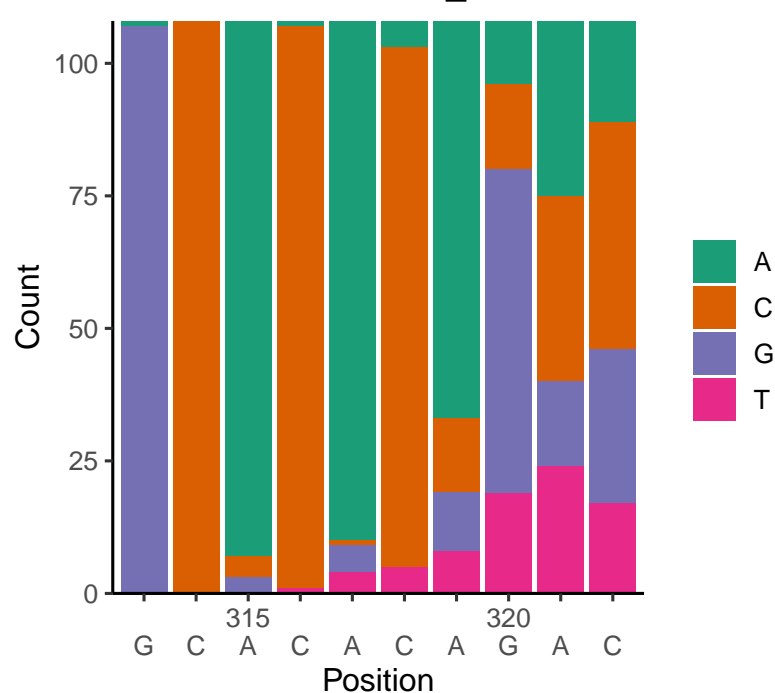
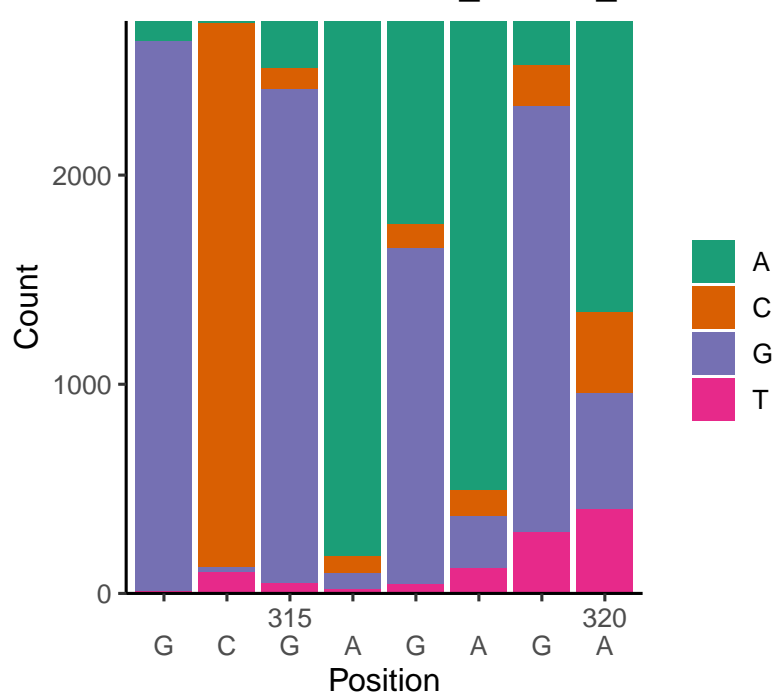


