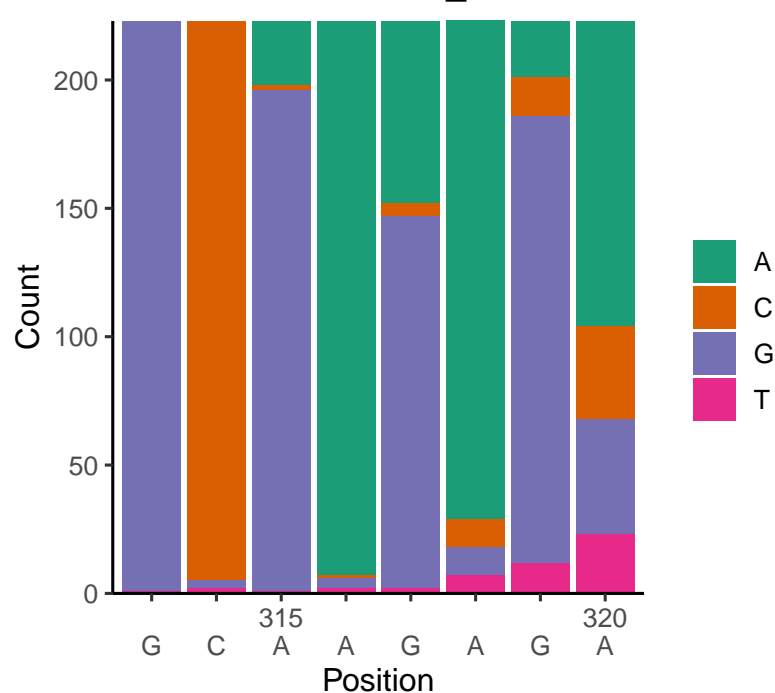
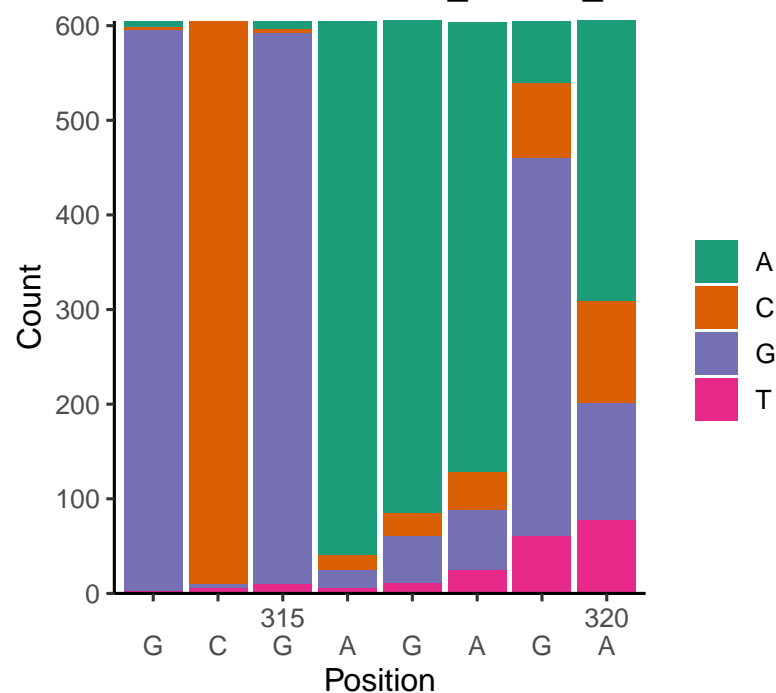


