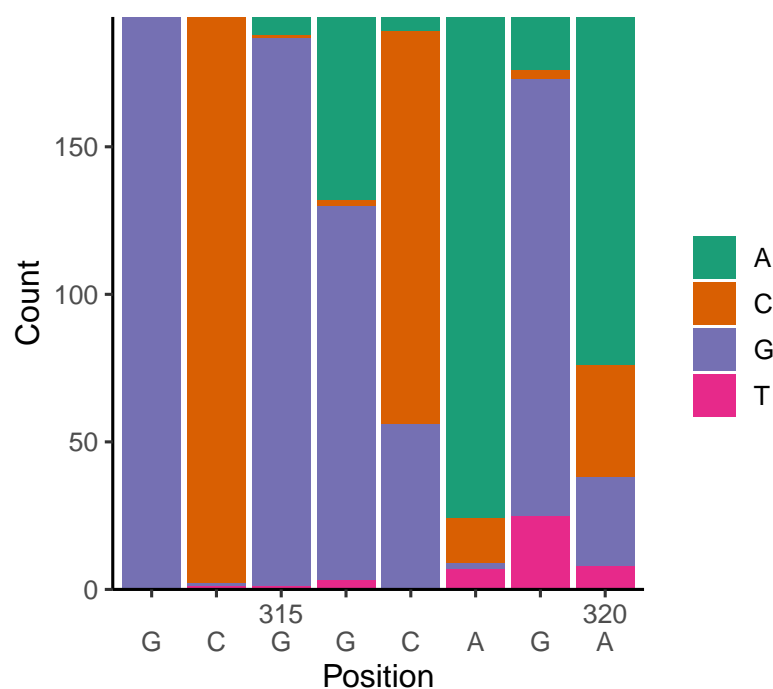
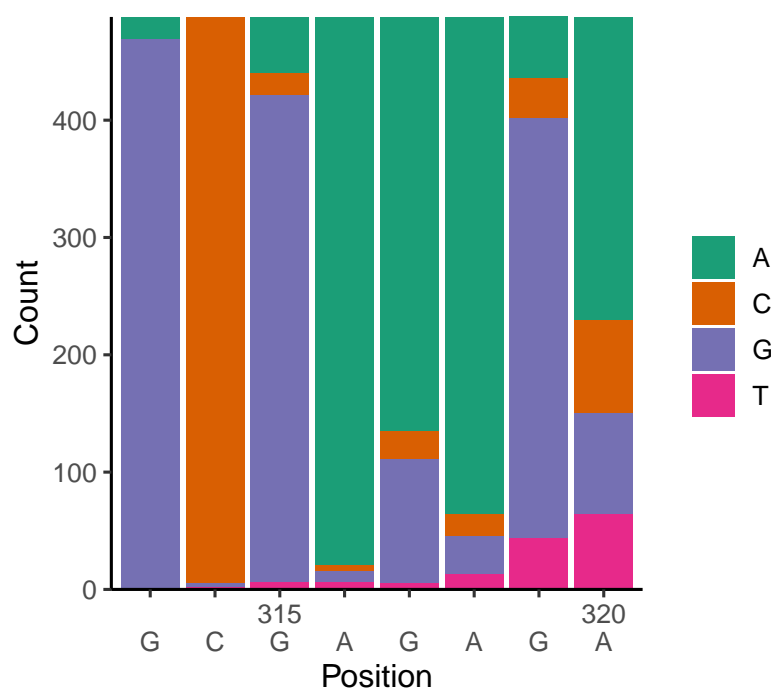


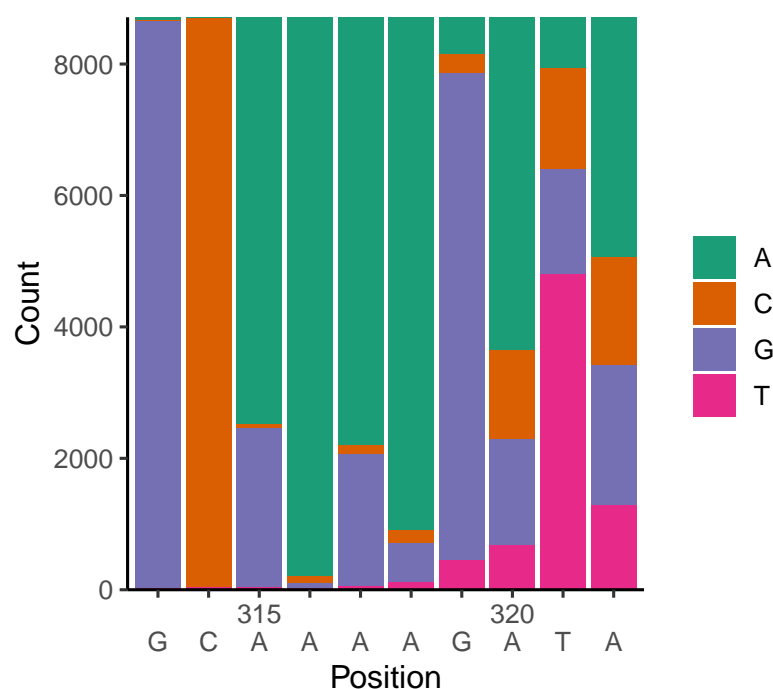
Gene IGHV1-58*02_G61T



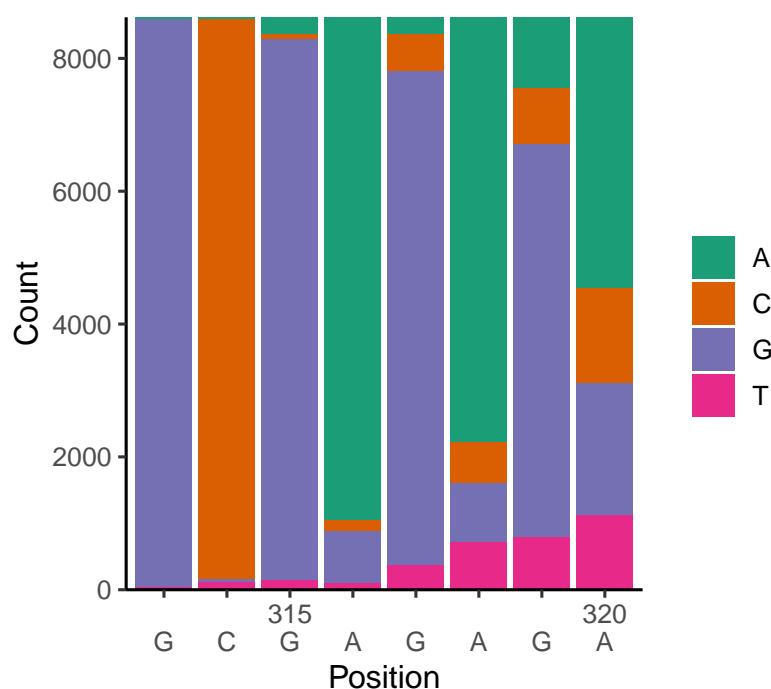
Gene IGHV3-66*01_A223C_T267G_T300



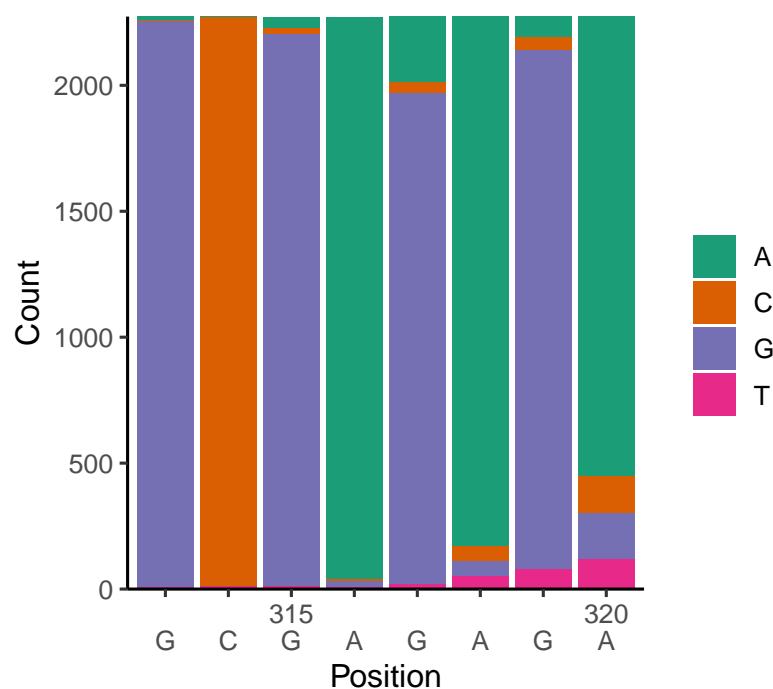
Gene IGHV3-9*01_T194C_C198T



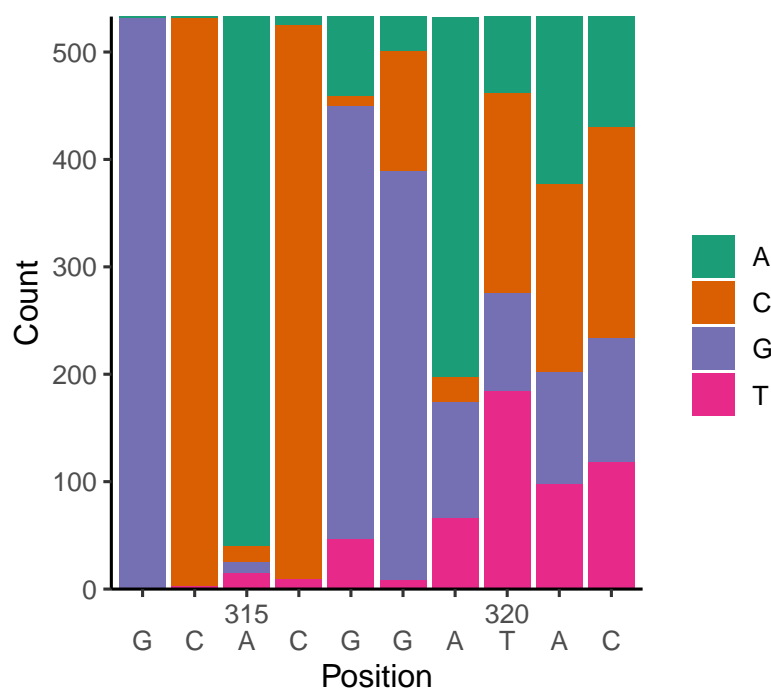
Gene IGHV1-69*08_C191T



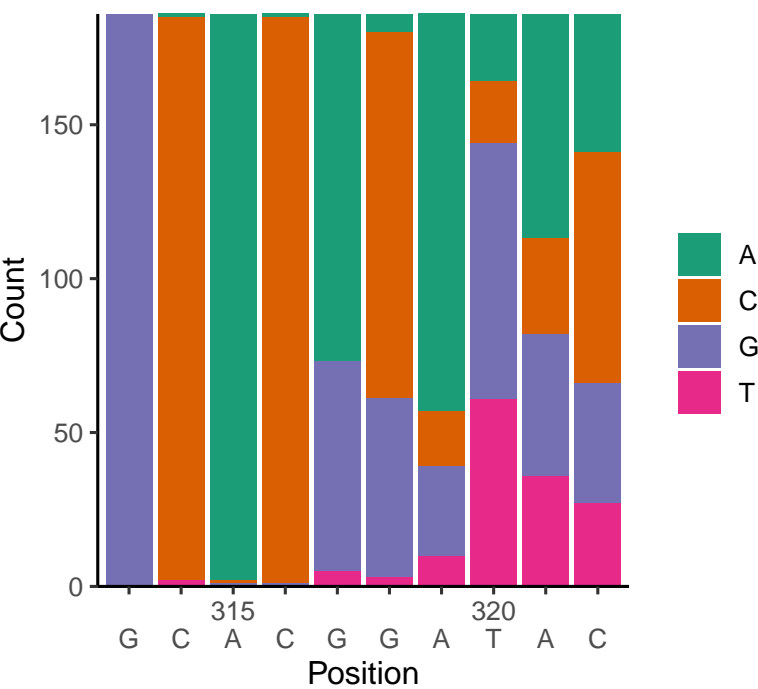
Gene IGHV3-66*01_A223C



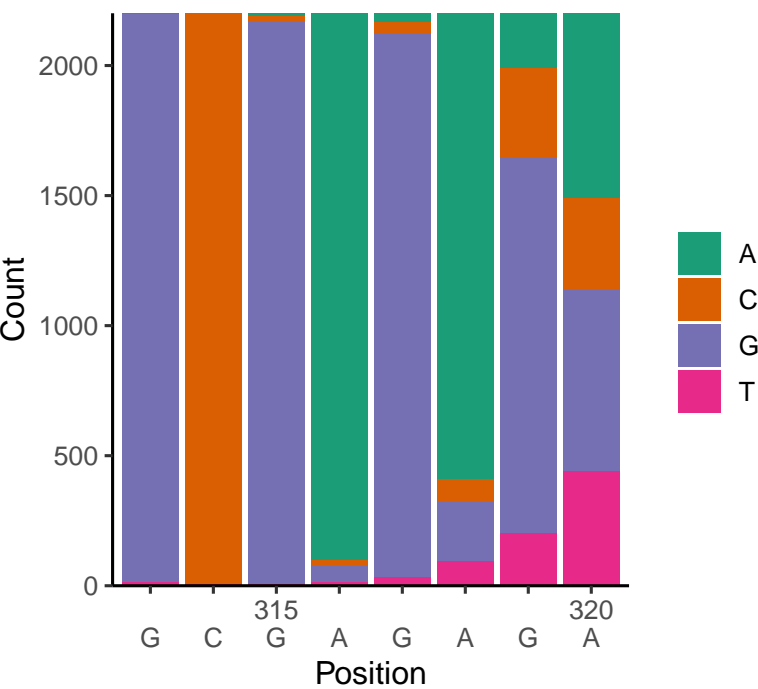
Gene IGHV2-70*04_C6T



Gene IGHV2-70*15_G303A



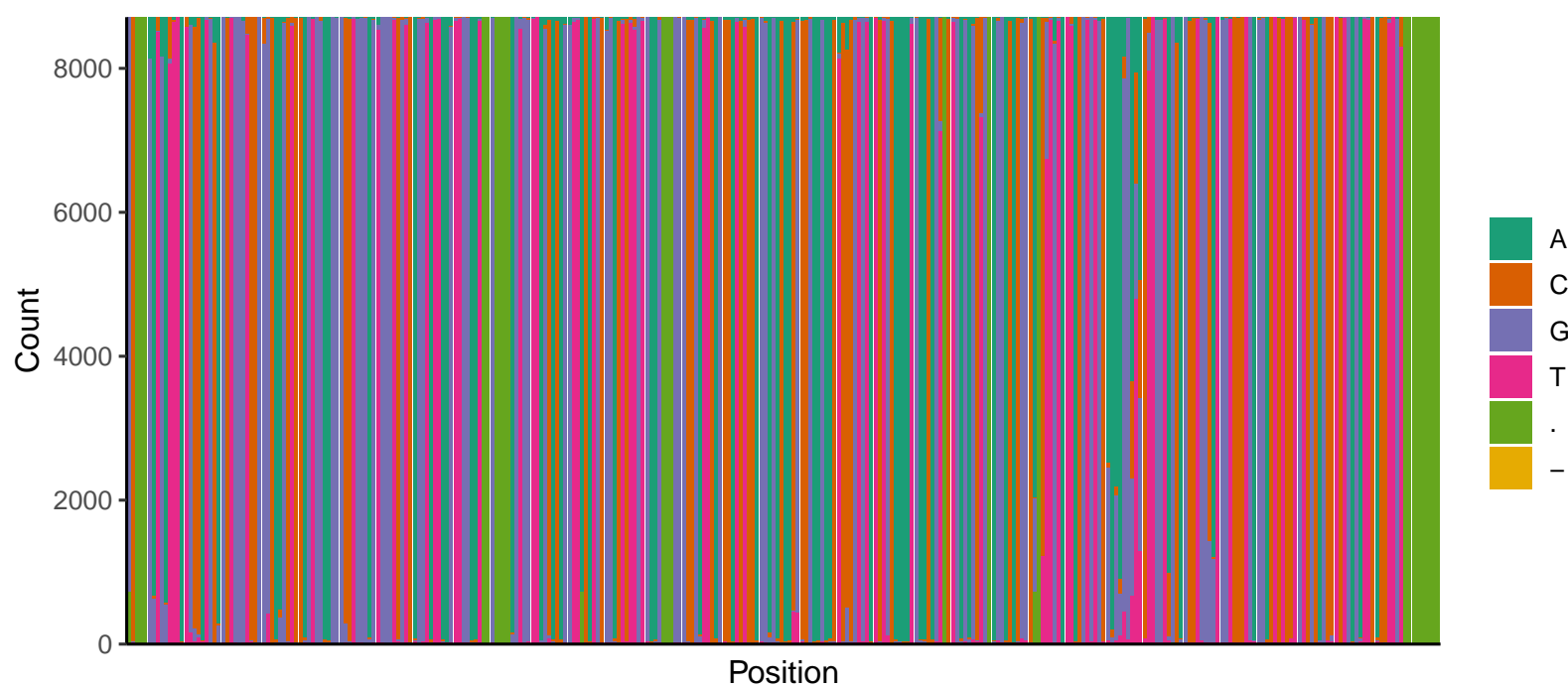
Gene IGHV4-61*08_G48A_G49C_G88A_G107A_G129C_A147C_T165C



