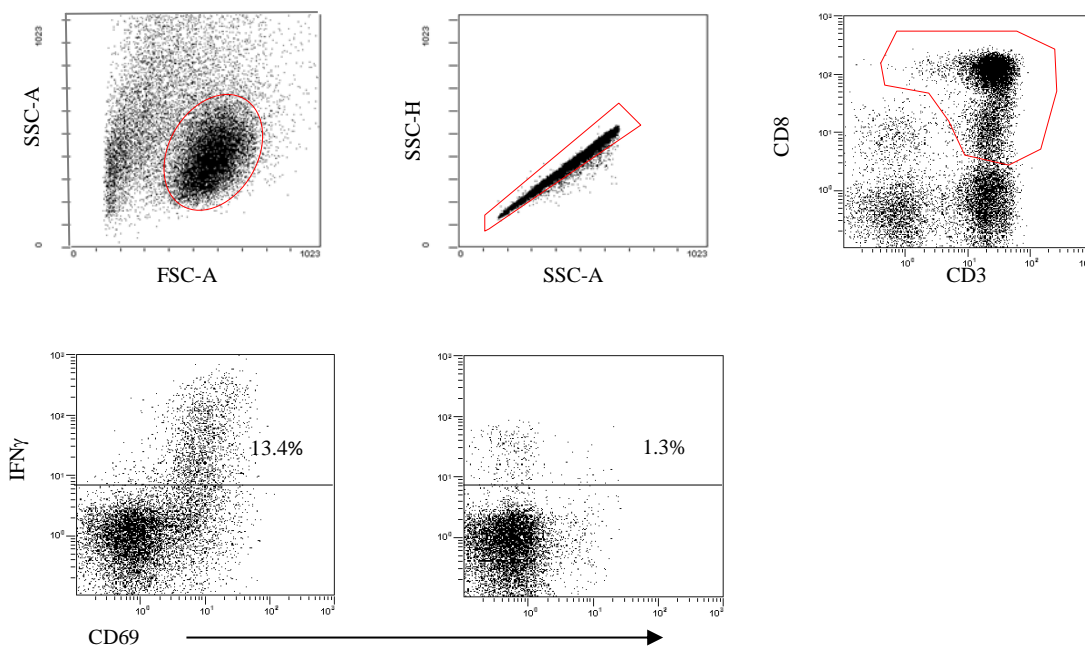


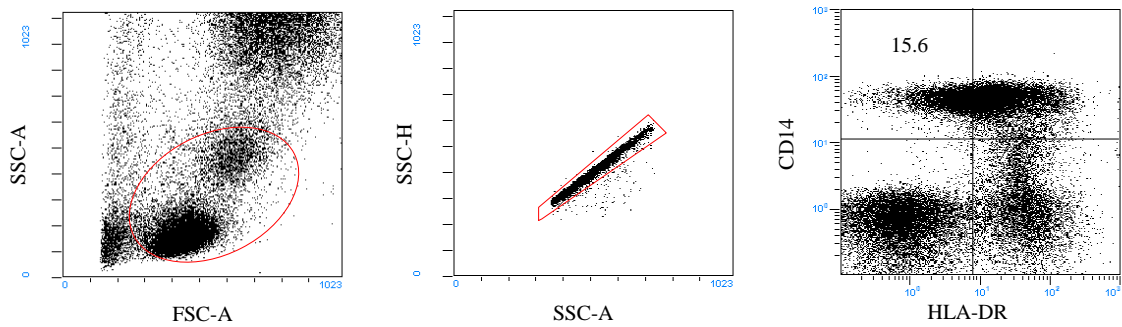
Supplementary Table 1. Study site specifications

Study site number	Location
001	Campus Biomedico University, Rome, Italy
002	Fondazione Policlinico Universitario A. Gemelli-IRCCS, Rome, Italy
003	Istituto Nazionale Tumori-IRCCS, Milan, Italy
005	Azienda Ospedaliera Cannizzaro, Catania, Italy
006	Azienda Ospedali Riuniti di Bergamo, Bergamo, Italy
007	Policlinico Umberto I, Rome, Italy



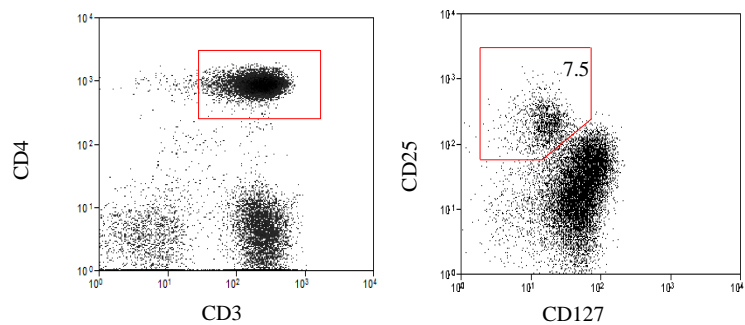
Supplementary Figure 1. Gating tree for IFN- γ ⁺CD8⁺ T lymphocytes

Lymphocytes were first selected based on cell morphology in an FSC/SSC dot plot (upper left panel). Single cells were then distinguished from doublets by plotting SSC-height vs. SSC-area (upper middle panel) before identifying CD8⁺ T lymphocytes in a CD3 vs. CD8 dot plot (upper right panel). Within these, IFN- γ ⁺ lymphocytes were identified in an IFN- γ vs. CD69 dot plot (lower left panel: SEB-stimulated sample; lower right panel: correspondent IC-stimulated sample). The boundary between IFN- γ ⁺ and IFN- γ ⁻ events was set using the SEB-stimulated sample (lower left panel) and applied to the IC-stimulated sample (lower right panel). Although CD69 upregulation was measurable following incubation with SEB, it was not detectable following incubation with Ag-pulsed DC. A time gate was applied in a time vs. FSC area plot to remove events acquired during bad flow performance (not shown).