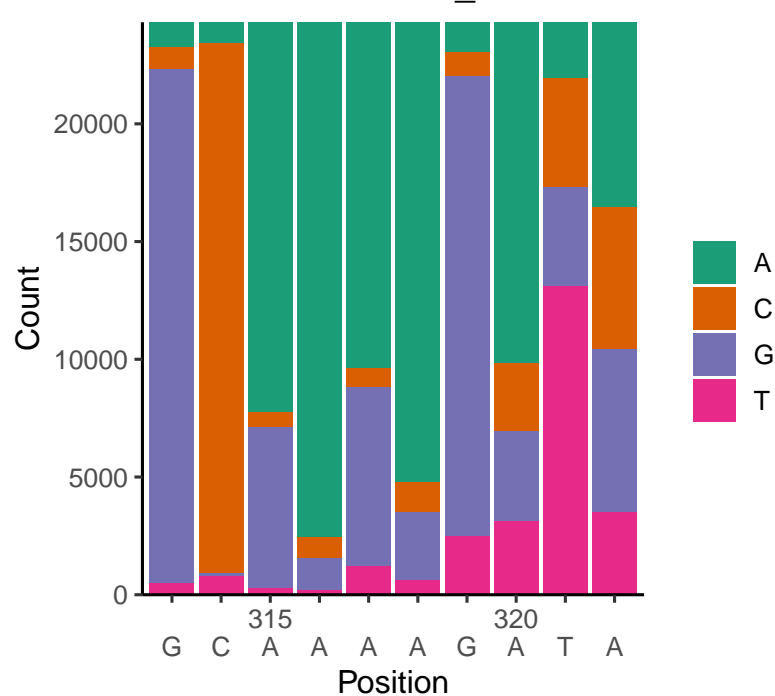
Gene IGHV2-70*12_G60A



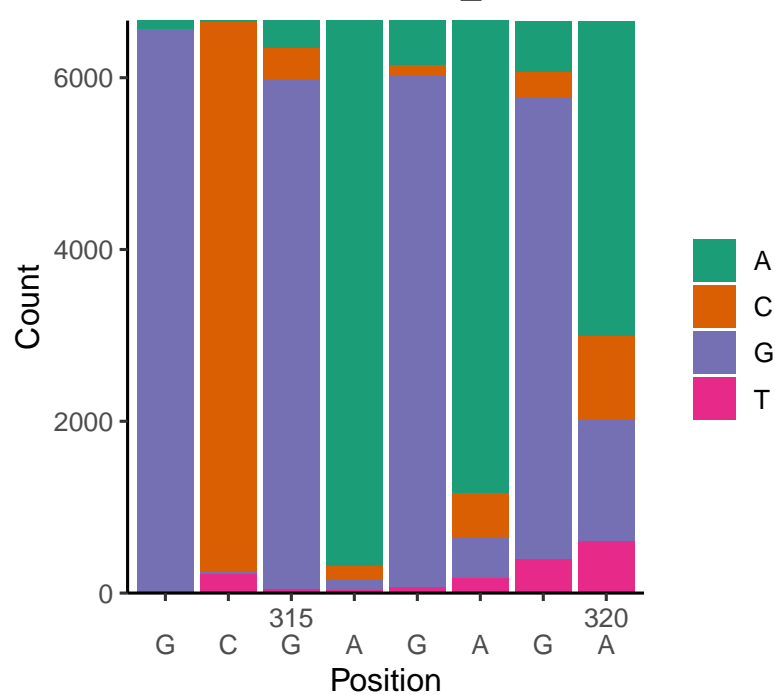
Gene IGHV3-30*07_A150G_C203T



Gene IGHV3-9*01_A104G



Gene IGHV3-30*04_C203T



Gene IGHV2-70*12_G60A



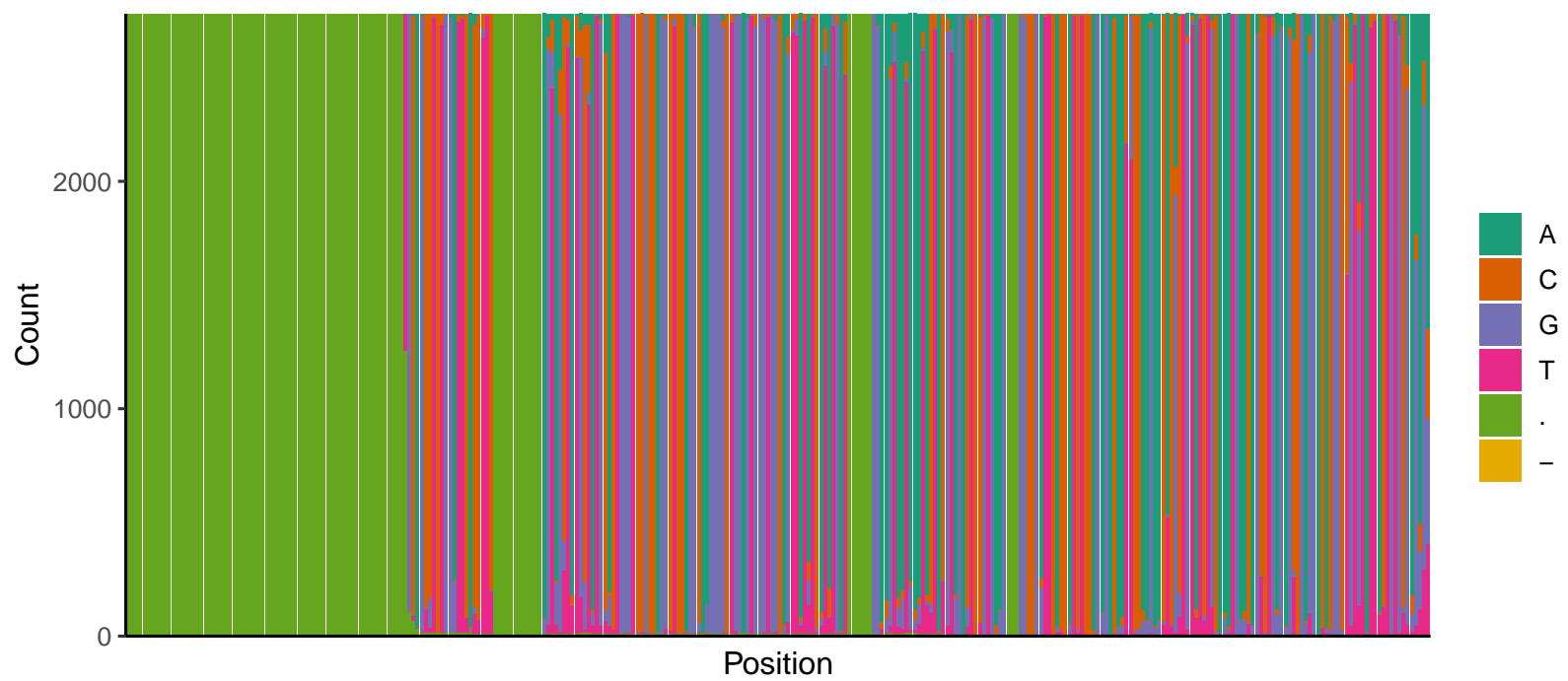
