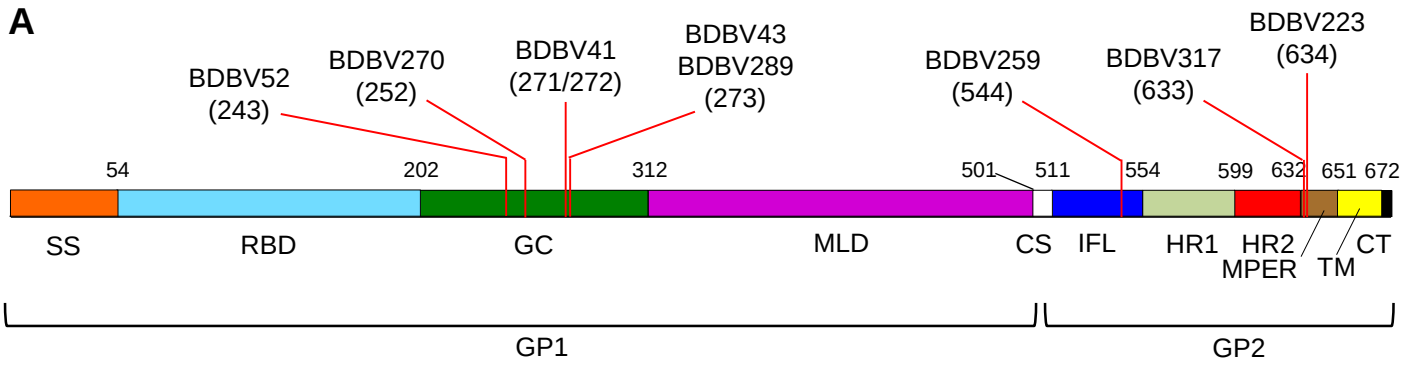
A



B

Antibody	Subclass	Neutralization IC_{50}, ng/mL			ELISA binding, EC_{50}, ng/mL		
		BDBV-GP	EBOV-GP	SUDV-GP	BDBV-GP	EBOV-GP	SUDV-GP
BDBV52	IgG1	>	>	>	27	>	>
BDBV270	IgG1	182	3365	>	154	173	159
BDBV41	IgG1	93	>	>	25	>	>
BDBV43	IgG1	18	506	308	29	22	21
BDBV289	IgG1	32	588	>	20	29	103
BDBV259	IgG1	59	>	>	26	>	>
BDBV317	IgG1	6	2083	>	9	191	208
BDBV223	IgG3	<0.1	70	>	22	24	106

Fig. S1 (related to Fig. 1)**. A.** Amino acid numbers (in parentheses) corresponding to escape mutations for the indicated mAb, shown on the map of BDBV GP1 and GP2 [adapted from Lee et al., 2008, *Nature* 454(7201):177-182 and Lennemann at al., 2014, *mBio*. 5(1):e00862-13]. The escape mutations were identified by serial passaging of EBOV/BDBV-GP or VSV/BDBV-GP viruses in presence of corresponding mAbs and sequencing of viral GP ORFs (see Materials and Methods). SS, signal sequence, RBD, receptor-binding domain, GC, glycan cap, MLD, mucin-like domain, CS, furin cleavage site (amino acids 501/502), IFL, internal fusion loop, HR1, heptad repeat 1, HR2, heptad repeat 2, MPER, membrane-proximal external region, TM, transmembrane domain, CT, cytoplasmic tail; positions of the first amino acid of each domain are indicated. **B.** Neutralizing and binding potencies of BDBV-specific mAbs against BDBV, EBOV and SUDV. IC_{50} and EC_{50} values greater than 10,000 ng/mL are indicated by a “>” symbol. The figure adapted from Ilinykh et al., 2018 (manuscript in submission).