Gene IGHV1-58*02_G61T



Gene IGHV3-9*01_T194C_C198T



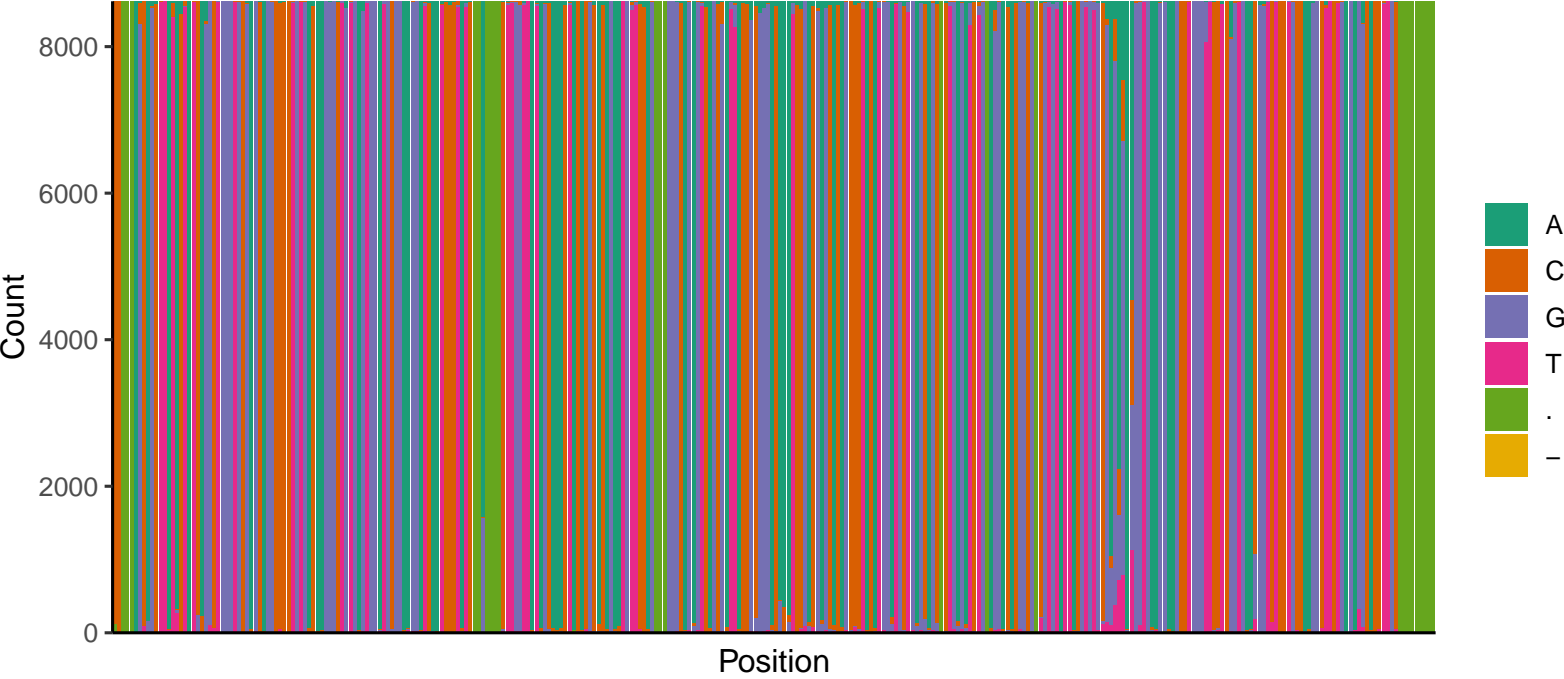
Gene IGHV3-66*01_A223C



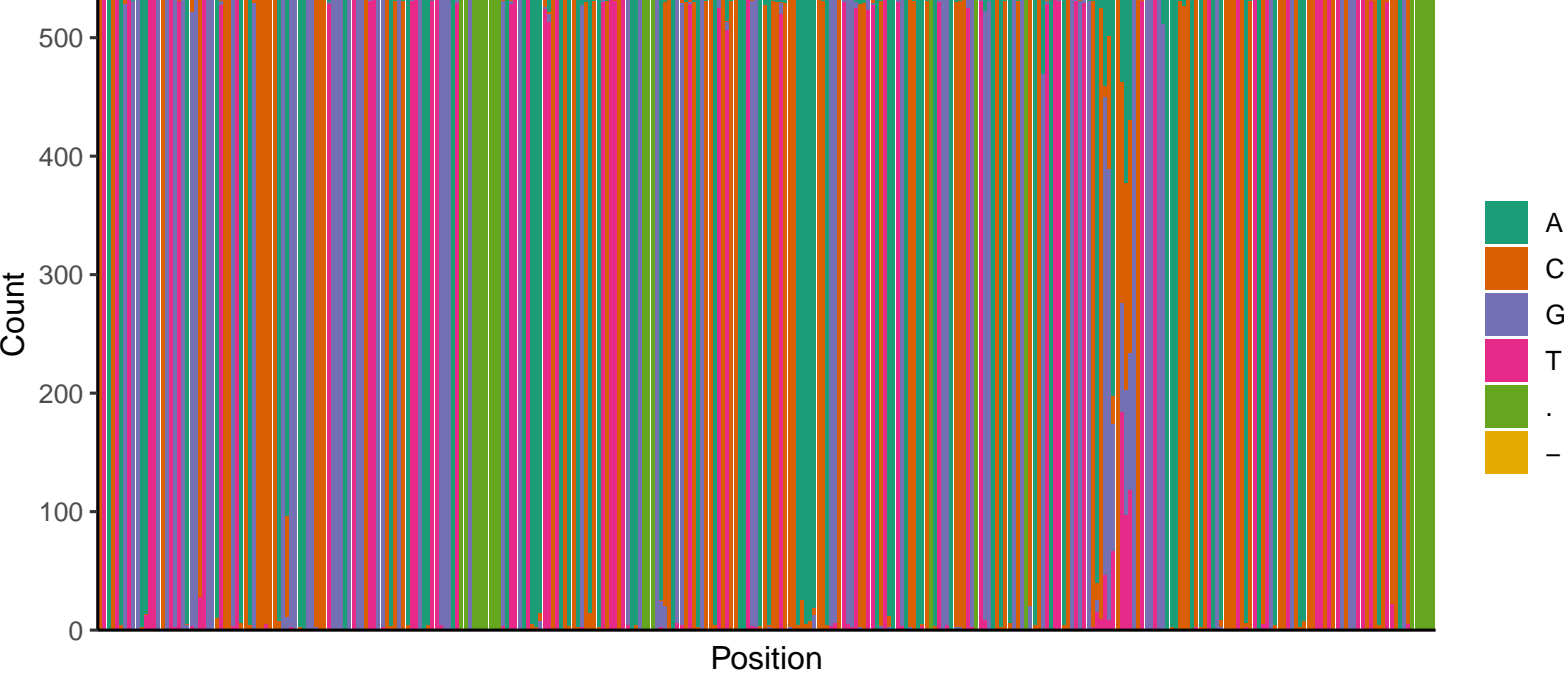
Gene IGHV3-66*01_A223C_T267G_T300C_G303A



Gene IGHV1-69*08_C191T



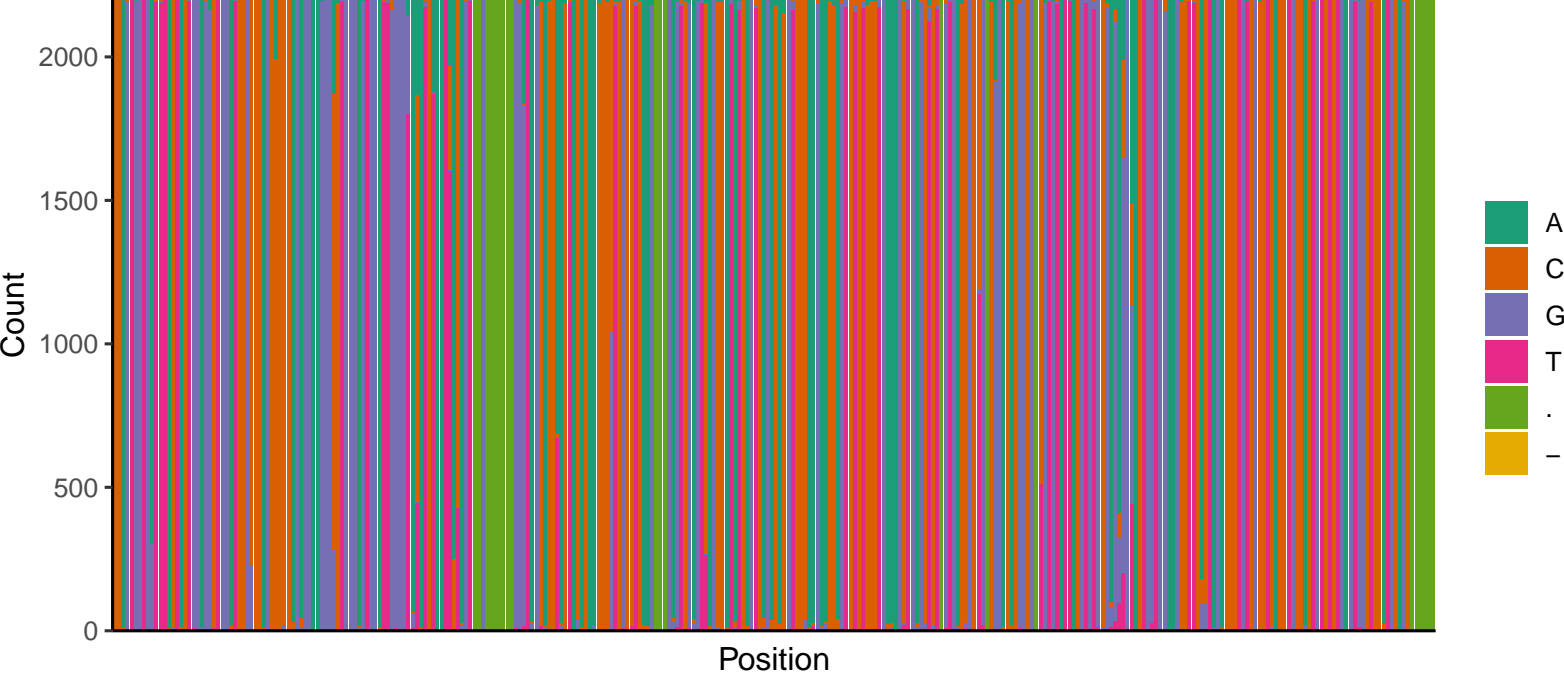
Gene IGHV2-70*04_C6T



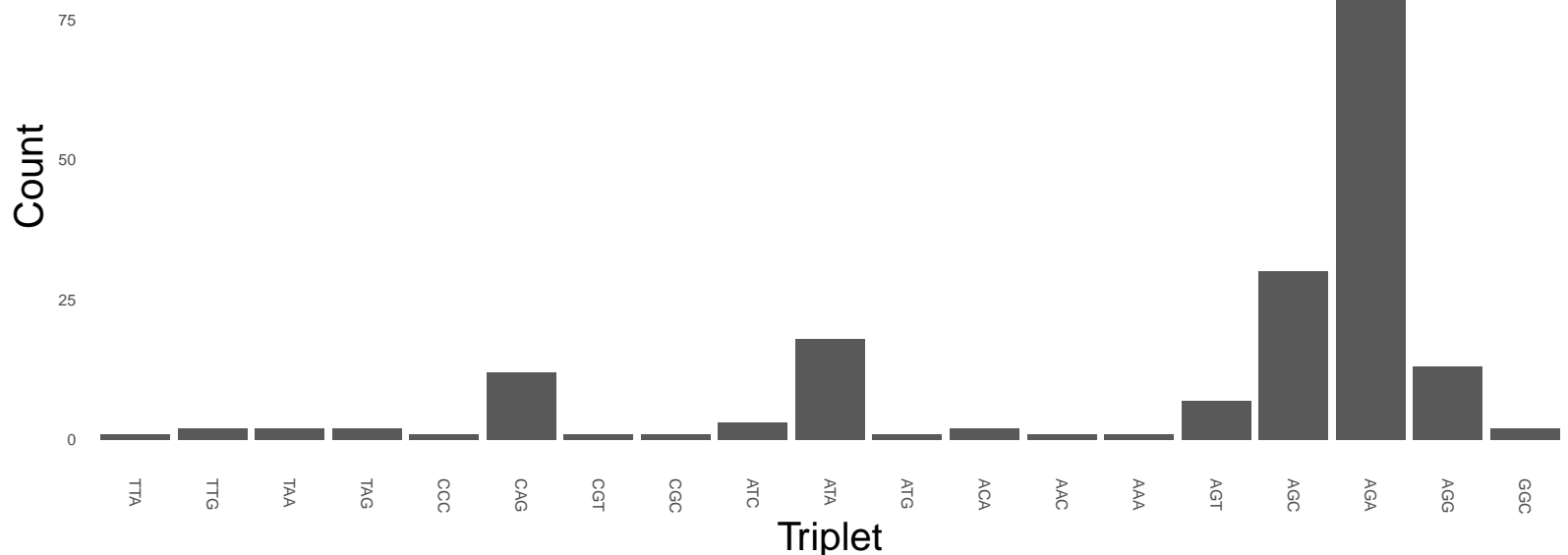
Gene IGHV2-70*15_G303A



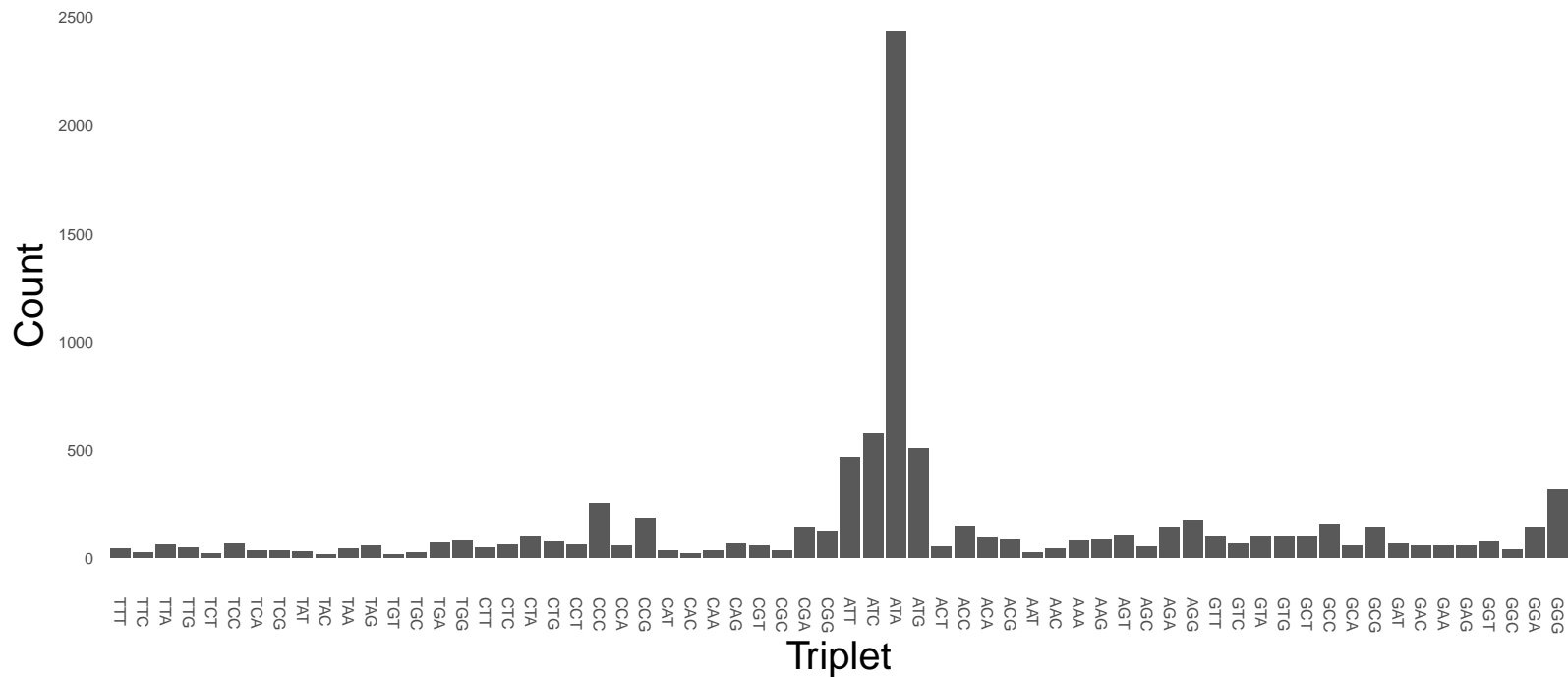
Gene IGHV4-61*08_G48A_G49C_G88A_G107A_G129C_A147C_T165C