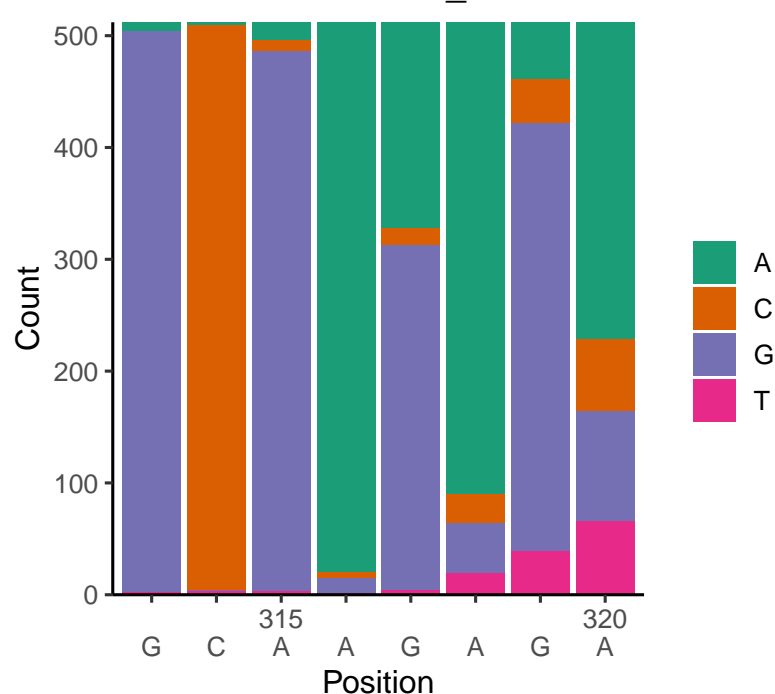
Gene IGHV3-13*04_G290A



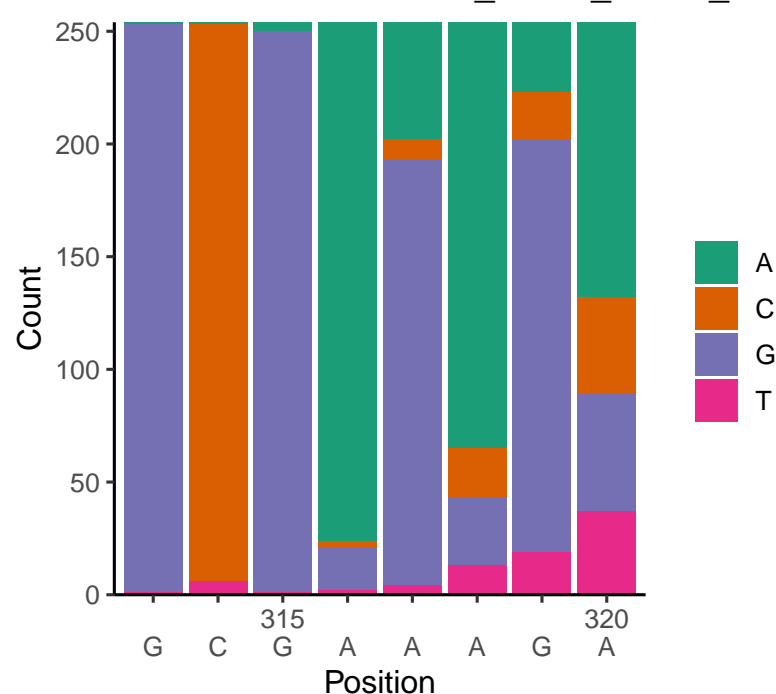
Gene IGHV3-53*01_T267G_G303A



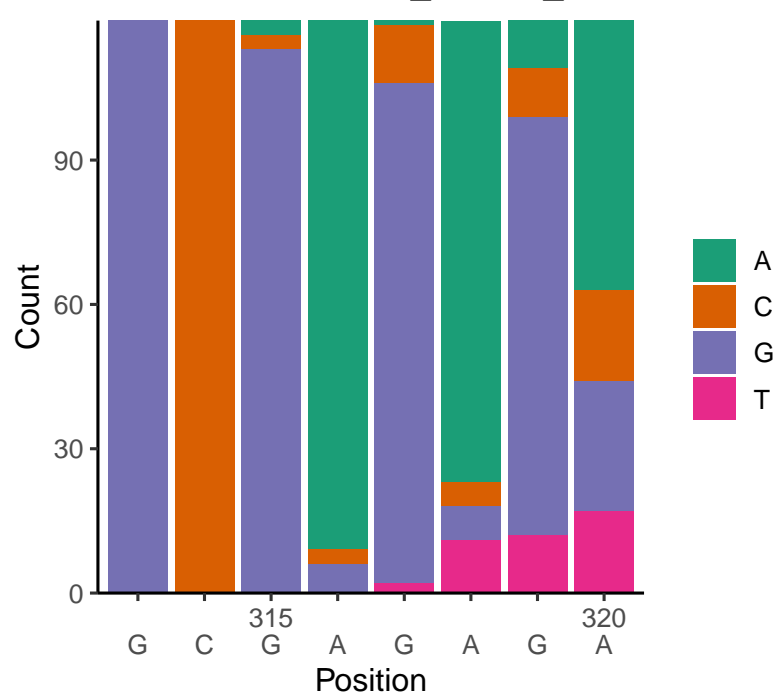
Gene IGHV3-74*01_T279C



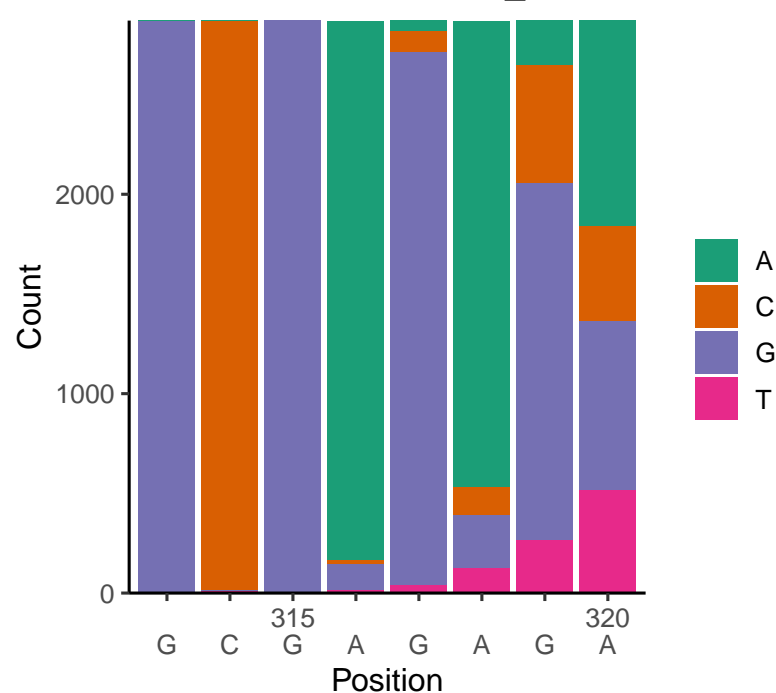
Gene IGHV3-NL1*01_G49A_G75C_T201



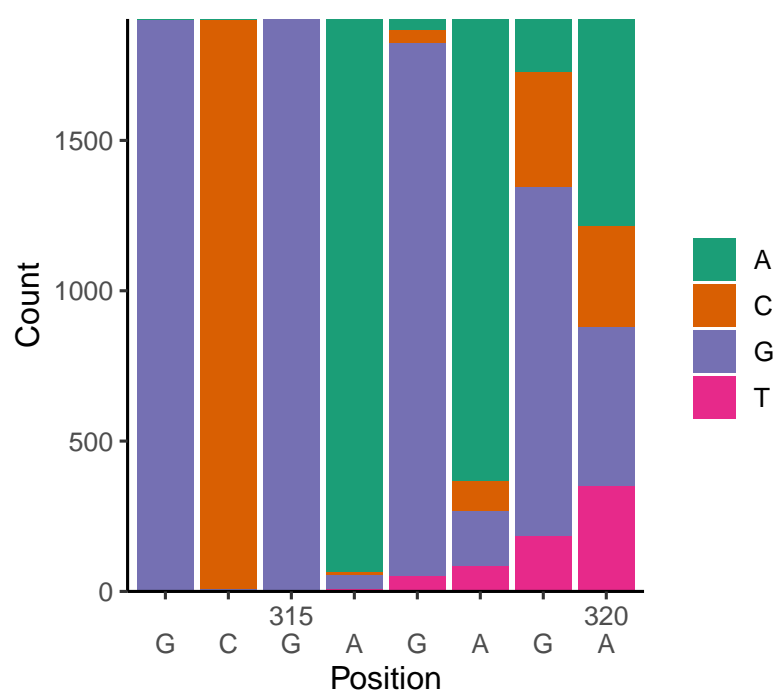
Gene IGHV1-3*02_T296C_T300C



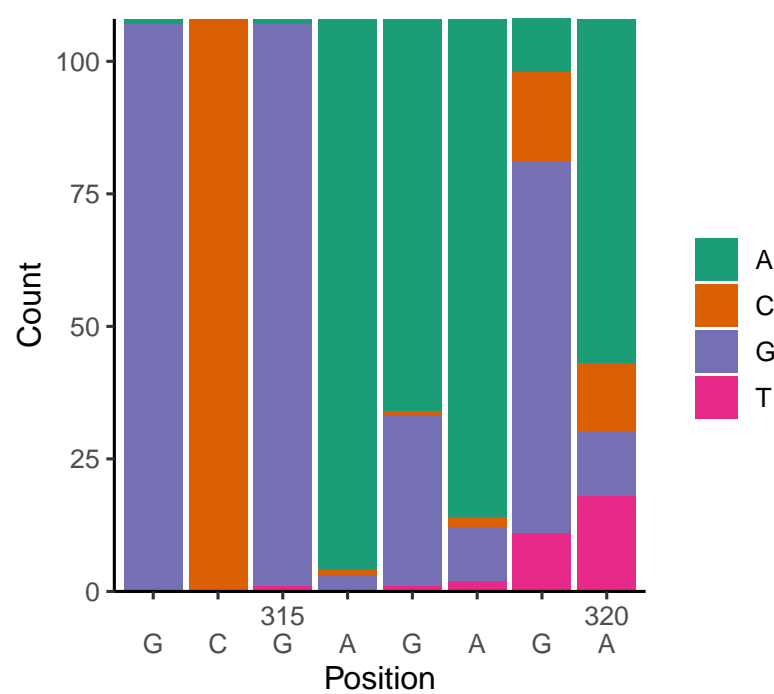
Gene IGHV4-30-2*01_C315G



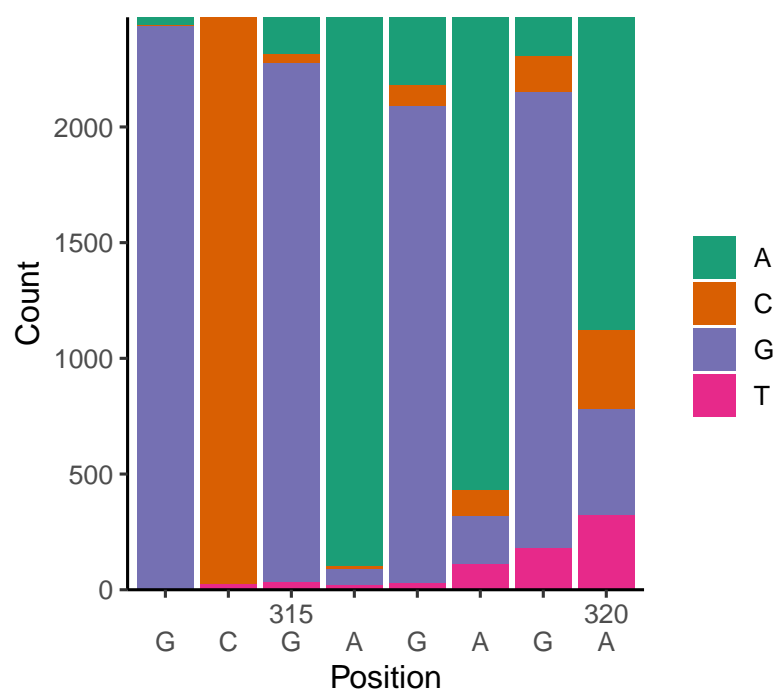
Gene IGHV4-30-4*01_C315G



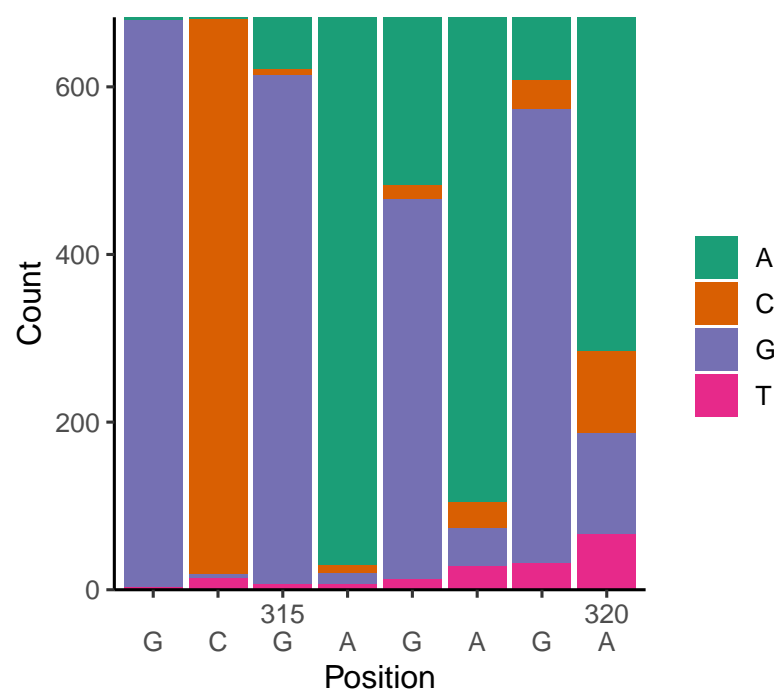
Gene IGHV3-64*04_A172G_A176G_G18



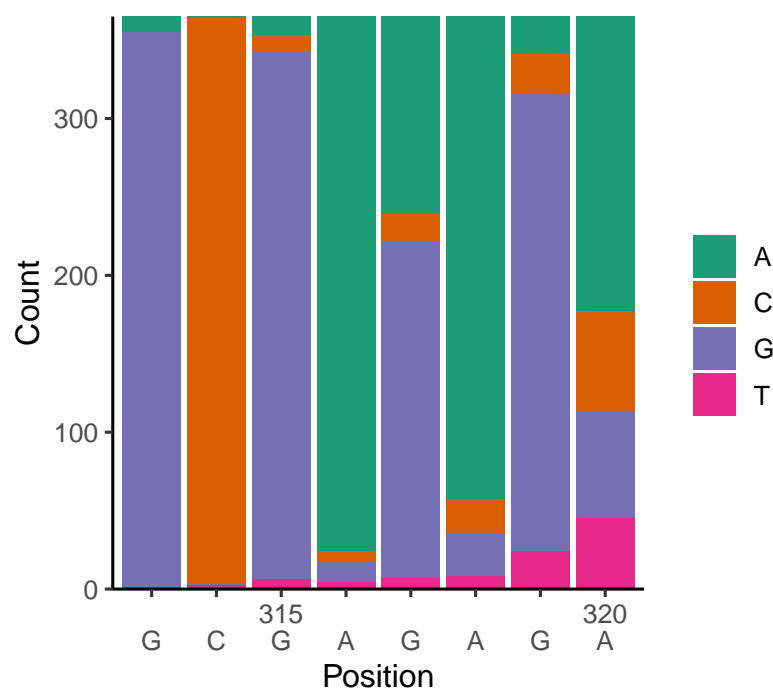
Gene IGHV3-48*03_T303G



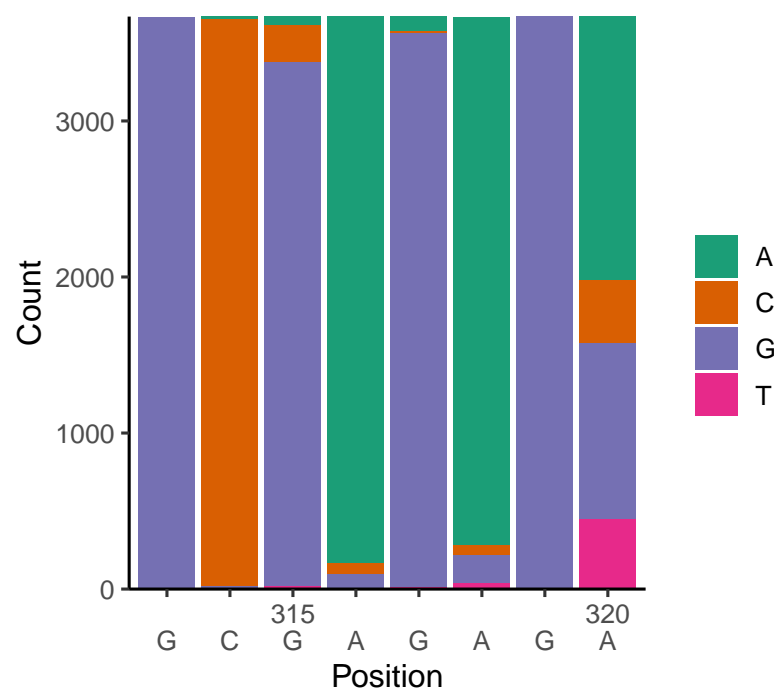
Gene IGHV3-66*03_T175G_T267G



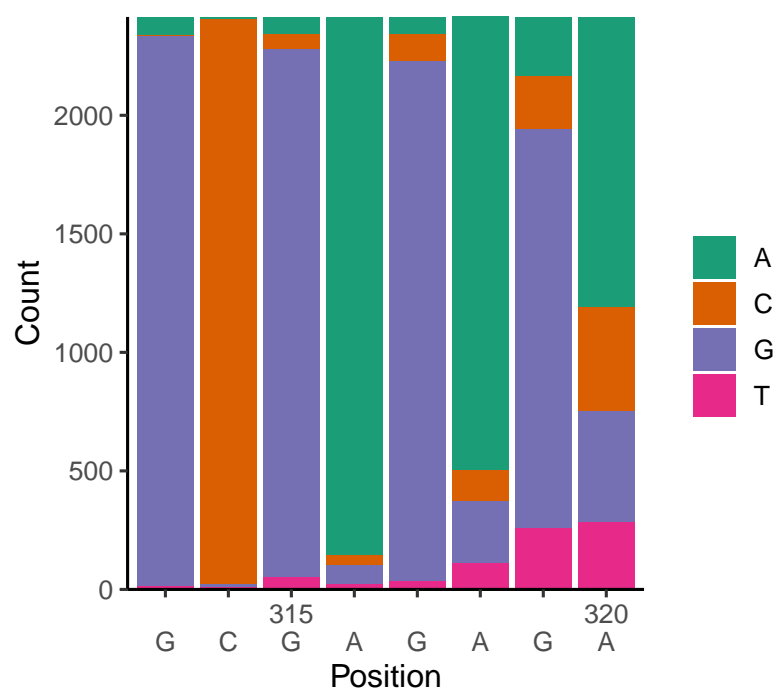
Gene IGHV3-64*04_A210C_T288C



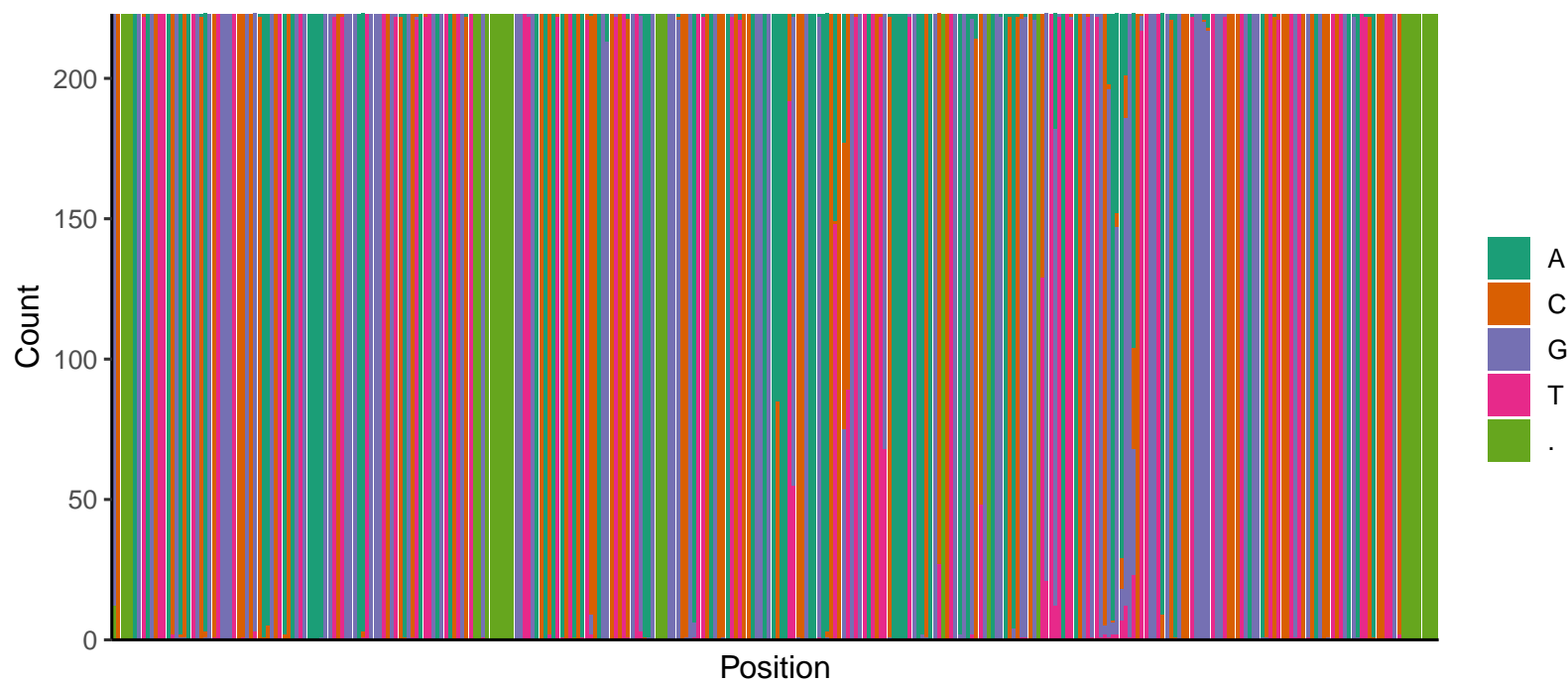
Gene IGHV4-39*02_C258G



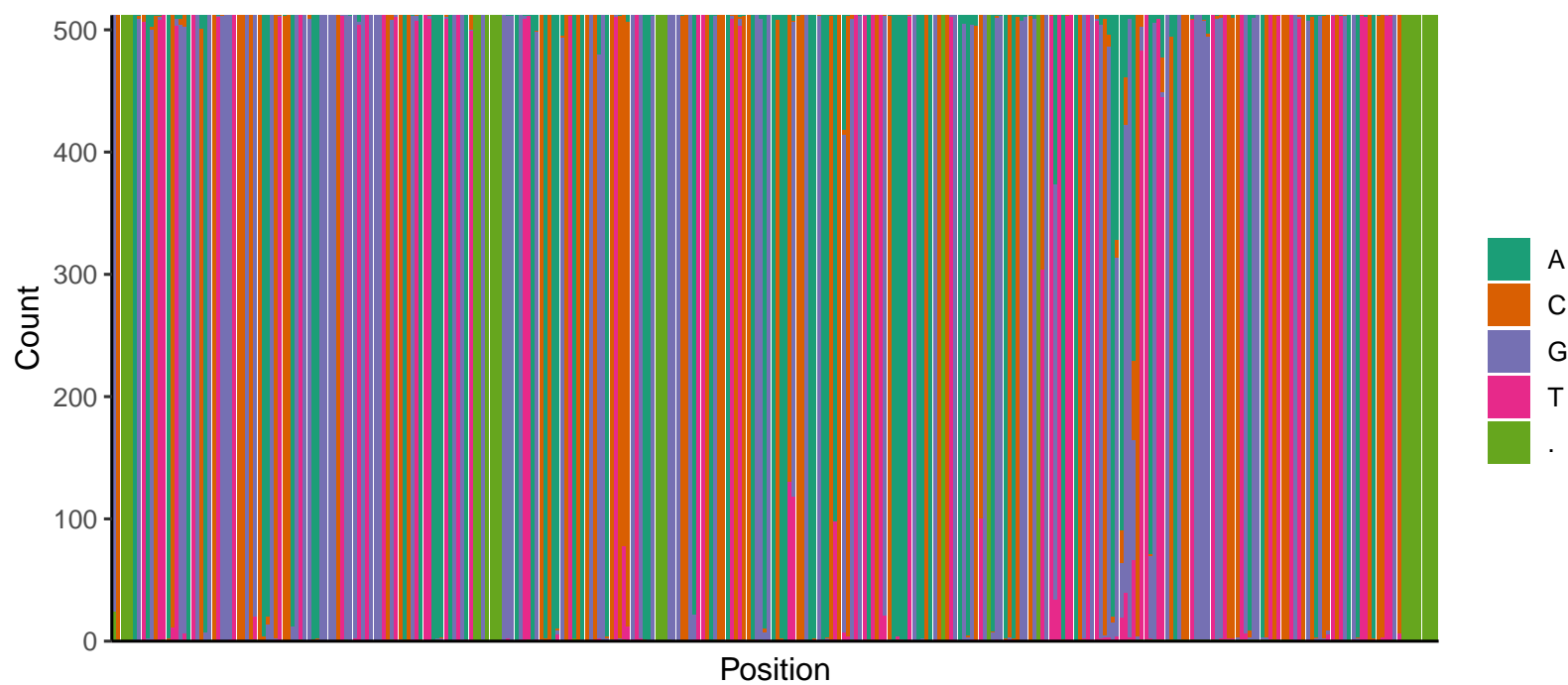
Gene IGHV3-33*05_G75C



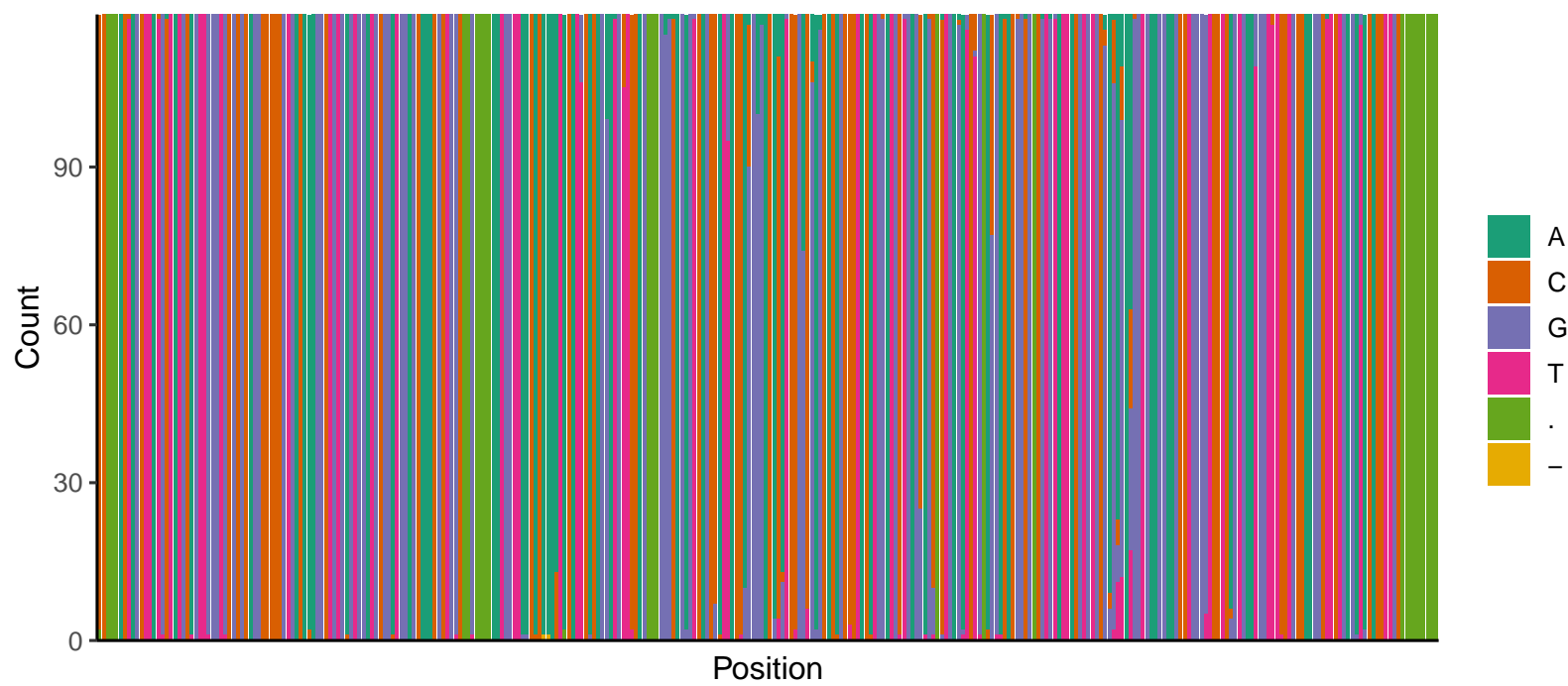
Gene IGHV3-13*04_G290A



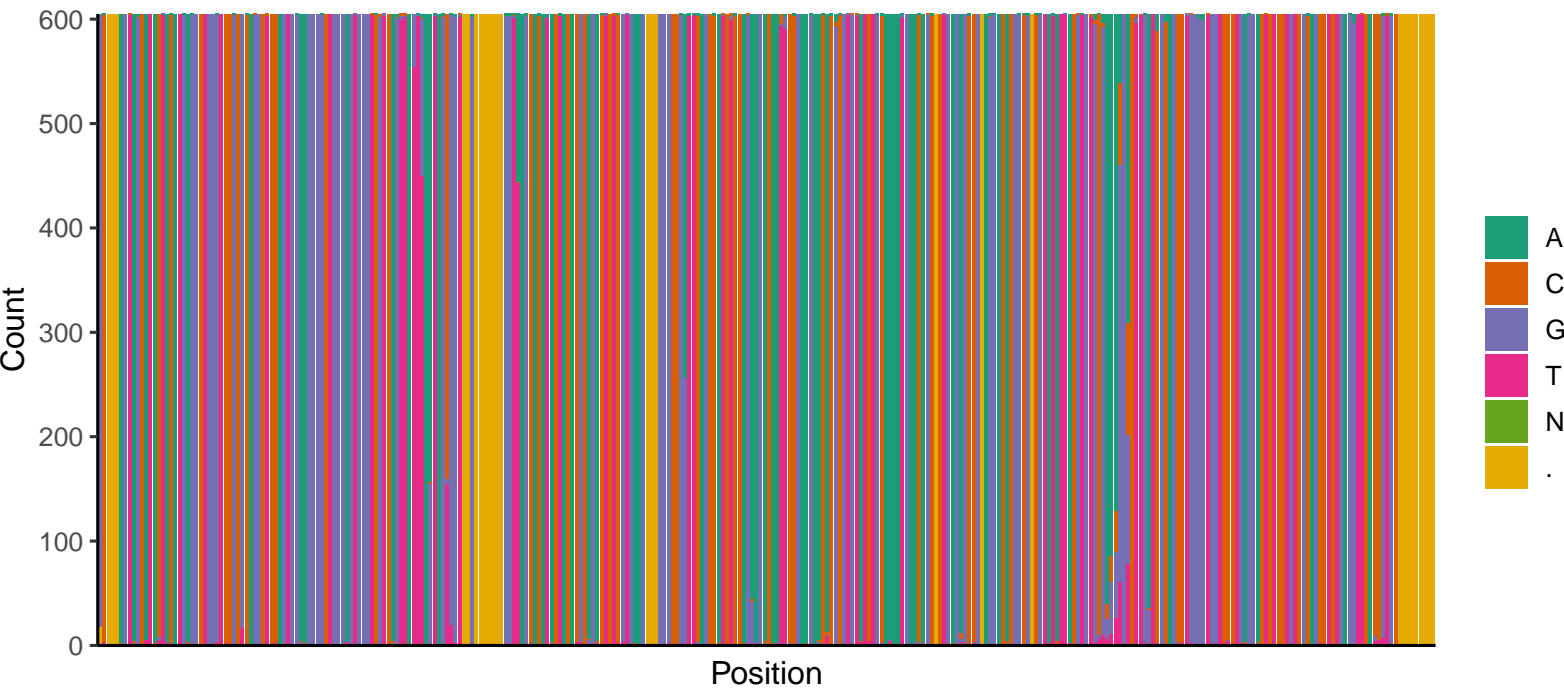
Gene IGHV3-74*01_T279C



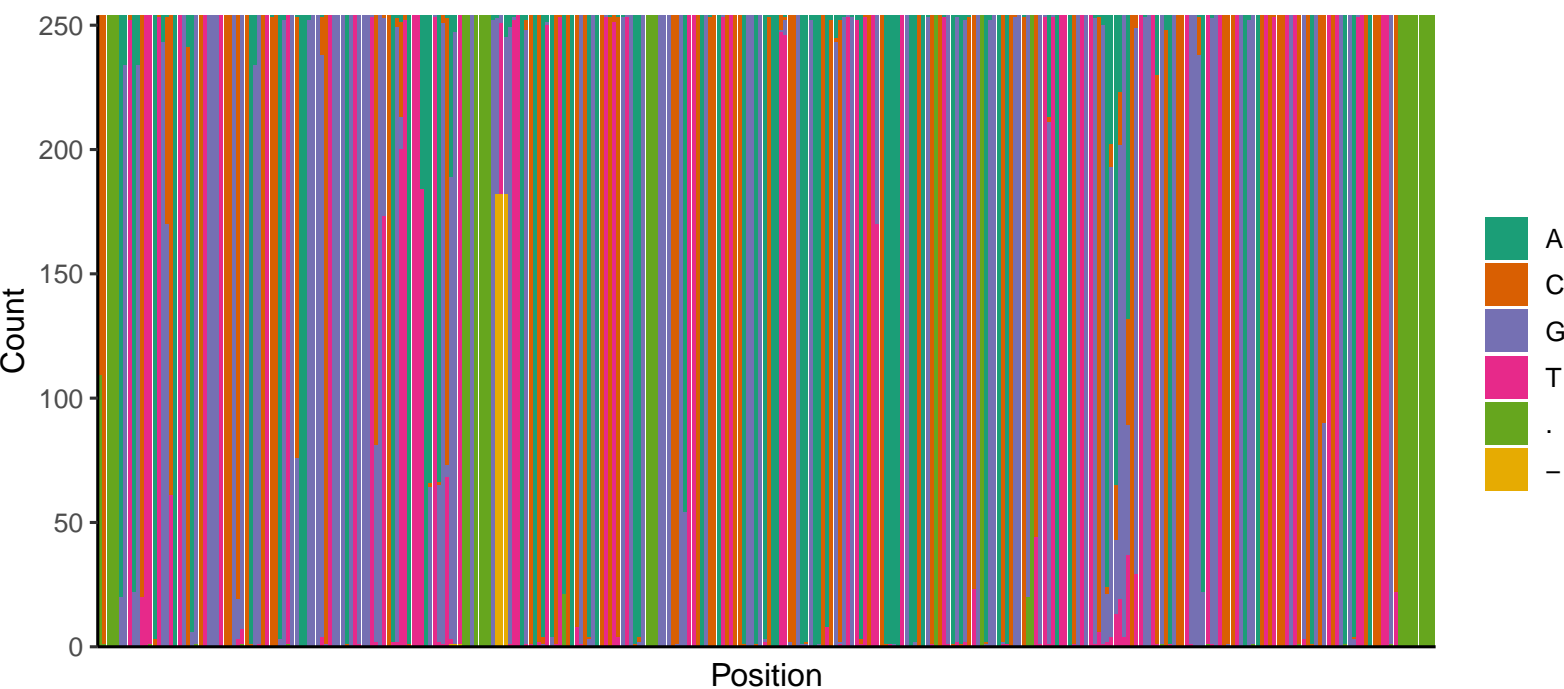
Gene IGHV1-3*02_T296C_T300C



Gene IGHV3-53*01_T267G_G303A



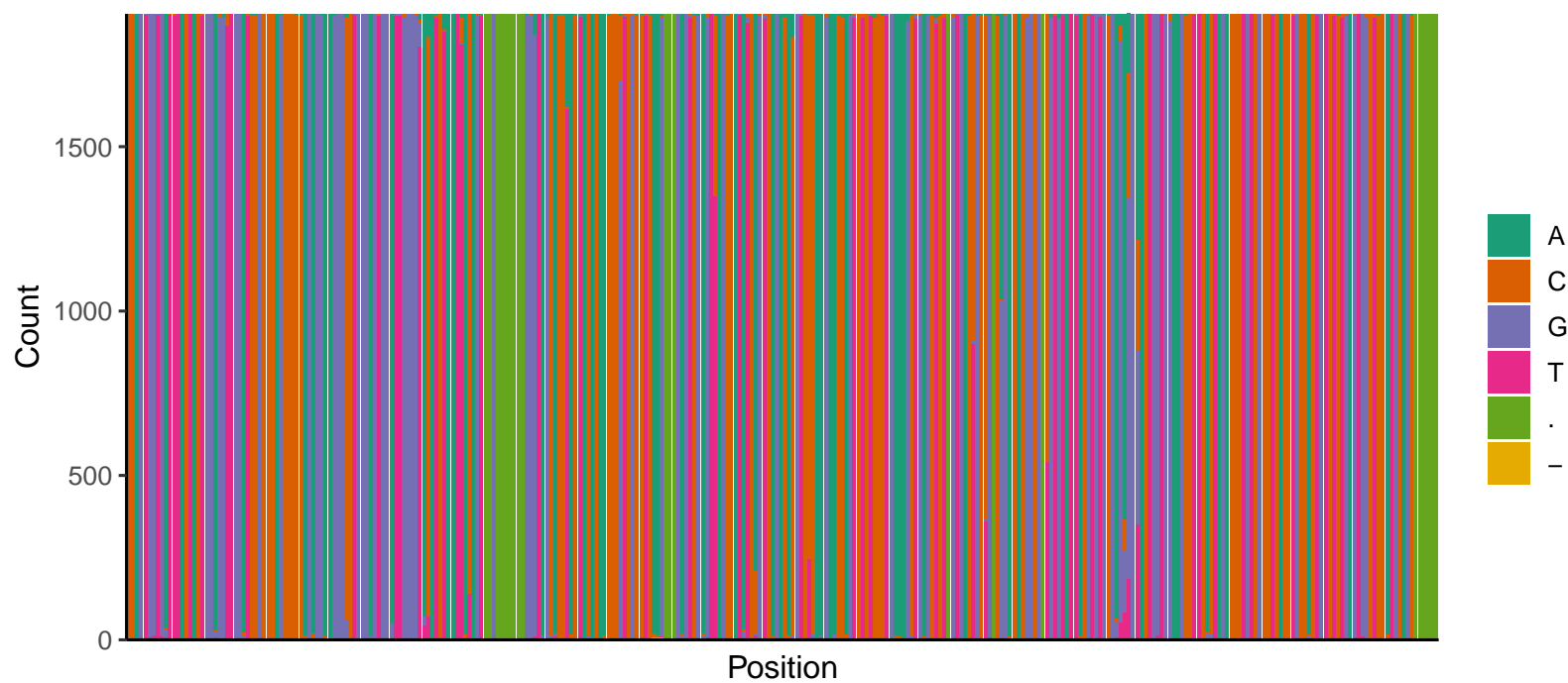
Gene IGHV3-NL1*01_G49A_G75C_T201C_G267T_T288C_T300C



