Supplemental Table 1. Primer sequences for PCR amplification and sequencing of *CD81* coding regions from genomic DNA.

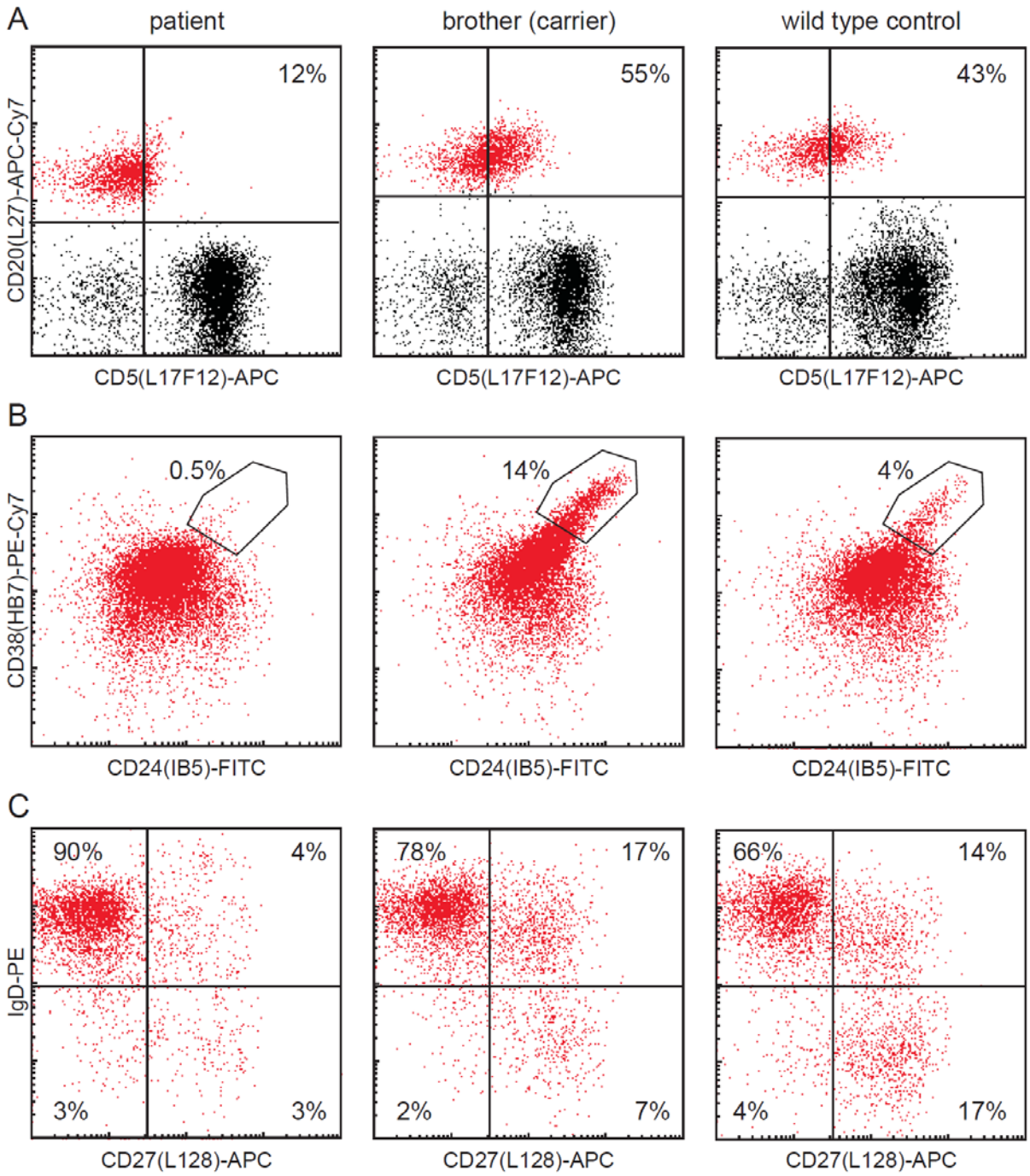
Exon	Forward primer	Forward primer sequence	Reverse primer	Reverse primer sequence
1	CD81exon1F	GGGGCGGGGCCTATGGAG	CD81exon1R	GGACCTGCCCAACGTGGA
2	CD81exon2F	TGTGGGGTGGGCGCACTC	CD81exon2R	CACGCCATGCCCGACTGT
3	CD81exon3F	ATCCCTGGCAGTCAGCAACC	CD81exon3R	TCCGCCCTGAGCACCAGC
4	CD81exon4F	GTCAGGTCGTGGGCTGGT	CD81exon4R	CTGGAGATCCTCCTGGCAAGT
5	CD81exon5F	TCTGGGGTCTAGCCTCGAAGC	CD81exon5R	CTGGGCGTAGGCAGGATT
6	CD81exon6F	GGCCCCTGGATGCATTCT	CD81exon6R	AGTGTGGTCGCTCCCTGTGG
7+8	CD81exon7+8F	CTGCGTGACAACGGGAAG	CD81exon7+8R	TATACACAGGCGGTGATGG

