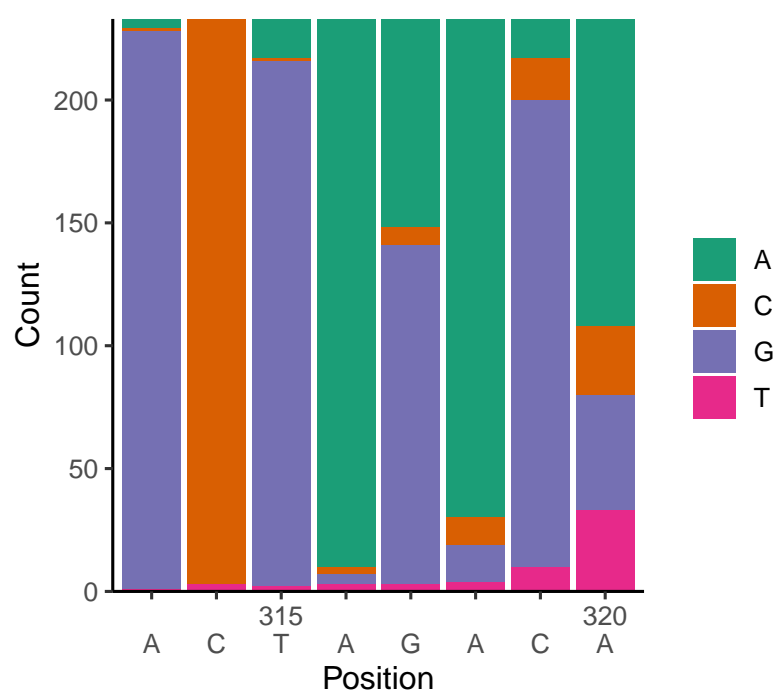
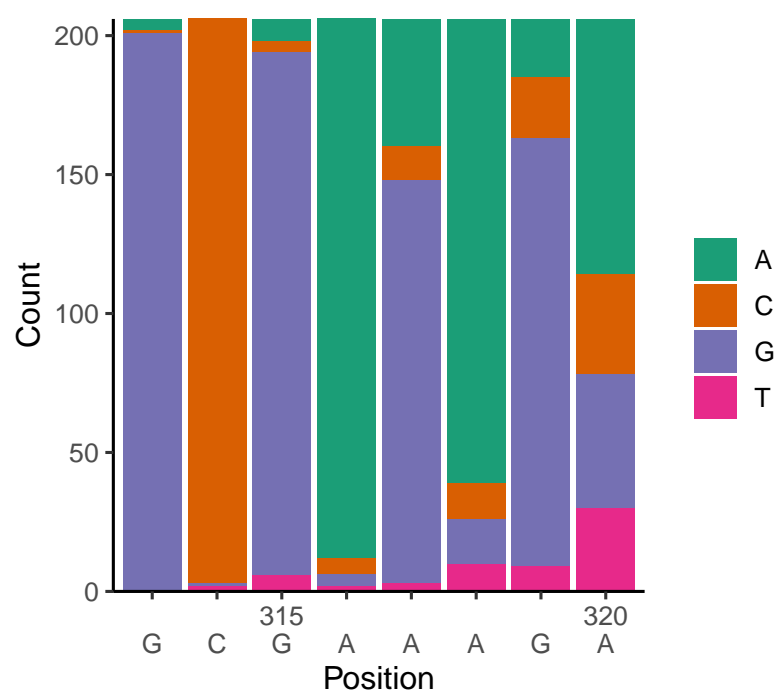