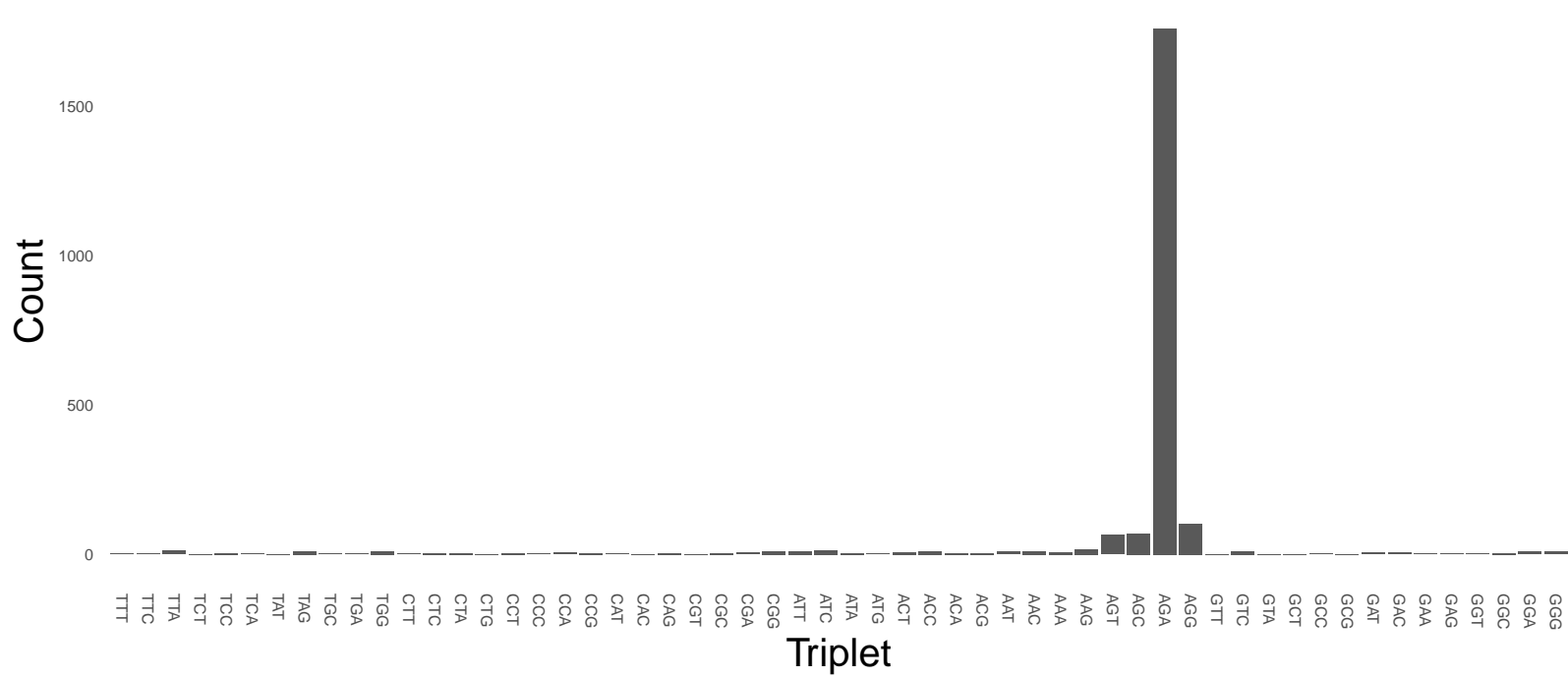
IGHV1-58*02_G61T- Final 3 nucleotides as a triplet



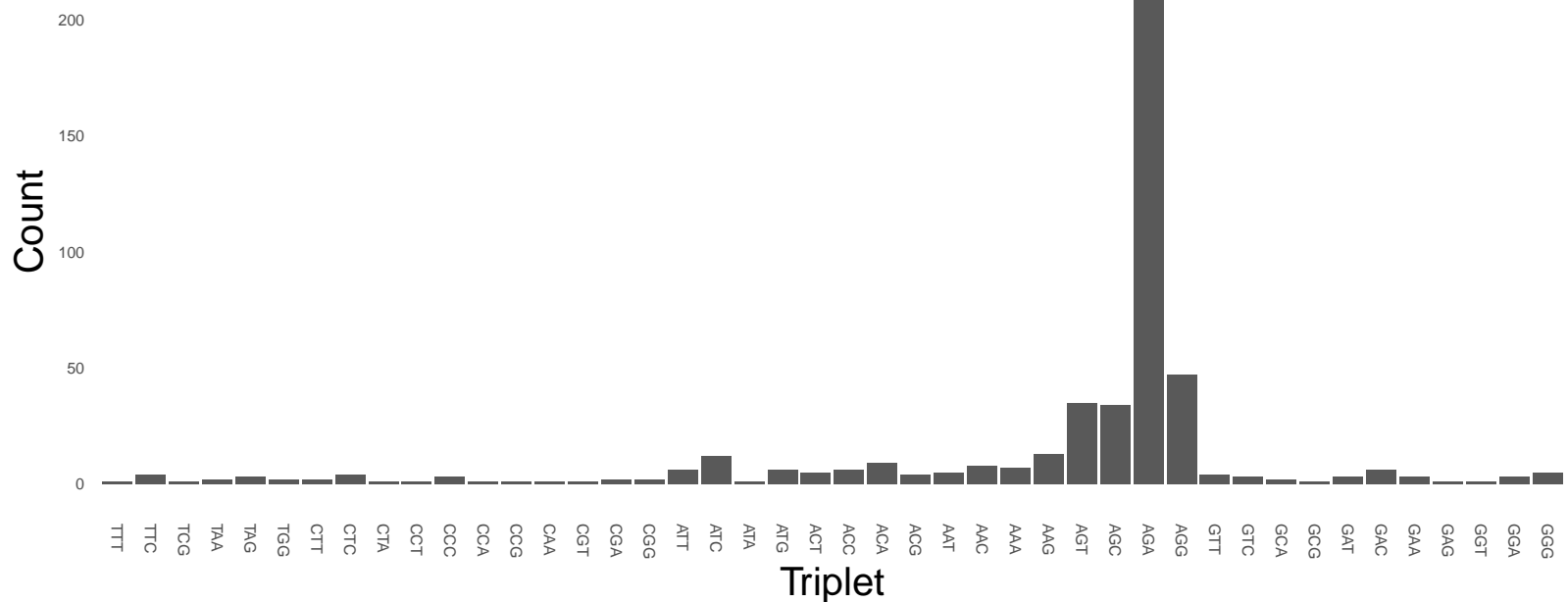
IGHV3-9*01_T194C_C198T- Final 3 nucleotides as a triplet



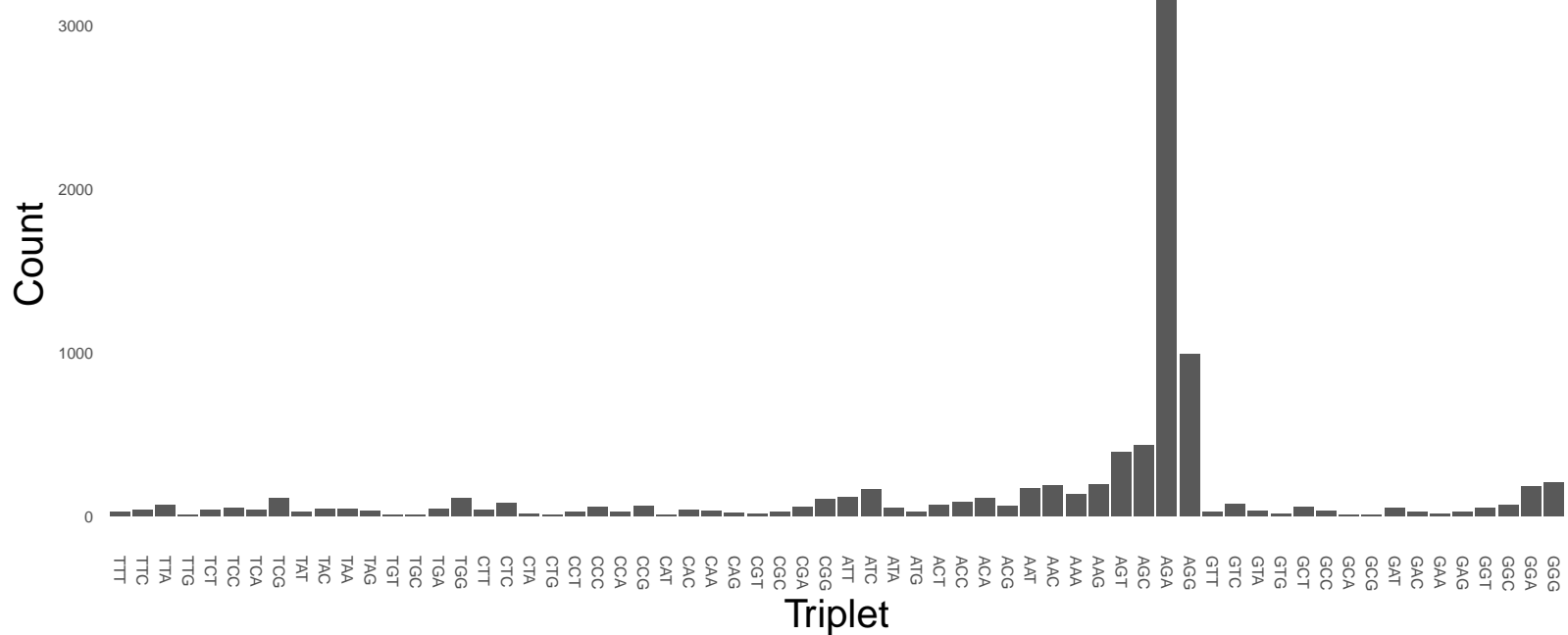
IGHV3-66*01_A223C- Final 3 nucleotides as a triplet



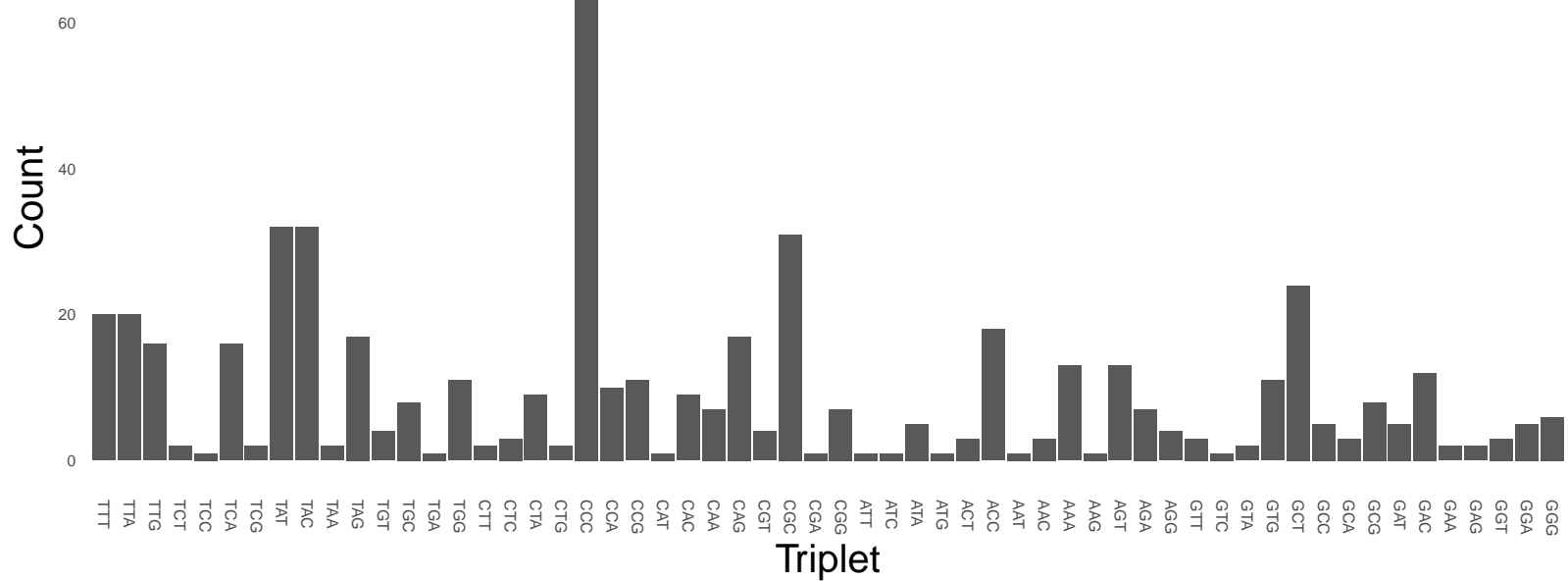
IGHV3-66*01_A223C_T267G_T300C_G303A- Final 3 nucleotides as a triplet



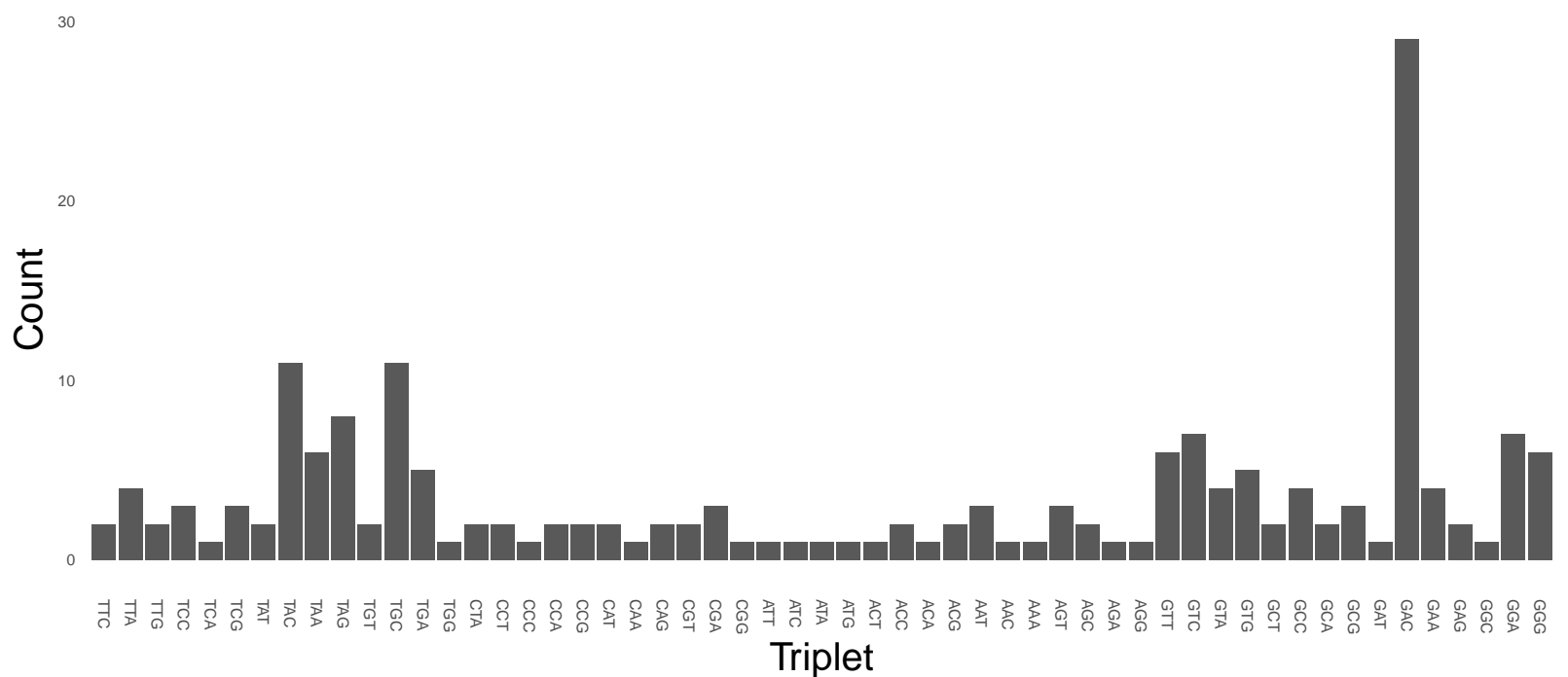
IGHV1-69*08_C191T- Final 3 nucleotides as a triplet



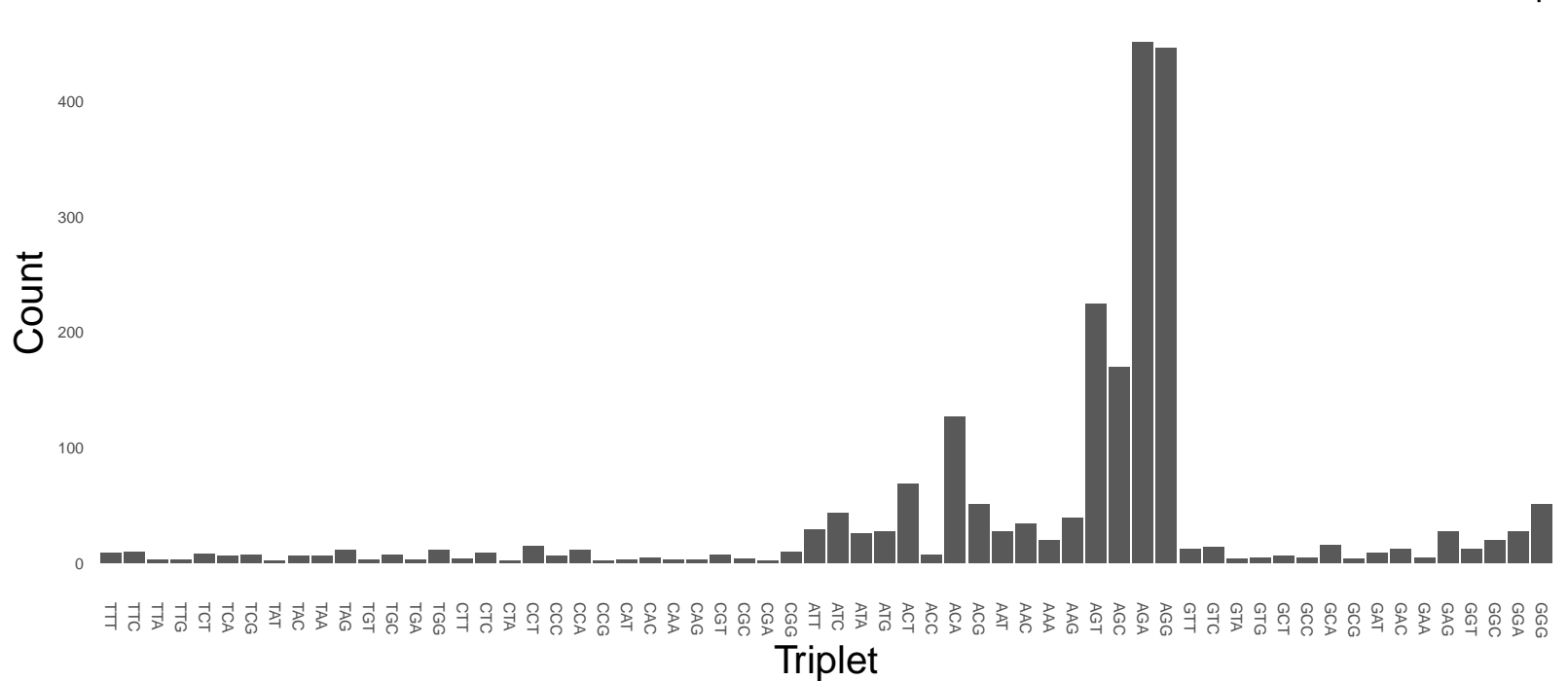
IGHV2-70*04_C6T- Final 3 nucleotides as a triplet



