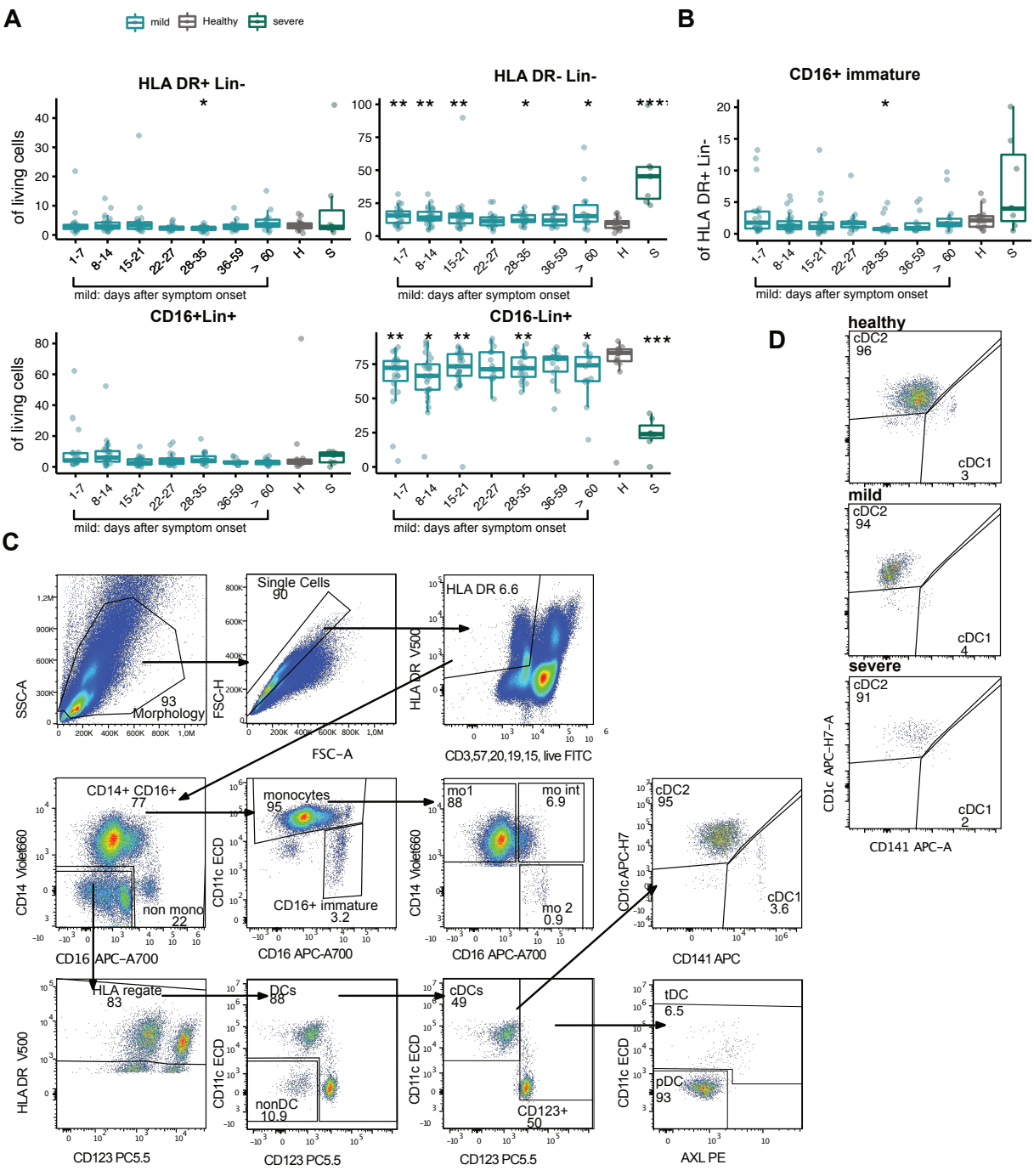

Figure S1. Cell frequencies in COVID-19 outpatients and gating strategy.
A) Cell frequencies of living cells of HLA DR$^+$ Lin$^-$ (CD3, CD19, CD20, CD56, CD66b, live/dead), HLA DR$^-$ Lin$^-$, CD16$^+$ Lin$^+$ and CD16$^-$ Lin$^+$ cells. B) Percentage of CD16$^+$ immature granulocytes of HLA DR$^+$ Lin$^-$ cells. C) Gating strategy for DC and monocyte subsets. D) Dot plot of representative, severe COVID-and mild patients showing CD11c+ cDCs gated into cDC1 and cDC2 by expression of CD141 and CD1c.

