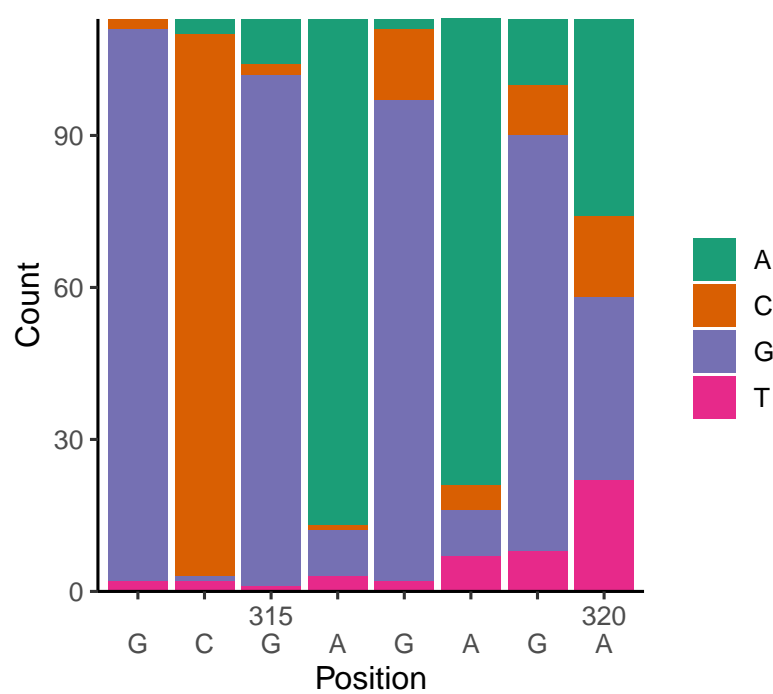
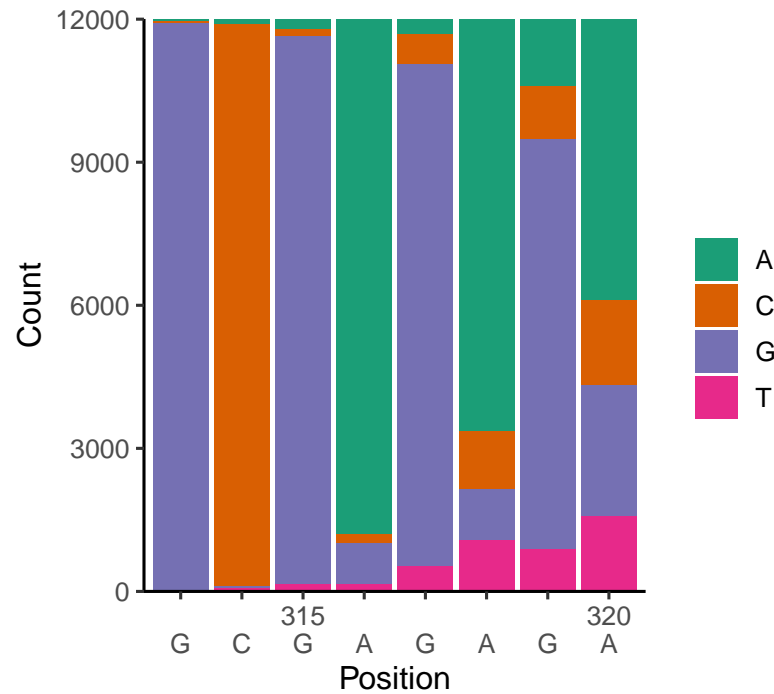


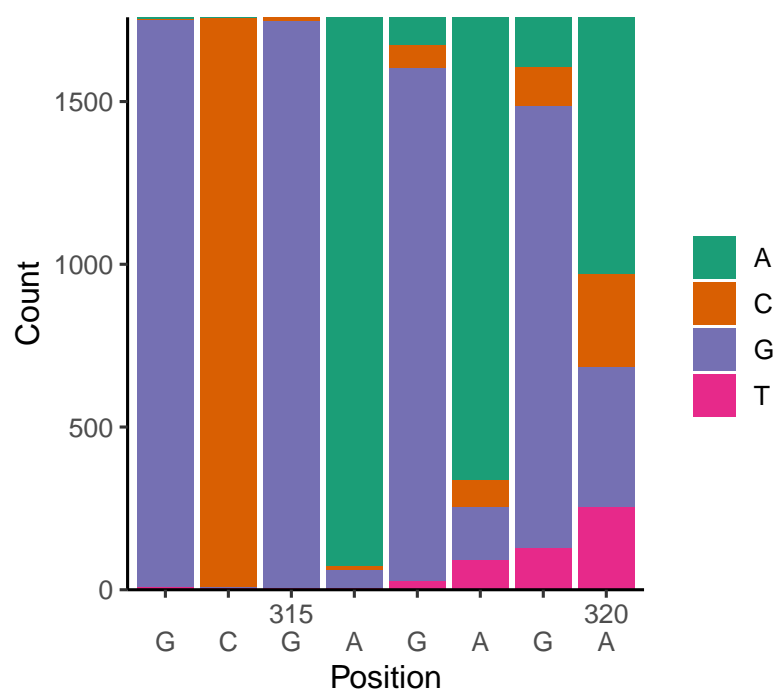
Gene IGHV1-3*02_T296C_T300C



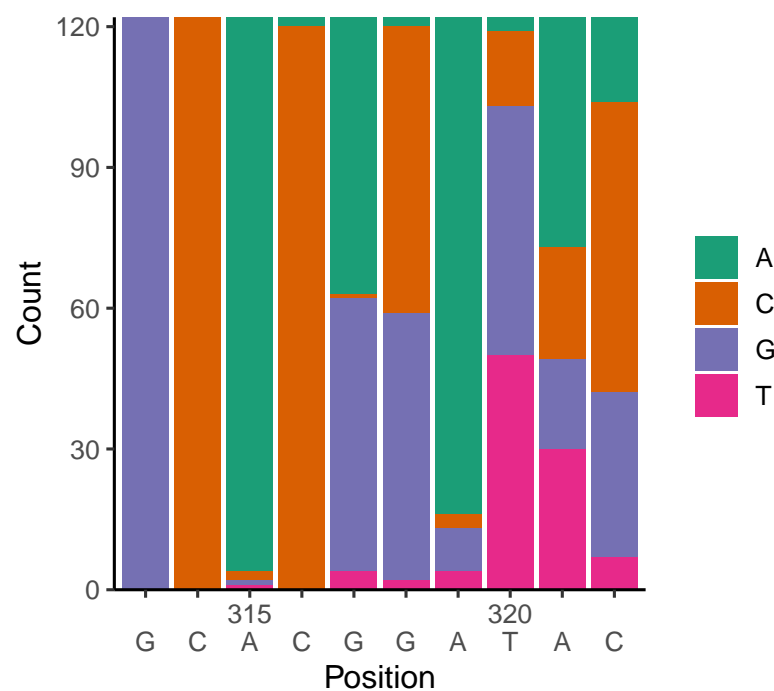
Gene IGHV1-69*08_C191T



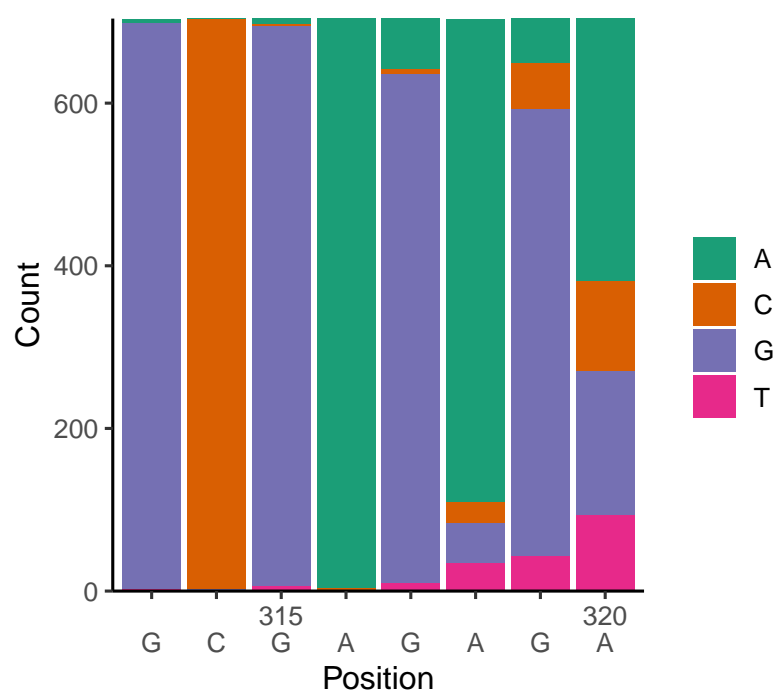
Gene IGHV1-24*01_A315G_C317G



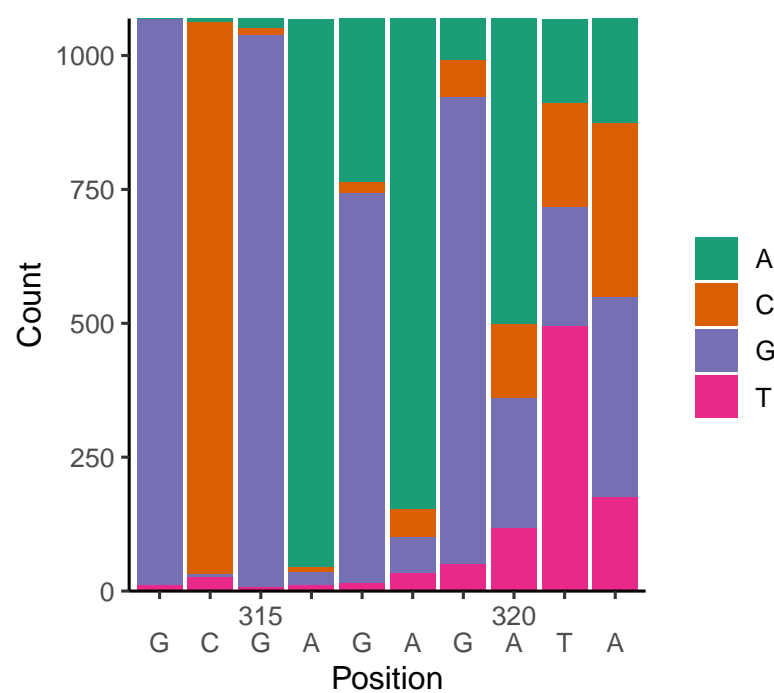
Gene IGHV2-70*15_G303A



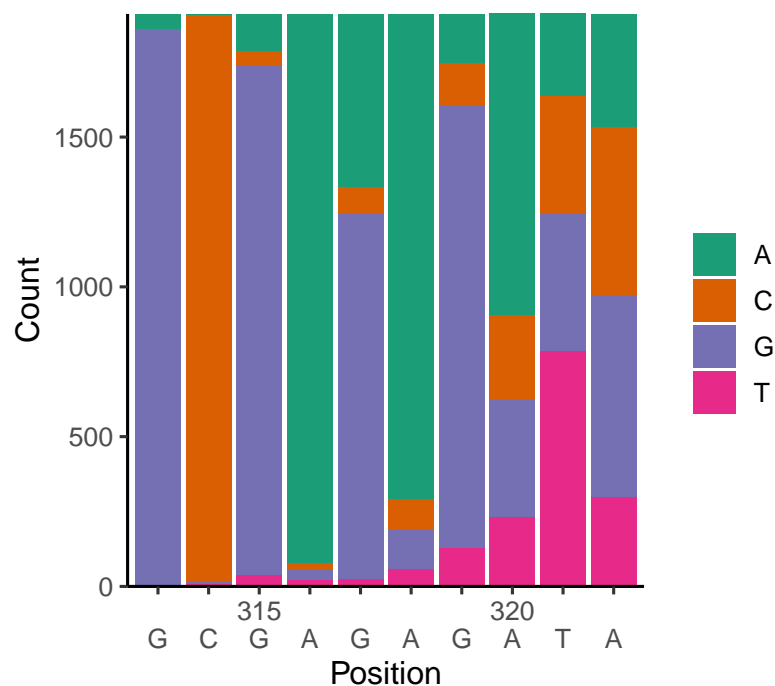
Gene IGHV1-58*02_G316A_C317G



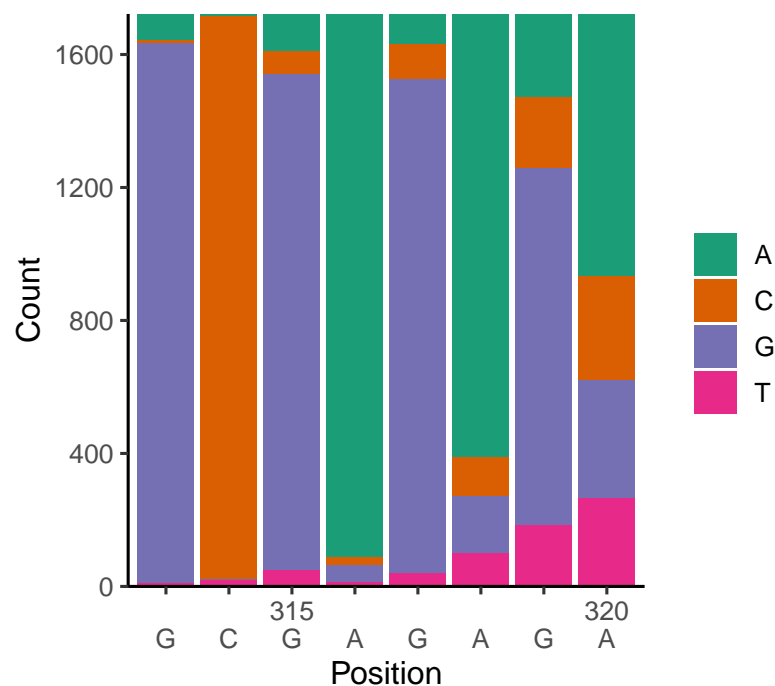
Gene IGHV3-9*01_T279C_C300T_T301



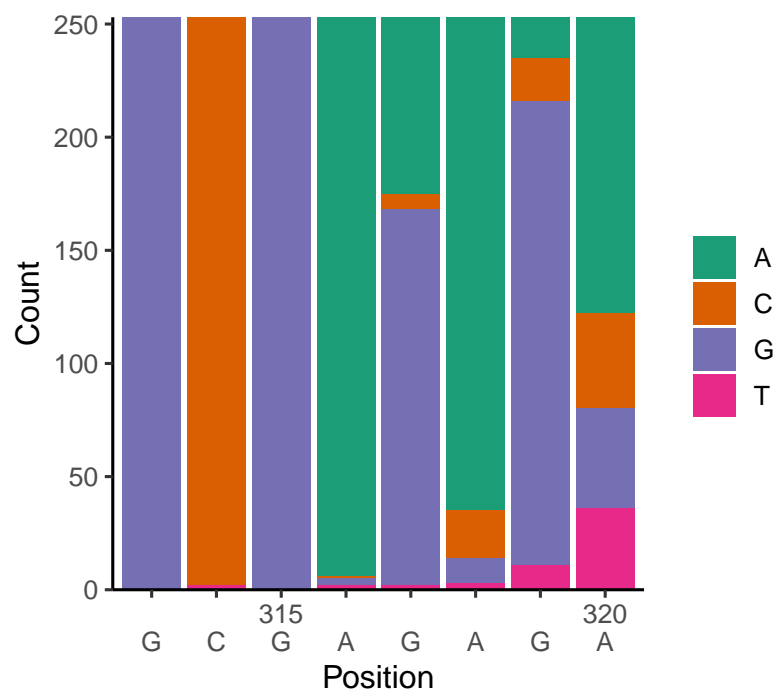
Gene IGHV3-9*01_T279C_T288C_C300



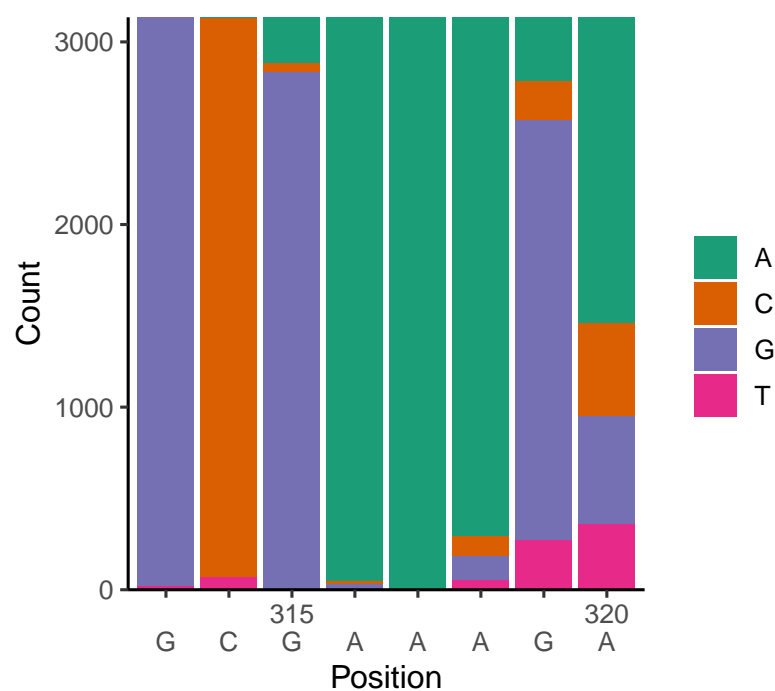
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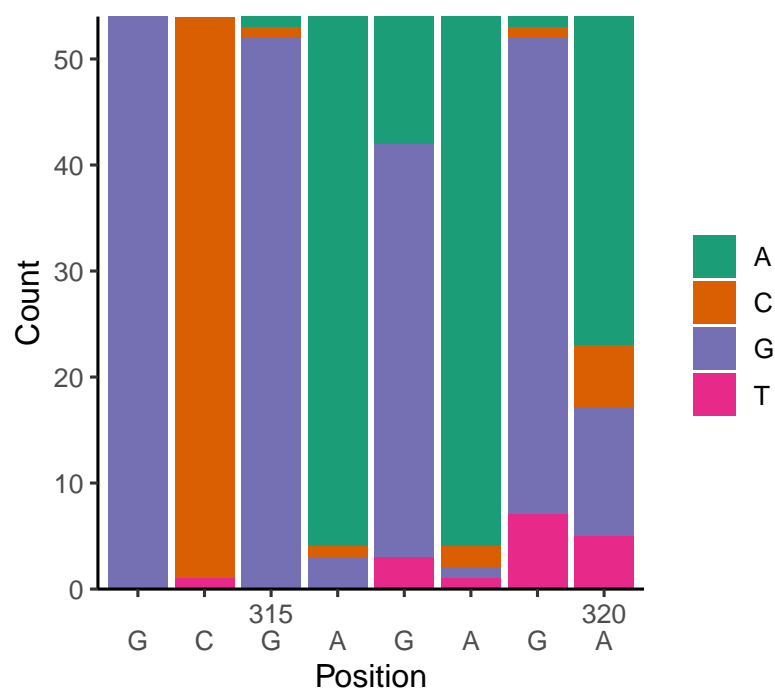
Gene IGHV3-13*01_A315G



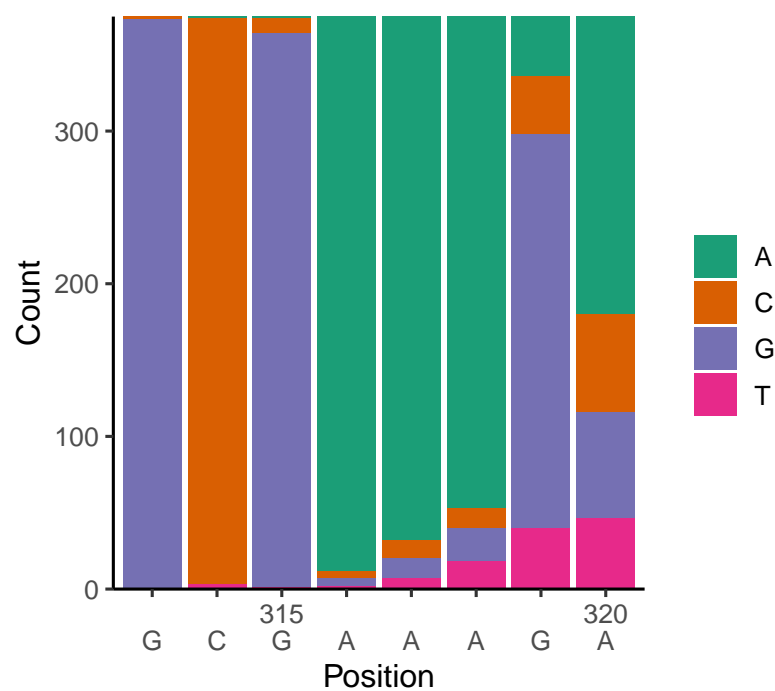
Gene IGHV3-30-3*02_G75C



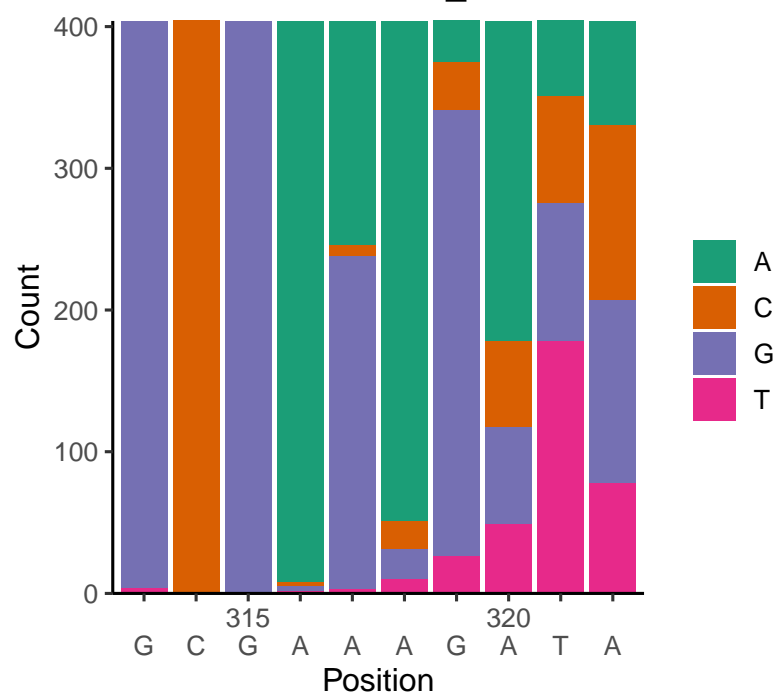
Gene IGHV3-20*04_T279C_C288T_C300



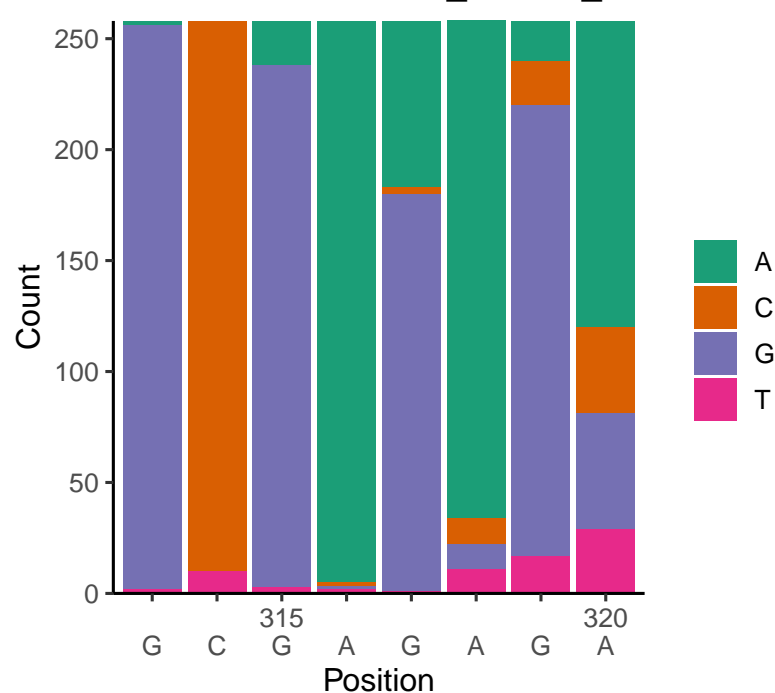
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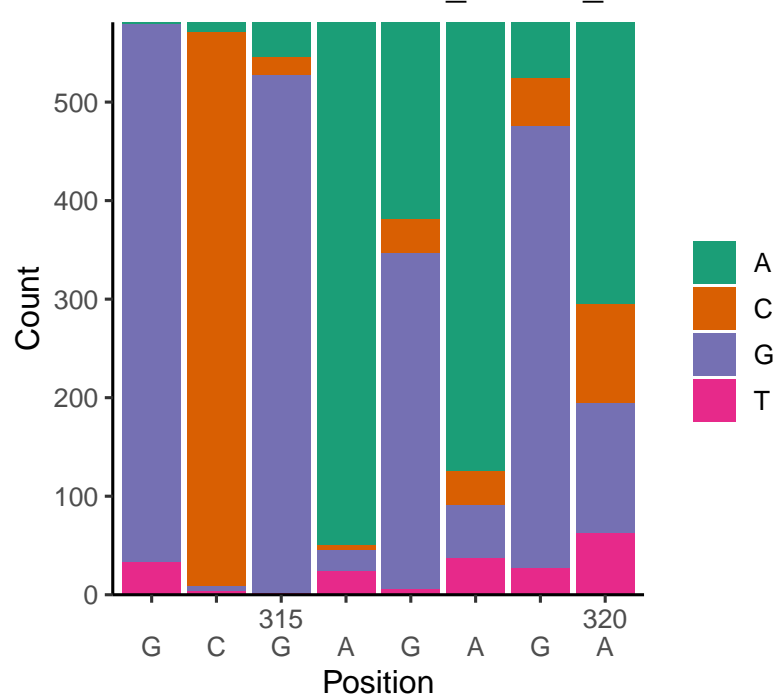
Gene IGHV3-43*01_A315G



