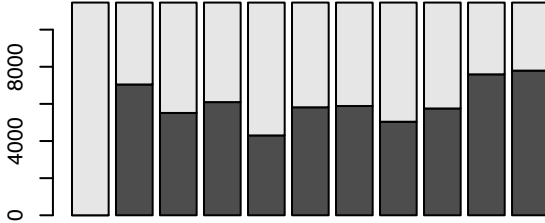
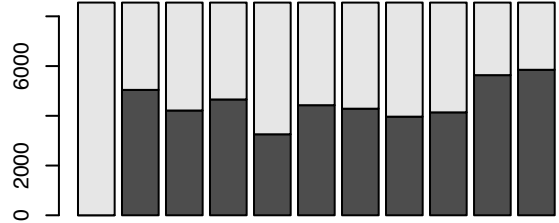


Single Mutants

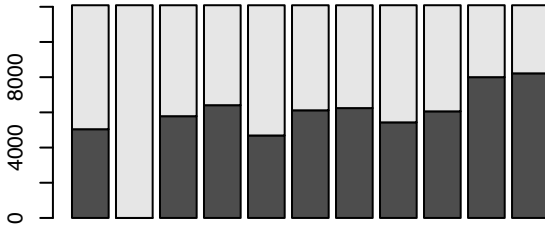
103:K ; mut ; 1019 unique seqs



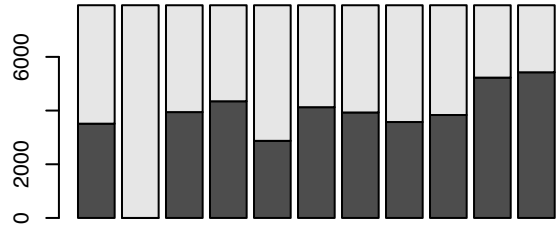
103:E ; WT ; 1018 unique seqs



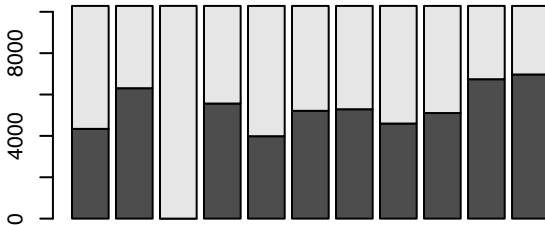
118:S ; mut ; 1024 unique seqs



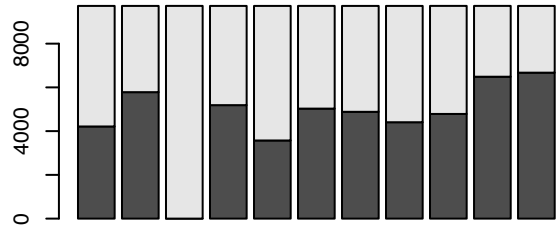
118:T ; WT ; 1013 unique seqs



161:G ; mut ; 1017 unique seqs



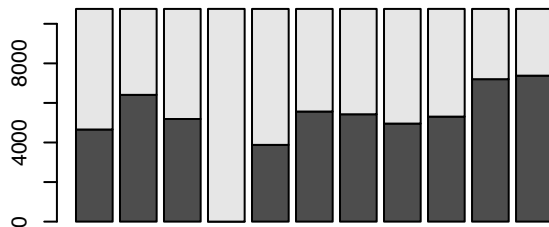
161:D ; WT ; 1020 unique seqs



162:Q ; mut ; 1017 unique seqs



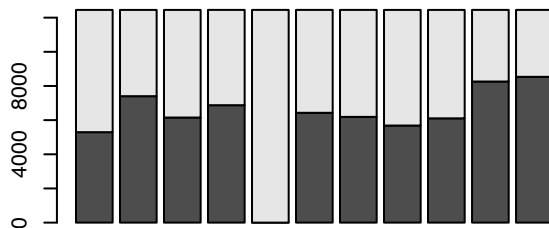
162:H ; WT ; 1020 unique seqs



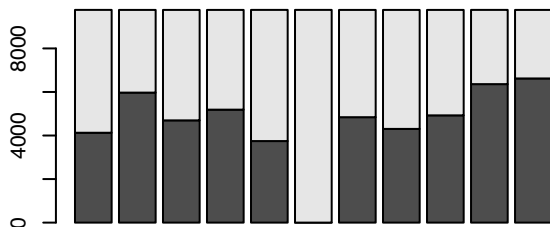
173:R ; mut ; 1015 unique seqs



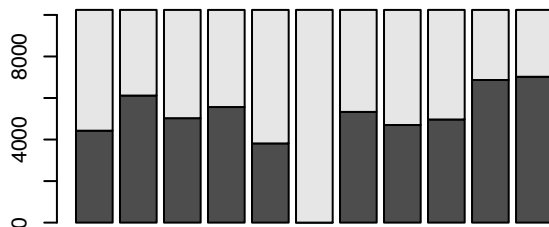
173:S ; WT ; 1022 unique seqs



219:R ; mut ; 1022 unique seqs



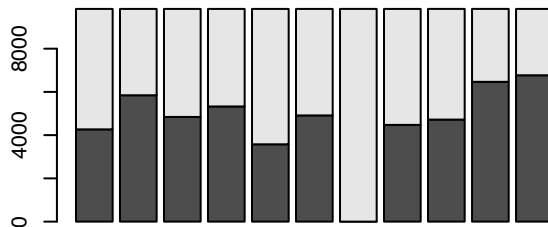
219:K ; WT ; 1015 unique seqs



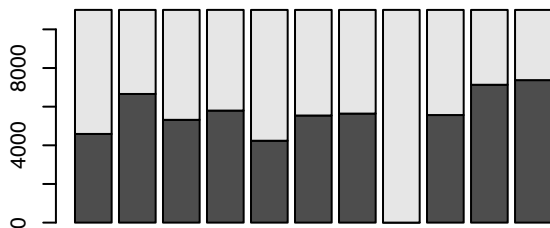
220:N ; mut ; 1019 unique seqs



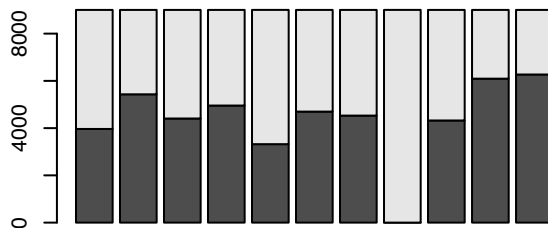
220:Y ; WT ; 1018 unique seqs



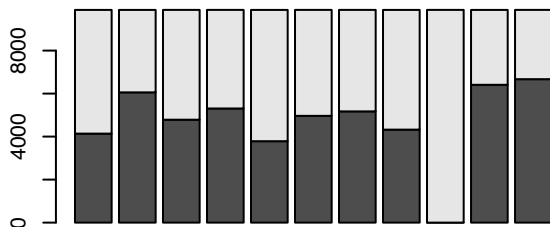
299:E ; mut ; 1018 unique seqs



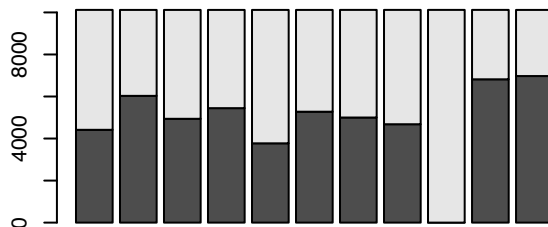
299:D ; WT ; 1019 unique seqs



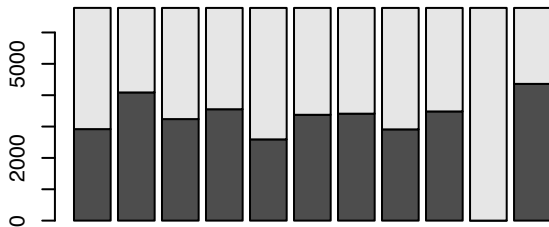
315:A ; mut ; 1019 unique seqs



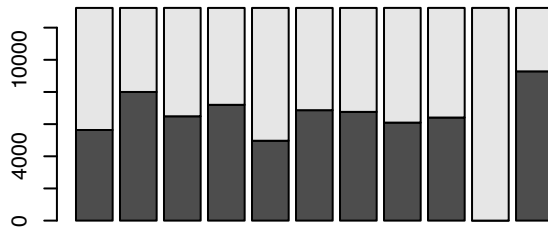
315:V ; WT ; 1018 unique seqs



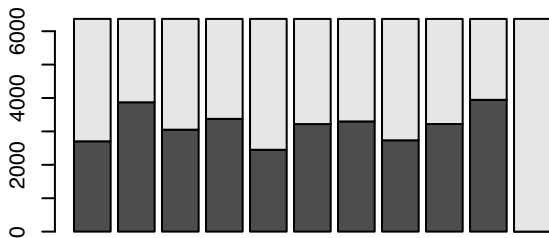
321:G ; mut ; 1017 unique seqs



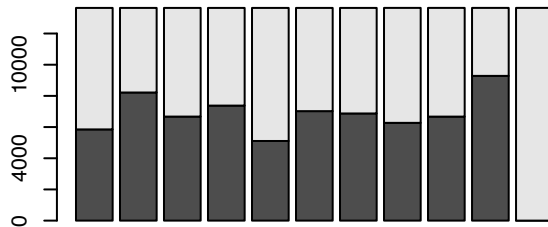
321:A ; WT ; 1020 unique seqs



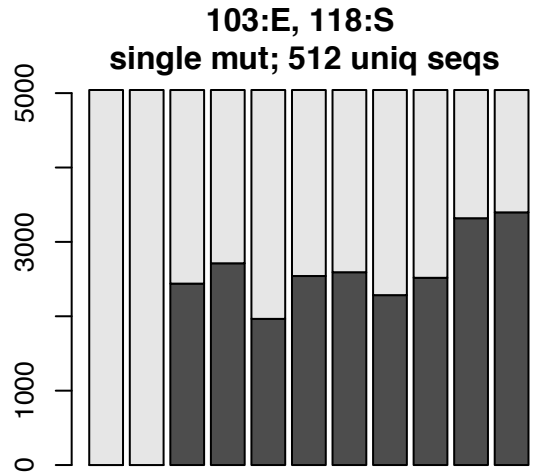
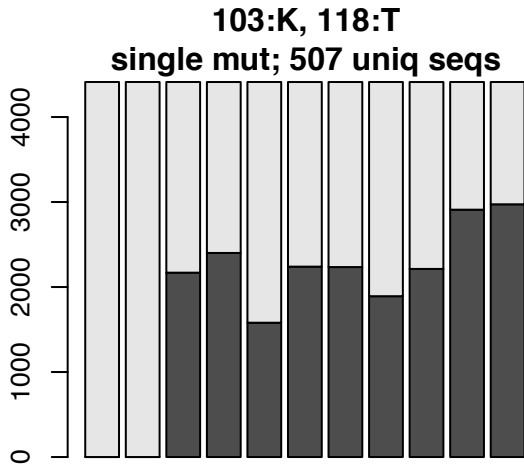
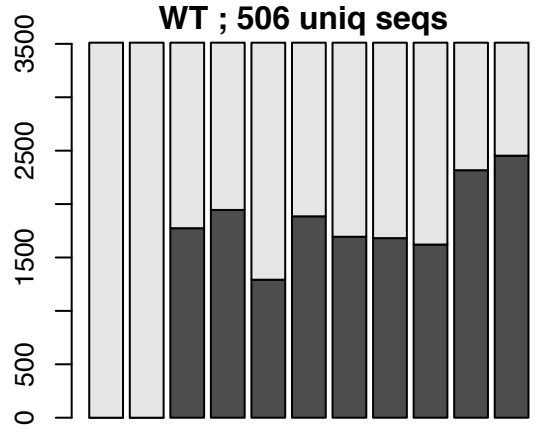
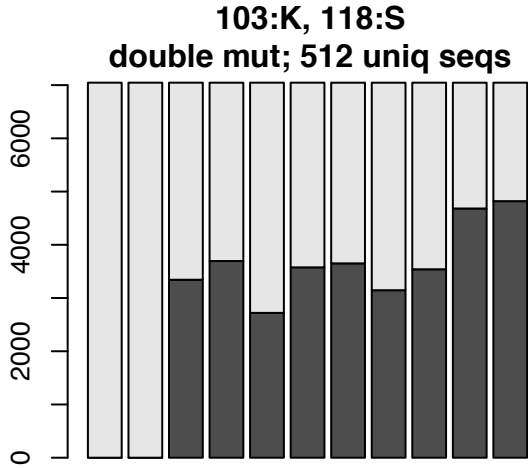
329:T ; mut ; 1014 unique seqs



