

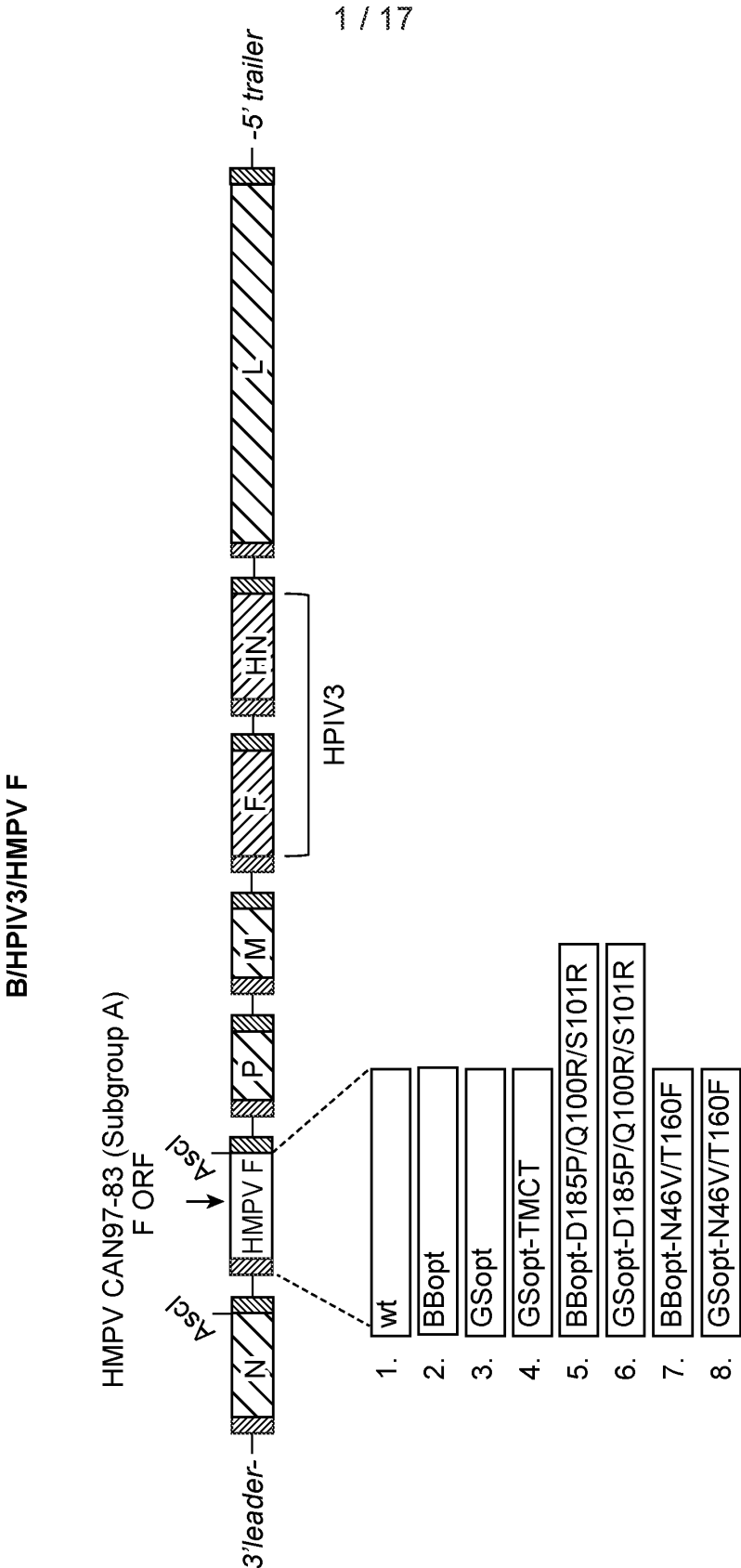


FIG. 1

Design: Signal Peptide pref (mut) linkerfoldon3C8xHisStiepl

>D185P
MSWKVVIIFSLLI TPQHGLKESYLEESCSTITEGYLSVLRTGWYTNVFTLEVGDVENLTCSDGPSLIKTELDLTKSALRELKTVSADQL
AREEQIENPRRRFVLGAIALGVATAAAVTAGVAIAKTI RLESEVTAIKNALKTTNEAVSTLNGVRLATAVRELKDFVSKNLTRAIN
KNKCDIIDLKMAVSFSQFNRRFLNVVRQFSDNAGITPAISLDLMTDAELARAVSNMPTSAGQIKIMLENRAMVRRKGFGLIGVYGSSV
IYMVQLPIFGVIDTPCWI VKAAPSCSEKKGNVACLLREDQGWYCNAGSTVYYPNEKDCETRGDHVFCDTAAGINVAEQSKECNINIST
TNYPCKVSTGRHPI SMVALSPLGALVACYKGVSCSIGSNRVGIIKQLNKGCSYITNQDADTVTIDNTVYQLSKVEGEQHVIKGRPVSS
FDPIKFPEDQFNVALDQVFENIENSQALVDQSNRILSSAEKGN**GGGGSGYIPEAPRDGQAYVRKDGWVLLSTFLGRSLEVLEQGPCH**
HHHHHHSAWSHPQFEK

>T160F_N46V
MSWKVVIIFSLLI TPQHGLKESYLEESCSTITEGYLSVLRTGWYTNVFTLEVGDVENLTCSDGPSLIKTELDLTKSALRELKTVSADQL
AREEQIENPRRRFVLGAIALGVATAAAVTAGVAIAKTI RLESEVTAIKNALKTTNEAVSTLNGVRLATAVRELKDFVSKNLTRAIN
KNKCDIIDLKMAVSFSQFNRRFLNVVRQFSDNAGITPAISLDLMTDAELARAVSNMPTSAGQIKIMLENRAMVRRKGFGLIGVYGSSV
IYMVQLPIFGVIDTPCWI VKAAPSCSEKKGNVACLLREDQGWYCNAGSTVYYPNEKDCETRGDHVFCDTAAGINVAEQSKECNINIST
TNYPCKVSTGRHPI SMVALSPLGALVACYKGVSCSIGSNRVGIIKQLNKGCSYITNQDADTVTIDNTVYQLSKVEGEQHVIKGRPVSS
FDPIKFPEDQFNVALDQVFENIENSQALVDQSNRILSSAEKGN**GGGGSGYIPEAPRDGQAYVRKDGWVLLSTFLGRSLEVLEQGPCH**
HHHHHHSAWSHPQFEK

