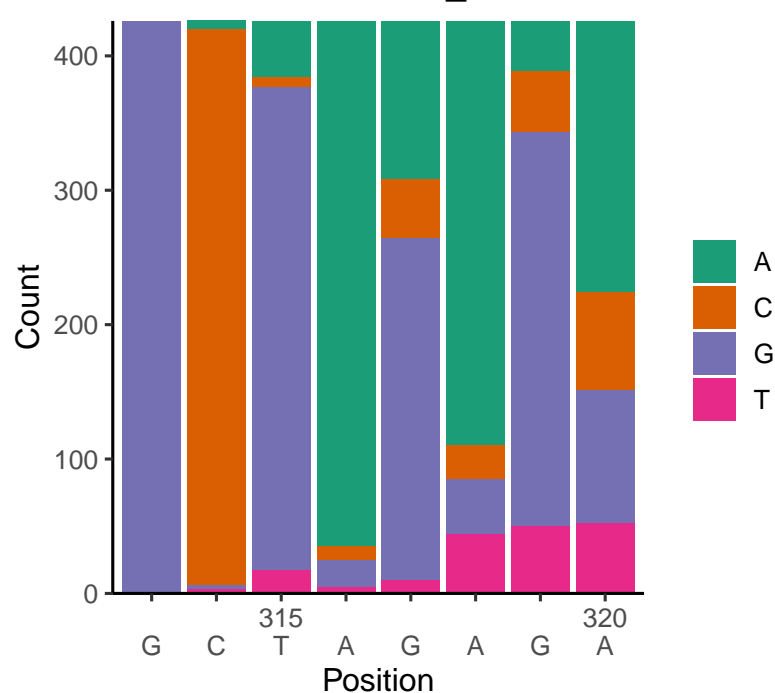
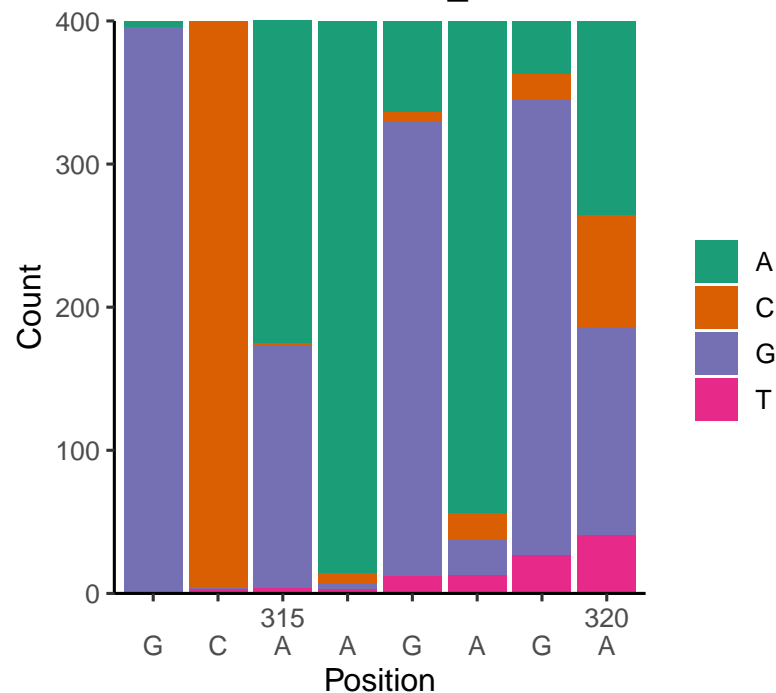


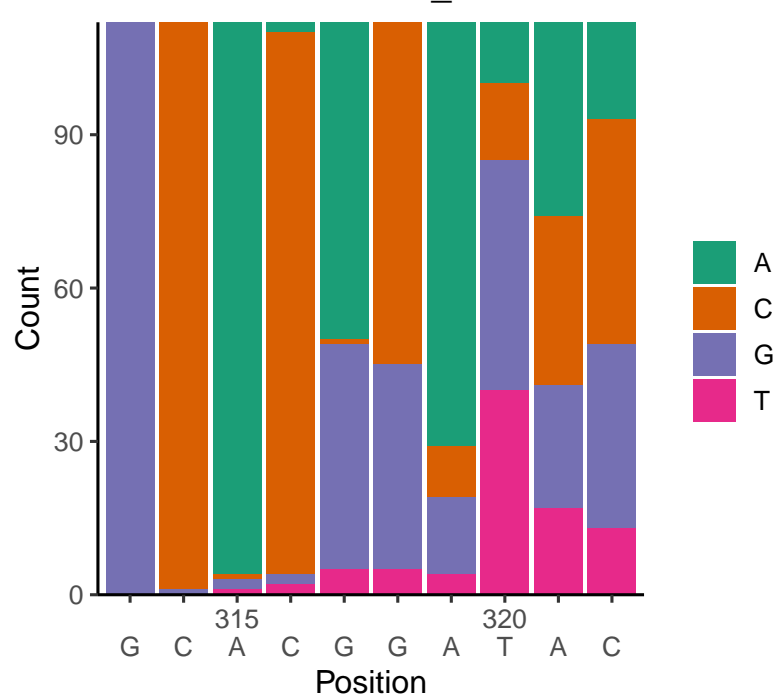
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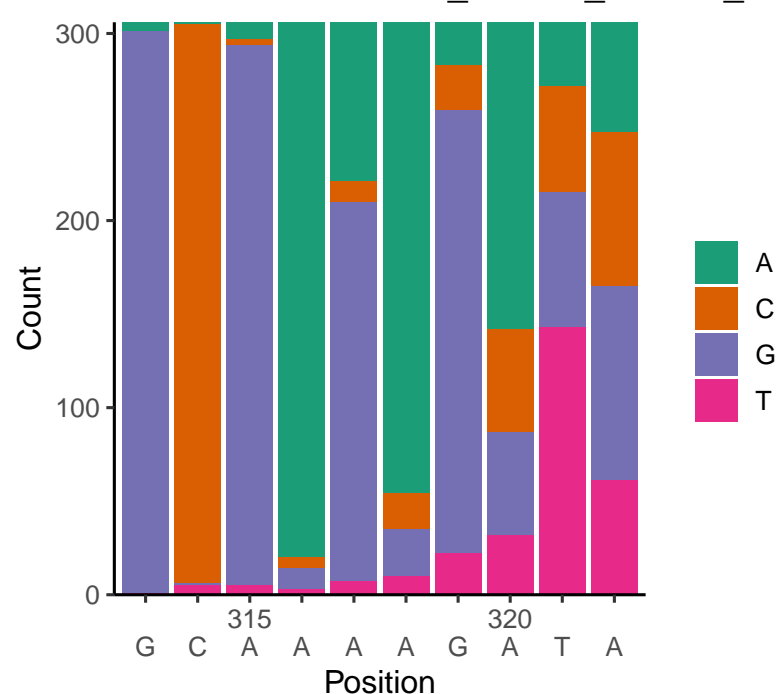
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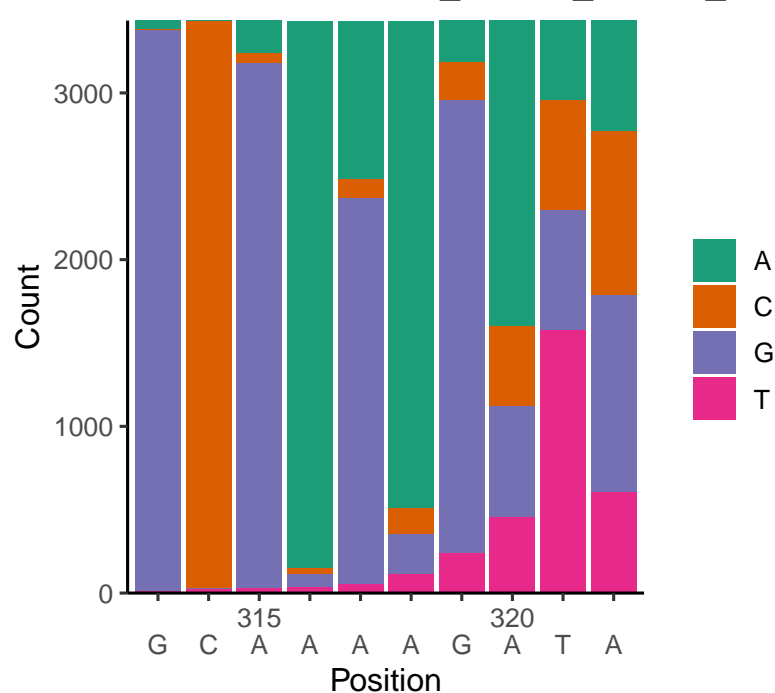
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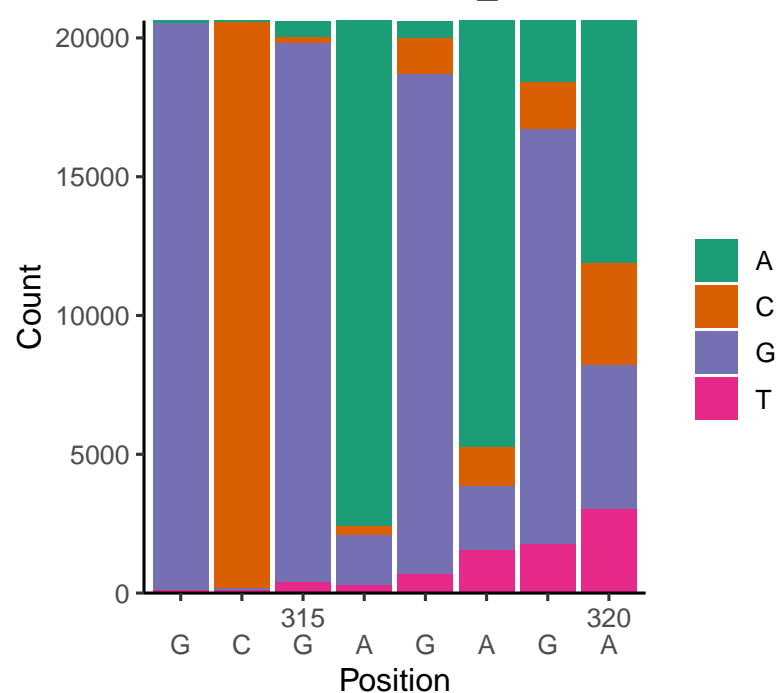
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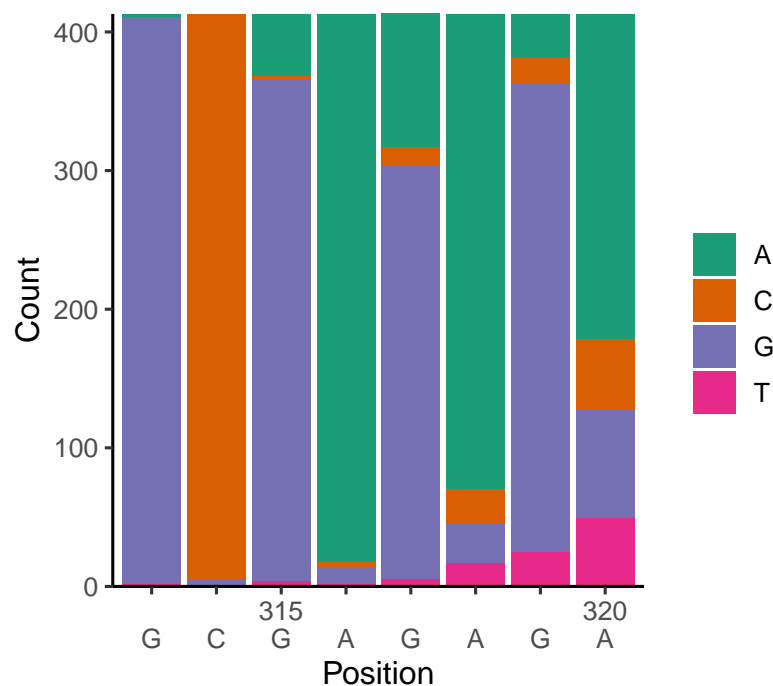
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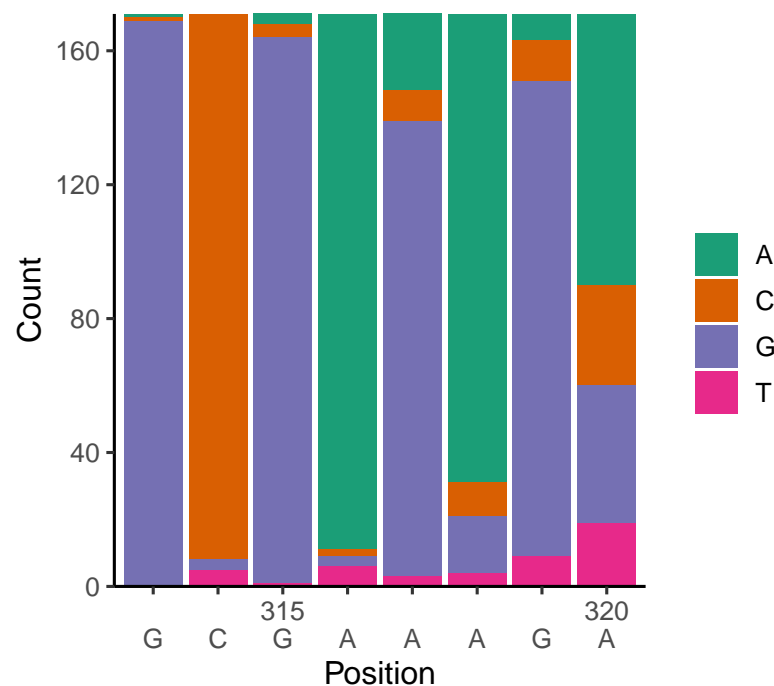
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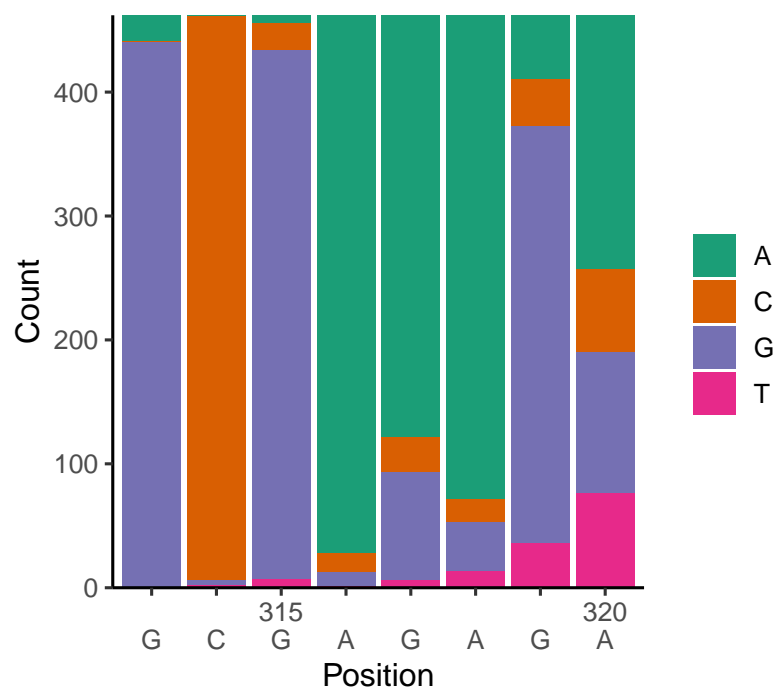
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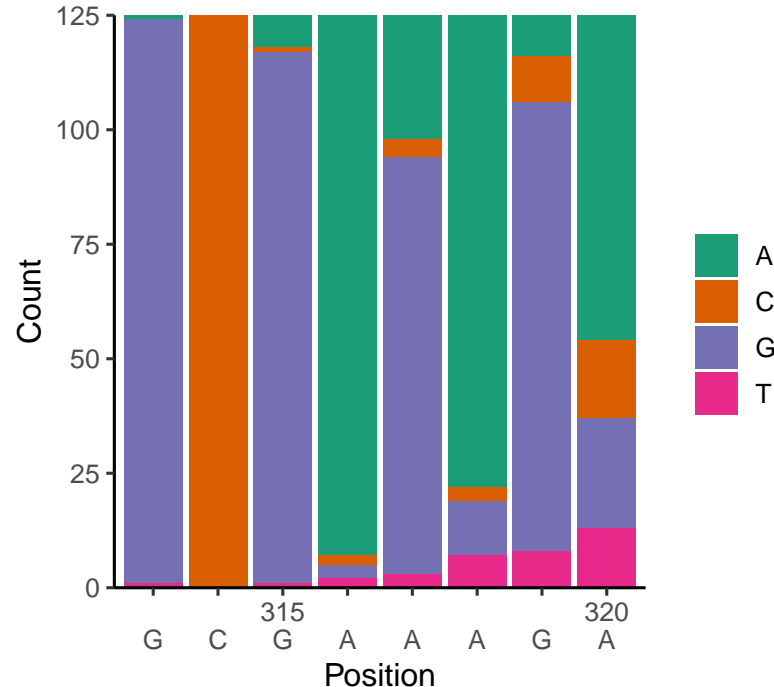
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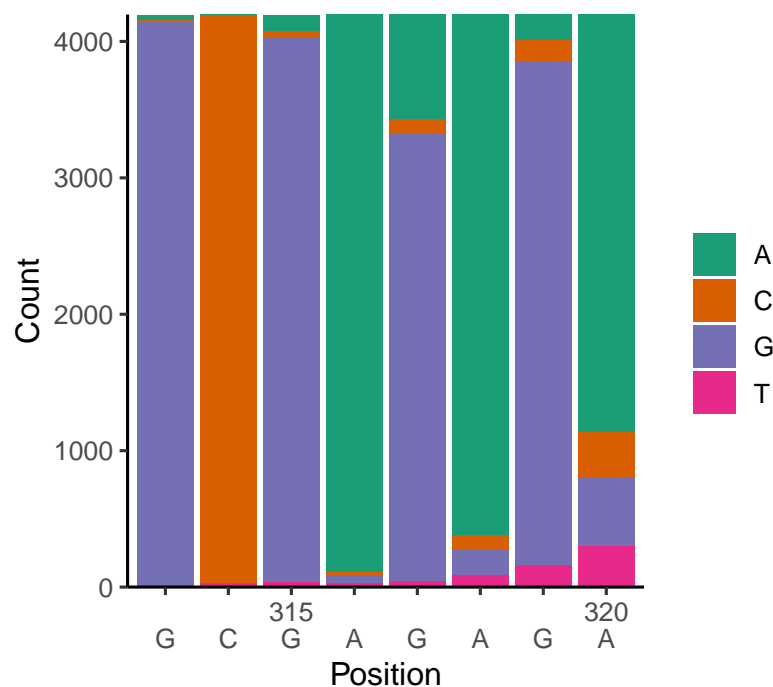
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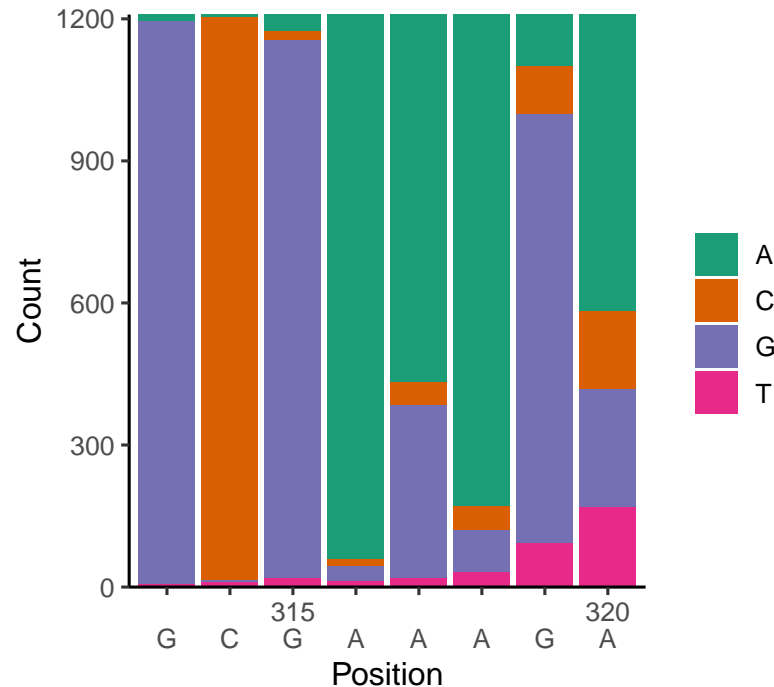
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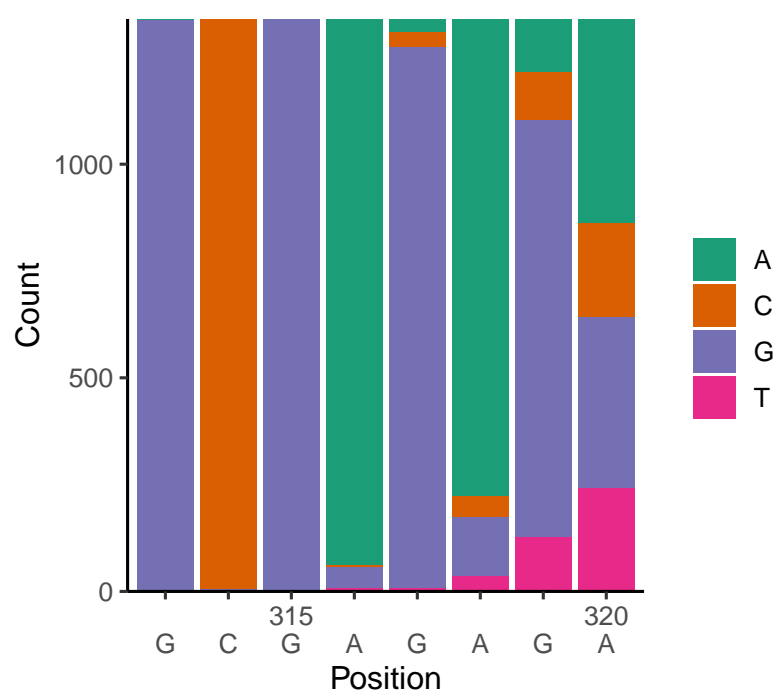
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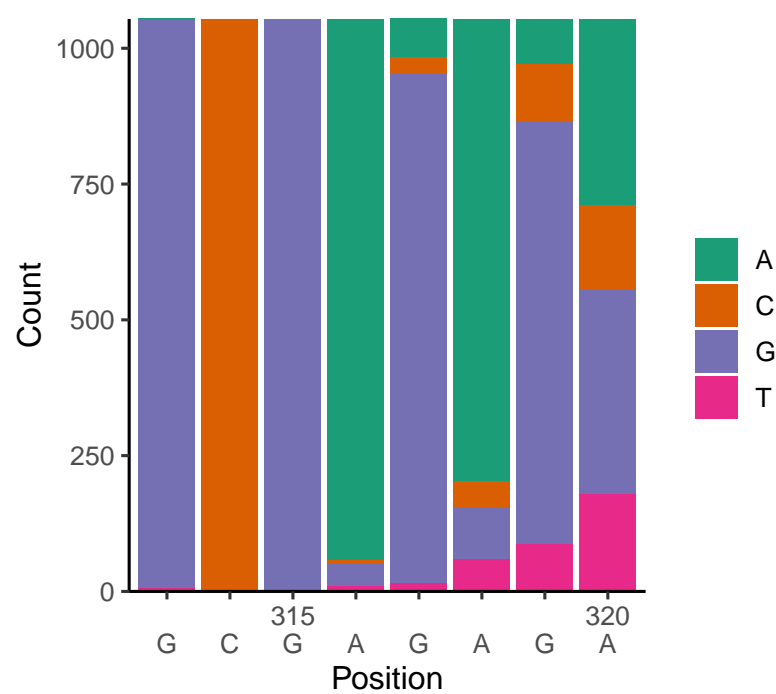
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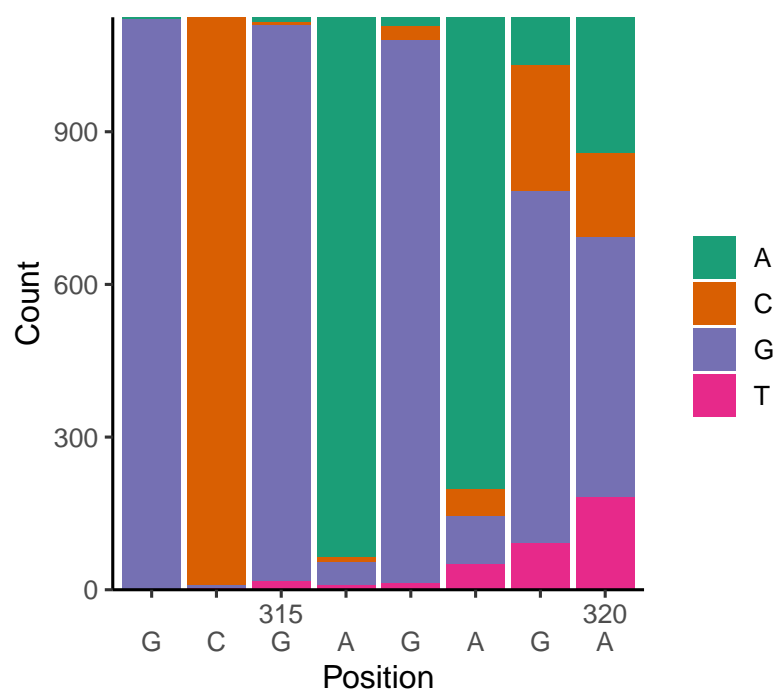
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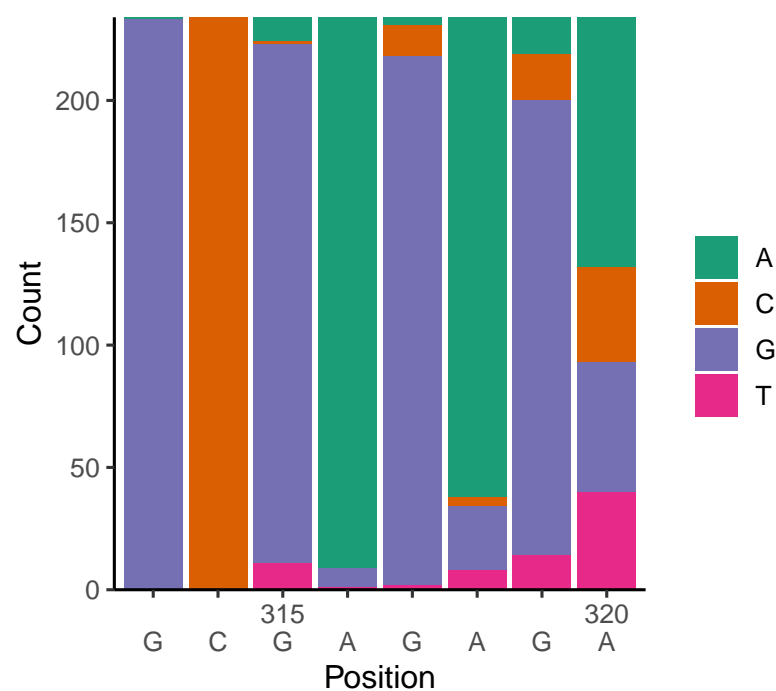
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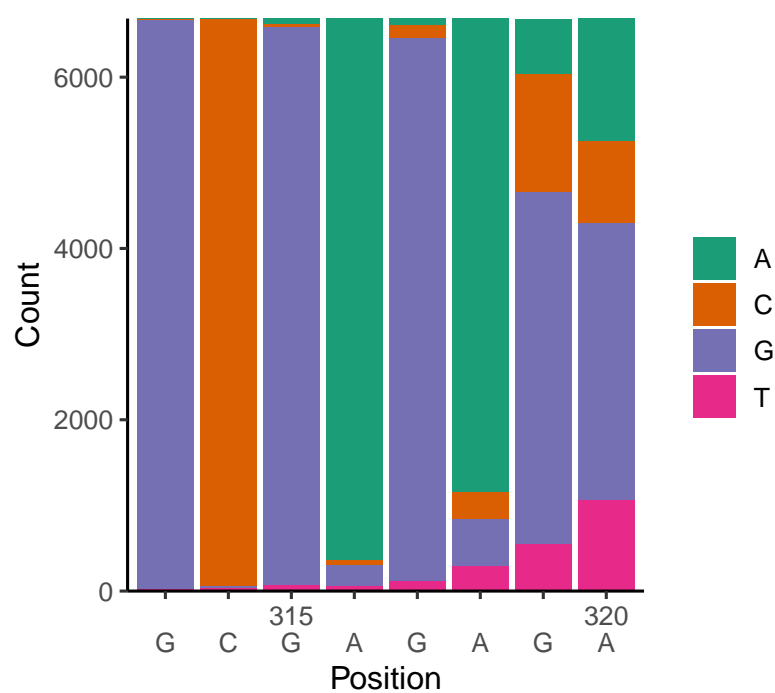
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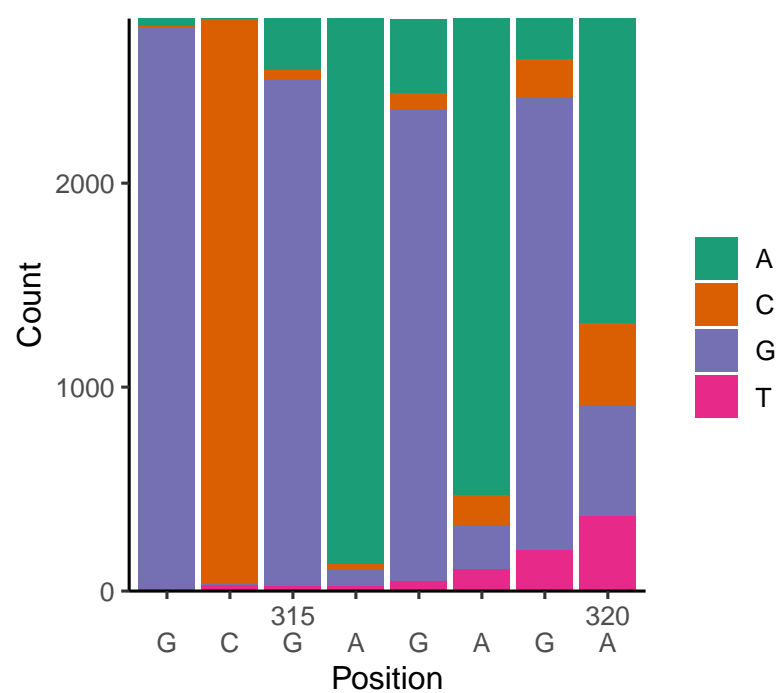
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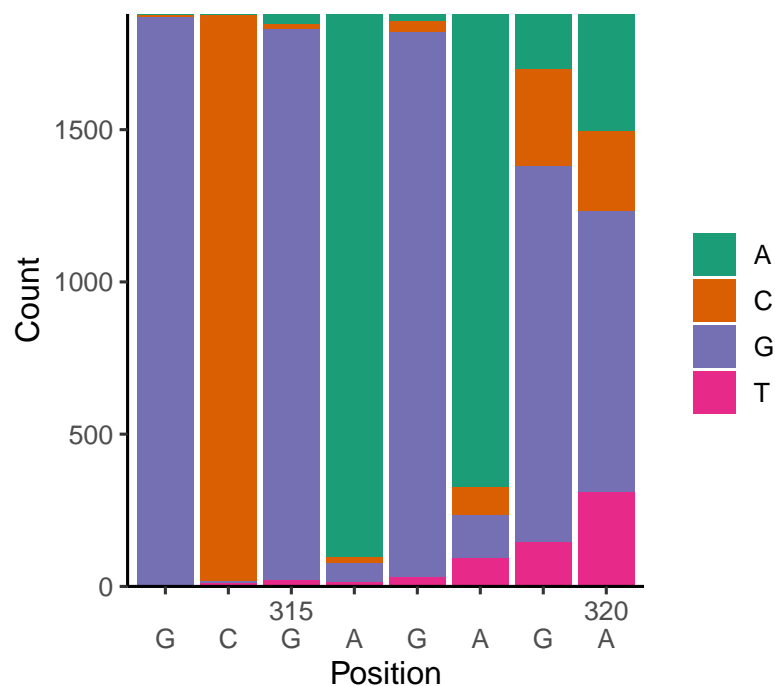
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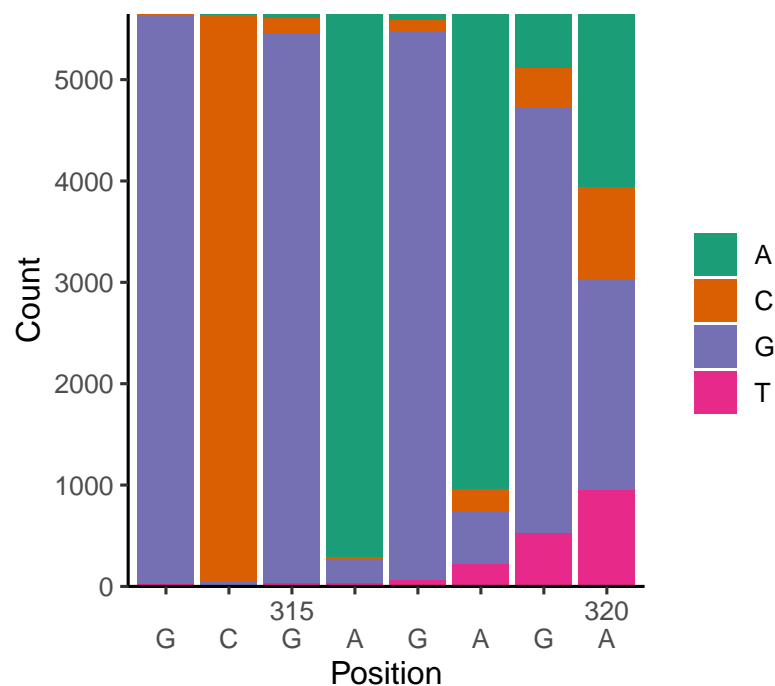
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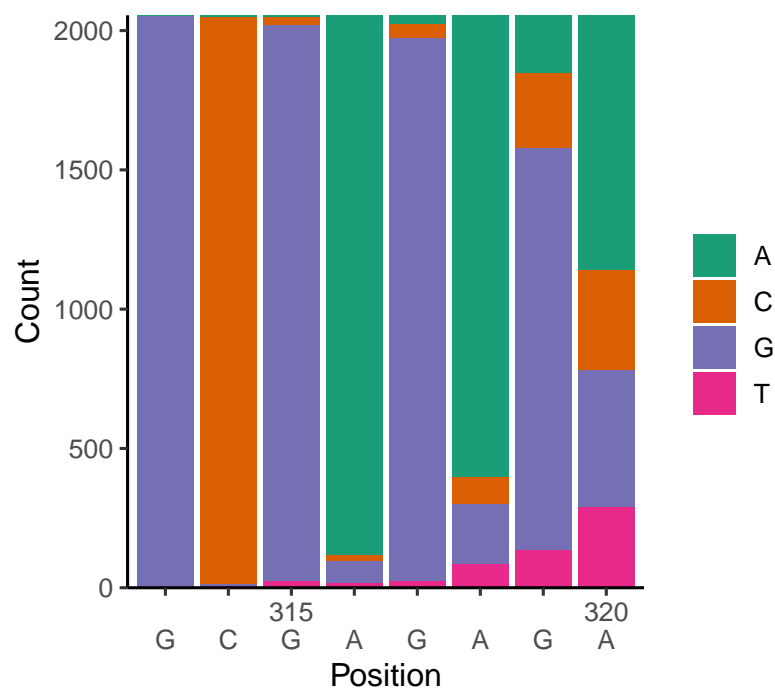
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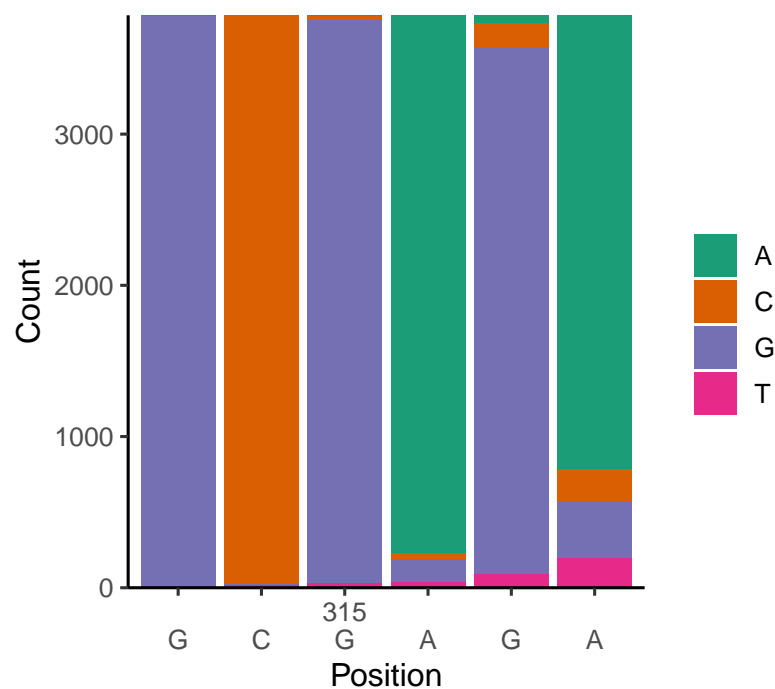
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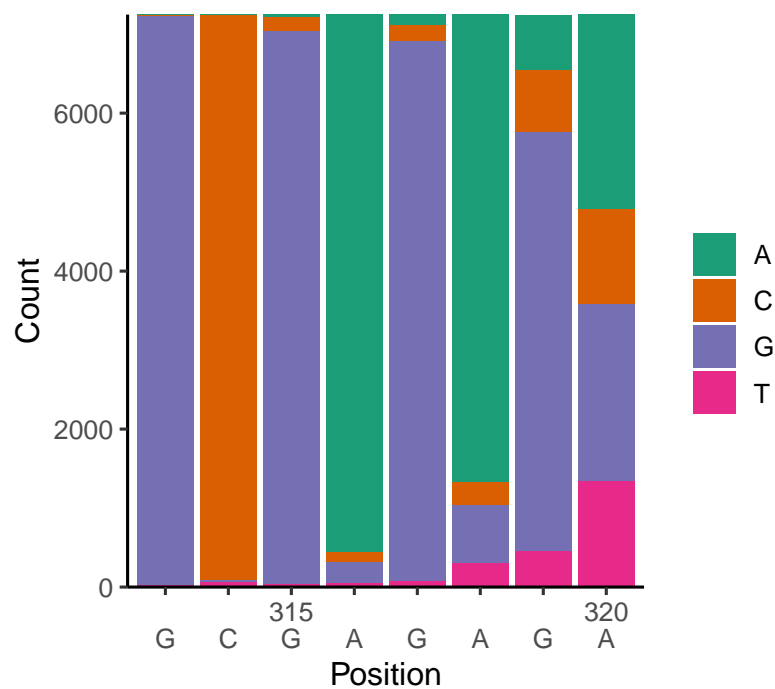
Gene IGHV4-4*07_G234A_G291A