Gene IGHV3-9*01_A104G



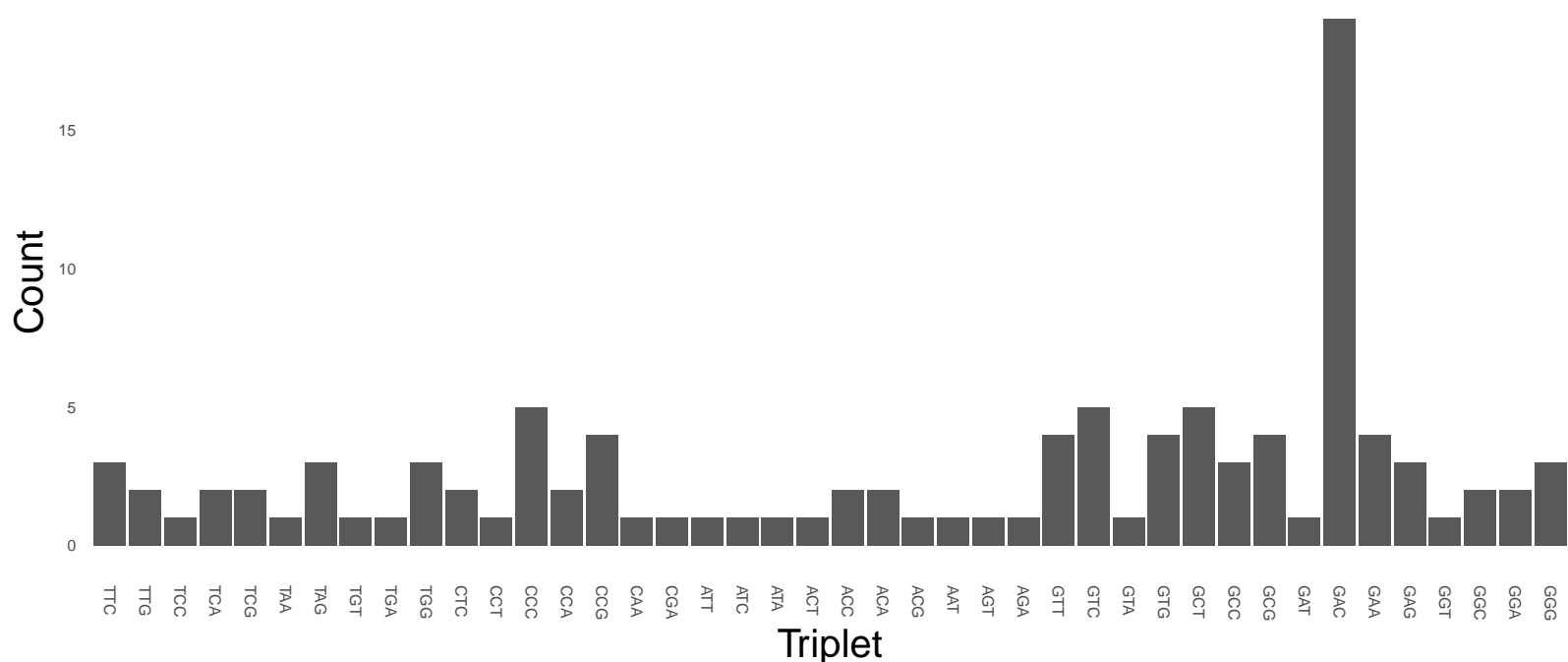
Gene IGHV3-30*04_C203T



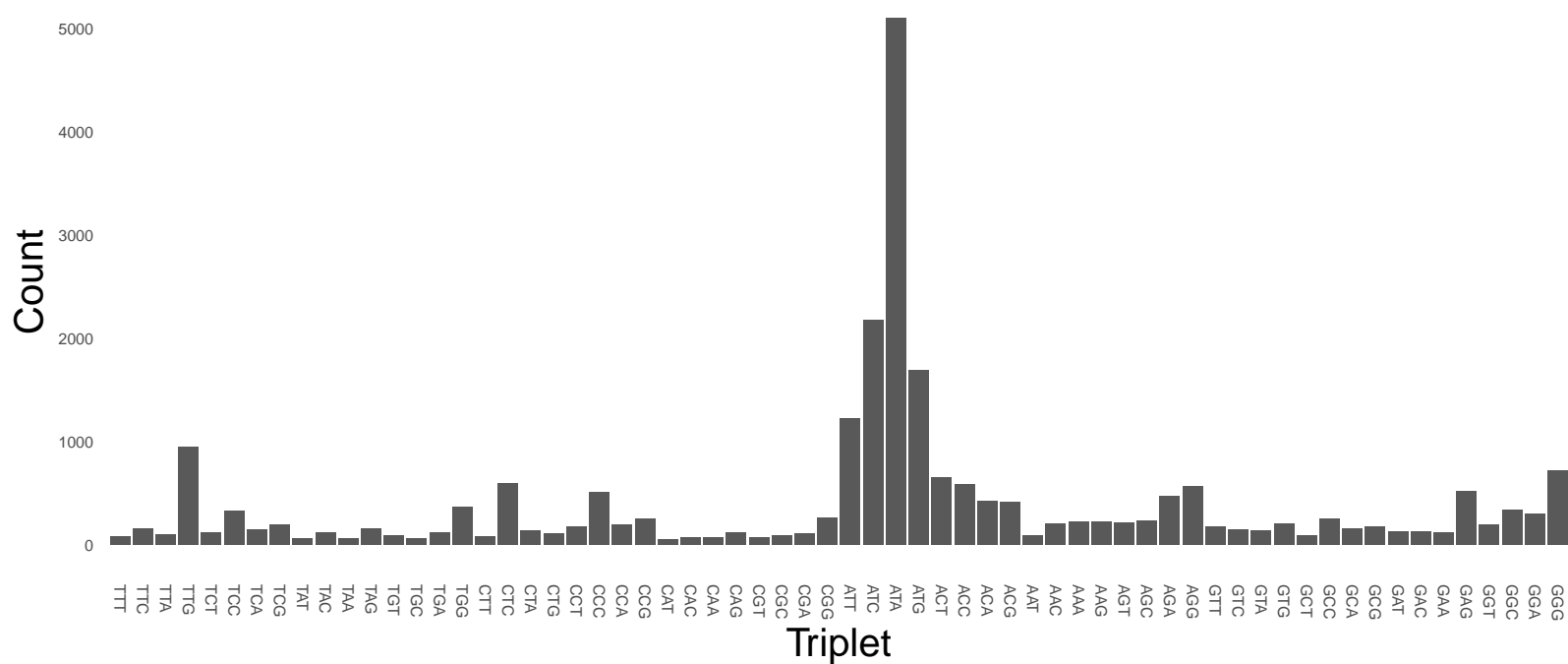
Gene IGHV3-30*07_A150G_C203T



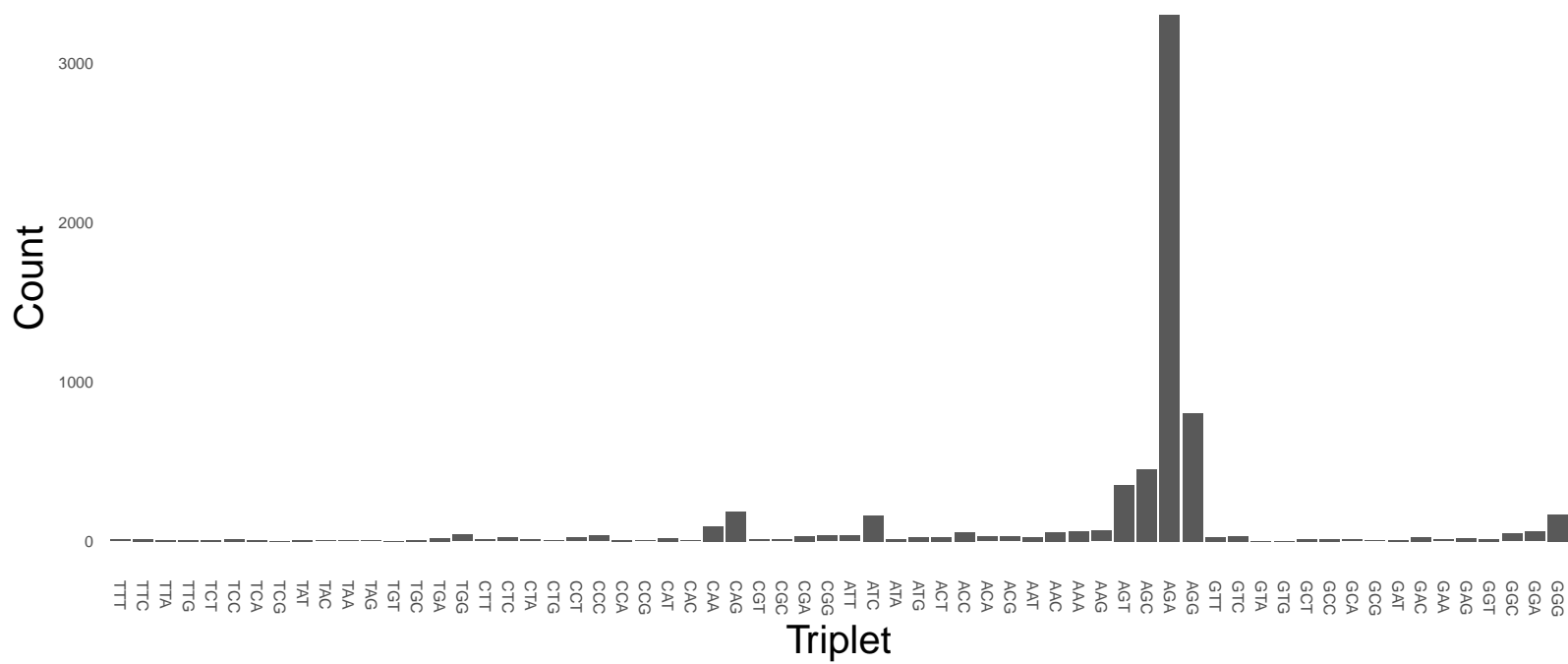
IGHV2-70*12_G60A- Final 3 nucleotides as a triplet