FIG. 2

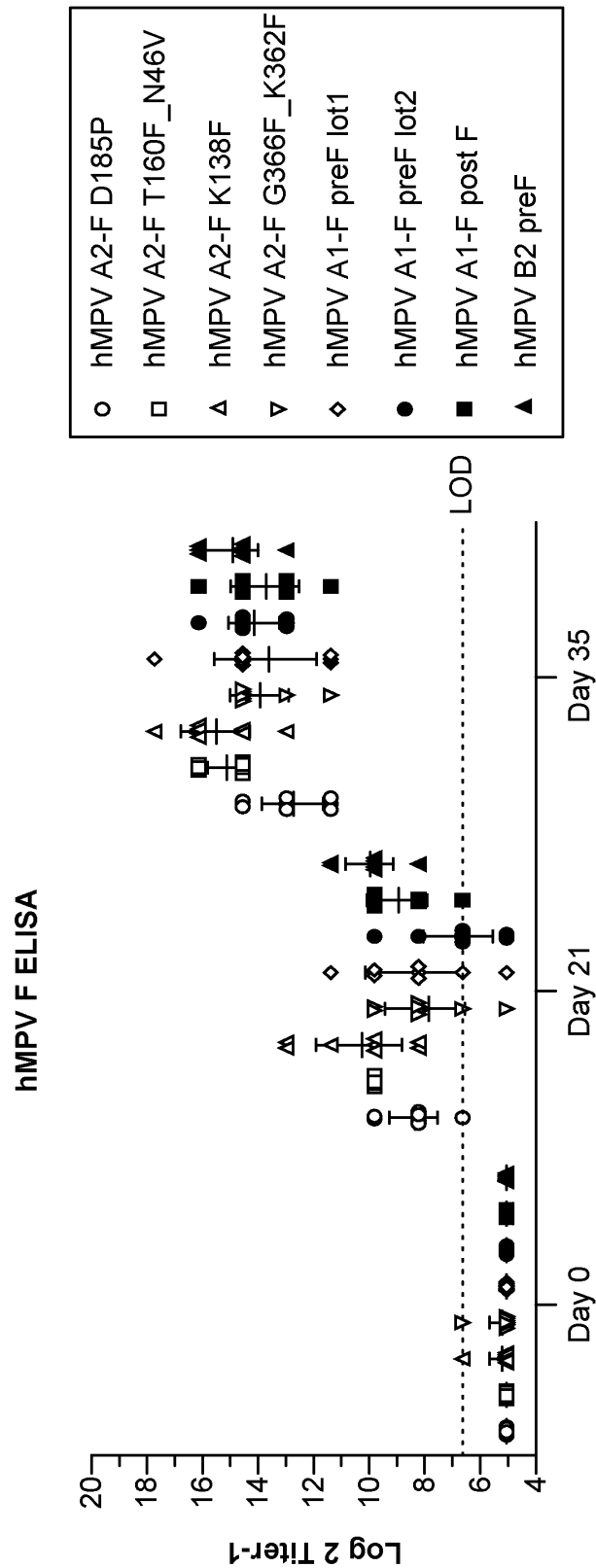


FIG. 3

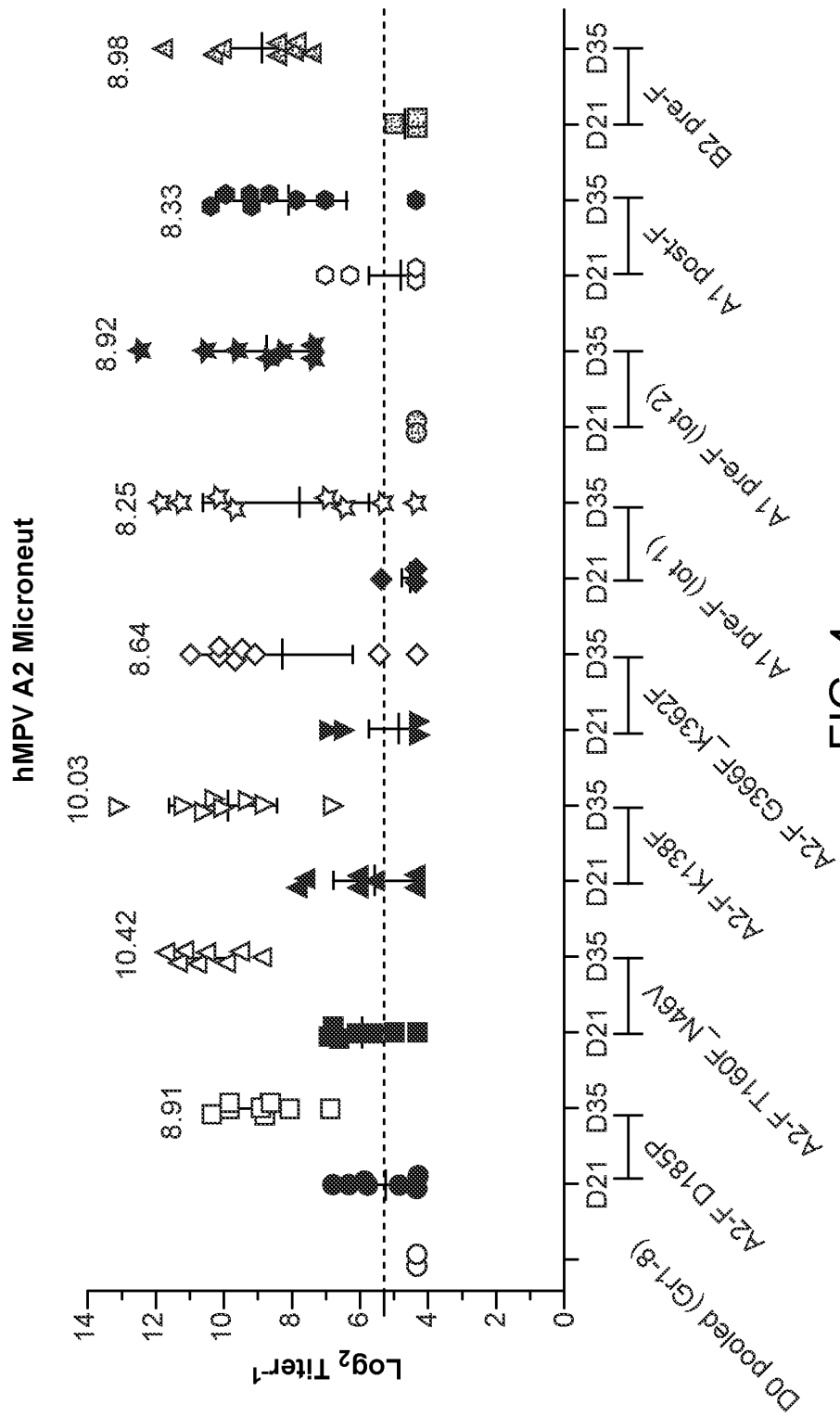


FIG. 4