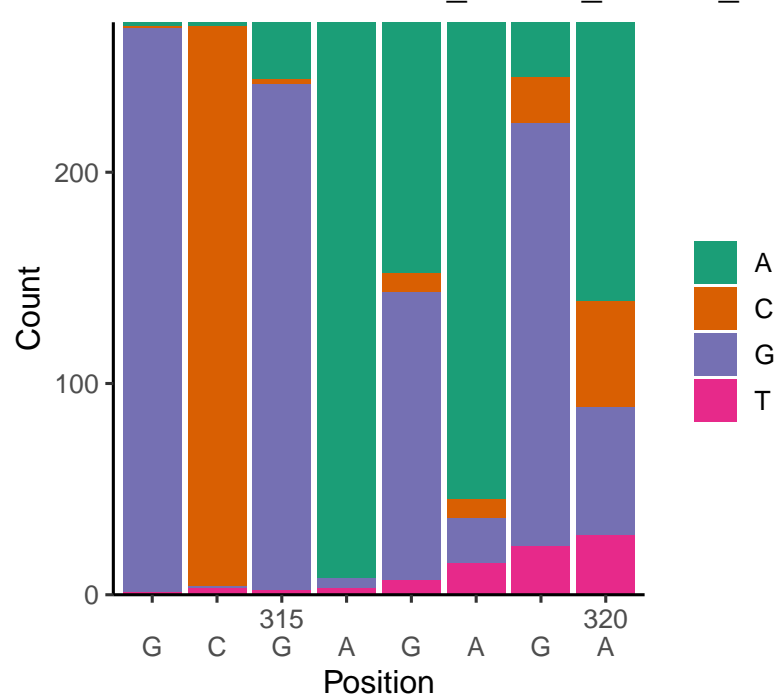
Gene IGHV3-53*05_T267G_C300T



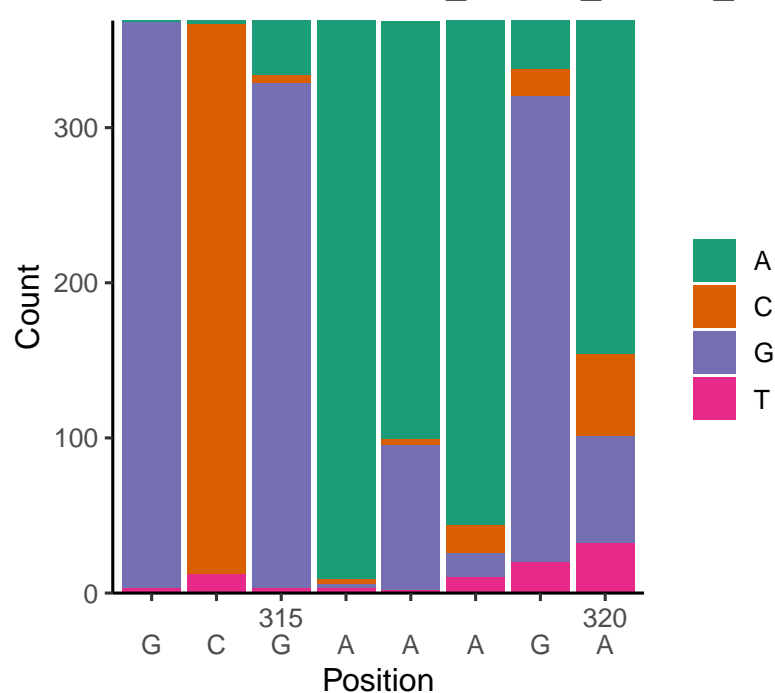
Gene IGHV3-49*03_A313G_T315G



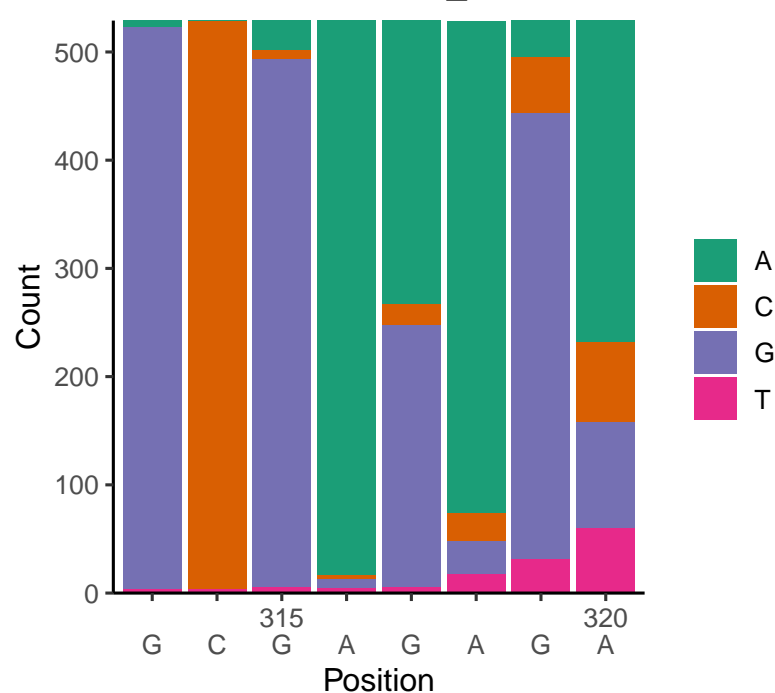
Gene IGHV3-64*01_T267G_G274A_G275A



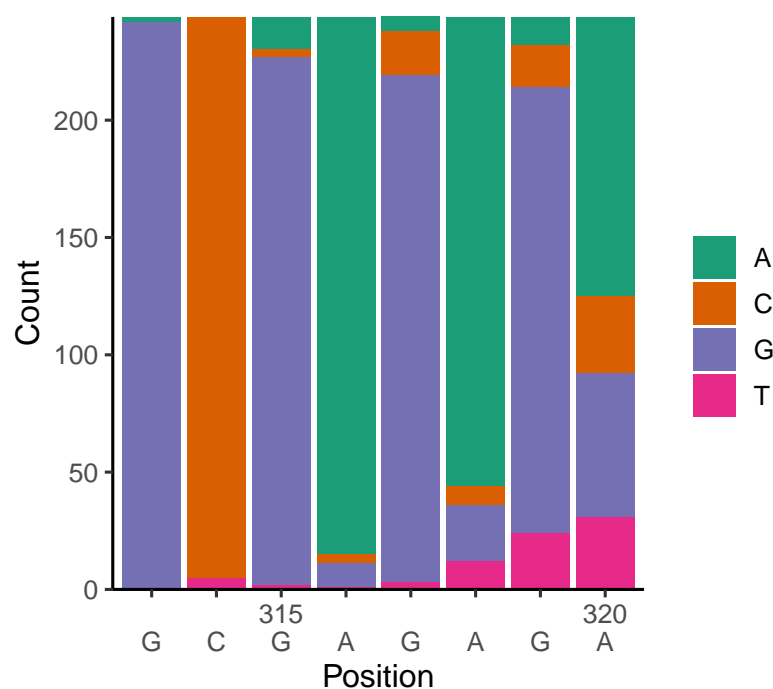
Gene IGHV3-53*04_T267G_C300T_G31



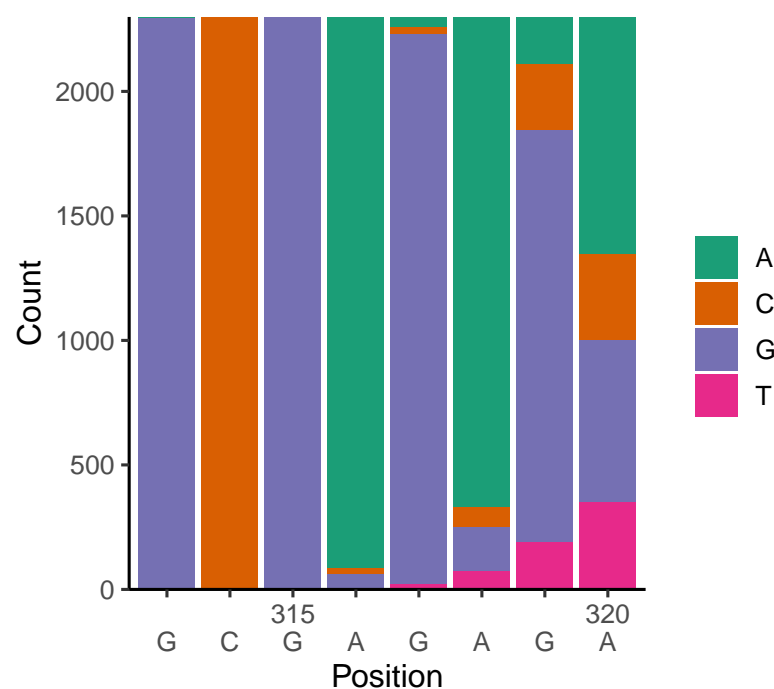
Gene IGHV3-64*04_A210C



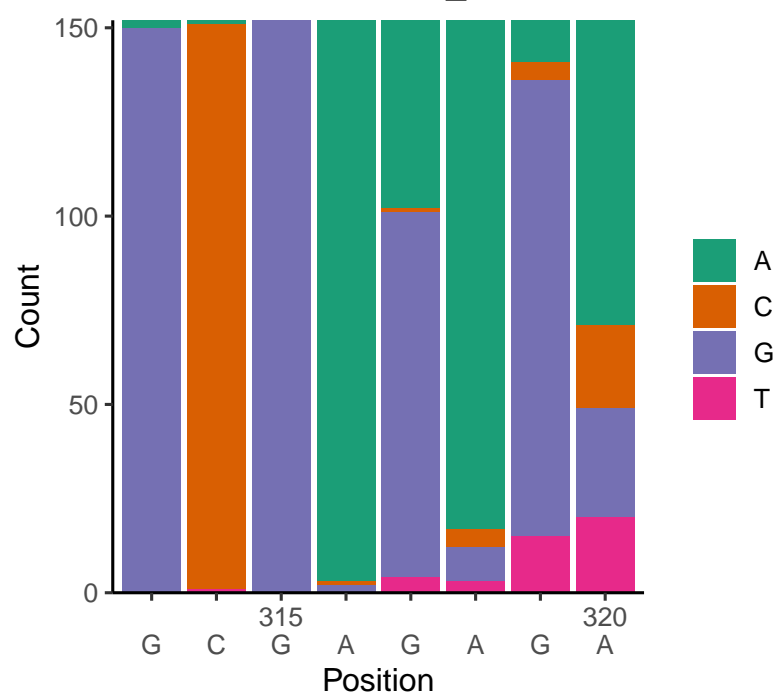
Gene IGHV3-64D*06_T314C_A317G



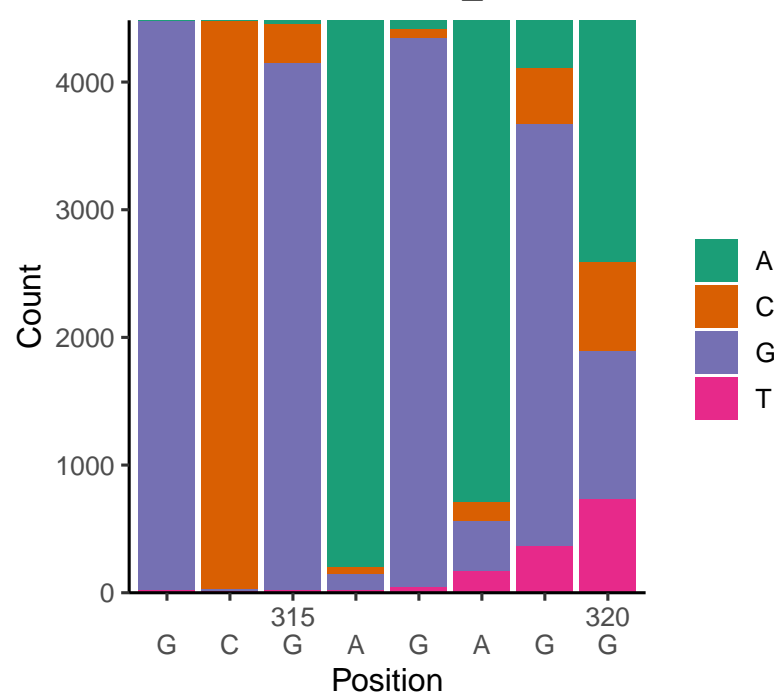
Gene IGHV4-30-4*01_C315G



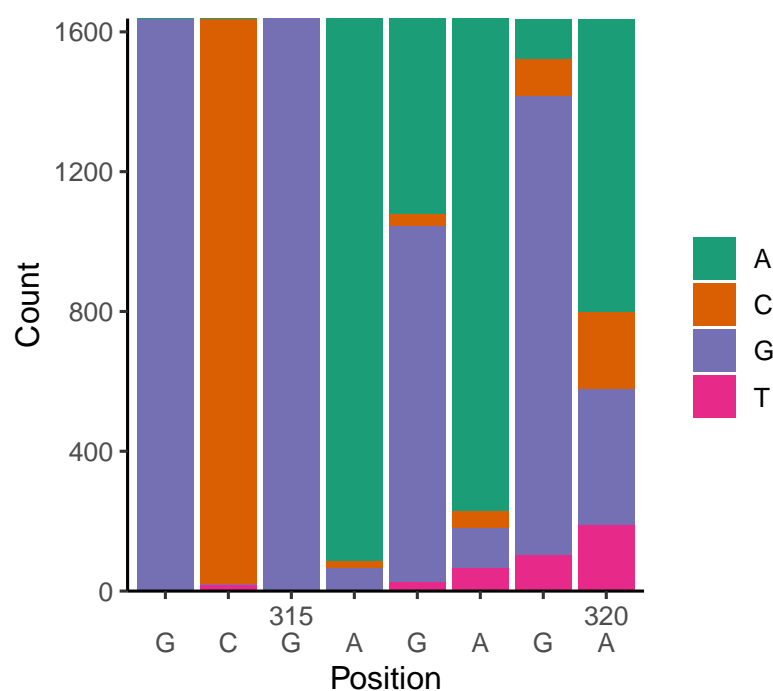
Gene IGHV3-72*01_T315G



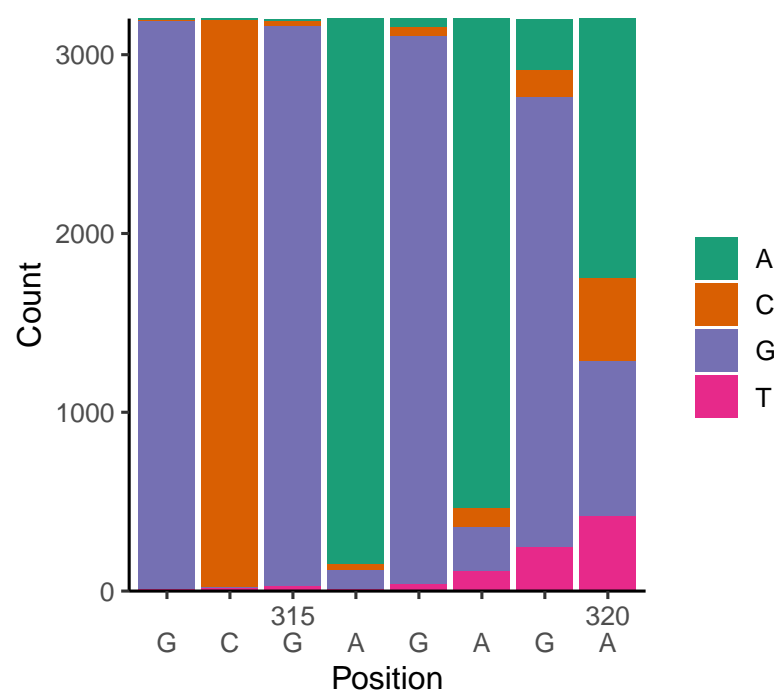
Gene IGHV4-34*01_T300C



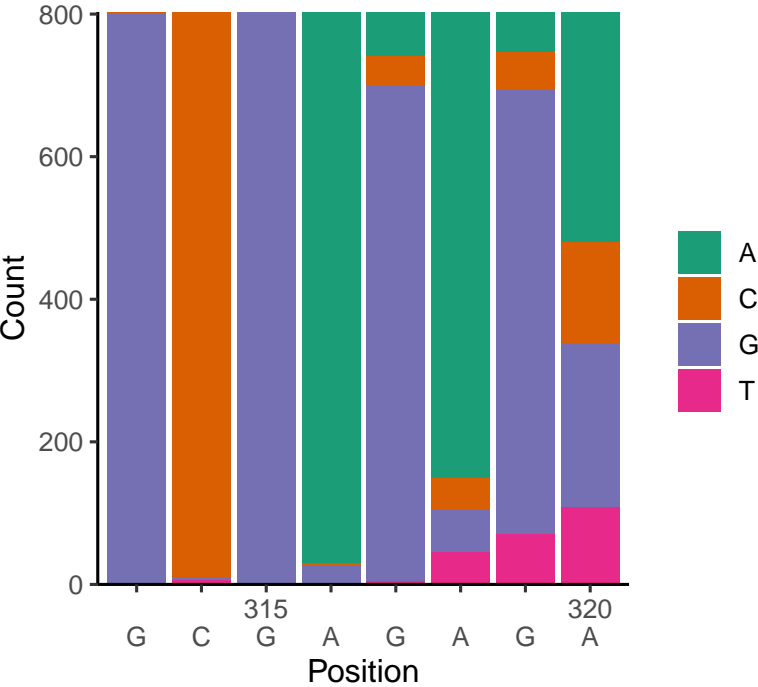
Gene IGHV3-74*01_A315G



Gene IGHV4-61*02_A291G



Gene IGHV6-1*01_A315G



Gene IGHV1-3*02_T296C_T300C



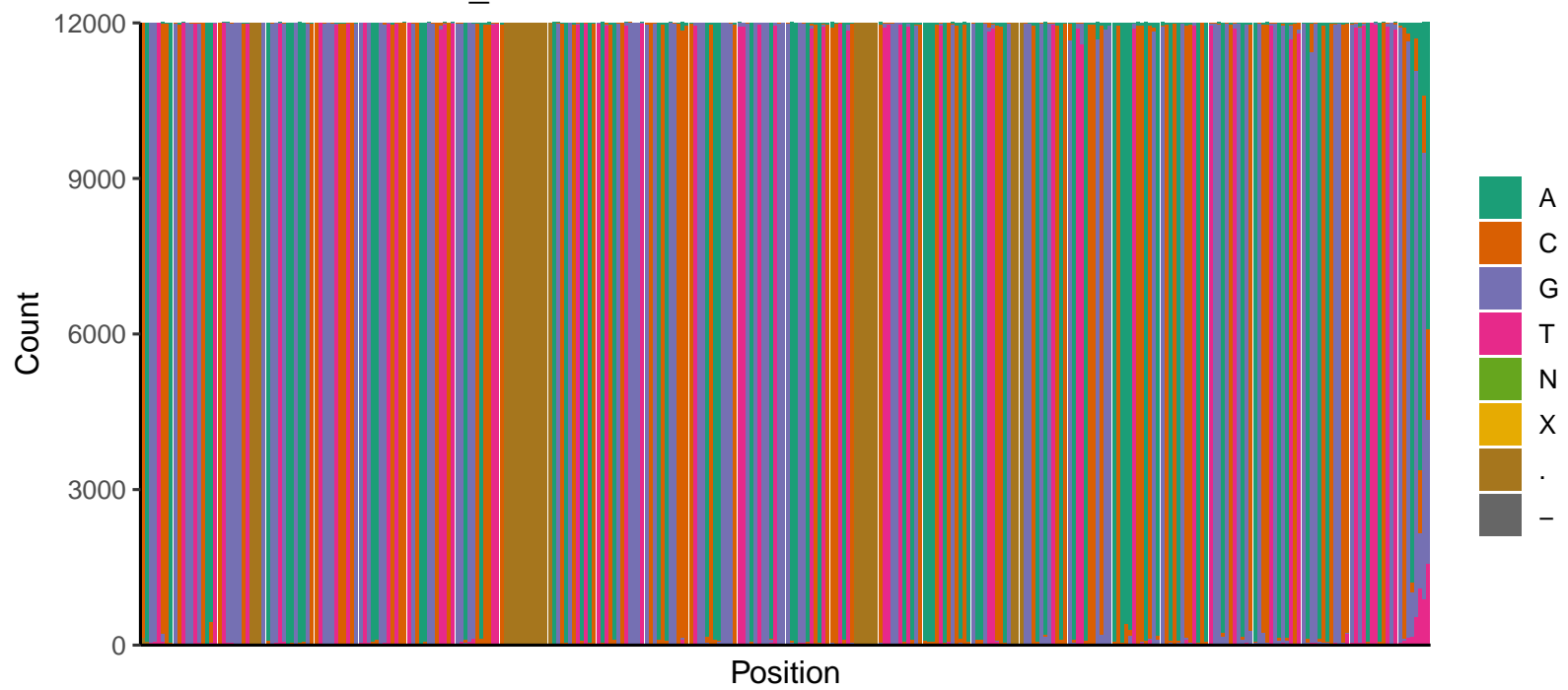
Gene IGHV1-24*01_A315G_C317G



Gene IGHV1-58*02_G316A_C317G



Gene IGHV1-69*08_C191T



Gene IGHV2-70*15_G303A



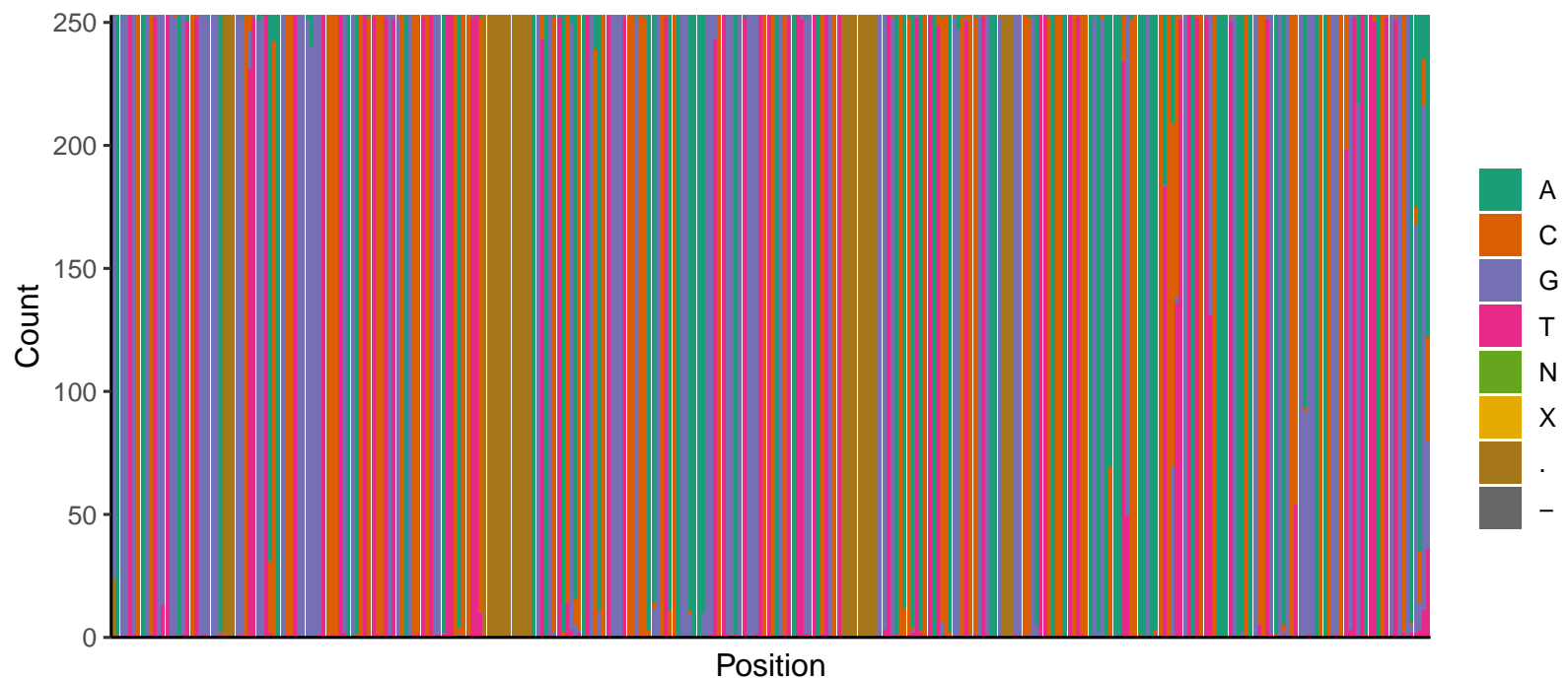
Gene IGHV3-9*01_T279C_C300T_T301G_A315G_A317G



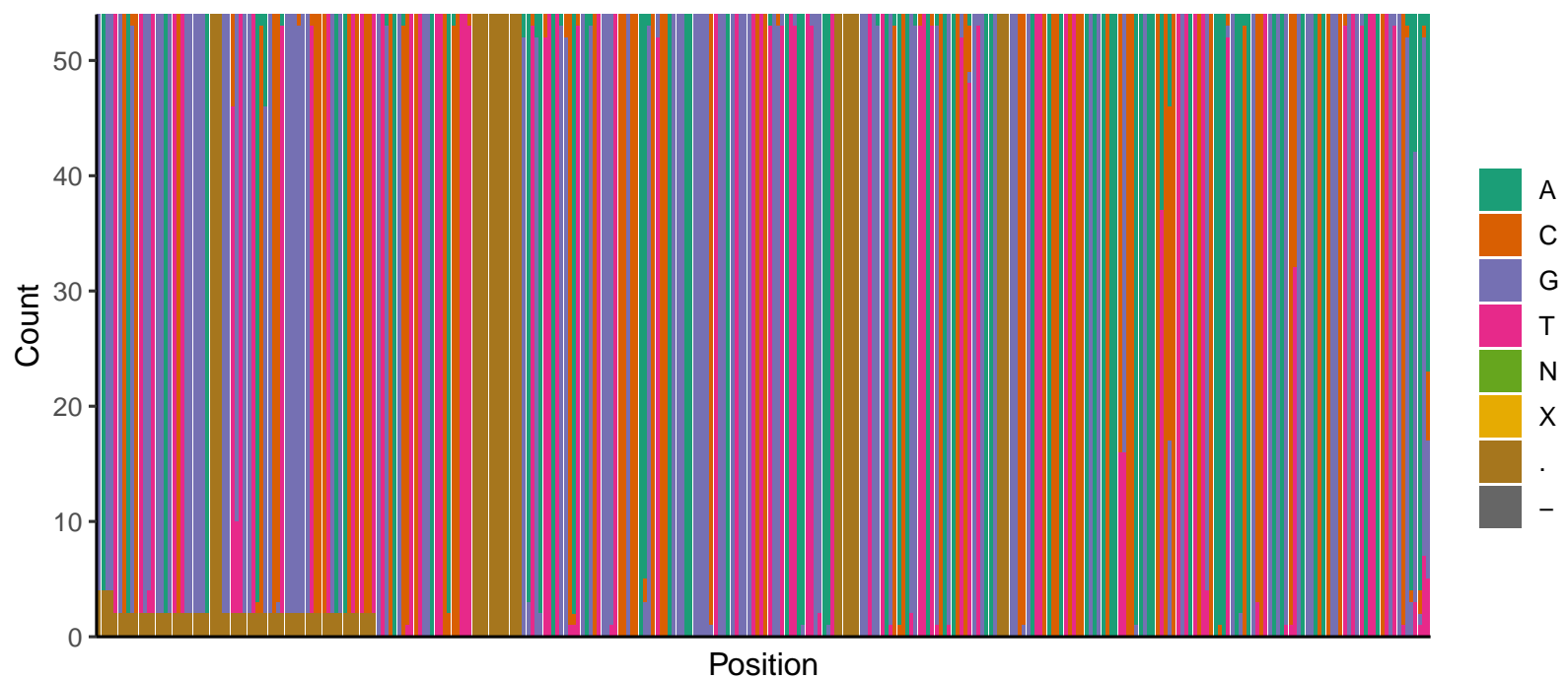
Gene IGHV3-9*01_T279C_T288C_C300T_T301G_A315G_A317G



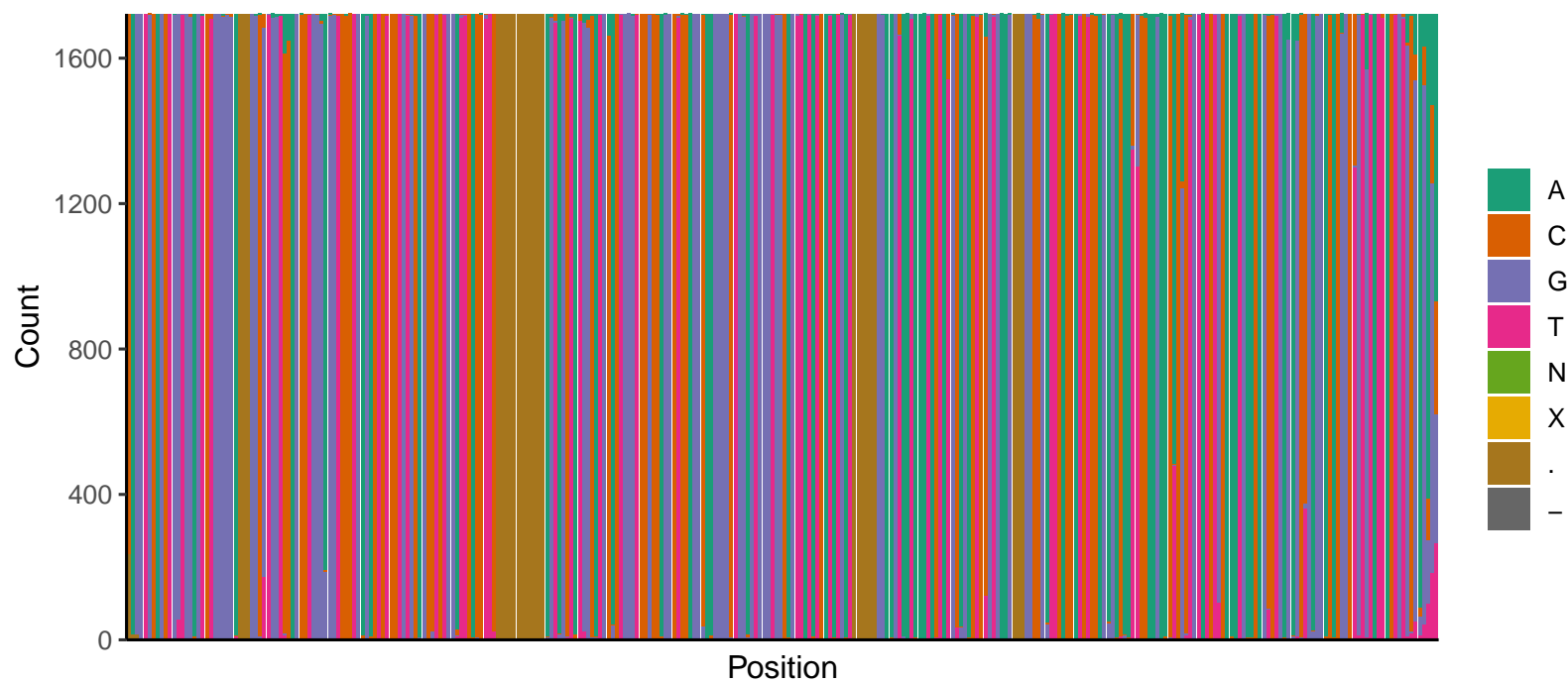
Gene IGHV3-13*01_A315G



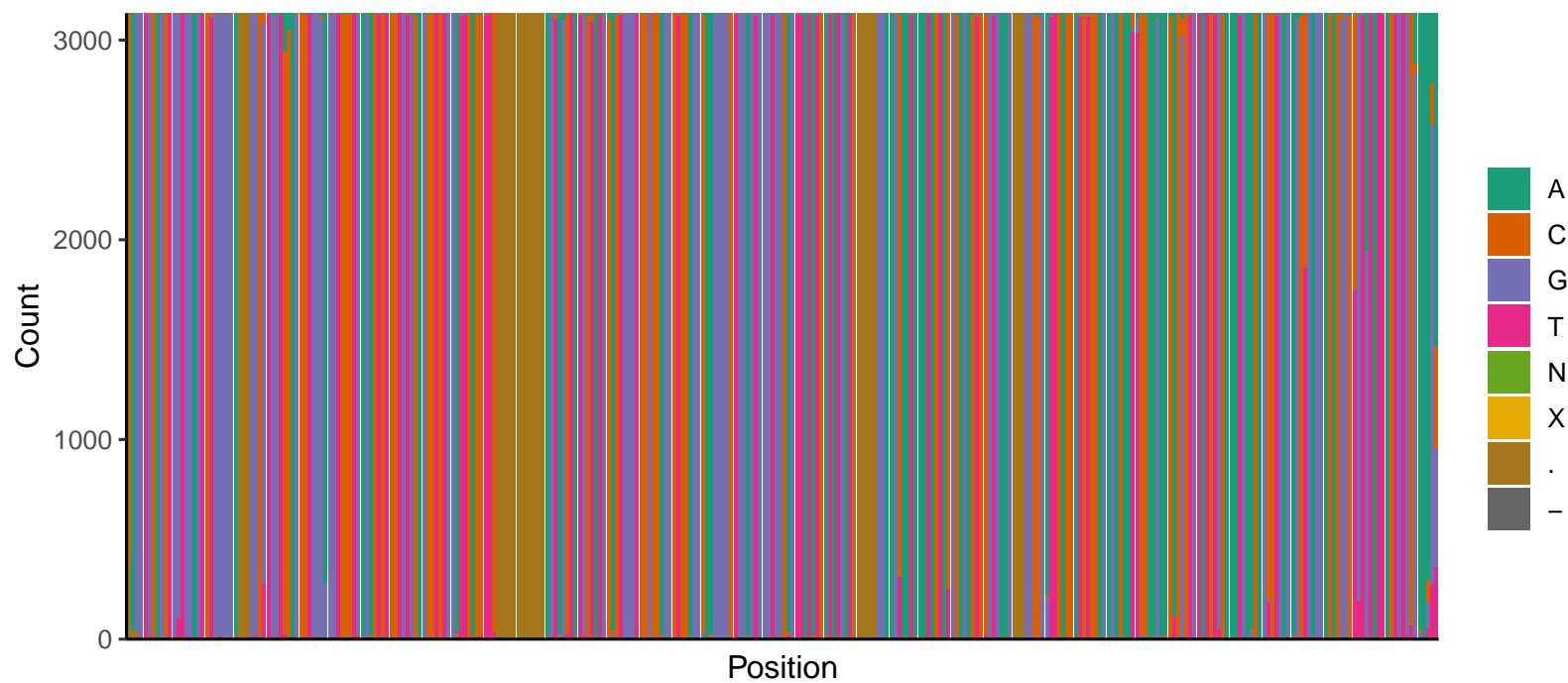
Gene IGHV3-20*04_T279C_C288T_C300T_T301G