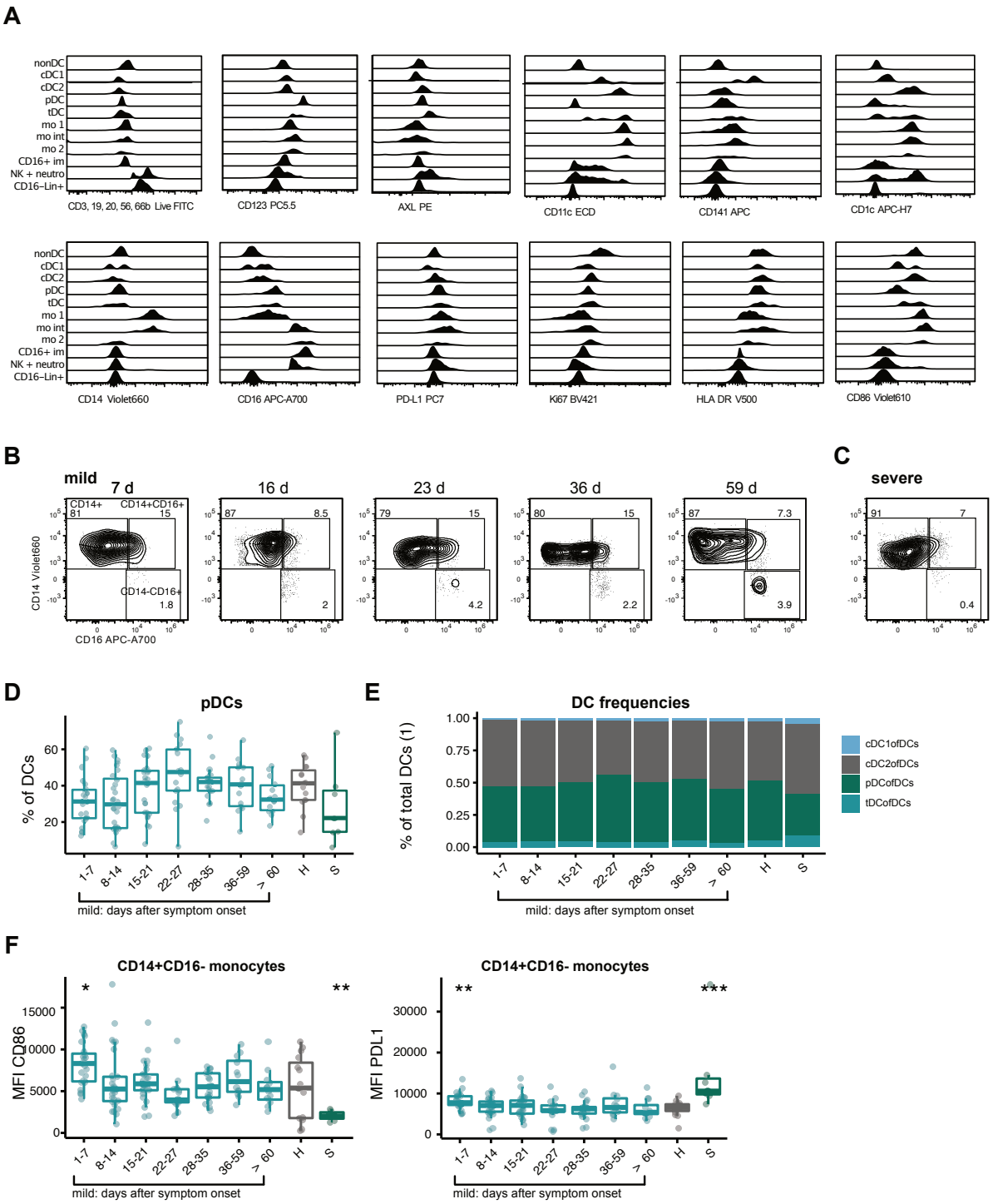

Figure S2. Phenotypic characterization of APC subpopulations and DC frequencies.