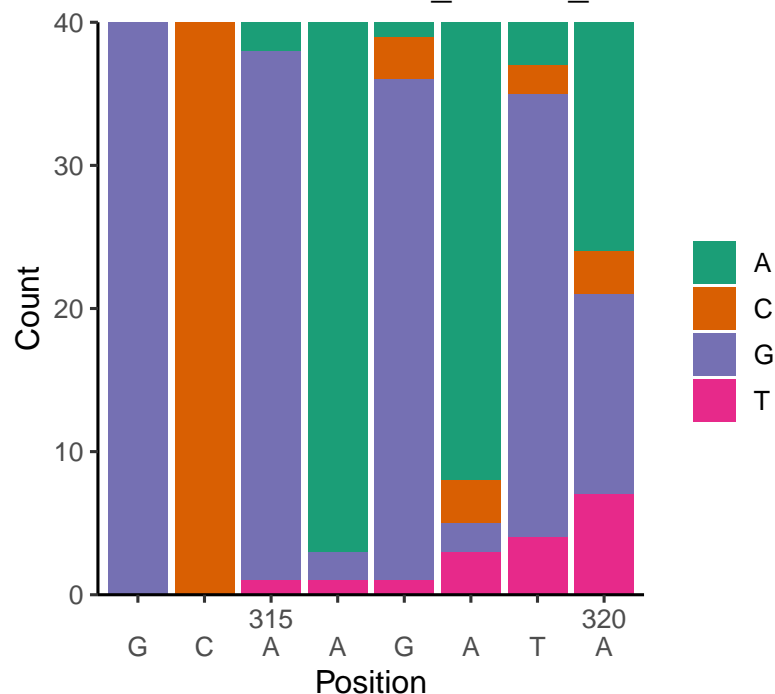
Gene IGHV3-73*01_A284G_A286G_C30



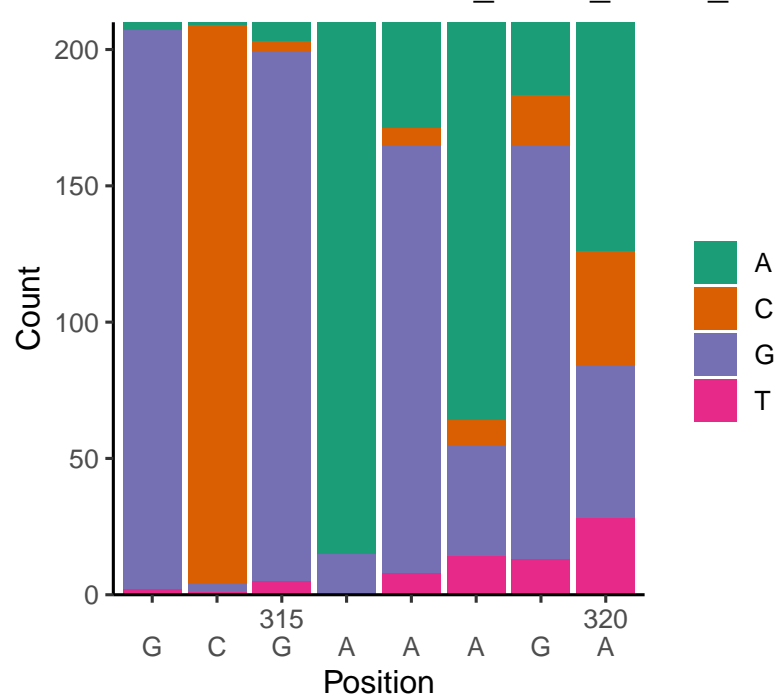
Gene IGHV3-NL1*01_G49A_C159G_T16



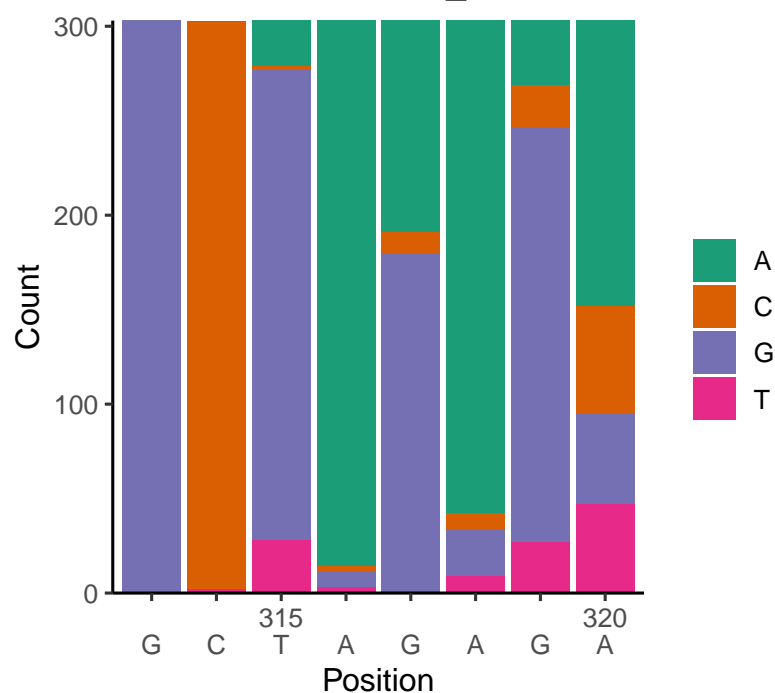
Gene IGHV1-45*02_A297G_A301G



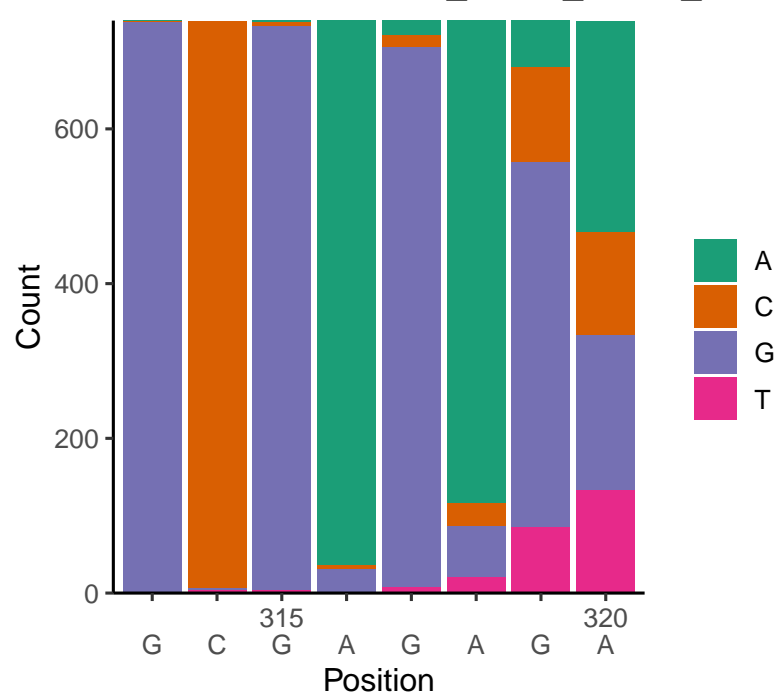
Gene IGHV3-NL1*01_G49A_G75C_T201



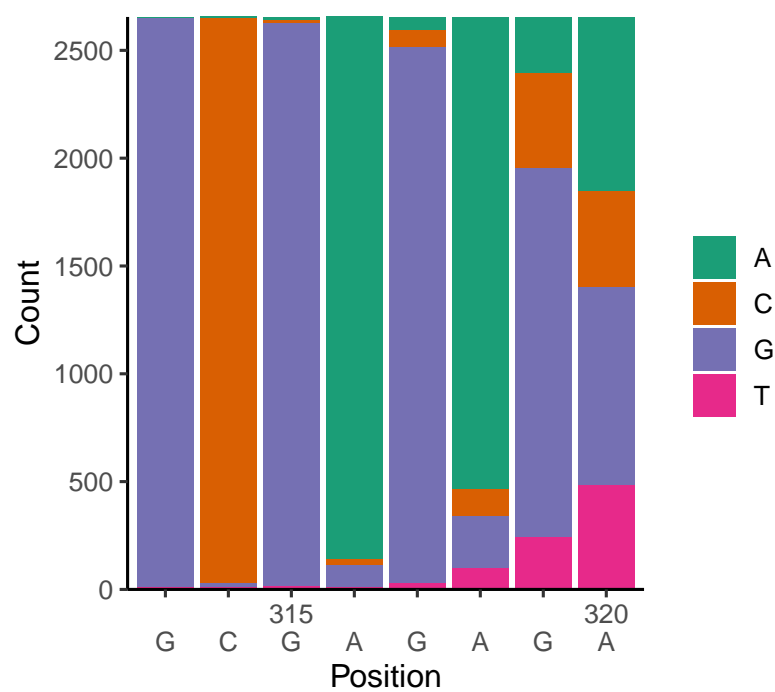
Gene IGHV3-49*04_A313G



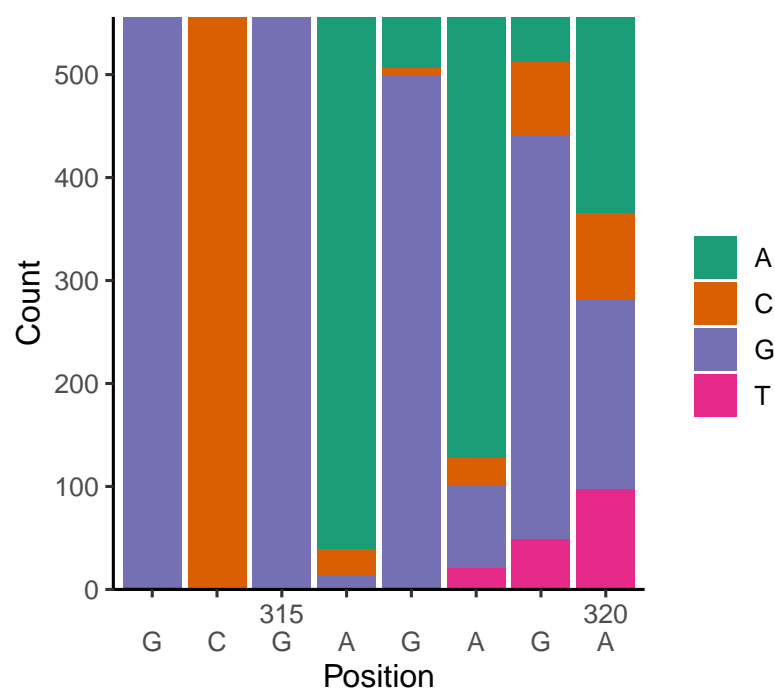
Gene IGHV4-61*08_G48A_G49C_G88A



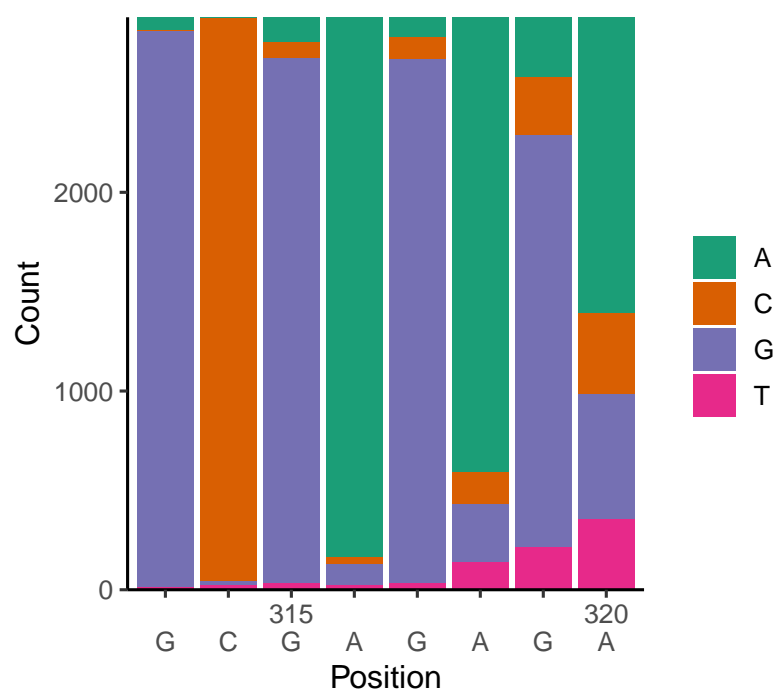
Gene IGHV4-61*08_G48A_G49C_G88A



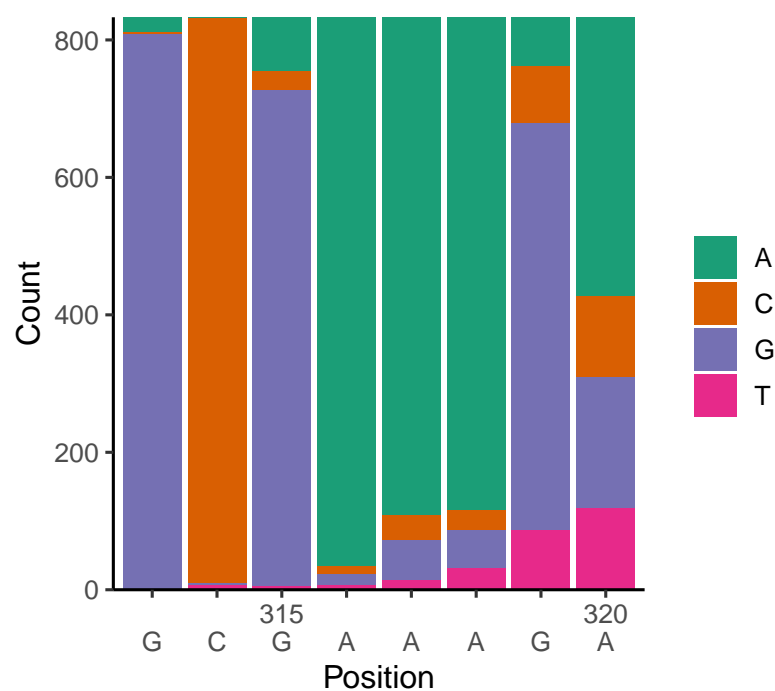
Gene IGHV6-1*01_A315G



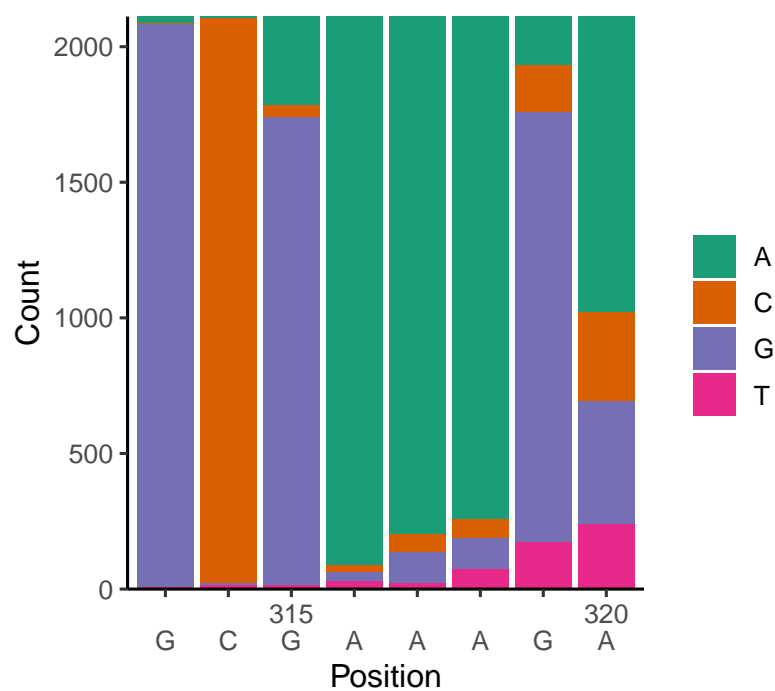
Gene IGHV3-30*03_T288C



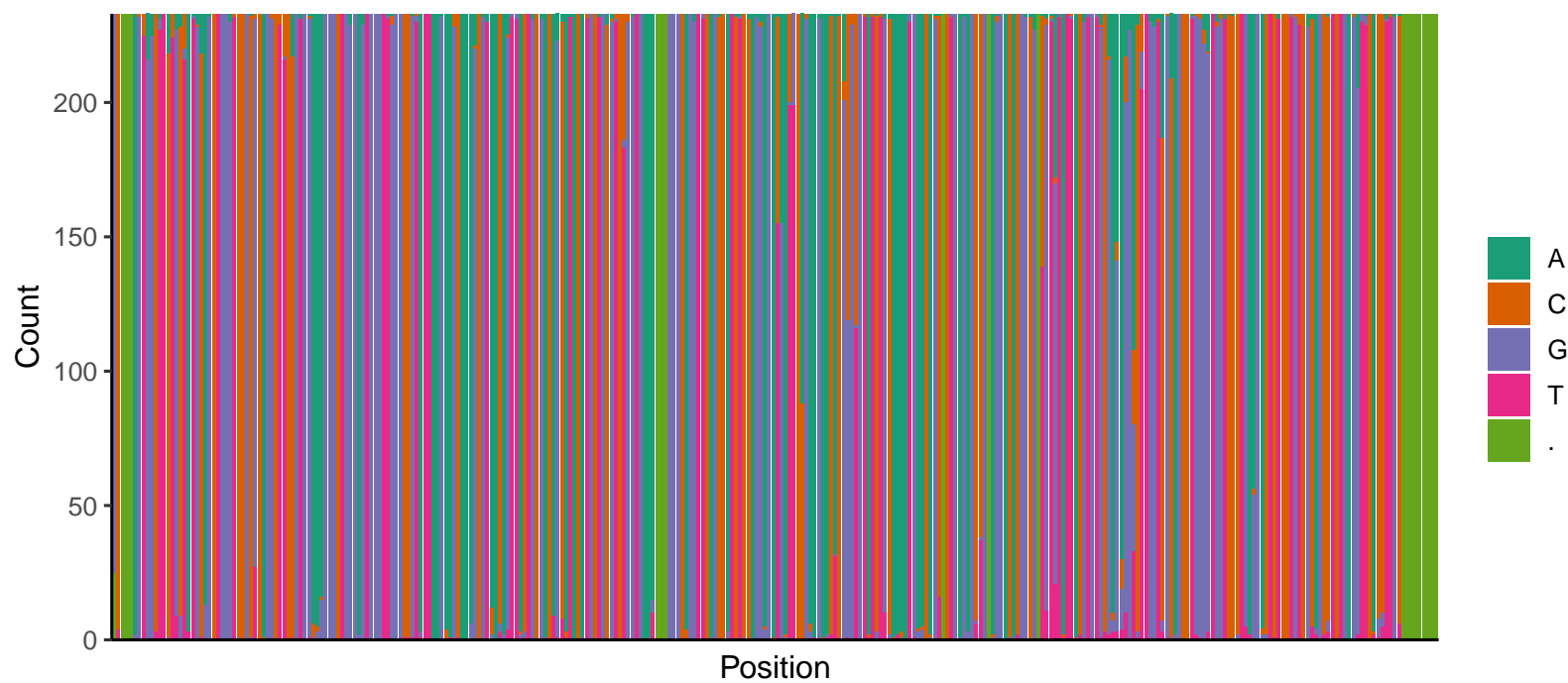
Gene IGHV3-66*01_T267G_T300C_G30



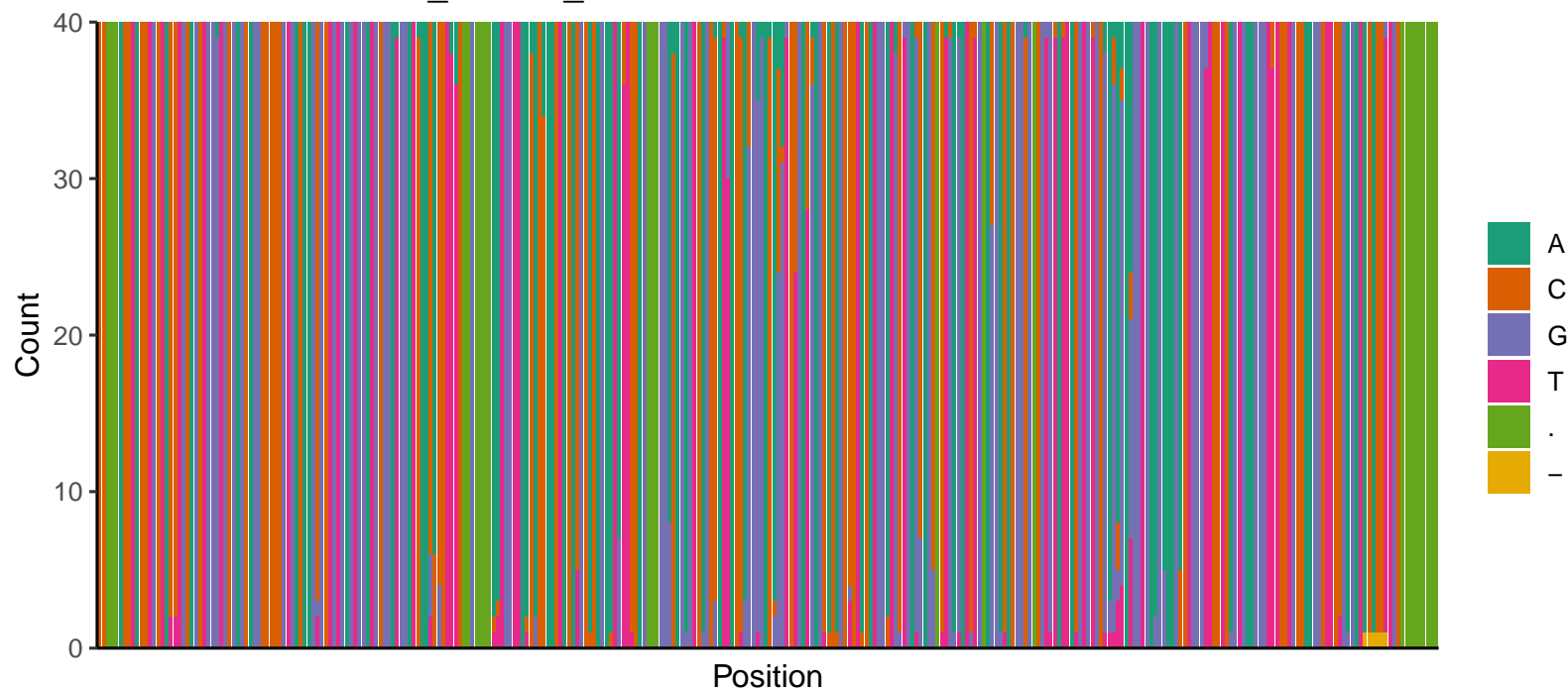
Gene IGHV3-33*06_T300C_G303A



Gene IGHV3-73*01_A284G_A286G_C300T



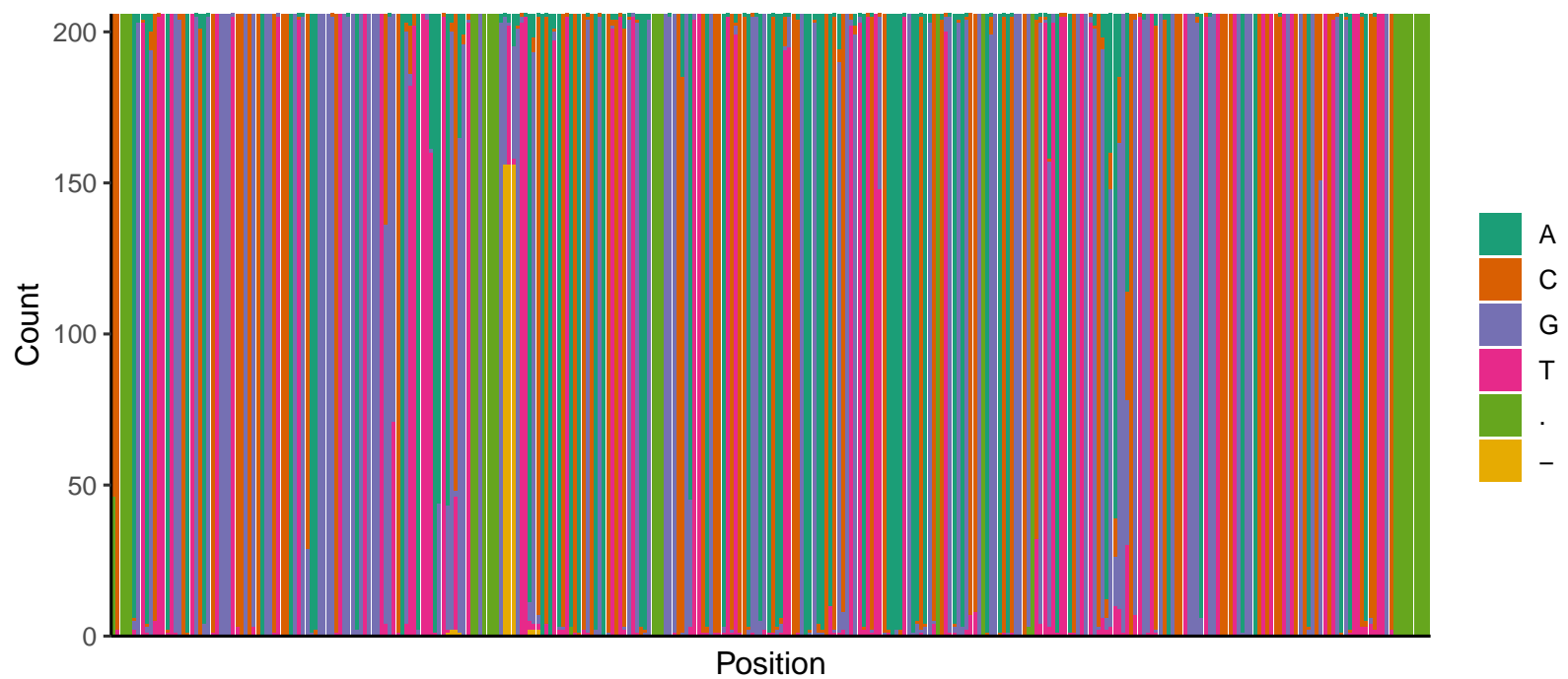
Gene IGHV1-45*02_A297G_A301G



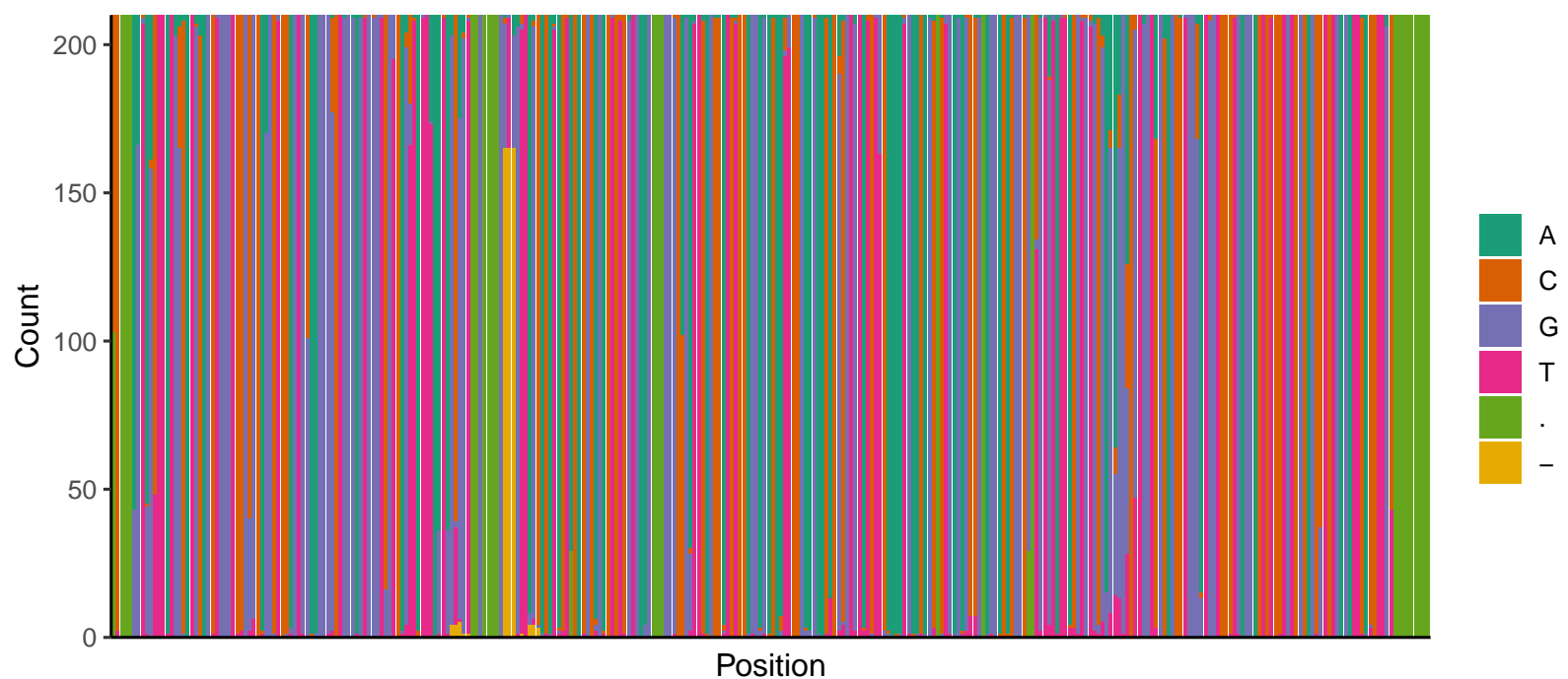
Gene IGHV3-49*04_A313G



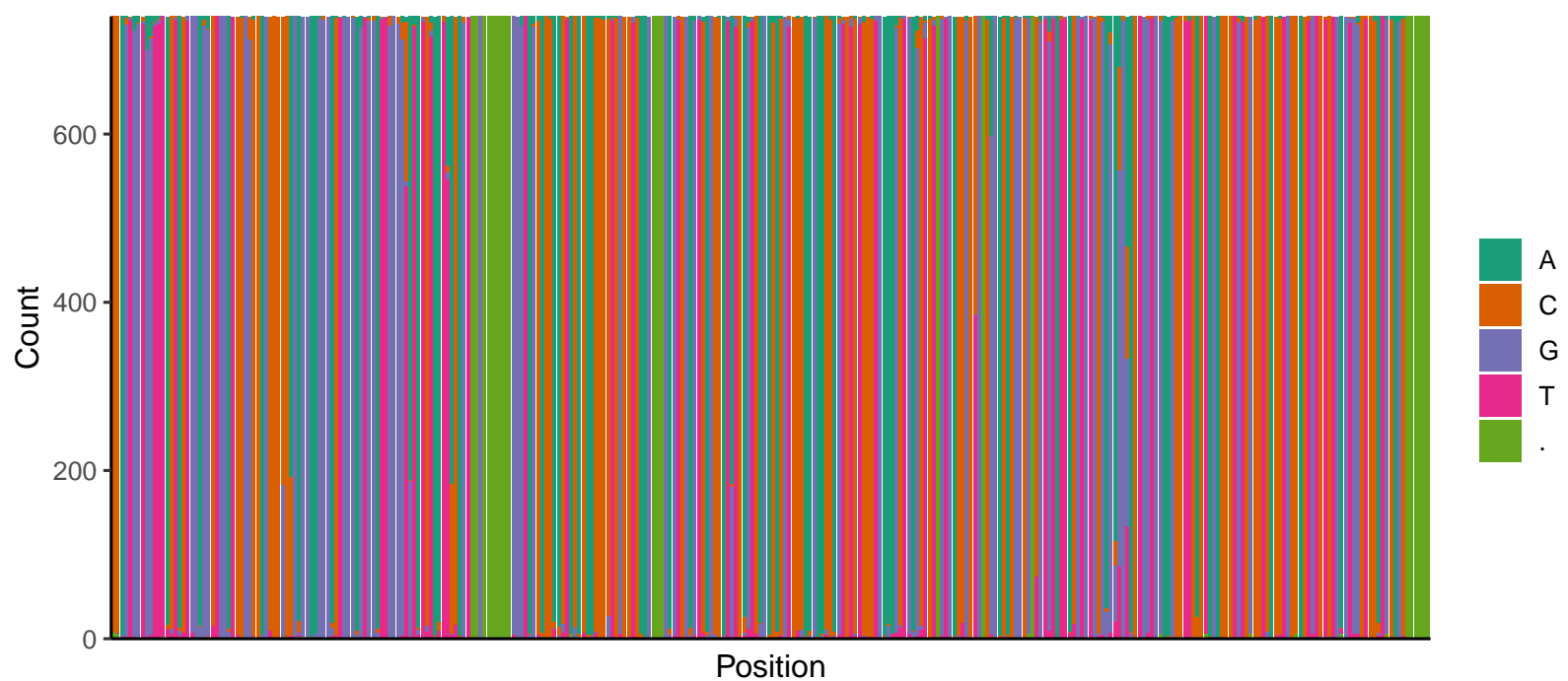
Gene IGHV3–NL1*01_G49A_C159G_T160G_T201C_G267T_T288C_T300C



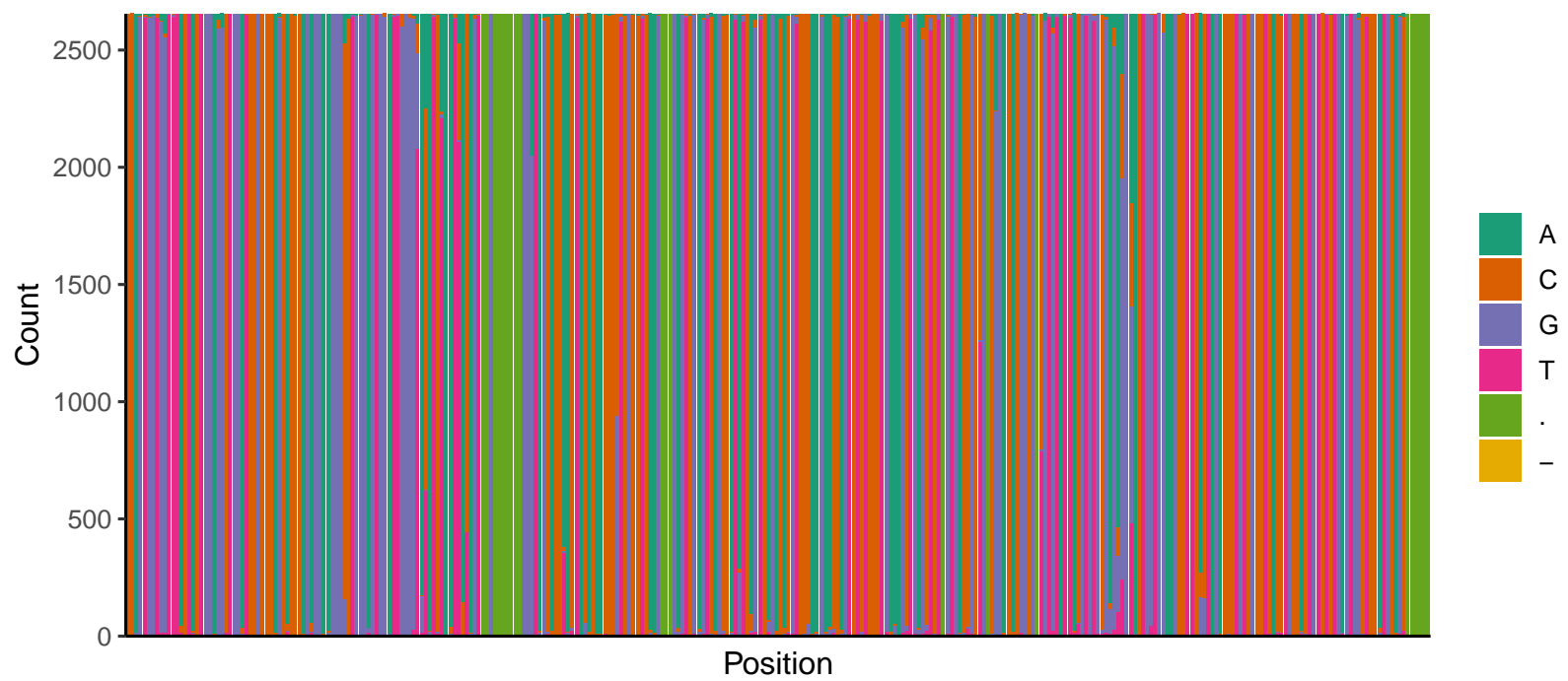
Gene IGHV3–NL1*01_G49A_G75C_T201C_C223A_G267T_T288C



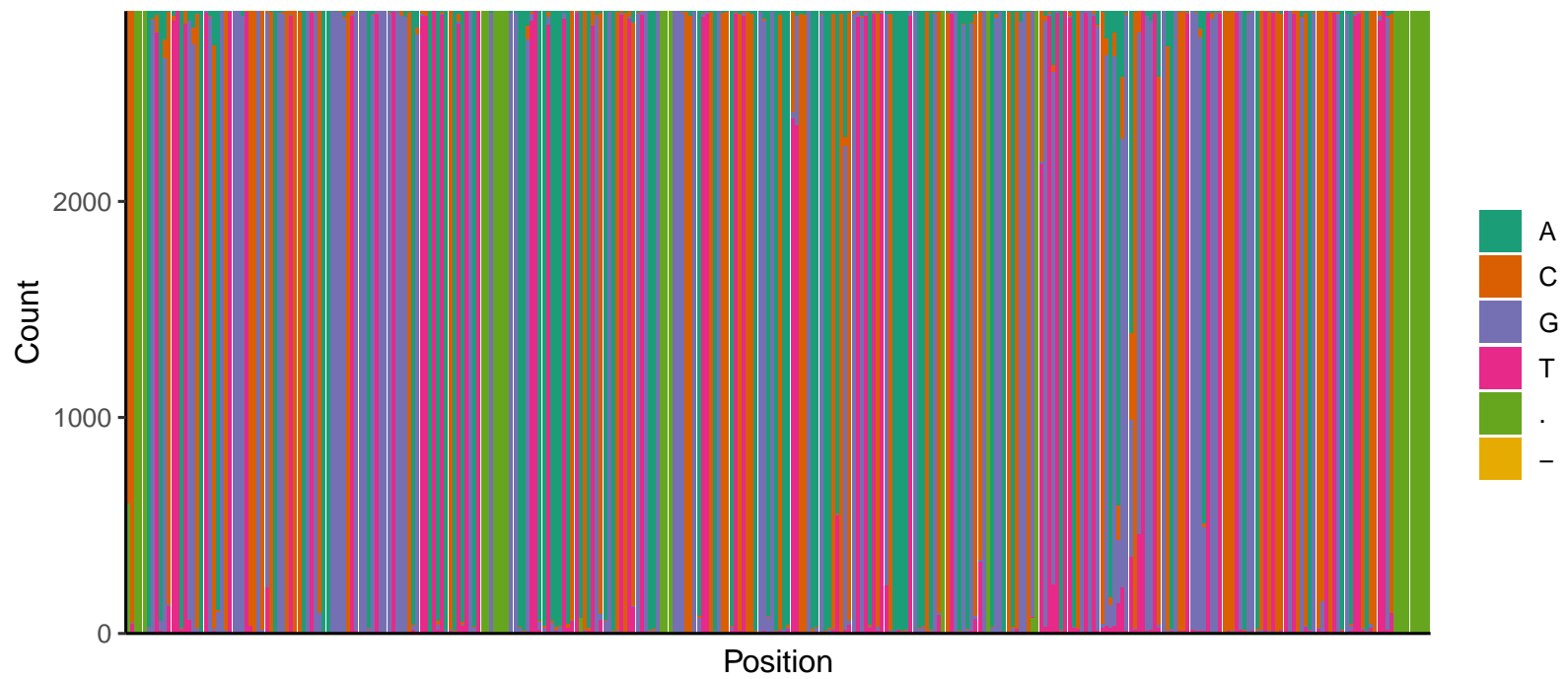
Gene IGHV4–61*08_G48A_G49C_G88A



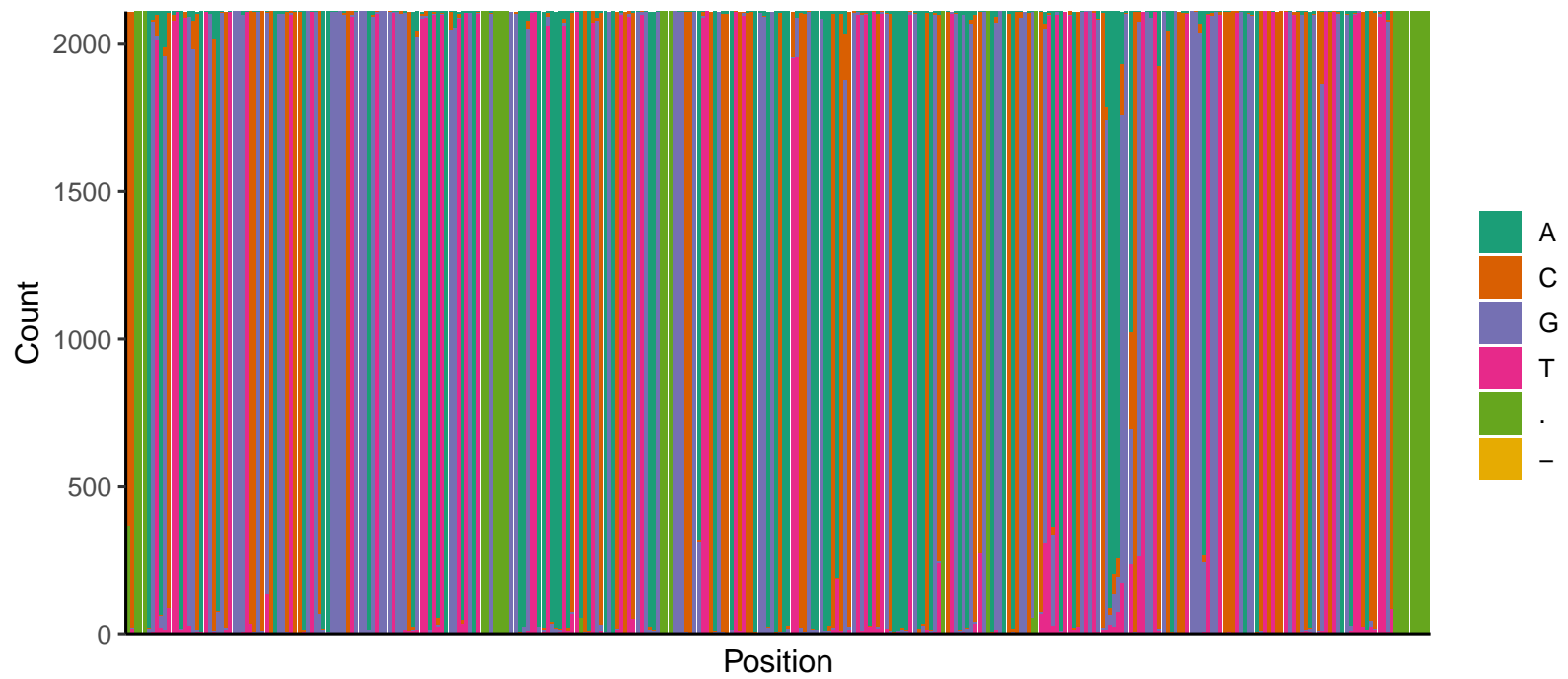
Gene IGHV4-61*08_G48A_G49C_G88A_G129C_C134A_A147C