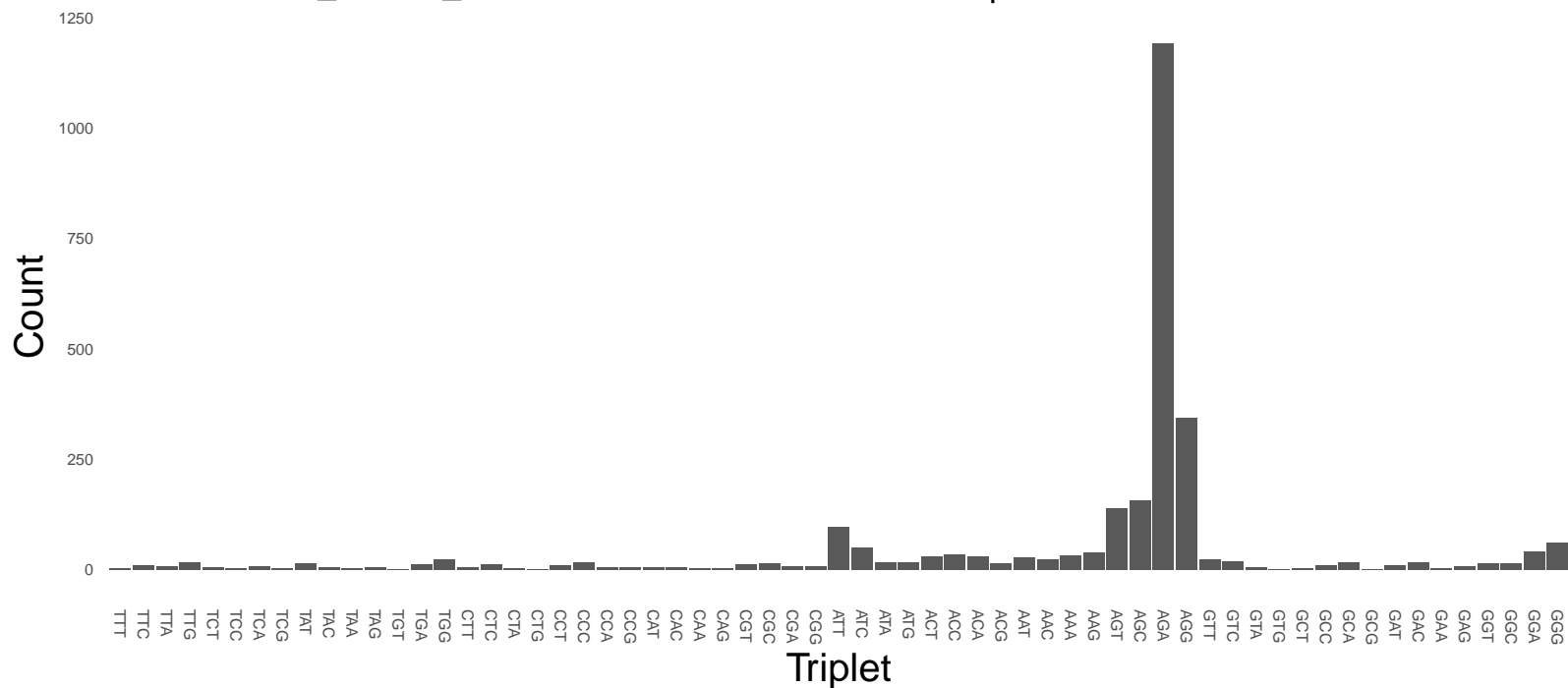
IGHV3-9*01_A104G- Final 3 nucleotides as a triplet



IGHV3-30*04_C203T- Final 3 nucleotides as a triplet

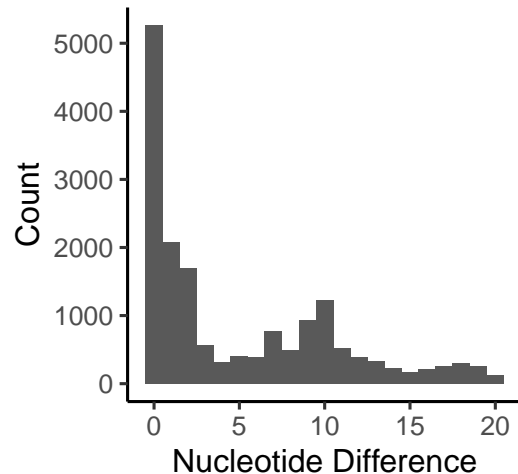


IGHV3-30*07_A150G_C203T- Final 3 nucleotides as a triplet



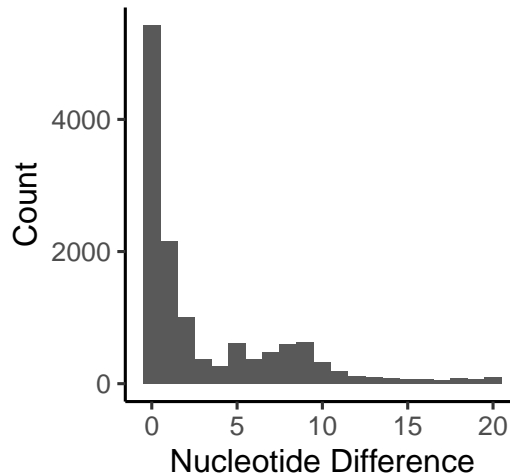
IGHV1-2*02

18616 sequences assigned
5262 (28.3%) exact matches, in which:
5044 unique CDR3
6 unique J



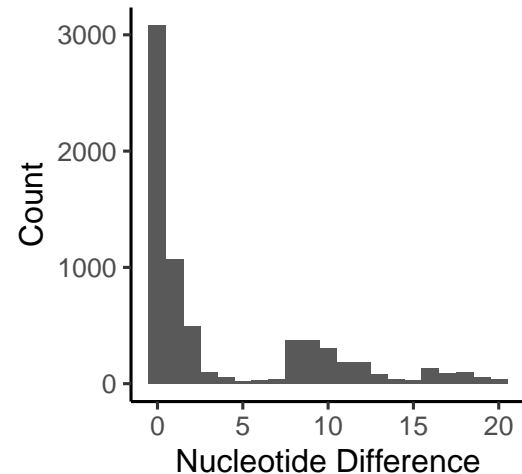
IGHV1-8*01

13974 sequences assigned
5423 (38.8%) exact matches, in which:
5210 unique CDR3
6 unique J



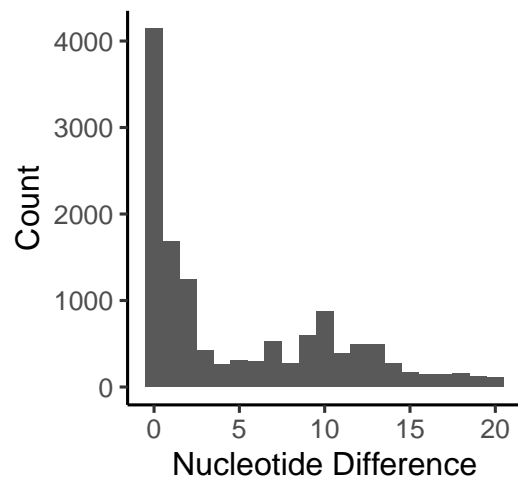
IGHV1-24*01

6940 sequences assigned
3081 (44.4%) exact matches, in which:
2921 unique CDR3
6 unique J



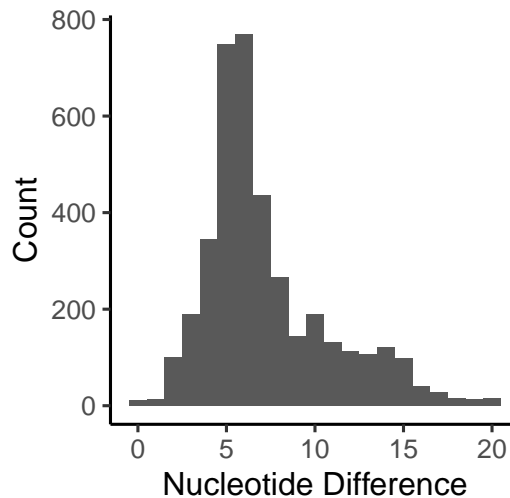
IGHV1-2*06

14289 sequences assigned
4142 (29%) exact matches, in which:
3940 unique CDR3
6 unique J



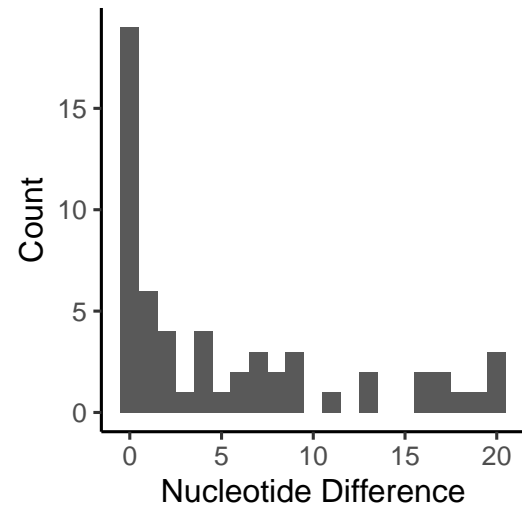
IGHV1-8*02

4110 sequences assigned
11 (0.3%) exact matches, in which:
11 unique CDR3
4 unique J