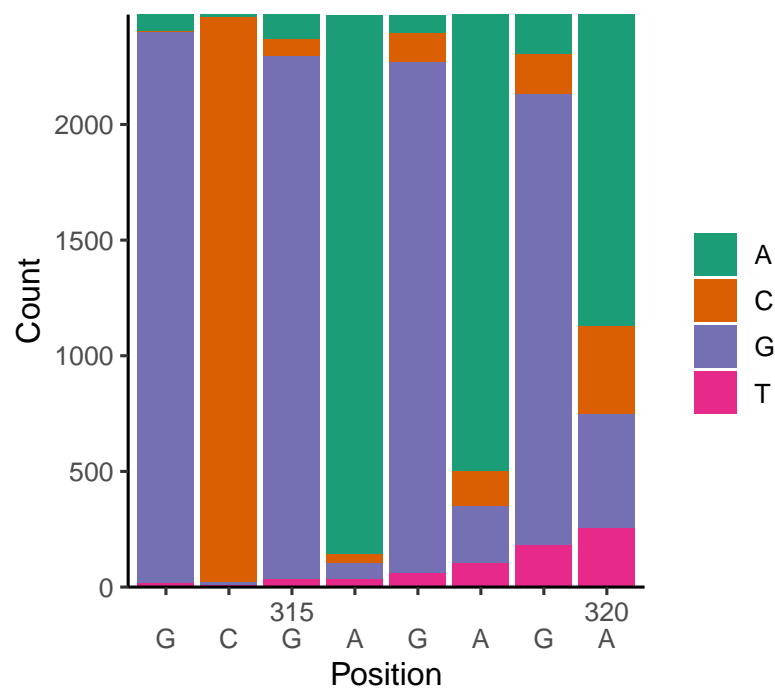
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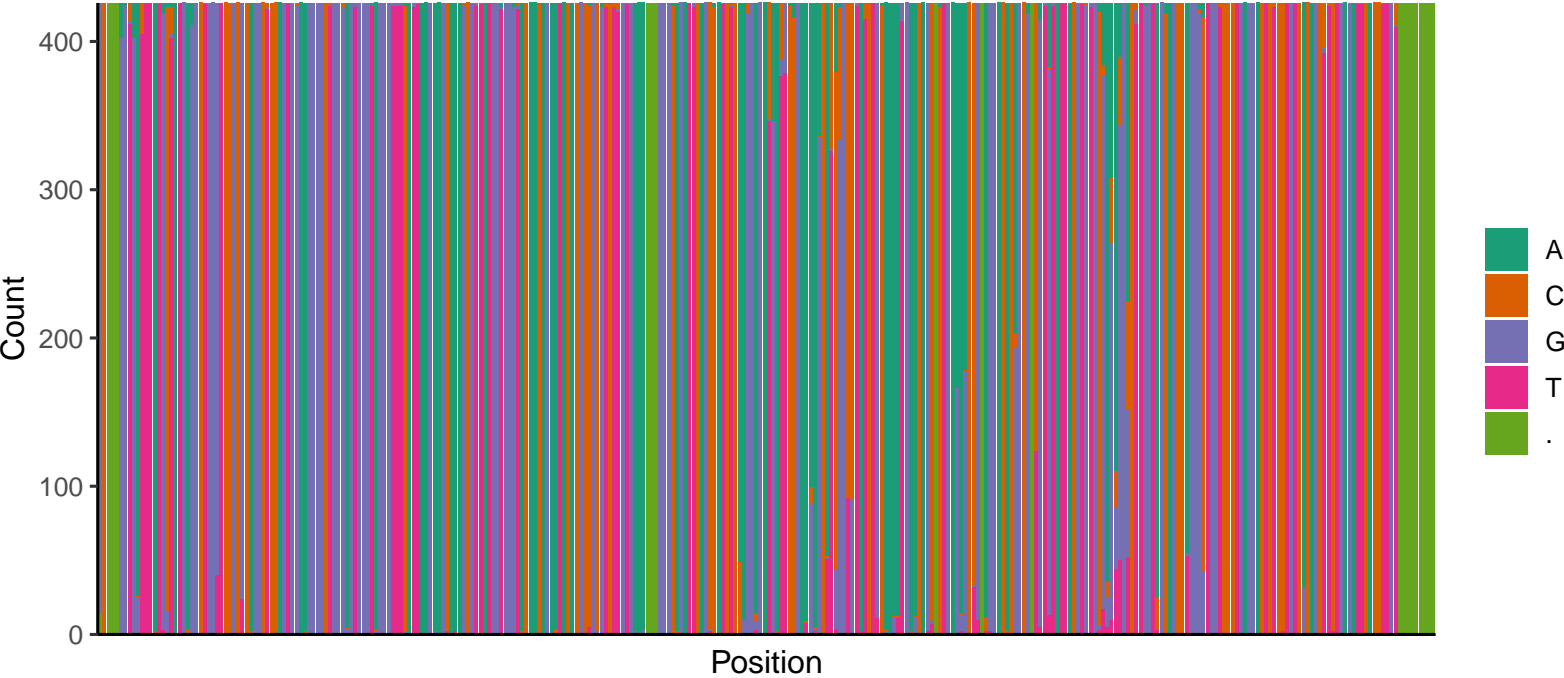
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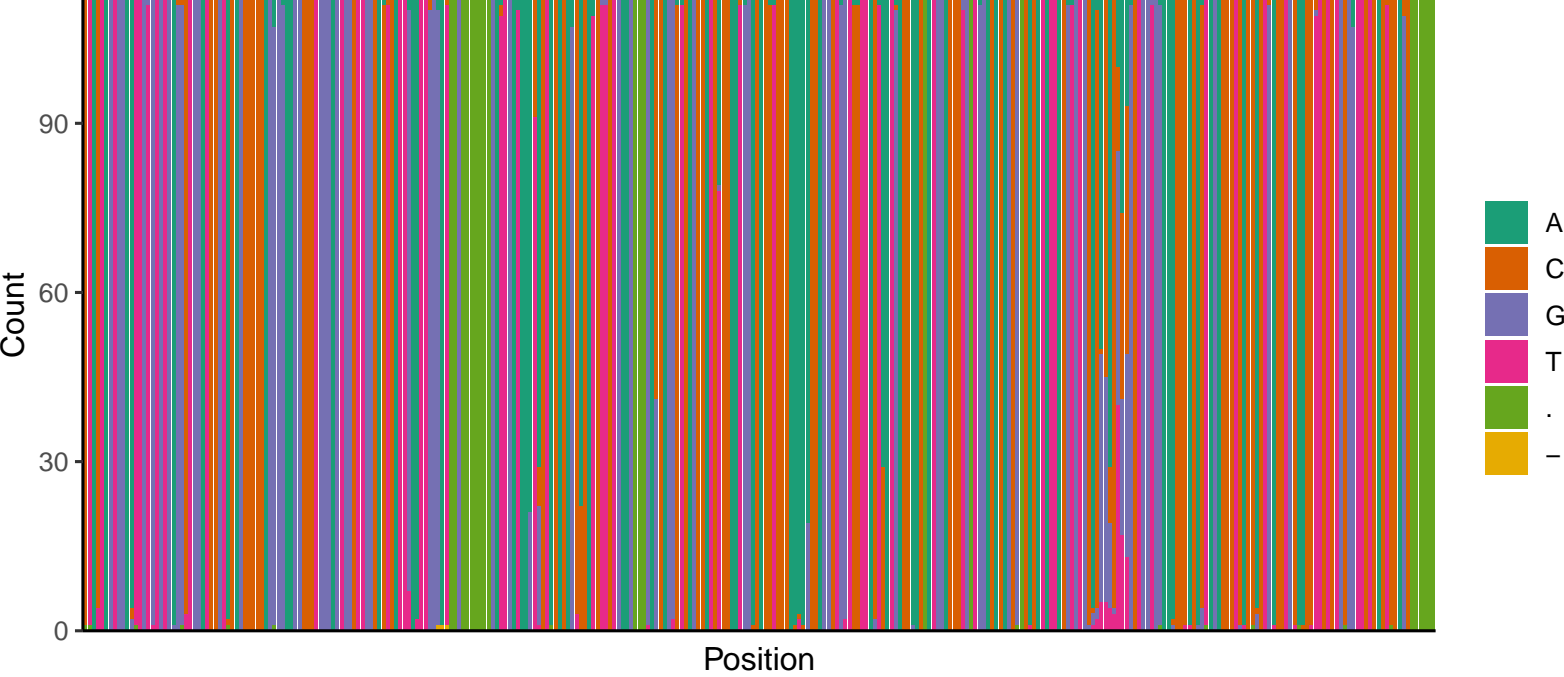
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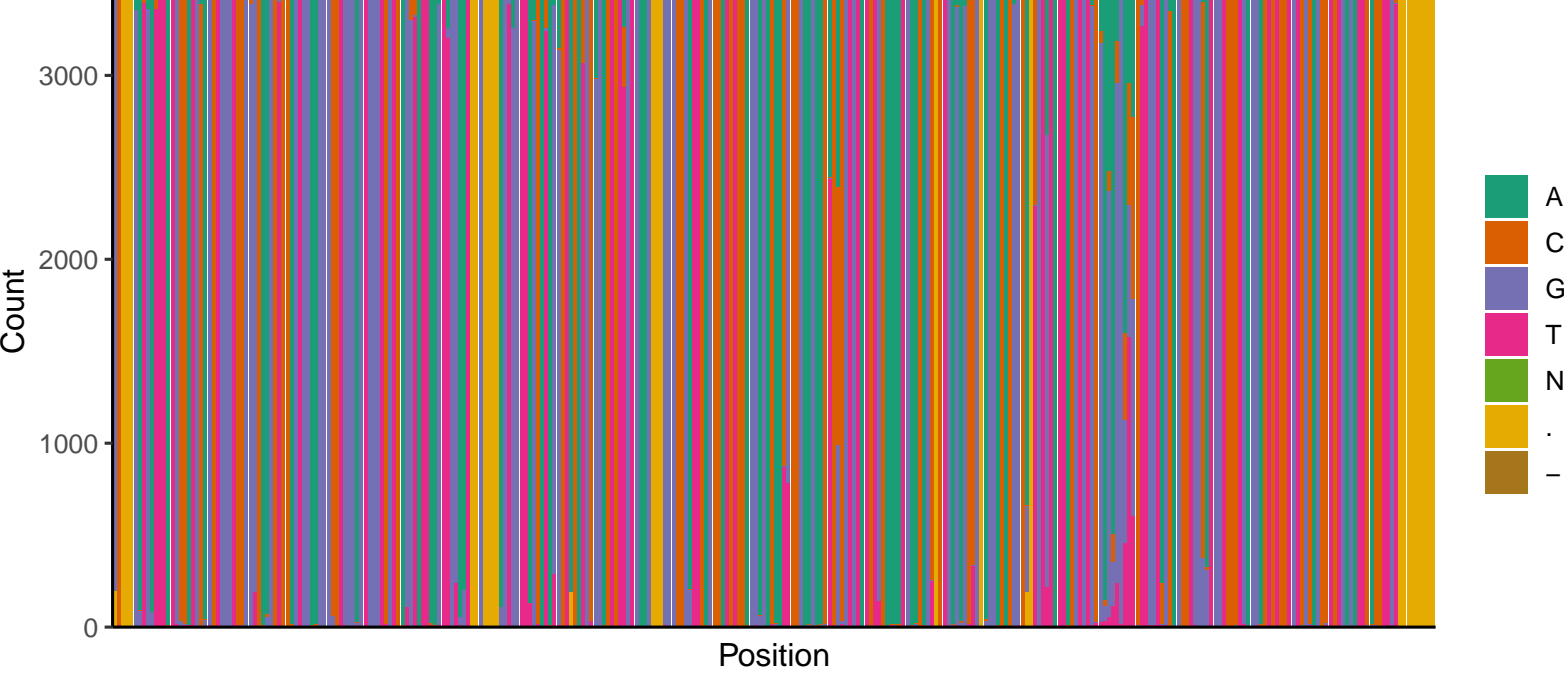
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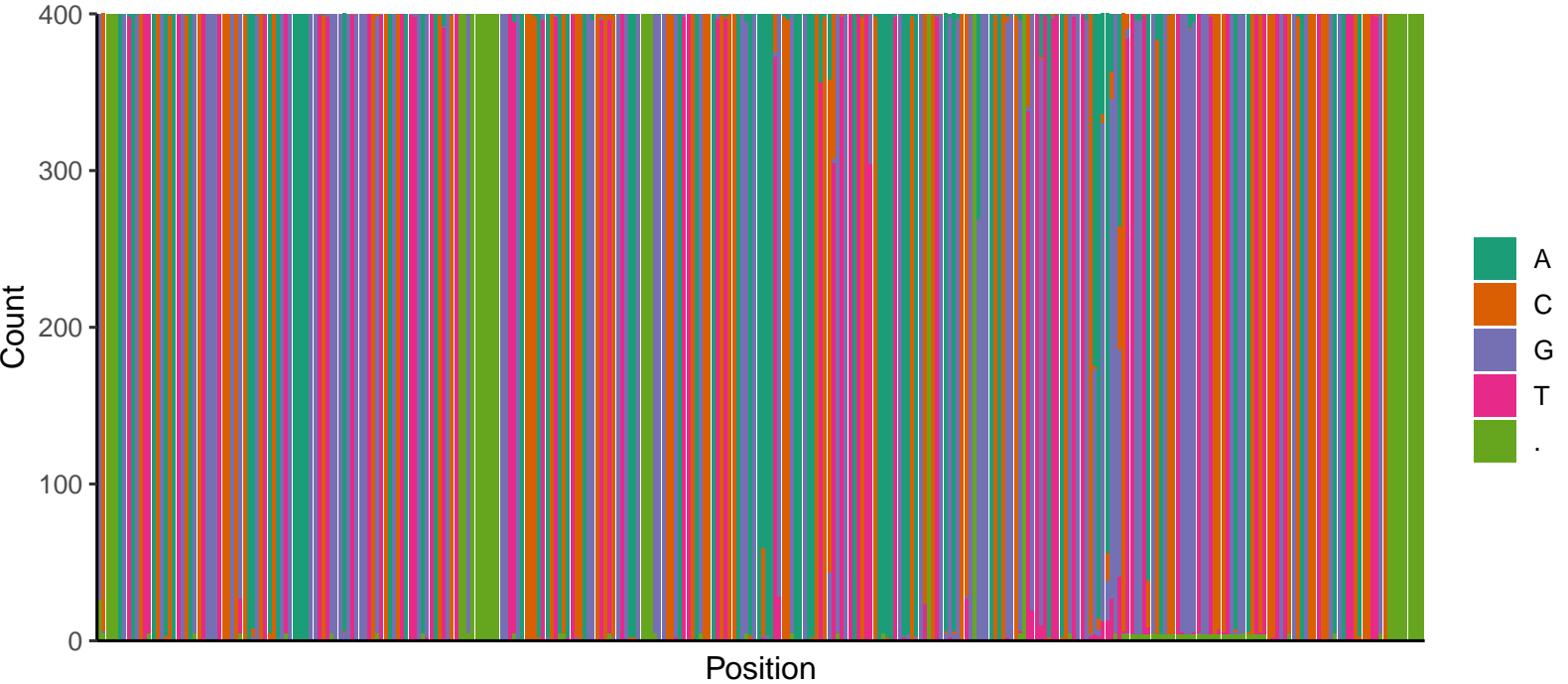
Gene IGHV2-70*01_G303A



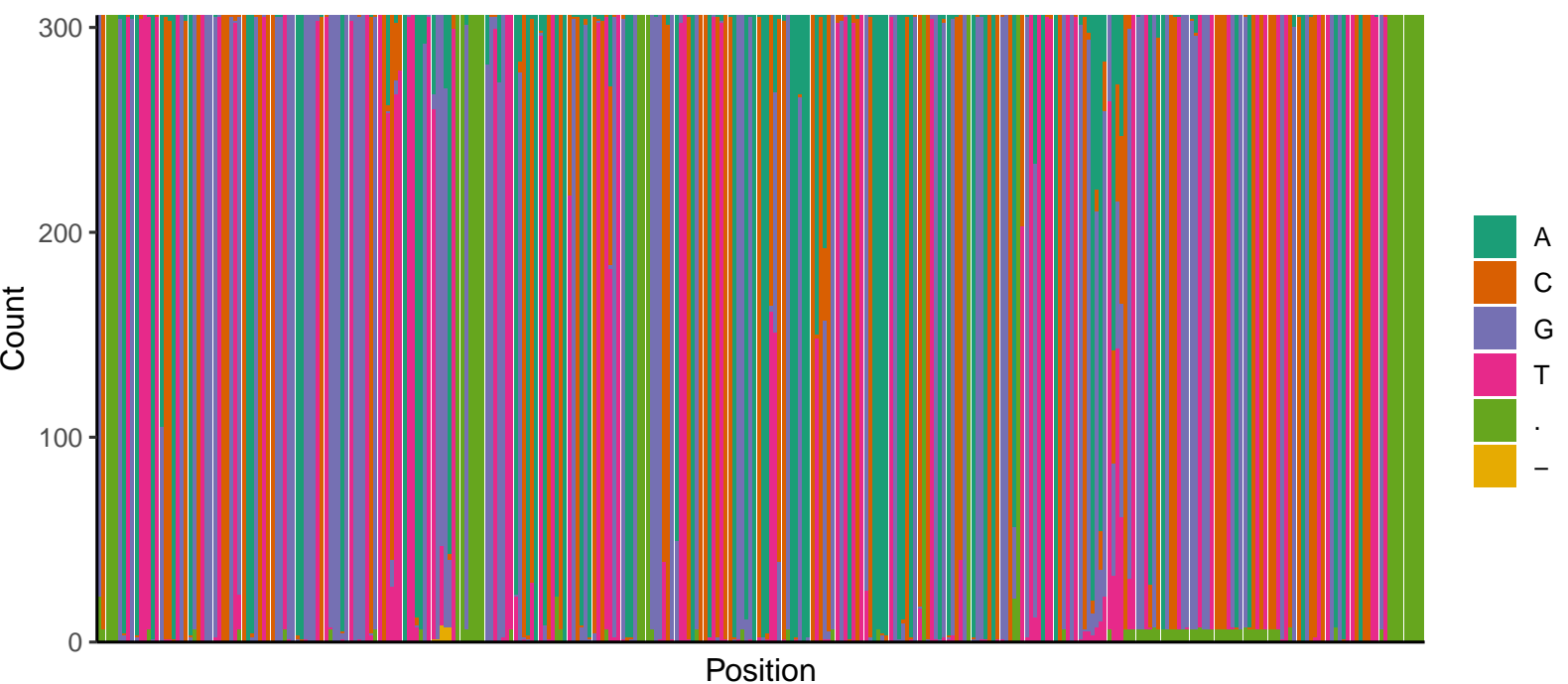
Gene IGHV3-9*01_T279C_T288C_C300T_T301G



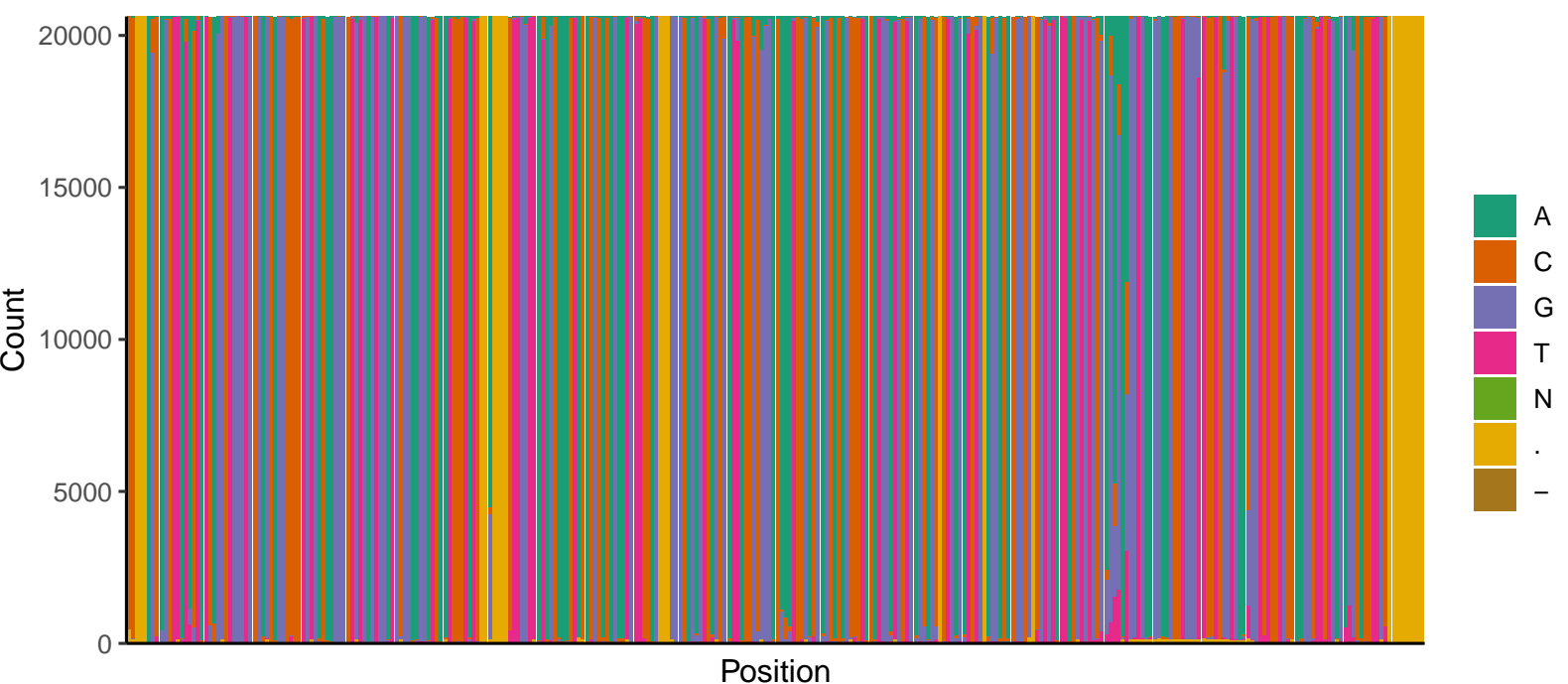
Gene IGHV3-13*05_T78C



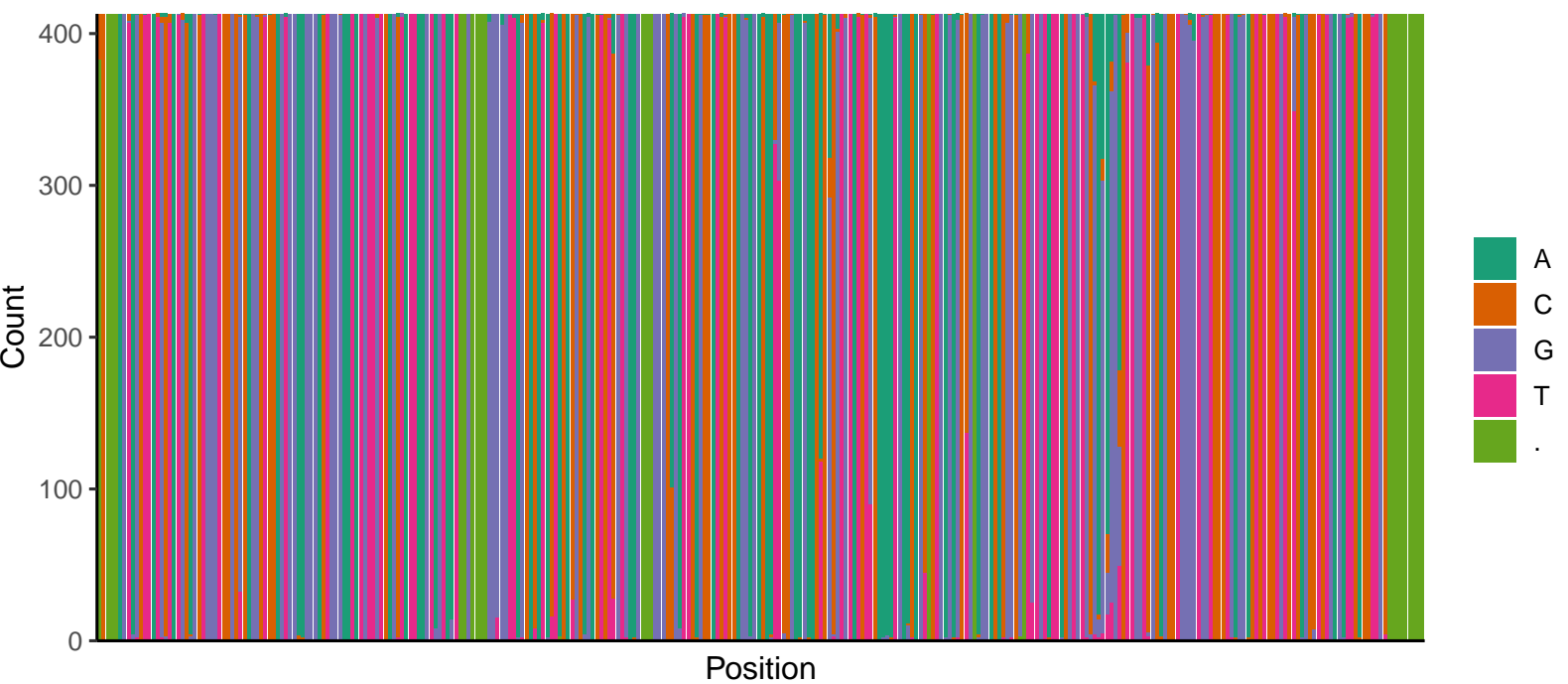
Gene IGHV3-43*01_A247G_G248C_A252G_C258A_T279C_A286G_T288C_C297G_C300G



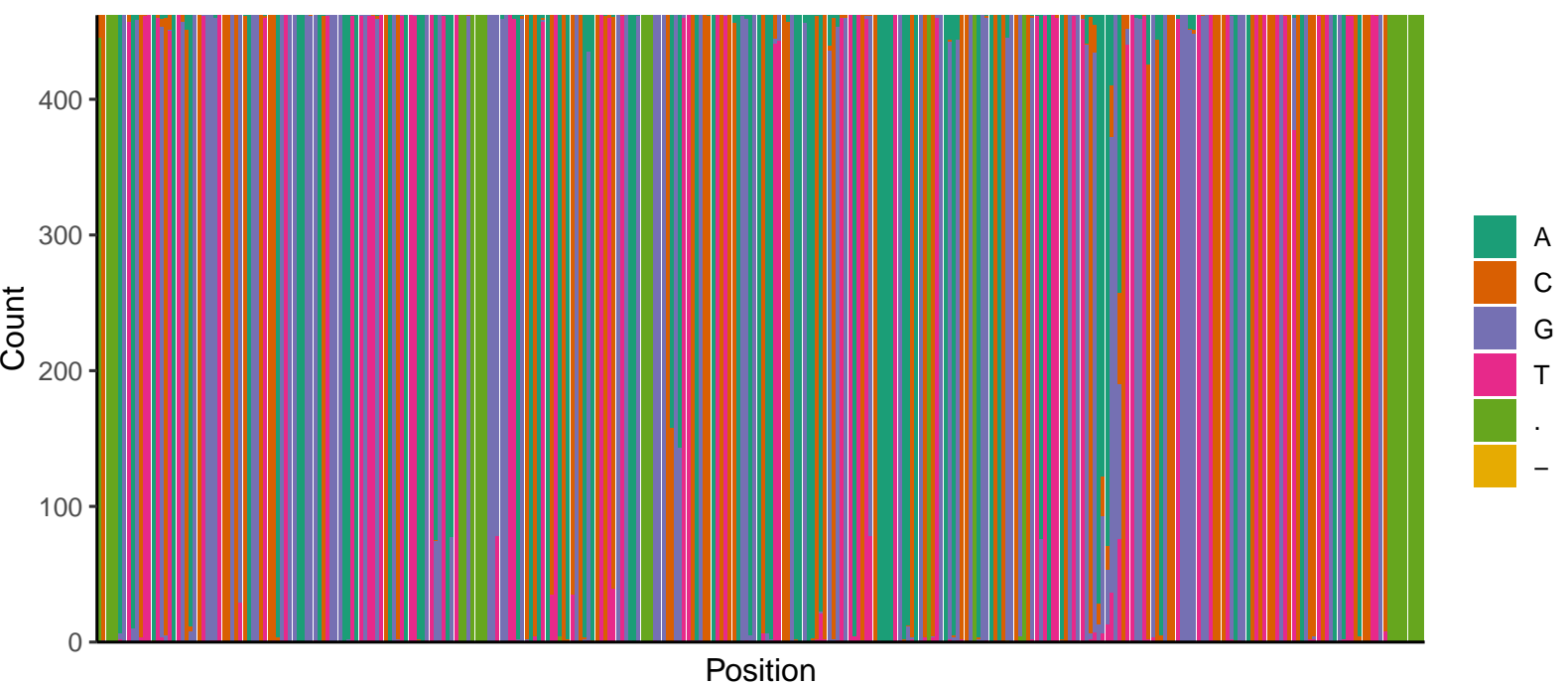
Gene IGHV1-69*08_C191T



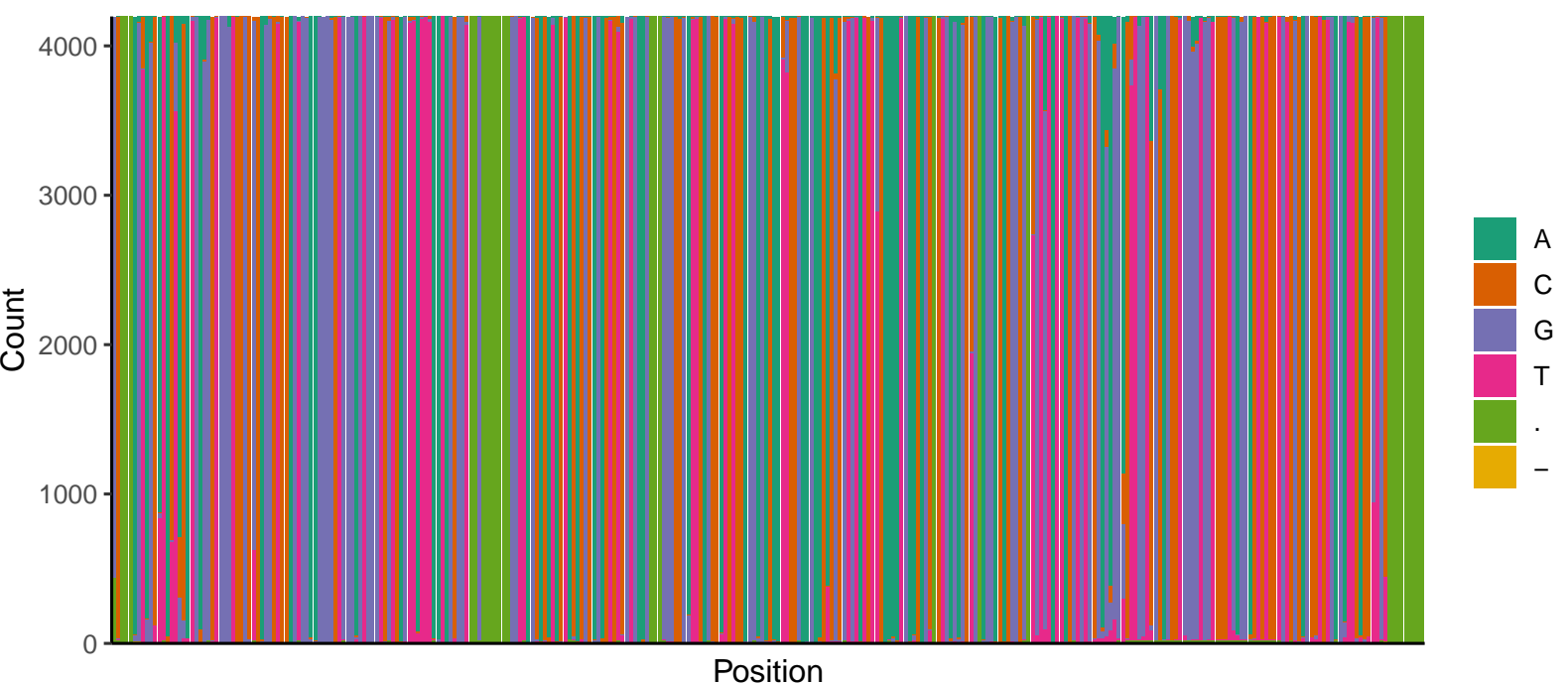
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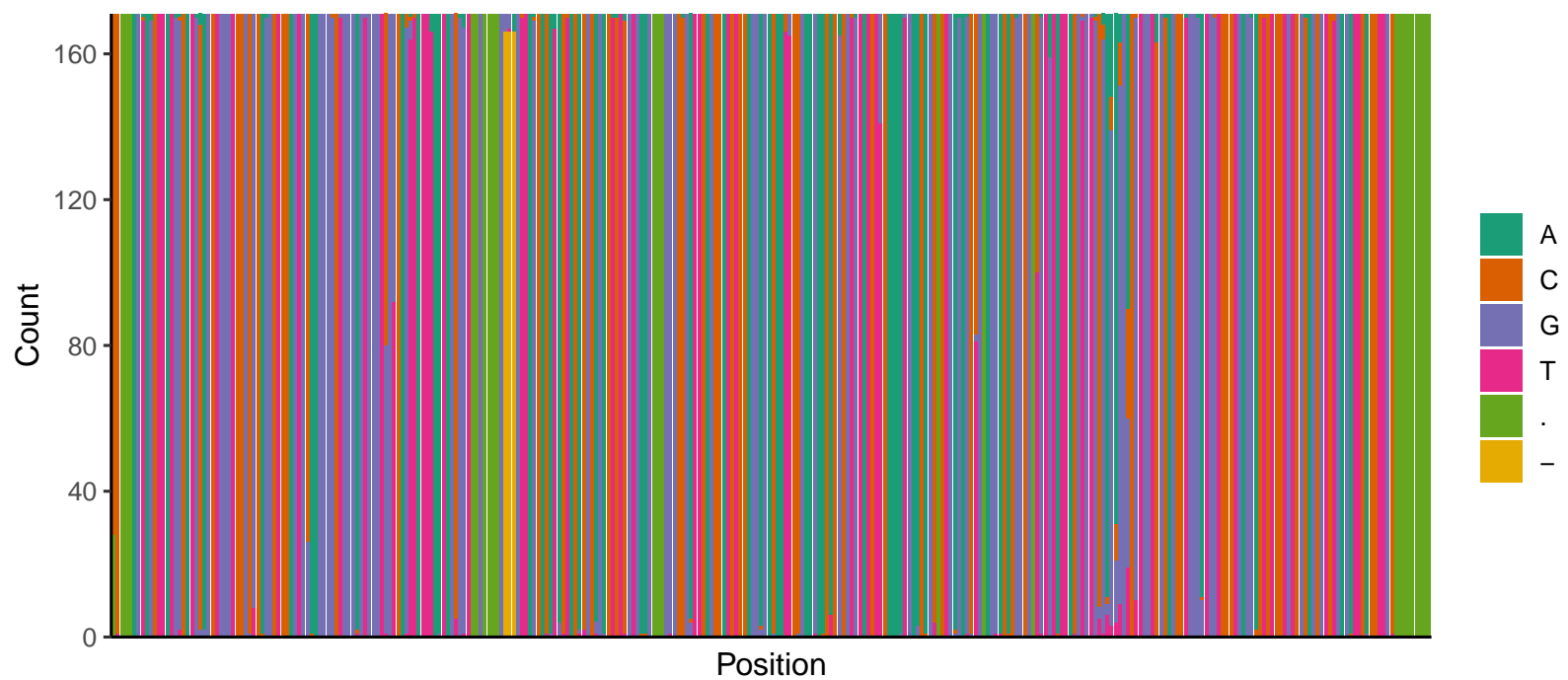
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Gene IGHV3-66*01_A223C



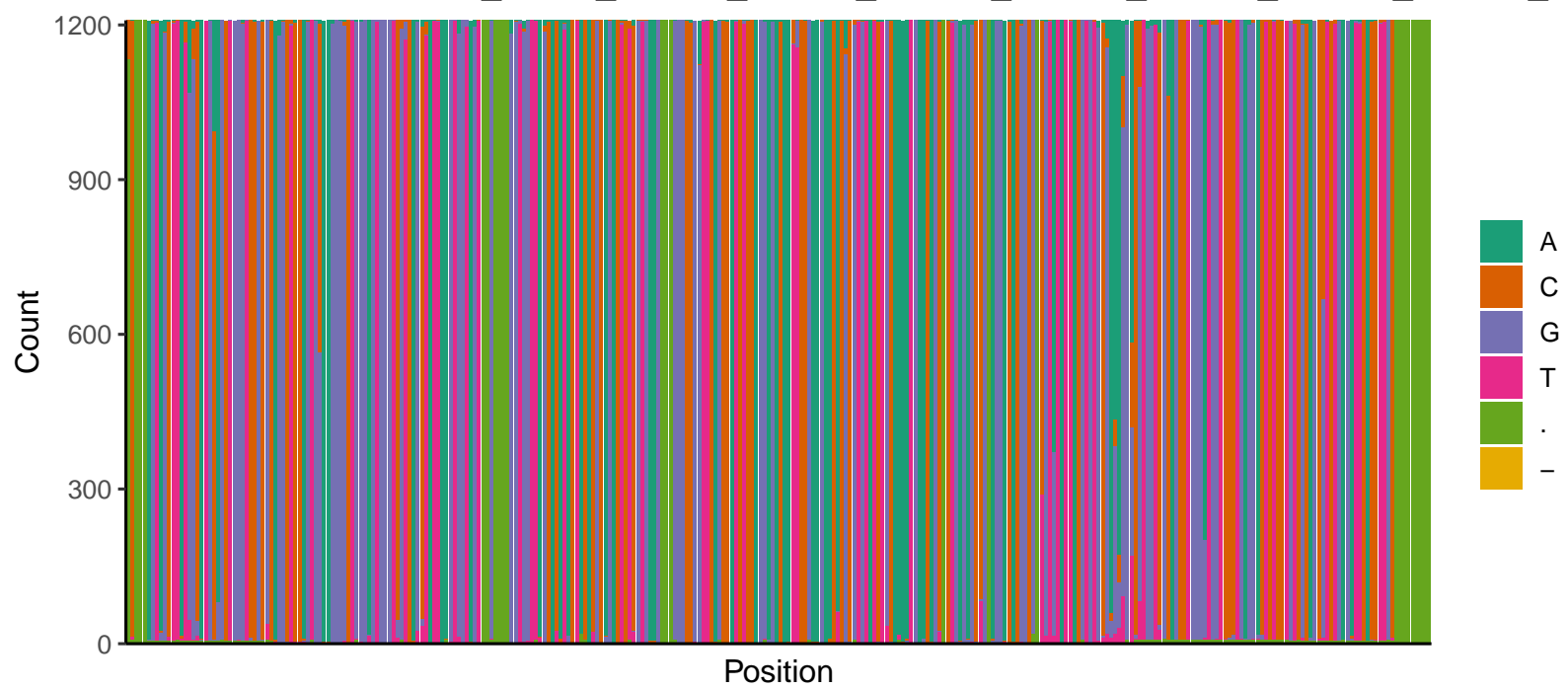
Gene IGHV3–NL1*01_G49A_T201C_G267T_T288C_T300C