Gene IGHV3-30*03_T288C



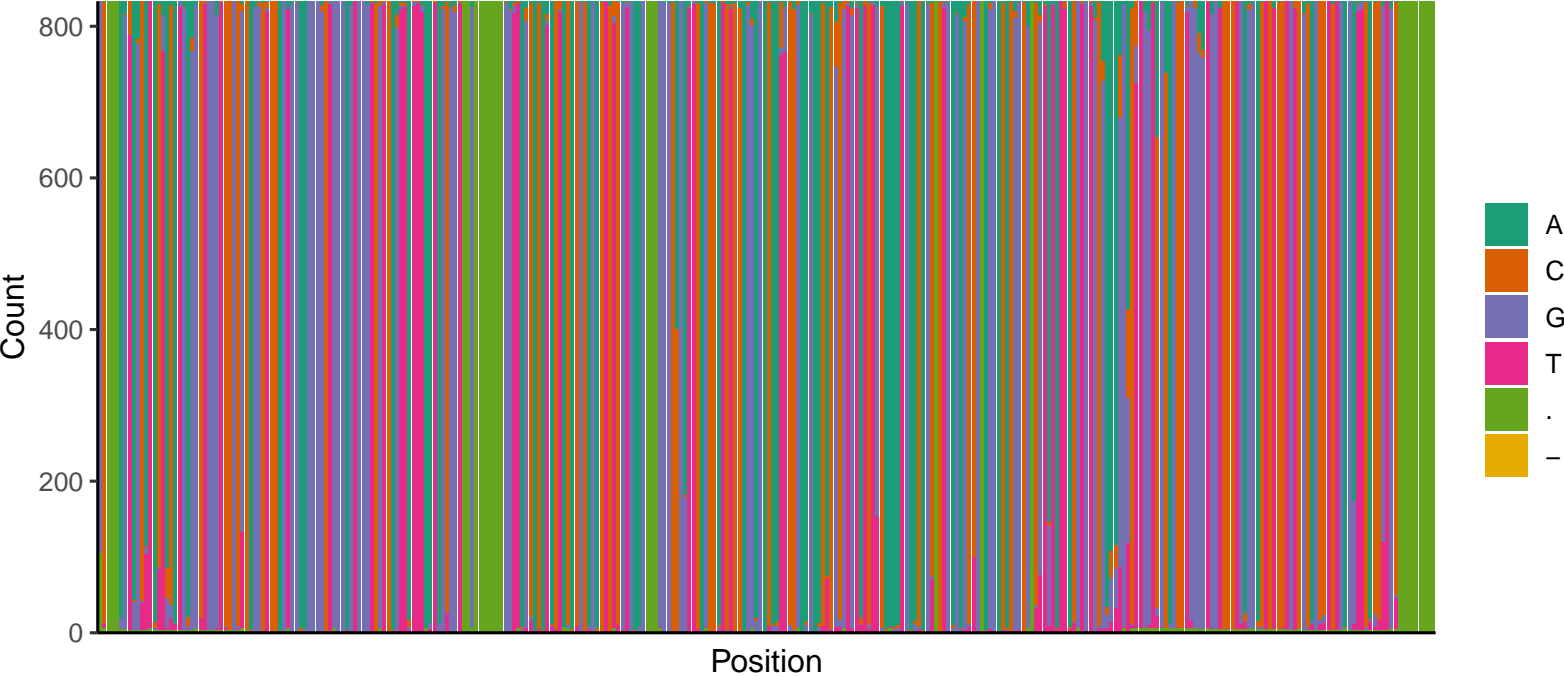
Gene IGHV3-33*06_T300C_G303A



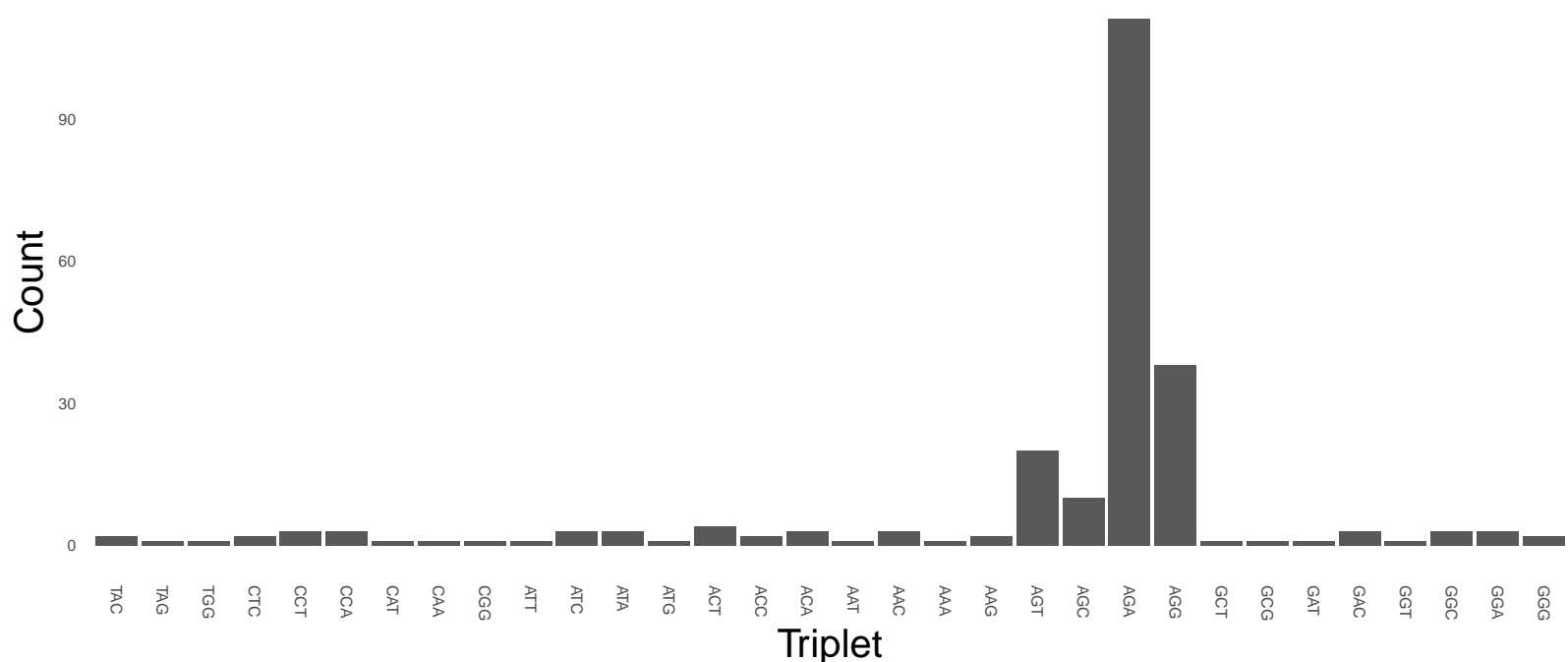
Gene IGHV6-1*01_A315G



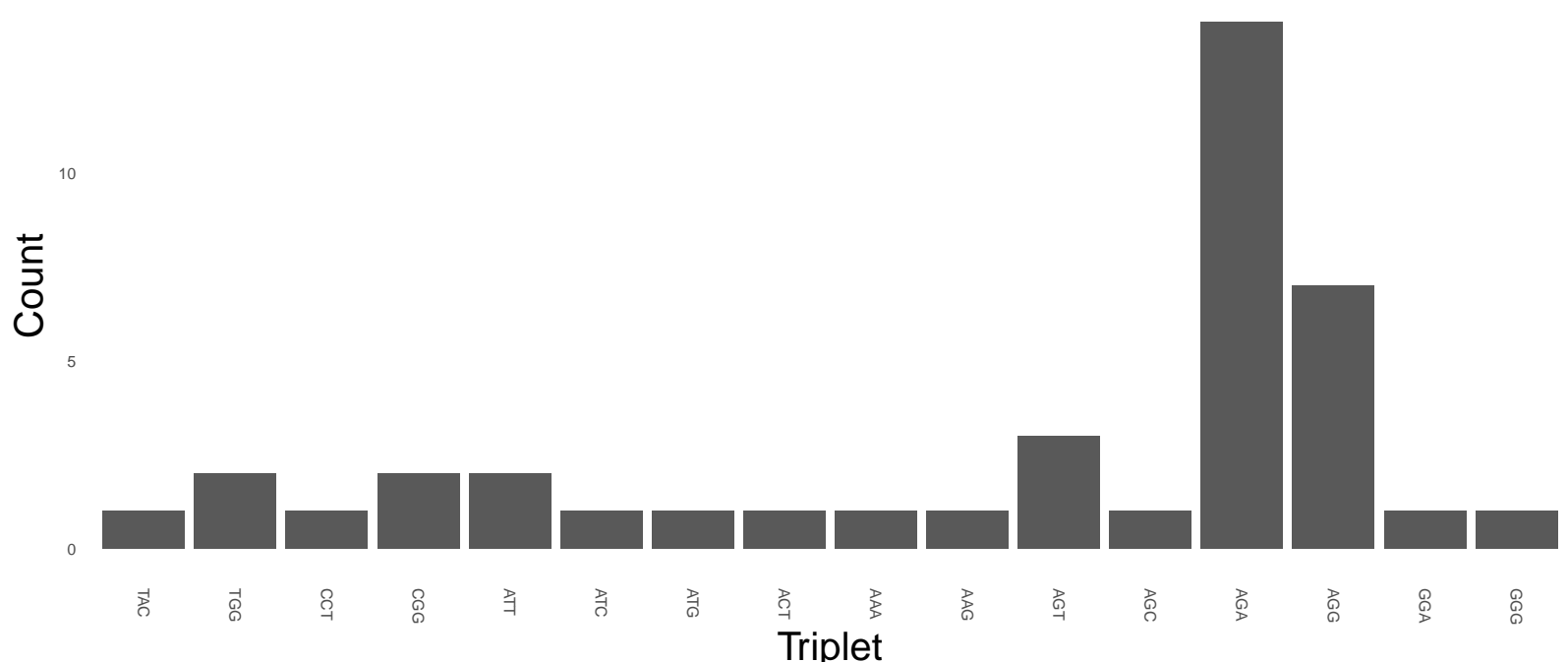
Gene IGHV3-66*01_T267G_T300C_G303A_G317A



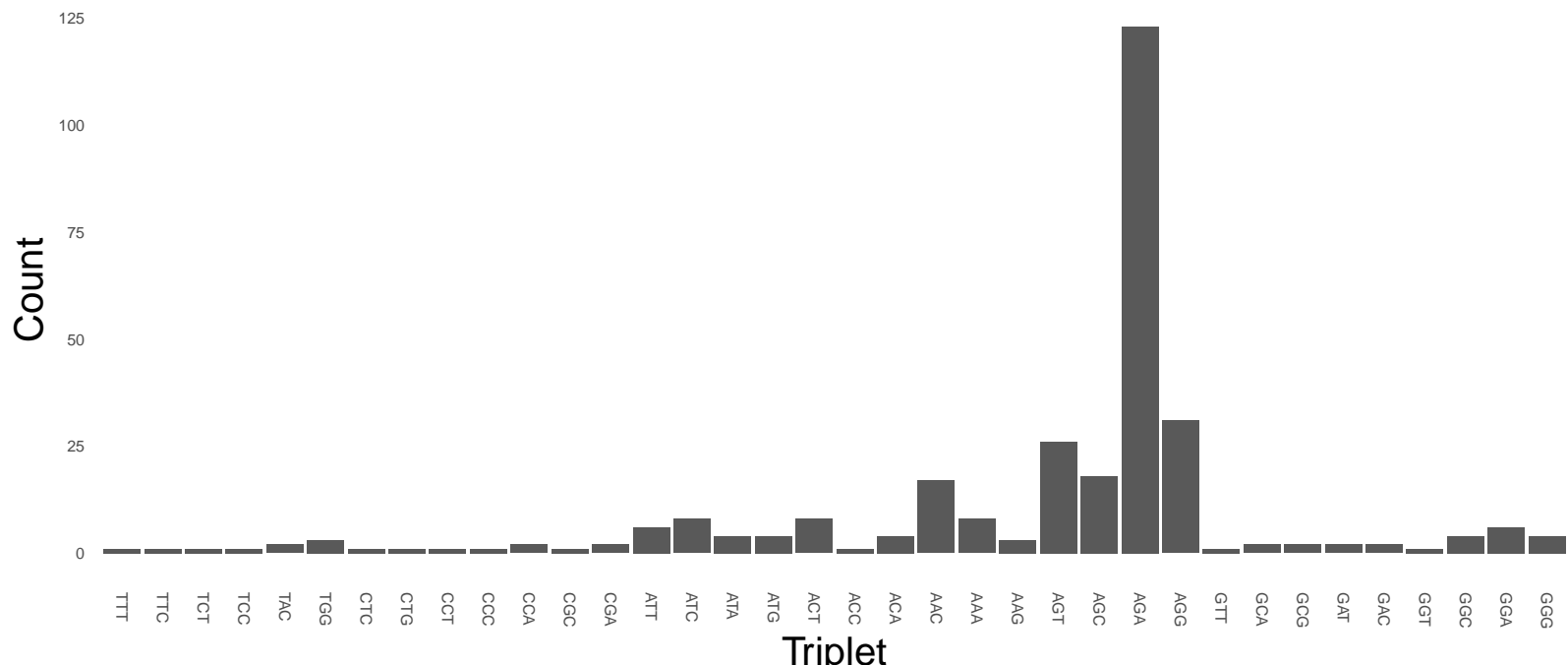
IGHV3-73*01_A284G_A286G_C300T- Final 3 nucleotides as a triplet



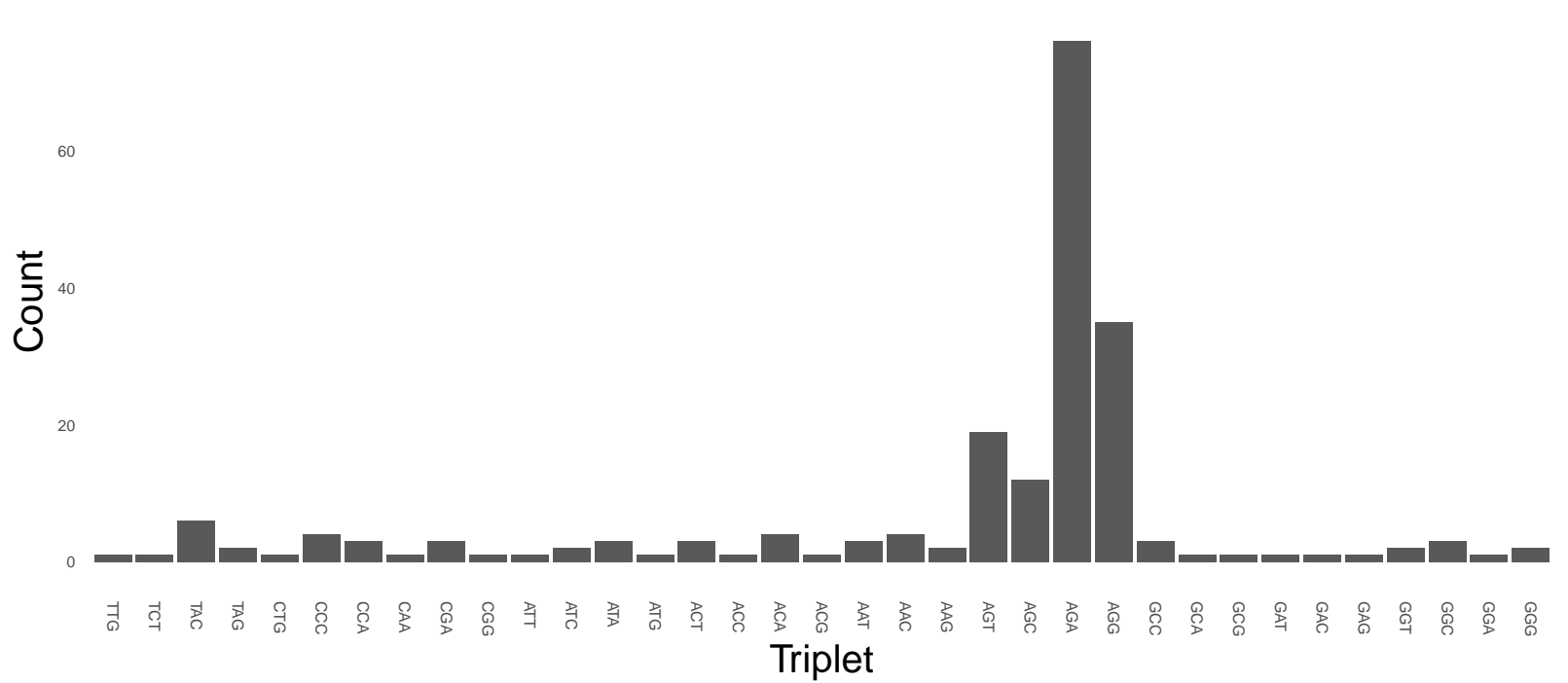
IGHV1-45*02_A297G_A301G- Final 3 nucleotides as a triplet



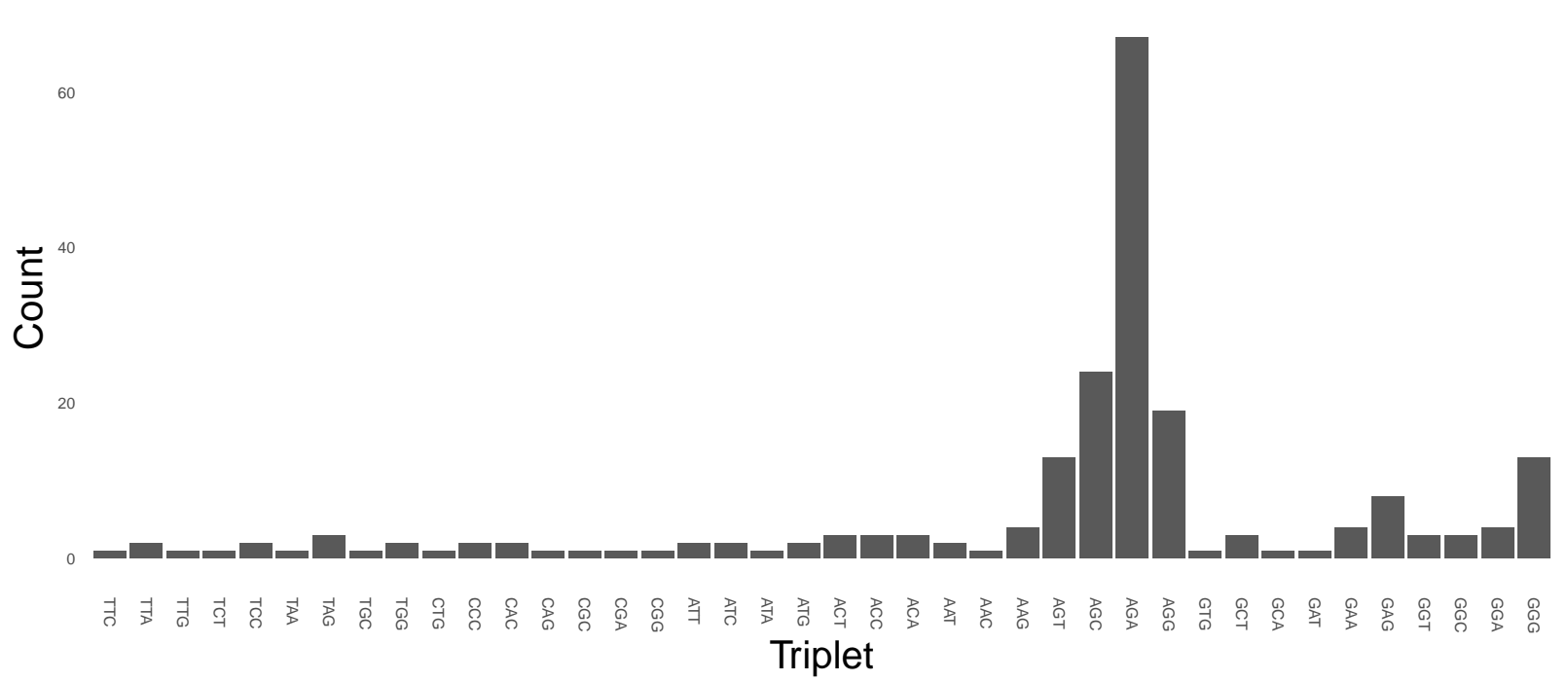
IGHV3-49*04_A313G- Final 3 nucleotides as a triplet