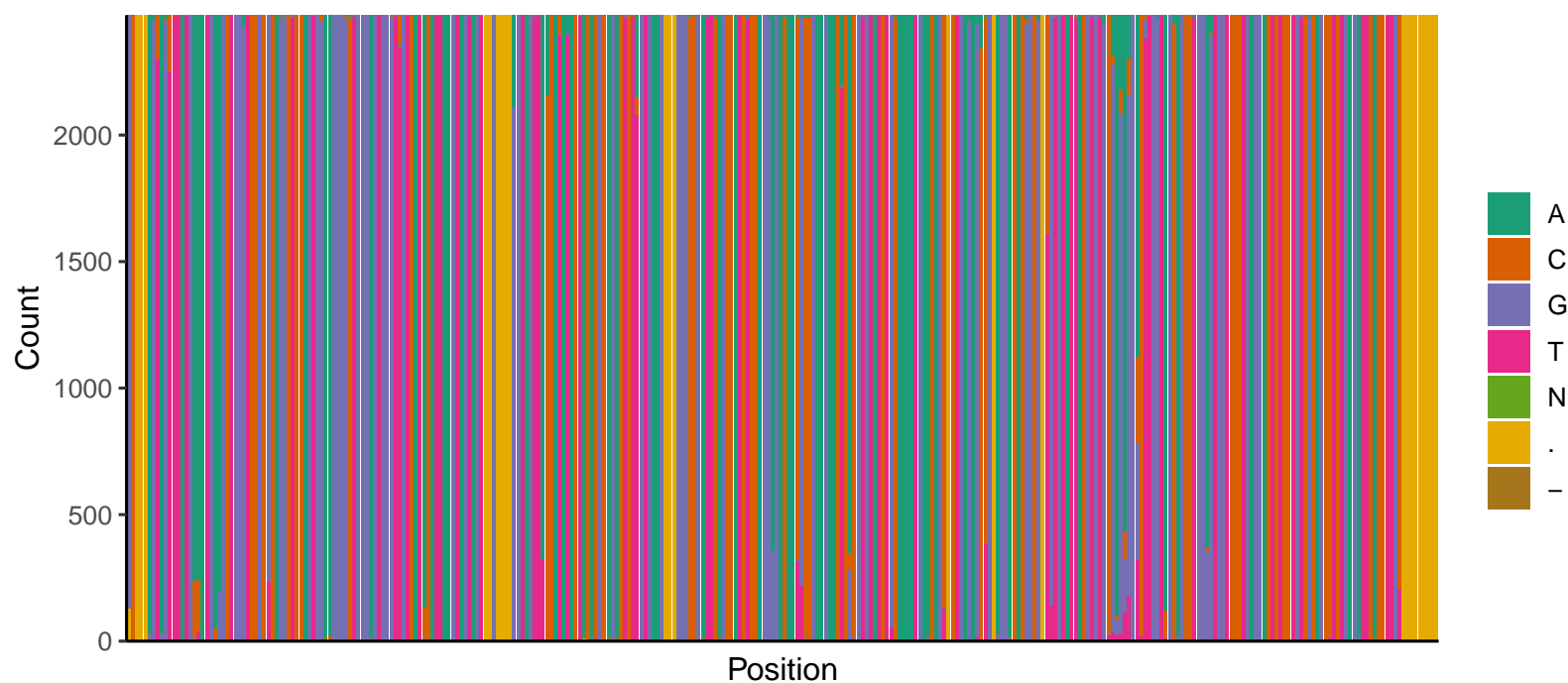
Gene IGHV4-30-2*01_C315G



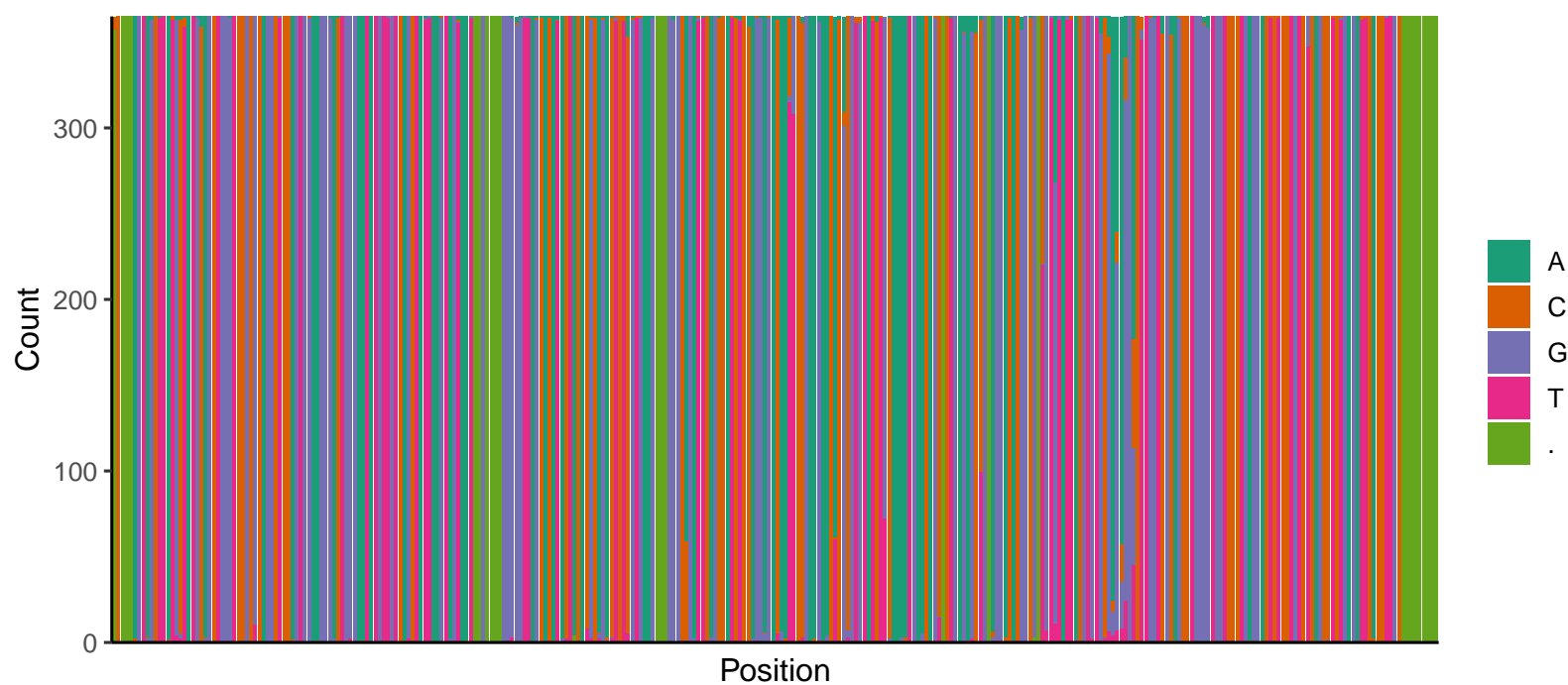
Gene IGHV4-30-4*01_C315G



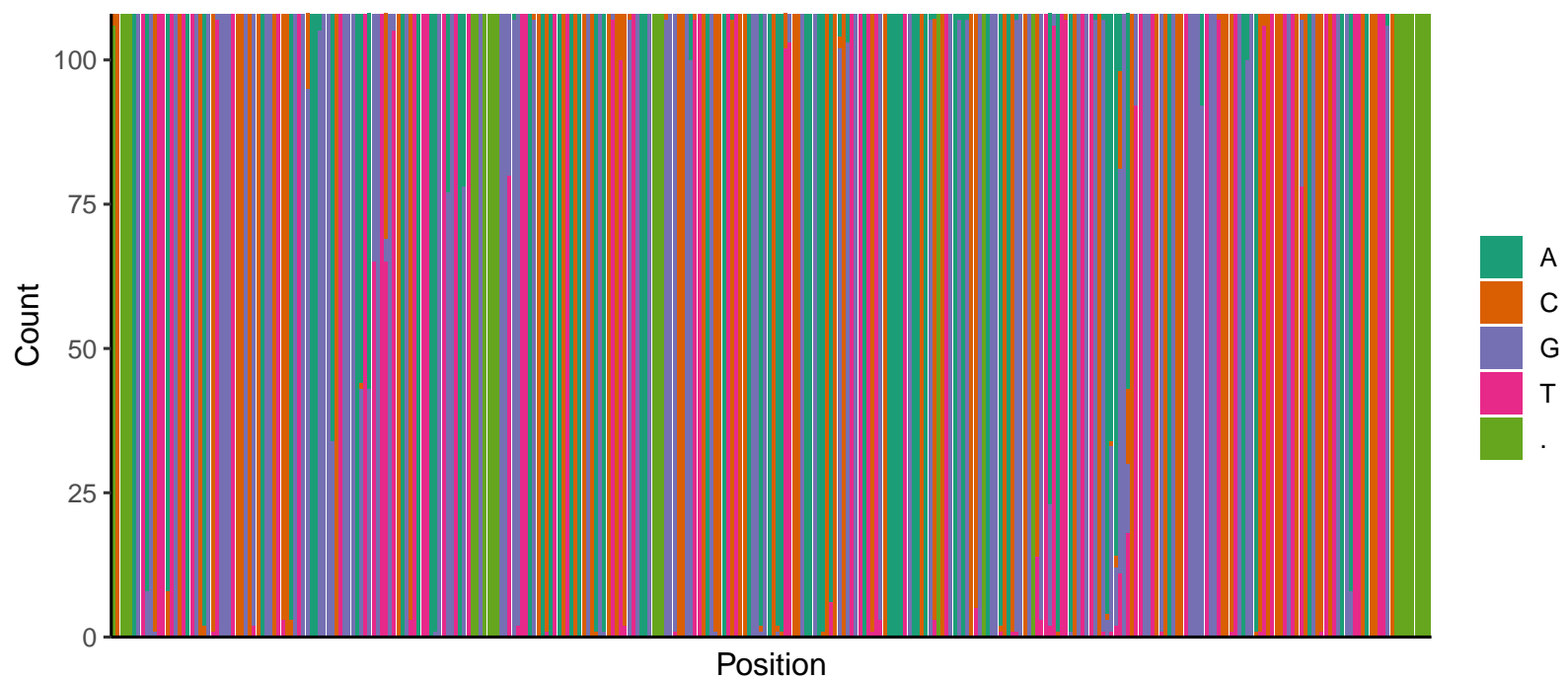
Gene IGHV3-48*03_T303G



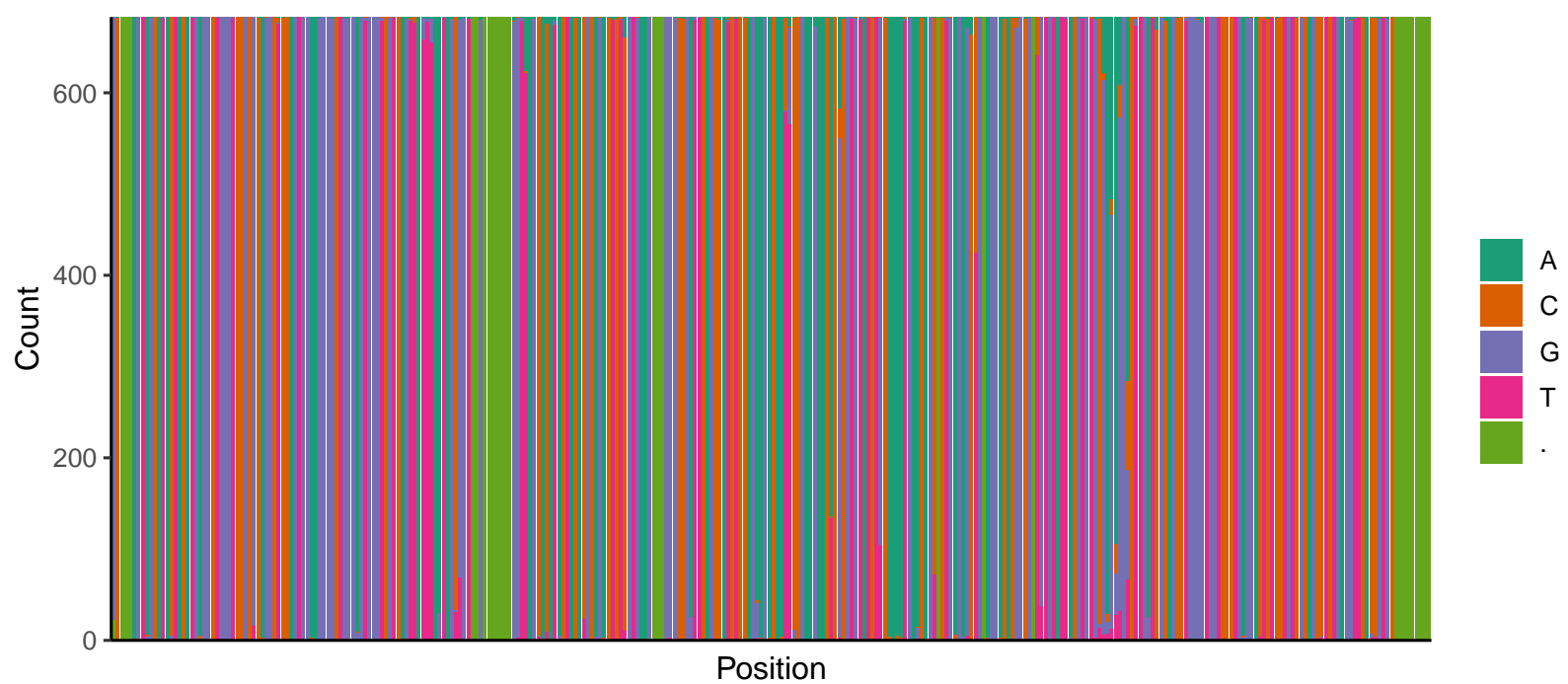
Gene IGHV3-64*04_A210C_T288C



Gene IGHV3-64*04_A172G_A176G_G186T_A210C_A223C_A225G_T288C_T300C_G300A



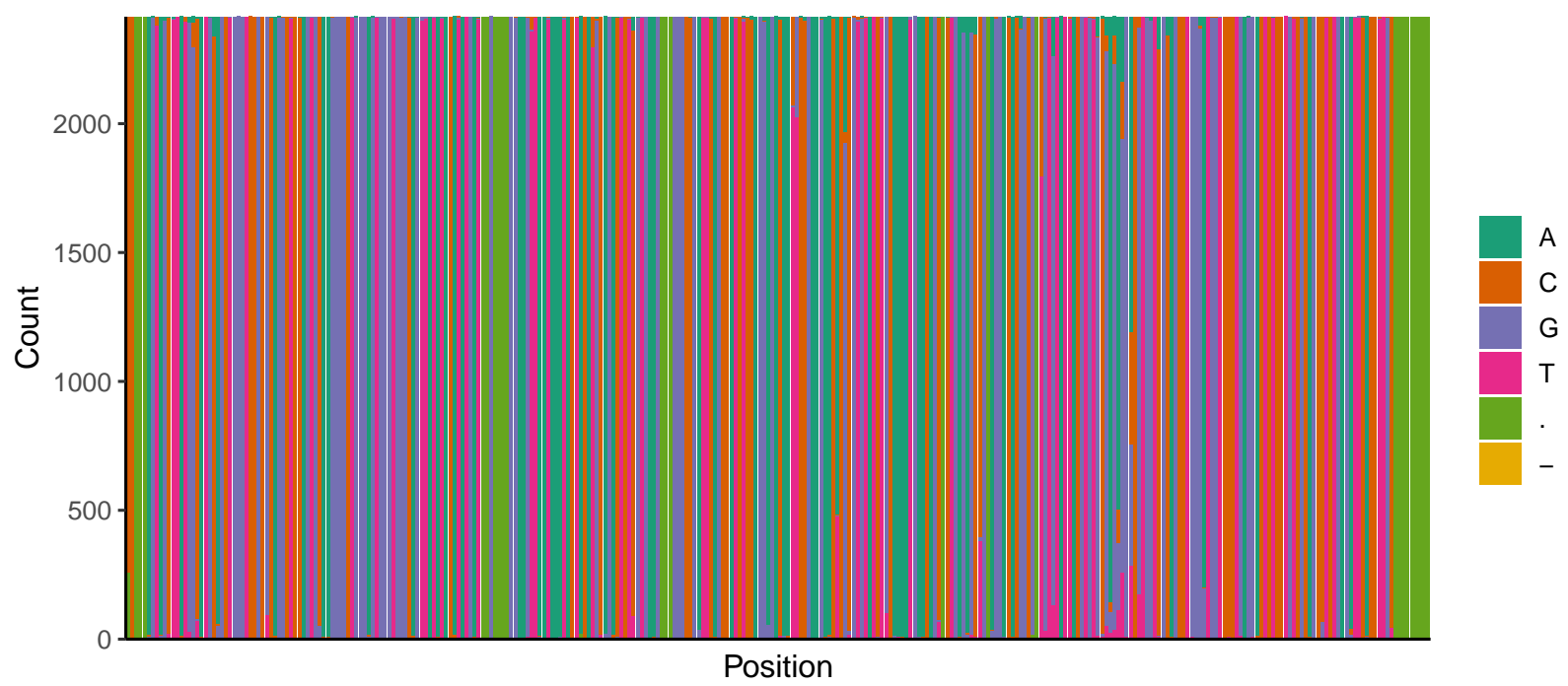
Gene IGHV3-66*03_T175G_T267G



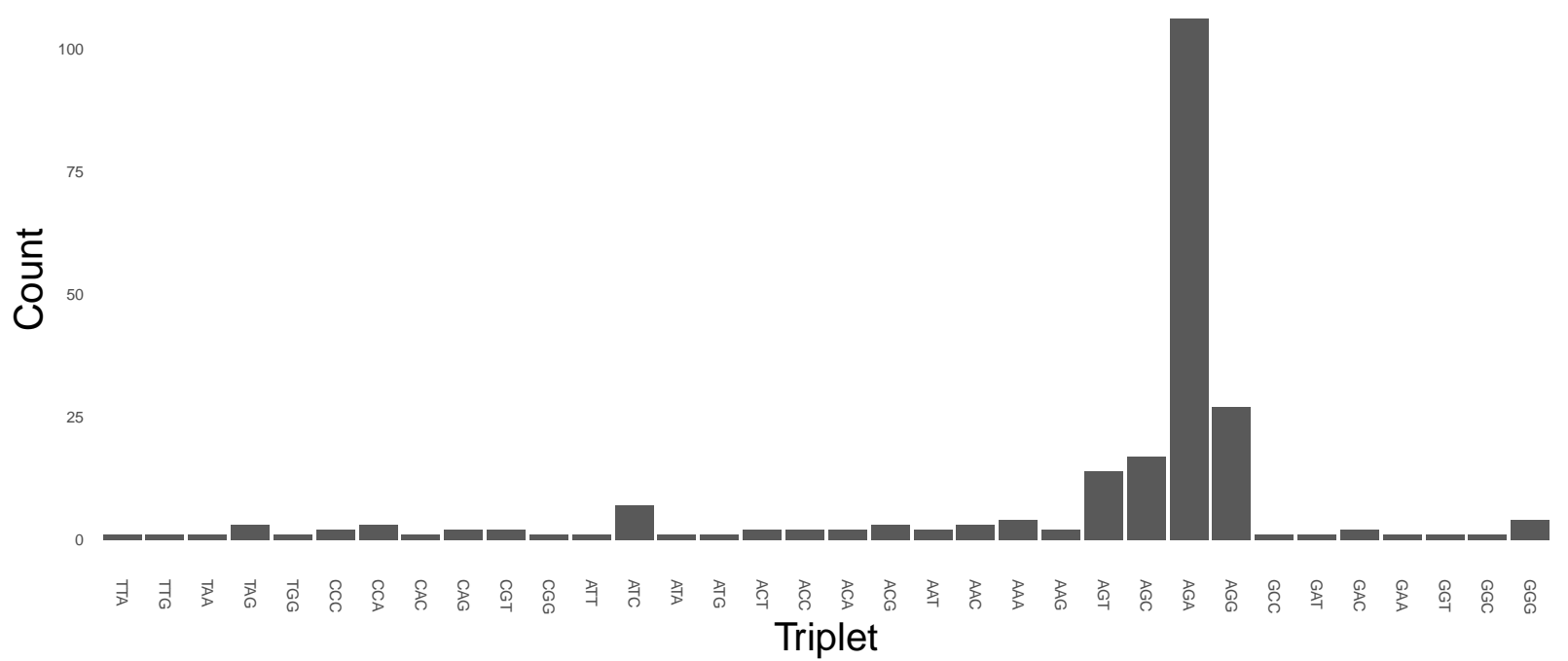
Gene IGHV4-39*02_C258G



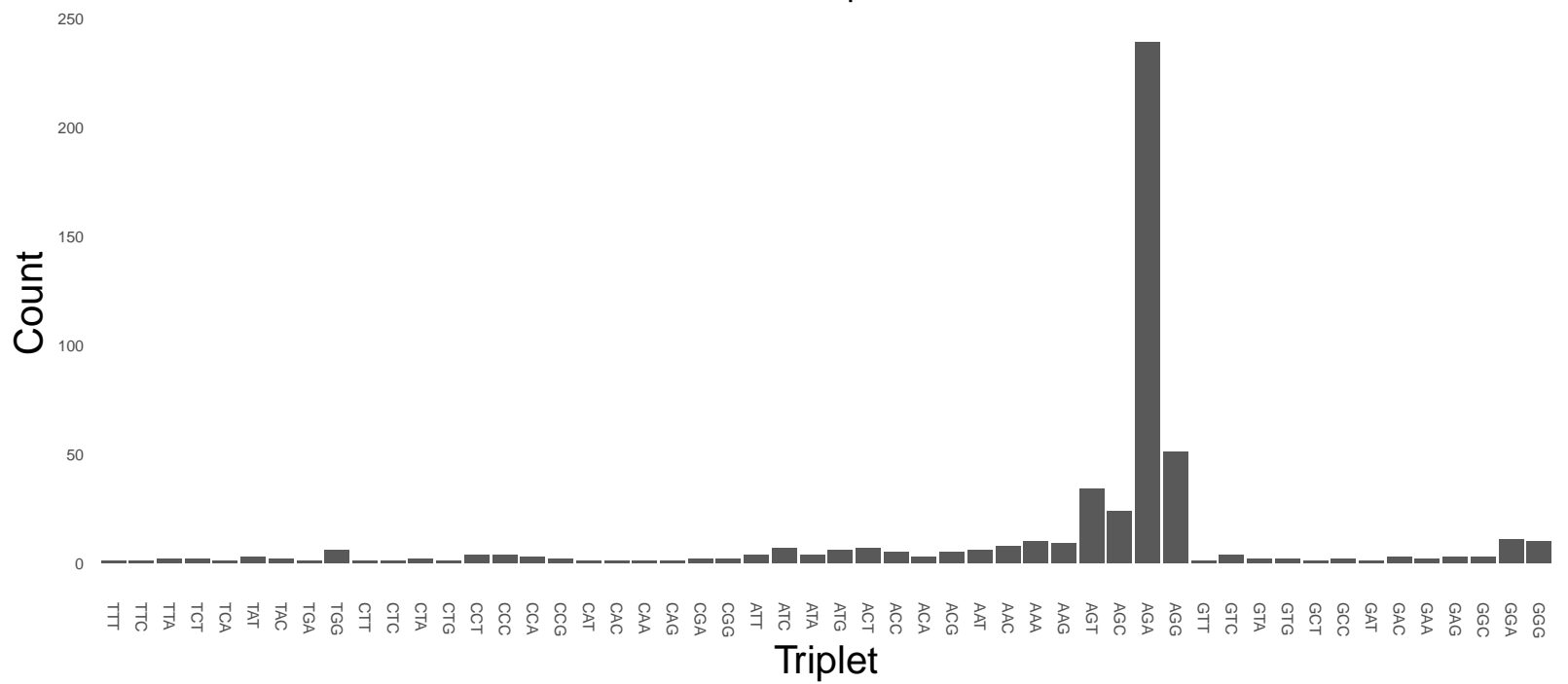
Gene IGHV3-33*05_G75C



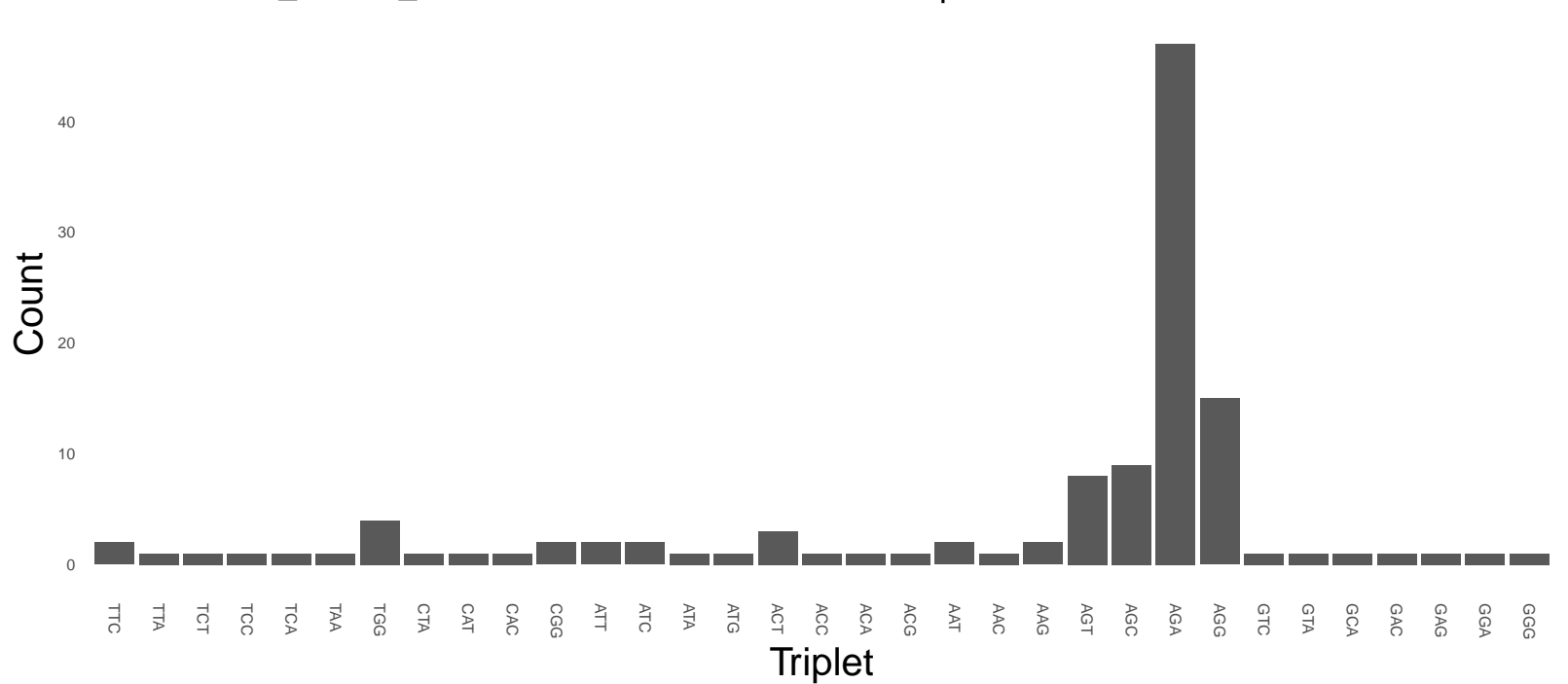
IGHV3-13*04_G290A- Final 3 nucleotides as a triplet