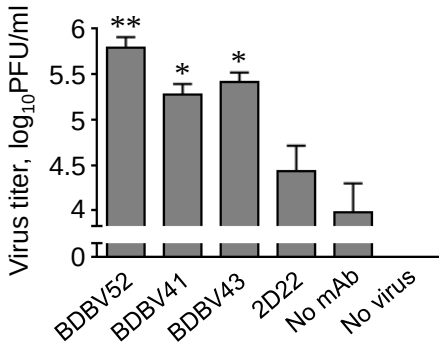


Fig. S2 (related to Fig. 1)**.** THP-1 monocytes infected with EBOV/BDBV-GP in presence of mAb release infectious viral particles to the media. Cells were incubated with mAbs at 100 µg/ml, infected at an MOI of 1 PFU/cell for 1 hour, washed, and supplemented with fresh medium with no mAbs added. In 48 hours, THP-1 supernatants were collected, and virus titer was determined by plaque assay. Mean values ±SD based on triplicate samples. Limit of detection: 20 PFU/ml. Differences to no antibody control: * $p<0.01$, ** $p<0.001$ (Unpaired t-test).

A

mAb	Neutralization IC_{50}, µg/mL	Binding (ELISA), EC_{50}, µg/mL
EBOV-68	-	0.036
EBOV-87	3	0.724
EBOV-91	-	0.011
EBOV-141	50	6.159
EBOV-520	5.738	0.012
EBOV-333	1	0.016
13c6	2	0.033
2G4	0.1	0.187