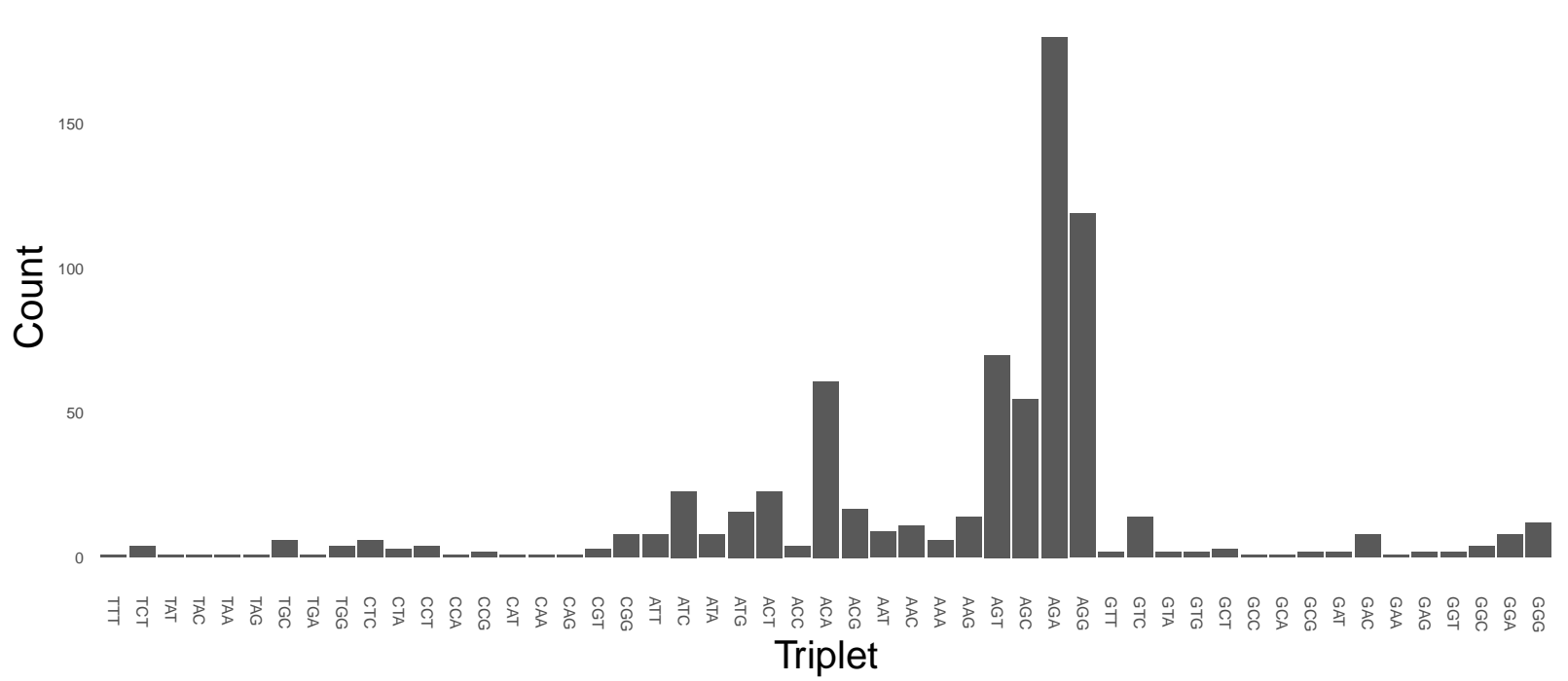
IGHV3–NL1*01_G49A_C159G_T160G_T201C_G267T_T288C_T300C– Final 3 nucleotides as a triplet



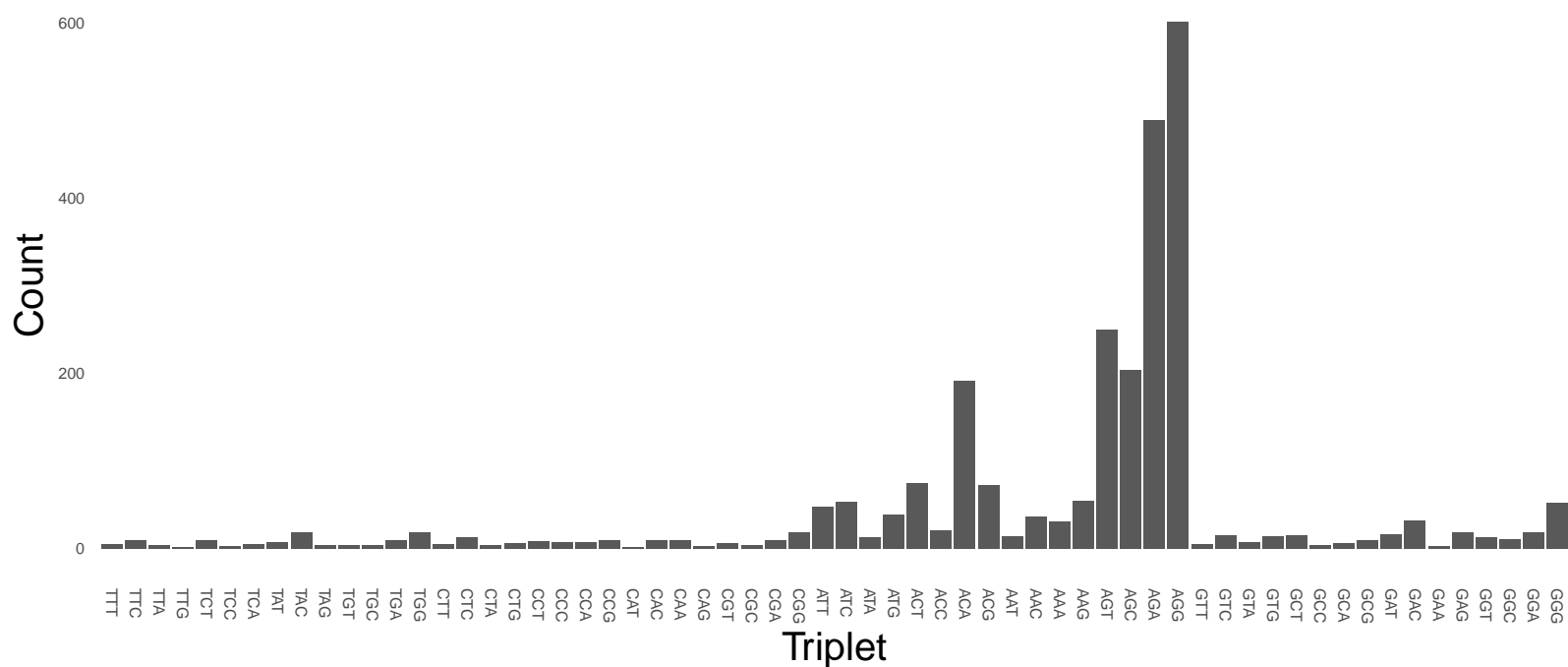
IGHV3–NL1*01_G49A_G75C_T201C_C223A_G267T_T288C– Final 3 nucleotides as a triplet



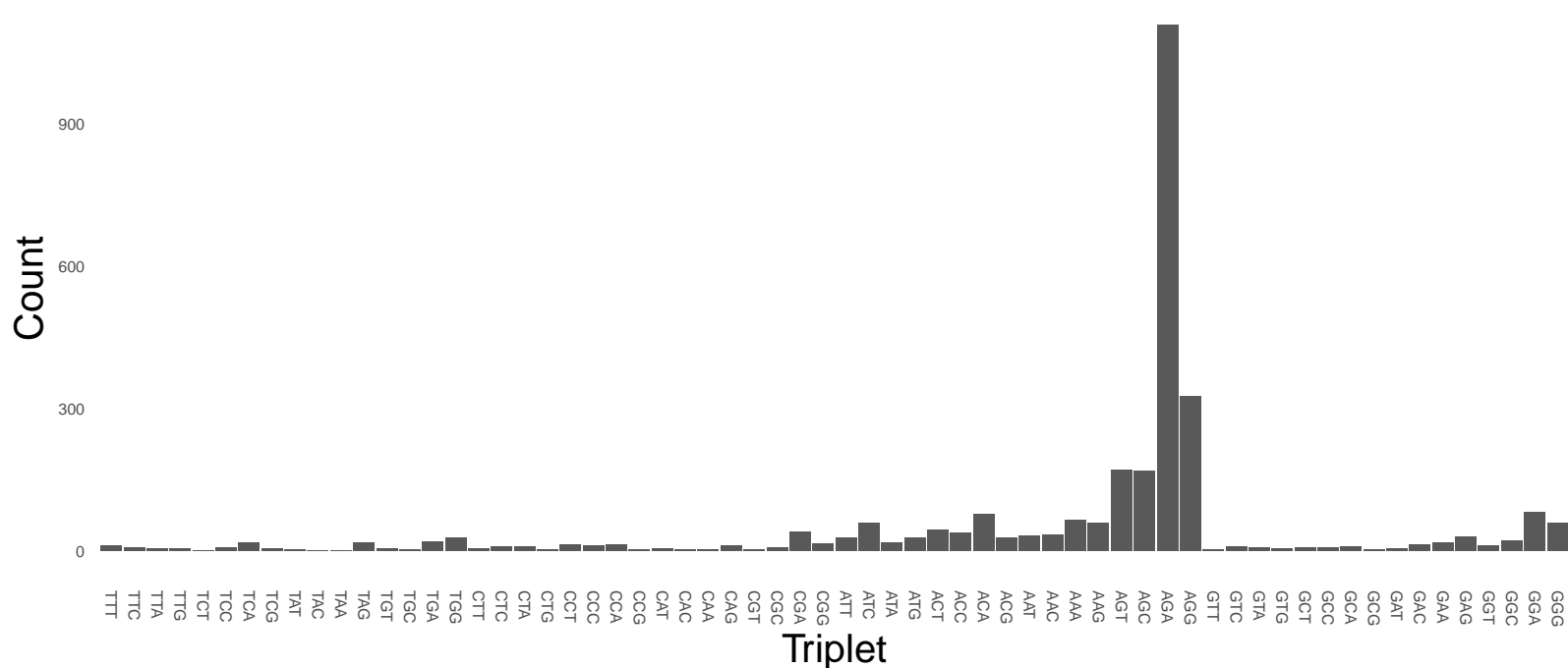
IGHV4–61*08_G48A_G49C_G88A– Final 3 nucleotides as a triplet



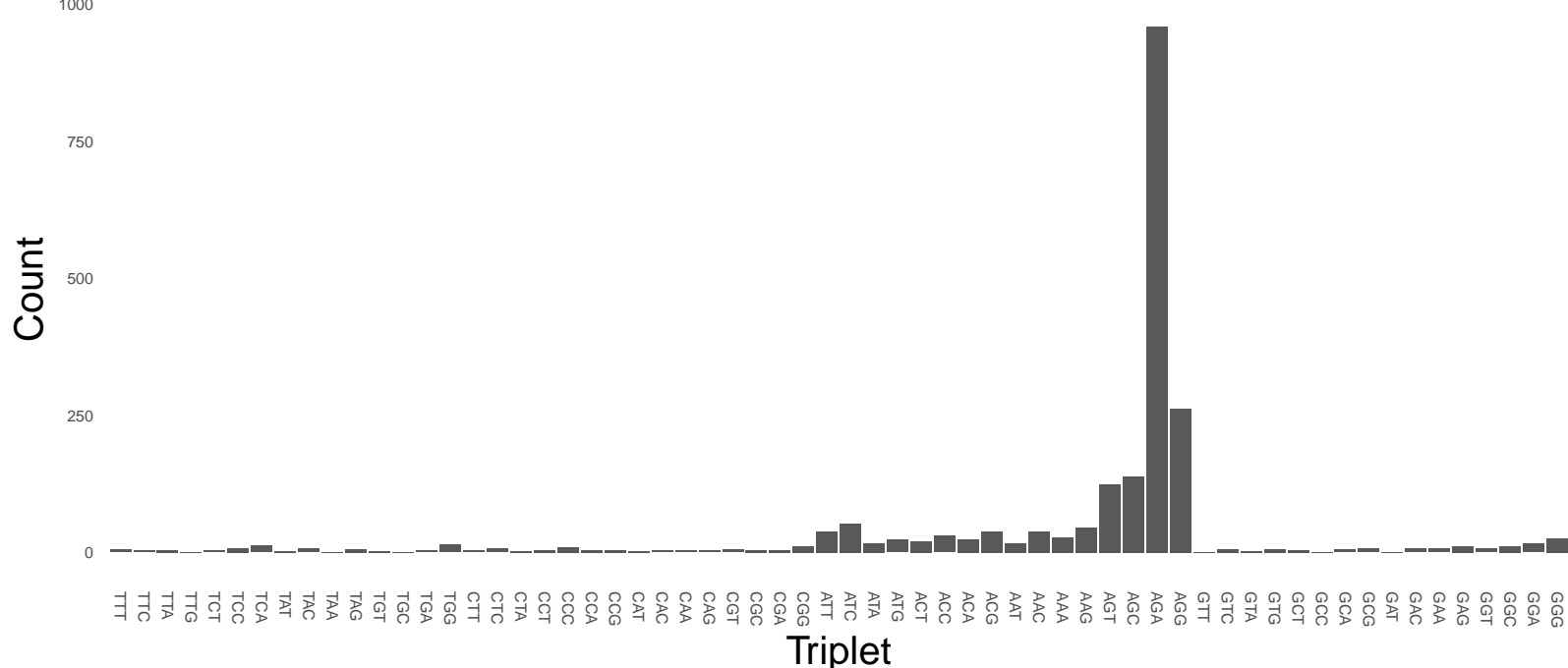
IGHV4-61*08_G48A_G49C_G88A_G129C_C134A_A147C- Final 3 nucleotides as a triplet



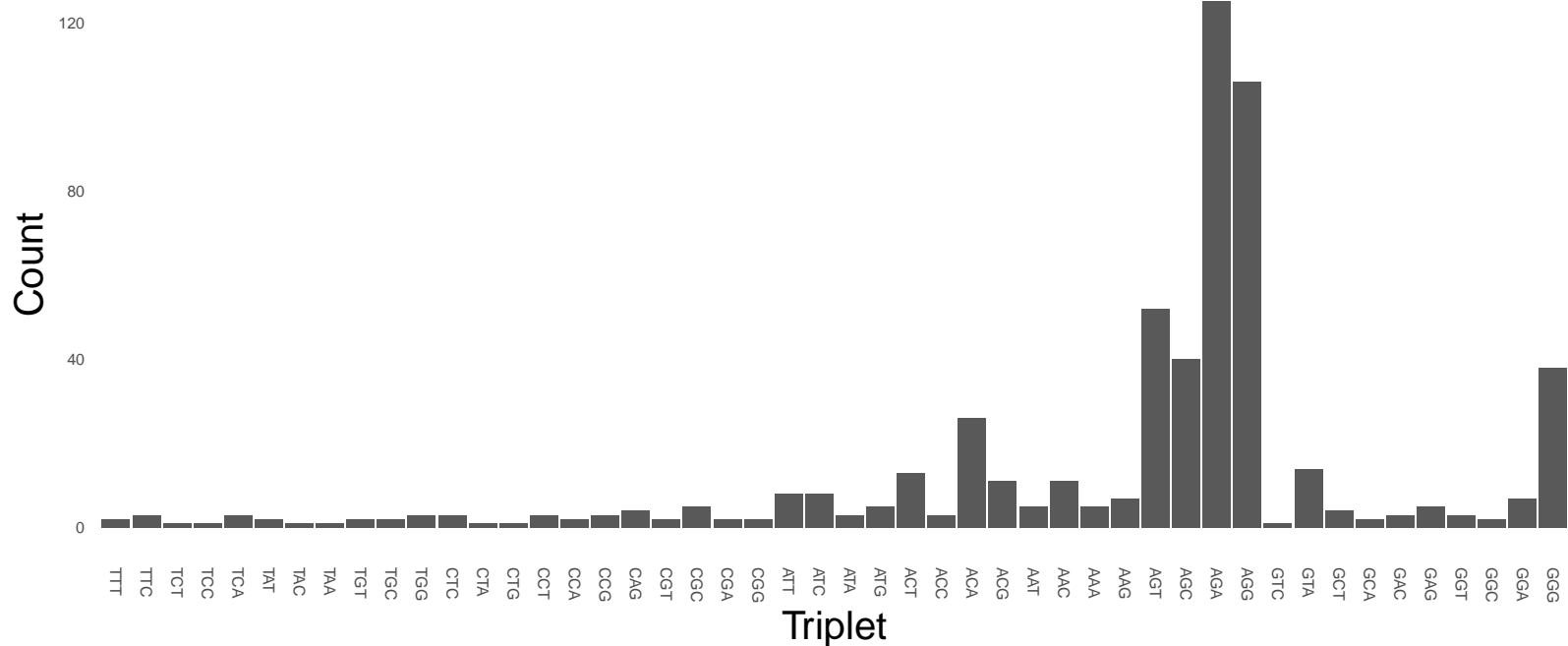
IGHV3-30*03_T288C- Final 3 nucleotides as a triplet



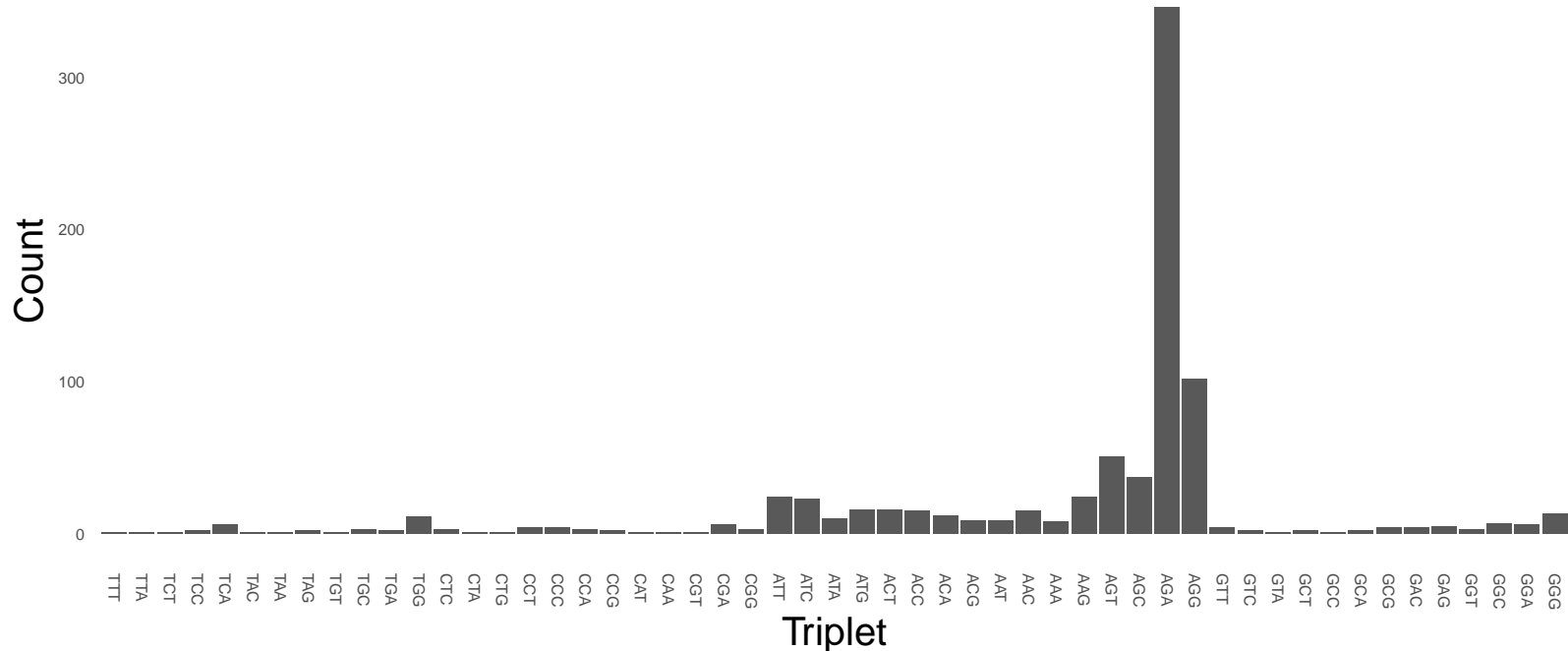
IGHV3-33*06_T300C_G303A- Final 3 nucleotides as a triplet



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

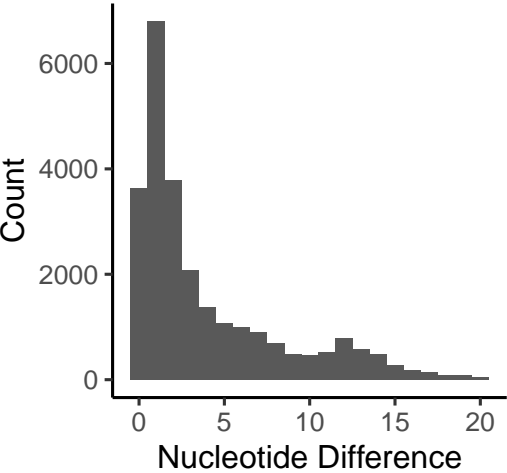


IGHV3–66*01_T267G_T300C_G303A_G317A– Final 3 nucleotides as a triplet



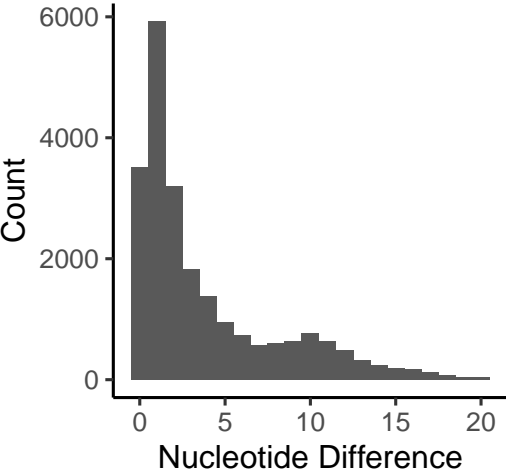
IGHV1-2*02

25752 sequences assigned
3642 (14.1%) exact matches, in which:
2990 unique CDR3
7 unique J



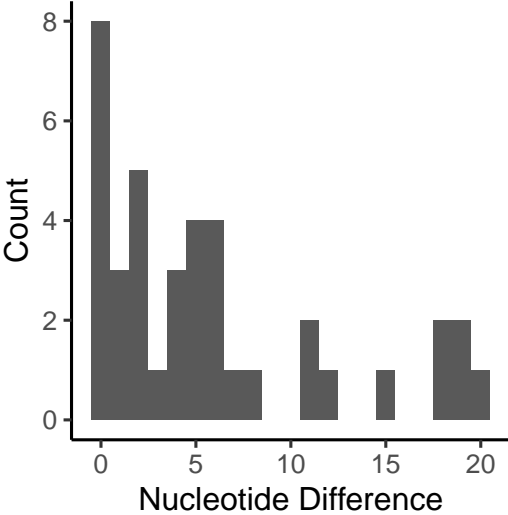
IGHV1-18*01

22660 sequences assigned
3510 (15.5%) exact matches, in which:
2890 unique CDR3
7 unique J



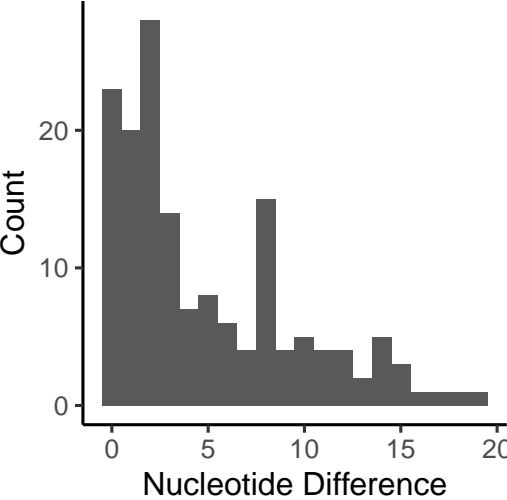
IGHV1-45*02_A297G_A30

40 sequences assigned
8 (20%) exact matches, in which:
8 unique CDR3
3 unique J



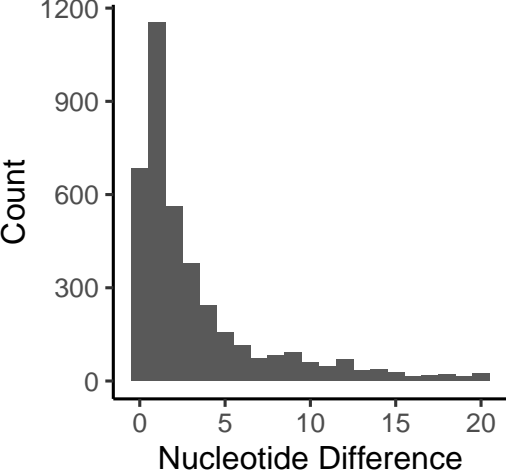
IGHV1-3*02

161 sequences assigned
23 (14.3%) exact matches, in which:
22 unique CDR3
6 unique J



