Supplementary Table 1: Tested antigens and the respective antibody clone.

Antigen	Antibody clone	Fluorochrome
CD3	UCHT1	Pacific Blue
CD4	SK3	APC-Cy7
CD11b	ICRF44	PE-Cy7
CD14	MΦP9	APC-Cy7
CD15	HI98	FITC
CD16	3G8	PerCP-Cy5.5
CD19	HIB19	FITC
CD25	M-A251	APC-Cy7 and APC
CD33	WM-53	APC
CD45RA	HI100 or 5H9	APC-H7 and APC
CD56	B-159 or HCD56	PE-Cy7 and Brilliant Violet 421
CD62L	SK11	PE
CD69	L78	APC
CD103	Ber-ACT8	FITC
CD124	hIL-4R M57	PE
CD127	hIL-7R-M21	PerCP-Cy5.5
CD195	3A9	APC
CD197	3D12	PE-Cy7
FoxP3	259D7C7	PE
HLA-DR	G46-6	PerCP-Cy5.5
Vδ2	B6	FITC
Vγ9	B3	PE

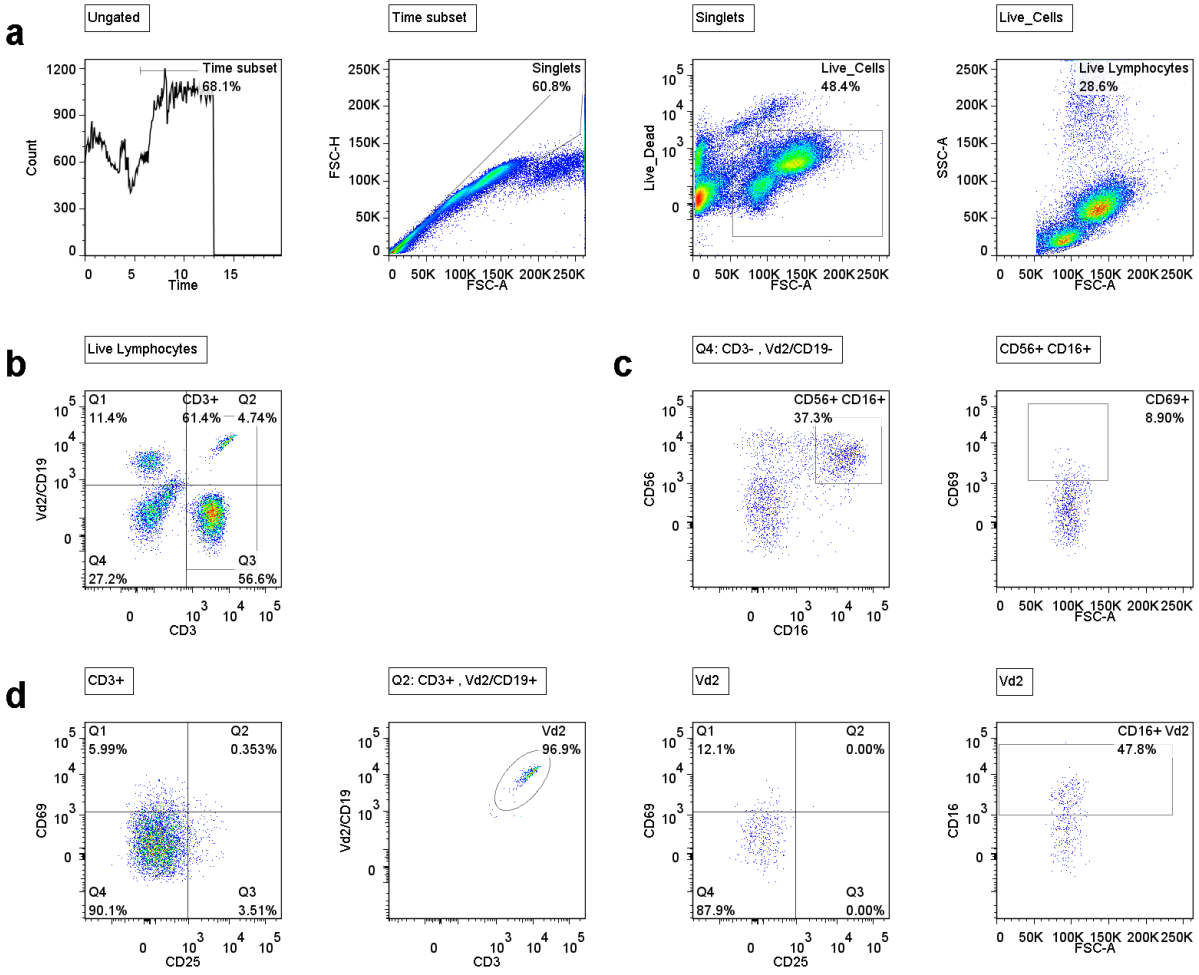
Supplementary Table 2: Antigen staining panels for immunophenotyping.