329:A ; WT ; 1023 unique seqs



Double Mutants

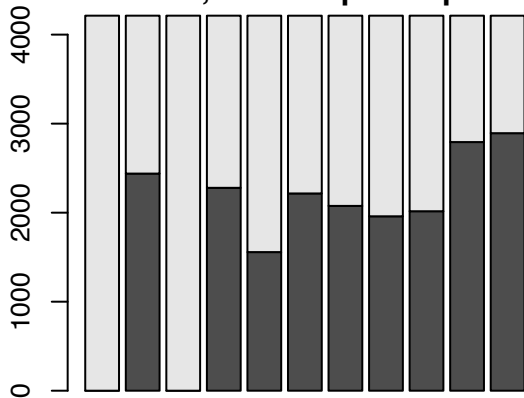


103:K, 161:G

double mut; 509 unique seqs



WT ; 510 unique seqs



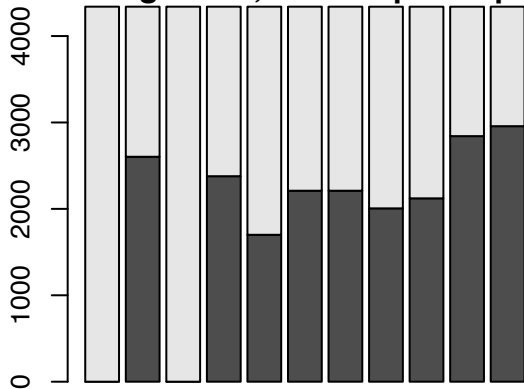
103:K, 161:D

single mut; 510 unique seqs



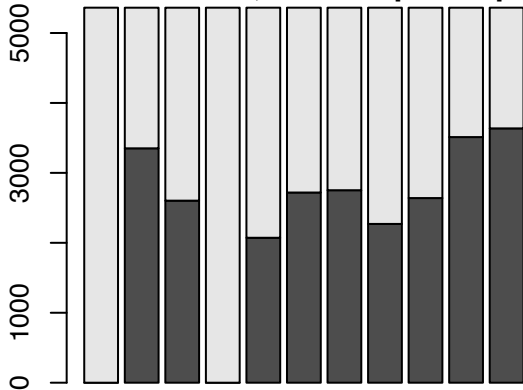
103:E, 161:G

single mut; 508 unique seqs

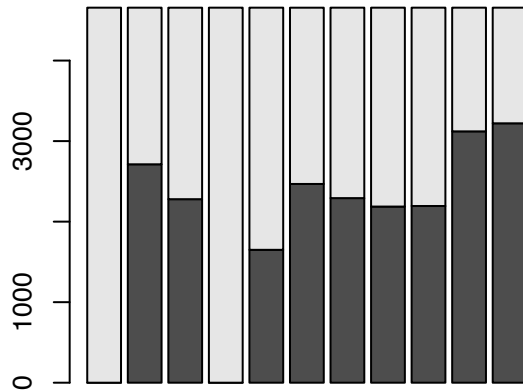


103:K, 162:Q

double mut; 508 unique seqs

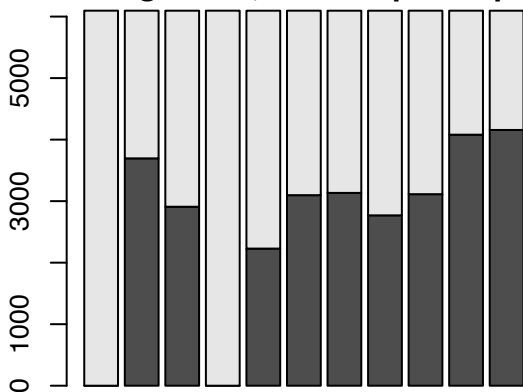


WT ; 509 unique seqs



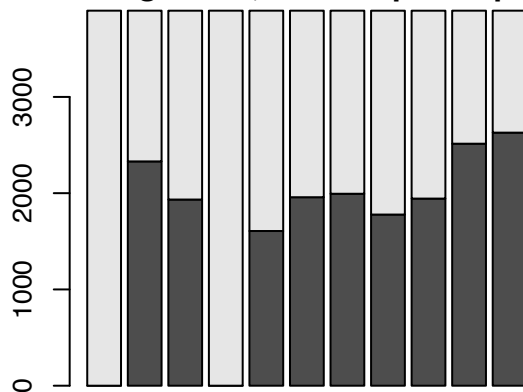
103:K, 162:H

single mut; 511 unique seqs



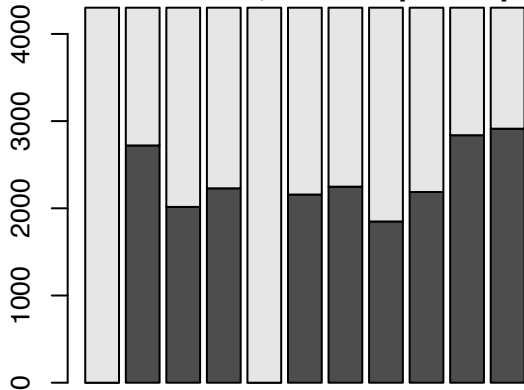
103:E , 162:Q

single mut; 509 unique seqs

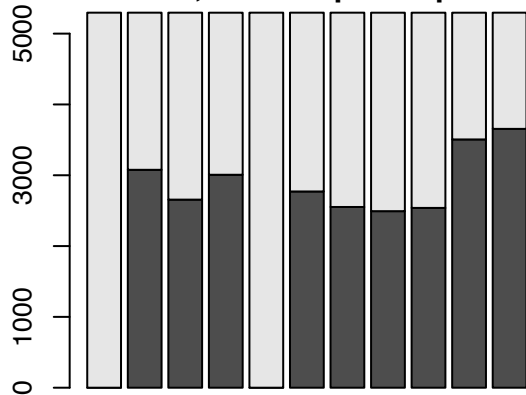


103:K, 173:R

double mut; 507 unique seqs

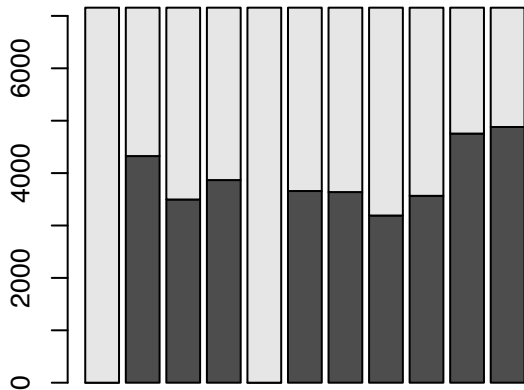


WT; 510 unique seqs



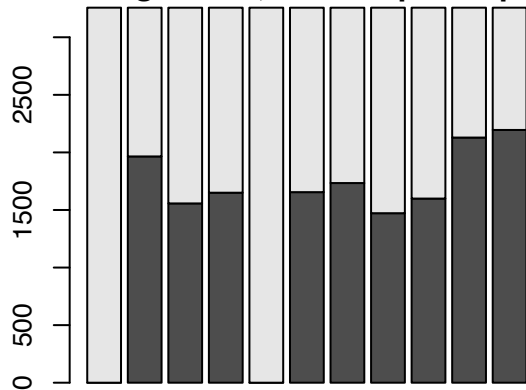
103:K, 173:S

single mut; 512 unique seqs



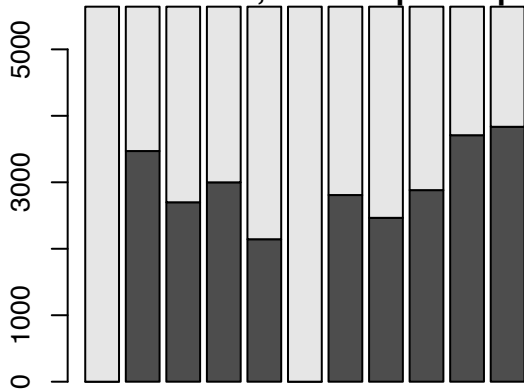
103:E, 173R

single mut ; 508 unique seqs

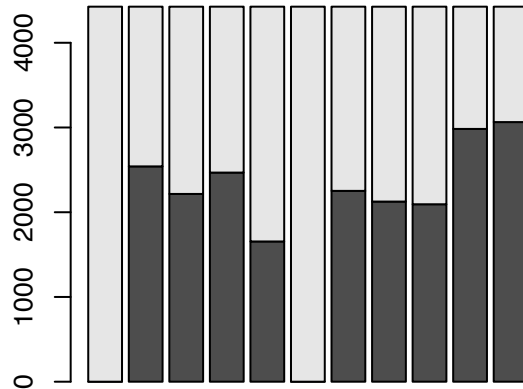


103:K, 219:R

double mut; 511 unique seqs

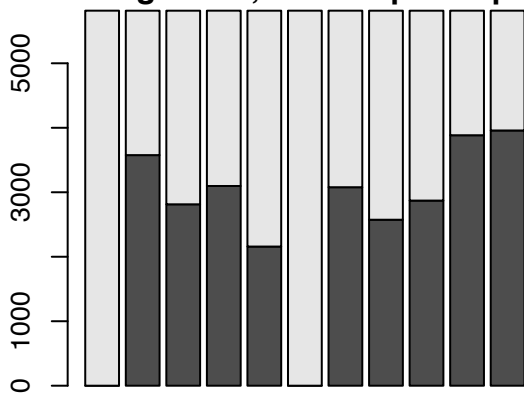


WT; 507 unique seqs



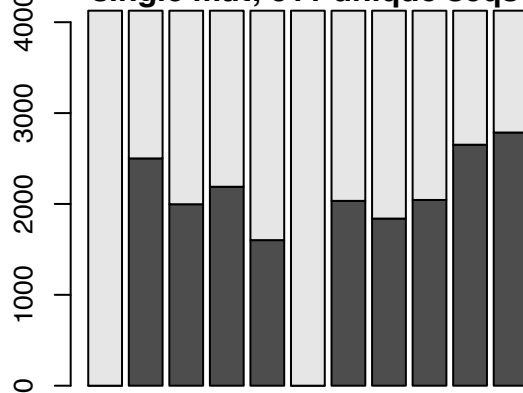
103:K, 219:K

single mut; 508 unique seqs



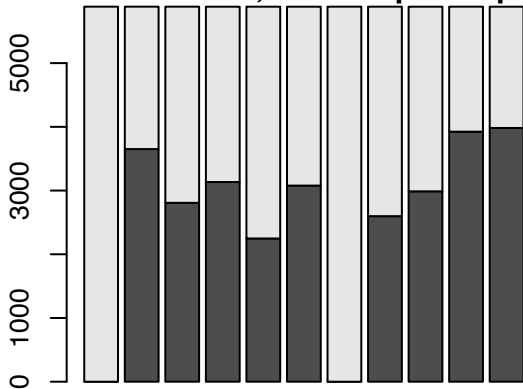
103:E, 219:R

single mut; 511 unique seqs

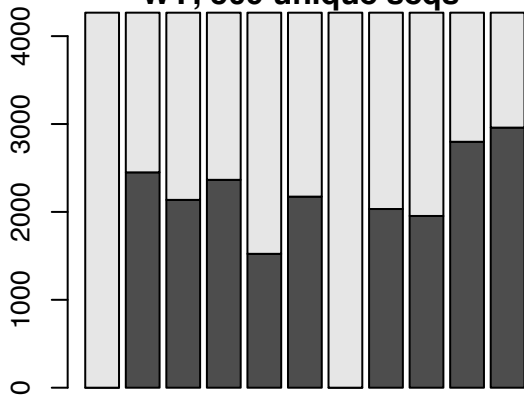


103:K, 220:N

double mut; 510 unique seqs

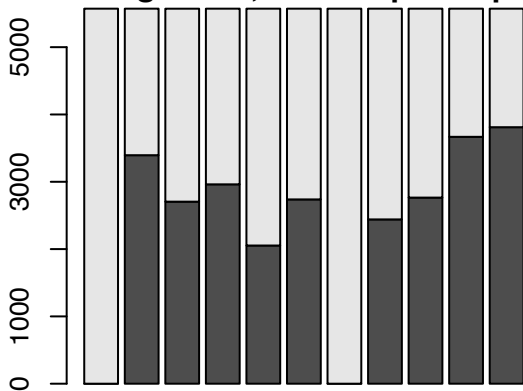


WT; 509 unique seqs



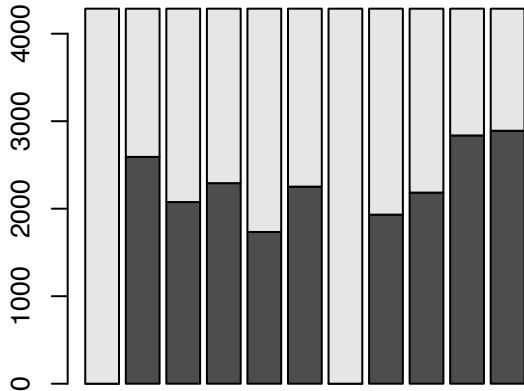
103:K, 220:Y

single mut; 509 unique seqs



103:E, 220:N

single mut; 509 unique seqs

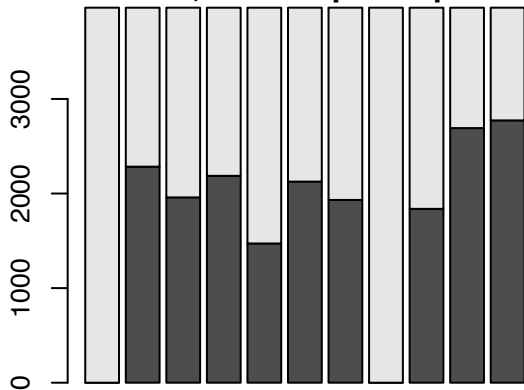


103:K, 299:E

double mut; 509 unique seqs

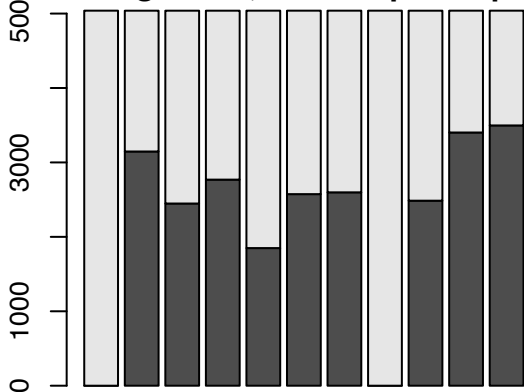


WT; 509 unique seqs



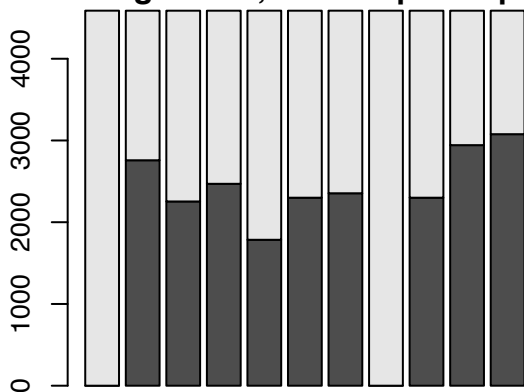
103:K, 299:D

single mut; 510 unique seqs



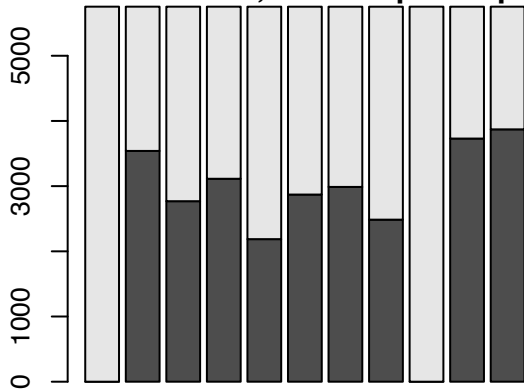
103:E, 299:E

single mut ; 509 unique seqs

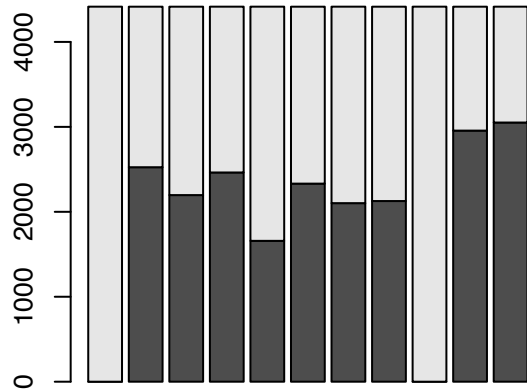


103:K, 315:A

double mut; 511 unique seqs

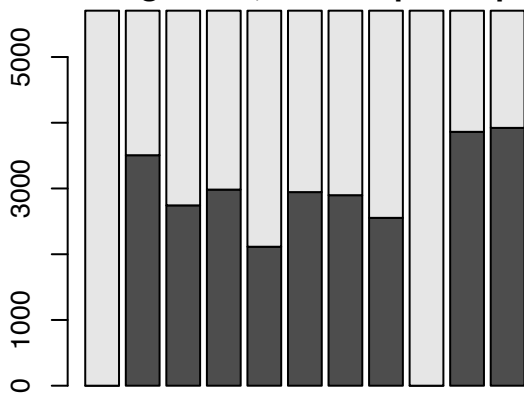


WT; 510 unique seqs



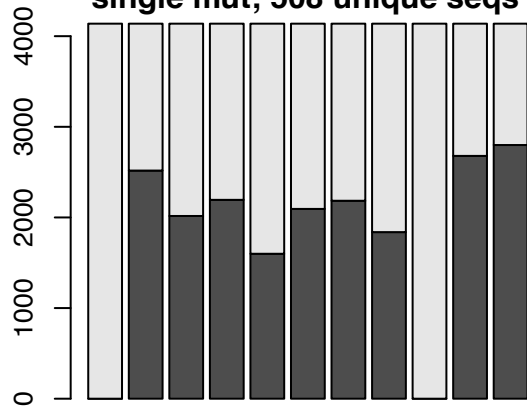
103:K, 315:V

single mut; 508 unique seqs

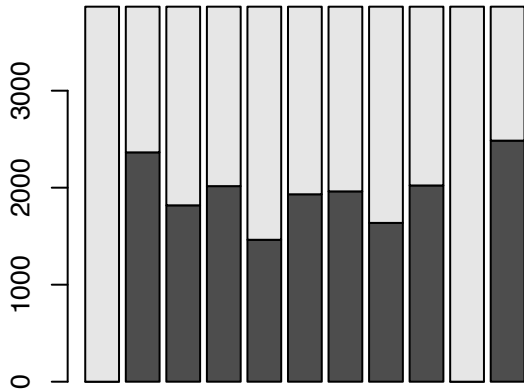


103:E, 315:A

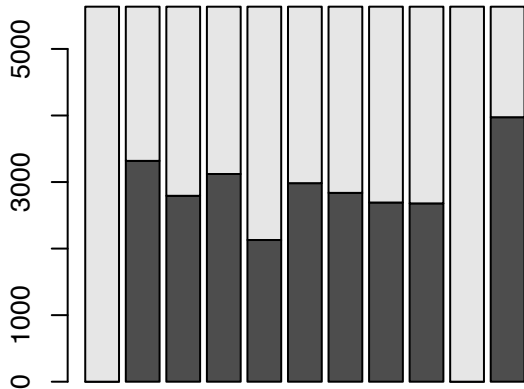
single mut; 508 unique seqs



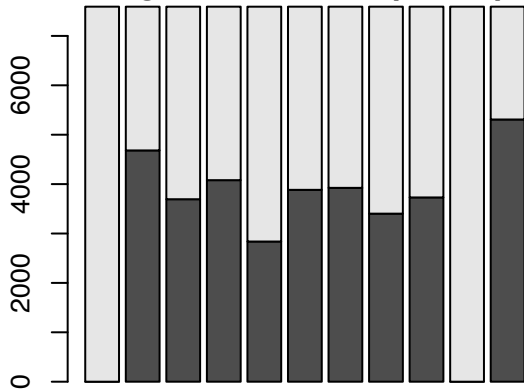
103:K, 321:G
double mut; 509 unique seqs