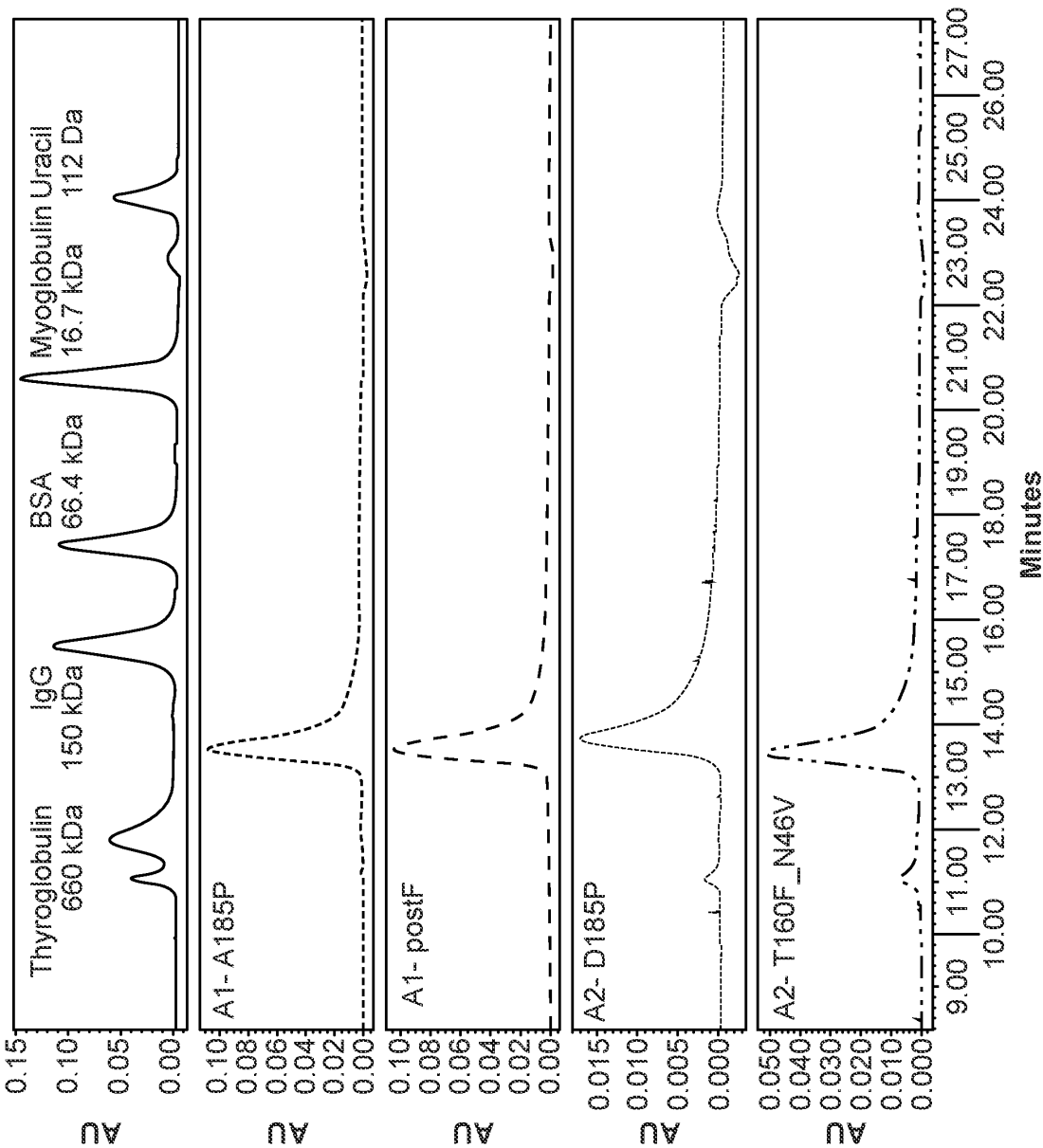


FIG. 5

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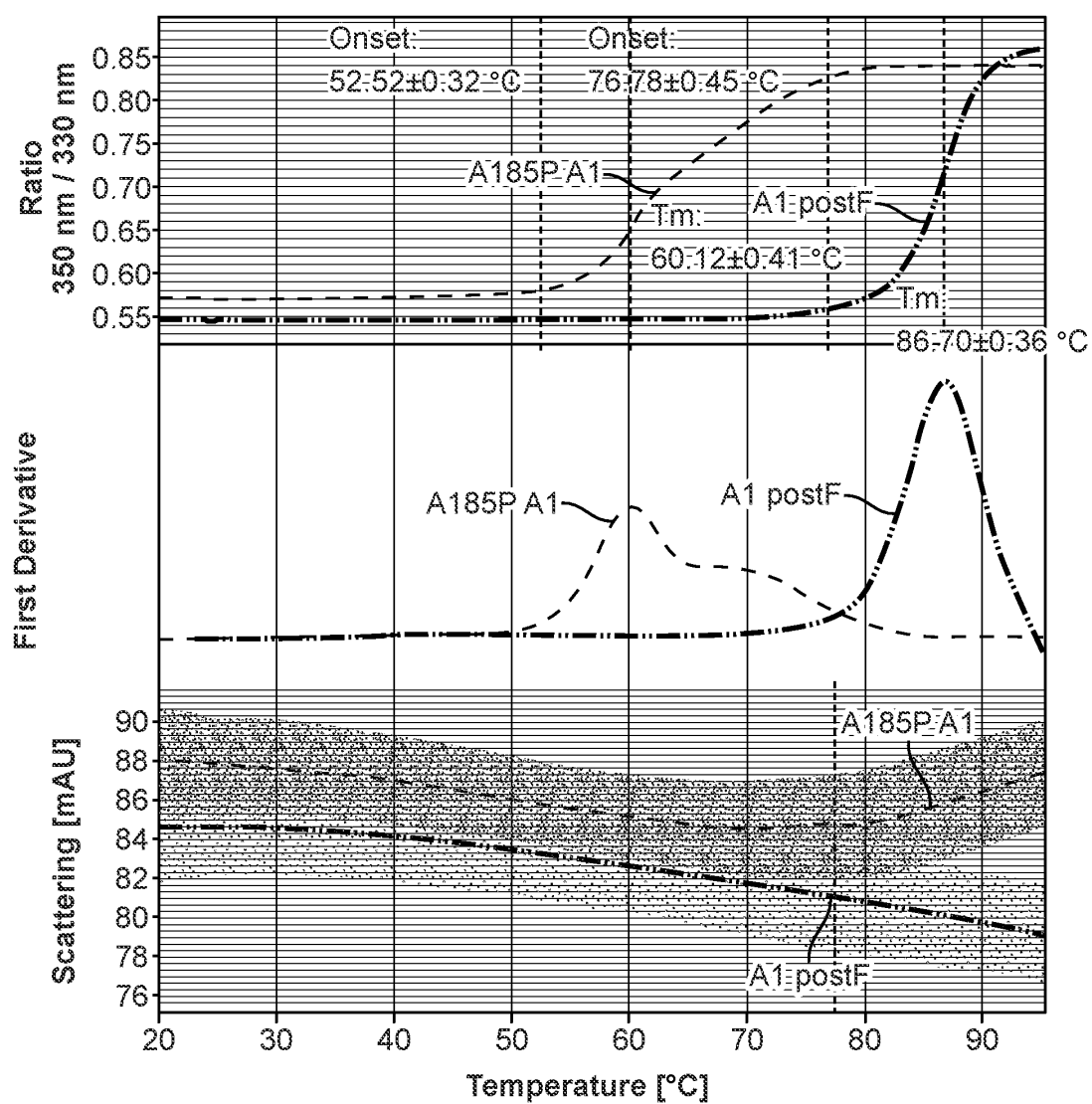


