

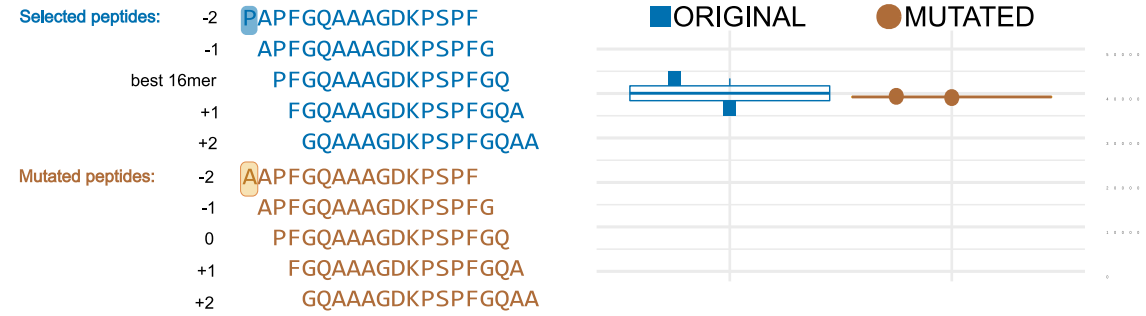
Schematic single-residue scanning of reactive peptides.

Example Using CA-2/Ag2 Antigen | TcCLB.508831.140 (repetitive)

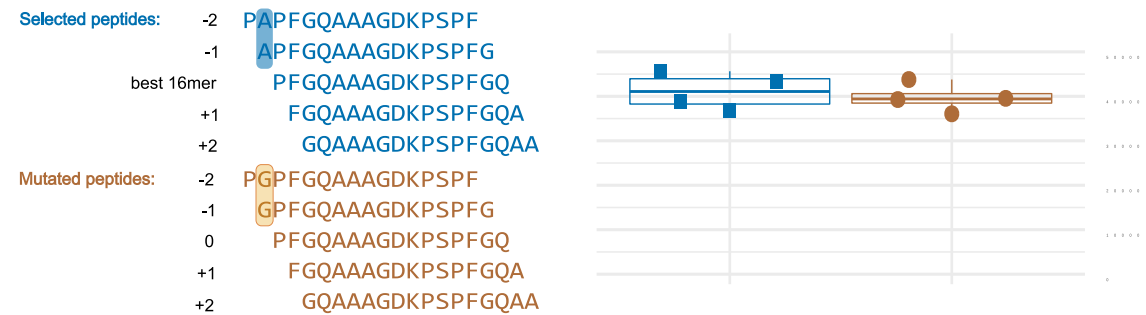
Protein sequence: PFGQAAAGDKPA[PFGQAAAGDKPS]PFGQAAAGDKPA...
repetitive unit
best 16mer

Given a selected 16mer (most reactive peptide in an antibody-binding peak), the mutational scanning assessment analyzed the antibody-binding (reactivity) of 5 unmutated peptides, and 3 to 5 mutated peptides per residue position (see figure below). Unmutated peptides correspond to peptides starting at -2, -1, +1, and +2 with respect to the 1st residue of the selected 16mer. Mutations were always to an Alanine, except where the original residue was an Alanine (it was substituted for a Glycine in these cases). A total of 74 mutated peptides were analyzed for any selected 16mer.