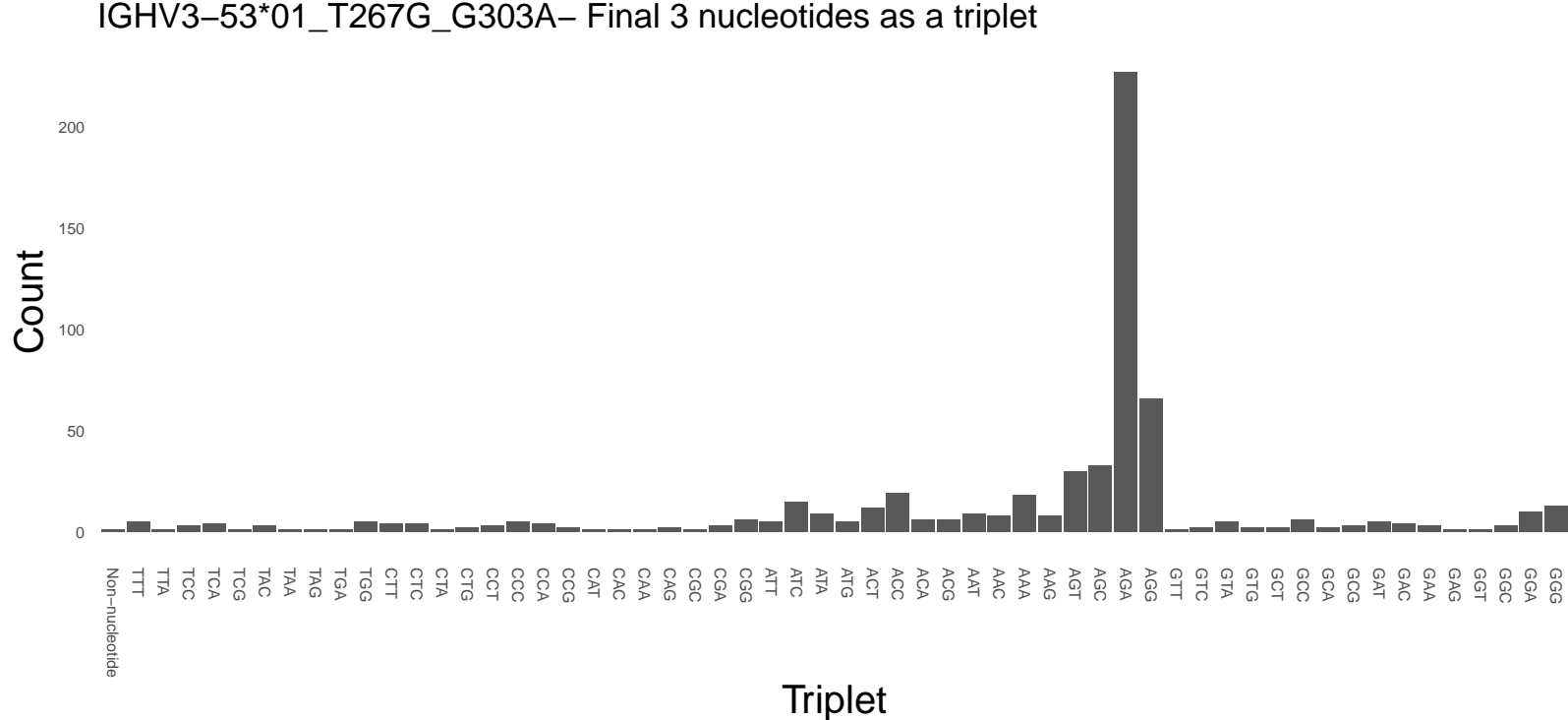
IGHV3-74*01_T279C- Final 3 nucleotides as a triplet



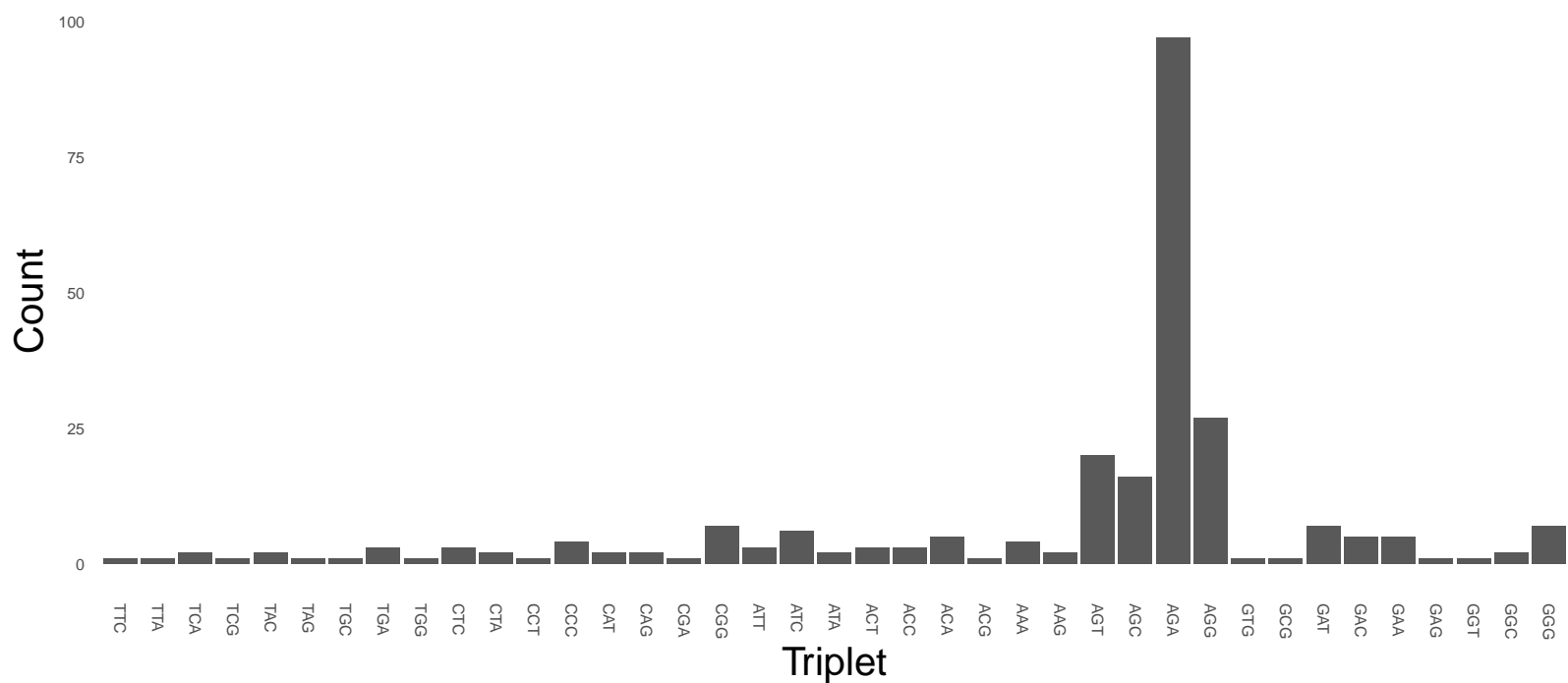
IGHV1-3*02_T296C_T300C- Final 3 nucleotides as a triplet



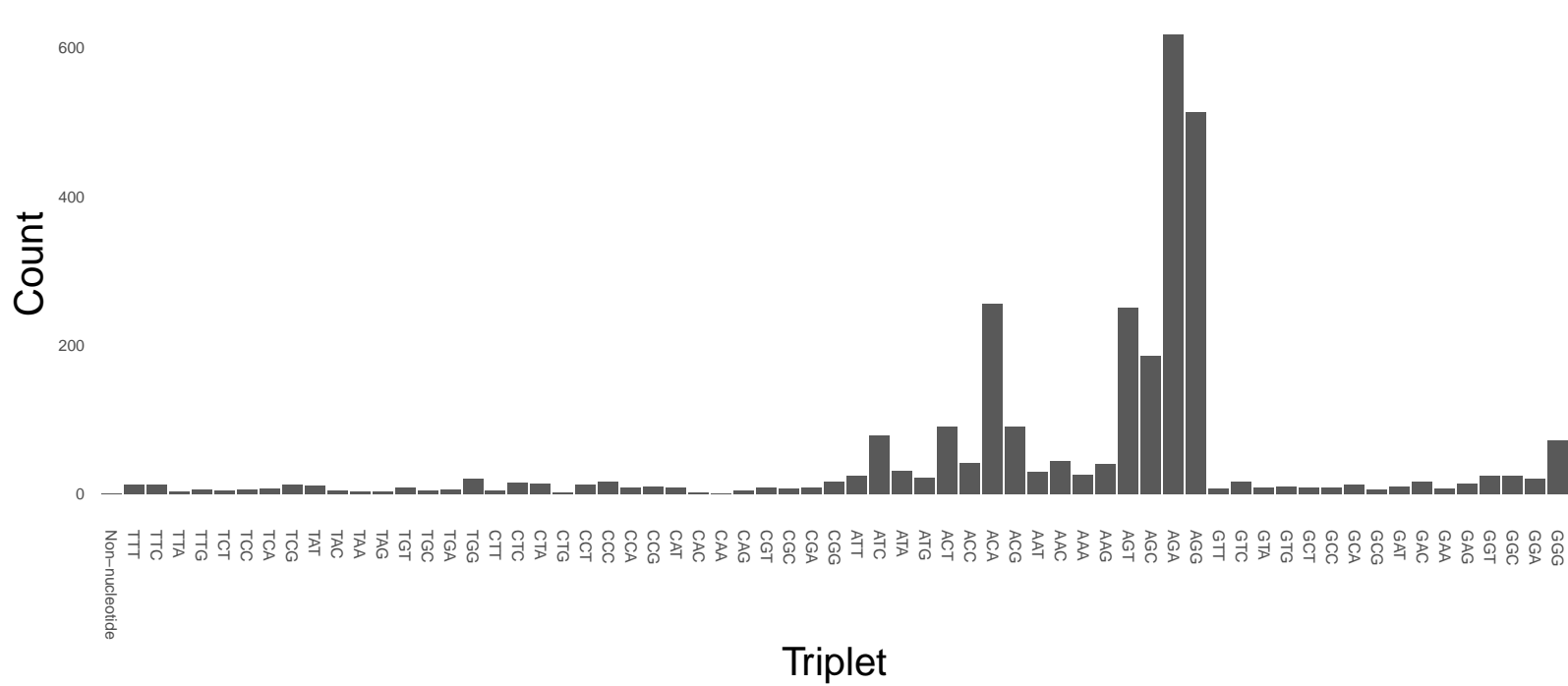
IGHV3–53*01_T267G_G303A– Final 3 nucleotides as a triplet



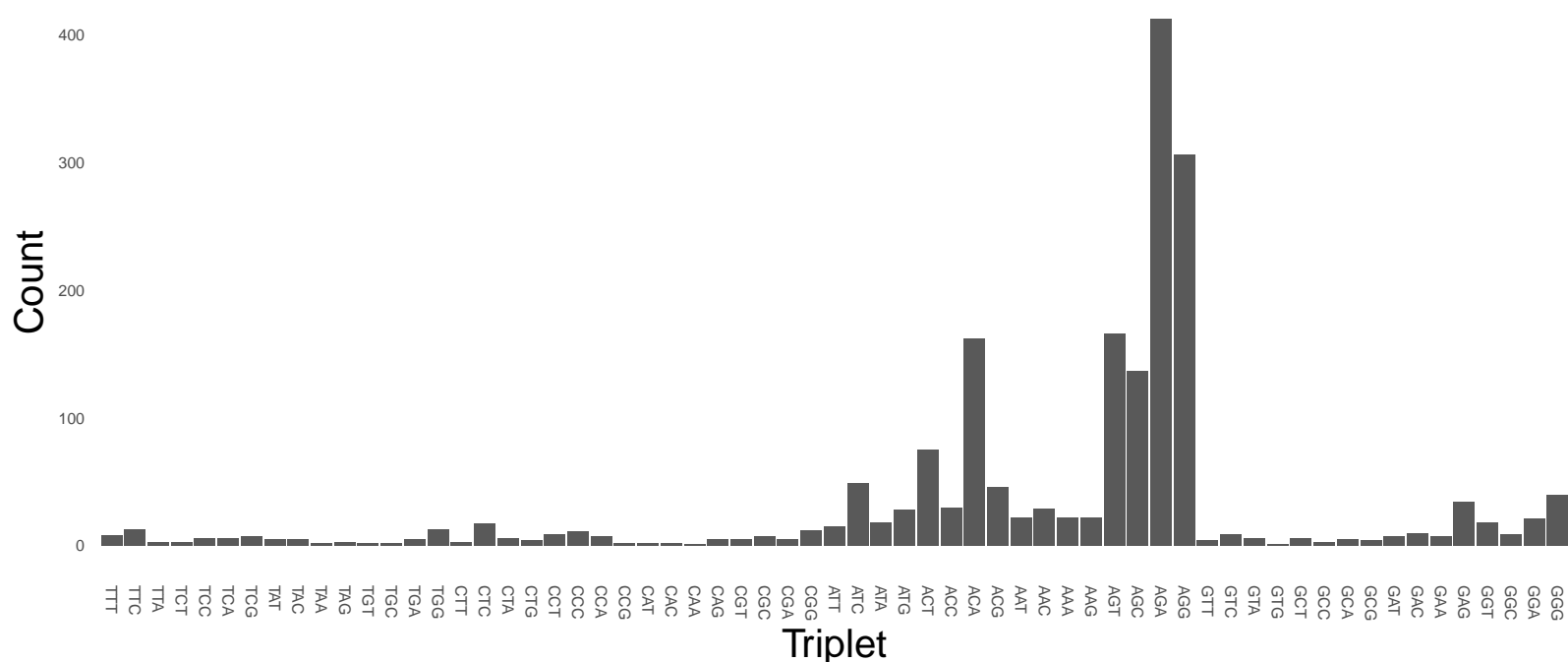
IGHV3–NL1*01_G49A_G75C_T201C_G267T_T288C_T300C– Final 3 nucleotides as a triplet



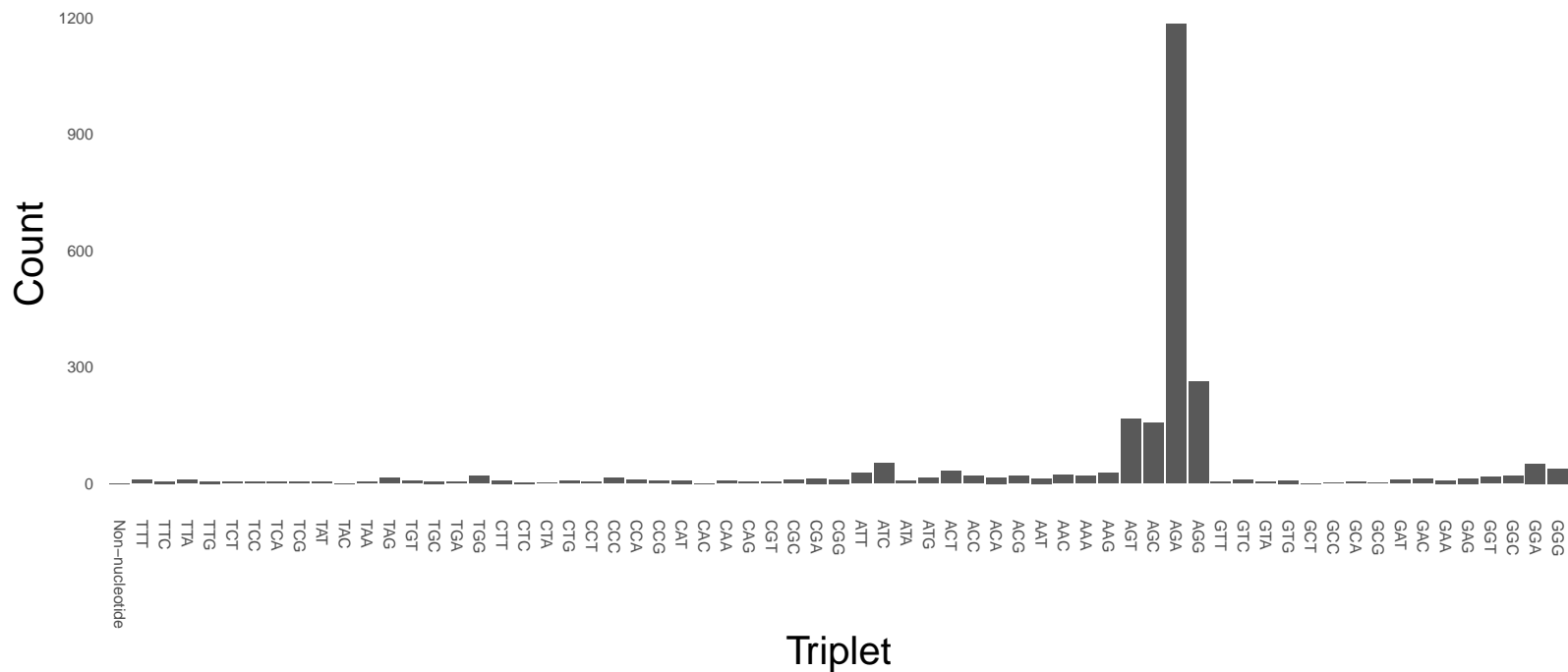
IGHV4–30–2*01_C315G– Final 3 nucleotides as a triplet



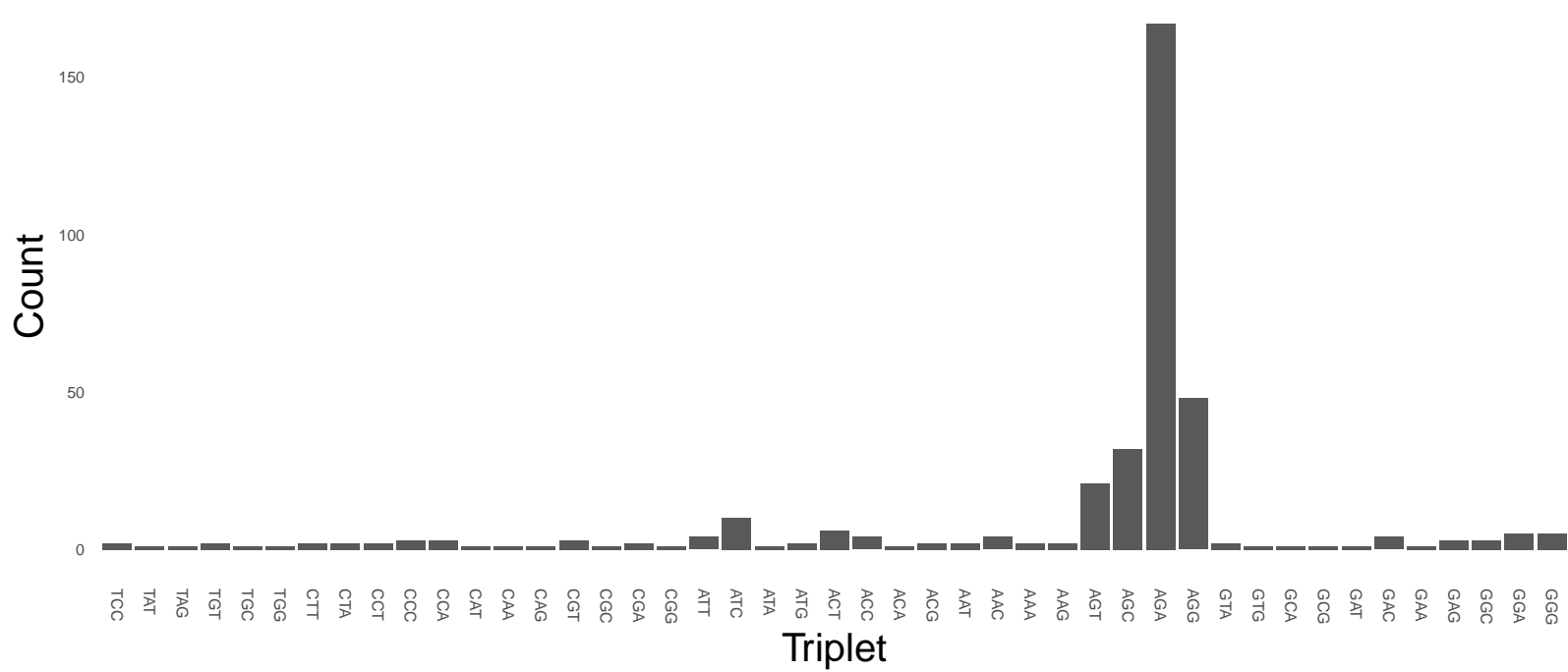
IGHV4-30-4*01_C315G- Final 3 nucleotides as a triplet



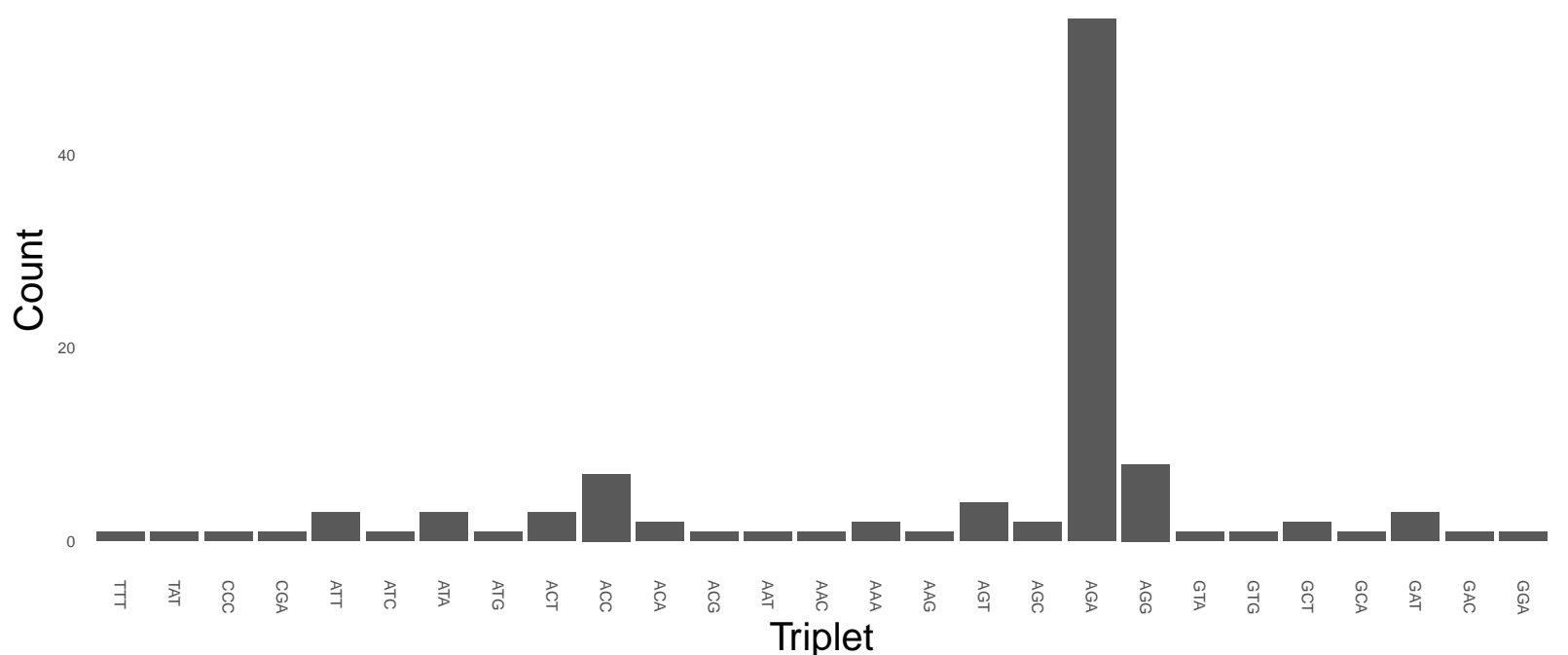
IGHV3-48*03_T303G- Final 3 nucleotides as a triplet