FIG. 6

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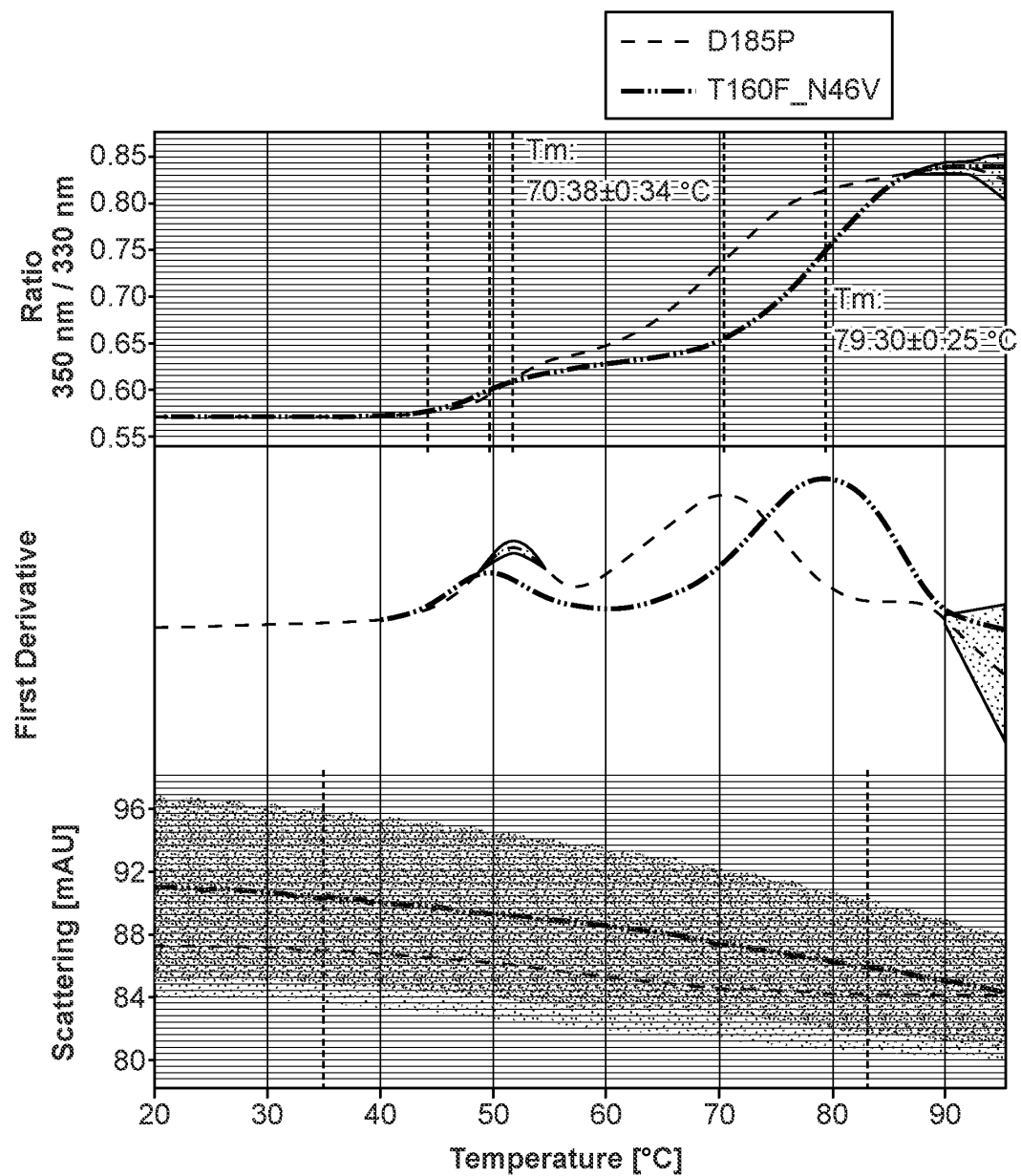