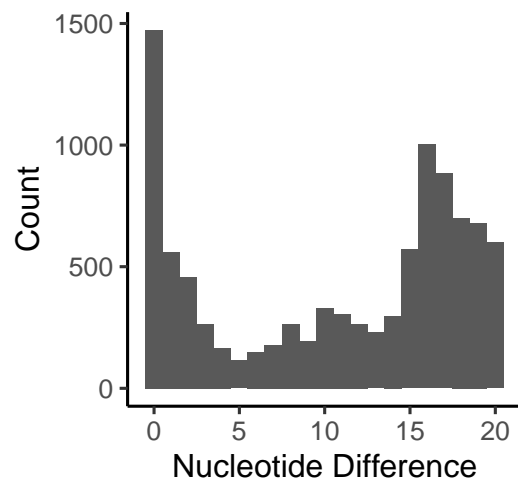
IGHV1-45*02

60 sequences assigned
19 (31.7%) exact matches, in which:
17 unique CDR3
5 unique J



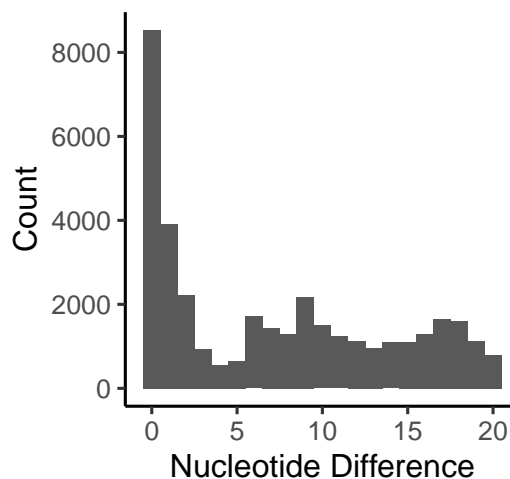
IGHV1-3*01_05

16871 sequences assigned
1473 (8.7%) exact matches, in which:
1375 unique CDR3
6 unique J



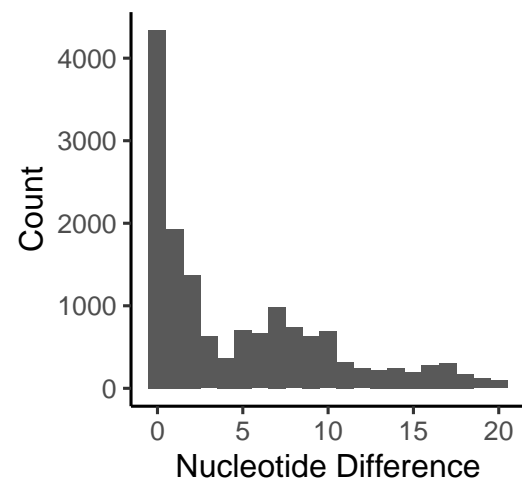
IGHV1-18*01

40625 sequences assigned
8533 (21%) exact matches, in which:
8071 unique CDR3
6 unique J



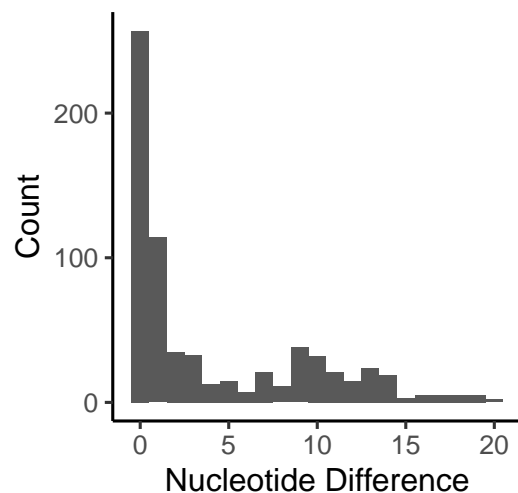
IGHV1-46*01

16303 sequences assigned
4341 (26.6%) exact matches, in which:
4180 unique CDR3
6 unique J



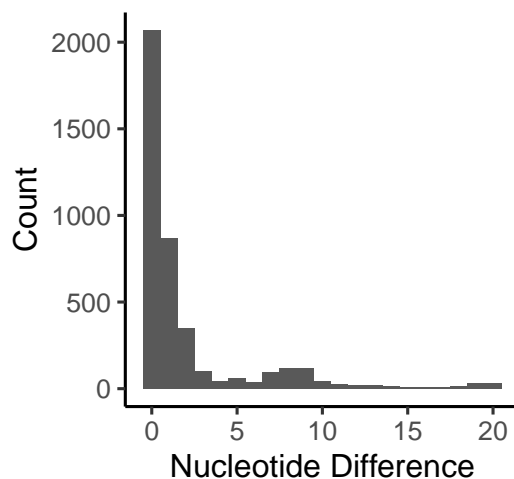
IGHV1–58*02

688 sequences assigned
257 (37.4%) exact matches, in which:
248 unique CDR3
6 unique J



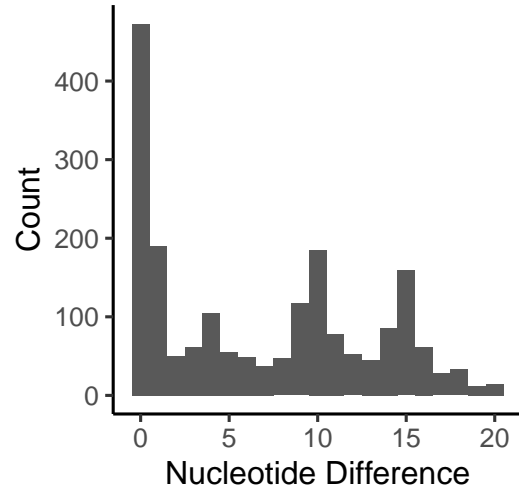
IGHV1–69*02

4517 sequences assigned
2068 (45.8%) exact matches, in which:
2012 unique CDR3
6 unique J



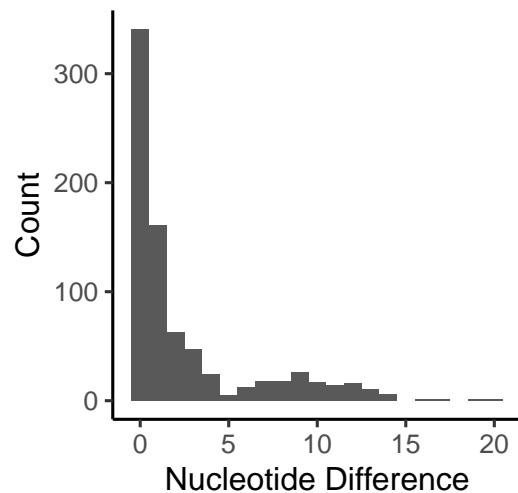
IGHV2–5*01

2012 sequences assigned
473 (23.5%) exact matches, in which:
453 unique CDR3
6 unique J



