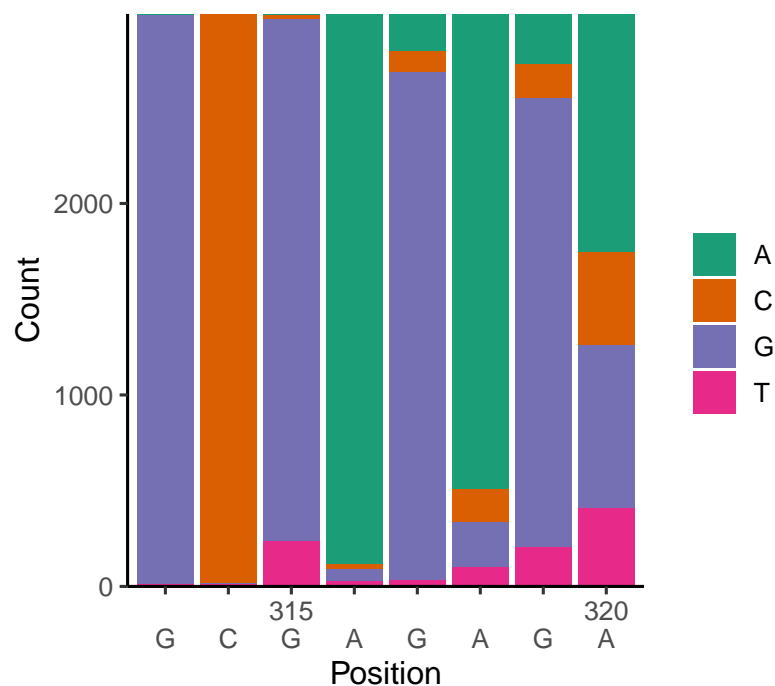
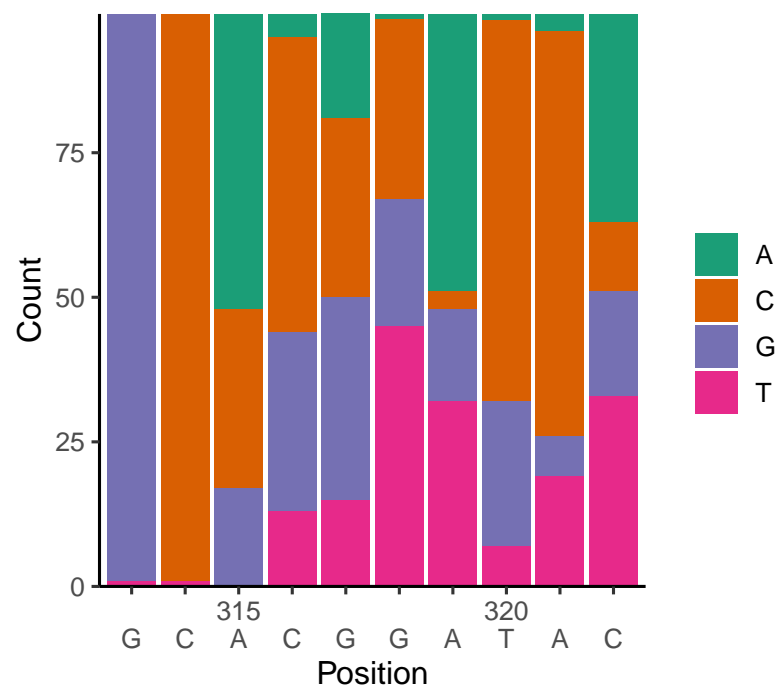