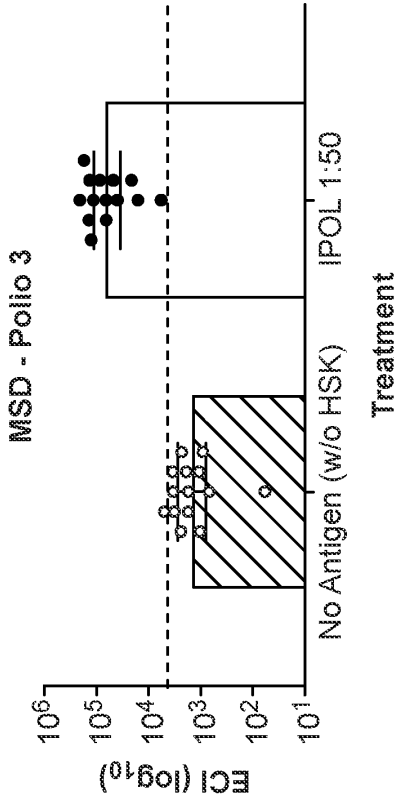
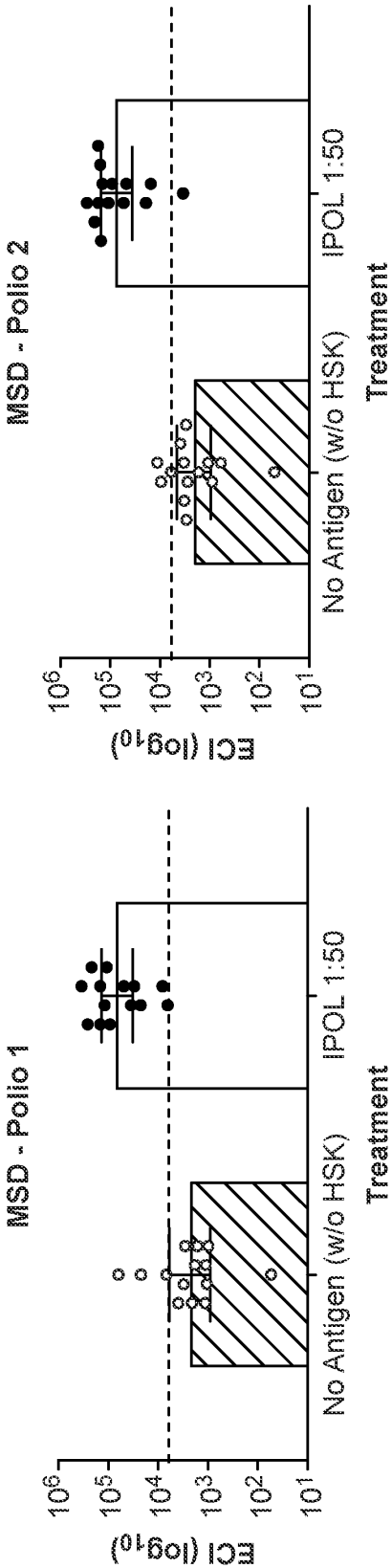
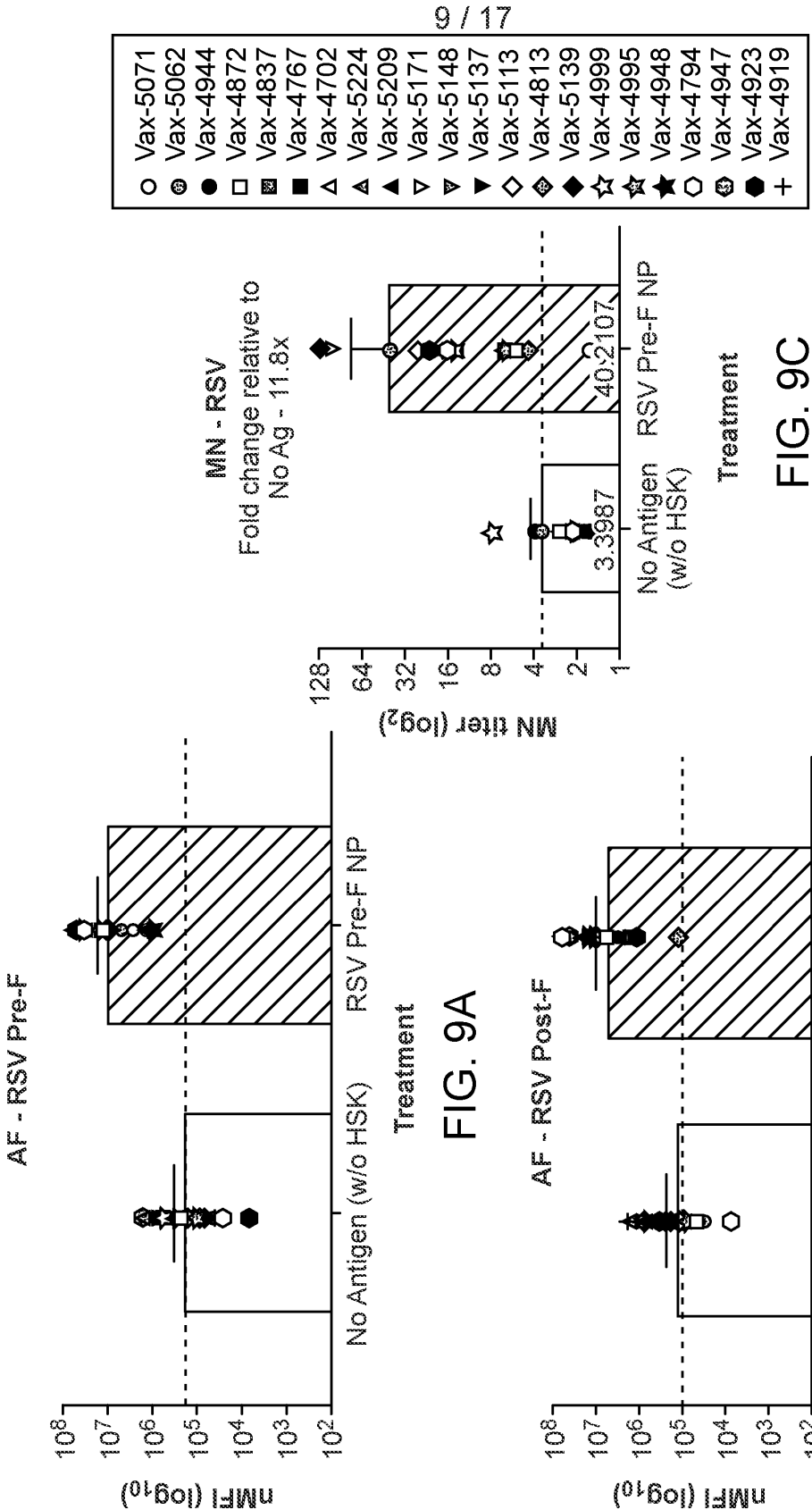