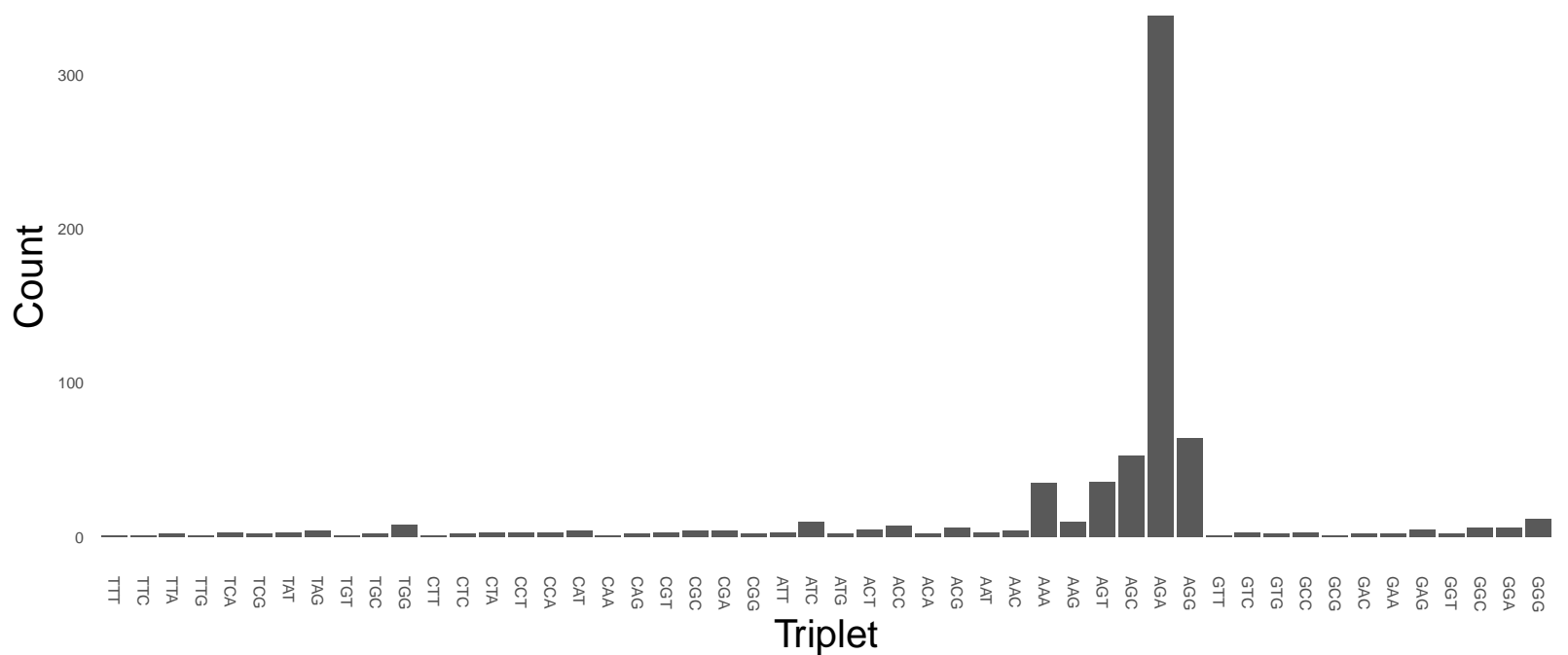
IGHV3-64*04_A210C_T288C- Final 3 nucleotides as a triplet



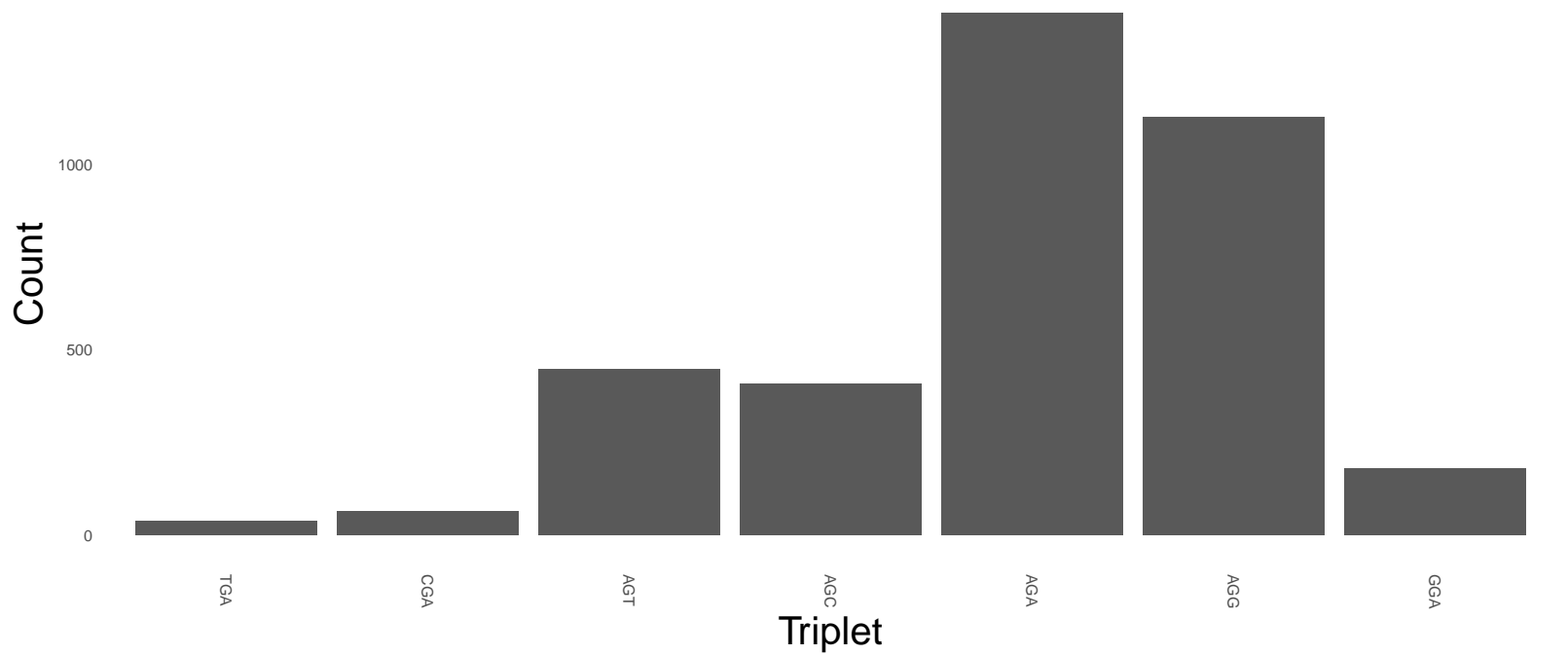
IGHV3-64*04_A172G_A176G_G186T_A210C_A223C_A225G_T288C_T300C_G303A- Final 3 nucleotides as a triplet



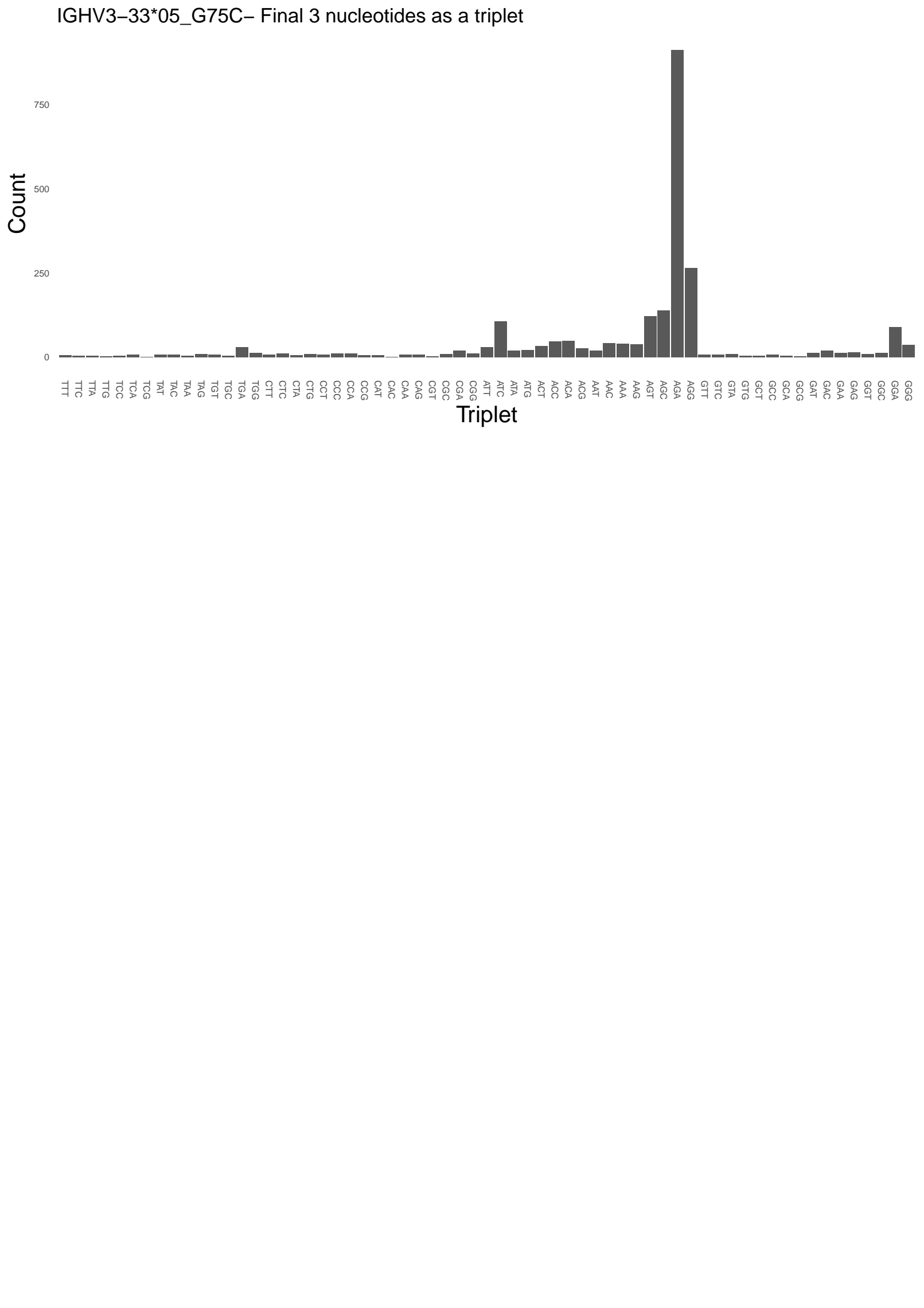
IGHV3-66*03_T175G_T267G- Final 3 nucleotides as a triplet



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

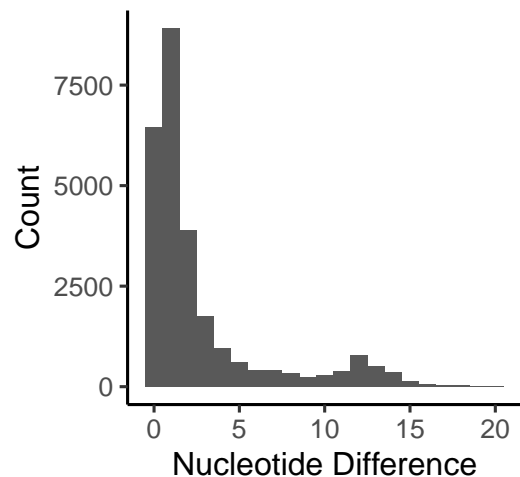


IGHV3-33*05_G75C- Final 3 nucleotides as a triplet



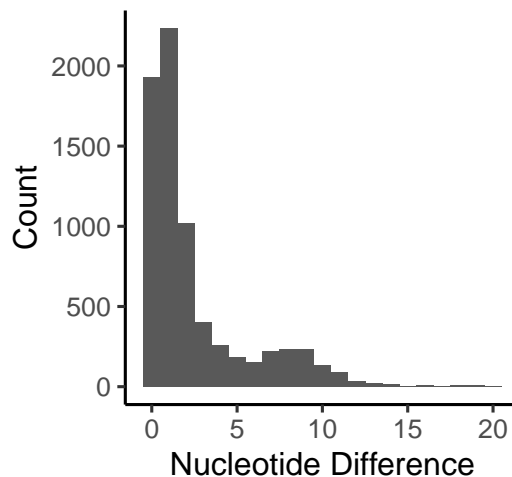
IGHV1-2*02

26762 sequences assigned
6457 (24.1%) exact matches, in which:
5272 unique CDR3
6 unique J



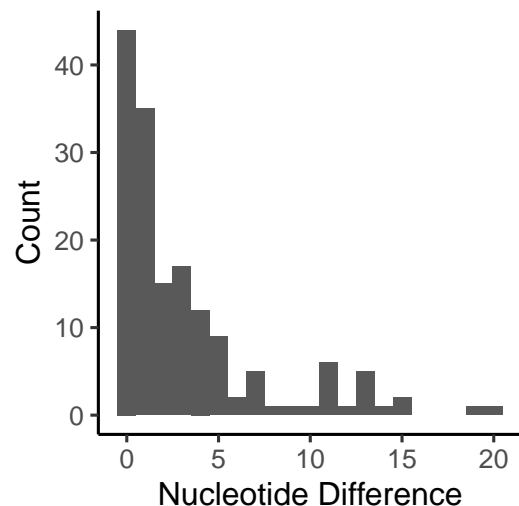
IGHV1-8*01

7236 sequences assigned
1933 (26.7%) exact matches, in which:
1629 unique CDR3
6 unique J



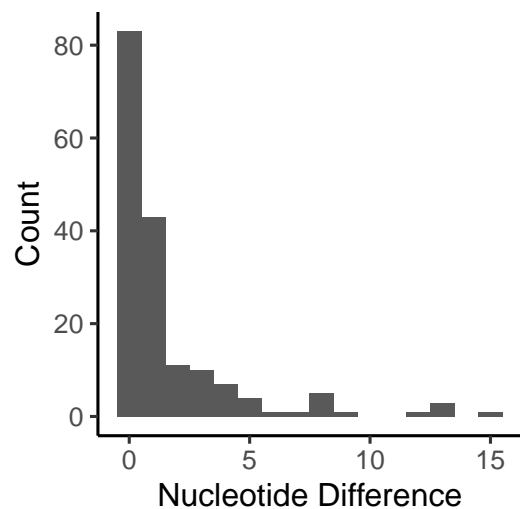
IGHV1-45*02

163 sequences assigned
44 (27%) exact matches, in which:
32 unique CDR3
4 unique J



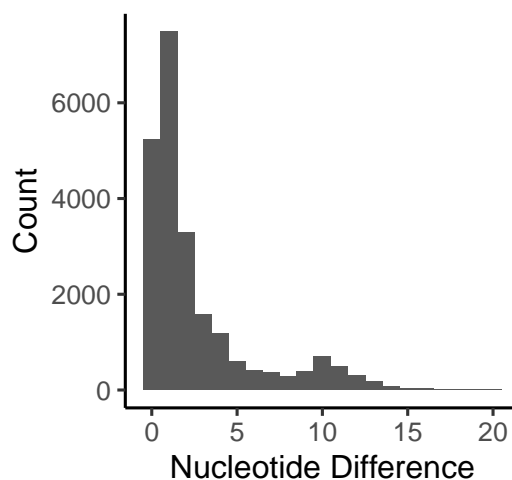
IGHV1-3*02

171 sequences assigned
83 (48.5%) exact matches, in which:
79 unique CDR3
6 unique J



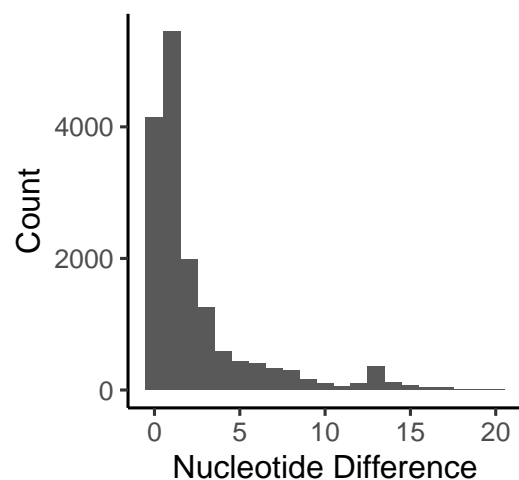
IGHV1-18*01

22772 sequences assigned
5241 (23%) exact matches, in which:
4315 unique CDR3
6 unique J



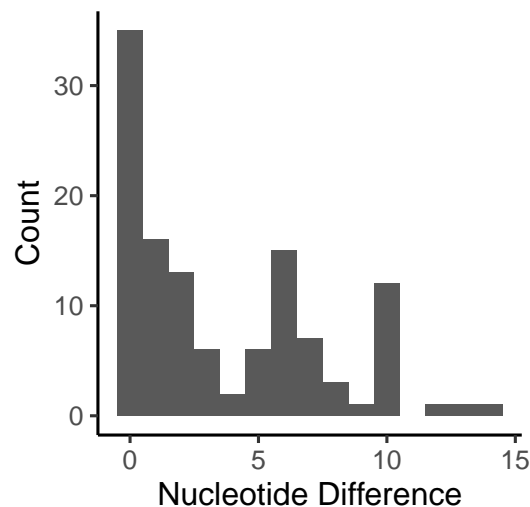
IGHV1-46*01

16049 sequences assigned
4137 (25.8%) exact matches, in which:
3416 unique CDR3
6 unique J



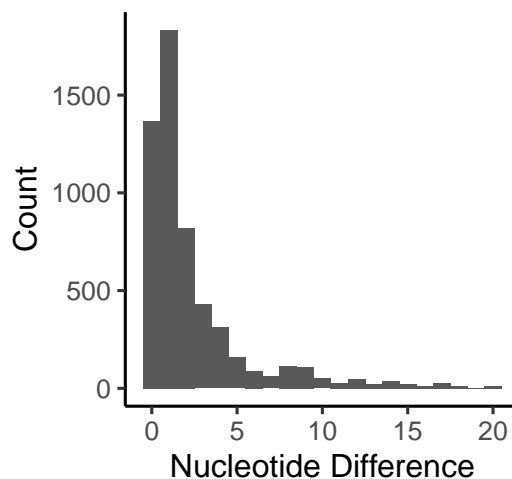
IGHV1-3*02_T296C_T300C

119 sequences assigned
35 (29.4%) exact matches, in which:
35 unique CDR3
6 unique J



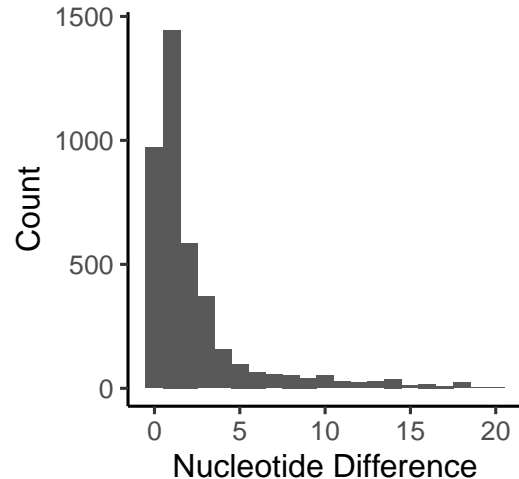
IGHV1-24*01

5742 sequences assigned
1367 (23.8%) exact matches, in which:
1130 unique CDR3
6 unique J



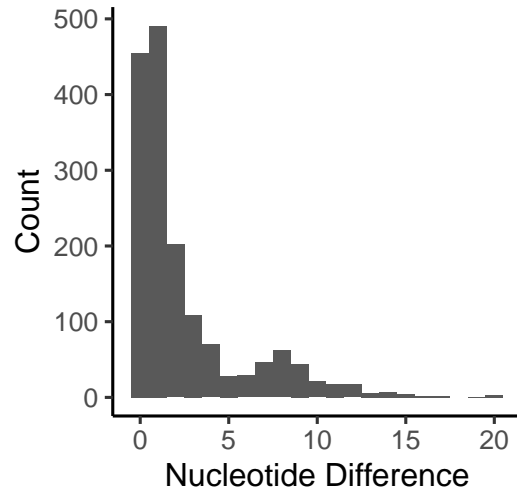
IGHV1-58*01

4106 sequences assigned
972 (23.7%) exact matches, in which:
724 unique CDR3
6 unique J



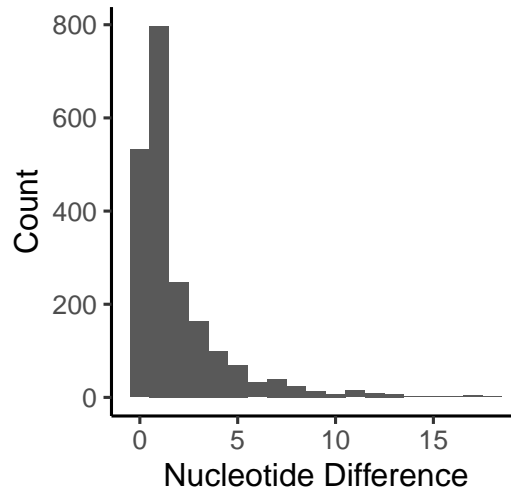
IGHV1-69-2*01

1668 sequences assigned
455 (27.3%) exact matches, in which:
383 unique CDR3
6 unique J



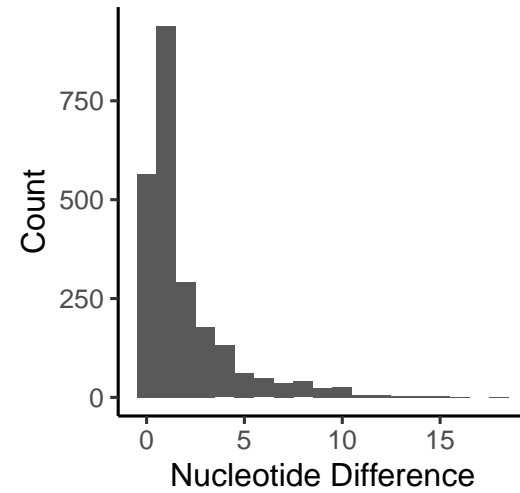
IGHV2-5*01

2096 sequences assigned
532 (25.4%) exact matches, in which:
446 unique CDR3
6 unique J



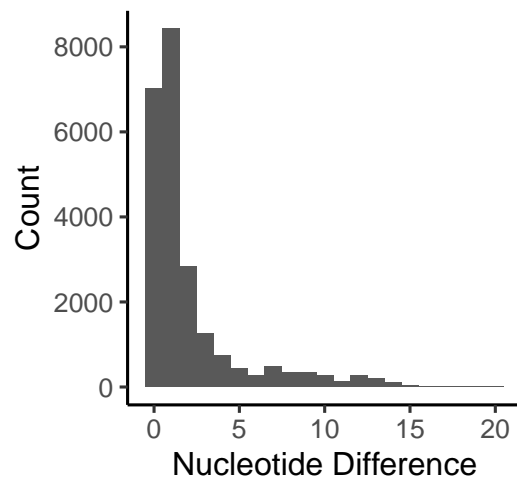
IGHV2-70*01

2415 sequences assigned
564 (23.4%) exact matches, in which:
447 unique CDR3
6 unique J



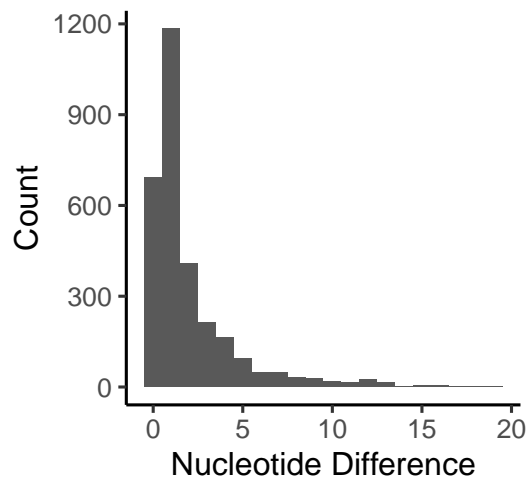
IGHV1-69*06

23334 sequences assigned
7030 (30.1%) exact matches, in which:
5758 unique CDR3
6 unique J



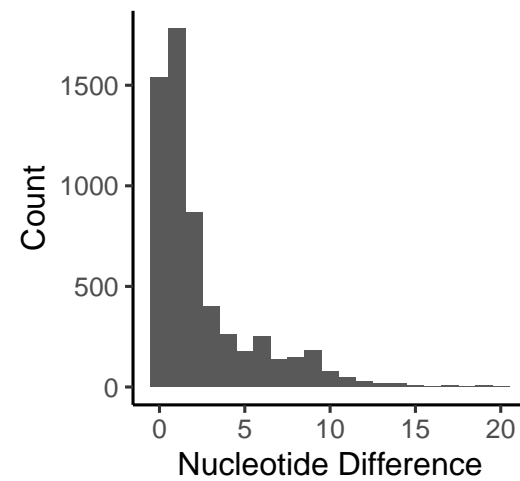
IGHV2-5*02

3019 sequences assigned
693 (23%) exact matches, in which:
564 unique CDR3
6 unique J



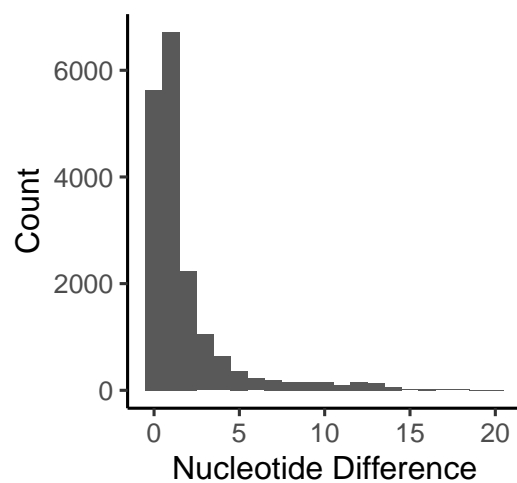
IGHV3-7*01

5992 sequences assigned
1540 (25.7%) exact matches, in which:
1272 unique CDR3
6 unique J