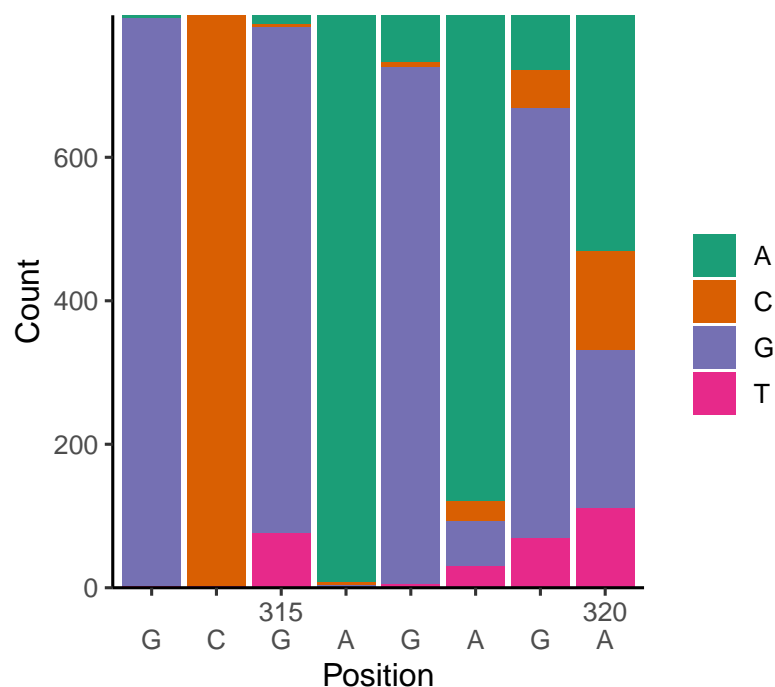
Gene IGHV1-24*01_A315G_C317G



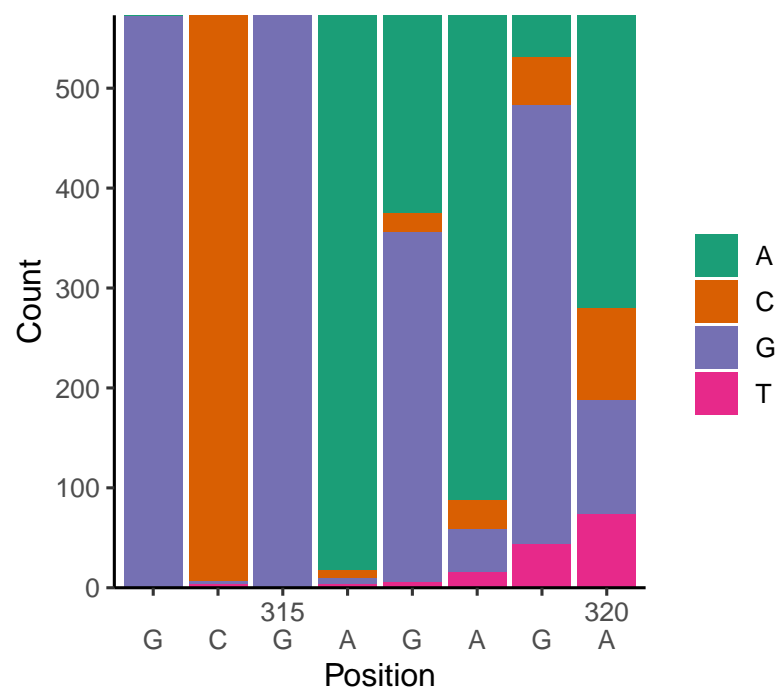
Gene IGHV2-70*04_T116C



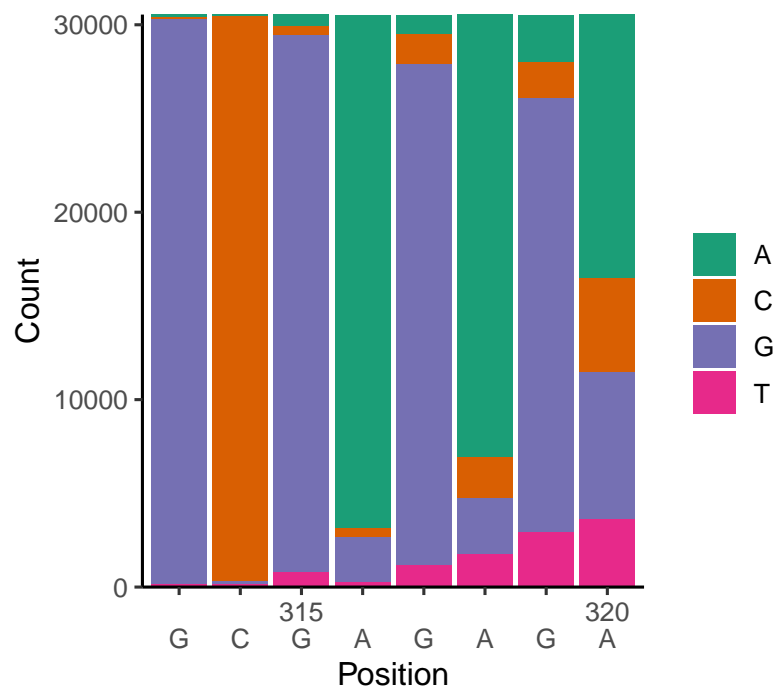
Gene IGHV1-58*02_G316A_C317G



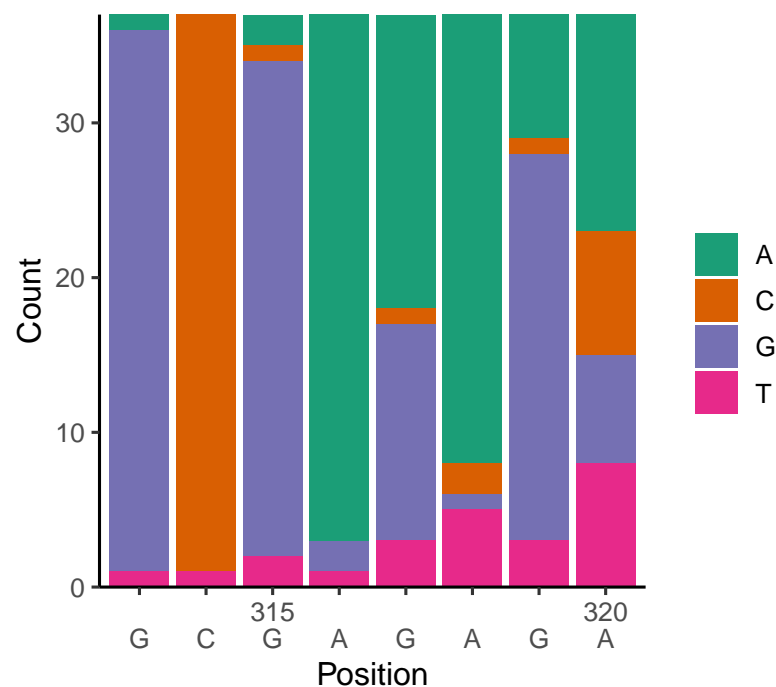
Gene IGHV3-13*01_A315G



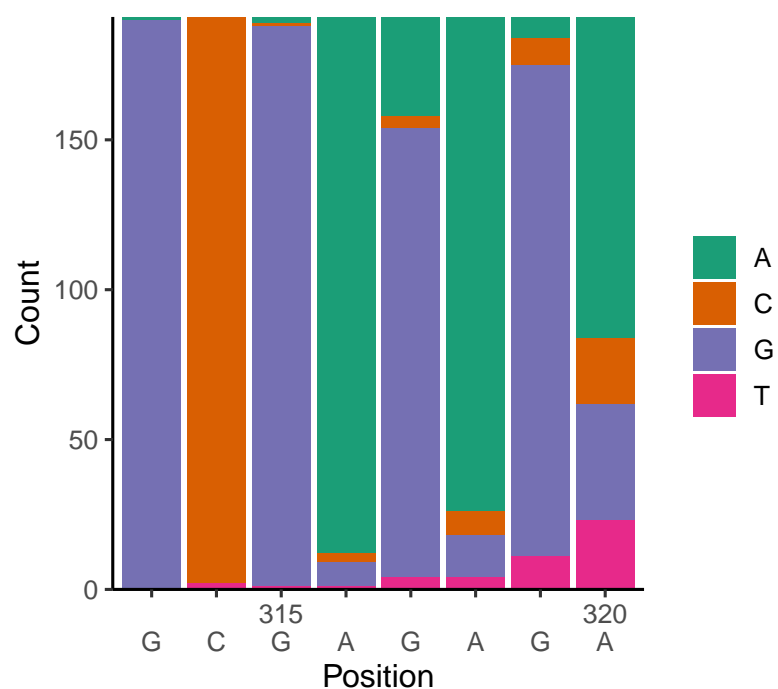
Gene IGHV1-69*08_C191T



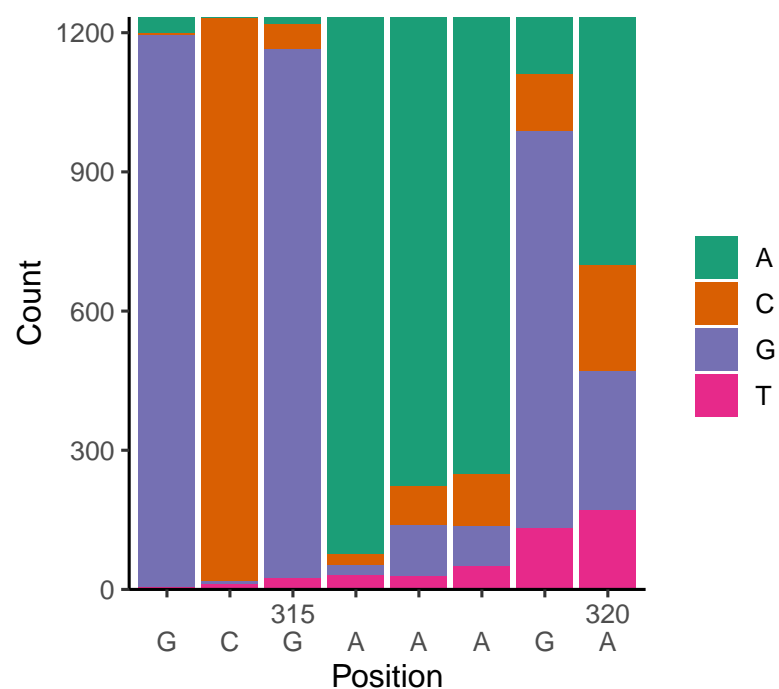
Gene IGHV3-20*04_T301G



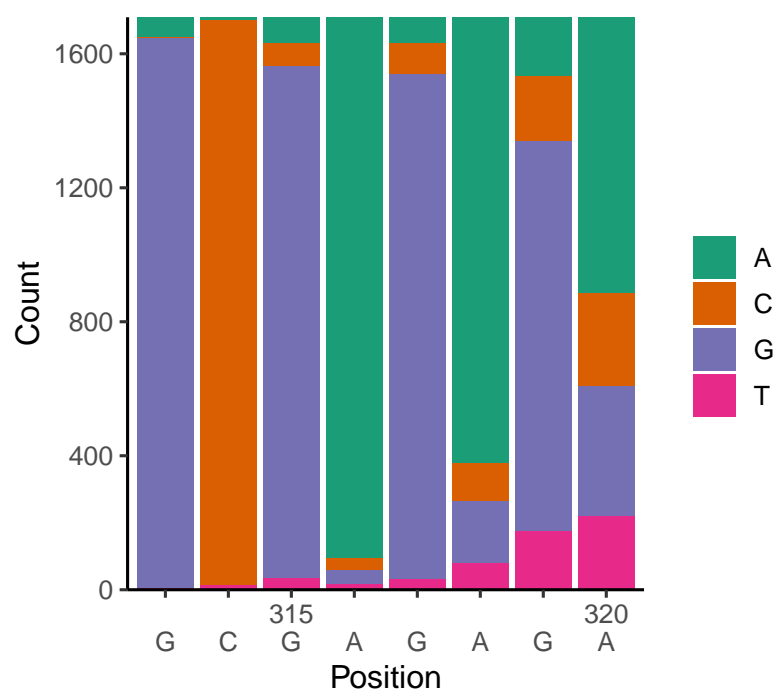
Gene IGHV3-20*04_T279C_C300T_T301A



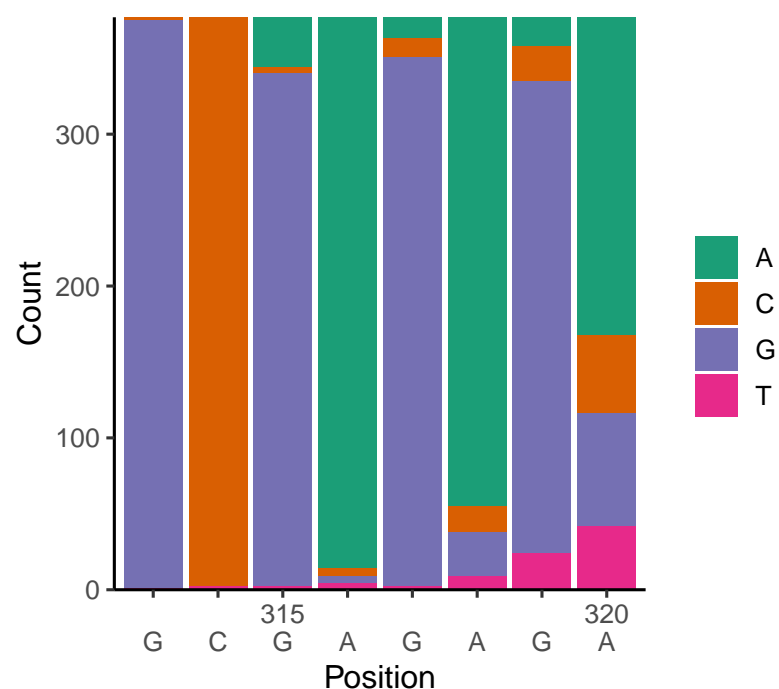
Gene IGHV3-30-3*02_G75C_T288C_T3



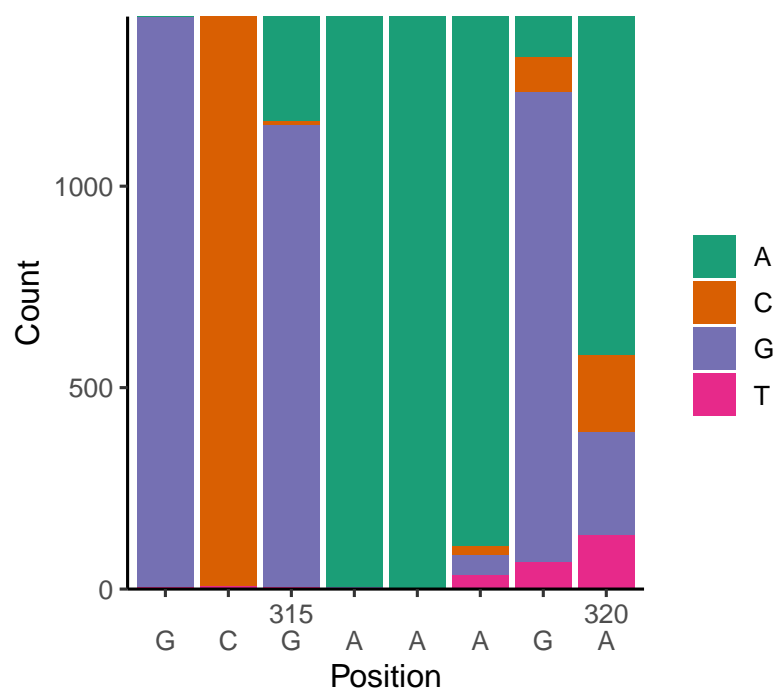
Gene IGHV3-30*03_T288C



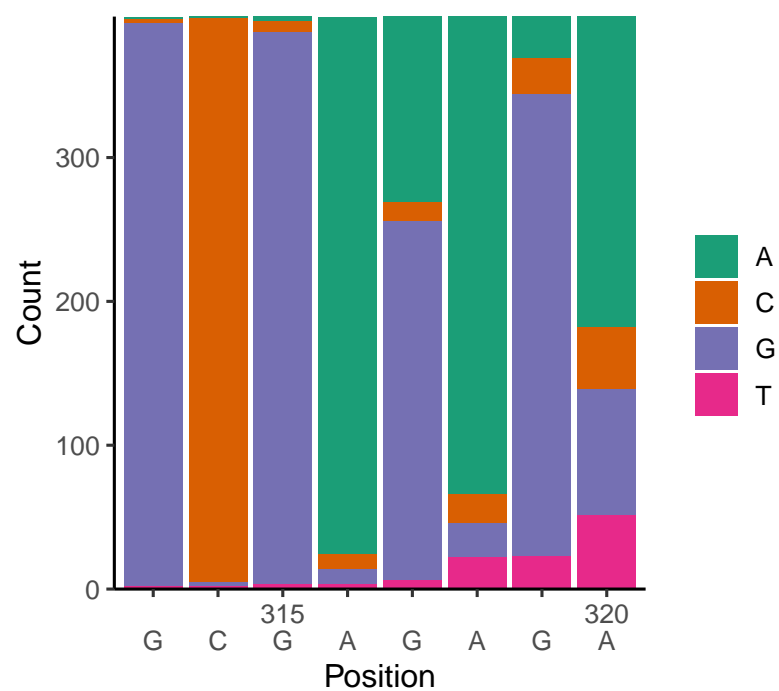
Gene IGHV3-53*02_C300T



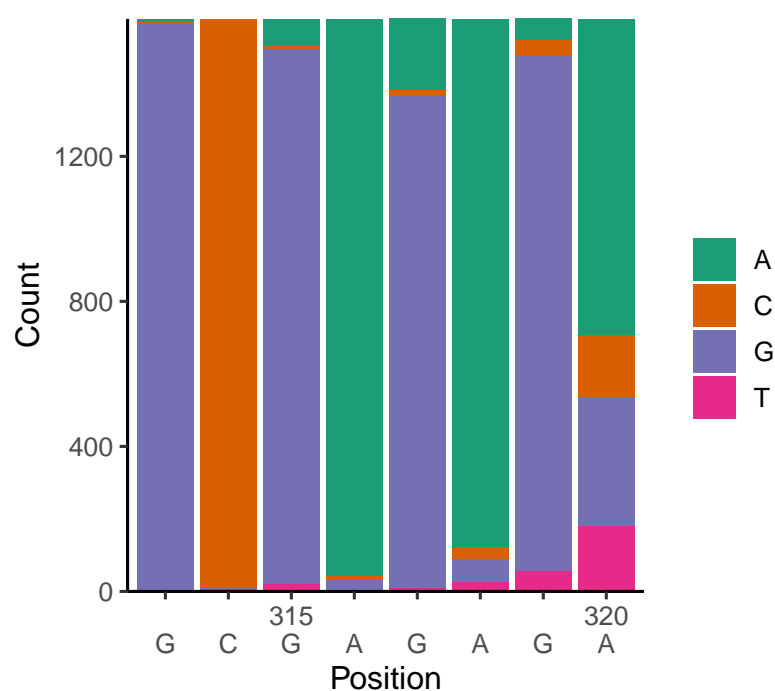
Gene IGHV3-30-3*02_G75C



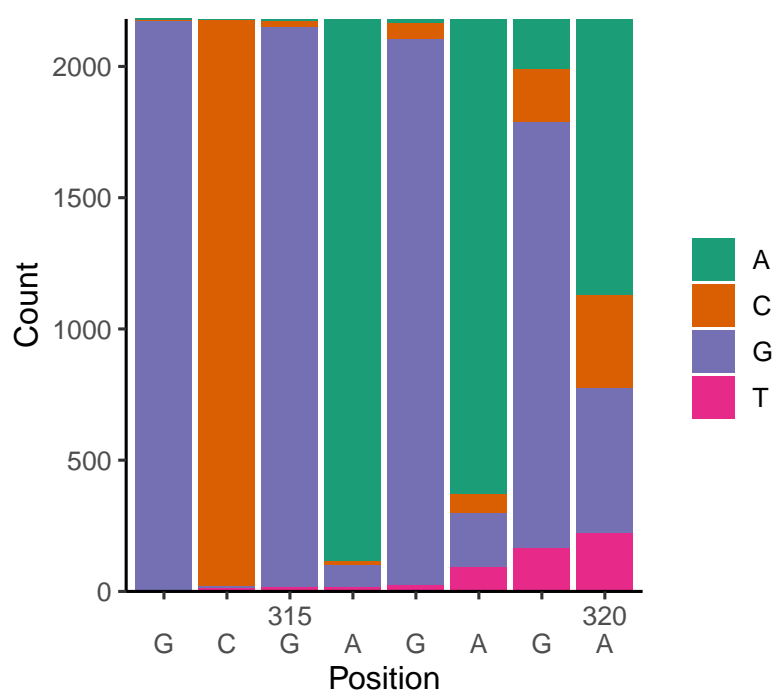
Gene IGHV3-53*05_C300T



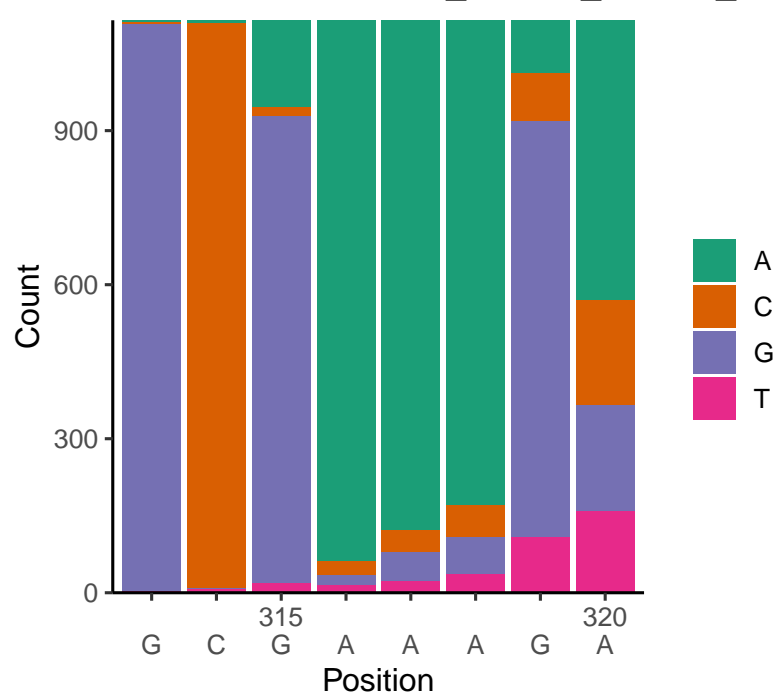
Gene IGHV3-66*01_A223C_T267G



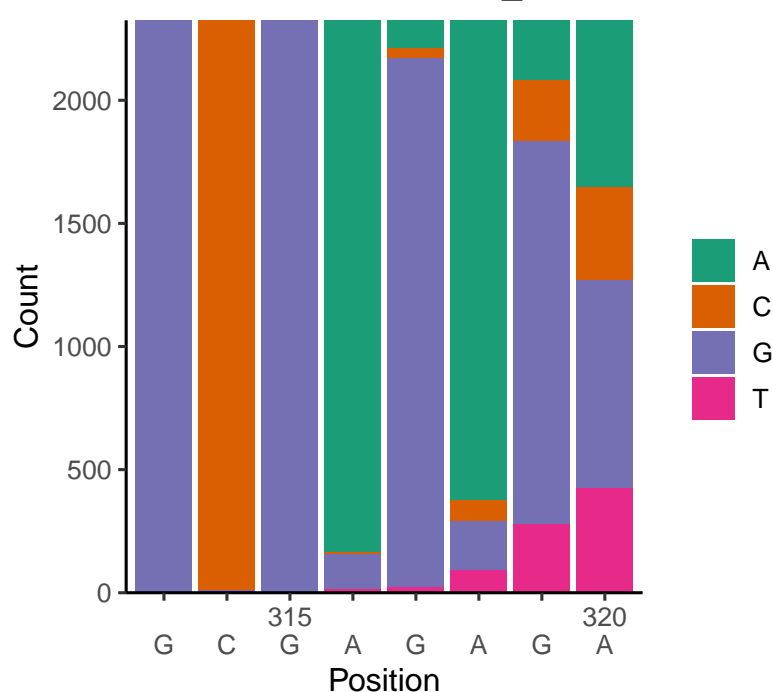
Gene IGHV4-4*07_G234A_G291A



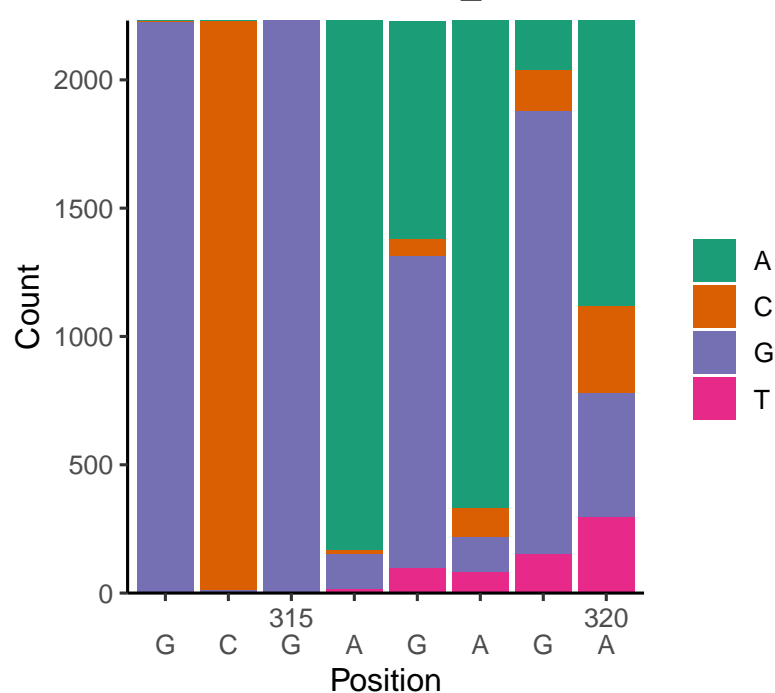
Gene IGHV3-66*01_A223C_T267G_T30I



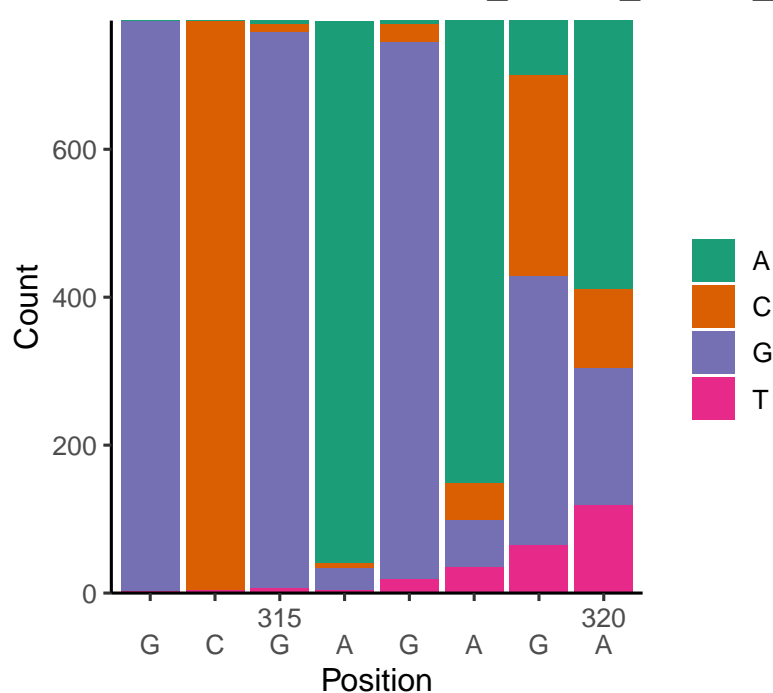
Gene IGHV4-30-2*01_C315G



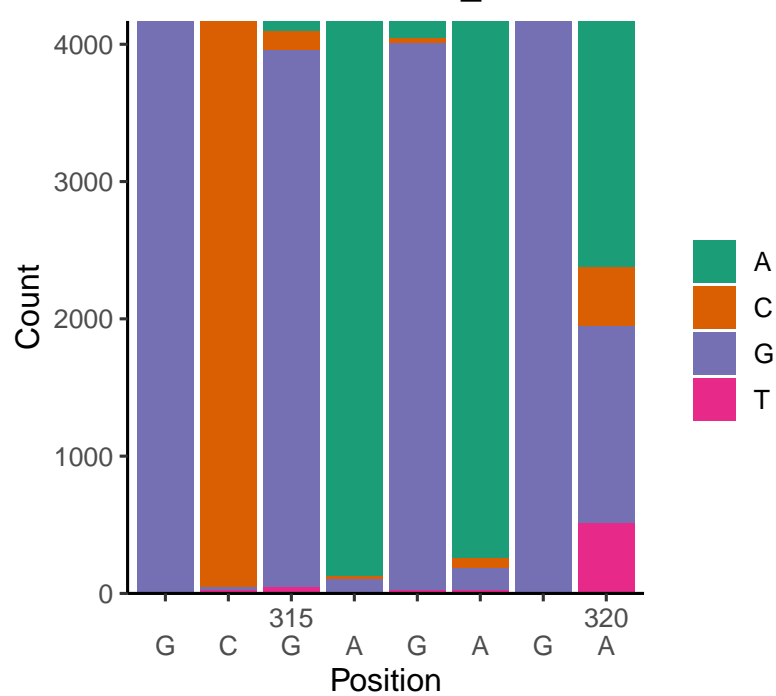
Gene IGHV3-74*01_A315G



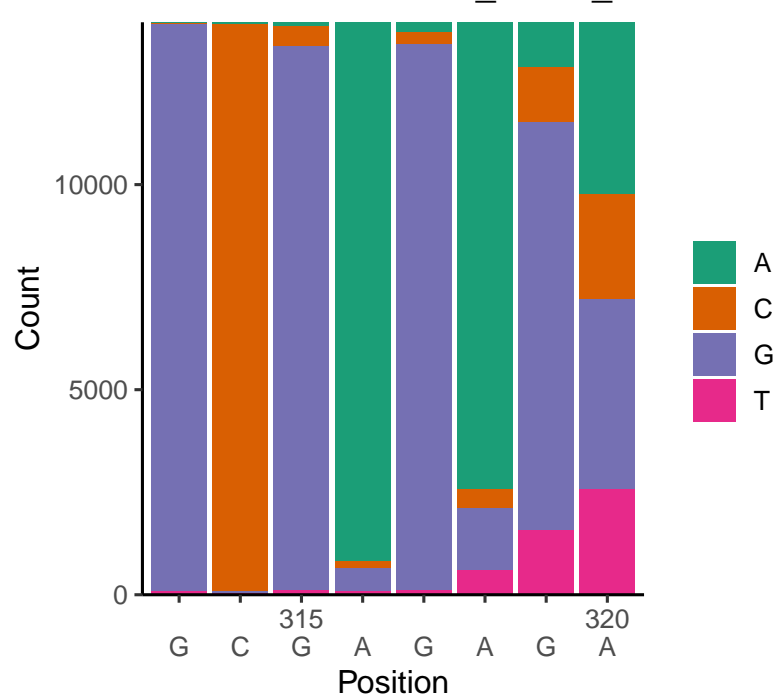
Gene IGHV4-30-2*05_T228C_T285C_C



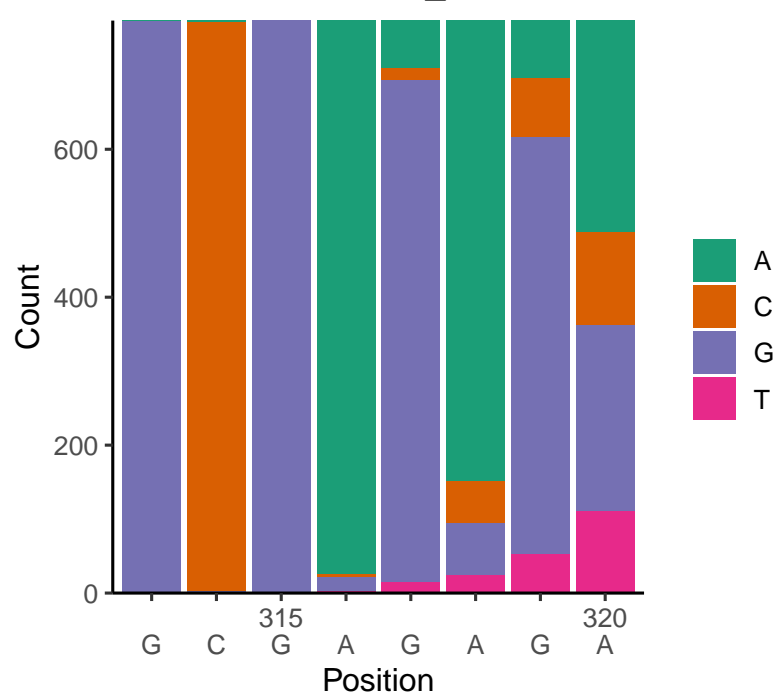
Gene IGHV4-39*02_C258G



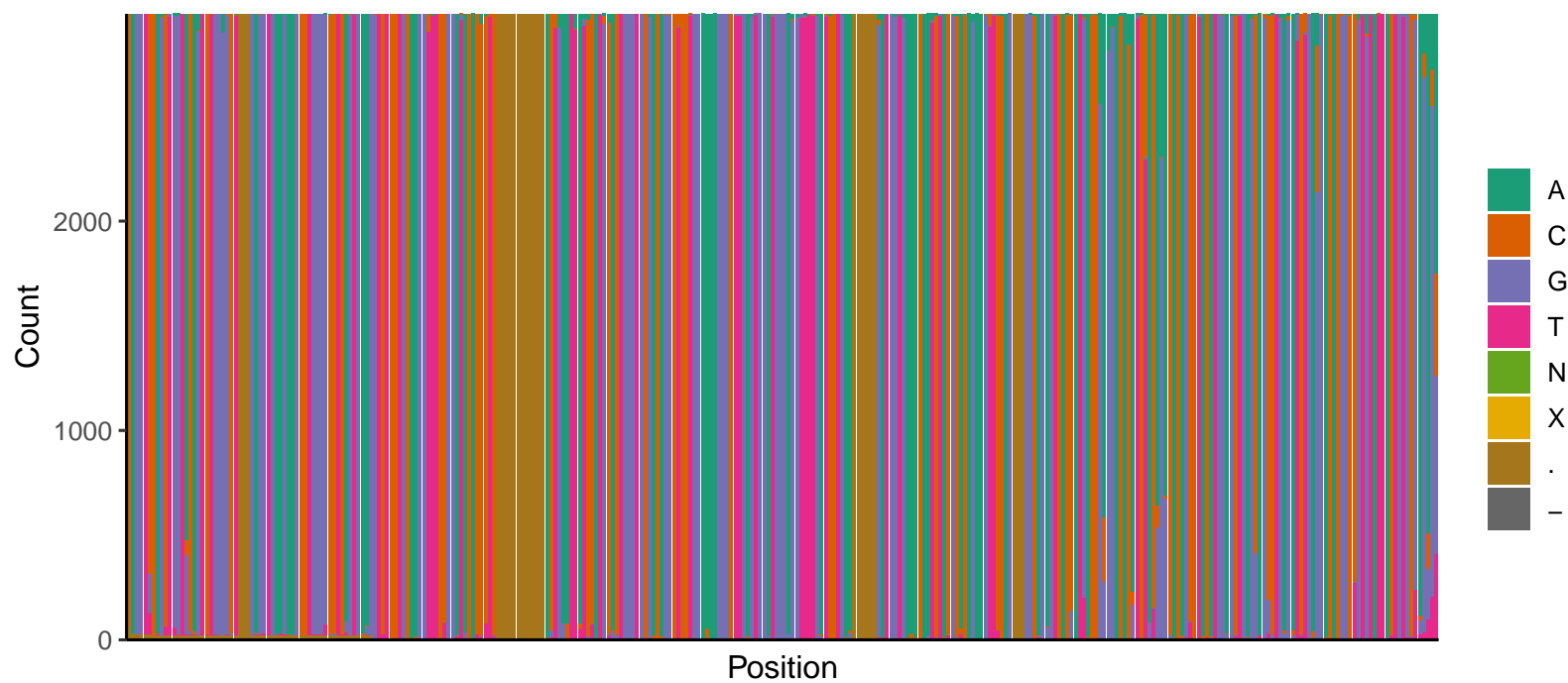
Gene IGHV4-59*01_G48A_G49C



Gene IGHV6-1*01_A315G



Gene IGHV1-24*01_A315G_C317G



Gene IGHV1-58*02_G316A_C317G



Gene IGHV1-69*08_C191T



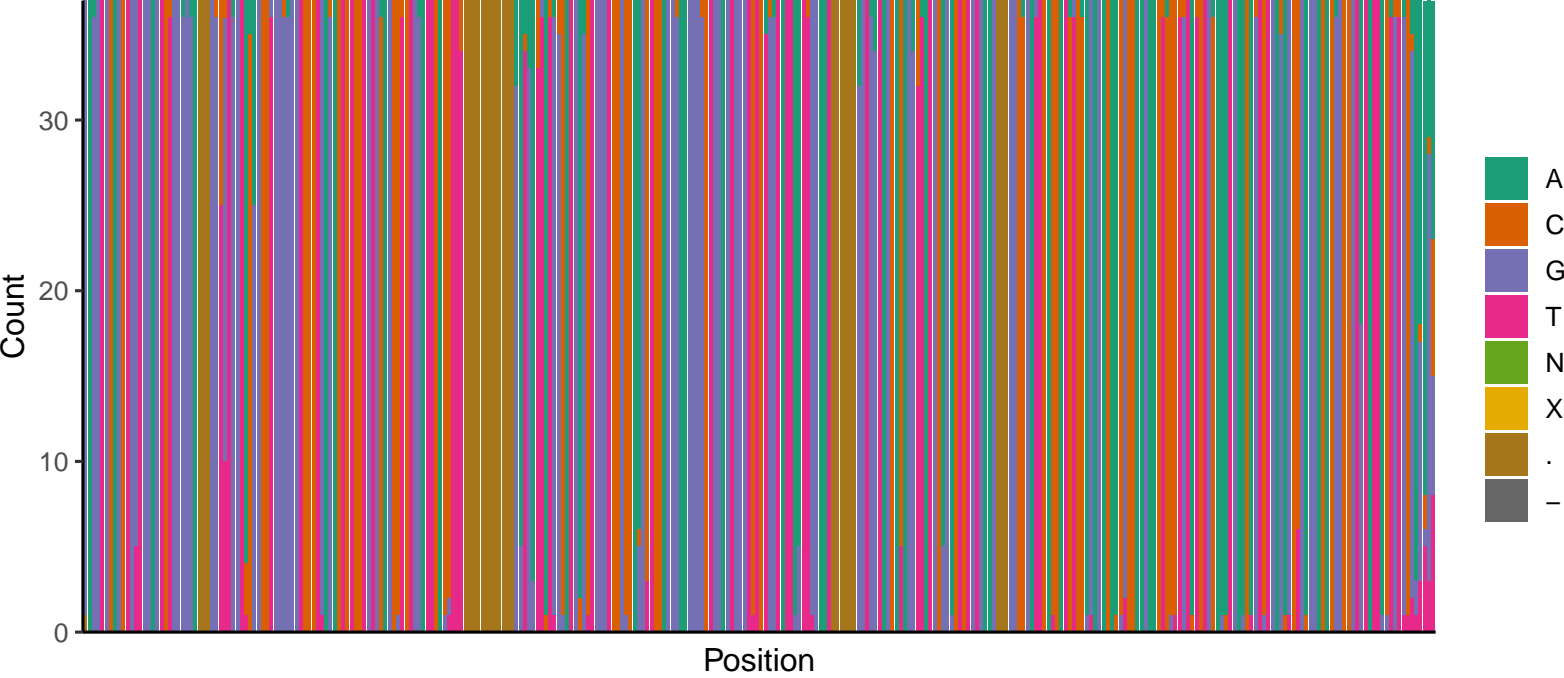
Gene IGHV2-70*04_T116C



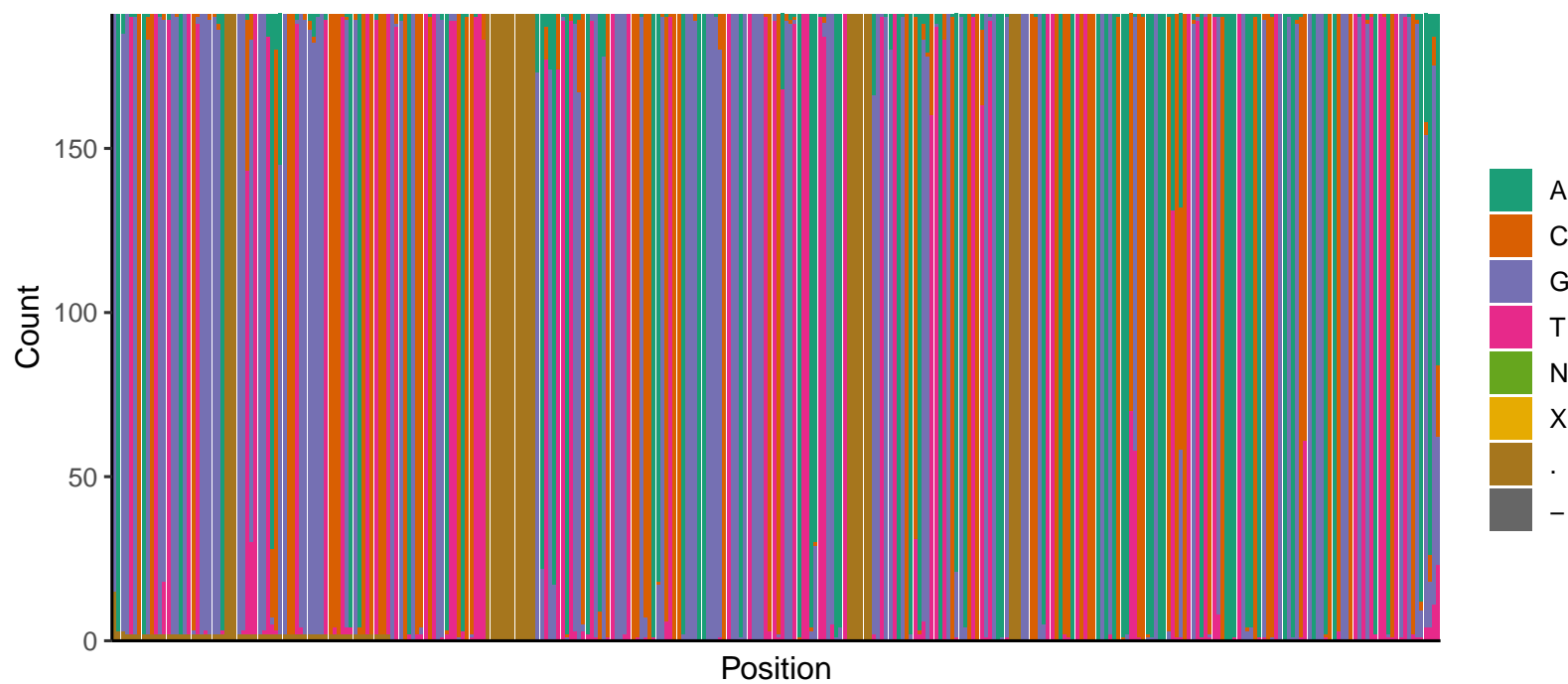
Gene IGHV3-13*01_A315G



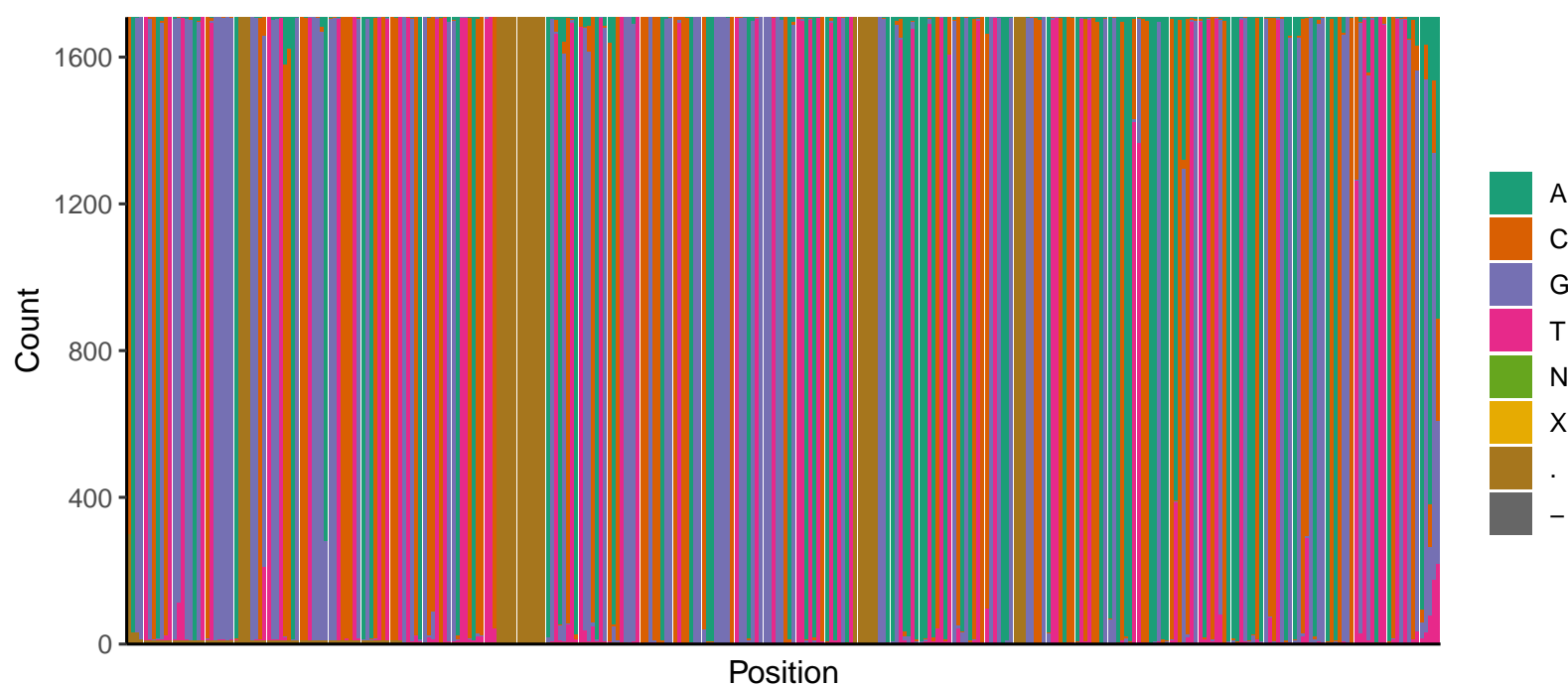
Gene IGHV3-20*04_T301G



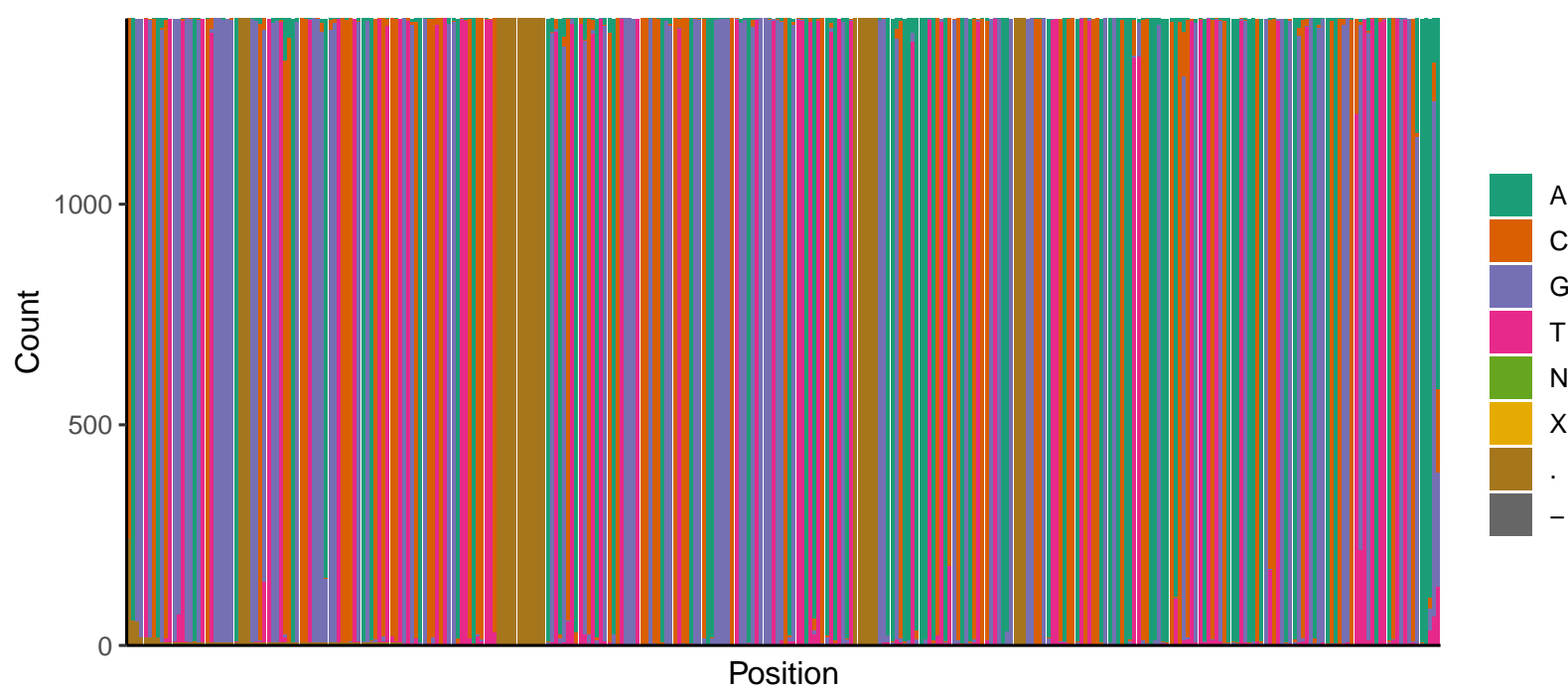
Gene IGHV3-20*04_T279C_C300T_T301G



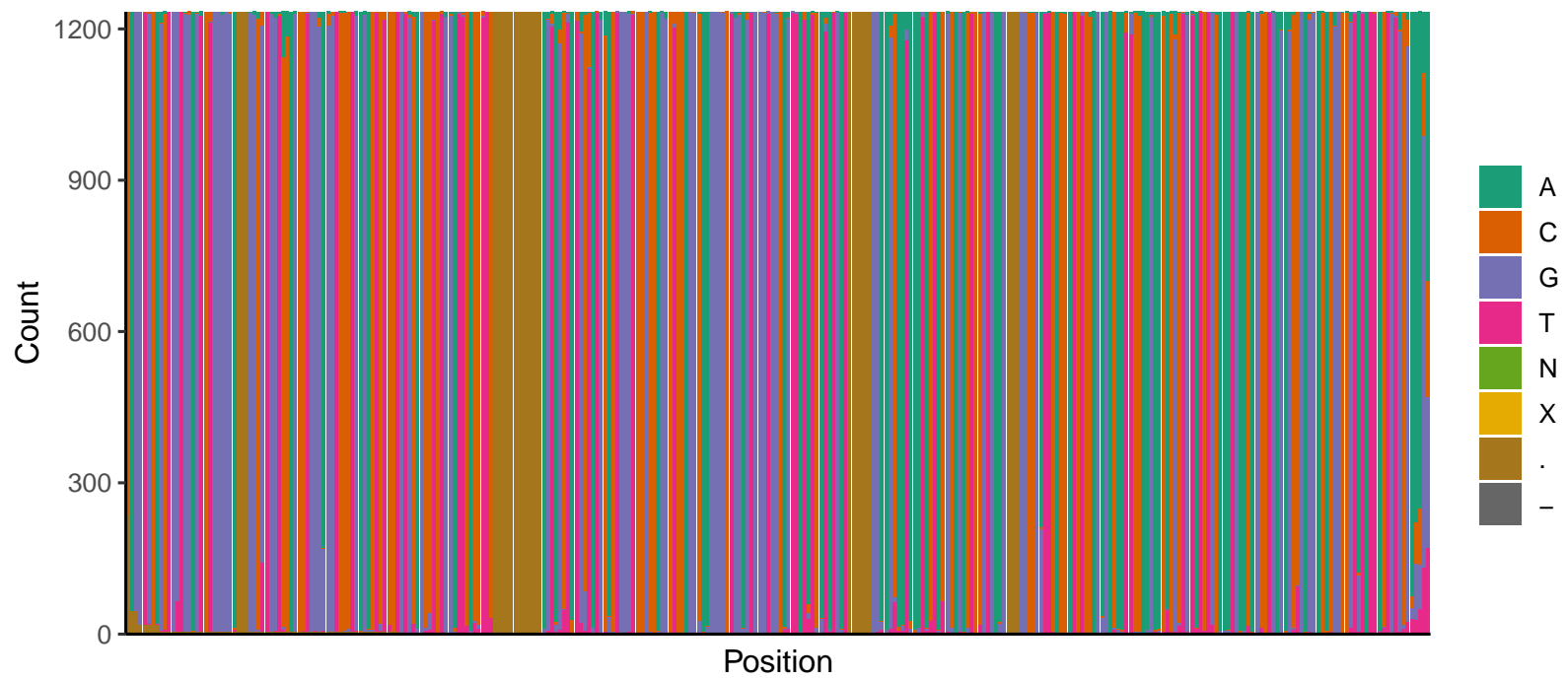
Gene IGHV3-30*03_T288C



Gene IGHV3-30-3*02_G75C



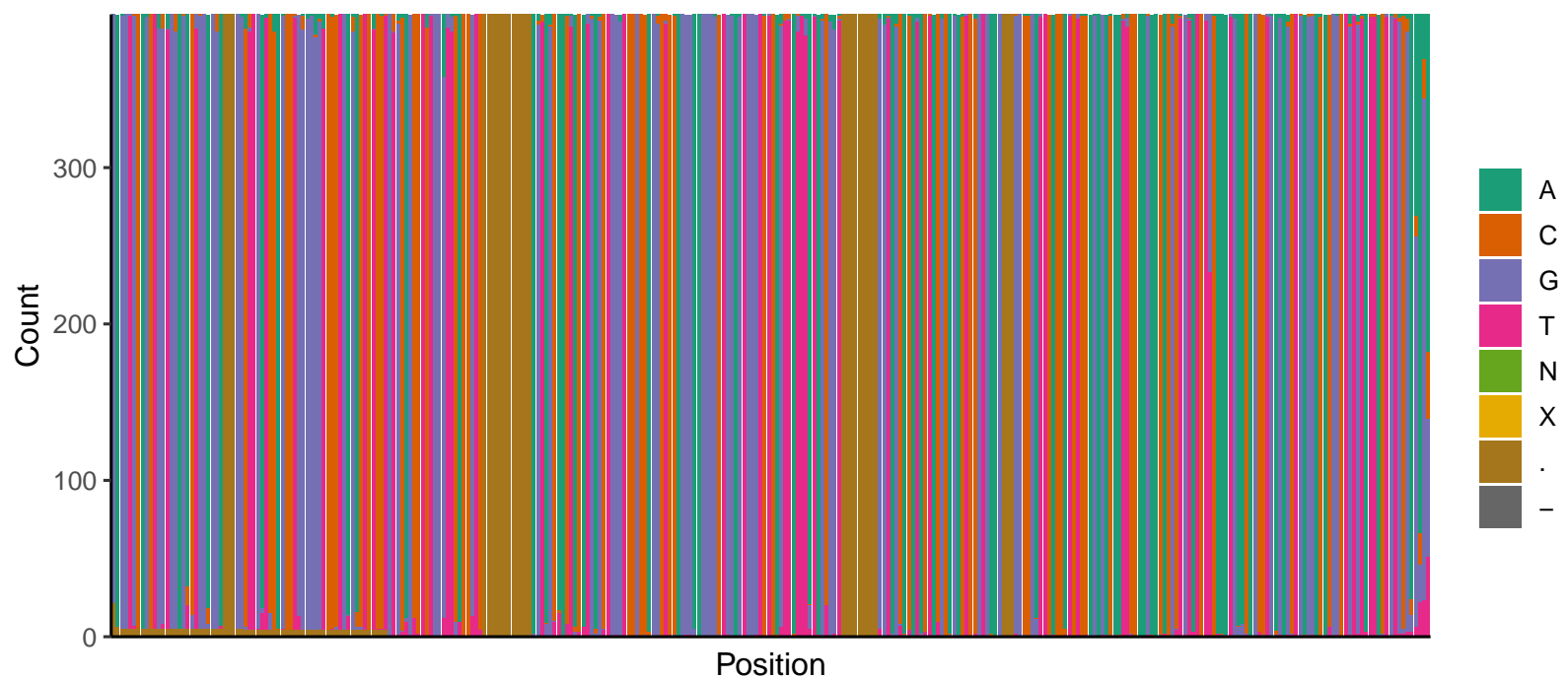
Gene IGHV3-30-3*02_G75C_T288C_T300C_G303A