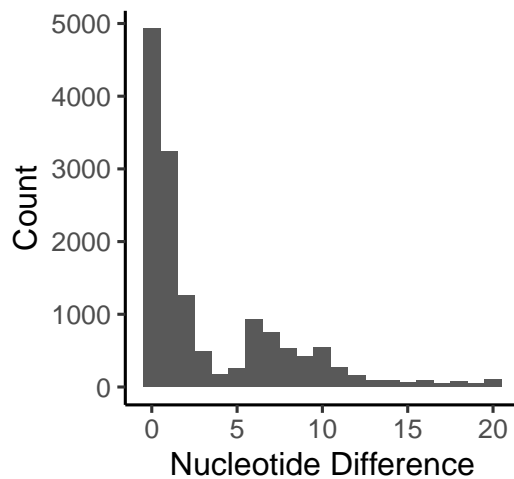
IGHV1–58*01_03

947 sequences assigned
341 (36%) exact matches, in which:
323 unique CDR3
6 unique J



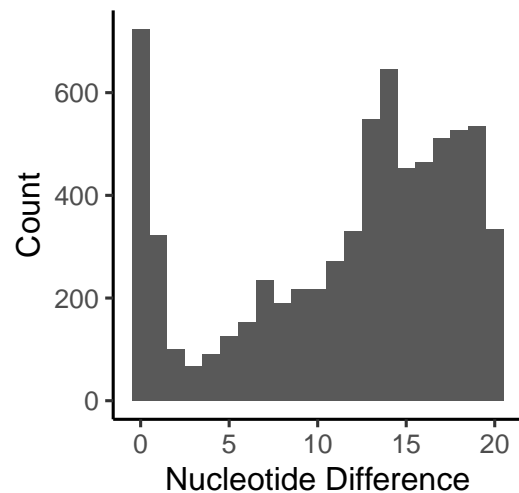
IGHV1–69*04_09

15169 sequences assigned
4928 (32.5%) exact matches, in which:
4768 unique CDR3
6 unique J



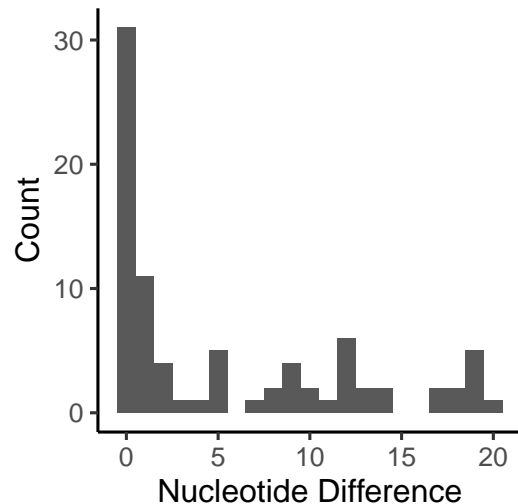
IGHV2–5*02

7943 sequences assigned
724 (9.1%) exact matches, in which:
694 unique CDR3
6 unique J



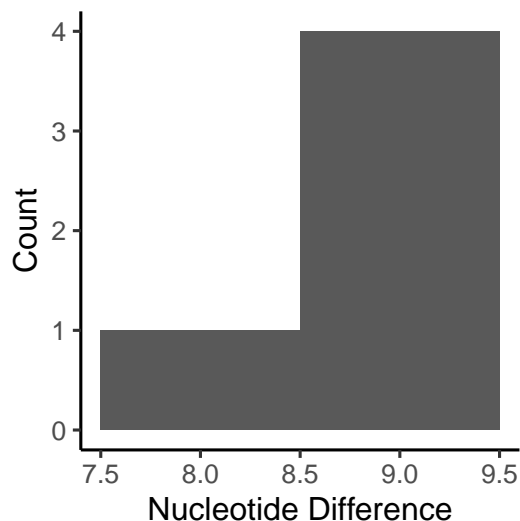
IGHV1–69–2*01

93 sequences assigned
31 (33.3%) exact matches, in which:
30 unique CDR3
4 unique J



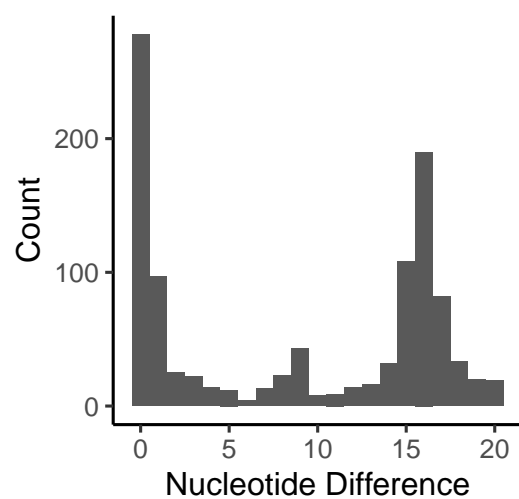
IGHV1–NL1*01

5 sequences assigned
No exact matches.



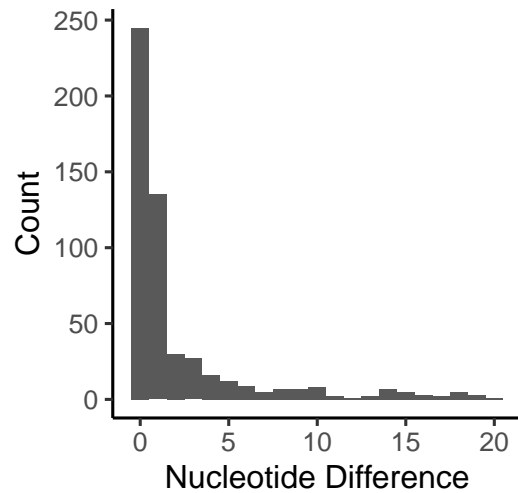
IGHV2–26*01

1108 sequences assigned
278 (25.1%) exact matches, in which:
266 unique CDR3
5 unique J



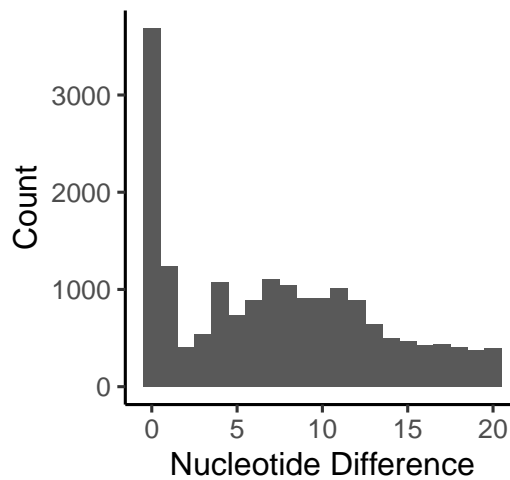
IGHV2-70*01

563 sequences assigned
245 (43.5%) exact matches, in which:
231 unique CDR3
6 unique J



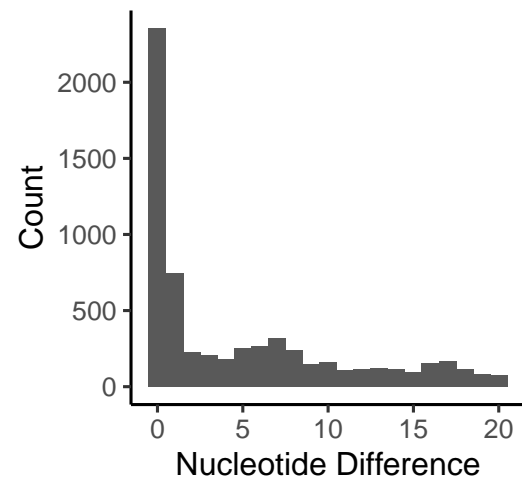
IGHV3-7*01

20821 sequences assigned
3685 (17.7%) exact matches, in which:
3102 unique CDR3
6 unique J



