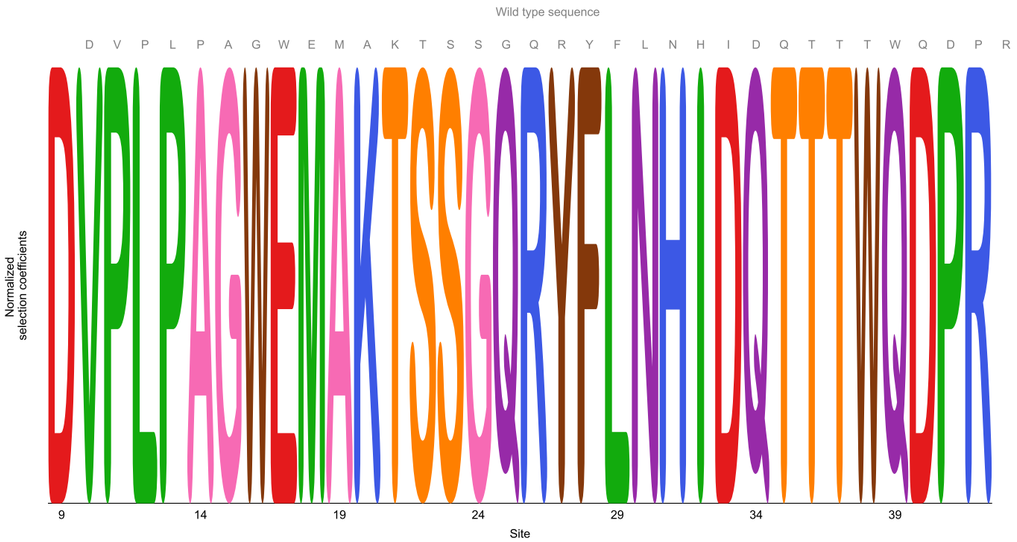
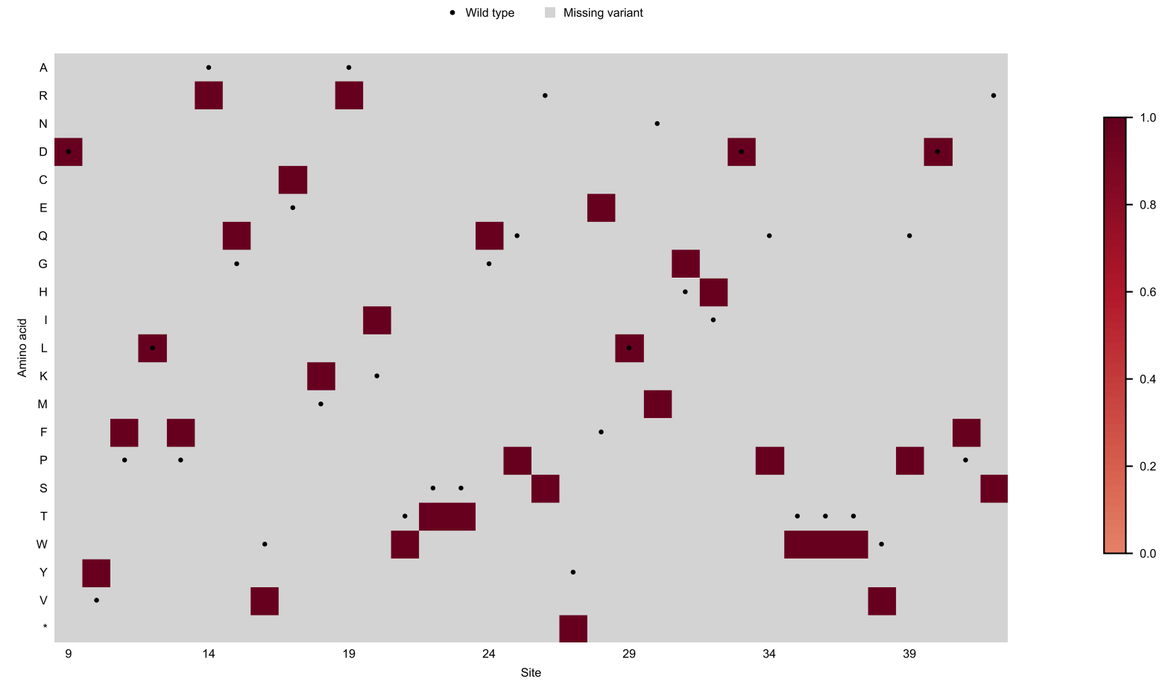