	Fluorochrome-labeled antibodies (α-)							
	FITC	**PE**	**PerCP-Cy5.5**	**PE-Cy7**	**APC**	**APC-Cy7 or APC-H7**	**Pacific Blue or Brilliant Violet 421**	**Aqua**
Panel-1 (B-, T-, NK cells)	Vδ2 CD19	Vγ9	CD16	CD56	CD69	CD25	CD3	Live/Dead
Panel-2 (Treg)	CD103	FoxP3	CD127	CD45RA	CD25	CD4	CD3	Live/Dead
Panel-3 (MDSC)	CD15	CD124	HLA-DR	CD11b	CD33	CD14	CD19 CD56 CD3	Live/Dead
Panel-4 (γδ T-cells)	Vδ2 CD19	CD62L	CD16	CD197	CD195	CD45RA	CD3	Live/Dead

Supplementary Table 3: Overview of intra- and inter-assay variations for immune cell subpopulations.

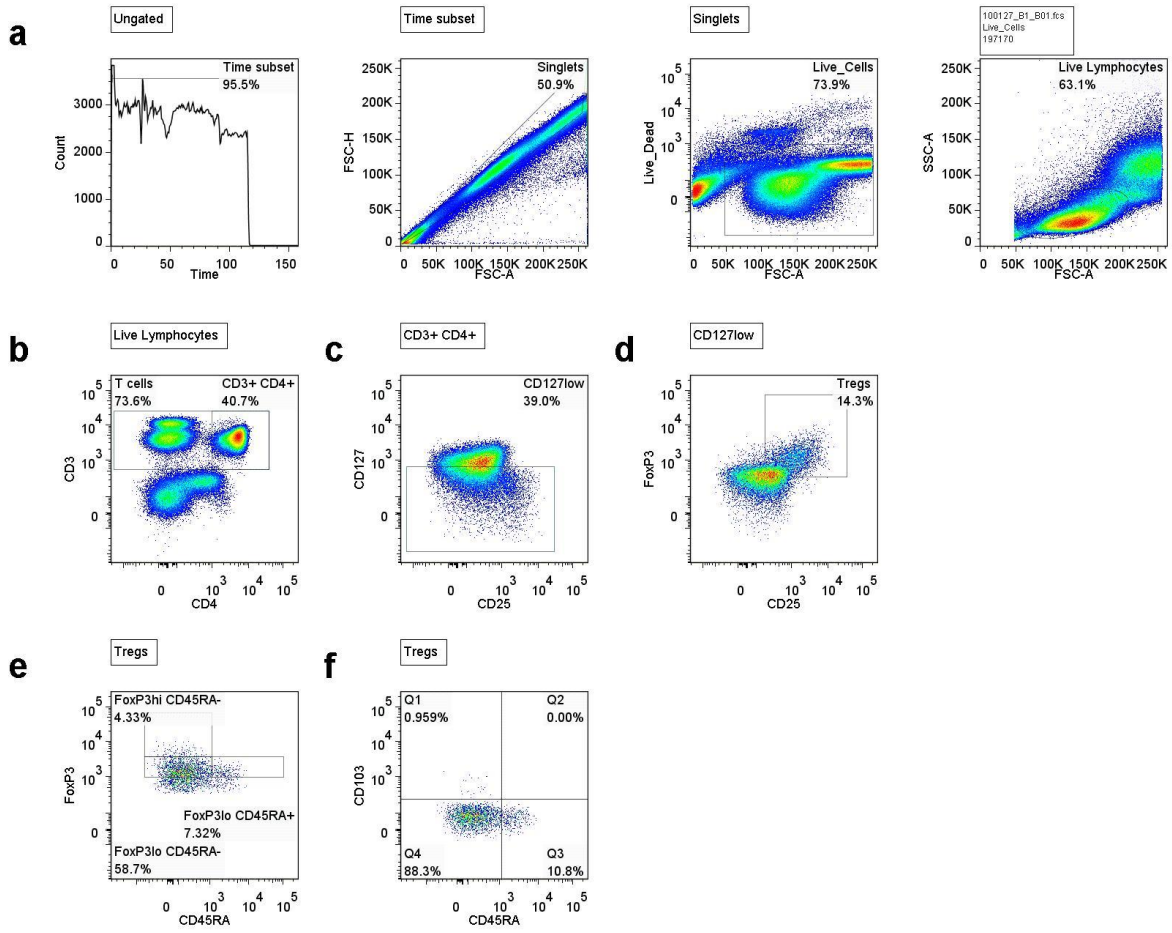
			Intra-assay variability CV [range]	Inter-assay variability CV [range]
Panel-1 (T, B , NK cells)	1	$CD19^+$ B cells	12.19 [5.74-9.58]	24.99 [6.69-13.36]
	2	$CD3^+$ T cells	9.77 [48.06-78.98]	2.37 [61.94-77.71]
	3	$CD16^+CD56^+$ NK cells	7.44 [4.13-9.56]	3.15 [4.51-9.75]
	4	Vδ2 T cells	9.85 [1.33-3.76]	9.15 [1.37-3.84]
	5	$CD25^+$ T cells	12.58 [4.15-8.93]	14.38 [3.10-7.75]
	6	$CD69^+$ T cells	14.31 [0.22-0.65]	24.47 [0.12-0.72]
	7	$CD69^+$ NK cells	15.41 [0.84-2.33]	32.21 [0.85-2.50]
	8	$CD25^+V\delta2^+$ T cells	29.59 [0.28-2.00]	45.42 [0.10-1.42]