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

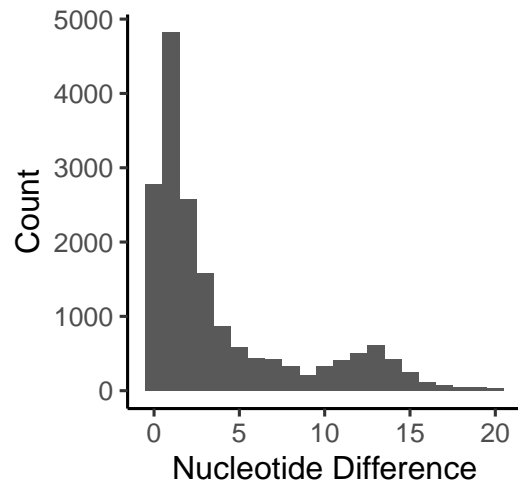


IGHV4-61*08_G48A_G49C_G88A_G107A_G129C_A147C_T165C- Final 3 nucleotides as a triplet



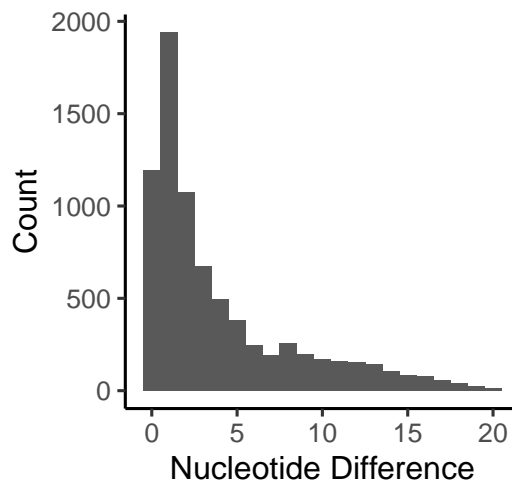
IGHV1-2*02

17663 sequences assigned
2785 (15.8%) exact matches, in which:
2379 unique CDR3
7 unique J



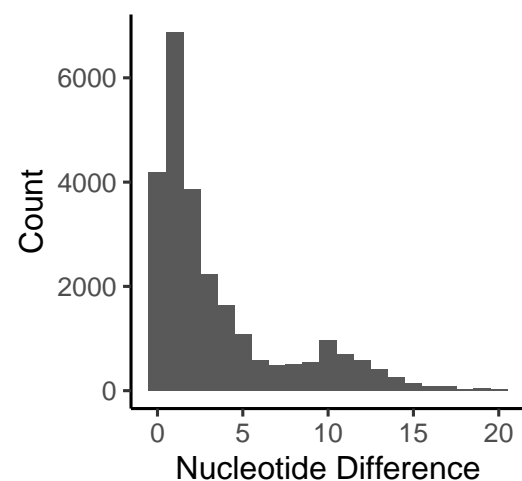
IGHV1-3*04

7783 sequences assigned
1196 (15.4%) exact matches, in which:
1044 unique CDR3
7 unique J



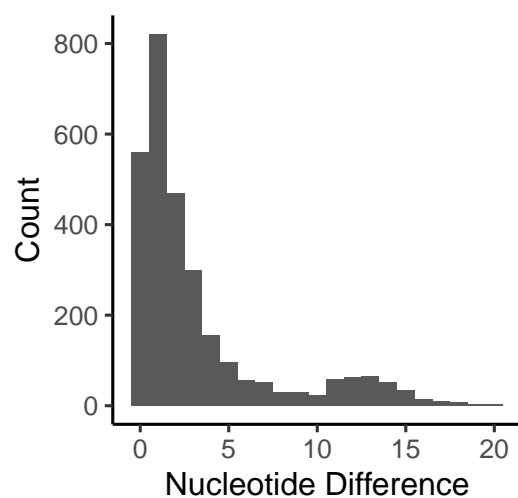
IGHV1-18*01

25606 sequences assigned
4199 (16.4%) exact matches, in which:
3549 unique CDR3
7 unique J



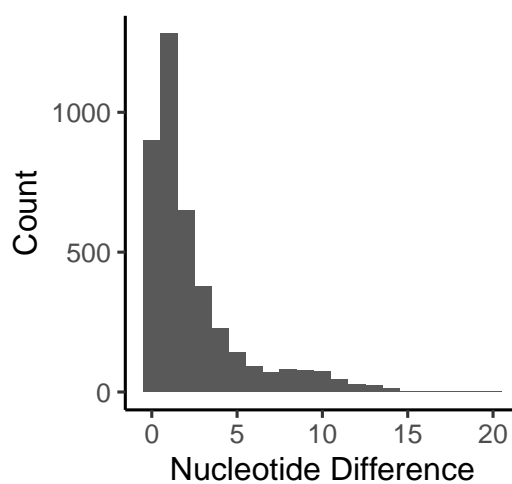
IGHV1-2*04

2934 sequences assigned
561 (19.1%) exact matches, in which:
489 unique CDR3
7 unique J



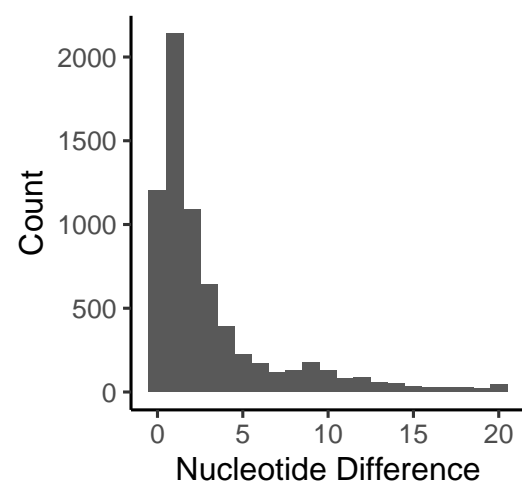
IGHV1-8*01

4100 sequences assigned
899 (21.9%) exact matches, in which:
783 unique CDR3
7 unique J



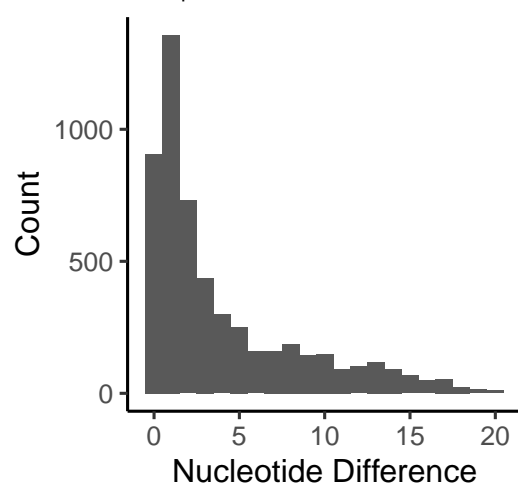
IGHV1-24*01

7151 sequences assigned
1205 (16.9%) exact matches, in which:
1014 unique CDR3
7 unique J



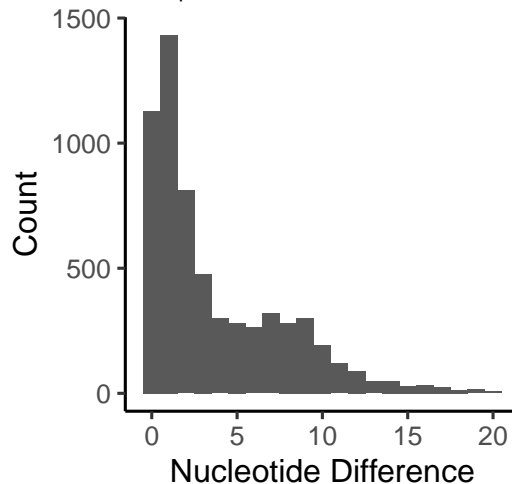
IGHV1-3*01

5482 sequences assigned
906 (16.5%) exact matches, in which:
797 unique CDR3
7 unique J



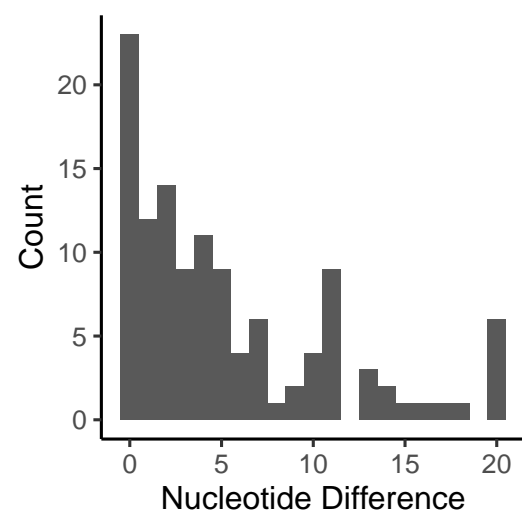
IGHV1-8*02

6260 sequences assigned
1128 (18%) exact matches, in which:
998 unique CDR3
7 unique J



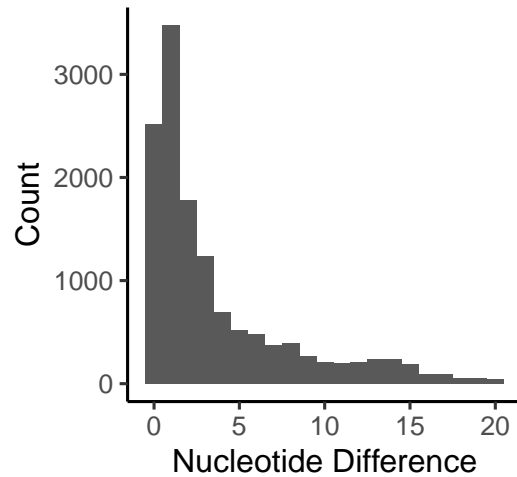
IGHV1-45*02

131 sequences assigned
23 (17.6%) exact matches, in which:
20 unique CDR3
5 unique J



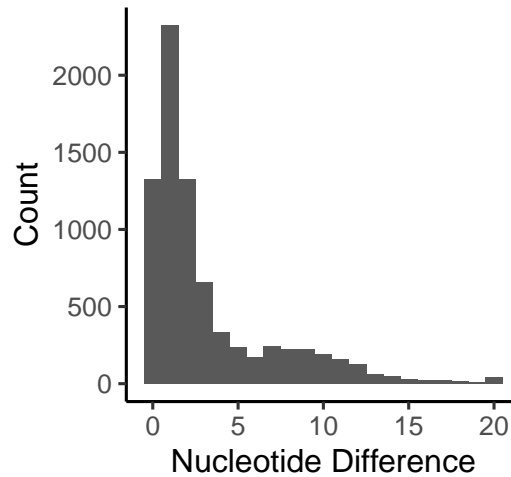
IGHV1-46*01

13527 sequences assigned
2513 (18.6%) exact matches, in which:
2150 unique CDR3
7 unique J



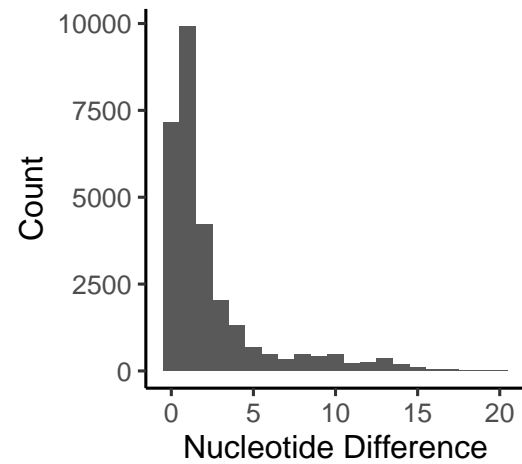
IGHV1-69-2*01

8200 sequences assigned
1323 (16.1%) exact matches, in which:
1137 unique CDR3
7 unique J



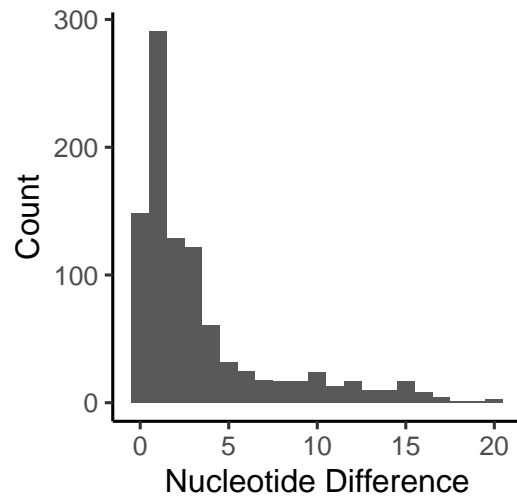
IGHV1-69*18

28877 sequences assigned
7159 (24.8%) exact matches, in which:
5964 unique CDR3
7 unique J



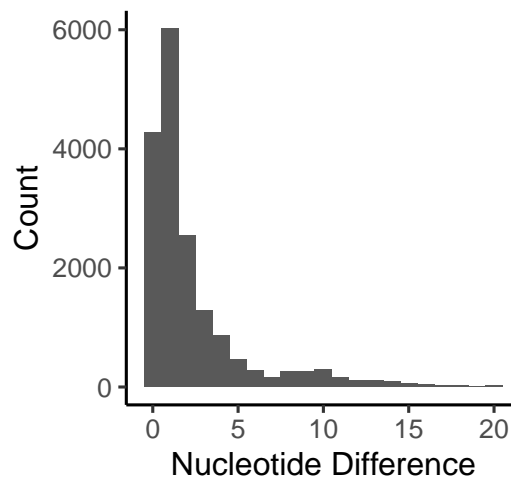
IGHV1-58*02

971 sequences assigned
148 (15.2%) exact matches, in which:
119 unique CDR3
7 unique J



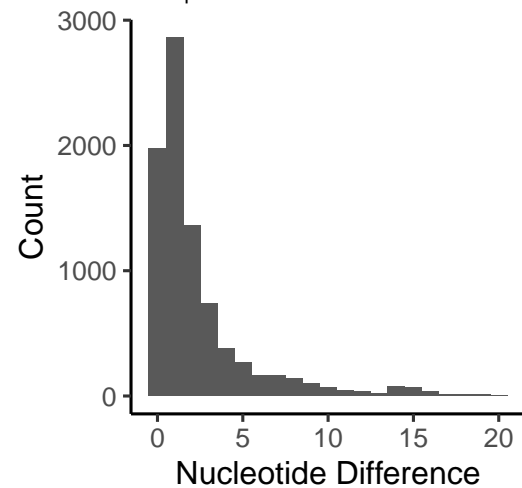
IGHV1-69*11

17526 sequences assigned
4269 (24.4%) exact matches, in which:
3680 unique CDR3
7 unique J



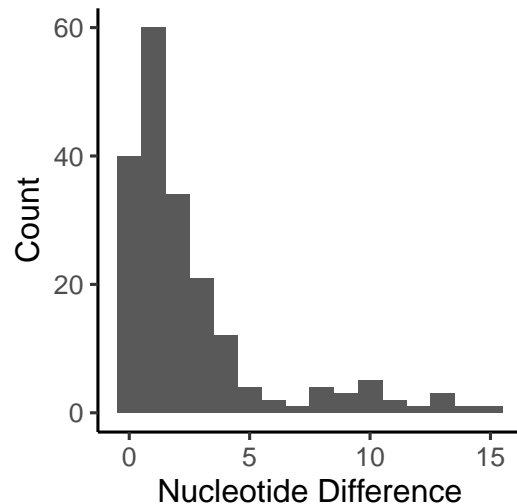
IGHV1-69*08_C191T

8619 sequences assigned
1972 (22.9%) exact matches, in which:
1715 unique CDR3
7 unique J



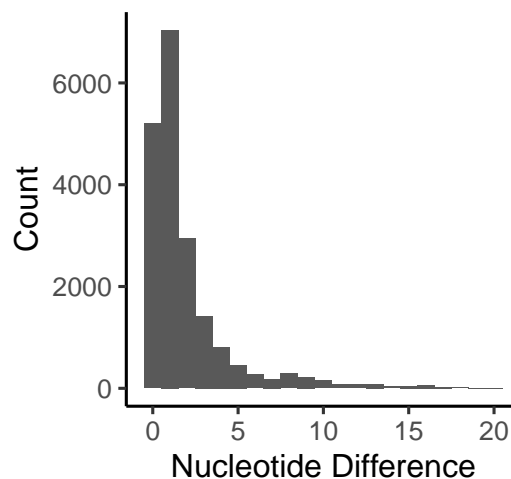
IGHV1-58*02_G61T

194 sequences assigned
40 (20.6%) exact matches, in which:
31 unique CDR3
5 unique J



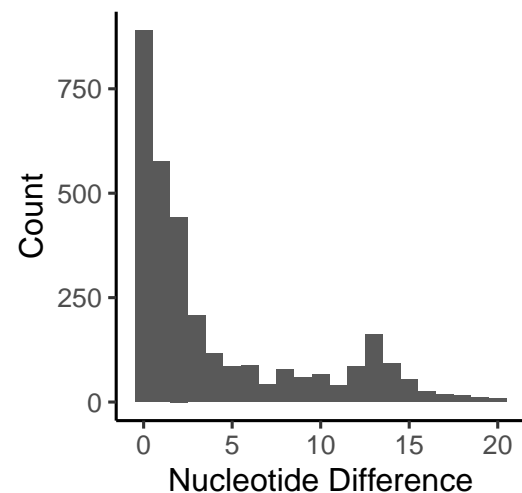
IGHV1-69*12

19559 sequences assigned
5204 (26.6%) exact matches, in which:
4489 unique CDR3
7 unique J