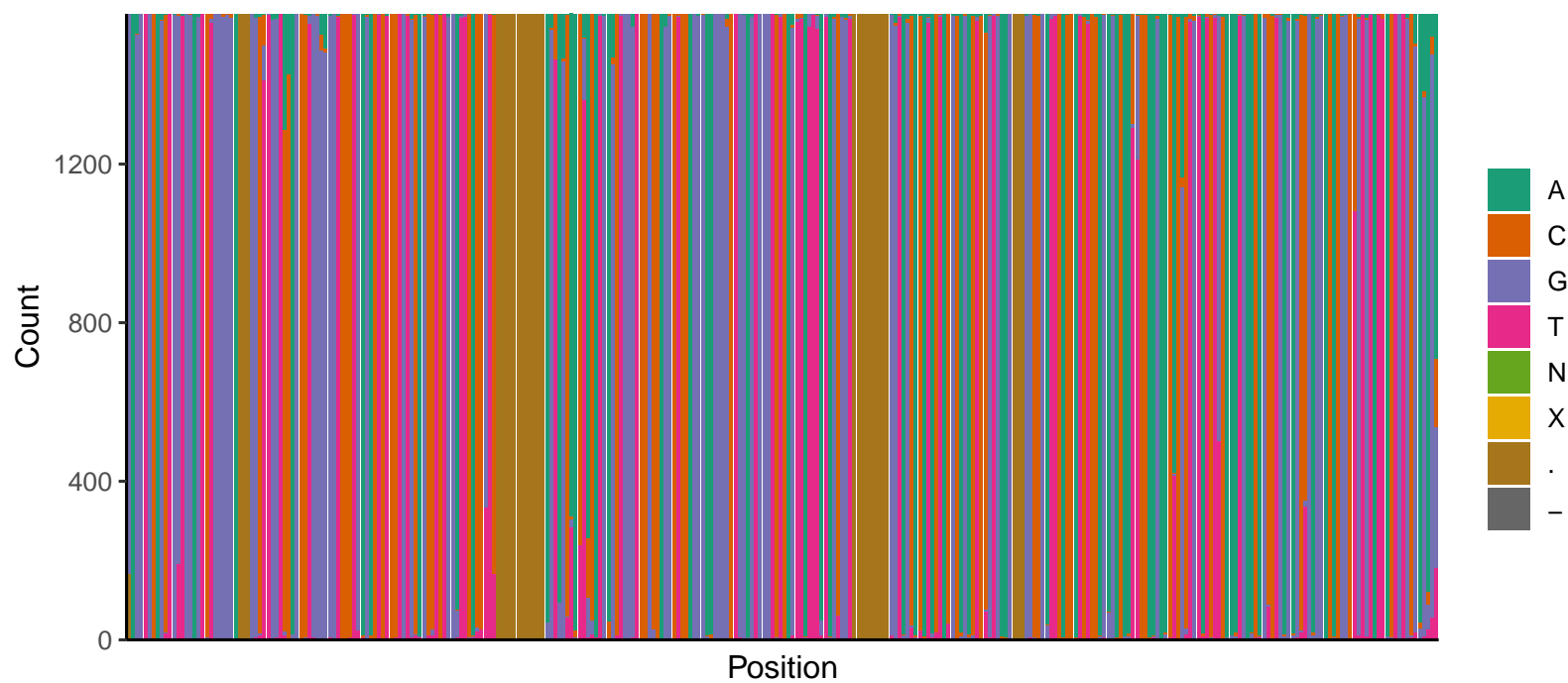
Gene IGHV3-53*02_C300T



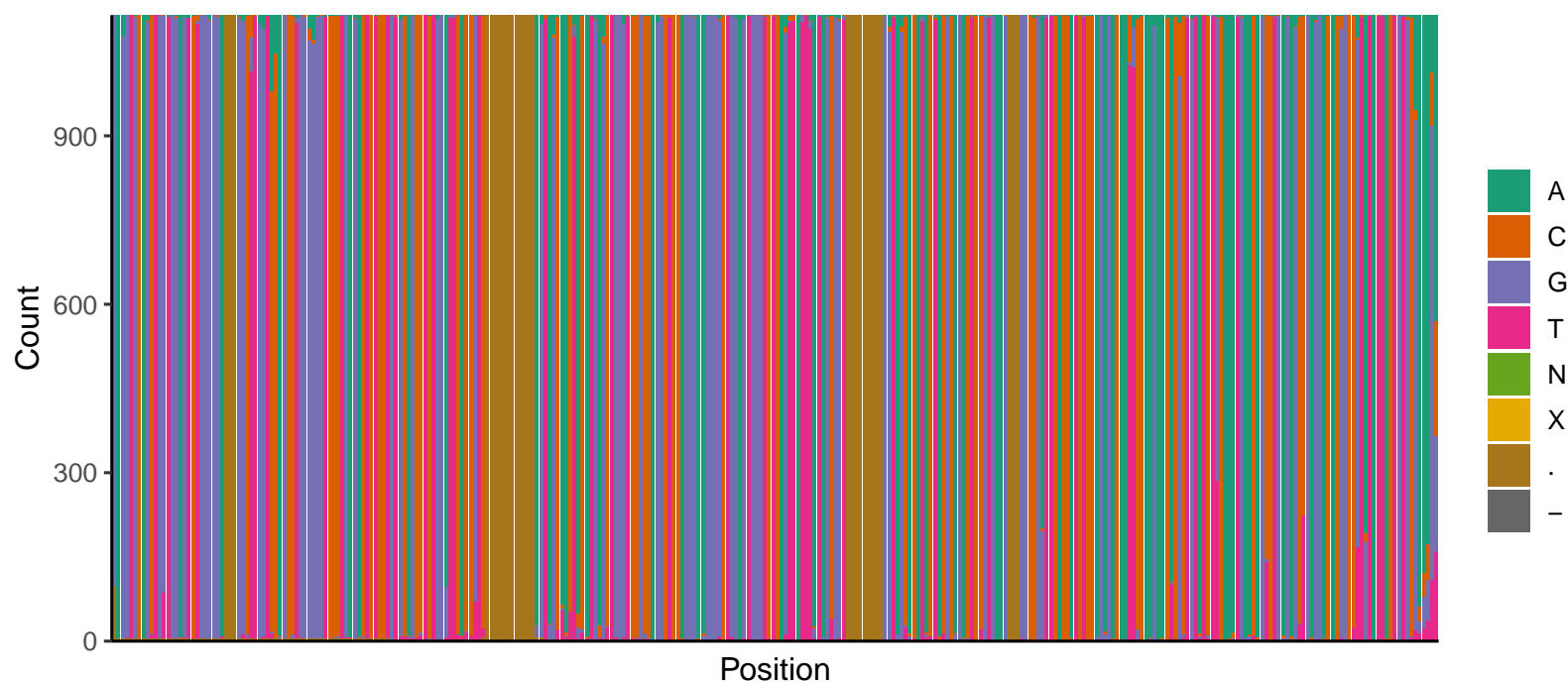
Gene IGHV3-53*05_C300T



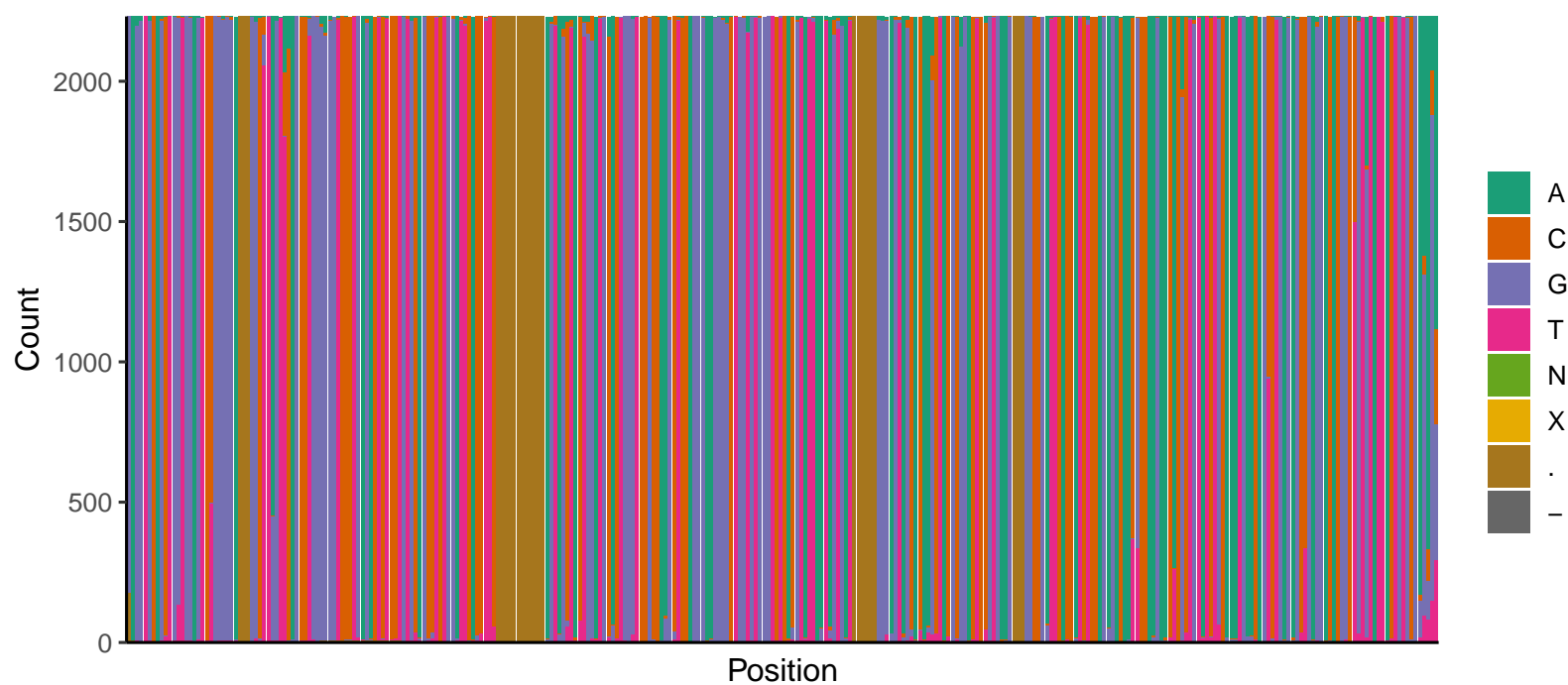
Gene IGHV3-66*01_A223C_T267G



Gene IGHV3-66*01_A223C_T267G_T300C_G303A_G317A



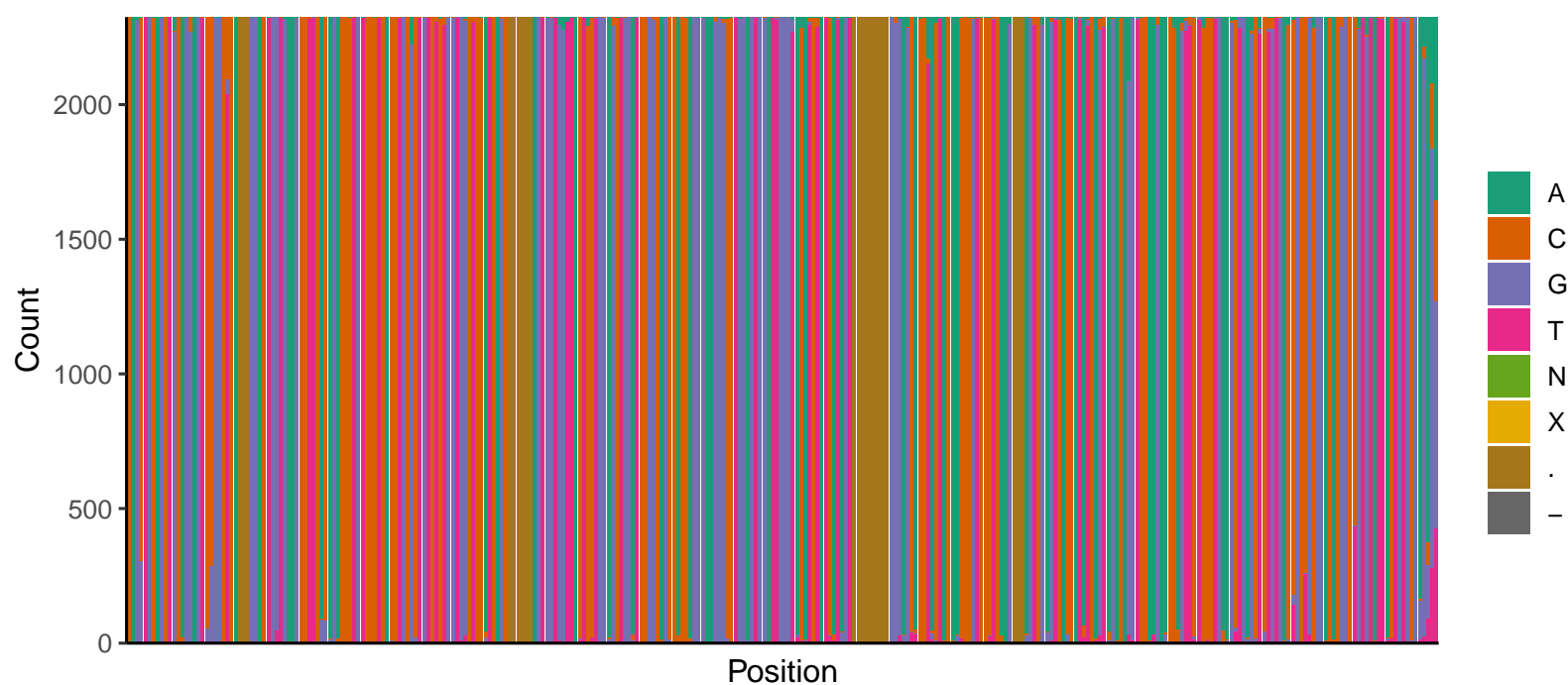
Gene IGHV3-74*01_A315G



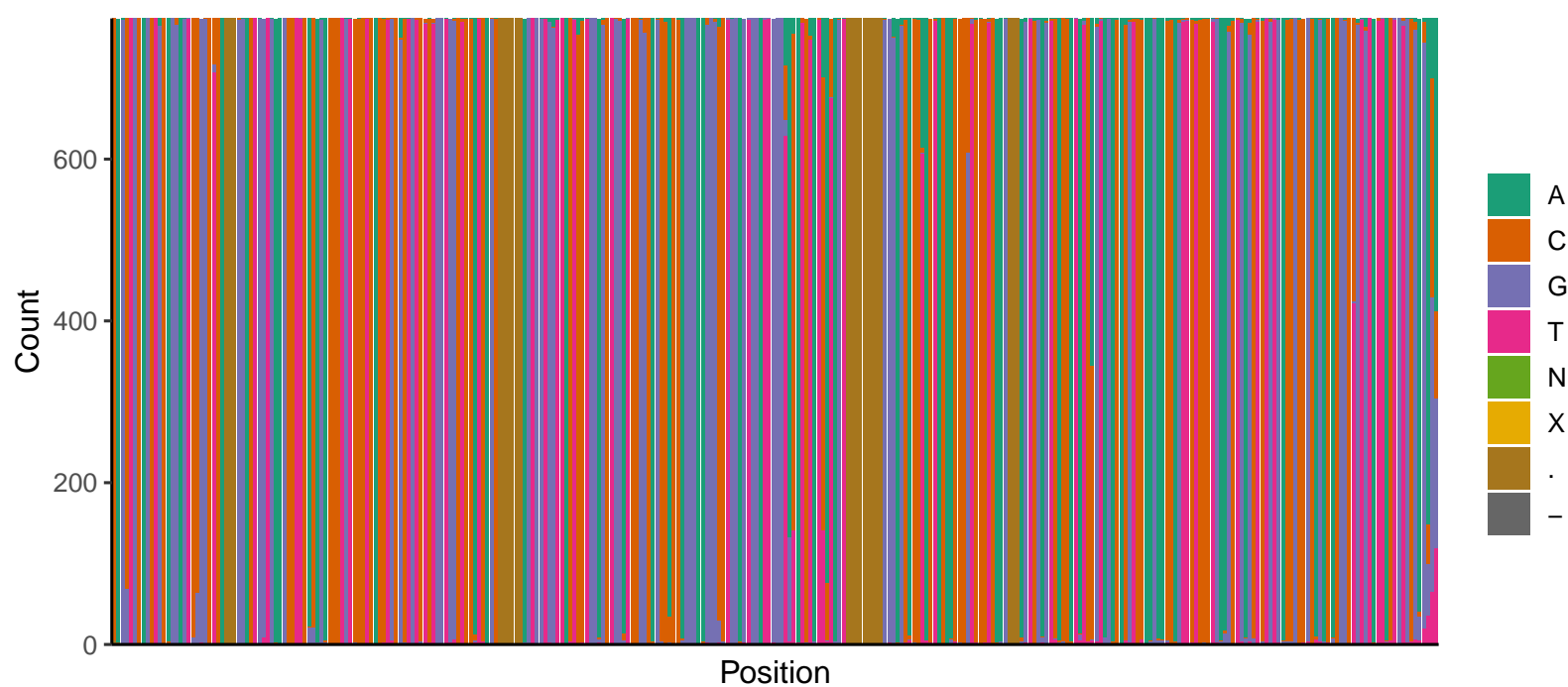
Gene IGHV4-4*07_G234A_G291A



Gene IGHV4-30-2*01_C315G



Gene IGHV4-30-2*05_T228C_T285C_C315G



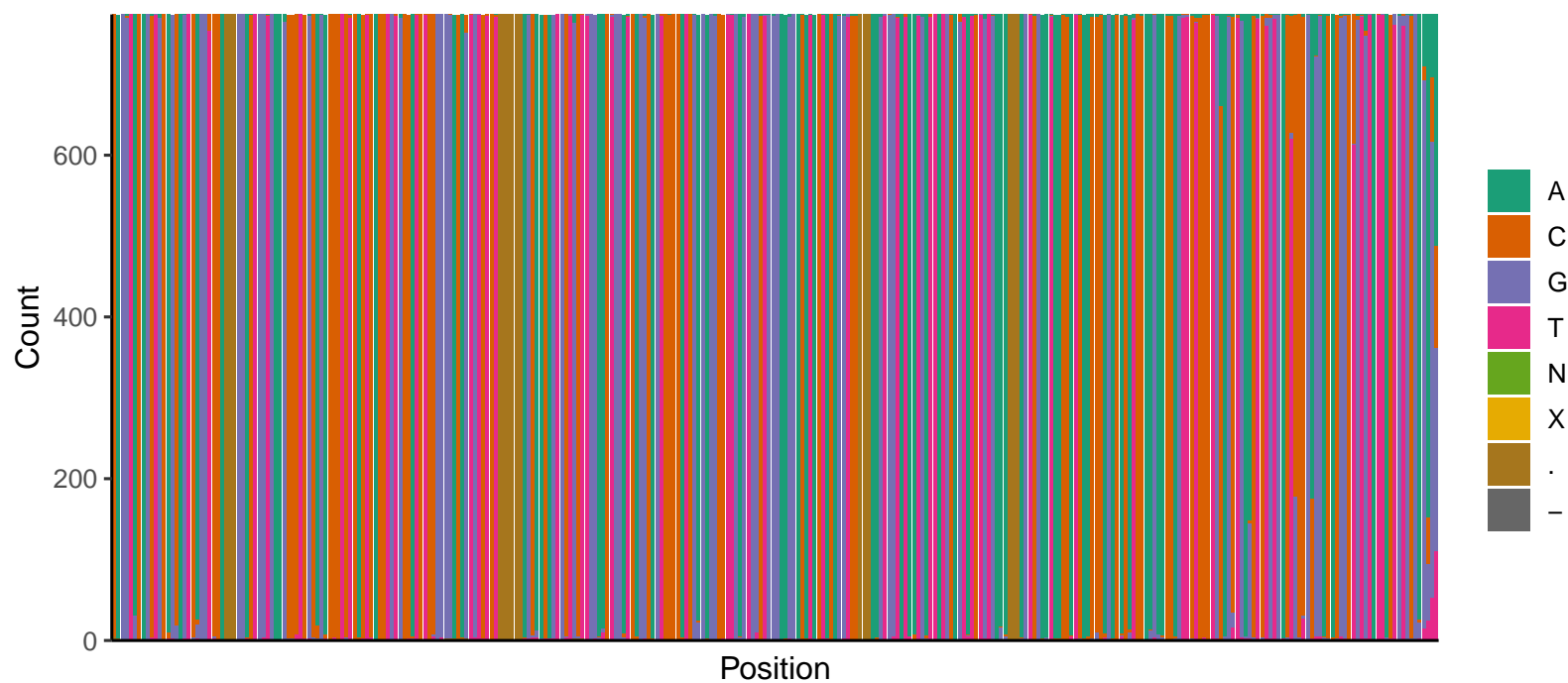
Gene IGHV4-39*02_C258G



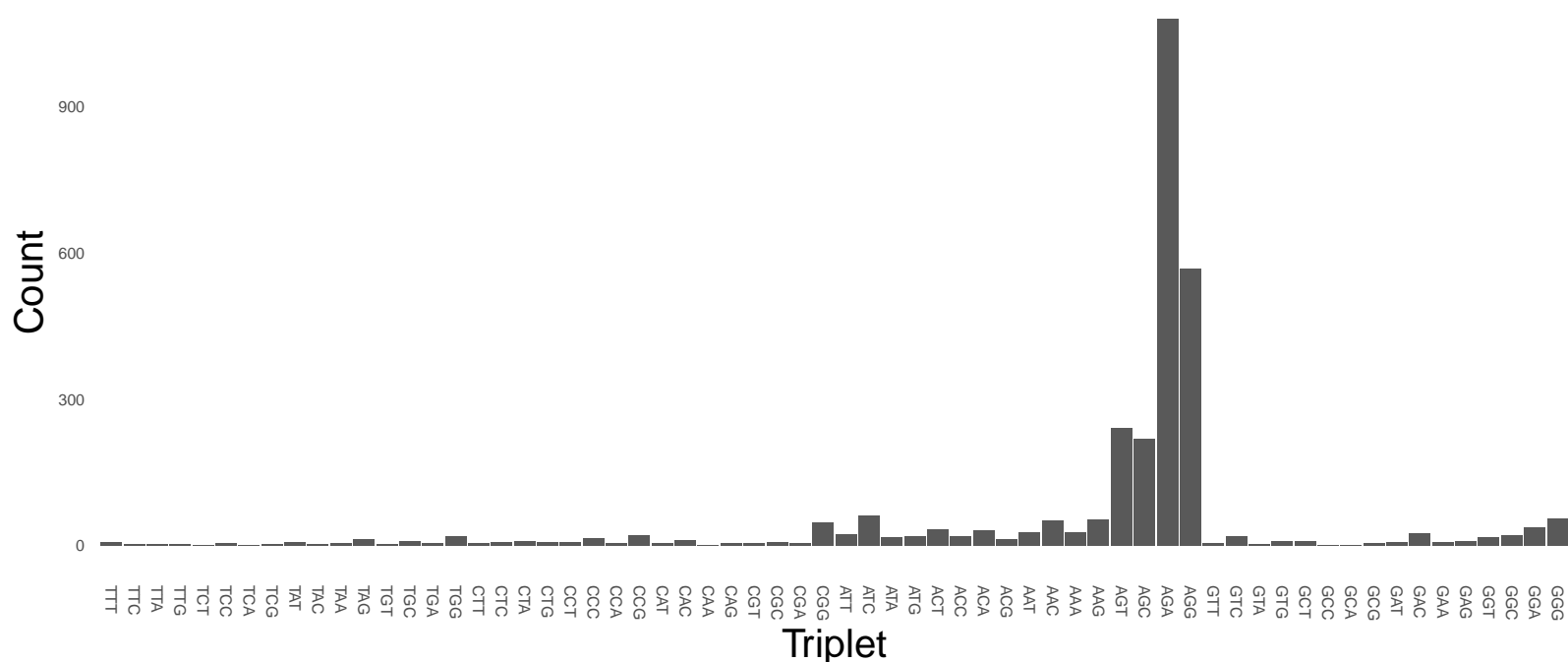
Gene IGHV4-59*01_G48A_G49C



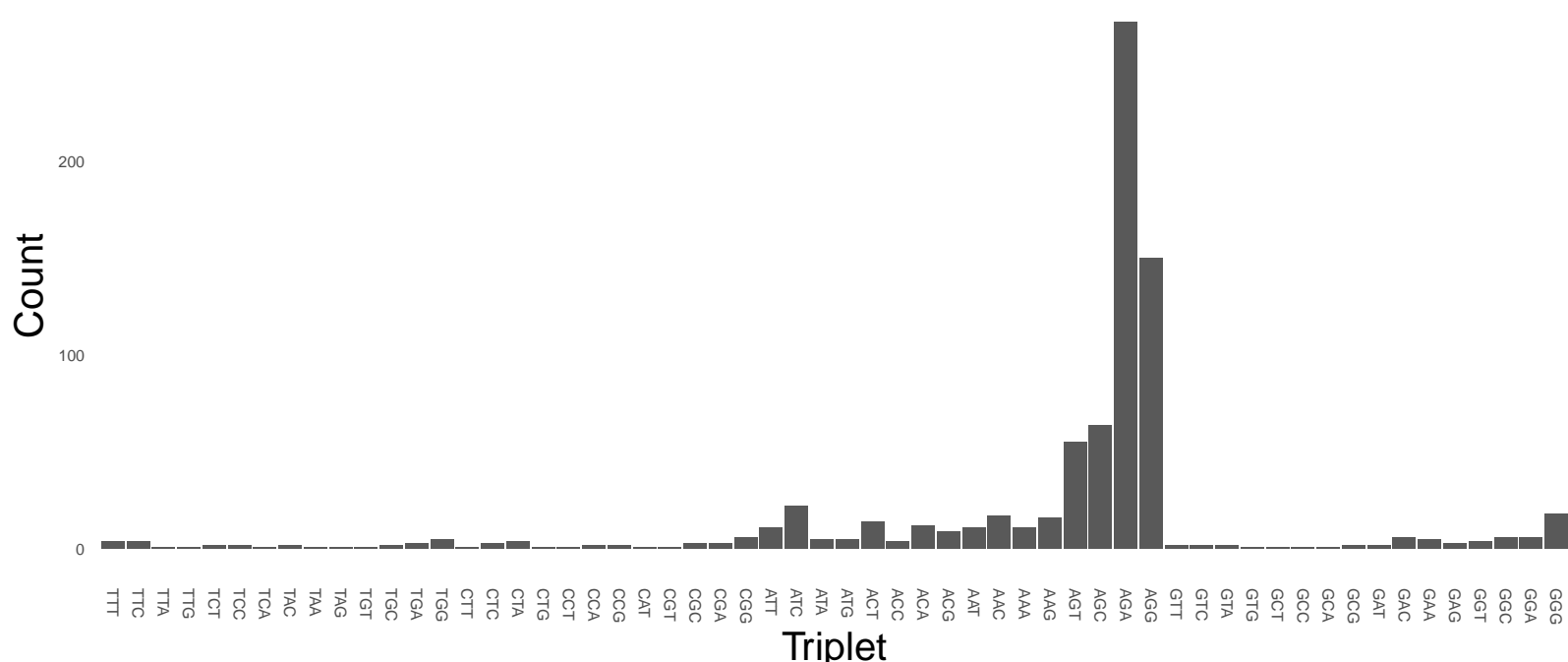
Gene IGHV6-1*01_A315G



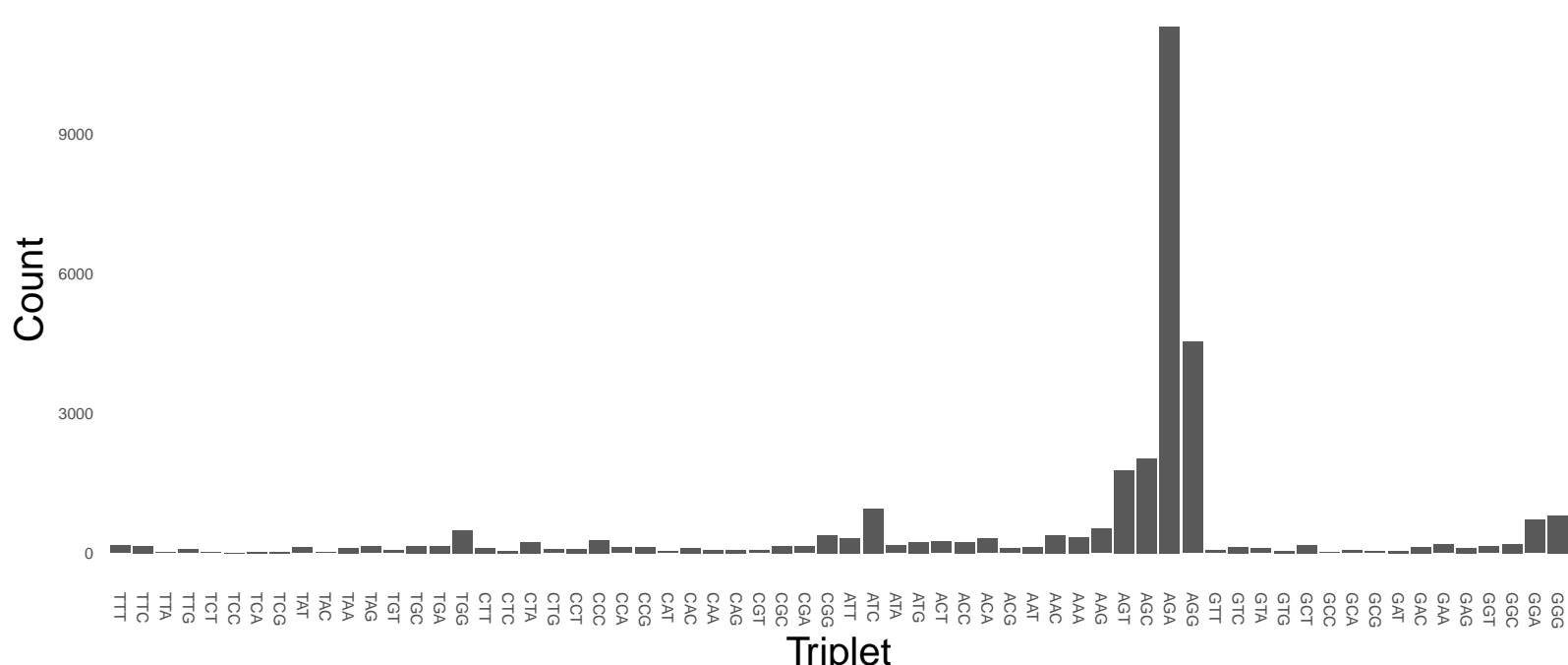
IGHV1-24*01_A315G_C317G- Final 3 nucleotides as a triplet



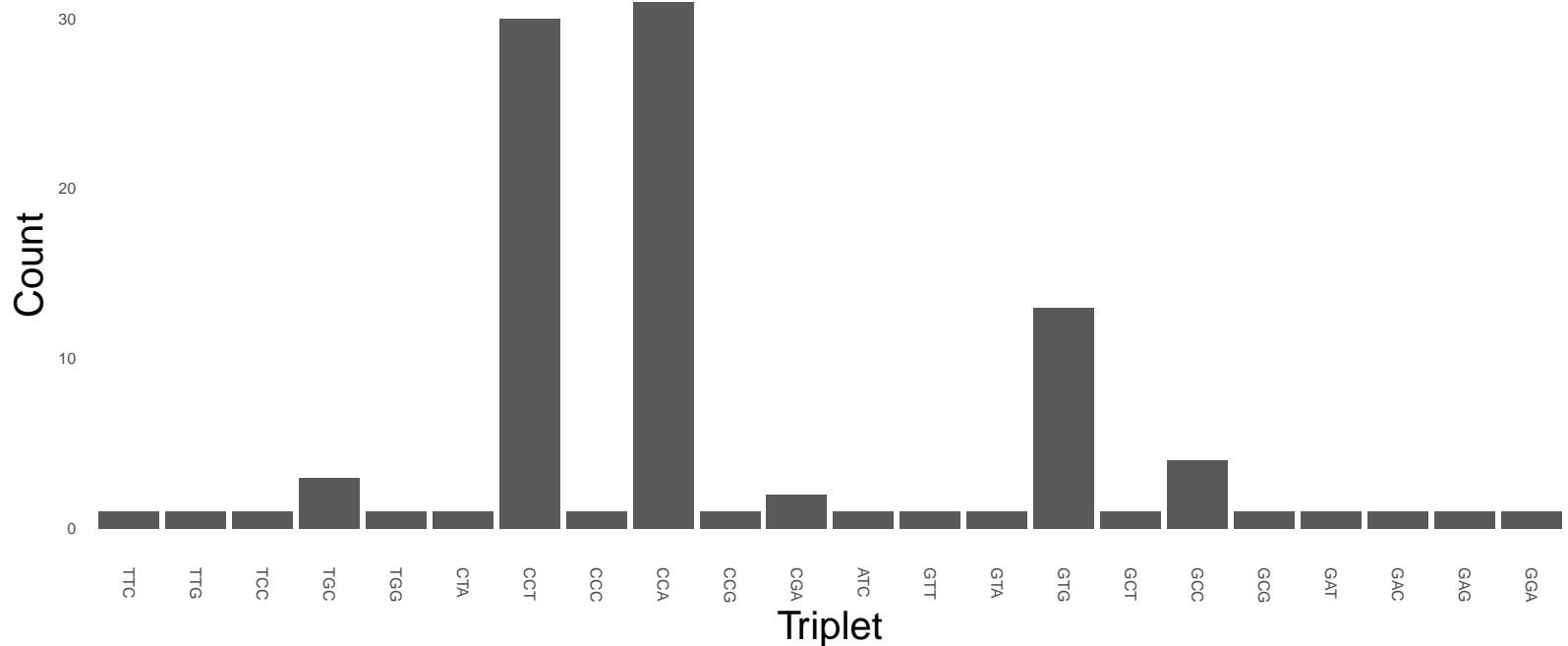
IGHV1-58*02_G316A_C317G- Final 3 nucleotides as a triplet



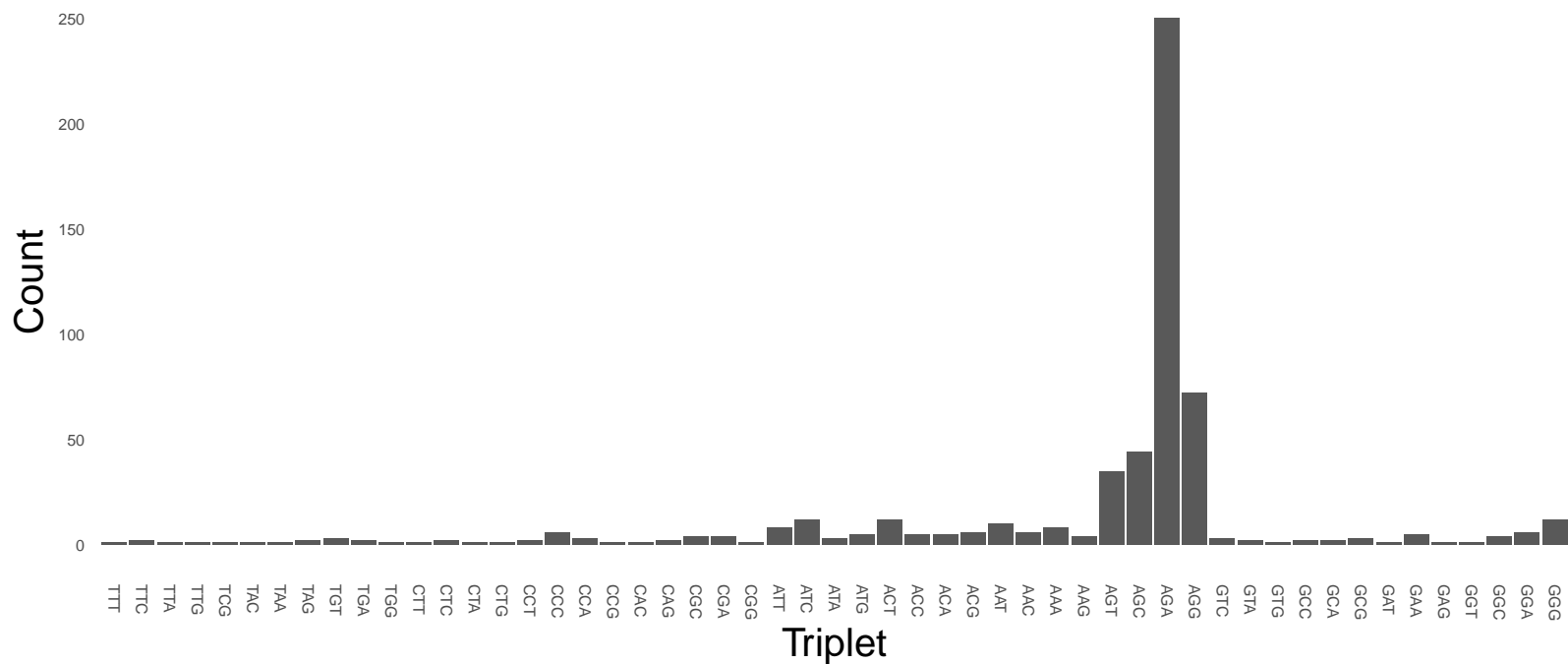
IGHV1-69*08_C191T- Final 3 nucleotides as a triplet