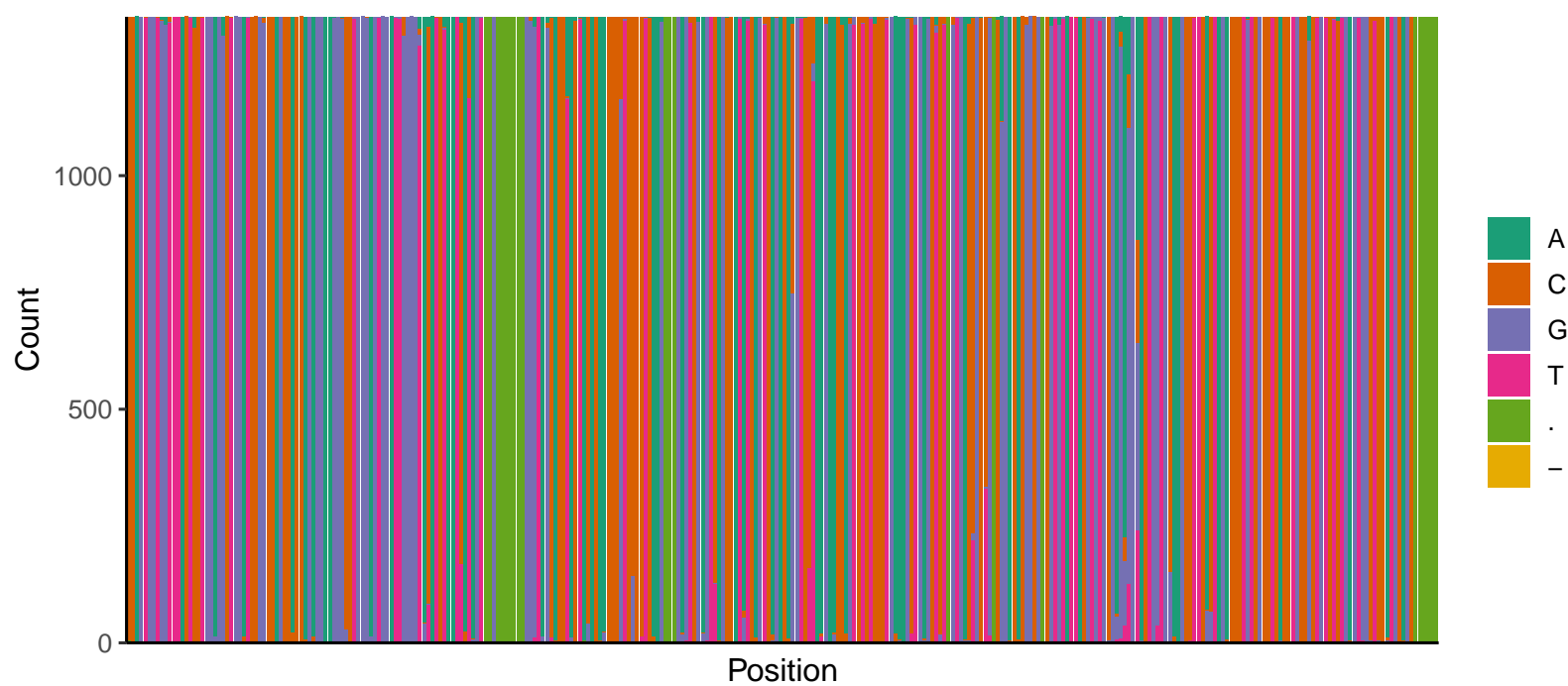
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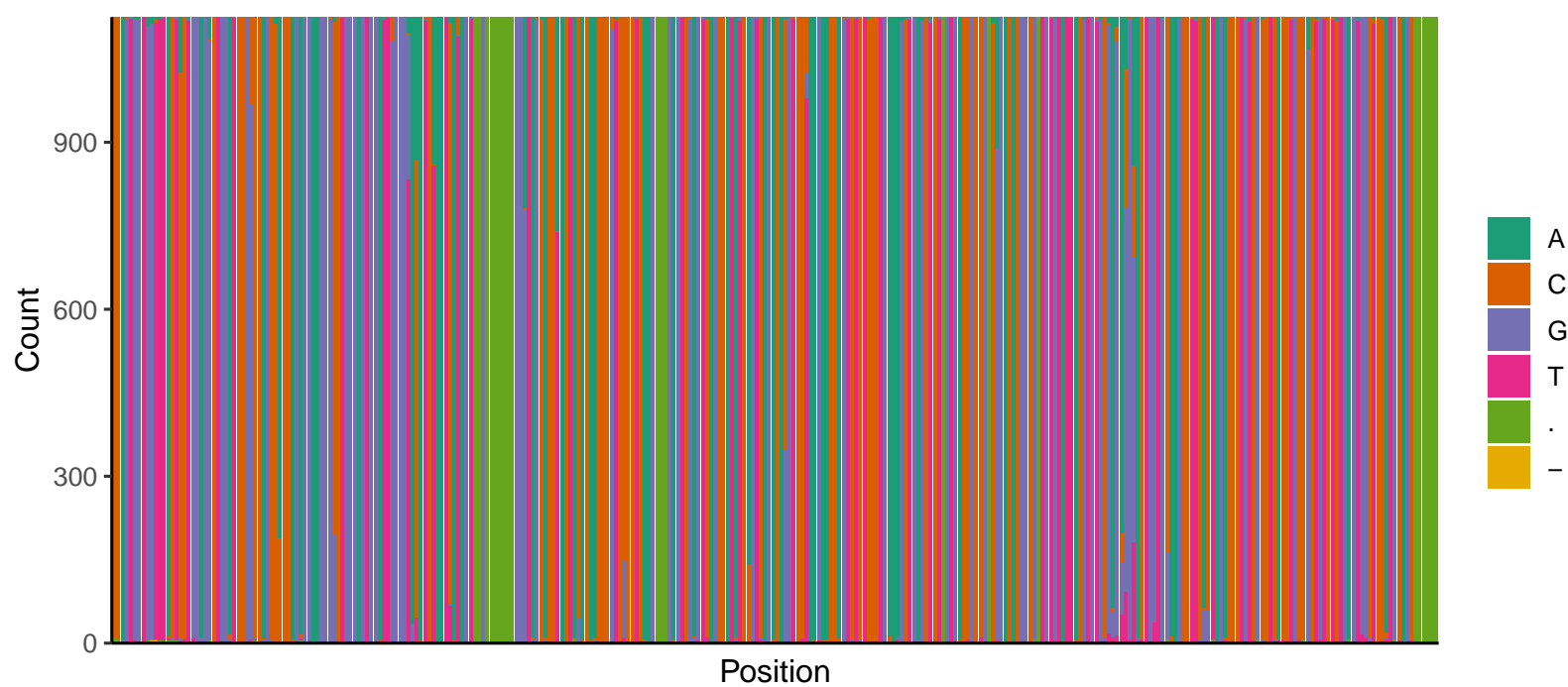
Gene IGHV3–NL1*01_G49A_T164C_T169A_A170G_A172G_C174T_G175A_A187G_T2



Gene IGHV4-30-2*01_C315G



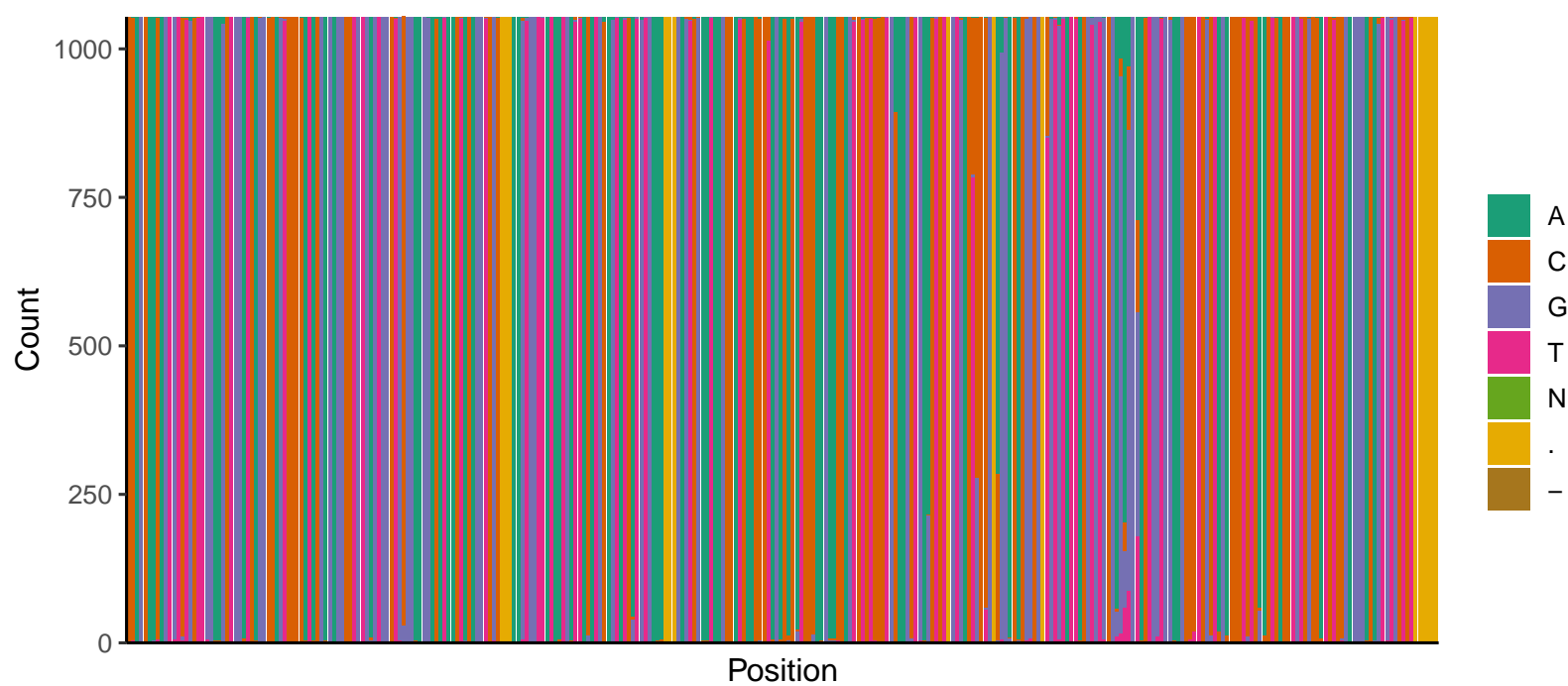
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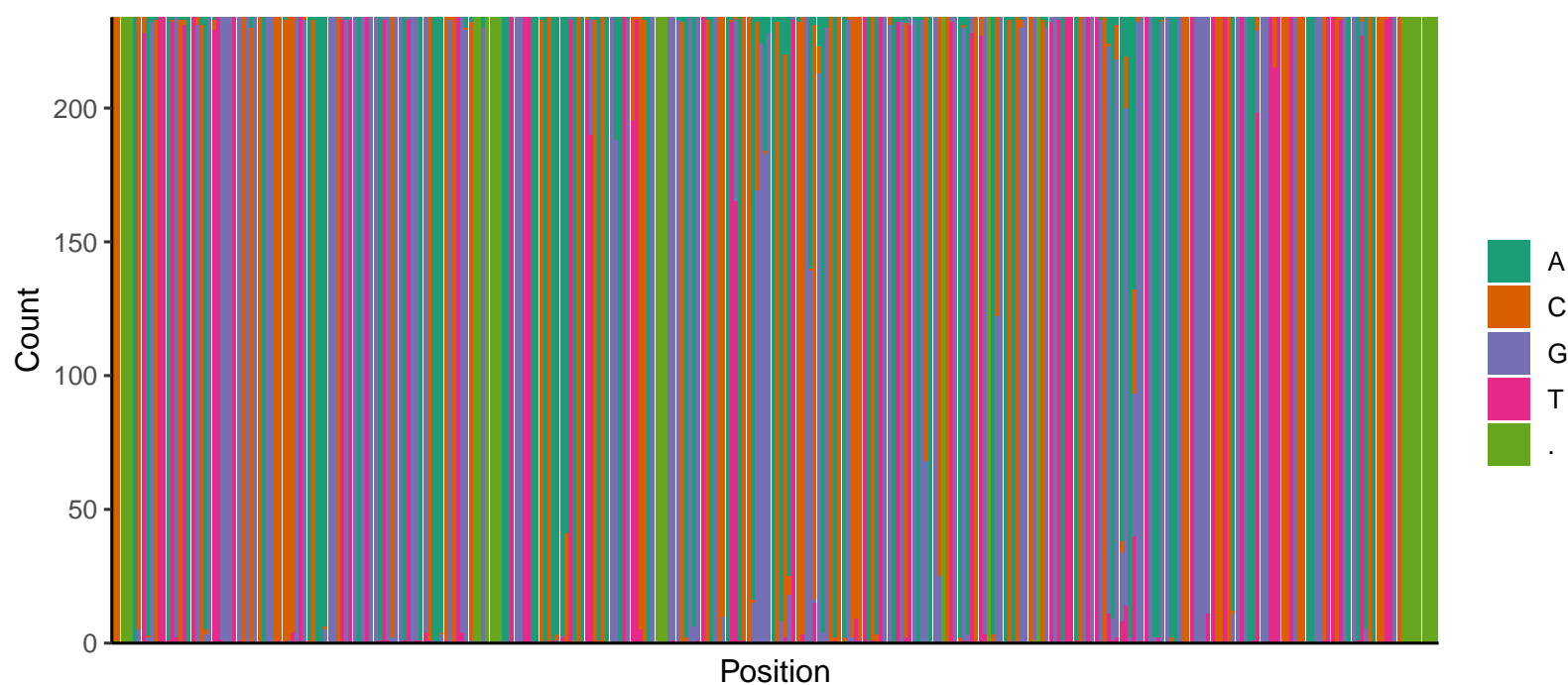
Gene IGHV4-59*12_C300T



Gene IGHV6-1*01_A315G



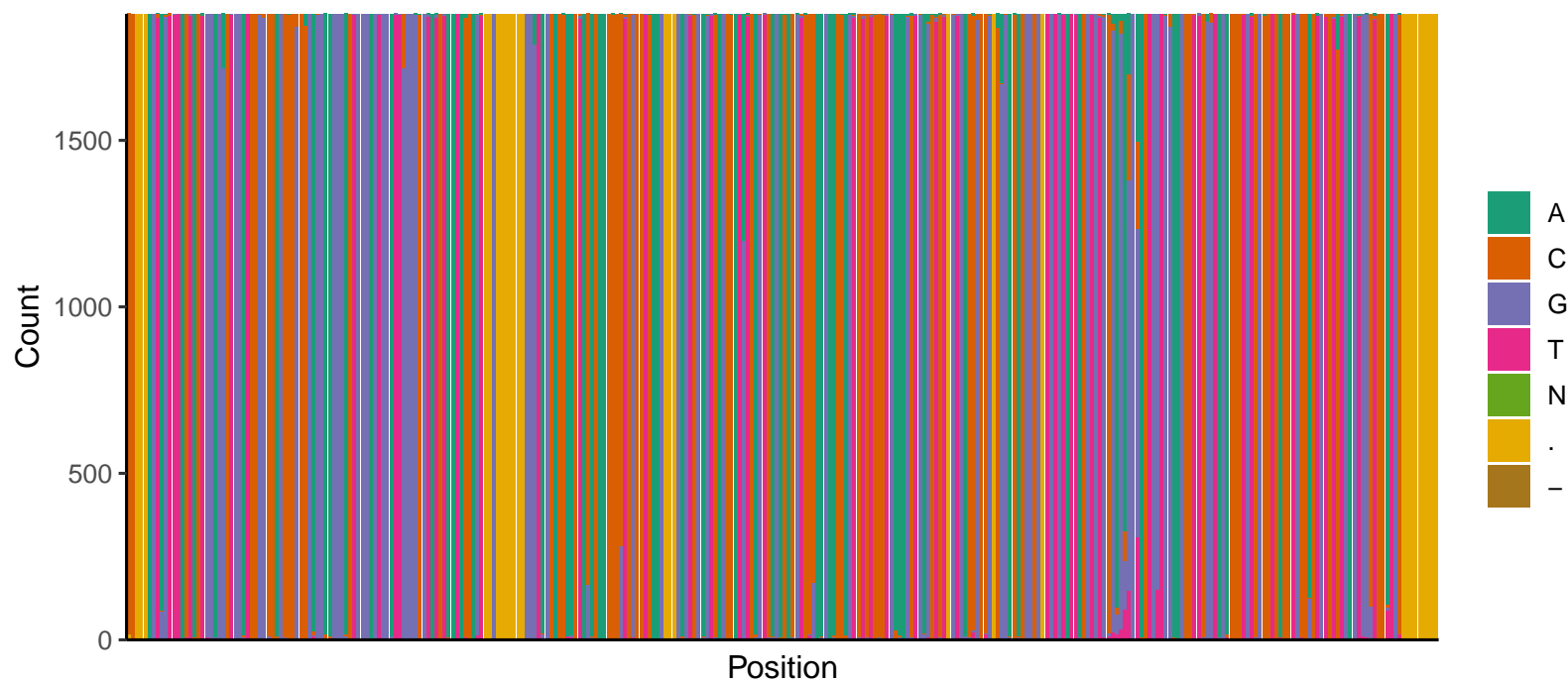
Gene IGHV1-3*02_T296C_T300C



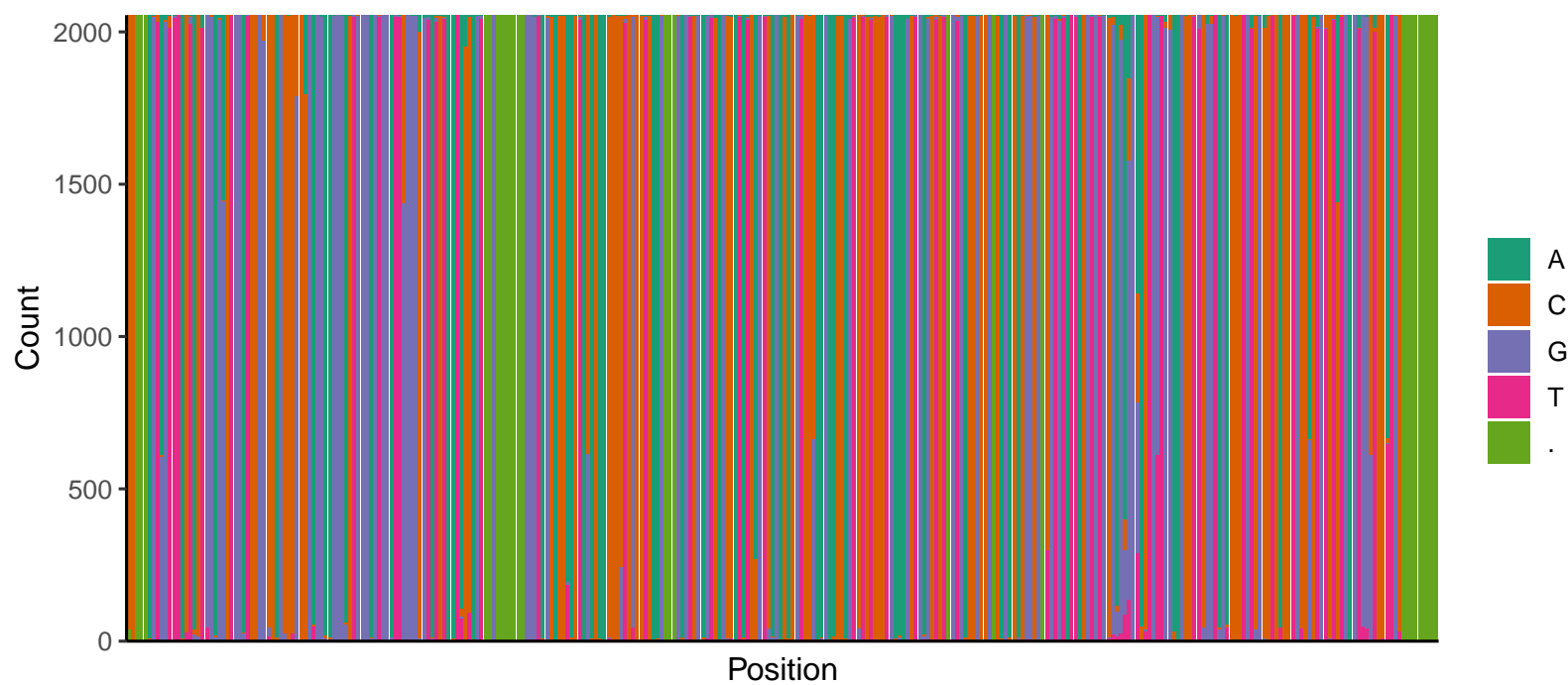
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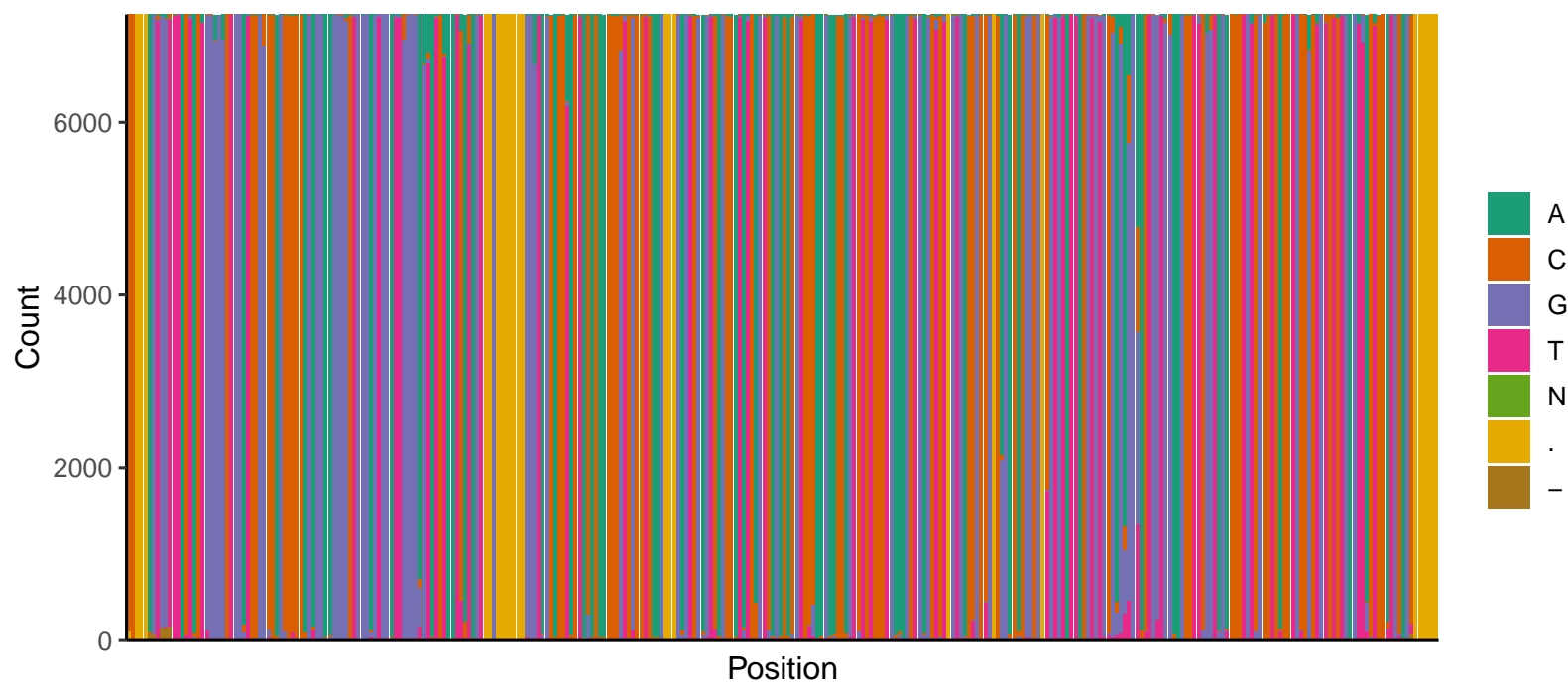
Gene IGHV4-4*07_C300T



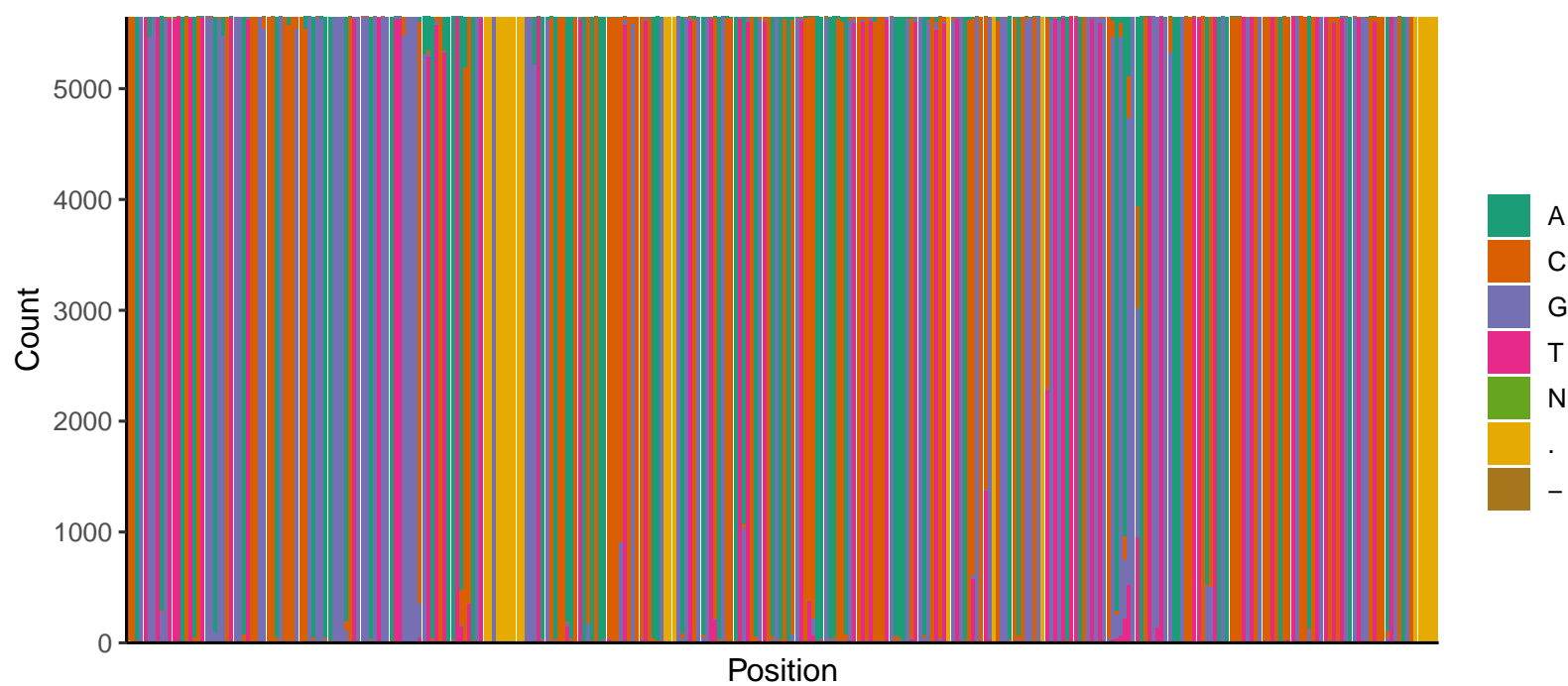
Gene IGHV4-4*07_G234A_G291A



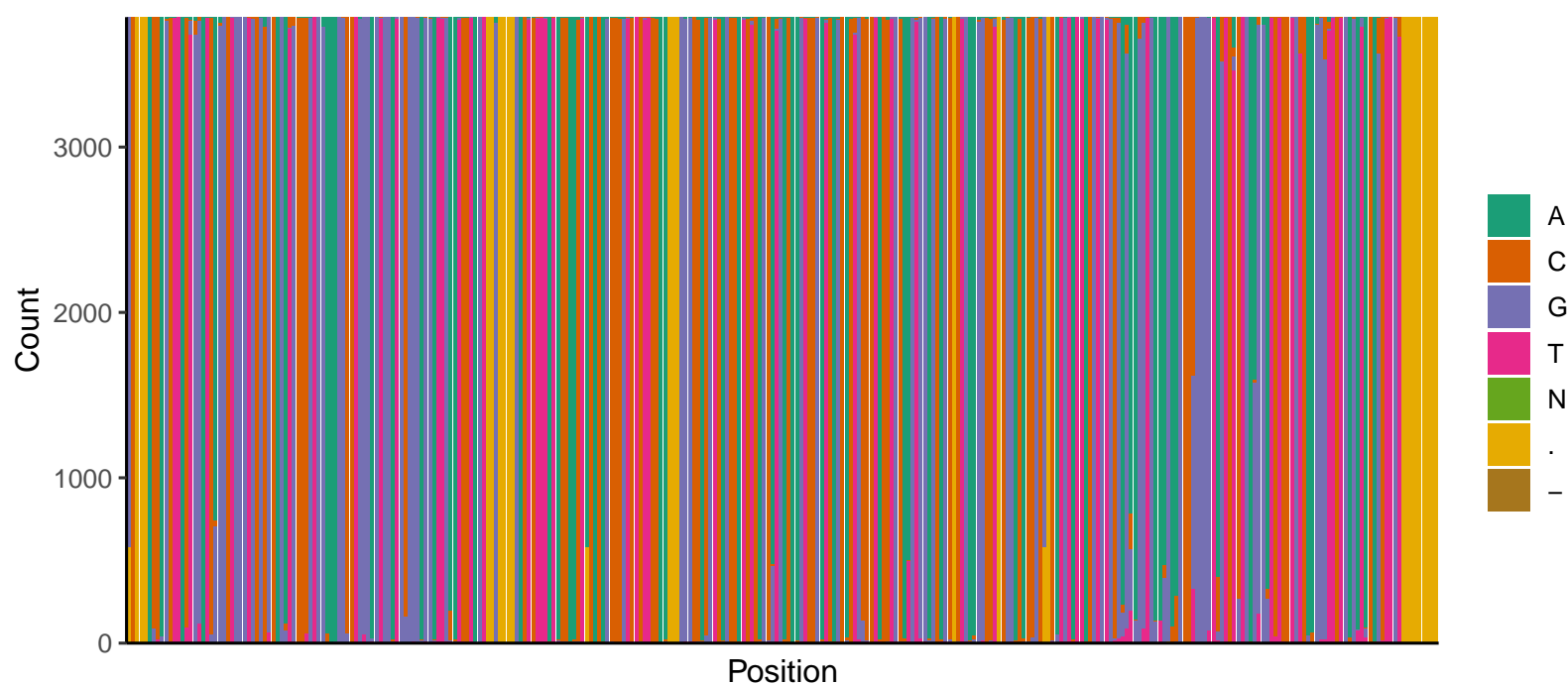
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Gene IGHV4-61*02_A291G



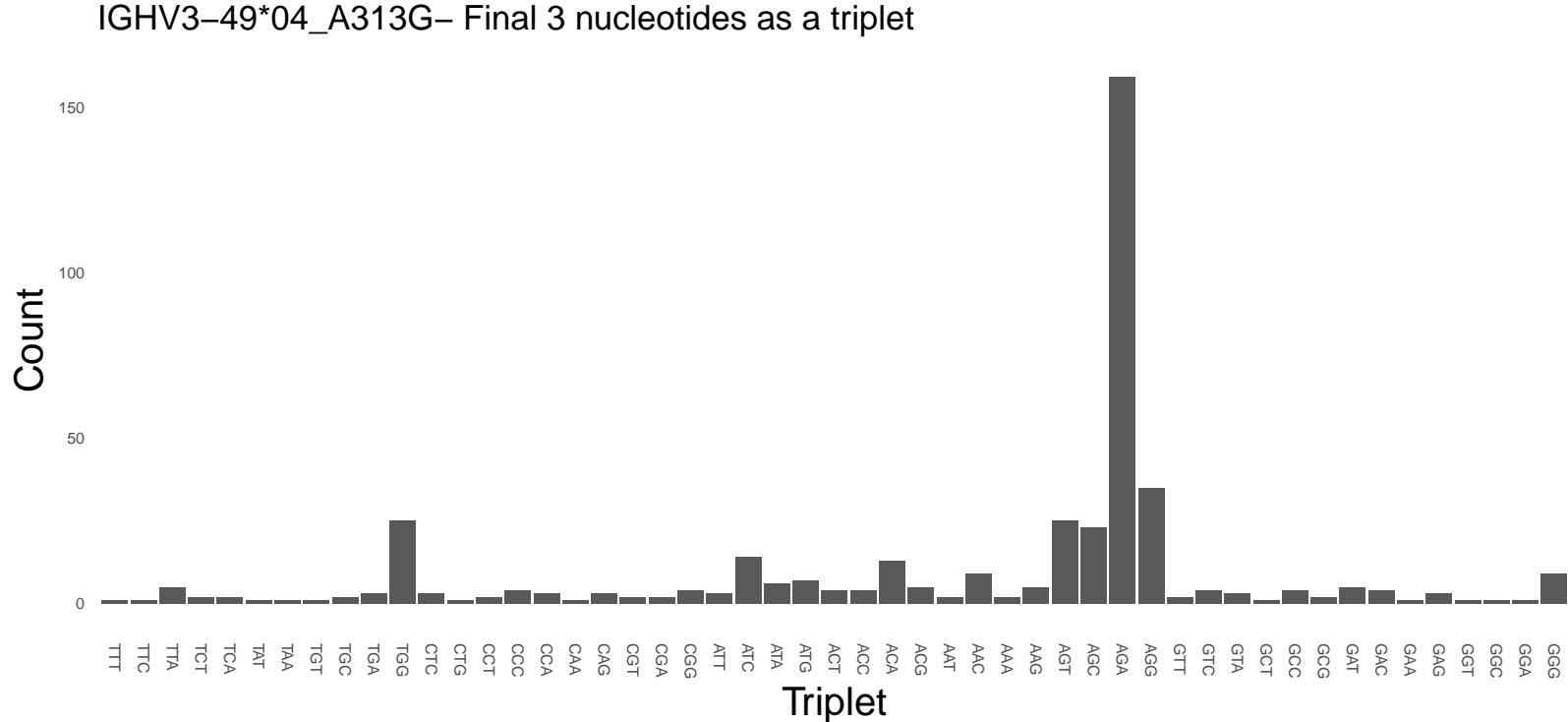
Gene IGHV5-10-1*01_A3G



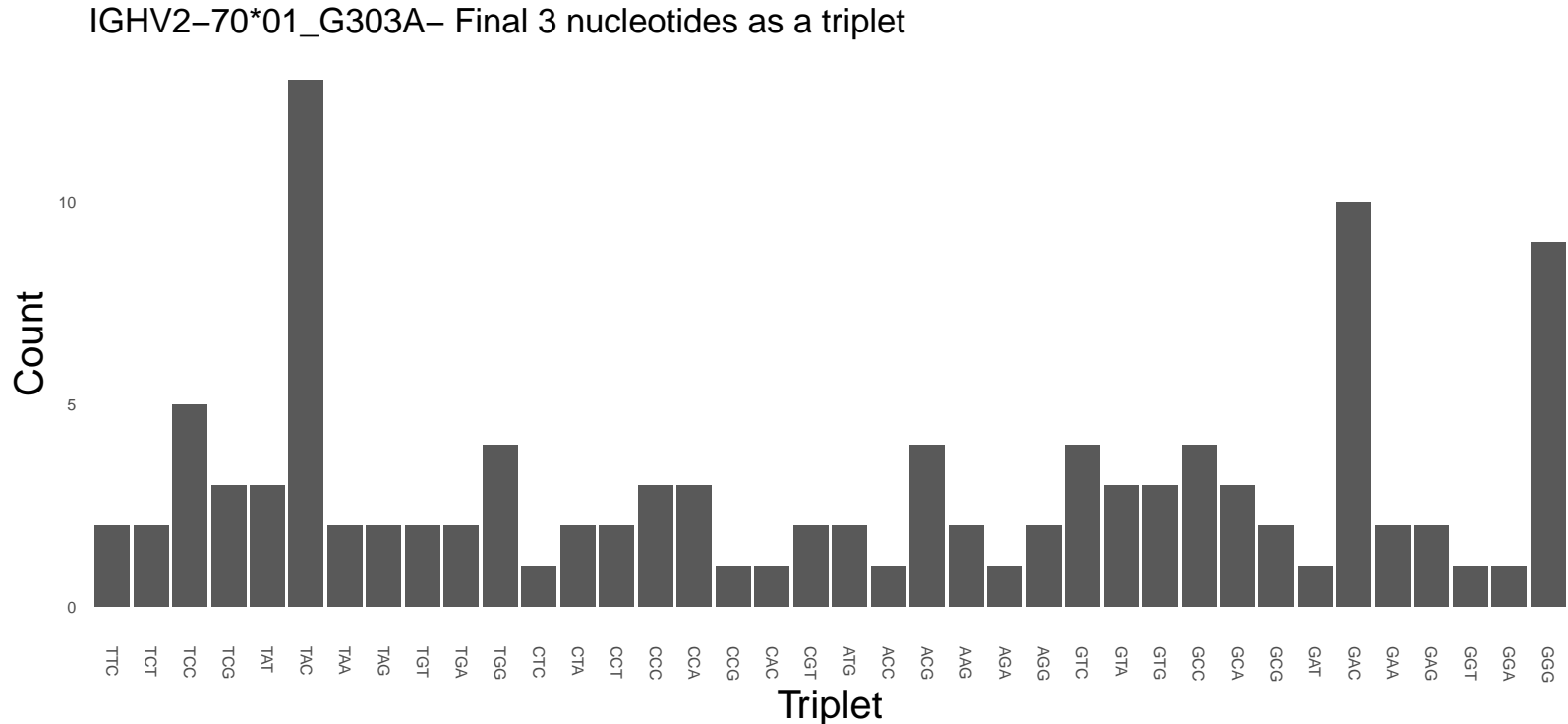
Gene IGHV3-30*03_T288C



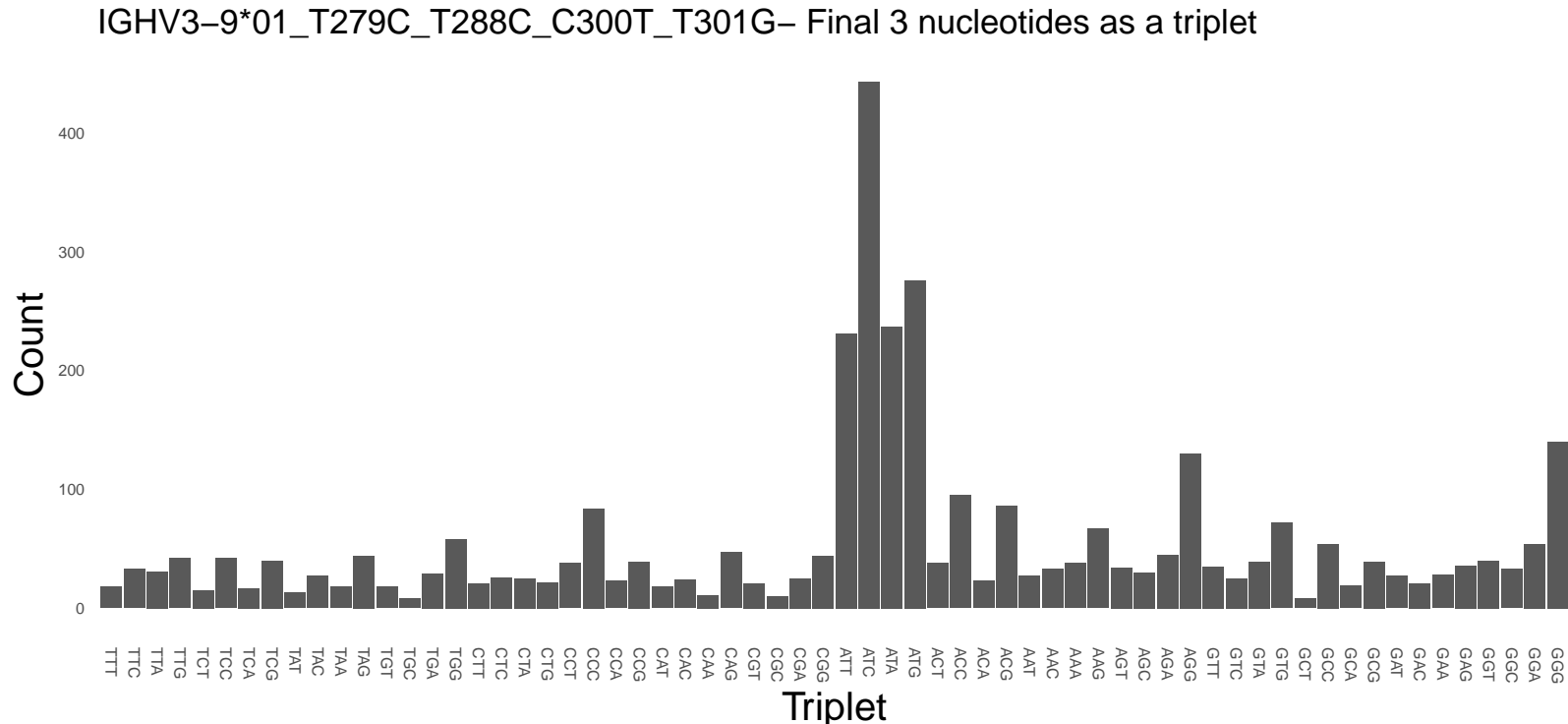
IGHV3–49*04_A313G– Final 3 nucleotides as a triplet