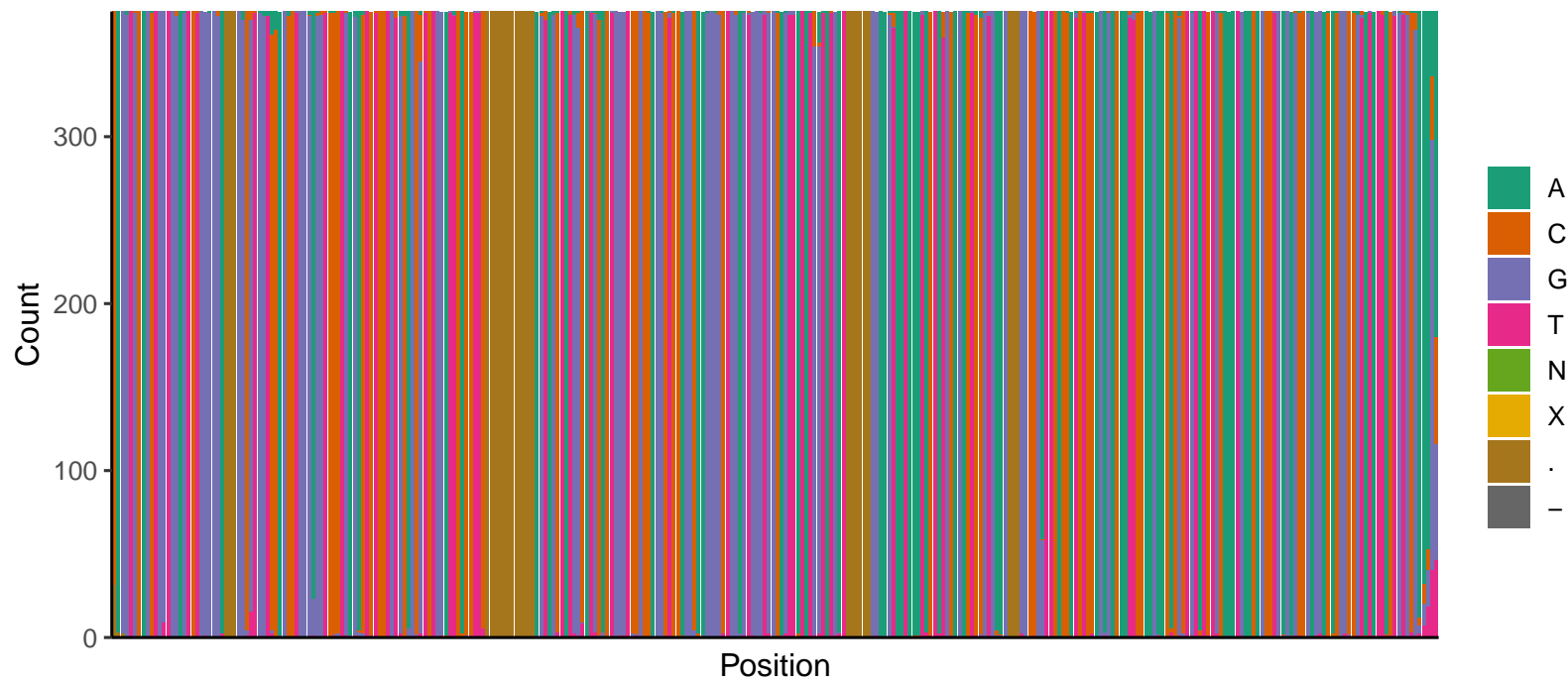
Gene IGHV3-30*03_T288C



Gene IGHV3-30-3*02_G75C



Gene IGHV3-33*06_T300C_G303A



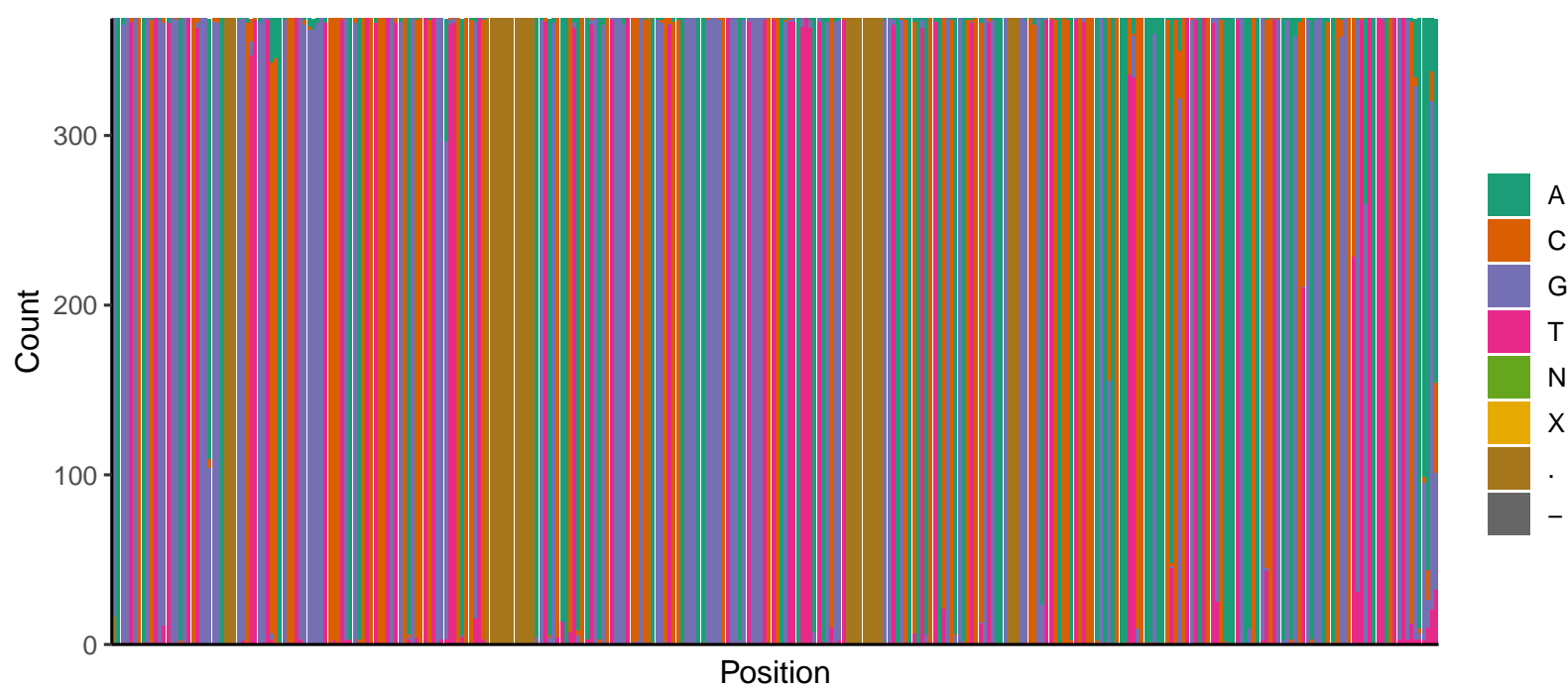
Gene IGHV3-43*01_A315G



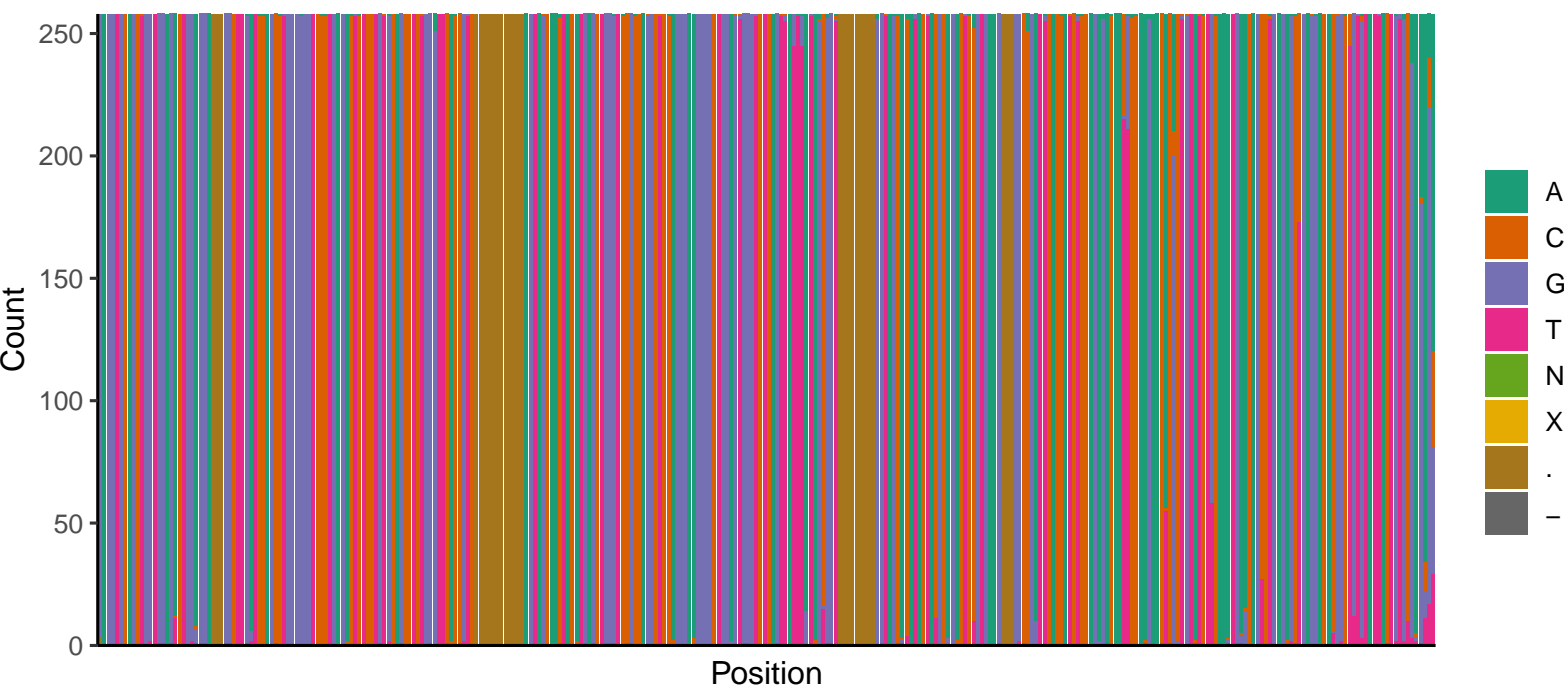
Gene IGHV3-49*03_A313G_T315G



Gene IGHV3-53*04_T267G_C300T_G317A



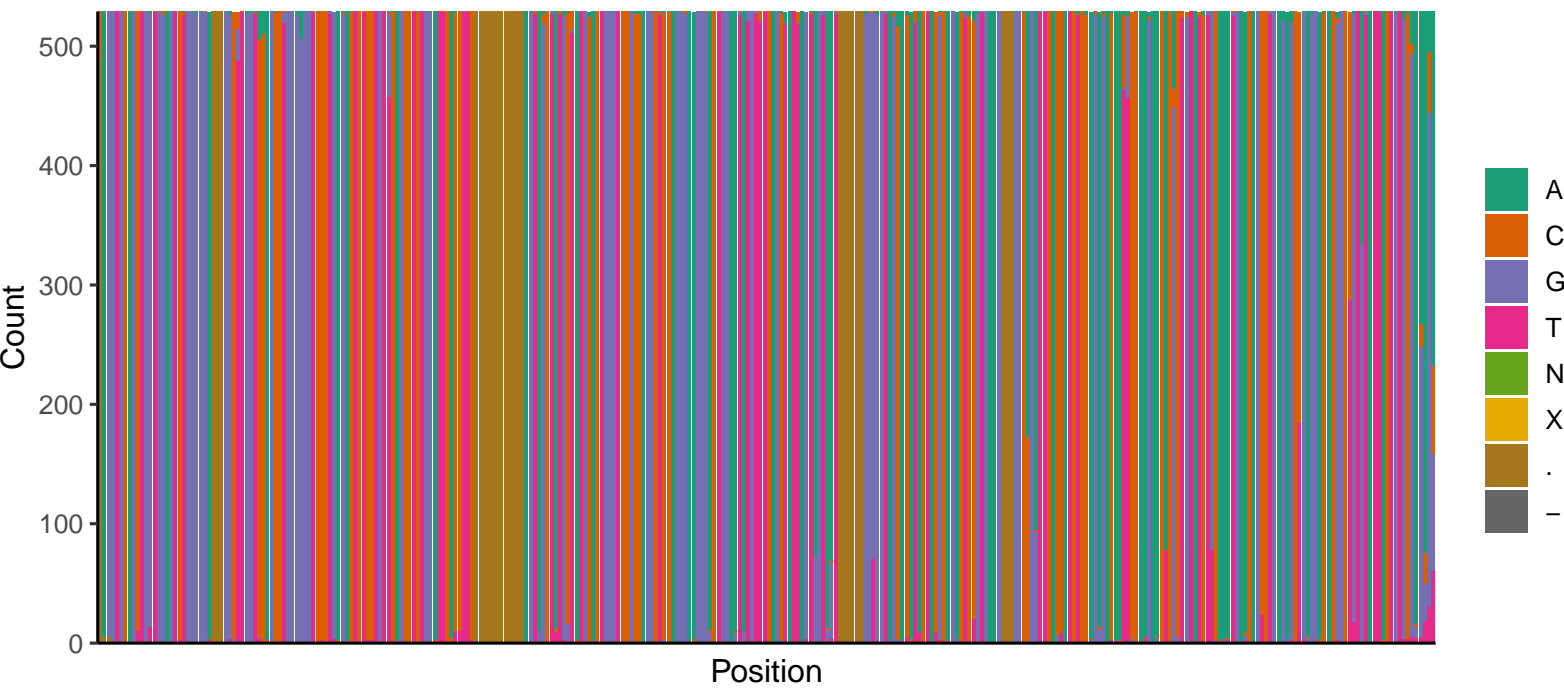
Gene IGHV3-53*05_T267G_C300T



Gene IGHV3-64*01_T267G_G274A_G275A_T296C



Gene IGHV3-64*04_A210C



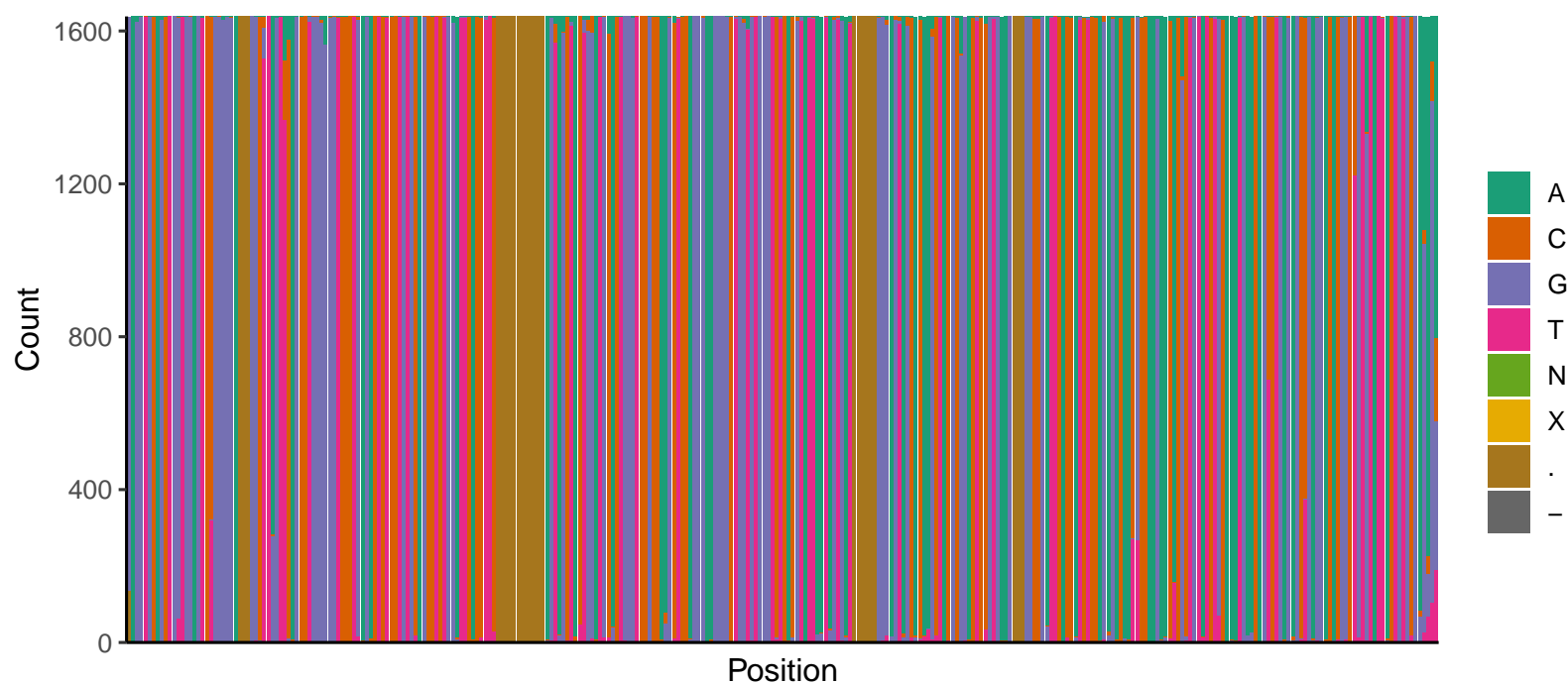
Gene IGHV3-64D*06_T314C_A317G



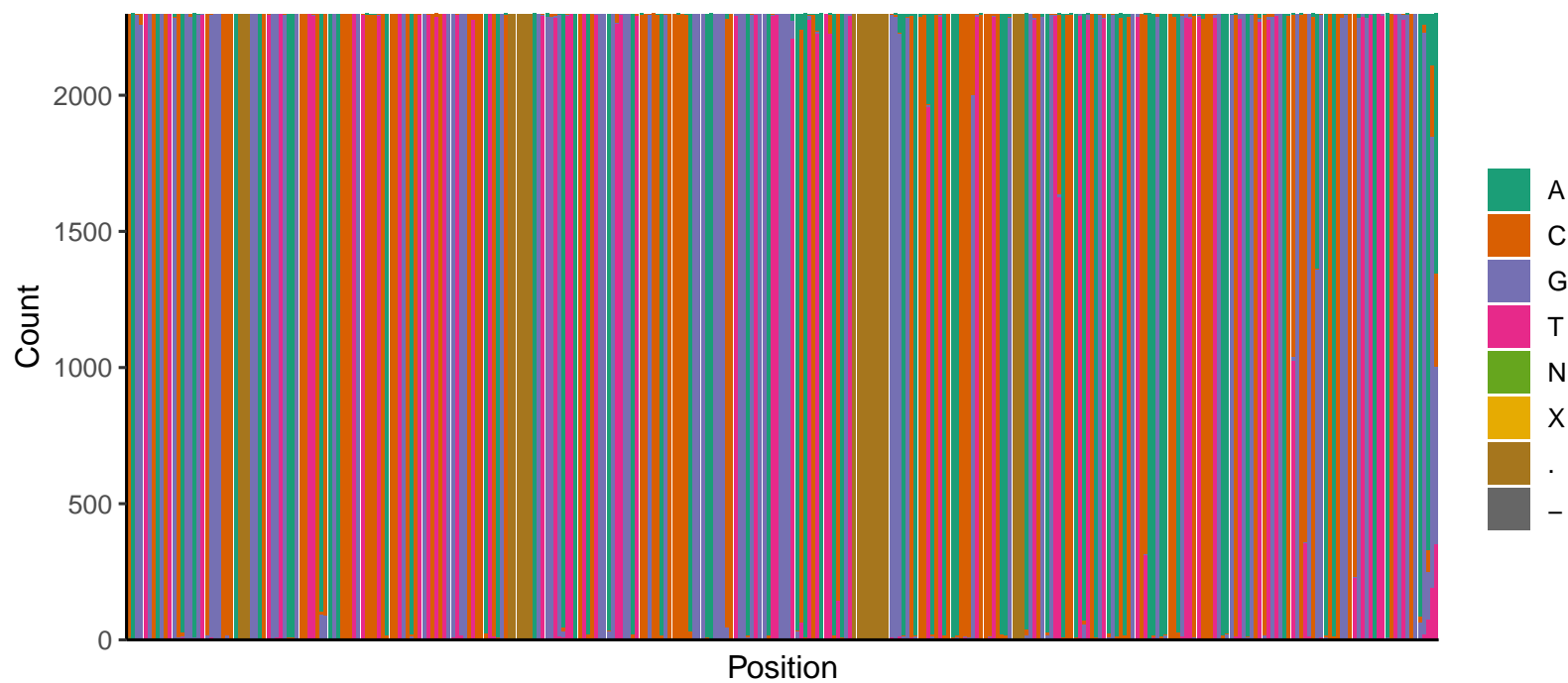
Gene IGHV3-72*01_T315G



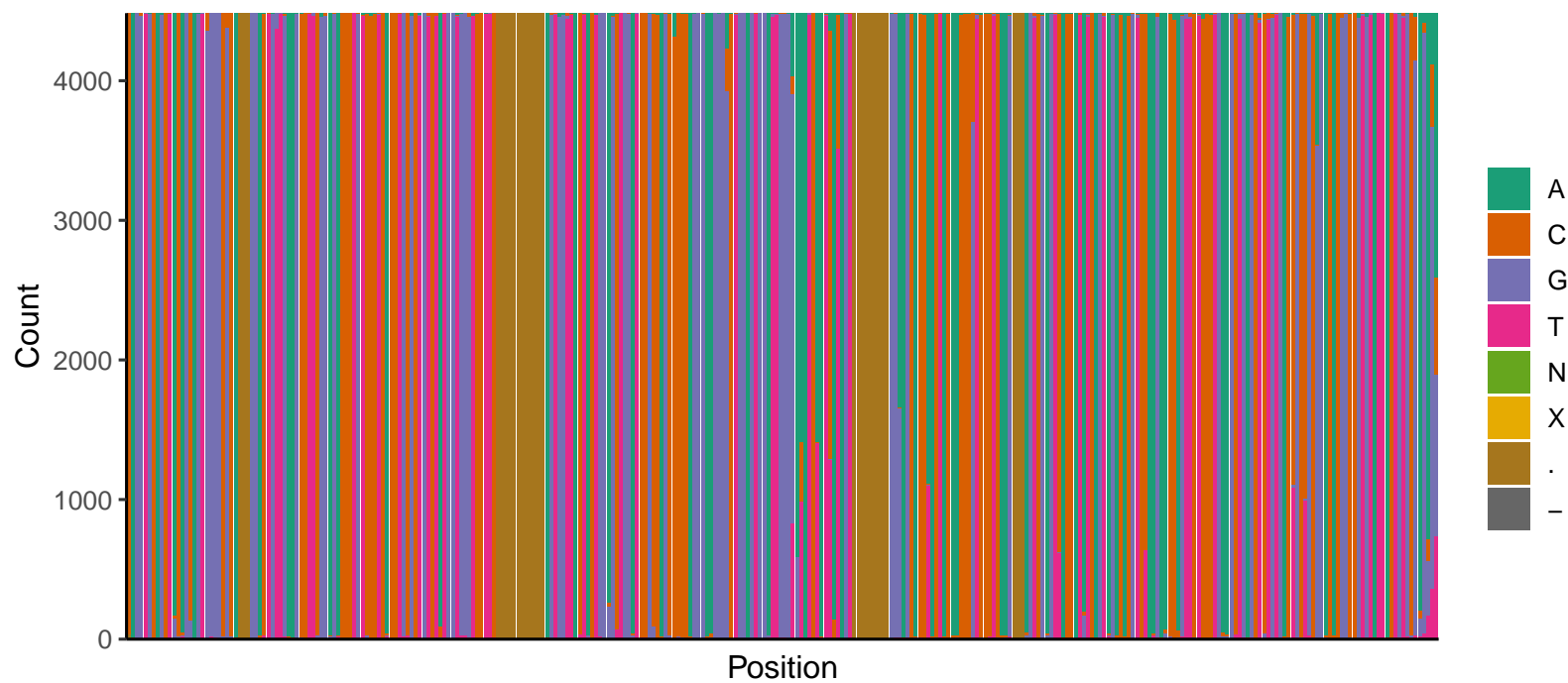
Gene IGHV3-74*01_A315G



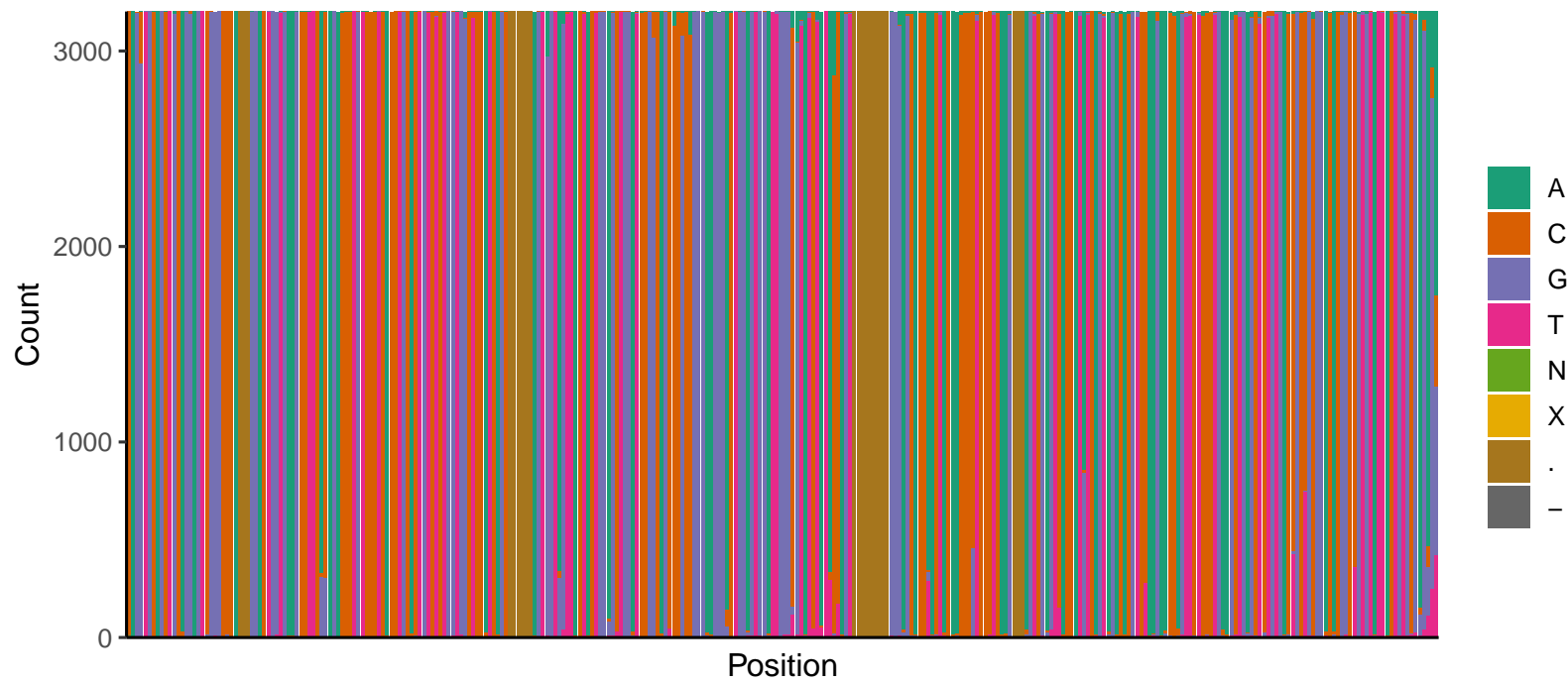
Gene IGHV4-30-4*01_C315G



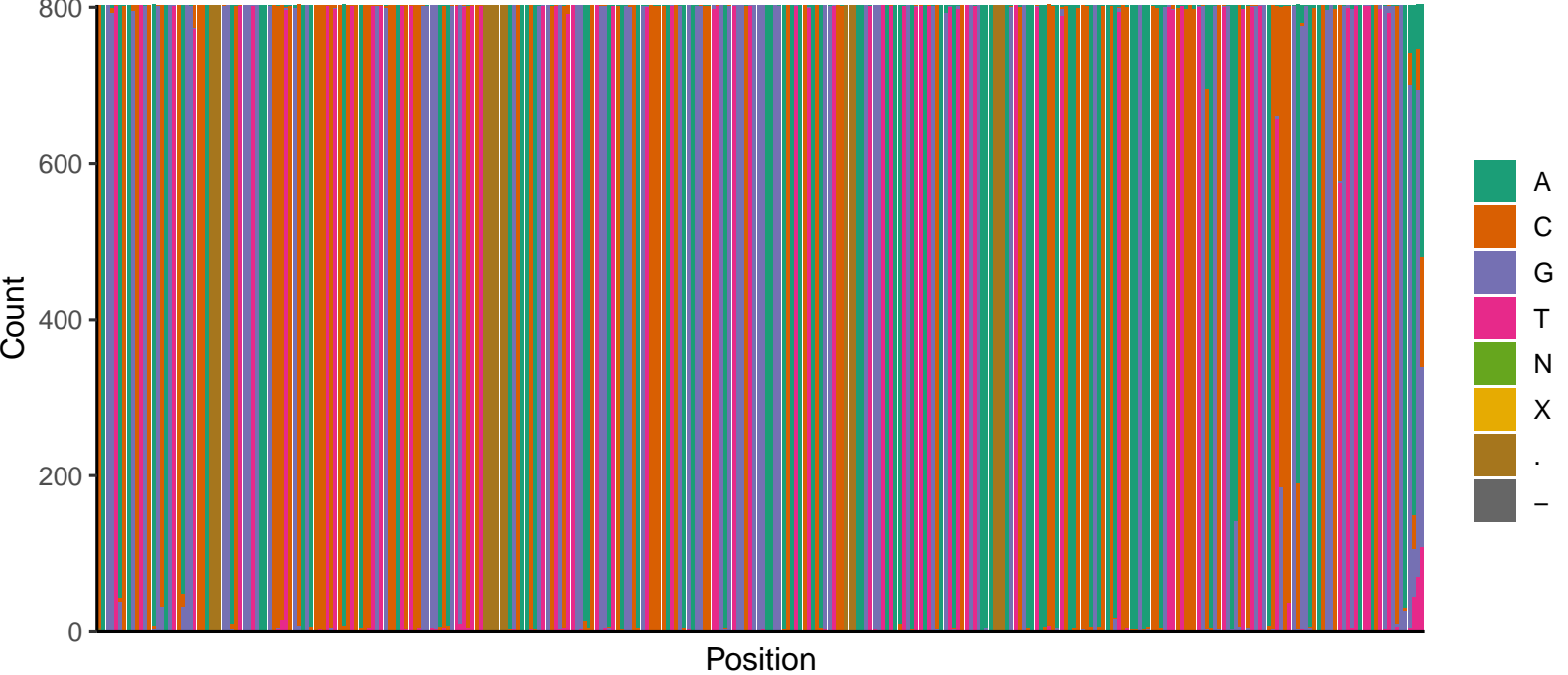
Gene IGHV4-34*01_T300C



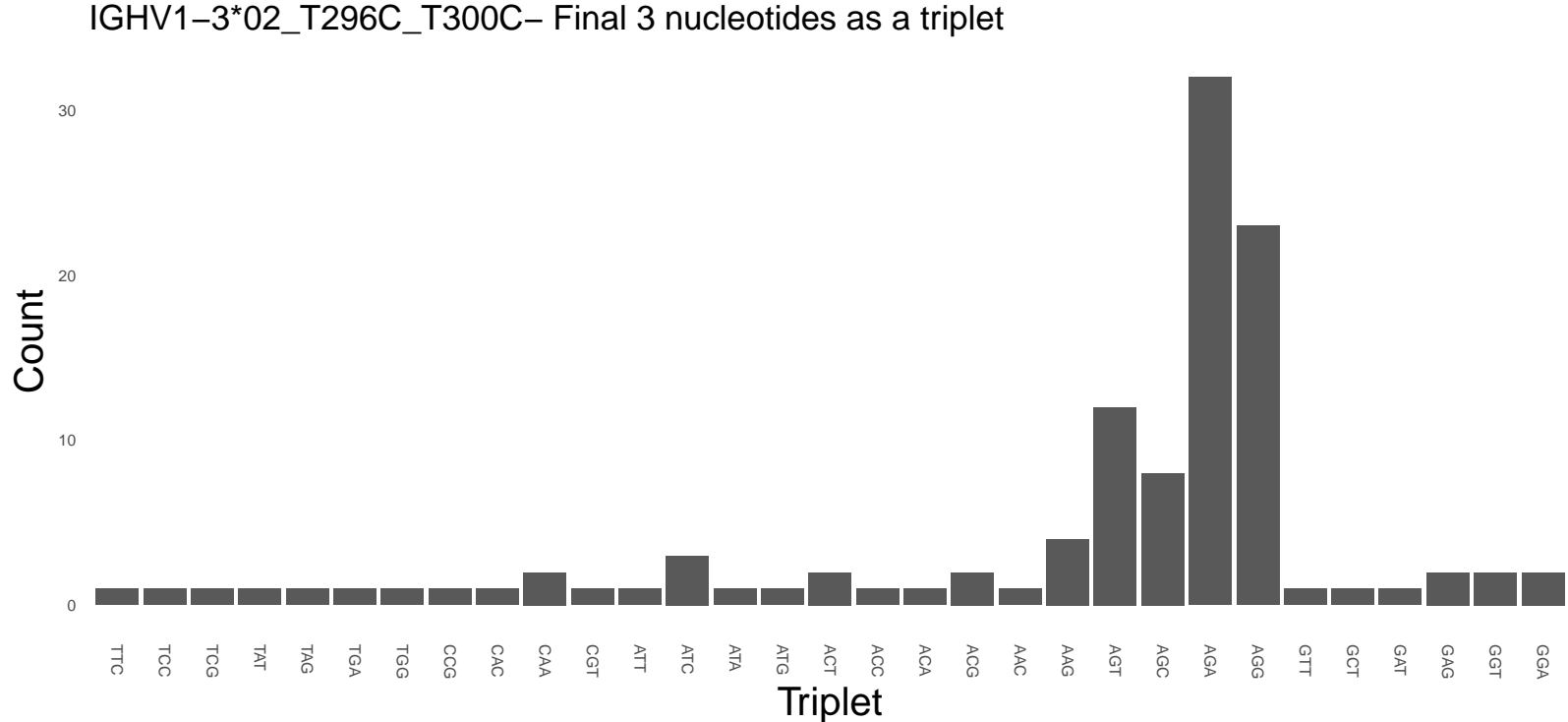
Gene IGHV4-61*02_A291G



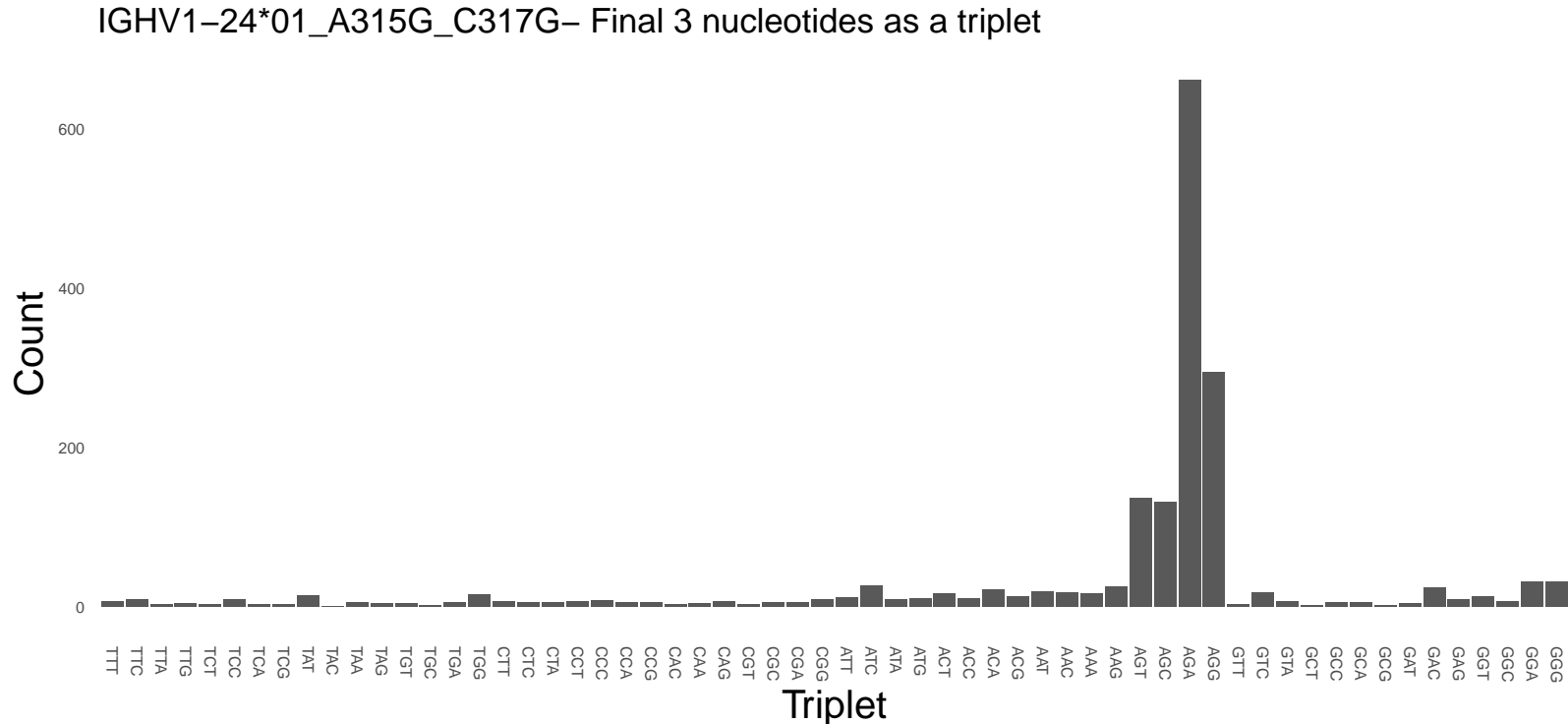
Gene IGHV6-1*01_A315G



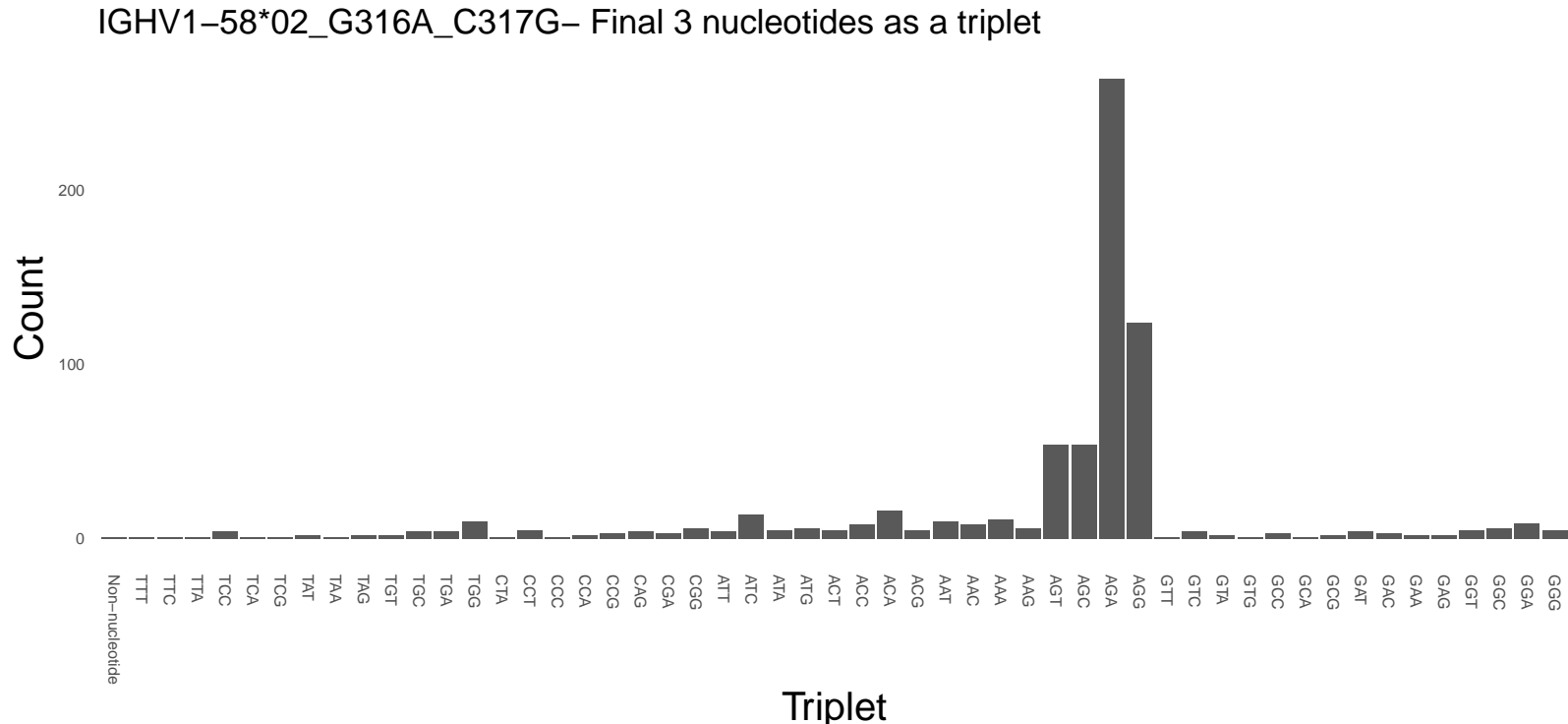
IGHV1-3*02_T296C_T300C- Final 3 nucleotides as a triplet



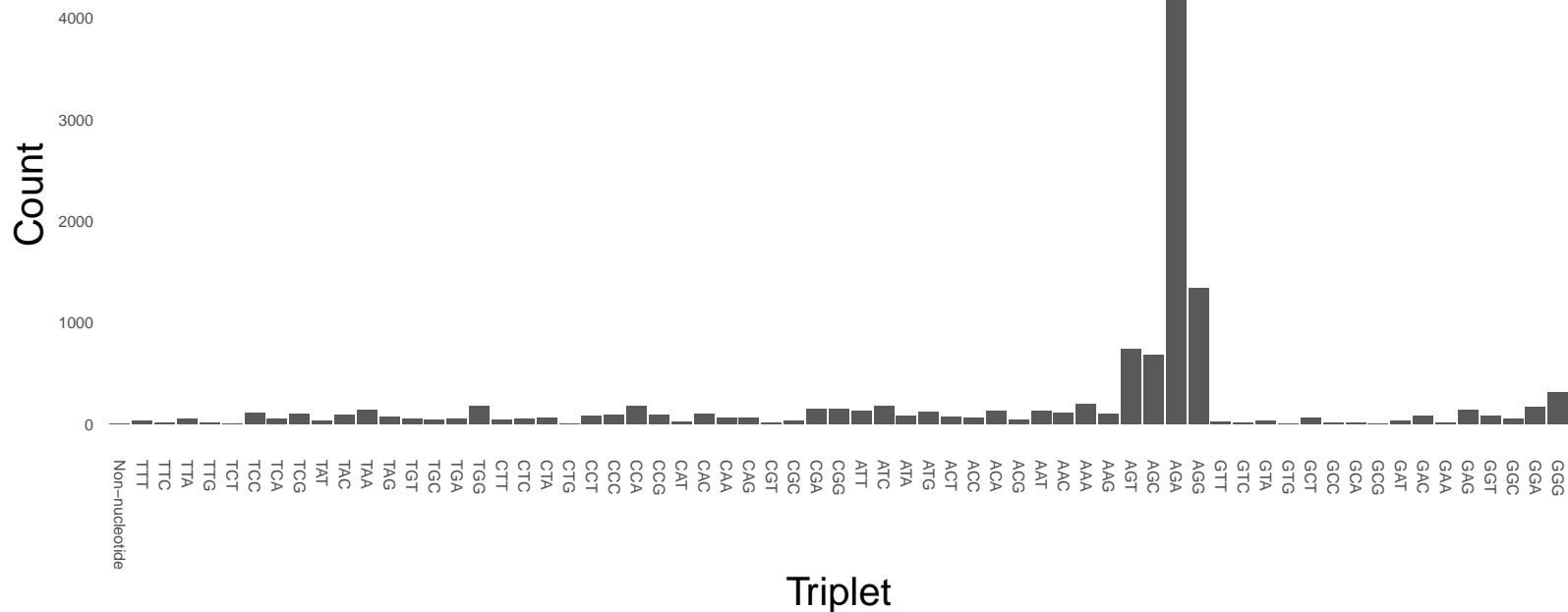
IGHV1-24*01_A315G_C317G- Final 3 nucleotides as a triplet



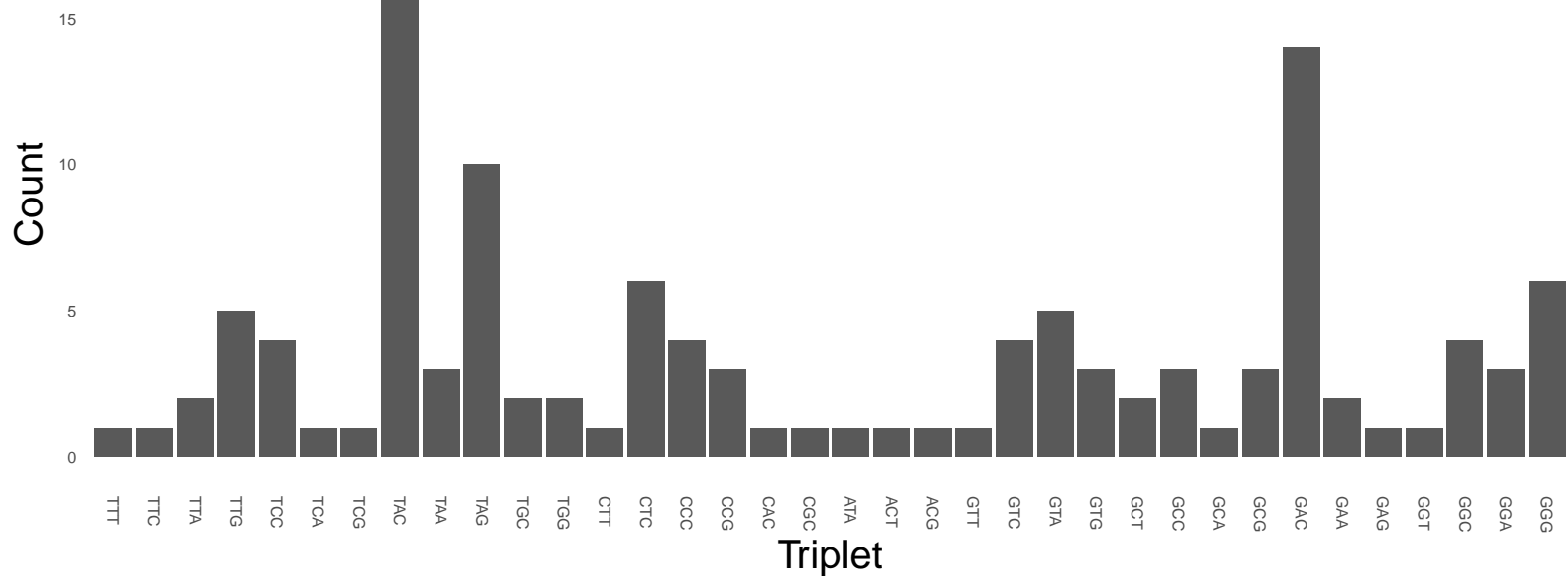
IGHV1-58*02_G316A_C317G- Final 3 nucleotides as a triplet



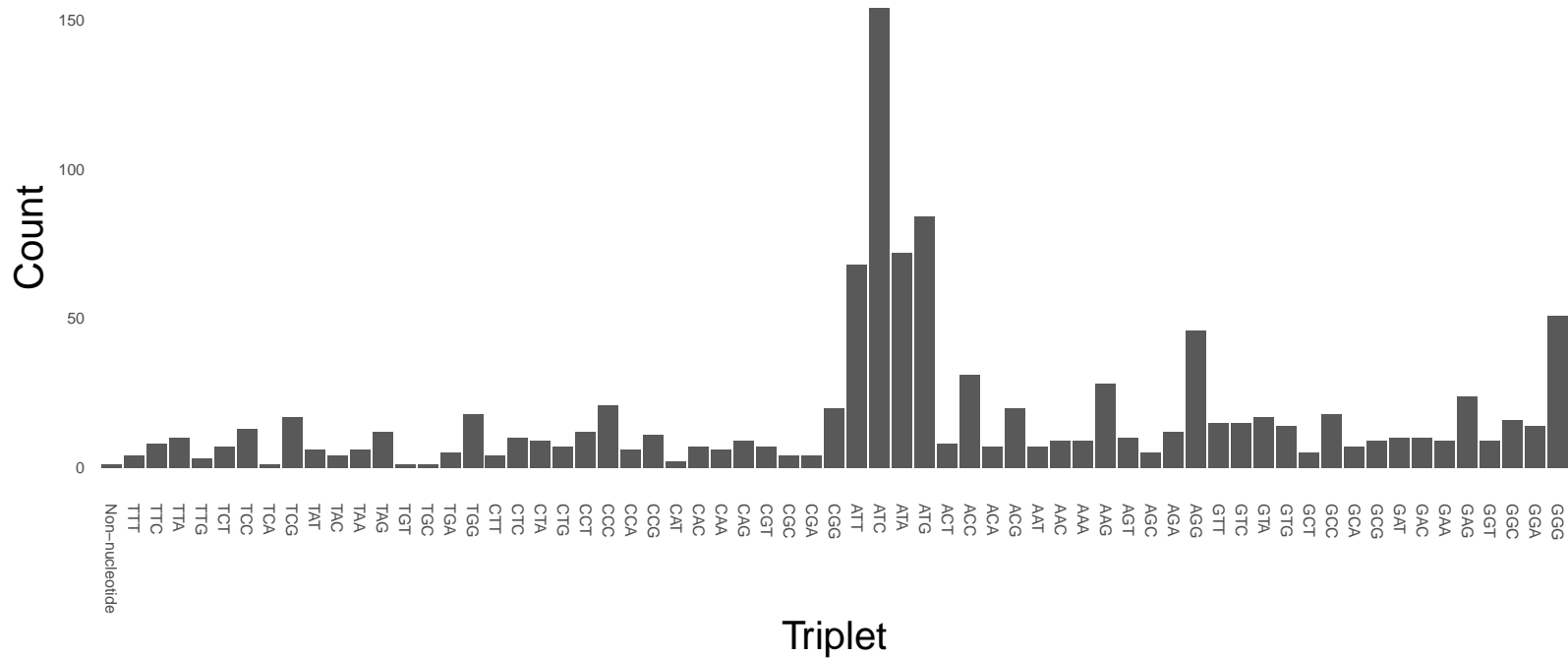
IGHV1-69*08_C191T- Final 3 nucleotides as a triplet



