Supplementary Materials: Stabilization of the CD81 Large Extracellular Loop with *De Novo* Disulfide Bonds Improves Its Amenability for Peptide Grafting

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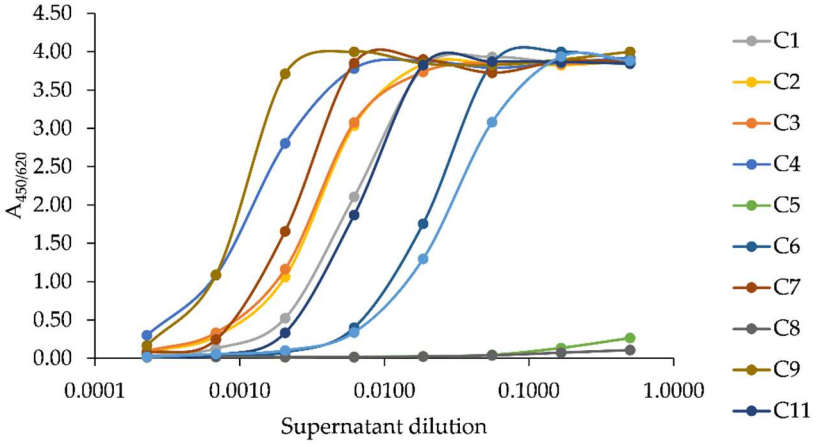

Figure S1. ELISA testing the reactivity of *de novo* disulfide bond endowed hCD81 LEL mutants with structure-reporter antibody M38.

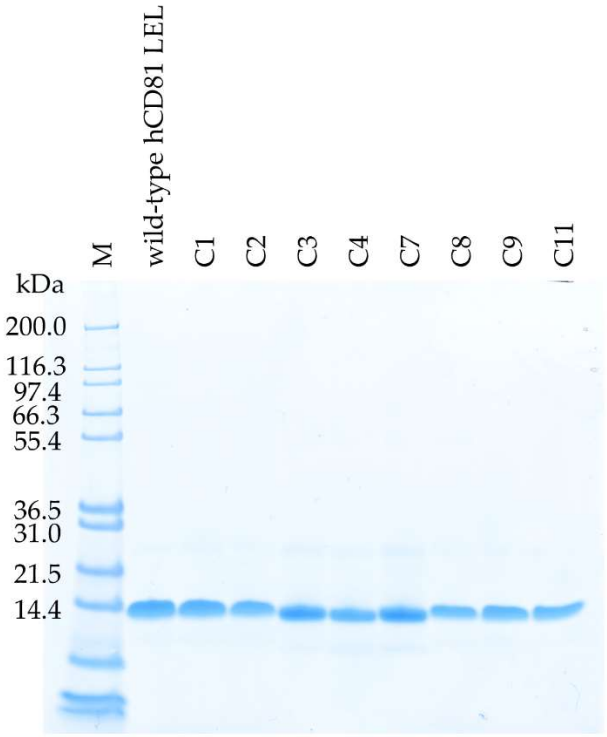

Figure S2. SDS-PAGE of purified hCD81 LEL variants with *de novo* disulfide bonds.

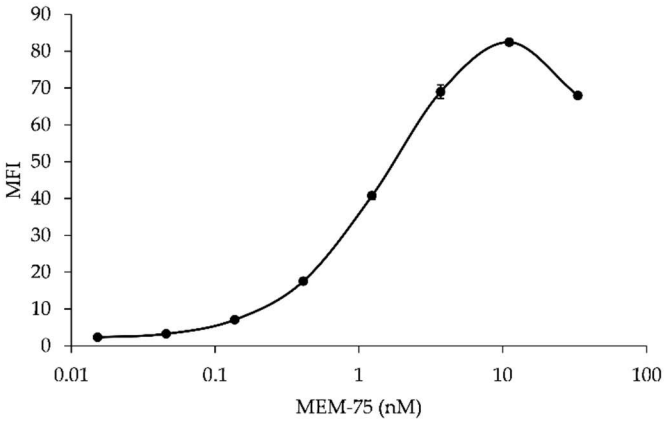

Figure S3. Titration of binding of anti-hTfr antibody MEM-75 to the surface of SK-BR3 cells.

Table S1. Amino acid sequences of hCD81 LEL and peptide-engrafted variants. First and last residue pertaining to hCD81 LEL sequence are in bold, native cysteine residues are in orange, the sequence of peptide graft in in blue and novel cysteine residues are in green, his-tag sequence is underlined.