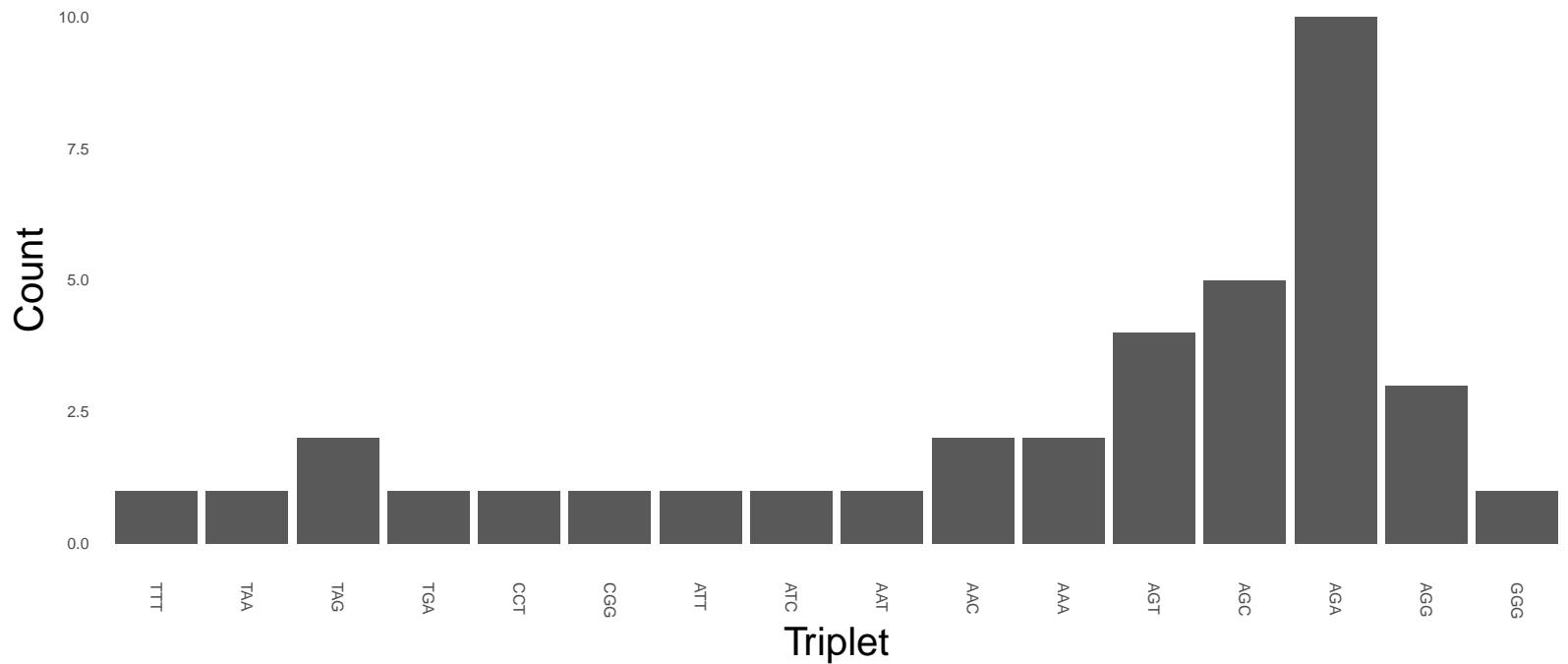
IGHV2-70*04_T116C- Final 3 nucleotides as a triplet



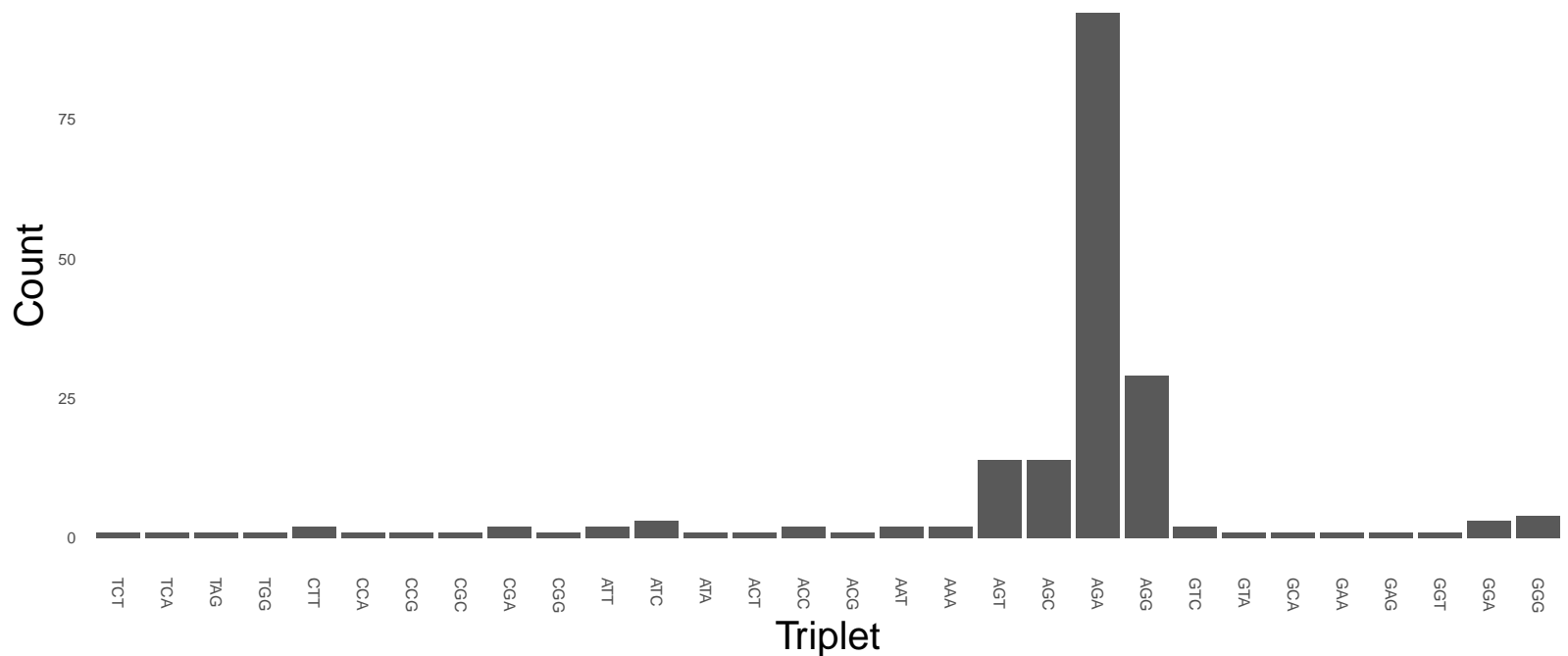
IGHV3-13*01_A315G- Final 3 nucleotides as a triplet



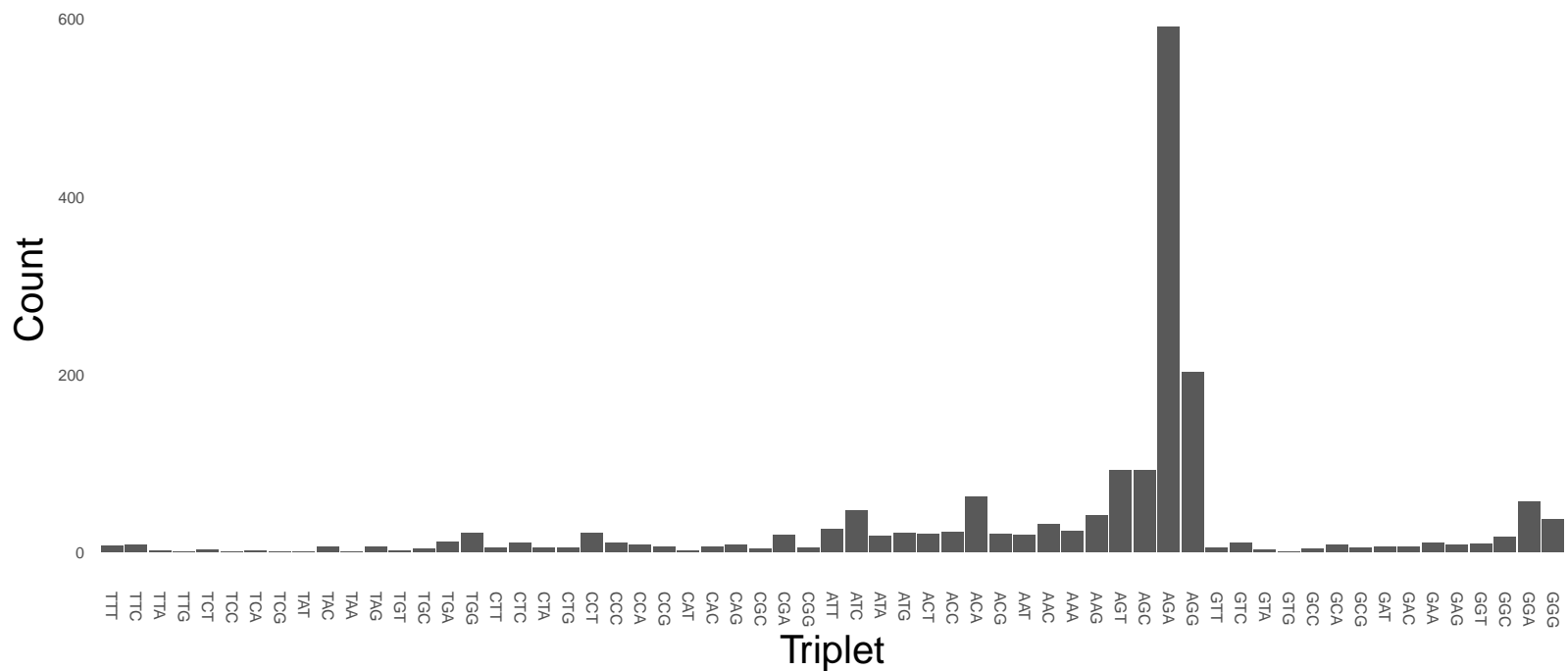
IGHV3-20*04_T301G- Final 3 nucleotides as a triplet



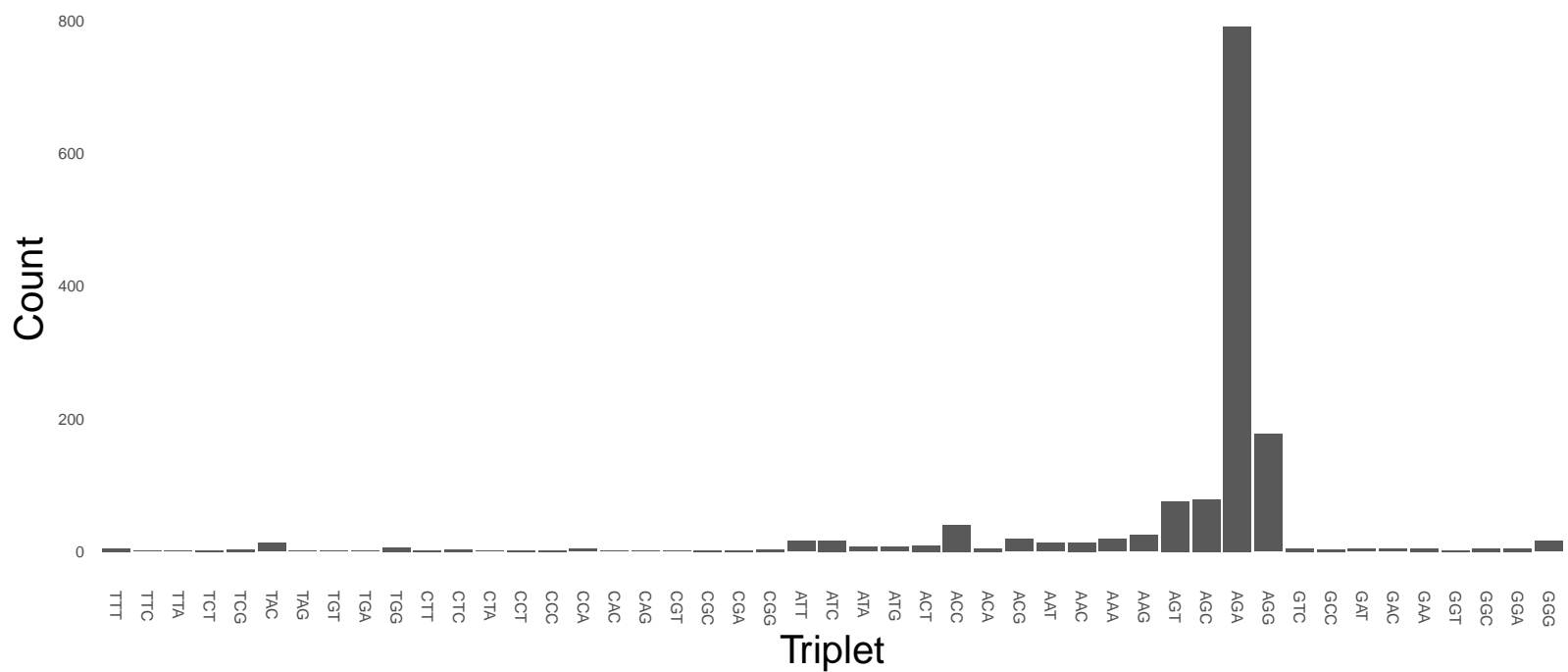
IGHV3-20*04_T279C_C300T_T301G- Final 3 nucleotides as a triplet



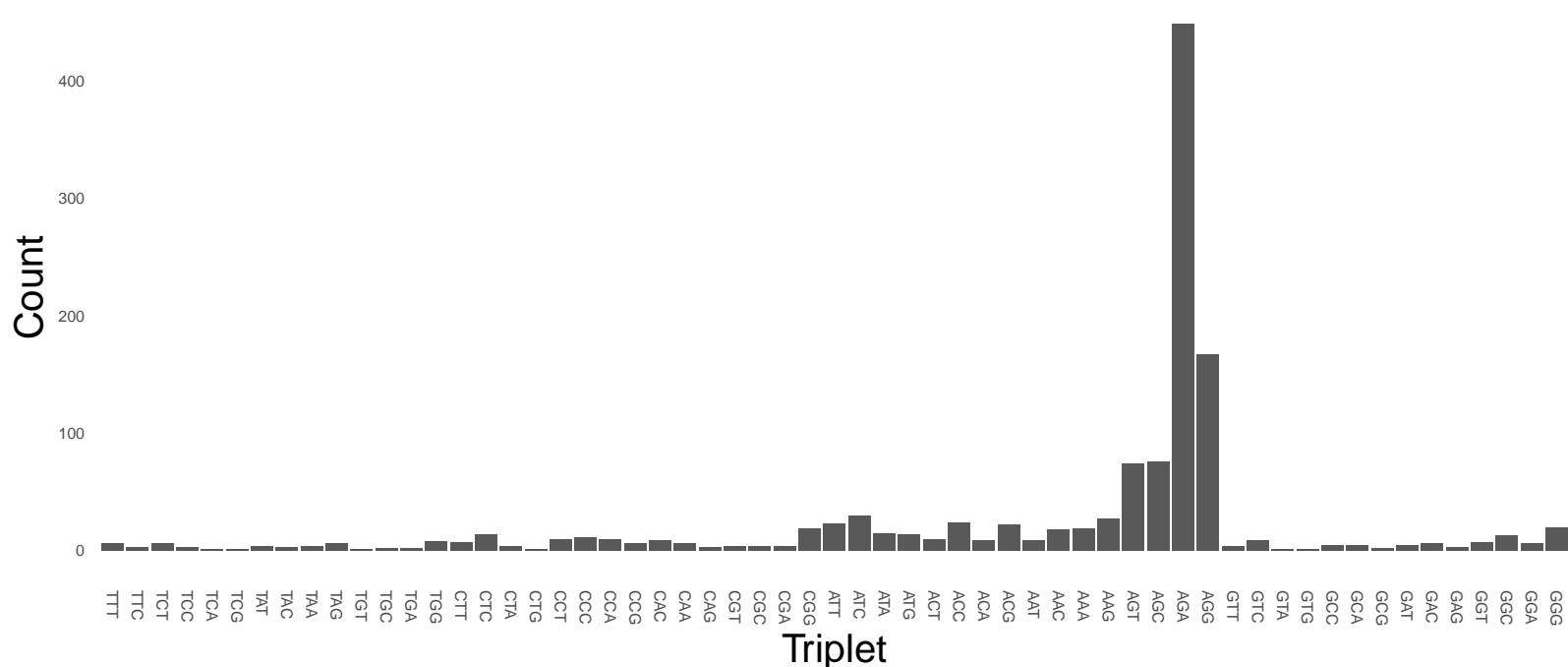
IGHV3-30*03_T288C- Final 3 nucleotides as a triplet



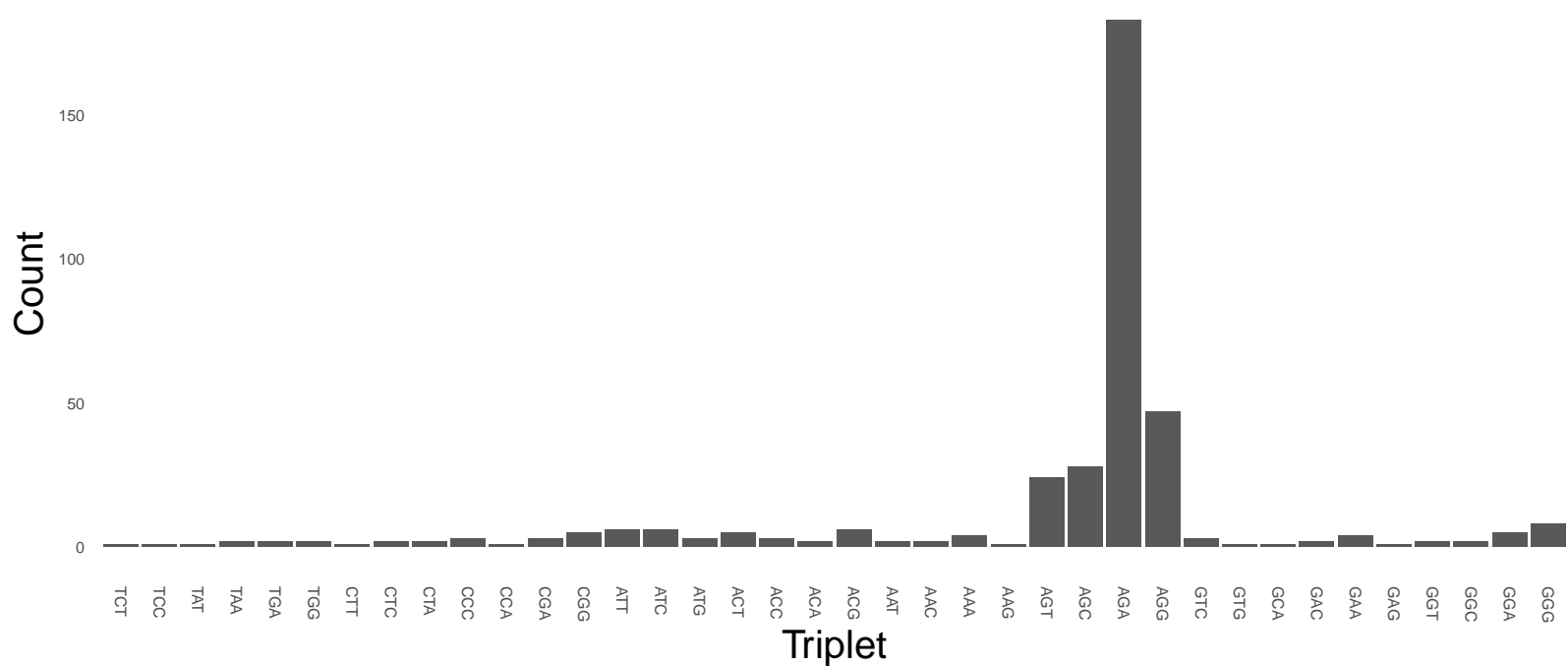
IGHV3-30-3*02_G75C- Final 3 nucleotides as a triplet



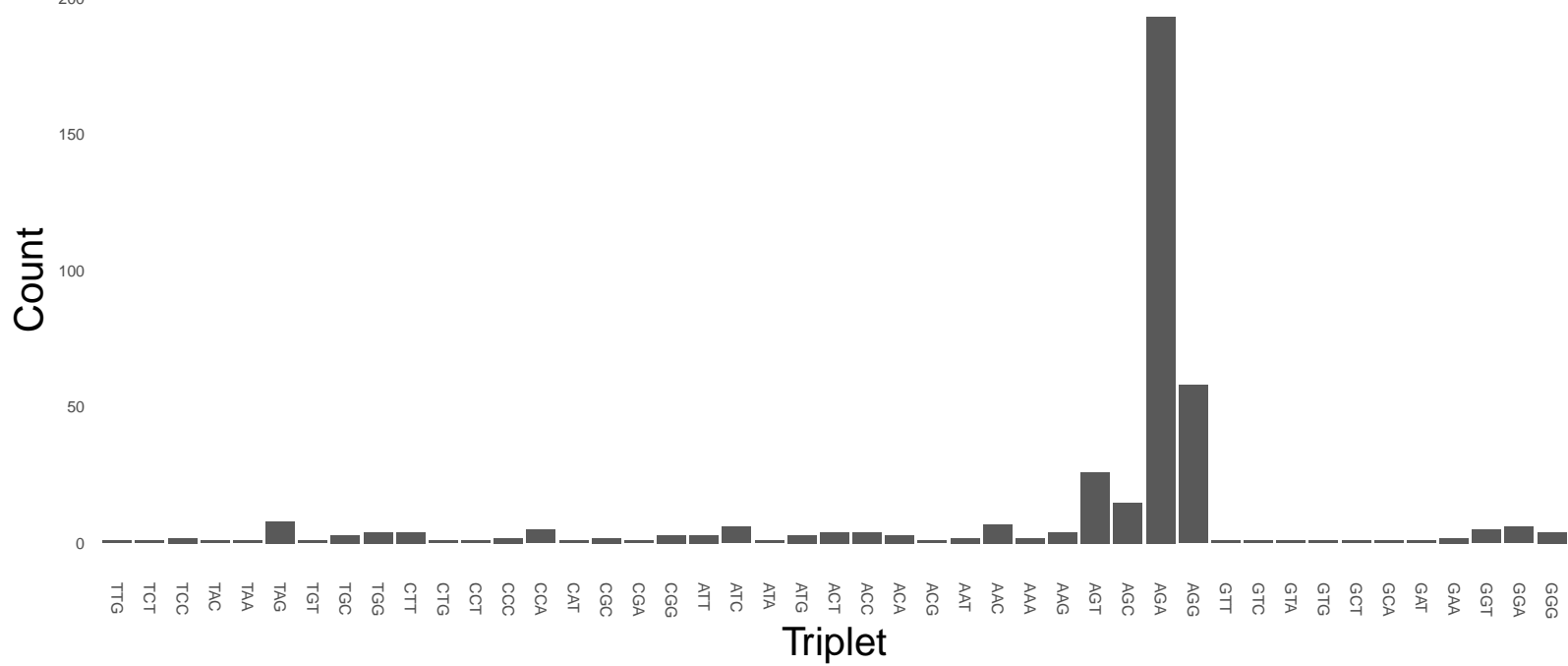
IGHV3-30-3*02_G75C_T288C_T300C_G303A- Final 3 nucleotides as a triplet



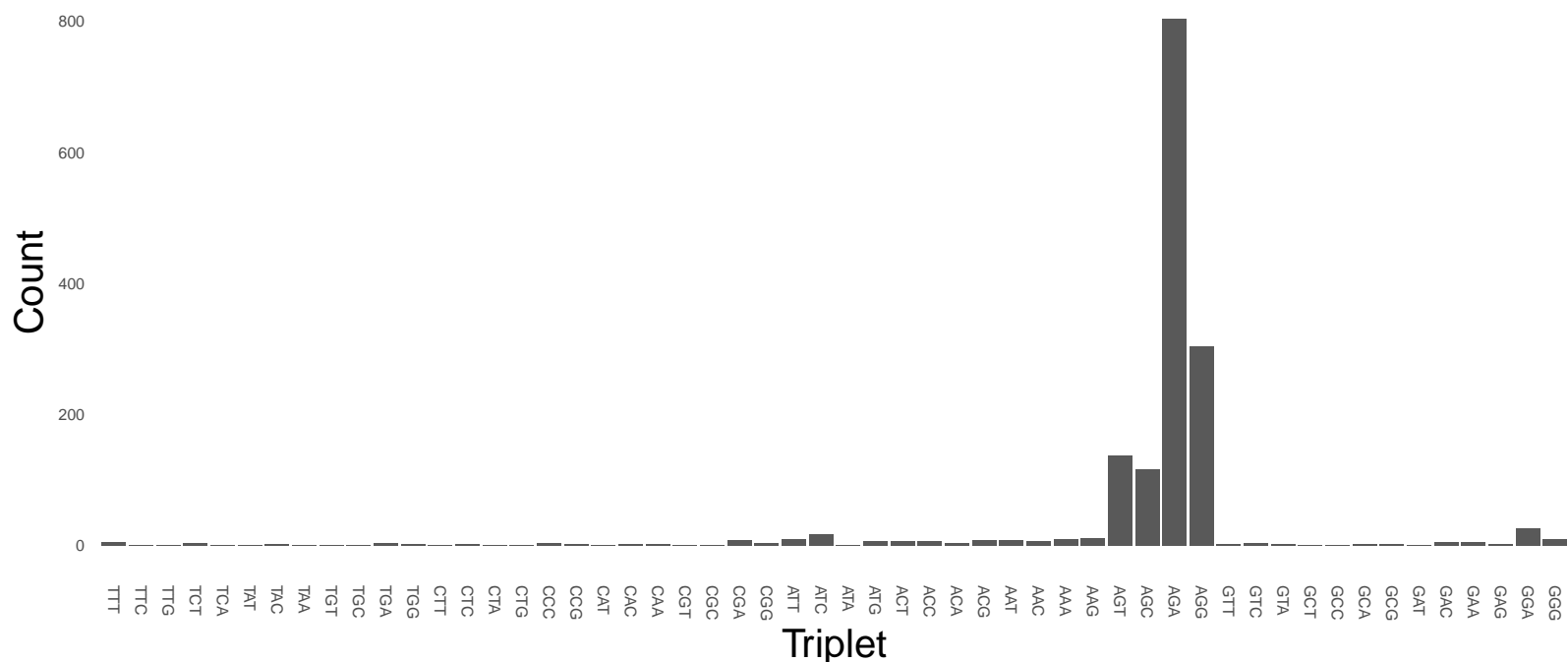
IGHV3-53*02_C300T- Final 3 nucleotides as a triplet



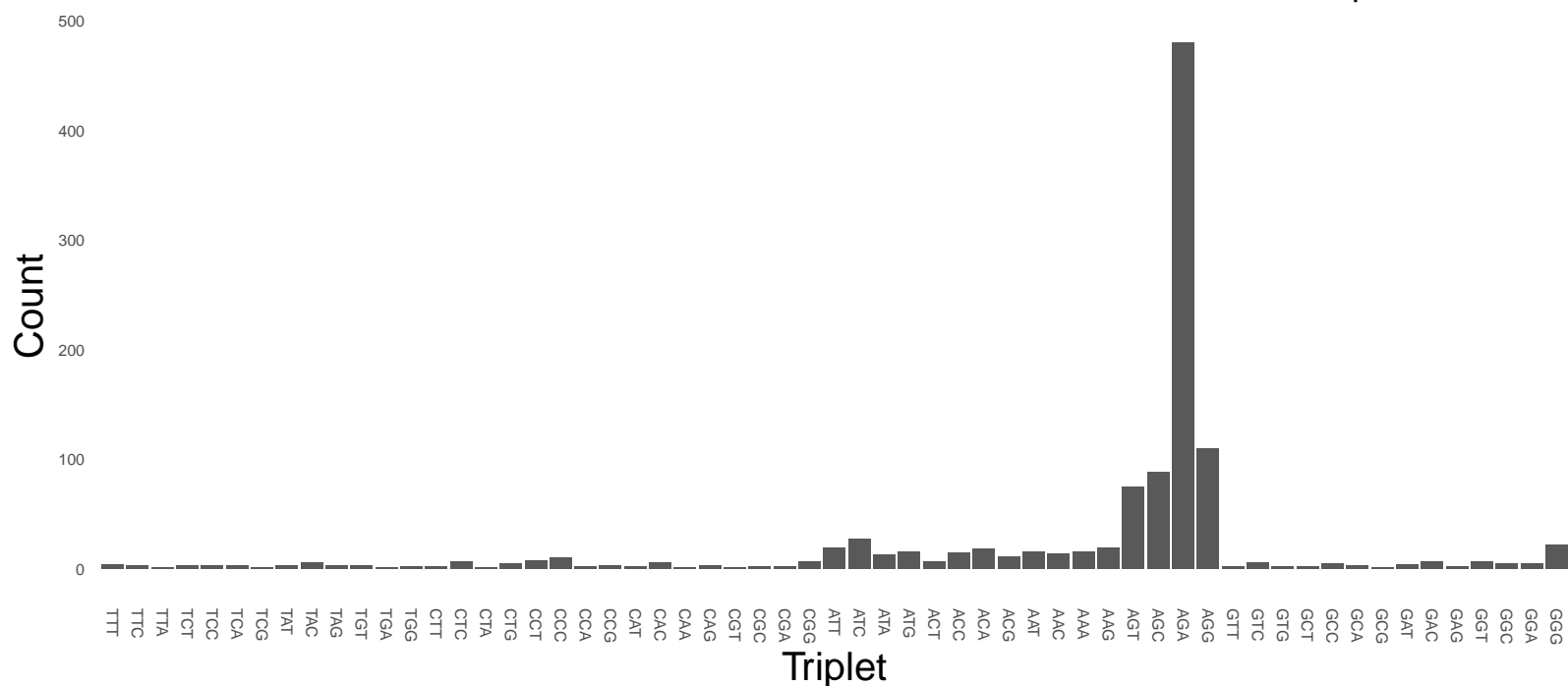
IGHV3-53*05_C300T- Final 3 nucleotides as a triplet



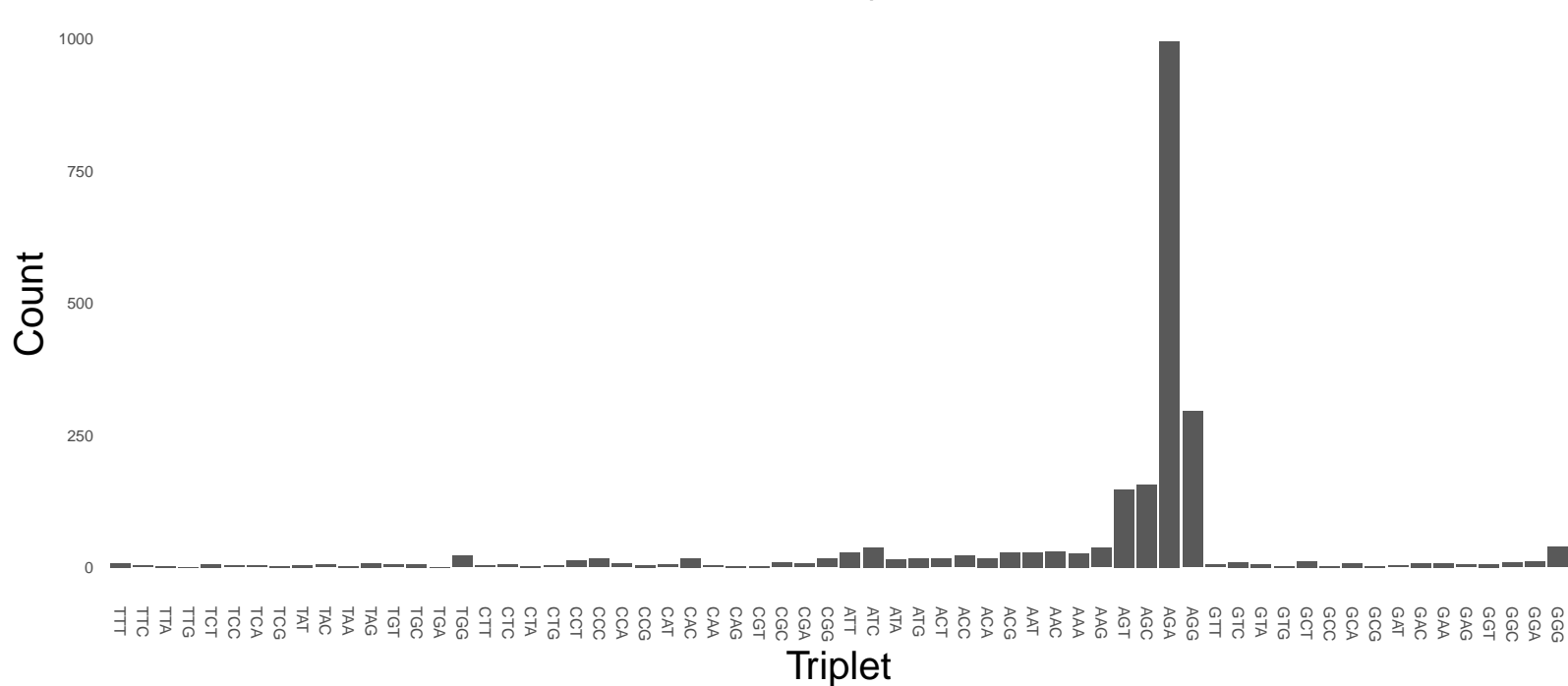
IGHV3-66*01_A223C_T267G- Final 3 nucleotides as a triplet