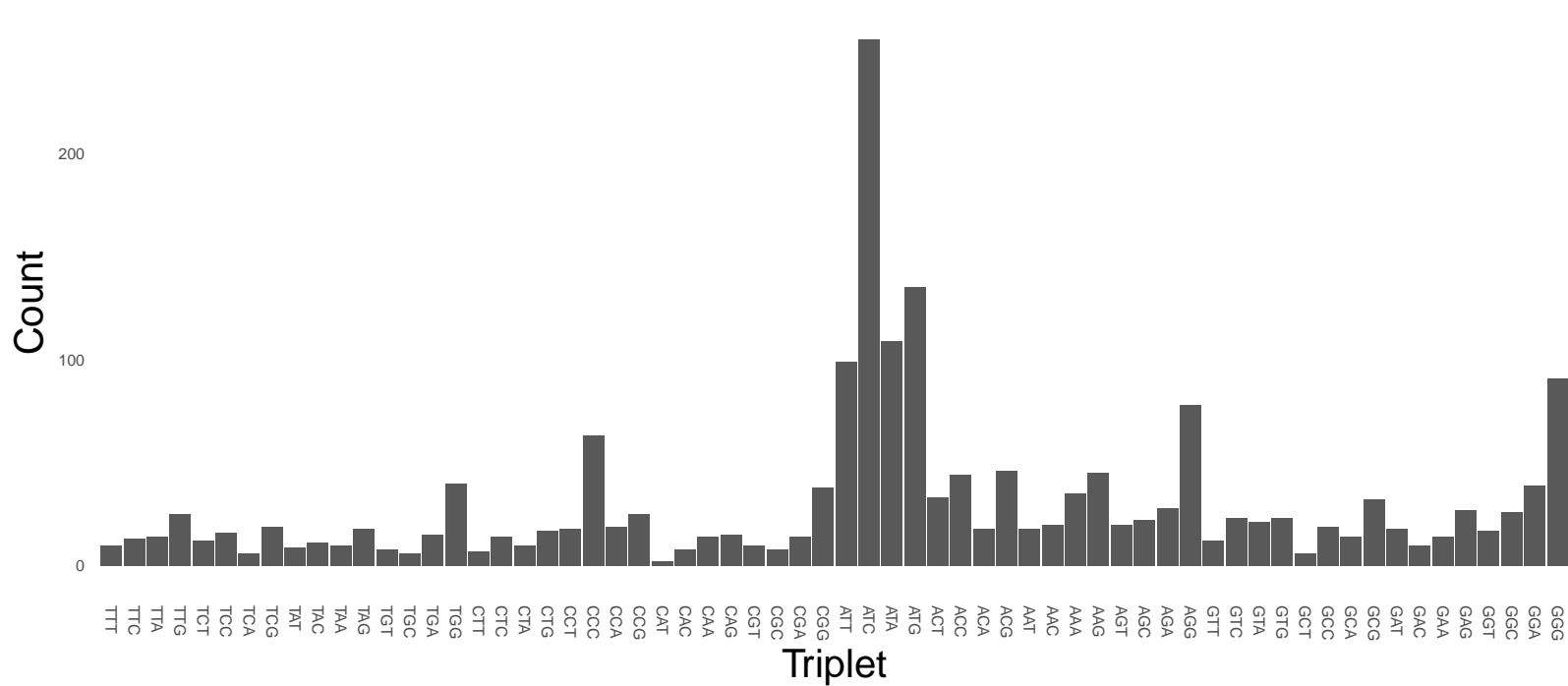
IGHV2-70*15_G303A- Final 3 nucleotides as a triplet



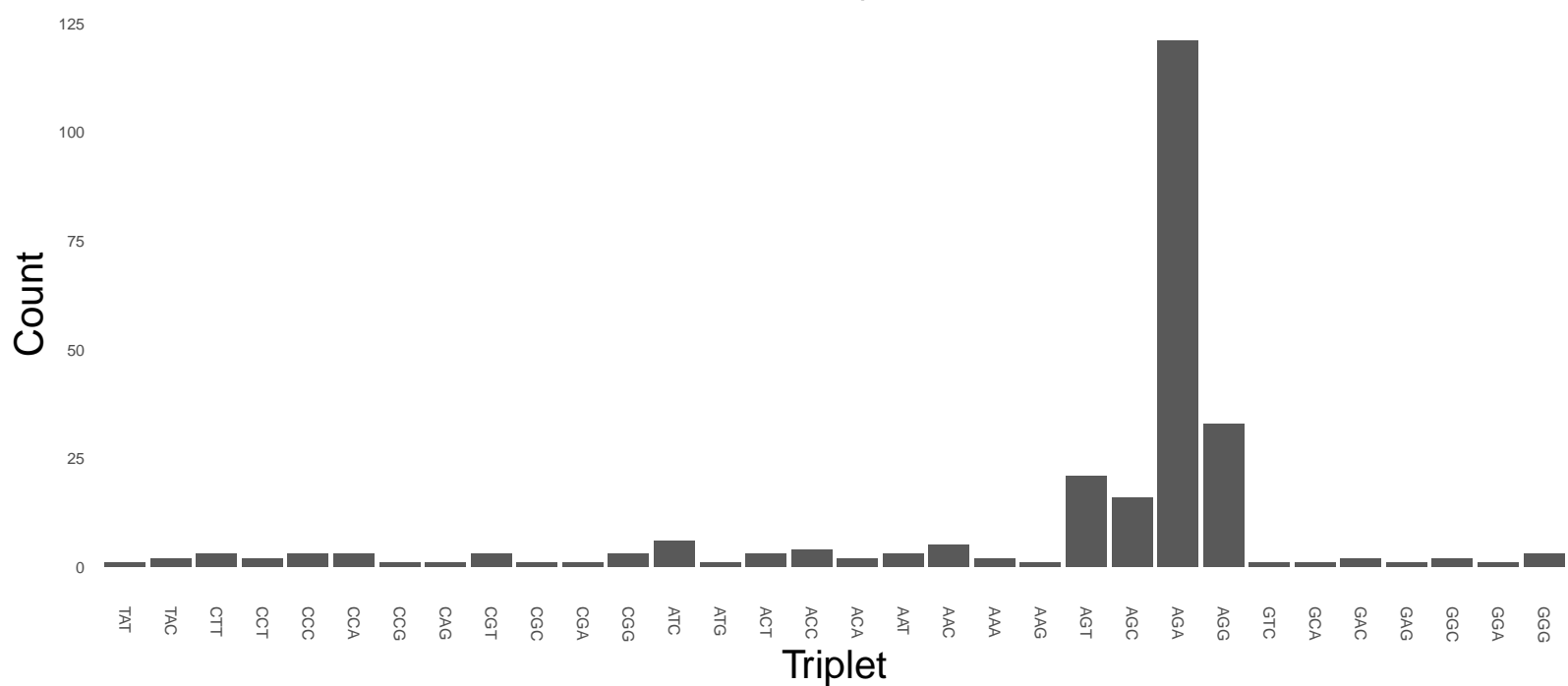
IGHV3-9*01_T279C_C300T_T301G_A315G_A317G- Final 3 nucleotides as a triplet



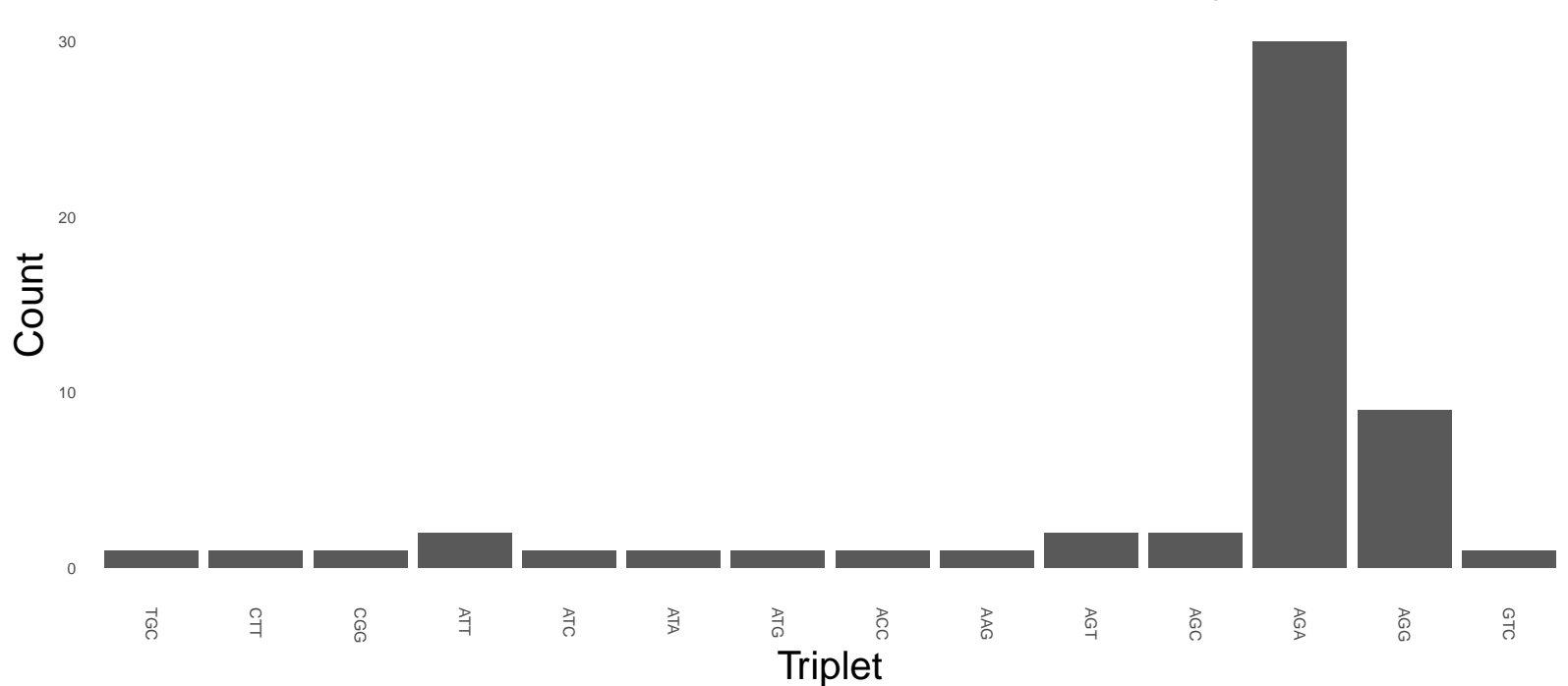
IGHV3-9*01_T279C_T288C_C300T_T301G_A315G_A317G- Final 3 nucleotides as a triplet



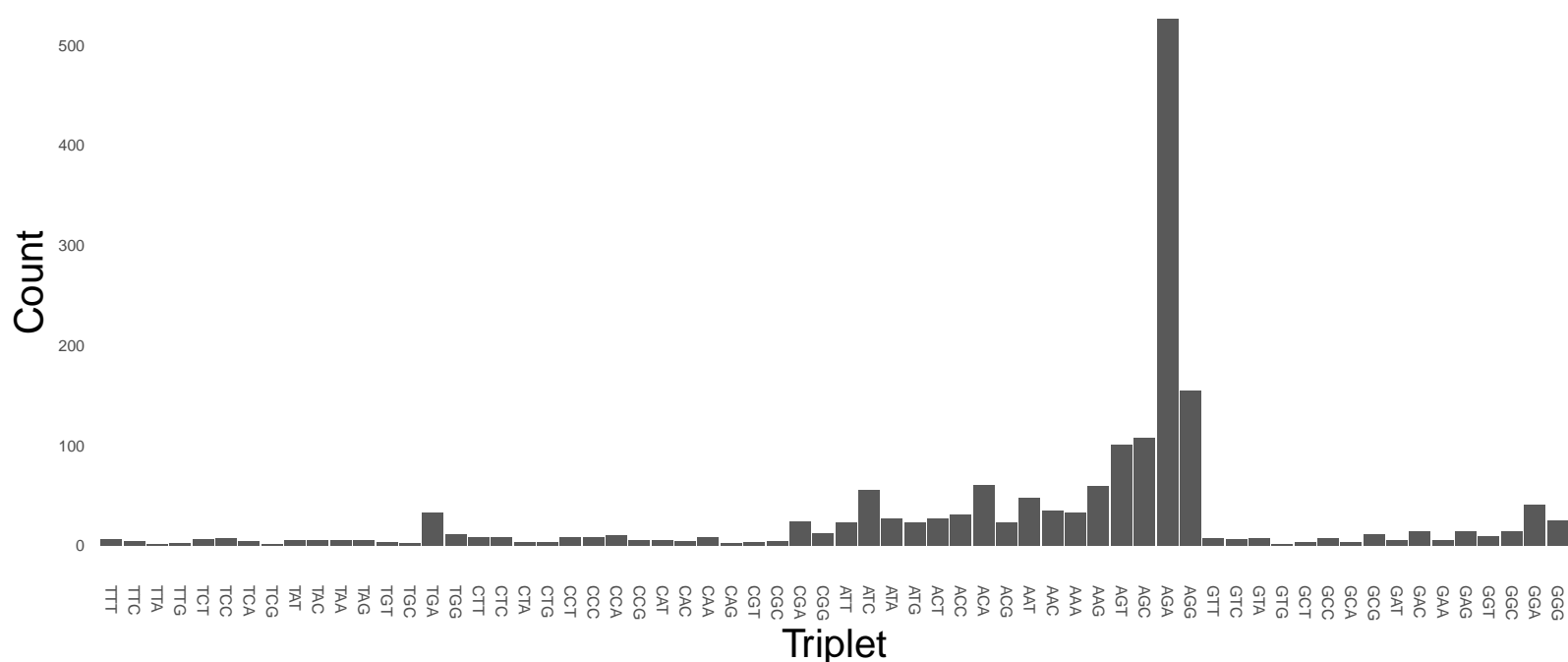
IGHV3-13*01_A315G- Final 3 nucleotides as a triplet



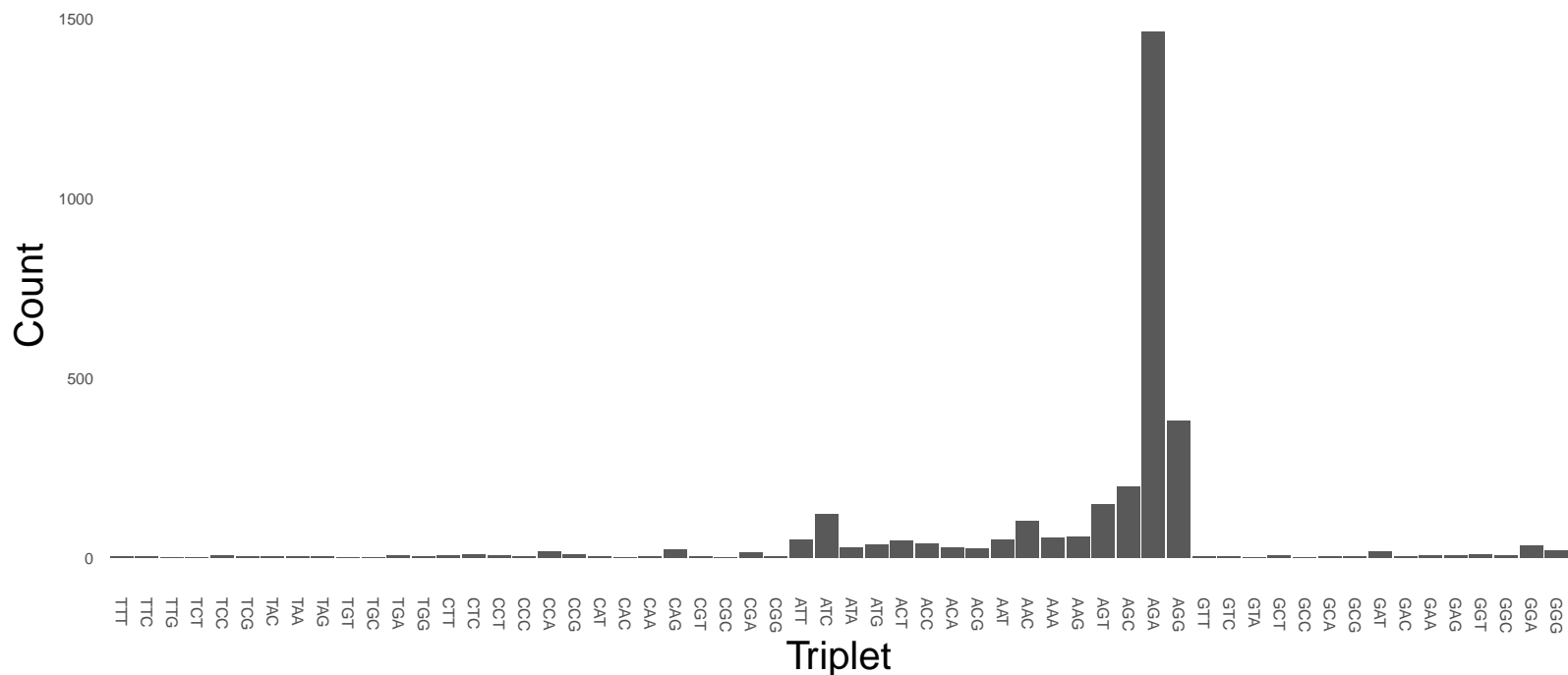
IGHV3-20*04_T279C_C288T_C300T_T301G- Final 3 nucleotides as a triplet



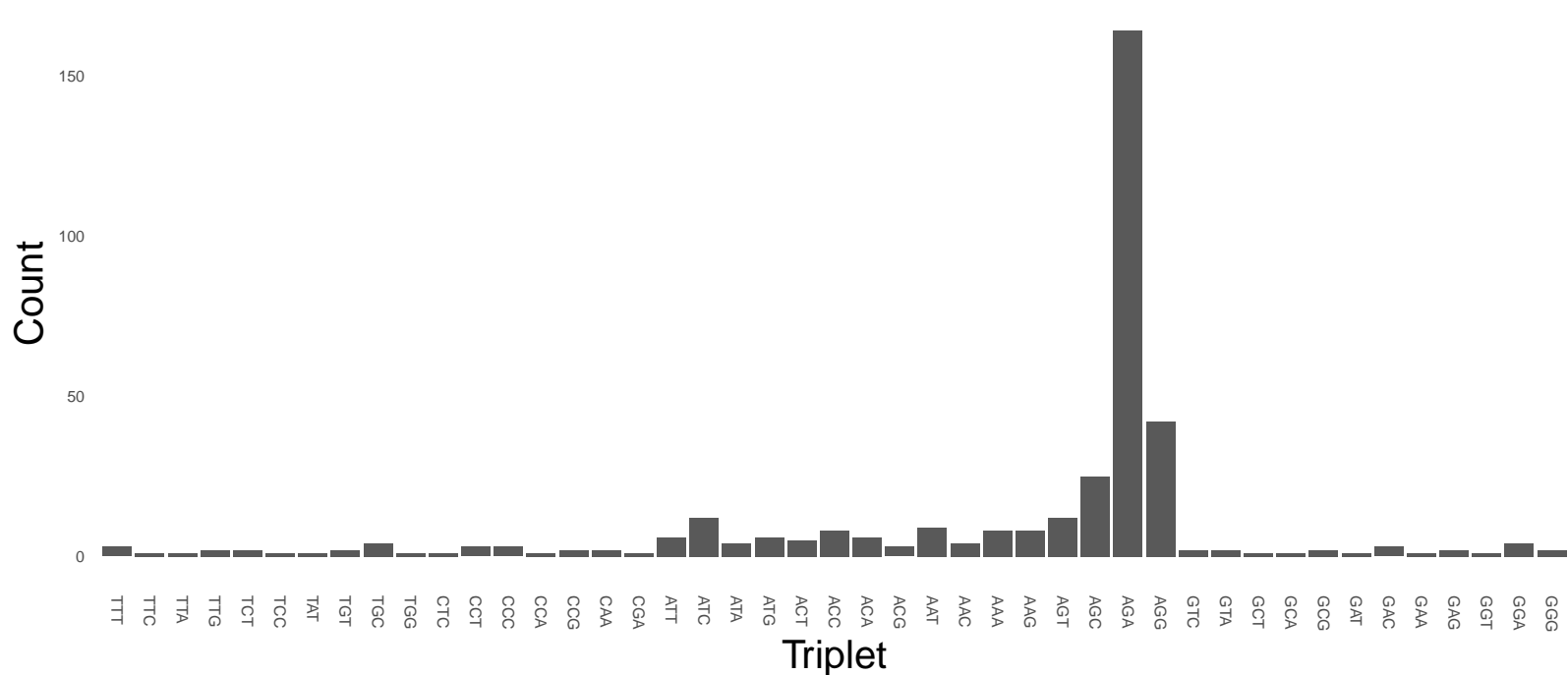
IGHV3-30*03_T288C- Final 3 nucleotides as a triplet



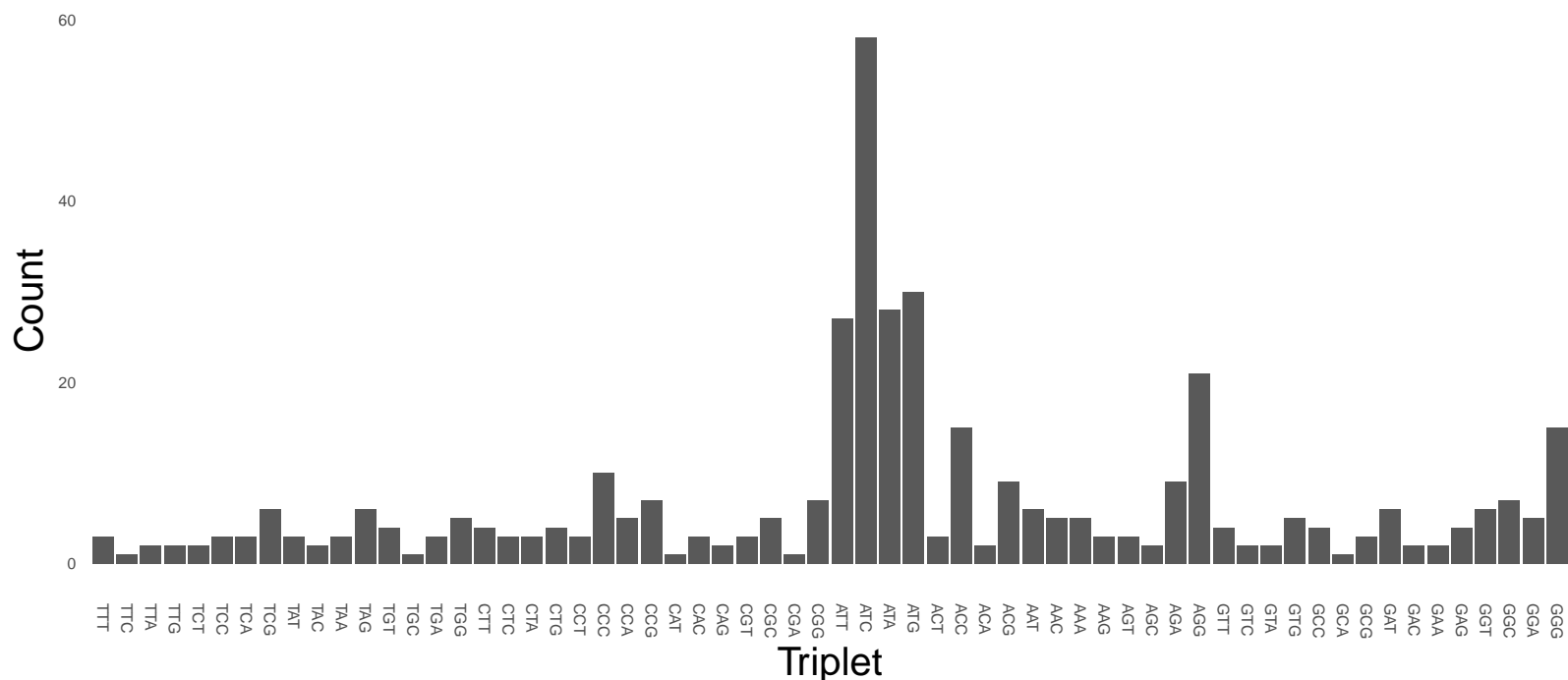
IGHV3-30-3*02_G75C- Final 3 nucleotides as a triplet



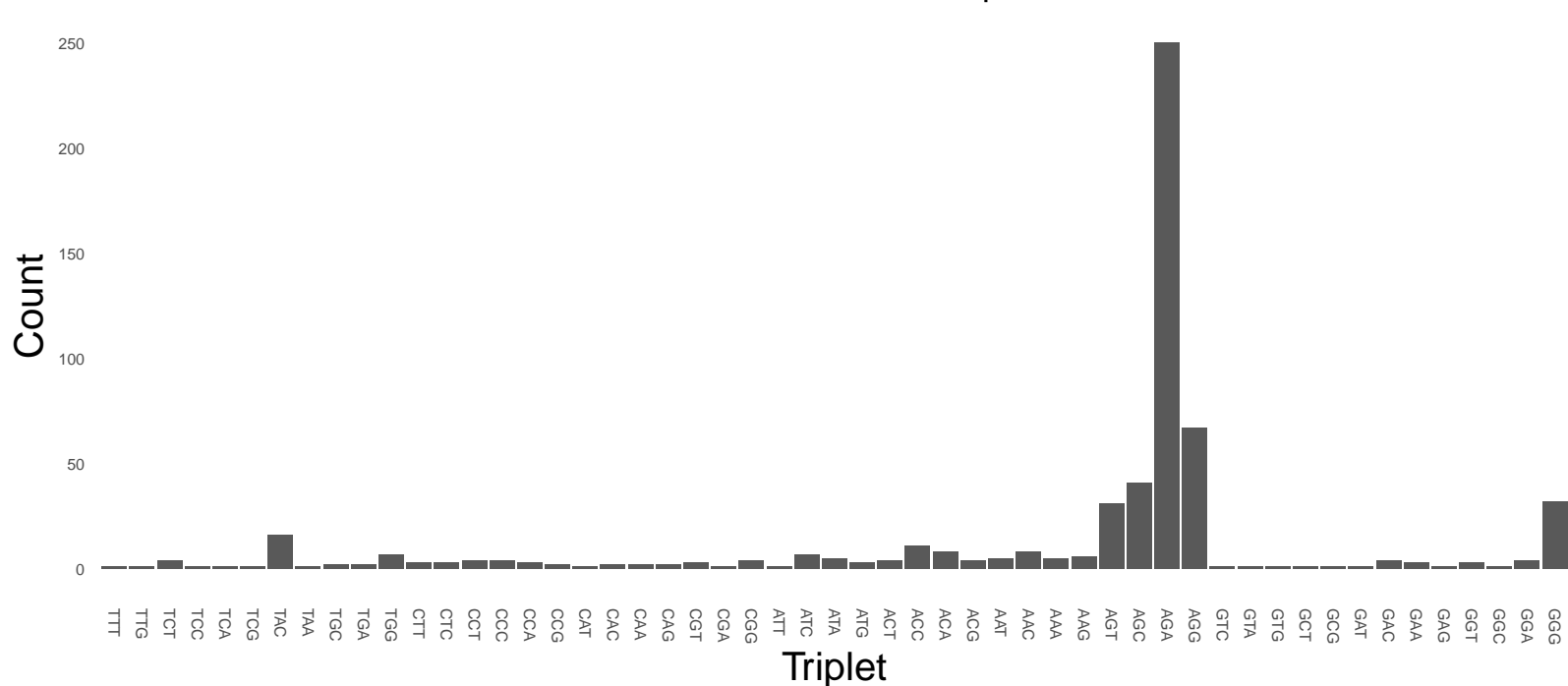
IGHV3-33*06_T300C_G303A- Final 3 nucleotides as a triplet



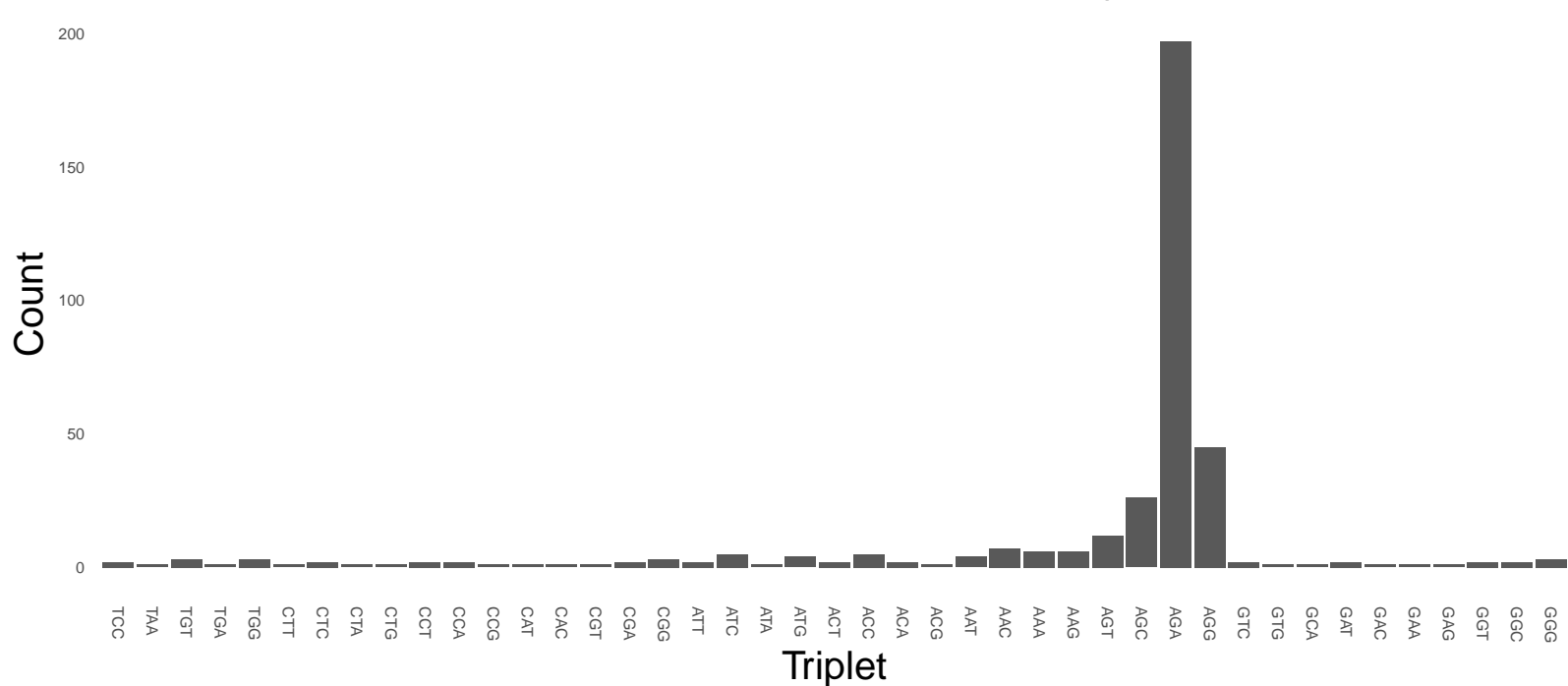
IGHV3-43*01_A315G- Final 3 nucleotides as a triplet



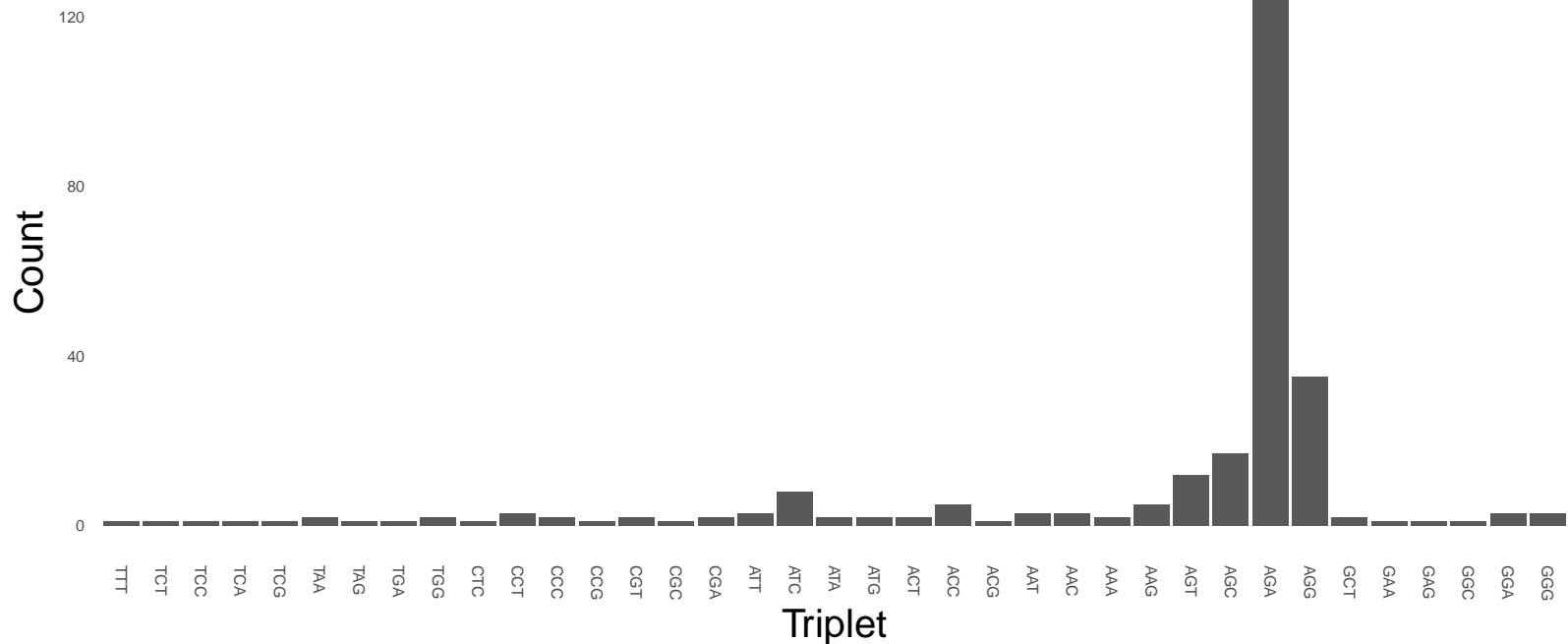
IGHV3-49*03_A313G_T315G- Final 3 nucleotides as a triplet