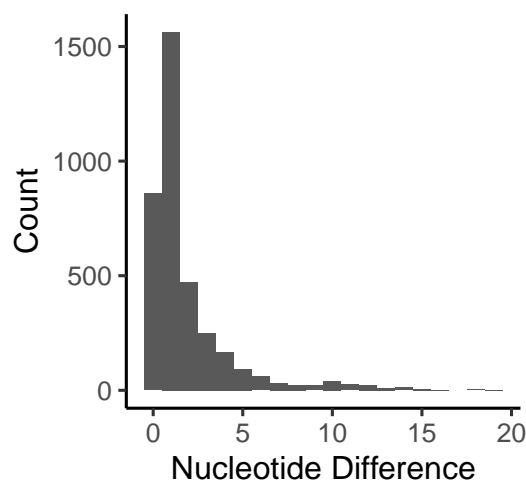
IGHV1-69*17

18150 sequences assigned
5632 (31%) exact matches, in which:
4634 unique CDR3
6 unique J



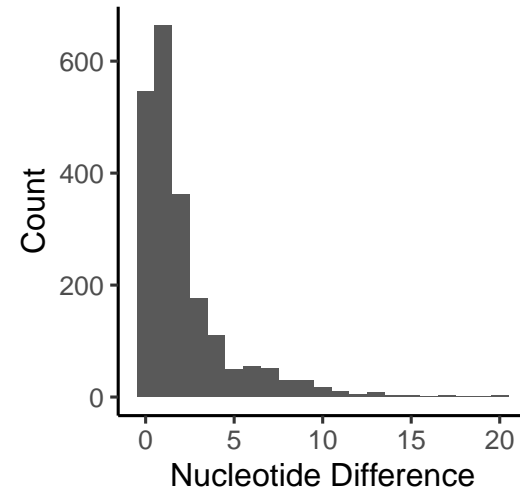
IGHV2-26*01

3747 sequences assigned
859 (22.9%) exact matches, in which:
673 unique CDR3
6 unique J



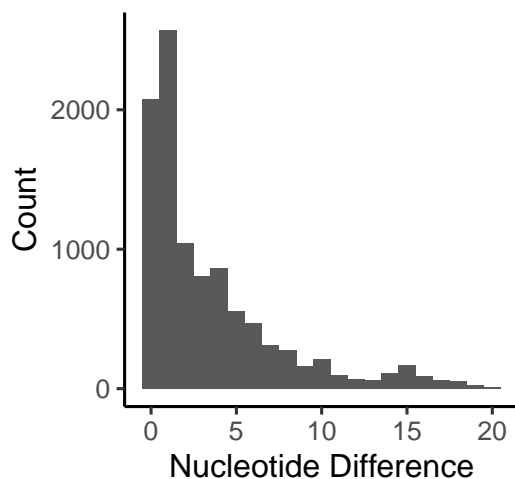
IGHV3-7*04

2140 sequences assigned
545 (25.5%) exact matches, in which:
435 unique CDR3
6 unique J



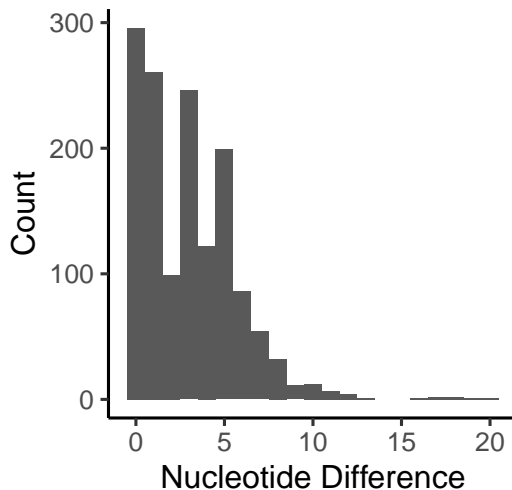
IGHV3-9*01

10196 sequences assigned
2078 (20.4%) exact matches, in which:
1626 unique CDR3
6 unique J



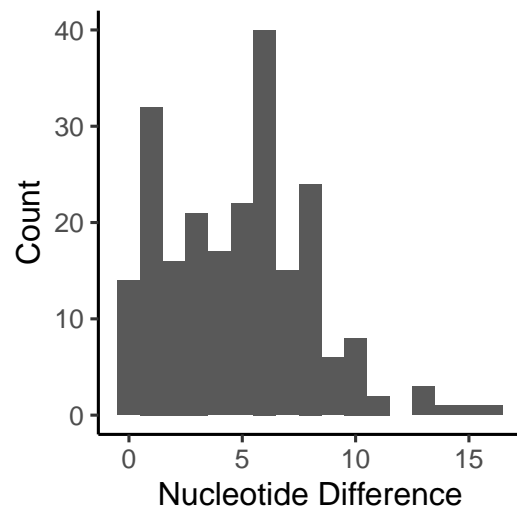
IGHV3-11*06

1453 sequences assigned
296 (20.4%) exact matches, in which:
296 unique CDR3
6 unique J



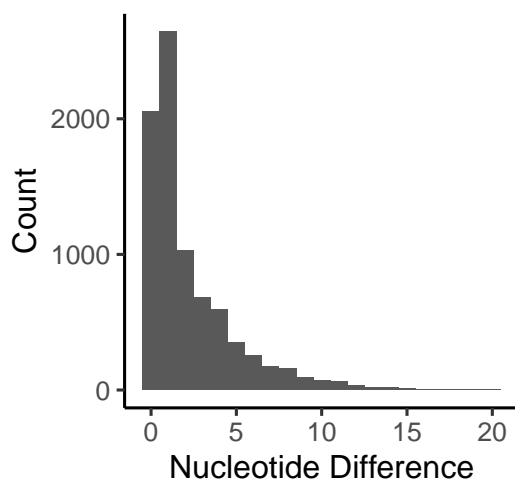
IGHV3-13*04_G290A

223 sequences assigned
14 (6.3%) exact matches, in which:
14 unique CDR3
5 unique J



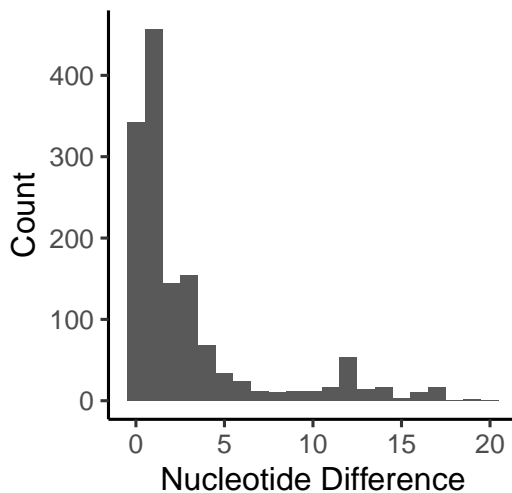
IGHV3-11*01

8360 sequences assigned
2053 (24.6%) exact matches, in which:
1669 unique CDR3
6 unique J



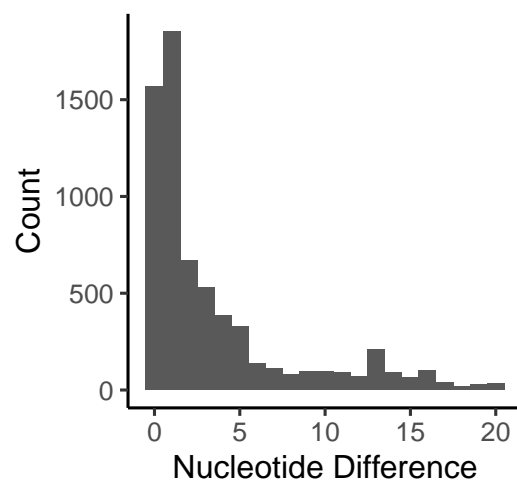
IGHV3-13*01

1413 sequences assigned
342 (24.2%) exact matches, in which:
268 unique CDR3
6 unique J



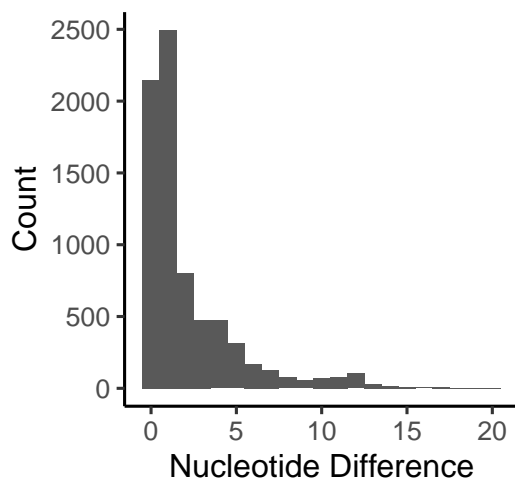
IGHV3-15*01

6709 sequences assigned
1568 (23.4%) exact matches, in which:
1217 unique CDR3
6 unique J



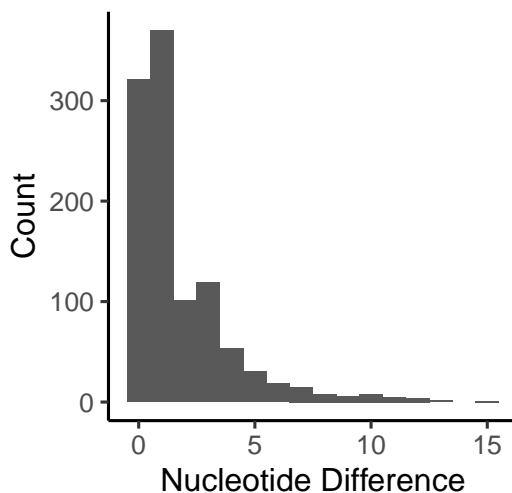
IGHV3-11*05

7538 sequences assigned
2149 (28.5%) exact matches, in which:
1679 unique CDR3
6 unique J



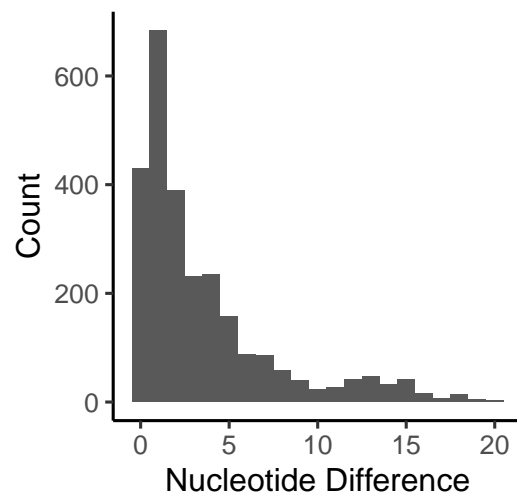
IGHV3-13*04

1061 sequences assigned
321 (30.3%) exact matches, in which:
253 unique CDR3
6 unique J



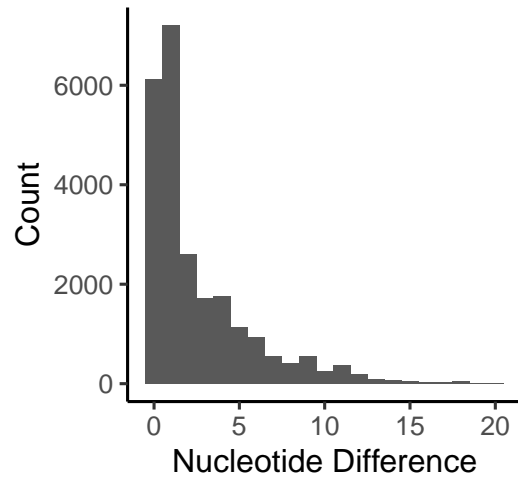
IGHV3-20*04

2662 sequences assigned
429 (16.1%) exact matches, in which:
351 unique CDR3
6 unique J



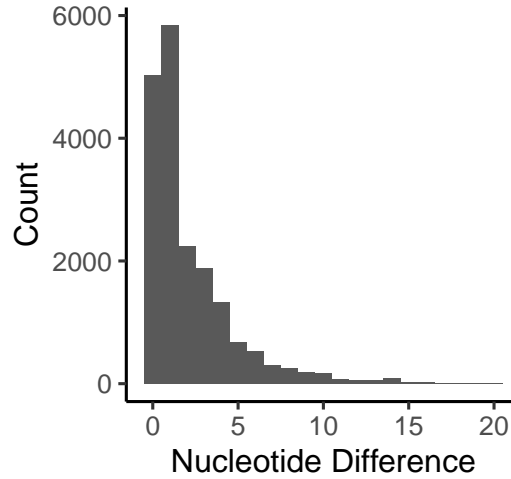
IGHV3-21*01

24365 sequences assigned
6123 (25.1%) exact matches, in which:
4834 unique CDR3
6 unique J



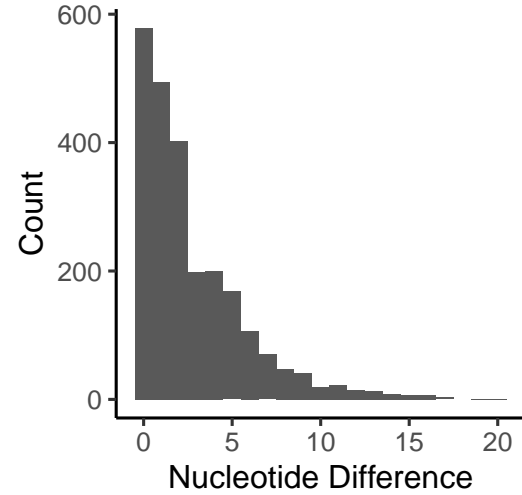
IGHV3-30-3*01

18928 sequences assigned
5028 (26.6%) exact matches, in which:
4025 unique CDR3
6 unique J



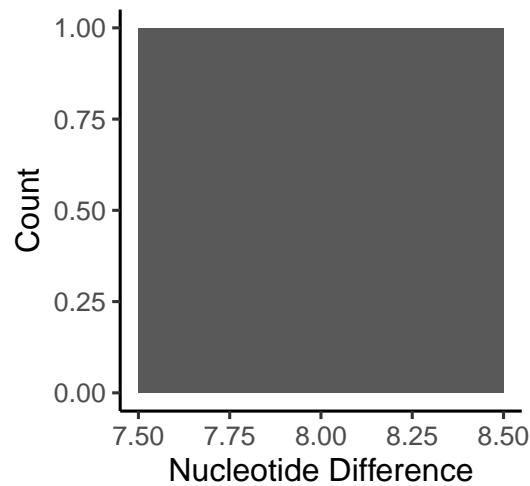
IGHV3-33*05_G75C

2415 sequences assigned
579 (24%) exact matches, in which:
562 unique CDR3
6 unique J



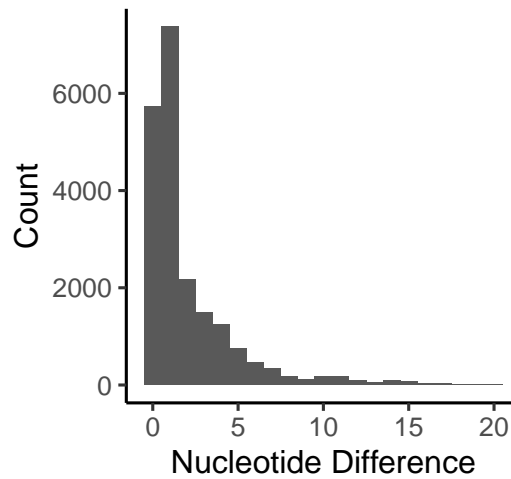
IGHV3-22*02

1 sequences assigned
No exact matches.



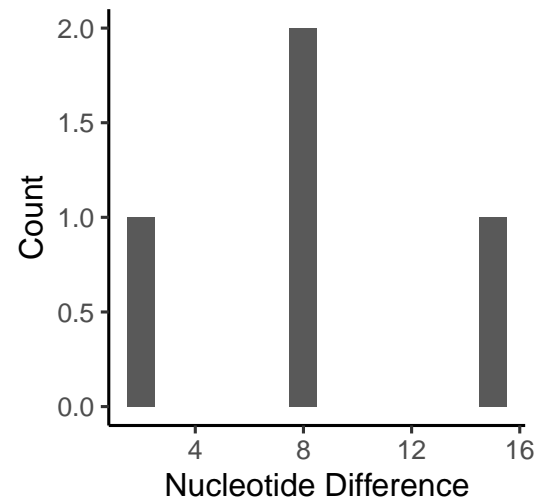
IGHV3-33*01

20729 sequences assigned
5740 (27.7%) exact matches, in which:
4446 unique CDR3
6 unique J



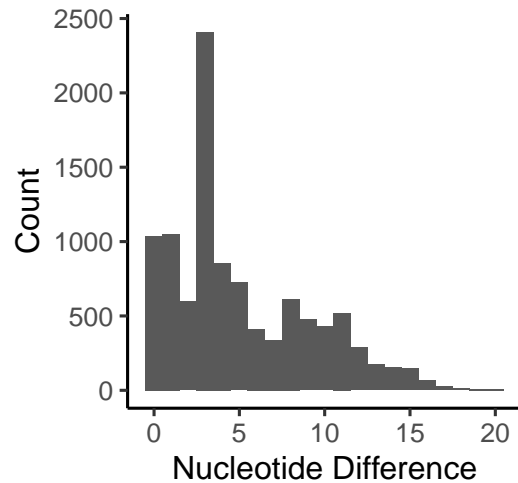
IGHV3-35*01

4 sequences assigned
No exact matches.



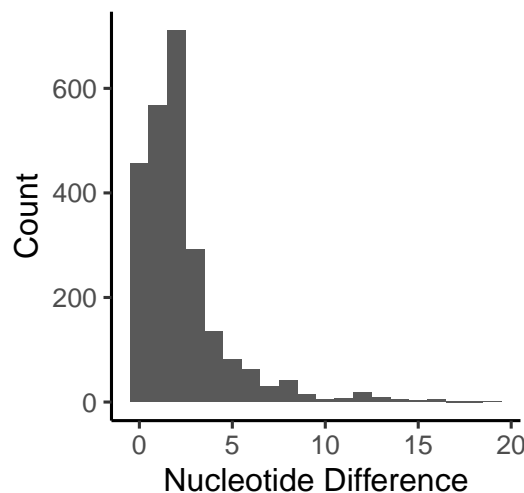
IGHV3-23*04

10631 sequences assigned
1038 (9.8%) exact matches, in which:
894 unique CDR3
6 unique J



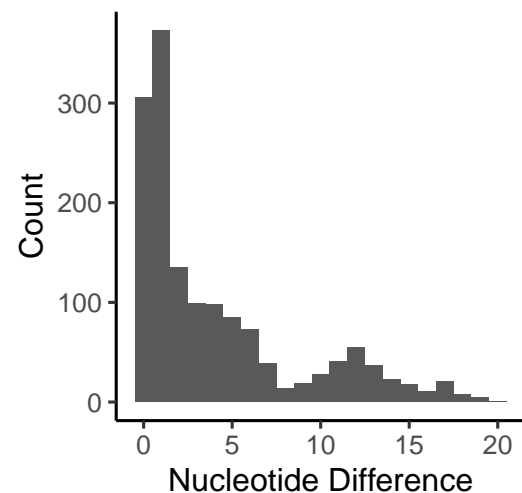
IGHV3-33*06

2454 sequences assigned
456 (18.6%) exact matches, in which:
448 unique CDR3
6 unique J



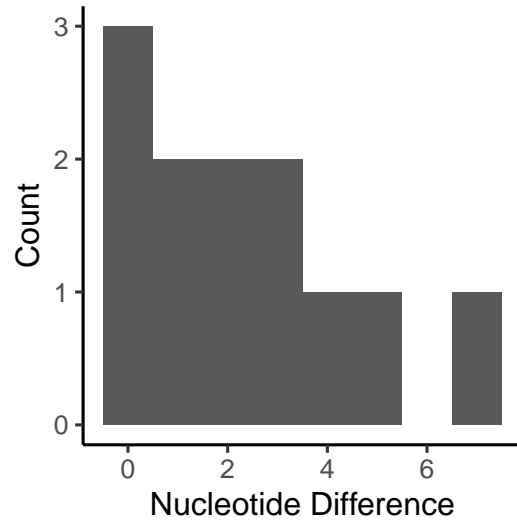
IGHV3-43*01

1504 sequences assigned
306 (20.3%) exact matches, in which:
251 unique CDR3
6 unique J



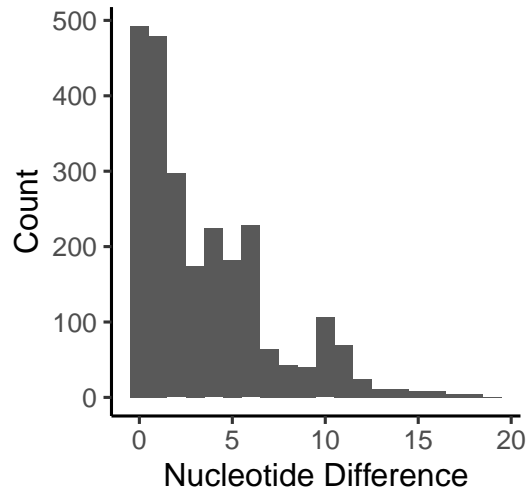
IGHV3-47*02

12 sequences assigned
3 (25%) exact matches, in which:
2 unique CDR3
1 unique J



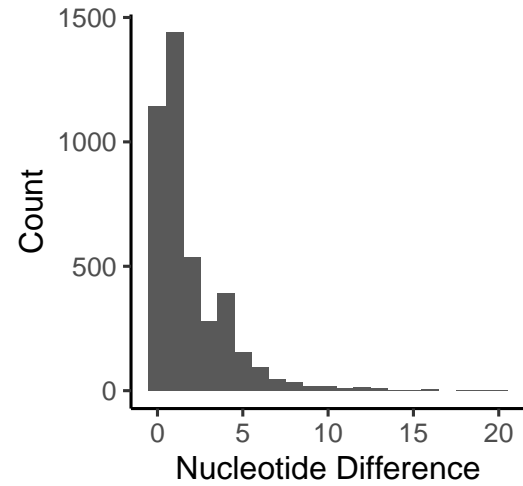
IGHV3-48*03_T303G

2474 sequences assigned
493 (19.9%) exact matches, in which:
491 unique CDR3
6 unique J



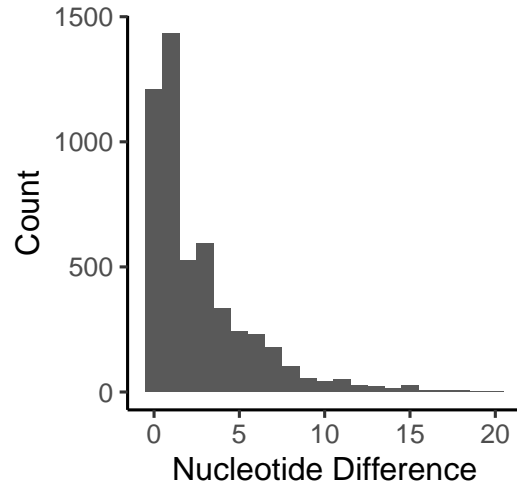
IGHV3-53*01

4235 sequences assigned
1143 (27%) exact matches, in which:
888 unique CDR3
6 unique J



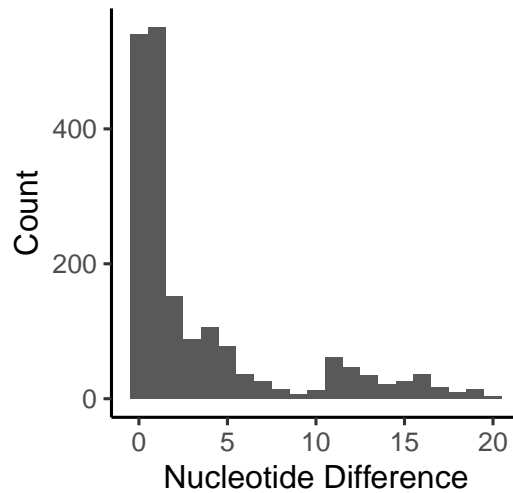
IGHV3-48*02

5121 sequences assigned
1208 (23.6%) exact matches, in which:
969 unique CDR3
6 unique J