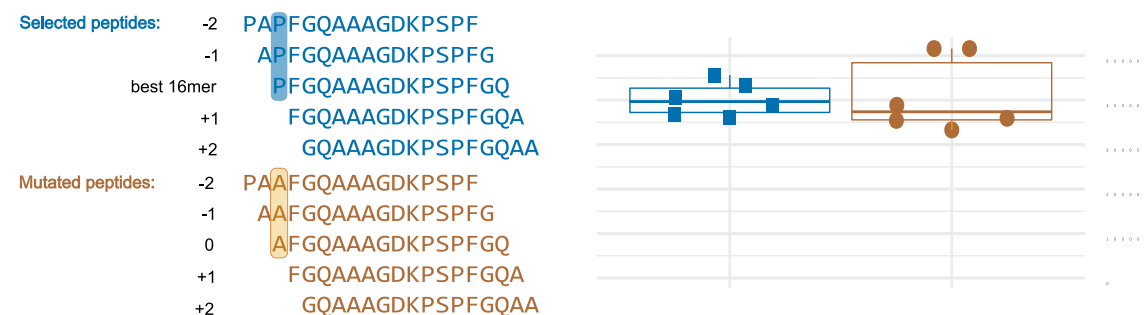
Residue 1



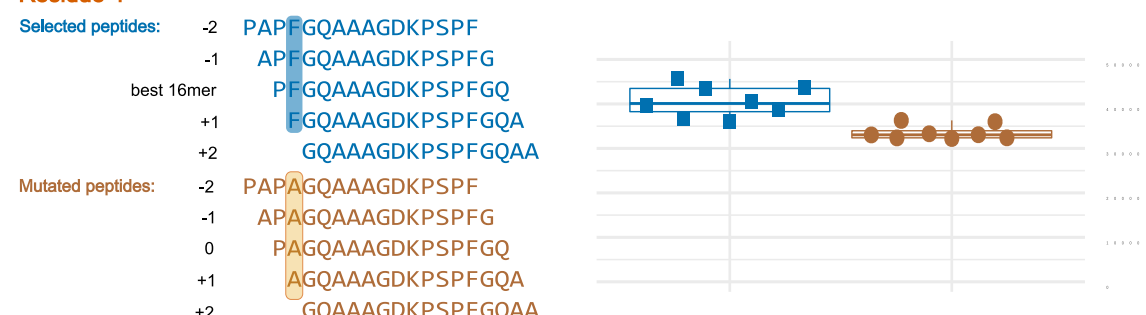
Residue 2



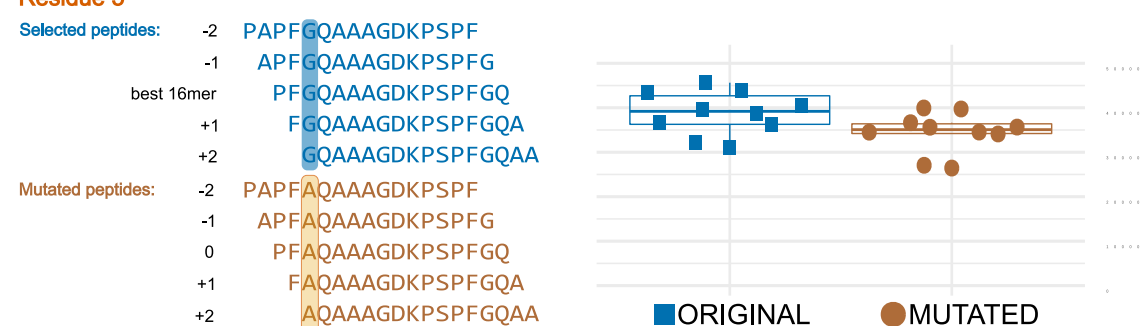
Residue 3



Residue 4



Residue 5



Schematic single-residue scanning of reactive peptides (continued)

Example Using CA-2/Ag2 Antigen | TcCLB.508831.140 (repetitive)

Residue 6

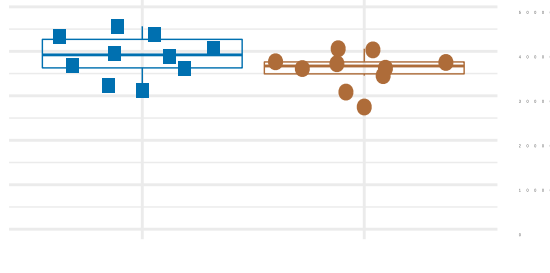
Selected peptides:

-2 PAPFGQAAAGDKPSPF
-1 APFGQAAAGDKPSPFG
best 16mer PFGQAAAGDKPSPFGQ
+1 FGQAAAGDKPSPFGQA
+2 GQAAAGDKPSPFGQAA

Mutated peptides:

-2 PAPFGAAAAGDKPSPF
-1 APFGAAAAGDKPSPFG
0 PFGAAAAGDKPSPFGQ
+1 FGAAAAGDKPSPFGQA
+2 GAAAAGDKPSPFGQAA

■ ORIGINAL ● MUTATED



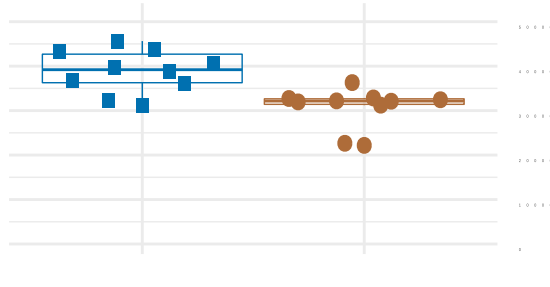
Residue 7

Selected peptides:

-2 PAPFGQAAAGDKPSPF
-1 APFGQAAAGDKPSPFG
best 16mer PFGQAAAGDKPSPFGQ
+1 FGQAAAGDKPSPFGQA
+2 GQAAAGDKPSPFGQAA

Mutated peptides:

-2 PAPFGQGAAGDKPSPF
-1 APFGQGAAGDKPSPFG
0 PFGQGAAGDKPSPFGQ
+1 FGQGAAGDKPSPFGQA
+2 GQGAAGDKPSPFGQAA



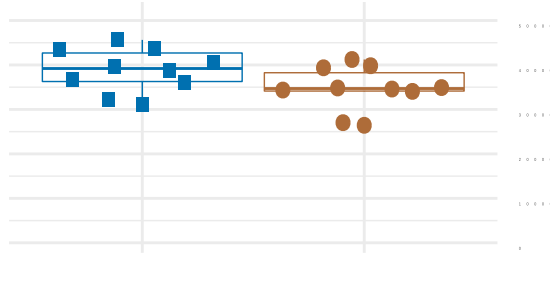
Residue 8

Selected peptides:

-2 PAPFGQAAAGDKPSPF
-1 APFGQAAAGDKPSPFG
best 16mer PFGQAAAGDKPSPFGQ
+1 FGQAAAGDKPSPFGQA
+2 GQAAAGDKPSPFGQAA

Mutated peptides:

-2 PAPFGQAGAGDKPSPF
-1 APFGQAGAGDKPSPFG
0 PFGQAGAGDKPSPFGQ
+1 FGQAGAGDKPSPFGQA
+2 GQAGAGDKPSPFGQAA



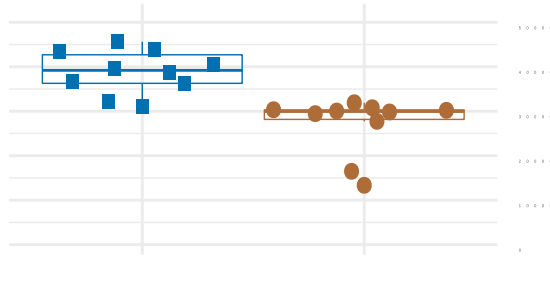
Residue 9

Selected peptides:

-2 PAPFGQAAAGDKPSPF
-1 APFGQAAAGDKPSPFG
best 16mer PFGQAAAGDKPSPFGQ
+1 FGQAAAGDKPSPFGQA
+2 GQAAAGDKPSPFGQAA

Mutated peptides:

-2 PAPFGQAAGGDKPSPF
-1 APFGQAAGGDKPSPFG
0 PFGQAAGGDKPSPFGQ
+1 FGQAAGGDKPSPFGQA
+2 GQAAGGDKPSPFGQAA



Residue 10

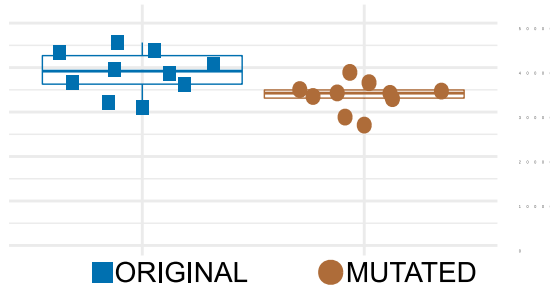
Selected peptides:

-2 PAPFGQAAAAGDKPSPF
-1 APFGQAAAAGDKPSPFG
best 16mer PFGQAAAAGDKPSPFGQ
+1 FGQAAAAGDKPSPFGQA
+2 GQAAAAGDKPSPFGQAA

Mutated peptides:

-2 PAPFGQAAAADKPSPF
-1 APFGQAAAADKPSPF
0 PFGQAAAADKPSPFQ
+1 FGQAAAADKPSPFQA
+2 GQAAAADKPSPFQAA

■ ORIGINAL ● MUTATED



Schematic single-residue scanning of reactive peptides (continued)

Example Using CA-2/Ag2 Antigen | TcCLB.508831.140 (repetitive)

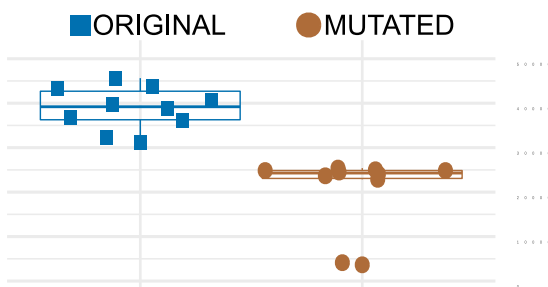
Residue 11

Selected peptides:

- 2 PAPFGQAAAGDKPSPF
- 1 APFGQAAAGDKPSPFG
- best 16mer PFGQAAAGDKPSPFGQ
- +1 FGQAAAGDKPSPFGQA
- +2 GQAAAGDKPSPFGQAA

Mutated peptides:

- 2 PAPFGQAAAGAKPSPF
- 1 APFGQAAAGAKPSPFG
- 0 PFGQAAAGAKPSPFGQ
- +1 FGQAAAGAKPSPFGQA
- +2 GQAAAGAKPSPFGQAA



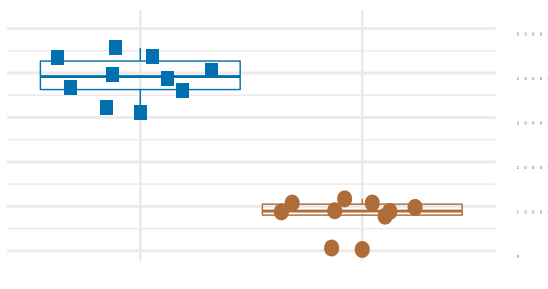
Residue 12

Selected peptides:

- 2 PAPFGQAAAGDKPSPF
- 1 APFGQAAAGDKPSPFG
- best 16mer PFGQAAAGDKPSPFGQ
- +1 FGQAAAGDKPSPFGQA
- +2 GQAAAGDKPSPFGQAA

Mutated peptides:

- 2 PAPFGQAAAGDAPSPF
- 1 APFGQAAAGDAPSPFG
- 0 PFGQAAAGDAPSPFGQ
- +1 FGQAAAGDAPSPFGQA
- +2 GQAAAGDAPSPFGQAA



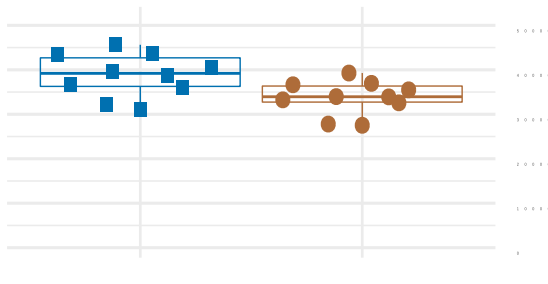
Residue 13

Selected peptides:

- 2 PAPFGQAAAGDKPSPF
- 1 APFGQAAAGDKPSPFG
- best 16mer PFGQAAAGDKPSPFGQ
- +1 FGQAAAGDKPSPFGQA
- +2 GQAAAGDKPSPFGQAA

Mutated peptides:

- 2 PAPFGQAAAGDKASP
- 1 APFGQAAAGDKASPFG
- 0 PFGQAAAGDKASPFGQ
- +1 FGQAAAGDKASPFGQA
- +2 GQAAAGDKASPFGQAA



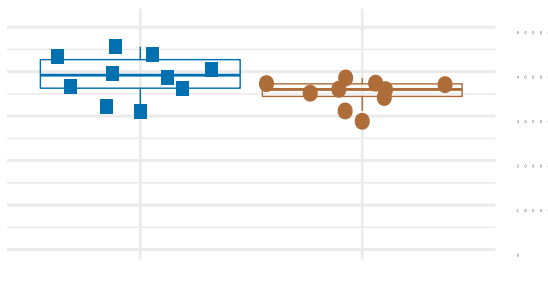
Residue 14

Selected peptides:

- 2 PAPFGQAAAGDKPSPF
- 1 APFGQAAAGDKPSPFG
- best 16mer PFGQAAAGDKPSPFGQ
- +1 FGQAAAGDKPSPFGQA
- +2 GQAAAGDKPSPFGQAA

Mutated peptides:

- 2 PAPFGQAAAGDKPAPF
- 1 APFGQAAAGDKPAPFG
- 0 PFGQAAAGDKPAPFGQ
- +1 FGQAAAGDKPAPFGQA
- +2 GQAAAGDKPAPFGQAA



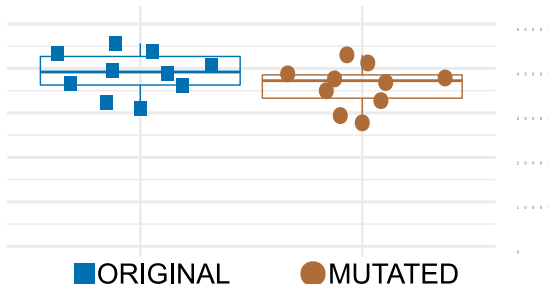
Residue 15

Selected peptides:

- 2 PAPFGQAAAGDKPSPF
- 1 APFGQAAAGDKPSPFG
- best 16mer PFGQAAAGDKPSPFGQ
- +1 FGQAAAGDKPSPFGQA
- +2 GQAAAGDKPSPFGQAA

Mutated peptides:

- 2 PAPFGQAAAGDKPSAF
- 1 APFGQAAAGDKPSAFG
- 0 PFGQAAAGDKPSAFGQ
- +1 FGQAAAGDKPSAFGQA
- +2 GQAAAGDKPSAFGQAA



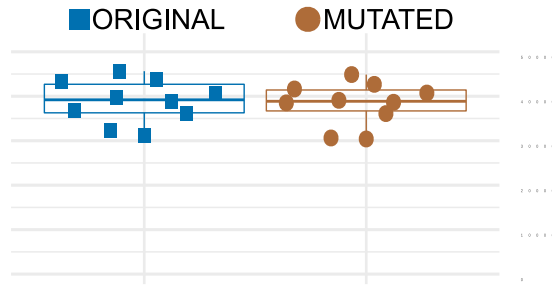
Schematic single-residue scanning of reactive peptides (continued)

Example Using CA-2/Ag2 Antigen | TcCLB.508831.140 (repetitive)

Residue 16

Selected peptides: -2 PAPFGQAAAGDKPSPF
-1 APFGQAAAGDKPSPFG
best 16mer PFGQAAAGDKPSPFGQ
+1 FGQAAAGDKPSPFGQA
+2 GQAAAGDKPSPFGQAA