	9	$CD69^+V\delta2^+$ T cells	40.97 [0.24-1.11]	44.36 [0.18-1.34]
	10	$CD16^+V\delta2^+$ T cells	1.80 [42.95-57.87]	7.89 [42.03-58.85]
Panel-2 (Tregs)	11	$CD4^+$ T cells	0.31 [52.90-78.46]	3.71 [51.28-75.84]
	12	$CD4^+$ Treg	1.34 [6.08-9.53]	9.47 [5.69-9.44]
	13	$CD45RA^+$ Treg	3.39 [11.60-43.43]	15.55 [11.68-52.38]
	14	$FoxP3^{hi}CD45RA^-$ Treg	8.57 [3.54-11.71]	32.92 [3.93-11.12]
	15	$FoxP3^{lo}CD45RA^+$ Treg	1.86 [49.77-74.30]	9.75 [36.88-74.11]
	16	$CD103^+$ Treg	11.23 [0.41-4.39]	33.06 [0.30-4.18]
Panel-3 (MDSC)	17	MDSC1	5.26 [0.07-0.10]	10.16 [0.08-0.12]
	18	MDSC2	6.36 [0.16-1.00]	7.17 [0.17-0.98]
	19	MDSC3	15.55 [0.00-1.37]	58.95 [0.00-1.26]
	120	MDSC4	2.16 [13.89-23.91]	6.07 [12.30-23.72]
	21	MDSC5	3.68 [1.71-4.42]	17.43 [1.47-4.75]
	22	MDSC6	5.72 [0.27-0.37]	10.16 [0.27-0.40]
Panel-4 (γδ T cells)	23	$CD45RA^+CD62L^+$ of $V\delta2^+$ T cells	2.31 [15.74-44.68]	18.79 [16.36-43.62]
	24	$CD45RA^-CD62L^+$ of $V\delta2^+$ T cells	1.80 [14.60-41.93]	11.93 [14.80-50.62]
	25	$CD45RA^-CD62L^-$ of $V\delta2^+$ T cells	2.85 [9.21-41.23]	17.09 [9.76-40.90]
	26	$CD45RA^+CD62L^-$ of $V\delta2^+$ T cells	3.61 [8.98-32.45]	15.05 [6.41-31.96]