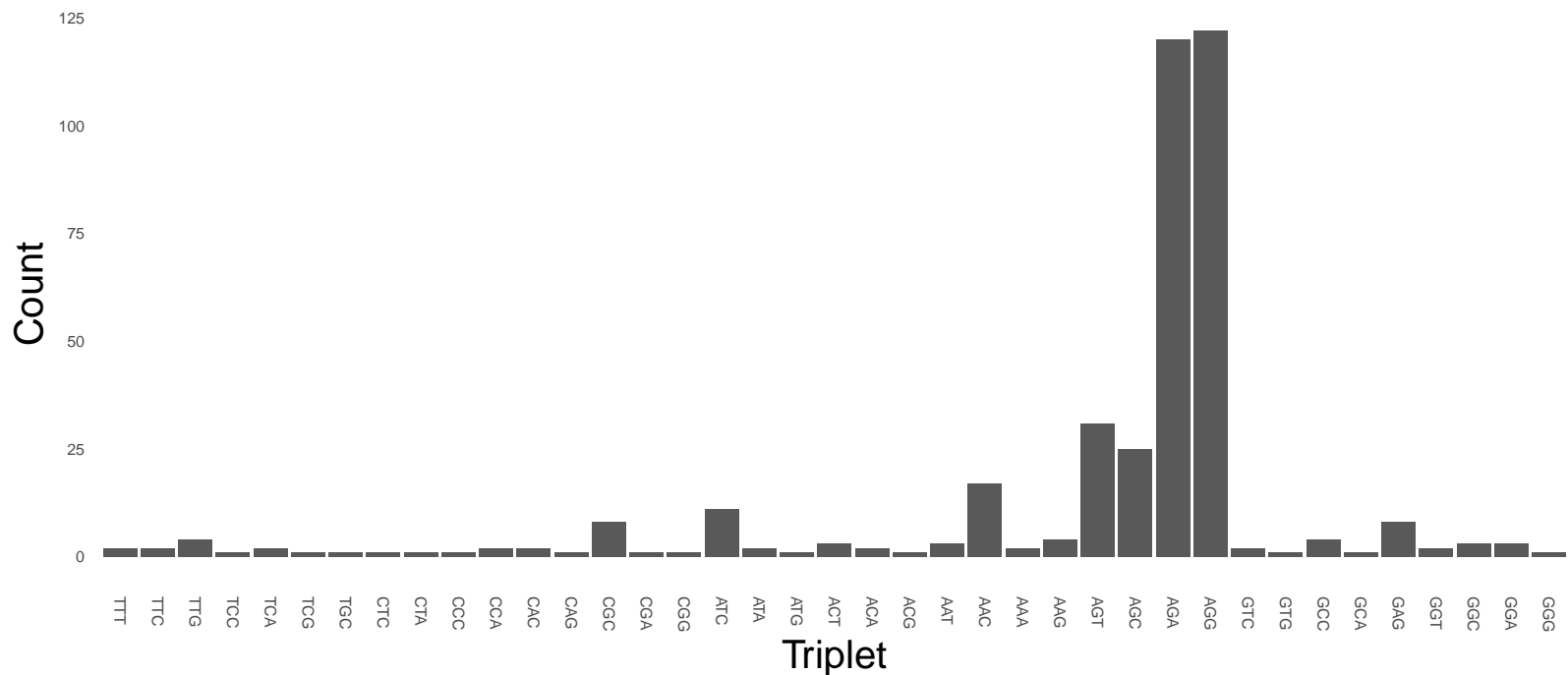
IGHV2–70*01_G303A– Final 3 nucleotides as a triplet



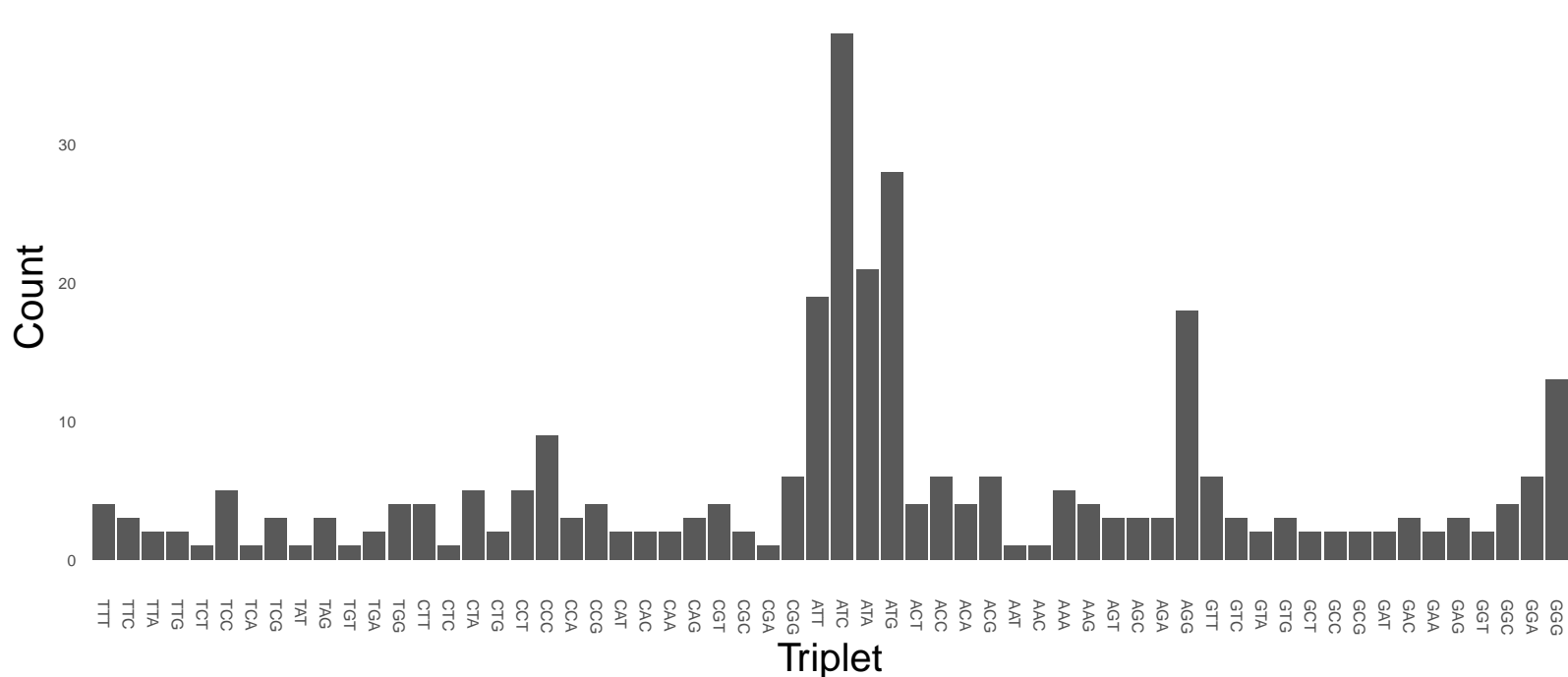
IGHV3–9*01_T279C_T288C_C300T_T301G– Final 3 nucleotides as a triplet



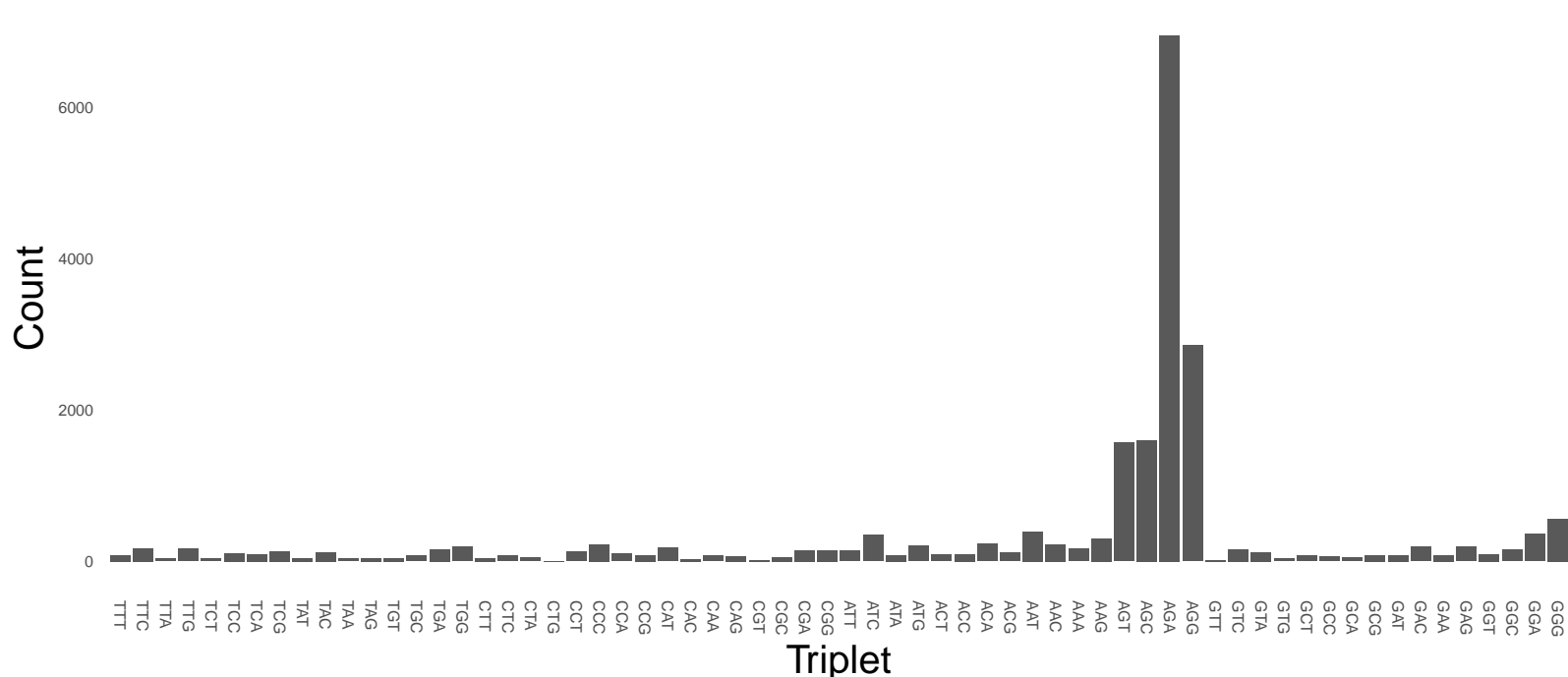
IGHV3-13*05_T78C- Final 3 nucleotides as a triplet



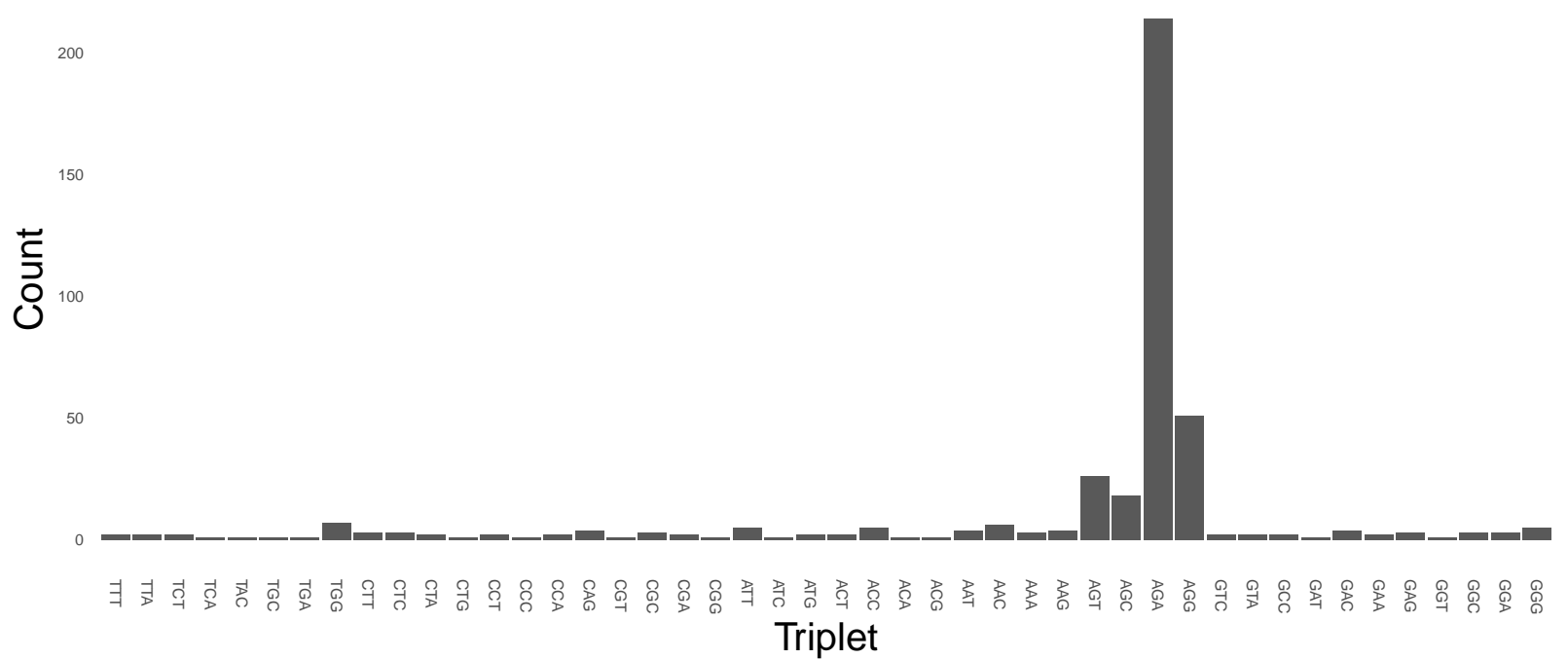
IGHV3-43*01_A247G_G248C_A252G_C258A_T279C_A286G_T288C_C297G_C300T_T301G- F



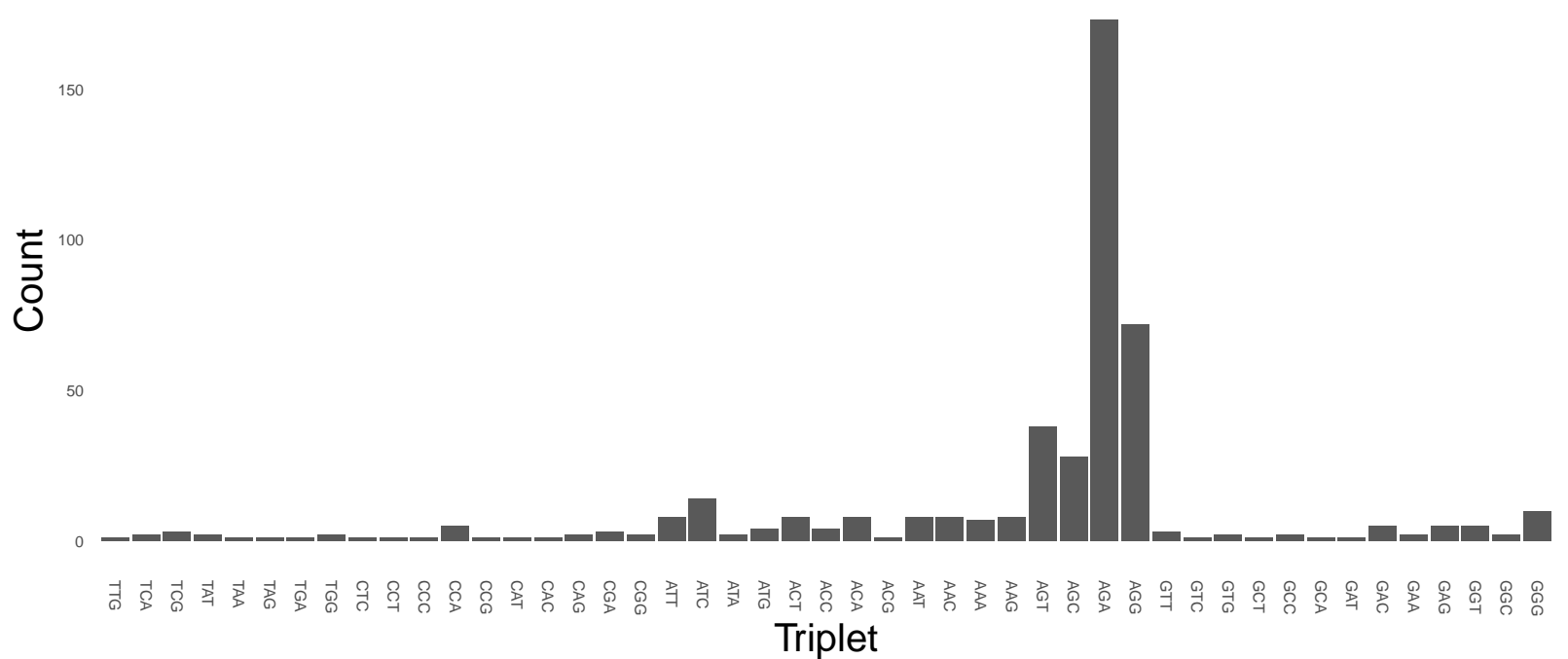
IGHV1-69*08_C191T- Final 3 nucleotides as a triplet



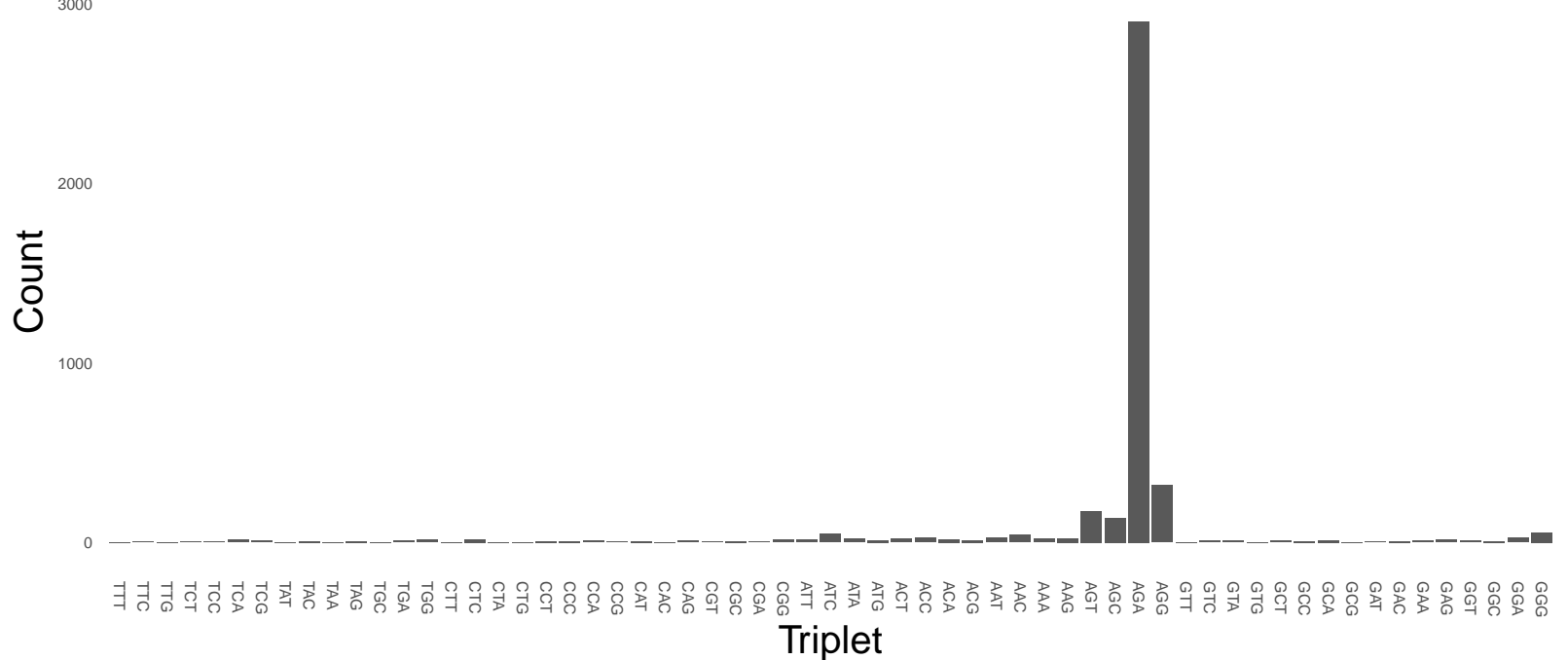
IGHV3-64*04_A210C- Final 3 nucleotides as a triplet



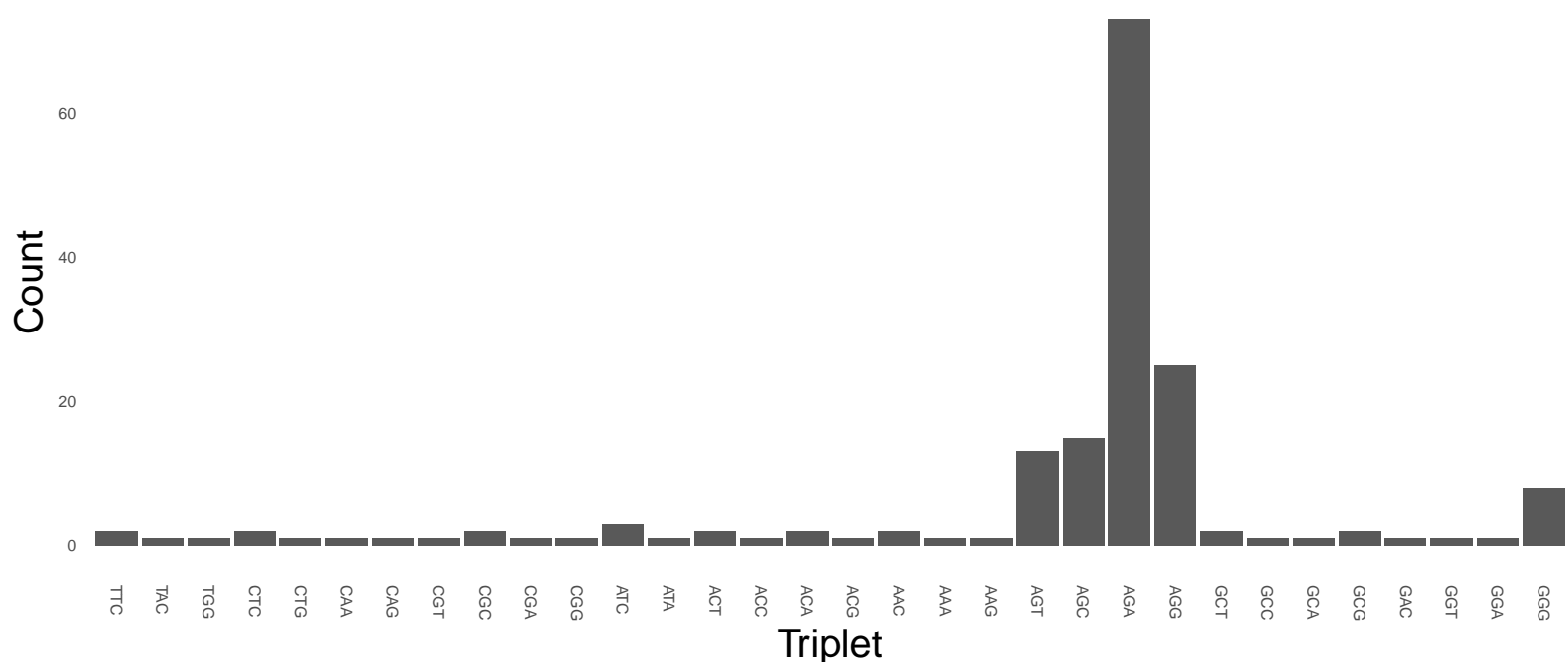
IGHV3-64*04_A210C_T288C_T300C_G303A- Final 3 nucleotides as a triplet



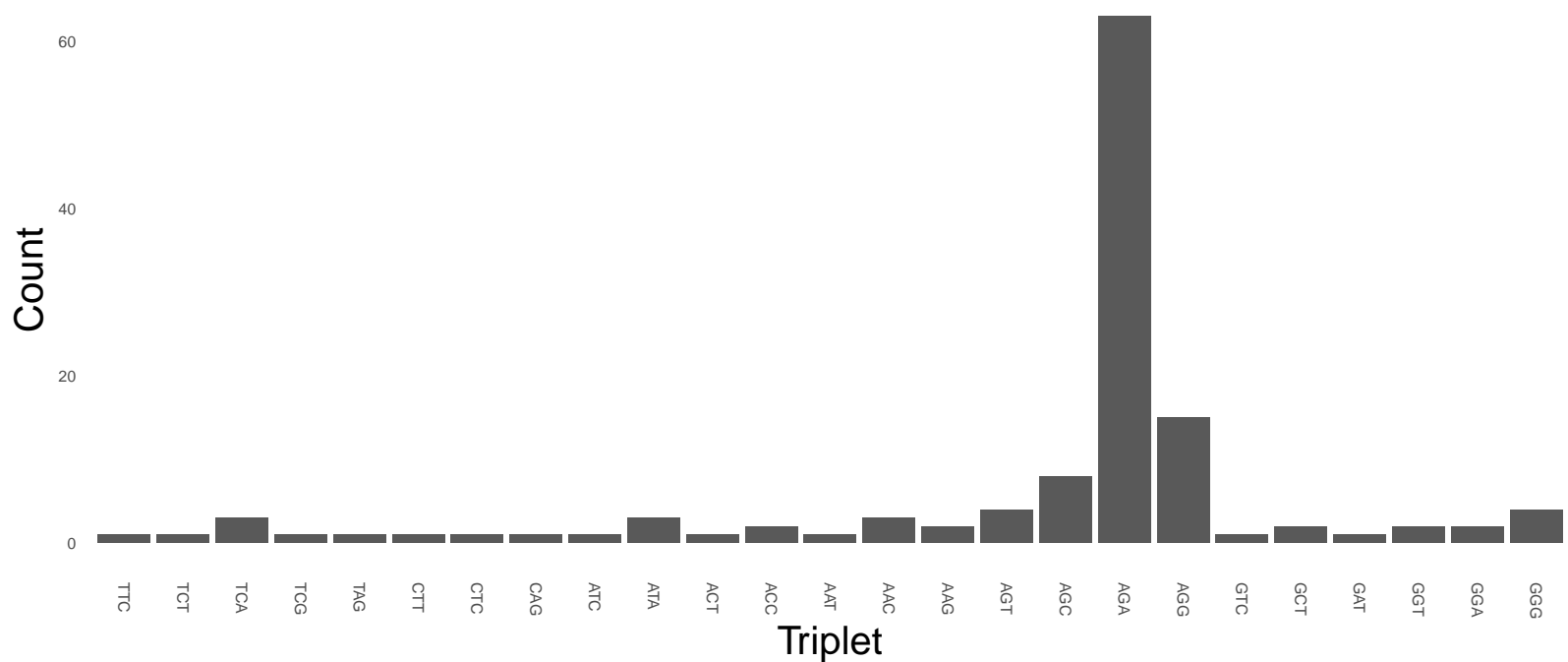
IGHV3-66*01_A223C- Final 3 nucleotides as a triplet



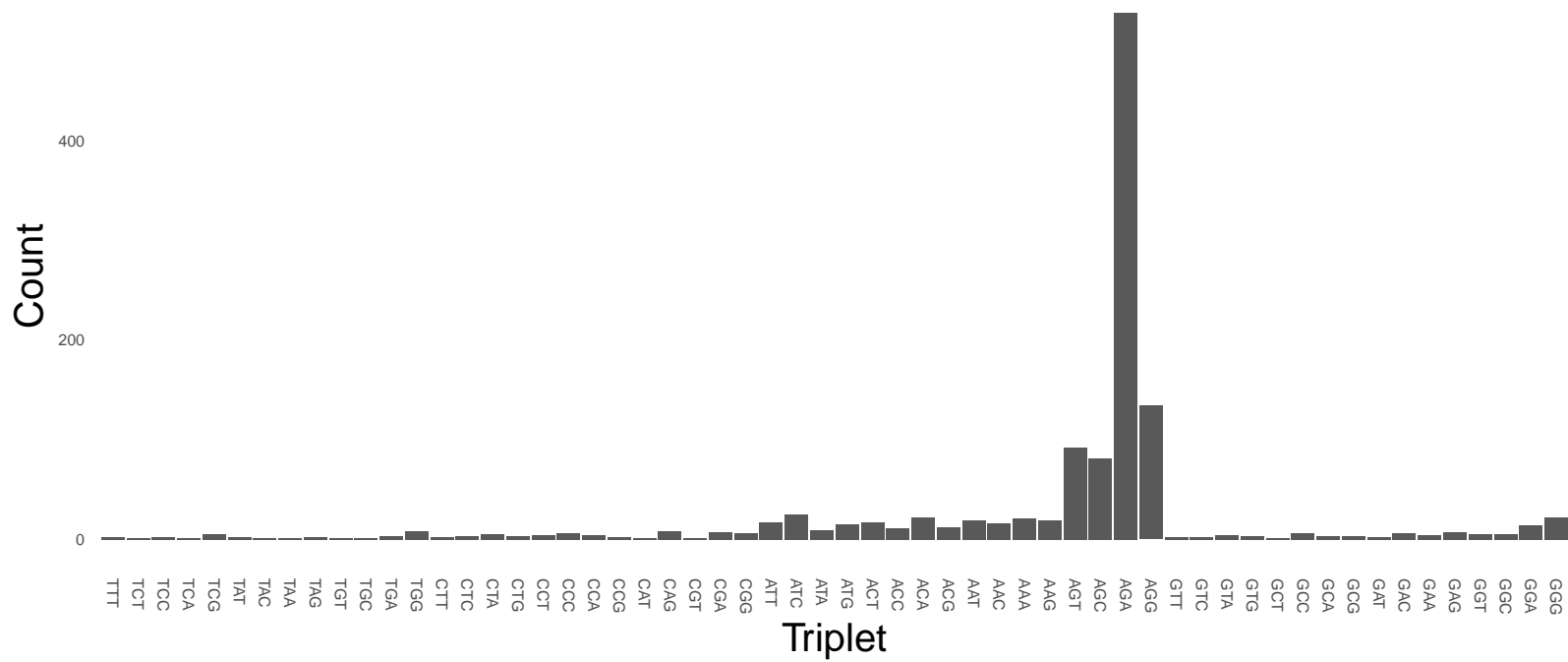
IGHV3–NL1*01_G49A_T201C_G267T_T288C_T300C– Final 3 nucleotides as a triplet



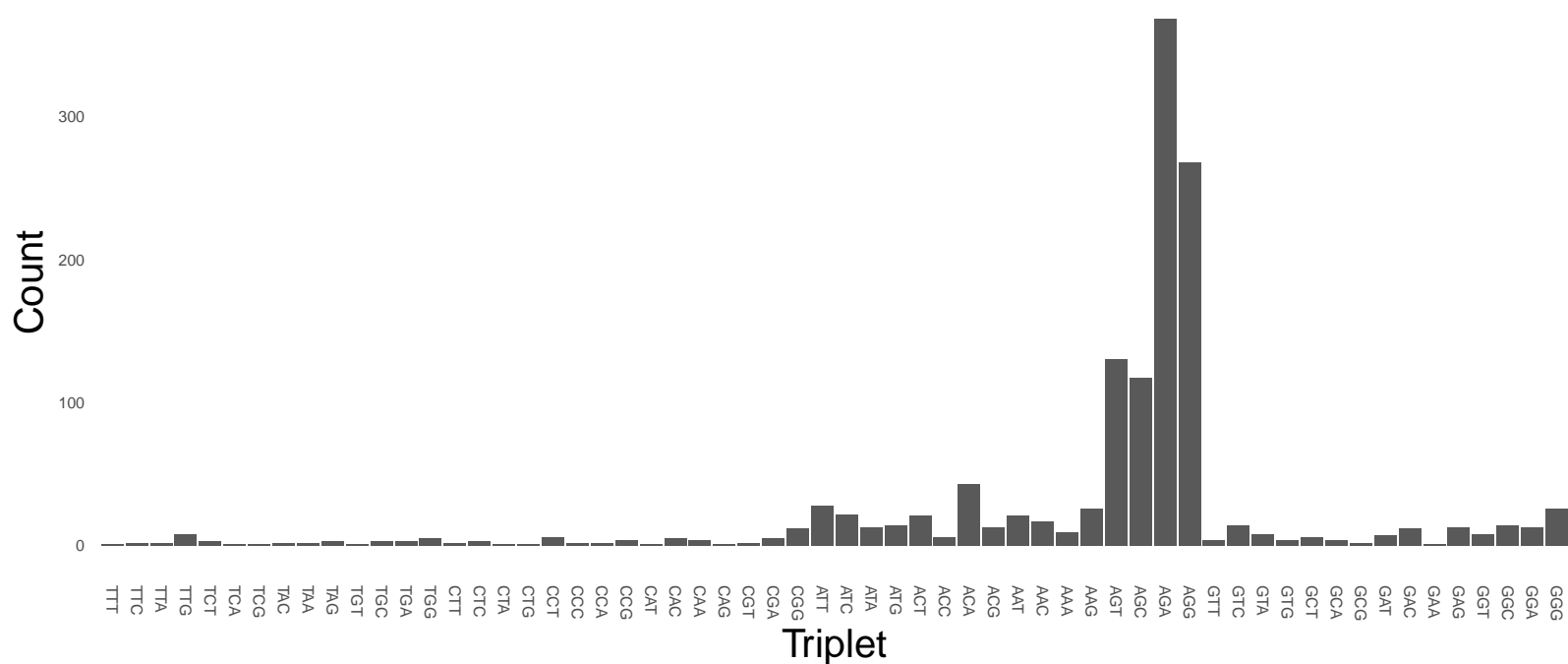
IGHV3–NL1*01_G49A_G75C_T201C_G267T_T288C_T300C– Final 3 nucleotides as a triplet



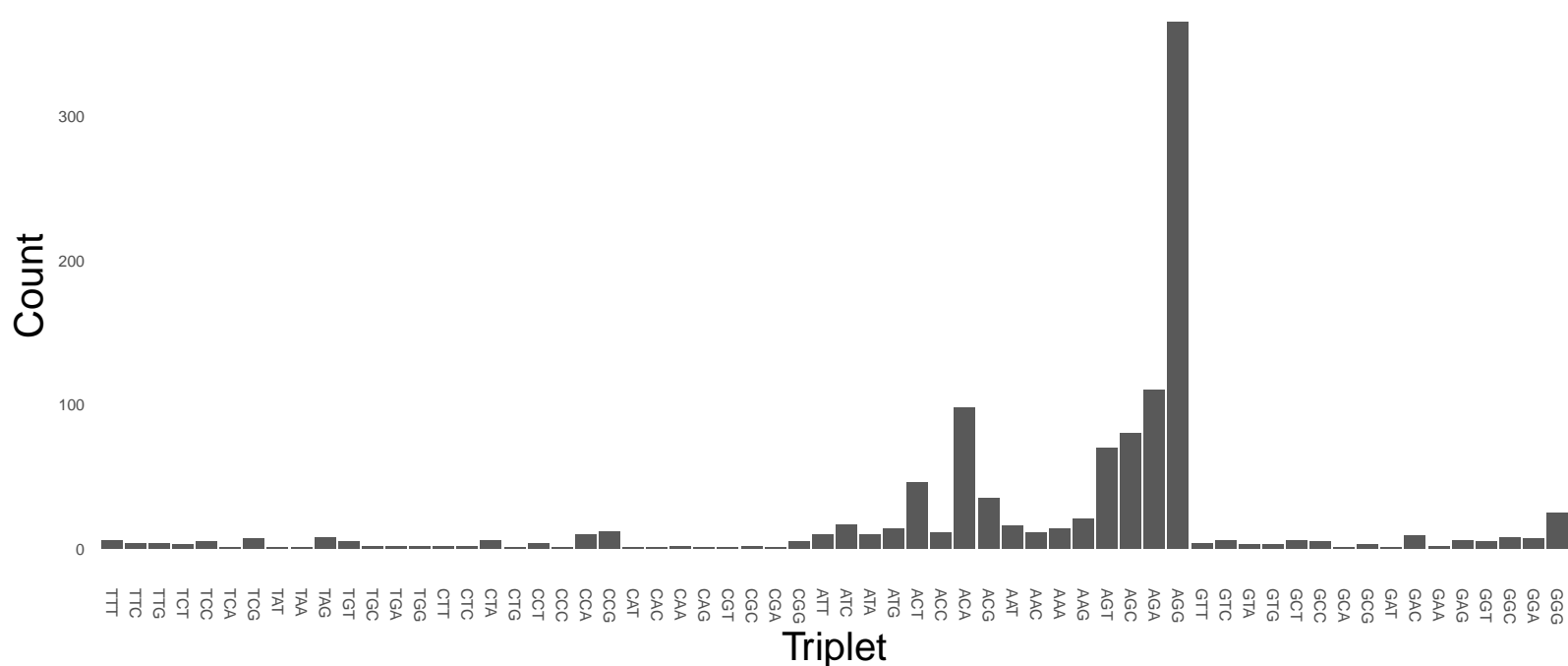
IGHV3–NL1*01_G49A_T164C_T169A_A170G_A172G_C174T_G175A_A187G_T201C_A225G_T288C_T300C– Final 3 nucleotides as a triplet



