

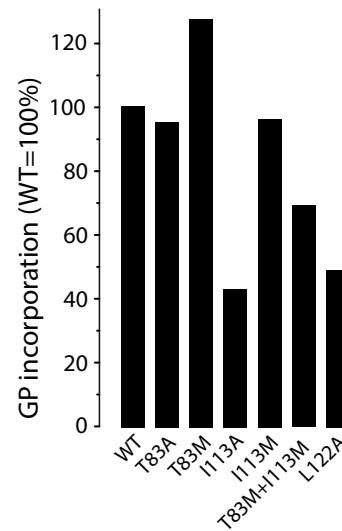
A

Table S1. Summary of VSV-GP infectivity and GP-NPC1 binding data

VSV-GP mutant	GP incorporation (WT=100%) [a]	Viral Infectivity (Infectious Units/mL) [b]		GP-NPC1 binding avidity (EC50, nM) [b]	
G74A	50	7.0E+09	7.3E+09	0.17	0.10
V141A	36	8.9E+08	9.6E+08	0.13	0.18
N107A	51	9.5E+08	9.6E+08	0.22	0.24
A148P	102	4.5E+09	6.1E+09	0.25	0.29
E156A	84	5.5E+09	5.4E+09	0.22	0.29
R130A	48	7.2E+08	7.5E+08	0.33	0.26
E112A	82	1.1E+09	1.1E+09	0.38	0.32
A76S	75	2.8E+09	3.0E+09	0.32	0.32
R136A	34	1.8E+09	2.0E+09	0.31	0.33
A125P	49	5.8E+08	5.4E+08	0.37	0.35
P116A	90	7.0E+08	8.0E+08	0.6	0.4
S142A	79	6.0E+08	5.6E+08	0.4	0.4
T77A	64	3.3E+09	3.8E+09	0.6	0.4
D78A	69	2.6E+09	3.2E+09	0.5	0.4
W104A	75	9.1E+08	1.1E+09	0.3	0.4
E100A	79	4.2E+08	3.3E+08	0.5	0.4
A124P	65	1.3E+09	2.1E+09	0.4	0.4
F151A	74	5.7E+09	5.6E+09	0.4	0.4
V138A	36	6.0E+08	8.5E+08	0.4	0.5
R134A	40	1.2E+09	1.2E+09	0.3	0.5
G118A	133	2.5E+09	2.8E+09	0.4	0.5
L111A	37	1.5E+06	1.4E+06	0.5	0.5
V75A	145	1.0E+10	1.0E+10	0.4	0.5
WT	100	2.9E+09	2.8E+09	0.5	0.5
T83A	95	8.3E+09	7.9E+09	0.6	0.5
G91A	63	5.3E+09	5.1E+09	0.3	0.5
S81A	172	3.2E+09	3.7E+09	0.5	0.6
K140A	98	2.6E+09	2.4E+09	0.6	0.6
D117A	59	2.0E+09	2.1E+09	0.9	0.6
D127A	74	1.4E+09	1.3E+09	0.4	0.6
N110A	71	2.5E+08	2.8E+08	0.6	0.6
R89A	21	1.4E+09	1.5E+09	0.7	0.7
E106A	114	3.7E+09	3.0E+09	0.5	0.7
E120A	100	2.2E+09	2.3E+09	0.5	0.7
D150A	63	7.6E+08	8.9E+08	0.7	0.7
T144A	94	1.9E+09	1.3E+09	0.6	0.7
K84A	100	3.7E+09	3.0E+09	0.6	0.71
I113A	43	1.1E+08	1.1E+08	0.8	0.7
K155A	65	2.0E+09	1.3E+09	0.8	0.7
S119A	134	2.3E+09	1.7E+09	0.8	0.8
S90A	58	1.8E+09	1.8E+09	0.7	0.8
A152P	48	1.6E+09	1.8E+09	0.9	1.0
P80A	121	1.1E+09	1.5E+09	1.0	0.7
V79A	124	5.5E+08	6.5E+08	1.5	1.2
K114A	85	7.1E+08	7.7E+08	1.2	1.2
F160A	51	1.1E+08	1.1E+08	2.0	1.7
K114R/K115R	31	5.7E+08	4.8E+08	1.5	1.5
K115A	66	3.1E+08	3.6E+08	1.8	1.4
P146A	89	1.3E+08	1.4E+08	2.3	1.4
I113M/F225A	96	8.6E+07	8.7E+07	2.1	2
T83M/F225V/Y232F	127	4.5E+06	3.9E+06	2.9	2.2
I170A	146	2.0E+08	1.3E+08	3.0	2.9
F88A*	39	5.0E+03	5.0E+03	4.1	3.9
K115/140A	116	6.1E+08	5.3E+08	4.8	4.1
G143A	27	7.0E+05	9.0E+05	5.7	5.1
K114A/K115A/K140A/E112A/E120A	122	9.6E+08	9.6E+08	5.0	6.0
K114A/K115A/K140A/E112A	135	6.0E+08	6.0E+08	7.4	8.1
G145A*	88	5.0E+03	5.0E+03	10	14
K114A/K115A	121	2.6E+07	2.2E+07	39	23
L122A	49	3.2E+06	2.8E+06	19	24
K114A/K115A/K140A	163	1.8E+07	1.8E+07	28	36
T83M/I113M/F225A/Y232F	69	3.5E+04	4.5E+04	30	46
K114A/K115A/V79A/P80A	69	5.0E+03	5.0E+03	140	300
C147A	54	2.5E+05	3.5E+05	400	330
K114A/K115A/G143A/P146A	70	5.0E+03	5.0E+03	400	350
T83M/K114E/K115E	82	1.0E+04	5.0E+03	380	400
K114A/K115A/G143A/G145A	89	5.0E+03	5.0E+03	400	400
K114E/K115E	56	6.5E+04	1.0E+05	400	400
Mutants excluded from analysis					
R85A	nd	3.5E+07	2.1E+07	GP too low to quantify	
P133A	nd	2.0E+07	2.1E+07	GP too low to quantify	
W86H	nd	5.0E+03	5.0E+03	GP too low to quantify	
I113M/K114E/K115E	nd	5.0E+03	5.0E+03	GP too low to quantify	
K114A/K115A/K140A/E112A/E120A/D117					

[a] See Fig. S4 for details
 [b] Independent determinations
 Limit of detection of infection assay = 5E+03 IU/mL
 Limit of detection of binding assay = 400 nM
 nd, not determined

B



C

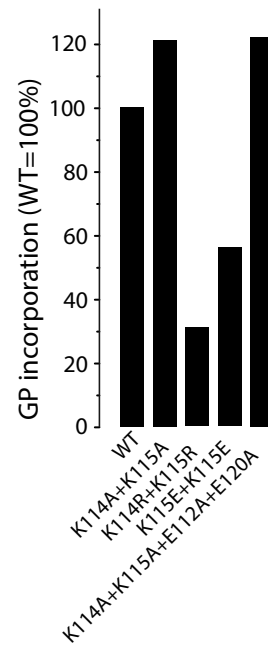


Figure S2