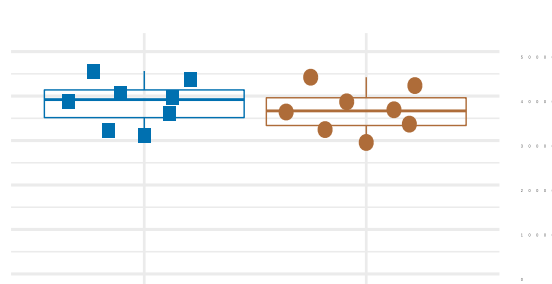
Mutated peptides: -2 PAPFGQAAAGDKPSPA
-1 APFGQAAAGDKPSPAG
0 PFGQAAAGDKPSPAGQ
+1 FGQAAAGDKPSPAGQA
+2 GQAAAGDKPSPAGQAA



Residue 17

Selected peptides: -2 PAPFGQAAAGDKPSPF
-1 APFGQAAAGDKPSPFG
best 16mer PFGQAAAGDKPSPFGQ
+1 FGQAAAGDKPSPFGQA
+2 GQAAAGDKPSPFGQAA

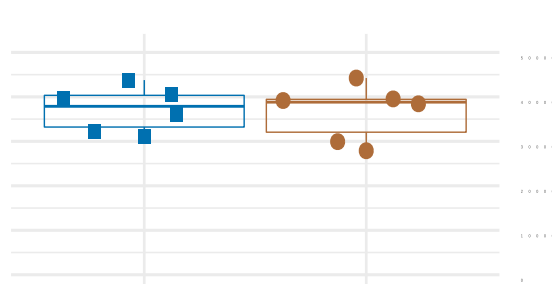
Mutated peptides: -2 PAPFGQAAAGDKPSPF
-1 APFGQAAAGDKPSPFA
0 PFGQAAAGDKPSPFAQ
+1 FGQAAAGDKPSPFAQA
+2 GQAAAGDKPSPFAQAA



Residue 18

Selected peptides: -2 PAPFGQAAAGDKPSPF
-1 APFGQAAAGDKPSPFG
best 16mer PFGQAAAGDKPSPFGQ
+1 FGQAAAGDKPSPFGQA
+2 GQAAAGDKPSPFGQAA

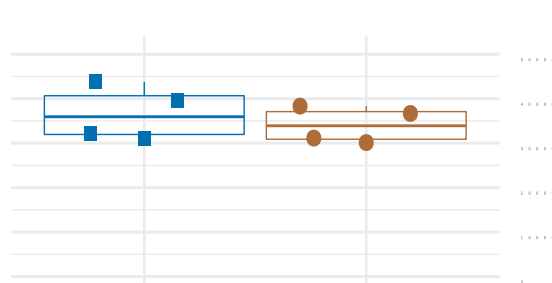
Mutated peptides: -2 PAPFGQAAAGDKPSPF
-1 APFGQAAAGDKPSPFG
0 PFGQAAAGDKPSPFGA
+1 FGQAAAGDKPSPFGAA
+2 GQAAAGDKPSPFGAAA



Residue 19

Selected peptides: -2 PAPFGQAAAGDKPSPF
-1 APFGQAAAGDKPSPFG
best 16mer PFGQAAAGDKPSPFGQ
+1 FGQAAAGDKPSPFGQA
+2 GQAAAGDKPSPFGQAA

Mutated peptides: -2 PAPFGQAAAGDKPSPF
-1 APFGQAAAGDKPSPFG
0 PFGQAAAGDKPSPFGQ
+1 FGQAAAGDKPSPFGQG
+2 GQAAAGDKPSPFGQGA



Residue 20

Selected peptides: -2 PAPFGQAAAGDKPSPF
-1 APFGQAAAGDKPSPFG
best 16mer PFGQAAAGDKPSPFGQ
+1 FGQAAAGDKPSPFGQA
+2 GQAAAGDKPSPFGQAA

Mutated peptides: -2 PAPFGQAAAGDKPSPF
-1 APFGQAAAGDKPSPFG
0 PFGQAAAGDKPSPFGQ
+1 FGQAAAGDKPSPFGQA
+2 GQAAAGDKPSPFGQAG