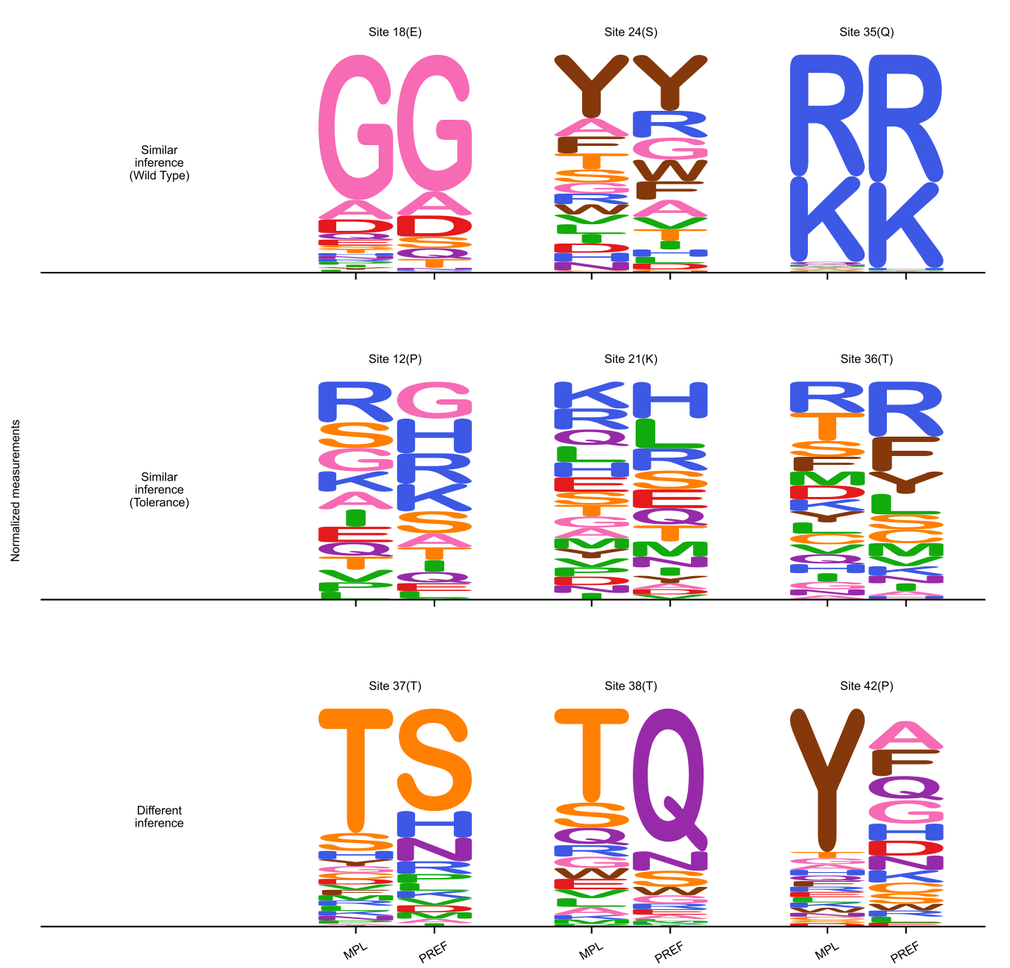
**a**