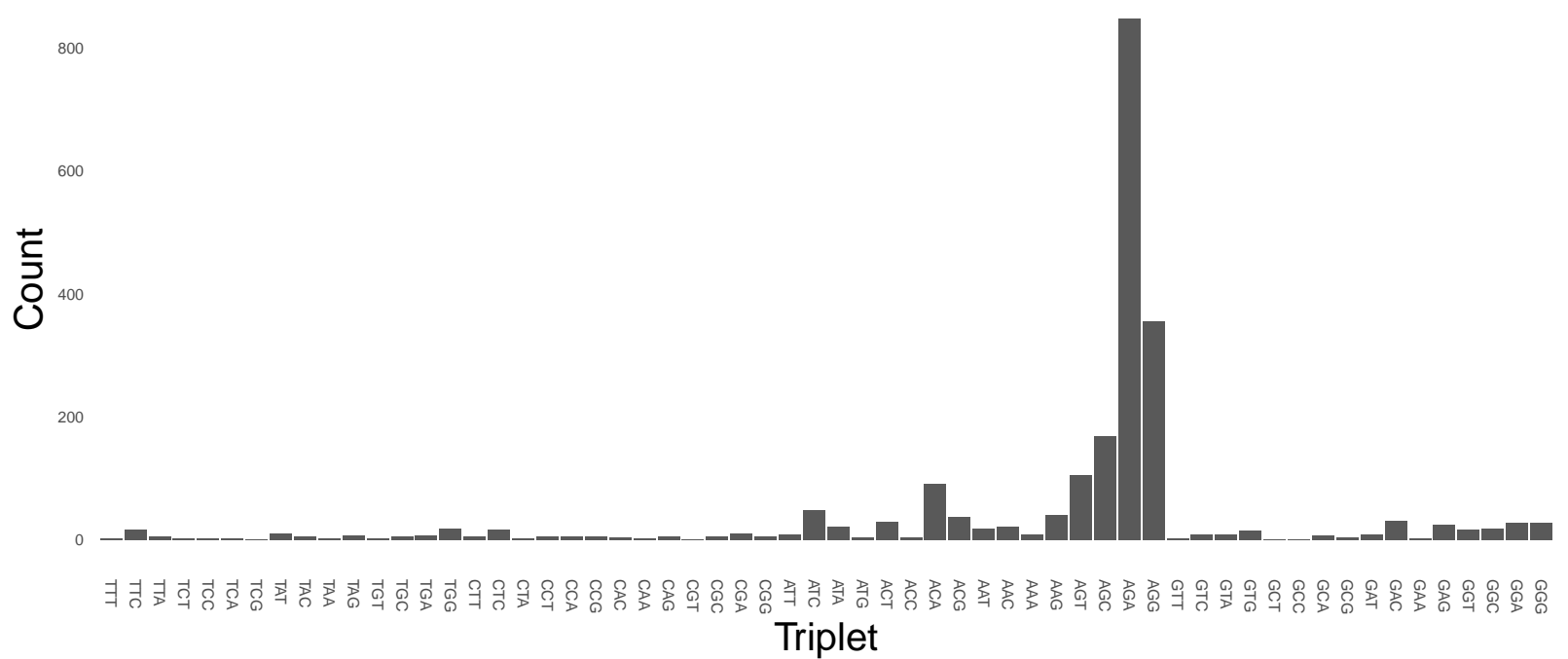
IGHV3-66*01_A223C_T267G_T300C_G303A_G317A- Final 3 nucleotides as a triplet



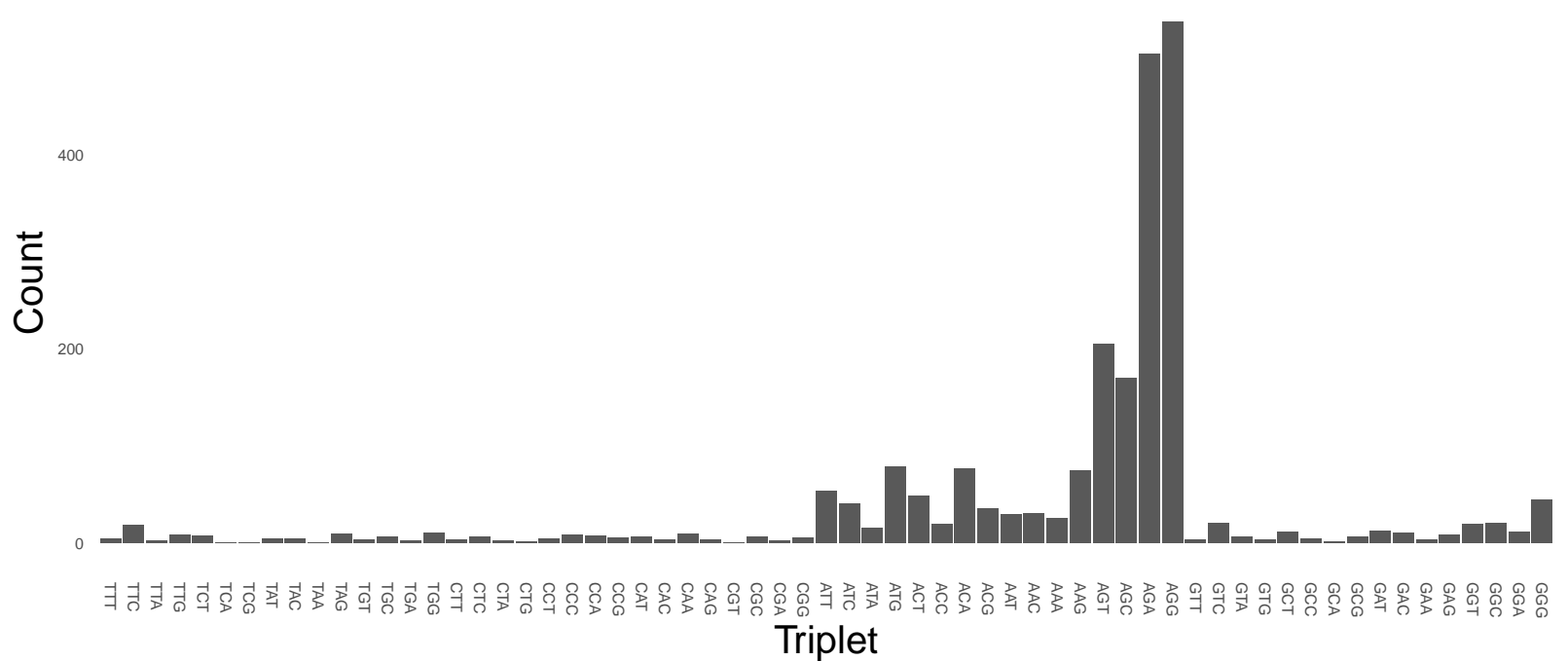
IGHV3-74*01_A315G- Final 3 nucleotides as a triplet



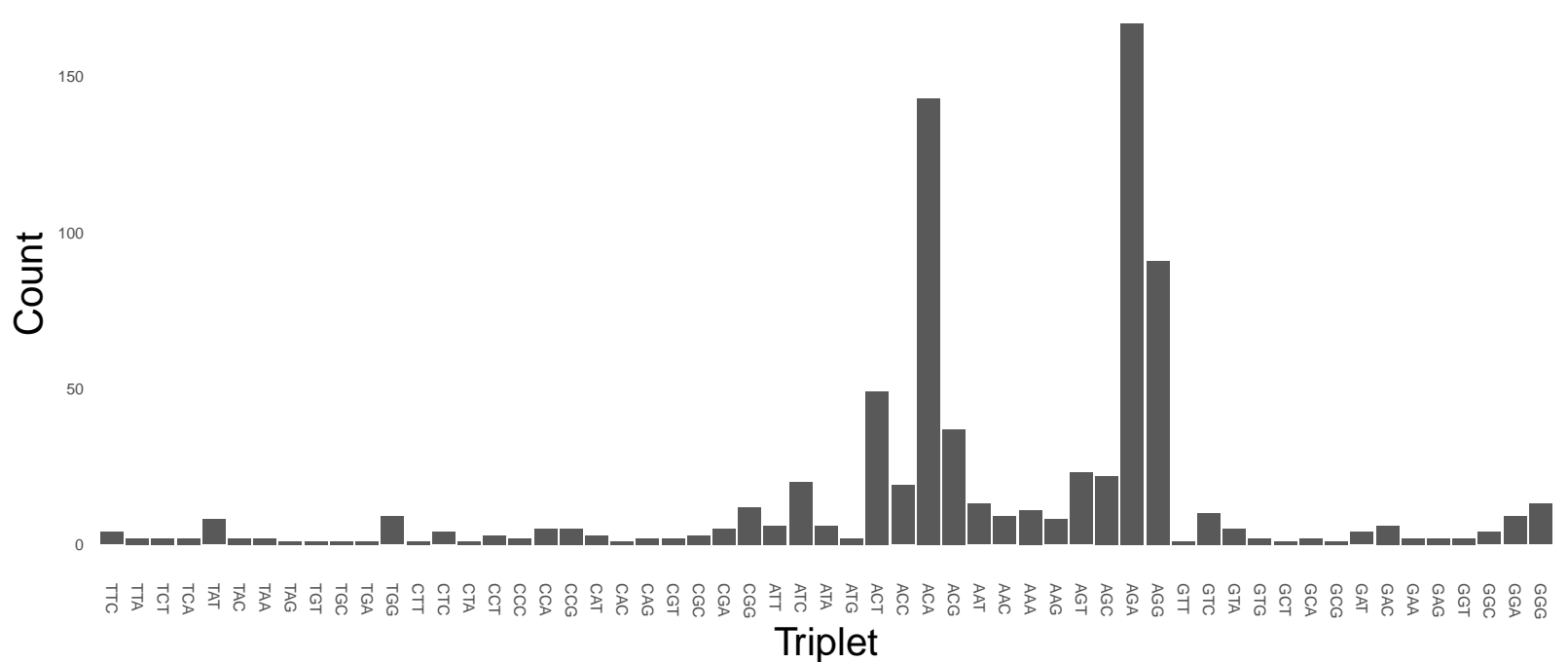
IGHV4-4*07_G234A_G291A- Final 3 nucleotides as a triplet



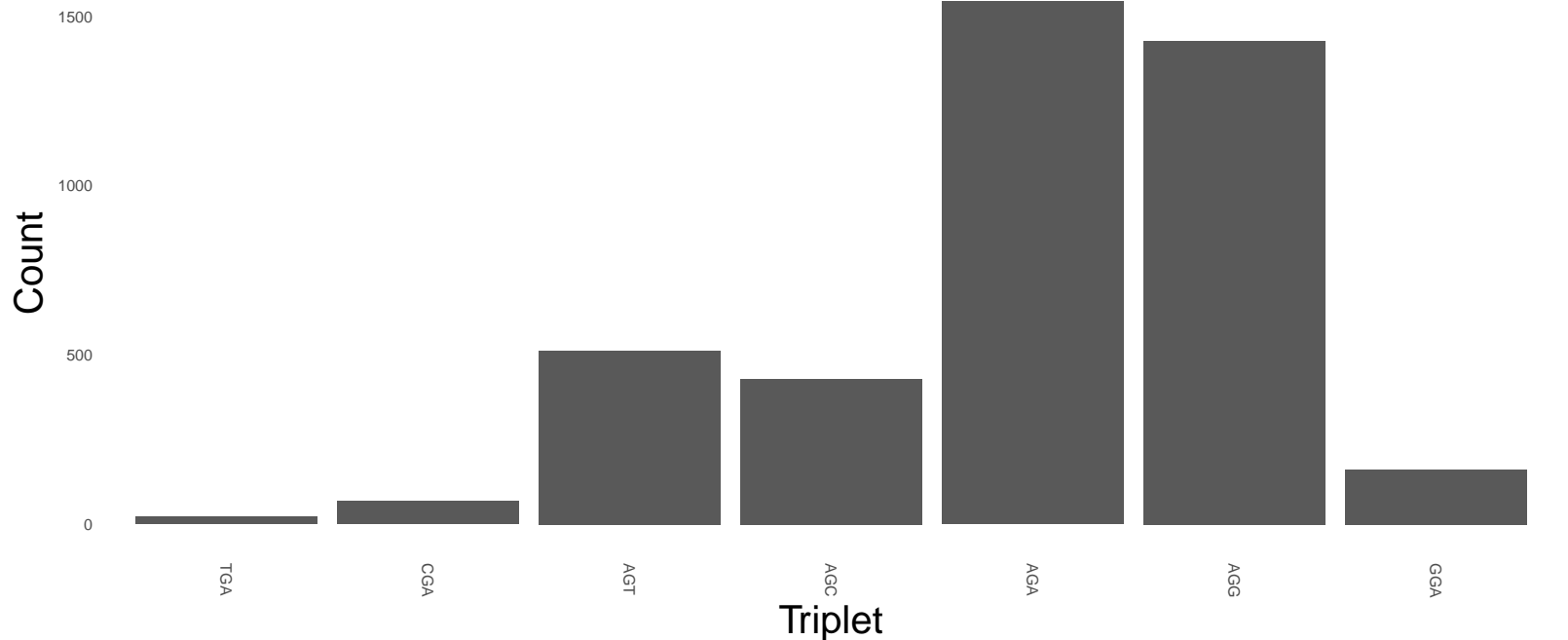
IGHV4-30-2*01_C315G- Final 3 nucleotides as a triplet



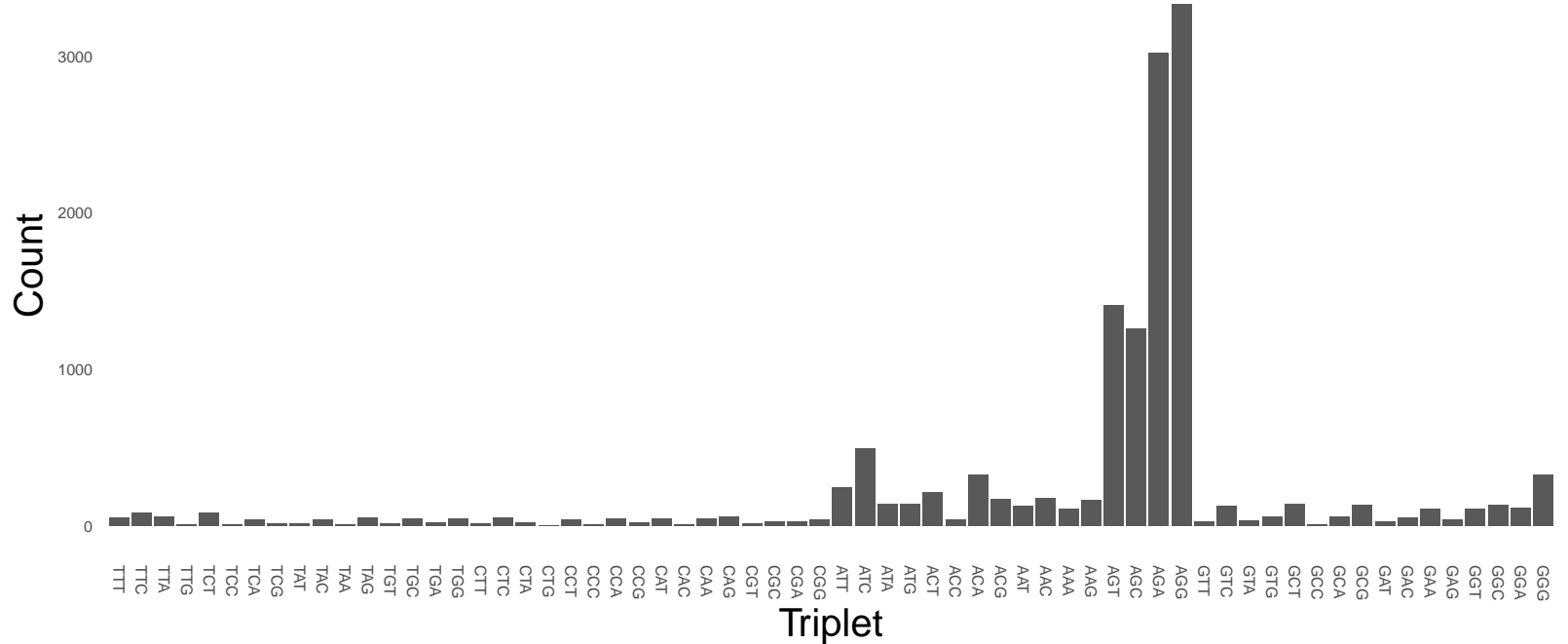
IGHV4-30-2*05_T228C_T285C_C315G- Final 3 nucleotides as a triplet



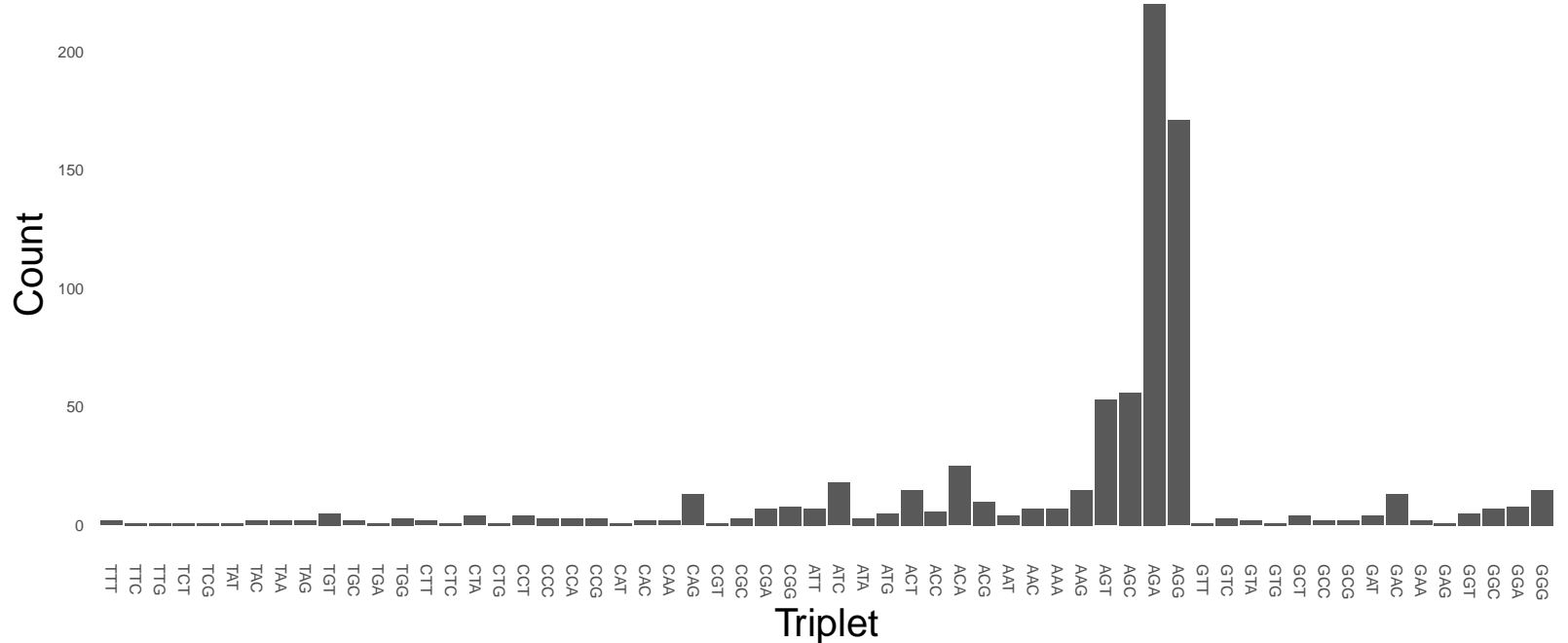
IGHV4-39*02_C258G- Final 3 nucleotides as a triplet



IGHV4-59*01_G48A_G49C- Final 3 nucleotides as a triplet

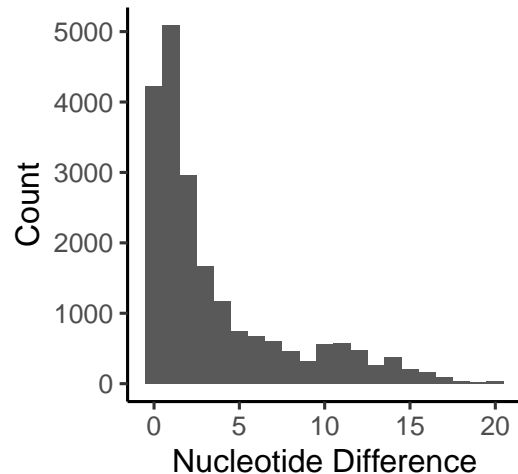


IGHV6-1*01_A315G- Final 3 nucleotides as a triplet



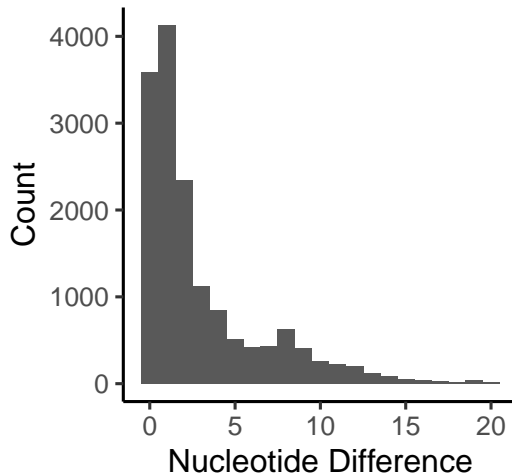
IGHV1-2*02

20971 sequences assigned
4220 (20.1%) exact matches, in which:
3453 unique CDR3
7 unique J



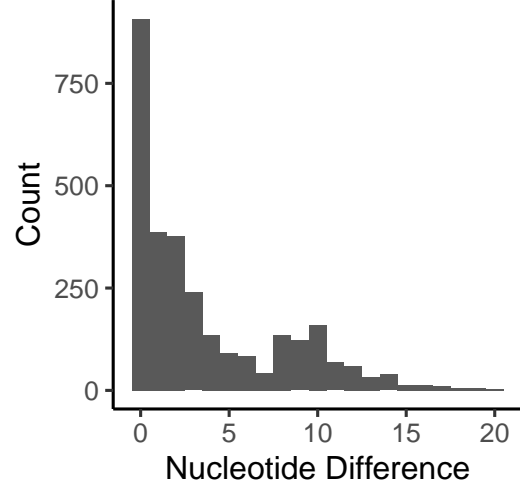
IGHV1-8*01

15613 sequences assigned
3586 (23%) exact matches, in which:
3043 unique CDR3
7 unique J



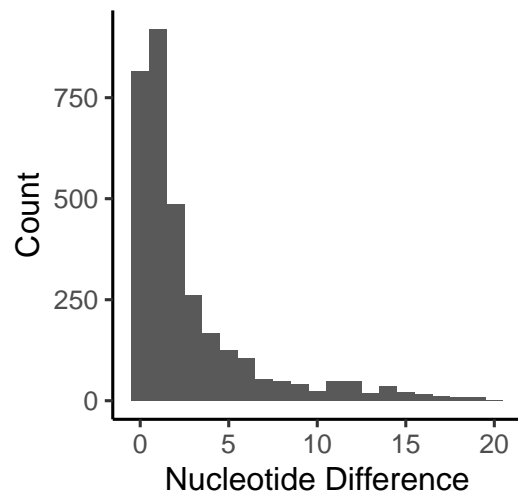
IGHV1-24*01_A315G_CS

2990 sequences assigned
908 (30.4%) exact matches, in which:
896 unique CDR3
7 unique J



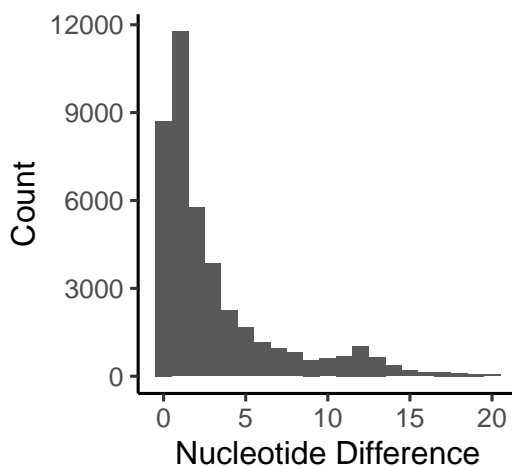
IGHV1-2*04

3303 sequences assigned
816 (24.7%) exact matches, in which:
664 unique CDR3
7 unique J



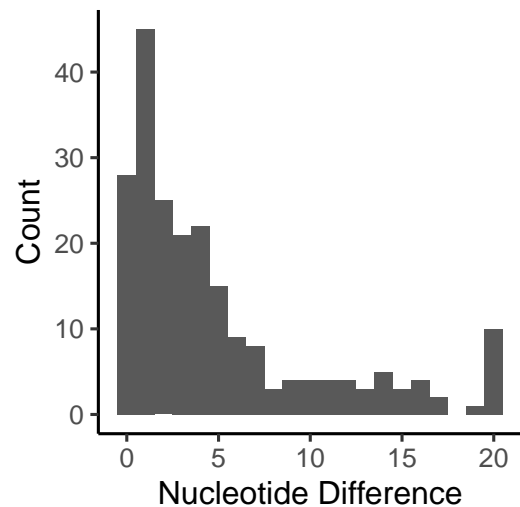
IGHV1-18*01

41955 sequences assigned
8718 (20.8%) exact matches, in which:
6999 unique CDR3
7 unique J



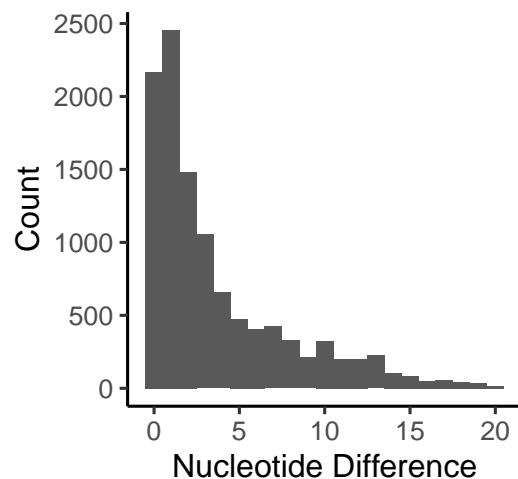
IGHV1-45*02

226 sequences assigned
28 (12.4%) exact matches, in which:
24 unique CDR3
6 unique J



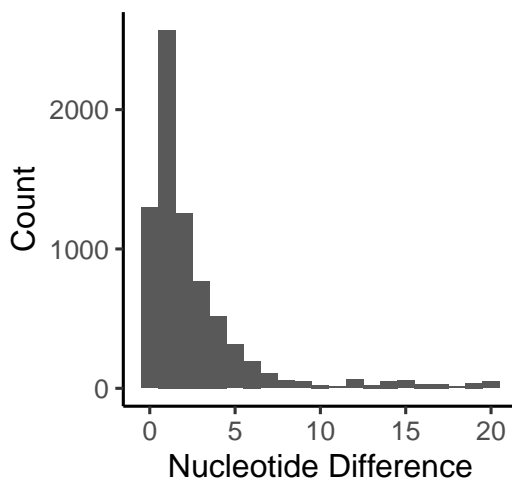
IGHV1-3*01

11168 sequences assigned
2169 (19.4%) exact matches, in which:
1812 unique CDR3
7 unique J



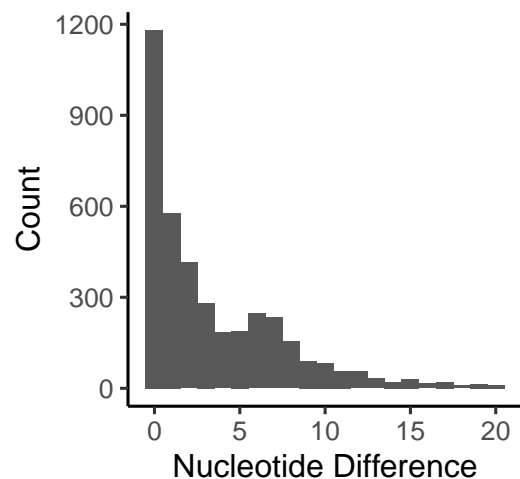
IGHV1-24*01

7776 sequences assigned
1297 (16.7%) exact matches, in which:
893 unique CDR3
7 unique J



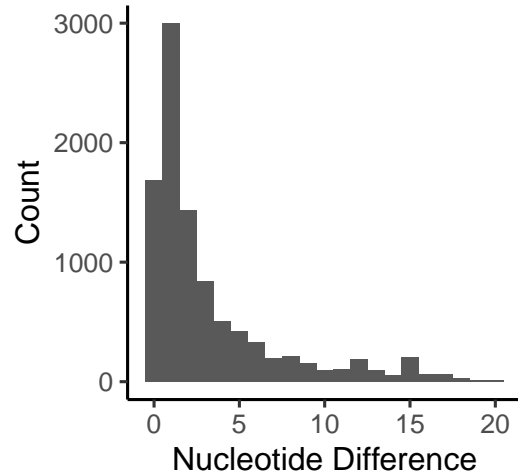
IGHV1-46*01

3979 sequences assigned
1181 (29.7%) exact matches, in which:
1162 unique CDR3
7 unique J



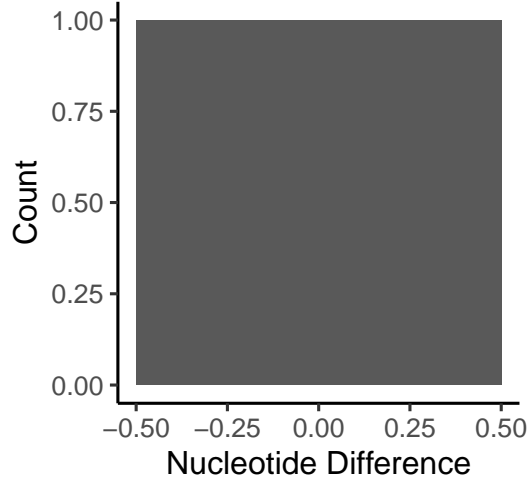
IGHV1-46*03

9854 sequences assigned
1688 (17.1%) exact matches, in which:
1260 unique CDR3
7 unique J



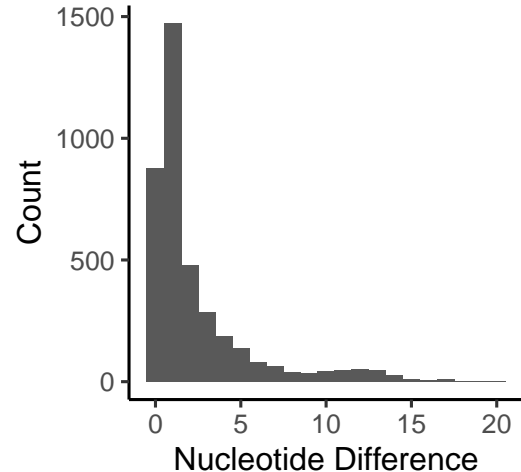
IGHV1-69-2*01

1 sequences assigned
1 (100%) exact matches, in which:
1 unique CDR3
1 unique J



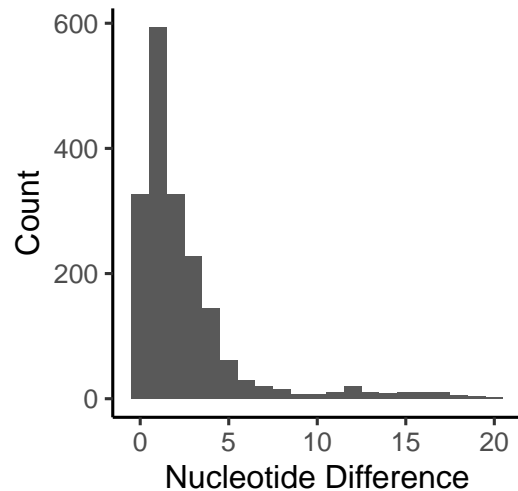
IGHV2-26*01

4048 sequences assigned
877 (21.7%) exact matches, in which:
728 unique CDR3
7 unique J



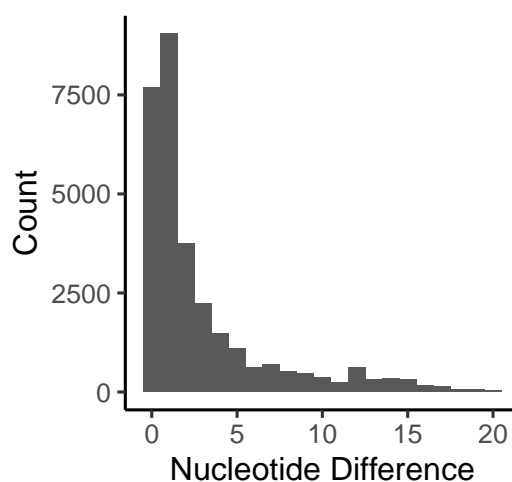
IGHV1-58*02

1864 sequences assigned
326 (17.5%) exact matches, in which:
198 unique CDR3
6 unique J



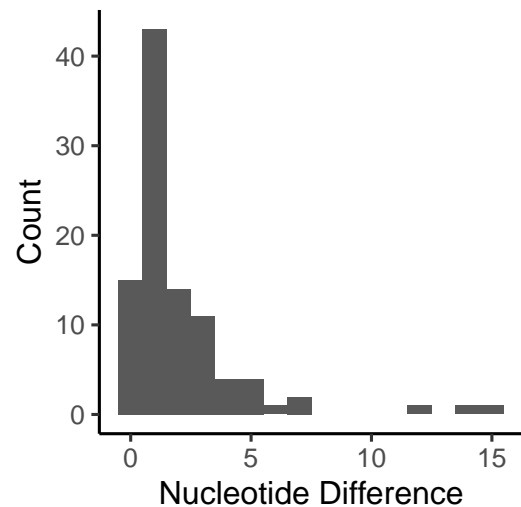
IGHV1-69*08_C191T

30544 sequences assigned
7692 (25.2%) exact matches, in which:
6194 unique CDR3
7 unique J



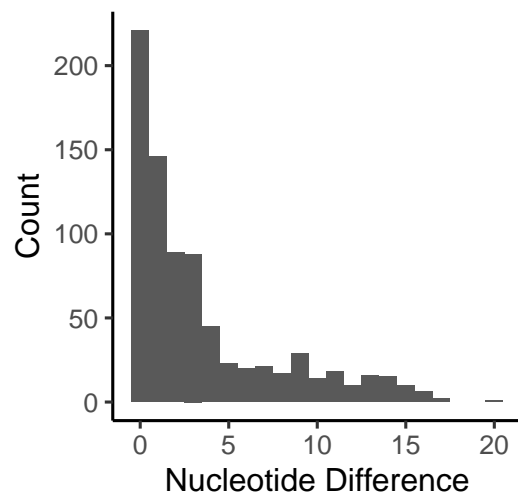
IGHV2-70*04_T116C

99 sequences assigned
15 (15.2%) exact matches, in which:
11 unique CDR3
4 unique J



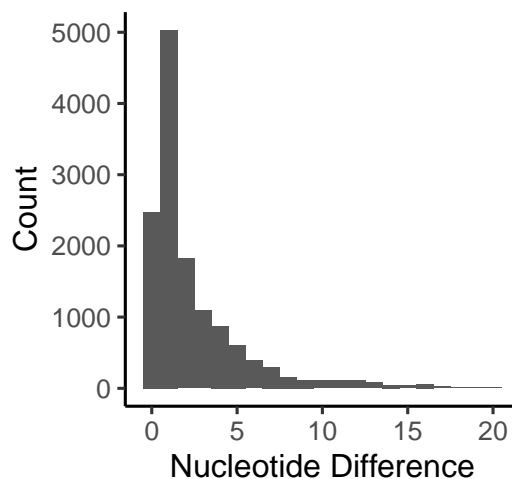
IGHV1-58*02_G316A_C3

798 sequences assigned
221 (27.7%) exact matches, in which:
221 unique CDR3
6 unique J



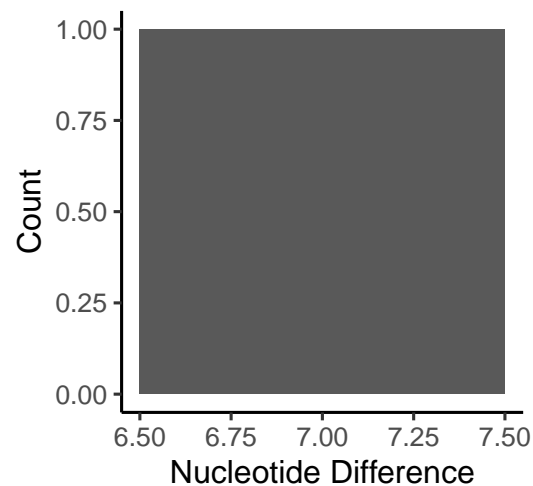
IGHV2-5*02

13709 sequences assigned
2478 (18.1%) exact matches, in which:
1915 unique CDR3
7 unique J



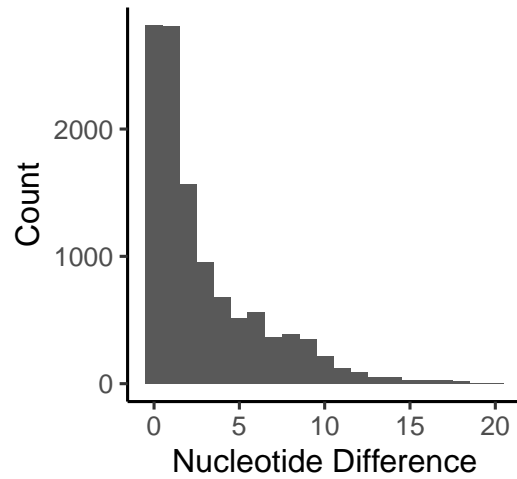
IGHV2-70D*14

1 sequences assigned
No exact matches.