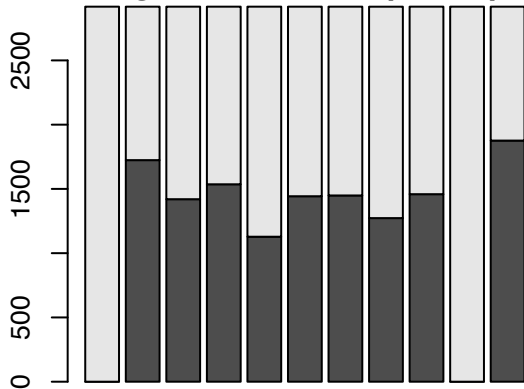
WT; 510 unique seqs



103:K, 321:A
single mut; 510 unique seqs

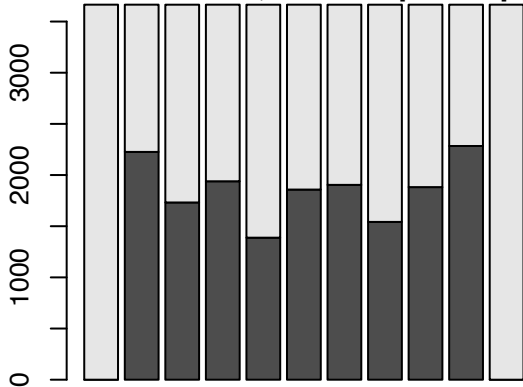


103:E, 321:G
single mut; 508 unique seqs

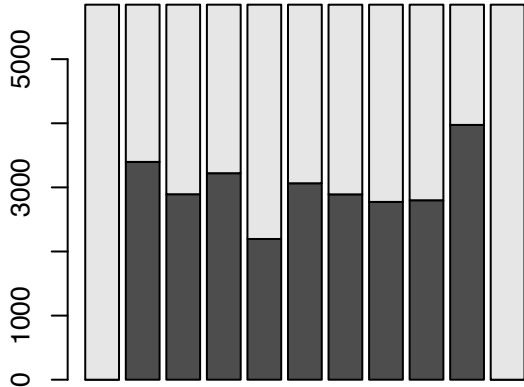


103:K, 329:T

double mut; 507 unique seqs



WT ; 511 unique seqs



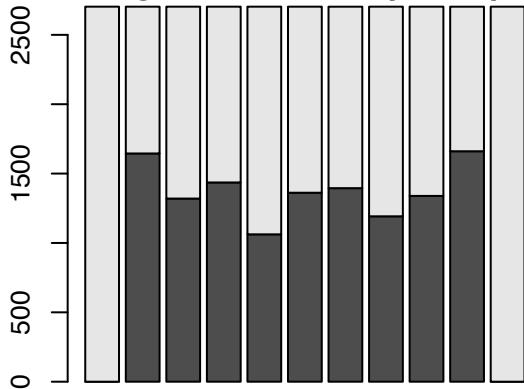
103:K, 329:A

single mut; 512 unique seqs



103:E, 329:T

single mut; 507 unique seqs

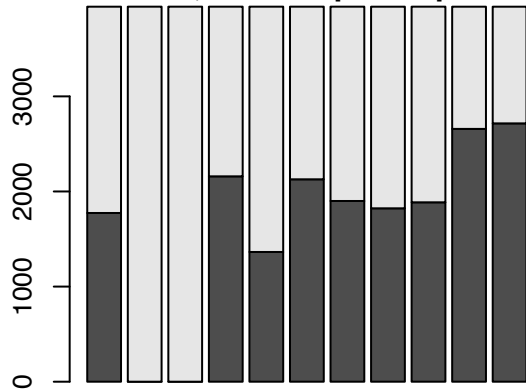


118:S, 161:G

double mut; 512 unique seqs



WT; 508 unique seqs



118:S, 161:D

single mut; 512 unique seqs



118:T, 161:G

single mut; 505 unique seqs

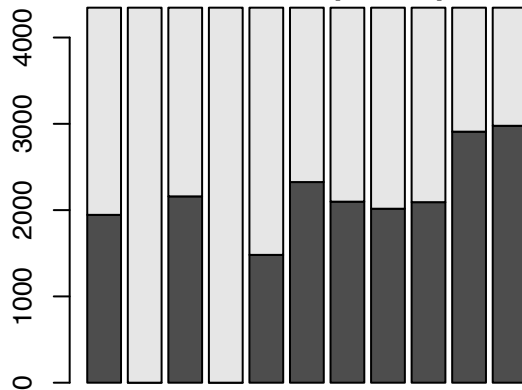


118:S, 162:Q

double mut; 512 unique seqs



WT; 508 unique seqs



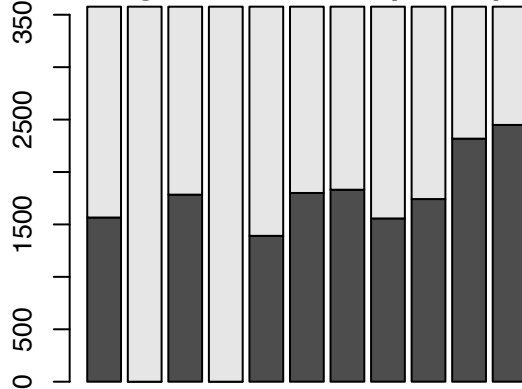
118:S, 162:H

single mut; 512 unique seqs



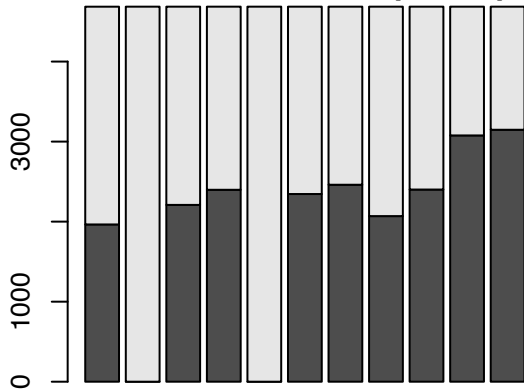
118:T, 162:Q

single mut; 505 unique seqs

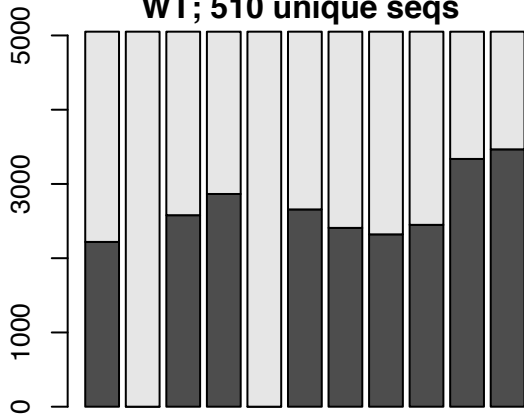


118:S, 173:R

double mut; 512 unique seqs

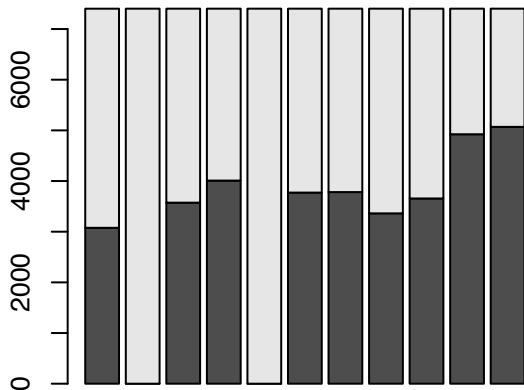


WT; 510 unique seqs



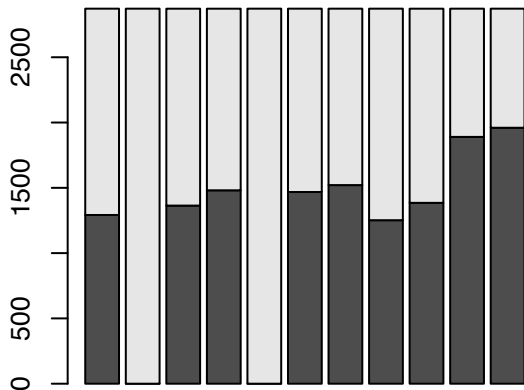
118:S, 173:S

single mut; 512 unique seqs



118:T, 173:R,

single mut; 503 unique seqs

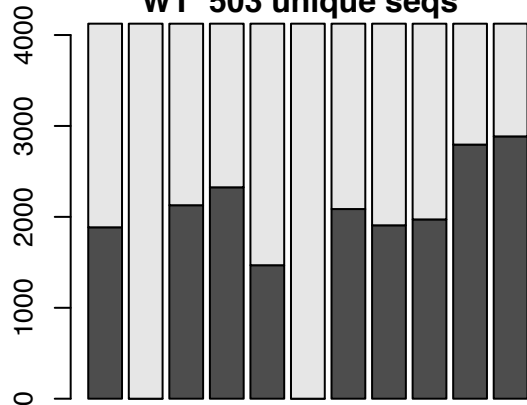


118:S, 219:R

double mut; 512 unique seqs



WT 503 unique seqs



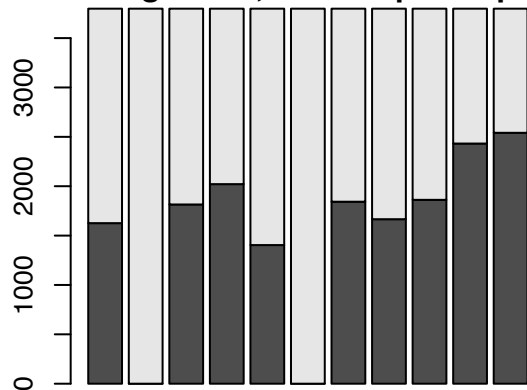
118:S, 219:K

single mut; 512 unique seqs

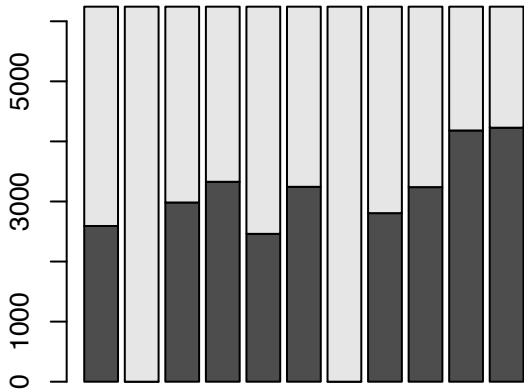


118:T, 219:R

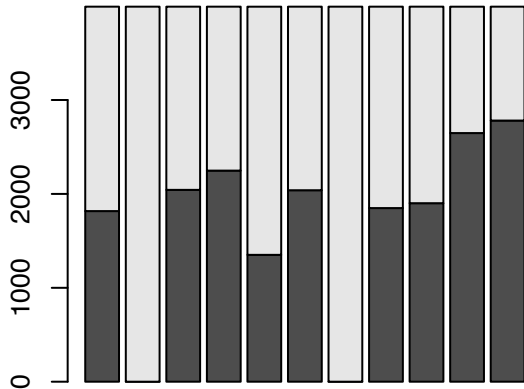
single mut; 510 unique seqs



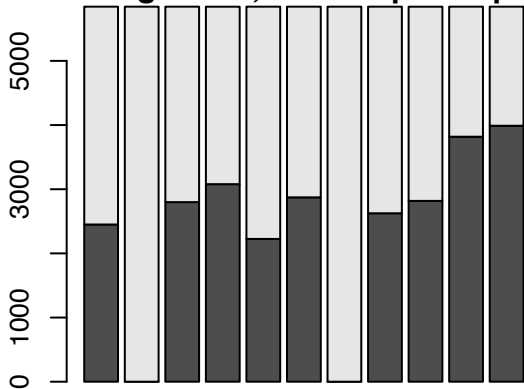
118:S, 220:N
double mut; 512 unique seqs



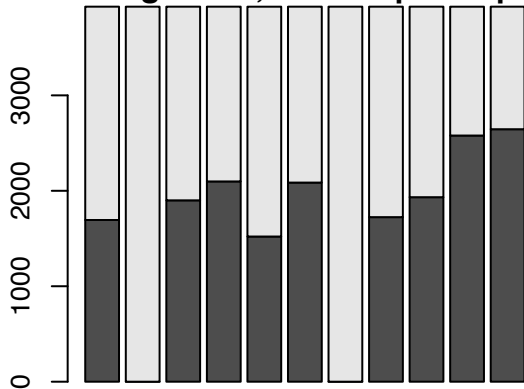
WT; 506 unique seqs



118:S, 220:Y
single mut; 512 unique seqs



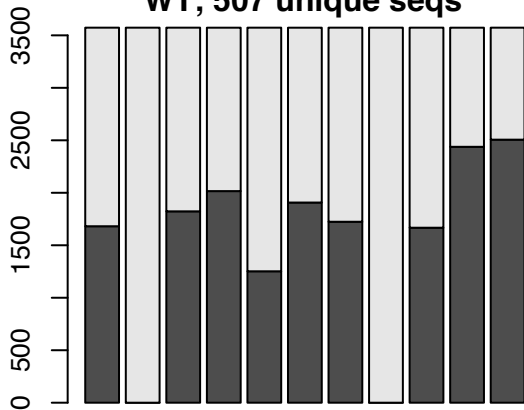
118:T, 220:N
single mut; 507 unique seqs



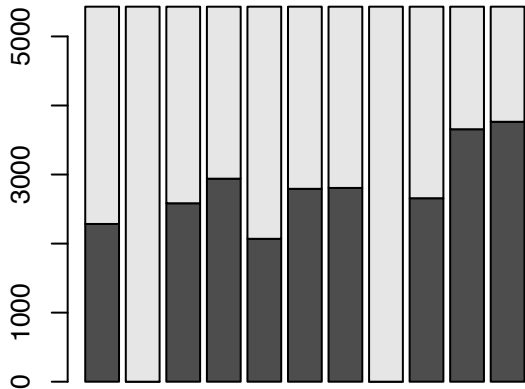
118:S, 299:E
double mut; 512 unique seqs



WT; 507 unique seqs



118:S, 299:D
single mut; 512 unique seqs

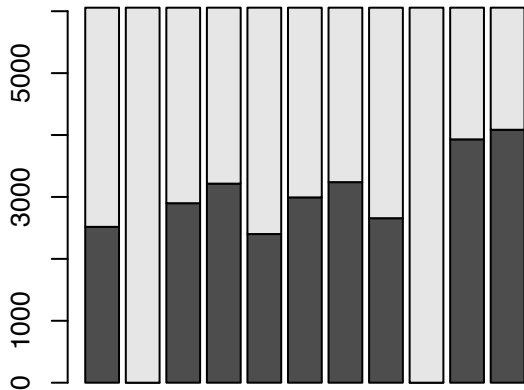


118:T, 299:E
single mut; 506 unique seqs

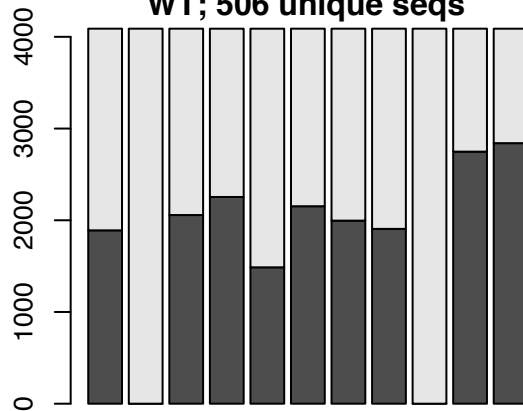


118:S, 315:A

double mut; 512 unique seqs

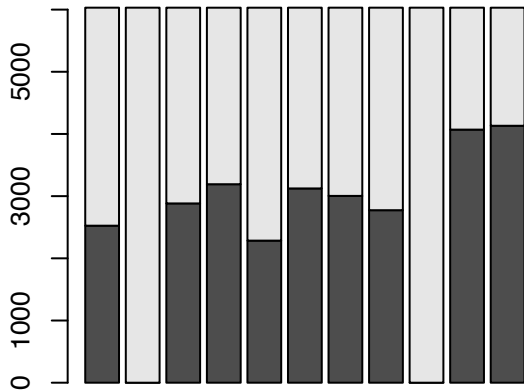


WT; 506 unique seqs



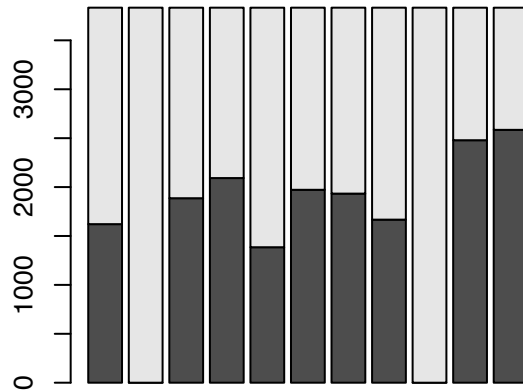
118:S, 315:V

single mut; 512 unique seqs



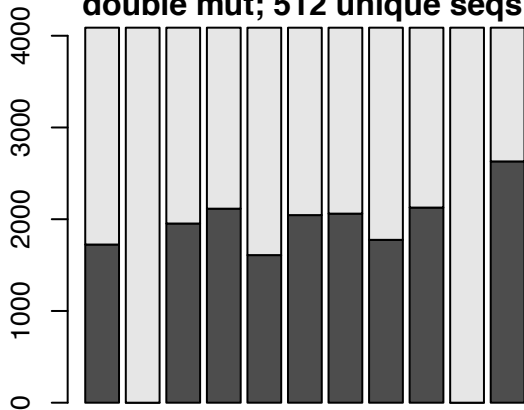
118:T, 315:A

single mut ; 507 unique seqs

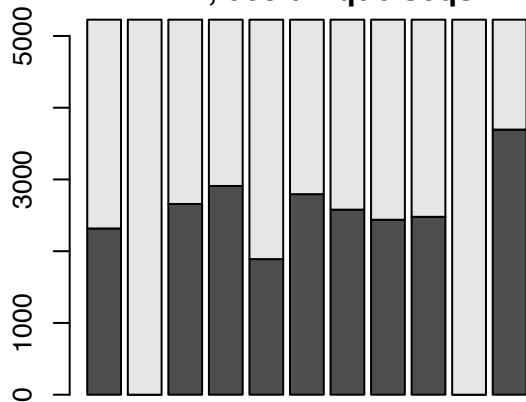


118:S, 321:G

double mut; 512 unique seqs

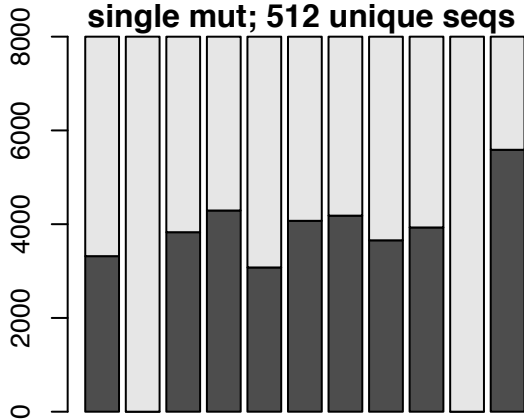


WT; 508 unique seqs



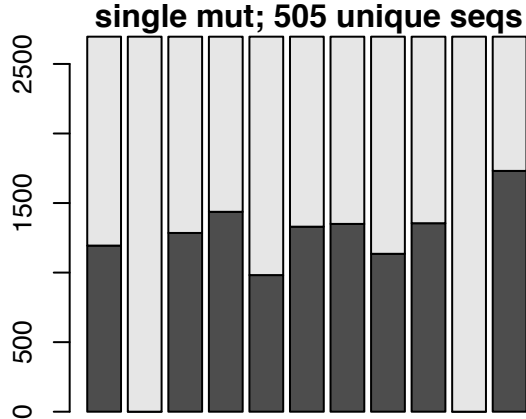
118:S, 321:A

single mut; 512 unique seqs



118:T, 321:G

single mut; 505 unique seqs

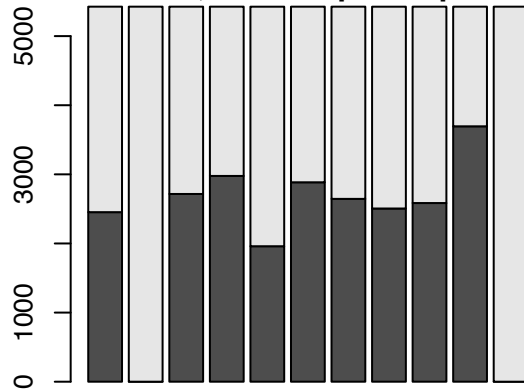


118:S, 329:T

double mut; 512 unique seqs



WT; 511 unique seqs



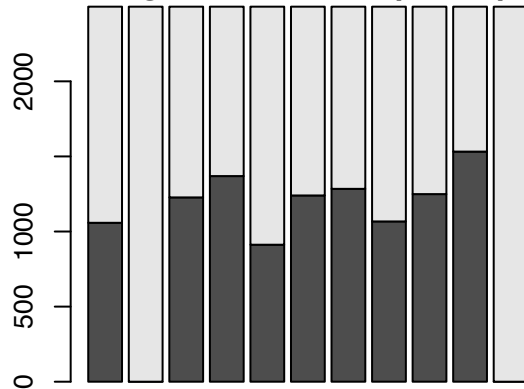
118:S, 329:A

single mut; 512 unique seqs

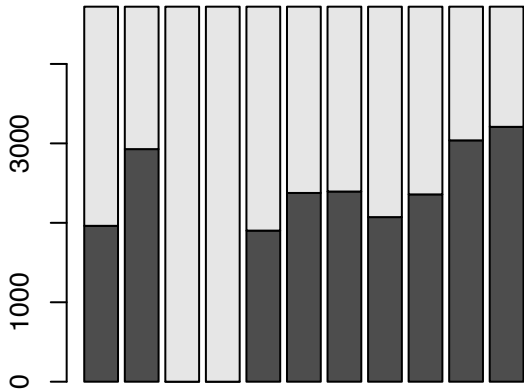


118:T, 329:T

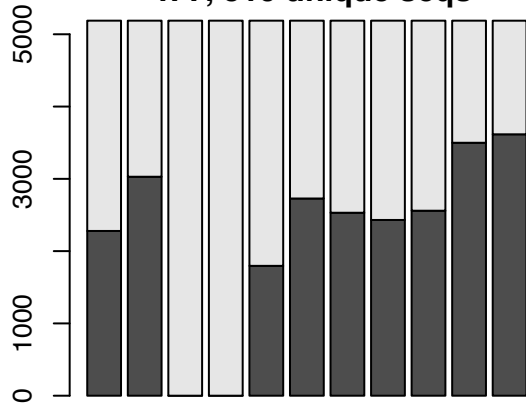
single mut; 502 unique seqs



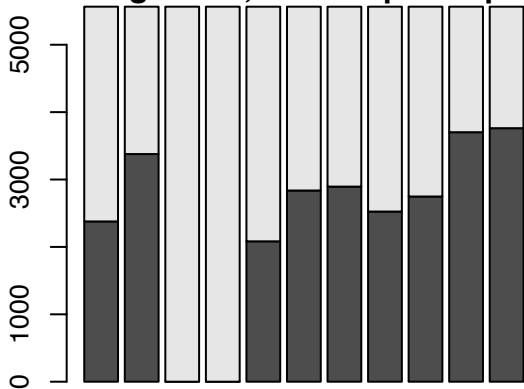
161:G, 162:Q
double mut; 507 unique seqs