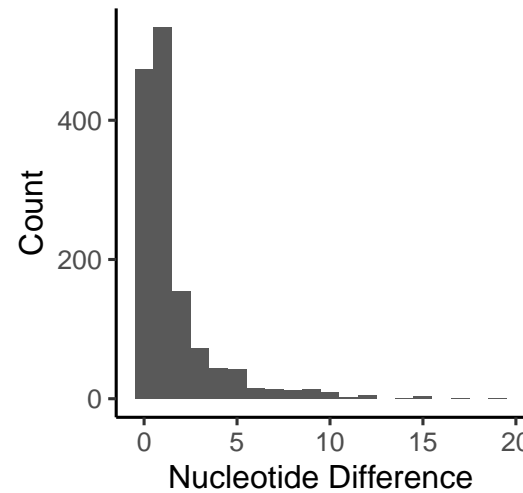
IGHV3-49*04

1885 sequences assigned
540 (28.6%) exact matches, in which:
434 unique CDR3
6 unique J



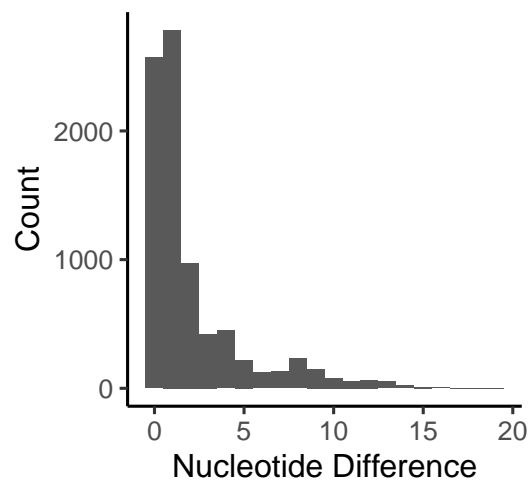
IGHV3-53*02

1397 sequences assigned
473 (33.9%) exact matches, in which:
412 unique CDR3
6 unique J



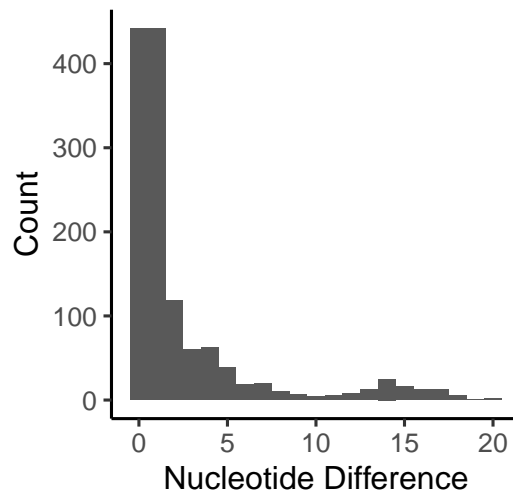
IGHV3-48*03

8373 sequences assigned
2572 (30.7%) exact matches, in which:
2039 unique CDR3
6 unique J



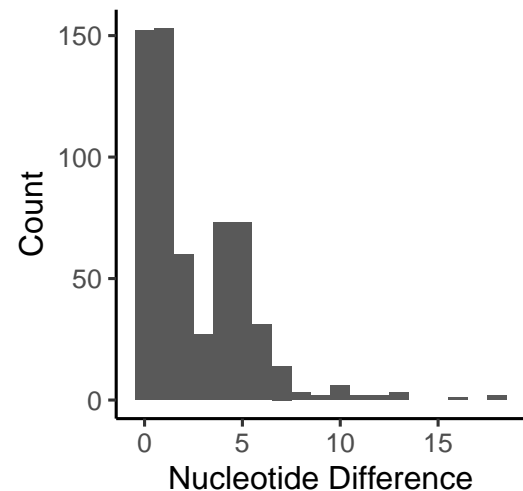
IGHV3-49*05

1344 sequences assigned
442 (32.9%) exact matches, in which:
343 unique CDR3
6 unique J



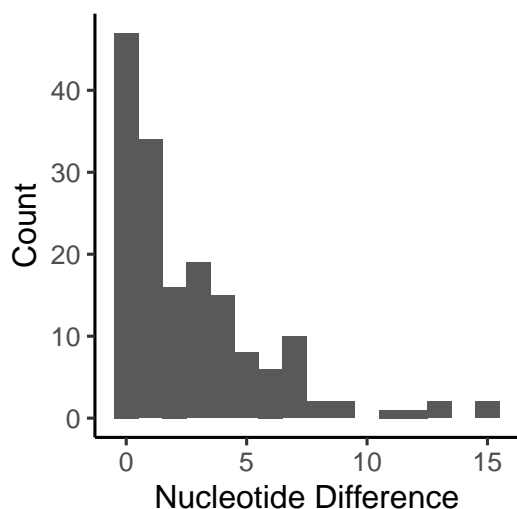
IGHV3-53*01_T267G_G3

605 sequences assigned
152 (25.1%) exact matches, in which:
152 unique CDR3
6 unique J



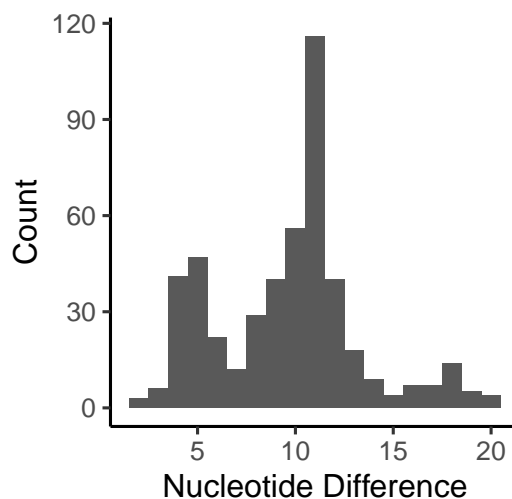
IGHV3-64*02

165 sequences assigned
47 (28.5%) exact matches, in which:
30 unique CDR3
4 unique J



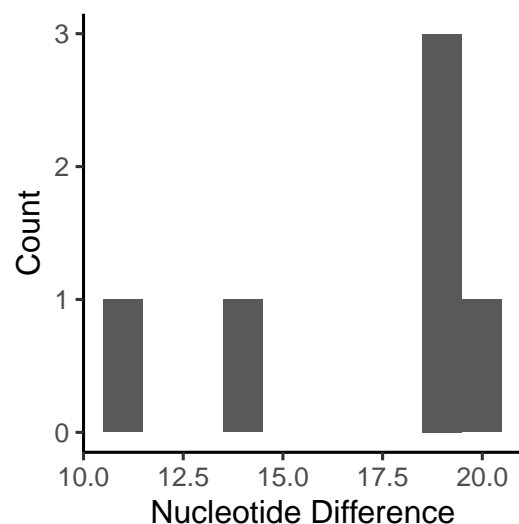
IGHV3-66*01

483 sequences assigned
No exact matches.



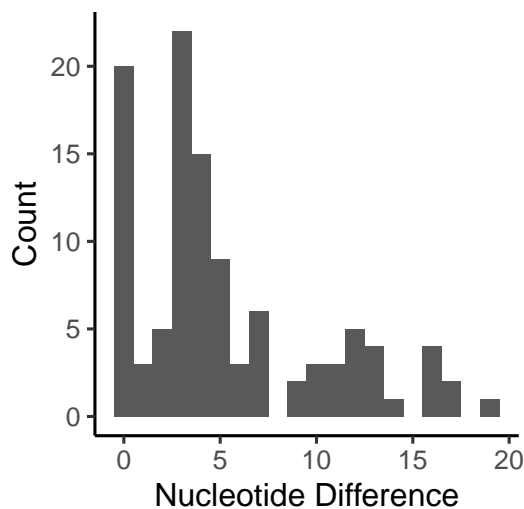
IGHV3-71*04

6 sequences assigned
No exact matches.



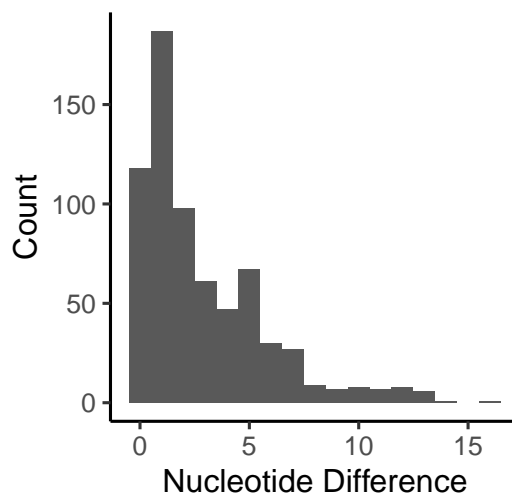
IGHV3-64*04_A172G_A172G

108 sequences assigned
20 (18.5%) exact matches, in which:
20 unique CDR3
4 unique J



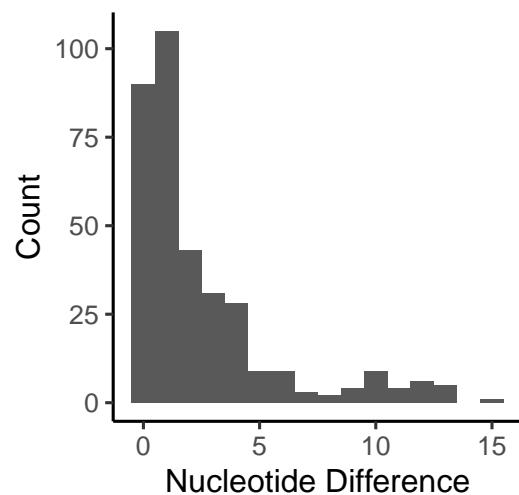
IGHV3-66*03_T175G_T175G

683 sequences assigned
118 (17.3%) exact matches, in which:
117 unique CDR3
6 unique J



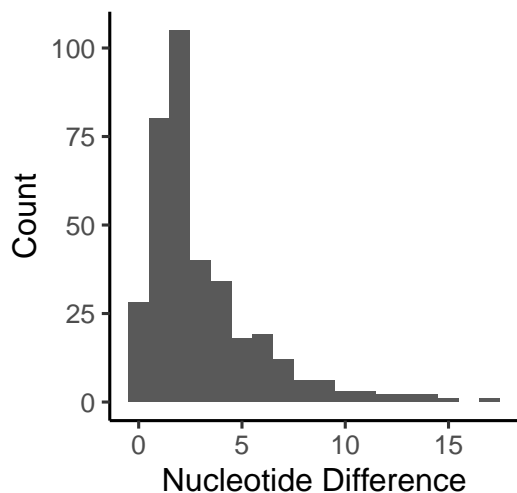
IGHV3-72*01

352 sequences assigned
90 (25.6%) exact matches, in which:
65 unique CDR3
5 unique J



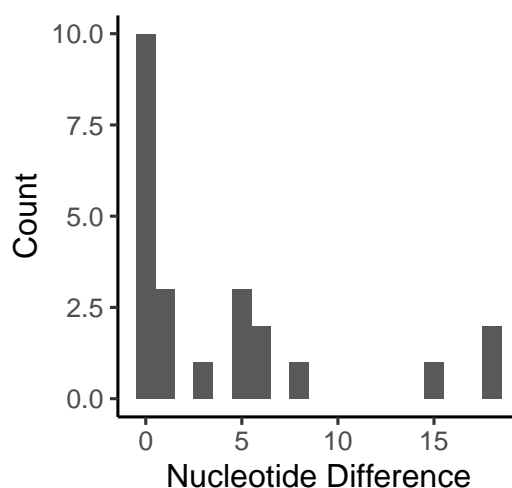
IGHV3-64*04_A210C_T210C

365 sequences assigned
28 (7.7%) exact matches, in which:
28 unique CDR3
5 unique J



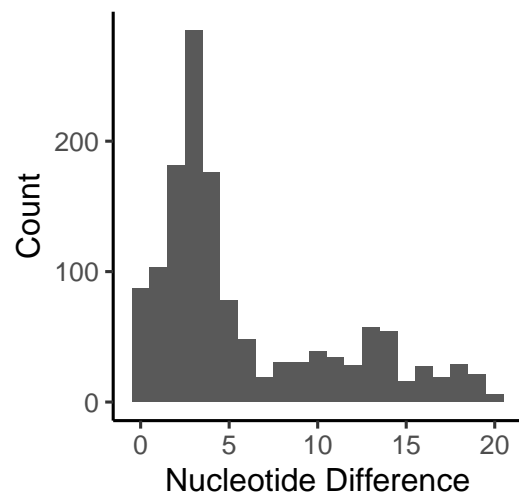
IGHV3-69-1*01

24 sequences assigned
10 (41.7%) exact matches, in which:
9 unique CDR3
2 unique J



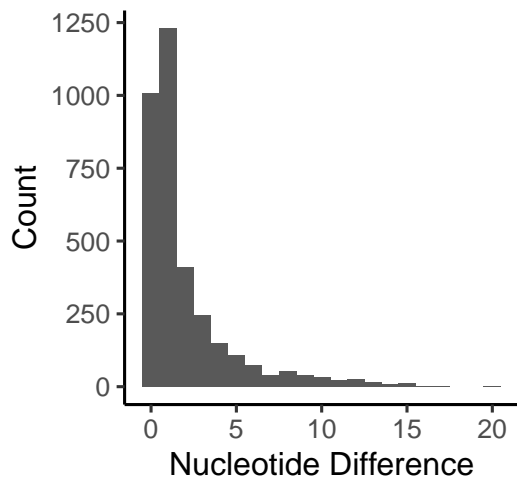
IGHV3-73*01

1388 sequences assigned
87 (6.3%) exact matches, in which:
76 unique CDR3
6 unique J



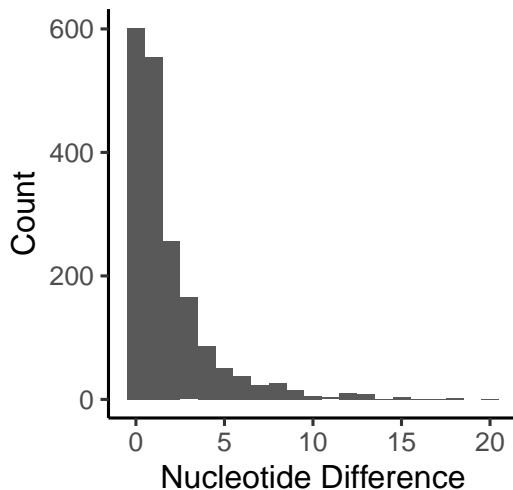
IGHV3-73*02

3491 sequences assigned
1008 (28.9%) exact matches, in which:
796 unique CDR3
6 unique J



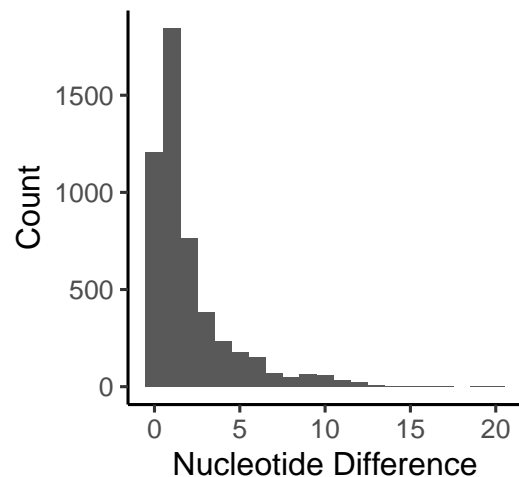
IGHV3-64D*06

1870 sequences assigned
602 (32.2%) exact matches, in which:
495 unique CDR3
6 unique J



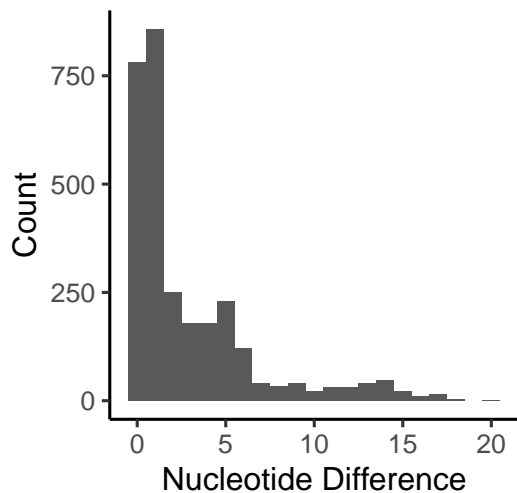
IGHV4-4*07

5096 sequences assigned
1208 (23.7%) exact matches, in which:
1014 unique CDR3
6 unique J



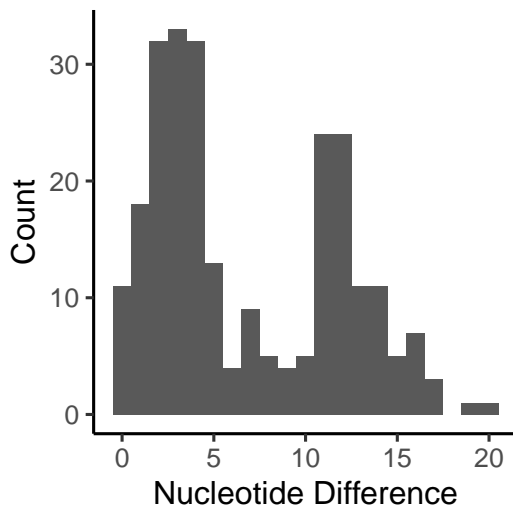
IGHV3-74*01

2956 sequences assigned
782 (26.5%) exact matches, in which:
642 unique CDR3
6 unique J



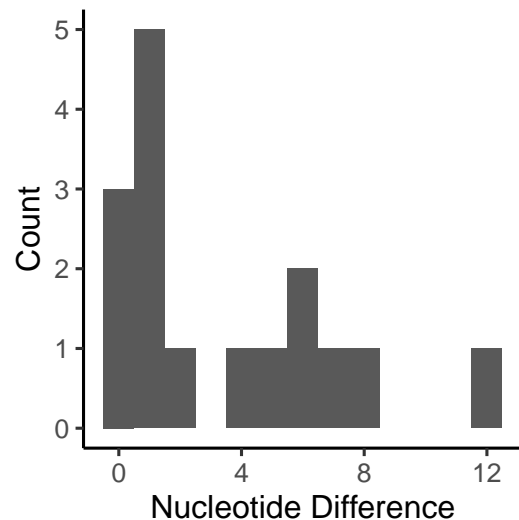
IGHV3-NL1*01_G49A_G7

254 sequences assigned
11 (4.3%) exact matches, in which:
11 unique CDR3
4 unique J



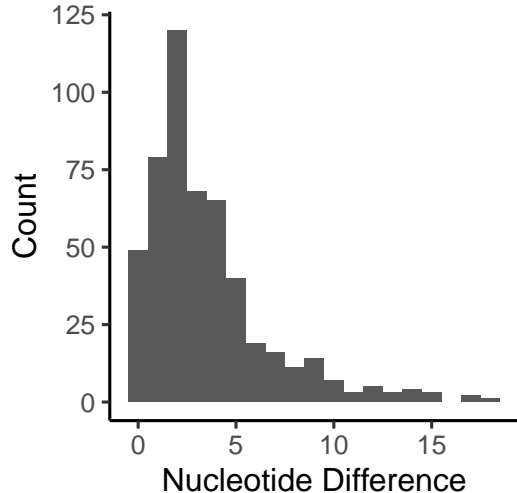
IGHV4-28*03

16 sequences assigned
3 (18.8%) exact matches, in which:
1 unique CDR3
2 unique J



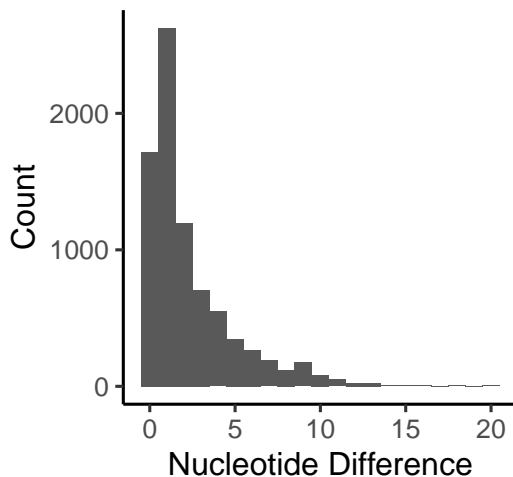
IGHV3-74*01_T279C

512 sequences assigned
49 (9.6%) exact matches, in which:
49 unique CDR3
6 unique J



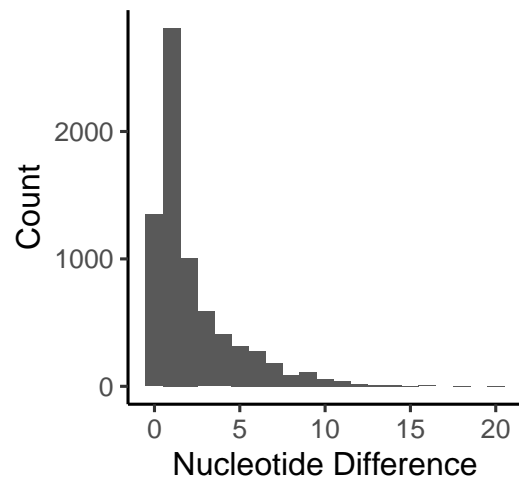
IGHV4-4*02

8202 sequences assigned
1718 (20.9%) exact matches, in which:
1461 unique CDR3
6 unique J



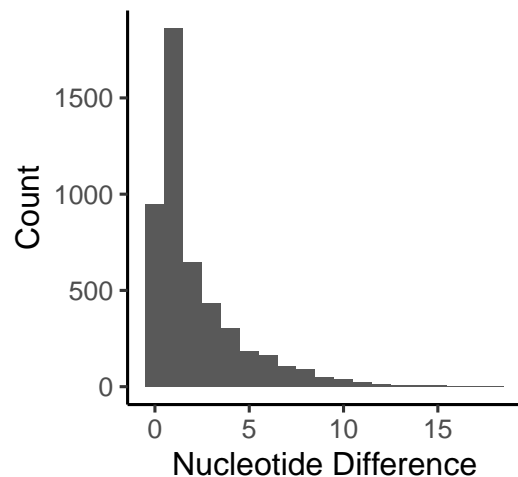
IGHV4-30-2*01

7315 sequences assigned
1348 (18.4%) exact matches, in which:
930 unique CDR3
6 unique J



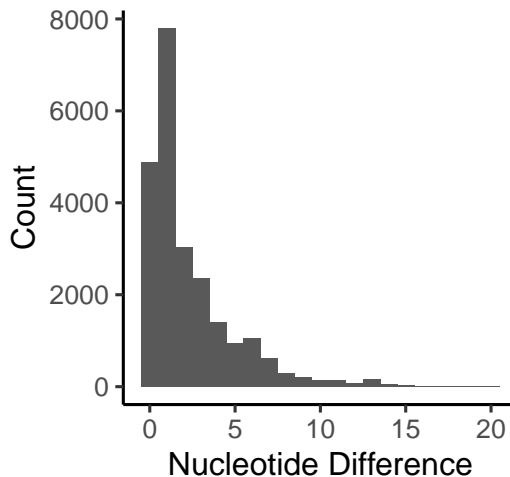
IGHV4-30-4*01

4917 sequences assigned
949 (19.3%) exact matches, in which:
705 unique CDR3
6 unique J



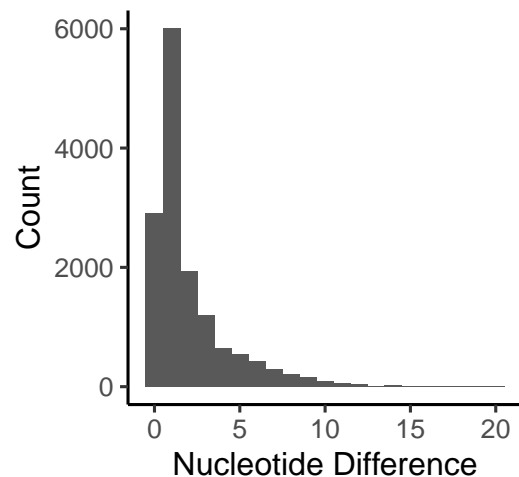
IGHV4-31*03

23424 sequences assigned
4876 (20.8%) exact matches, in which:
3970 unique CDR3
6 unique J