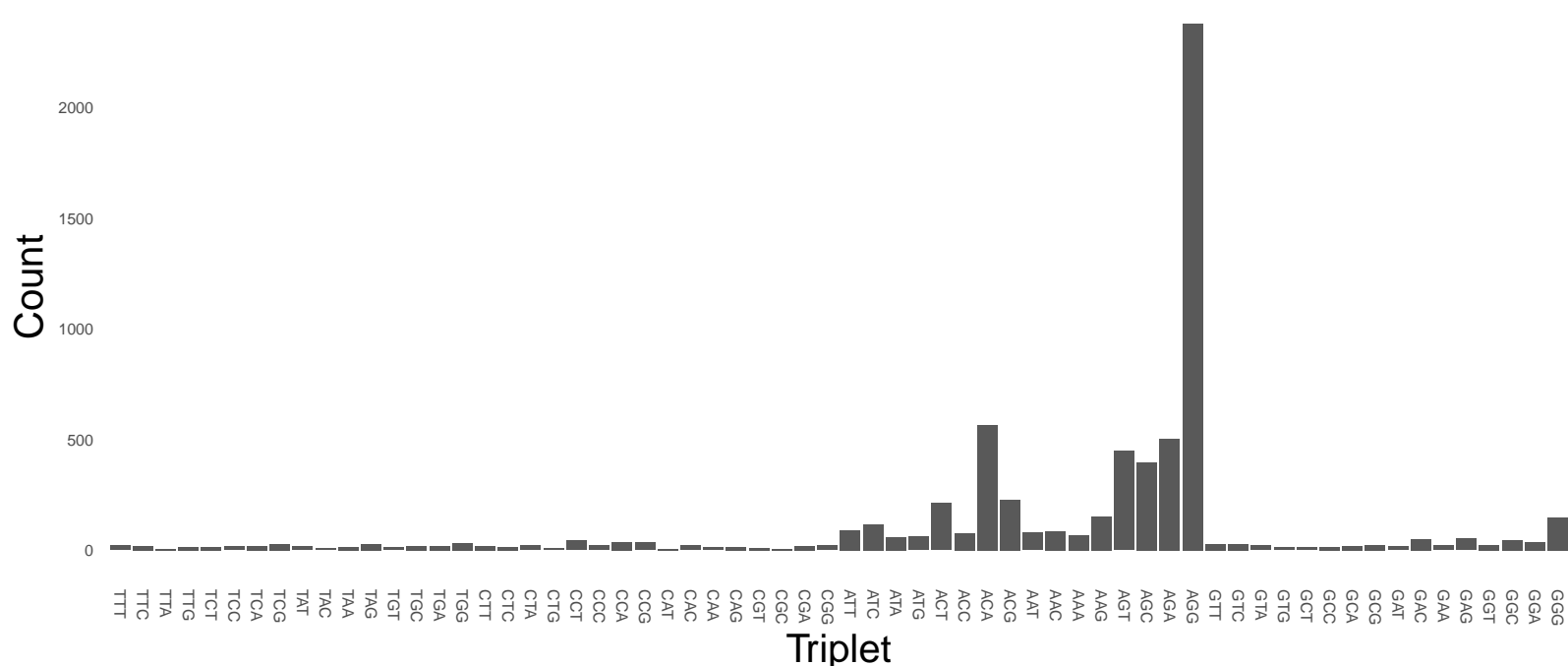
IGHV4-30-2*01_C315G- Final 3 nucleotides as a triplet



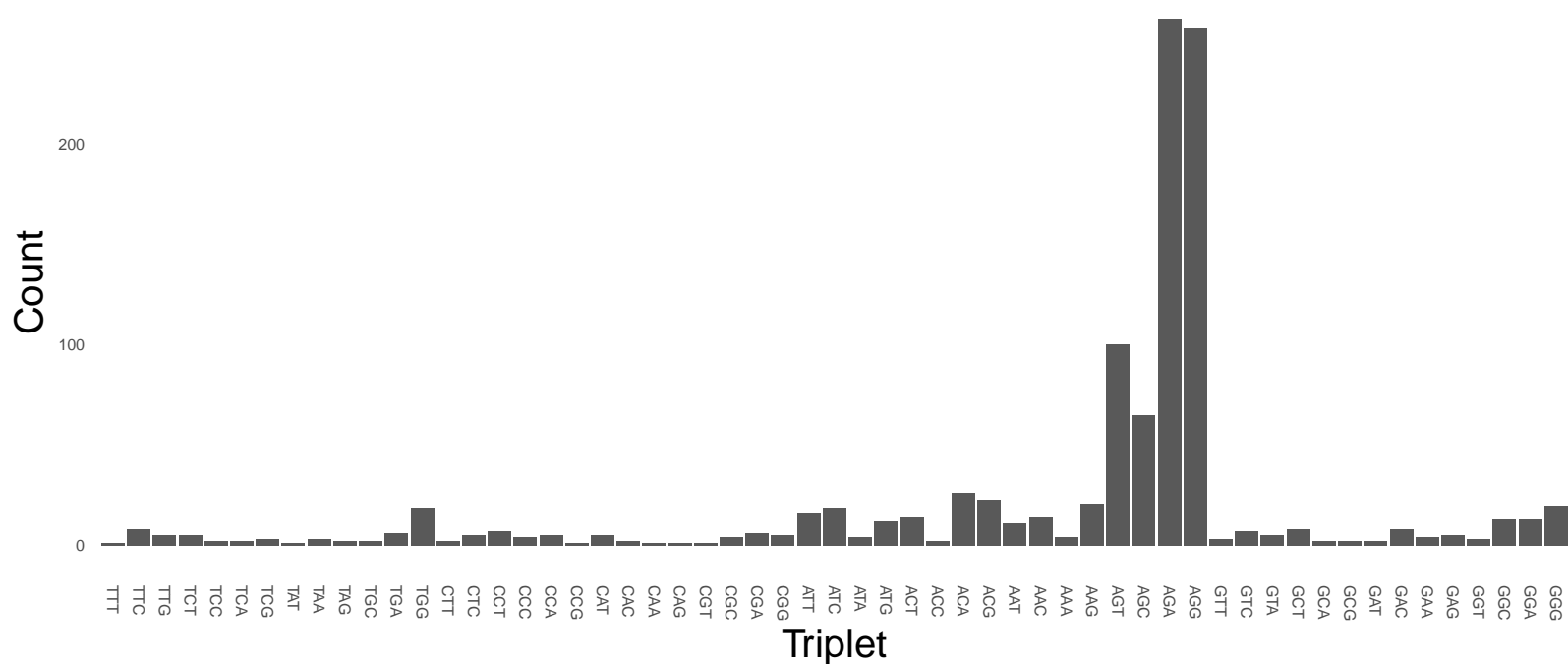
IGHV4-30-2*01_C300T_C315G- Final 3 nucleotides as a triplet



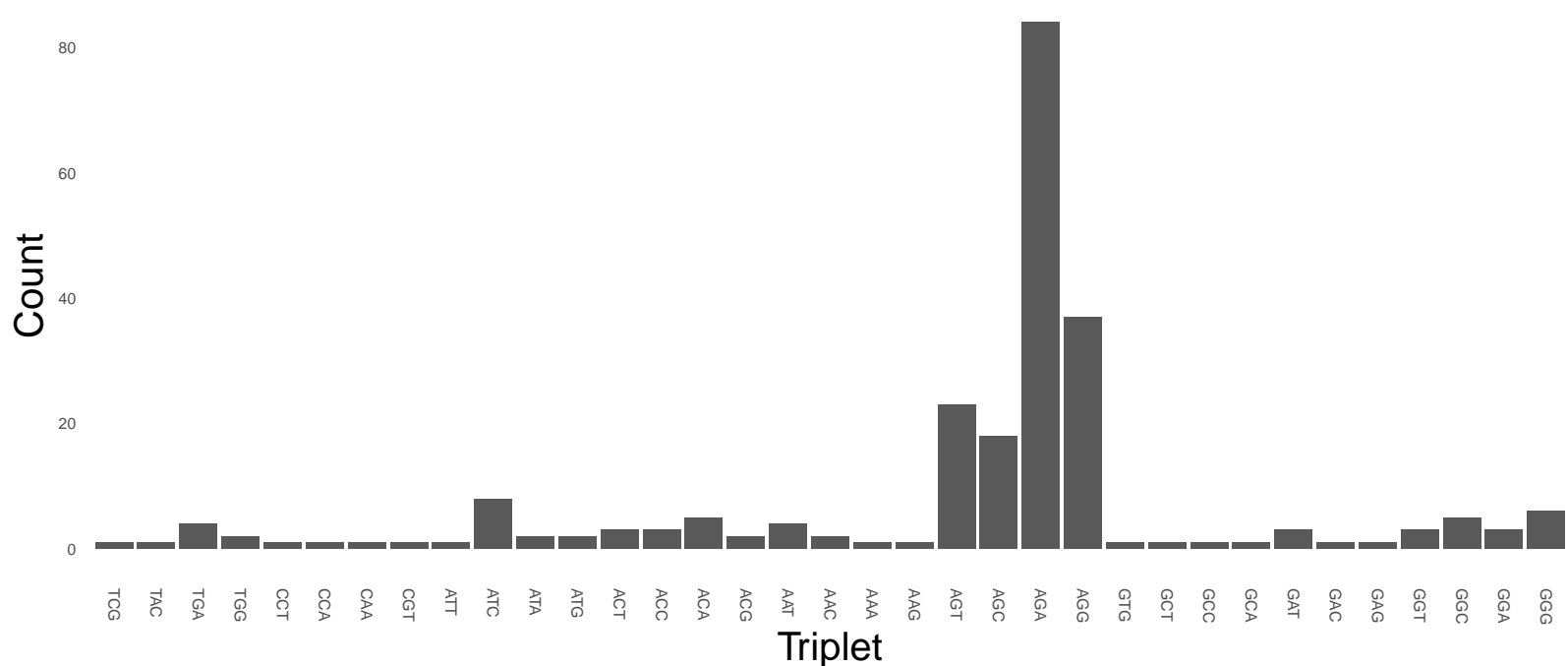
IGHV4-59*12_C300T- Final 3 nucleotides as a triplet



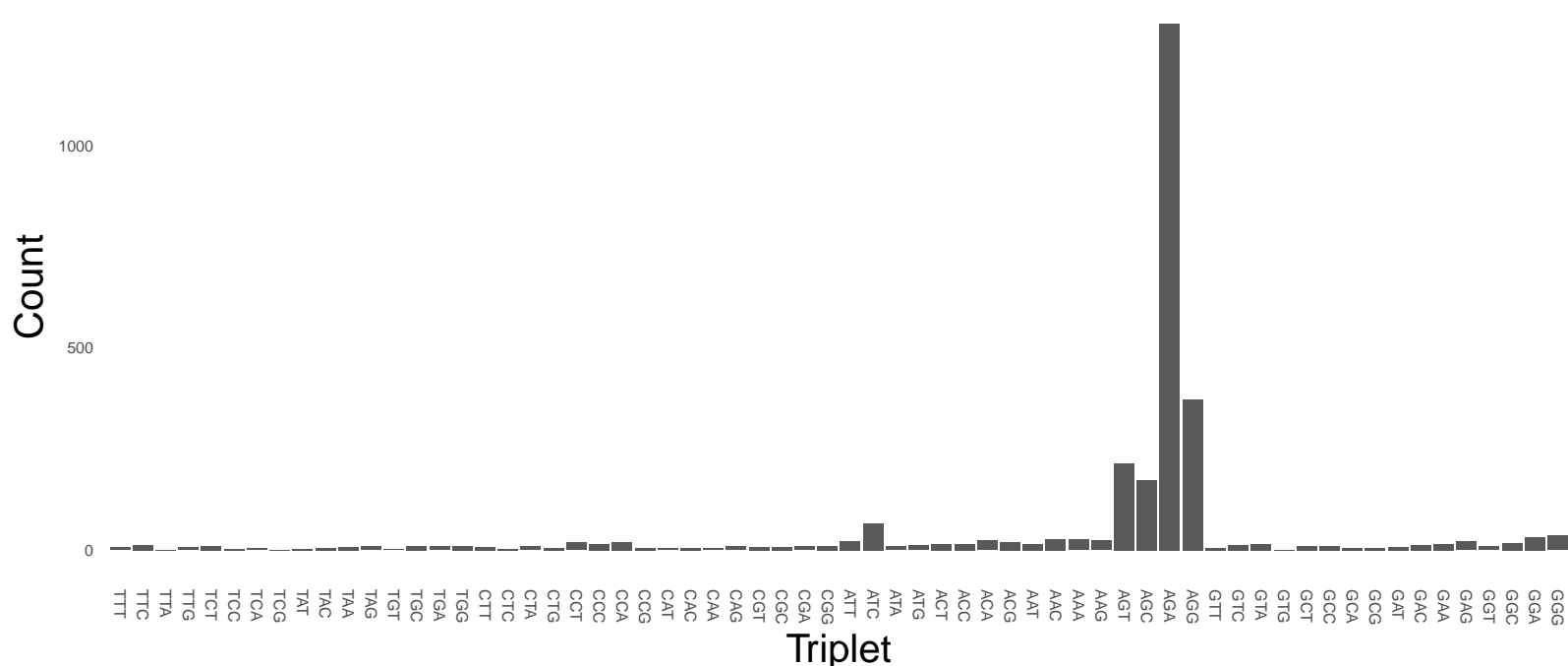
IGHV6–1*01_A315G– Final 3 nucleotides as a triplet



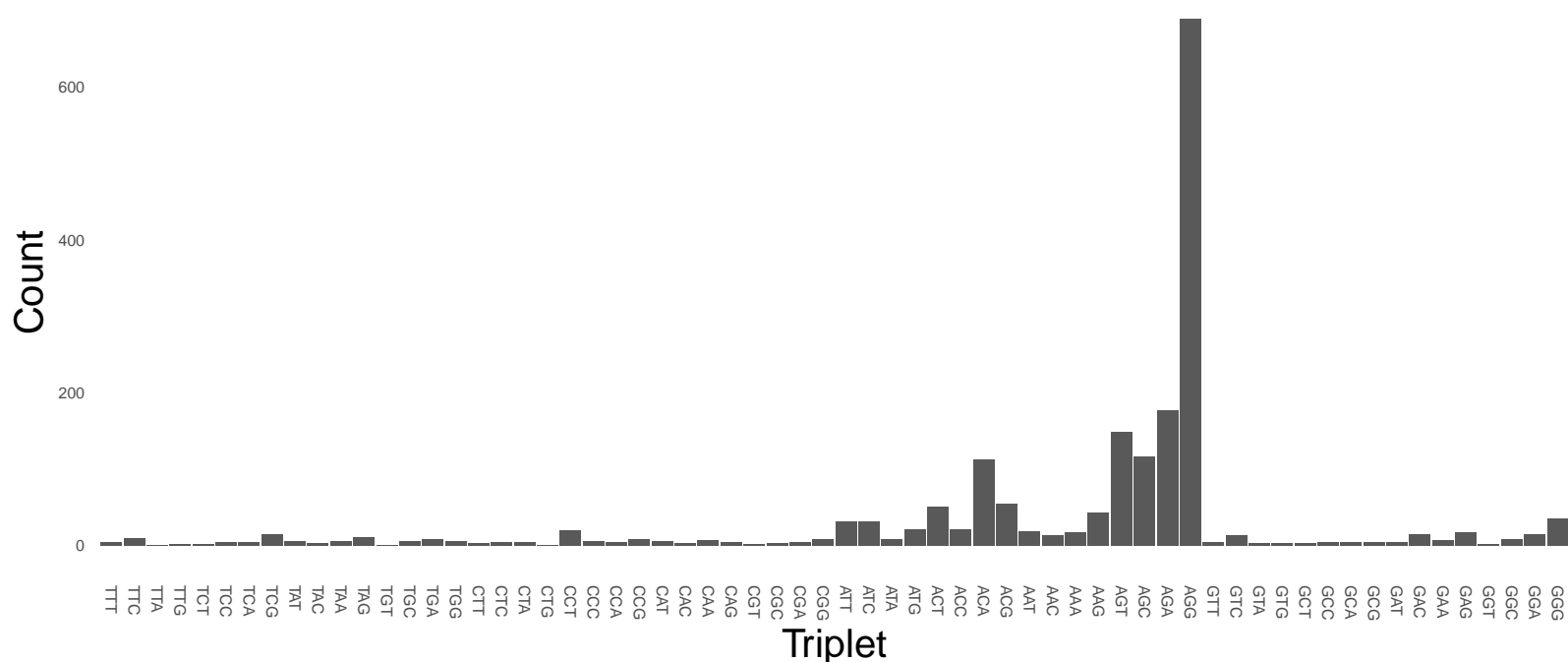
IGHV1–3*02_T296C_T300C– Final 3 nucleotides as a triplet



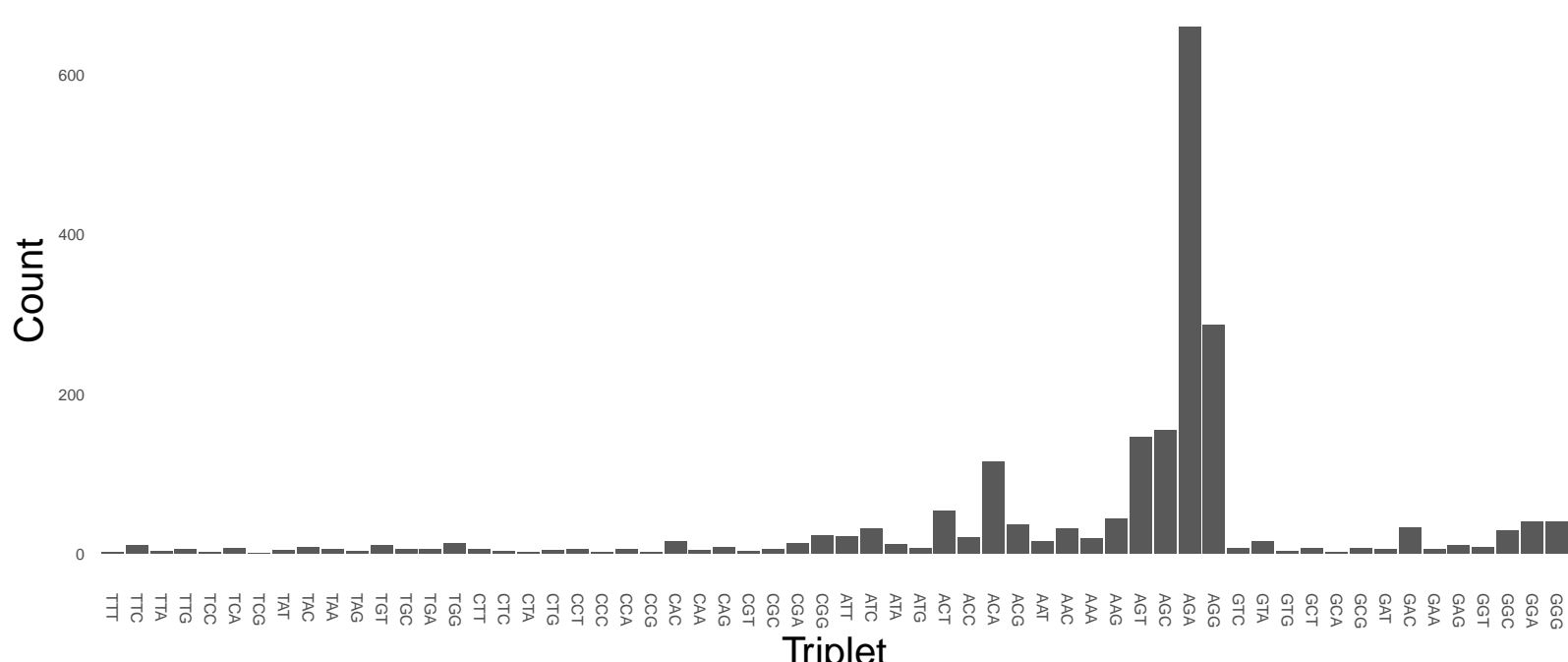
IGHV3–48*03_T303G– Final 3 nucleotides as a triplet



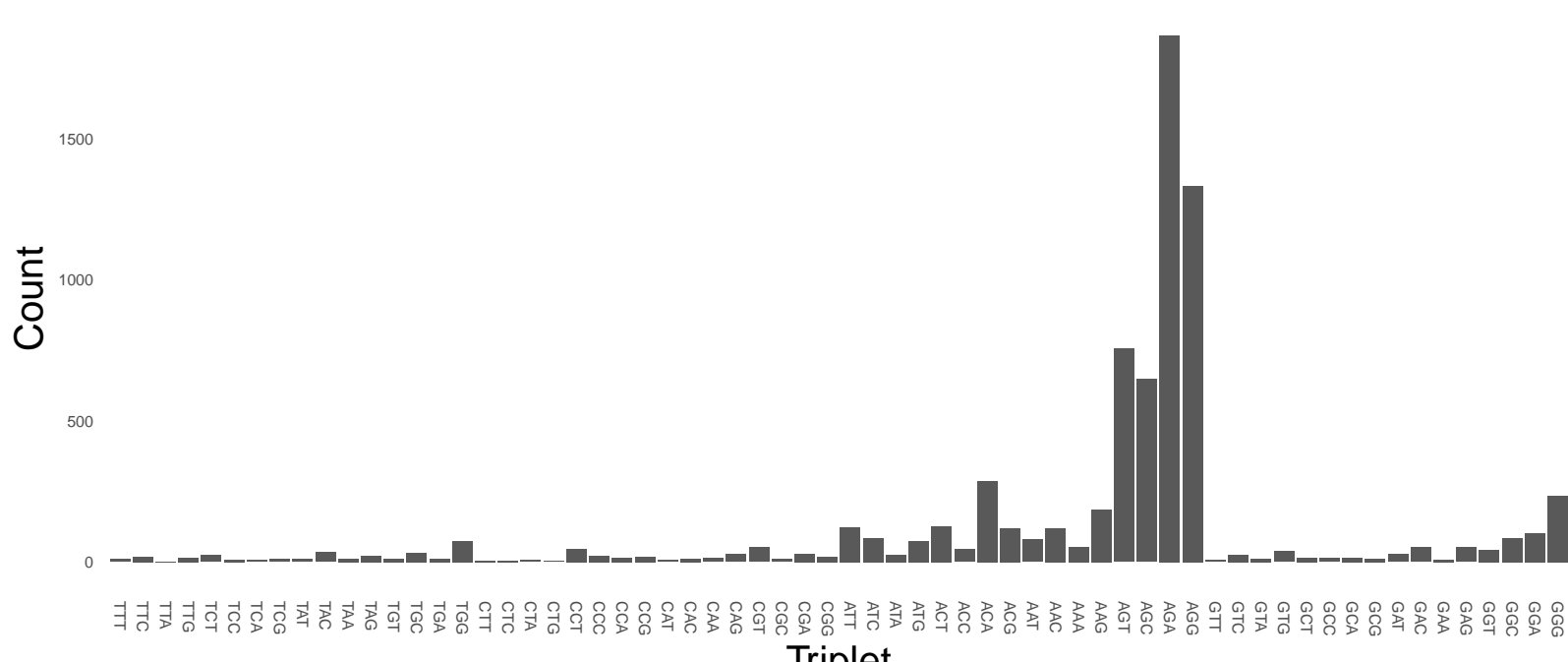
IGHV4-4*07_C300T- Final 3 nucleotides as a triplet



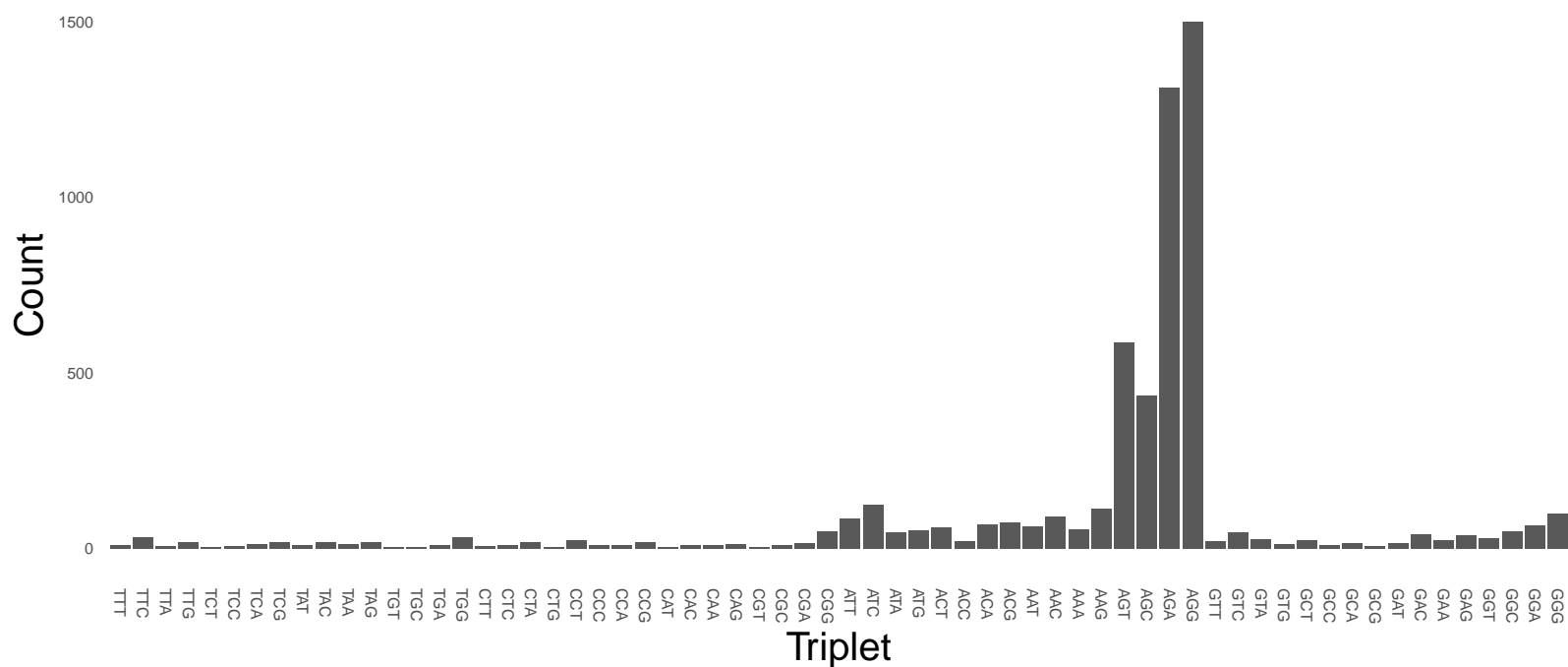
IGHV4-4*07_G234A_G291A- Final 3 nucleotides as a triplet



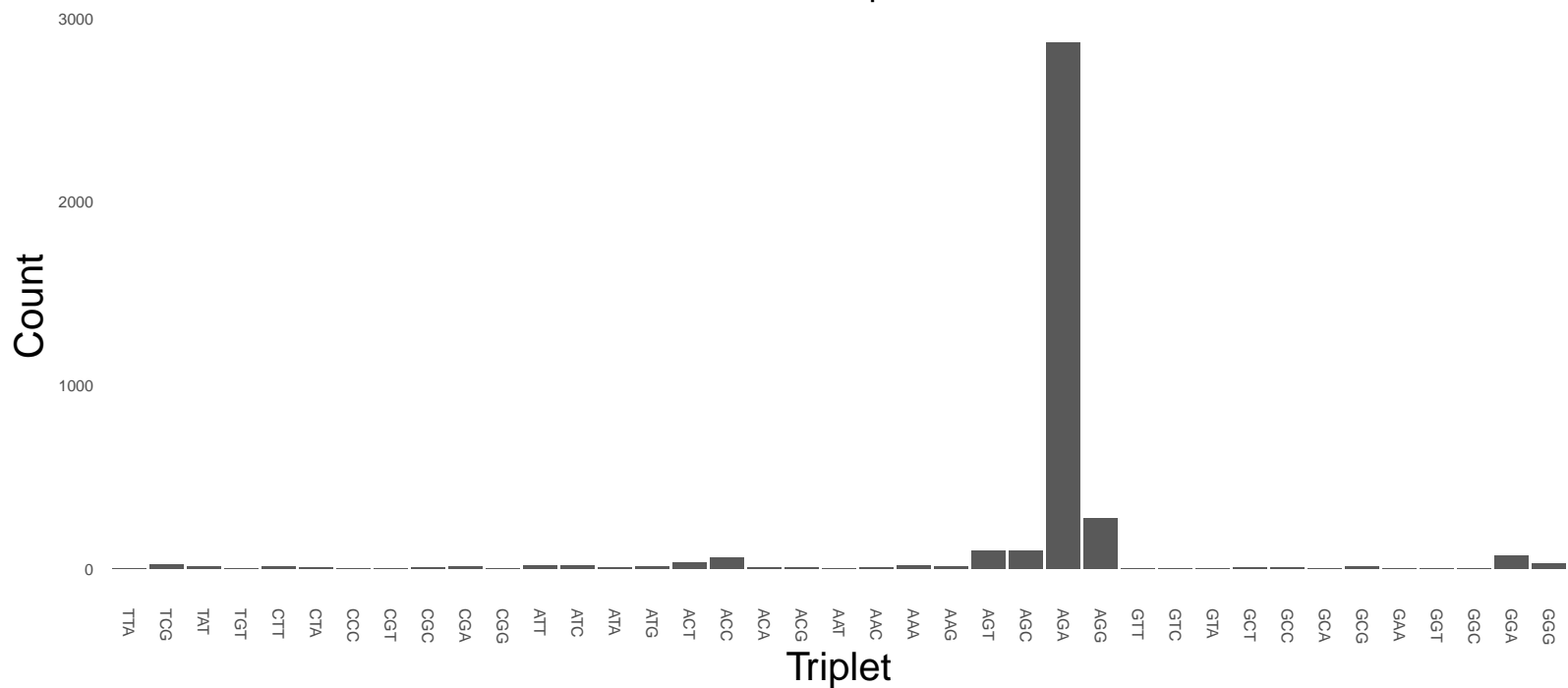
IGHV4-38-2*02_A70G- Final 3 nucleotides as a triplet



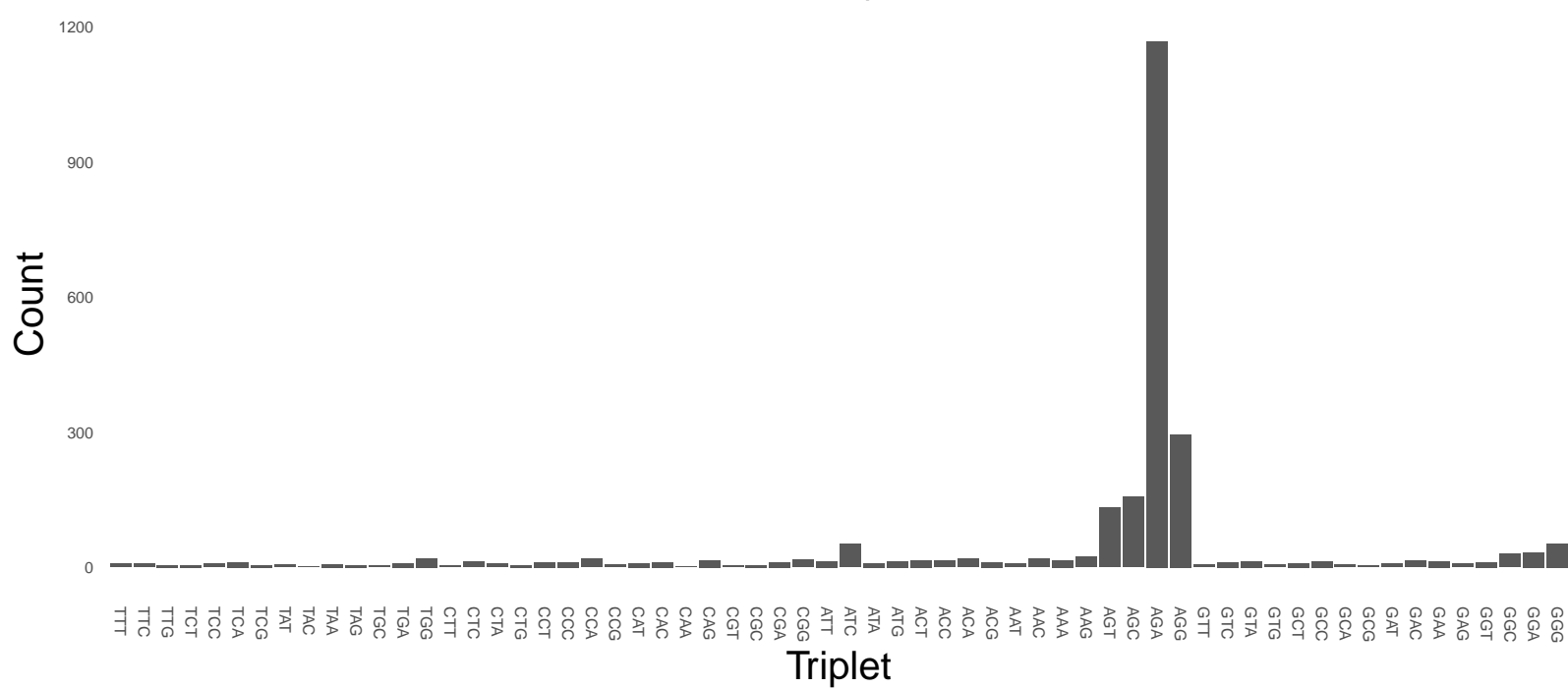
IGHV4-61*02_A291G- Final 3 nucleotides as a triplet



IGHV5-10-1*01_A3G- Final 3 nucleotides as a triplet

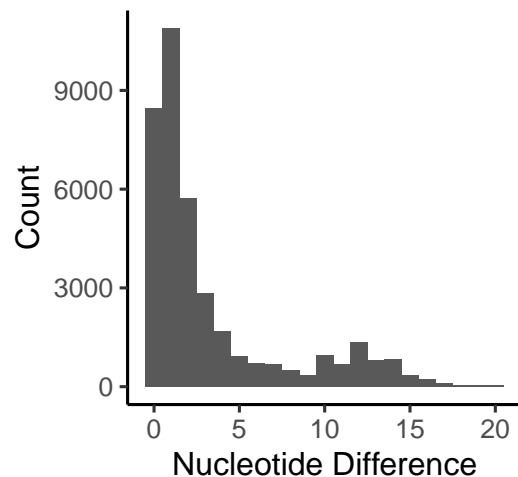


IGHV3-30*03_T288C- Final 3 nucleotides as a triplet



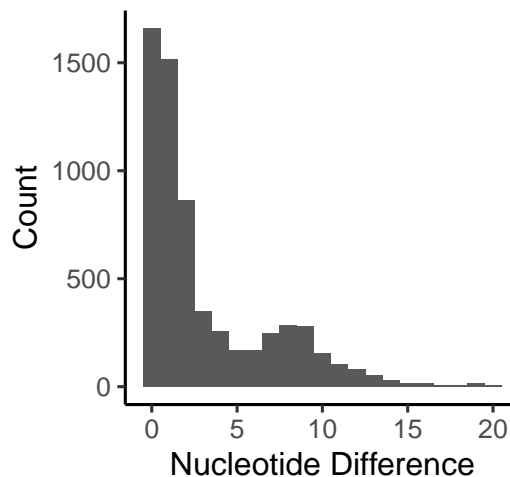
IGHV1-2*02

38635 sequences assigned
8473 (21.9%) exact matches, in which:
6813 unique CDR3
7 unique J



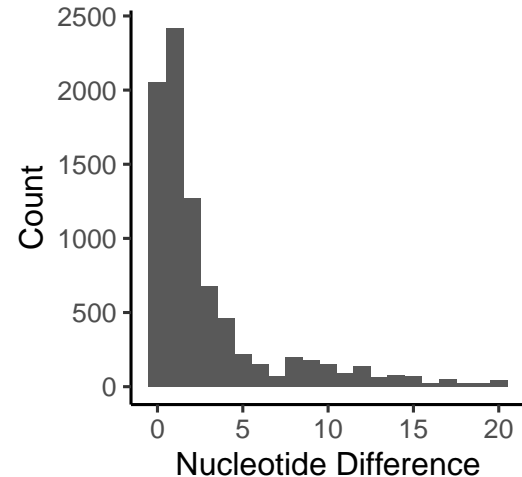
IGHV1-8*01

6320 sequences assigned
1659 (26.2%) exact matches, in which:
1447 unique CDR3
7 unique J



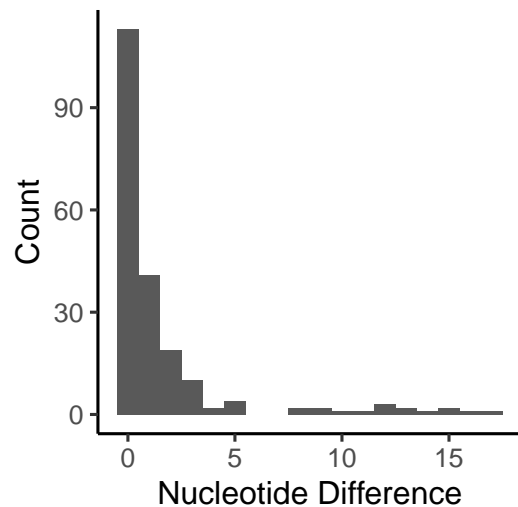
IGHV1-24*01

8865 sequences assigned
2051 (23.1%) exact matches, in which:
1715 unique CDR3
7 unique J



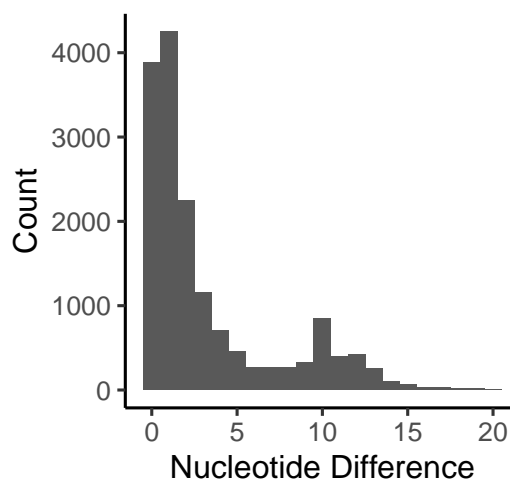
IGHV1-3*02

207 sequences assigned
113 (54.6%) exact matches, in which:
112 unique CDR3
6 unique J



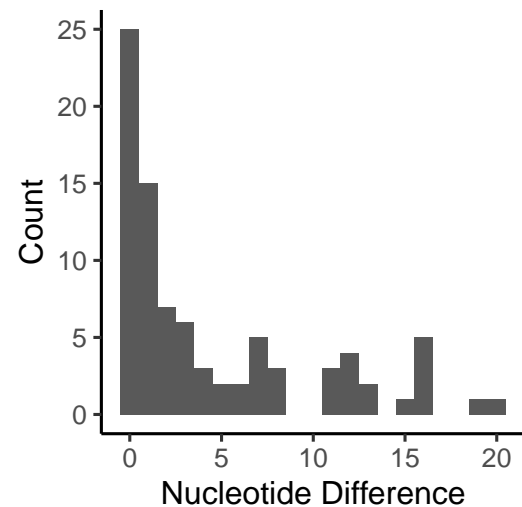
IGHV1-18*01

16129 sequences assigned
3886 (24.1%) exact matches, in which:
3322 unique CDR3
7 unique J



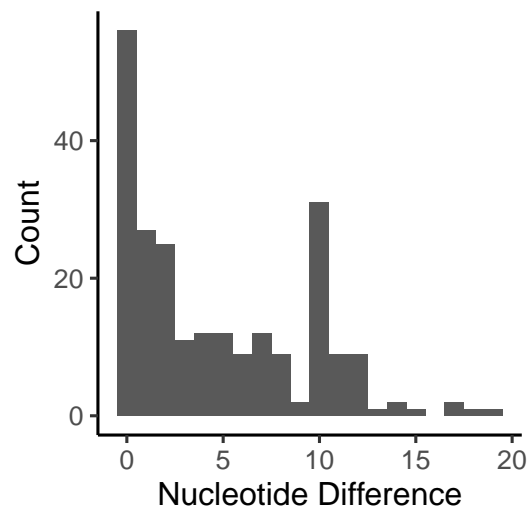
IGHV1-45*02

86 sequences assigned
25 (29.1%) exact matches, in which:
24 unique CDR3
6 unique J