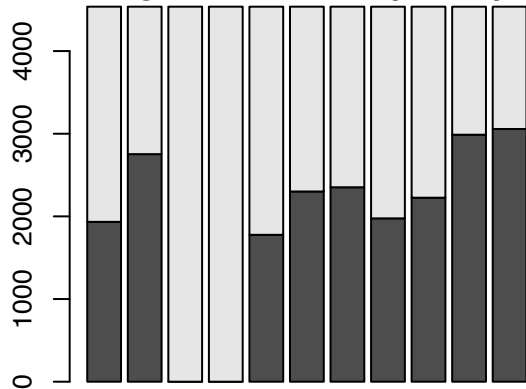
WT; 510 unique seqs



161:G, 162:H
single mut; 510 unique seqs

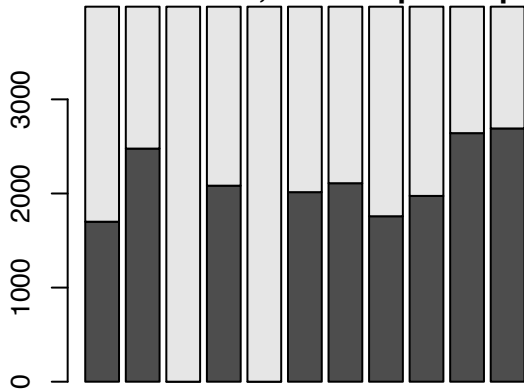


161:D, 162:Q
single mut; 510 unique seqs

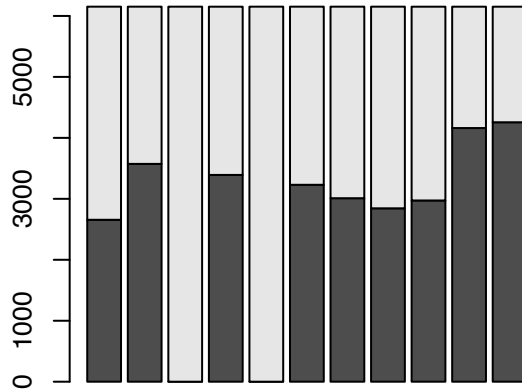


161:G, 173:R

double mut; 506 unique seqs

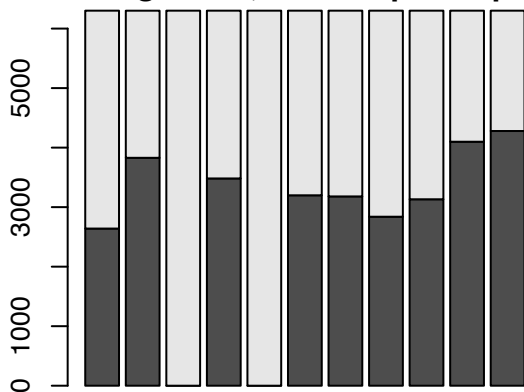


WT; 511 unique seqs



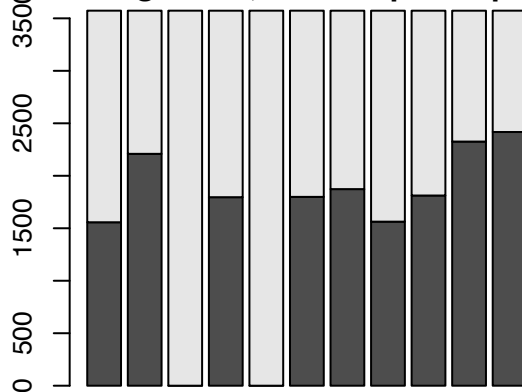
161:G, 173:S

single mut; 511 unique seqs



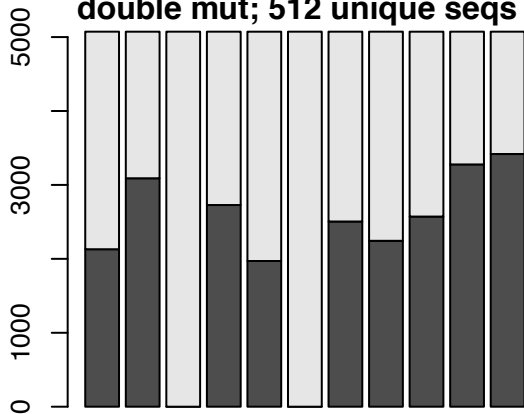
161:D, 173:R

single mut; 509 unique seqs

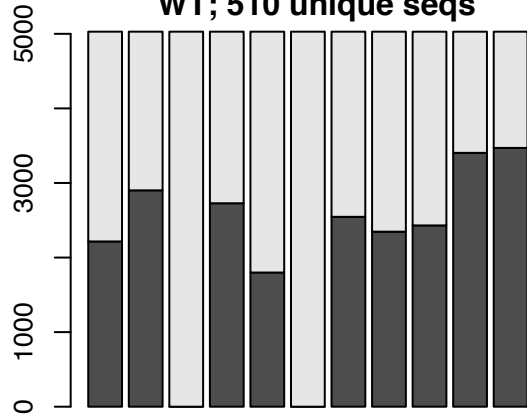


161:G, 219:R

double mut; 512 unique seqs

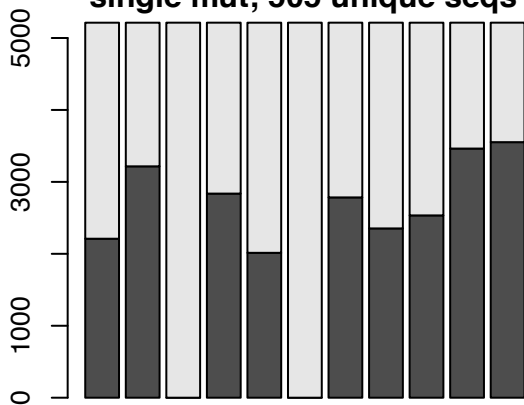


WT; 510 unique seqs



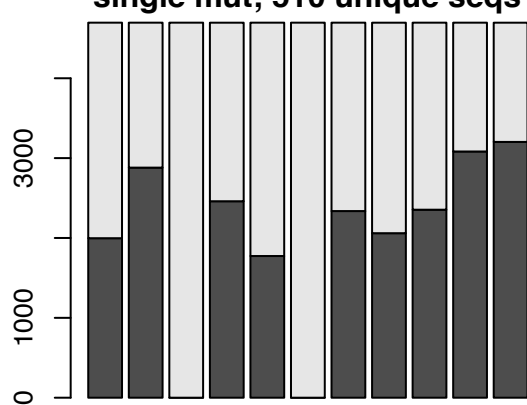
161:G, 219:K

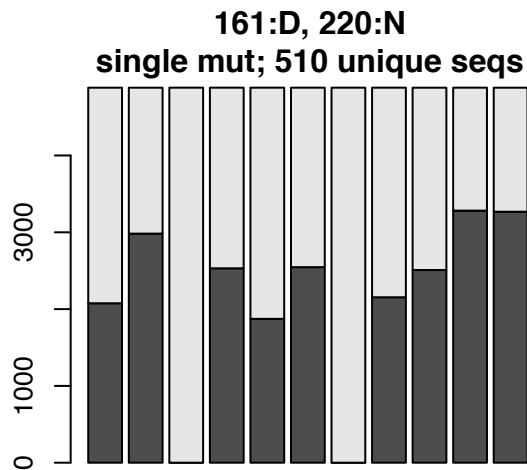
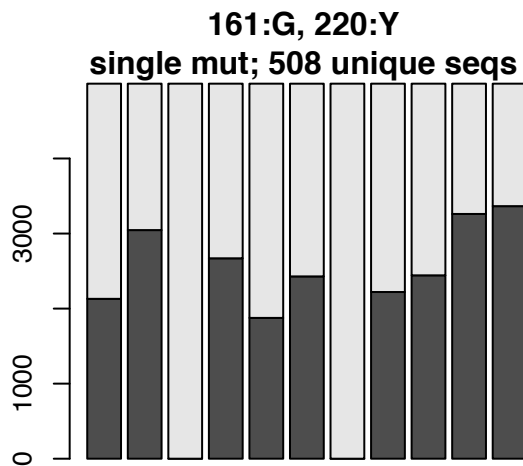
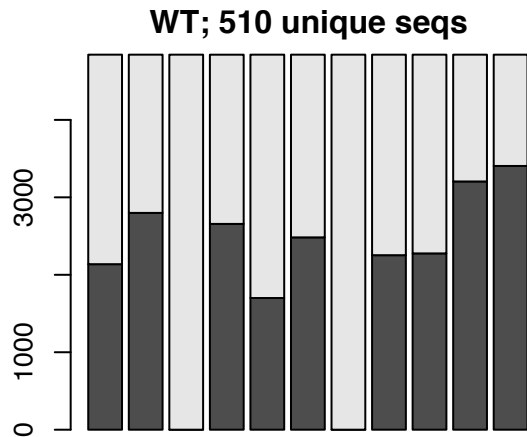
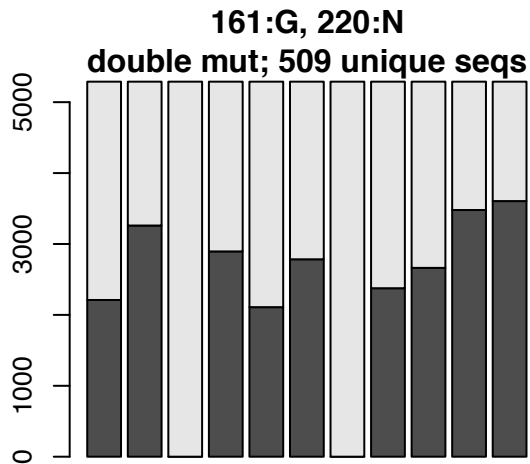
single mut; 505 unique seqs



161:D, 219:R

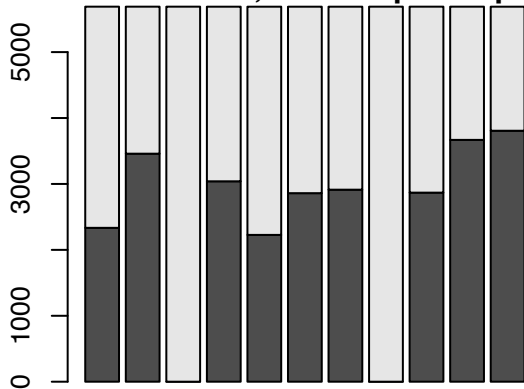
single mut; 510 unique seqs



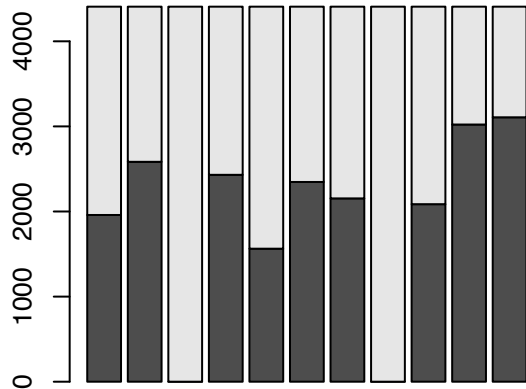


161:G, 299:E

double mut; 508 unique seqs

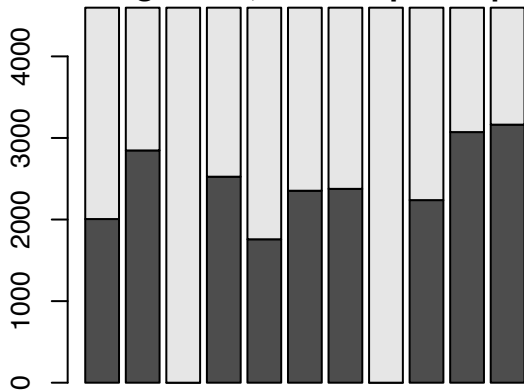


WT; 510 unique seqs



161:G, 299:D

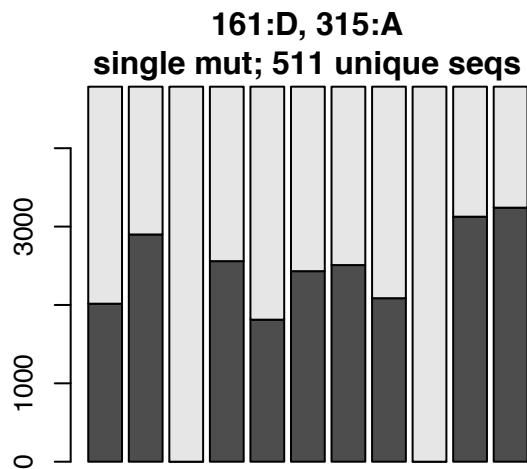
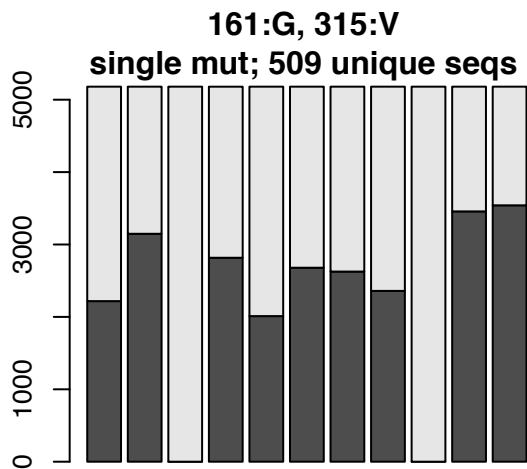
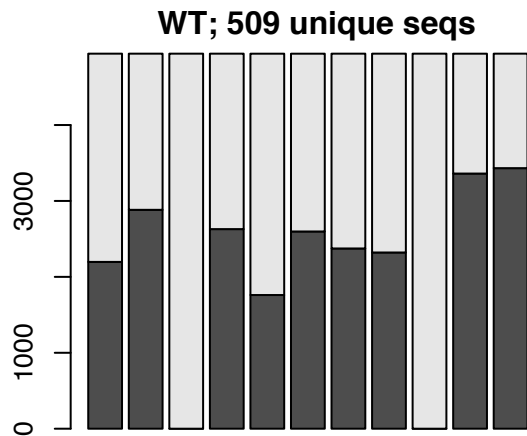
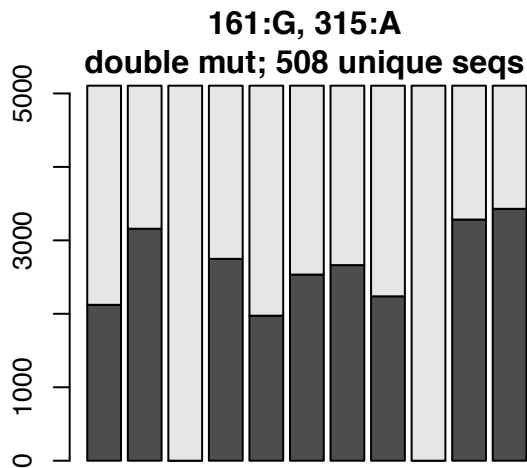
single mut; 509 unique seqs