Supplementary Figure 1



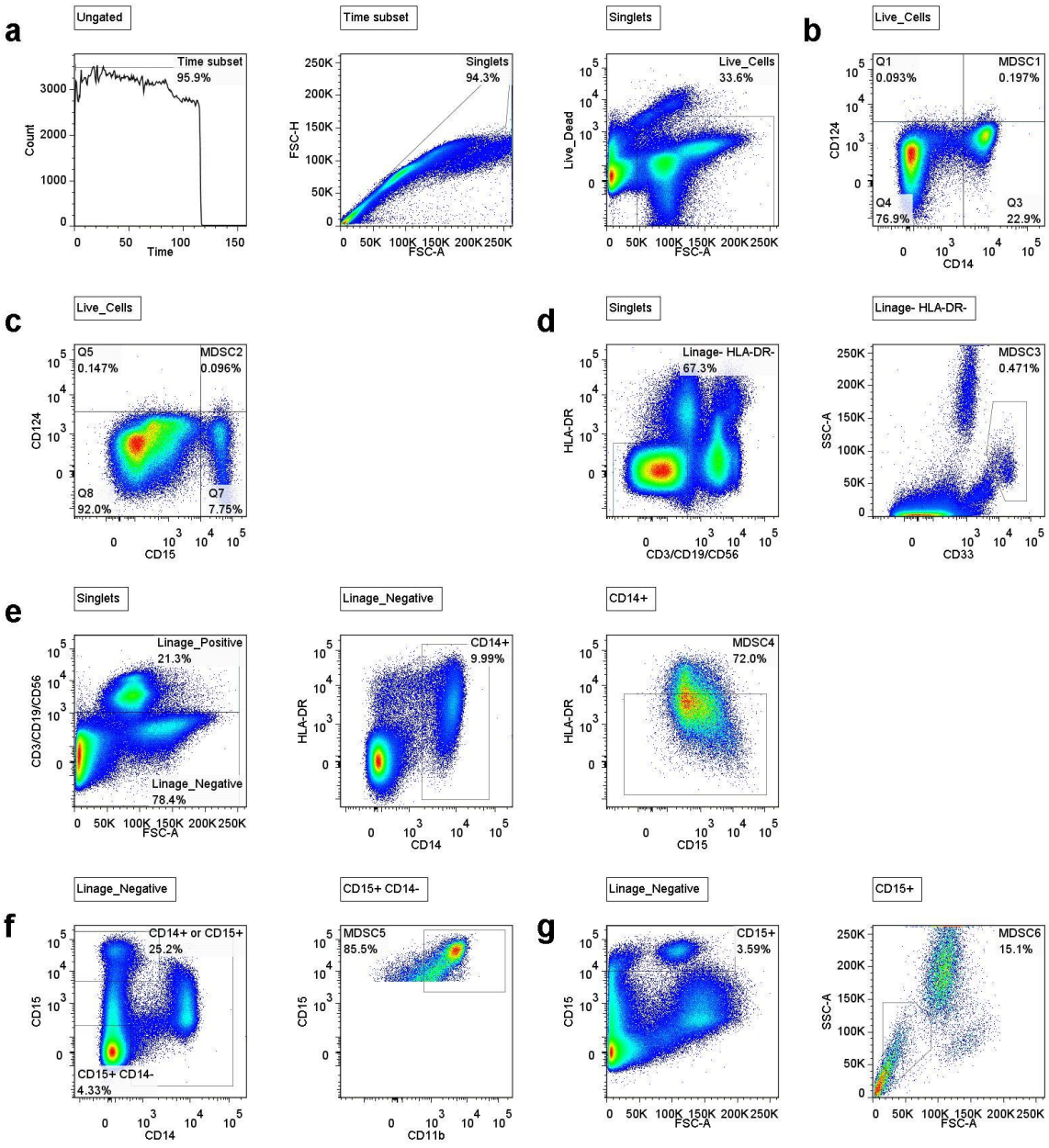
Supplementary Figure 1: Gating strategy for Panel-1 – the major effector cell panel. Cells for analysis of Panel-1 were gated as follows: (**a**) setting the time gate, exclusion of doublets, gating on live cells, and furthermore on lymphocytes in FSC/SSC. (**b**) B cells were identified as $CD19^+$ cells. T cells were identified as $CD3^+$ cells. (**c**) NK cells were identified as $CD56^+CD16^+$ cells gated in $CD3^-CD19^-V\delta2^-$ cells. $CD56^+CD16^+$ NK cells were further gated on activation marker CD69. (**d**) $CD3^+$ T cells were further gated on activation markers CD25 and CD69. Vδ2-antibody was used for identification of $V\delta2^+$ T cells in combination with CD3. $V\delta2^+CD3^+$ T cells were further gated on activation markers CD25 and CD69 (by transferring a gate previously set on $CD3^+$ cells) as well as on FcγRIII/CD16.