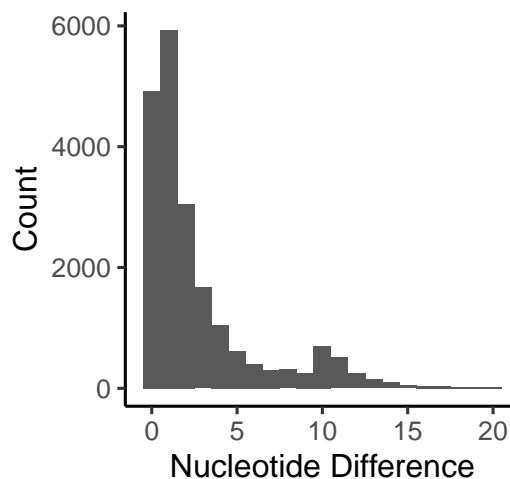
IGHV1-3*02_T296C_T300C

234 sequences assigned
56 (23.9%) exact matches, in which:
56 unique CDR3
6 unique J



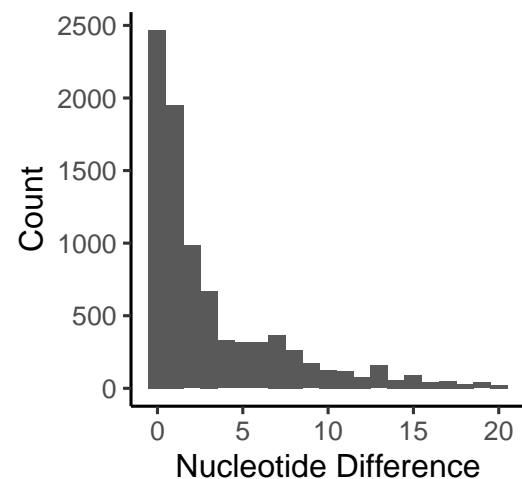
IGHV1-18*04

20617 sequences assigned
4921 (23.9%) exact matches, in which:
4178 unique CDR3
7 unique J



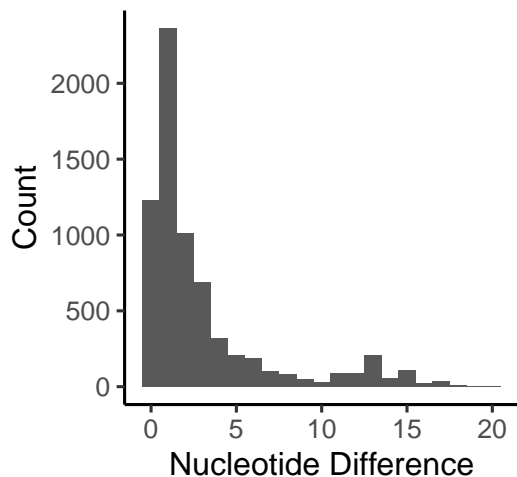
IGHV1-46*01

8778 sequences assigned
2468 (28.1%) exact matches, in which:
2249 unique CDR3
7 unique J



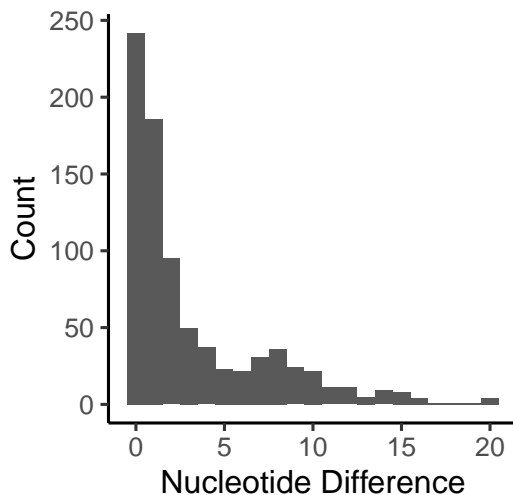
IGHV1-46*03

6958 sequences assigned
1230 (17.7%) exact matches, in which:
900 unique CDR3
7 unique J



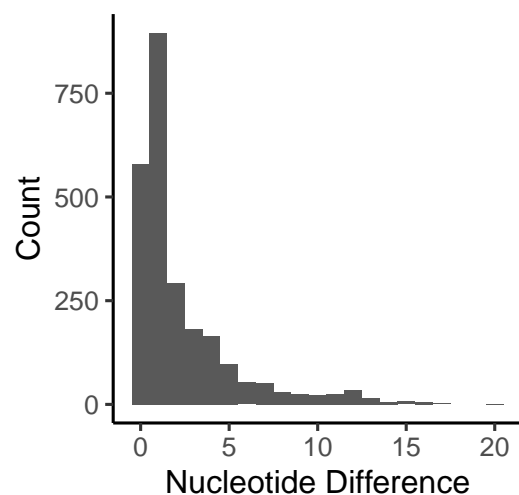
IGHV1-69-2*01

861 sequences assigned
242 (28.1%) exact matches, in which:
206 unique CDR3
7 unique J



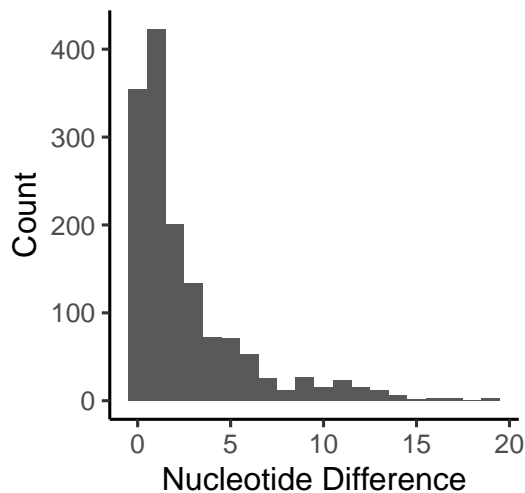
IGHV2-5*01

2527 sequences assigned
579 (22.9%) exact matches, in which:
476 unique CDR3
7 unique J



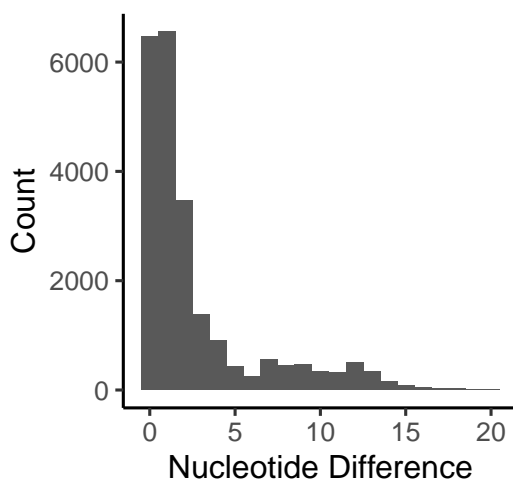
IGHV1-58*01

1470 sequences assigned
354 (24.1%) exact matches, in which:
274 unique CDR3
7 unique J



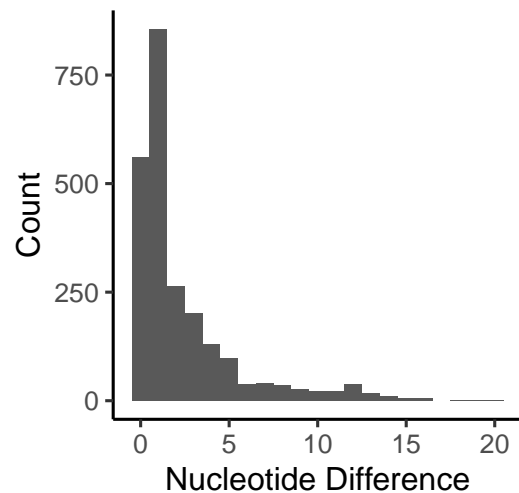
IGHV1-69*06

23082 sequences assigned
6467 (28%) exact matches, in which:
5332 unique CDR3
7 unique J



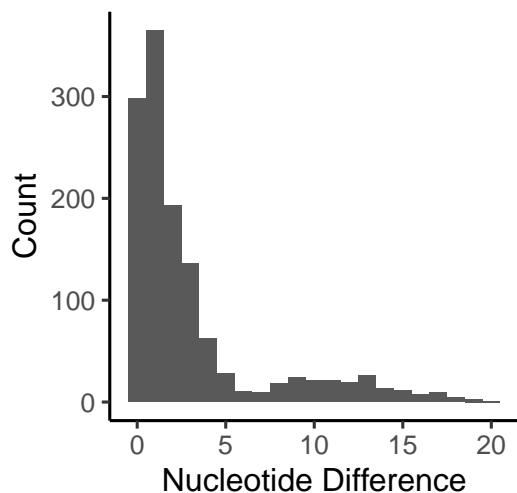
IGHV2-5*02

2427 sequences assigned
560 (23.1%) exact matches, in which:
452 unique CDR3
7 unique J



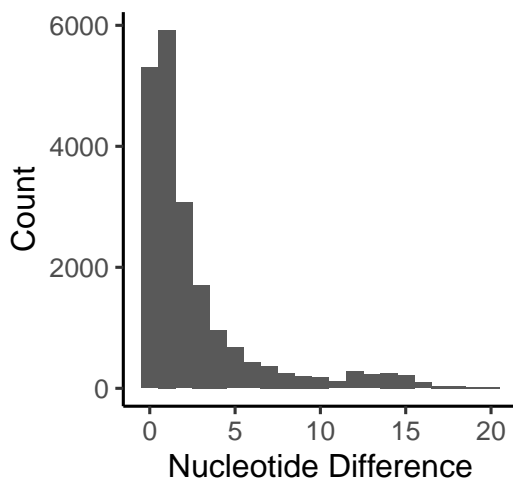
IGHV1-58*02

1295 sequences assigned
298 (23%) exact matches, in which:
236 unique CDR3
7 unique J



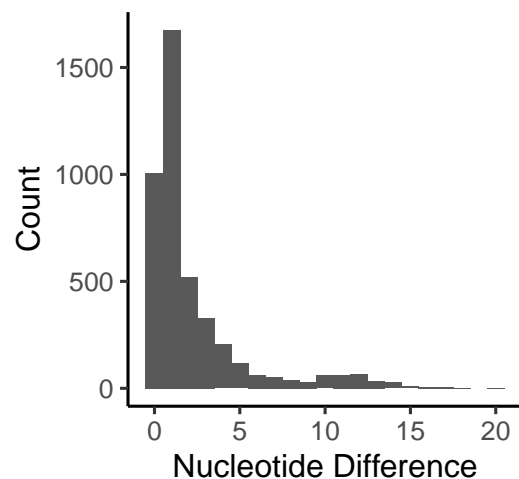
IGHV1-69*08_C191T

20625 sequences assigned
5305 (25.7%) exact matches, in which:
4434 unique CDR3
7 unique J



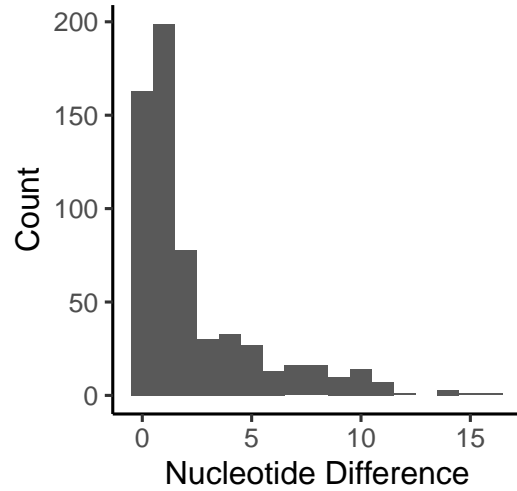
IGHV2-26*01

4570 sequences assigned
1006 (22%) exact matches, in which:
820 unique CDR3
7 unique J



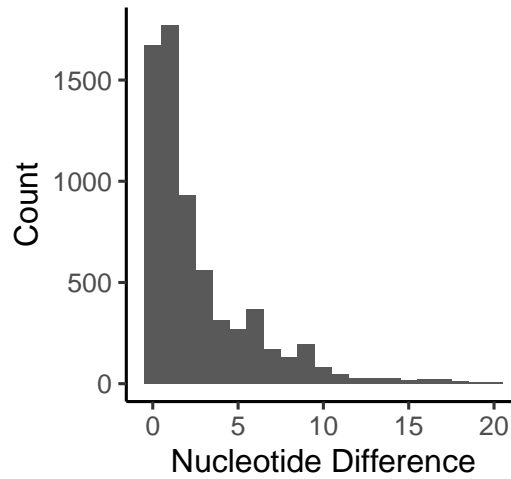
IGHV2-70*01

644 sequences assigned
163 (25.3%) exact matches, in which:
128 unique CDR3
5 unique J



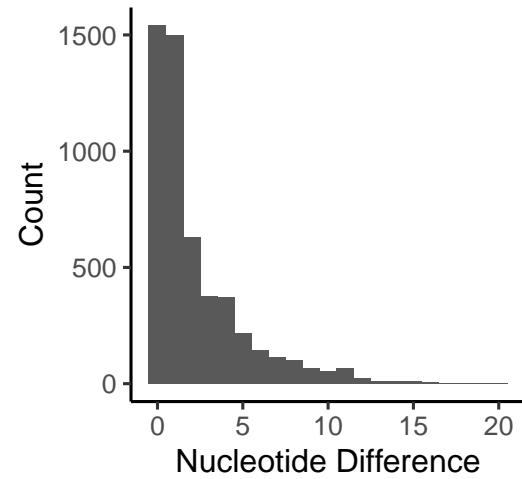
IGHV3-7*03

6762 sequences assigned
1670 (24.7%) exact matches, in which:
1418 unique CDR3
7 unique J



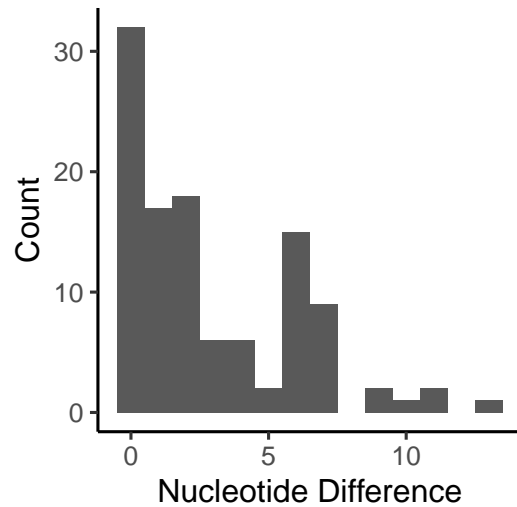
IGHV3-11*01

5379 sequences assigned
1541 (28.6%) exact matches, in which:
1230 unique CDR3
7 unique J



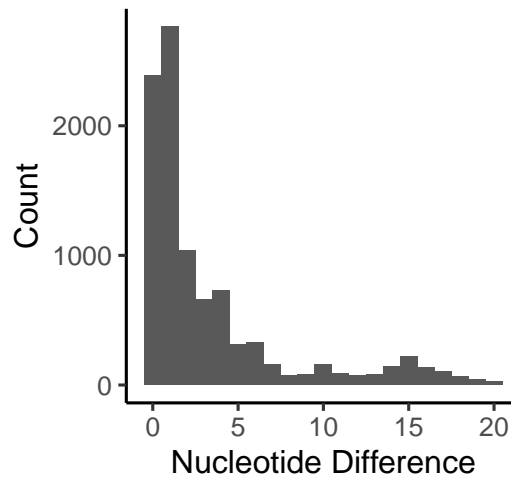
IGHV2-70*01_G303A

112 sequences assigned
32 (28.6%) exact matches, in which:
32 unique CDR3
6 unique J



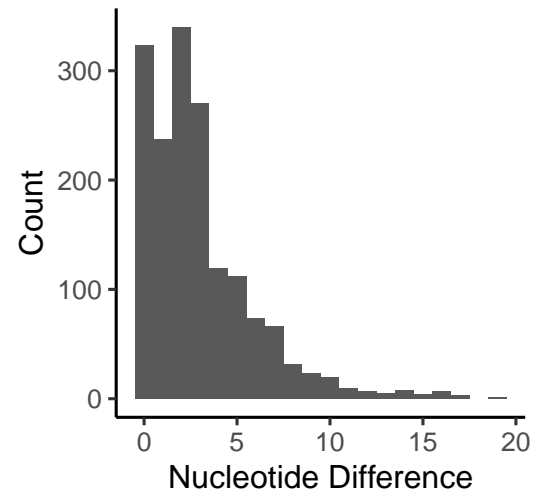
IGHV3-9*01

9824 sequences assigned
2384 (24.3%) exact matches, in which:
1862 unique CDR3
7 unique J



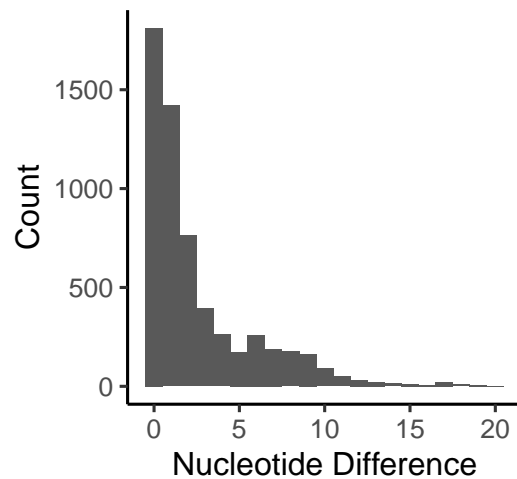
IGHV3-11*04

1799 sequences assigned
323 (18%) exact matches, in which:
322 unique CDR3
7 unique J



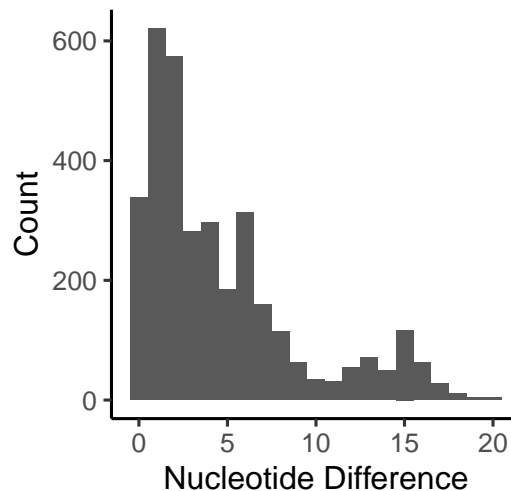
IGHV3-7*01

5960 sequences assigned
1812 (30.4%) exact matches, in which:
1589 unique CDR3
7 unique J



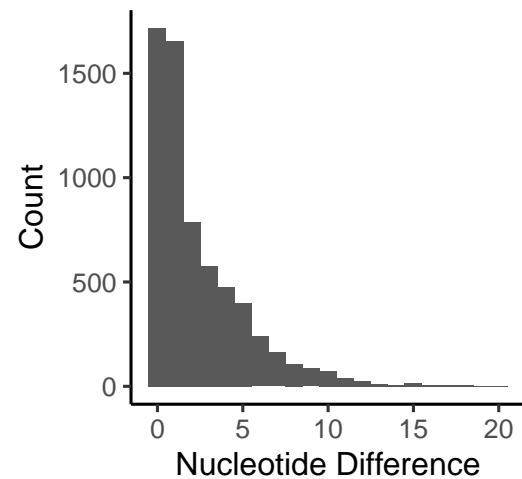
IGHV3-9*01_T279C_T28

3434 sequences assigned
338 (9.8%) exact matches, in which:
333 unique CDR3
7 unique J



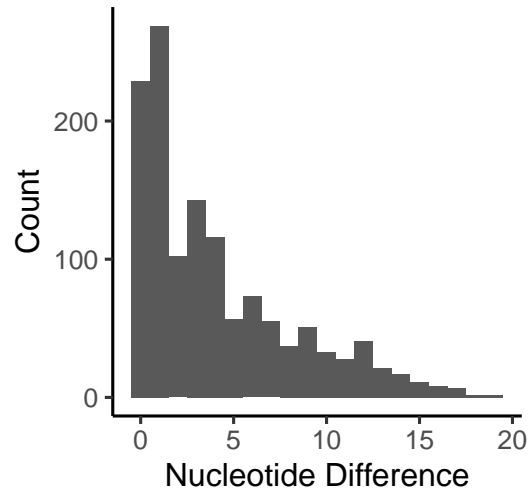
IGHV3-11*06

6557 sequences assigned
1717 (26.2%) exact matches, in which:
1396 unique CDR3
7 unique J



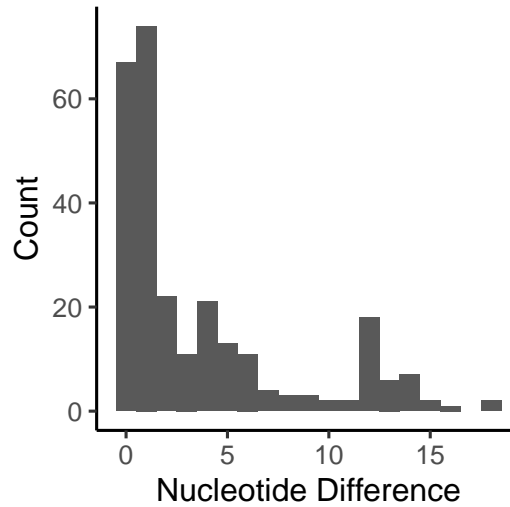
IGHV3-13*01

1312 sequences assigned
229 (17.5%) exact matches, in which:
173 unique CDR3
7 unique J



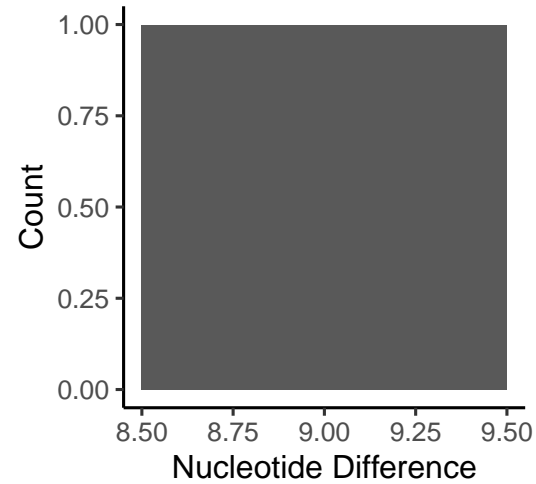
IGHV3-20*01

273 sequences assigned
67 (24.5%) exact matches, in which:
54 unique CDR3
6 unique J



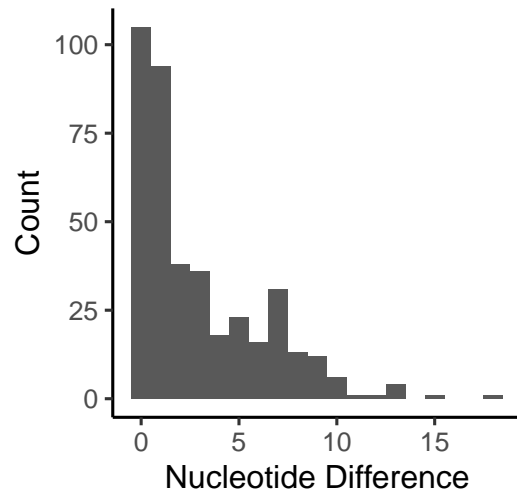
IGHV3-22*02

1 sequences assigned
No exact matches.



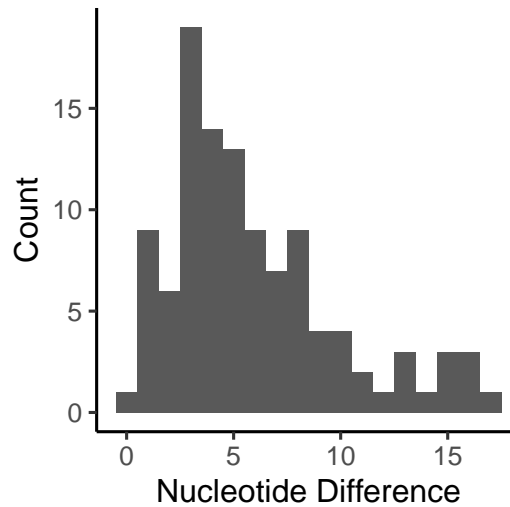
IGHV3-13*05_T78C

400 sequences assigned
105 (26.2%) exact matches, in which:
89 unique CDR3
7 unique J



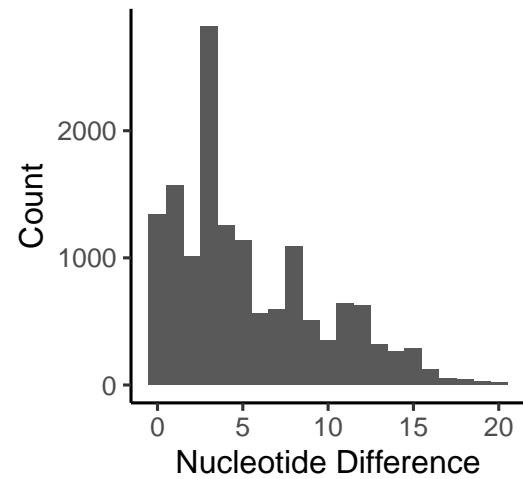
IGHV3-20*04

110 sequences assigned
1 (0.9%) exact matches, in which:
1 unique CDR3
1 unique J



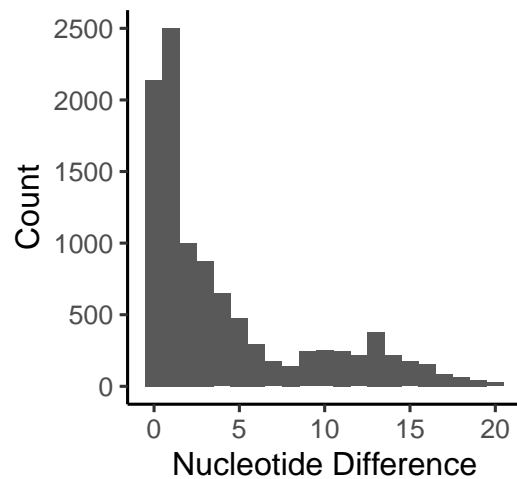
IGHV3-23*04

15061 sequences assigned
1342 (8.9%) exact matches, in which:
1201 unique CDR3
7 unique J



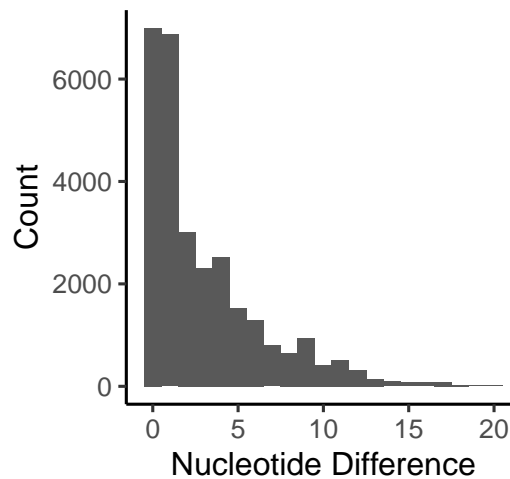
IGHV3-15*01

10637 sequences assigned
2141 (20.1%) exact matches, in which:
1675 unique CDR3
7 unique J



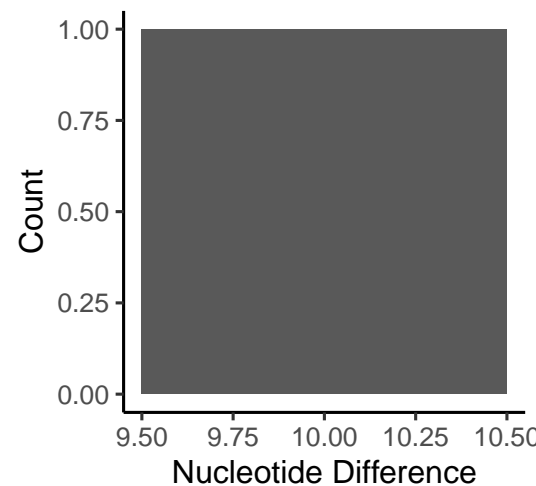
IGHV3-21*01

29047 sequences assigned
6996 (24.1%) exact matches, in which:
5692 unique CDR3
7 unique J



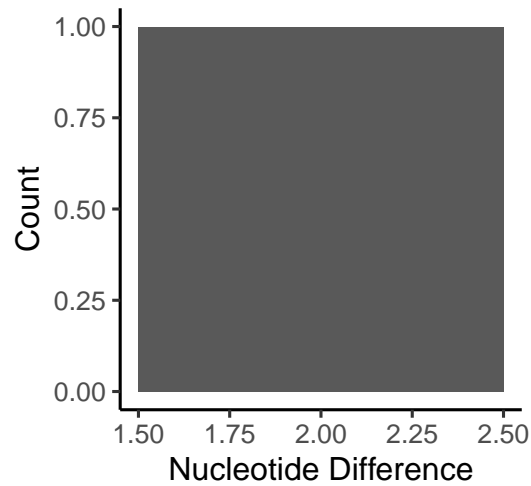
IGHV3-25*04

1 sequences assigned
No exact matches.



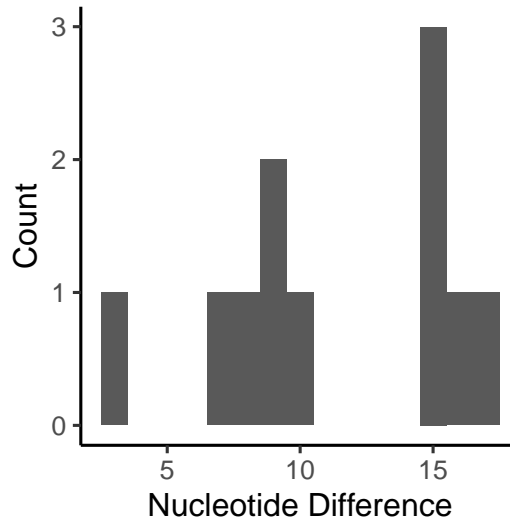
IGHV3-25*05

1 sequences assigned
No exact matches.



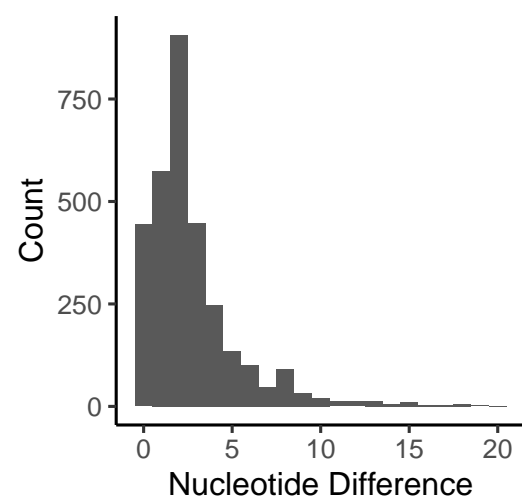
IGHV3-30-3*03

13 sequences assigned
No exact matches.



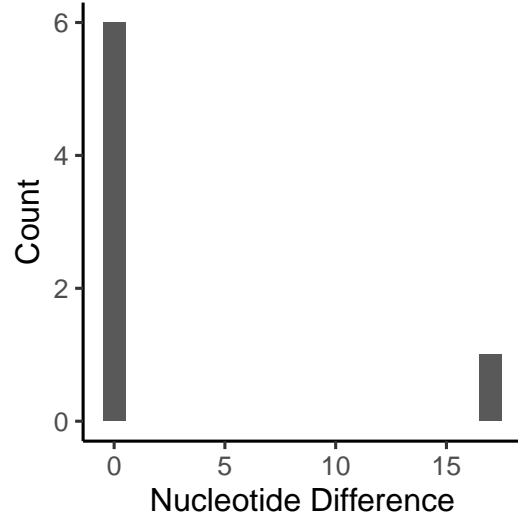
IGHV3-33*06

3131 sequences assigned
444 (14.2%) exact matches, in which:
438 unique CDR3
7 unique J



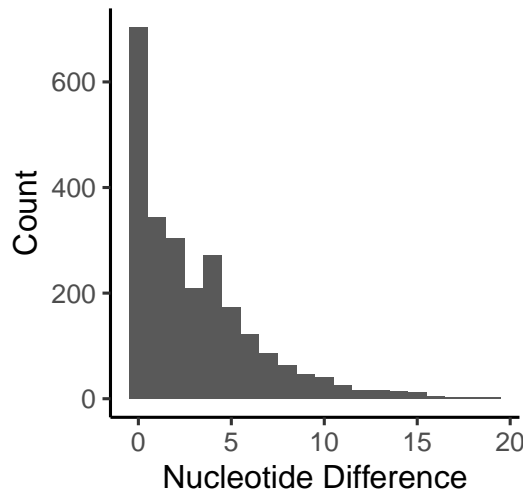
IGHV3-30-3*01

7 sequences assigned
6 (85.7%) exact matches, in which:
6 unique CDR3
3 unique J



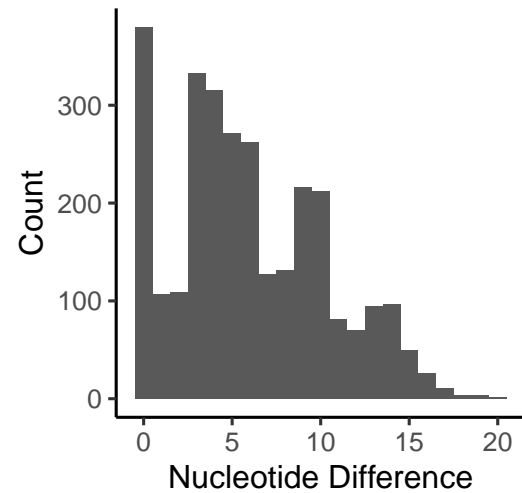
IGHV3-30*03_T288C

2475 sequences assigned
704 (28.4%) exact matches, in which:
682 unique CDR3
7 unique J



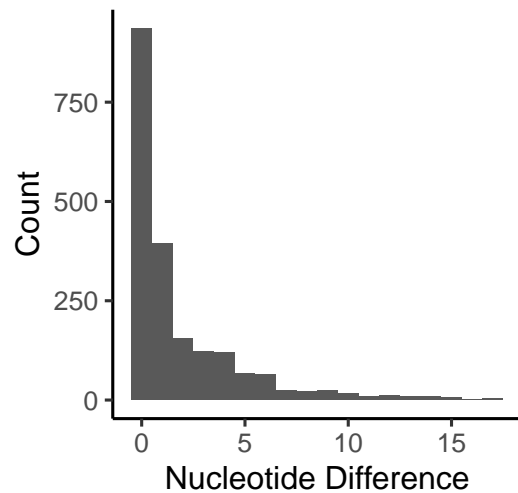
IGHV3-33*08

2959 sequences assigned
380 (12.8%) exact matches, in which:
367 unique CDR3
7 unique J



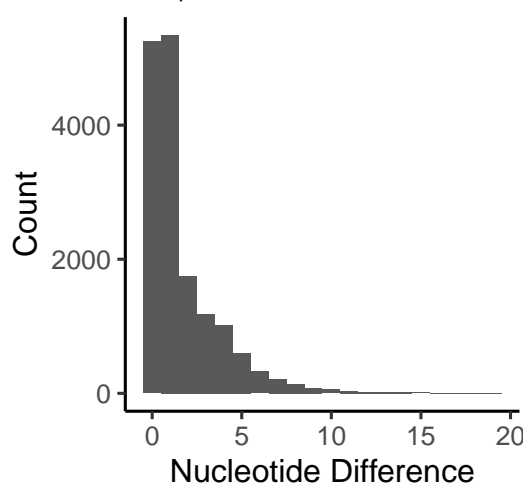
IGHV3-30*03

2006 sequences assigned
936 (46.7%) exact matches, in which:
917 unique CDR3
7 unique J



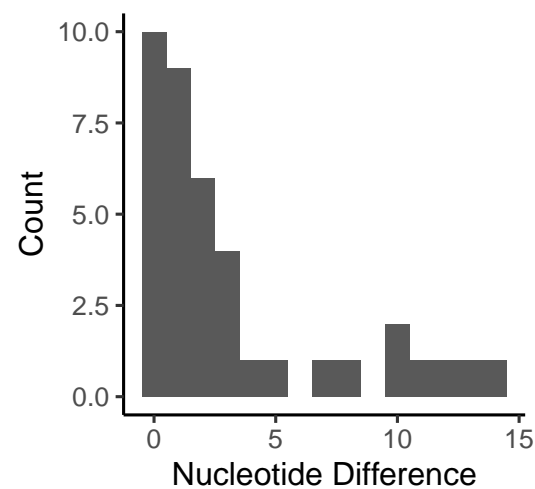
IGHV3-33*01

16092 sequences assigned
5250 (32.6%) exact matches, in which:
4053 unique CDR3
7 unique J



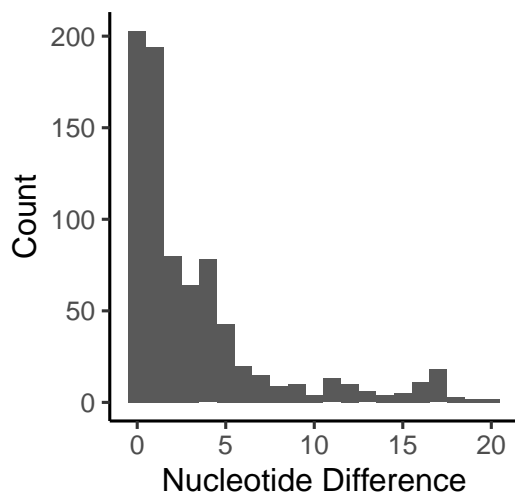
IGHV3-35*01

41 sequences assigned
10 (24.4%) exact matches, in which:
8 unique CDR3
5 unique J



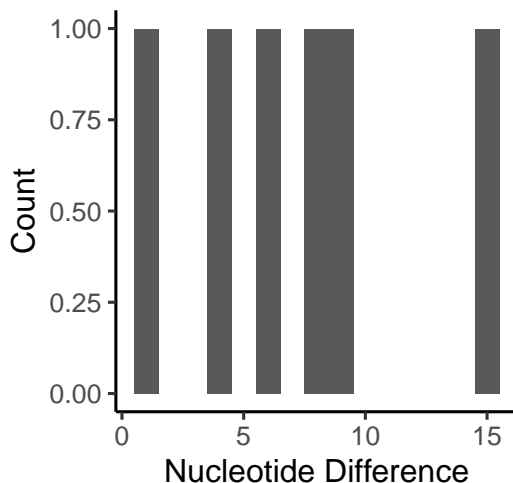
IGHV3-43*01

803 sequences assigned
203 (25.3%) exact matches, in which:
163 unique CDR3
7 unique J



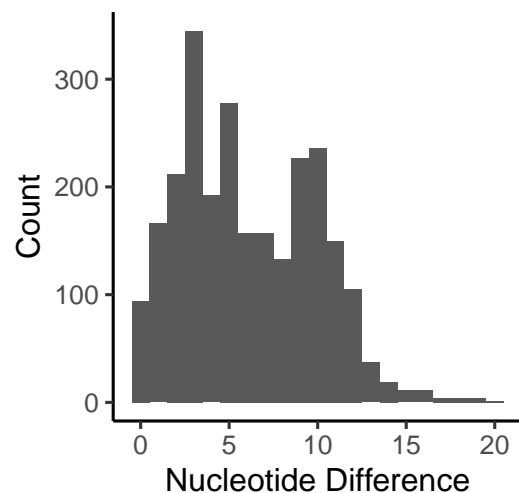
IGHV3-47*02

6 sequences assigned
No exact matches.