FIG. 7





Donations

○ Vax-4702	■ Vax-4872	▼ Vax-4948	☆ Vax-5113	◆ Vax-5209
⊗ Vax-4767	△ Vax-4919	▼ Vax-4995	☆ Vax-5137	⊗ Vax-5224
● Vax-4794	▲ Vax-4923	◇ Vax-4999	☆ Vax-5139	
□ Vax-4813	▲ Vax-4944	◆ Vax-5062	○ Vax-5148	
▣ Vax-4837	▽ Vax-4947	◆ Vax-5071	⊗ Vax-5171	

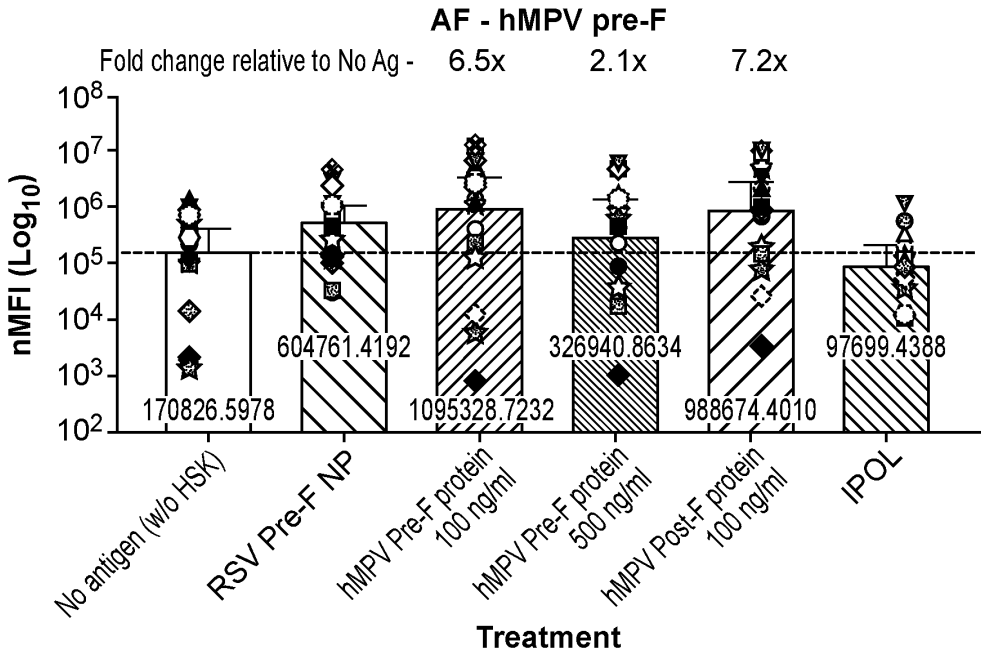


FIG. 10A

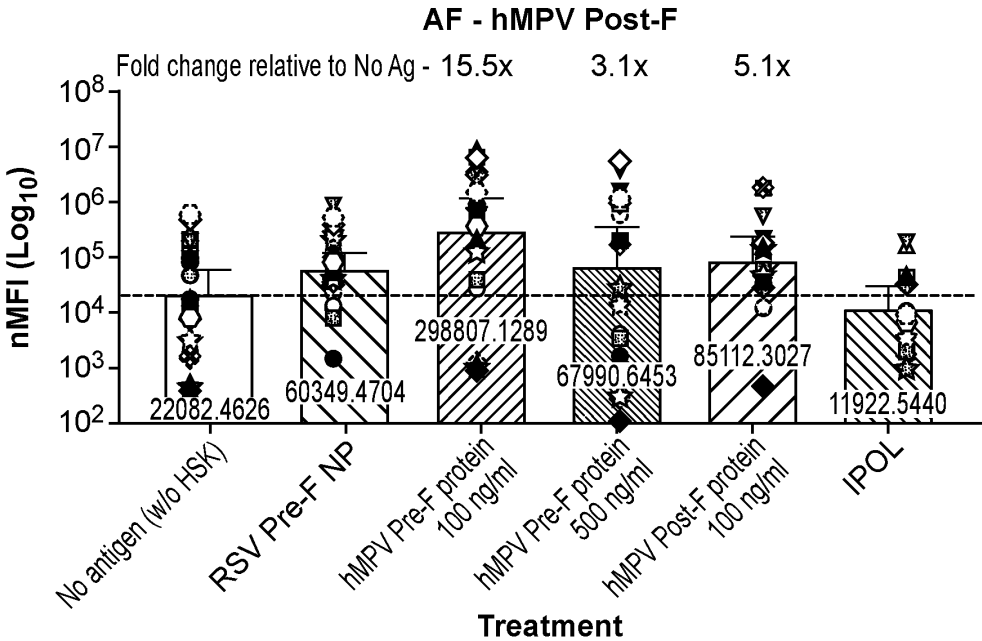


FIG. 10B

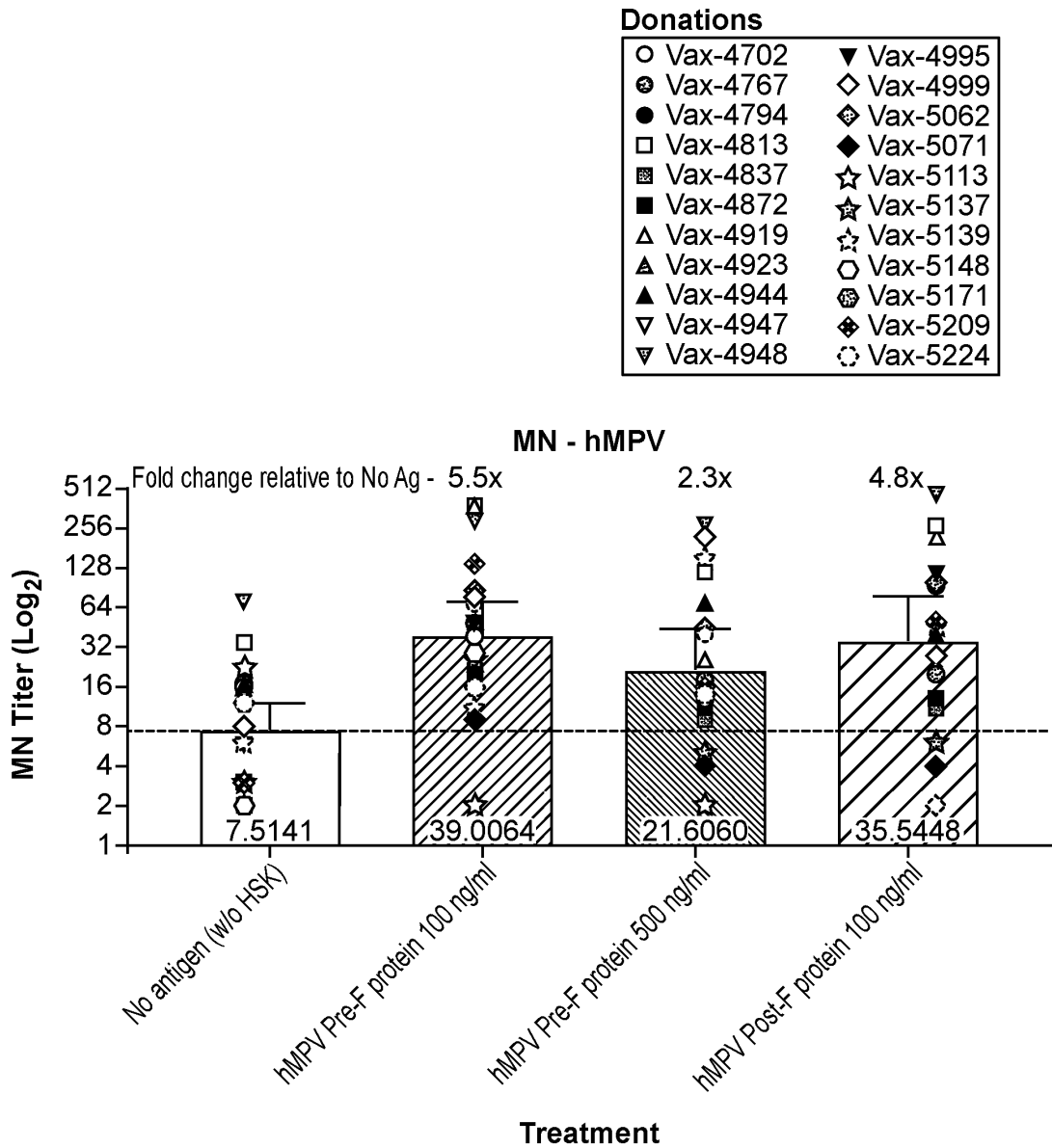


FIG. 11