Supplemental Table 2. Primer sequences for PCR amplification and sequencing of *CD81* and *CD225* transcripts.

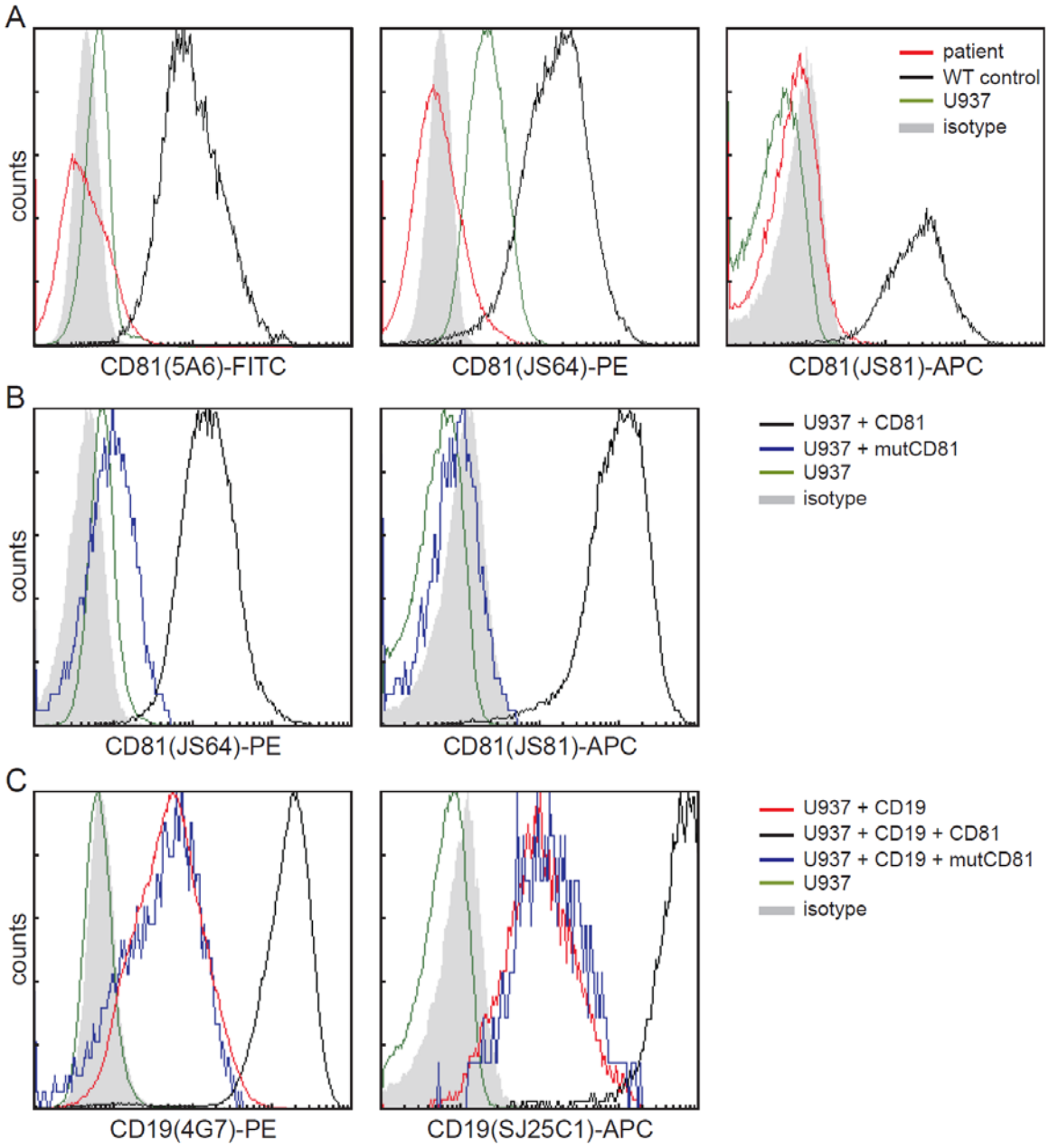
Gene	Forward primer	Forward primer sequence	Reverse primer	Reverse primer sequence
CD81	CD81_mRNA_F1	GACCCCACCGCGCATCCT	CD81_mRNA_R1	GGATGGCCCCGTAGCAGC
	CD81_mRNA_F2	CGCCCAACACCTTCTATGTA	CD81_mRNA_R2	TGCCCGAGGGACACAAAT
	CD81_mRNA_F3	TTCCACGAGACGCTTGACTGCT	CD81_mRNA_R3	AGGCCCGTCTCCACTCAT
IFITM1	IFITM1_mRNA_F1	TCATTGGTCCCTGGCTAATTCAC	IFITM1_mRNA_R1	GGTCACGTCGCCAACCAT
	IFITM1_mRNA_F2	ACAGCGAGACCTCCGTGC	IFITM1_mRNA_R2	TCTAGGGGCAGGACCAAG