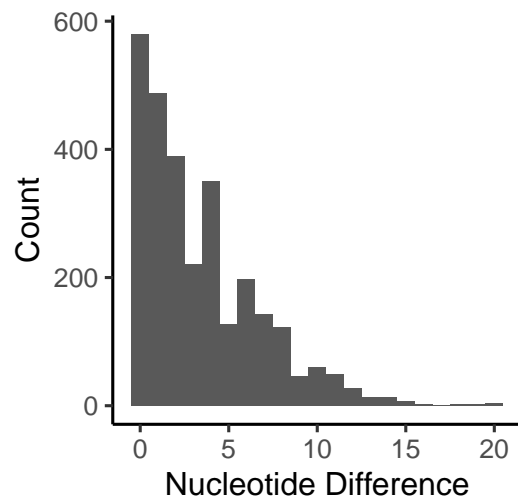
IGHV4-39*01

14712 sequences assigned
2917 (19.8%) exact matches, in which:
2166 unique CDR3
6 unique J



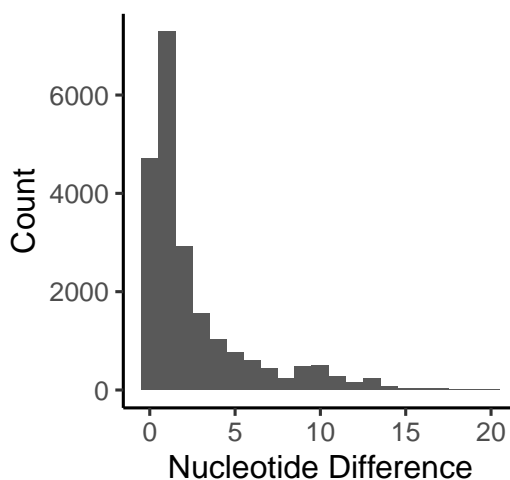
IGHV4-30-2*01_C315G

2871 sequences assigned
580 (20.2%) exact matches, in which:
576 unique CDR3
6 unique J



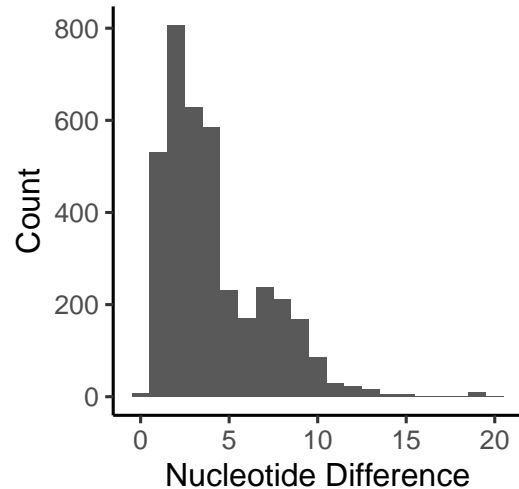
IGHV4-34*01

21565 sequences assigned
4700 (21.8%) exact matches, in which:
3822 unique CDR3
6 unique J



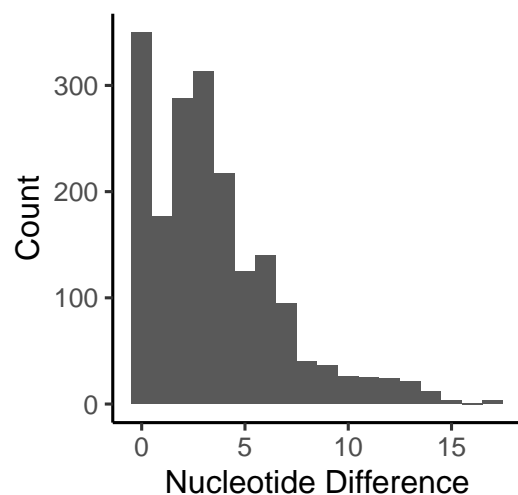
IGHV4-39*07

3783 sequences assigned
7 (0.2%) exact matches, in which:
7 unique CDR3
3 unique J



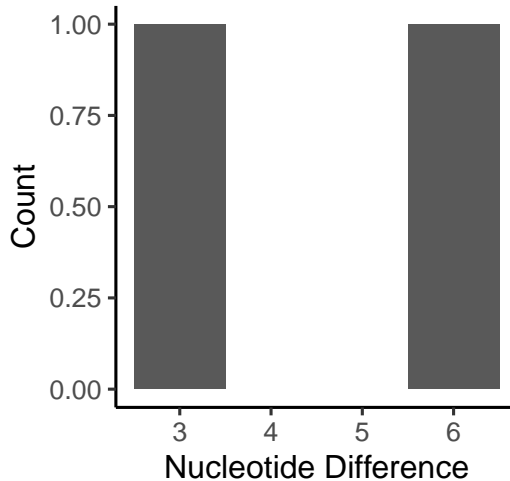
IGHV4-30-4*01_C315G

1904 sequences assigned
350 (18.4%) exact matches, in which:
348 unique CDR3
6 unique J



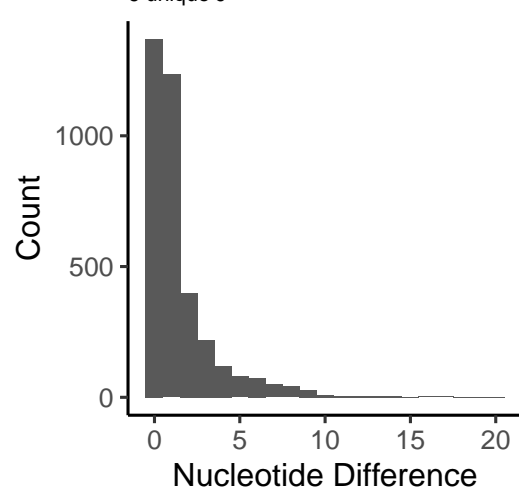
IGHV4-38-2*01

57 sequences assigned
No exact matches.



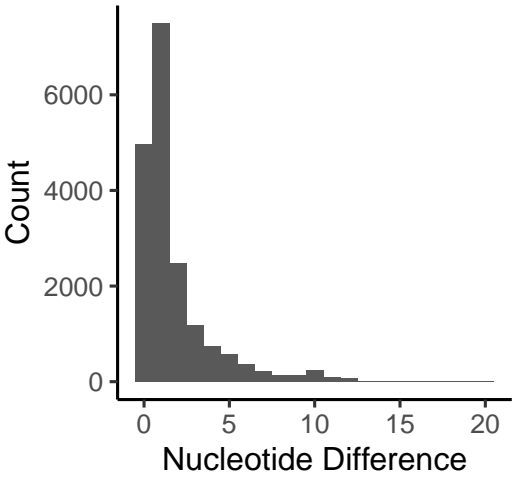
IGHV4-39*02_C258G

3669 sequences assigned
1370 (37.3%) exact matches, in which:
1296 unique CDR3
6 unique J



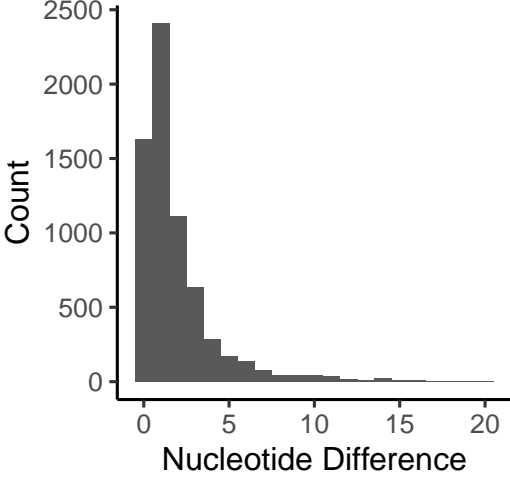
IGHV4-59*01

18895 sequences assigned
4978 (26.3%) exact matches, in which:
4073 unique CDR3
6 unique J



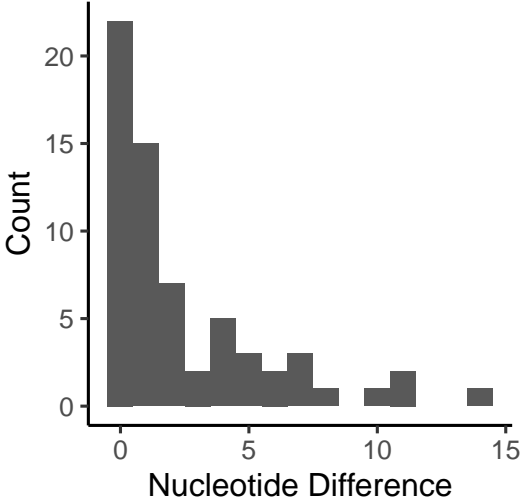
IGHV5-10-1*01

6768 sequences assigned
1628 (24.1%) exact matches, in which:
1302 unique CDR3
6 unique J



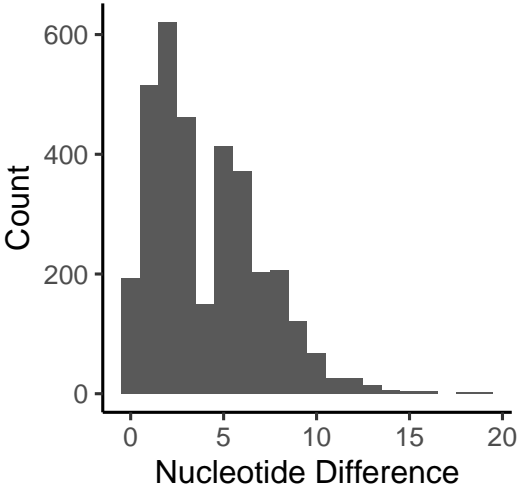
IGHV7-4-1*01

65 sequences assigned
22 (33.8%) exact matches, in which:
21 unique CDR3
4 unique J



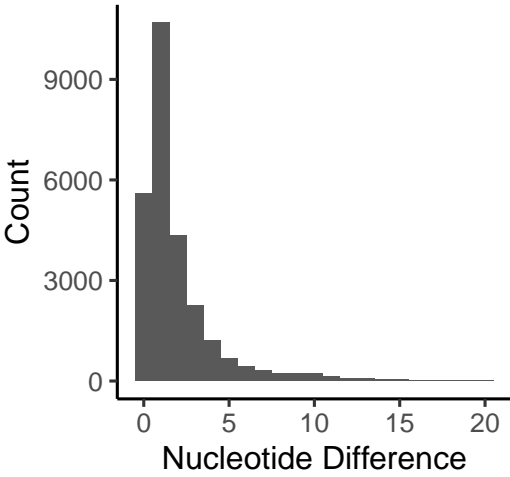
IGHV4-59*12

3449 sequences assigned
193 (5.6%) exact matches, in which:
189 unique CDR3
6 unique J



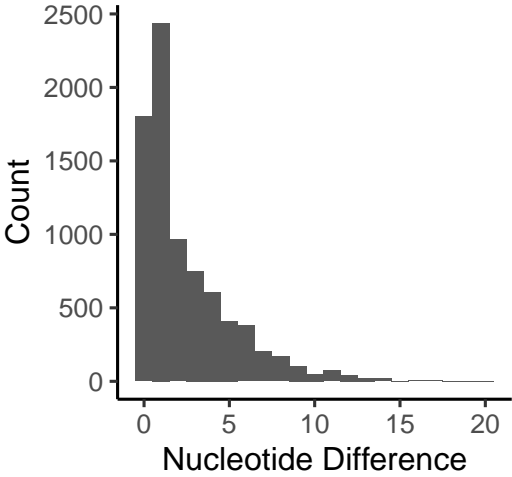
IGHV5-51*01

26838 sequences assigned
5584 (20.8%) exact matches, in which:
4051 unique CDR3
6 unique J



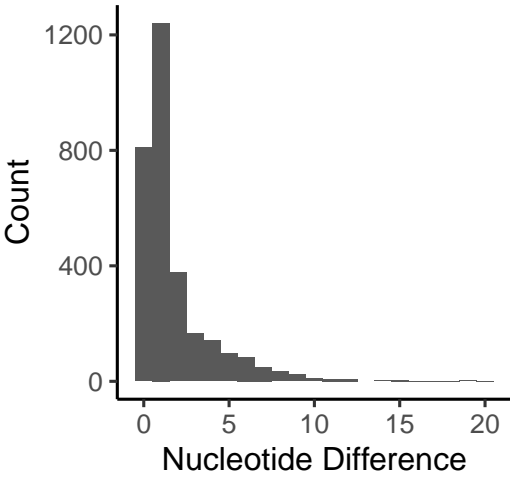
IGHV4-61*01

8070 sequences assigned
1803 (22.3%) exact matches, in which:
1542 unique CDR3
6 unique J

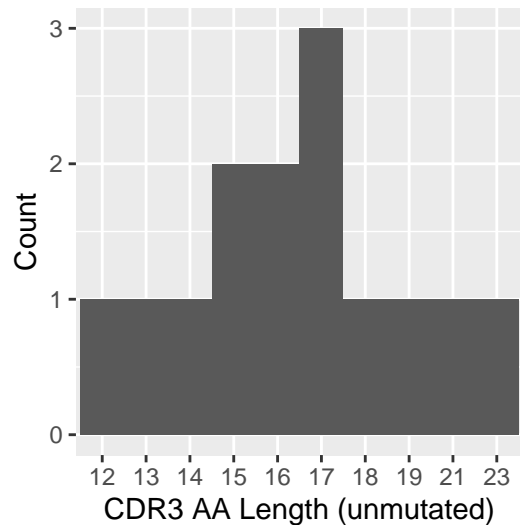


IGHV6-1*01

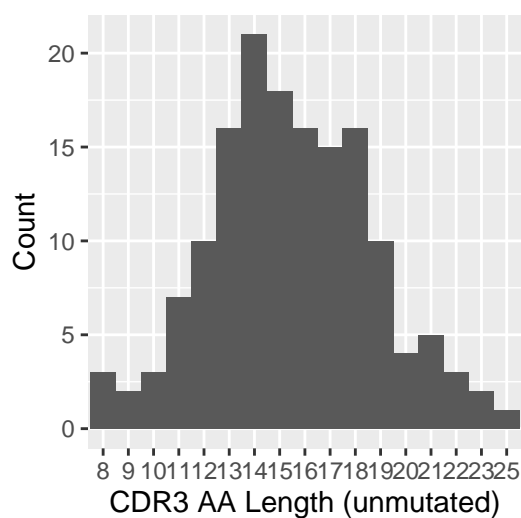
3069 sequences assigned
810 (26.4%) exact matches, in which:
634 unique CDR3
6 unique J



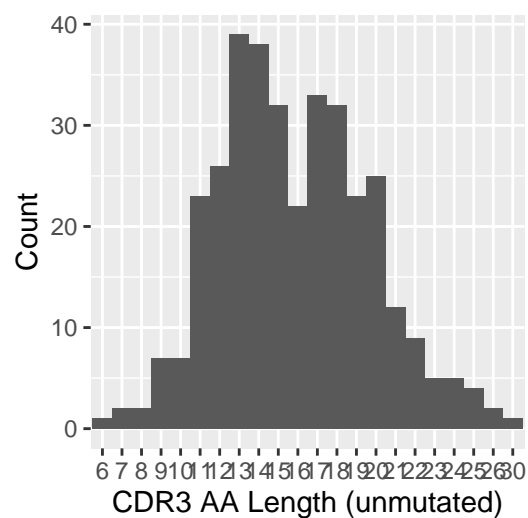
IGHV3-13*04_G290A



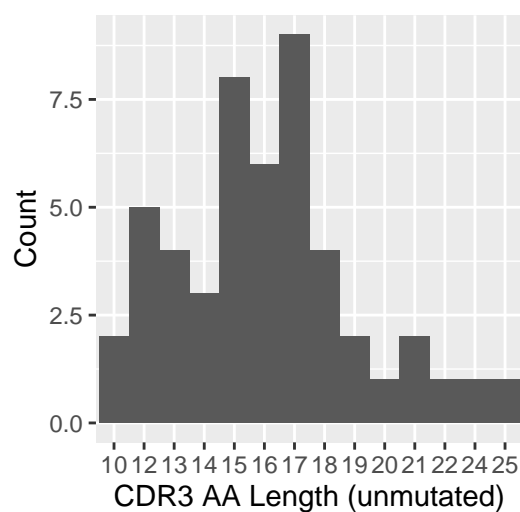
IGHV3-53*01_T267G_G303



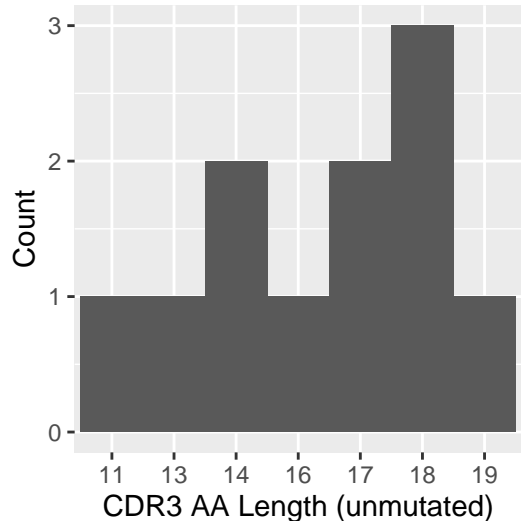
IGHV4-30-4*01_C315G



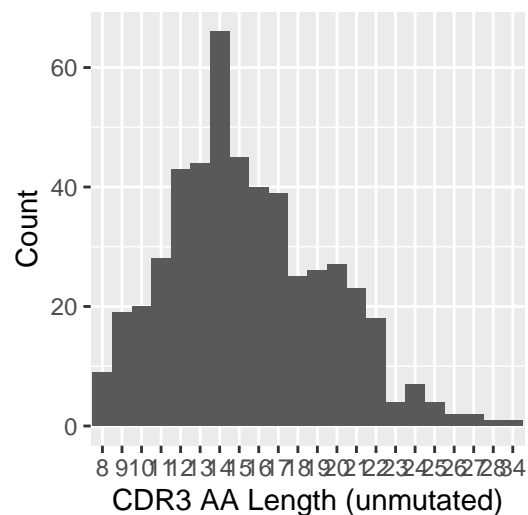
IGHV3-74*01_T279C



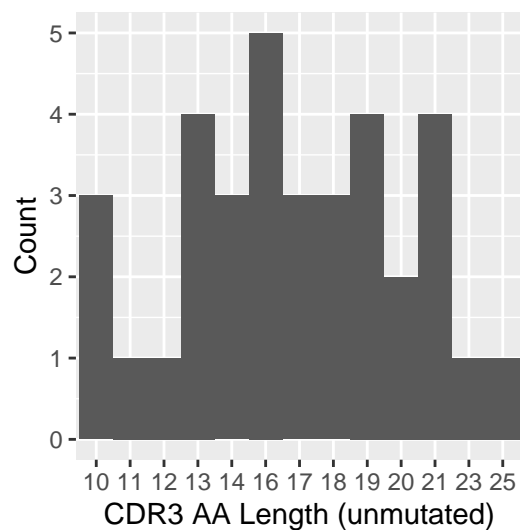
IGHV3-NL1*01_G49A_G75C



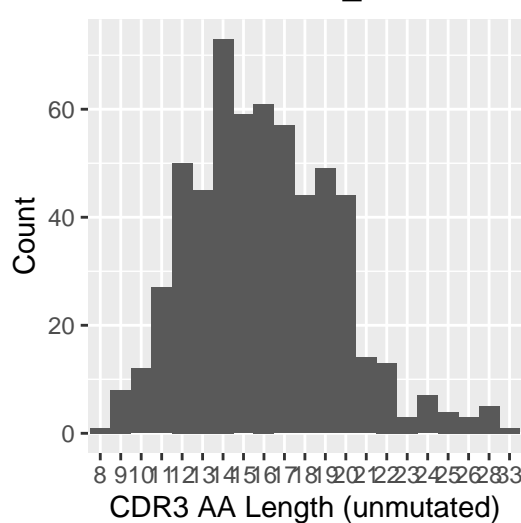
IGHV3-48*03_T303G



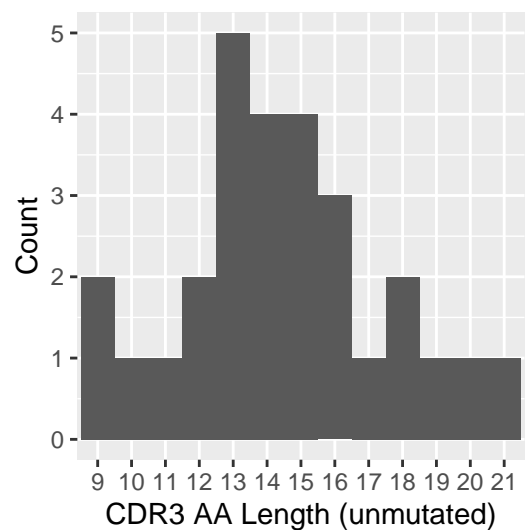
IGHV1-3*02_T296C_T300C



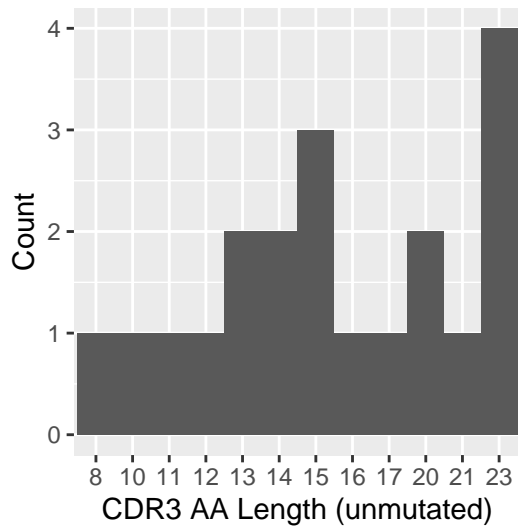
IGHV4-30-2*01_C315G



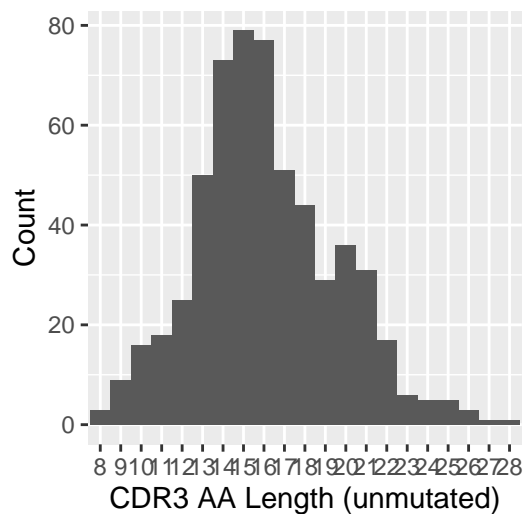
IGHV3-64*04_A210C_T288C



IGHV3-64*04_A172G_A176G

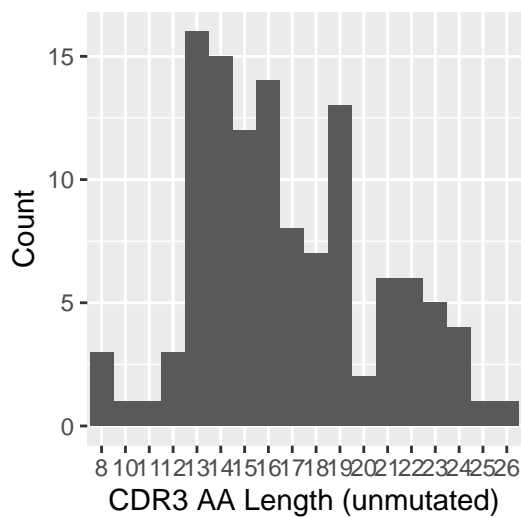


IGHV3-33*05_G75C



IGHV3-288C_T300C_G303A

IGHV3-66*03_T175G_T267G



IGHV4-39*02_C258G