A) Characterization of marker expression in indicated cell types. Representative results, mild COVID-19. B) Representative contour plots showing monocyte subpopulations at different time points after symptom onset in mild disease. C) Representative contour plot showing monocyte subpopulations of in severe COVID-19 5 days after symptom onset. D) Percentage of pDC within total DCs in mild disease (blue), healthy controls (gray), and hospitalized severe COVID-19 patients (green). E) DC subset composition in the indicated groups (mean). F) MFIs of CD86 and PD-L1 expression in $CD14^{+}CD16^{-}$ monocytes in mild disease (blue), healthy controls (gray), and hospitalized severe COVID-19 patients (green).

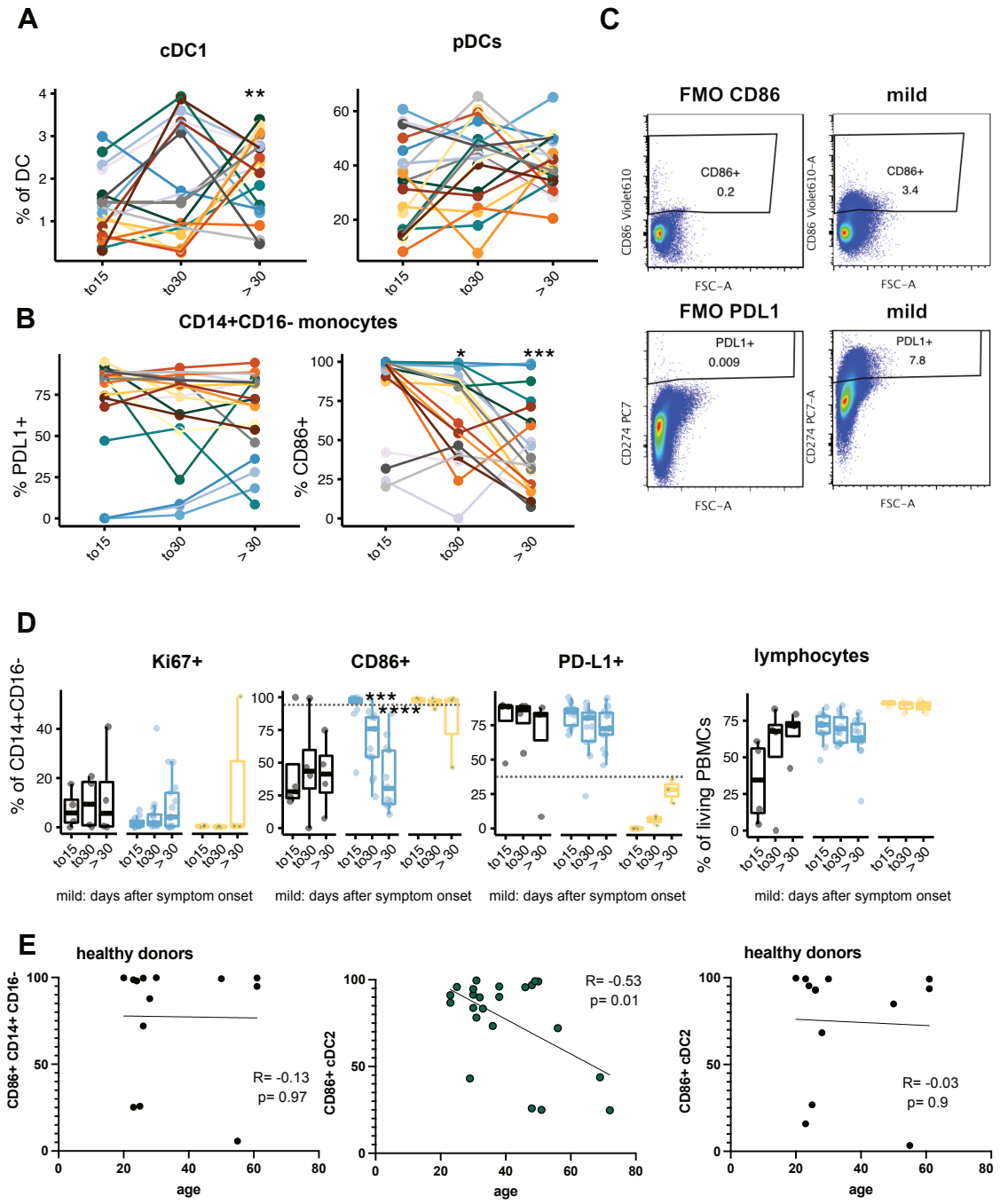

Figure S3. Activation markers in DCs and monocytes.
A and B) Longitudinal measurements of cDC1 and pDC frequencies of total DCs (A) and % of PD-L1 and CD86^{+} CD14^{+} CD16^{-} monocytes (B) at grouped time points up to 15 days (to15), between 15 and 30 days (to30), and up to 60 days (to60) after symptom onset. Each line connects the measured values of one patient. Individual patients are indicated by different colors. C) Gating strategy for CD86$^{+/high}$ and PD-L1$^{+/high}$ cells. Single cells were gated for CD86$^{+/high}$ and PD-L1$^{+/high}$ cells, based on positive and negative populations and the relevant FMO controls. Shown are FMO controls for CD86 and PD-L1 and a patient with mild COVID-19 disease gated on all living cells. *D)* Percentages of Ki67^{+}, CD86^{+} and PD-L1^{+} CD14^{+}CD16^{-} monocytes; percentages of lymphocytes within PBMC in the 3 clusters at the different timepoints. E) Spearman correlation analysis of the outpatient cohort and healthy donors using the first measured timepoint after symptom onset (<7 days). Shown are correlations of CD86^{+} CD14^{+}CD16^{-} monocytes and CD86^{+} cDC2 with age. R values and p values indicated.