161:D, 299:E

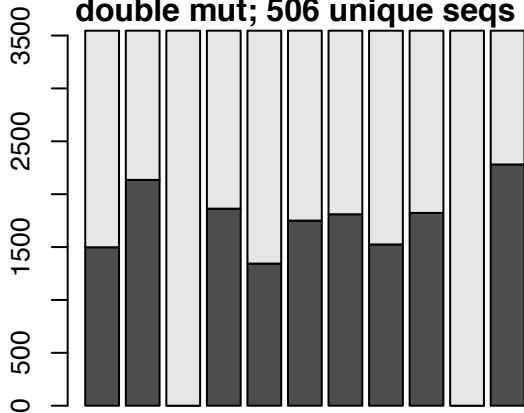
single mut; 510 unique seqs



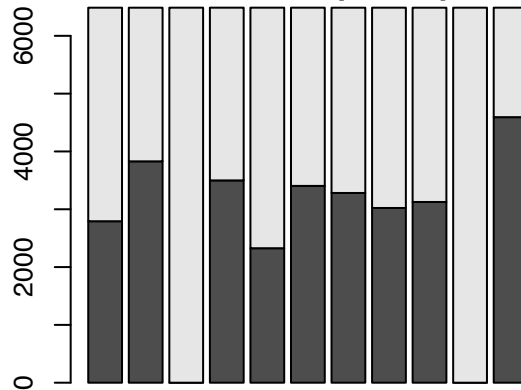


161:G, 321:G

double mut; 506 unique seqs

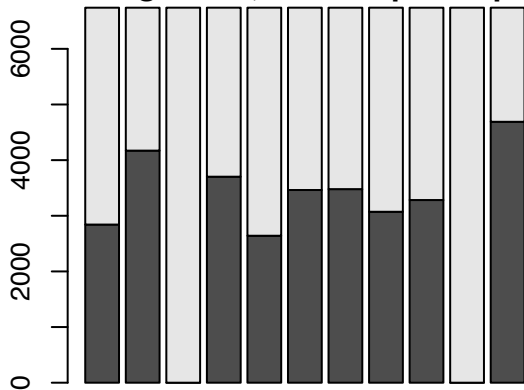


WT; 509 unique seqs



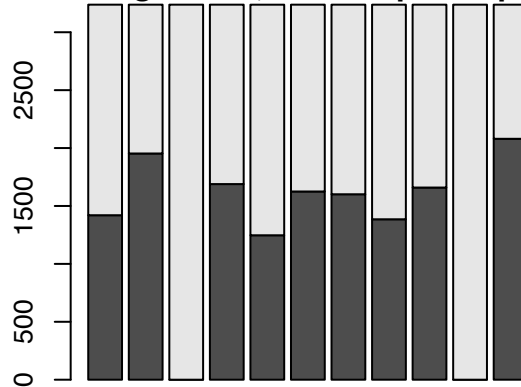
161:G, 321:A

single mut; 511 unique seqs



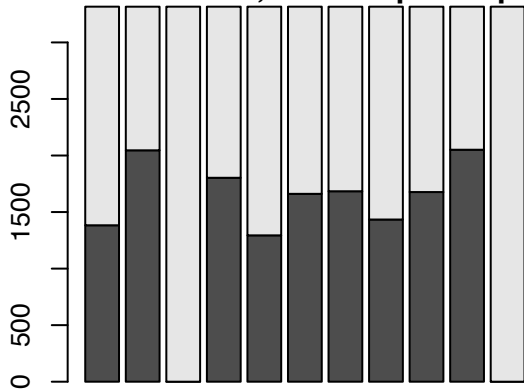
161:D, 321:G

single mut ; 511 unique seqs

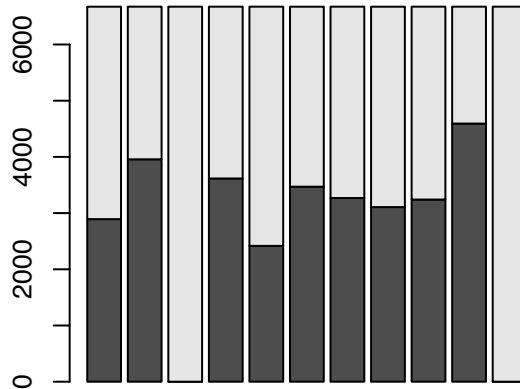


161:G, 329:T

double mut; 506 unique seqs

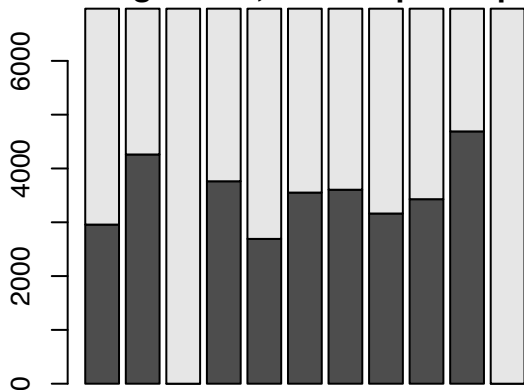


WT; 512 unique seqs



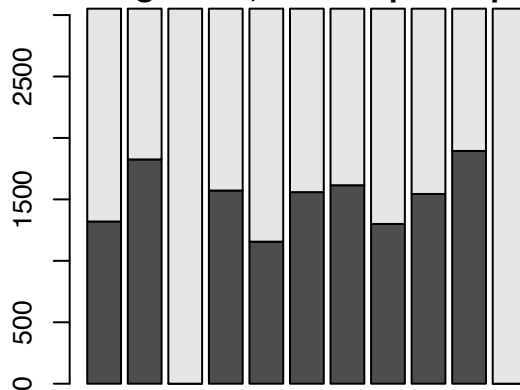
161:G, 329:A

single mut ; 511 unique seqs



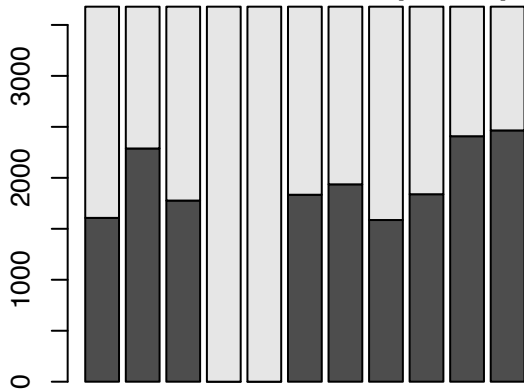
161:D, 329:T

single mut; 508 unique seqs

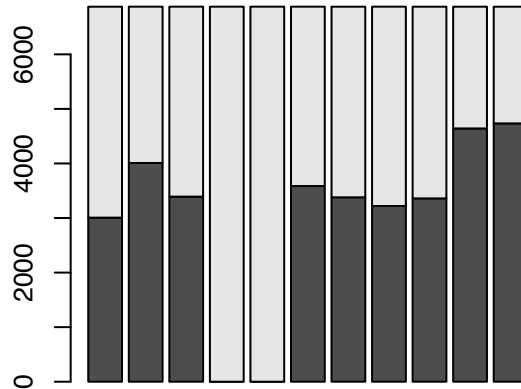


162:Q, 173:R

double mut; 506 unique seqs

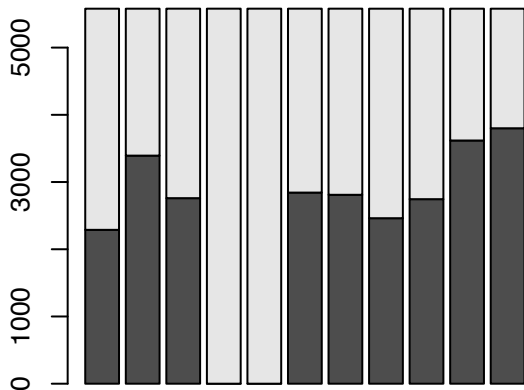


WT; 511 unique seqs



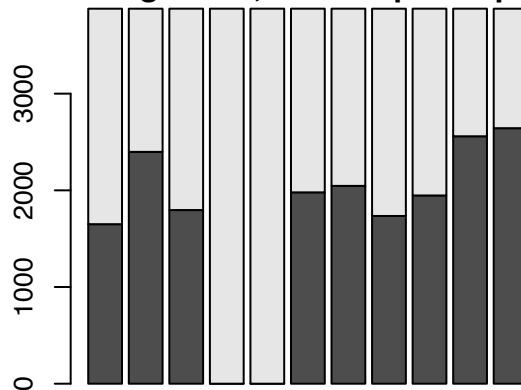
162:Q, 173:S

single mut; 511 unique seqs



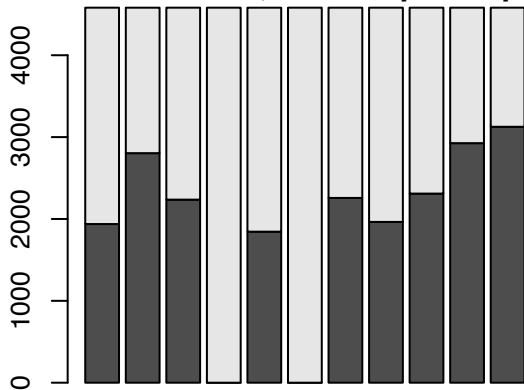
162:H, 173:R

single mut; 509 unique seqs

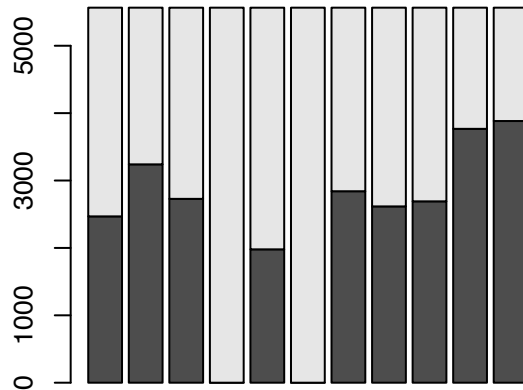


162:Q, 219:R

double mut; 511 unique seqs

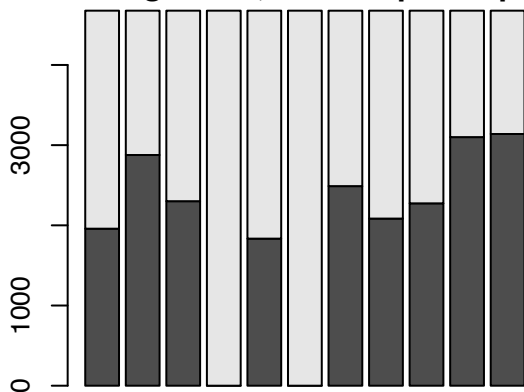


WT; 509 unique seqs



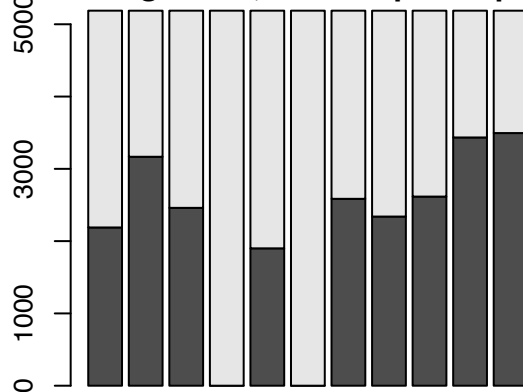
162:Q, 219:K

single mut; 506 unique seqs



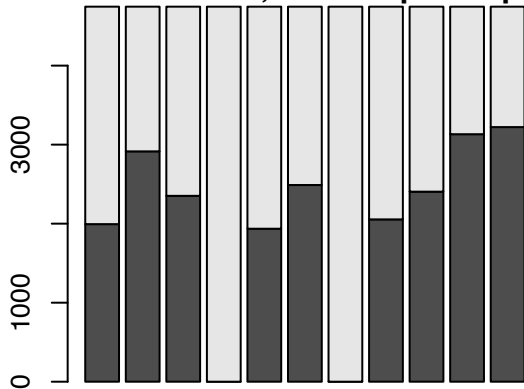
162:H, 219:R

single mut; 511 unique seqs

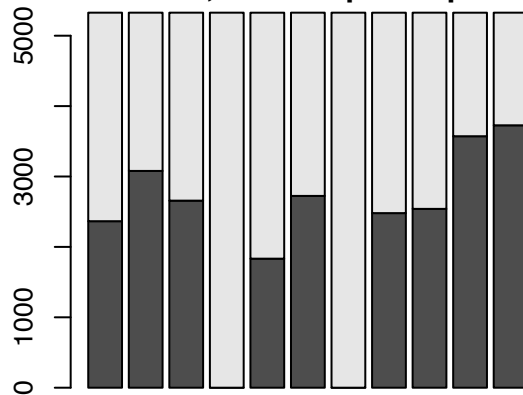


162:Q, 220:N

double mut; 508 unique seqs

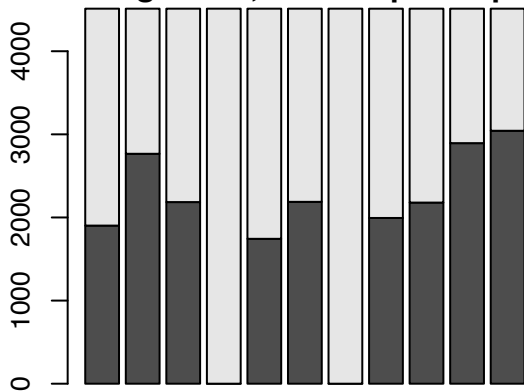


WT; 509 unique seqs



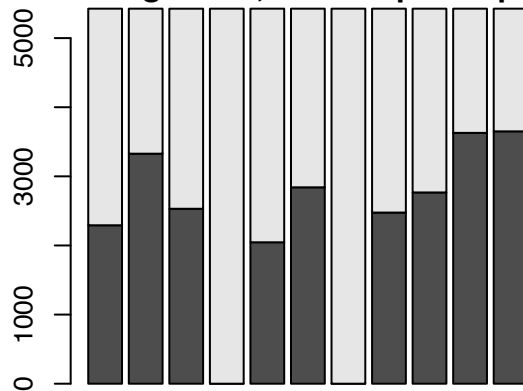
162:Q, 220:Y

single mut; 509 unique seqs



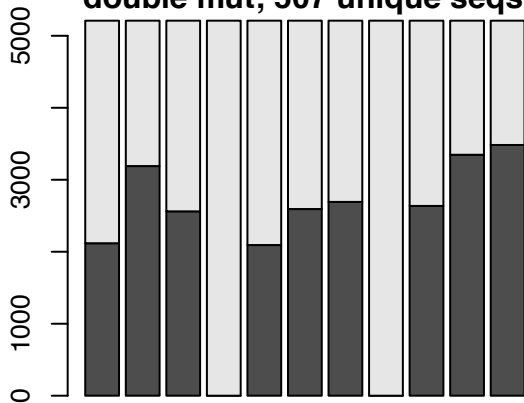
162:H, 220:N

single mut; 511 unique seqs

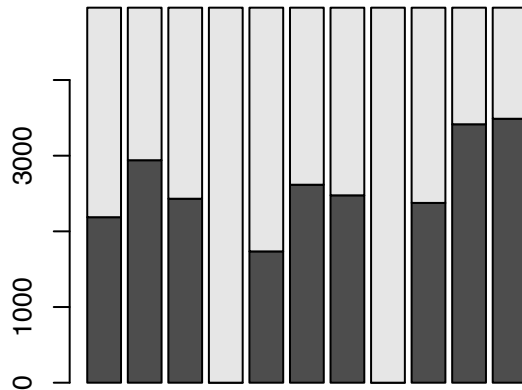


162:Q, 299:E

double mut; 507 unique seqs

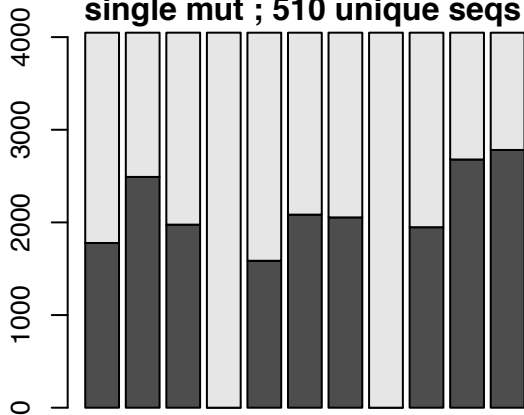


WT; 509 unique seqs



162:Q, 299:D

single mut ; 510 unique seqs



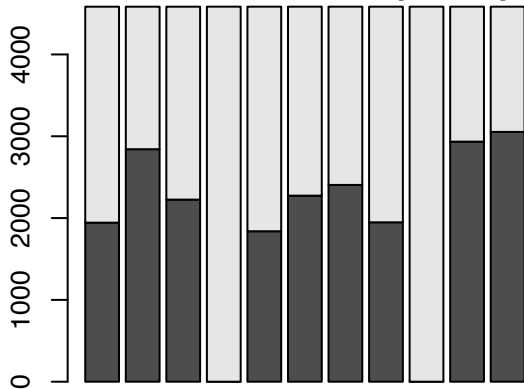
162:H, 299:E

single mut ; 511 unique seqs

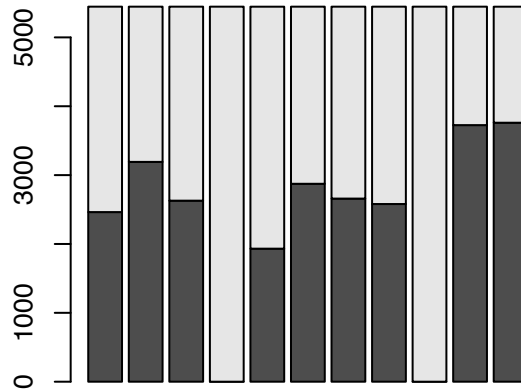


162:Q, 315:A

double mut; 509 unique seqs