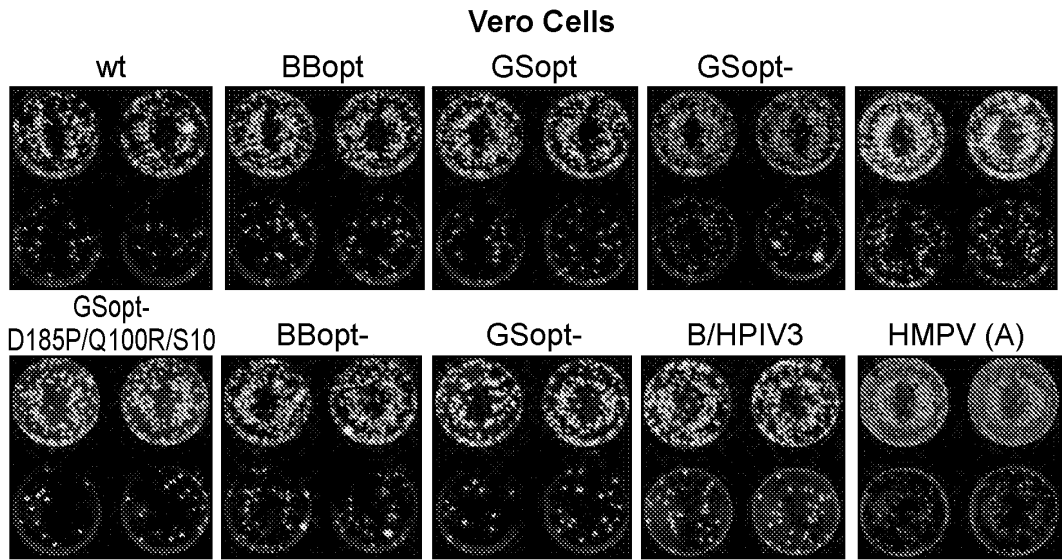


FIG. 12A

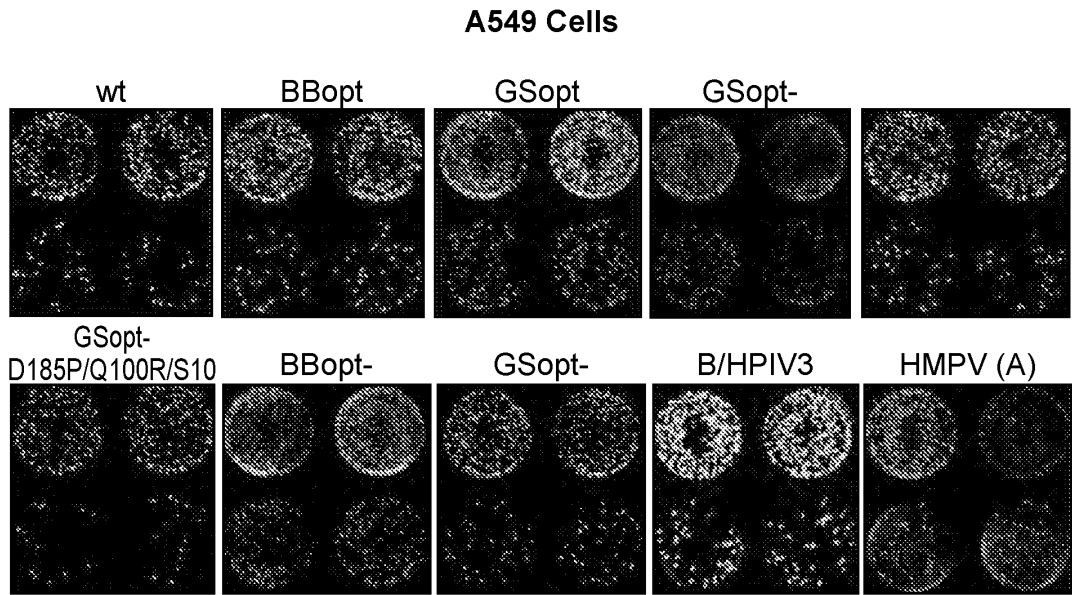


FIG. 12B

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Virus	% rB/HPIV3 PFUs expressing HMPV F
B/HPIV3_HMPV-F-wt	95
B/HPIV3_HMPV-F-BBopt	99
B/HPIV3_HMPV-F-GSopt	99
B/HPIV3_HMPV-F-GSopt-TMCT	96.5
B/HPIV3_HMPV-F-BBopt-D185P/Q100R/S101R	98.2
B/HPIV3_HMPV-F-GSopt-D185P/Q100R/S101R	99
B/HPIV3_HMPV-F-BBopt-N46V/T160F	99.1
B/HPIV3_HMPV-F-GSopt-N46V/T160F	98.6