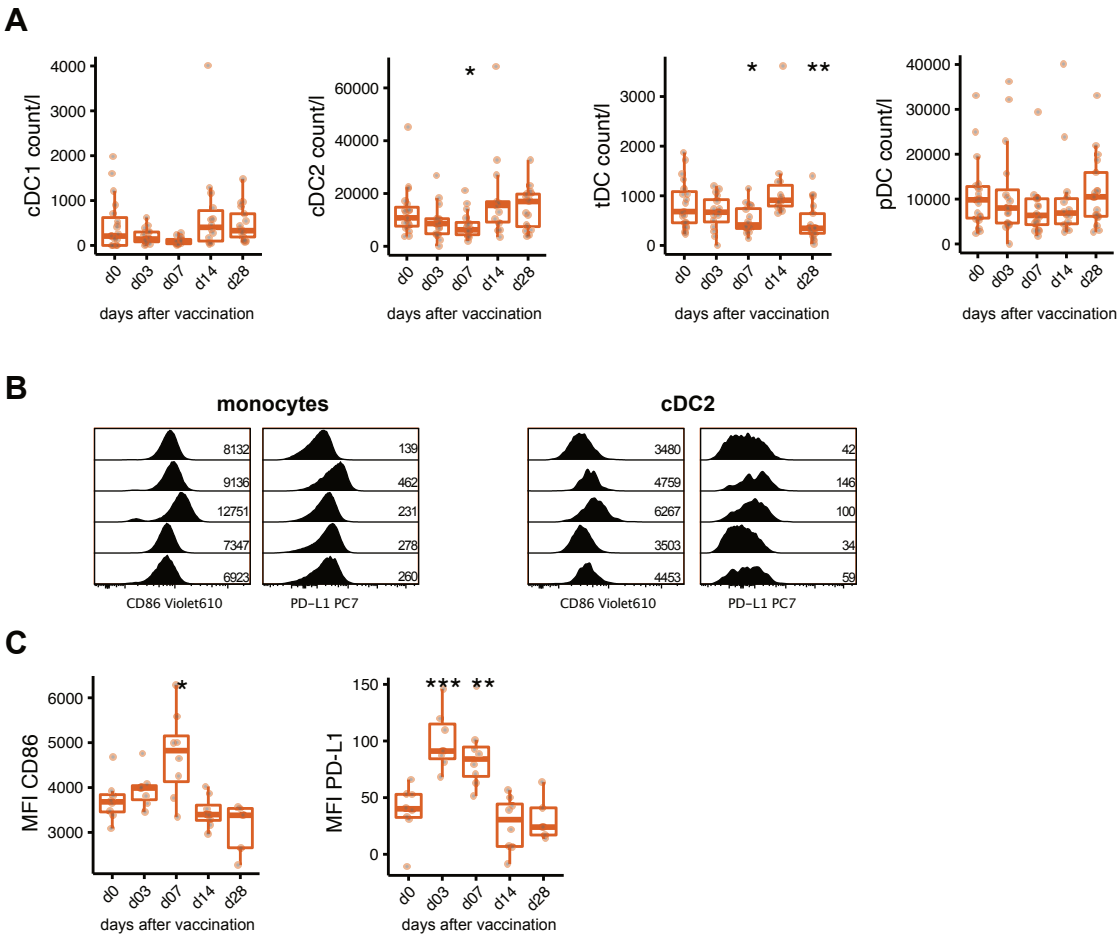

Figure S4. DC counts and APC phenotypes before and after YF17D vaccination
A) cDC1, cDC2, tDC and pDC counts per liter of blood shown for day 0, 3, 7, 14 and 28 after yellow fever vaccination. Significant p-values are shown as calculated in R using the Kruskal-Wallis test and Dunn's multiple testing and comparing with d0. Significance is indicated by asterisks (*p < 0.05, **p < 0.01, ***p < 0.001, ****p < 0.0001).B) Representative histograms of CD86 and PD-L1 expression in monocytes and cDC2 shown for day 0, 3, 7, 14 and 28 (from top to bottom) after yellow fever vaccination. Numbers indicate the mean fluorescence intensity (MFI). C)