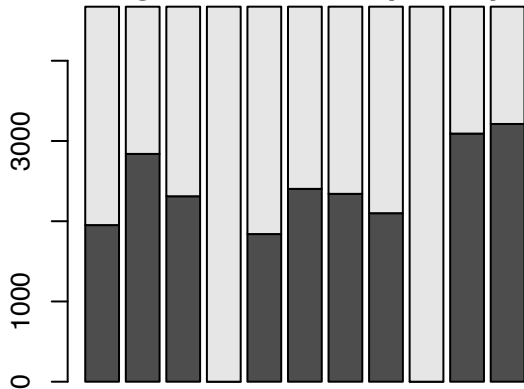


WT; 510 unique seqs



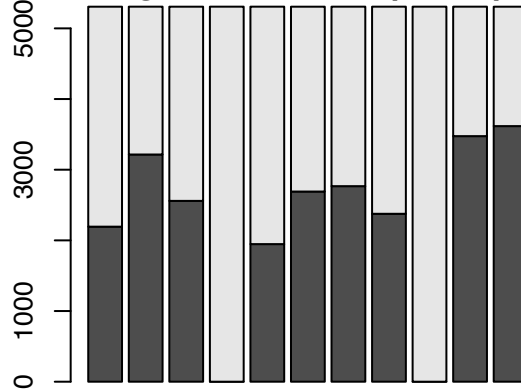
162:Q, 315:V

single mut; 508 unique seqs



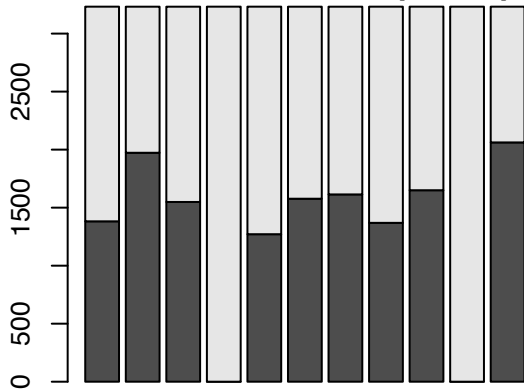
162:H, 315:A

single mut; 510 unique seqs

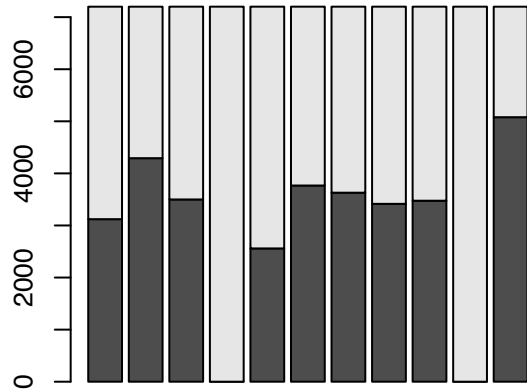


162:Q, 321:G

double mut; 508 unique seqs

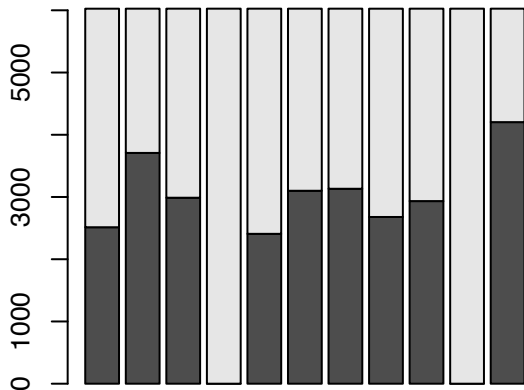


WT; 511 unique seqs



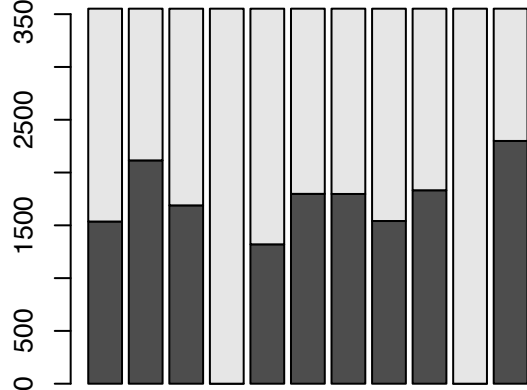
162:Q, 321:A

single mut; 509 unique seqs



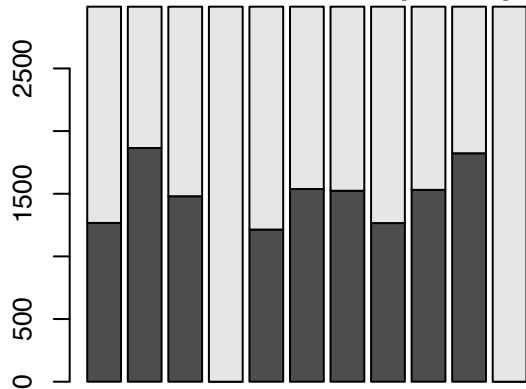
162:H, 321:G

single mut; 509 unique seqs

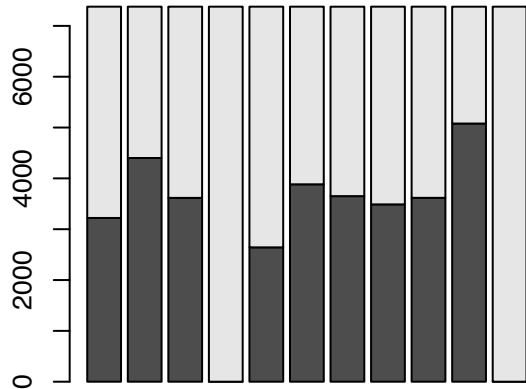


162:Q, 329:T

double mut; 505 unique seqs

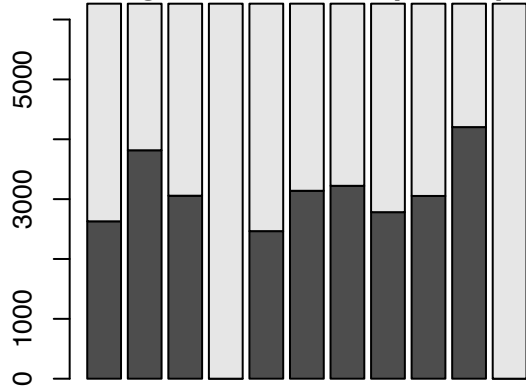


WT; 511 unique seqs



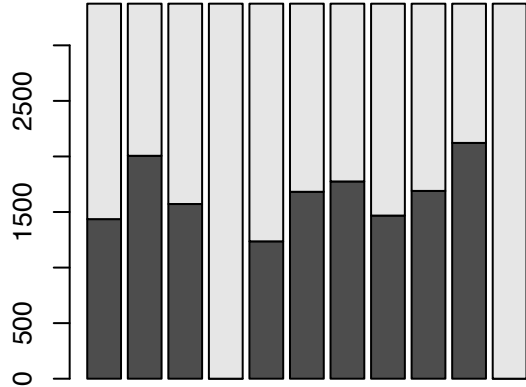
162:Q, 329:A

single mut; 512 unique seqs



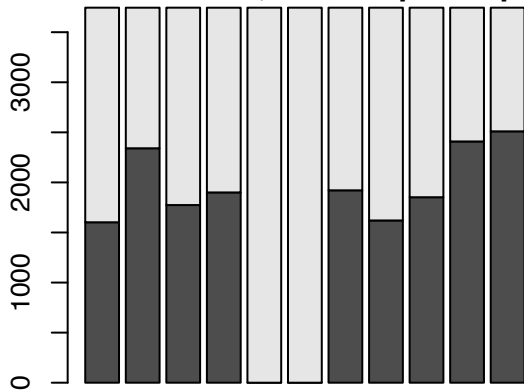
162:H, 329:T

single mut; 509 unique seqs

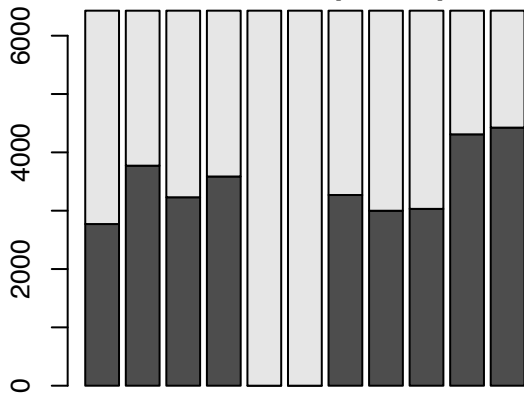


173:R, 219:R

double mut; 511 unique seqs

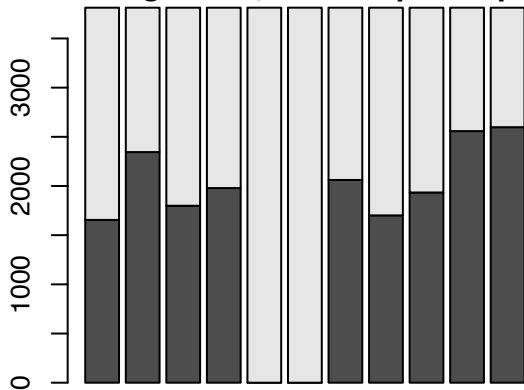


WT; 511 unique seqs



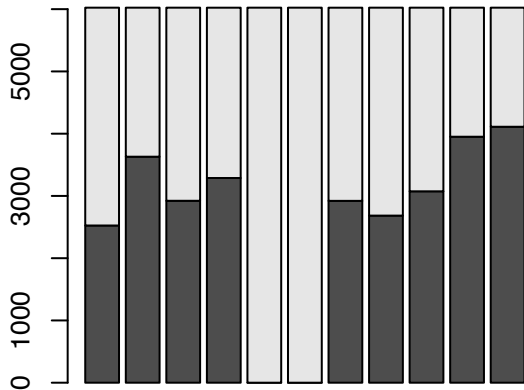
173:R, 219:K

single mut; 504 unique seqs



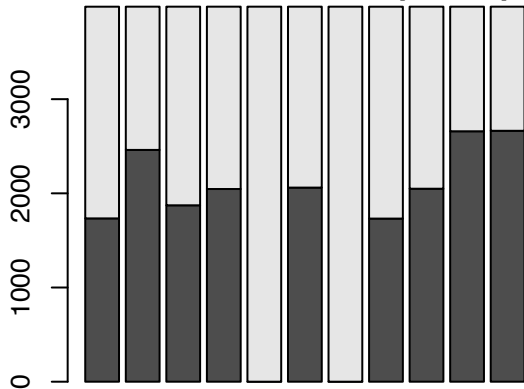
173:S, 219:R

single mut; 511 unique seqs

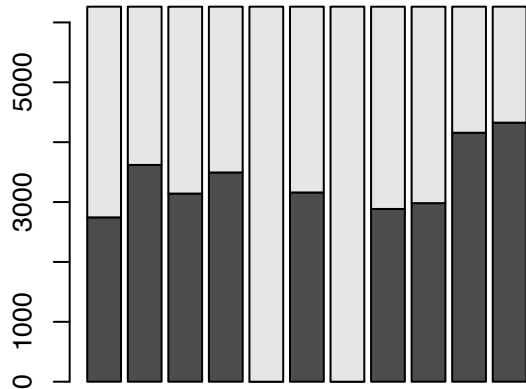


173:R, 220:N

double mut; 508 unique seqs

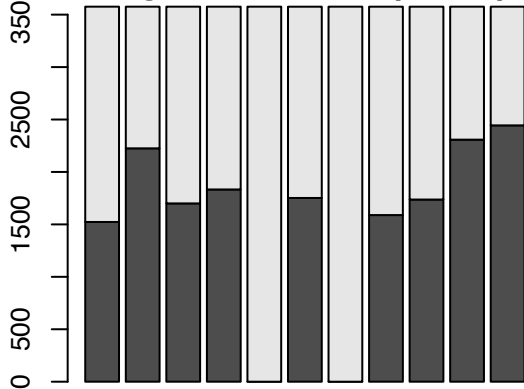


WT; 511 unique seqs



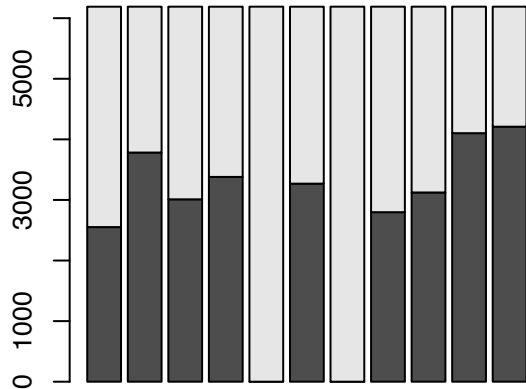
173:R, 220:Y

single mut; 507 unique seqs



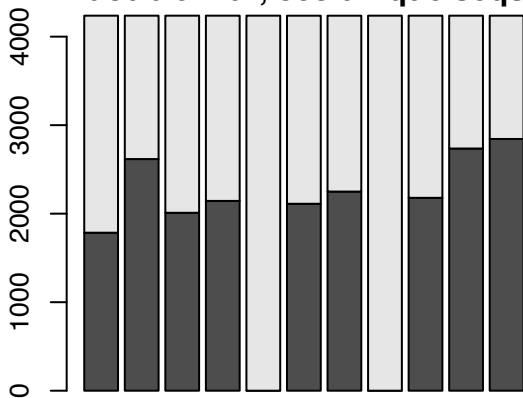
173:S, 220:N

single mut; 511 unique seqs

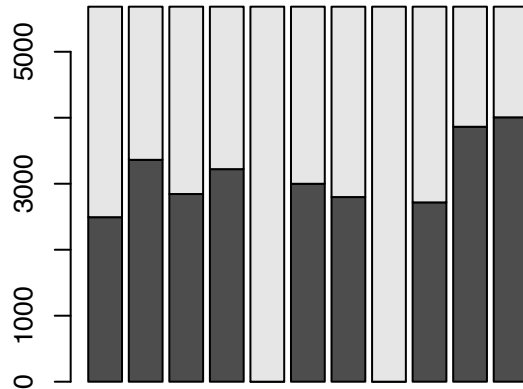


173:R, 299:E

double mut; 508 unique seqs

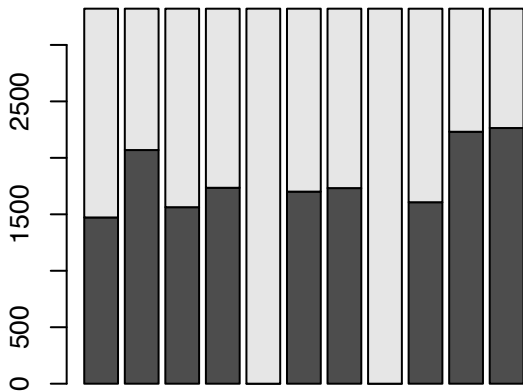


WT; 512 unique seqs



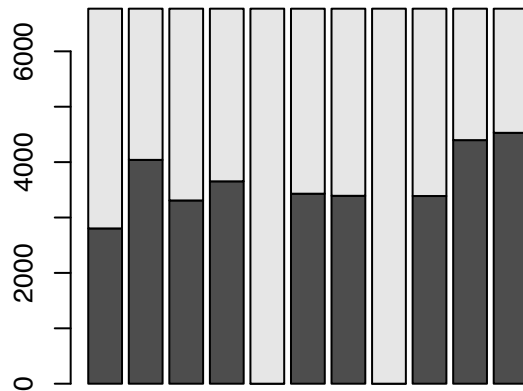
173:R, 299:D

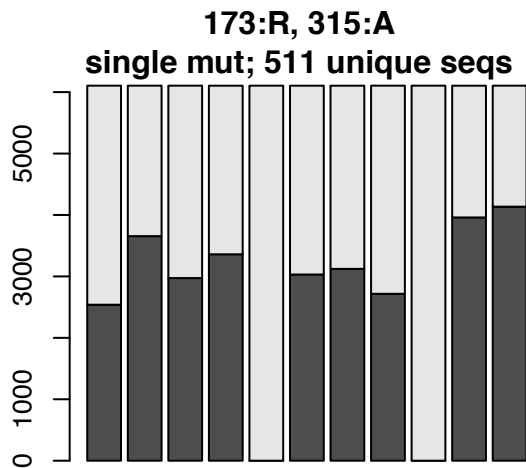
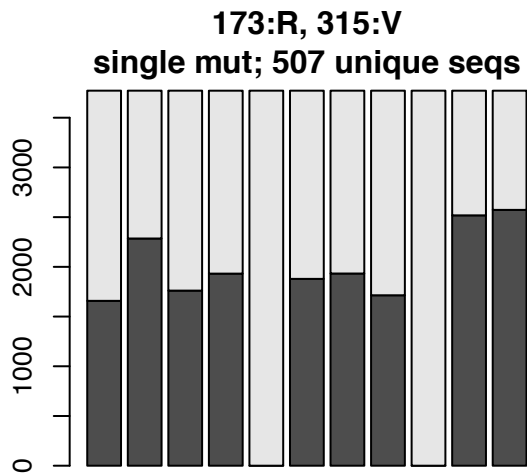
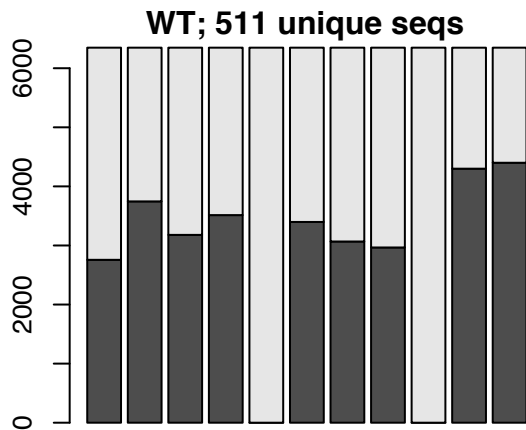
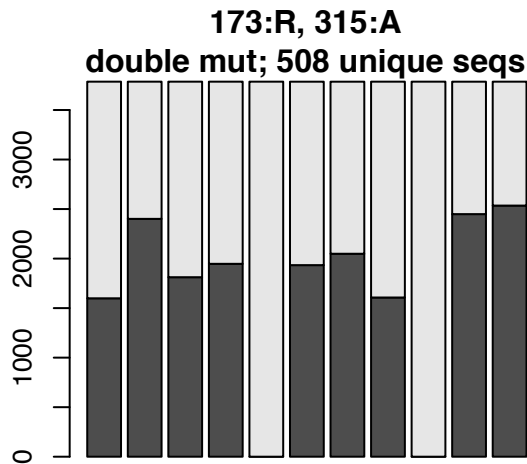
single mut; 507 unique seqs

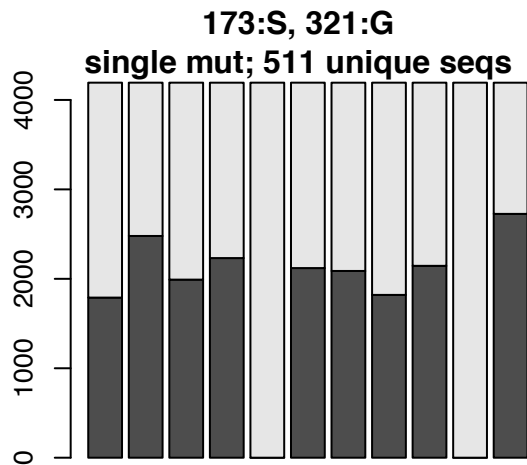
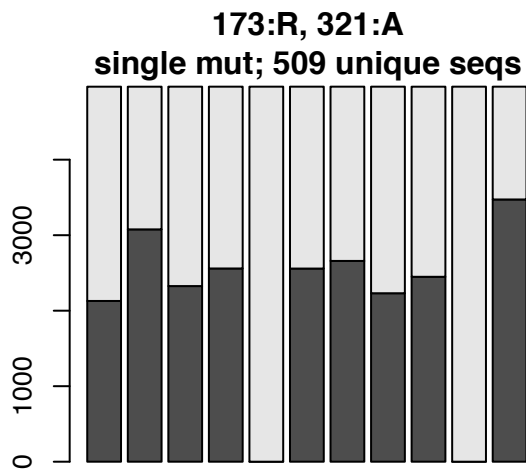
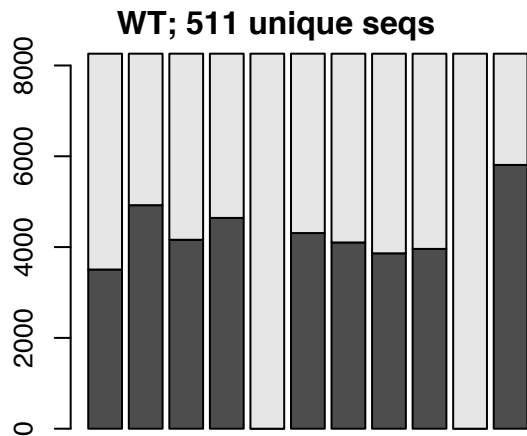
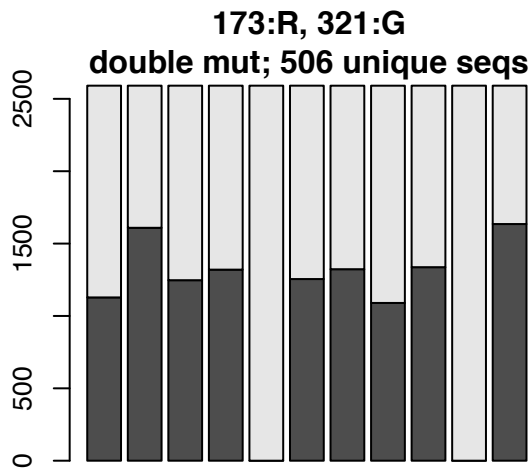