FIG. 13

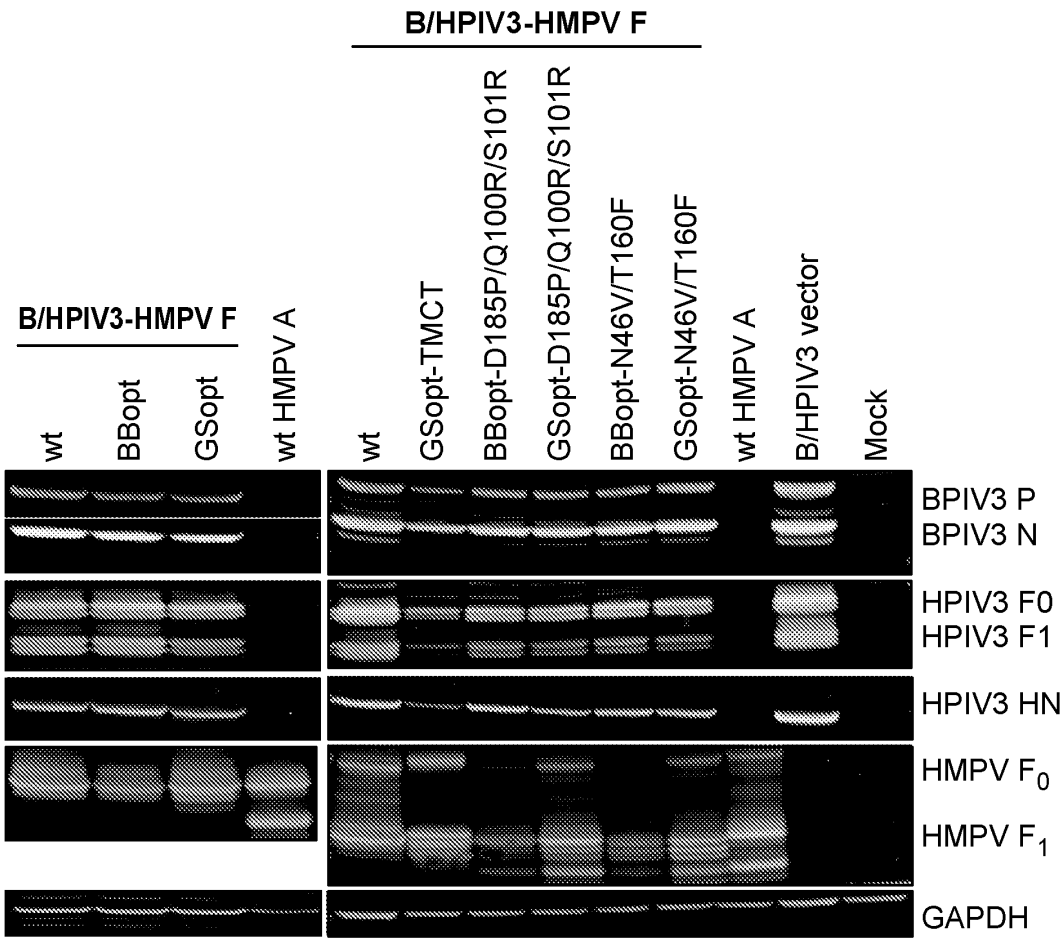


FIG. 14

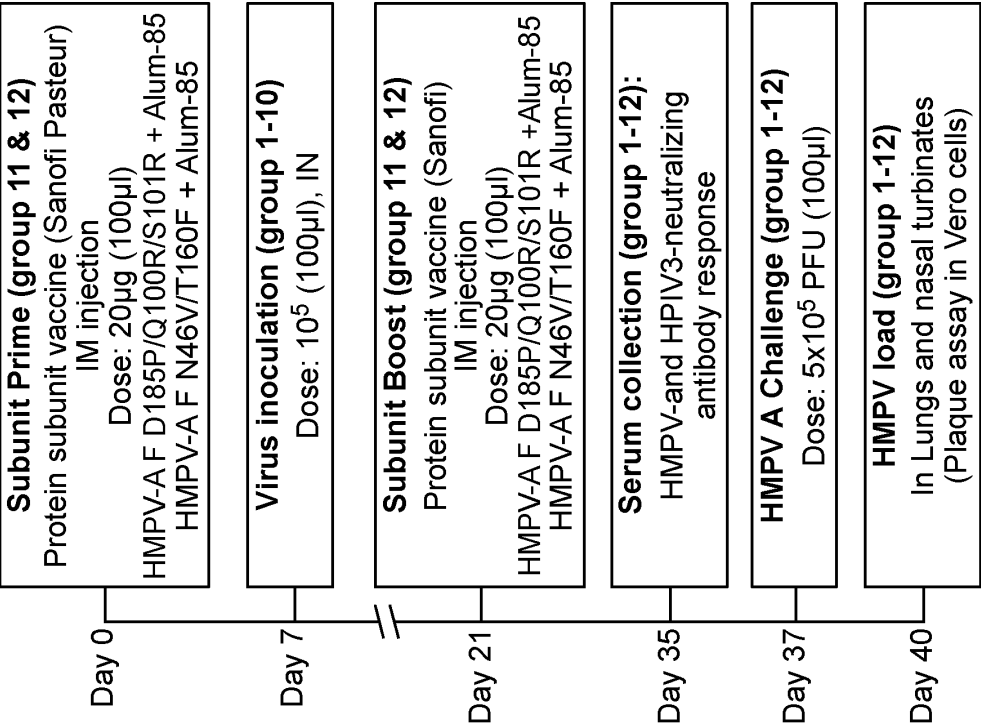


FIG. 15

Group #	Virus or Protein
1	B/HPIV3_HMPV-F-wt
2	B/HPIV3_HMPV-F-BBopt
3	B/HPIV3_HMPV-F-GSopt
4	B/HPIV3_HMPV-F-GSopt-TMCT
5	B/HPIV3_HMPV-F-BBopt-D185P/Q100R/S101R
6	B/HPIV3_HMPV-F-GSopt-D185P/Q100R/S101R
7	B/HPIV3_HMPV-F-BBopt-N46V/T160F
8	B/HPIV3_HMPV-F-GSopt-N46V/T160F
9	wt HMPV (subgroup A)
10	B/HPIV3 vector
11	HMPV F-D185P/Q100R/S101R + Alum-85 (IM)
12	HMPV F-N46V/T160F + Alum-85 (IM)

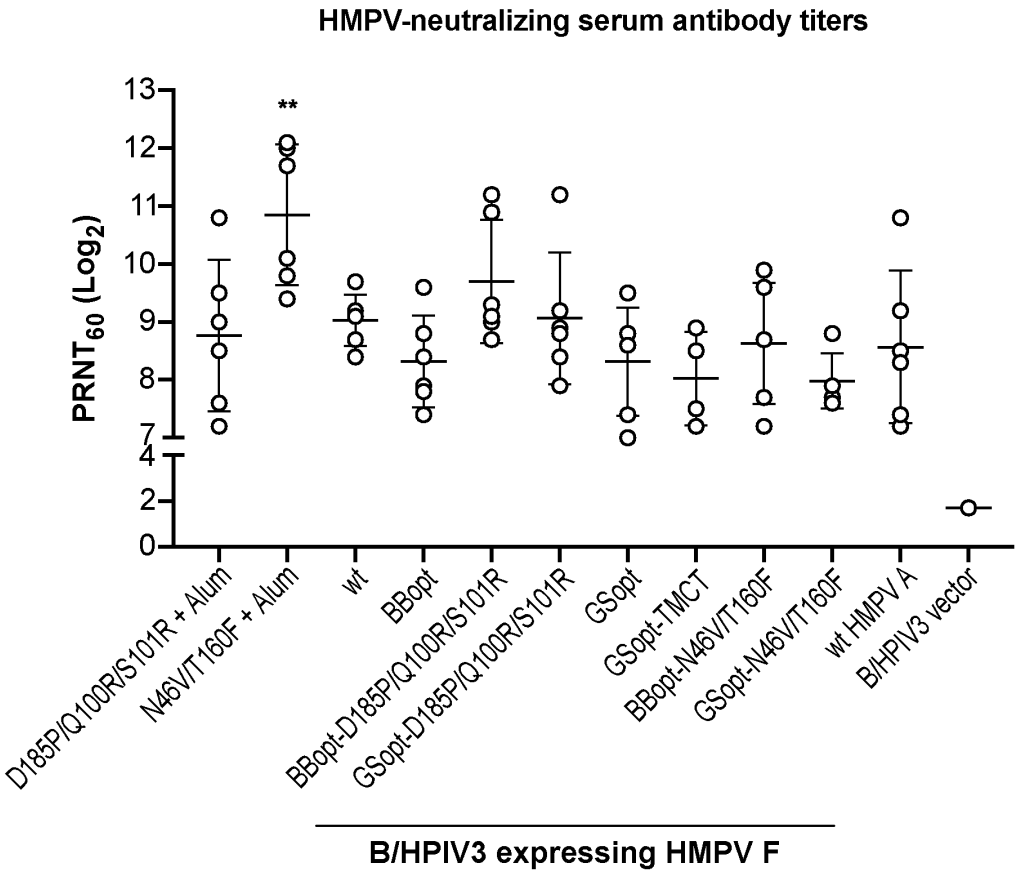


FIG. 16

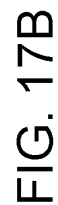


FIG. 17A