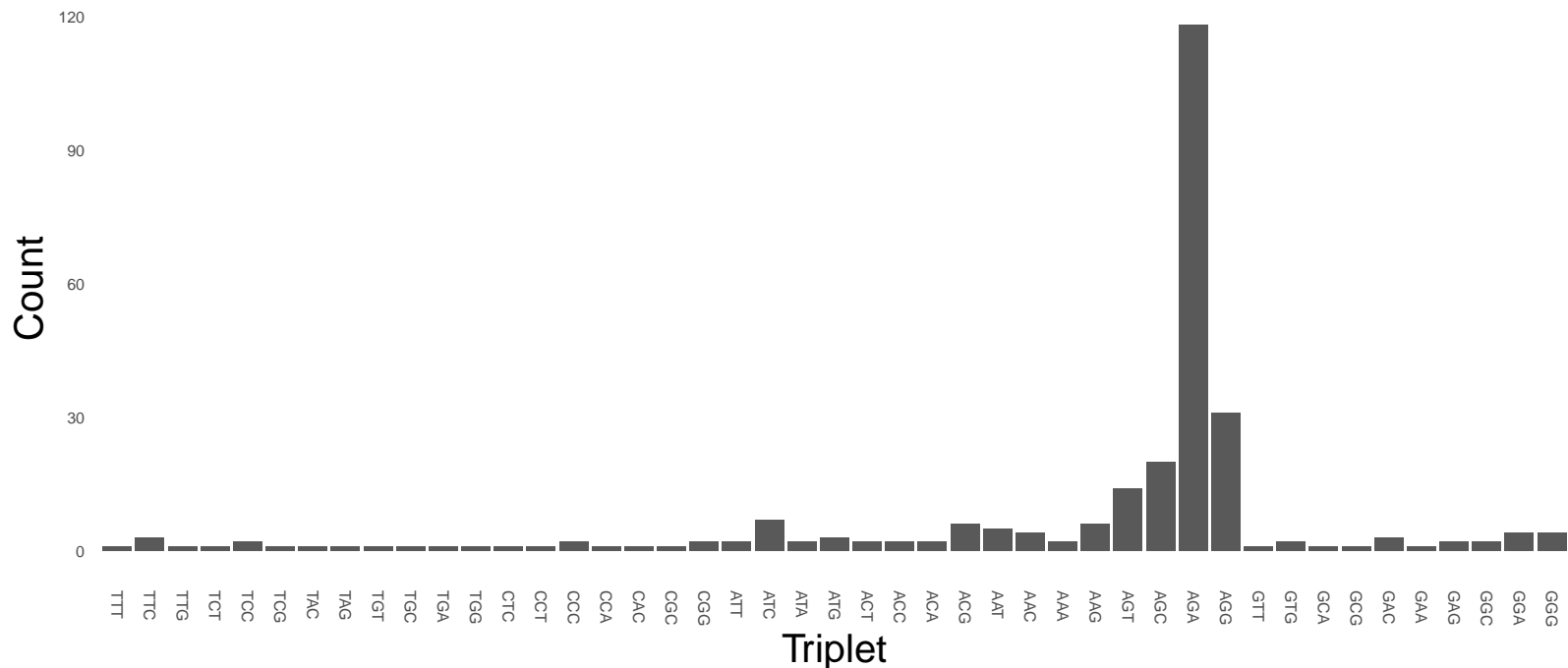
IGHV3-53*04_T267G_C300T_G317A- Final 3 nucleotides as a triplet



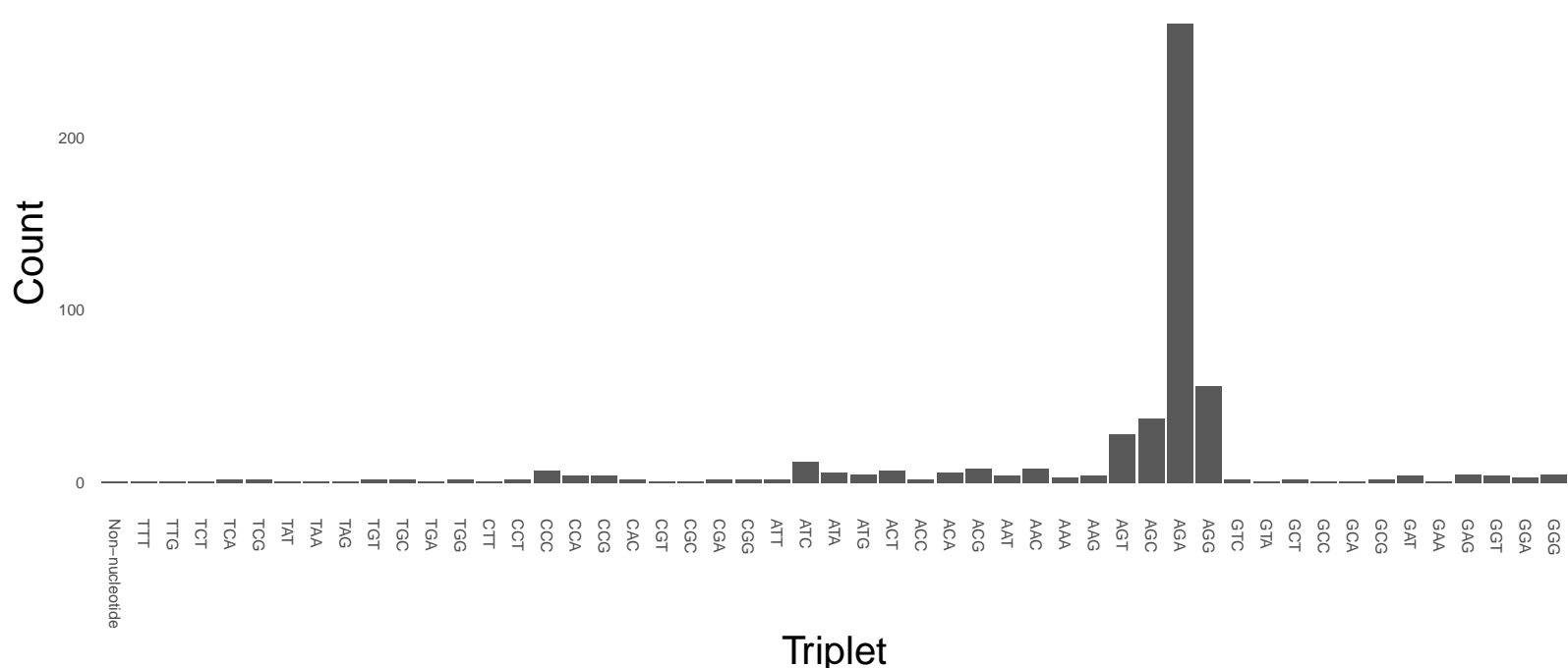
IGHV3-53*05_T267G_C300T- Final 3 nucleotides as a triplet



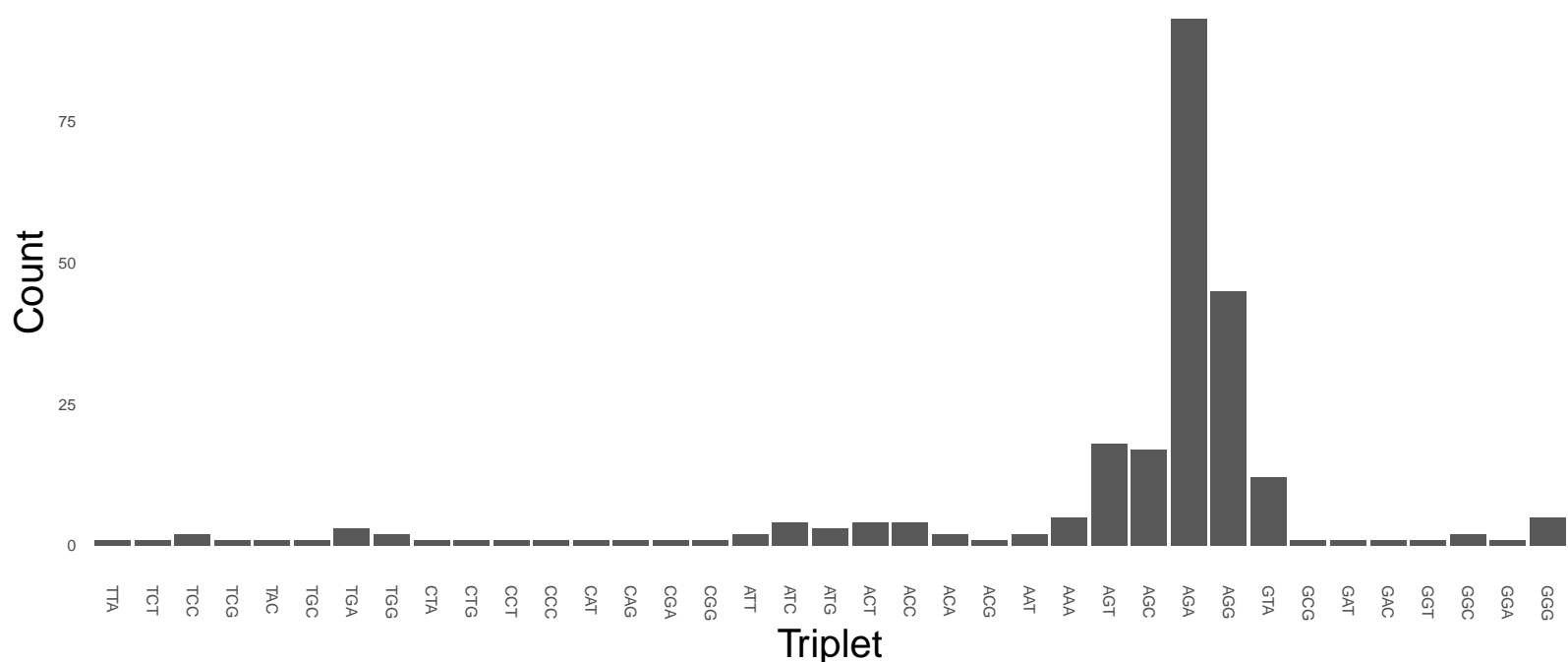
IGHV3-64*01_T267G_G274A_G275A_T296C- Final 3 nucleotides as a triplet



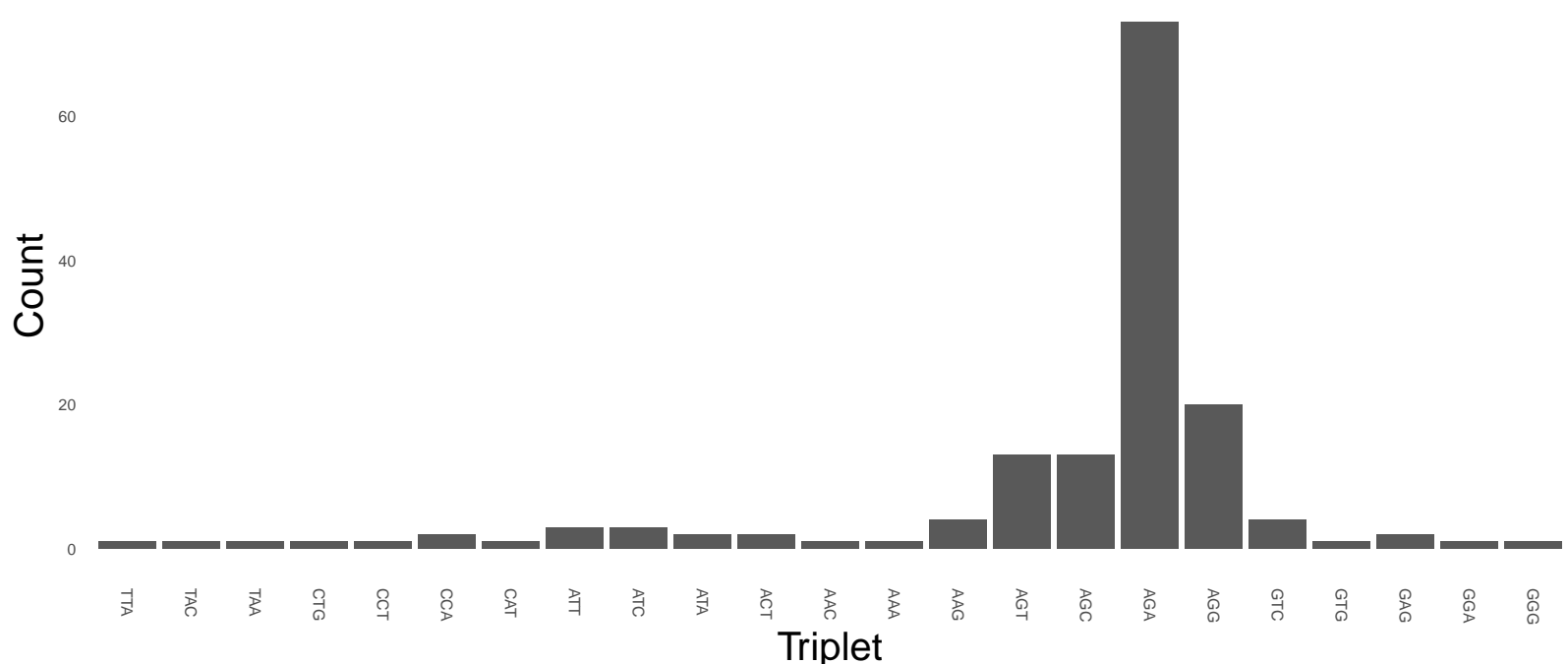
IGHV3-64*04_A210C- Final 3 nucleotides as a triplet



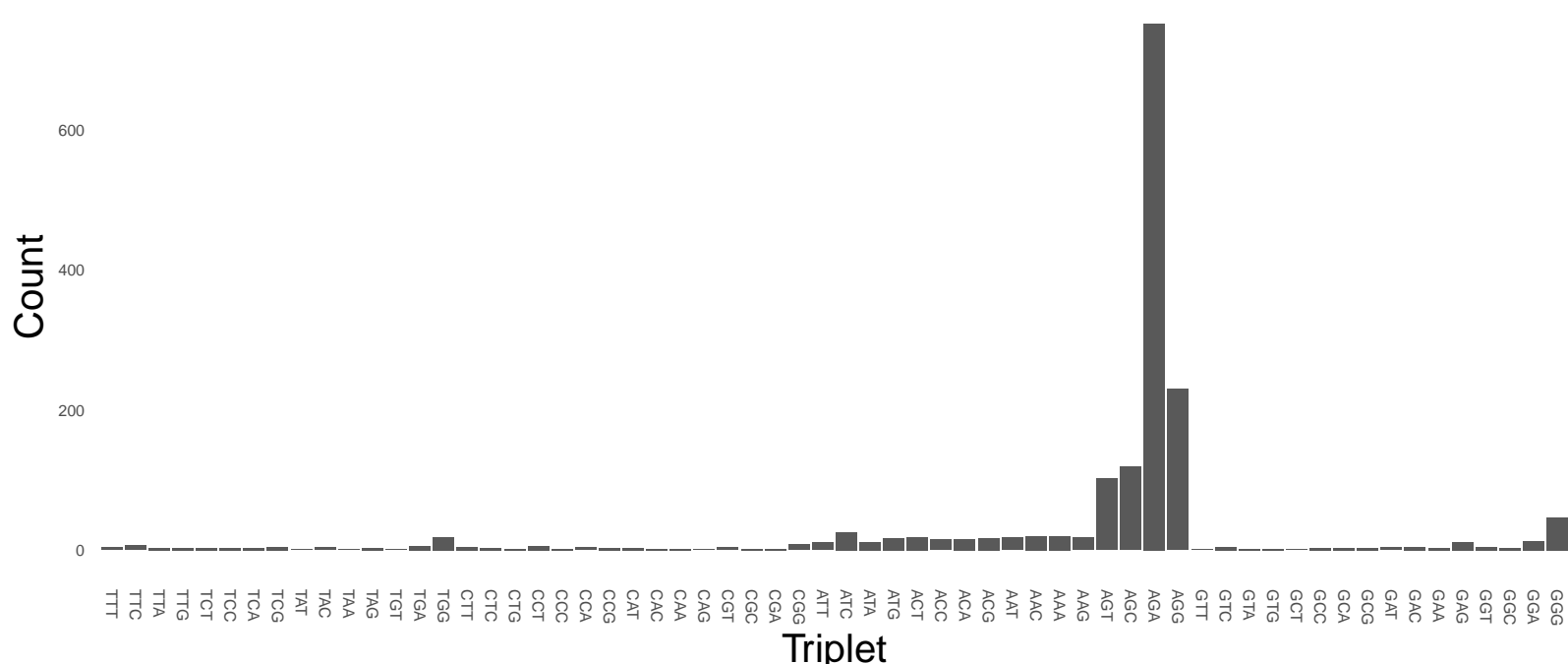
IGHV3-64D*06_T314C_A317G- Final 3 nucleotides as a triplet



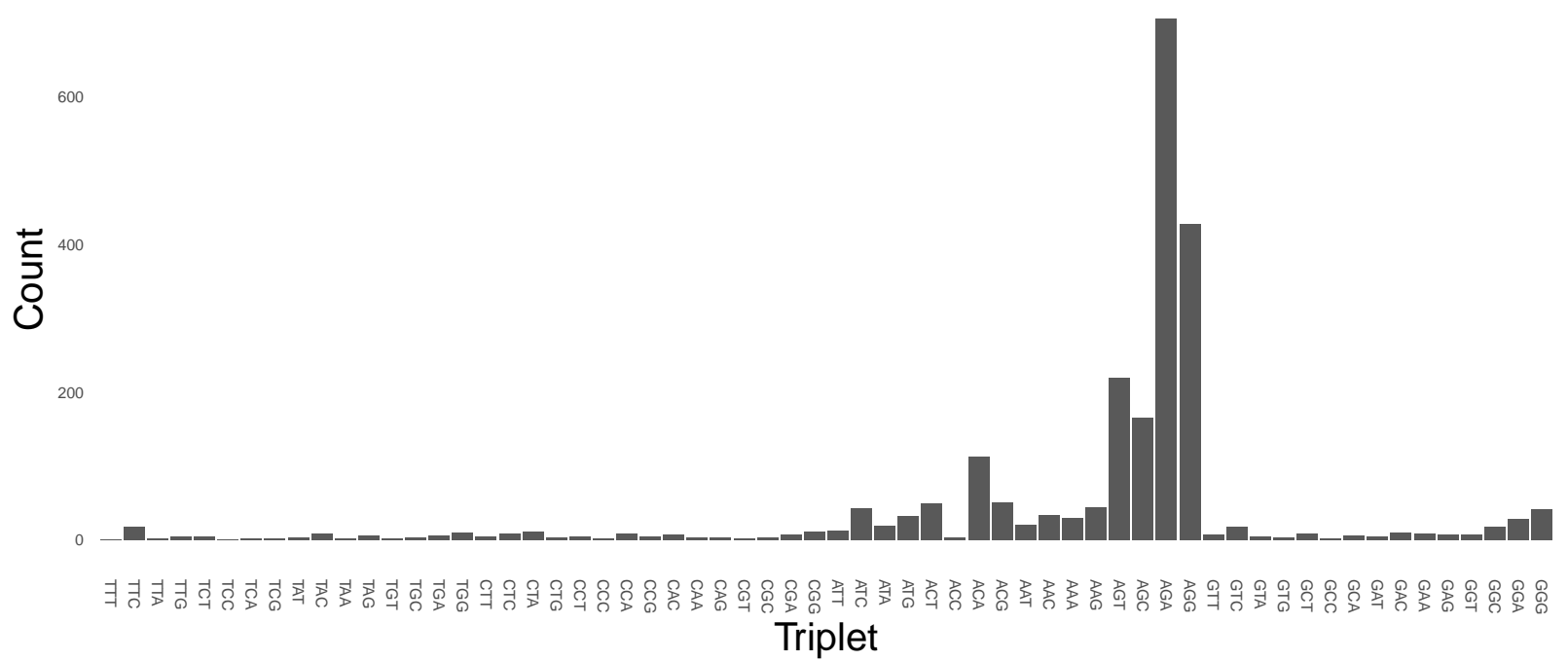
IGHV3-72*01_T315G- Final 3 nucleotides as a triplet



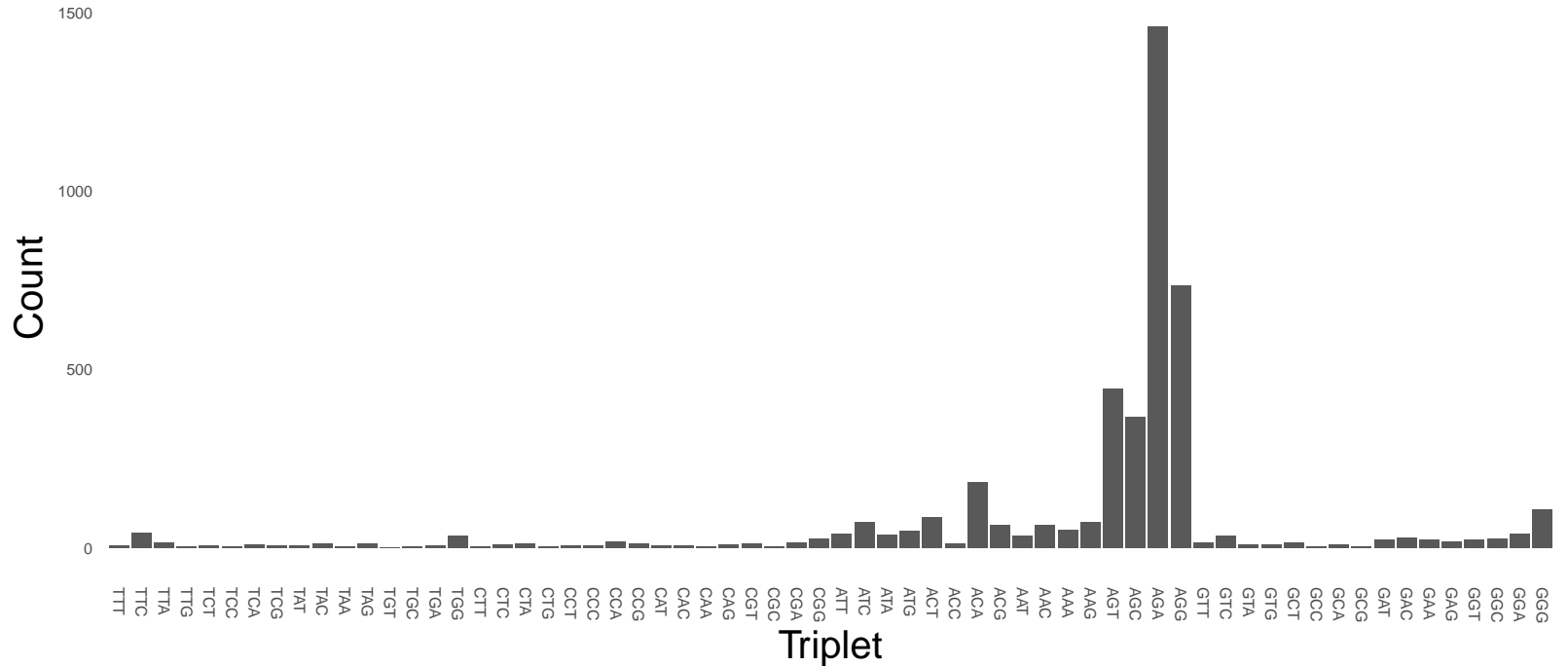
IGHV3-74*01_A315G- Final 3 nucleotides as a triplet



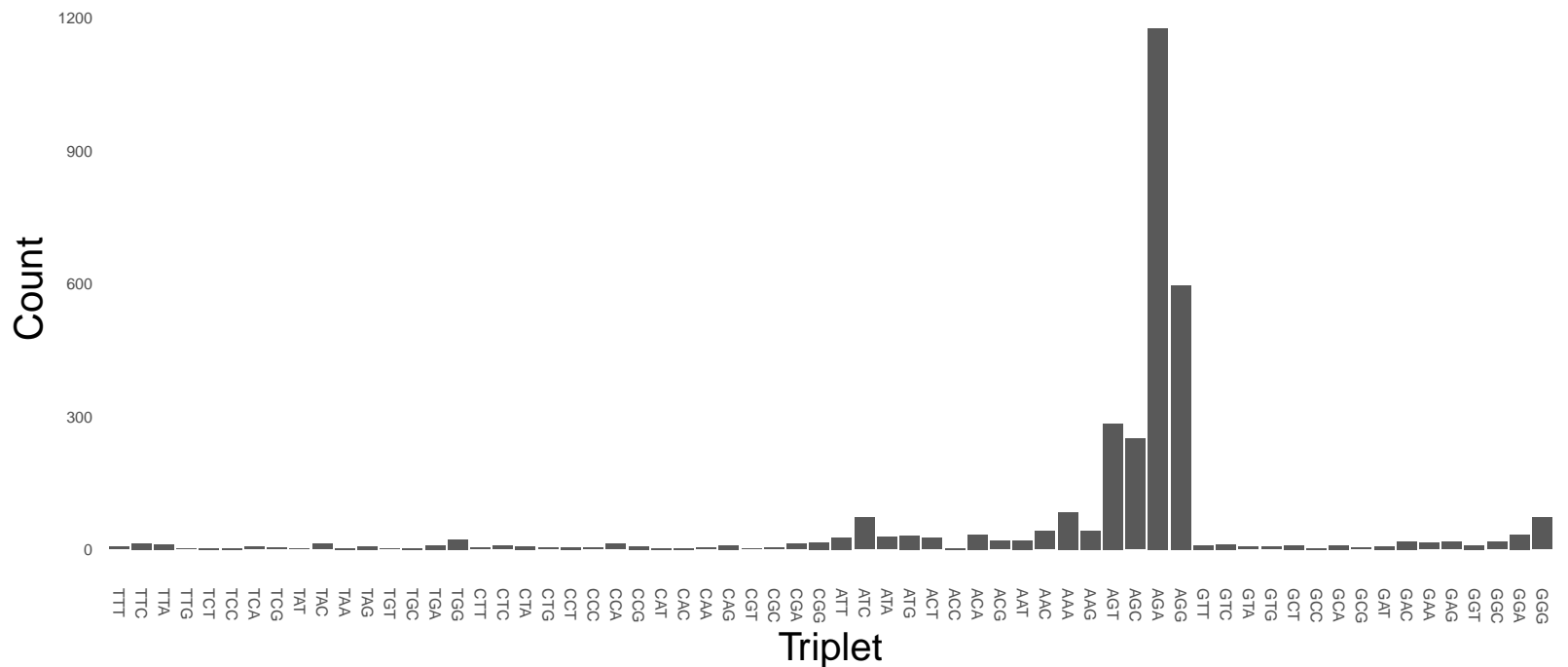
IGHV4-30-4*01_C315G- Final 3 nucleotides as a triplet



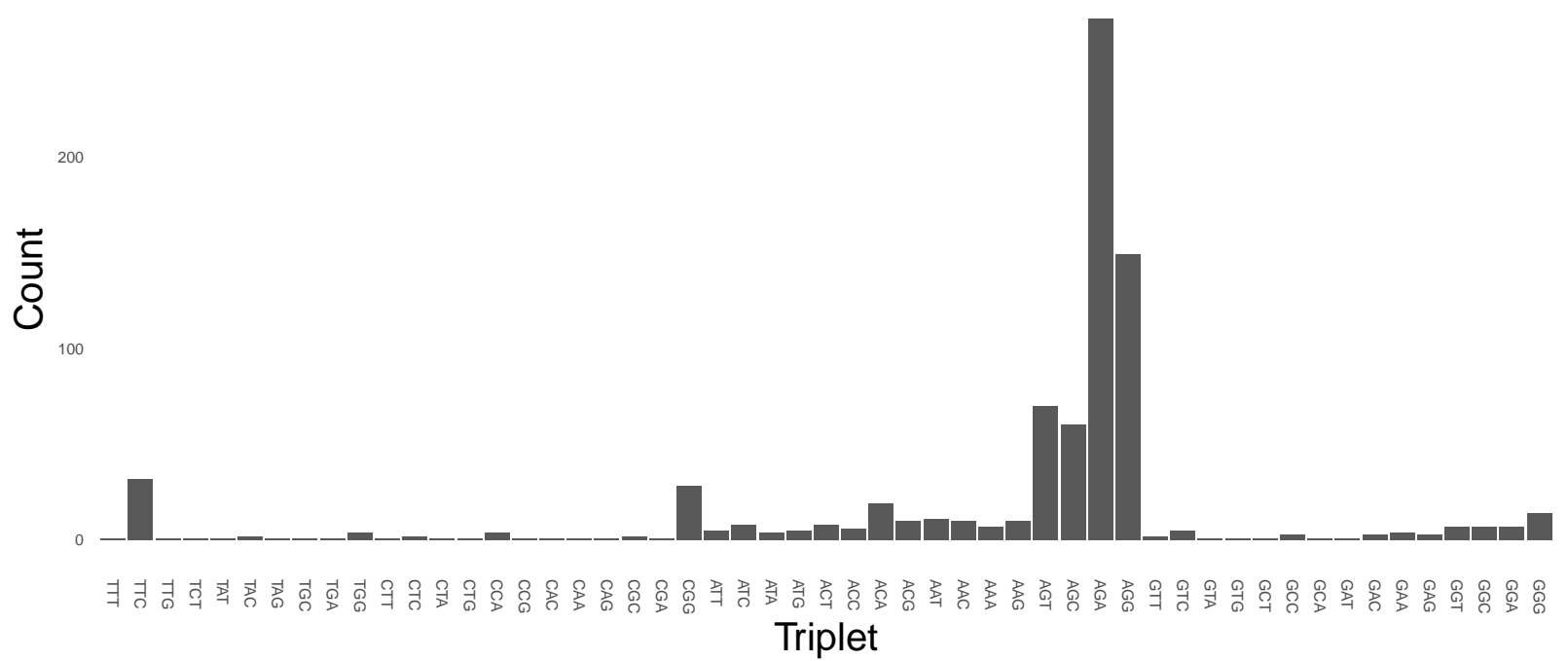
IGHV4-34*01_T300C- Final 3 nucleotides as a triplet



IGHV4-61*02_A291G- Final 3 nucleotides as a triplet

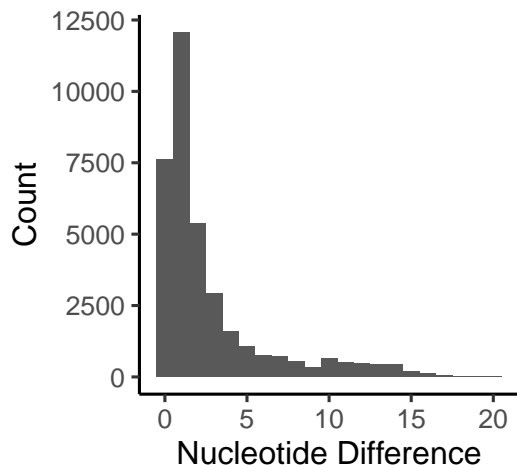


IGHV6-1*01_A315G- Final 3 nucleotides as a triplet



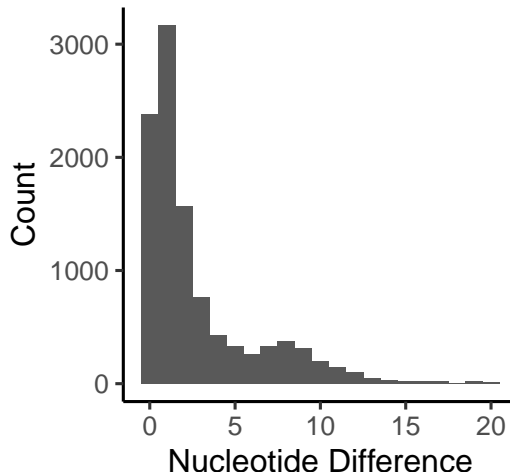
IGHV1-2*02

36245 sequences assigned
7622 (21%) exact matches, in which:
6107 unique CDR3
7 unique J



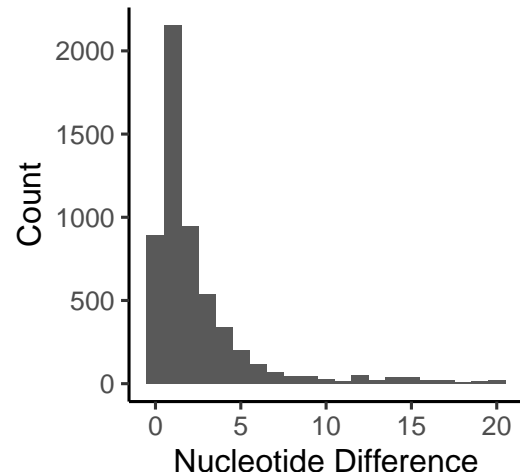
IGHV1-8*01

10605 sequences assigned
2378 (22.4%) exact matches, in which:
1995 unique CDR3
7 unique J



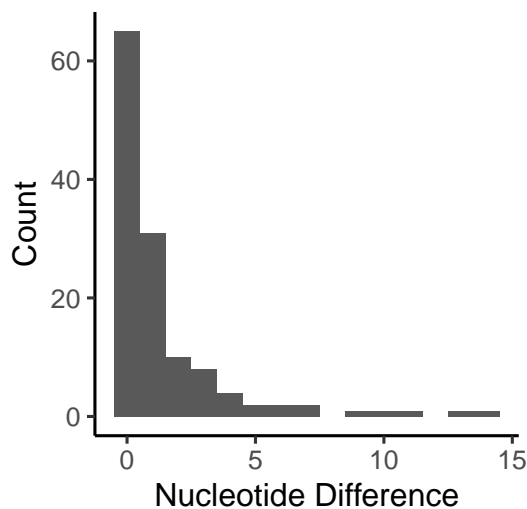
IGHV1-24*01

5836 sequences assigned
890 (15.3%) exact matches, in which:
603 unique CDR3
7 unique J



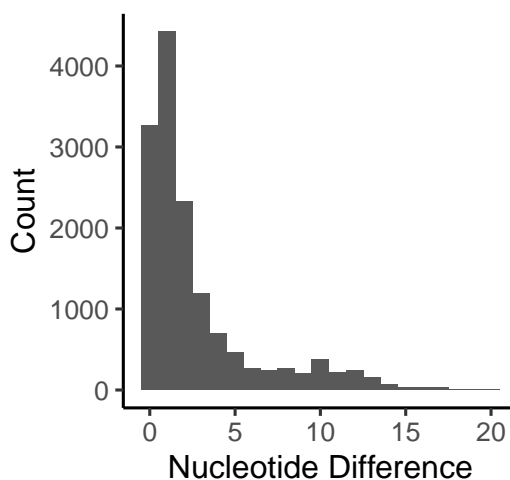
IGHV1-3*02

130 sequences assigned
65 (50%) exact matches, in which:
64 unique CDR3
6 unique J



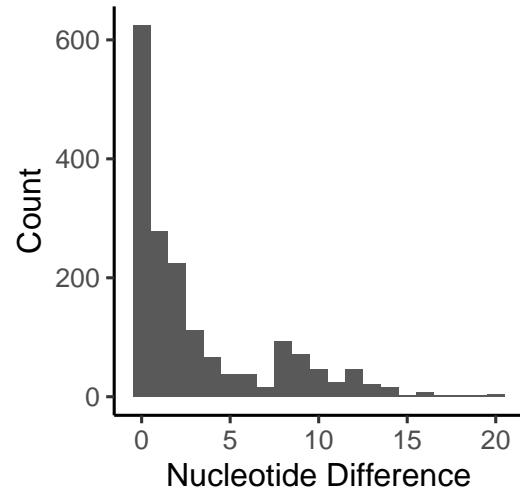
IGHV1-18*01

14555 sequences assigned
3264 (22.4%) exact matches, in which:
2728 unique CDR3
7 unique J



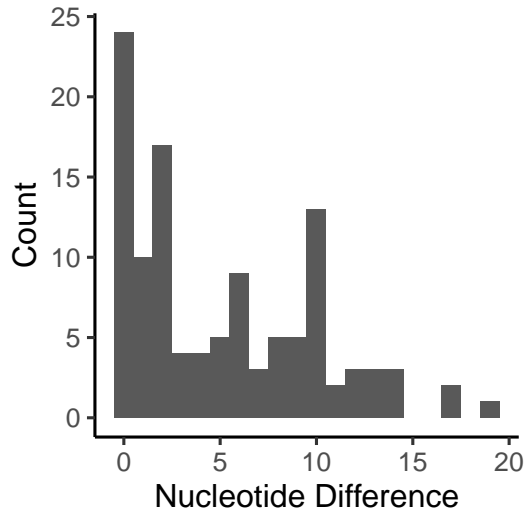
IGHV1-24*01_A315G_C3

1759 sequences assigned
625 (35.5%) exact matches, in which:
621 unique CDR3
7 unique J



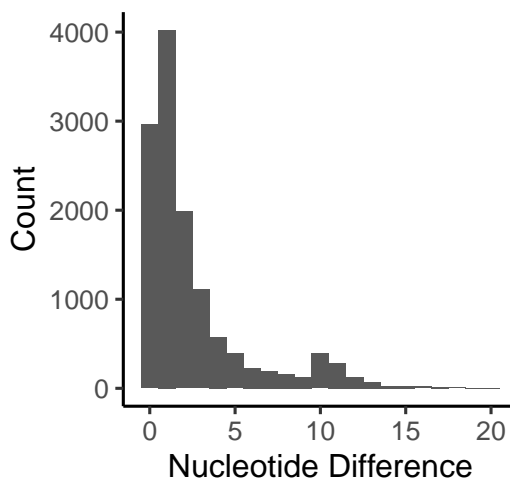
IGHV1-3*02_T296C_T300C

113 sequences assigned
24 (21.2%) exact matches, in which:
24 unique CDR3
5 unique J