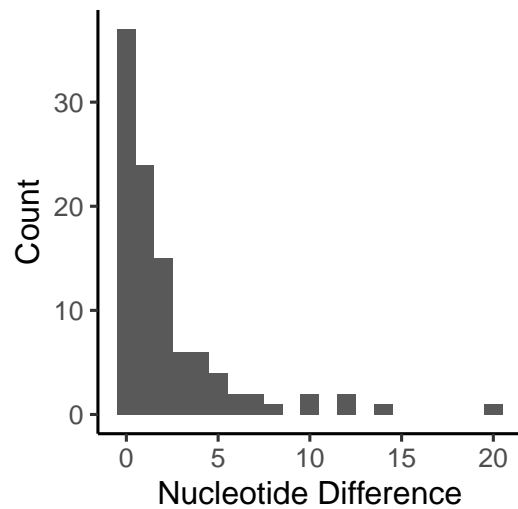
IGHV3-11*01

8544 sequences assigned
2354 (27.6%) exact matches, in which:
2045 unique CDR3
6 unique J



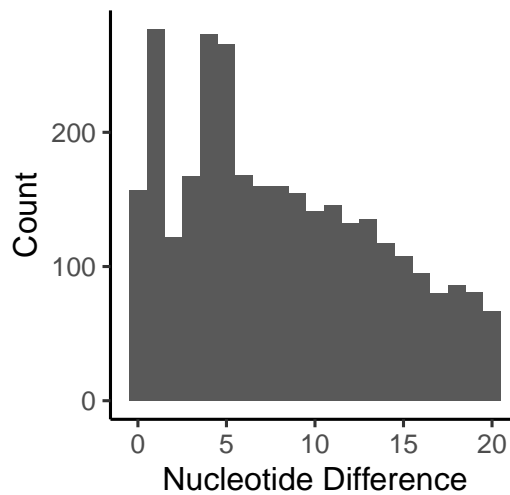
IGHV2-70*12_G60A

108 sequences assigned
37 (34.3%) exact matches, in which:
37 unique CDR3
6 unique J



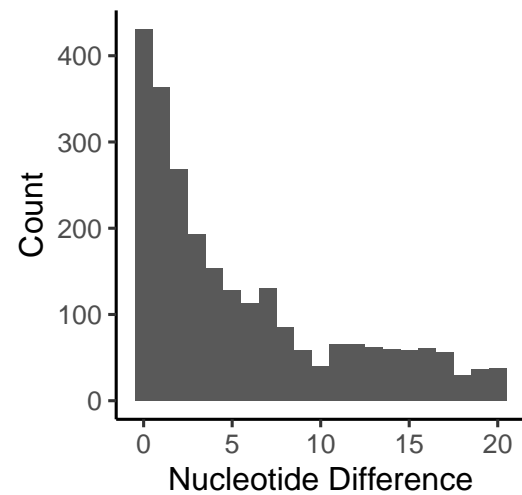
IGHV3-7*03

3526 sequences assigned
157 (4.5%) exact matches, in which:
155 unique CDR3
5 unique J



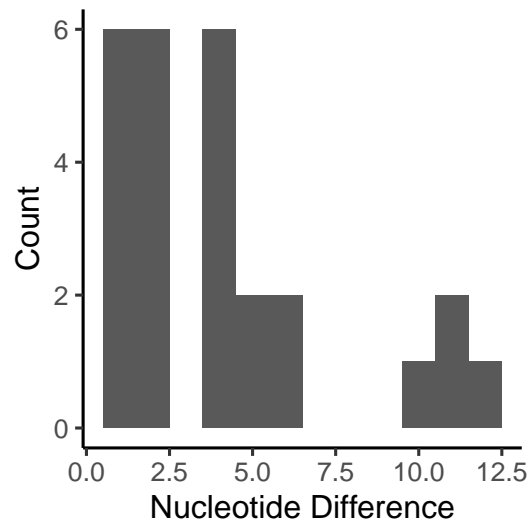
IGHV3-11*04

2820 sequences assigned
431 (15.3%) exact matches, in which:
423 unique CDR3
6 unique J



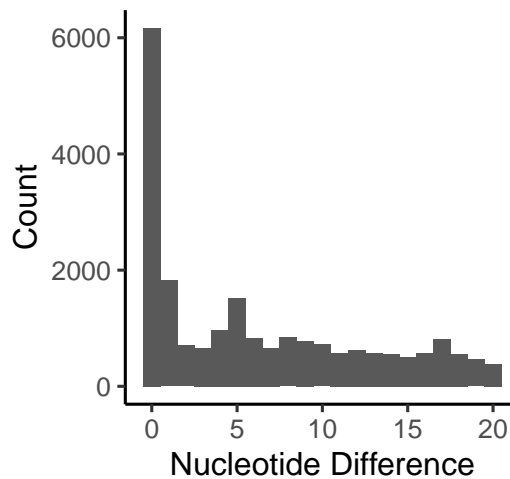
IGHV2-70D*04

29 sequences assigned
No exact matches.



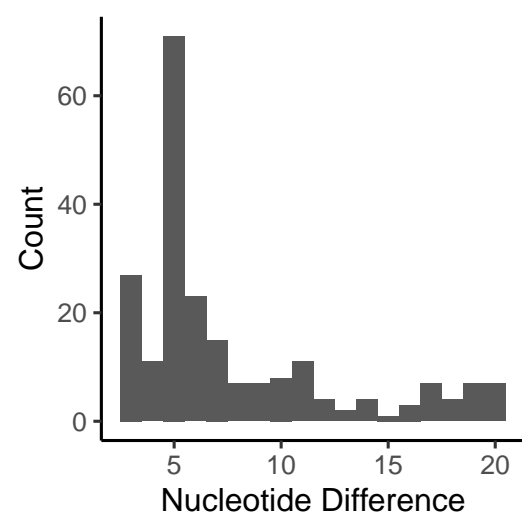
IGHV3-9*01_A104G

24314 sequences assigned
6167 (25.4%) exact matches, in which:
4827 unique CDR3
6 unique J



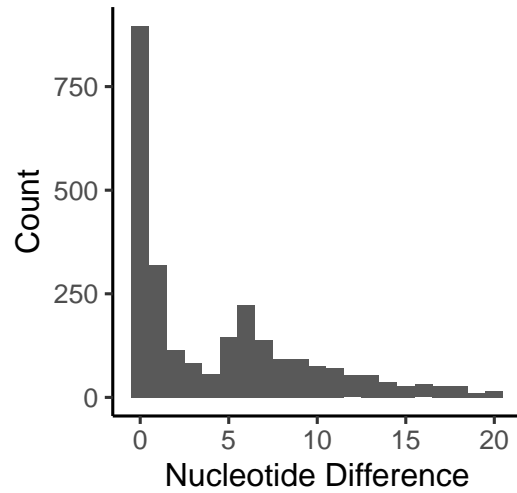
IGHV3-11*06

315 sequences assigned
No exact matches.