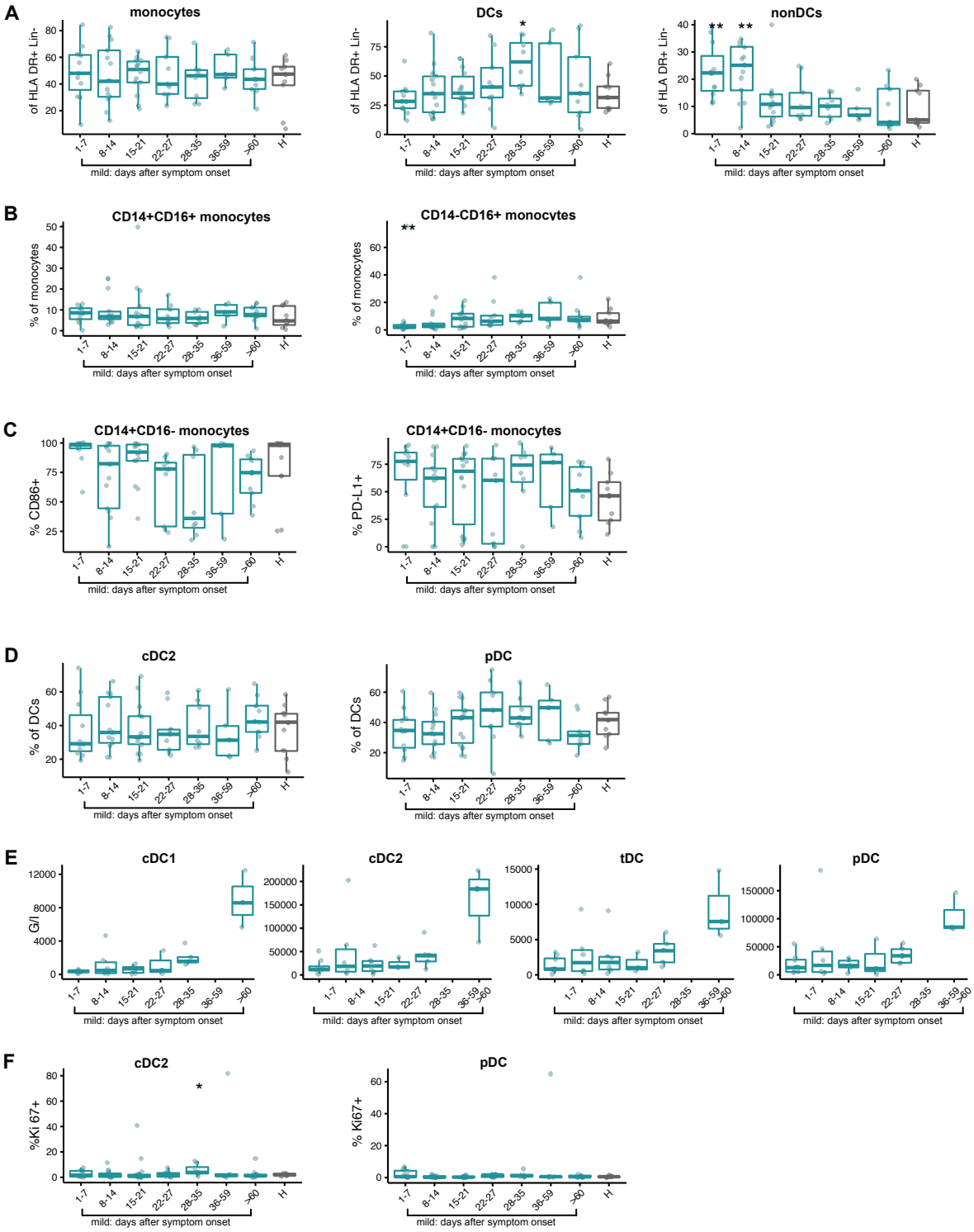

Figure S5. Subgroup analysis of COVID-19 outpatients below 35 years of age
A) Frequency of monocytes, DCs and non DCs of HLA DR$^+$ Lin$^-$ cells in COVID-19 outpatients aged under 35. B) Frequency of CD14$^+$CD16$^+$ and CD14$^-$CD16$^+$ monocytes of total monocytes in cohort below 35 years. C) Percentage of CD86$^+$ and PD-L1$^+$ cells of CD14$^+$CD16$^+$ monocytes. D) Percentage of cDC2 and pDCs of total DCs. E) Cell counts of DC in giga/liter blood. F) Percentage of Ki67$^+$ cells within cDC2 and pDCs.

Supplementary table 1						
	Outpatients	**Severe**	**Healthy**	**Cluster 1**	**Cluster 2**	**Cluster 3**
Number	39	7	15	4	13	3
Sex (male)	16 [41%]	5 [71.4%]	4 [40%]	1 [25%]	6 [46%]	0
Age (median, inter quartile range)	34.5 [30; 50]	82 [72;87]	34 [23;51]	54 [32;71]	36 [28;46]	30 [23;31]
Days after symptom onset (1st tp, median, inter quartile range)	7 [5;12]	10 [6;16]*	NA	7 [5;11]	7 [5; 9]	7 [6;12]
Clinical score#						
Score 2	17 [43.5%]	0	0	1 [25%]	4 [30.8%]	3 [100%]
Score 3	22 [56.4%]	0	0	3 [75%]	9 [69.2%]	0
Score 4		2 [28.6%]	0			
Score 5		1 [14.3%]	0			
Score 8		4 [57.1%]	0			
Symptoms°						
Cough	23 [58.9%]	2 [28.6%]	0			
Dyspnea	0	4 [57.1%]	0			
Fever		4 [57.1%]	0			
Symptomatic therapy (Ibuprofen)	4 [10.3%]	NA	NA			
Glucocorticoid therapy	0	7 [100%]	NA			