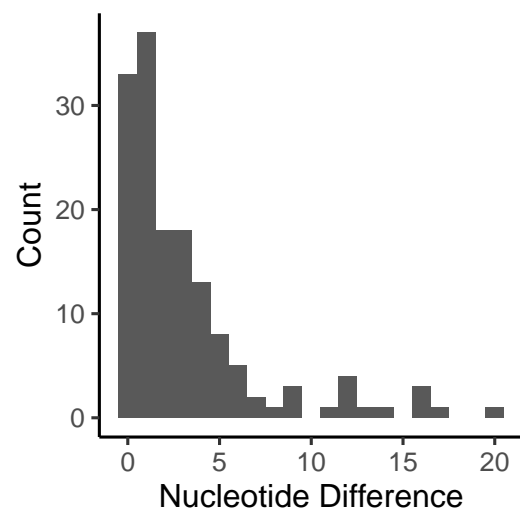
IGHV1-18*04

12797 sequences assigned
2962 (23.1%) exact matches, in which:
2450 unique CDR3
7 unique J



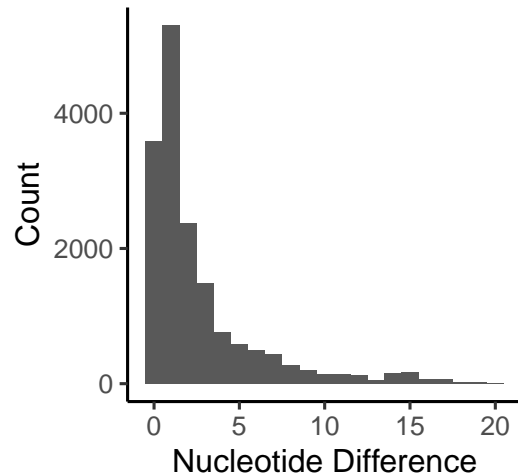
IGHV1-45*02

158 sequences assigned
33 (20.9%) exact matches, in which:
31 unique CDR3
6 unique J



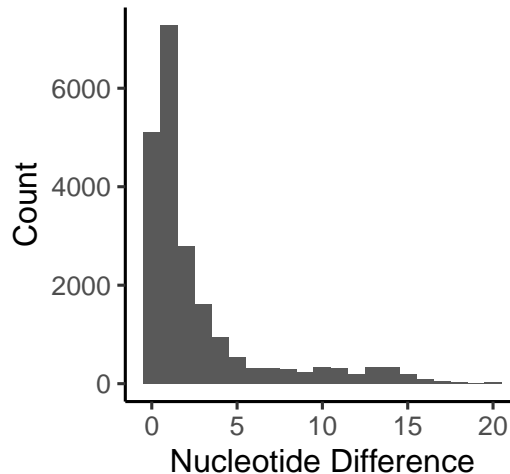
IGHV1-46*01

16673 sequences assigned
3583 (21.5%) exact matches, in which:
2978 unique CDR3
7 unique J



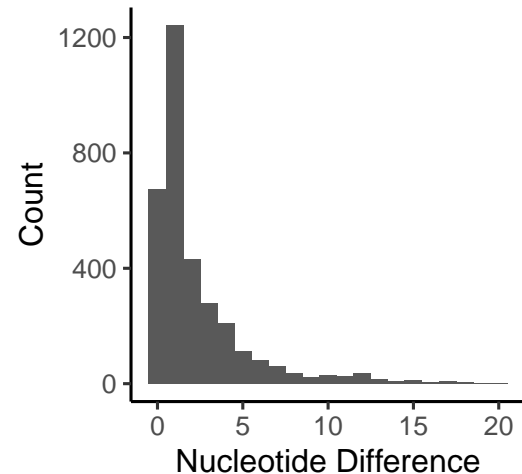
IGHV1-69*04

21612 sequences assigned
5108 (23.6%) exact matches, in which:
4209 unique CDR3
7 unique J



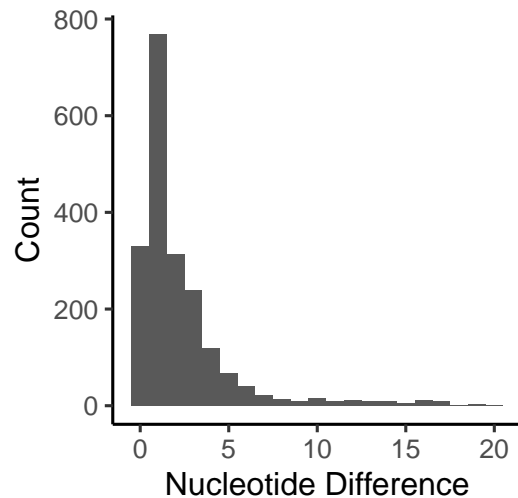
IGHV2-5*02

3373 sequences assigned
673 (20%) exact matches, in which:
558 unique CDR3
7 unique J



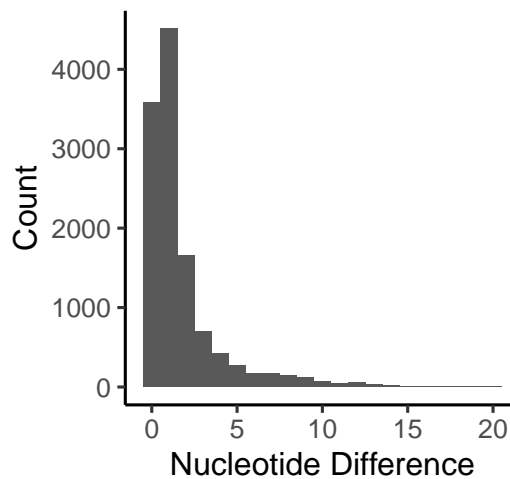
IGHV1-58*02

2029 sequences assigned
329 (16.2%) exact matches, in which:
215 unique CDR3
6 unique J



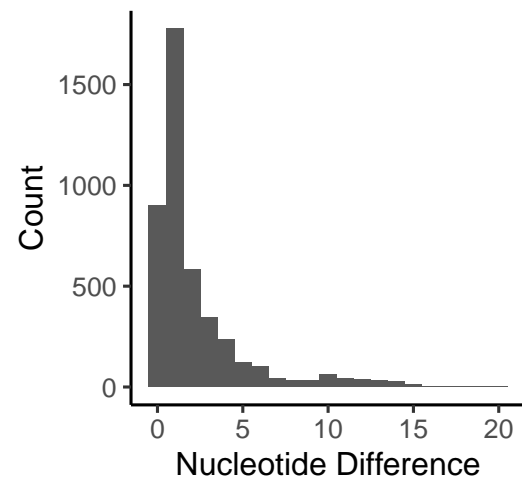
IGHV1-69*08_C191T

12005 sequences assigned
3578 (29.8%) exact matches, in which:
3044 unique CDR3
7 unique J



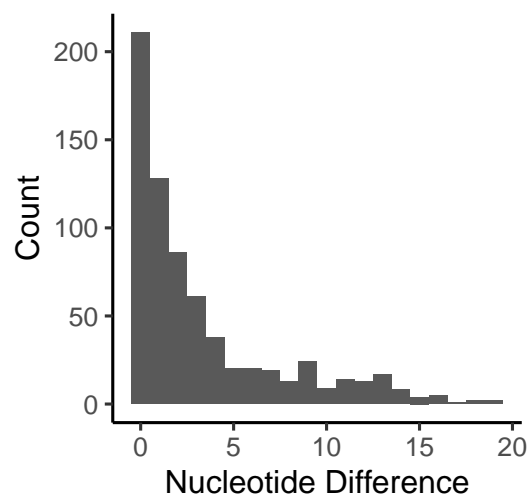
IGHV2-26*01

4548 sequences assigned
902 (19.8%) exact matches, in which:
726 unique CDR3
7 unique J



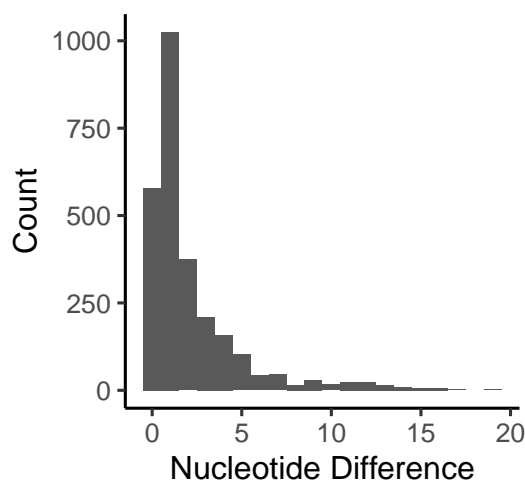
IGHV1-58*02_G316A_C316G

704 sequences assigned
211 (30%) exact matches, in which:
211 unique CDR3
7 unique J



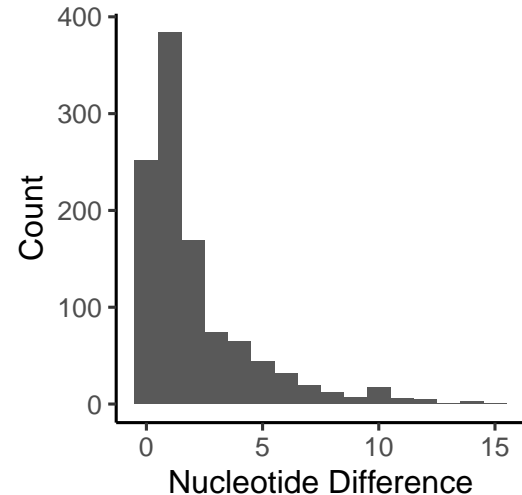
IGHV2-5*01

2726 sequences assigned
579 (21.2%) exact matches, in which:
471 unique CDR3
7 unique J



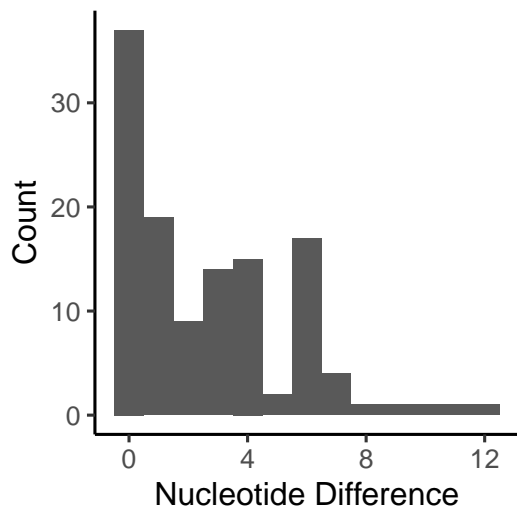
IGHV2-70*15

1128 sequences assigned
252 (22.3%) exact matches, in which:
197 unique CDR3
7 unique J



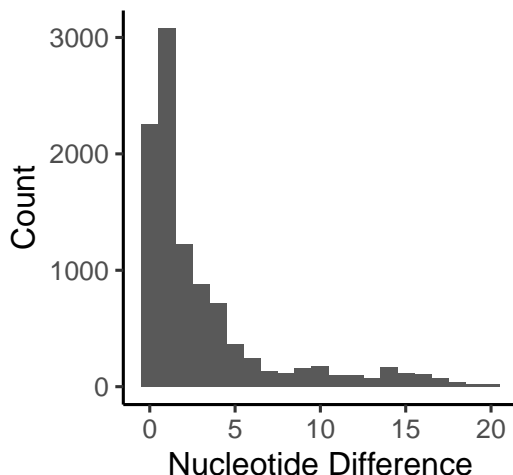
IGHV2-70*15_G303A

122 sequences assigned
37 (30.3%) exact matches, in which:
37 unique CDR3
6 unique J



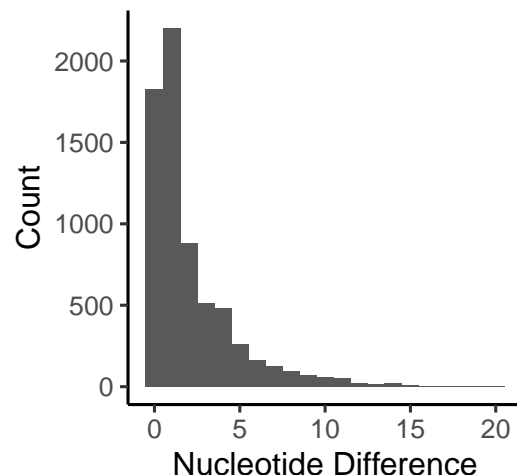
IGHV3-9*01

10279 sequences assigned
2252 (21.9%) exact matches, in which:
1792 unique CDR3
7 unique J



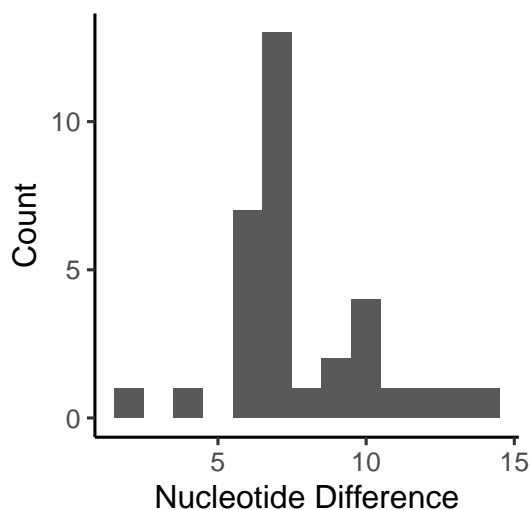
IGHV3-11*01

6924 sequences assigned
1825 (26.4%) exact matches, in which:
1456 unique CDR3
7 unique J



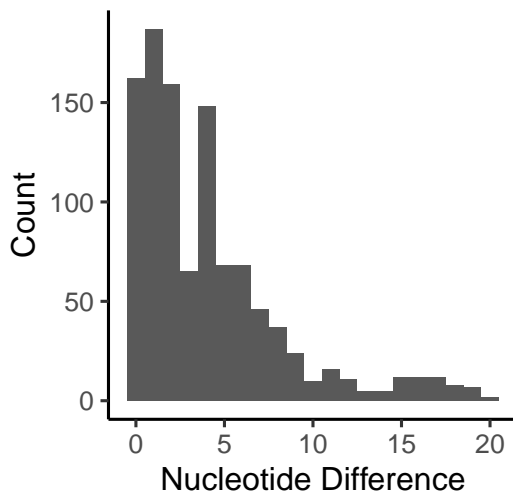
IGHV2-70D*14

35 sequences assigned
No exact matches.



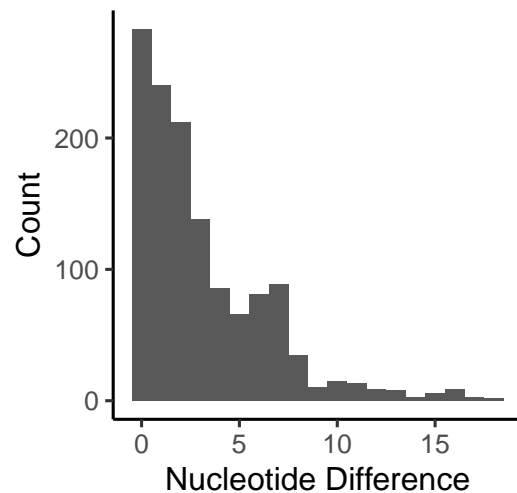
IGHV3-9*01_T279C_C3C

1069 sequences assigned
162 (15.2%) exact matches, in which:
161 unique CDR3
7 unique J



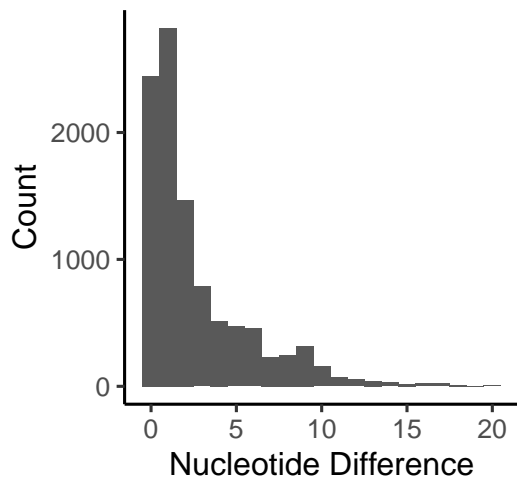
IGHV3-11*04

1354 sequences assigned
283 (20.9%) exact matches, in which:
281 unique CDR3
7 unique J



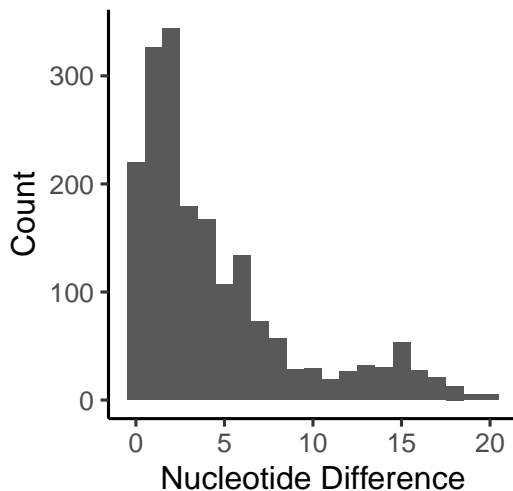
IGHV3-7*01

10268 sequences assigned
2444 (23.8%) exact matches, in which:
2046 unique CDR3
7 unique J



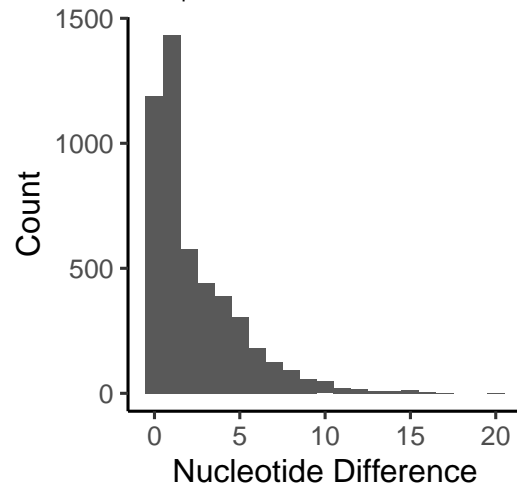
IGHV3-9*01_T279C_T28

1911 sequences assigned
220 (11.5%) exact matches, in which:
218 unique CDR3
7 unique J



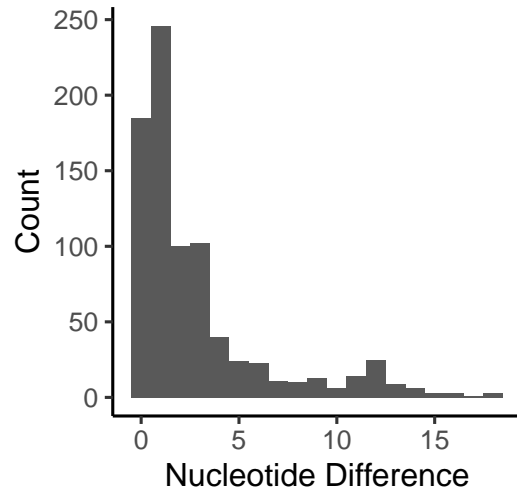
IGHV3-11*06

4984 sequences assigned
1189 (23.9%) exact matches, in which:
945 unique CDR3
7 unique J



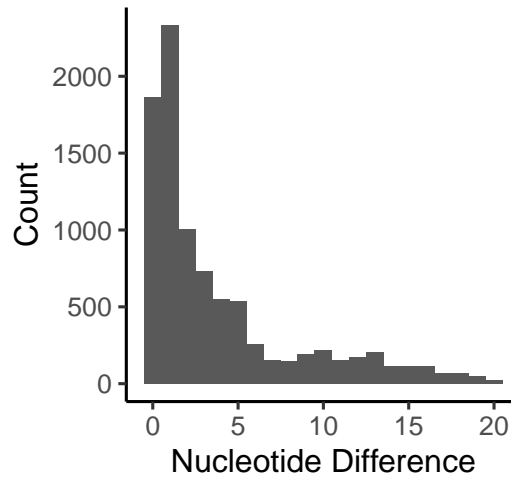
IGHV3-13*01

827 sequences assigned
185 (22.4%) exact matches, in which:
141 unique CDR3
6 unique J



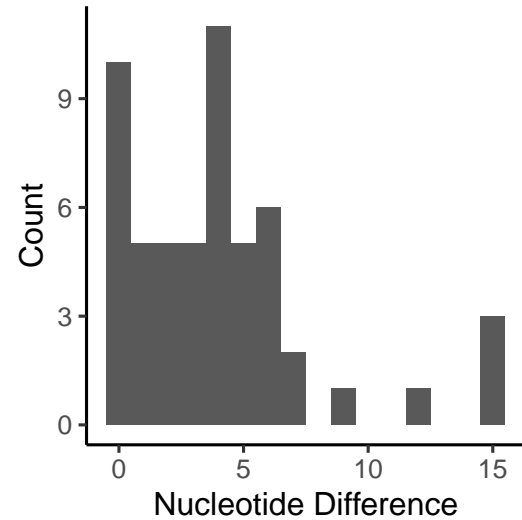
IGHV3-15*01

9233 sequences assigned
1867 (20.2%) exact matches, in which:
1460 unique CDR3
7 unique J



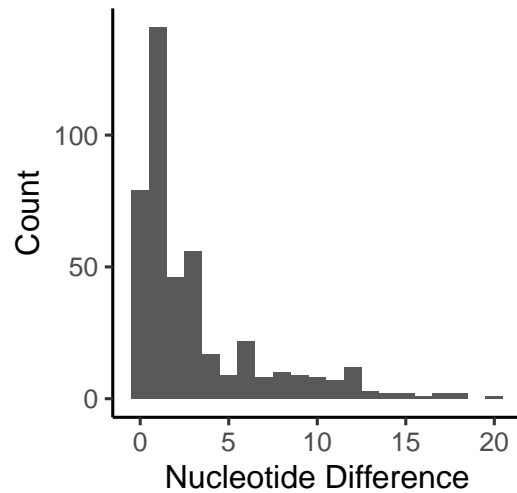
IGHV3-20*04_T279C_C28

54 sequences assigned
10 (18.5%) exact matches, in which:
10 unique CDR3
4 unique J



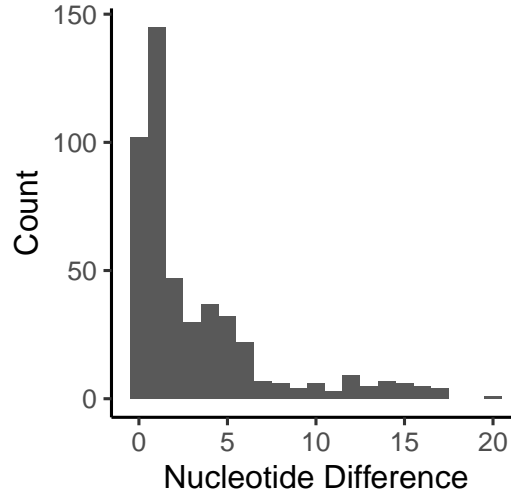
IGHV3-13*05

438 sequences assigned
79 (18%) exact matches, in which:
54 unique CDR3
5 unique J



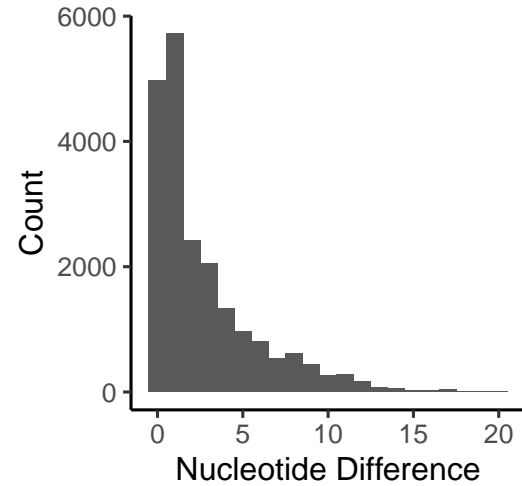
IGHV3-20*01

482 sequences assigned
102 (21.2%) exact matches, in which:
68 unique CDR3
4 unique J



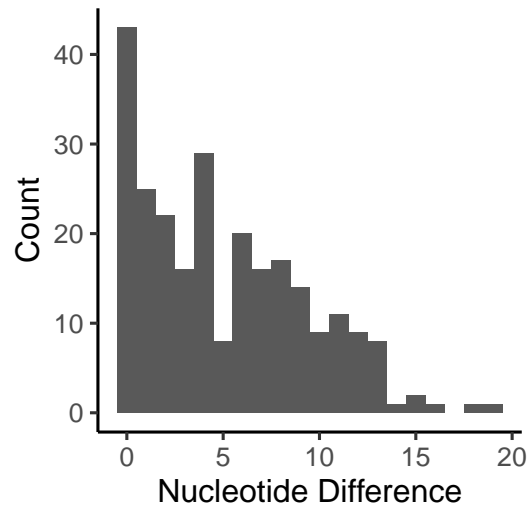
IGHV3-21*01

20982 sequences assigned
4977 (23.7%) exact matches, in which:
3732 unique CDR3
7 unique J



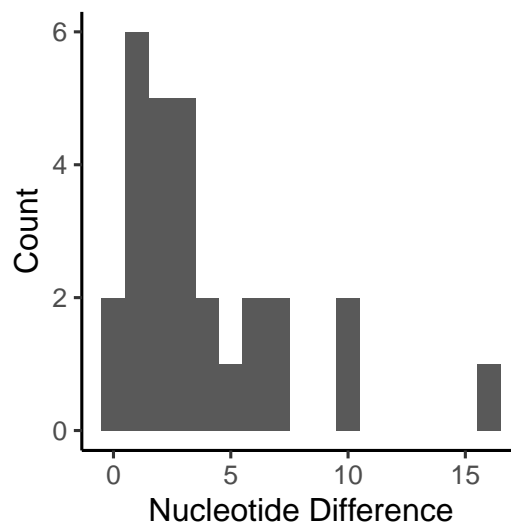
IGHV3-13*01_A315G

253 sequences assigned
43 (17%) exact matches, in which:
43 unique CDR3
6 unique J



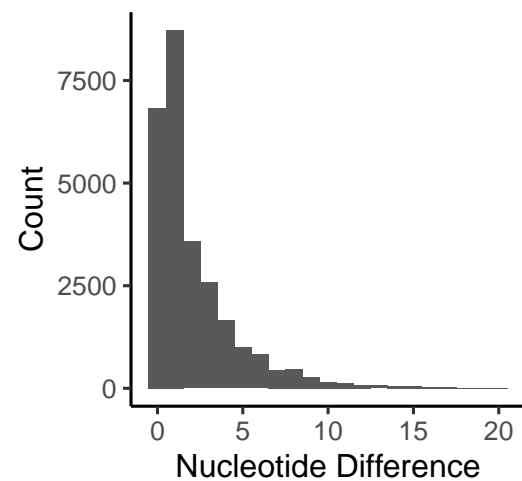
IGHV3-20*04

28 sequences assigned
2 (7.1%) exact matches, in which:
2 unique CDR3
2 unique J



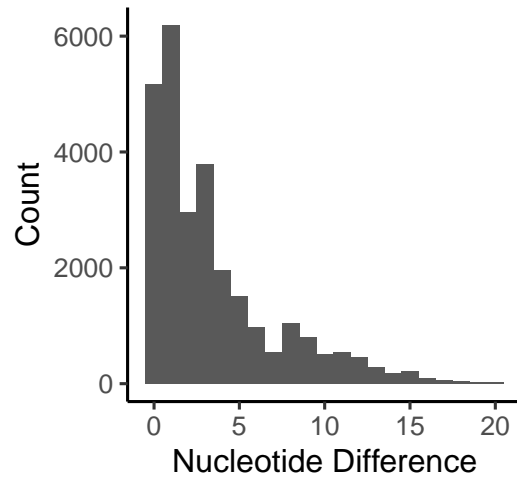
IGHV3-23*01

27091 sequences assigned
6826 (25.2%) exact matches, in which:
5621 unique CDR3
7 unique J



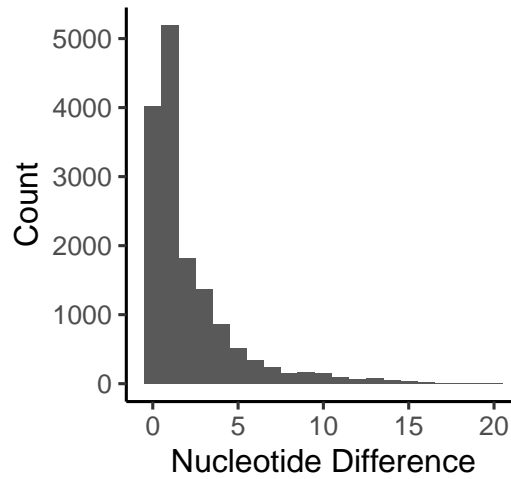
IGHV3-23*04

27640 sequences assigned
5177 (18.7%) exact matches, in which:
4152 unique CDR3
7 unique J



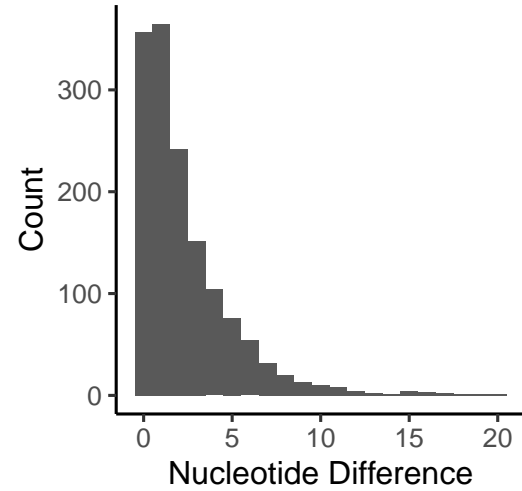
IGHV3-30*18

15267 sequences assigned
4014 (26.3%) exact matches, in which:
3037 unique CDR3
7 unique J



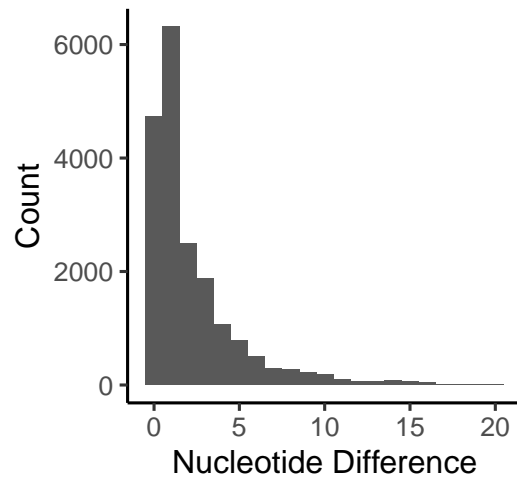
IGHV3-33*01

1460 sequences assigned
357 (24.5%) exact matches, in which:
347 unique CDR3
7 unique J



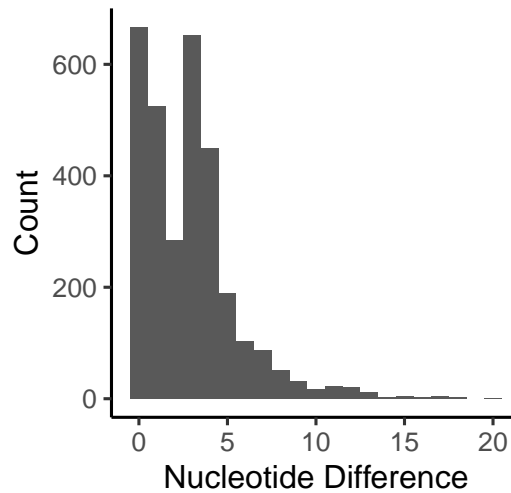
IGHV3-30-3*01

19288 sequences assigned
4725 (24.5%) exact matches, in which:
3629 unique CDR3
7 unique J



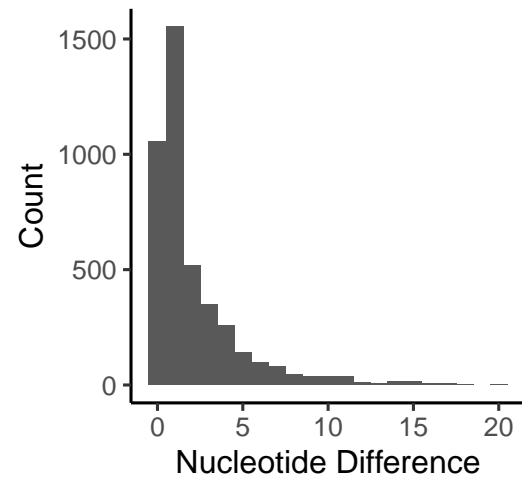
IGHV3-30-3*02_G75C

3135 sequences assigned
667 (21.3%) exact matches, in which:
640 unique CDR3
7 unique J



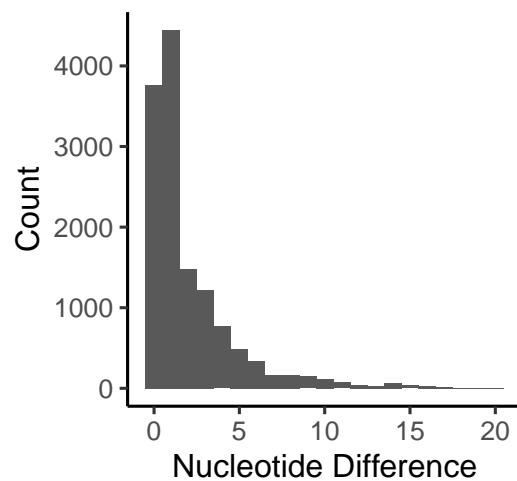
IGHV3-33*06

4285 sequences assigned
1054 (24.6%) exact matches, in which:
793 unique CDR3
7 unique J



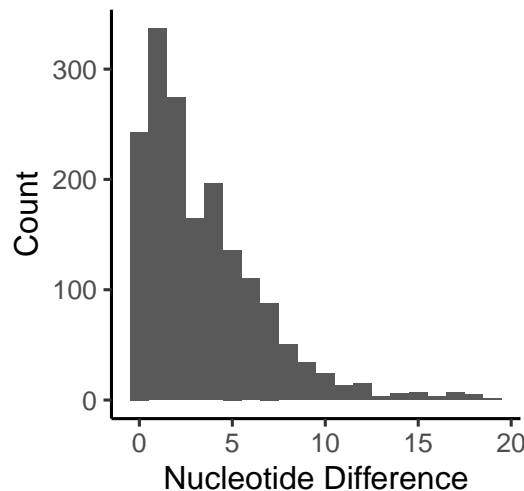
IGHV3-30*04

13473 sequences assigned
3765 (27.9%) exact matches, in which:
2989 unique CDR3
7 unique J



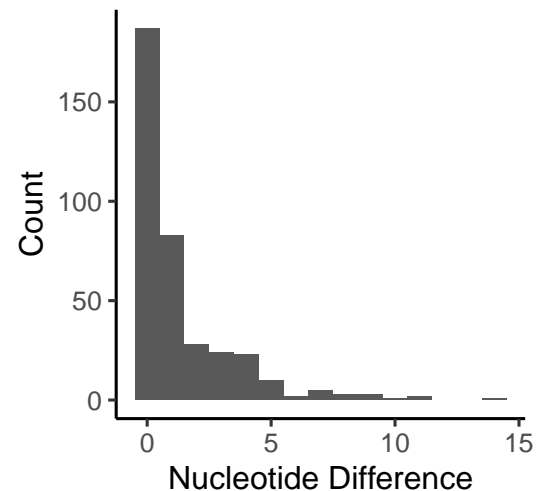
IGHV3-30*03_T288C

1722 sequences assigned
243 (14.1%) exact matches, in which:
238 unique CDR3
7 unique J



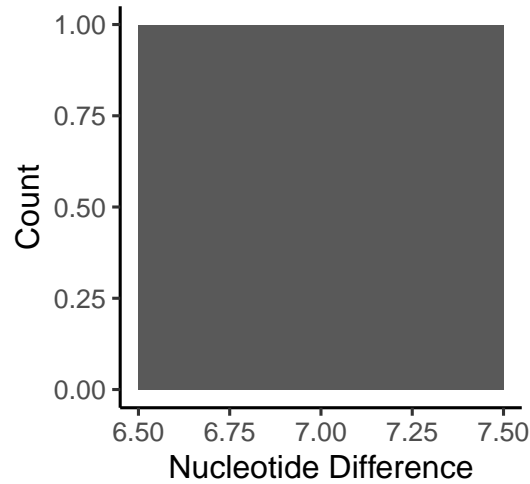
IGHV3-33*06_T300C_G3

375 sequences assigned
187 (49.9%) exact matches, in which:
185 unique CDR3
7 unique J



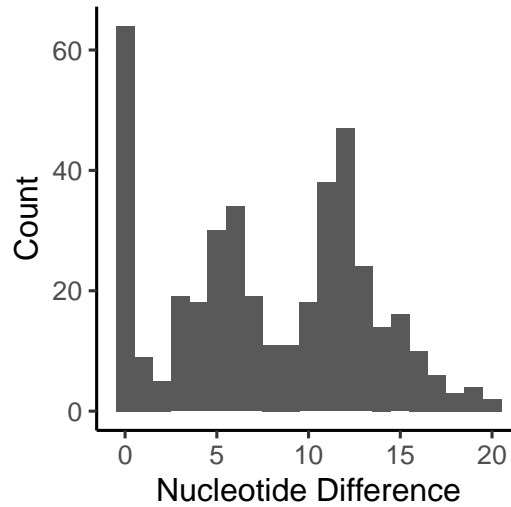
IGHV3-35*01

1 sequences assigned
No exact matches.