173:S, 299:E

single mut; 510 unique seqs

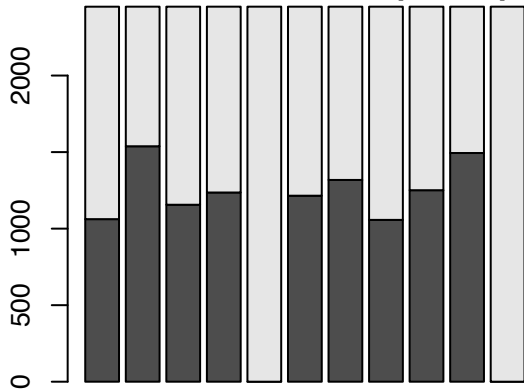




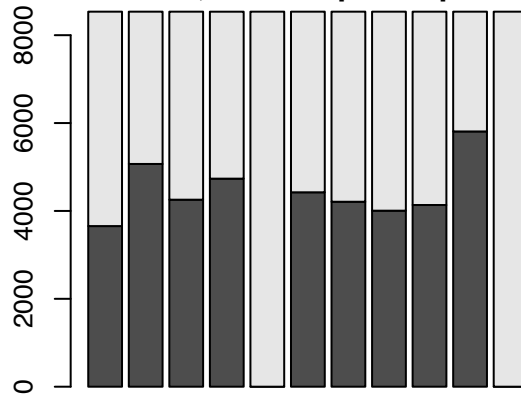


173:R, 329:T

double mut; 504 unique seqs

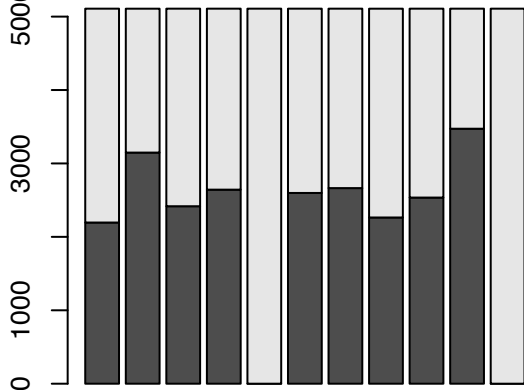


WT; 512 unique seqs



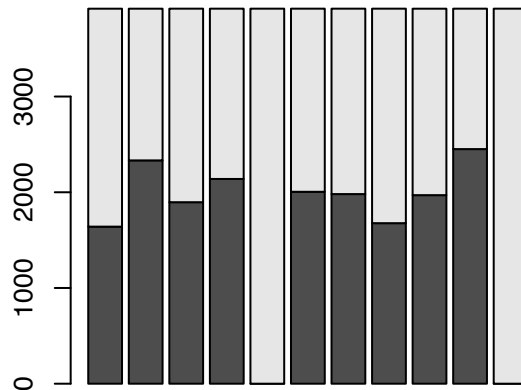
173:R, 329:A

single mut; 511 unique seqs



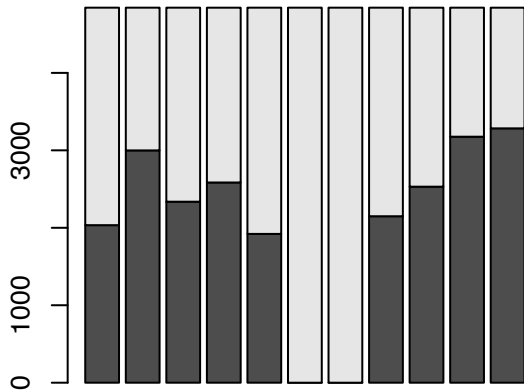
173:S, 329:T

single mut; 510 unique seqs

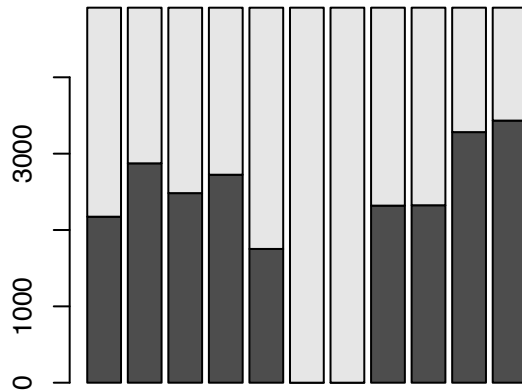


219:R, 220:N

double mut; 512 unique seqs

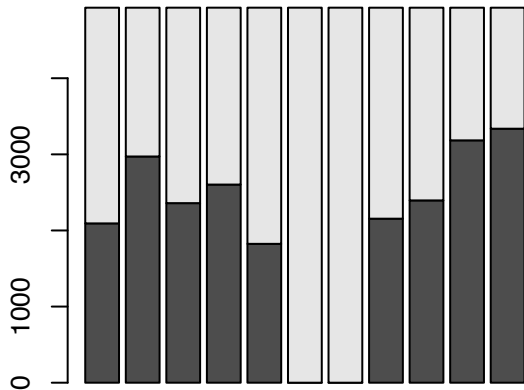


WT; 508 unique seqs



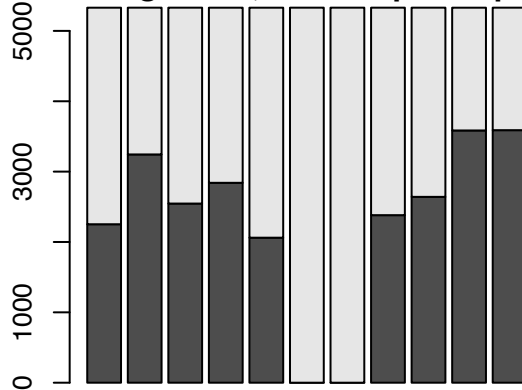
219:R, 220:Y

single mut; 510 unique seqs



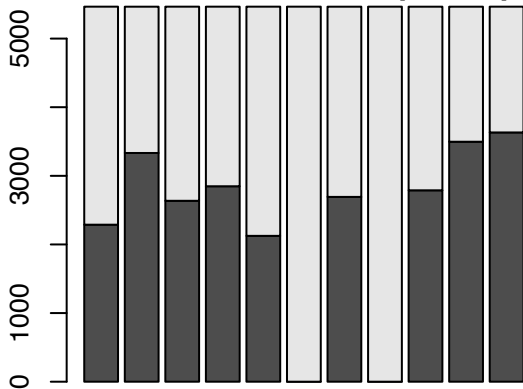
219:K, 220:N

single mut; 507 unique seqs

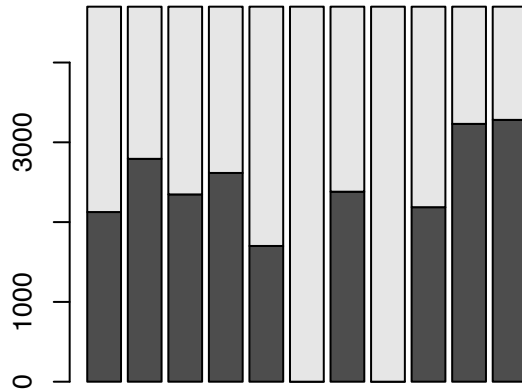


219:R, 299:E

double mut; 511 unique seqs

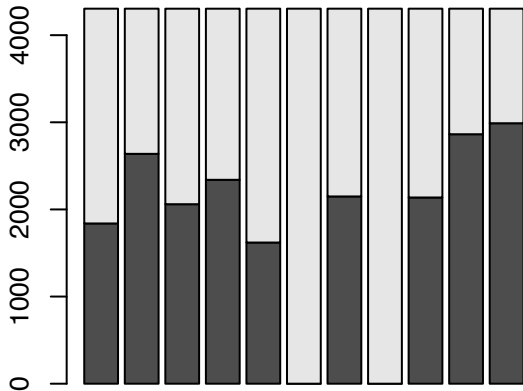


WT; 508 unique seqs



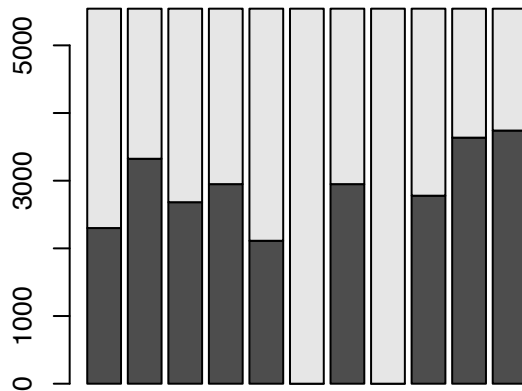
219:R, 299:D

single mut; 511 unique seqs



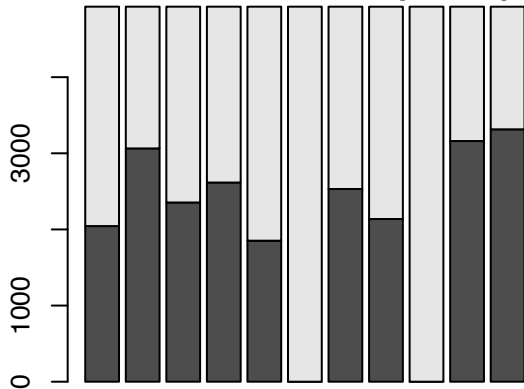
219:K, 299:E

single mut; 507 unique seqs

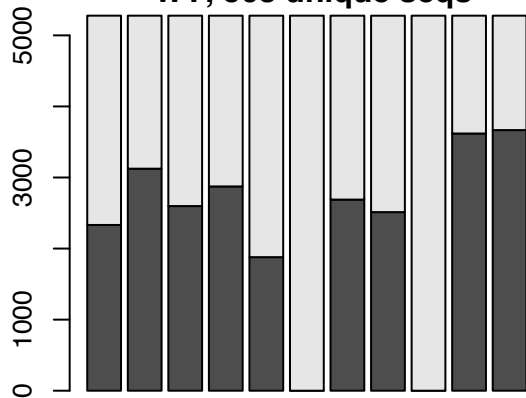


219:R, 315:A

double mut; 512 unique seqs

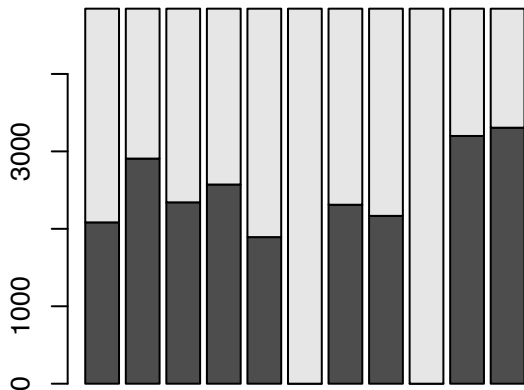


WT; 508 unique seqs



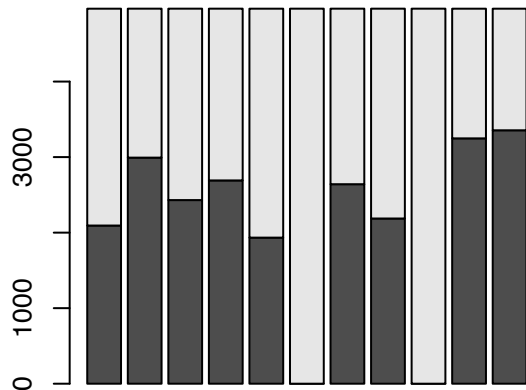
219:R, 315:V

single mut; 510 unique seqs



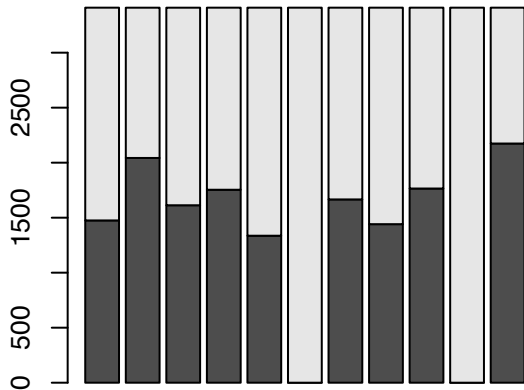
219:K, 315:A

single mut; 507 unique seqs

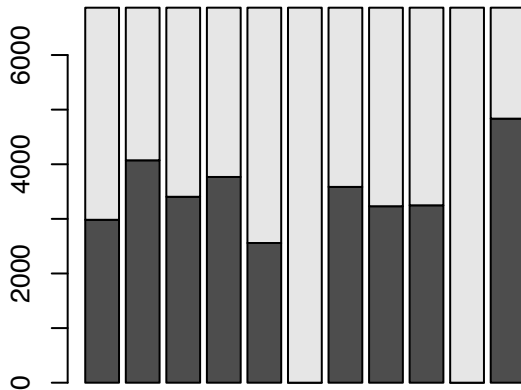


299:R, 321:G

double mut; 511 unique seqs

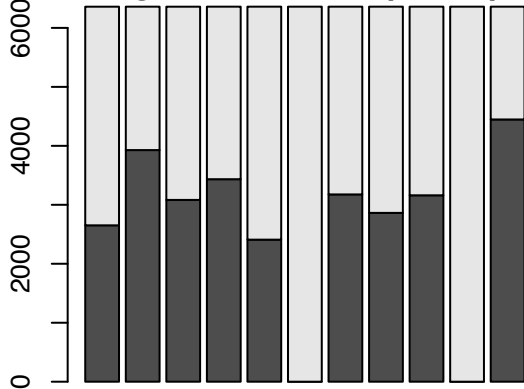


WT; 509 unique seqs



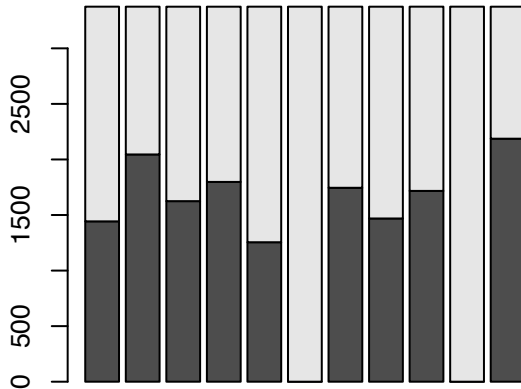
299:R, 321:A

single mut; 511 unique seqs



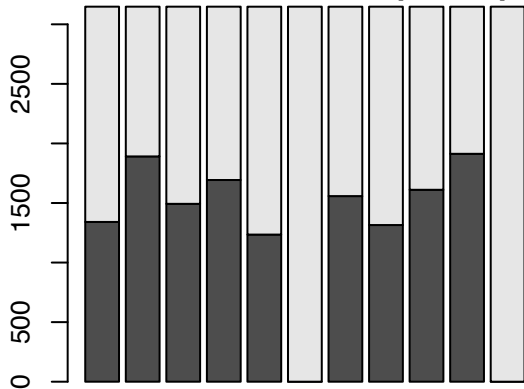
299:K, 321:G

single mut; 506 unique seqs

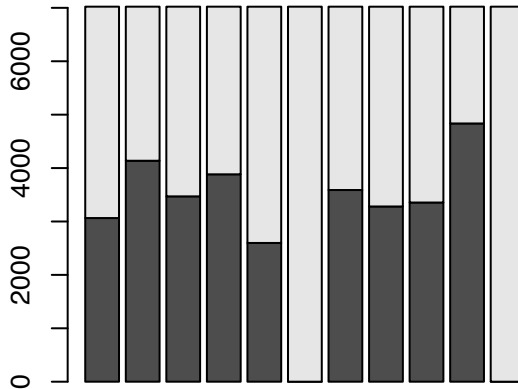


219:R, 321:T

double mut; 510 unique seqs

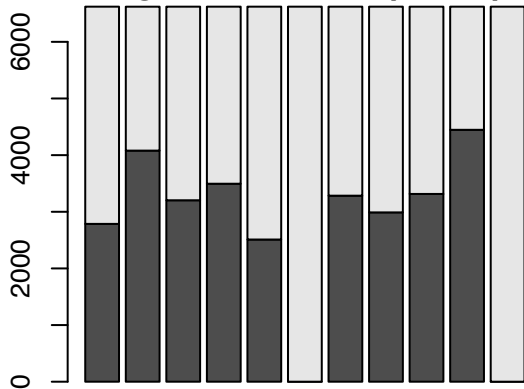


WT; 511 unique seqs



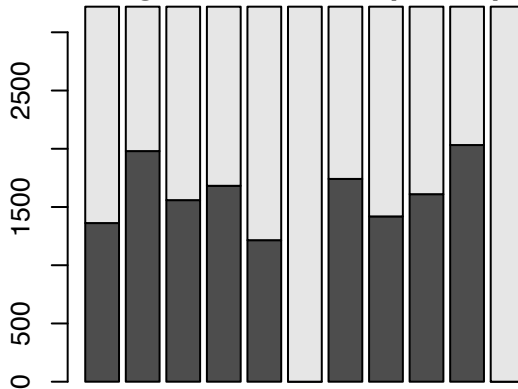
219:R, 321:A

single mut; 512 unique seqs



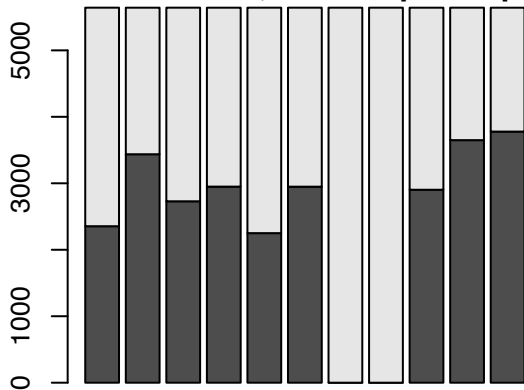
219:K, 321:T

single mut; 504 unique seqs

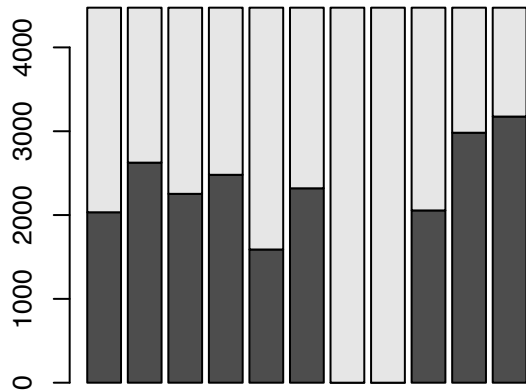


220:N, 299:E

double mut; 509 unique seqs

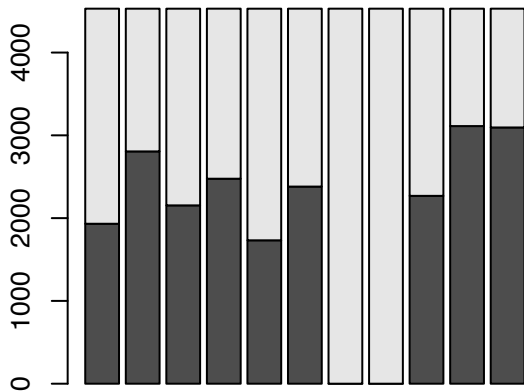


WT; 509 unique seqs



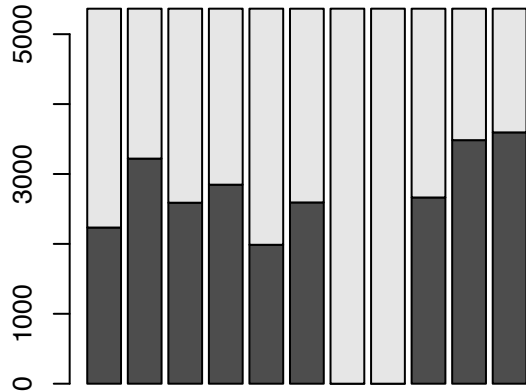
220:N, 299:D

single mut; 510 unique seqs



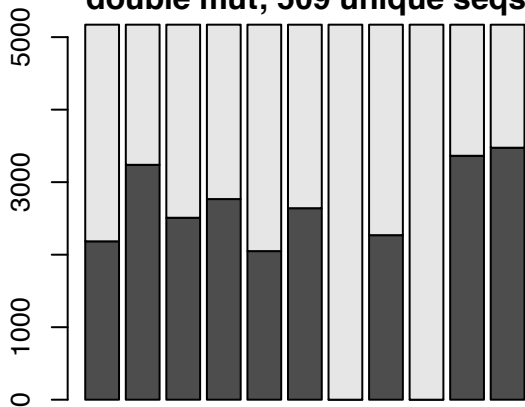
220:Y, 299:E

single mut; 509 unique seqs

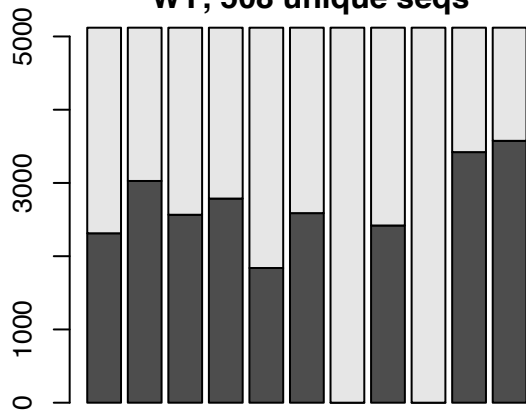


220:N, 315:A

double mut; 509 unique seqs

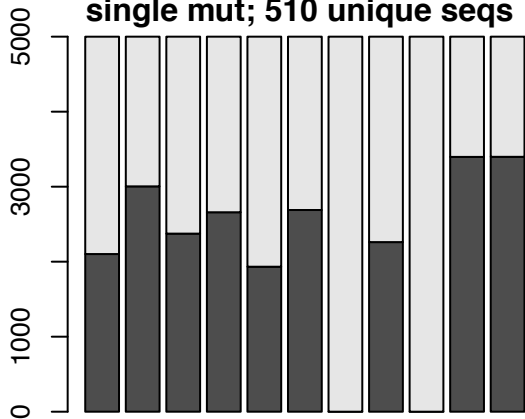


WT; 508 unique seqs



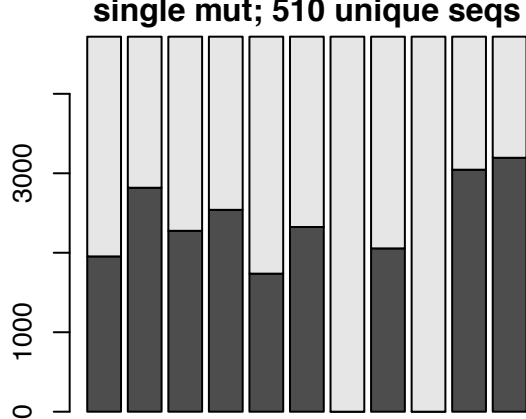
220:N, 315:V

single mut; 510 unique seqs