Pre-existing chronic conditions						
Allergy	2 [5.1%]	NA	NA			
Dermatitis	1 [2.6%]	NA				
Diabetes	1 [2.6%]	3 [43.9%]	NA			
Hypothyroidism	1 [2.6%]	0	NA			
Asthma	0	2 [28.6%]	NA			
Hypertension	0	6 [85.7%]	NA			
Cardiovascular disease	0	5 [71.4%]	NA			
Chronic Kidney disease	0	4 [57.1%]	NA			
Chronic lung disease	0	0	NA			
Malignancy	0	0	NA			
Immunosuppression	0	0	NA			

* for 2 patients in the severe group the date of positive PCR was used, because date of symptom onset was unknown

maximal score reached

° symptoms reported at time point of enrollment (outpatients) or at the time point of admission to the hospital (severe group)

Supplementary table 2	
	Yellow Fever Cohort
Number	9-20
Sex (male)	5 [25%]
Age (median, inter quartile range)	25 [23; 30]
Symptoms after vaccination	0
Pre-existing chronic conditions	
Dermatitis	1
Diabetes	0
Hypothyroidism	1
Asthma	1
Hypertension	0

Supplementary table 3		
Antibody	**Clone**	**Company**
CD3	SK7	Biolegend
CD19	HIB19	Biolegend
CD20	2H7	Biolegend
CD56	MEM-188	Biolegend
Zombie Green		Biolegend
CD14	M5E2	Biolegend
CD16	3G8	Biolegend
CD123	6H6	Invitrogen
Axl	# 767329	R&D Systems
CD1c	L161	Biolegend
CD141	REA647	Miltenyi
HLA DR	L243	Biolegend
PD-L1	29E.2A3	Biolegend
CD11c	Bu15	Biolegend
CD86	IT2.2	Biolegend
Ki67	Ki-67	Biolegend
CD66b	G10F5	Biolegend