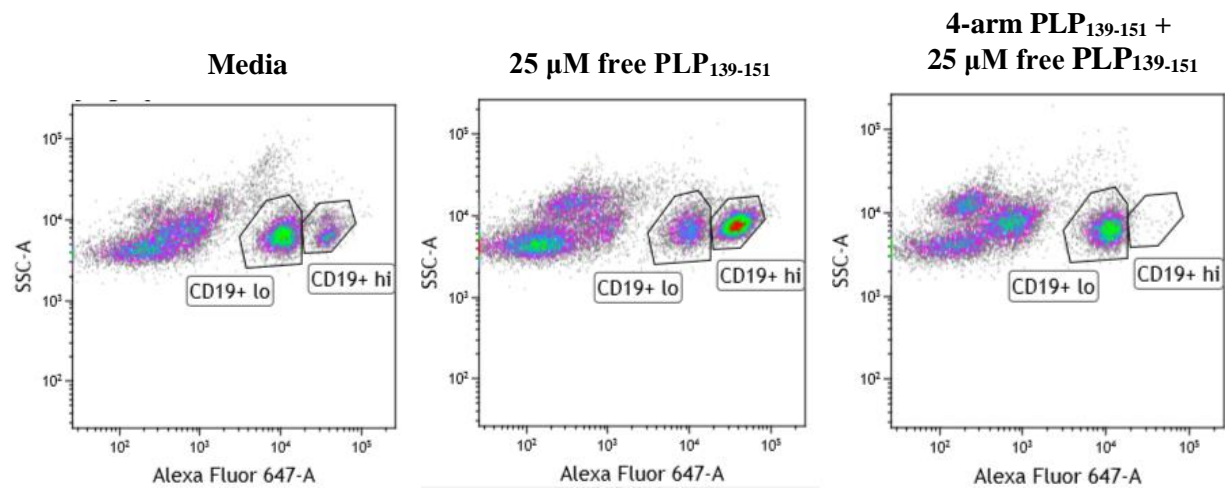


**Figure S5.** Concentrations of (A) IFN- $\gamma$  (B) TNF- $\alpha$  (C) IL-2 (D) IL-17A (E) IL-6 and (F) IL-10 following 72 hr *in vitro* incubation with (I) media (II) 25  $\mu$ M free PLP<sub>139-151</sub> (III) 20 kDa 4-arm PEG-N<sub>3</sub> (IV) 20

kDA 4-arm PEG-N<sub>3</sub> + 25 μM free PLP<sub>139-151</sub> (V) 4-arm PLP<sub>139-151</sub> and (VI) 4-arm PLP<sub>139-151</sub> + 25 μM free PLP<sub>139-151</sub>. Data is presented as mean ± SD. N=3, \* p<0.05, \*\* p<0.01, \*\*\* p<0.001, \*\*\*\* p<0.0001.



**Figure S6.** Representative flow cytometric analysis of a Media treated sample displaying the gating scheme for each fluorescent channel.



**Figure S7.** Representative flow cytometric plots of CD19 expression following *in vitro* incubation for 72 hours with (I) media (II) 25  $\mu$ M free PLP<sub>139-151</sub> and (III) 4-arm PLP<sub>139-151</sub> + 25  $\mu$ M free PLP<sub>139-151</sub>.