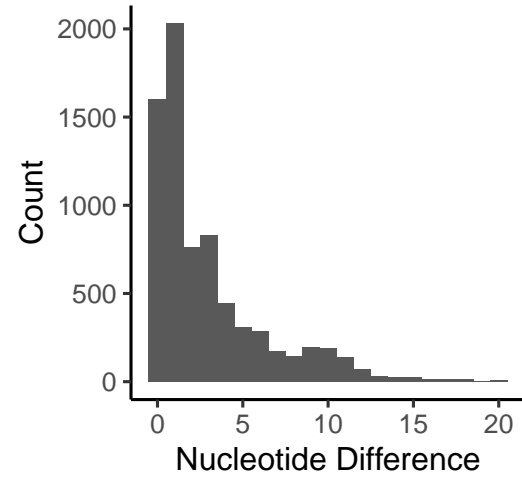
IGHV3-43*01_A315G

404 sequences assigned
64 (15.8%) exact matches, in which:
64 unique CDR3
7 unique J



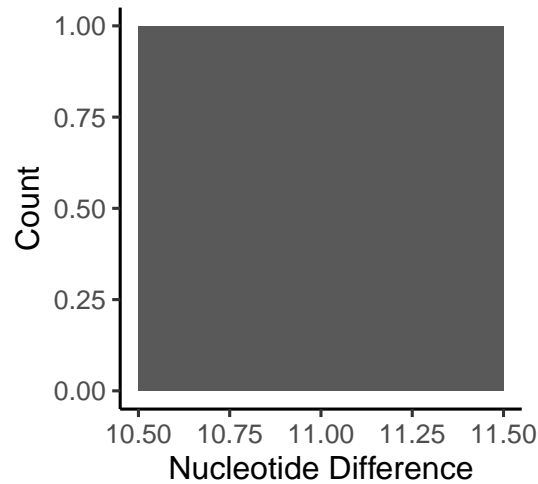
IGHV3-48*04

7338 sequences assigned
1603 (21.8%) exact matches, in which:
1271 unique CDR3
7 unique J



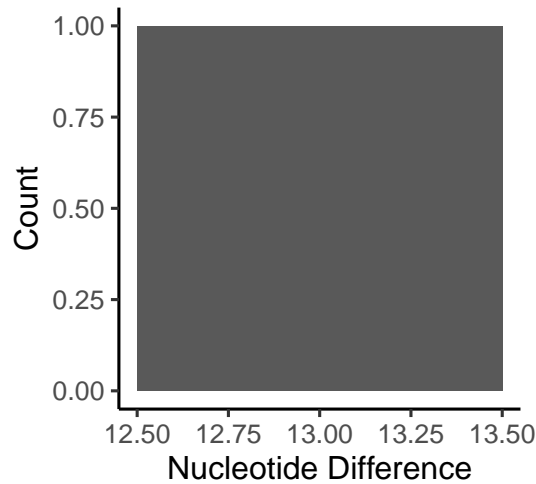
IGHV3-41*02

1 sequences assigned
No exact matches.



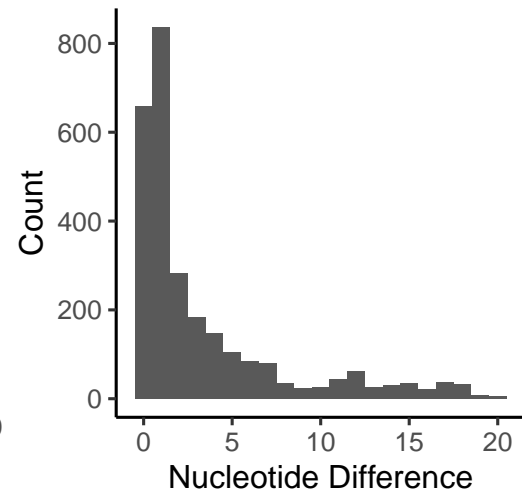
IGHV3-47*01

1 sequences assigned
No exact matches.



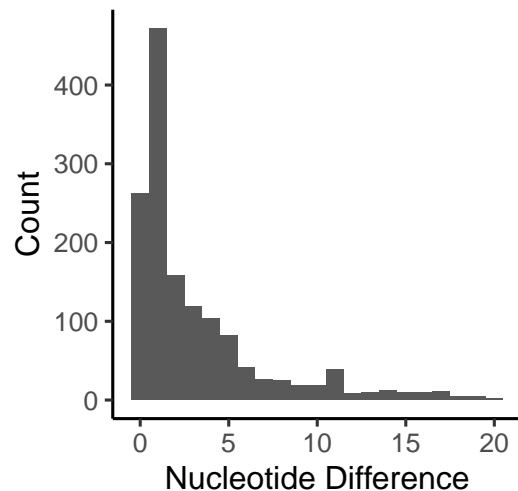
IGHV3-49*03

2822 sequences assigned
659 (23.4%) exact matches, in which:
526 unique CDR3
6 unique J



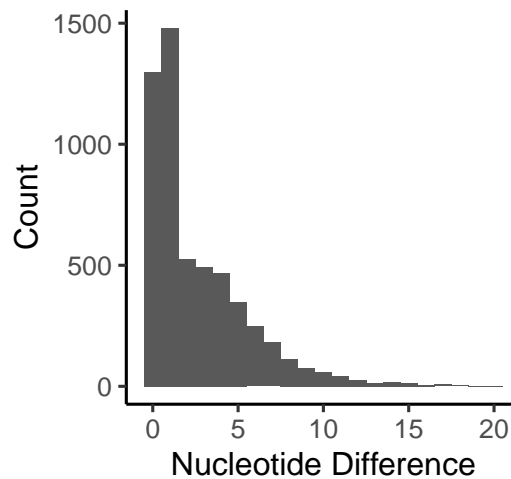
IGHV3-43*01

1446 sequences assigned
262 (18.1%) exact matches, in which:
205 unique CDR3
7 unique J



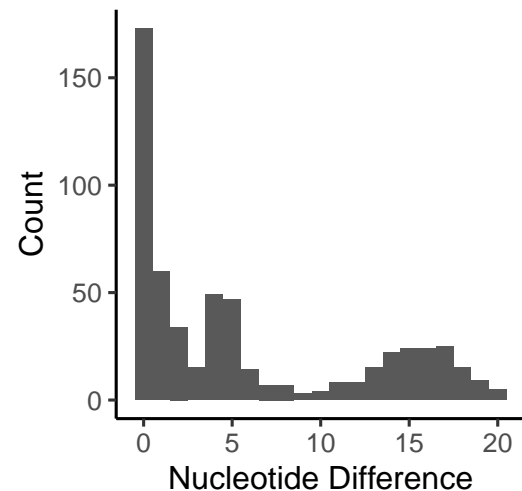
IGHV3-48*01

5435 sequences assigned
1299 (23.9%) exact matches, in which:
1062 unique CDR3
7 unique J



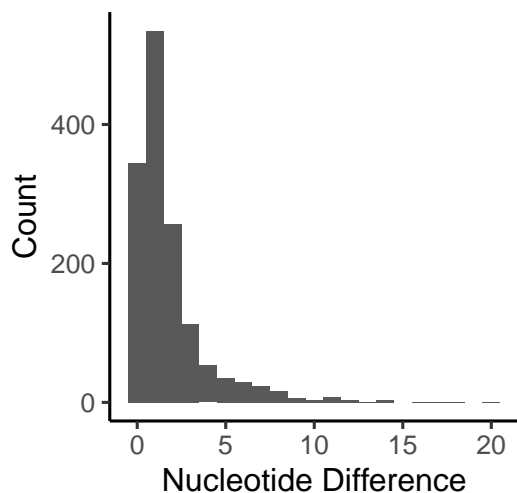
IGHV3-49*03_A313G_T3

581 sequences assigned
173 (29.8%) exact matches, in which:
170 unique CDR3
7 unique J



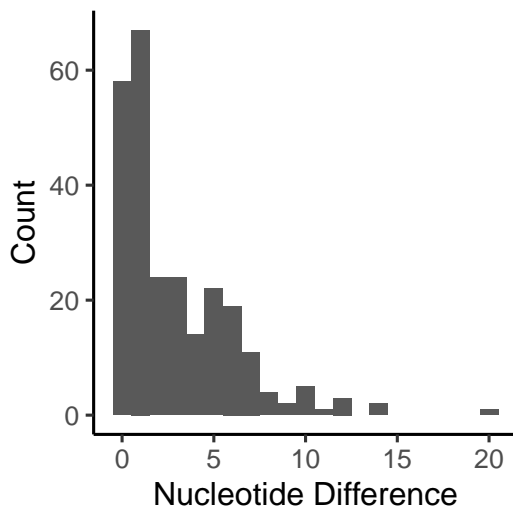
IGHV3-53*02

1443 sequences assigned
344 (23.8%) exact matches, in which:
275 unique CDR3
6 unique J



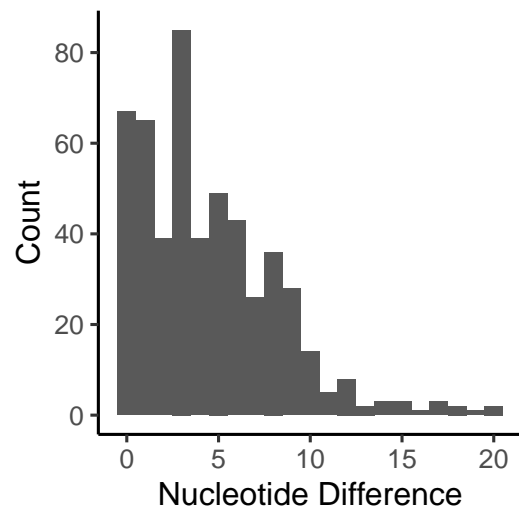
IGHV3-53*05_T267G_C3H

258 sequences assigned
58 (22.5%) exact matches, in which:
57 unique CDR3
6 unique J



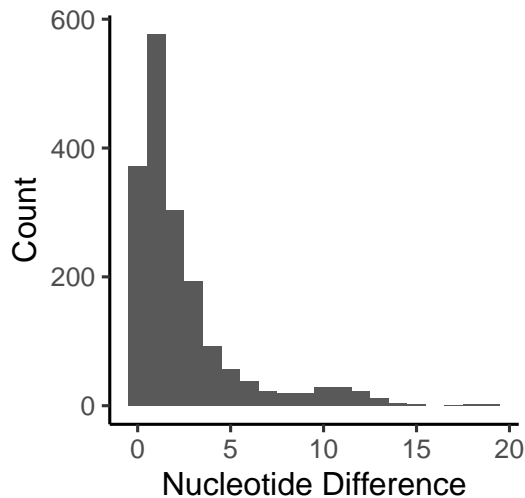
IGHV3-64*04_A210C

529 sequences assigned
67 (12.7%) exact matches, in which:
67 unique CDR3
7 unique J



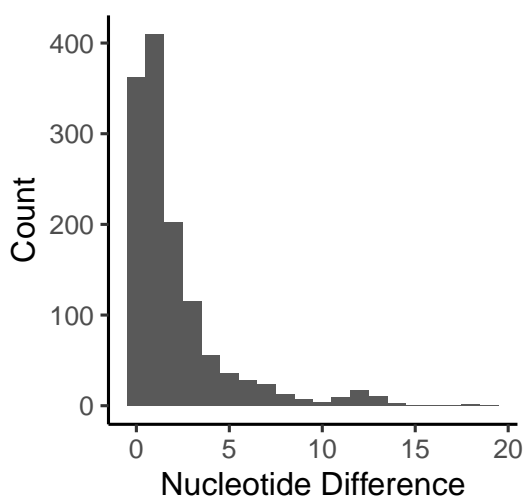
IGHV3-53*04

1808 sequences assigned
371 (20.5%) exact matches, in which:
298 unique CDR3
7 unique J



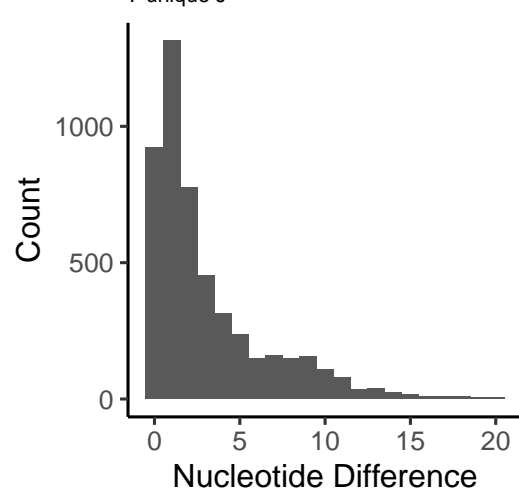
IGHV3-64*01

1314 sequences assigned
362 (27.5%) exact matches, in which:
311 unique CDR3
7 unique J



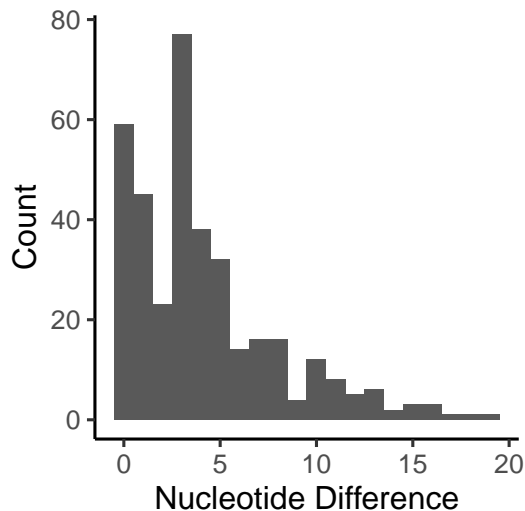
IGHV3-66*01

5017 sequences assigned
922 (18.4%) exact matches, in which:
721 unique CDR3
7 unique J



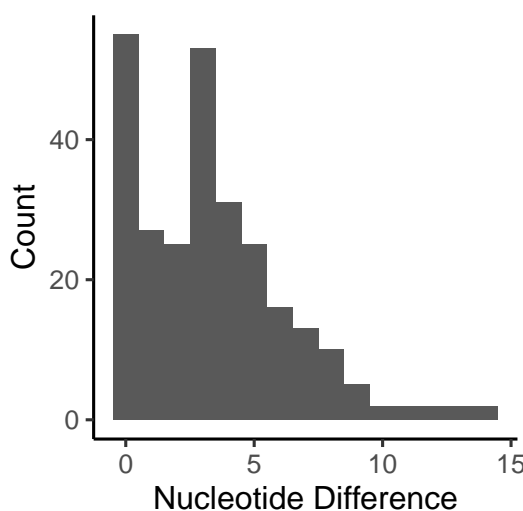
IGHV3-53*04_T267G_C3H

369 sequences assigned
59 (16%) exact matches, in which:
59 unique CDR3
6 unique J



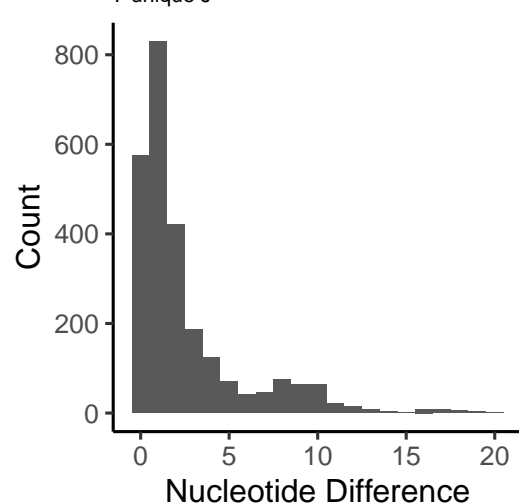
IGHV3-64*01_T267G_G2

271 sequences assigned
55 (20.3%) exact matches, in which:
55 unique CDR3
7 unique J



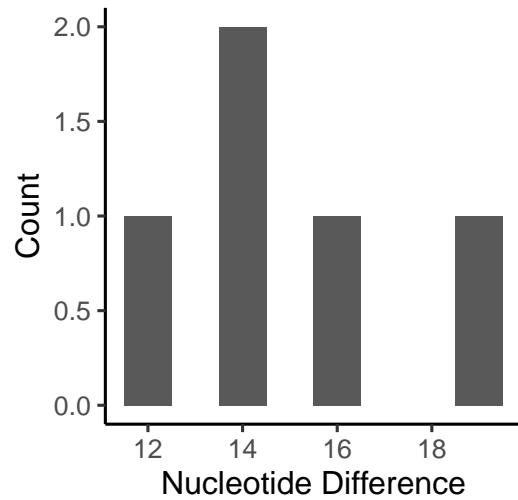
IGHV3-66*02

2593 sequences assigned
575 (22.2%) exact matches, in which:
472 unique CDR3
7 unique J



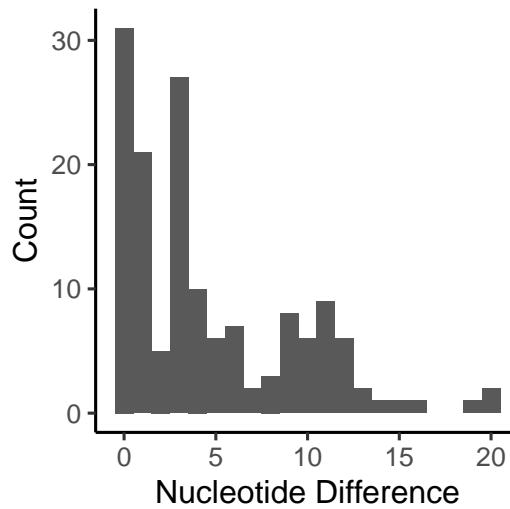
IGHV3-69-1*01

9 sequences assigned
No exact matches.



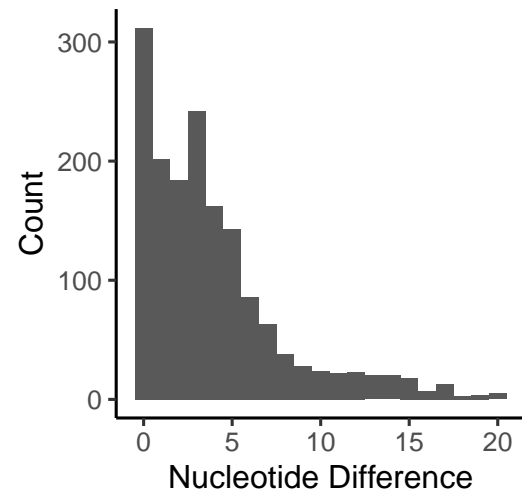
IGHV3-72*01_T315G

152 sequences assigned
31 (20.4%) exact matches, in which:
31 unique CDR3
5 unique J



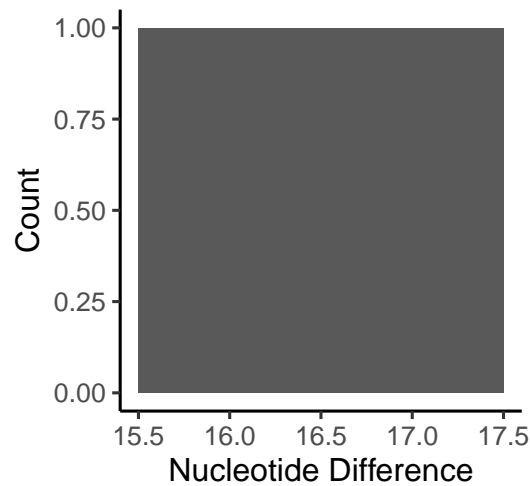
IGHV3-74*01_A315G

1638 sequences assigned
312 (19%) exact matches, in which:
311 unique CDR3
7 unique J



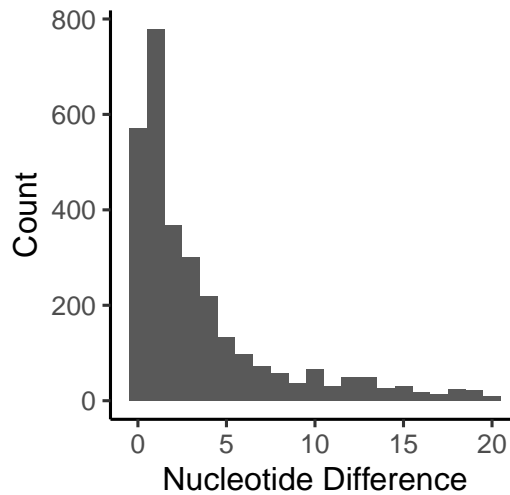
IGHV3-71*04

2 sequences assigned
No exact matches.



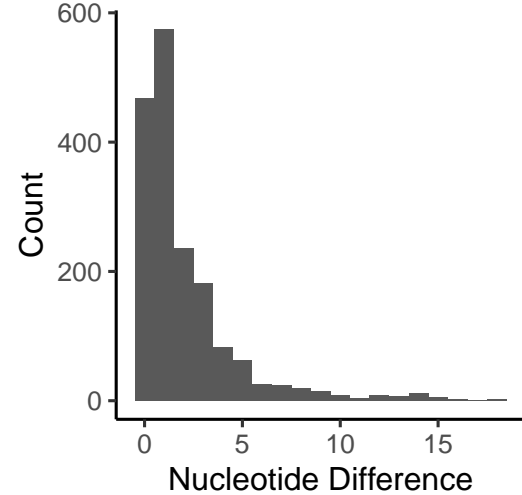
IGHV3-73*01

3013 sequences assigned
572 (19%) exact matches, in which:
465 unique CDR3
7 unique J



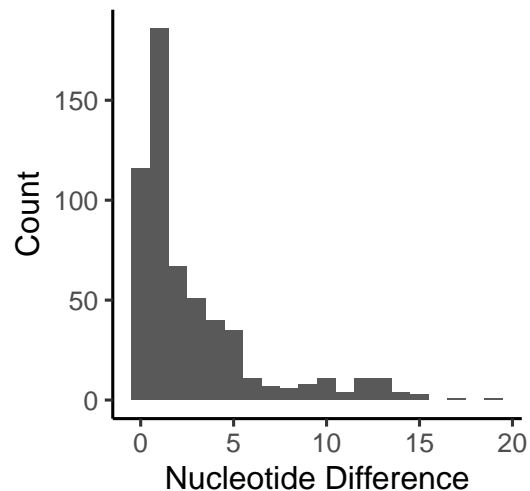
IGHV3-64D*06

1753 sequences assigned
468 (26.7%) exact matches, in which:
346 unique CDR3
7 unique J



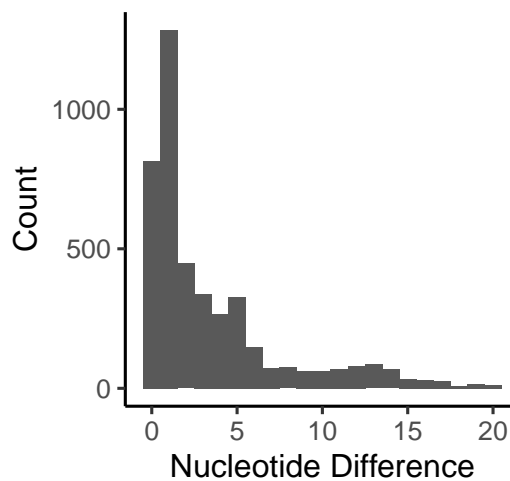
IGHV3-72*01

585 sequences assigned
116 (19.8%) exact matches, in which:
75 unique CDR3
5 unique J



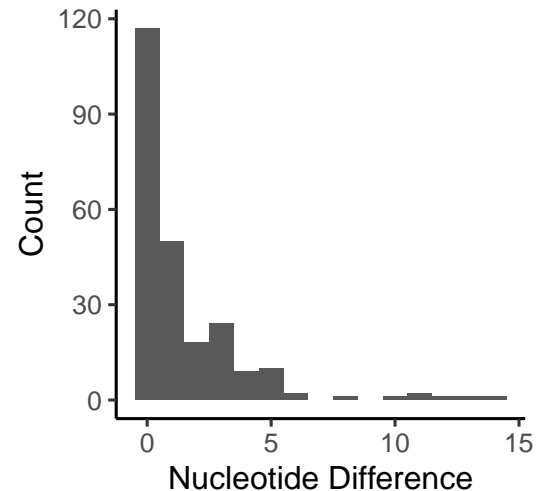
IGHV3-74*01

4389 sequences assigned
815 (18.6%) exact matches, in which:
633 unique CDR3
7 unique J



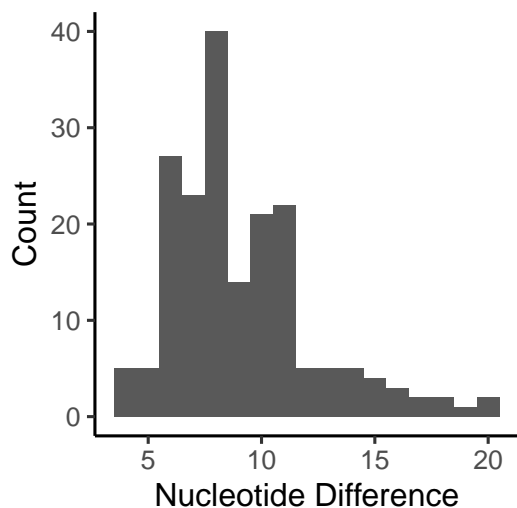
IGHV3-64D*06_T314C_A

244 sequences assigned
117 (48%) exact matches, in which:
116 unique CDR3
7 unique J



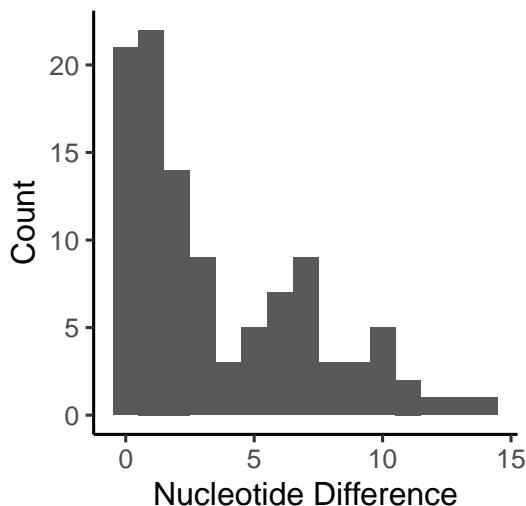
IGHV3–NL1*01

188 sequences assigned
No exact matches.



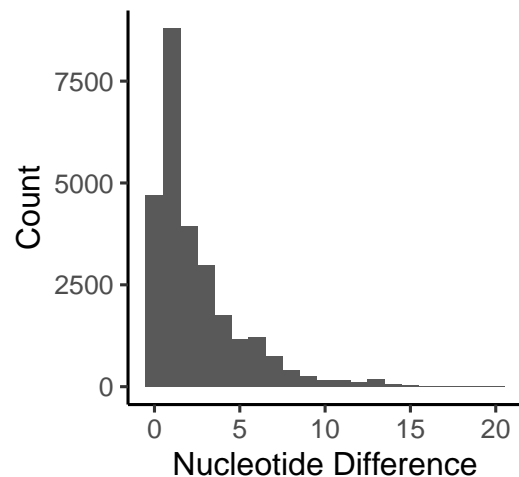
IGHV4–28*03

106 sequences assigned
21 (19.8%) exact matches, in which:
19 unique CDR3
5 unique J



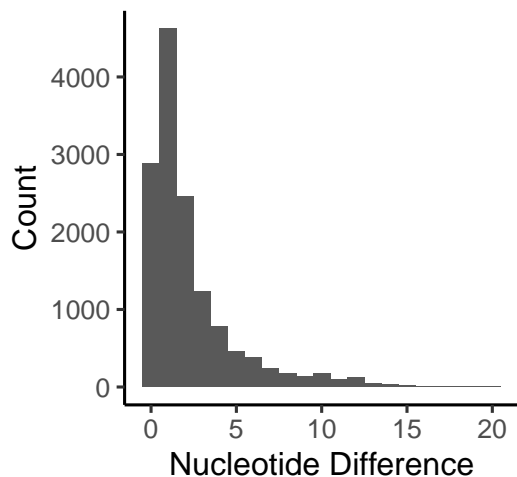
IGHV4–31*03

26960 sequences assigned
4691 (17.4%) exact matches, in which:
3808 unique CDR3
7 unique J



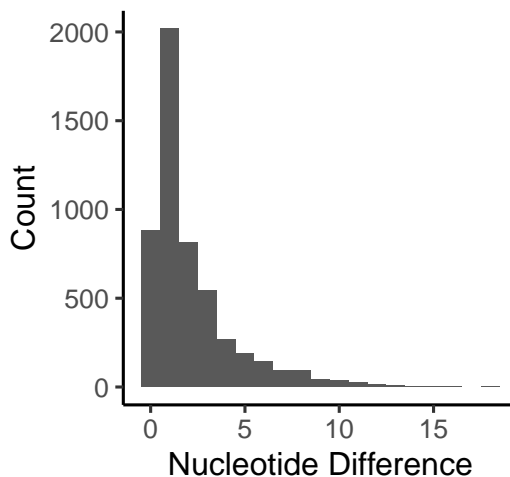
IGHV4–4*07

13942 sequences assigned
2878 (20.6%) exact matches, in which:
2417 unique CDR3
7 unique J



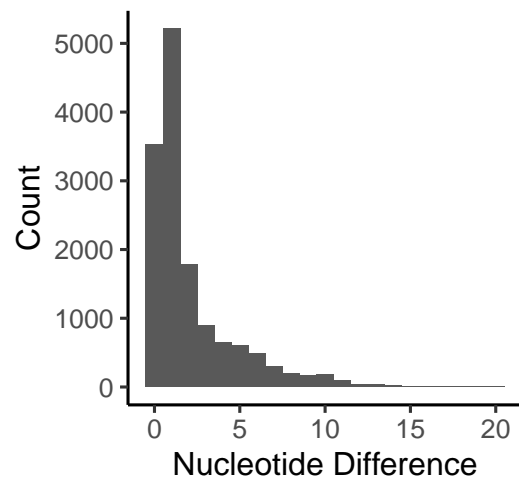
IGHV4–30–4*01

5210 sequences assigned
879 (16.9%) exact matches, in which:
652 unique CDR3
7 unique J



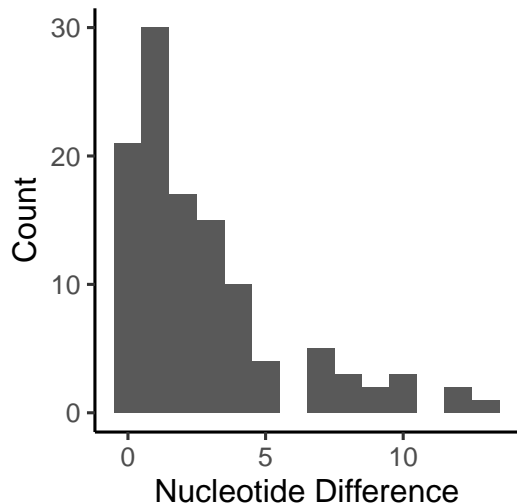
IGHV4–34*01

14385 sequences assigned
3535 (24.6%) exact matches, in which:
2975 unique CDR3
7 unique J



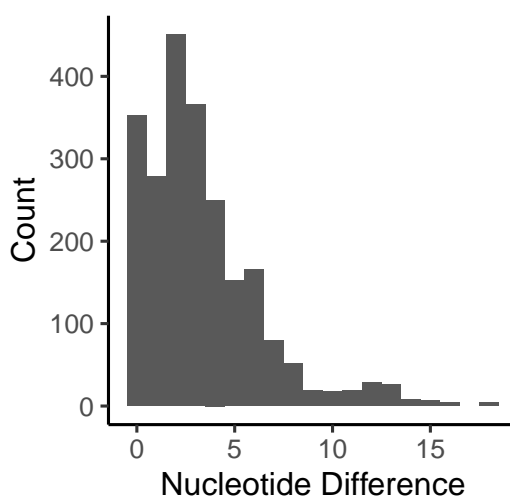
IGHV4–28*02

114 sequences assigned
21 (18.4%) exact matches, in which:
15 unique CDR3
5 unique J



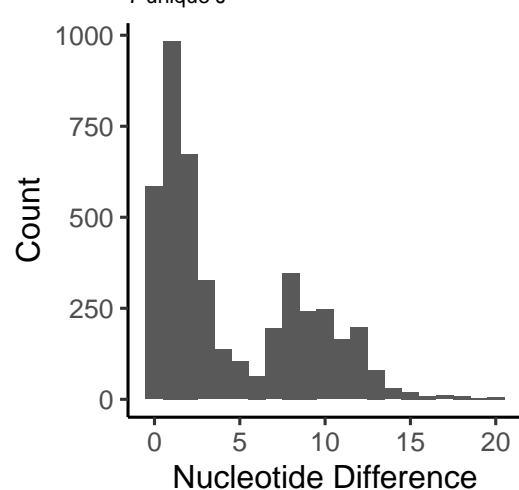
IGHV4–30–4*01_C315G

2299 sequences assigned
353 (15.4%) exact matches, in which:
351 unique CDR3
7 unique J



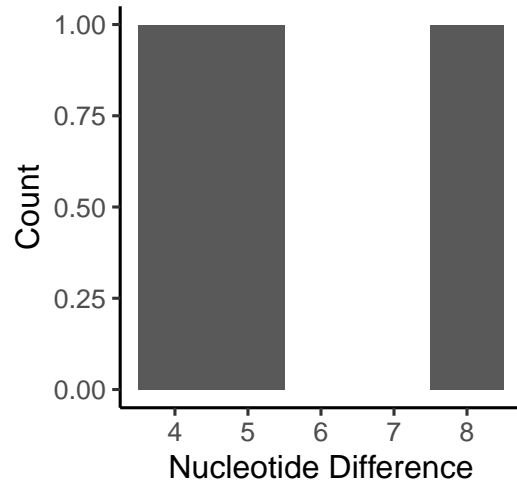
IGHV4–34*01_T300C

4484 sequences assigned
585 (13%) exact matches, in which:
580 unique CDR3
7 unique J



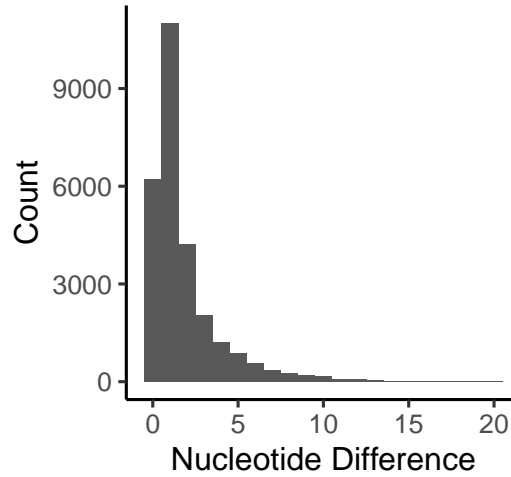
IGHV4-38-2*01

88 sequences assigned
No exact matches.



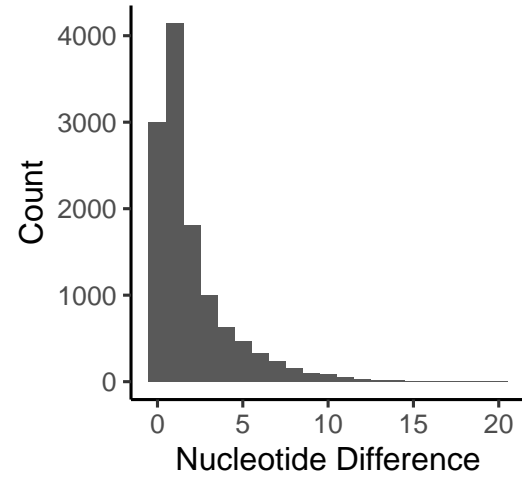
IGHV4-59*01

27610 sequences assigned
6231 (22.6%) exact matches, in which:
4966 unique CDR3
7 unique J



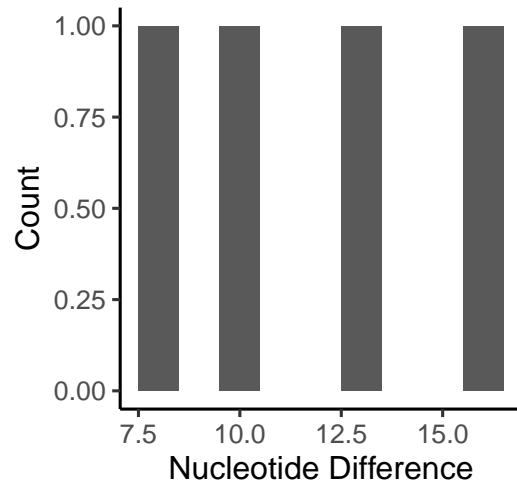
IGHV4-61*02

12137 sequences assigned
2999 (24.7%) exact matches, in which:
2534 unique CDR3
7 unique J



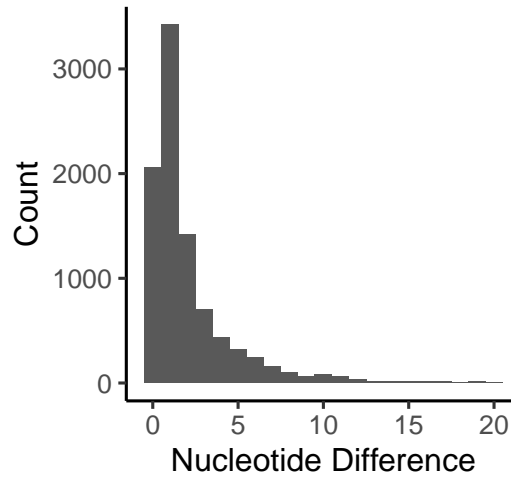
IGHV4-38-2*02

48 sequences assigned
No exact matches.



