Table S1: Surface markers for B-cell phenotyping

Target	Conjugate	Clone	Company	Cat. No.	Dilution
		FACS Antibodies			
Human CD3	PB	UCHT1	Biolegend	300417	1:50
Human CD19	PE/Cy7	HIB19	Biolegend	302216	1:66
Human CD21	PE	Bu32	Biolegend	354904	1:50
Human CD24	PerCp/Cy5.5	ML5	Biolegend	311116	1:66
Human CD27	FITC	M-T271	Biolegend	356404	1:40
Human CD38	AF700	HIT2	Biolegend	303524	1:50
Human IgM	APC	MHM-88	Biolegend	314510	1:40
Human IgD	APC/Cy7	IA6-2	Biolegend	348218	1:50
		Live/Dead discrimination			
Live/Dead Fixable Aqua	PO		Thermo Fisher	L34957	1:50

Table S2: B-cell subsets within single, living $CD3^{-}CD19^{+}$ lymphocytes

B-cell subset	Marker
Exhausted B-cells	$CD21^{low}$ $CD38^{low}$
Naïve B-cells	$IgD^{+}CD27^{-}$
Marginal zone like B-cells	$IgD^{+}CD27^{+}$
Transitional B-cells	$IgD^{+}CD27^{-}CD38^{++}CD24^{++}$
Memory B-cells	$IgD^{-}CD27^{+}$
IgM only memory B-cells	$IgD^{-}CD27^{+}IgM^{+}$
Class-switched memory B-cells	$IgD^{-}CD27^{+}IgM^{-}$
Plasmablasts	$CD38^{++}CD27^{++}IgD^{-}$
IgM only plasmablasts	$CD38^{++}CD27^{++}IgD^{-}IgM^{+}$
Class-switched plasmablasts	$CD38^{++}CD27^{++}IgD^{-}IgM^{-}$

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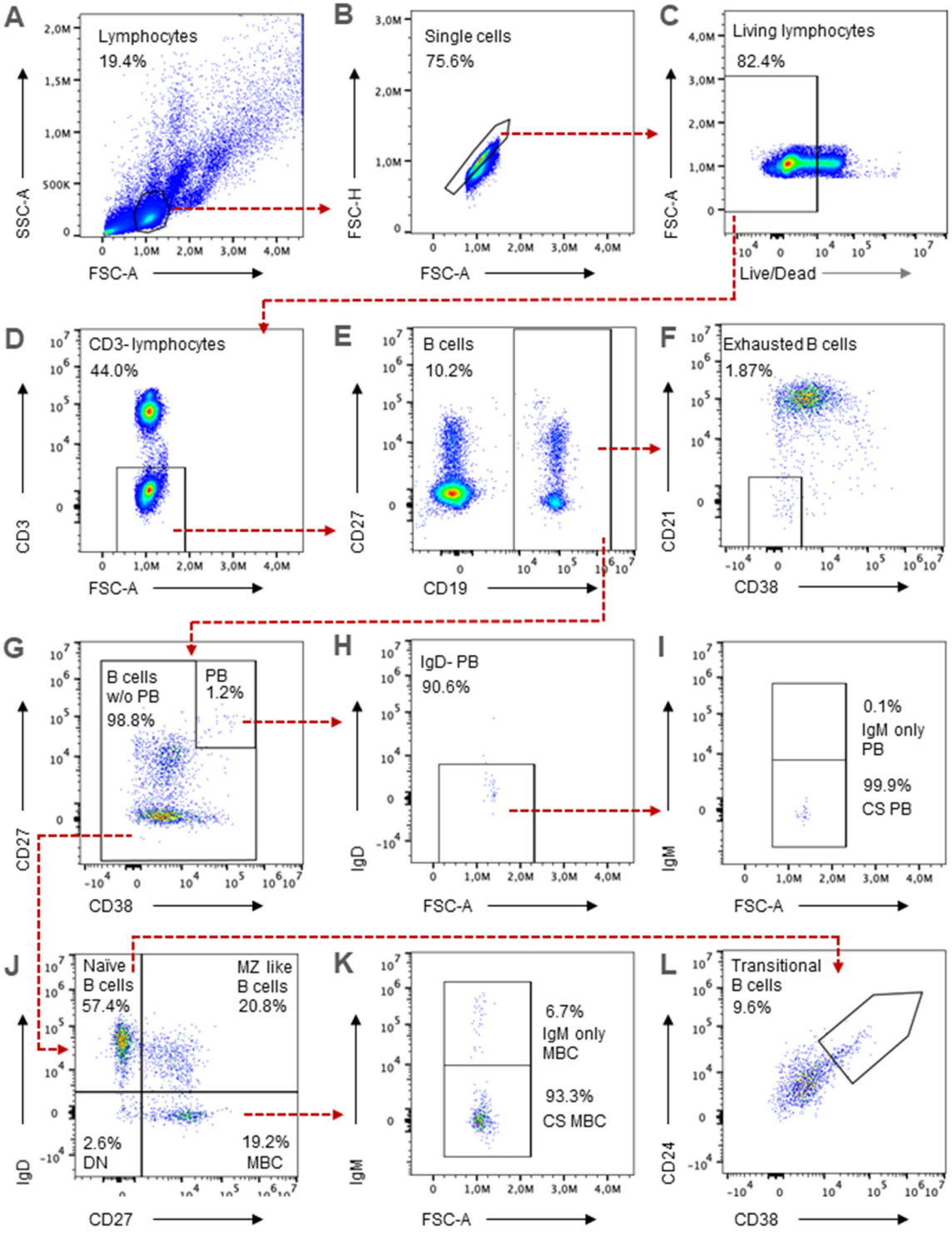


Figure S1: Representative flow cytometry gating strategy for the identification of B-cell subsets from human peripheral blood mononuclear cells (PBMC) of a healthy control. **(A)** Lymphocytes are first selected based on SSC-A and FSC-A. **(B)** Single cells are then gated using FSC-A versus FSC-H, followed by **(C)** the exclusion of dead cells using a Live/Dead stain to isolate viable lymphocytes. **(D)** CD3- non-T-cells are selected, and **(E)** B-cells are identified as $CD19^{+}$. **(F)** Exhausted B-cells are further gated as $CD21^{low}$ $CD38^{high}$. Subsequent gating focuses on the identification of **(G)** plasmablasts (PB), defined as $CD38^{++}CD27^{++}$ cells, further gated as **(H)** $CD38^{++}CD27^{++}IgD$- and subsequently gated for IgM expression **(I)** to discriminate class-switched (CS) $CD38^{++}CD27^{++}IgD^{-}IgM^{-}$ and IgM only $CD38^{++}CD27^{++}IgD^{-}IgM^{+}$ PB. Remaining B-cells without

(w/o) PB were gated for **(J)** naïve B-cells IgD^+ $CD27^-$, marginal zone (MZ)-like B-cells ($CD27^+$ IgD^+), and memory B-cells (MBC; IgD^- $CD27^+$) of which MBC were further stratified regarding IgM expression into **(K)** CS $IgD^-CD27^+IgM^-$ and IgM only $IgD^-CD27^+IgM^+$ MBC. **(L)** Transitional B-cells are identified as $IgD^+CD27^-CD38^{++}CD24^{++}$.