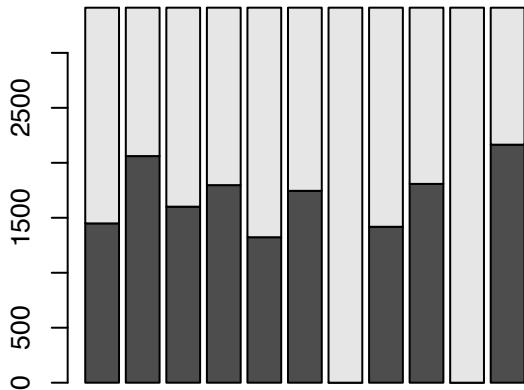
220:Y, 315:A

single mut; 510 unique seqs

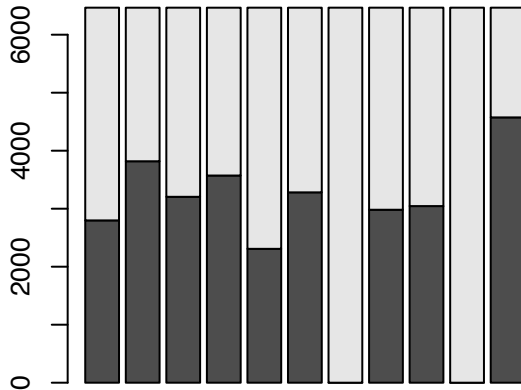


220:N, 321:G

double mut; 510 unique seqs

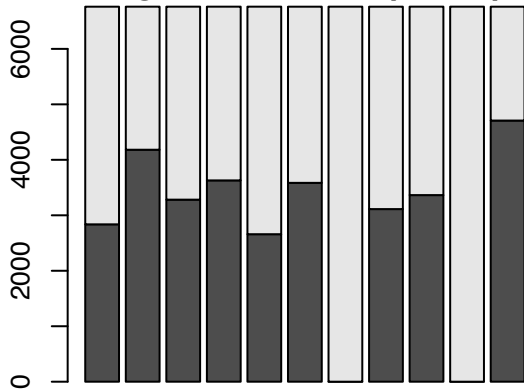


WT; 511 unique seqs



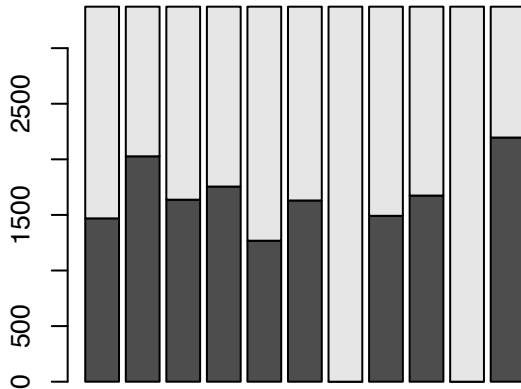
220:N, 321:A

single mut; 509 unique seqs



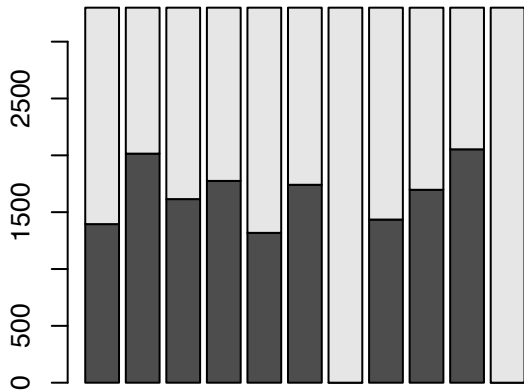
220:Y, 321:G

single mut; 507 unique seqs

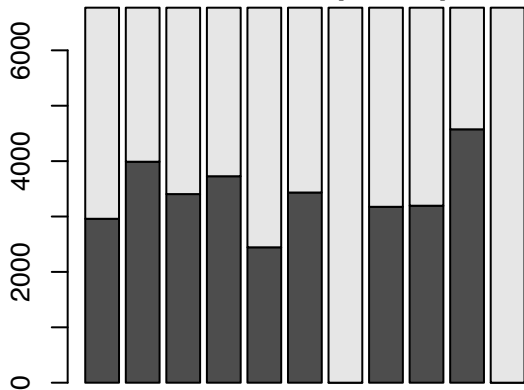


220:N, 329:T

double mut; 507 unique seqs

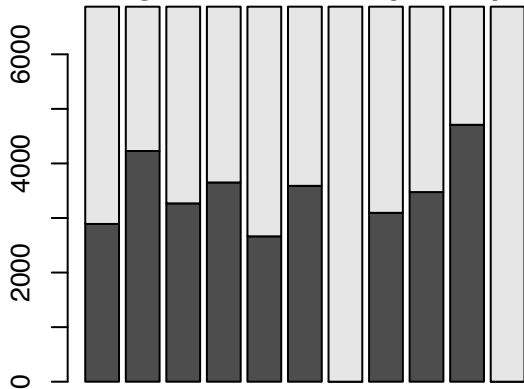


WT; 511 unique seqs



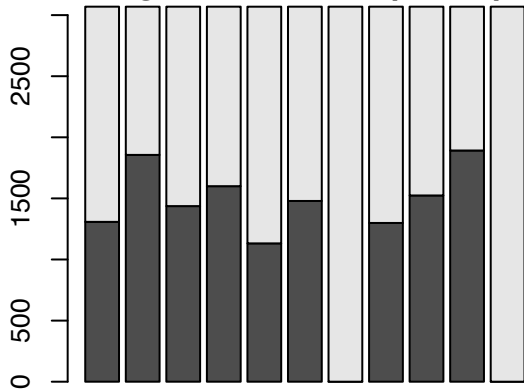
220:N, 329:A

single mut; 512 unique seqs



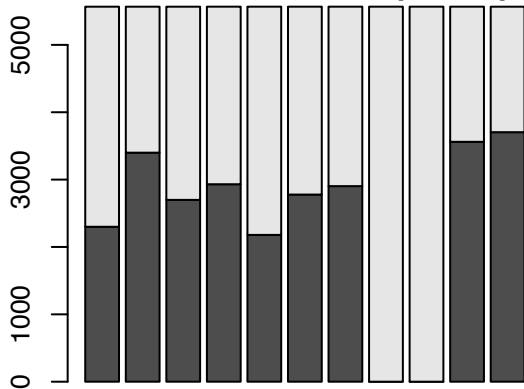
220:Y, 329:T

single mut; 507 unique seqs

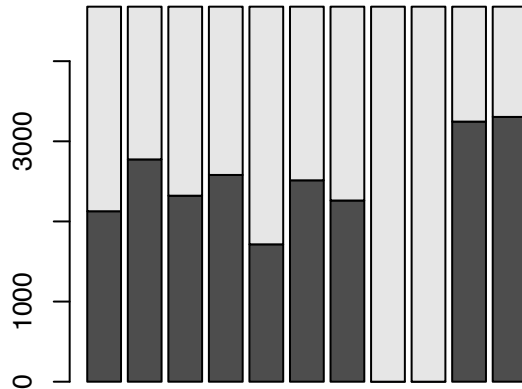


299:E, 315:A

double mut; 509 unique seqs

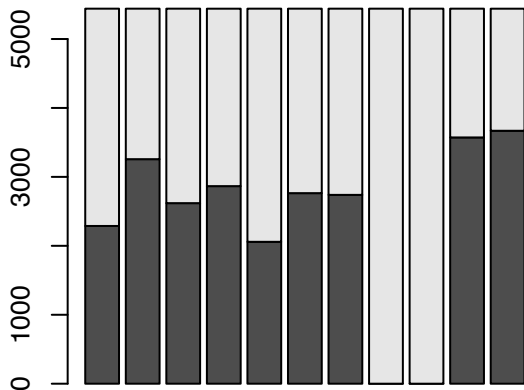


WT; 509 unique seqs



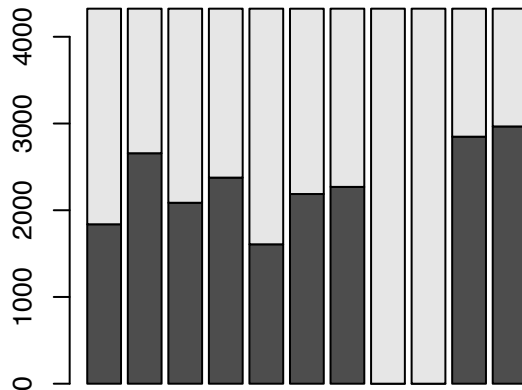
299:E, 315:V

single mut; 509 unique seqs



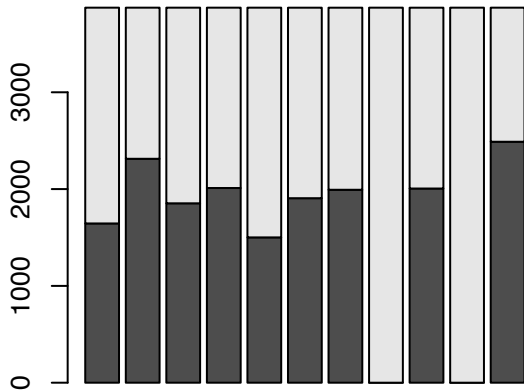
299:D, 315:A

single mut; 510 unique seqs

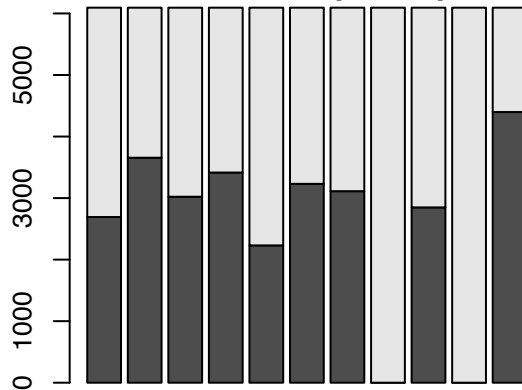


299:E, 321:G

double mut; 508 unique seqs

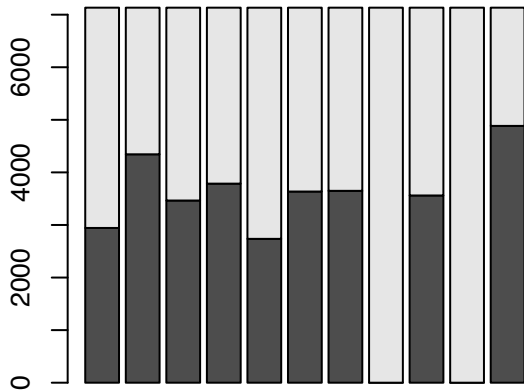


WT; 510 unique seqs



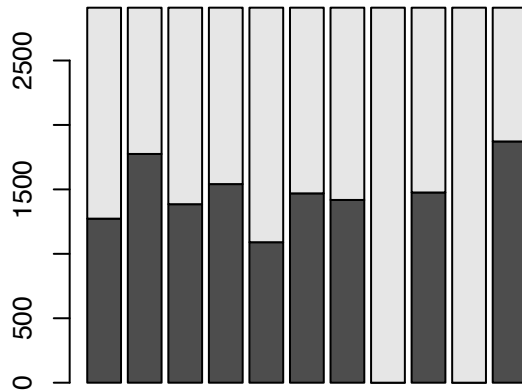
299:E, 321:A

single mut; 510 unique seqs



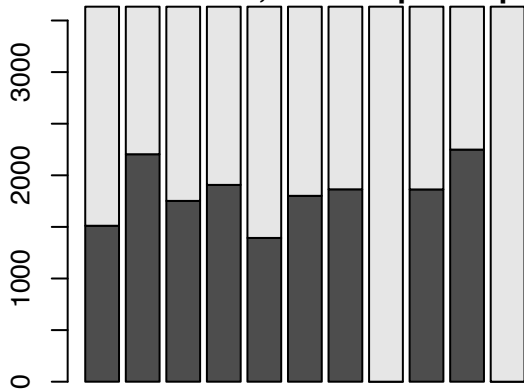
299:D, 321:G

single mut; 509 unique seqs

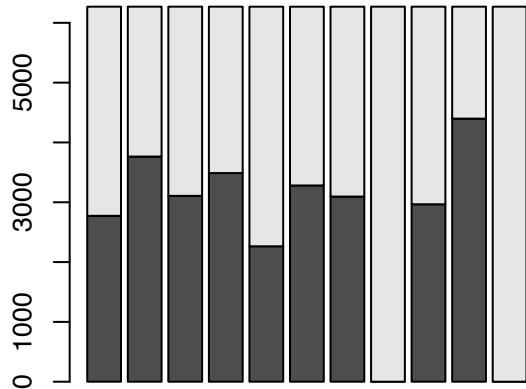


299:E, 329:T

double mut; 506 unique seqs

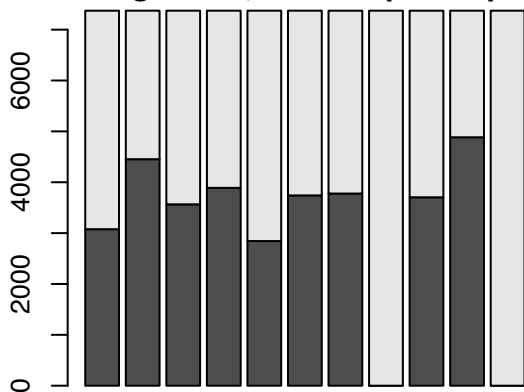


WT; 511 unique seqs



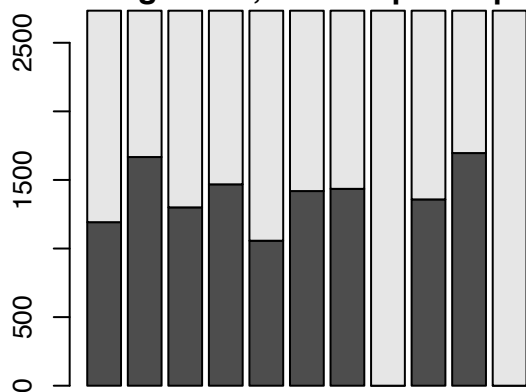
299:E, 329:A

single mut; 512 unique seqs



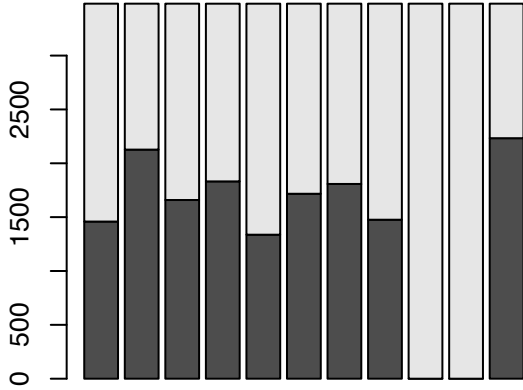
299:D, 329:T

single mut; 508 unique seqs

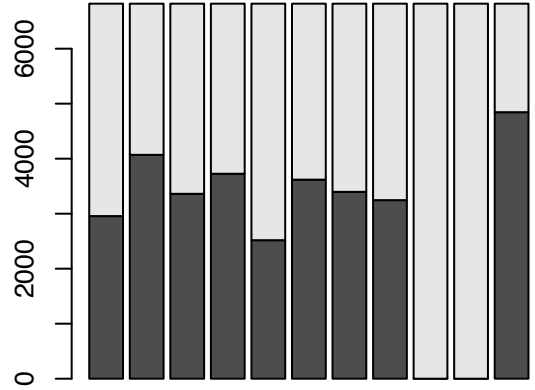


315:A, 321:G

double mut; 509 unique seqs

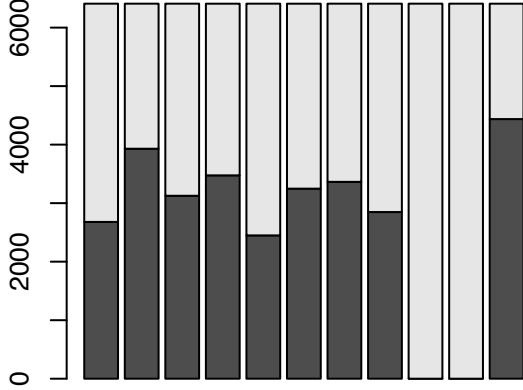


WT ; 510 unique seqs



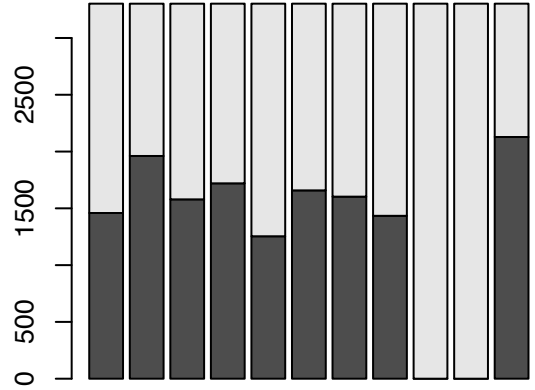
315:A, 321:A

single mut; 510 unique seqs



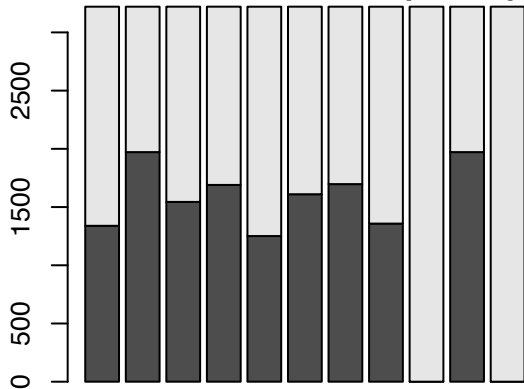
315:V, 321:G

single mut; 508 unique seqs

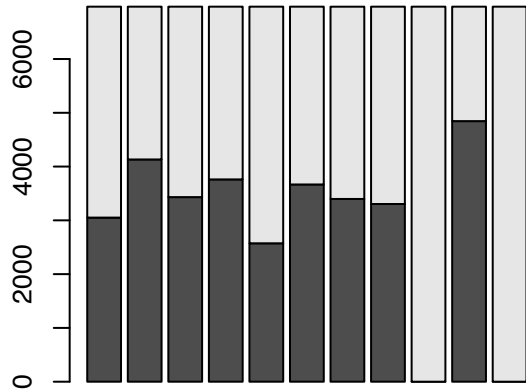


315:A, 329:T

double mut; 508 unique seqs

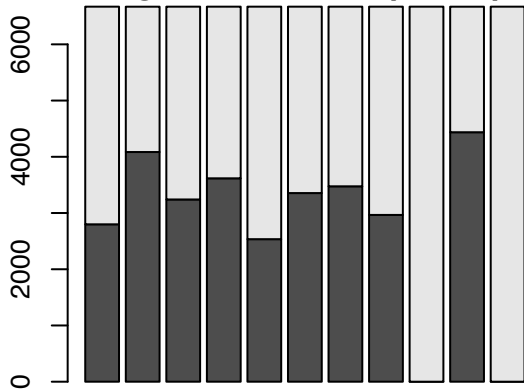


WT; 512 unique seqs



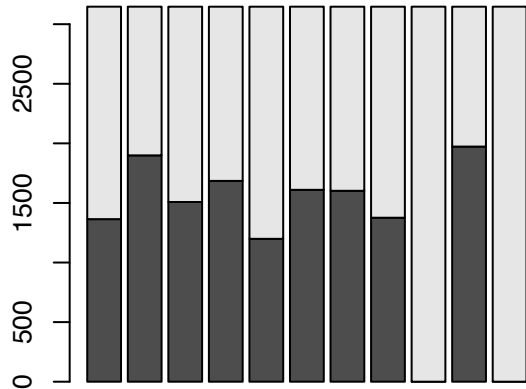
315:A, 329:A

single mut; 511 unique seqs



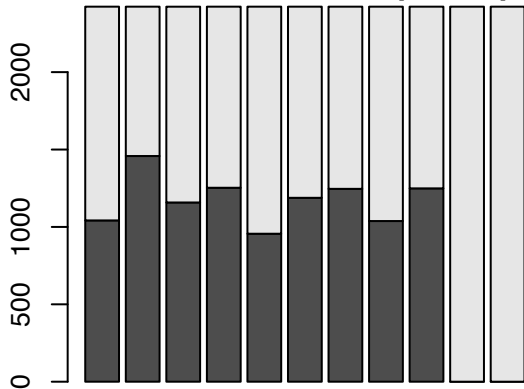
315:V, 329:T

single mut; 506 unique seqs

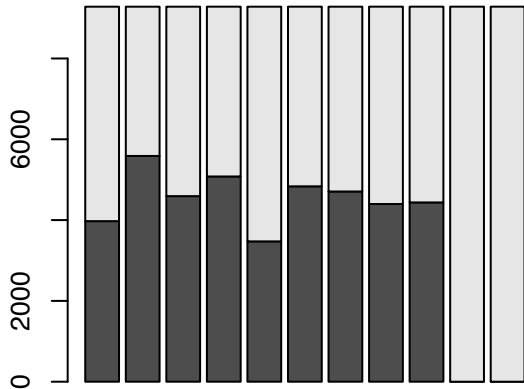


321:G, 329:T

double mut; 506 unique seqs

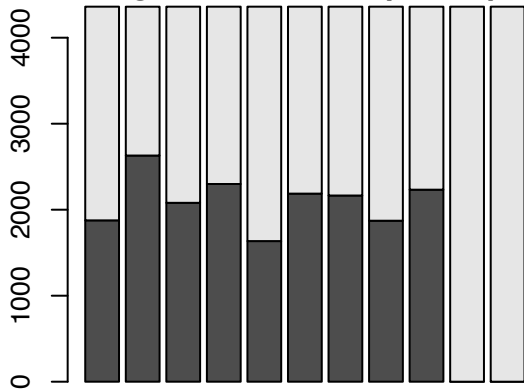


WT; 512 unique seqs



321:G, 329:A

single mut; 511 unique seqs



321:A, 329:T

single mut; 508 unique seqs