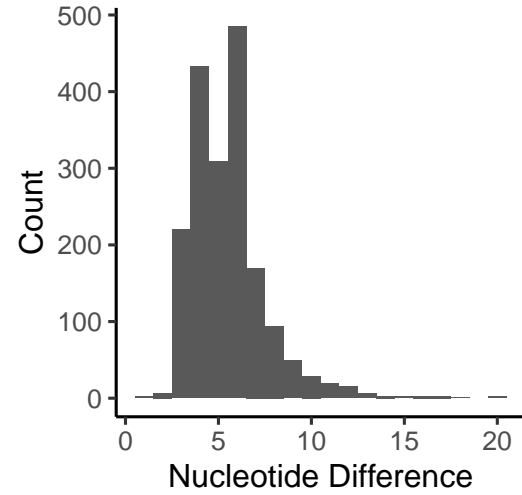
IGHV4-59*08

9218 sequences assigned
2057 (22.3%) exact matches, in which:
1620 unique CDR3
7 unique J



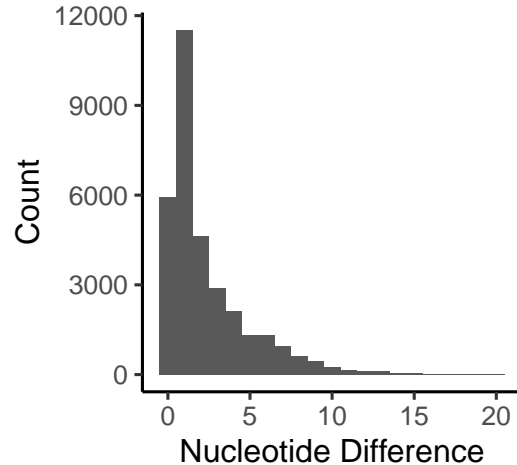
IGHV4-61*08

1866 sequences assigned
No exact matches.



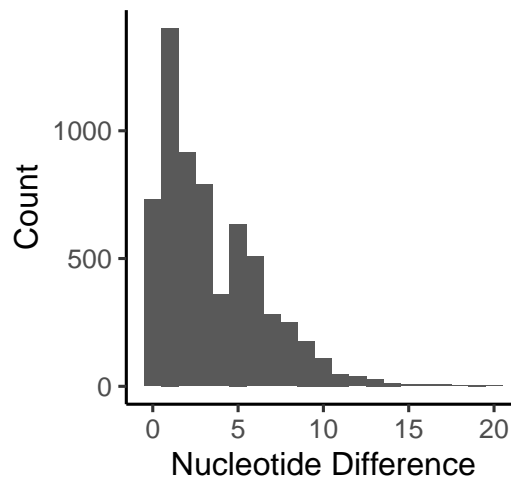
IGHV4-39*07

32727 sequences assigned
5931 (18.1%) exact matches, in which:
4983 unique CDR3
7 unique J



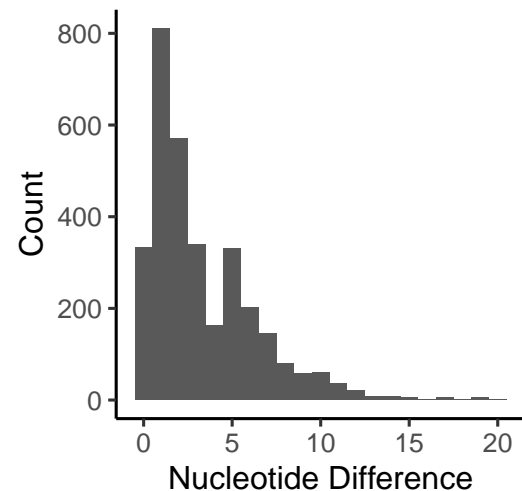
IGHV4-59*12

6390 sequences assigned
731 (11.4%) exact matches, in which:
720 unique CDR3
7 unique J



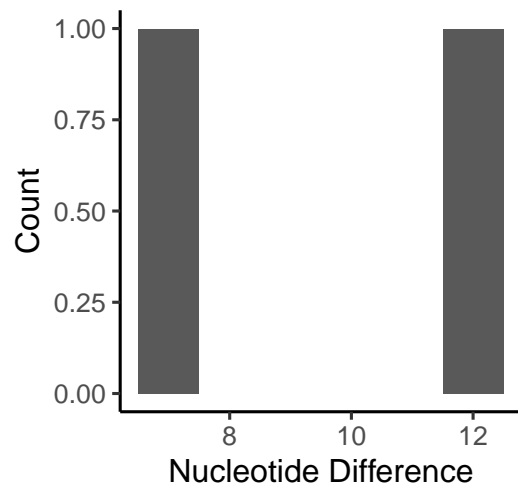
IGHV4-61*02_A291G

3202 sequences assigned
332 (10.4%) exact matches, in which:
327 unique CDR3
7 unique J



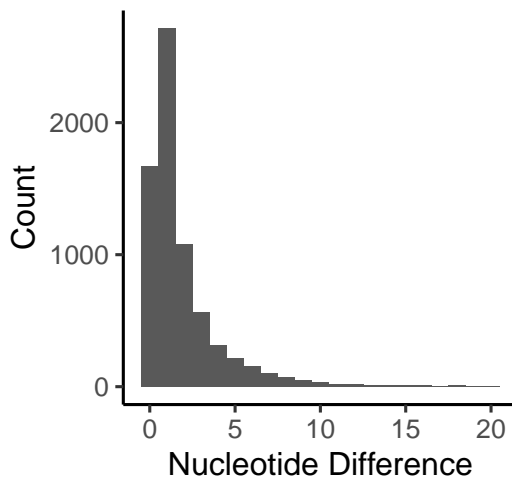
IGHV4/OR15-8*01

9 sequences assigned
No exact matches.



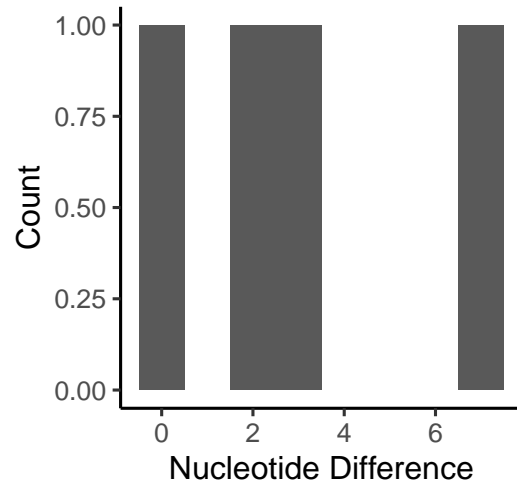
IGHV5-51*03

7109 sequences assigned
1669 (23.5%) exact matches, in which:
1368 unique CDR3
7 unique J



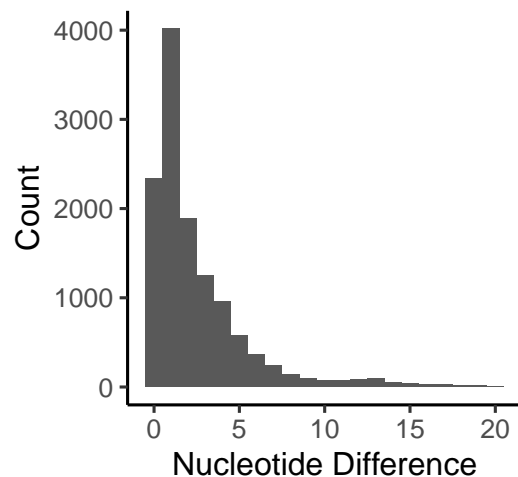
IGHV7-81*01

4 sequences assigned
1 (25%) exact matches, in which:
1 unique CDR3
1 unique J



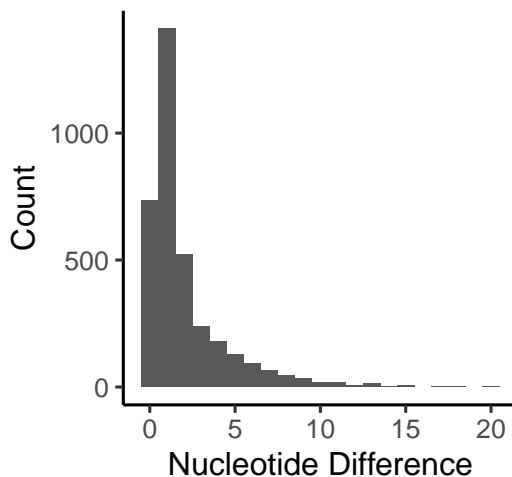
IGHV5-10-1*03

12505 sequences assigned
2338 (18.7%) exact matches, in which:
1865 unique CDR3
7 unique J



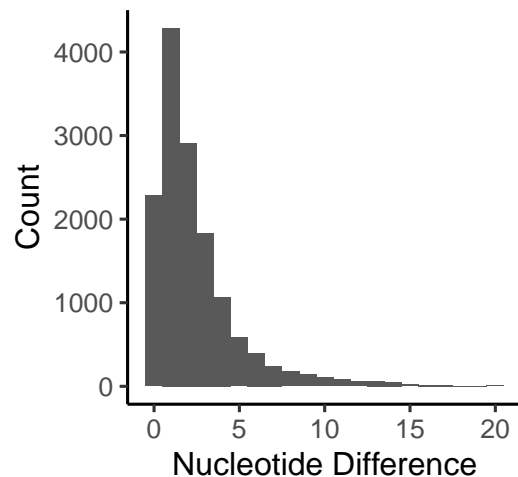
IGHV6-1*01

3527 sequences assigned
734 (20.8%) exact matches, in which:
538 unique CDR3
7 unique J



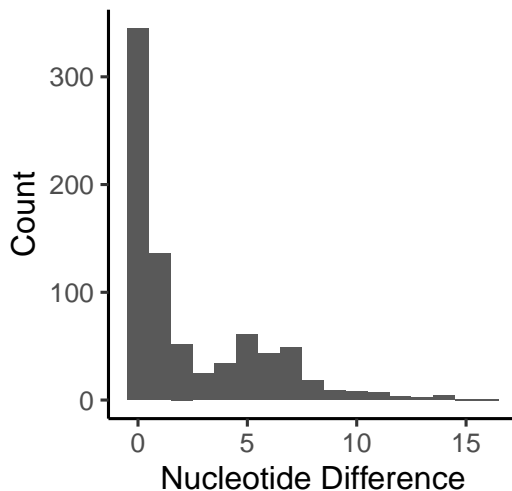
IGHV5-51*01

14445 sequences assigned
2281 (15.8%) exact matches, in which:
1882 unique CDR3
7 unique J

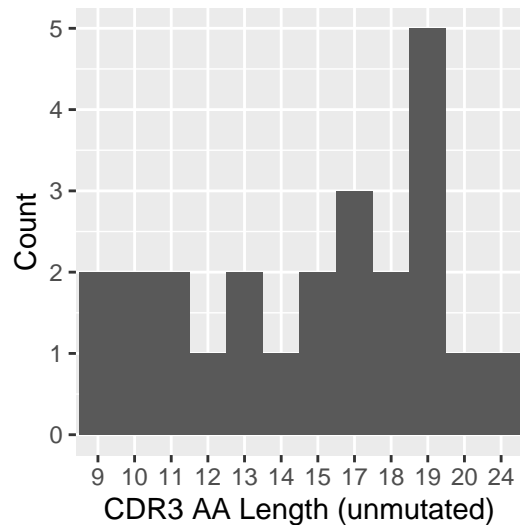


IGHV6-1*01_A315G

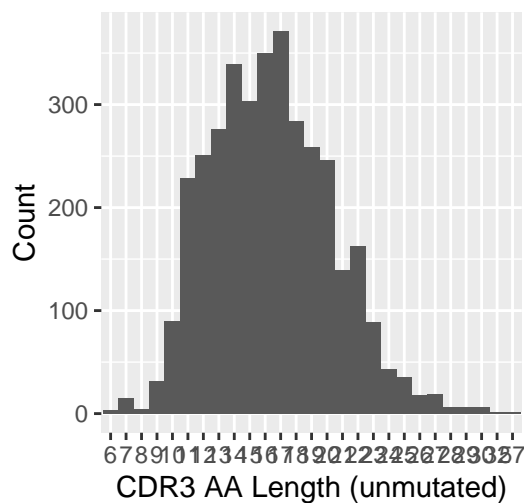
803 sequences assigned
345 (43%) exact matches, in which:
340 unique CDR3
7 unique J



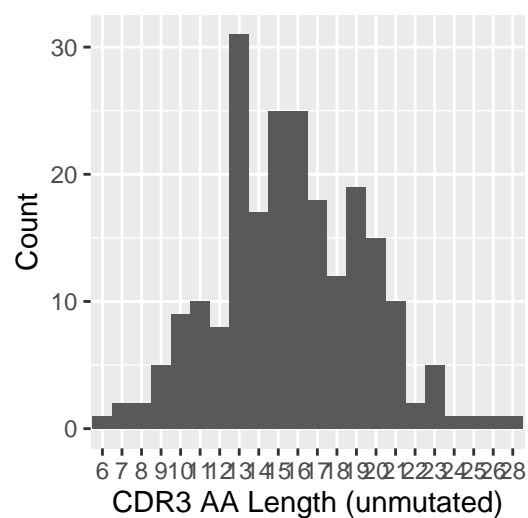
IGHV1-3*02_T296C_T300C



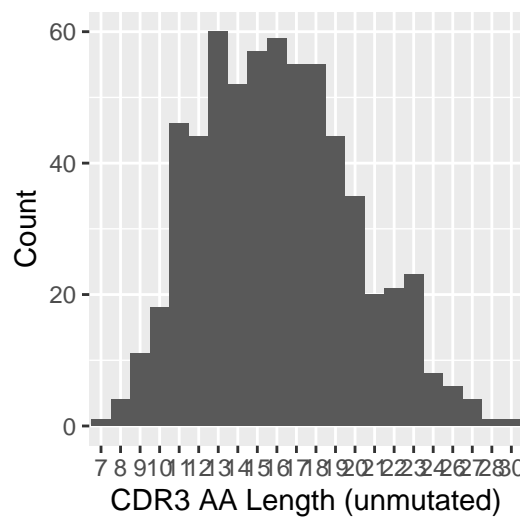
IGHV1-69*08_C191T



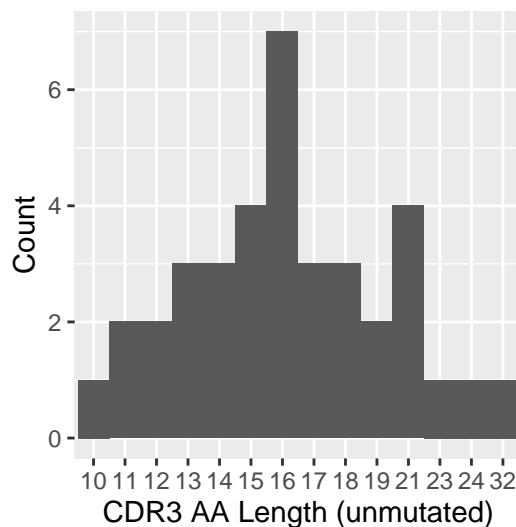
IGHV3-9*01_T279C_T288C



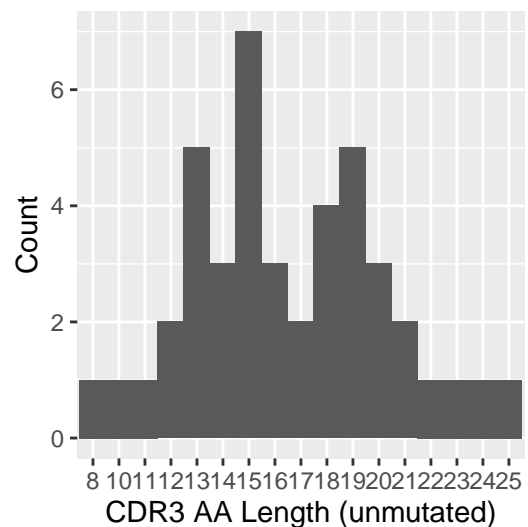
IGHV1-24*01_A315G_C317V



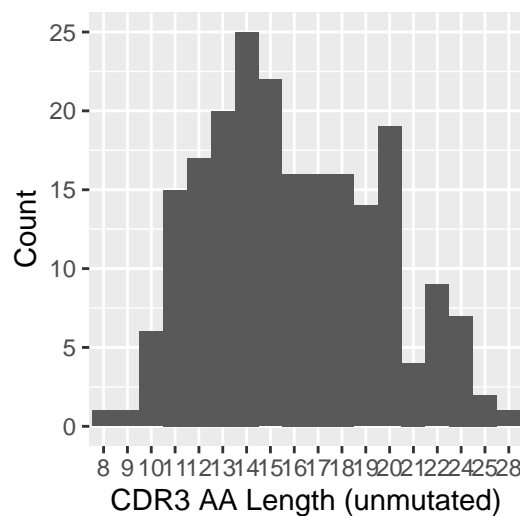
IGHV2-70*15_G303A



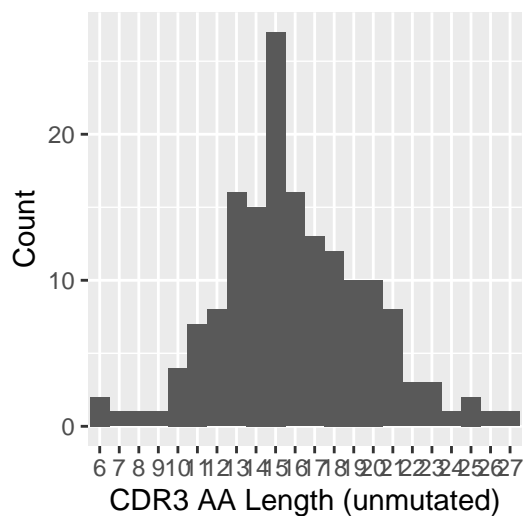
IGHV3-13*01_A315G



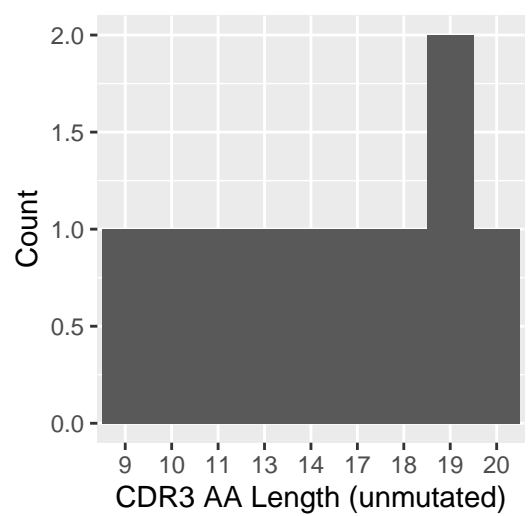
IGHV1-58*02_G316A_C317V



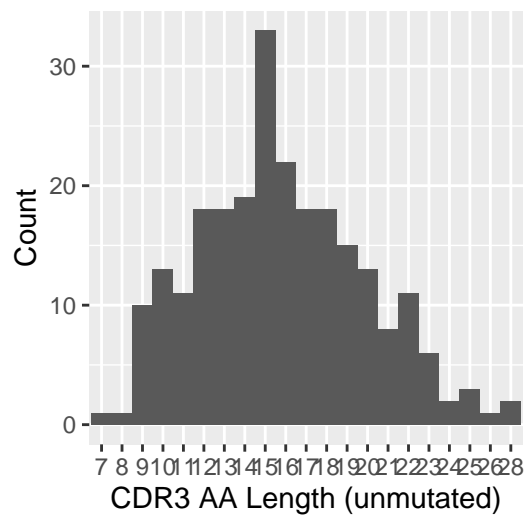
IGHV3-9*01_T279C_C300T



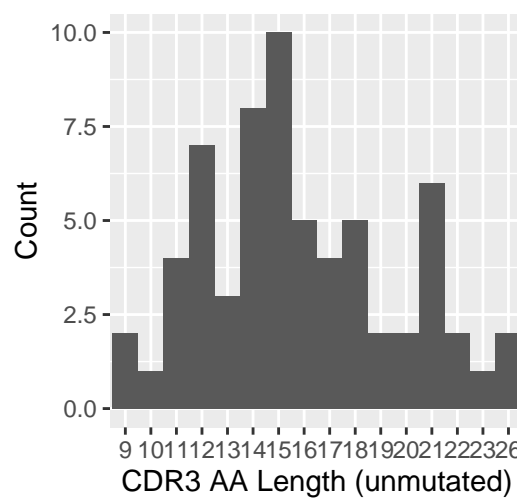
IGHV3-20*04_T279C_C288T



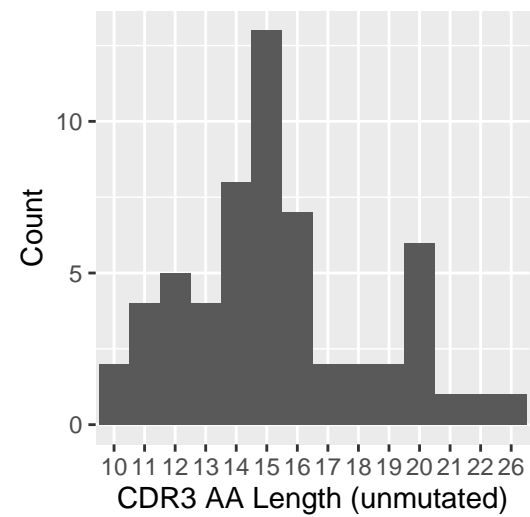
IGHV3-30*03_T288C



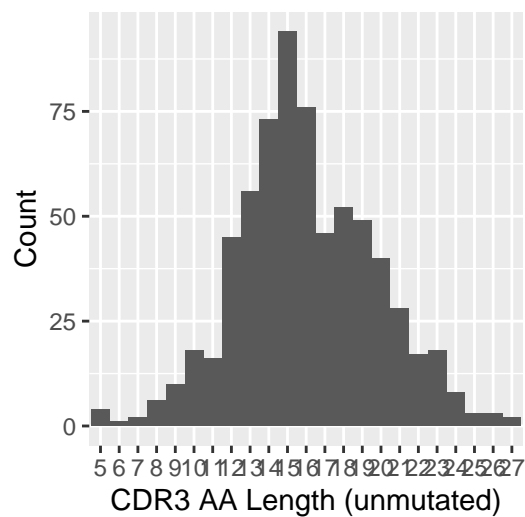
IGHV3-43*01_A315G



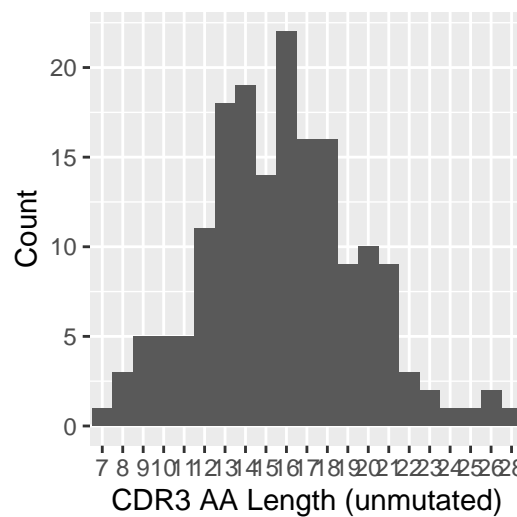
IGHV3-53*05_T267G_C300



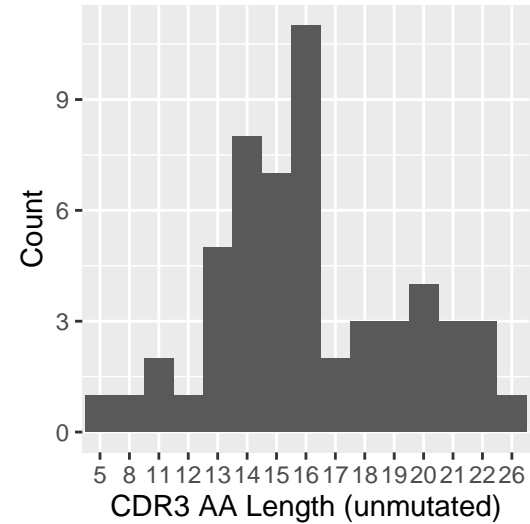
IGHV3-30-3*02_G75C



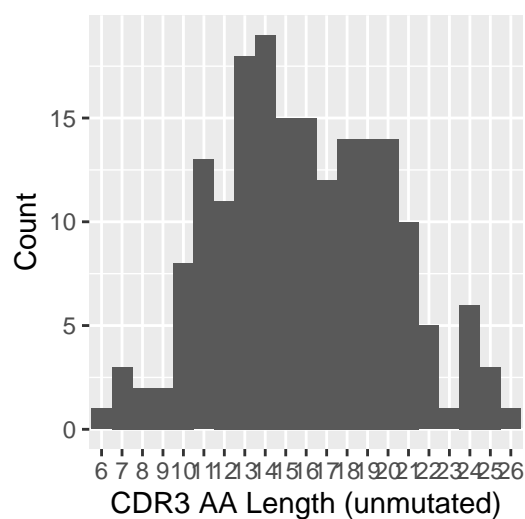
IGHV3-49*03_A313G_T315G



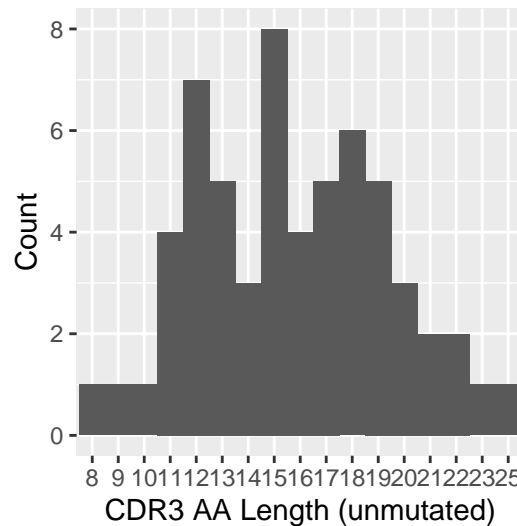
IGHV3-64*01_T267G_G274A



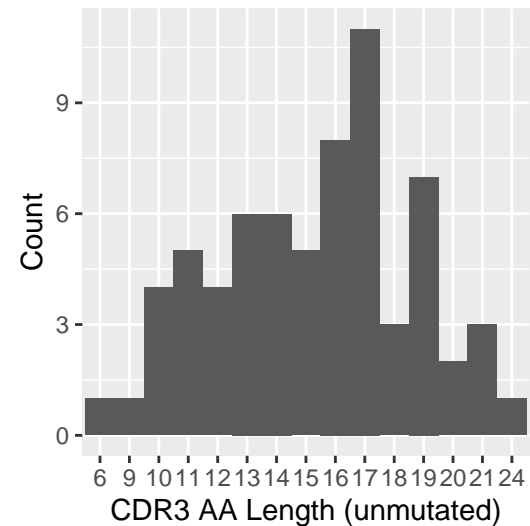
IGHV3-33*06_T300C_G303C



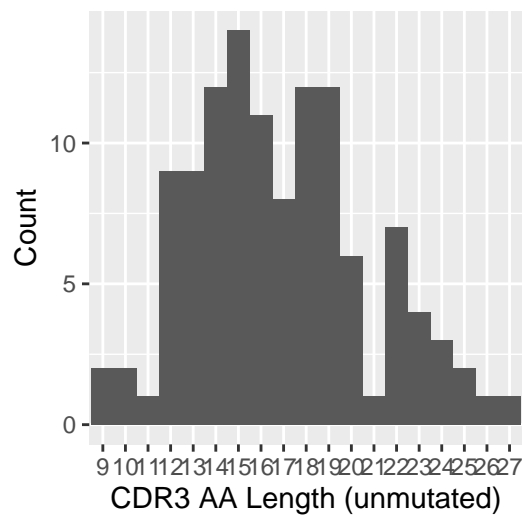
IGHV3-53*04_T267G_C300T



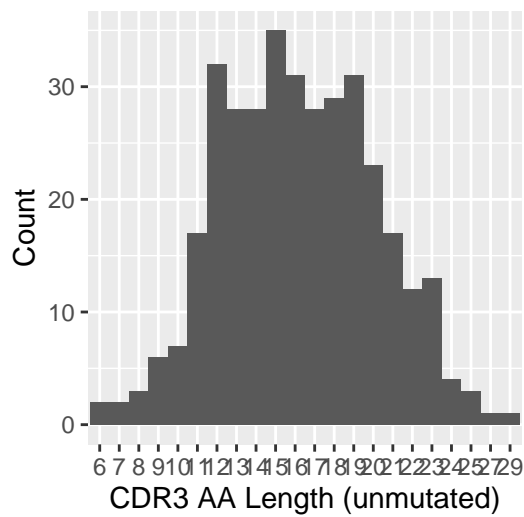
IGHV3-64*04_A210C



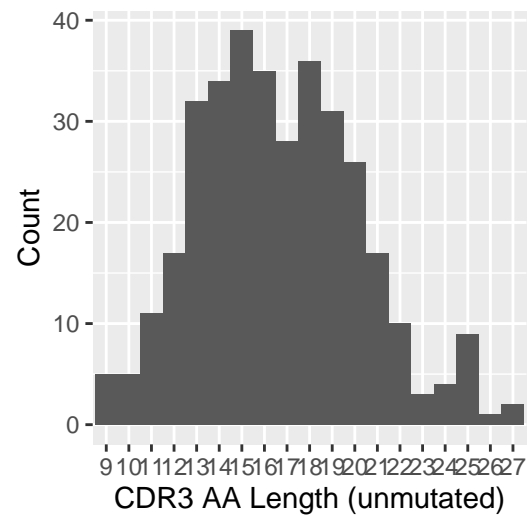
IGHV3-64D*06_T314C_A31



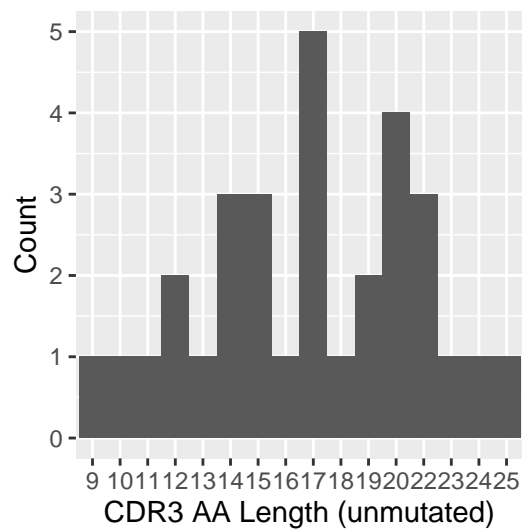
IGHV4-30-4*01_C315G



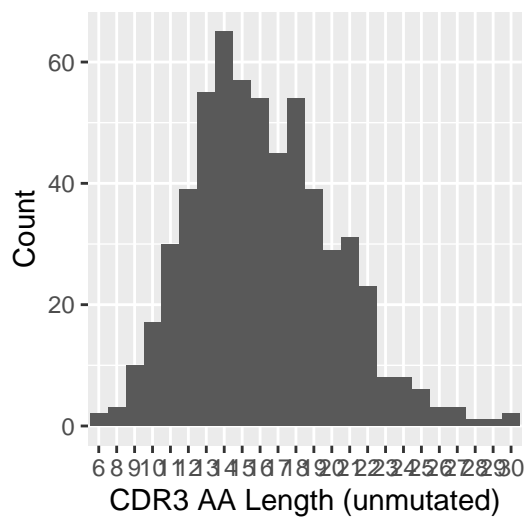
IGHV6-1*01_A315G



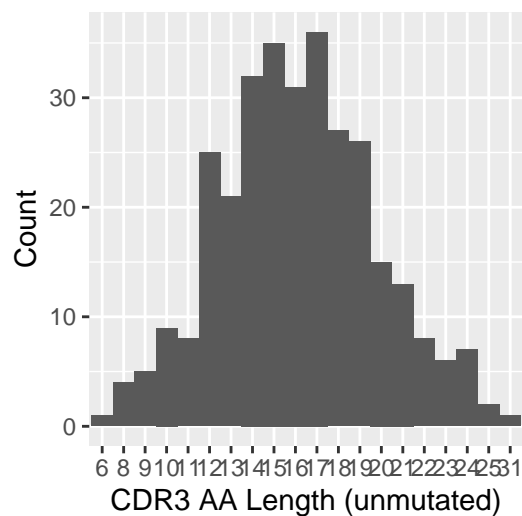
IGHV3-72*01_T315G



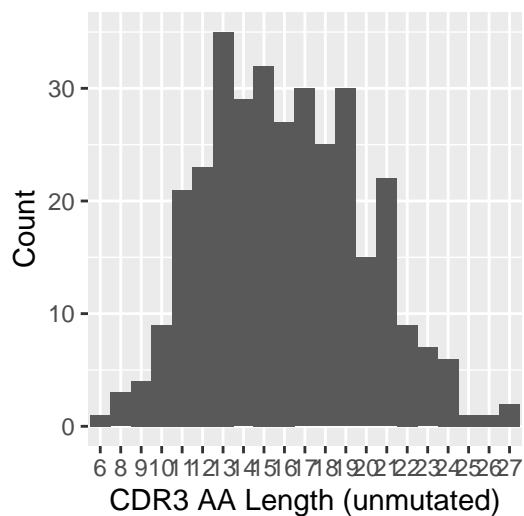
IGHV4-34*01_T300C



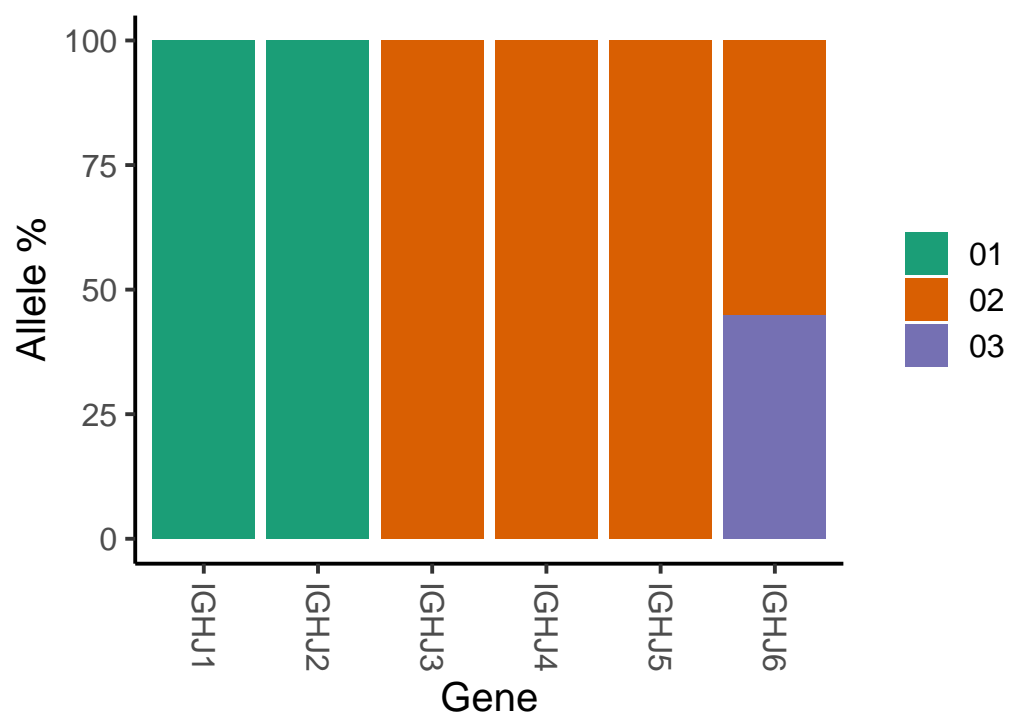
IGHV3-74*01_A315G



IGHV4-61*02_A291G



Allele Usage



Sequence Count by IGHJ6 allele usage