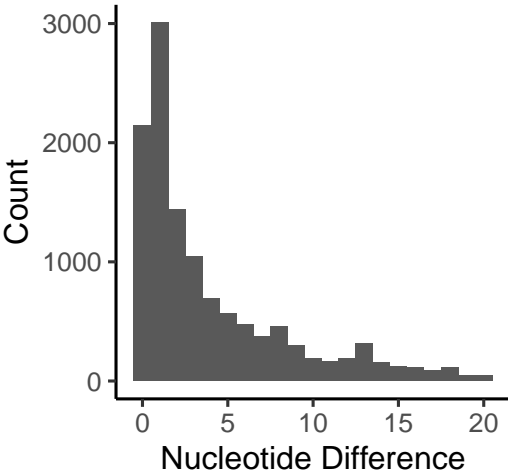
IGHV1-24*01

4067 sequences assigned
684 (16.8%) exact matches, in which:
582 unique CDR3
7 unique J



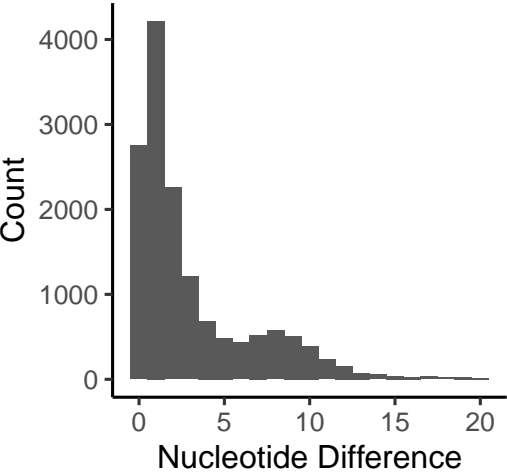
IGHV1-46*01

12224 sequences assigned
2143 (17.5%) exact matches, in which:
1821 unique CDR3
7 unique J



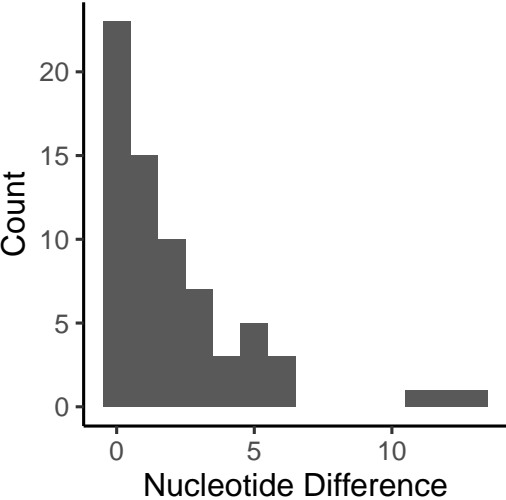
IGHV1-8*01

14810 sequences assigned
2754 (18.6%) exact matches, in which:
2353 unique CDR3
7 unique J



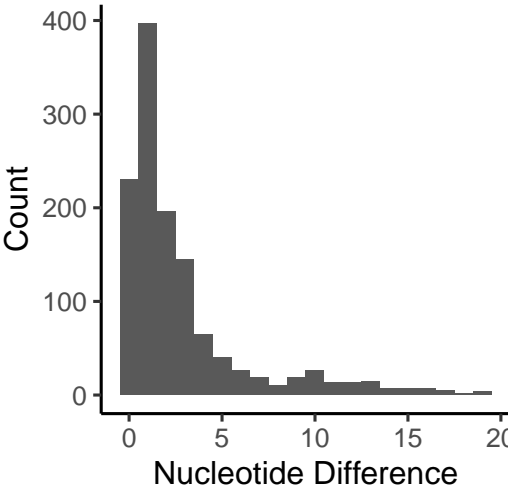
IGHV1-45*02

70 sequences assigned
23 (32.9%) exact matches, in which:
22 unique CDR3
5 unique J



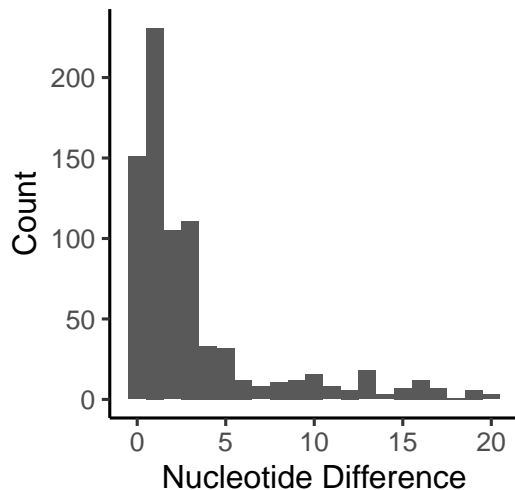
IGHV1-58*01

1254 sequences assigned
230 (18.3%) exact matches, in which:
182 unique CDR3
7 unique J



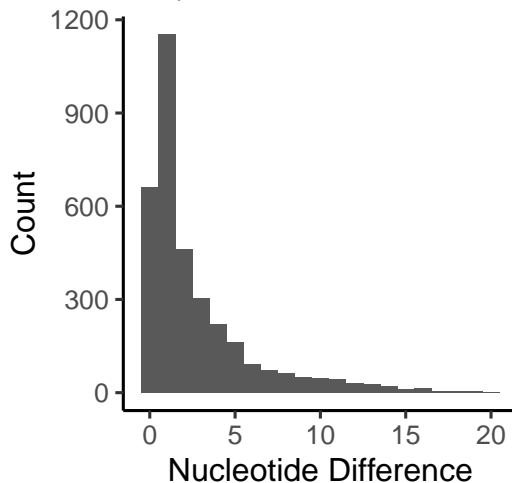
IGHV1–58*02

801 sequences assigned
151 (18.9%) exact matches, in which:
120 unique CDR3
6 unique J



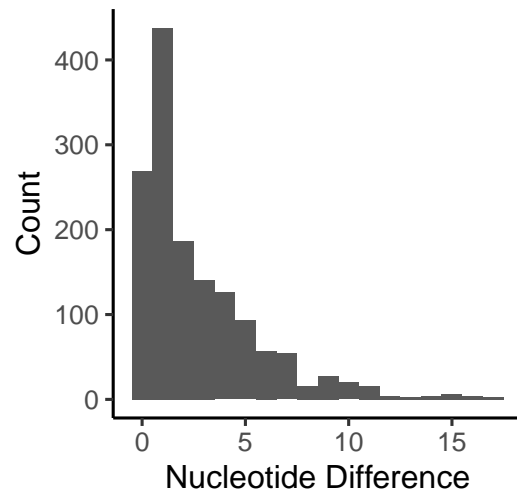
IGHV2–5*01

3496 sequences assigned
660 (18.9%) exact matches, in which:
535 unique CDR3
7 unique J



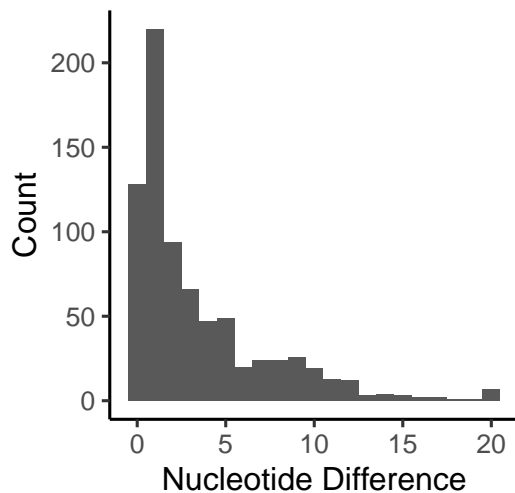
IGHV2–70*15

1518 sequences assigned
269 (17.7%) exact matches, in which:
216 unique CDR3
7 unique J



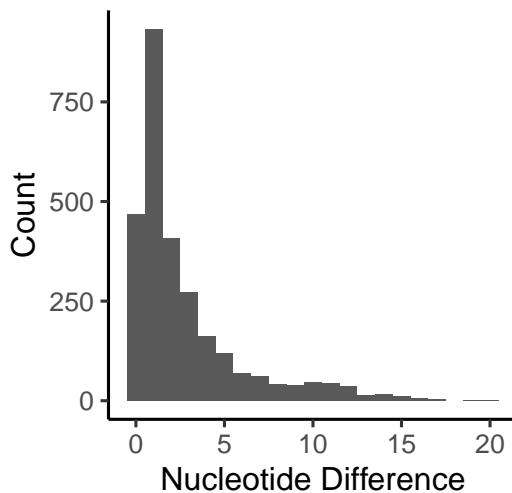
IGHV1–69–2*01

795 sequences assigned
128 (16.1%) exact matches, in which:
104 unique CDR3
7 unique J



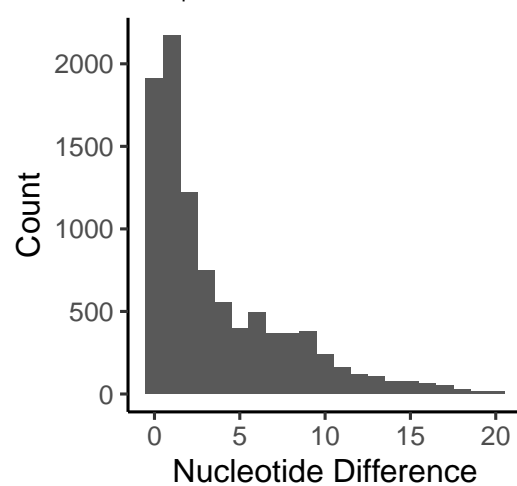
IGHV2–26*01

2866 sequences assigned
468 (16.3%) exact matches, in which:
378 unique CDR3
7 unique J



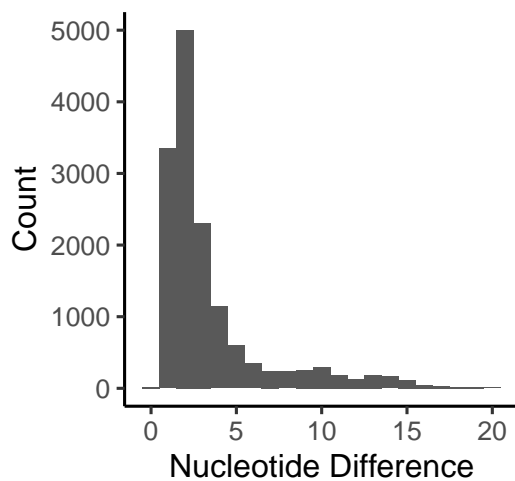
IGHV3–7*01

9717 sequences assigned
1908 (19.6%) exact matches, in which:
1605 unique CDR3
7 unique J



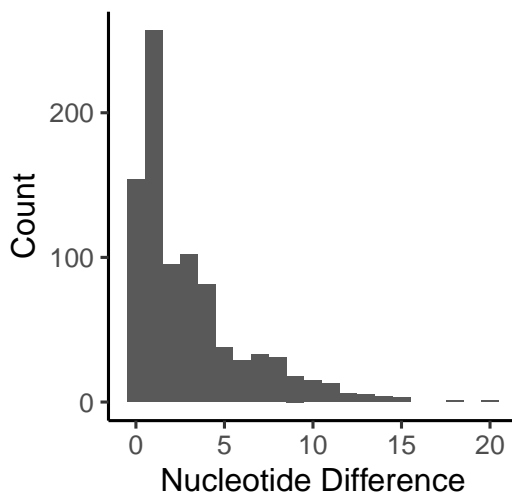
IGHV1–69*04

14817 sequences assigned
21 (0.1%) exact matches, in which:
21 unique CDR3
5 unique J



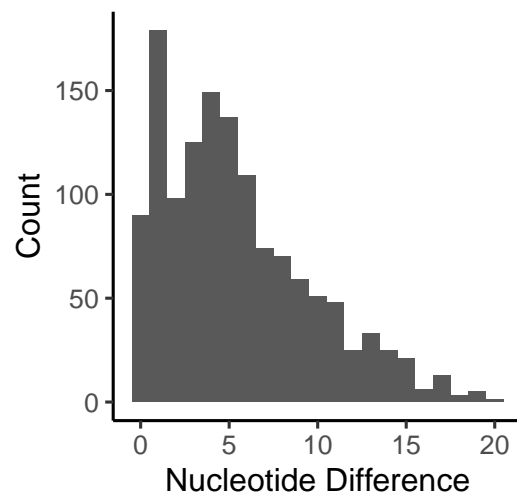
IGHV2–70*01

918 sequences assigned
154 (16.8%) exact matches, in which:
127 unique CDR3
6 unique J



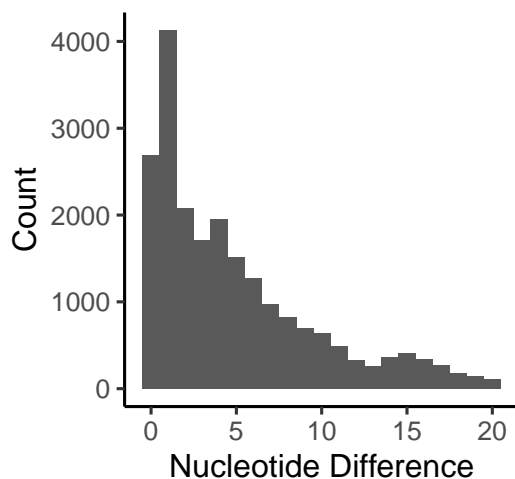
IGHV3–7*03

1339 sequences assigned
90 (6.7%) exact matches, in which:
89 unique CDR3
6 unique J



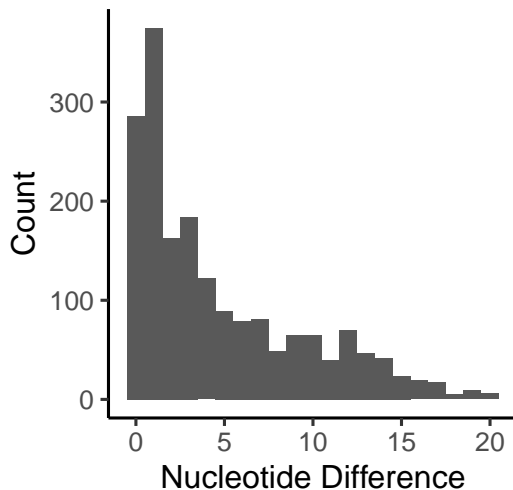
IGHV3-9*01

21733 sequences assigned
2686 (12.4%) exact matches, in which:
2138 unique CDR3
7 unique J



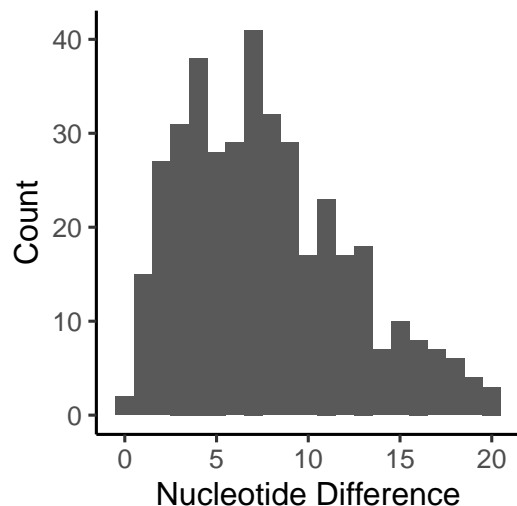
IGHV3-13*01

1853 sequences assigned
286 (15.4%) exact matches, in which:
223 unique CDR3
6 unique J



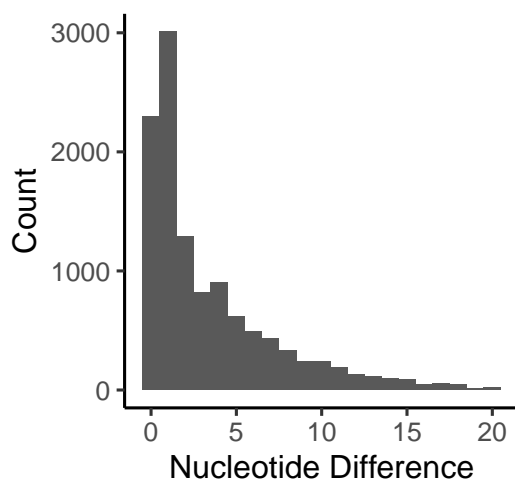
IGHV3-20*04

401 sequences assigned
2 (0.5%) exact matches, in which:
2 unique CDR3
2 unique J



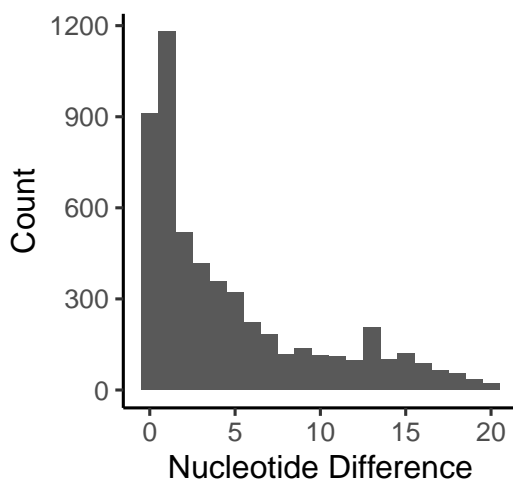
IGHV3-11*01

11732 sequences assigned
2301 (19.6%) exact matches, in which:
1851 unique CDR3
7 unique J



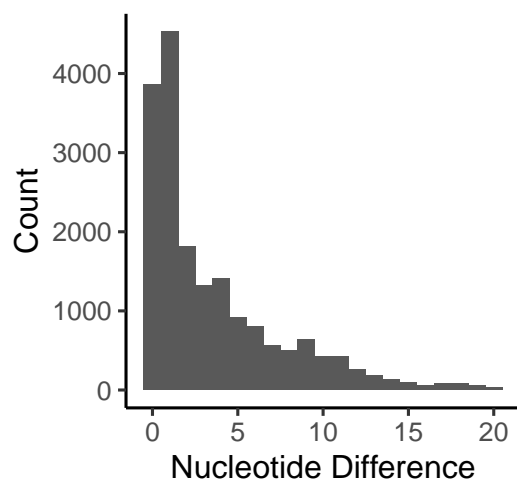
IGHV3-15*01

5540 sequences assigned
912 (16.5%) exact matches, in which:
734 unique CDR3
7 unique J



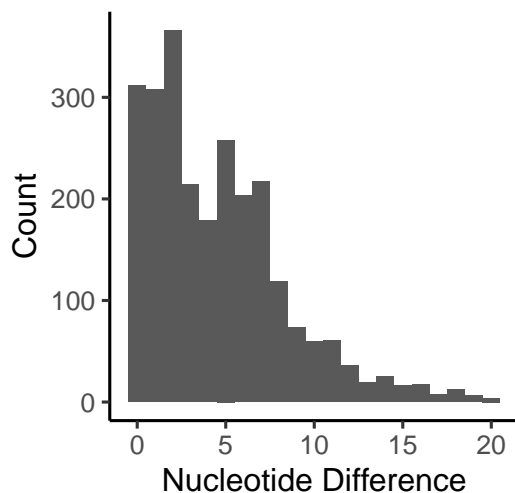
IGHV3-21*01

18364 sequences assigned
3860 (21%) exact matches, in which:
3162 unique CDR3
7 unique J



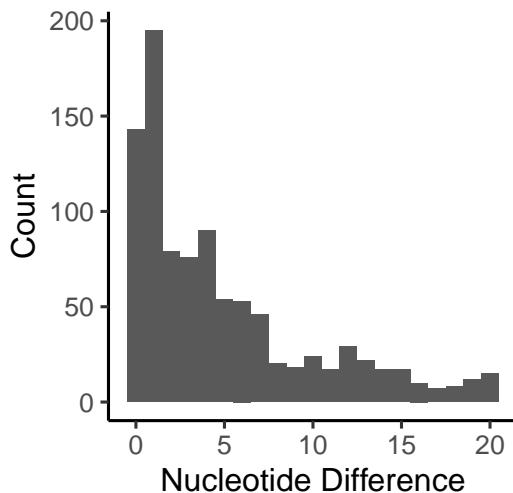
IGHV3-11*04

2608 sequences assigned
312 (12%) exact matches, in which:
308 unique CDR3
7 unique J



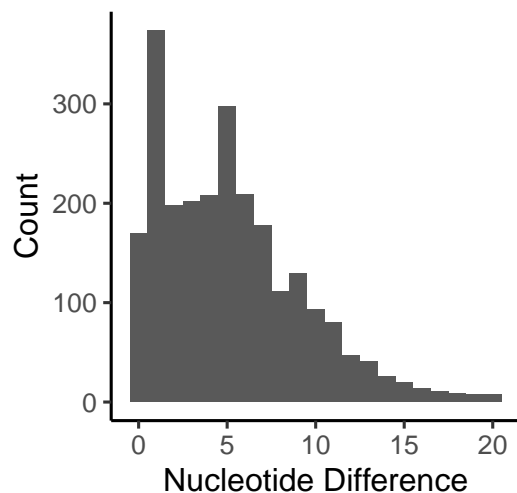
IGHV3-20*01

974 sequences assigned
143 (14.7%) exact matches, in which:
105 unique CDR3
6 unique J



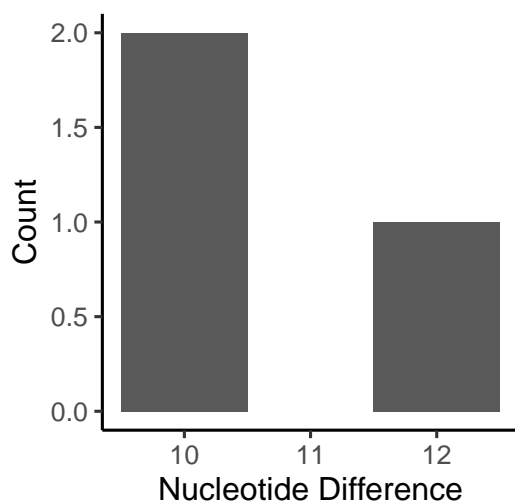
IGHV3-21*04

2461 sequences assigned
170 (6.9%) exact matches, in which:
168 unique CDR3
7 unique J



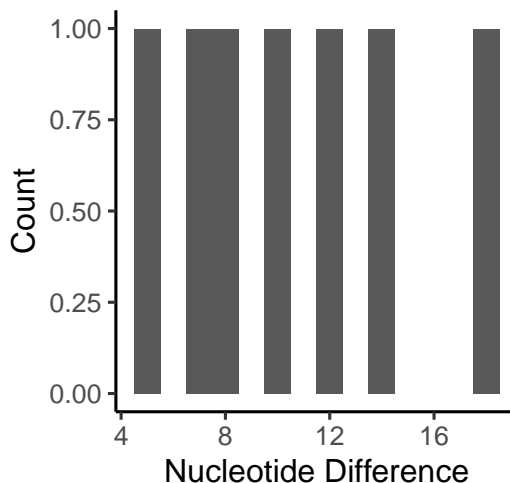
IGHV3-22*02

3 sequences assigned
No exact matches.