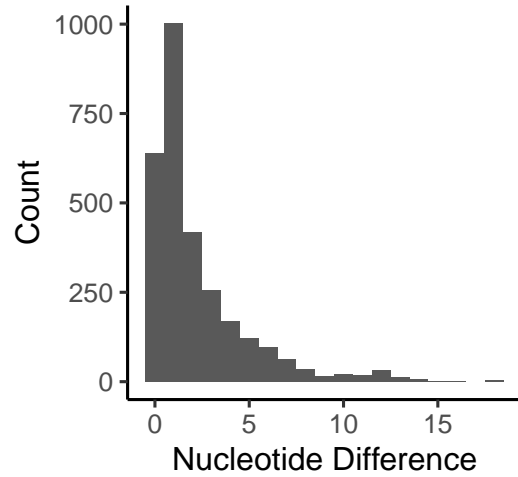
IGHV1-69D*01

3276 sequences assigned
890 (27.2%) exact matches, in which:
843 unique CDR3
7 unique J



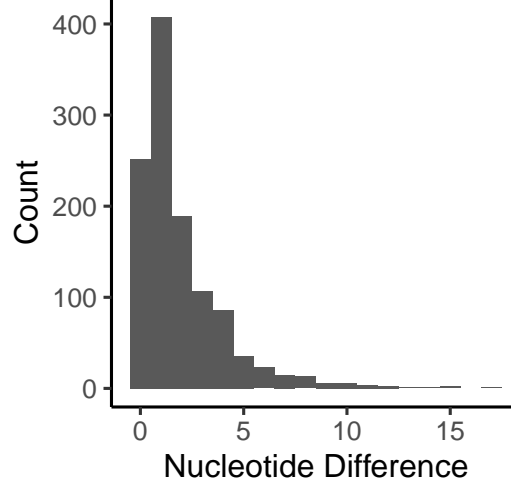
IGHV2-5*01

2960 sequences assigned
639 (21.6%) exact matches, in which:
544 unique CDR3
7 unique J



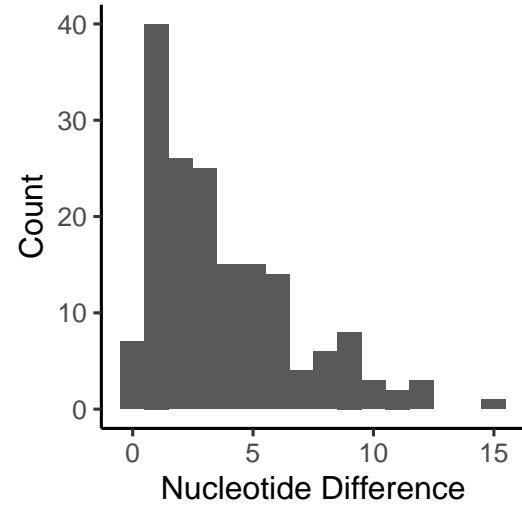
IGHV2-70*15

1207 sequences assigned
252 (20.9%) exact matches, in which:
215 unique CDR3
6 unique J



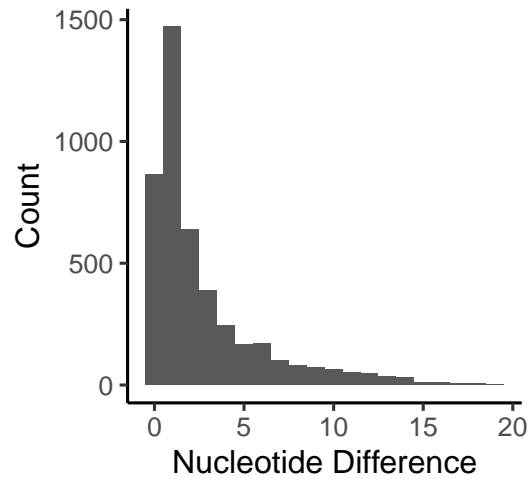
IGHV2-70D*04

169 sequences assigned
7 (4.1%) exact matches, in which:
7 unique CDR3
3 unique J



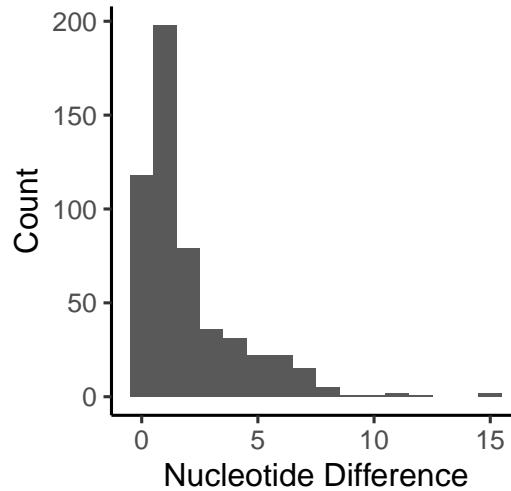
IGHV2-5*02

4535 sequences assigned
865 (19.1%) exact matches, in which:
724 unique CDR3
7 unique J



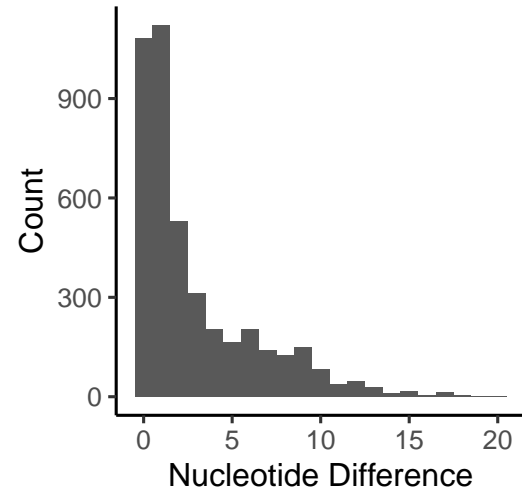
IGHV2-70*04_C6T

533 sequences assigned
118 (22.1%) exact matches, in which:
101 unique CDR3
7 unique J



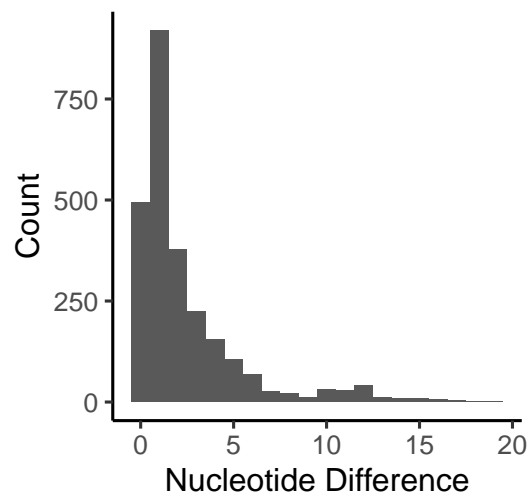
IGHV3-7*01

4337 sequences assigned
1083 (25%) exact matches, in which:
967 unique CDR3
7 unique J



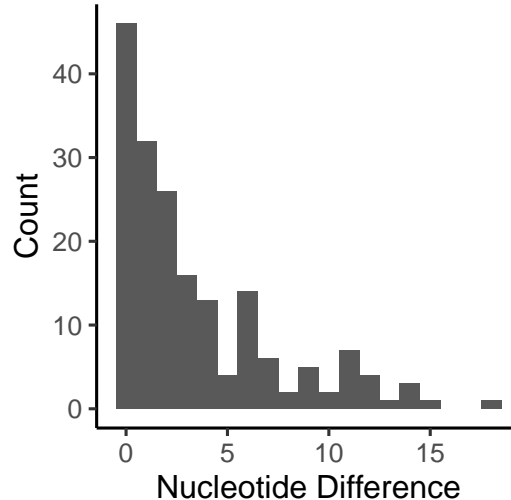
IGHV2-26*01

2638 sequences assigned
493 (18.7%) exact matches, in which:
407 unique CDR3
7 unique J



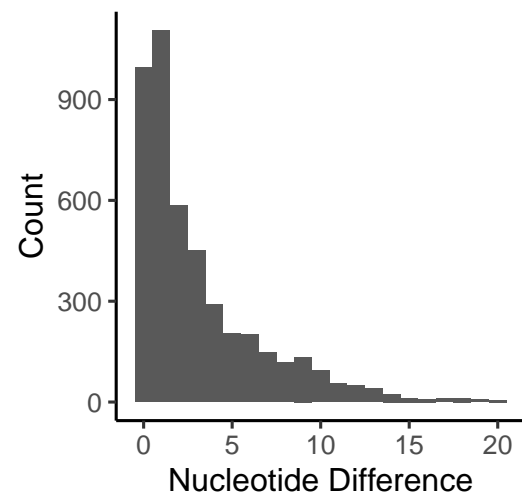
IGHV2-70*15_G303A

186 sequences assigned
46 (24.7%) exact matches, in which:
46 unique CDR3
6 unique J



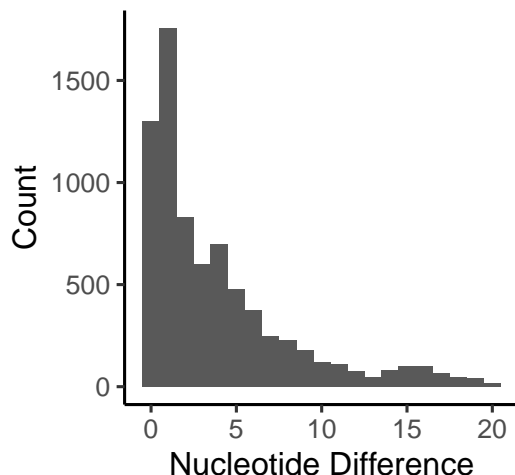
IGHV3-7*03

4611 sequences assigned
996 (21.6%) exact matches, in which:
852 unique CDR3
7 unique J



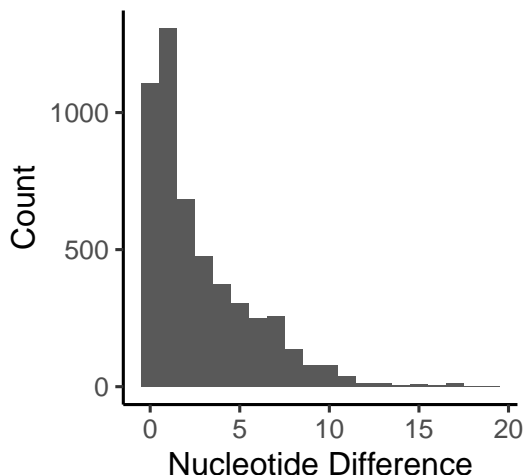
IGHV3-9*01

7608 sequences assigned
1301 (17.1%) exact matches, in which:
1035 unique CDR3
7 unique J



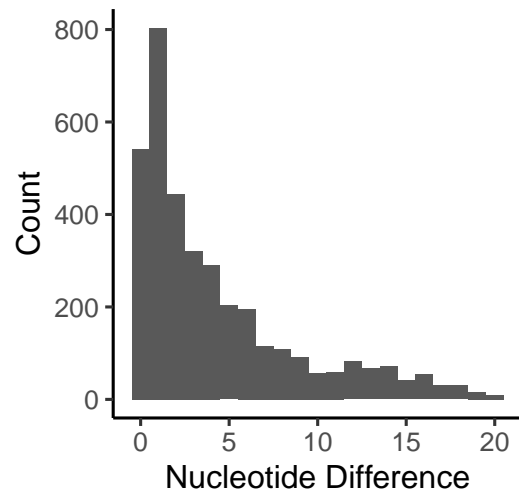
IGHV3-11*04

5296 sequences assigned
1109 (20.9%) exact matches, in which:
914 unique CDR3
7 unique J



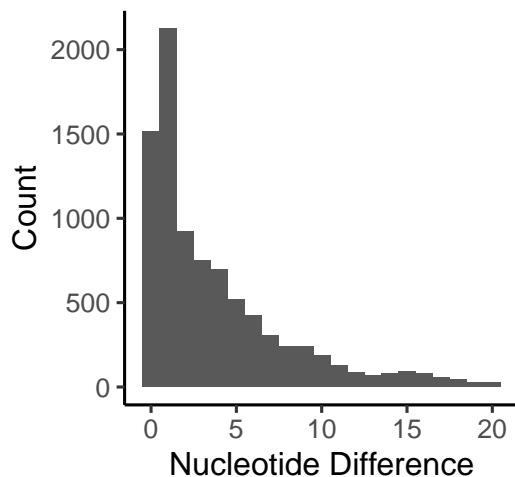
IGHV3-20*04

3694 sequences assigned
541 (14.6%) exact matches, in which:
445 unique CDR3
7 unique J



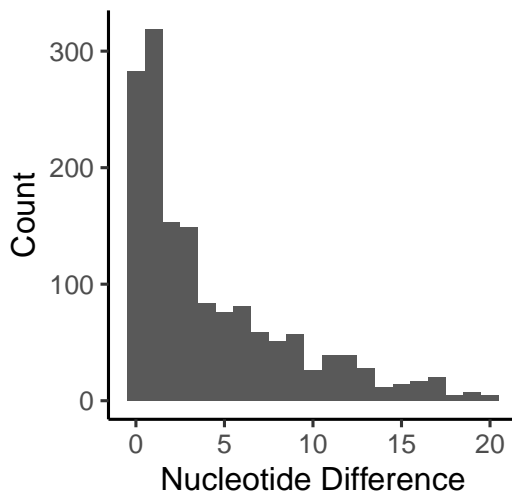
IGHV3-9*01_T194C_C1

8712 sequences assigned
1516 (17.4%) exact matches, in which:
1224 unique CDR3
7 unique J



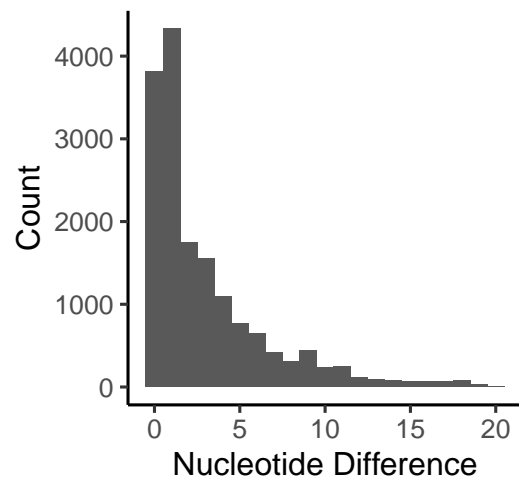
IGHV3-13*01

1541 sequences assigned
283 (18.4%) exact matches, in which:
239 unique CDR3
7 unique J



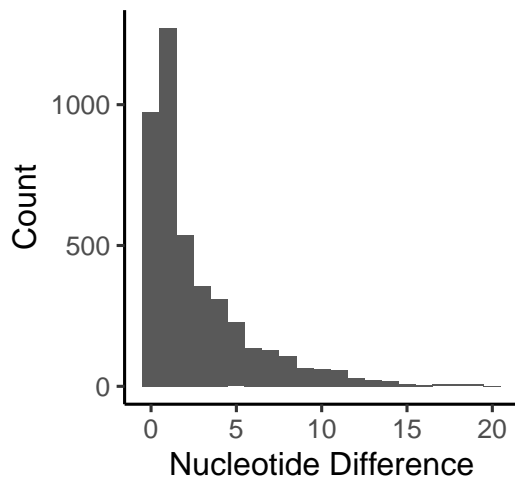
IGHV3-21*01

16379 sequences assigned
3817 (23.3%) exact matches, in which:
3132 unique CDR3
7 unique J



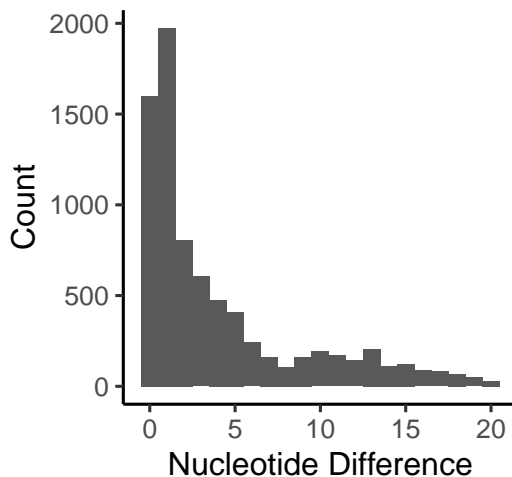
IGHV3-11*01

4413 sequences assigned
974 (22.1%) exact matches, in which:
795 unique CDR3
7 unique J



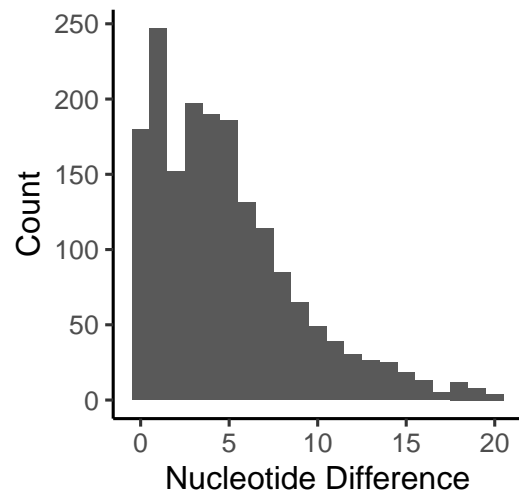
IGHV3-15*01

7991 sequences assigned
1600 (20%) exact matches, in which:
1304 unique CDR3
7 unique J



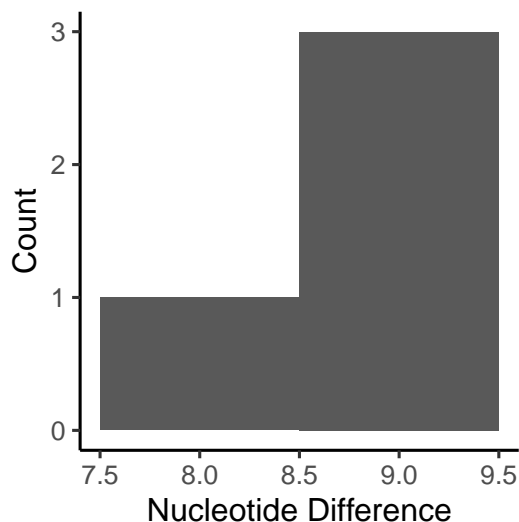
IGHV3-21*04

1796 sequences assigned
180 (10%) exact matches, in which:
176 unique CDR3
7 unique J



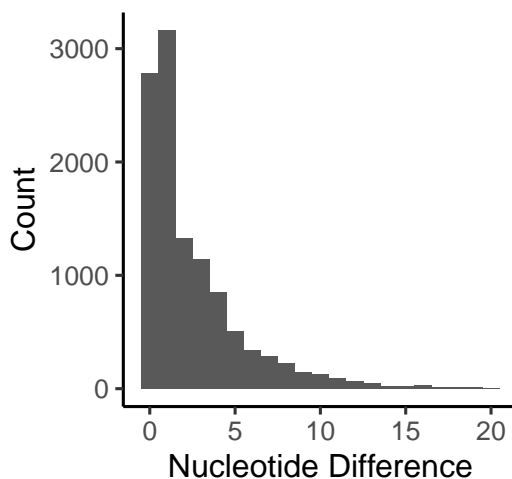
IGHV3-22*02

4 sequences assigned
No exact matches.