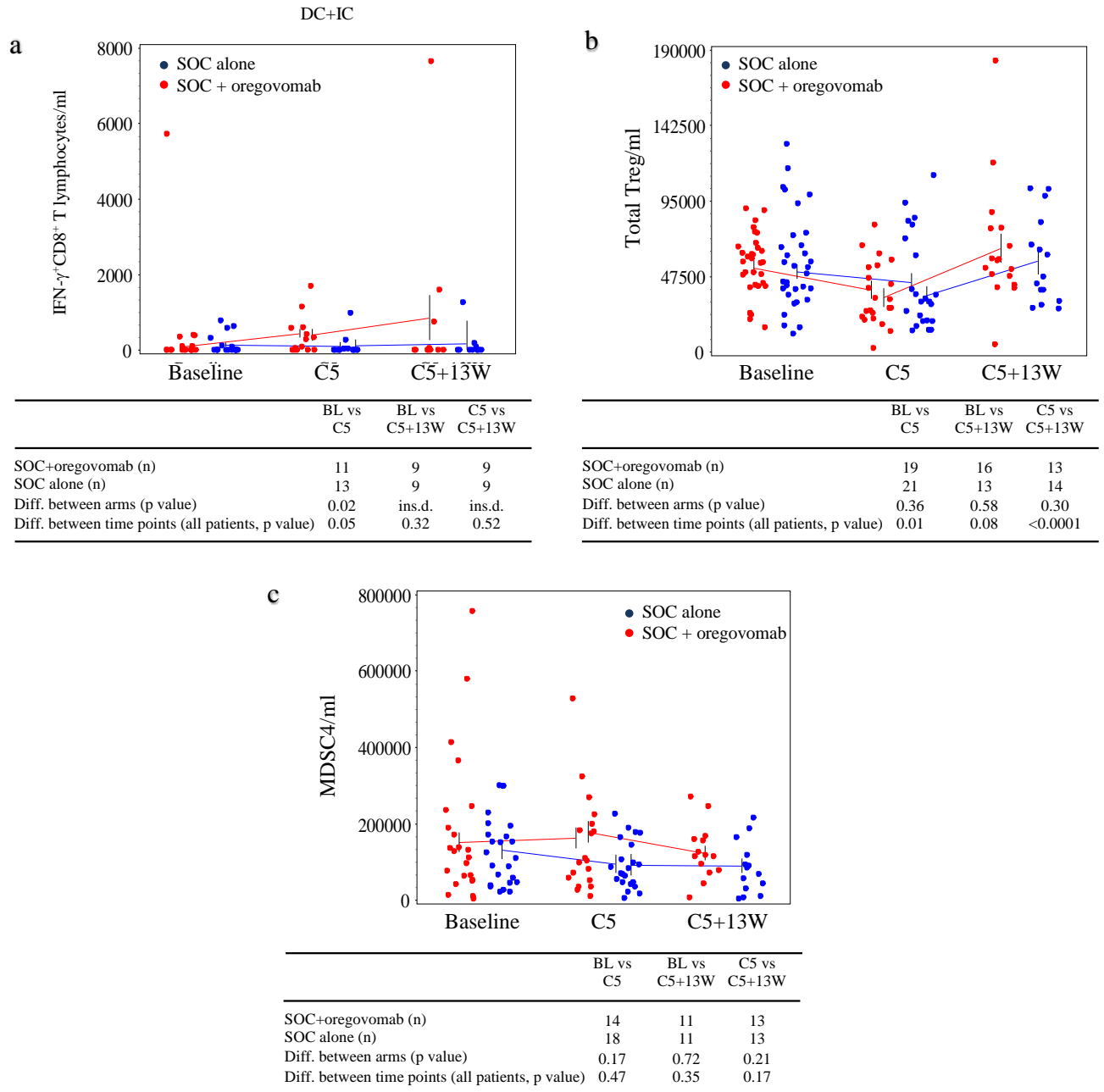
Supplementary Figure 2. Gating tree for MDSC4 in fresh whole blood.

First, mononuclear cells were selected based on cell morphology in an FSC vs. SSC dot plot (left panel). Single cells were distinguished from doublets by plotting SSC height vs. SSC area (middle panel) and MDSC4 (CD14⁺ HLA-DR^{low/-}) were then identified within the CD14⁺ population (15.6% in this representative sample, right panel). A time gate was applied in a time vs. FSC area plot to remove events acquired during bad flow performance (not shown).



Supplementary Figure 3. Gating tree for Treg in fresh PBMC

Samples were first gated on lymphocytes and singlets (not shown). CD3⁺CD4⁺ lymphocytes were identified (left panel) and the Treg percentage (7.5% in this representative sample, right panel) was calculated as CD25^{dim/bright}CD127^{neg} events within CD3⁺CD4⁺ lymphocytes. A time gate was applied in a time vs. FSC area plot to remove events acquired during bad flow performance (not shown).



Supplementary Figure 4. Changes in the IFN γ ⁺CD8⁺ T lymphocytes, Treg and MDSC4 in the two treatment arms over time

Effect of treatment on: **(a)** IFN γ ⁺CD8⁺ T lymphocytes, **(b)** Treg, and **(c)** MDSC4. Dots illustrate individual data points in patients treated with either SOC + oregovomab (red) or SOC alone (blue). To generate means, only those patients were taken into account for whom values were available at adjacent time-points; hence two means and standard errors are provided for cycle 5. The tables

below each panel provide patient numbers included in each treatment arm for the respective comparisons being performed, as well as resulting p-values. ins.d.: insufficient data.