Supplementary Figure 2



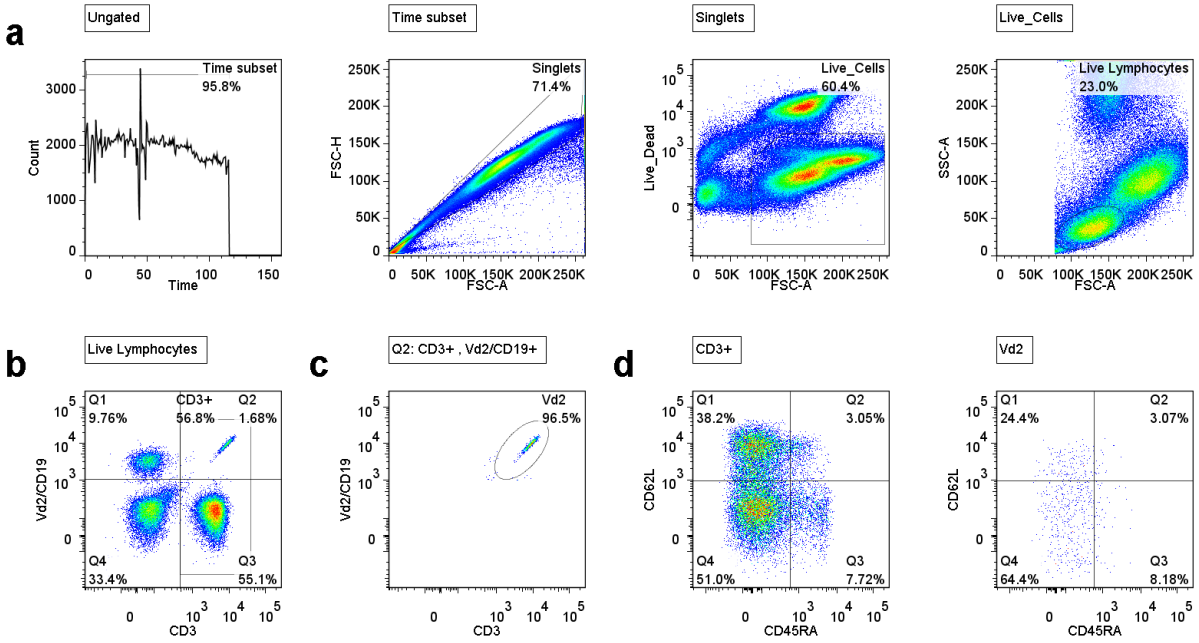
Supplementary Figure 2: Gating strategy for Panel-2 – the regulatory T cell panel. (**a**) Cells for analysis of Panel-2 were gated as follows: setting the time gate, exclusion of doublets, gating on live cells, and furthermore on lymphocytes in FSC/SSC. (**b**) T cells were identified as $CD3^+$ cells. $CD4^+$ T cells were identified as $CD3^+CD4^+$ cells. (**c**) These cells were further gated on $CD127^{lo}$ cells. (**d**) Among $CD127^{lo}CD4^+$ T cells Tregs were identified as $CD25^+Foxp3^+$ cells. (**e**) Furthermore, these cells were gated on activated Treg ($FoxP3^{hi}CD45RA^-$), resting Treg ($FoxP3^{lo}CD45RA^+$) and non-suppressive T cells ($FoxP3^{lo}CD45RA^-$). (f) Additionally the expression of CD103 and CD45RA was analyzed in Tregs.

Supplementary Figure 3



Supplementary Figure 3: Gating strategy for Panel-3 – the myeloid derived suppressor cell (MDSC) panel. Cells for analysis of Panel-3 were gated as follows: (**a**) setting the time gate, exclusion of doublets, and gating on live cells (used for MDSC1 and MDSC2). (**b**) The MDSC1 population was identified as $CD14^{+}CD124^{+}$ cells. (**c**) The MDSC2 population was identified as $CD15^{+}CD124^{+}$ cells. (**d**) For identification of MDSC3, singlets were gated on HLA-DR^{-} $lineage^{-}$ (i.e. $CD3^{-}CD19^{-}CD56^{-}$) cells. These cells were further gated on $CD33^{+}SSC^{int}$ cells to identify MDSC3. (**e**) For identification of the MDSC4 population, $lineage^{-}$ singlet cells were gated on $CD14^{+}$ cells. These cells were further gated on HLA-DR^{lo} cells to identify MDSC4. (**f**) For identification of MDSC5, $lineage^{-}$ cells were gated on $CD15^{+}CD14^{-}$ cells. These cells were further gated on $CD11b^{+}$ cells to identify MDSC5. (**g**) The MDSC6 population was identified by gating $lineage^{-}$ cells on $CD15^{+}$ cells which were further gated on $FSC^{lo}SSC^{hi}$ cells.

Supplementary Figure 4



Supplementary Figure 4: Gating strategy for Panel-4 – the Vδ2 T cell panel. Cells for analysis of Panel-4 were gated as follows: (**a**) setting the time gate, exclusion of doublets, gating on live cells and furthermore on lymphocytes in FSC/SSC. (**b**) T cells were identified as $CD3^+$ cells. (**c**) Vδ2-antibody was used for identification of Vδ2 T cells in combination with CD3. (**d**) T cells were gated on CD45RA and CD62L to identify the position of the gate (left plot). The CD45RA versus CD62L gate was then transferred on $V\delta2^+CD3^+$ cells for further phenotyping (right plot).