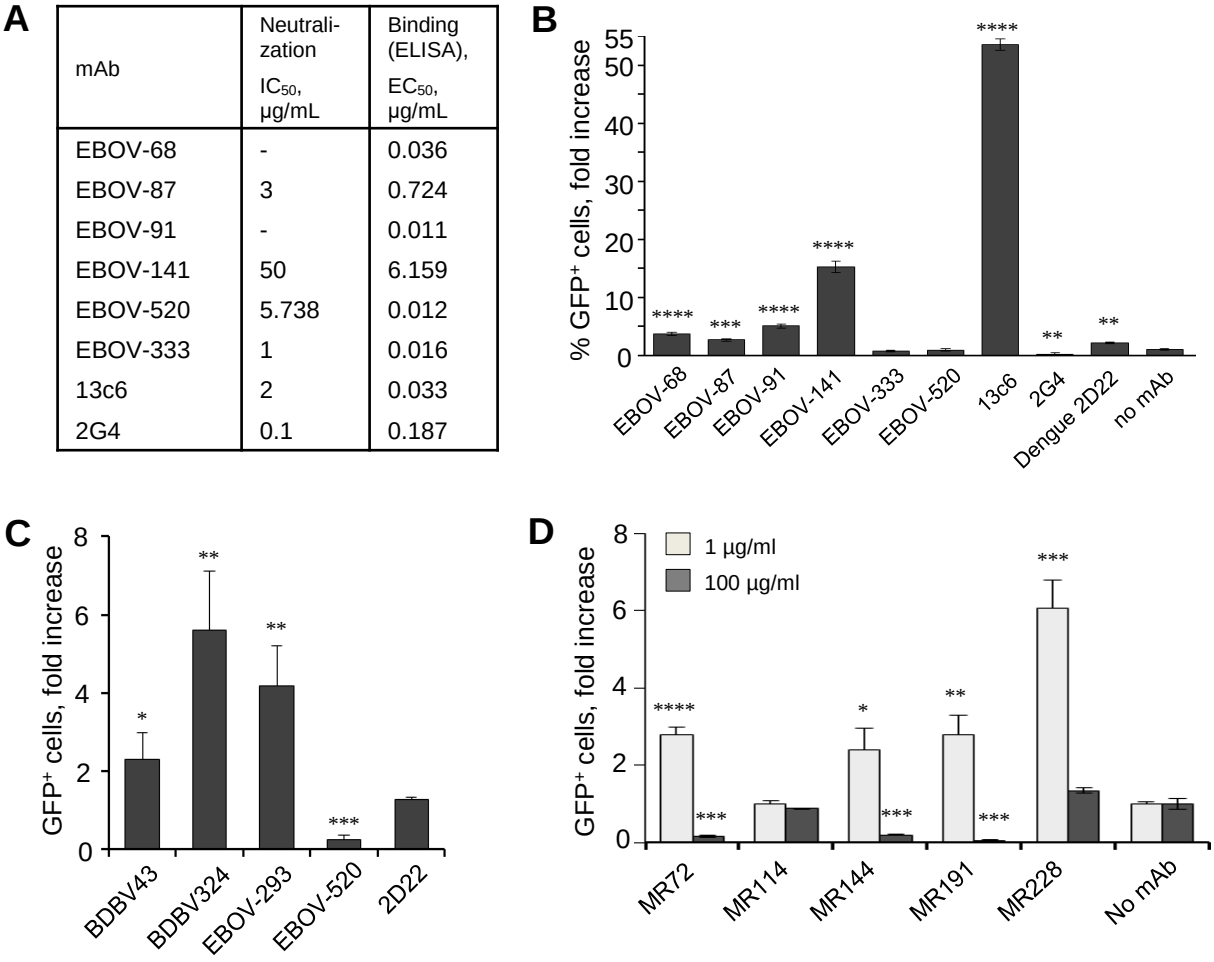


Fig. S3 (related to Fig. 1)**.** ADE of additional filovirus species infections. **A.** Neutralizing and binding properties of mAbs isolated from EBOV survivors or two humanized murine mAb components of zMapp. **B-D**, fold increases of infected (eGFP$^+$) THP-1 cells after inoculation with EBOV (B), EBOV/SUDV-GP (C) or EBOV/MARV-GP (D) in presence of 100 µg/mL (B) or 10 µg/mL (C) of the indicated mAb. Mean values ± SD based on triplicate samples. Differences to controls: * p<0.05, ** p<0.01, *** p<0.001, **** p<0.0001 (B, C, Unpaired t-test, D, Multiple t-test).