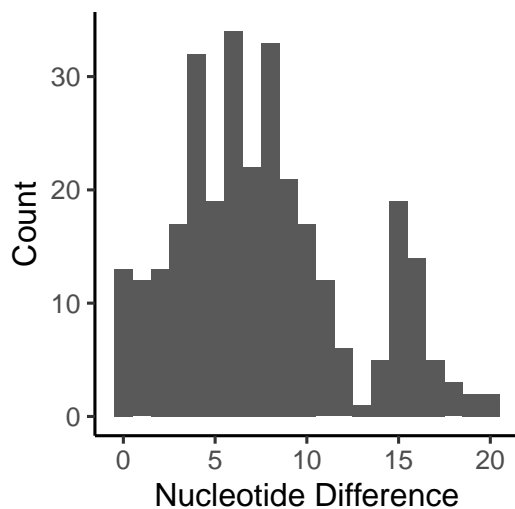
IGHV3-48*04

2567 sequences assigned
94 (3.7%) exact matches, in which:
93 unique CDR3
7 unique J



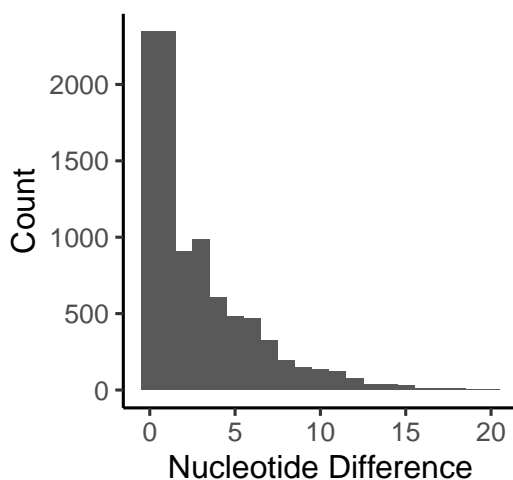
IGHV3-43*01_A247G_G2

306 sequences assigned
13 (4.2%) exact matches, in which:
13 unique CDR3
5 unique J



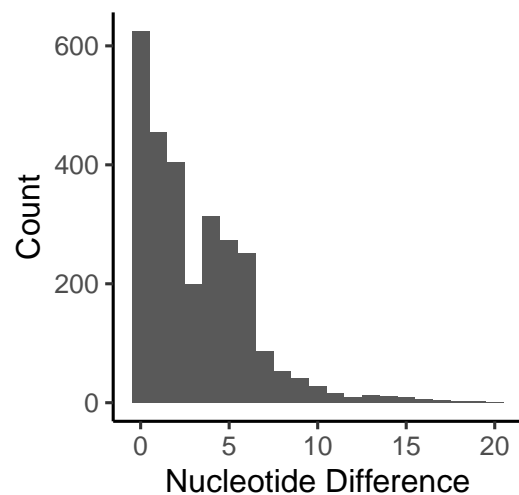
IGHV3-48*01

9303 sequences assigned
2344 (25.2%) exact matches, in which:
1965 unique CDR3
7 unique J



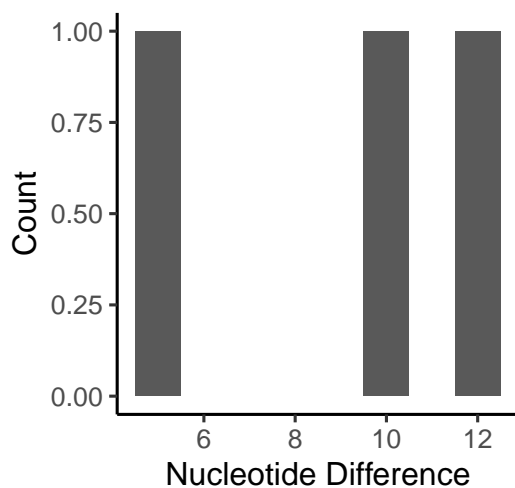
IGHV3-48*03_T303G

2807 sequences assigned
625 (22.3%) exact matches, in which:
619 unique CDR3
7 unique J



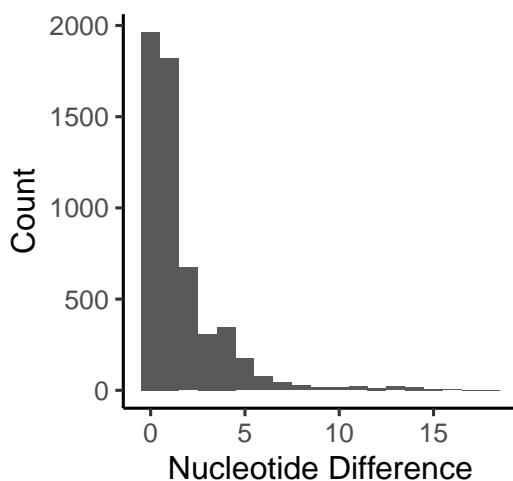
IGHV3-47*01

3 sequences assigned
No exact matches.



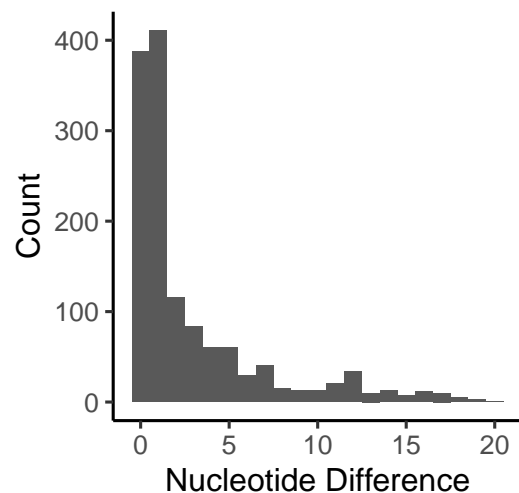
IGHV3-48*03

5579 sequences assigned
1964 (35.2%) exact matches, in which:
1604 unique CDR3
7 unique J



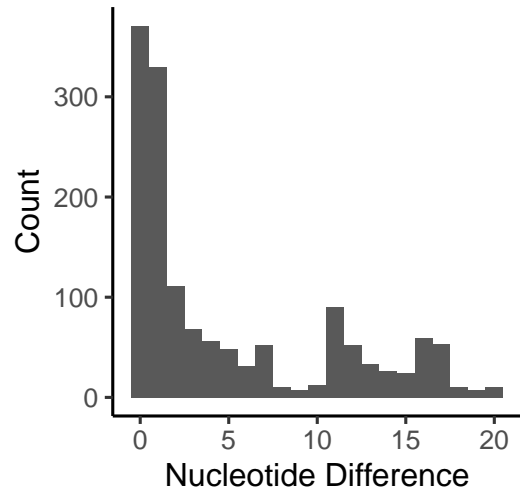
IGHV3-49*03

1369 sequences assigned
388 (28.3%) exact matches, in which:
321 unique CDR3
6 unique J



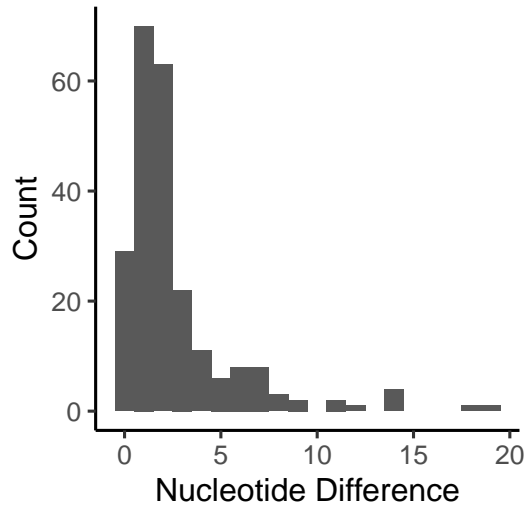
IGHV3-49*04

1485 sequences assigned
371 (25%) exact matches, in which:
303 unique CDR3
7 unique J



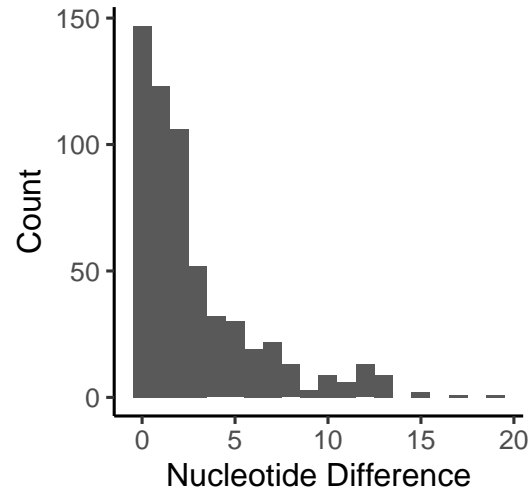
IGHV3-53*01

265 sequences assigned
29 (10.9%) exact matches, in which:
27 unique CDR3
6 unique J



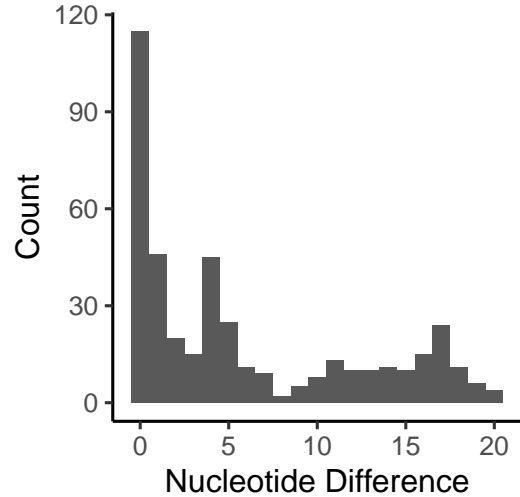
IGHV3-64*01

595 sequences assigned
147 (24.7%) exact matches, in which:
130 unique CDR3
7 unique J



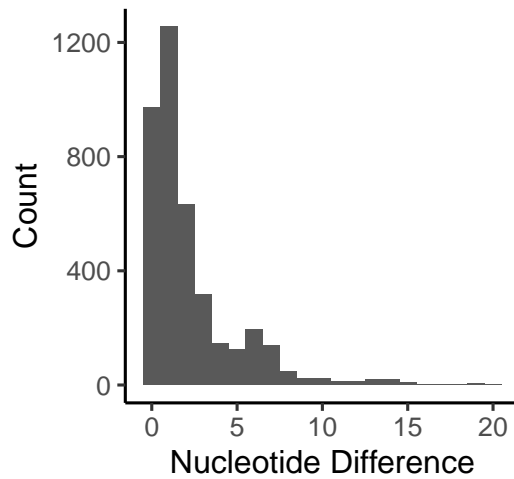
IGHV3-49*04_A313G

426 sequences assigned
115 (27%) exact matches, in which:
113 unique CDR3
7 unique J



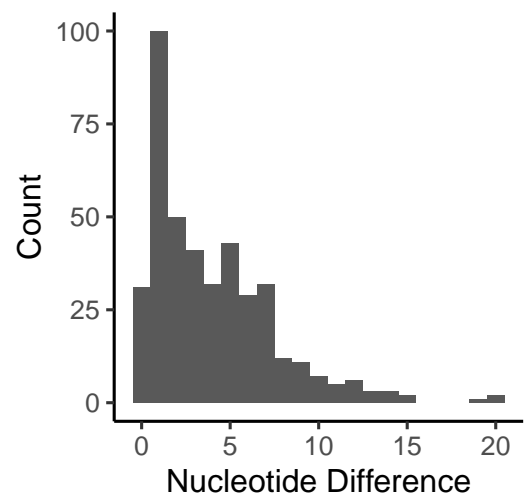
IGHV3-53*02

3956 sequences assigned
973 (24.6%) exact matches, in which:
795 unique CDR3
7 unique J



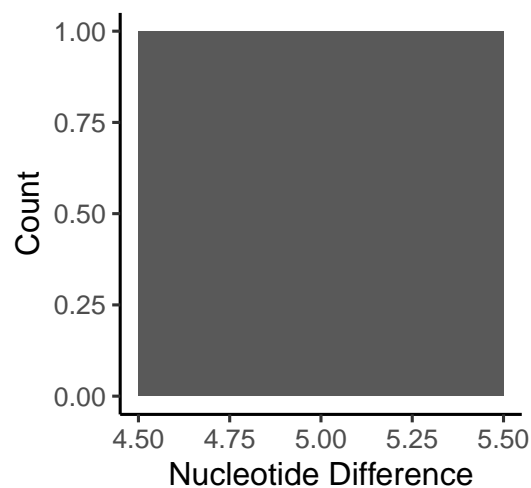
IGHV3-64*04_A210C

413 sequences assigned
31 (7.5%) exact matches, in which:
31 unique CDR3
6 unique J



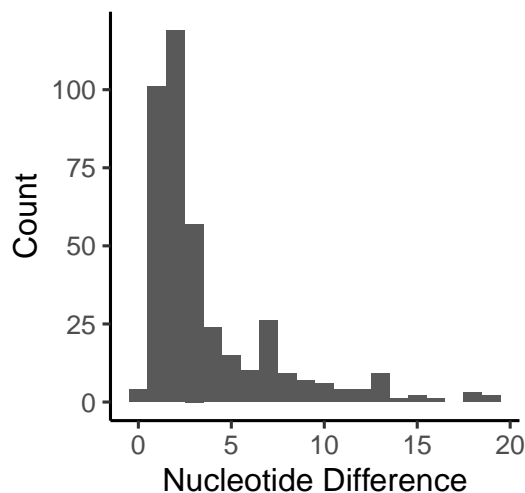
IGHV3-52*01

1 sequences assigned
No exact matches.



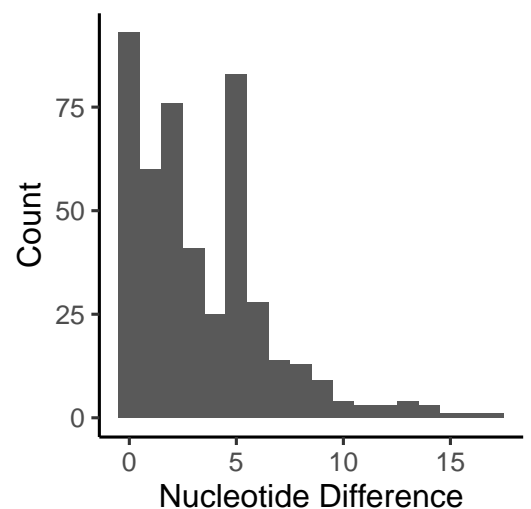
IGHV3-53*05

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



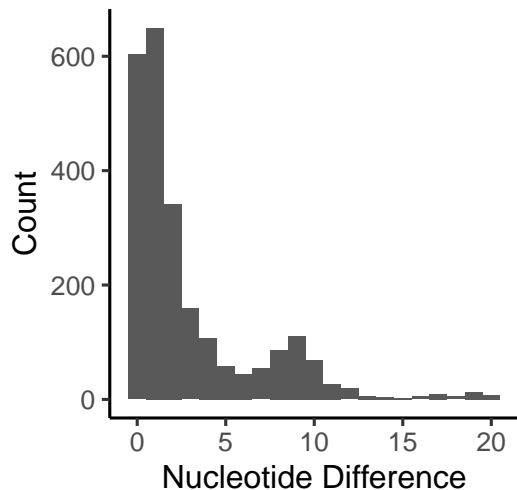
IGHV3-64*04_A210C_T28

462 sequences assigned
93 (20.1%) exact matches, in which:
93 unique CDR3
7 unique J



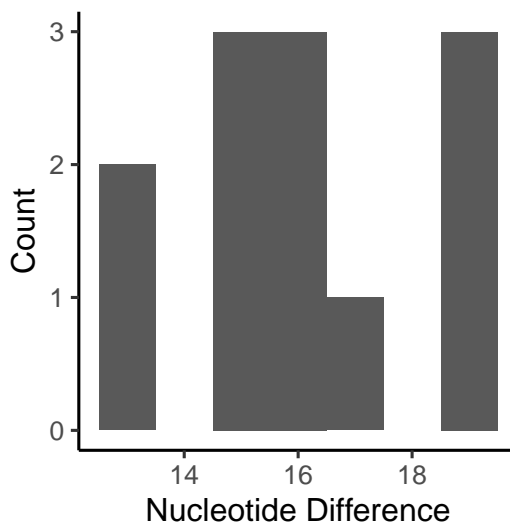
IGHV3-66*02

2432 sequences assigned
603 (24.8%) exact matches, in which:
481 unique CDR3
7 unique J



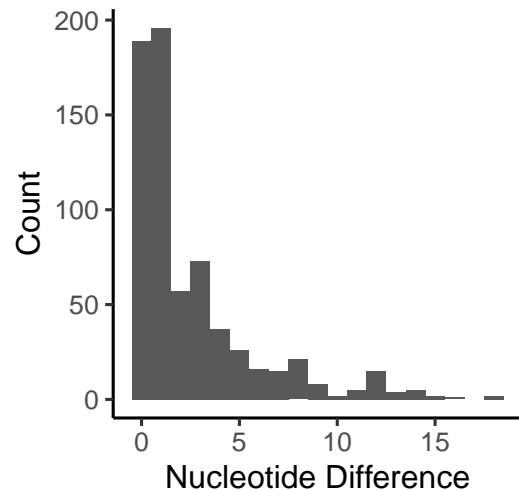
IGHV3-71*04

15 sequences assigned
No exact matches.



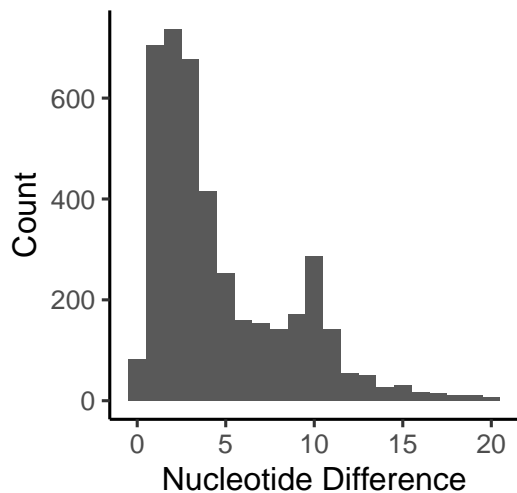
IGHV3-73*02

675 sequences assigned
189 (28%) exact matches, in which:
162 unique CDR3
7 unique J



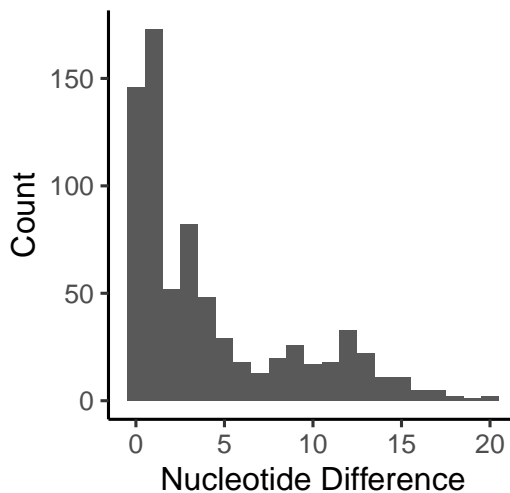
IGHV3-66*01_A223C

4197 sequences assigned
83 (2%) exact matches, in which:
83 unique CDR3
7 unique J



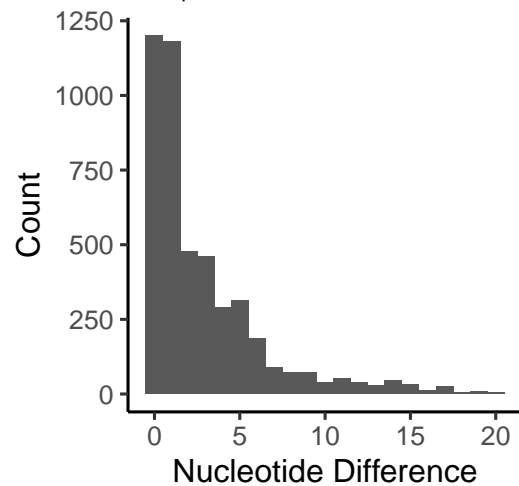
IGHV3-72*01

750 sequences assigned
146 (19.5%) exact matches, in which:
120 unique CDR3
7 unique J



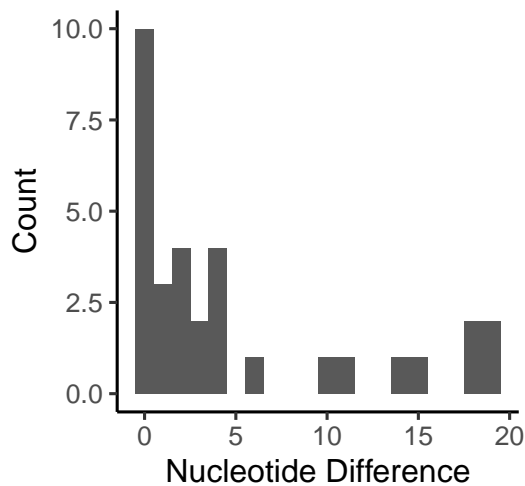
IGHV3-74*01

4672 sequences assigned
1200 (25.7%) exact matches, in which:
1018 unique CDR3
7 unique J



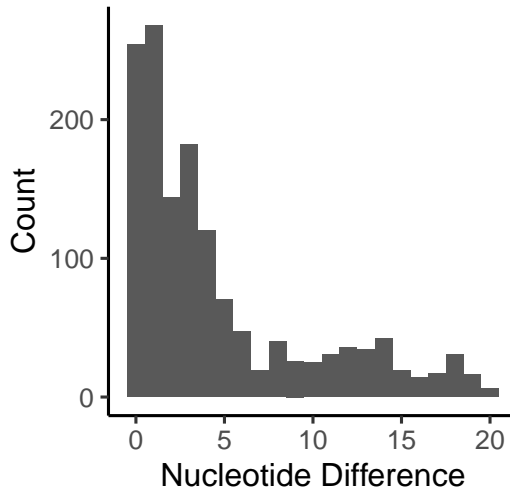
IGHV3-69-1*01

36 sequences assigned
10 (27.8%) exact matches, in which:
9 unique CDR3
3 unique J



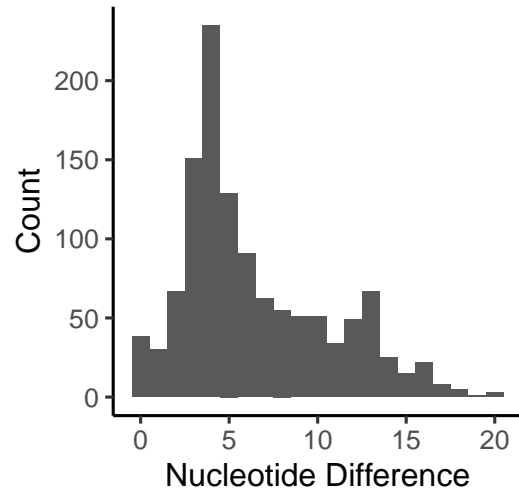
IGHV3-73*01

1466 sequences assigned
254 (17.3%) exact matches, in which:
206 unique CDR3
6 unique J



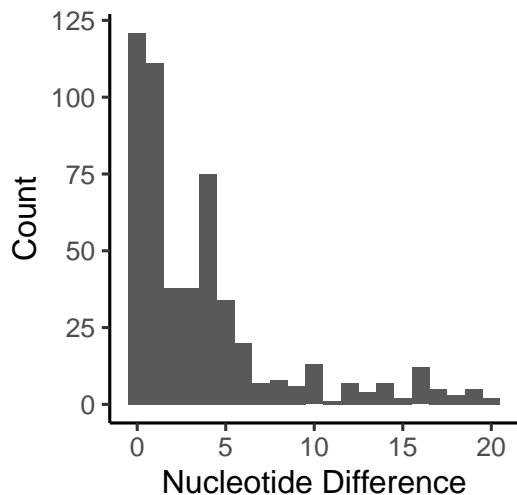
IGHV3-74*02

1205 sequences assigned
38 (3.2%) exact matches, in which:
36 unique CDR3
6 unique J



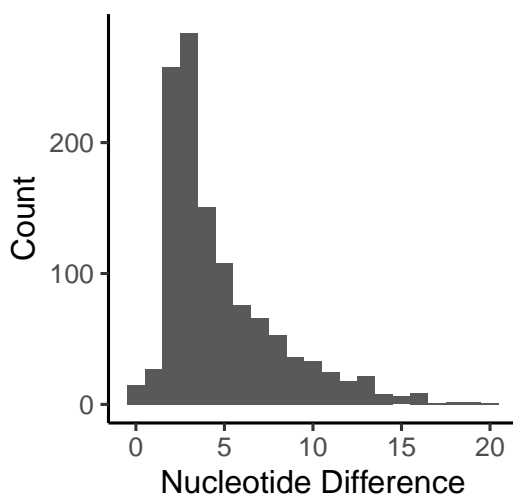
IGHV3-43D*04

525 sequences assigned
121 (23%) exact matches, in which:
102 unique CDR3
7 unique J



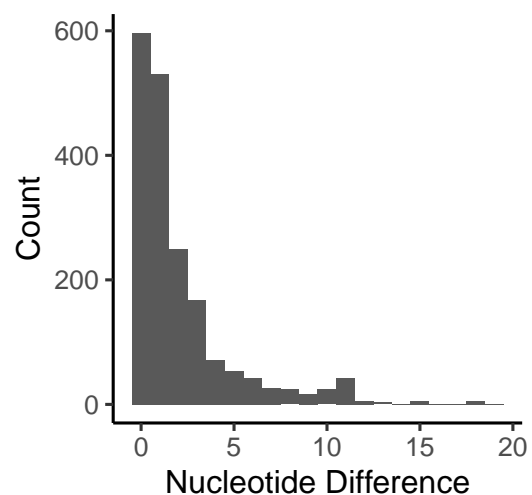
IGHV3-NL1*01_G49A_T

1209 sequences assigned
15 (1.2%) exact matches, in which:
15 unique CDR3
6 unique J



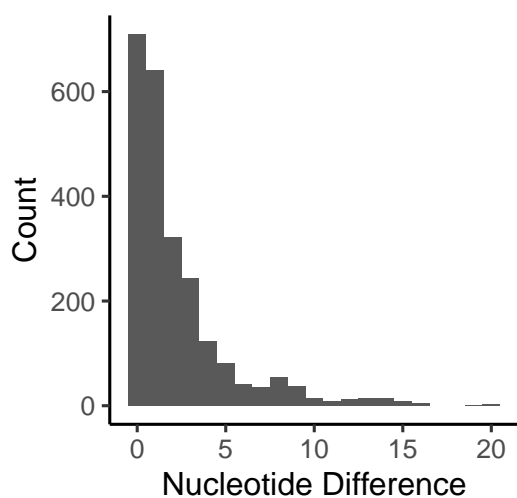
IGHV4-4*07_C300T

1880 sequences assigned
597 (31.8%) exact matches, in which:
589 unique CDR3
7 unique J



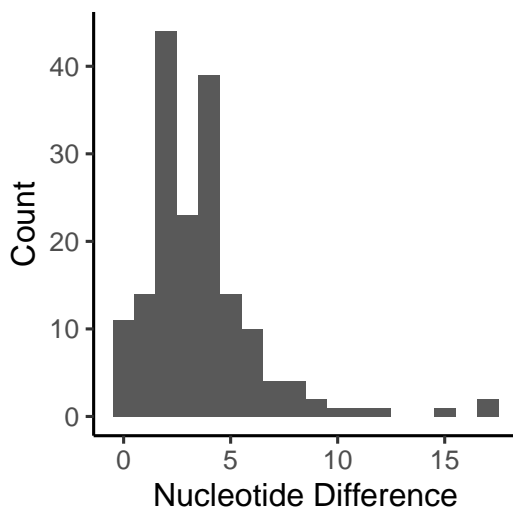
IGHV3-64D*06

2395 sequences assigned
710 (29.6%) exact matches, in which:
597 unique CDR3
7 unique J



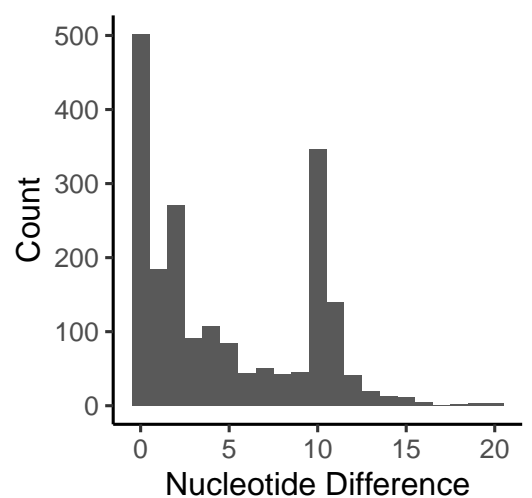
IGHV3-NL1*01_G49A_T2

171 sequences assigned
11 (6.4%) exact matches, in which:
11 unique CDR3
6 unique J



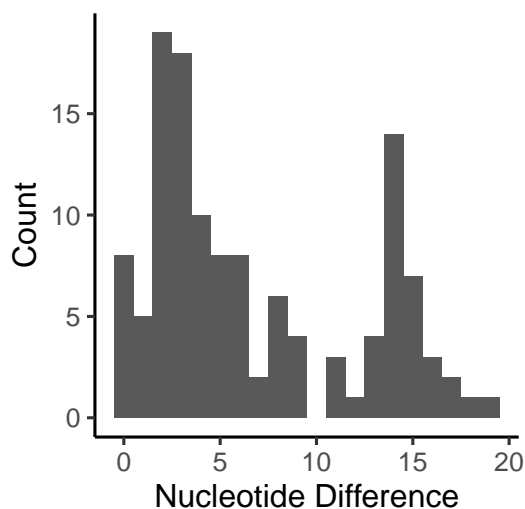
IGHV4-4*07_G234A_G2

2055 sequences assigned
502 (24.4%) exact matches, in which:
491 unique CDR3
7 unique J



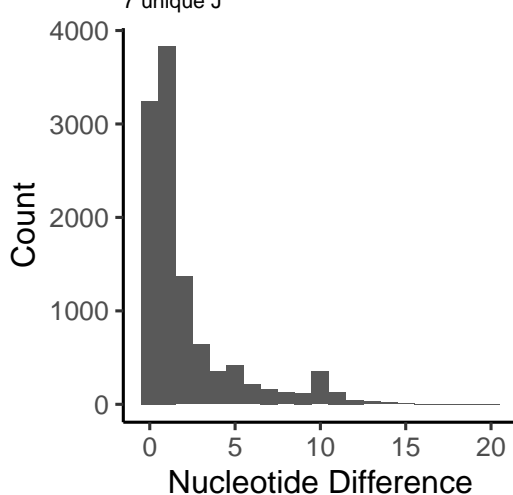
IGHV3-NL1*01_G49A_G7

125 sequences assigned
8 (6.4%) exact matches, in which:
8 unique CDR3
4 unique J



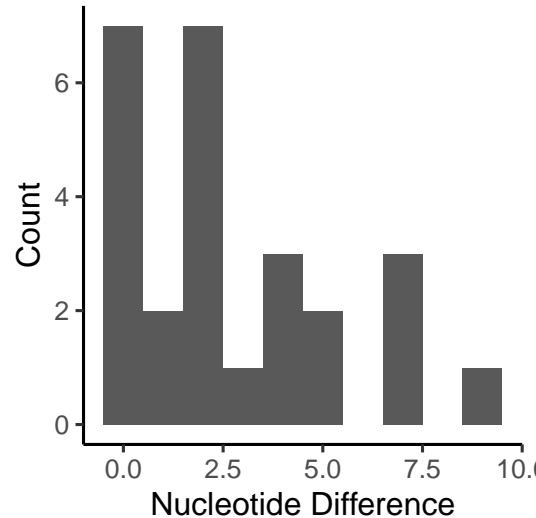
IGHV4-4*07

11136 sequences assigned
3248 (29.2%) exact matches, in which:
2782 unique CDR3
7 unique J



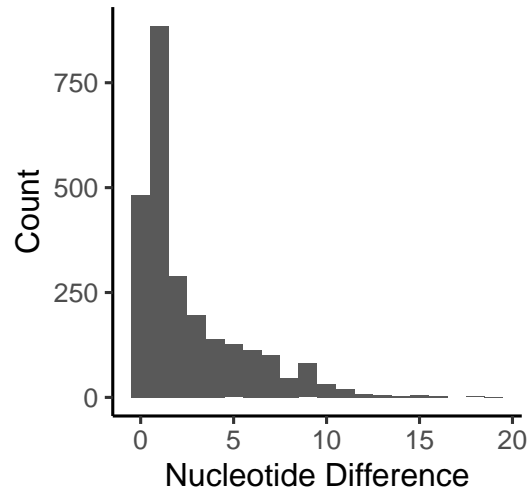
IGHV4-28*03

27 sequences assigned
7 (25.9%) exact matches, in which:
6 unique CDR3
4 unique J



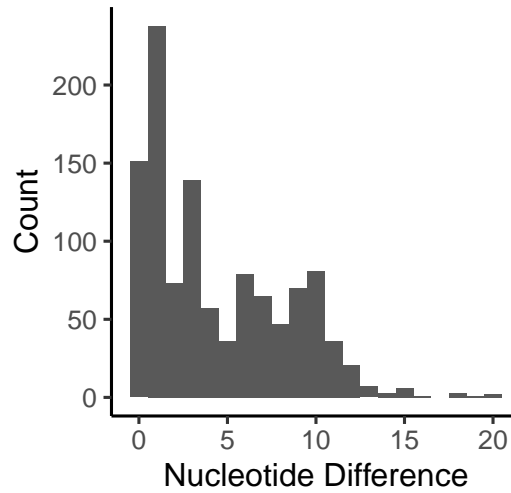
IGHV4-30-2*01

2557 sequences assigned
483 (18.9%) exact matches, in which:
346 unique CDR3
7 unique J



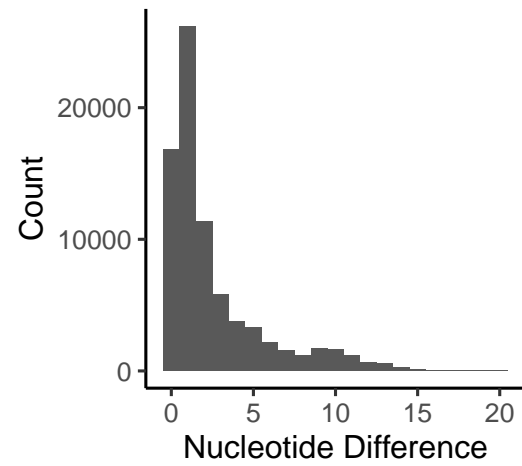
IGHV4-30-2*01_C300T_

1125 sequences assigned
151 (13.4%) exact matches, in which:
150 unique CDR3
7 unique J



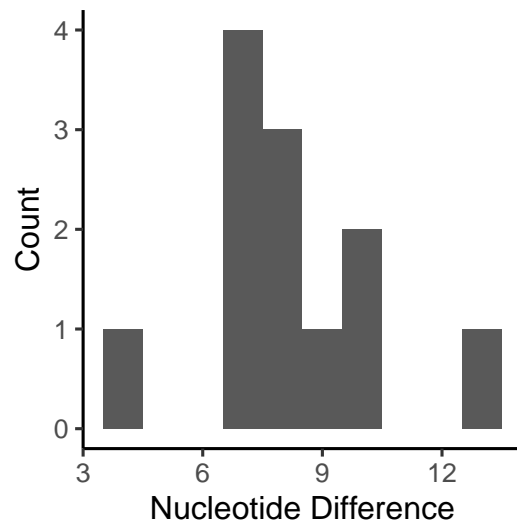
IGHV4-34*01

79734 sequences assigned
16834 (21.1%) exact matches, in which:
13482 unique CDR3
7 unique J



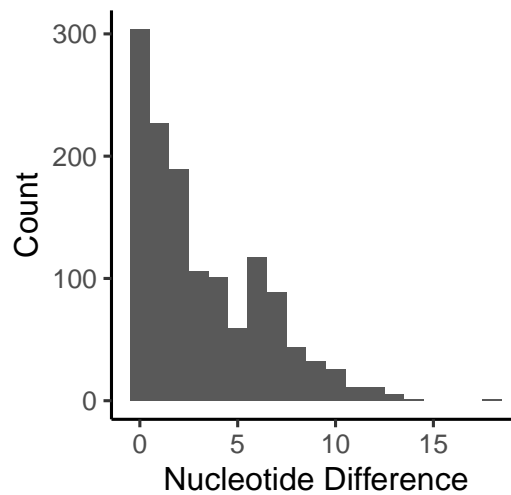
IGHV4-30-4*07

13 sequences assigned
No exact matches.



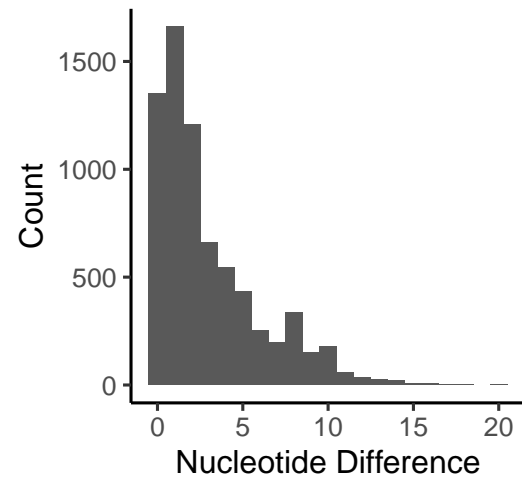
IGHV4-30-2*01_C315G

1340 sequences assigned
304 (22.7%) exact matches, in which:
303 unique CDR3
7 unique J



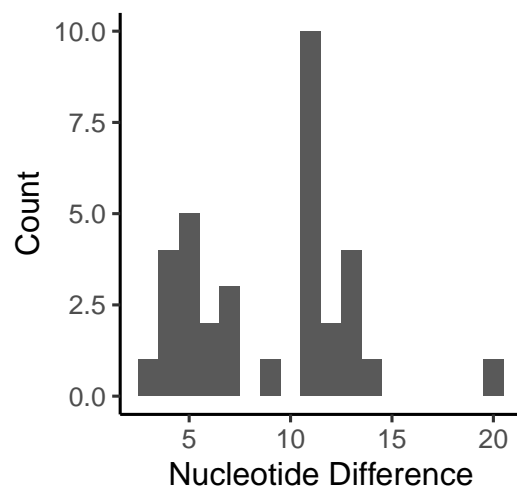
IGHV4-38-2*02_A70G

7248 sequences assigned
1351 (18.6%) exact matches, in which:
1152 unique CDR3
7 unique J



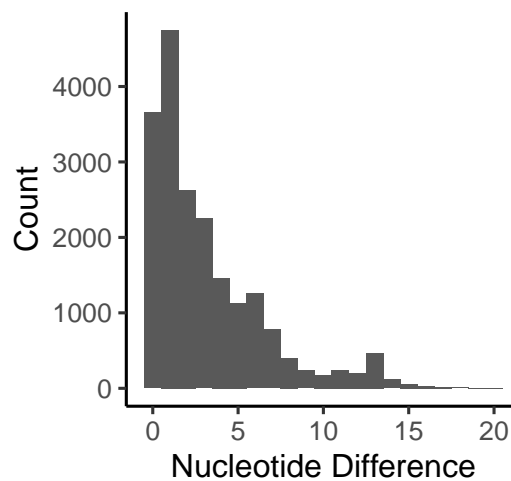
IGHV4-30-4*08

35 sequences assigned
No exact matches.