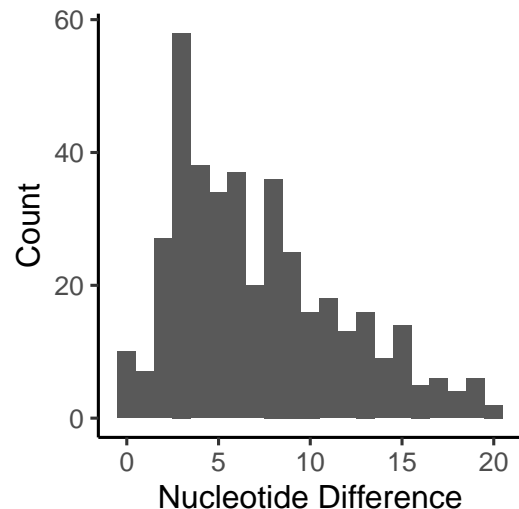
IGHV3-30*01

11361 sequences assigned
2783 (24.5%) exact matches, in which:
2372 unique CDR3
7 unique J



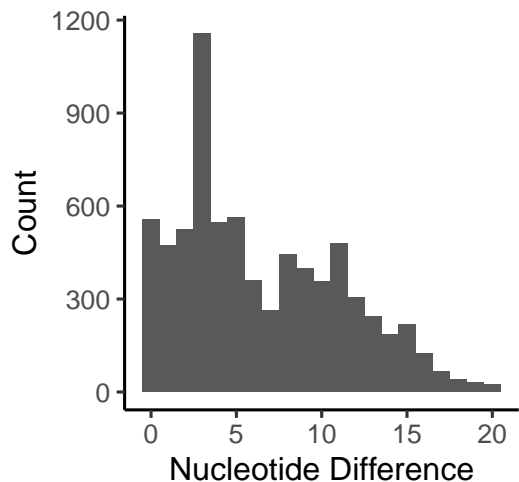
IGHV3-33*08

406 sequences assigned
10 (2.5%) exact matches, in which:
10 unique CDR3
3 unique J



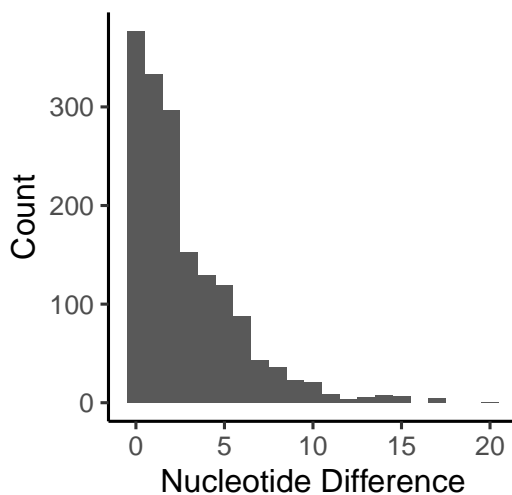
IGHV3-23*04

7619 sequences assigned
558 (7.3%) exact matches, in which:
510 unique CDR3
7 unique J



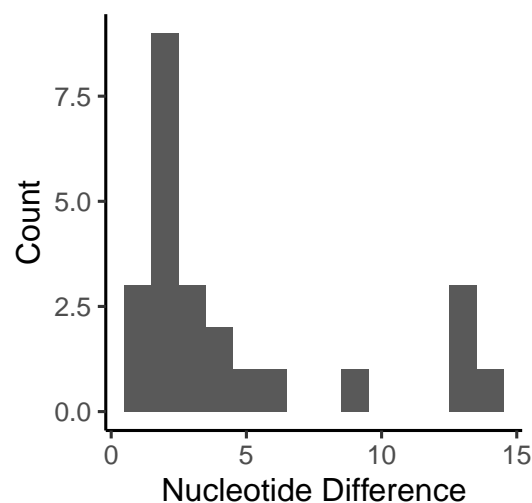
IGHV3-33*01

1663 sequences assigned
377 (22.7%) exact matches, in which:
370 unique CDR3
7 unique J



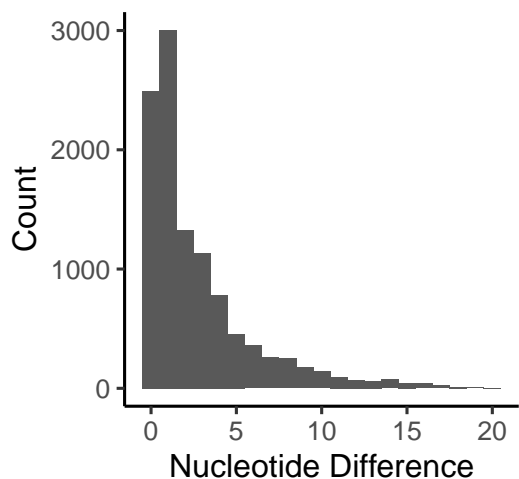
IGHV3-35*01

24 sequences assigned
No exact matches.



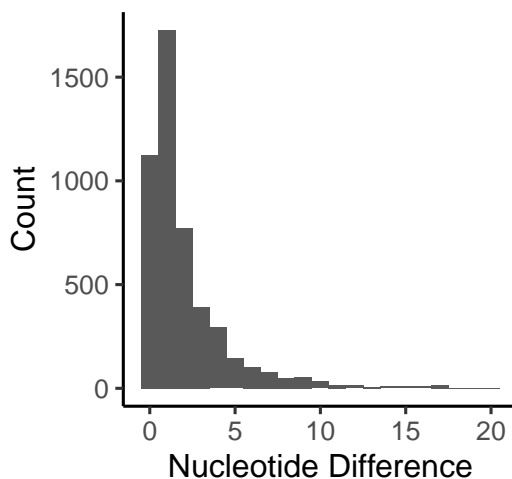
IGHV3-30-3*01

10969 sequences assigned
2494 (22.7%) exact matches, in which:
2074 unique CDR3
7 unique J



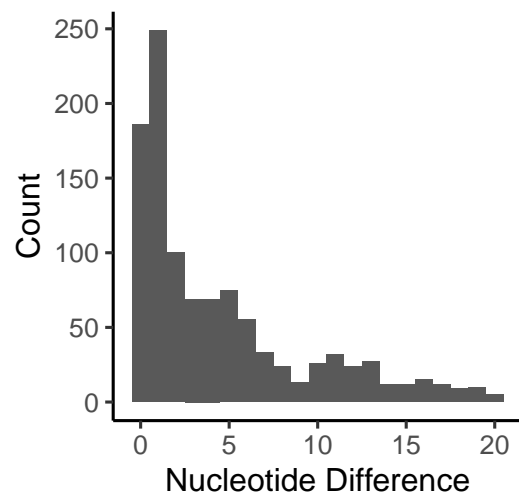
IGHV3-33*06

4884 sequences assigned
1124 (23%) exact matches, in which:
873 unique CDR3
7 unique J



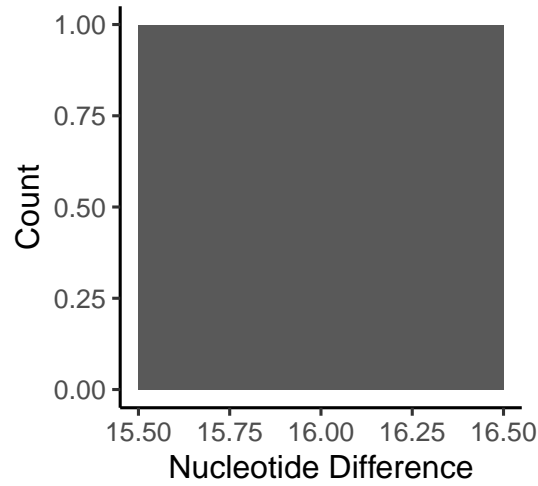
IGHV3-43*01

1069 sequences assigned
186 (17.4%) exact matches, in which:
159 unique CDR3
6 unique J



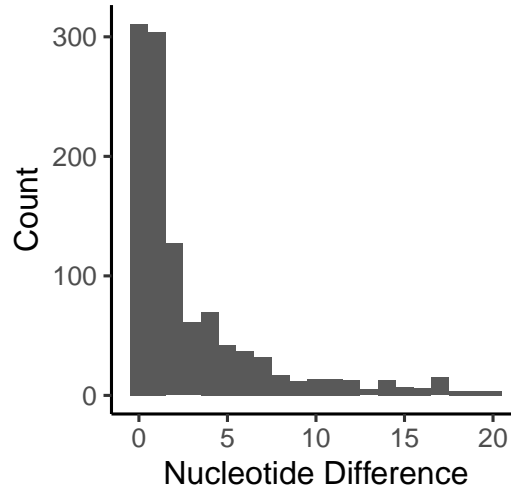
IGHV3-47*02

1 sequences assigned
No exact matches.



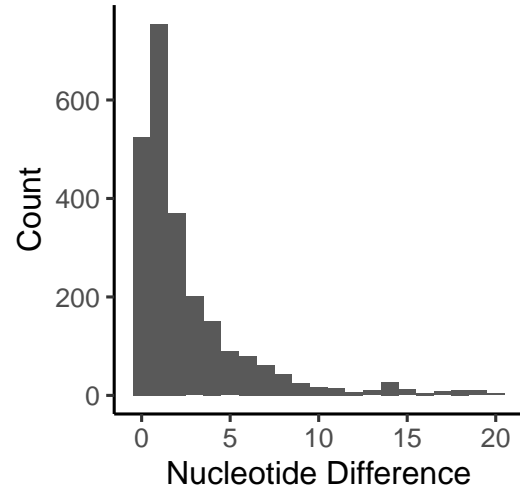
IGHV3-49*03

1127 sequences assigned
311 (27.6%) exact matches, in which:
265 unique CDR3
7 unique J



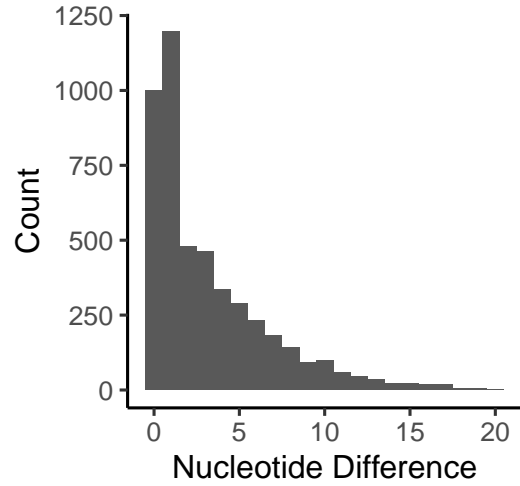
IGHV3-53*01

2445 sequences assigned
525 (21.5%) exact matches, in which:
420 unique CDR3
7 unique J



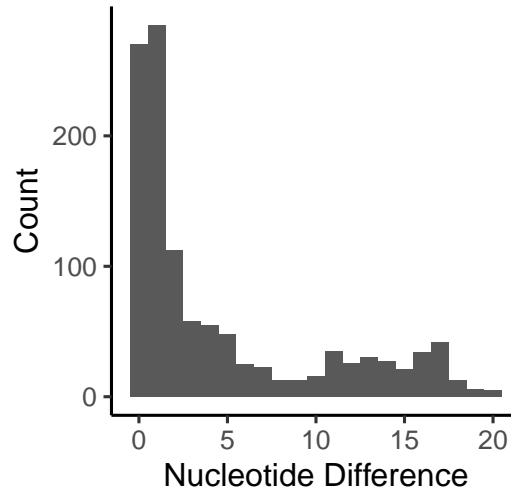
IGHV3-48*01

4767 sequences assigned
999 (21%) exact matches, in which:
834 unique CDR3
7 unique J



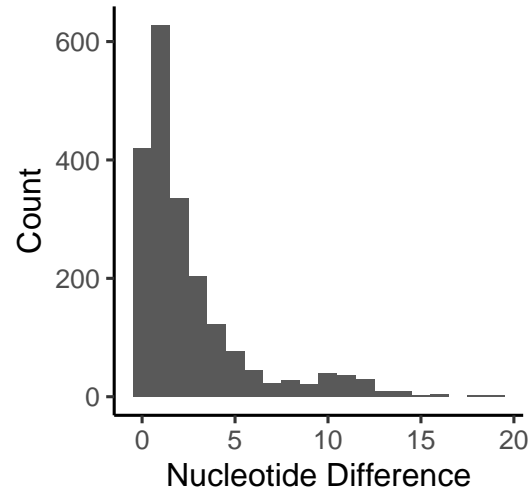
IGHV3-49*04

1178 sequences assigned
270 (22.9%) exact matches, in which:
228 unique CDR3
7 unique J



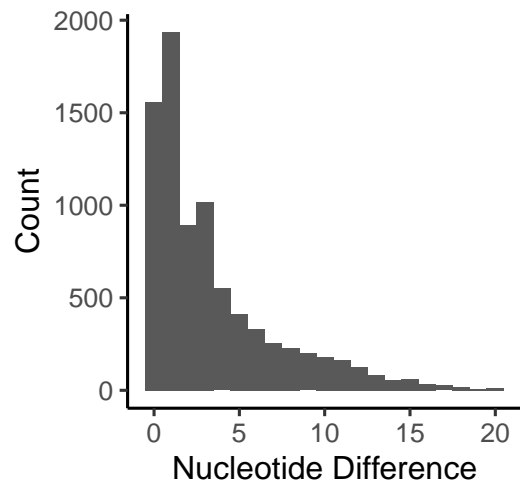
IGHV3-53*04

2069 sequences assigned
420 (20.3%) exact matches, in which:
322 unique CDR3
7 unique J



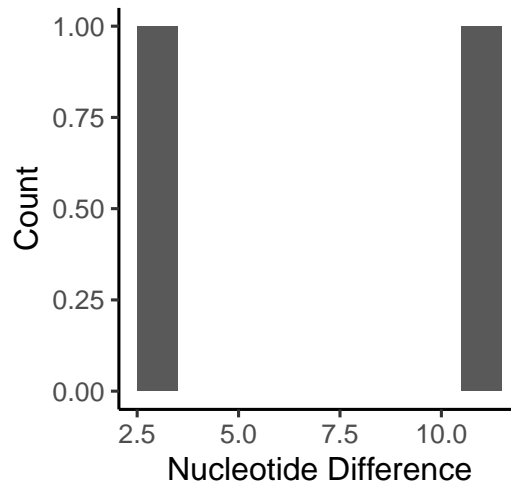
IGHV3-48*04

8231 sequences assigned
1558 (18.9%) exact matches, in which:
1332 unique CDR3
7 unique J



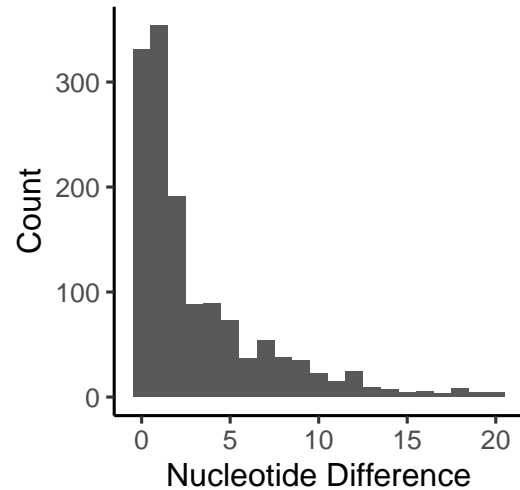
IGHV3-52*01

2 sequences assigned
No exact matches.