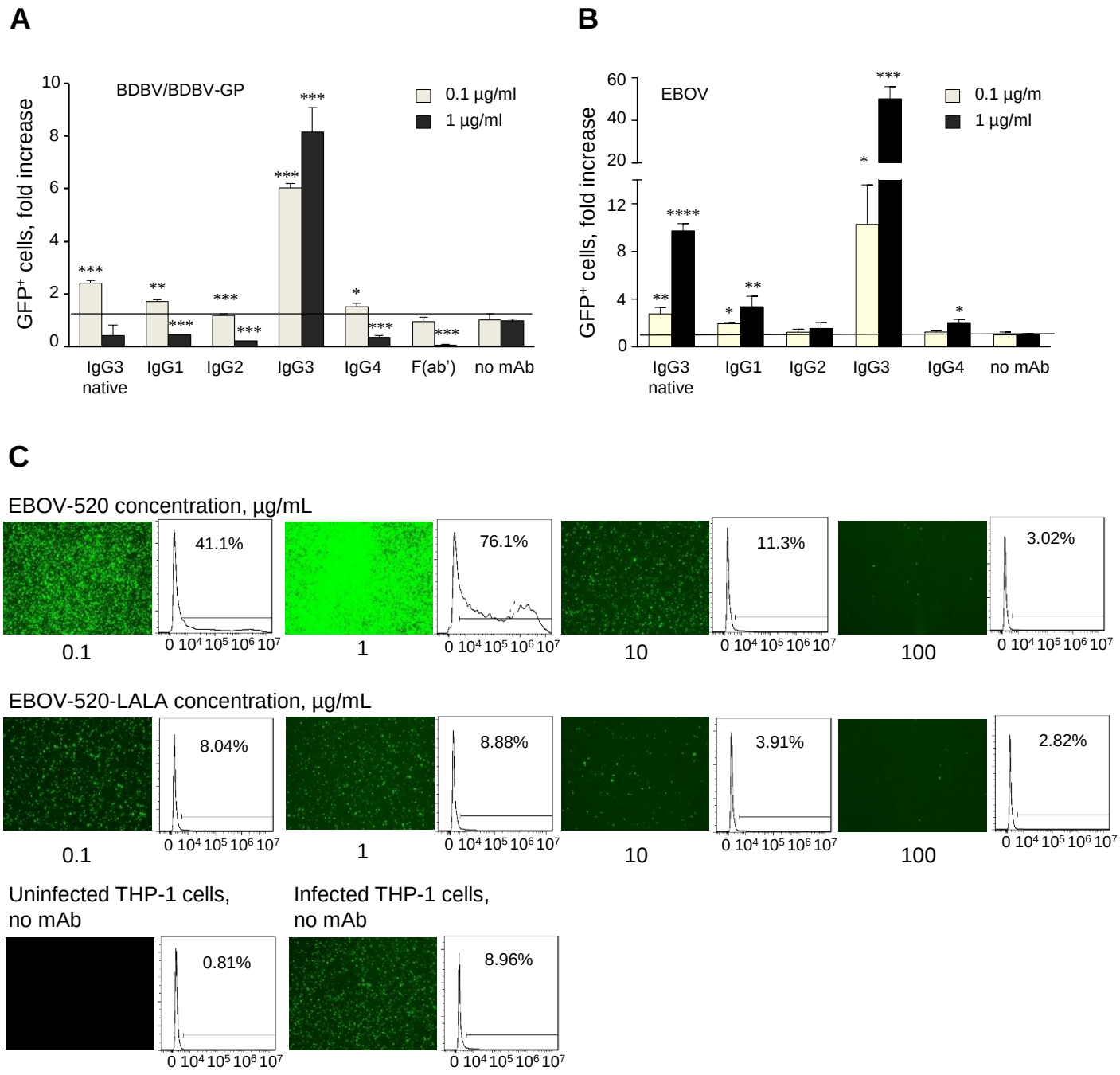


Fig. S4 (related to Fig. 3)**.** ADE depends on the Fc fragment of recombinant IgG. THP-1 cells inoculated with EBOV/BDBV-GP **(A)** or EBOV **(B)** in the presence of hybridoma-produced BDBV223, which is IgG3 (IgG3 native), or its recombinant forms of various subclasses at the indicated concentrations. Mean values ± SD based on triplicate samples. Differences to no antibody control: * p<0.05, ** p<0.01, *** p<0.001, **** p<0.0001 (Multiple t-test). **C.** The LALA mutation of EBOV-520 IgG1 abrogates ADE *in vitro*. Fluorescent microscopy and flow cytometry analysis of eGFP$^+$ THP-1 cells inoculated with EBOV-eGFP at MOI of 1.0 PFU/cell and treated with the indicated concentrations of EBOV-520 IgG1, EBOV-520 IgG1/LALA, or incubated with no mAb.

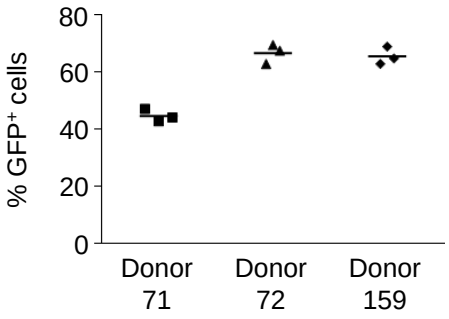


Fig. S5 (related to Fig. 4)**.** The percentages of infected Vero E6 cells after co-cultivation with infected PBMCs. Isolated PBMCs were infected with EBOV/BDBV-GP at an MOI of 1 PFU/cell. At 24 hours after infection, they were harvested and placed atop of the Vero E6 cell monolayers. After 48 hours of co-cultivation, Vero E6 cells were analyzed by flow cytometry. Values for individual donors are indicated by symbols, and mean values are indicated by horizontal bars.