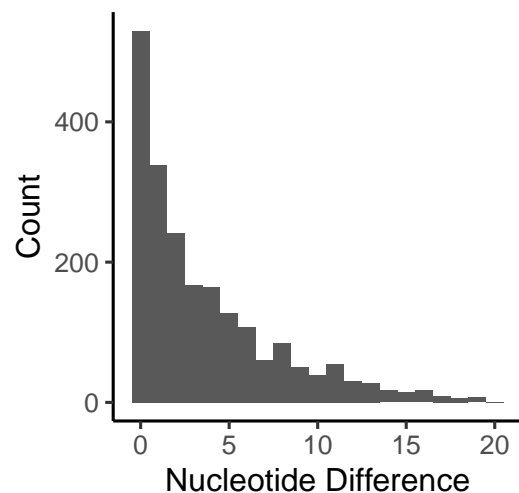
IGHV3-30-3*03

9 sequences assigned
No exact matches.



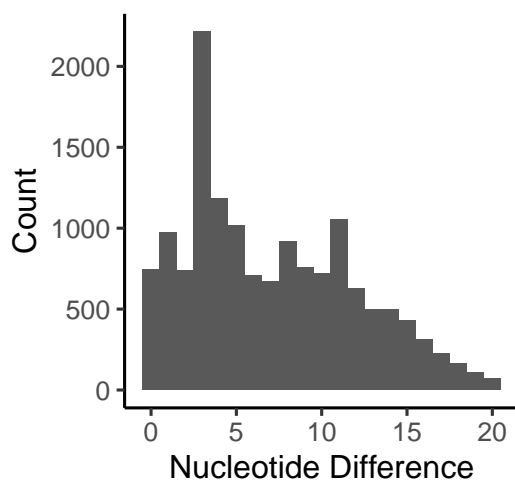
IGHV3-33*06_T300C_G3

2111 sequences assigned
530 (25.1%) exact matches, in which:
522 unique CDR3
7 unique J



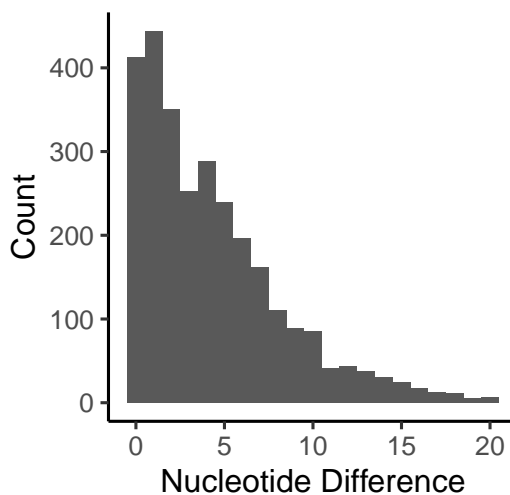
IGHV3-23*04

15021 sequences assigned
742 (4.9%) exact matches, in which:
682 unique CDR3
7 unique J



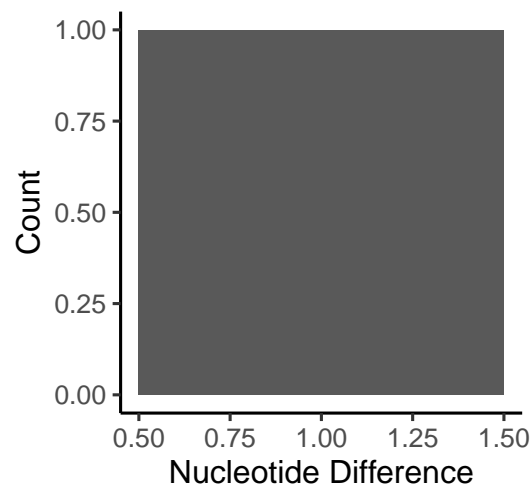
IGHV3-30*03_T288C

2881 sequences assigned
413 (14.3%) exact matches, in which:
407 unique CDR3
7 unique J



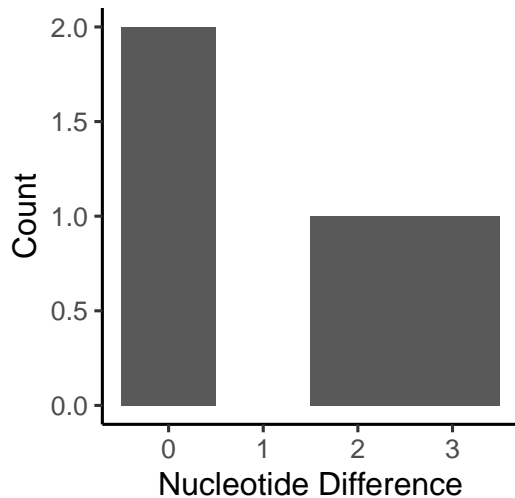
IGHV3-35*01

1 sequences assigned
No exact matches.



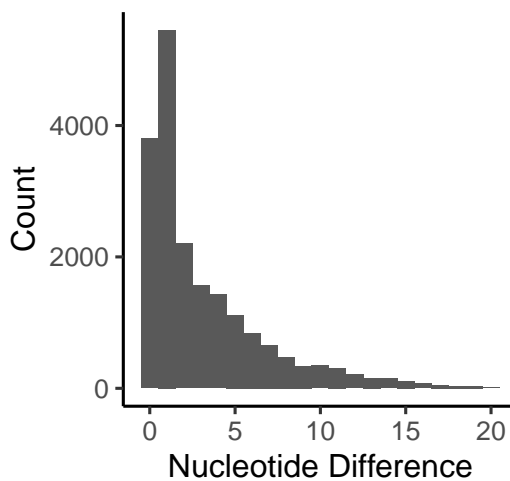
IGHV3-30-3*01

4 sequences assigned
2 (50%) exact matches, in which:
2 unique CDR3
1 unique J



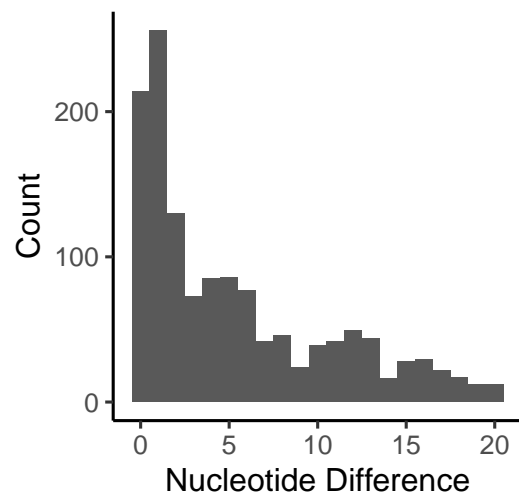
IGHV3-33*01

19539 sequences assigned
3803 (19.5%) exact matches, in which:
3078 unique CDR3
7 unique J



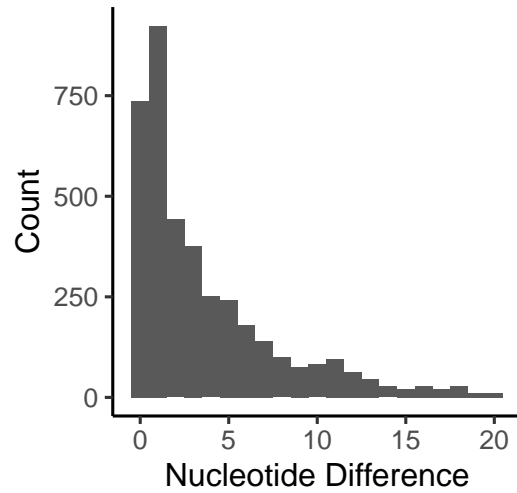
IGHV3-43*01

1364 sequences assigned
214 (15.7%) exact matches, in which:
183 unique CDR3
7 unique J



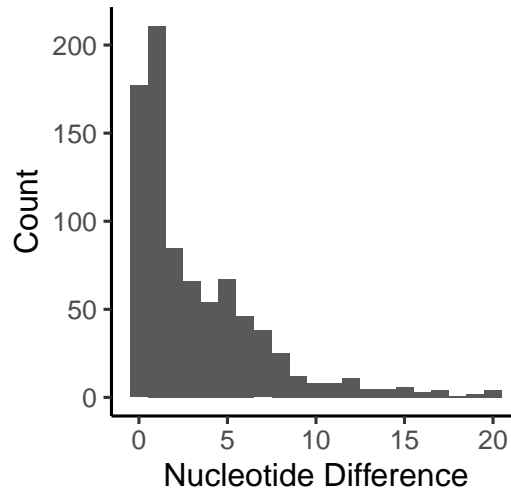
IGHV3-48*01

3921 sequences assigned
736 (18.8%) exact matches, in which:
610 unique CDR3
7 unique J



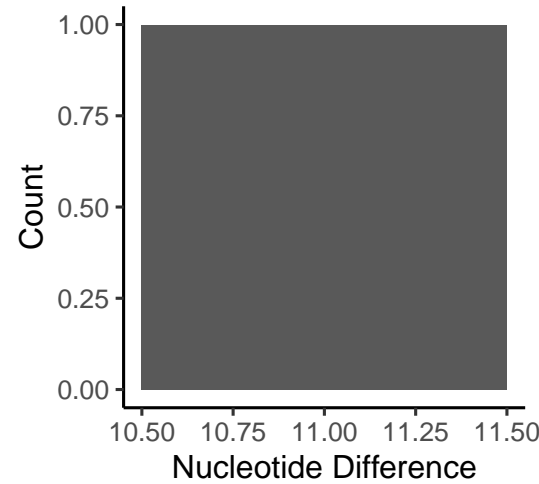
IGHV3-49*03

849 sequences assigned
177 (20.8%) exact matches, in which:
147 unique CDR3
6 unique J



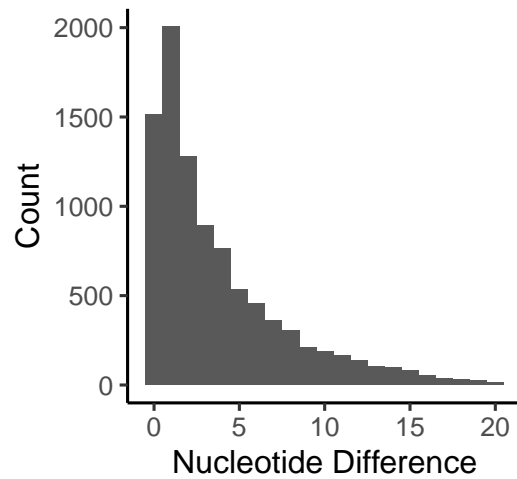
IGHV3-52*01

1 sequences assigned
No exact matches.



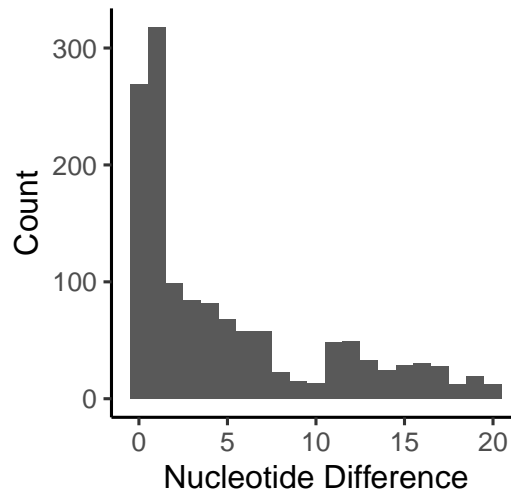
IGHV3-48*03

9290 sequences assigned
1515 (16.3%) exact matches, in which:
1249 unique CDR3
7 unique J



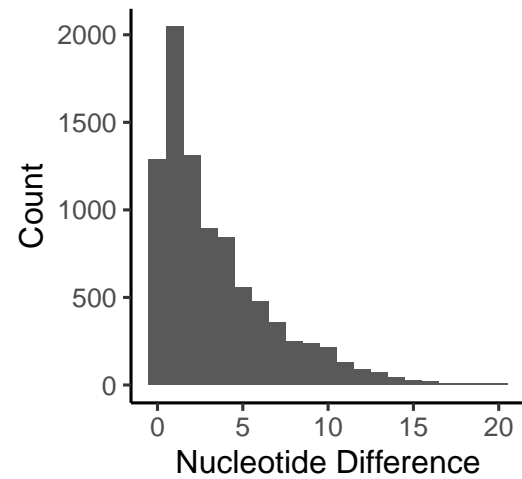
IGHV3-49*04

1396 sequences assigned
269 (19.3%) exact matches, in which:
216 unique CDR3
7 unique J



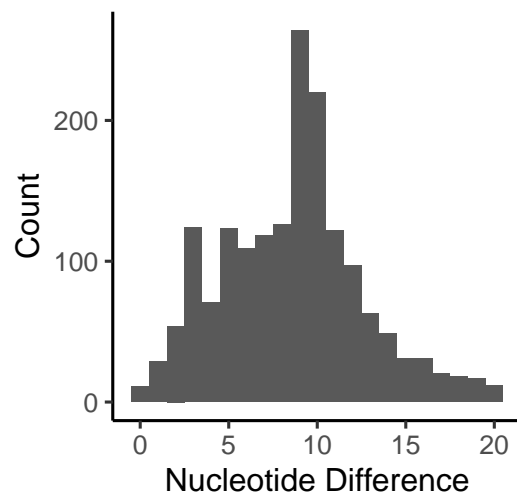
IGHV3-53*01

8952 sequences assigned
1285 (14.4%) exact matches, in which:
1021 unique CDR3
7 unique J



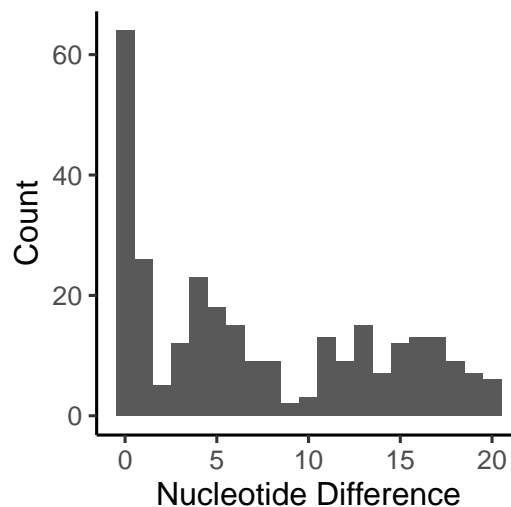
IGHV3-48*04

1742 sequences assigned
11 (0.6%) exact matches, in which:
11 unique CDR3
5 unique J



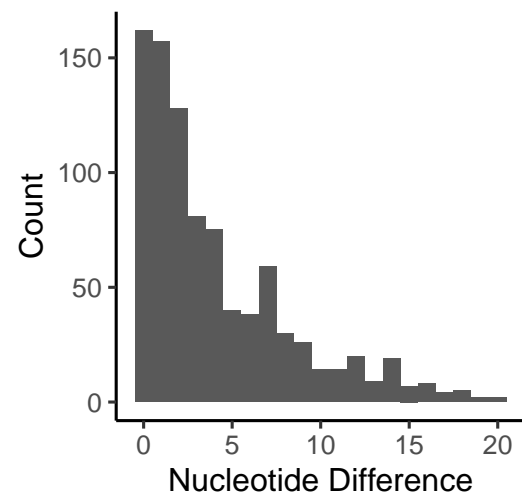
IGHV3-49*04_A313G

303 sequences assigned
64 (21.1%) exact matches, in which:
64 unique CDR3
7 unique J



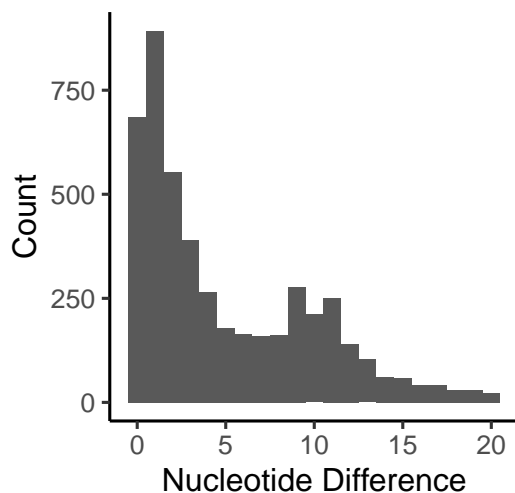
IGHV3-64*01

923 sequences assigned
162 (17.6%) exact matches, in which:
137 unique CDR3
6 unique J



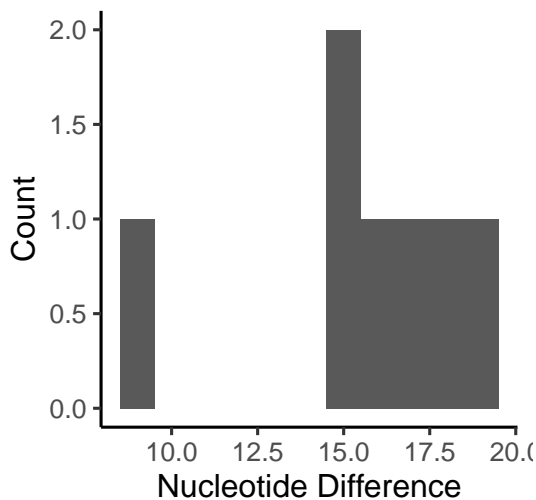
IGHV3-66*01

4827 sequences assigned
686 (14.2%) exact matches, in which:
555 unique CDR3
7 unique J



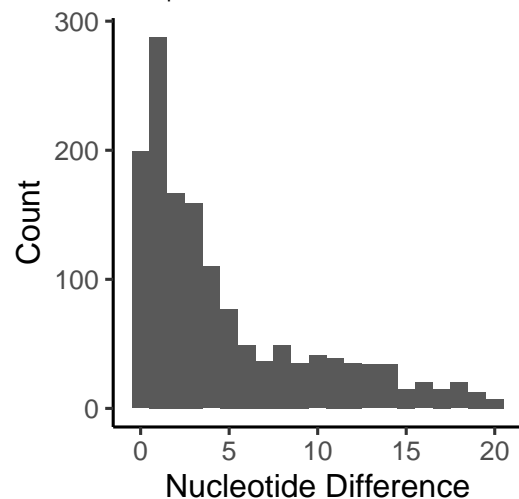
IGHV3-69-1*02

7 sequences assigned
No exact matches.



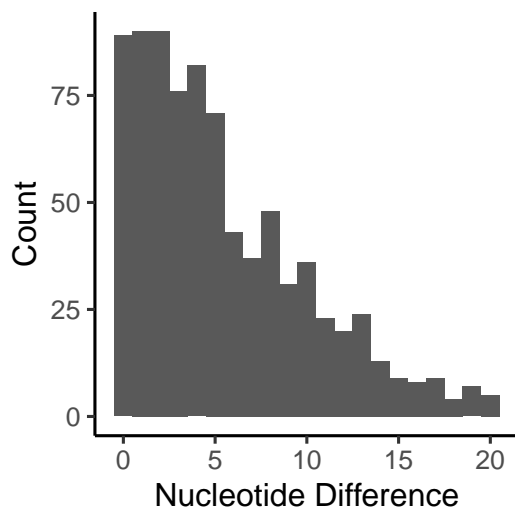
IGHV3-73*01

1468 sequences assigned
199 (13.6%) exact matches, in which:
154 unique CDR3
6 unique J



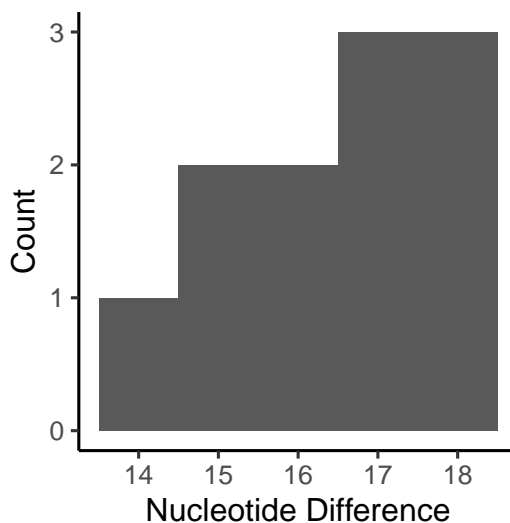
IGHV3-66*01_T267G_T30C

833 sequences assigned
89 (10.7%) exact matches, in which:
89 unique CDR3
7 unique J



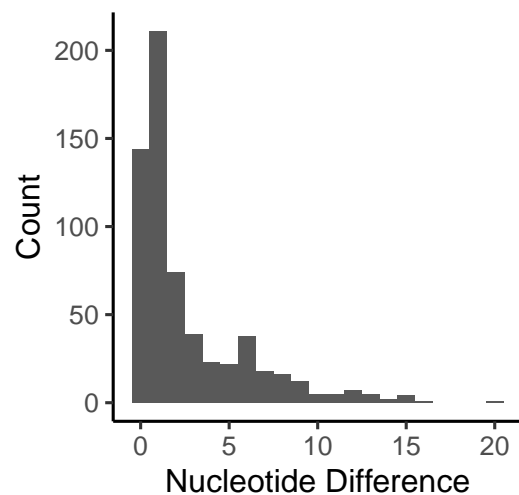
IGHV3-71*04

13 sequences assigned
No exact matches.