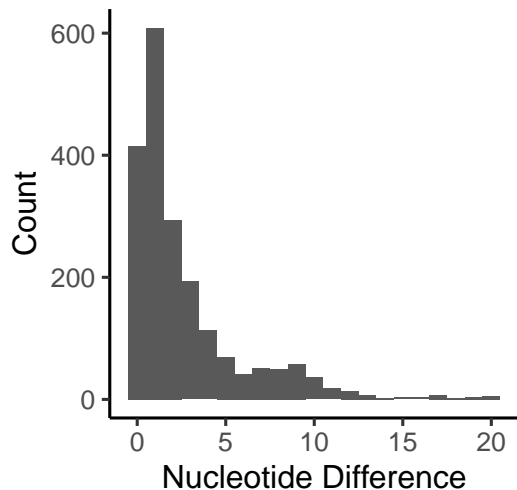
IGHV3-64*01

1423 sequences assigned
331 (23.3%) exact matches, in which:
270 unique CDR3
7 unique J



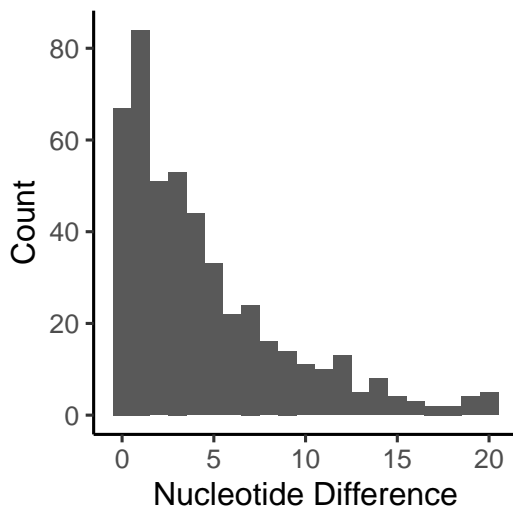
IGHV3-66*02

2024 sequences assigned
415 (20.5%) exact matches, in which:
332 unique CDR3
7 unique J



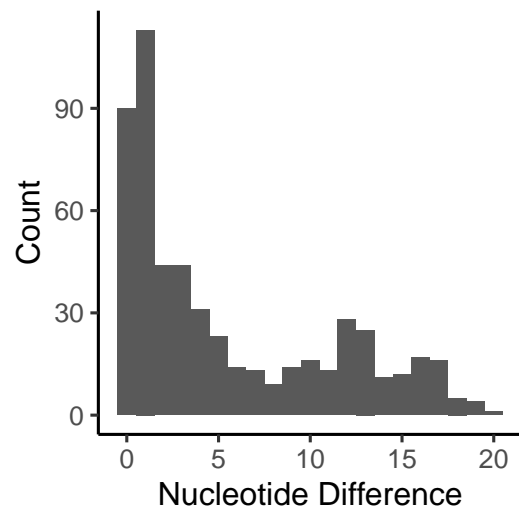
IGHV3-66*01_A223C_T26

488 sequences assigned
67 (13.7%) exact matches, in which:
67 unique CDR3
7 unique J



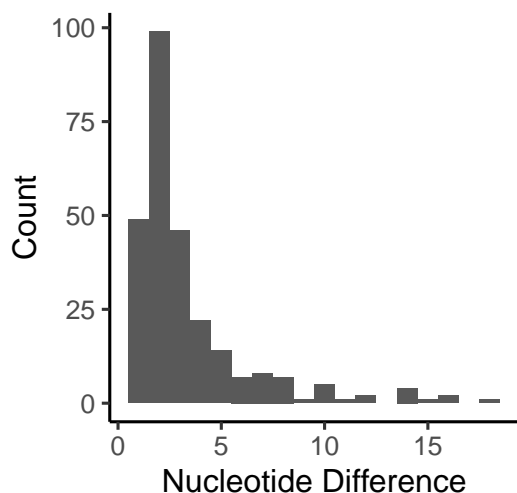
IGHV3-72*01

565 sequences assigned
90 (15.9%) exact matches, in which:
72 unique CDR3
6 unique J



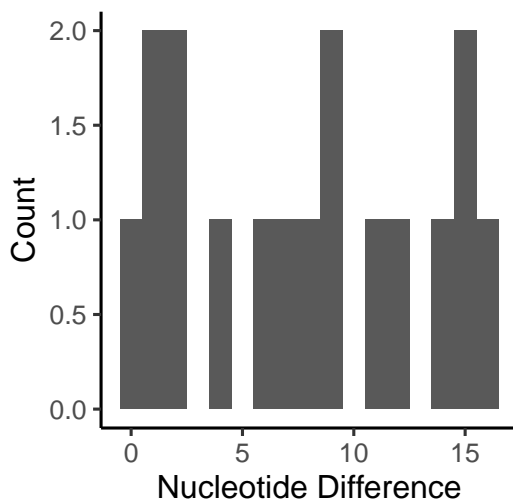
IGHV3-66*03

270 sequences assigned
No exact matches.



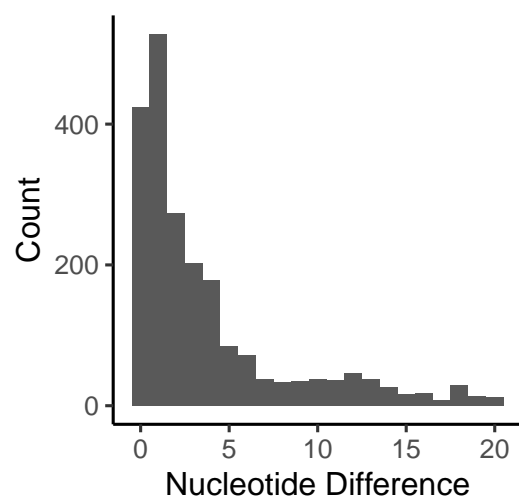
IGHV3-69-1*01

18 sequences assigned
1 (5.6%) exact matches, in which:
1 unique CDR3
1 unique J



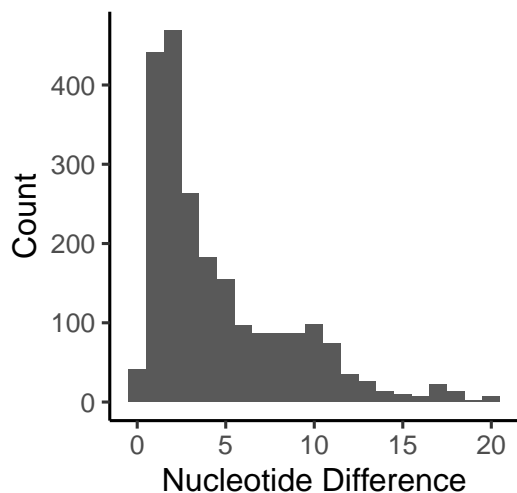
IGHV3-73*01

2193 sequences assigned
424 (19.3%) exact matches, in which:
358 unique CDR3
7 unique J



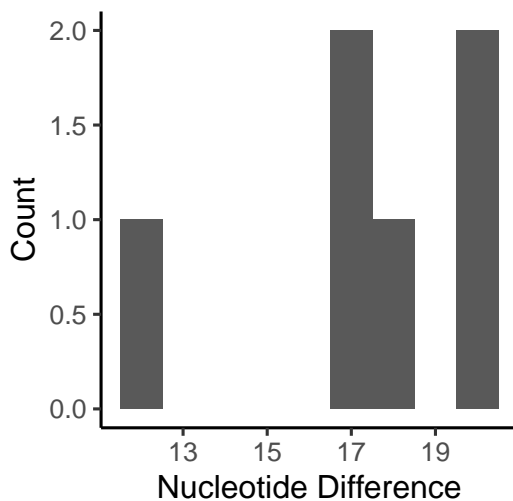
IGHV3-66*01_A223C

2273 sequences assigned
41 (1.8%) exact matches, in which:
41 unique CDR3
5 unique J



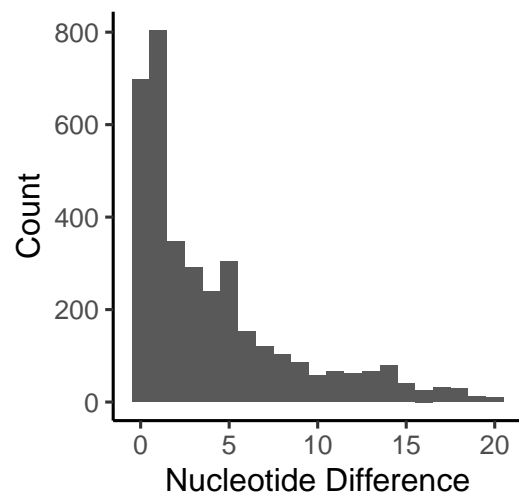
IGHV3-71*04

9 sequences assigned
No exact matches.



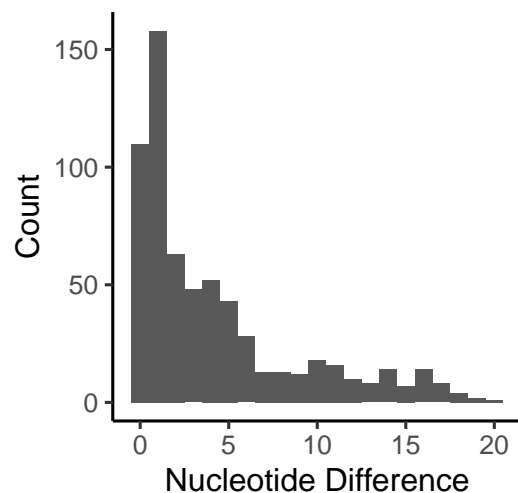
IGHV3-74*01

3666 sequences assigned
698 (19%) exact matches, in which:
611 unique CDR3
7 unique J



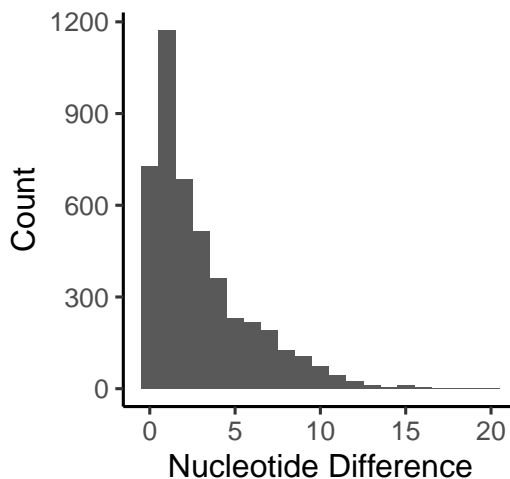
IGHV3-43D*04

649 sequences assigned
110 (16.9%) exact matches, in which:
93 unique CDR3
6 unique J



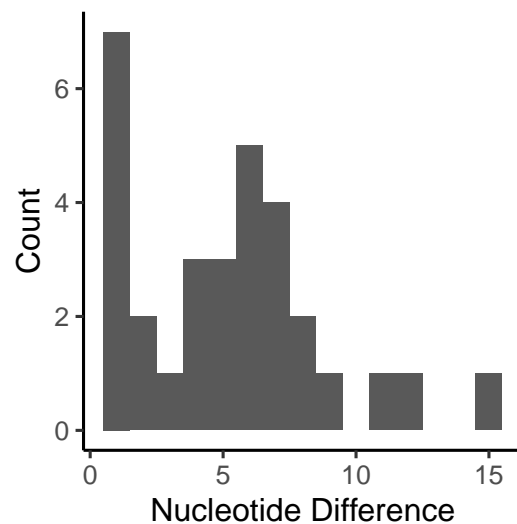
IGHV4-4*03

4586 sequences assigned
727 (15.9%) exact matches, in which:
612 unique CDR3
7 unique J



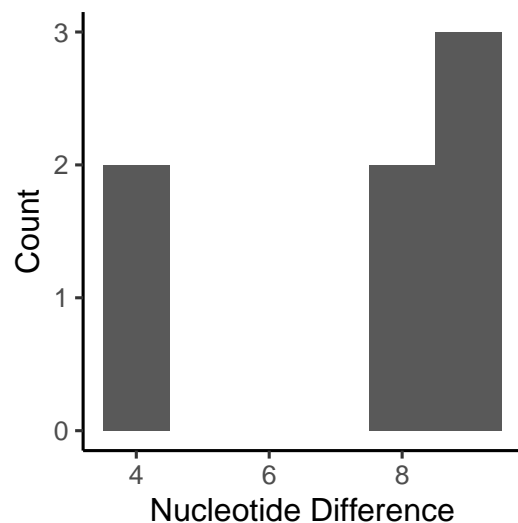
IGHV4-28*03

32 sequences assigned
No exact matches.



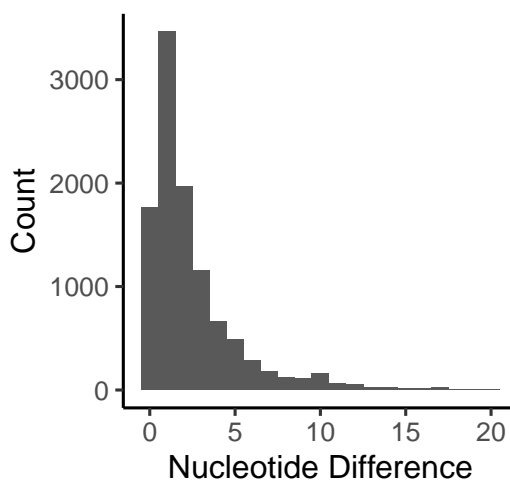
IGHV3-64D*06

7 sequences assigned
No exact matches.



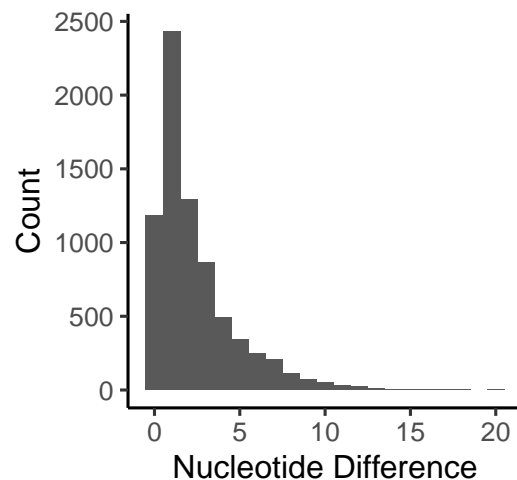
IGHV4-4*09

10629 sequences assigned
1765 (16.6%) exact matches, in which:
1471 unique CDR3
7 unique J



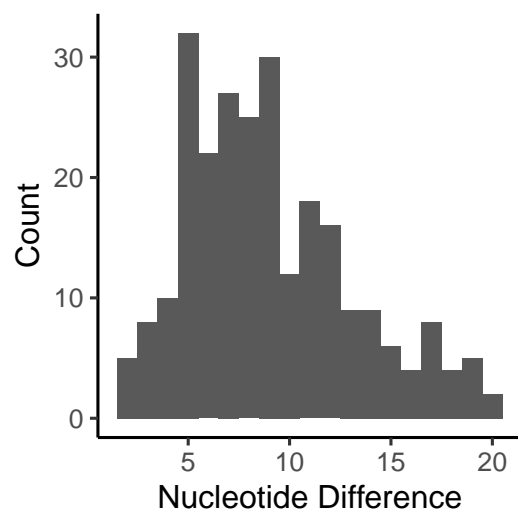
IGHV4-30-4*08

7438 sequences assigned
1184 (15.9%) exact matches, in which:
987 unique CDR3
7 unique J



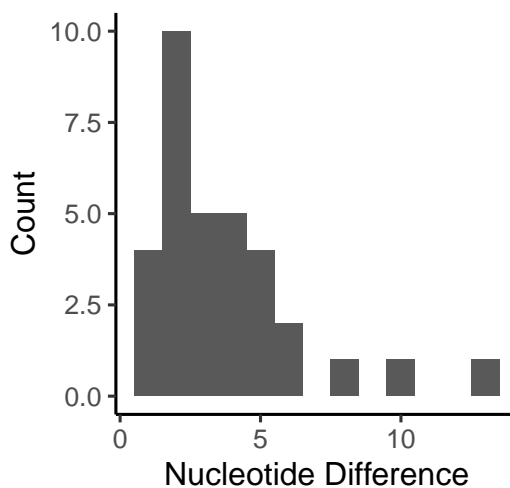
IGHV3-NL1*01

262 sequences assigned
No exact matches.



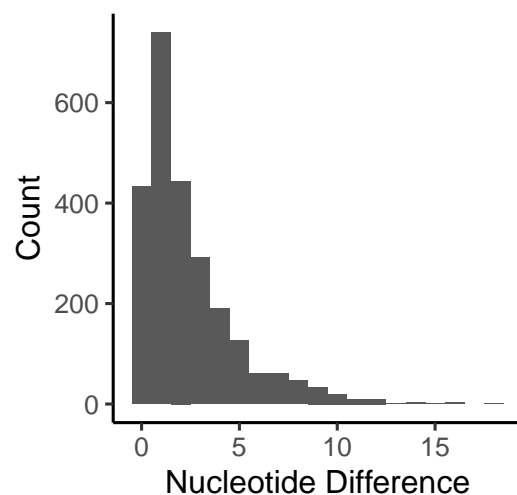
IGHV4-28*01

33 sequences assigned
No exact matches.