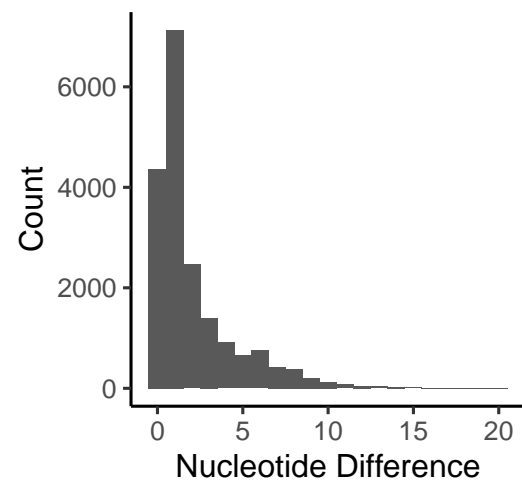
IGHV4-31*03

20056 sequences assigned
3654 (18.2%) exact matches, in which:
3093 unique CDR3
7 unique J



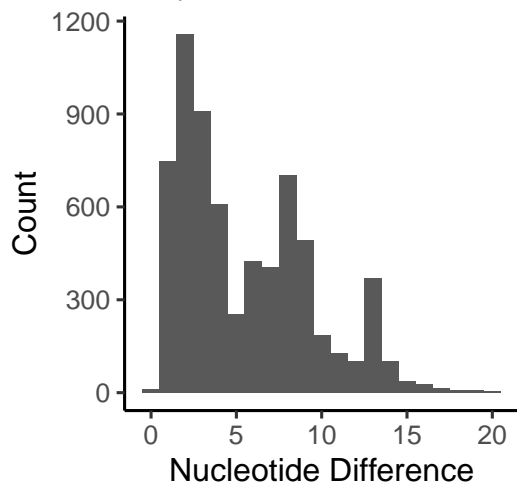
IGHV4-39*01

19181 sequences assigned
4371 (22.8%) exact matches, in which:
3702 unique CDR3
7 unique J



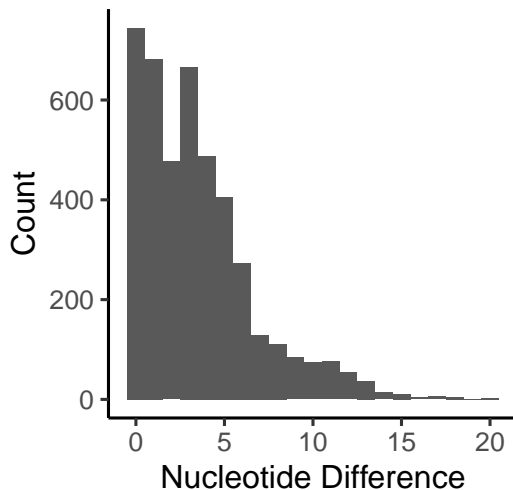
IGHV4-39*07

6756 sequences assigned
11 (0.2%) exact matches, in which:
11 unique CDR3
4 unique J



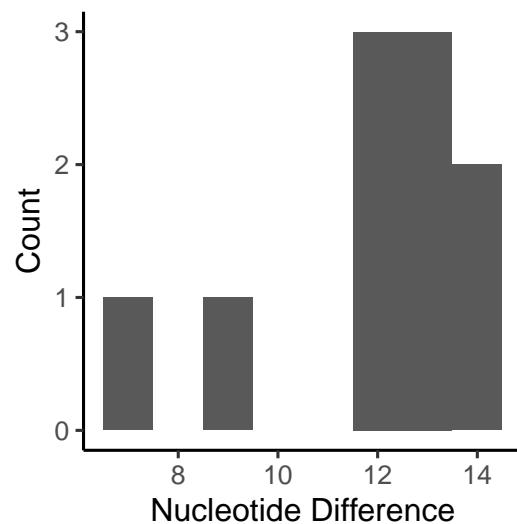
IGHV4-61*01

4367 sequences assigned
745 (17.1%) exact matches, in which:
660 unique CDR3
6 unique J



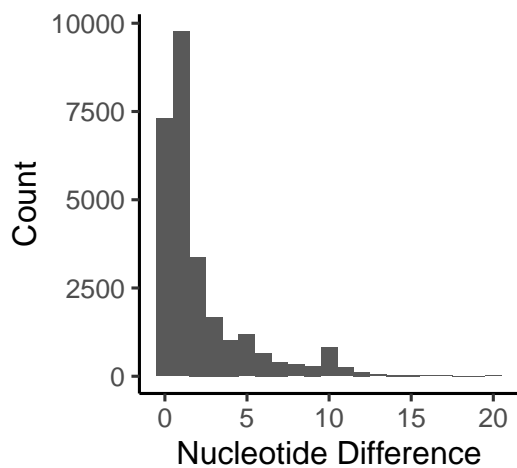
IGHV4/OR15-8*01

41 sequences assigned
No exact matches.



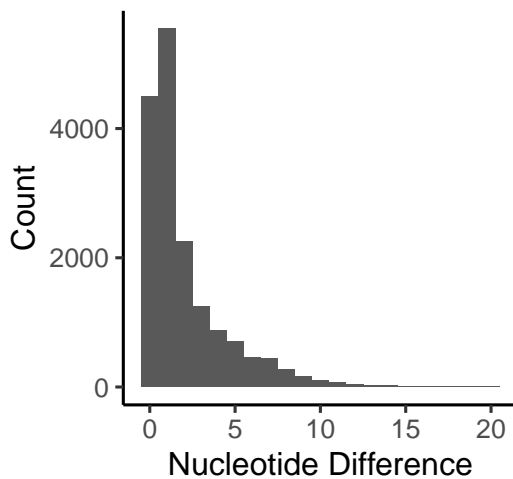
IGHV4-59*01

27561 sequences assigned
7302 (26.5%) exact matches, in which:
6024 unique CDR3
7 unique J



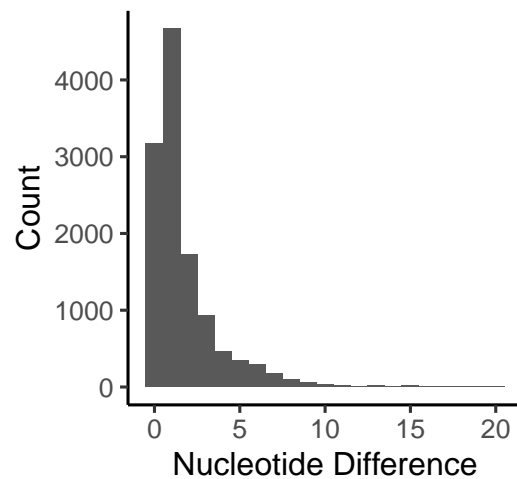
IGHV4-61*02

16782 sequences assigned
4493 (26.8%) exact matches, in which:
3814 unique CDR3
7 unique J



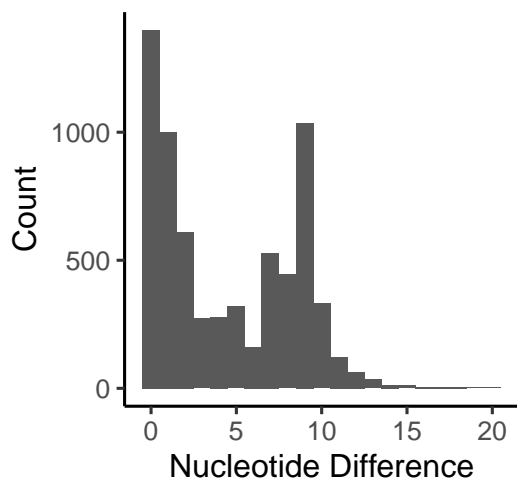
IGHV5-10-1*03

12123 sequences assigned
3176 (26.2%) exact matches, in which:
2590 unique CDR3
7 unique J



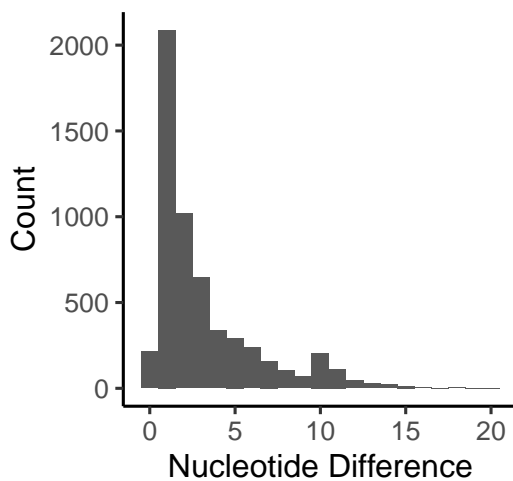
IGHV4-59*12_C300T

6684 sequences assigned
1399 (20.9%) exact matches, in which:
1370 unique CDR3
7 unique J



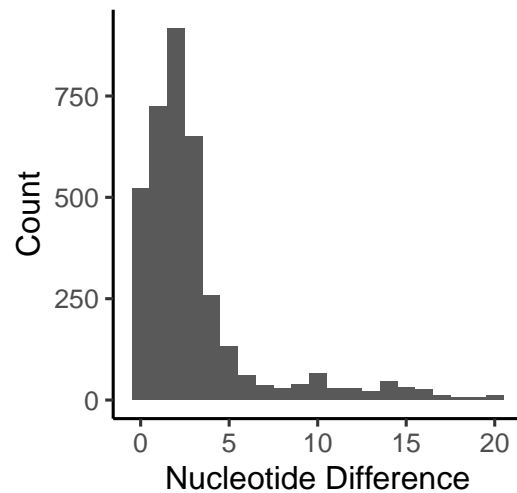
IGHV4-61*02_A291G

5648 sequences assigned
214 (3.8%) exact matches, in which:
211 unique CDR3
7 unique J



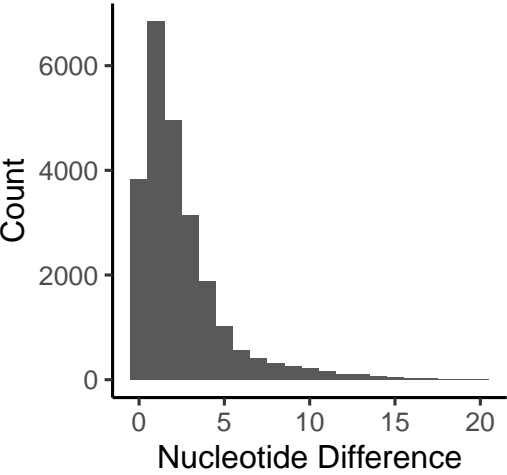
IGHV5-10-1*01_A3G

3786 sequences assigned
522 (13.8%) exact matches, in which:
495 unique CDR3
7 unique J



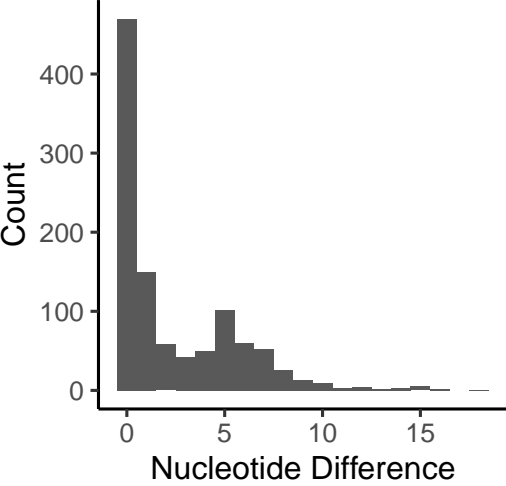
IGHV5–51*01

24191 sequences assigned
3830 (15.8%) exact matches, in which:
2976 unique CDR3
7 unique J



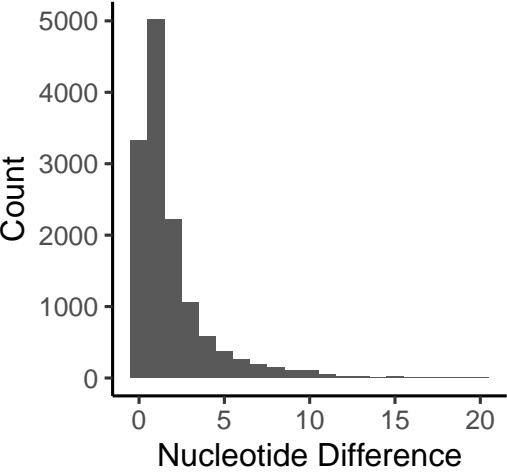
IGHV6–1*01_A315G

1054 sequences assigned
470 (44.6%) exact matches, in which:
469 unique CDR3
7 unique J



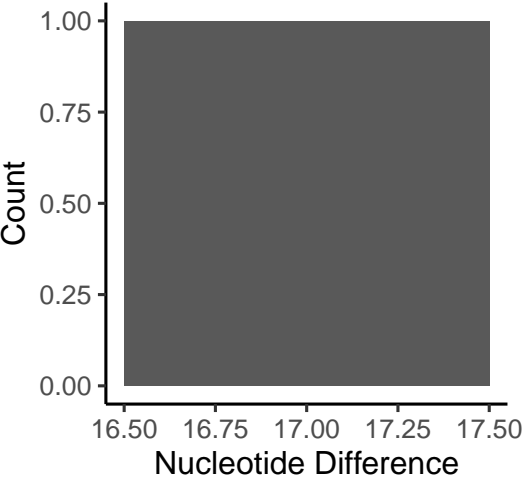
IGHV5–51*03

13591 sequences assigned
3327 (24.5%) exact matches, in which:
2594 unique CDR3
7 unique J



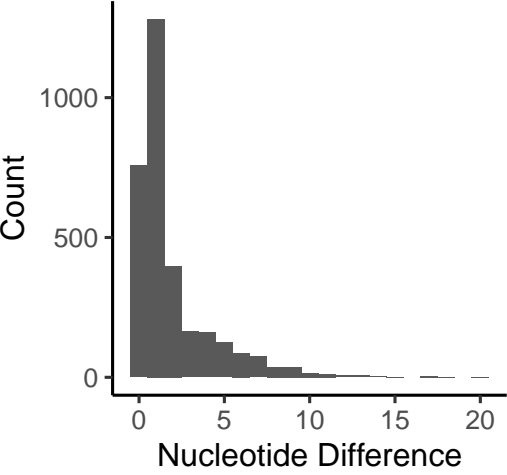
IGHV3/OR16–10*03

1 sequences assigned
No exact matches.

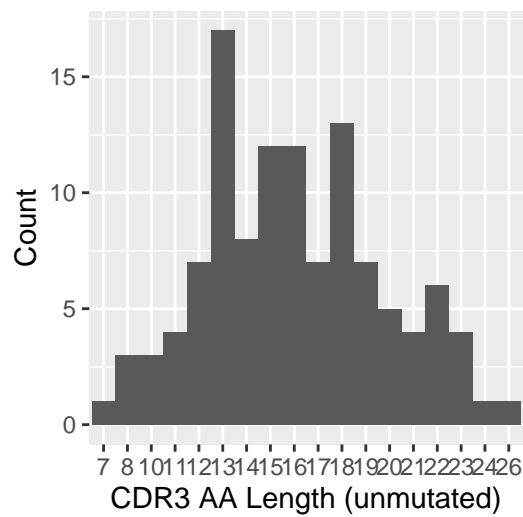


IGHV6–1*01

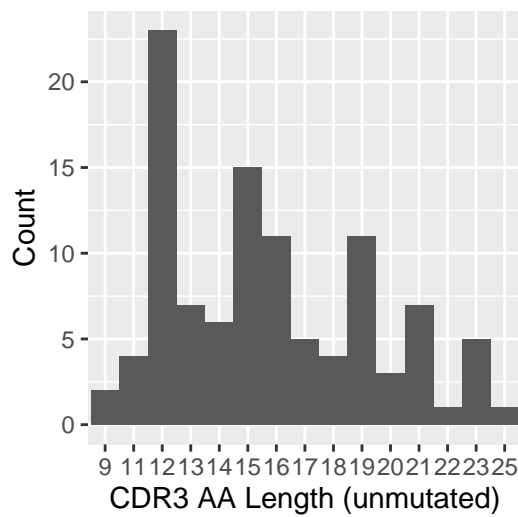
3195 sequences assigned
757 (23.7%) exact matches, in which:
534 unique CDR3
7 unique J



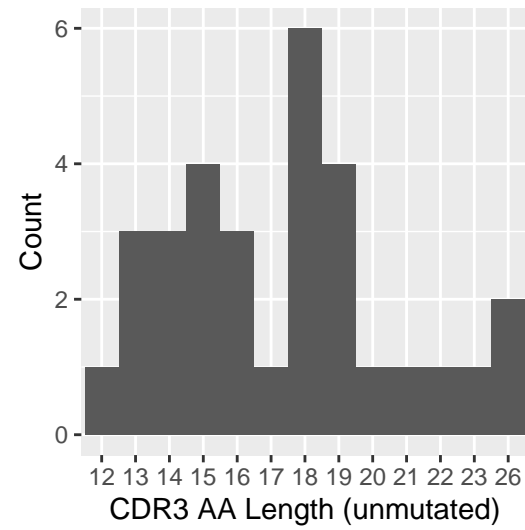
IGHV3-49*04_A313G



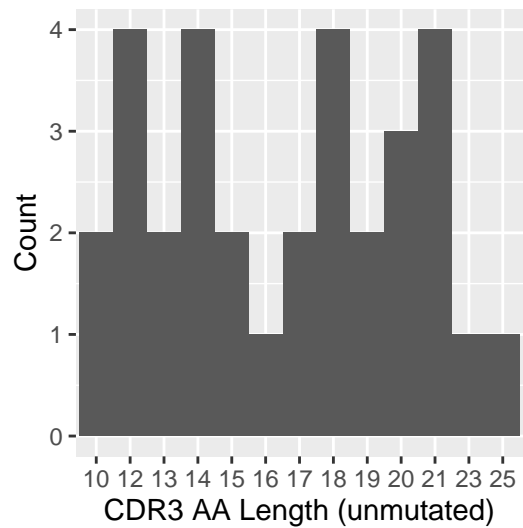
IGHV3-13*05_T78C



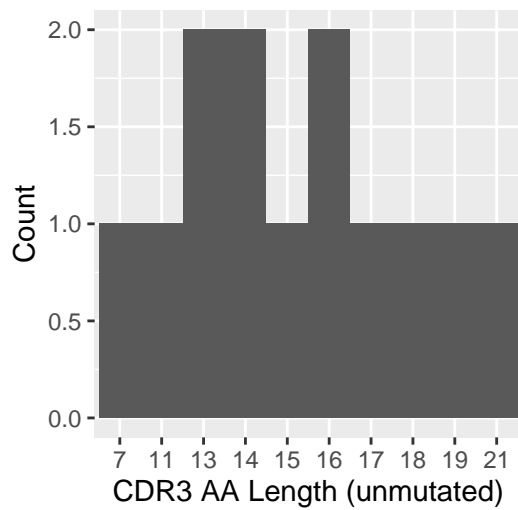
IGHV3-64*04_A210C



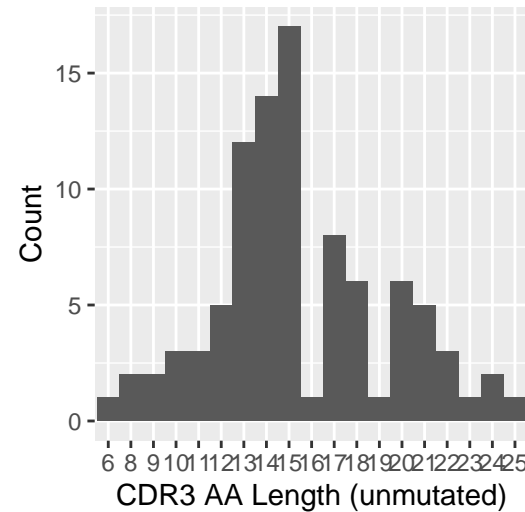
IGHV2-70*01_G303A



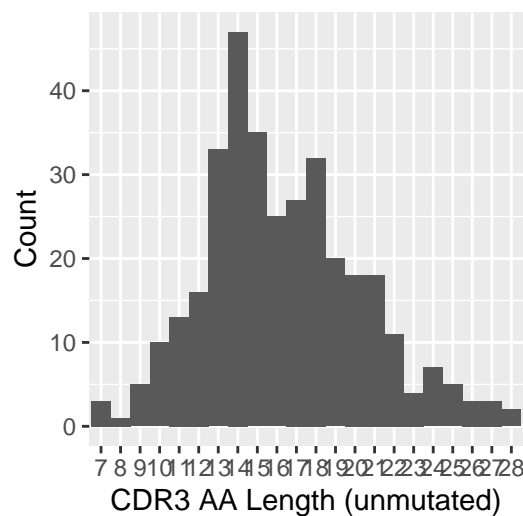
IGHV3-43*01_A247G_G248



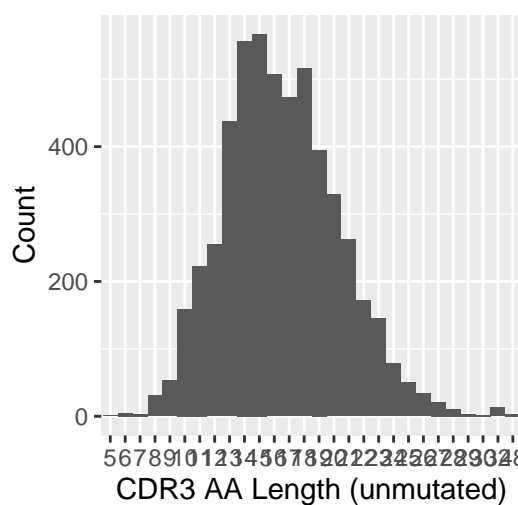
IGHV3-64*04_A210C_T288C



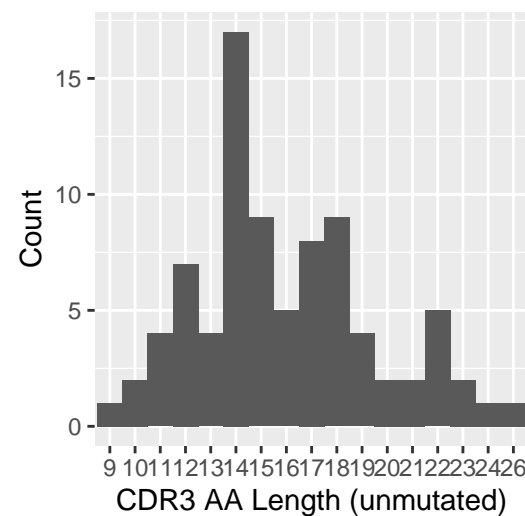
IGHV3-9*01_T279C_T288C

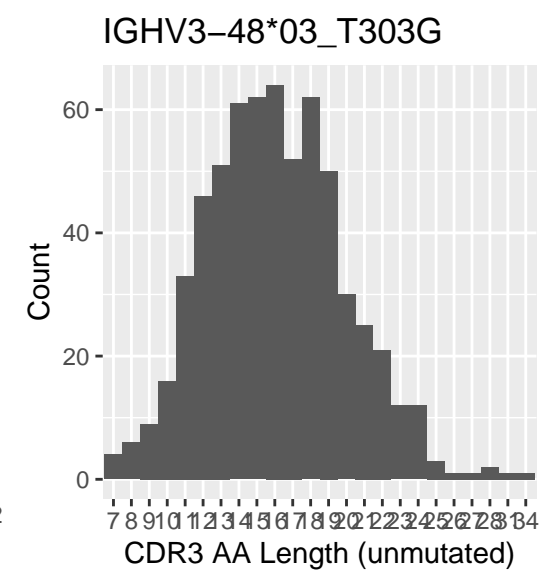
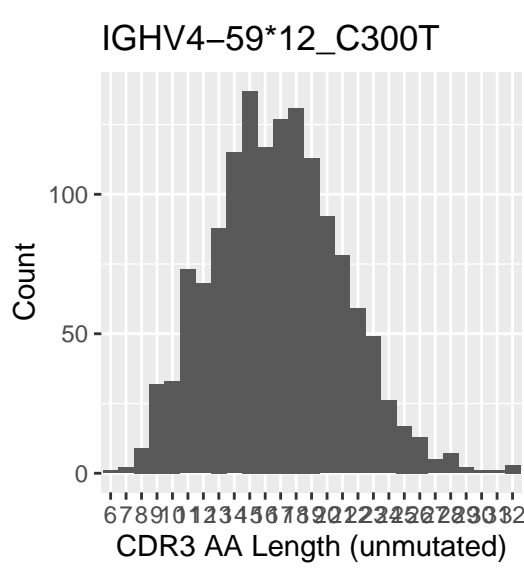
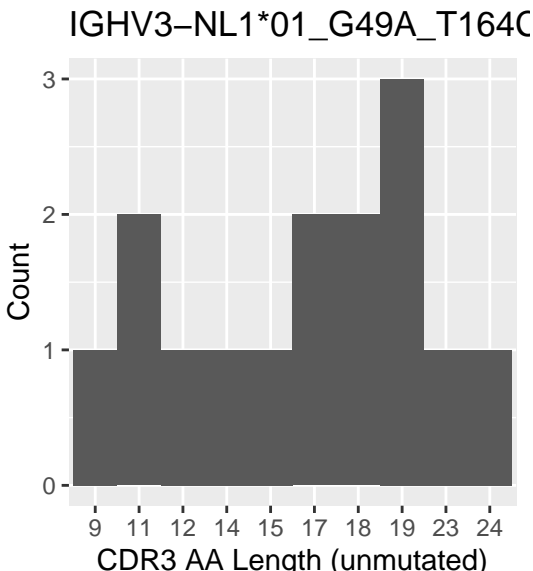
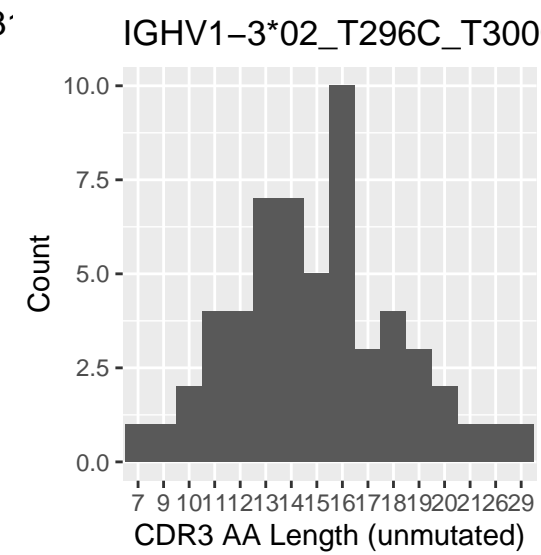
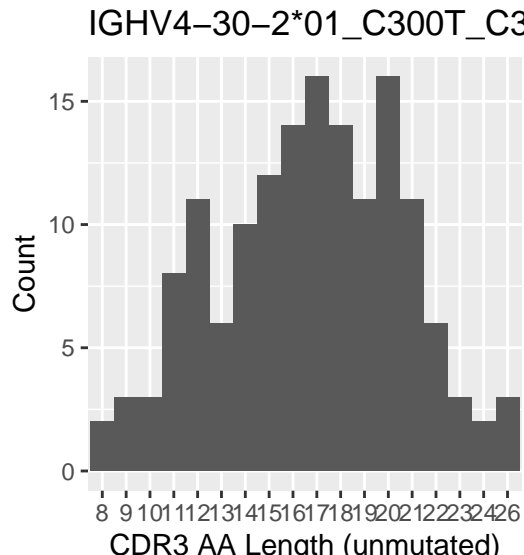
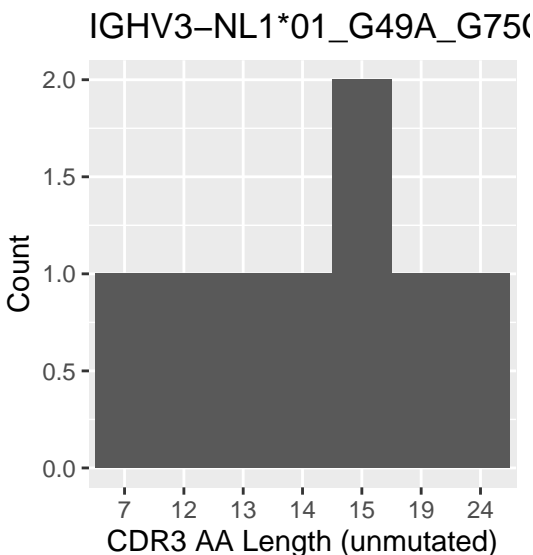
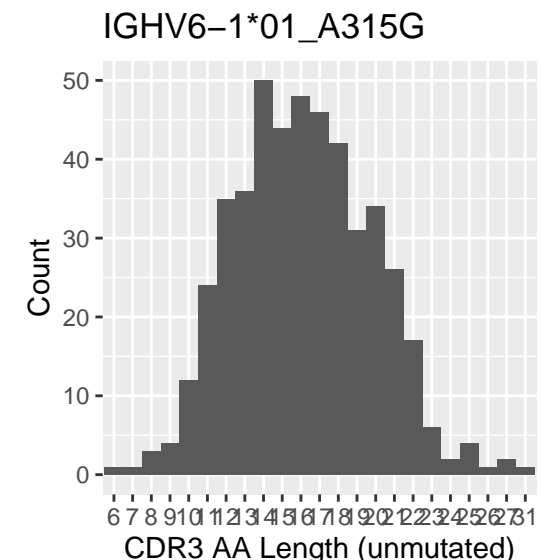
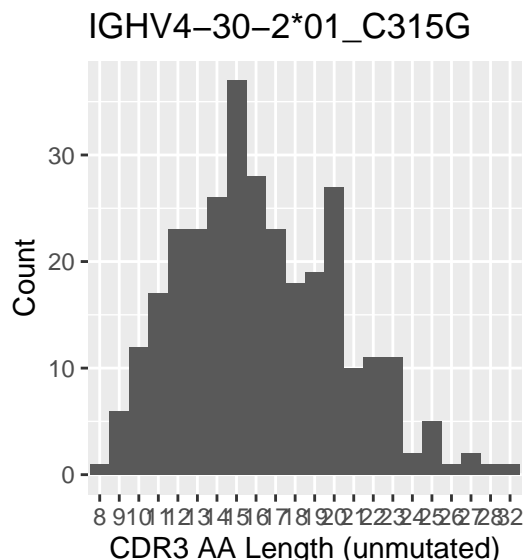
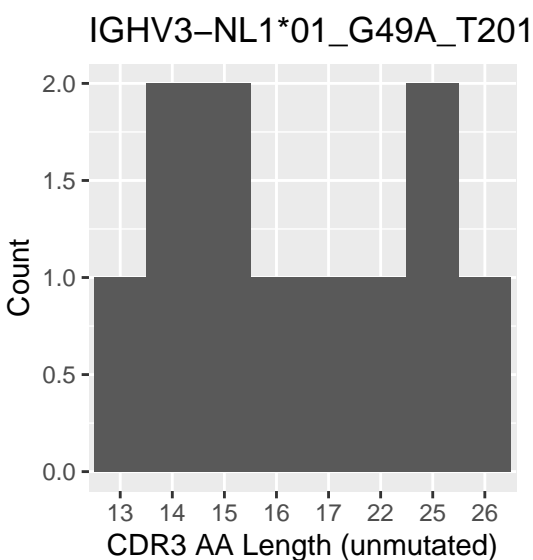


IGHV1-69*08_C191T

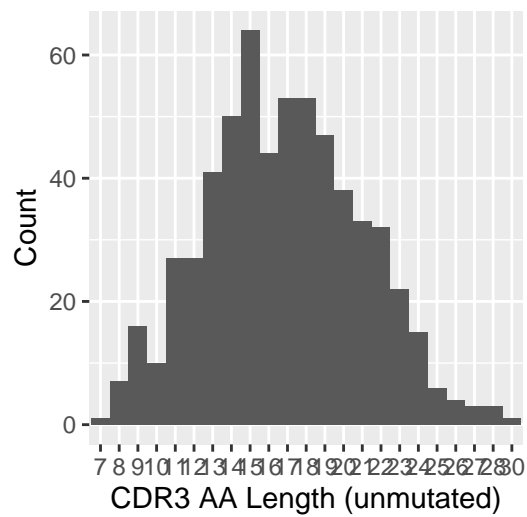


IGHV3-66*01_A223C

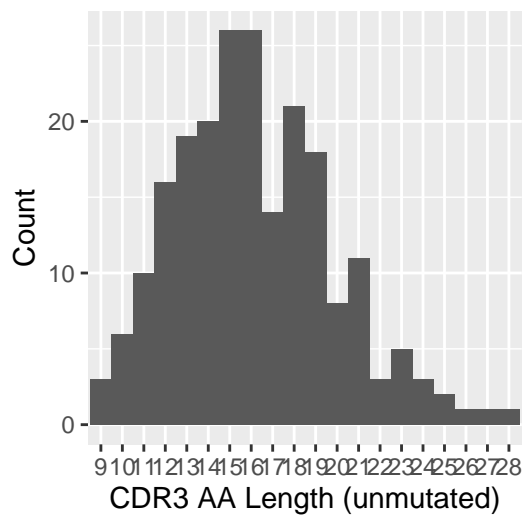




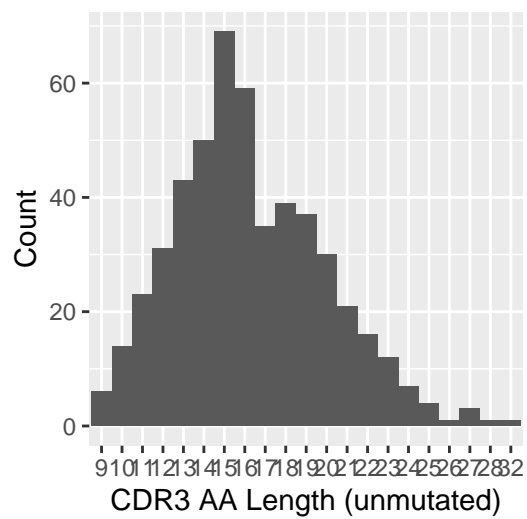
IGHV4-4*07_C300T



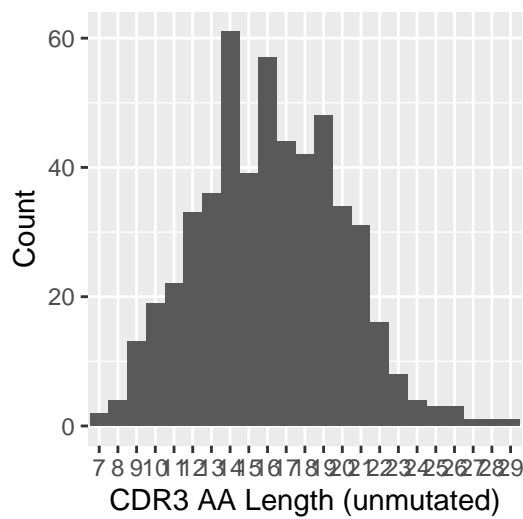
IGHV4-61*02_A291G



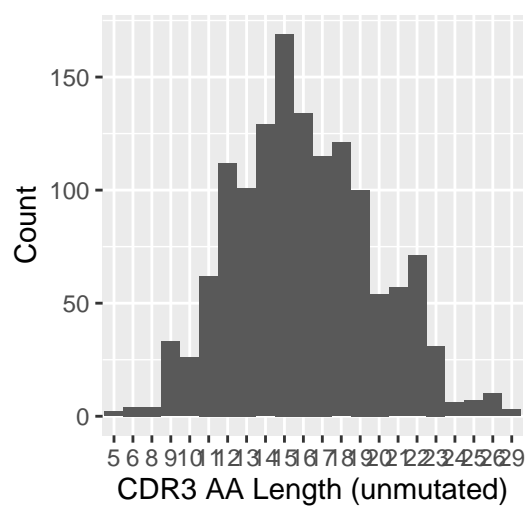
IGHV4-4*07_G234A_G291A



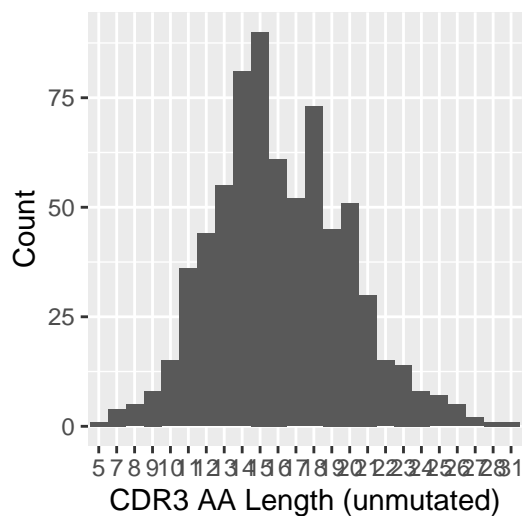
IGHV5-10-1*01_A3G

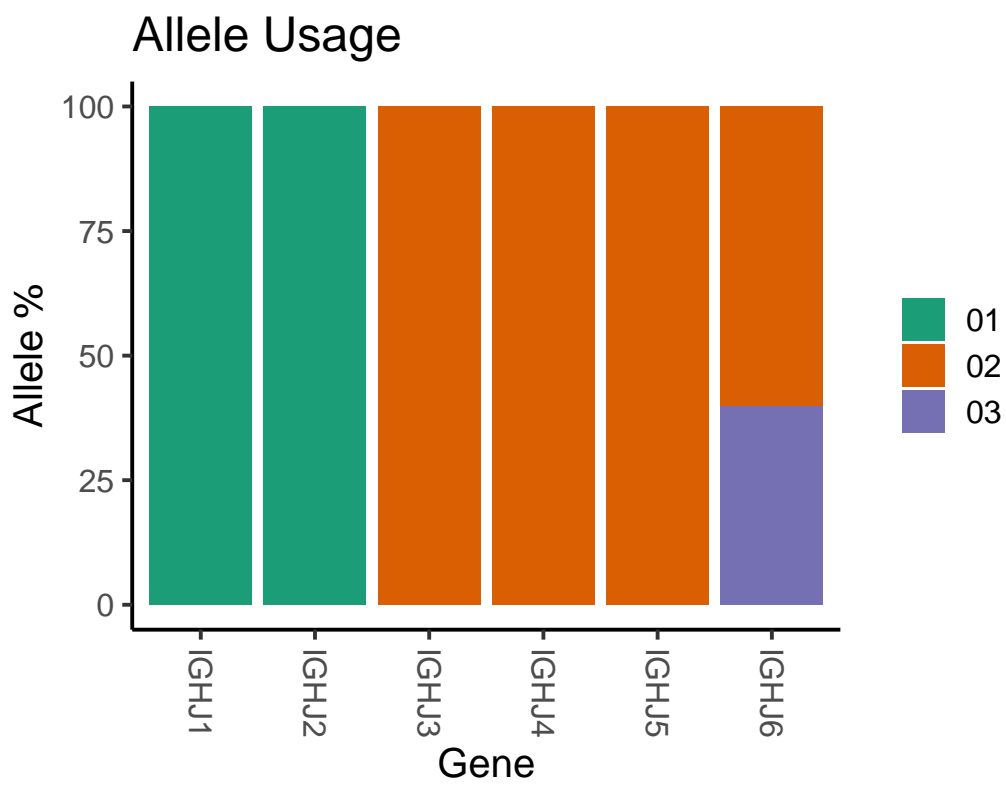


IGHV4-38-2*02_A70G



IGHV3-30*03_T288C





Sequence Count by IGHJ6 allele usage



02
03

03

5000

-5000