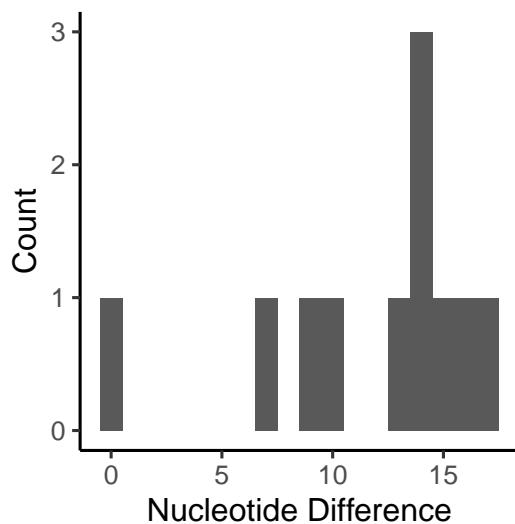
IGHV3-73*02

631 sequences assigned
144 (22.8%) exact matches, in which:
122 unique CDR3
7 unique J



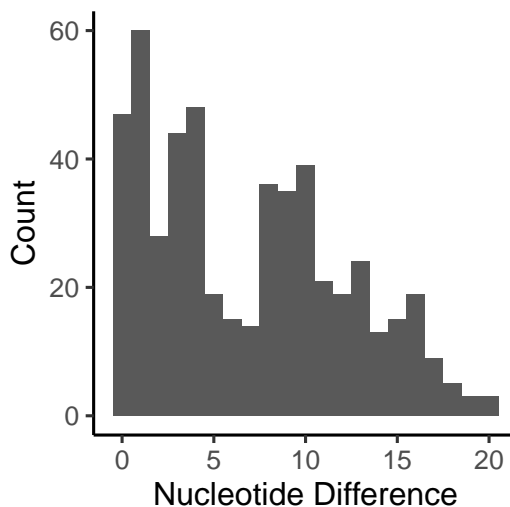
IGHV3-69-1*01

16 sequences assigned
1 (6.2%) exact matches, in which:
1 unique CDR3
1 unique J



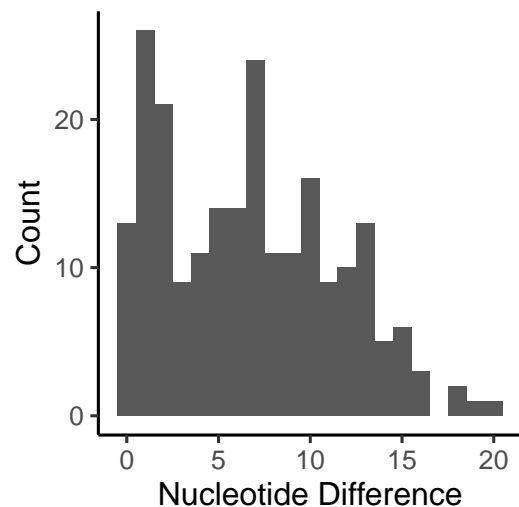
IGHV3-72*01

533 sequences assigned
47 (8.8%) exact matches, in which:
34 unique CDR3
4 unique J



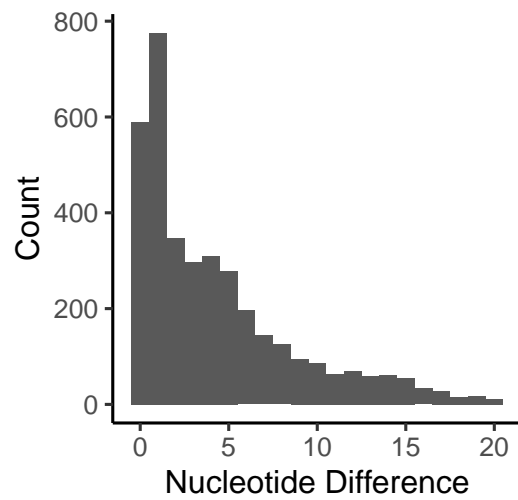
IGHV3-73*01_A284G_A284V

233 sequences assigned
13 (5.6%) exact matches, in which:
13 unique CDR3
5 unique J



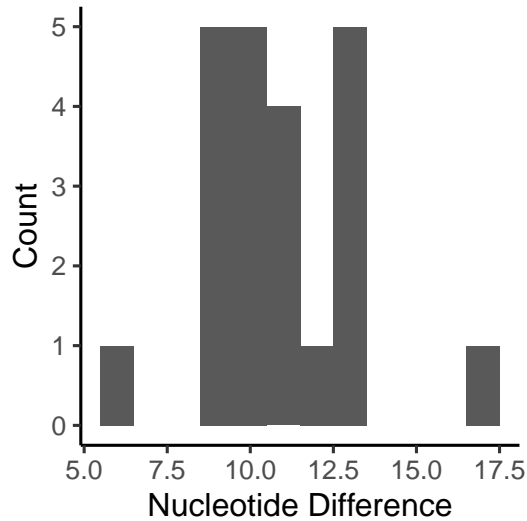
IGHV3-74*01

3698 sequences assigned
589 (15.9%) exact matches, in which:
504 unique CDR3
7 unique J



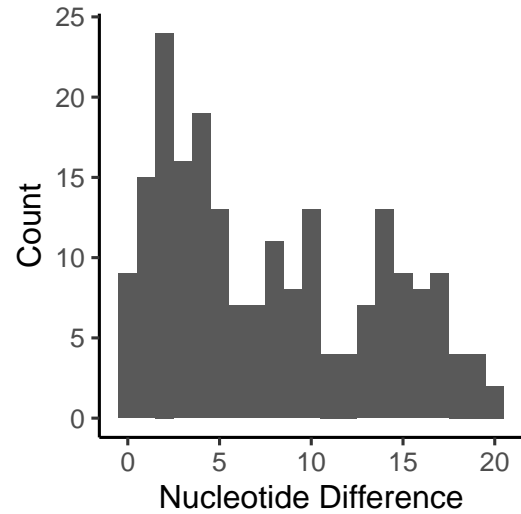
IGHV3-64D*06

23 sequences assigned
No exact matches.



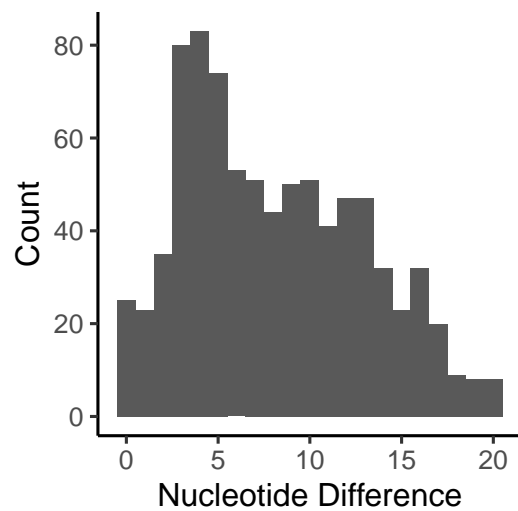
IGHV3-NL1*01_G49A_G7

210 sequences assigned
9 (4.3%) exact matches, in which:
9 unique CDR3
4 unique J



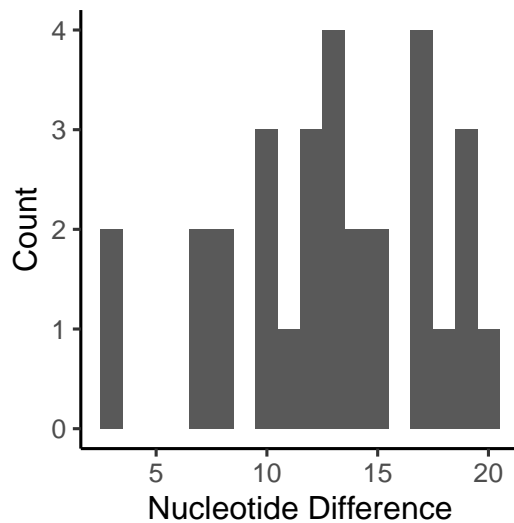
IGHV3-74*02

853 sequences assigned
25 (2.9%) exact matches, in which:
22 unique CDR3
6 unique J



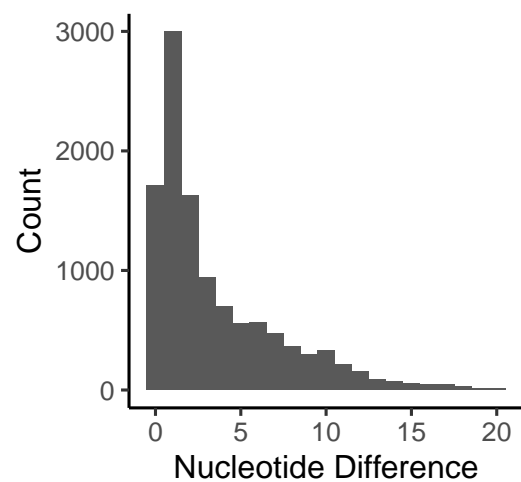
IGHV3-NL1*01

40 sequences assigned
No exact matches.



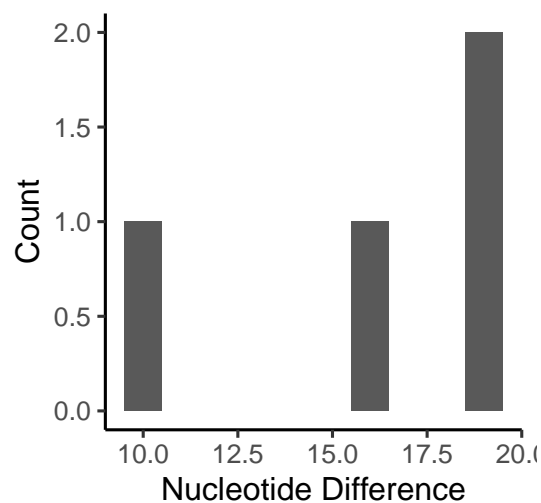
IGHV4-4*07

11336 sequences assigned
1710 (15.1%) exact matches, in which:
1445 unique CDR3
7 unique J



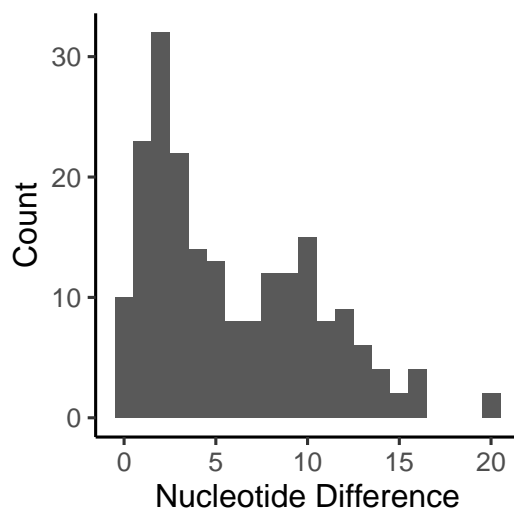
IGHV3-43D*04

4 sequences assigned
No exact matches.



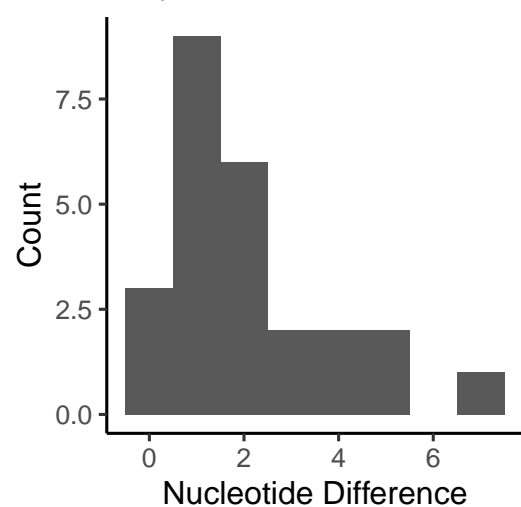
IGHV3-NL1*01_G49A_C1

206 sequences assigned
10 (4.9%) exact matches, in which:
10 unique CDR3
3 unique J



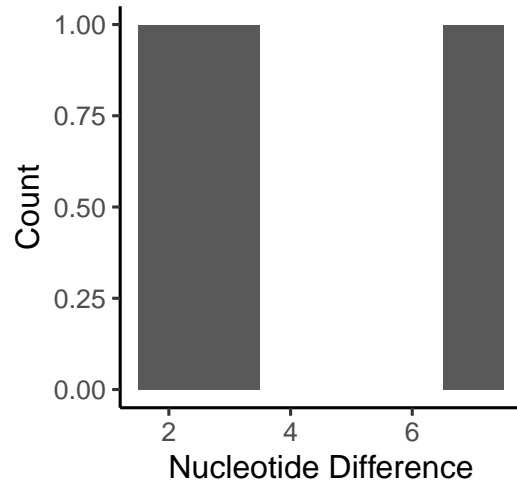
IGHV4-28*01

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



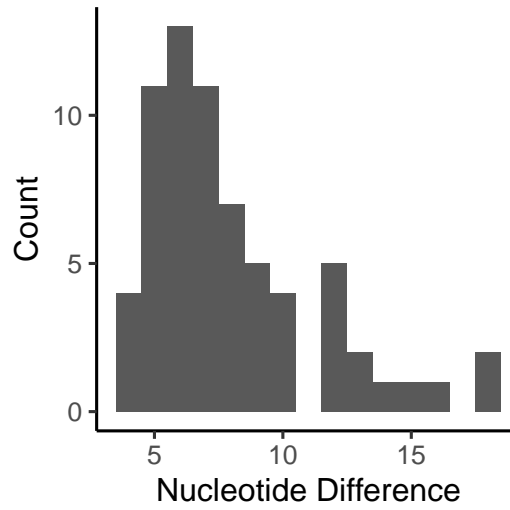
IGHV4-28*03

3 sequences assigned
No exact matches.



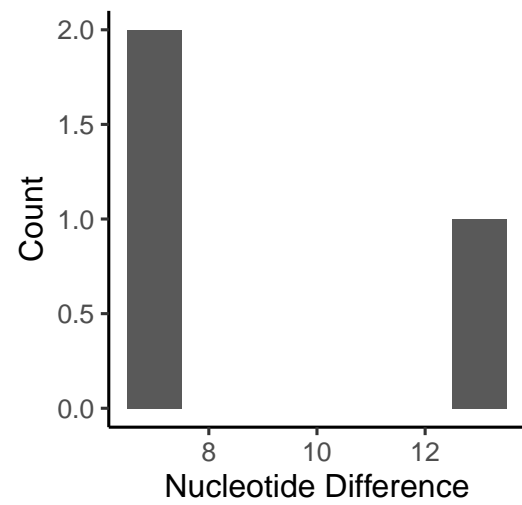
IGHV4-30-4*08

69 sequences assigned
No exact matches.



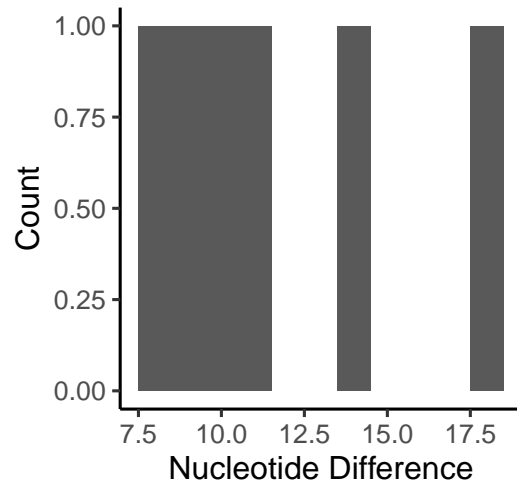
IGHV4-38-2*01

74 sequences assigned
No exact matches.



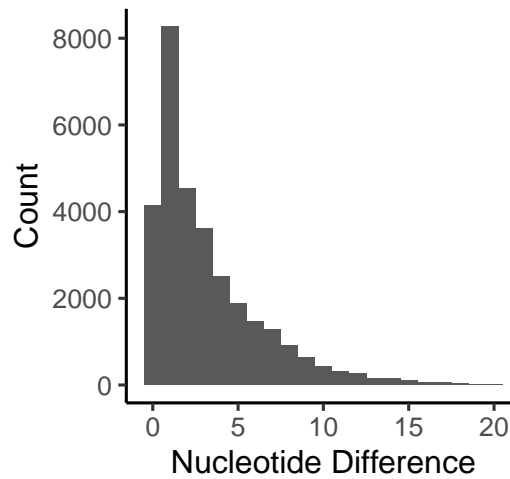
IGHV4-30-4*01

8 sequences assigned
No exact matches.



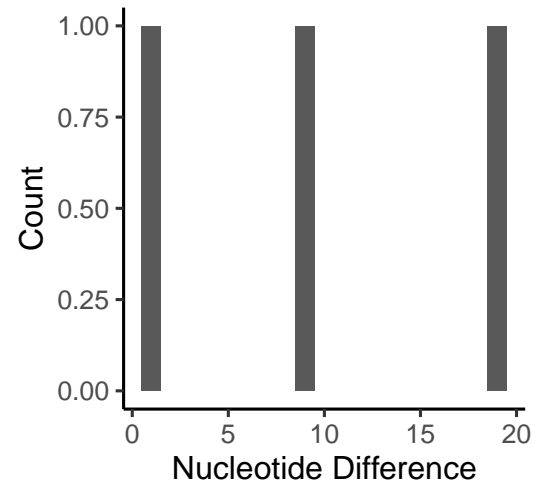
IGHV4-31*03

31106 sequences assigned
4137 (13.3%) exact matches, in which:
3396 unique CDR3
7 unique J



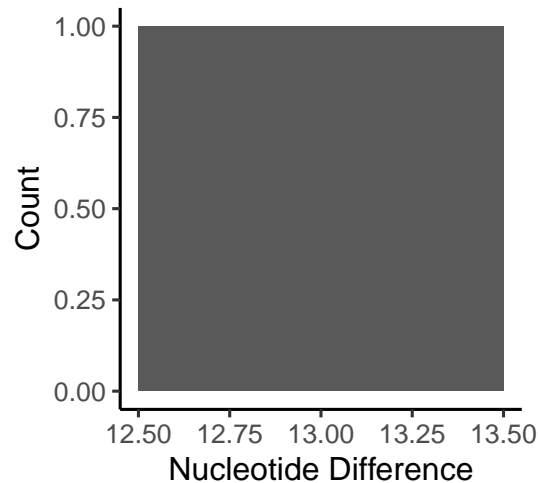
IGHV4-38-2*02

13 sequences assigned
No exact matches.



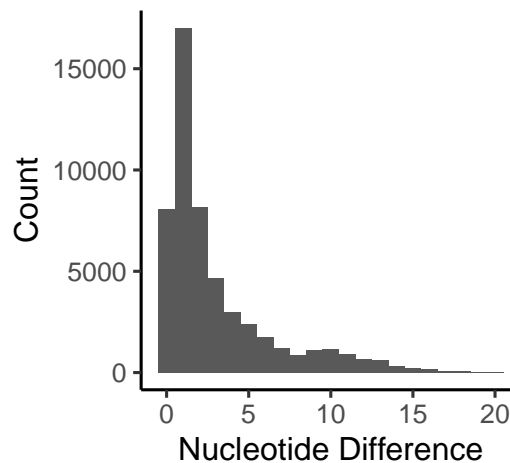
IGHV4-30-2*03

7 sequences assigned
No exact matches.



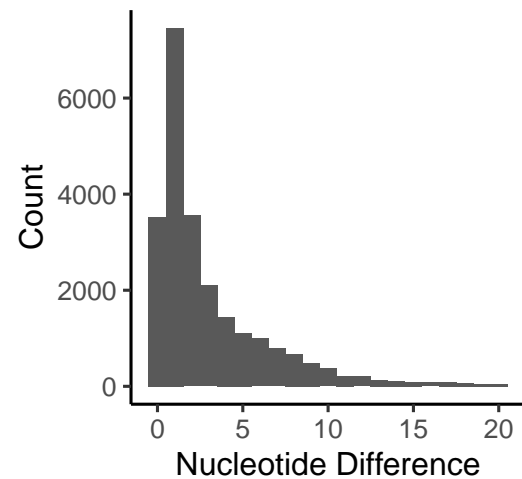
IGHV4-34*01

53171 sequences assigned
8062 (15.2%) exact matches, in which:
6521 unique CDR3
7 unique J



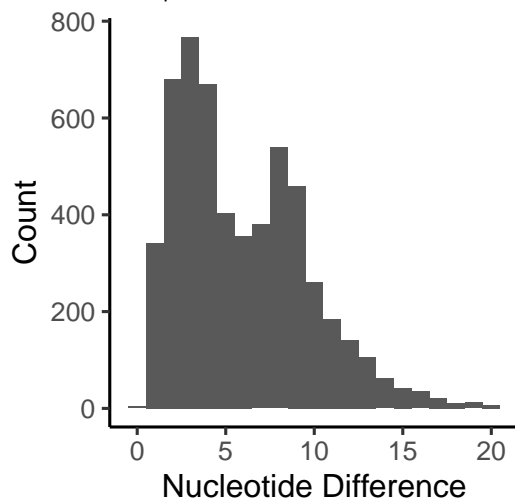
IGHV4-39*01

23832 sequences assigned
3521 (14.8%) exact matches, in which:
2963 unique CDR3
7 unique J



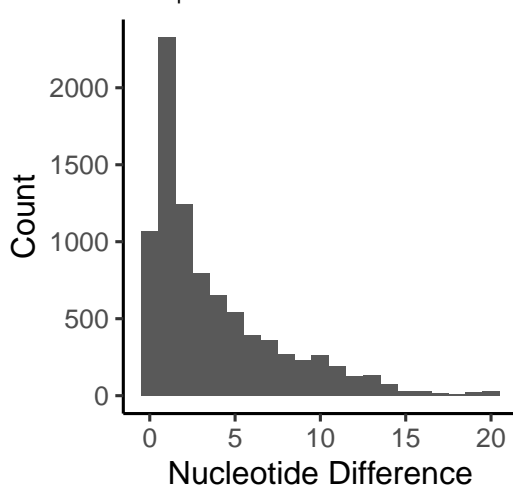
IGHV4-39*07

5517 sequences assigned
4 (0.1%) exact matches, in which:
4 unique CDR3
3 unique J



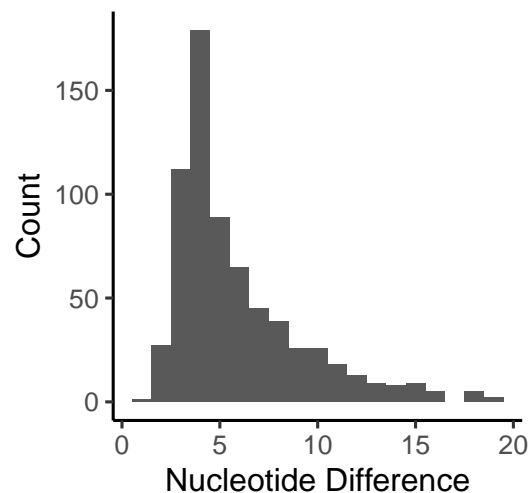
IGHV4-59*08

8879 sequences assigned
1071 (12.1%) exact matches, in which:
873 unique CDR3
7 unique J



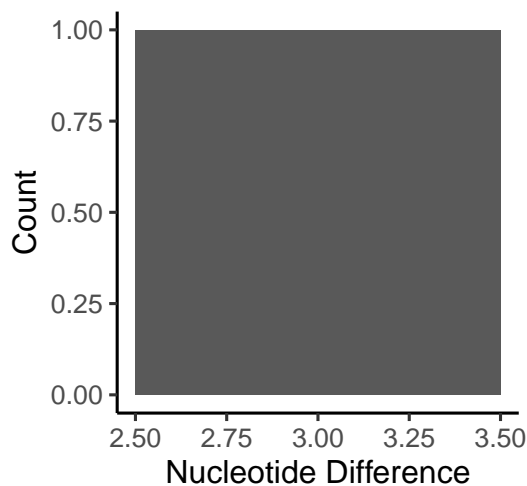
IGHV4-61*05

683 sequences assigned
No exact matches.