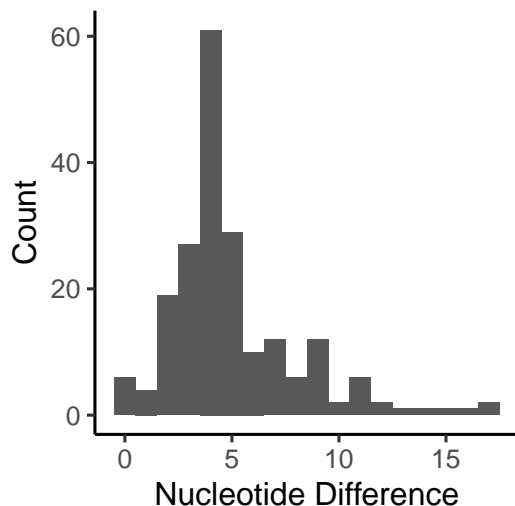
IGHV4-31*01

2492 sequences assigned
433 (17.4%) exact matches, in which:
347 unique CDR3
7 unique J



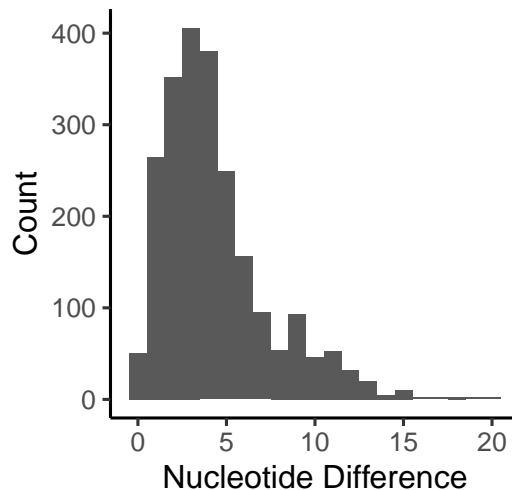
IGHV4-31*03

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



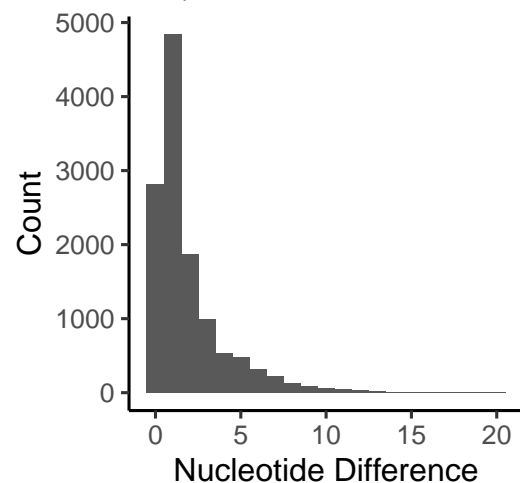
IGHV4-38-2*02

2324 sequences assigned
51 (2.2%) exact matches, in which:
51 unique CDR3
6 unique J



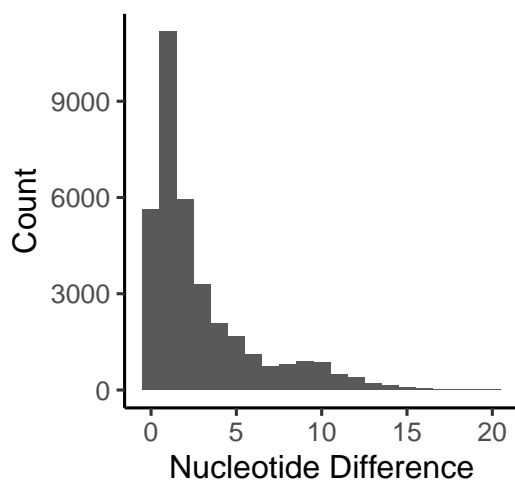
IGHV4-59*11

12494 sequences assigned
2821 (22.6%) exact matches, in which:
2408 unique CDR3
7 unique J



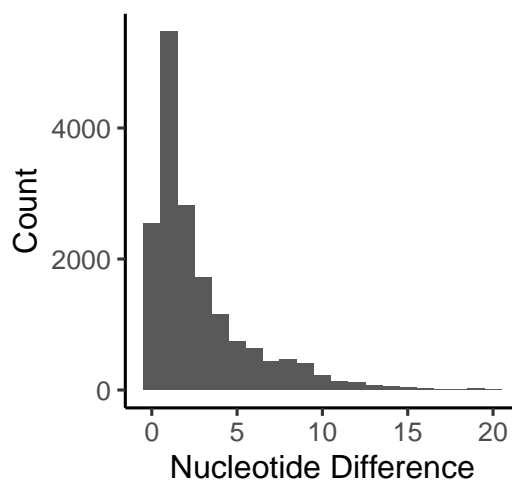
IGHV4-34*01

35953 sequences assigned
5636 (15.7%) exact matches, in which:
4674 unique CDR3
7 unique J



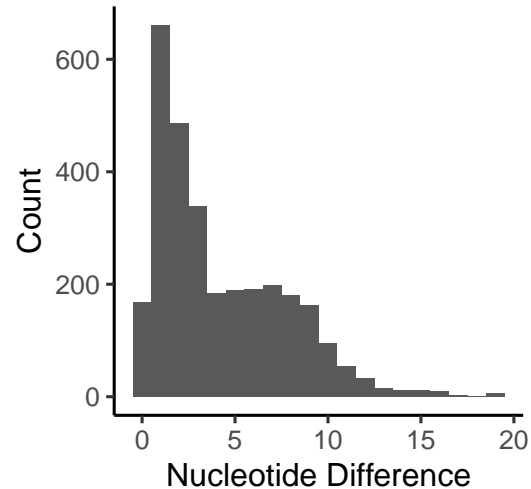
IGHV4-39*07

17144 sequences assigned
2547 (14.9%) exact matches, in which:
2196 unique CDR3
7 unique J



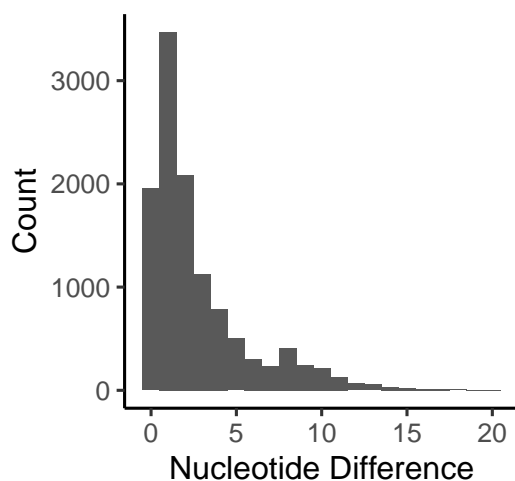
IGHV4-59*12

3027 sequences assigned
168 (5.6%) exact matches, in which:
167 unique CDR3
6 unique J



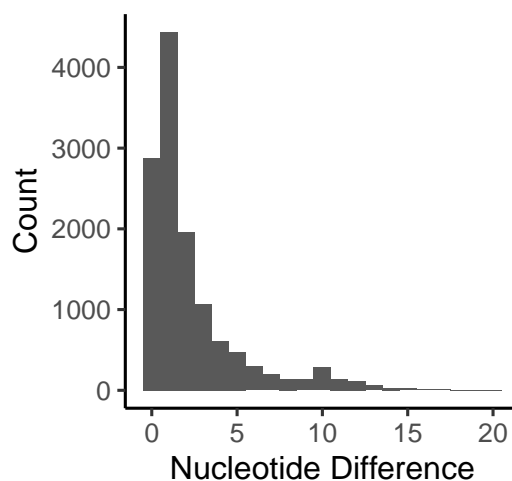
IGHV4-38-2*01

11817 sequences assigned
1956 (16.6%) exact matches, in which:
1660 unique CDR3
7 unique J



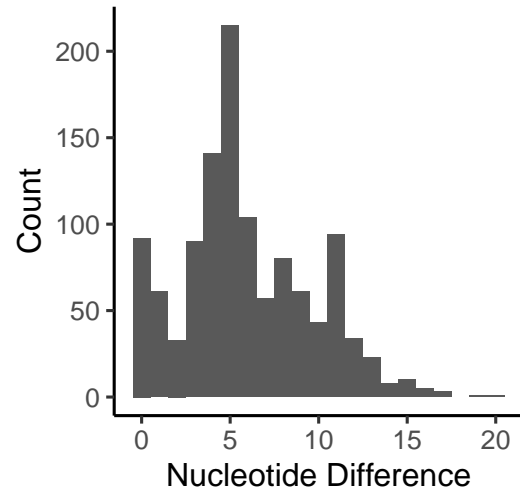
IGHV4-59*01

12953 sequences assigned
2879 (22.2%) exact matches, in which:
2499 unique CDR3
7 unique J

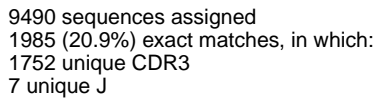


IGHV4-61*01

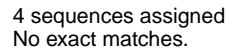
1162 sequences assigned
92 (7.9%) exact matches, in which:
90 unique CDR3
6 unique J



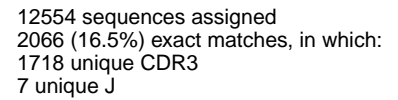
9490 sequences assigned
1985 (20.9%) exact matches, in which:
1752 unique CDR3
7 unique J



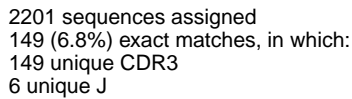
4 sequences assigned
No exact matches.



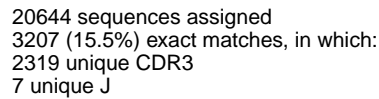
12554 sequences assigned
2066 (16.5%) exact matches, in which:
1718 unique CDR3
7 unique J



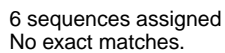
2201 sequences assigned
149 (6.8%) exact matches, in which:
149 unique CDR3
6 unique J



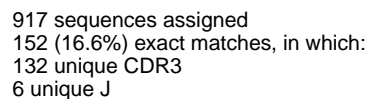
20644 sequences assigned
3207 (15.5%) exact matches, in which:
2319 unique CDR3
7 unique J



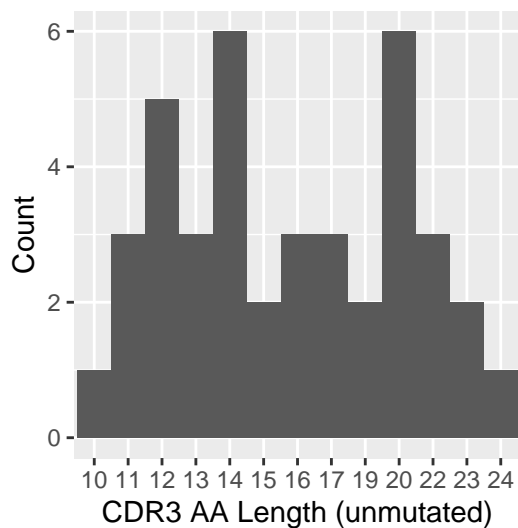
6 sequences assigned
No exact matches.



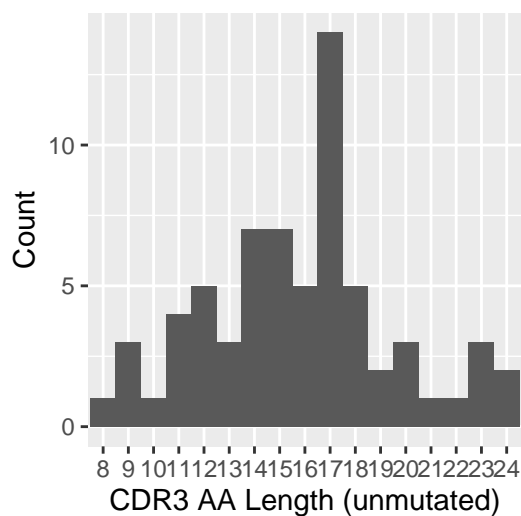
917 sequences assigned
152 (16.6%) exact matches, in which:
132 unique CDR3
6 unique J



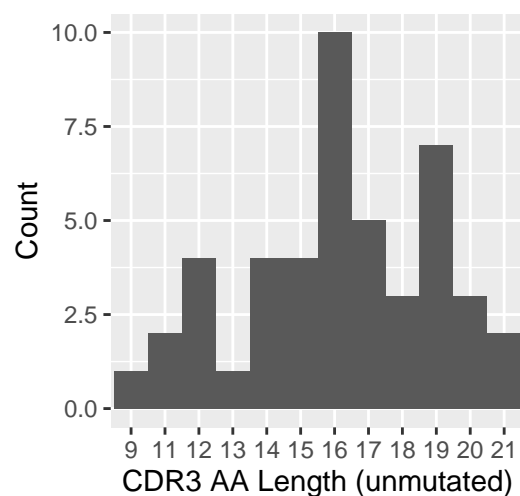
IGHV1-58*02_G61T



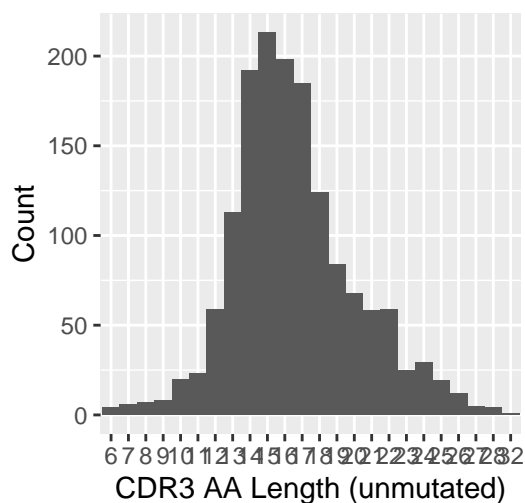
IGHV3-66*01_A223C_T267C



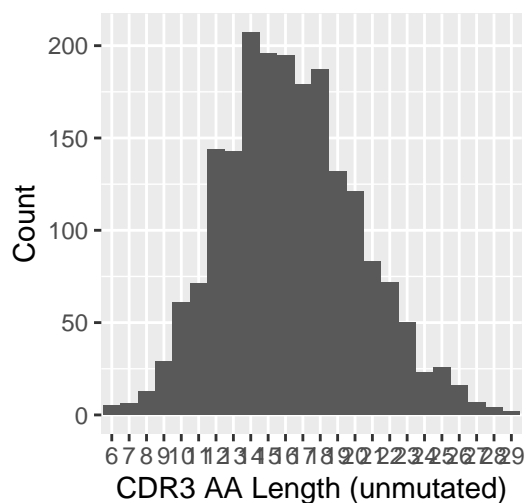
IGHV2-70*15_G303A



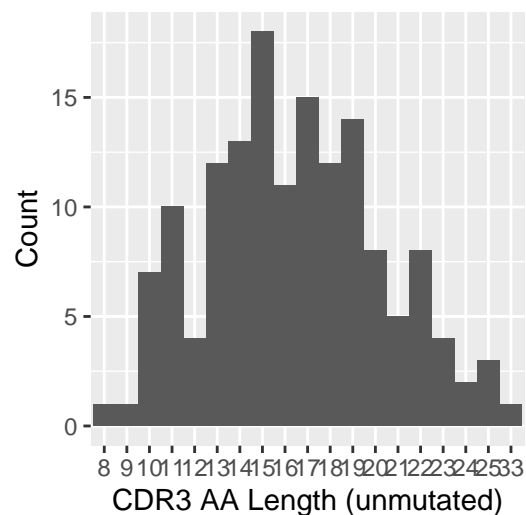
IGHV3-9*01_T194C_C198T



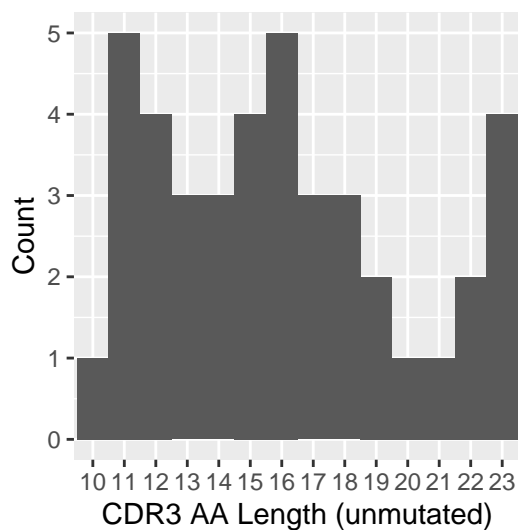
IGHV1-69*08_C191T



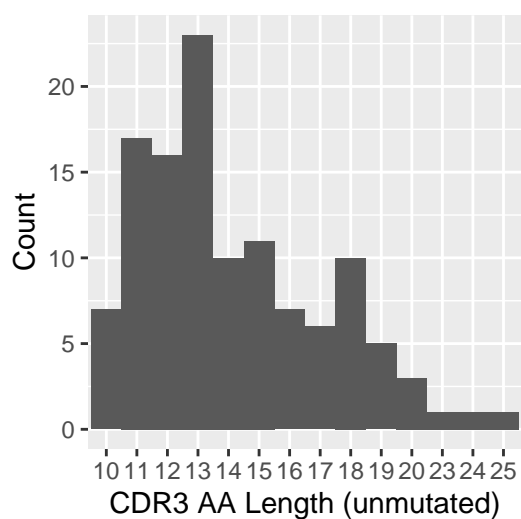
IGHV4-61*08_G48A_G49C

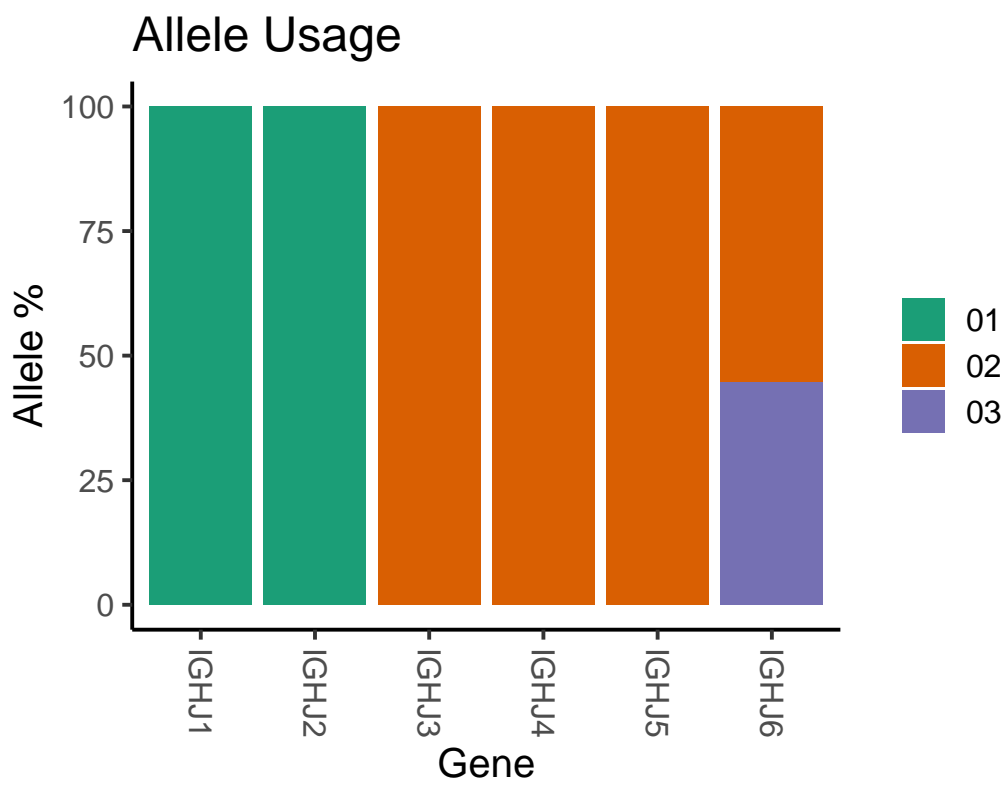


IGHV3-66*01_A223C



IGHV2-70*04_C6T





Sequence Count by IGHJ6 allele usage