hCD81 LEL Mutant	Amino Acid Sequence
wild-type	HHHHHHHHGSTGENLY**F**QGASFVNKDQIAKDVKQFYDQALQQAVV DDDANNAKAVVKTFHETLDCCGSSTLTALTTSVLKNNLCPSGSNIISNL FKEDCHQKIDDLFSG**K**
hCD81 LEL_Tfr1	HHHHHHHHGSTGENLY**F**QGASFVNKDQIAKDVKQFYDQALQQAVV DDDANNAKAVVKTFHETLDCCGSSTLTALTTSVLKNNLCPSGSN**HAIY PRHSSG**CHQKIDDLFSG**K**
hCD81 LEL_Tfr2	HHHHHHHHGSTGENLY**F**QGASFVNKDQIAKDVKQFYDQALQQAVV **GSSHAIYPRHSSG**ANNAKAVVKTFHETLDCCGSSTLTALTTSVLKNNL CPSGSNIISNLFKEDCHQKIDDLFSG**K**
hCD81 LEL_Tfr2_C4	HHHHHHHHGSTGENLY**F**QGASFVNKDQIAKDVKQFYDQALQQCVV **GSSHAIYPRHSSG**ANNACAVVKTFHETLDCCGSSTLTALTTSVLKNNL CPSGSNIISNLFKEDCHQKIDDLFSG**K**

Table S2. Oligonucleotides used for the construction of *de novo* disulfide bond stabilized mutants.

hCD81 LEL Variant	Substitution	Oligonucleotide Sequence
C1	Ala134Cys	CAGGCCCTACAGCAGTGCGTGGTGGATGATGAC
		GTCATCATCCACCACGCACTGCTGTAGGGCCTG
	Ala143 Cys	GATGATGCCAACAACTGCAAGGCTGTGGTGAAG
		CTTCACCACAGCCTTGCAGTTGTTGGCATCATC
C2	Ala130Cys	CAGTTCTATGACCAGTGTCTACAGCAGGCCGTG
		CACGGCCTGCTGTAGACACTGGTCATAGAACTG
	Val146Cys	AACAACGCCAAGGCTTGTGTGAAGACCTTCCAC
		GTGGAAGGTCTTCACACAAGCCTTGGCGTTGTT
C3	Gln133Cys	GACCAGGCCCTACAGTGCGCCGTGGTGGATGATG
		CATCATCCACCACGGCGCACTGTAGGGCCTGGTC
	Ala143Cys	GATGATGCCAACAACTGCAAGGCTGTGGTGAAG
		CTTCACCACAGCCTTGCAGTTGTTGGCATCATC
C4	Ala134Cys	CAGGCCCTACAGCAGTGCGTGGTGGATGATGAC
		GTCATCATCCACCACGCACTGCTGTAGGGCCTG
	Lys144Cys	GACGCCAACAACGCCTGTGCTGTGGTGAAGACC
		GGTCTTCACCACAGCACAGGCGTTGTTGGCGTC
C5	Leu154Cys	GACCTTCCACGAGACGTGTGACTGCTGTGGCTC
		GAGCCACAGCAGTCACACGTCTCGTGGAAGGTC
	Lys193Cys	GAGGACTGCCACCAGTGTATCGATGACCTCTTC
		GAAGAGGTCATCGATACACTGGTGGCAGTCCTC
C6	Ala120Cys	CAACAAGGACCAGATCTGTAAGGATGTGAAGCAG
		CTGCTTCACATCCTTACAGATCTGGTCCTTGTTG
	Phe198Cys	AAGATCGATGACCTCTGTTCCGGGAAGTGATGAG
		CTCATCACTTCCCGGAACAGAGGTCATCGATCTT
C7	Ala130Cys	CAGTTCTATGACCAGTGTCTACAGCAGGCCGTG
		CACGGCCTGCTGTAGACACTGGTCATAGAACTG
	Ala143Cys	GATGATGCCAACAACTGCAAGGCTGTGGTGAAG
		CTTCACCACAGCCTTGCAGTTGTTGGCATCATC
C8	Leu131Cys	TTCTATGACCAGGCCTGCCAGCAGGCCGTGGTG
		CACCACGGCCTGCTGGCAGGCCTGGTCATAGAA
	Leu165Cys	AGCACACTGACTGCTTGTACCACCTCAGTGCTC
		GAGCACTGAGGTGGTACAAGCAGTCAGTGTGCT
C9	Val135Cys	GCCCTACAGCAGGCCTGTGTGGATGATGACGCC
		GGCGTCATCATCCACACAGGCCTGCTGTAGGGC
	Ser168Cys	GCTTTGACCACCTGTGTGCTCAAGAACAAT
		ATTGTTCTTGAGCACACAGGTGGTCAAAGC
C10	Val169Cys	TTGACCACCTCAGTGTGCAAGAACAATTTGTGTC
		GACACAAATTGTTCTTGCACACTGAGGTGGTCAA
	Leu174Cys	GTGCTCAAGAACAATTGTTGTCCCTCGGGCAGC
		GCTGCCCGAGGGACAACAATTGTTCTTGAGCAC
C11	Ser160Cys	GACTGCTGTGGCTCCTGTACACTGACTGCTTTG
		CAAAGCAGTCAGTGTACAGGAGCCACAGCAGTC
	Asp189Cys	AACCTCTTCAAGGAGTGTTGCCACCAGAAGATC
		GATCTTCTGGTGGCAACACTCCTTGAAGAGGTT