Supplemental Table 3. PCR primers and TaqMan probes for *CD81* transcript level quantification.

Target	Forward primer	Forward primer sequence	Reverse primer	Reverse primer sequence	TaqMan probe	TaqMan probe Sequence
total *CD81*	CD81_RQ_F	CGCCAAGGCTGTGGTGAA	CD81_RQ_R	AGAGGTTGCTGATGATGTTGCTG	T-CD81	ACTGACTGCTTTGACCACCTCAGTGCTCA
wild type *CD81*	CD81_RQ_F	CGCCAAGGCTGTGGTGAA	CD81_wt_RQ_R	CTGGTGGCAGTCCTCCTTGA	T-CD81	ACTGACTGCTTTGACCACCTCAGTGCTCA
mutant *CD81*	CD81_RQ_F	CGCCAAGGCTGTGGTGAA	CD81_ID605_RQ_R	GGCCTCGCGCATCTTGA	T-CD81	ACTGACTGCTTTGACCACCTCAGTGCTCA



Supplemental Figure 1. B-cell subset distribution in the CD81-deficient patient, her heterozygous brother and a wild type control. (**A**) The percentage in the upper right quadrant denotes the frequency of $CD5^+$ B-cells within the total B-cell population (red). (**B**) The indicated percentage denotes the frequency of $CD24^{hi}CD38^{hi}$ gated transitional B-cells. (**C**) The percentages denote the frequency of total naïve (upper left), $CD27^+IgD^+$ memory (upper right) and $CD27^+IgD^-$ memory B-cells.



Supplemental Figure 2. CD19 membrane expression levels in the U937 cell line depend on CD81 expression. (**A**) The previously reported CD81-negative U937 cell line expresses low levels of CD81 membrane expression, which can only be visualized with CD81 antibody clone JS64. (**B**) Retroviral transduction of wild type CD81, but not mutant CD81 (p.Glu188MetfsX13) increased CD81 expression levels in the U937 cell line. (**C**) Transduction of wild type CD19 results in dim CD19 membrane expression on U937 cells. Additional transduction with wild type, but not mutant CD81 resulted in high CD19 membrane expression.