Wild type sequence
D V P L P A G W E M A K T S S G R Y F L N H I D Q T T T W Q D P R
Normalized selection coefficients
9
14
19
24
29
34
39
Site

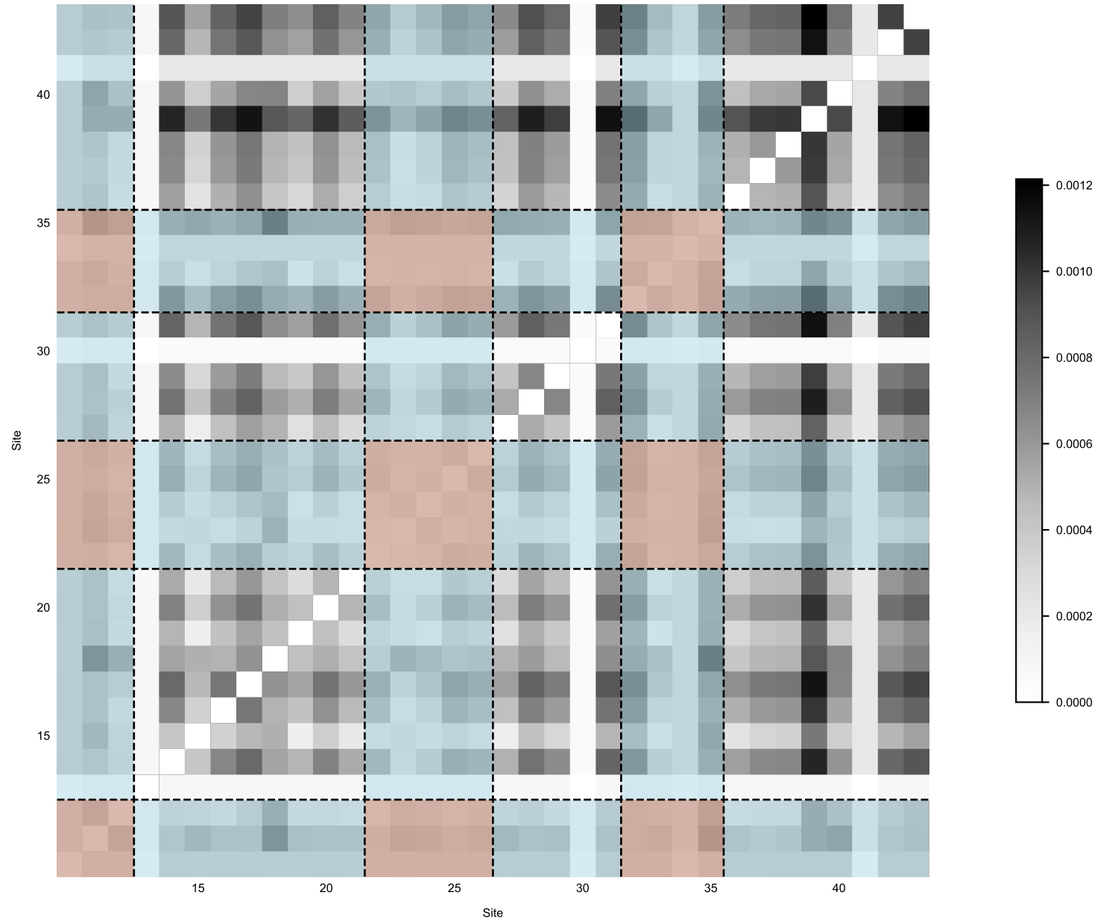
**b**


Wild type
Missing variant
A
R
N
D
C
E
Q
G
H
I
L
K
M
F
P
S
T
W
Y
V
*
Amino acid
9
14
19
24
29
34
39
Site
1.0
0.8
0.6
0.4
0.2
0.0

**c**


Site 18(E)
Site 24(S)
Site 35(Q)
Similar inference (Wild Type)
Site 12(P)
Site 21(K)
Site 36(T)
Similar inference (Tolerance)
Site 37(T)
Site 38(T)
Site 42(P)
Different inference
Normalized measurements
MPL
PREF
MPL
PREF
MPL
PREF

**d**


40
35
30
25
20
15
Site
15
20
25
30
35
40
Site
0.0012
0.0010
0.0008
0.0006
0.0004
0.0002
0.0000