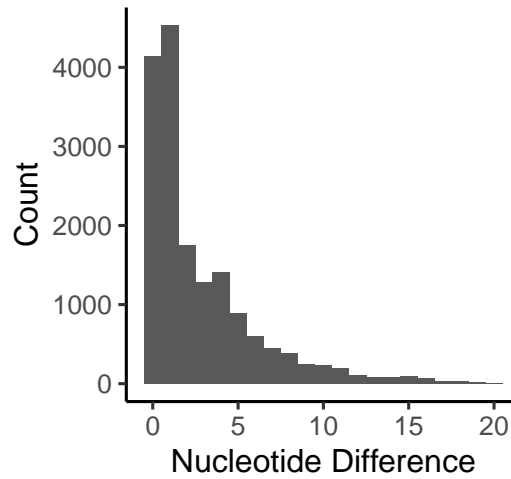
IGHV3-7*01

11768 sequences assigned
2814 (23.9%) exact matches, in which:
2393 unique CDR3
7 unique J



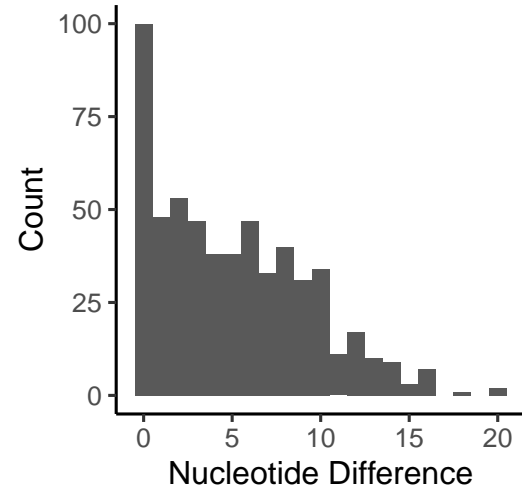
IGHV3-11*01

16927 sequences assigned
4136 (24.4%) exact matches, in which:
3203 unique CDR3
7 unique J



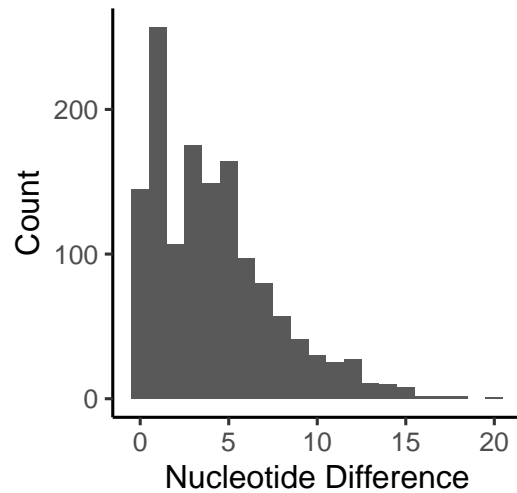
IGHV3-13*01_A315G

573 sequences assigned
100 (17.5%) exact matches, in which:
100 unique CDR3
6 unique J



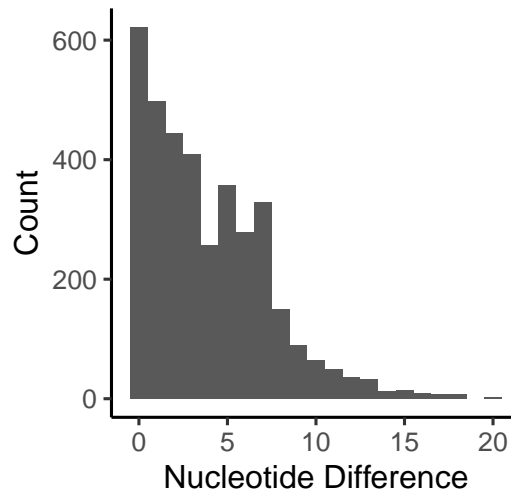
IGHV3-7*03

1407 sequences assigned
145 (10.3%) exact matches, in which:
145 unique CDR3
7 unique J



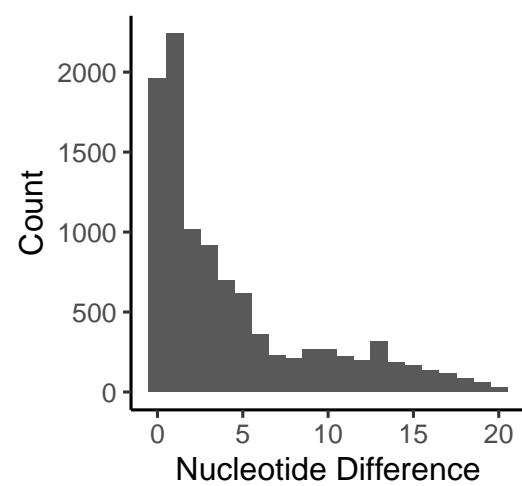
IGHV3-11*04

3768 sequences assigned
622 (16.5%) exact matches, in which:
615 unique CDR3
7 unique J



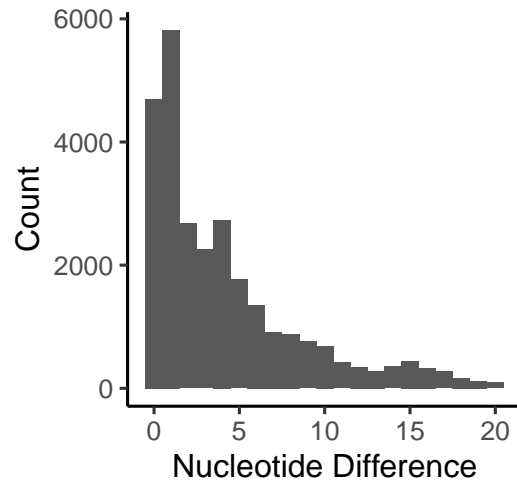
IGHV3-15*01

10535 sequences assigned
1959 (18.6%) exact matches, in which:
1542 unique CDR3
7 unique J



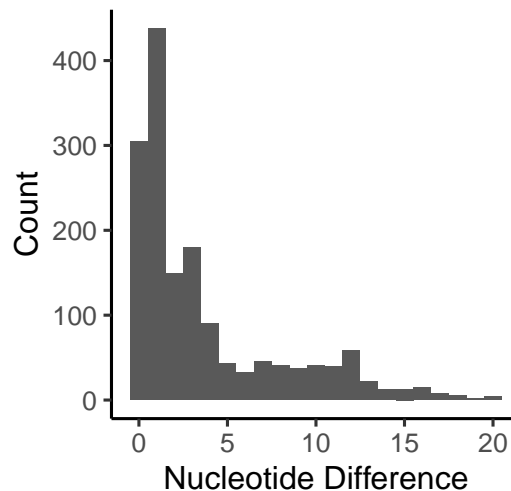
IGHV3-9*01

27745 sequences assigned
4697 (16.9%) exact matches, in which:
3639 unique CDR3
7 unique J



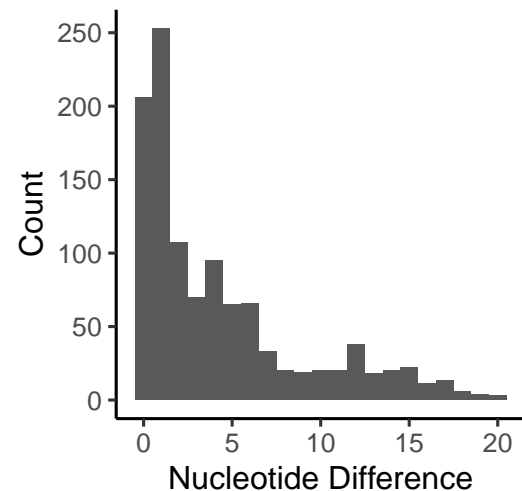
IGHV3-13*01

1593 sequences assigned
305 (19.1%) exact matches, in which:
224 unique CDR3
6 unique J



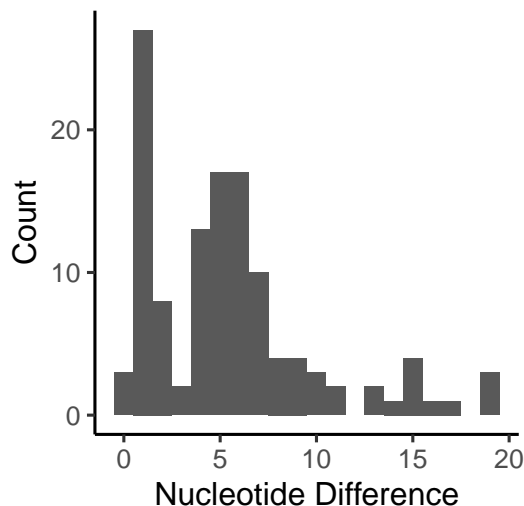
IGHV3-20*01

1121 sequences assigned
206 (18.4%) exact matches, in which:
159 unique CDR3
6 unique J



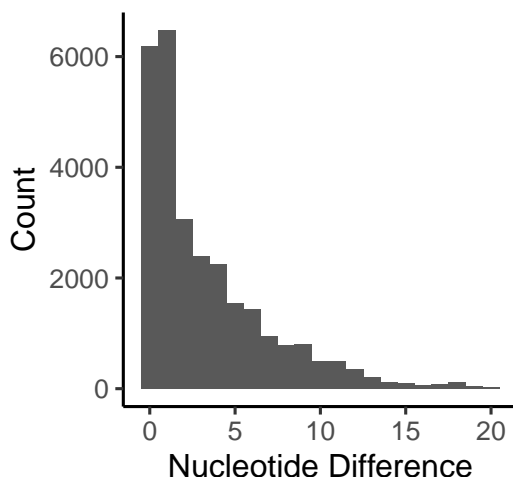
IGHV3-20*04

122 sequences assigned
3 (2.5%) exact matches, in which:
3 unique CDR3
3 unique J



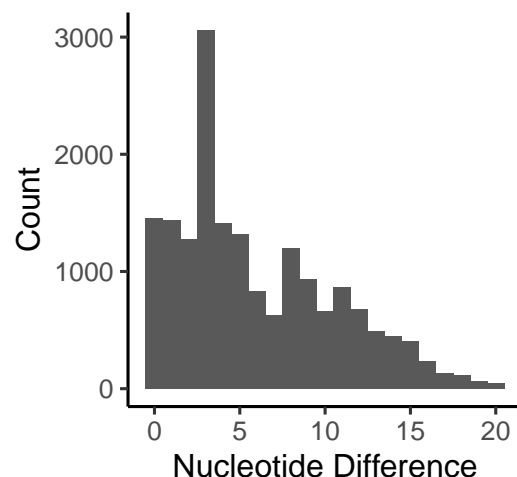
IGHV3-21*01

28221 sequences assigned
6191 (21.9%) exact matches, in which:
4998 unique CDR3
7 unique J



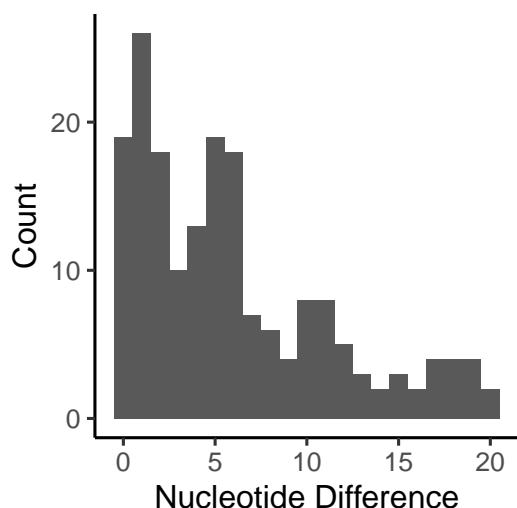
IGHV3-23*04

18026 sequences assigned
1455 (8.1%) exact matches, in which:
1257 unique CDR3
7 unique J



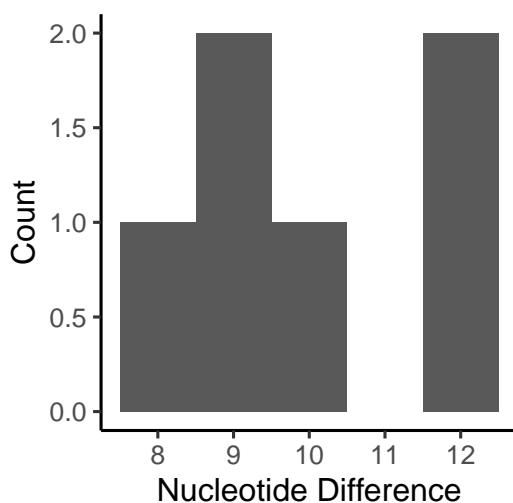
IGHV3-20*04_T279C_C3I

191 sequences assigned
19 (9.9%) exact matches, in which:
19 unique CDR3
5 unique J



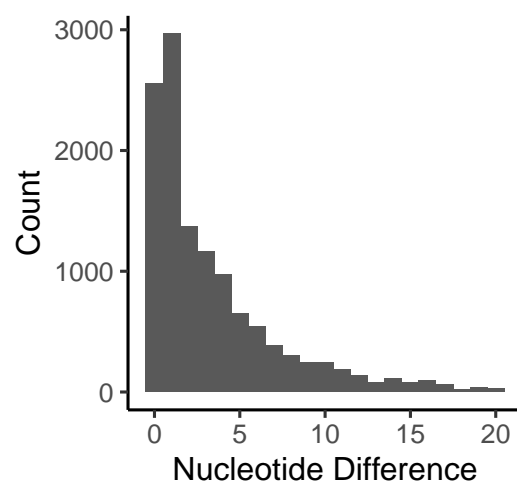
IGHV3-22*02

6 sequences assigned
No exact matches.



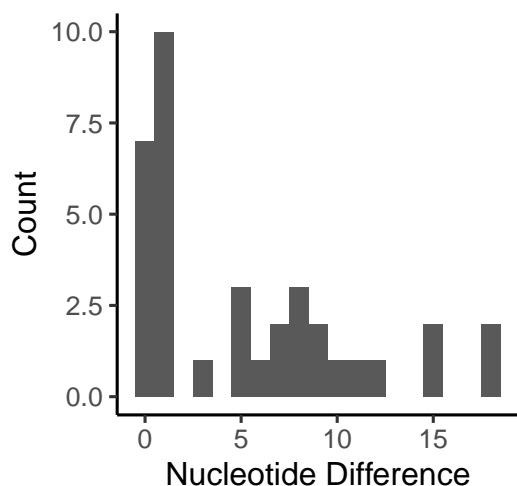
IGHV3-30-3*01

12480 sequences assigned
2554 (20.5%) exact matches, in which:
1893 unique CDR3
7 unique J



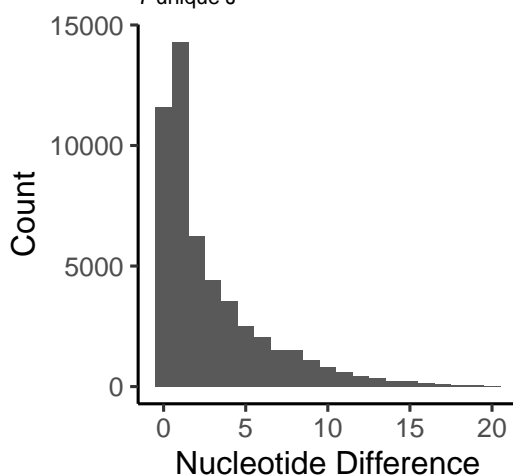
IGHV3-20*04_T301G

37 sequences assigned
7 (18.9%) exact matches, in which:
7 unique CDR3
6 unique J



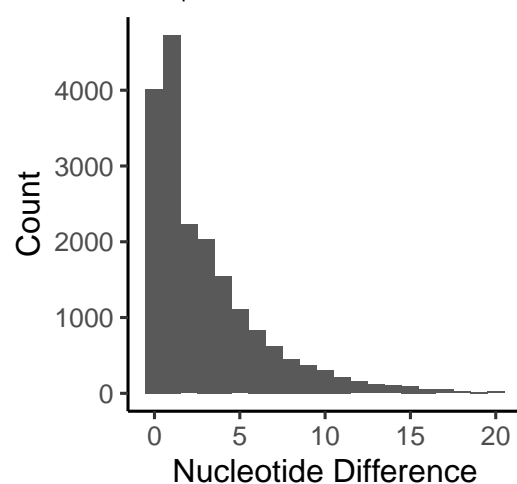
IGHV3-23*01

51948 sequences assigned
11606 (22.3%) exact matches, in which:
9400 unique CDR3
7 unique J



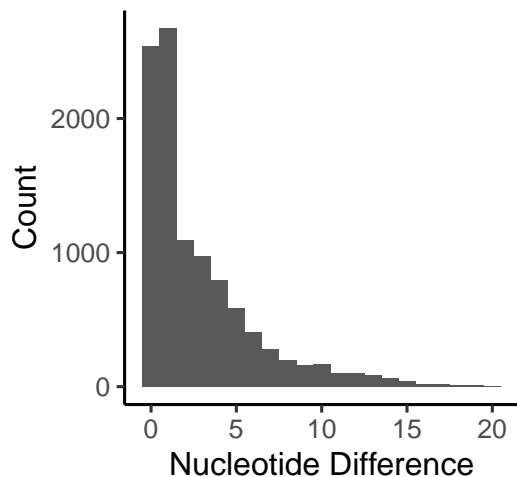
IGHV3-30*02

19266 sequences assigned
4020 (20.9%) exact matches, in which:
3174 unique CDR3
7 unique J



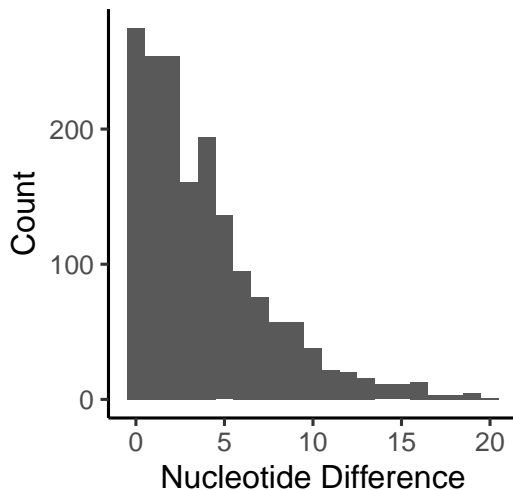
IGHV3-30*18

10370 sequences assigned
2543 (24.5%) exact matches, in which:
1972 unique CDR3
7 unique J



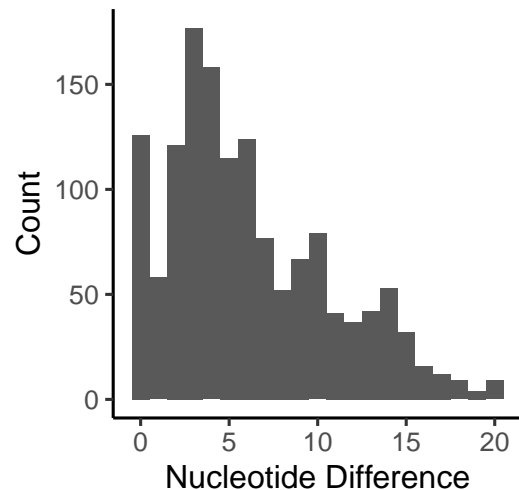
IGHV3-30*03_T288C

1709 sequences assigned
275 (16.1%) exact matches, in which:
272 unique CDR3
7 unique J



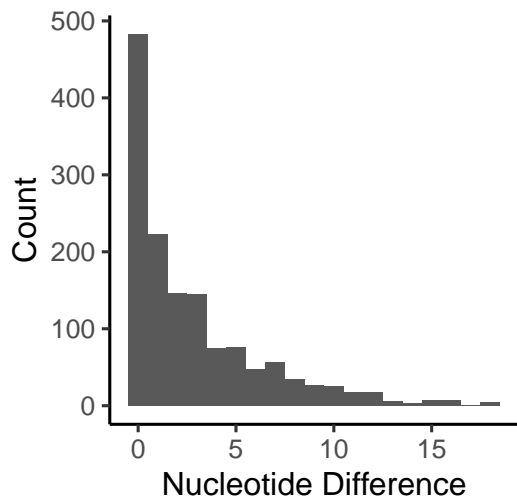
IGHV3-33*08

1446 sequences assigned
126 (8.7%) exact matches, in which:
123 unique CDR3
7 unique J



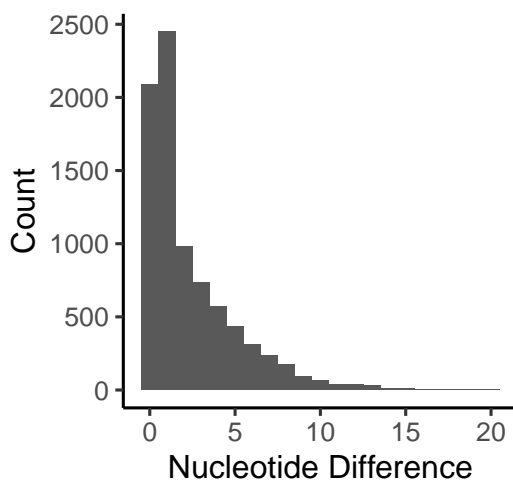
IGHV3-30-3*02_G75C

1421 sequences assigned
483 (34%) exact matches, in which:
468 unique CDR3
7 unique J



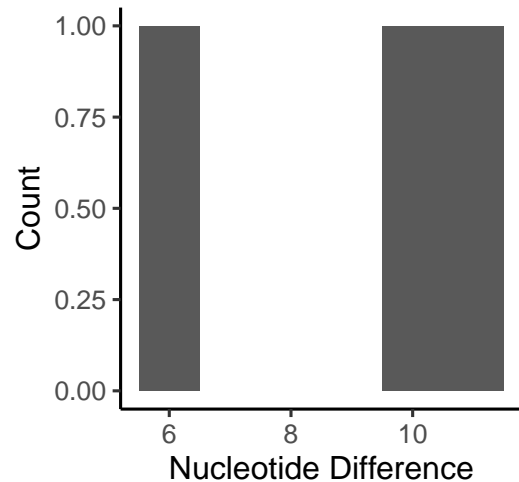
IGHV3-33*01

8270 sequences assigned
2090 (25.3%) exact matches, in which:
1579 unique CDR3
7 unique J



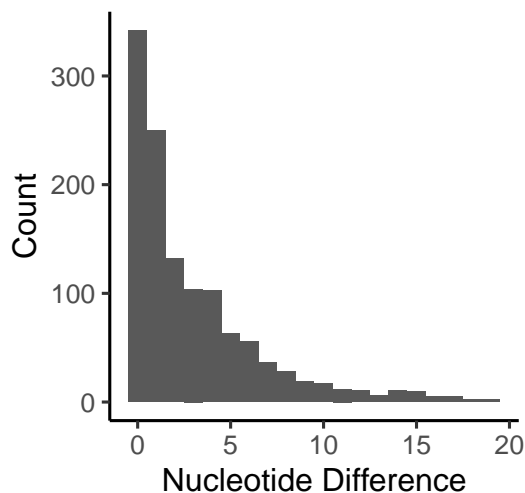
IGHV3-35*02

3 sequences assigned
No exact matches.



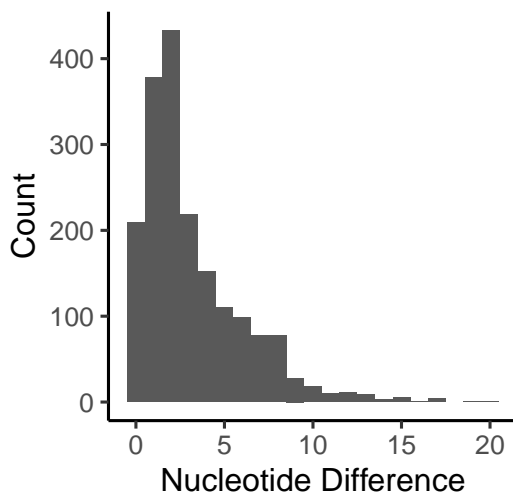
IGHV3-30-3*02_G75C_1

1234 sequences assigned
342 (27.7%) exact matches, in which:
333 unique CDR3
7 unique J



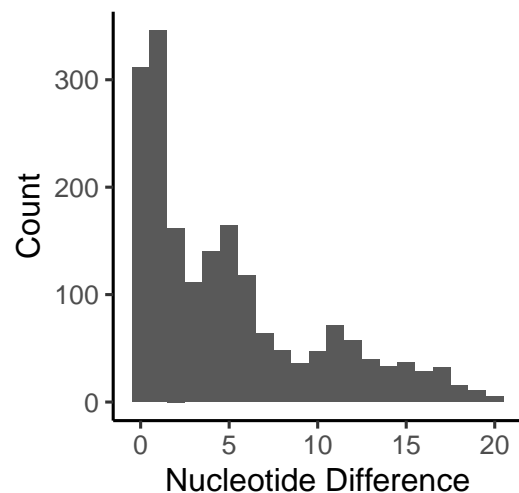
IGHV3-33*06

1846 sequences assigned
209 (11.3%) exact matches, in which:
204 unique CDR3
6 unique J



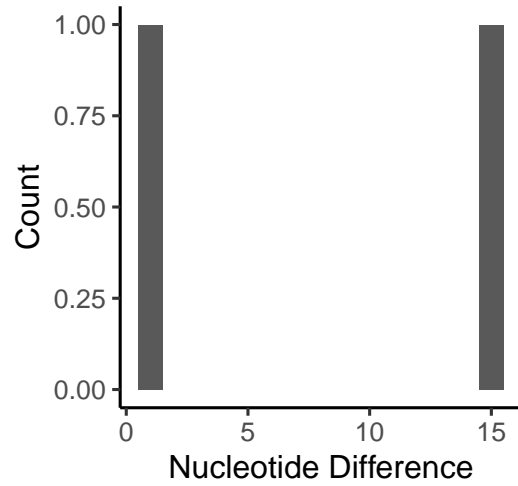
IGHV3-43*01

1901 sequences assigned
311 (16.4%) exact matches, in which:
257 unique CDR3
6 unique J



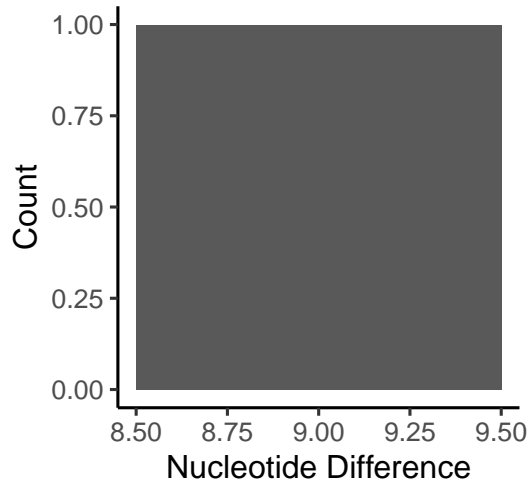
IGHV3-47*02

2 sequences assigned
No exact matches.



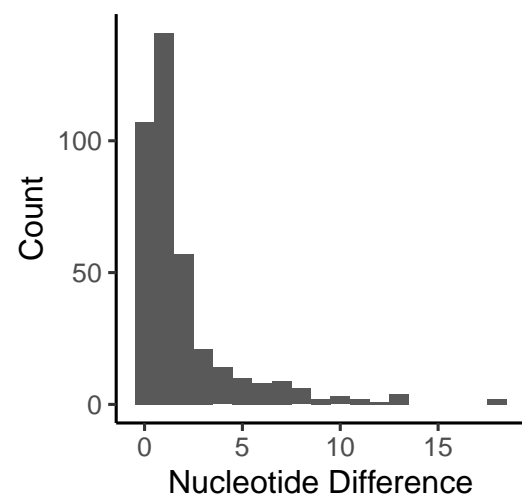
IGHV3-52*02

1 sequences assigned
No exact matches.