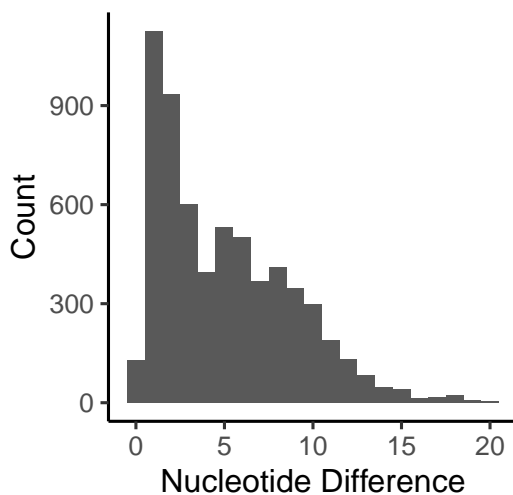
IGHV4-55*01

1 sequences assigned
No exact matches.



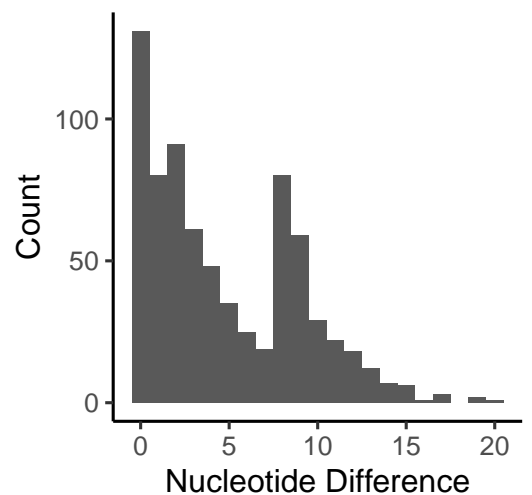
IGHV4-59*12

6267 sequences assigned
130 (2.1%) exact matches, in which:
130 unique CDR3
7 unique J



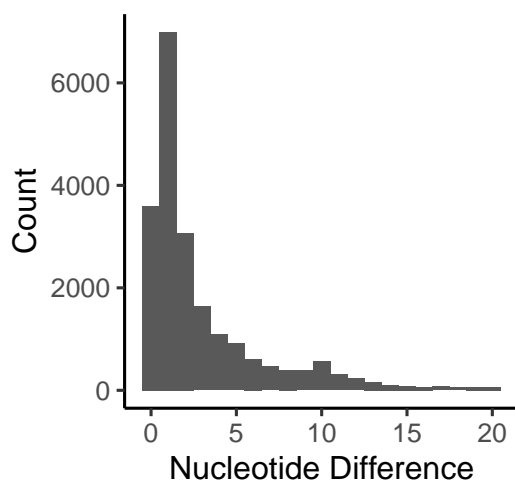
IGHV4-61*08_G48A_G49A

740 sequences assigned
131 (17.7%) exact matches, in which:
130 unique CDR3
6 unique J



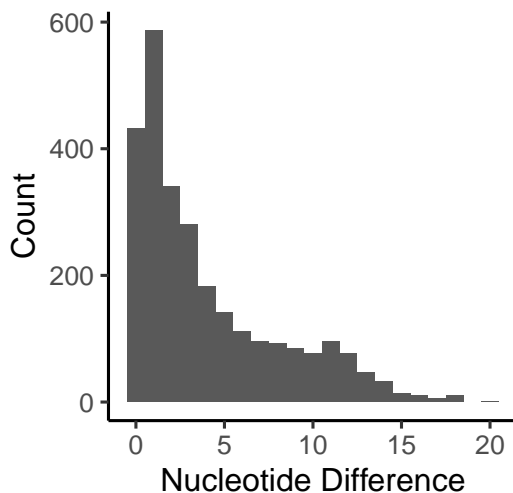
IGHV4-59*01

21146 sequences assigned
3603 (17%) exact matches, in which:
2963 unique CDR3
7 unique J



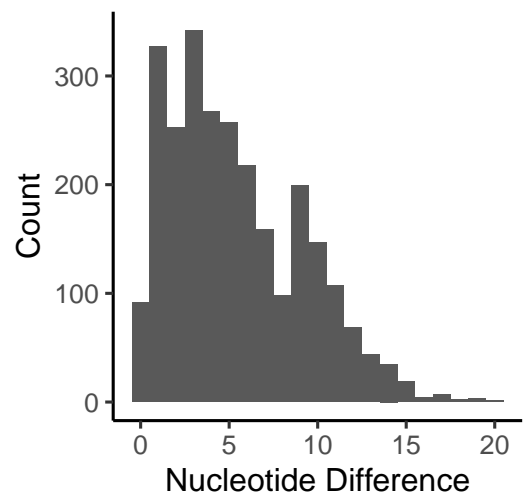
IGHV4-61*01

2724 sequences assigned
432 (15.9%) exact matches, in which:
391 unique CDR3
7 unique J



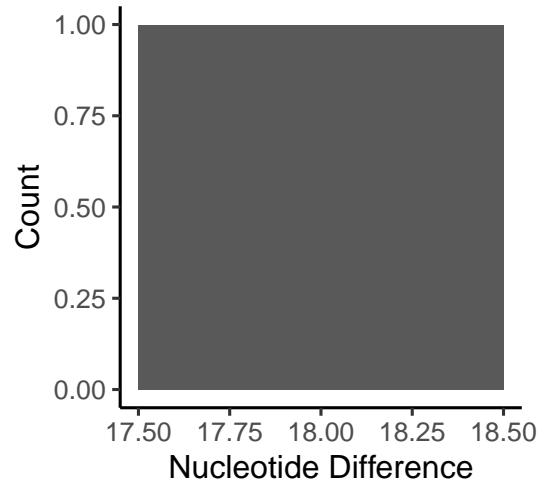
IGHV4-61*08_G48A_G49A

2655 sequences assigned
92 (3.5%) exact matches, in which:
92 unique CDR3
7 unique J



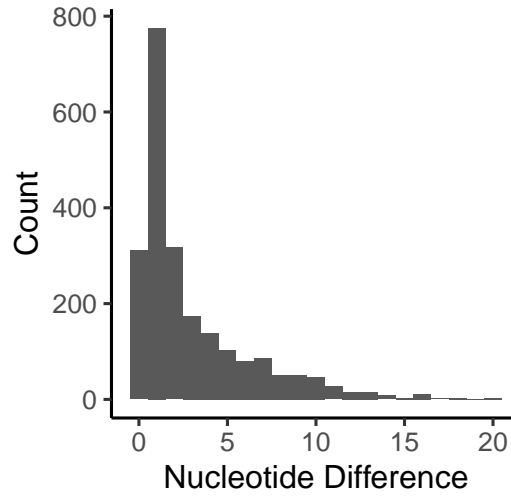
IGHV1/OR15-2*02

3 sequences assigned
No exact matches.



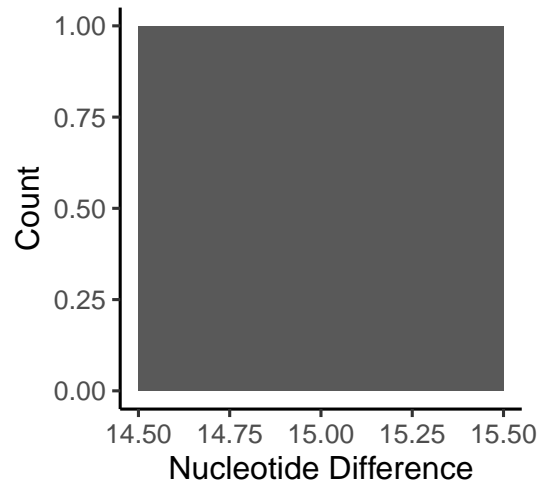
IGHV6-1*01

2232 sequences assigned
311 (13.9%) exact matches, in which:
243 unique CDR3
7 unique J



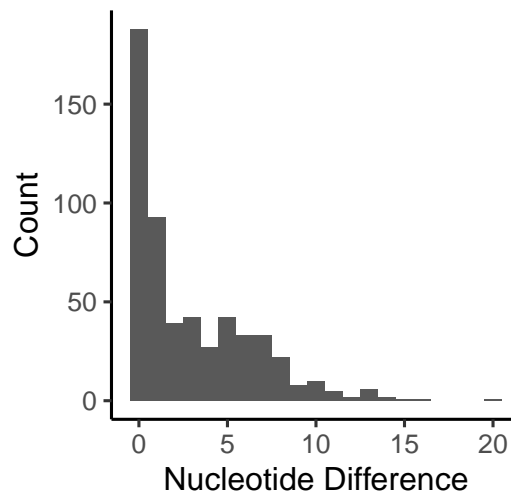
IGHV4/OR15-8*01

9 sequences assigned
No exact matches.



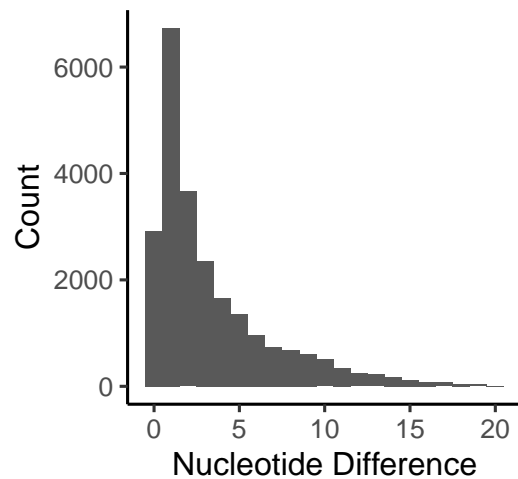
IGHV6-1*01_A315G

556 sequences assigned
188 (33.8%) exact matches, in which:
188 unique CDR3
7 unique J



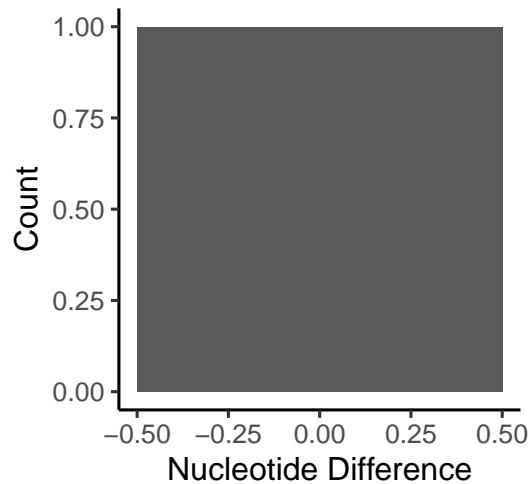
IGHV5-51*01

23780 sequences assigned
2920 (12.3%) exact matches, in which:
2044 unique CDR3
7 unique J

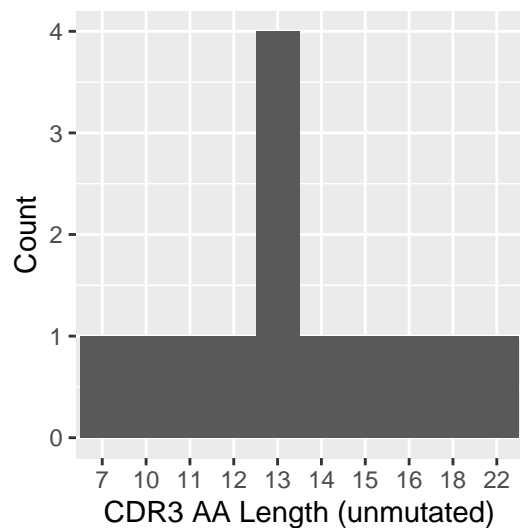


IGHV7-81*01

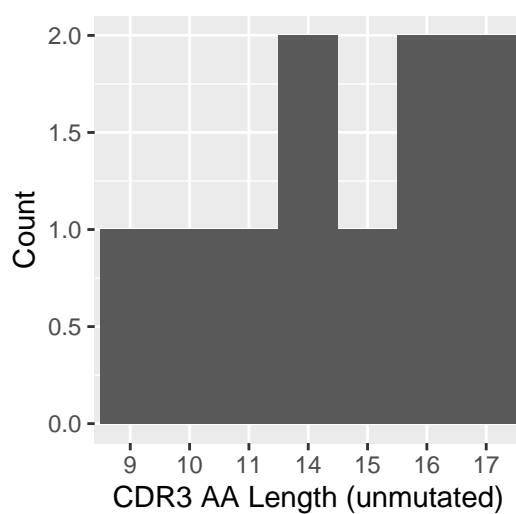
1 sequences assigned
1 (100%) exact matches, in which:
1 unique CDR3
1 unique J



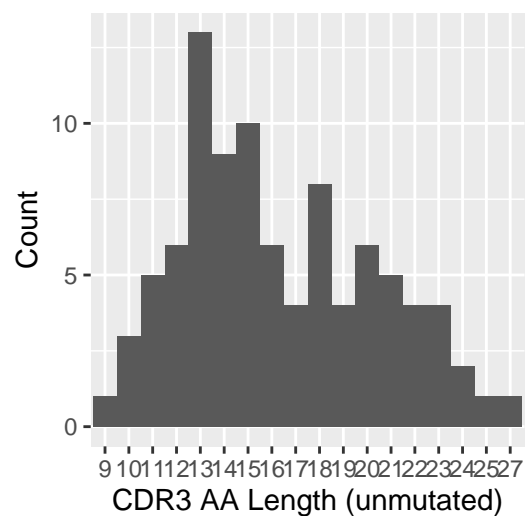
IGHV3-73*01_A284G_A286C



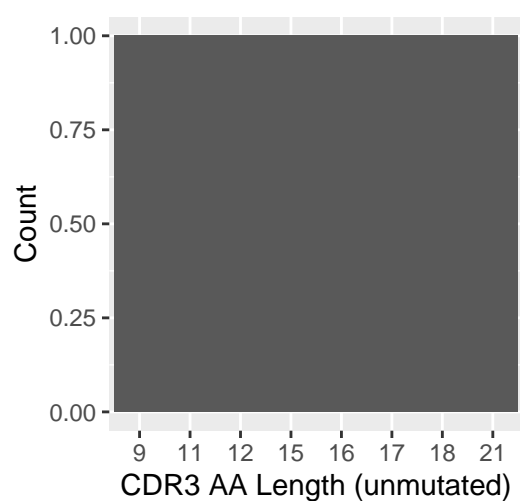
IGHV3-NL1*01_G49A_C155



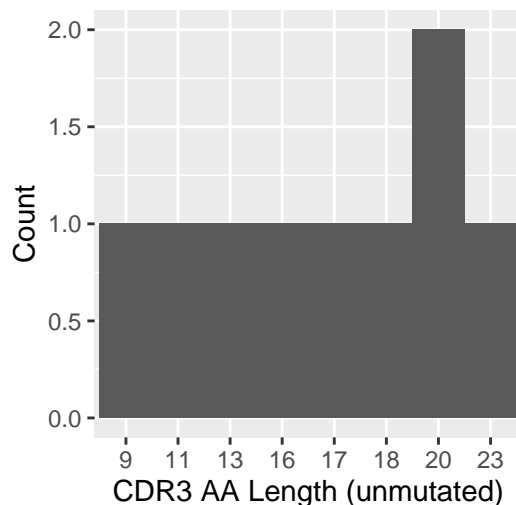
IGHV4-61*08_G48A_G49C_



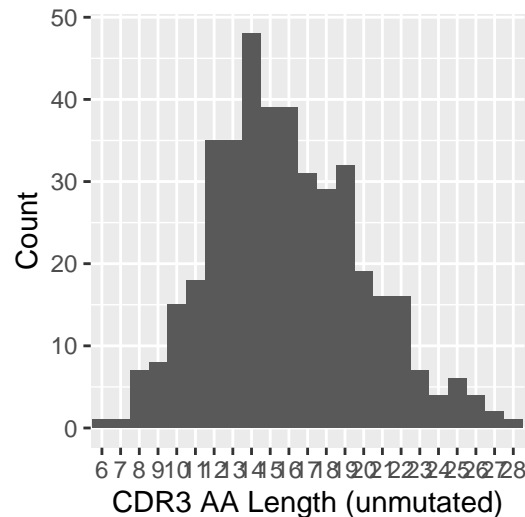
IGHV1-45*02_A297G_A307



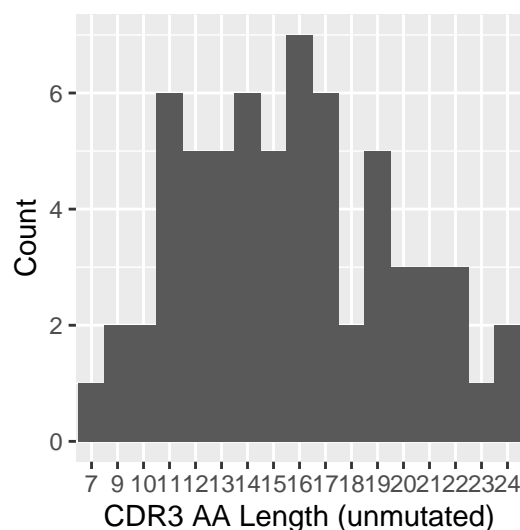
IGHV3-NL1*01_G49A_G75C



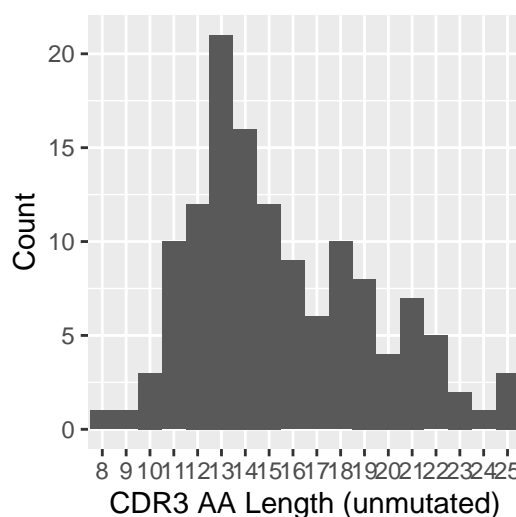
IGHV3-30*03_T288C



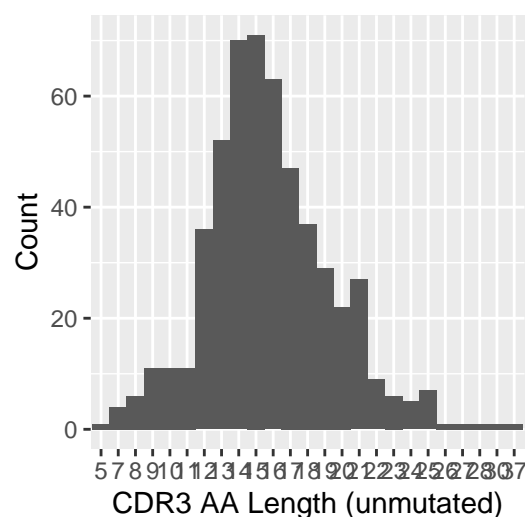
IGHV3-49*04_A313G



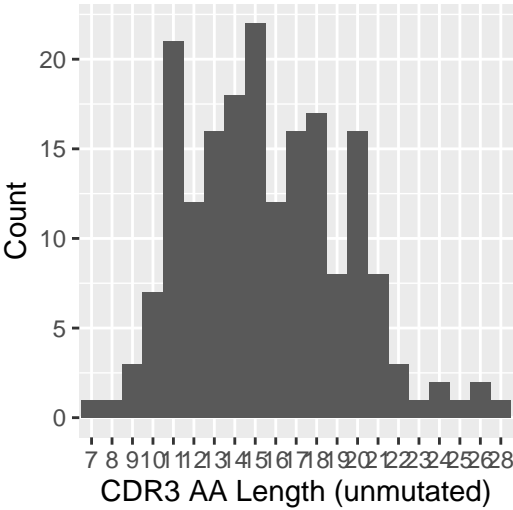
IGHV4-61*08_G48A_G49C_



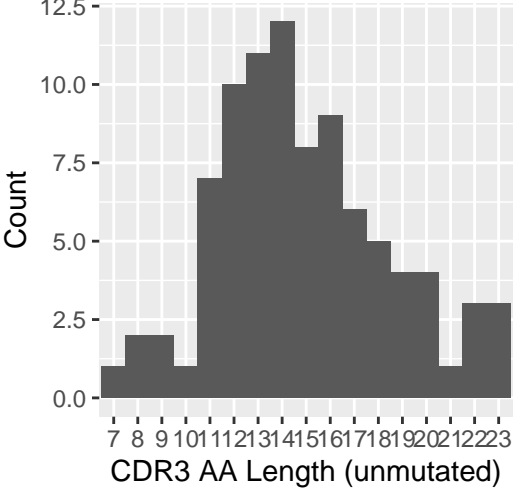
IGHV3-33*06_T300C_G303



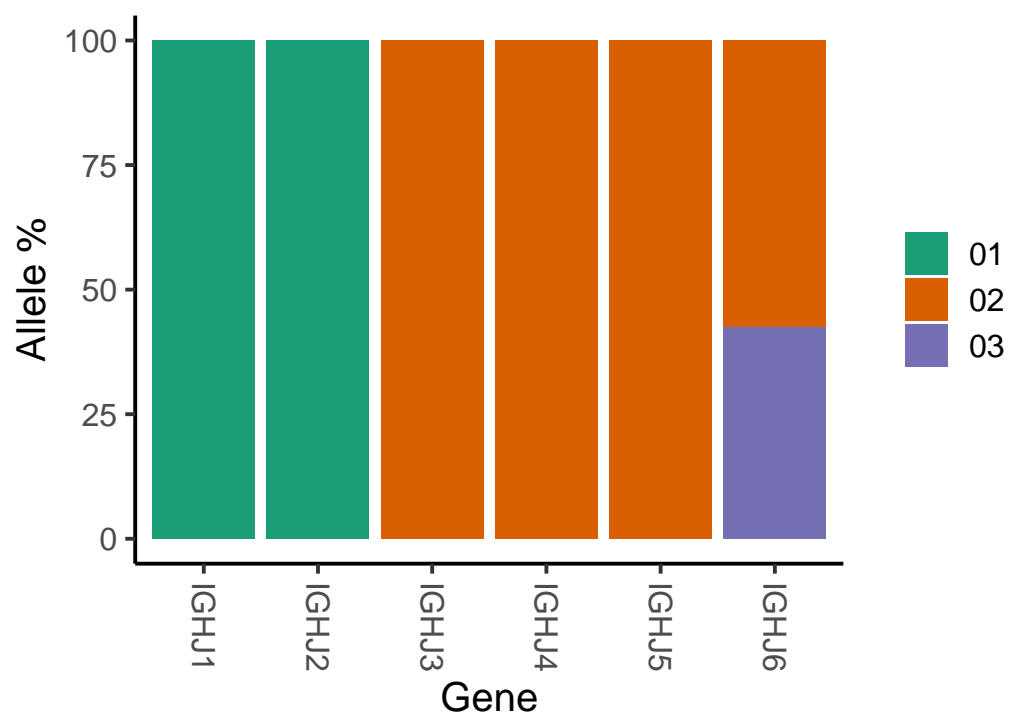
IGHV6-1*01_A315G



IGHV3-66*01_T267G_T300C_G303A_G317A



Allele Usage



Sequence Count by IGHJ6 allele usage