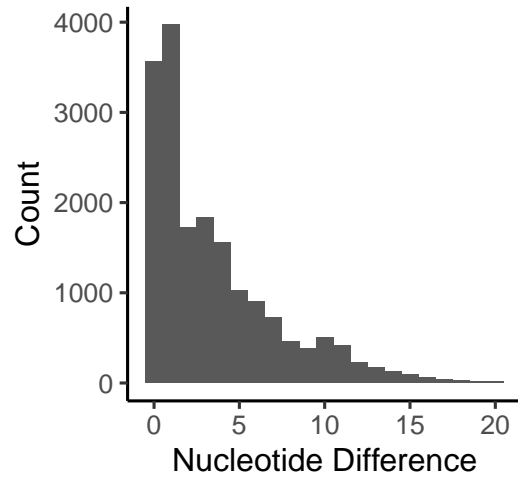
IGHV3-53*05_C300T

398 sequences assigned
107 (26.9%) exact matches, in which:
104 unique CDR3
7 unique J



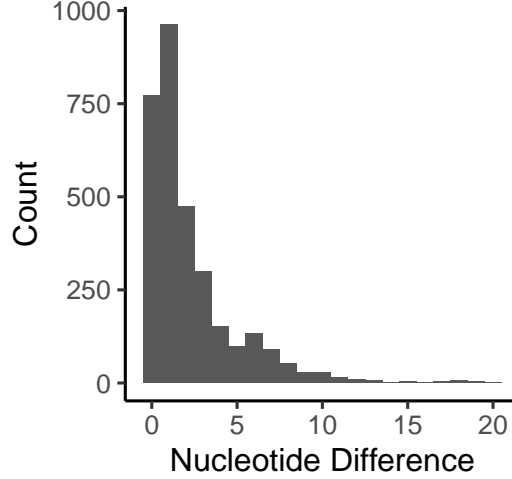
IGHV3-48*01

17976 sequences assigned
3560 (19.8%) exact matches, in which:
2866 unique CDR3
7 unique J



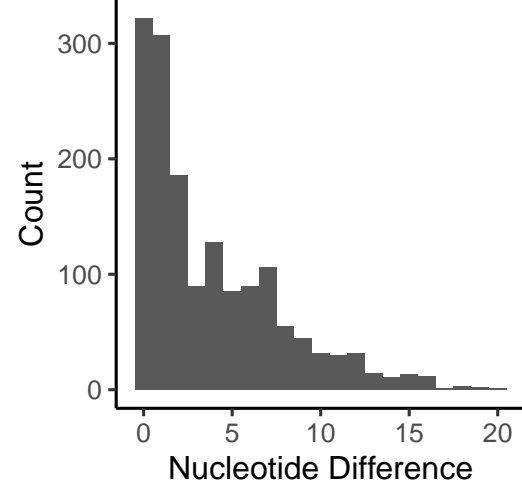
IGHV3-53*02

3161 sequences assigned
772 (24.4%) exact matches, in which:
630 unique CDR3
7 unique J



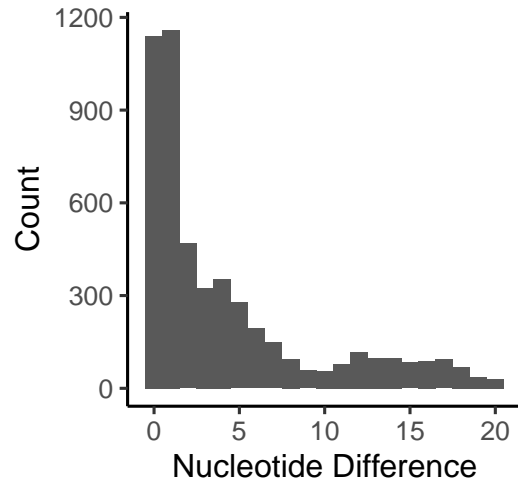
IGHV3-64*01

1591 sequences assigned
322 (20.2%) exact matches, in which:
272 unique CDR3
7 unique J



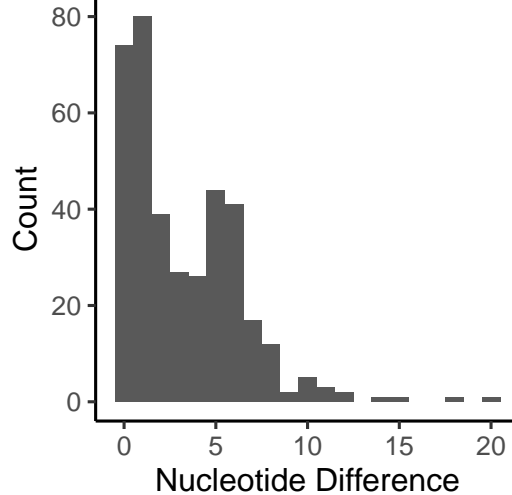
IGHV3-49*03

5169 sequences assigned
1139 (22%) exact matches, in which:
956 unique CDR3
7 unique J



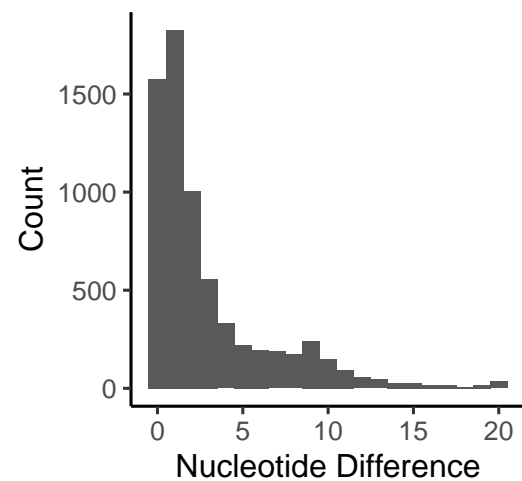
IGHV3-53*02_C300T

377 sequences assigned
74 (19.6%) exact matches, in which:
74 unique CDR3
7 unique J



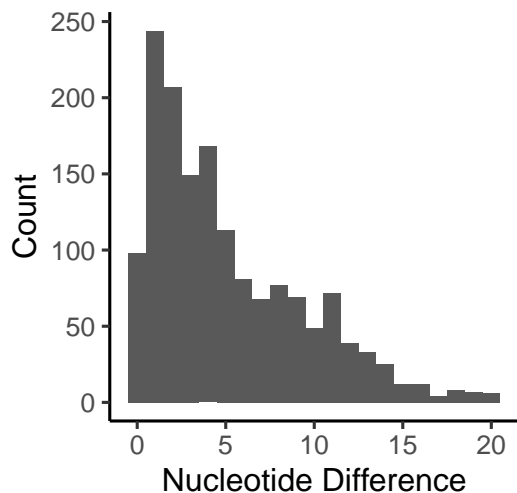
IGHV3-66*02

6882 sequences assigned
1578 (22.9%) exact matches, in which:
1233 unique CDR3
7 unique J



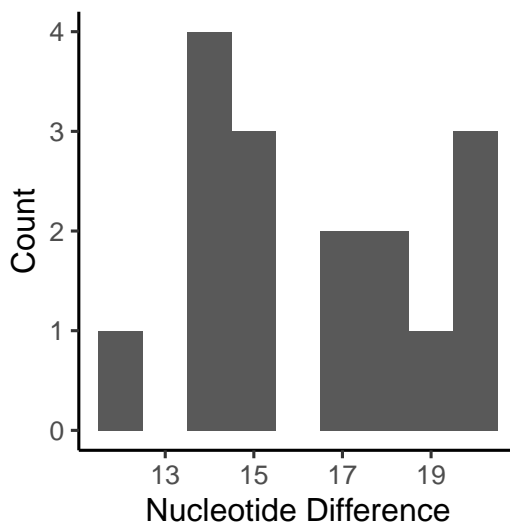
IGHV3-66*01_A223C_T2

1579 sequences assigned
98 (6.2%) exact matches, in which:
97 unique CDR3
6 unique J



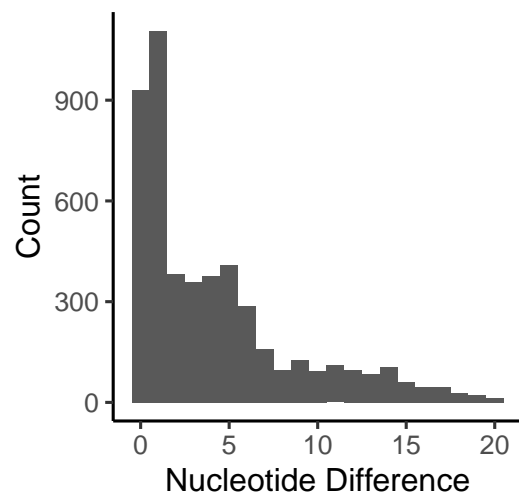
IGHV3-71*04

20 sequences assigned
No exact matches.



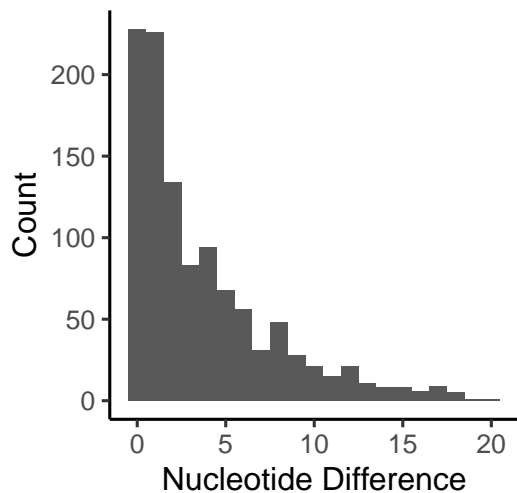
IGHV3-74*01

5005 sequences assigned
931 (18.6%) exact matches, in which:
714 unique CDR3
7 unique J



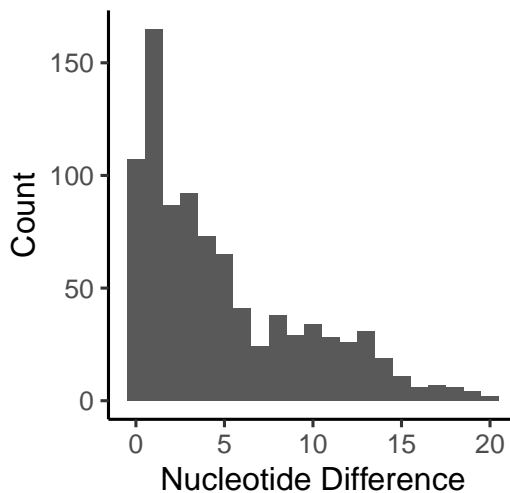
IGHV3-66*01_A223C_T2

1115 sequences assigned
228 (20.4%) exact matches, in which:
227 unique CDR3
7 unique J



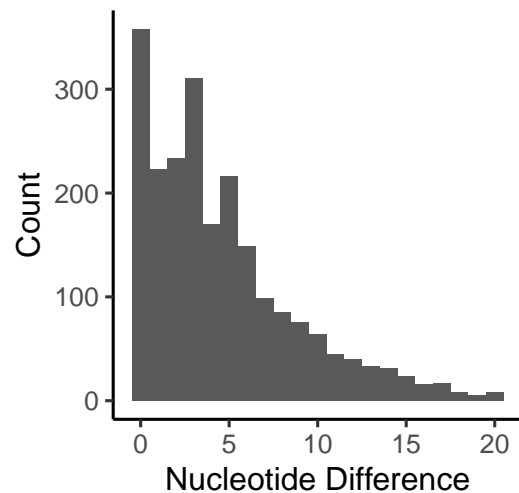
IGHV3-72*01

928 sequences assigned
107 (11.5%) exact matches, in which:
87 unique CDR3
6 unique J



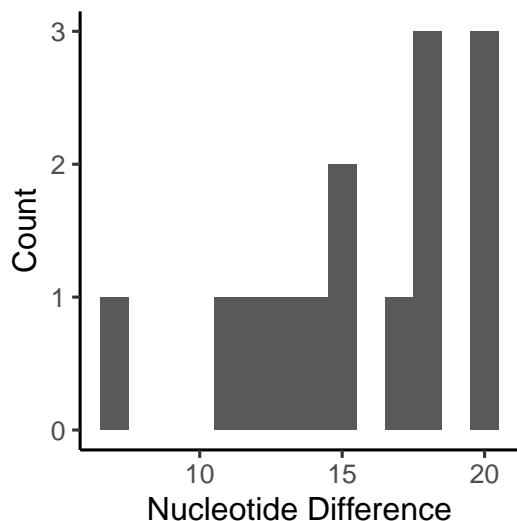
IGHV3-74*01_A315G

2231 sequences assigned
358 (16%) exact matches, in which:
353 unique CDR3
7 unique J



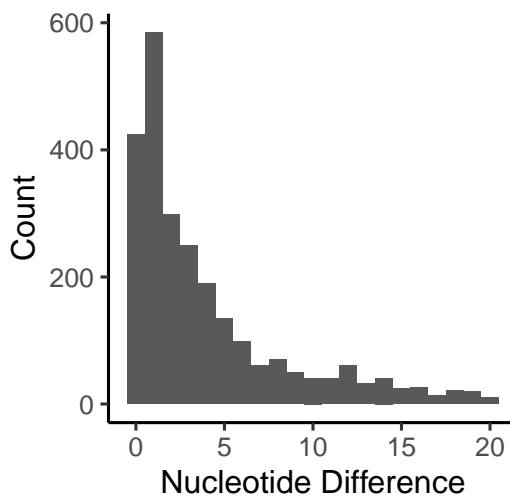
IGHV3-69-1*01

16 sequences assigned
No exact matches.



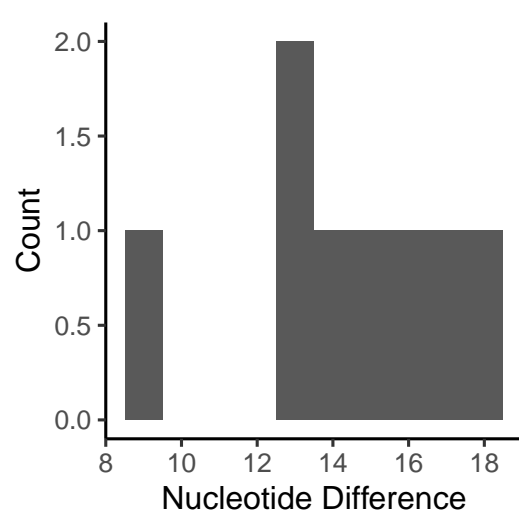
IGHV3-73*01

2528 sequences assigned
424 (16.8%) exact matches, in which:
340 unique CDR3
6 unique J



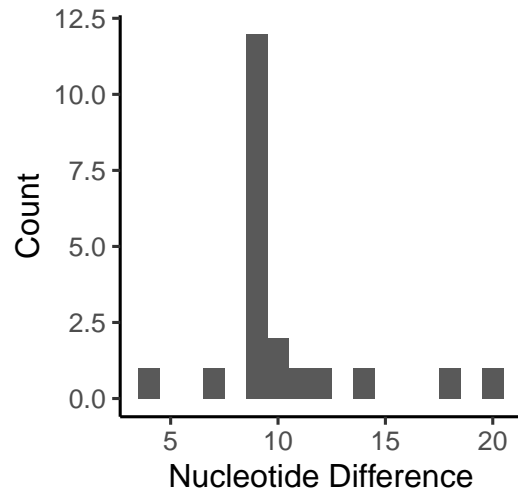
IGHV3-43D*04

9 sequences assigned
No exact matches.



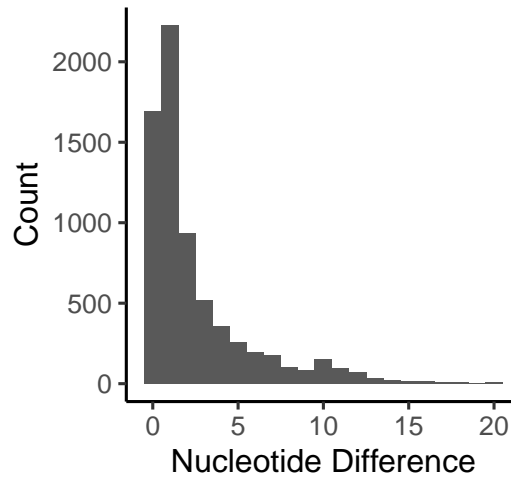
IGHV3-64D*06

22 sequences assigned
No exact matches.



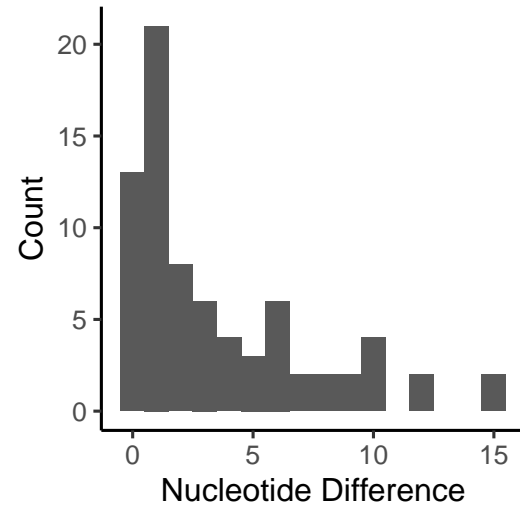
IGHV4-4*07

7036 sequences assigned
1695 (24.1%) exact matches, in which:
1469 unique CDR3
7 unique J



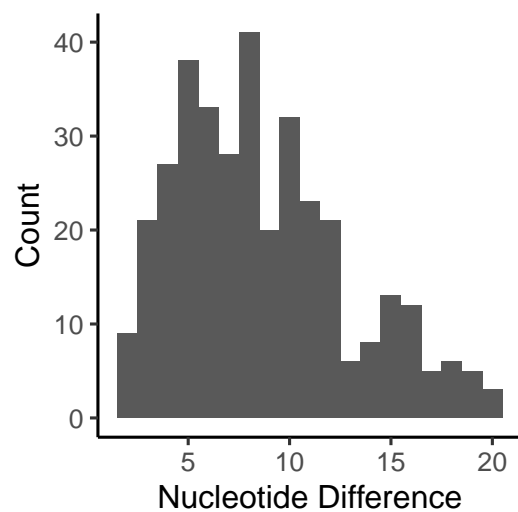
IGHV4-28*07

75 sequences assigned
13 (17.3%) exact matches, in which:
9 unique CDR3
5 unique J



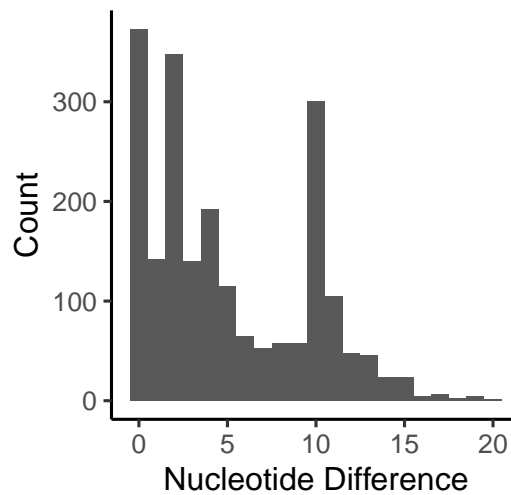
IGHV3-NL1*01

359 sequences assigned
No exact matches.



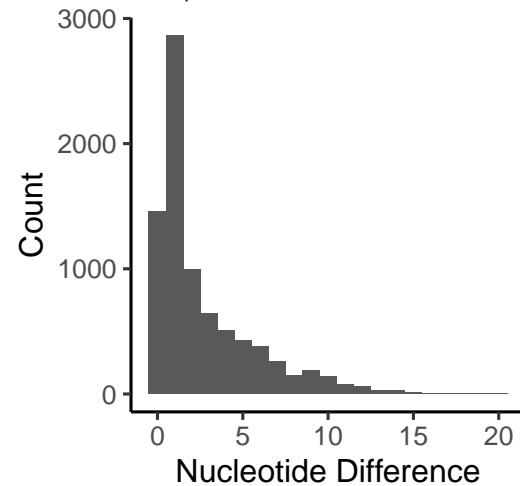
IGHV4-4*07_G234A_G235A

2181 sequences assigned
373 (17.1%) exact matches, in which:
367 unique CDR3
7 unique J



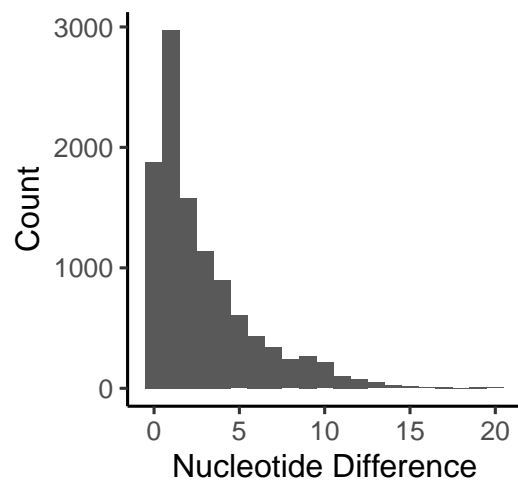
IGHV4-30-2*01

8260 sequences assigned
1455 (17.6%) exact matches, in which:
1040 unique CDR3
7 unique J



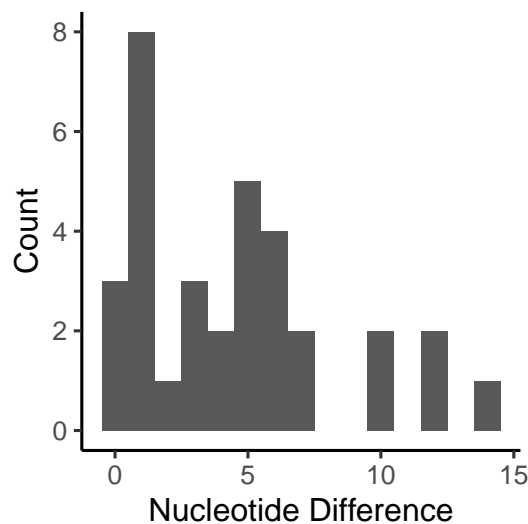
IGHV4-4*02

11072 sequences assigned
1879 (17%) exact matches, in which:
1587 unique CDR3
7 unique J



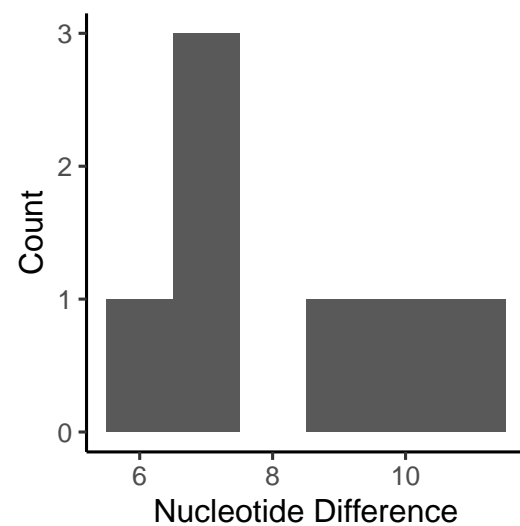
IGHV4-28*03

34 sequences assigned
3 (8.8%) exact matches, in which:
3 unique CDR3
3 unique J



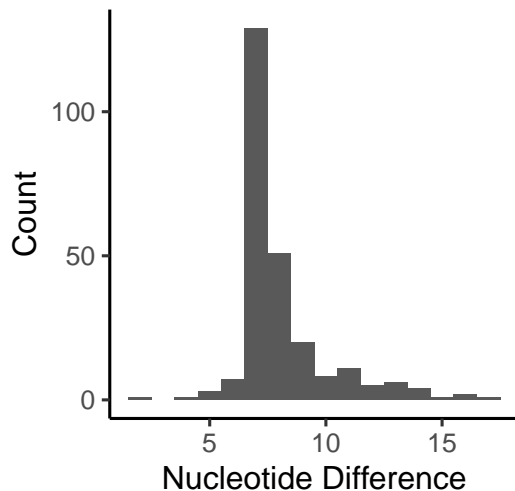
IGHV4-30-4*01

8 sequences assigned
No exact matches.



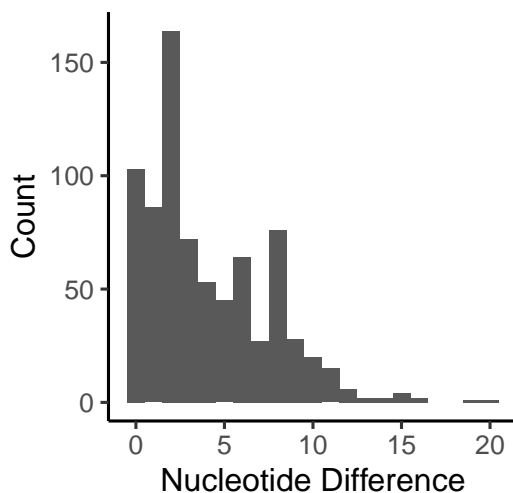
IGHV4-30-4*07

250 sequences assigned
No exact matches.



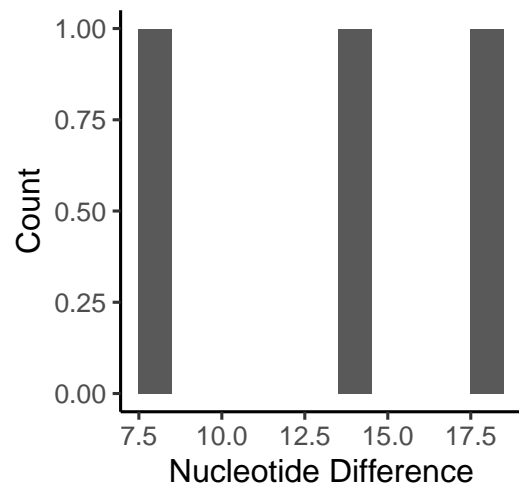
IGHV4-30-2*05_T228C_

774 sequences assigned
103 (13.3%) exact matches, in which:
103 unique CDR3
7 unique J



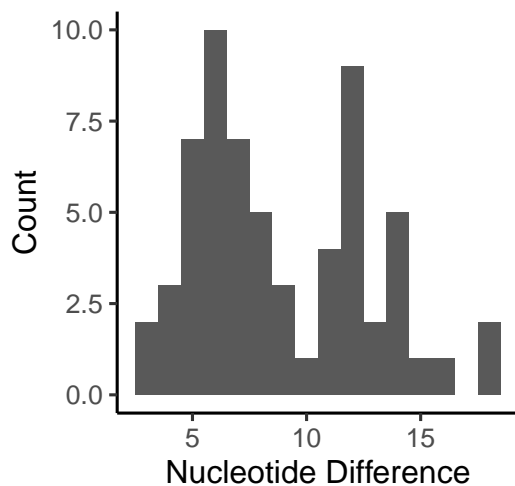
IGHV4-38-2*01

60 sequences assigned
No exact matches.



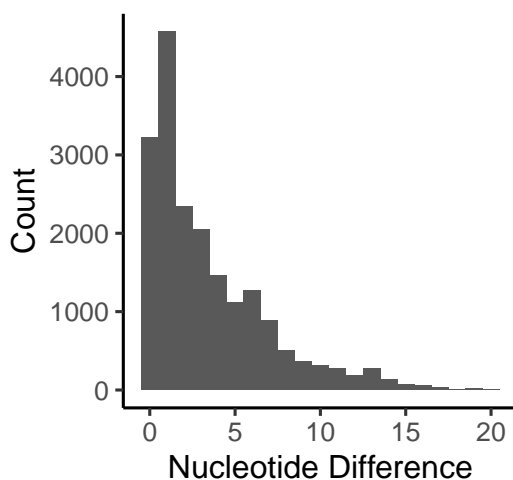
IGHV4-30-4*08

64 sequences assigned
No exact matches.



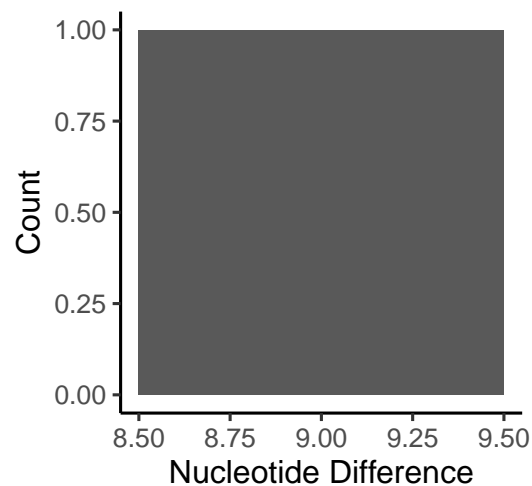
IGHV4-31*03

19375 sequences assigned
3222 (16.6%) exact matches, in which:
2629 unique CDR3
7 unique J



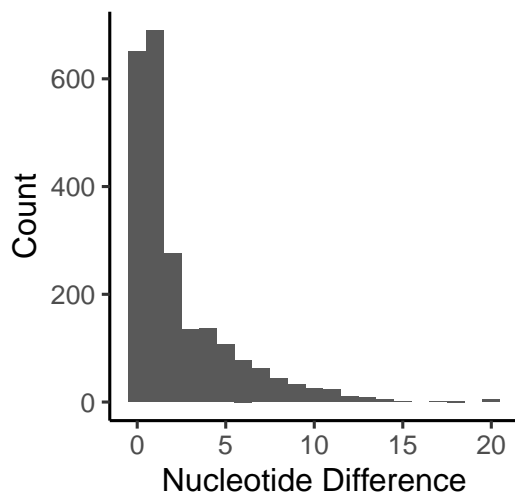
IGHV4-38-2*02

8 sequences assigned
No exact matches.



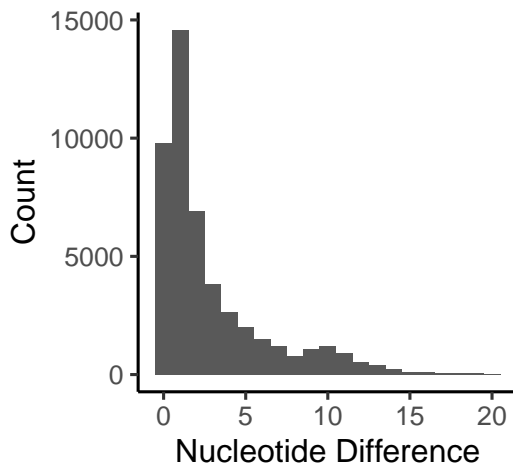
IGHV4-30-2*01_C315G

2325 sequences assigned
651 (28%) exact matches, in which:
637 unique CDR3
7 unique J



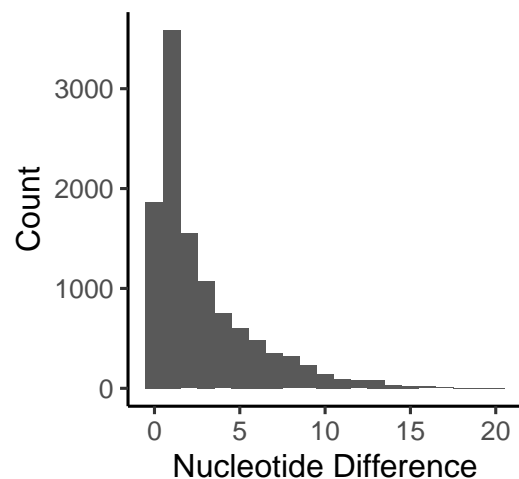
IGHV4-34*01

48522 sequences assigned
9798 (20.2%) exact matches, in which:
7916 unique CDR3
7 unique J



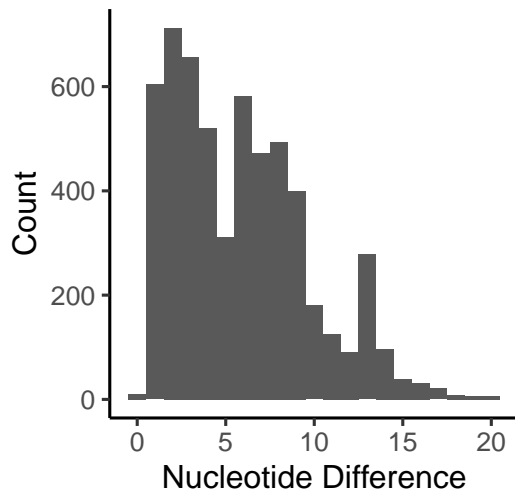
IGHV4-39*01

11476 sequences assigned
1864 (16.2%) exact matches, in which:
1440 unique CDR3
7 unique J



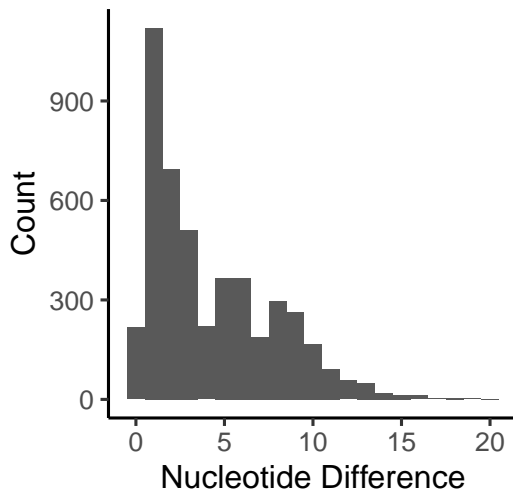
IGHV4-39*07

5682 sequences assigned
11 (0.2%) exact matches, in which:
11 unique CDR3
6 unique J



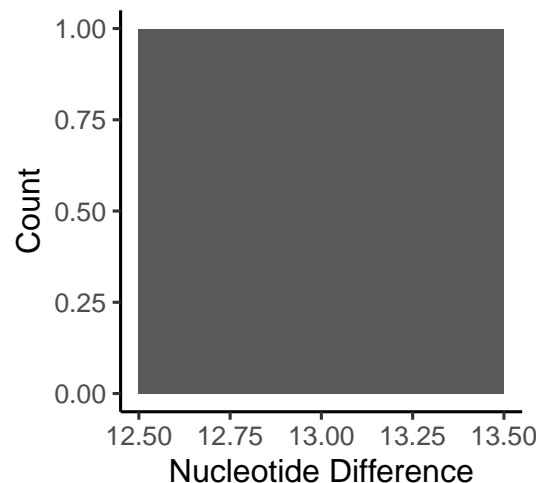
IGHV4-59*12

4723 sequences assigned
217 (4.6%) exact matches, in which:
211 unique CDR3
7 unique J



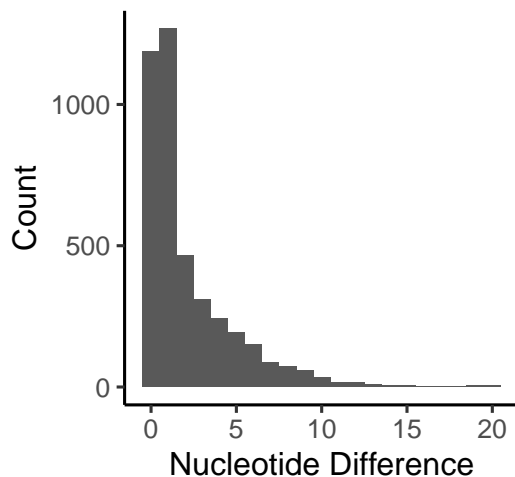
IGHV1/OR15-2*02

1 sequences assigned
No exact matches.



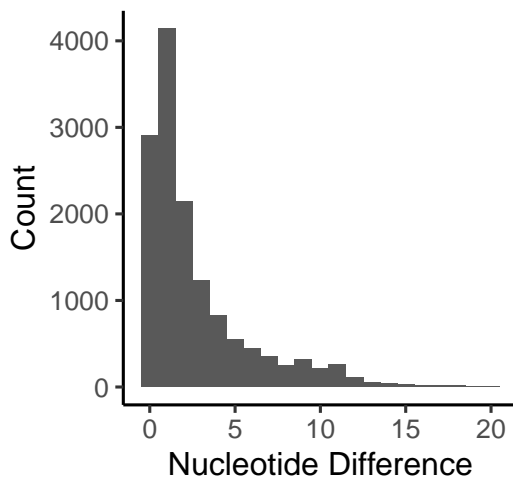
IGHV4-39*02_C258G

4170 sequences assigned
1186 (28.4%) exact matches, in which:
1120 unique CDR3
7 unique J



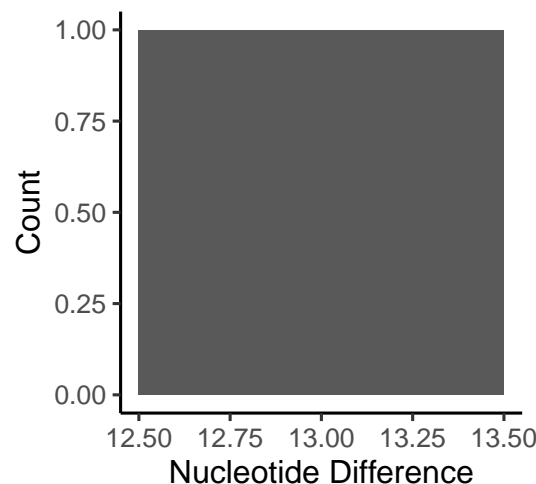
IGHV4-59*01_G48A_G4

13959 sequences assigned
2902 (20.8%) exact matches, in which:
2437 unique CDR3
7 unique J



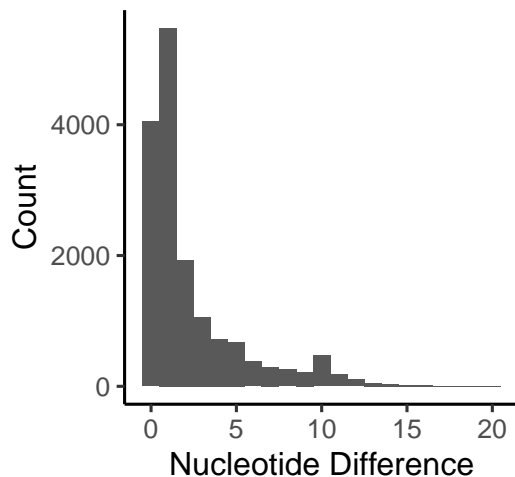
IGHV1/OR15-3*02

1 sequences assigned
No exact matches.



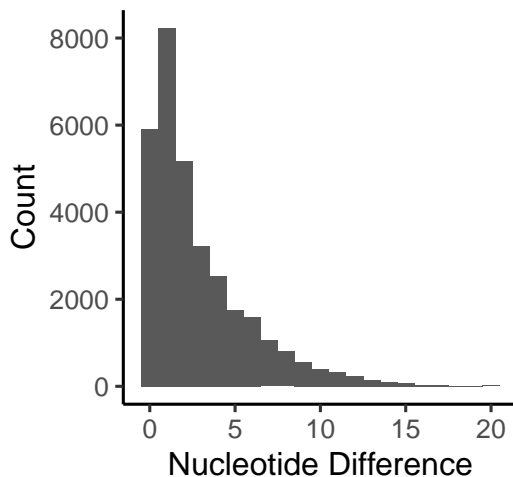
IGHV4-59*01

16055 sequences assigned
4047 (25.2%) exact matches, in which:
3305 unique CDR3
7 unique J



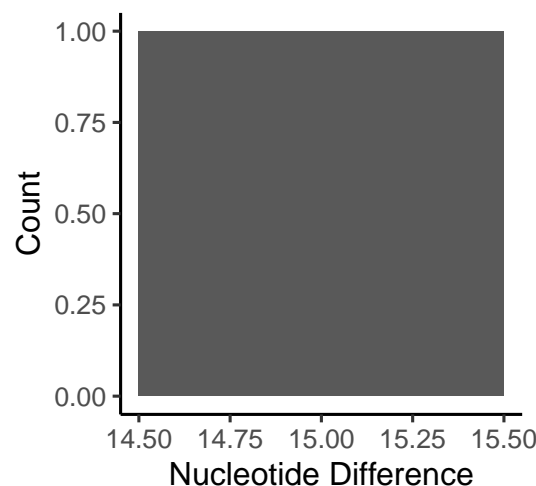
IGHV4-61*02

32292 sequences assigned
5907 (18.3%) exact matches, in which:
4920 unique CDR3
7 unique J



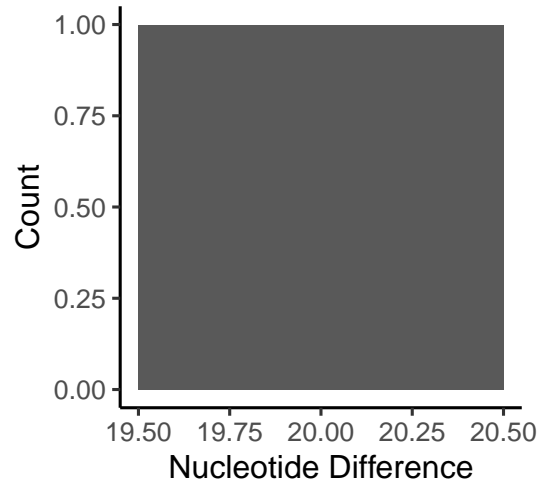
IGHV4/OR15-8*01

1 sequences assigned
No exact matches.



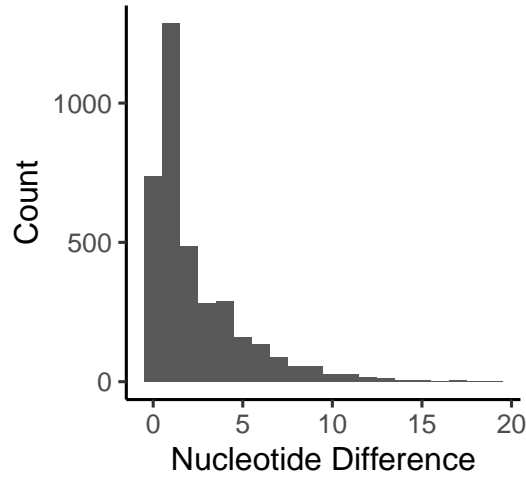
IGHV5-10-1*01

1 sequences assigned
No exact matches.



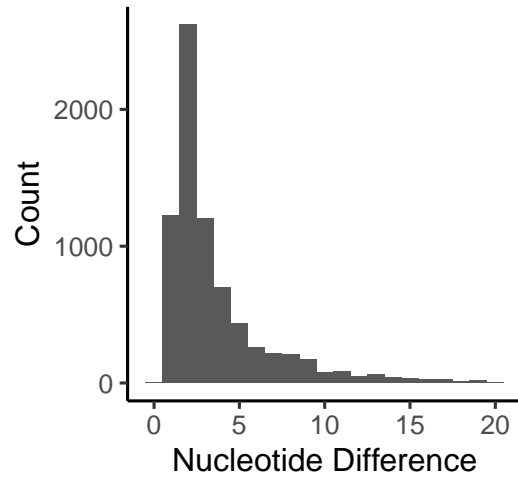
IGHV6-1*01

3688 sequences assigned
739 (20%) exact matches, in which:
542 unique CDR3
6 unique J



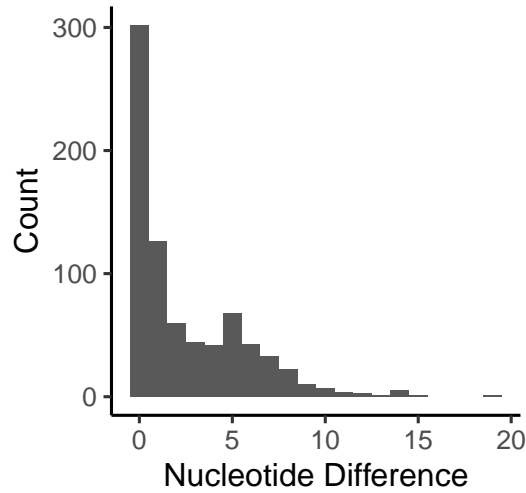
IGHV5-51*01

7604 sequences assigned
7 (0.1%) exact matches, in which:
5 unique CDR3
3 unique J



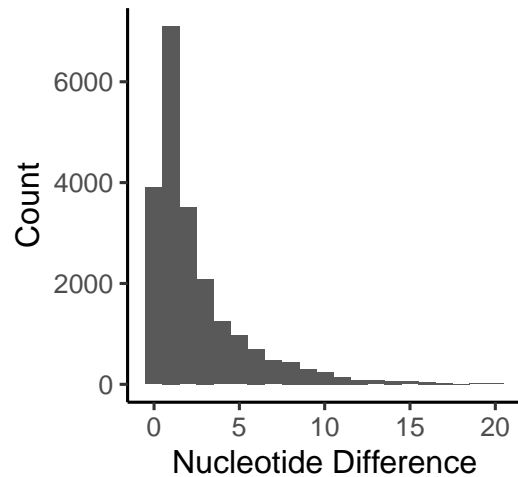
IGHV6-1*01_A315G

774 sequences assigned
302 (39%) exact matches, in which:
301 unique CDR3
7 unique J



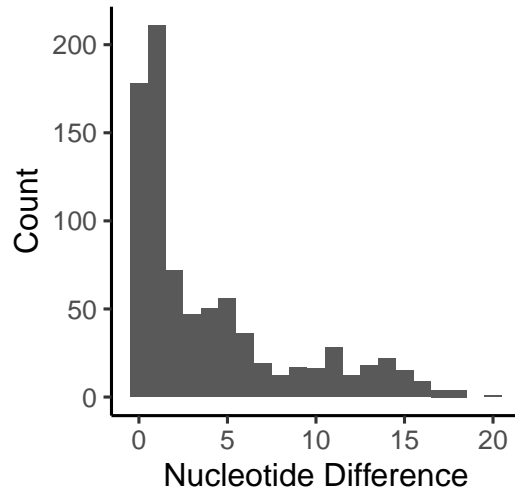
IGHV5-51*03

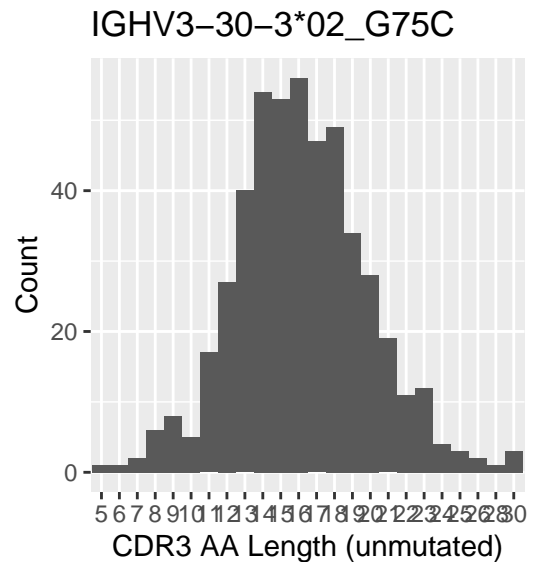
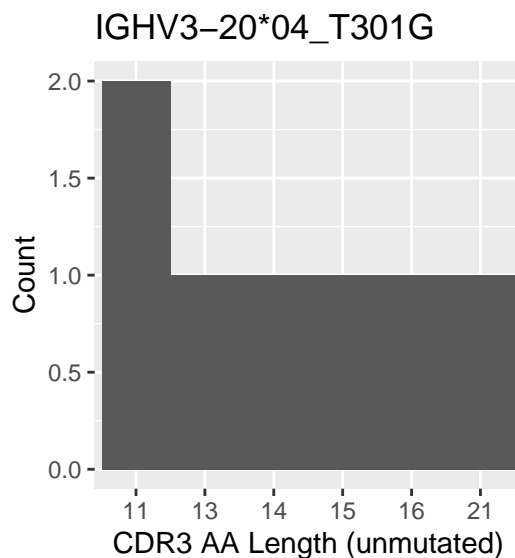
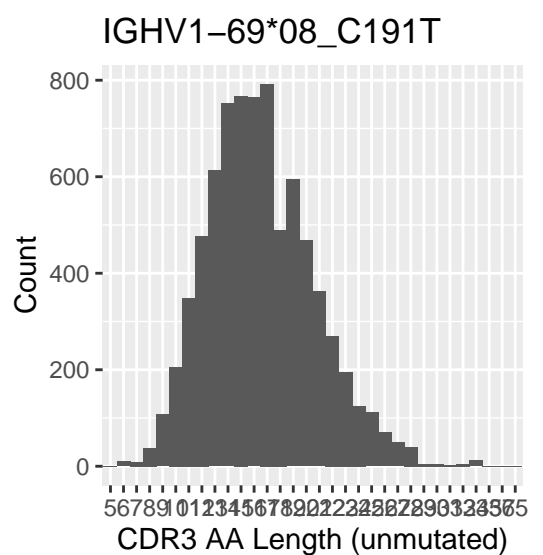
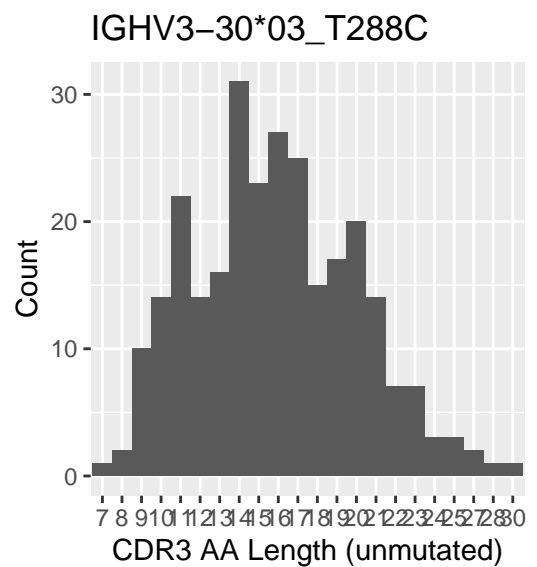
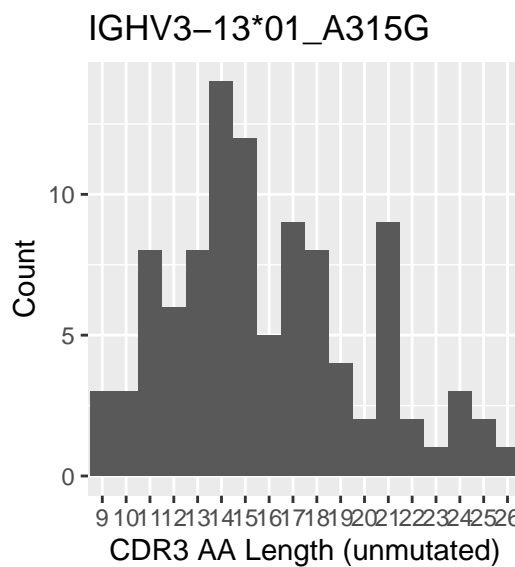
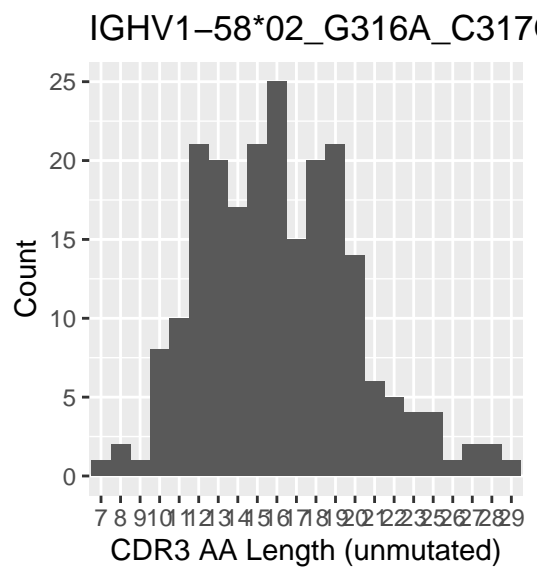
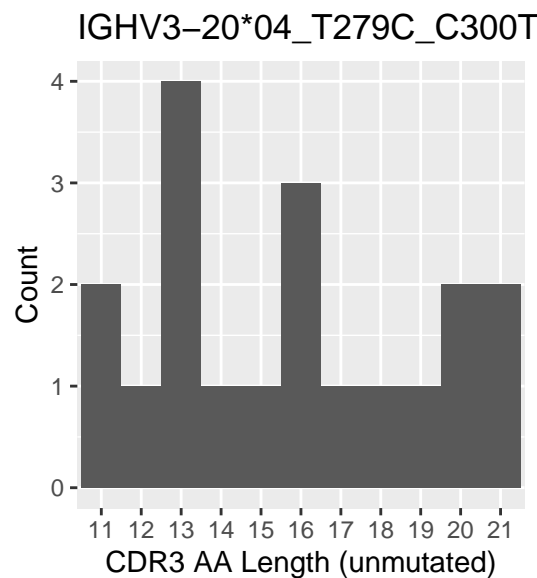
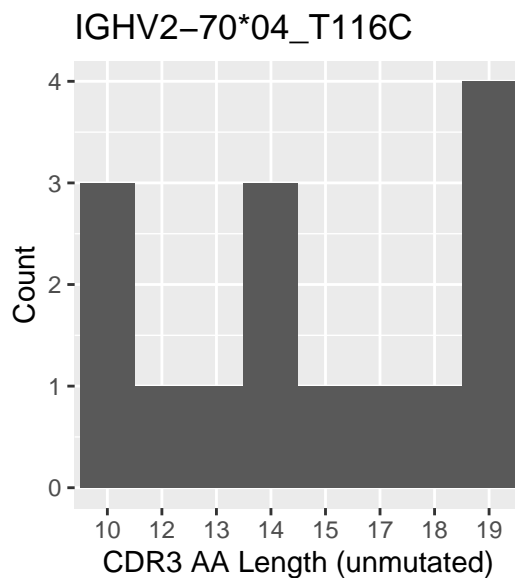
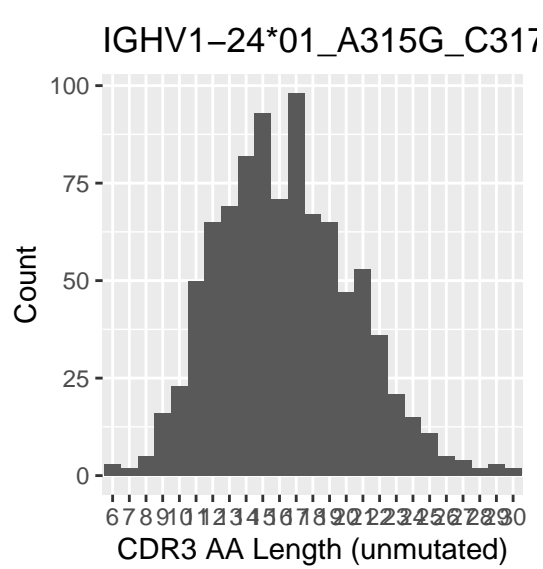
21617 sequences assigned
3906 (18.1%) exact matches, in which:
2935 unique CDR3
7 unique J



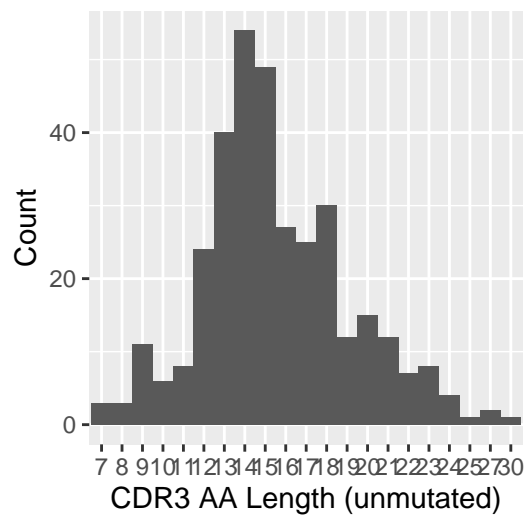
IGHV7-4-1*01

843 sequences assigned
178 (21.1%) exact matches, in which:
156 unique CDR3
6 unique J

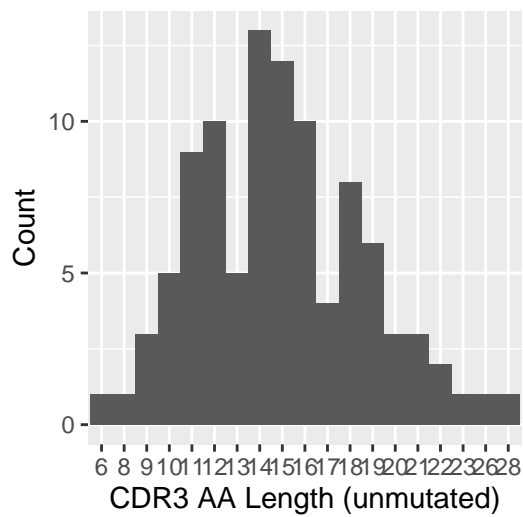




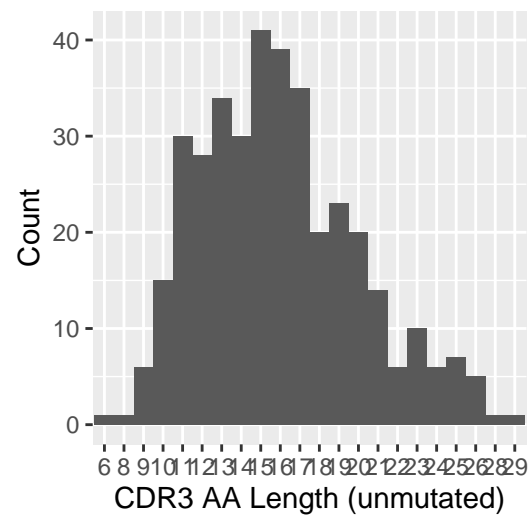
IGHV3-30-3*02_G75C_T28A



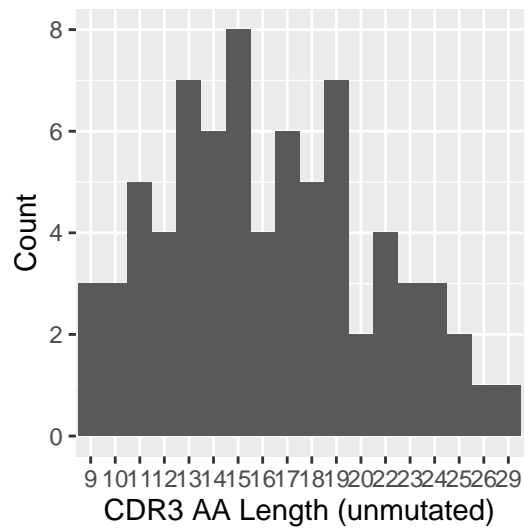
IGHV3-66*01_A223C_T267C



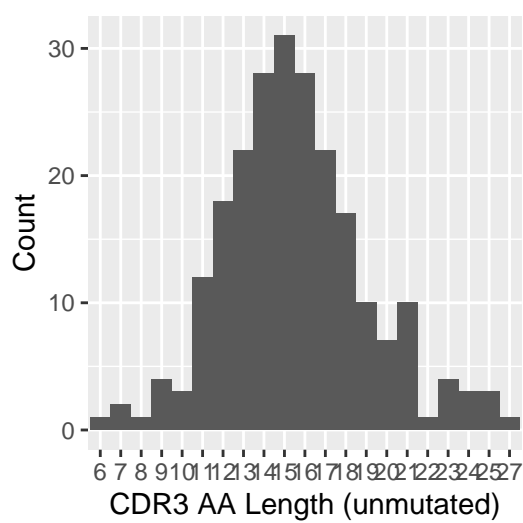
IGHV4-4*07_G234A_G291A



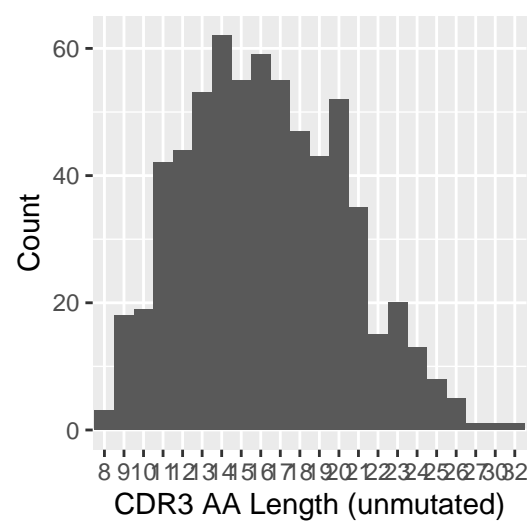
IGHV3-53*02_C300T



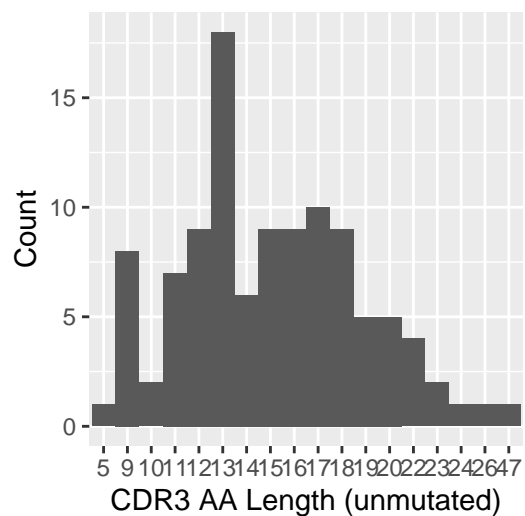
IGHV3-66*01_A223C_T267C



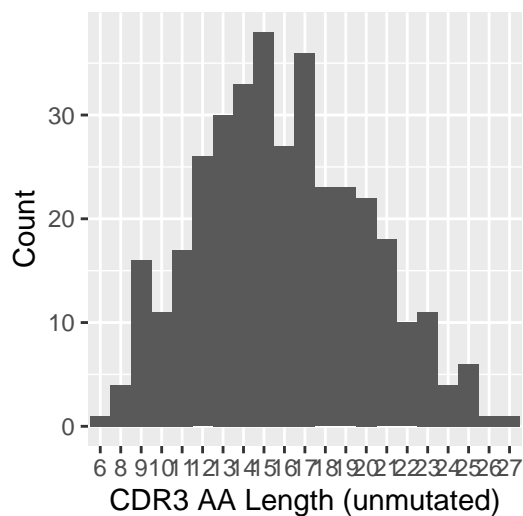
IGHV4-30-2*01_C315G



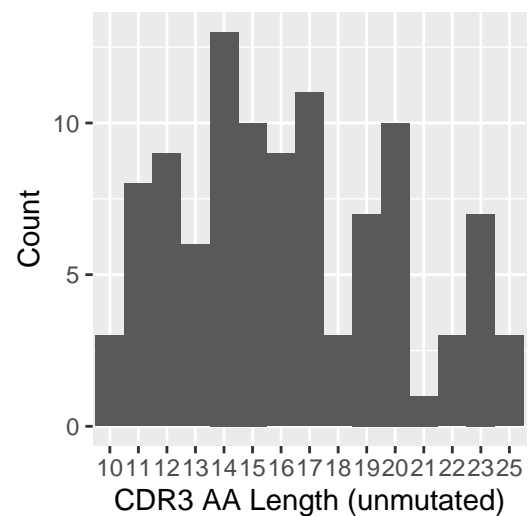
IGHV3-53*05_C300T



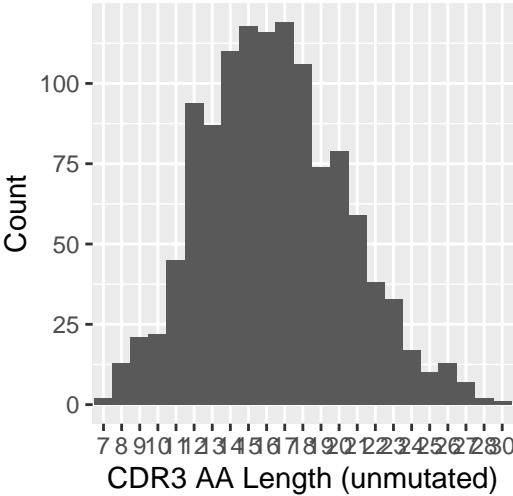
IGHV3-74*01_A315G



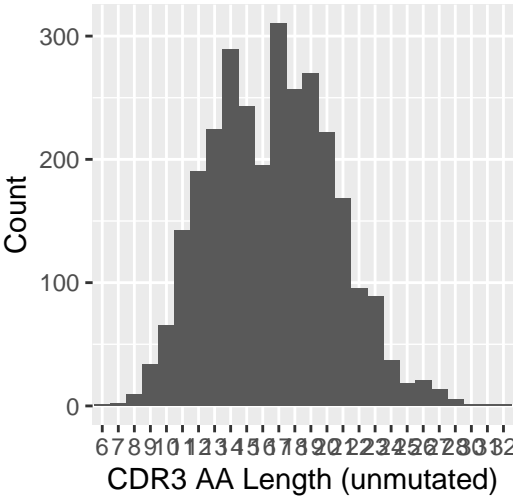
IGHV4-30-2*05_T228C_T28A



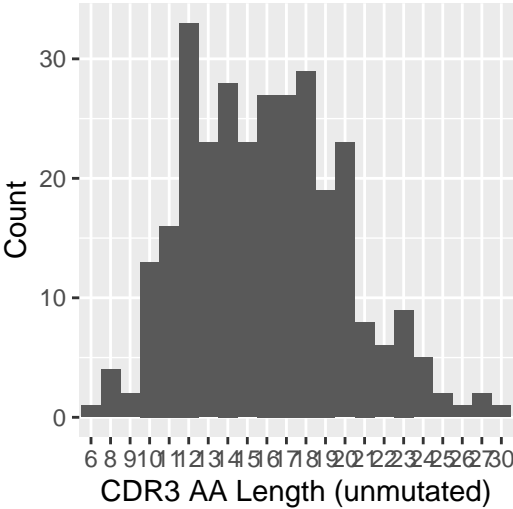
IGHV4-39*02_C258G

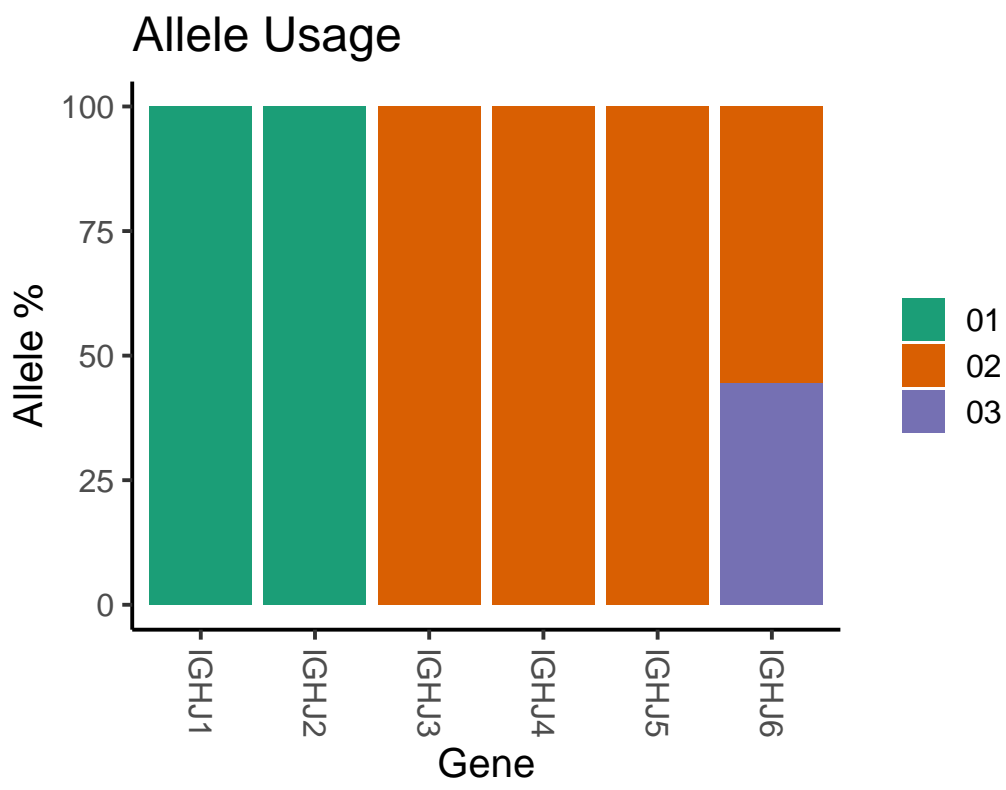


IGHV4-59*01_G48A_G49C



IGHV6-1*01_A315G





Sequence Count byIGHJ6 allele usage