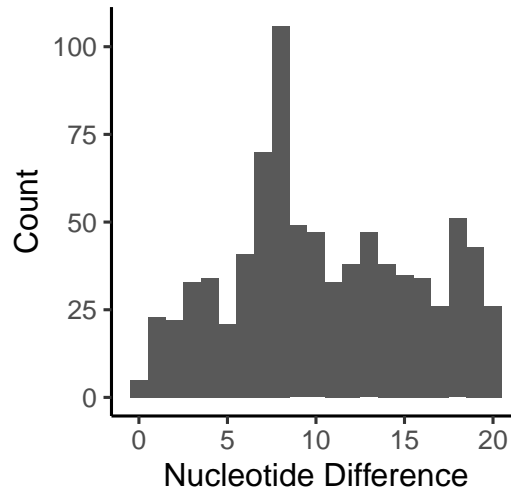
IGHV3-13*01

2739 sequences assigned
897 (32.7%) exact matches, in which:
748 unique CDR3
6 unique J



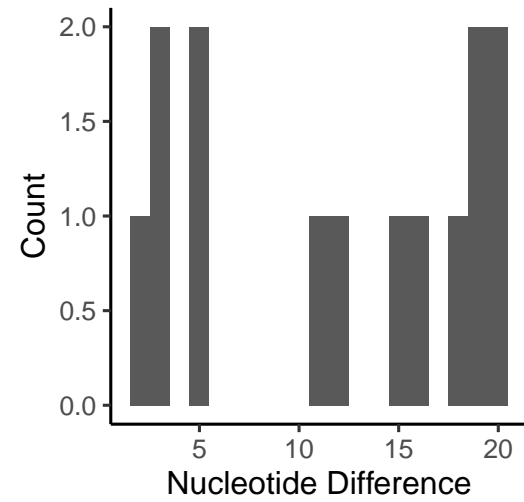
IGHV3-20*03_04

947 sequences assigned
5 (0.5%) exact matches, in which:
4 unique CDR3
3 unique J



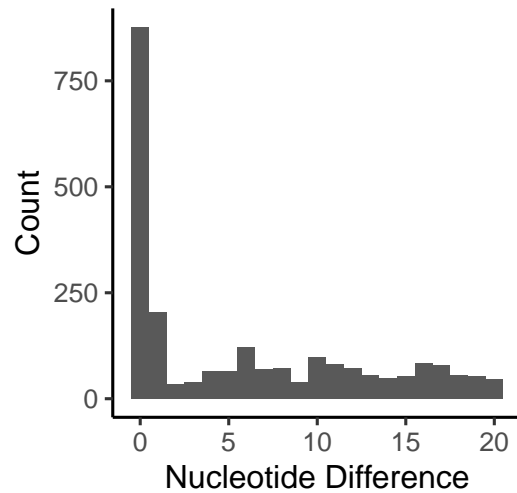
IGHV3-30-3*01

45 sequences assigned
No exact matches.



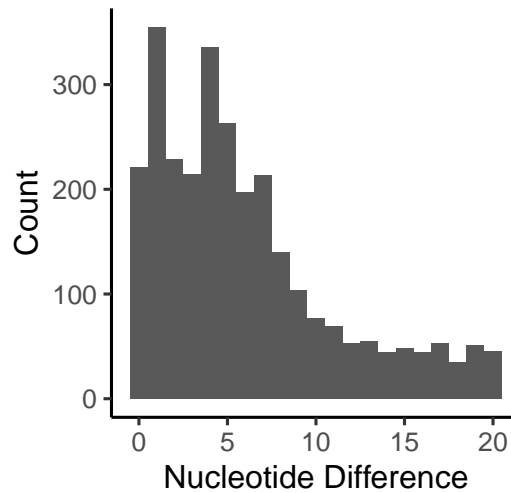
IGHV3-15*01_02

3222 sequences assigned
877 (27.2%) exact matches, in which:
748 unique CDR3
6 unique J



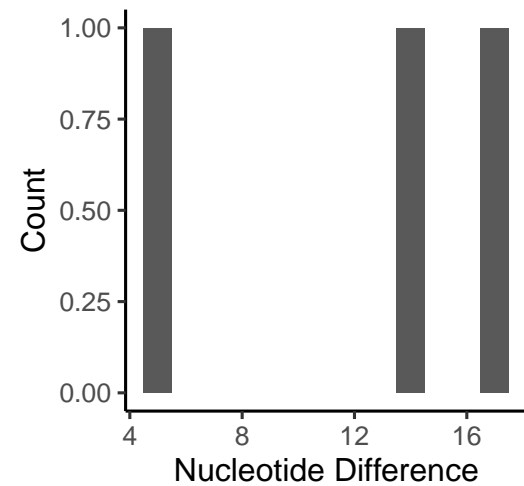
IGHV3-21*04

3091 sequences assigned
221 (7.1%) exact matches, in which:
221 unique CDR3
6 unique J



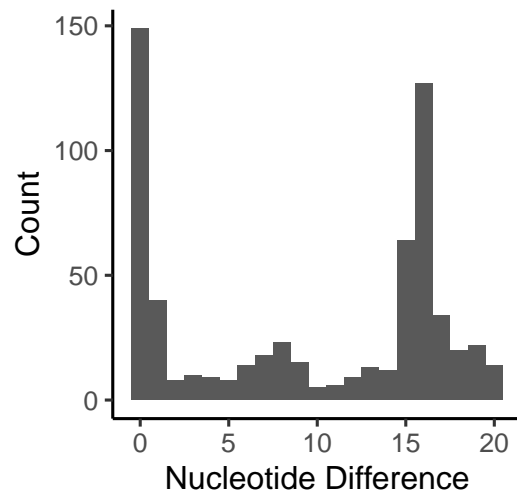
IGHV3-30-5*02

6 sequences assigned
No exact matches.



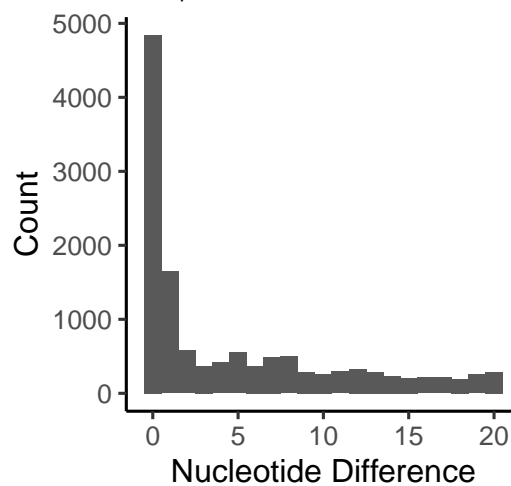
IGHV3-20*01_02

656 sequences assigned
149 (22.7%) exact matches, in which:
124 unique CDR3
5 unique J



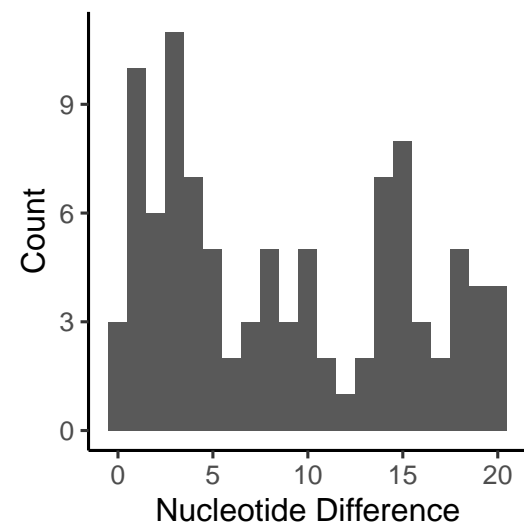
IGHV3-21*01_02

14135 sequences assigned
4842 (34.3%) exact matches, in which:
4018 unique CDR3
6 unique J



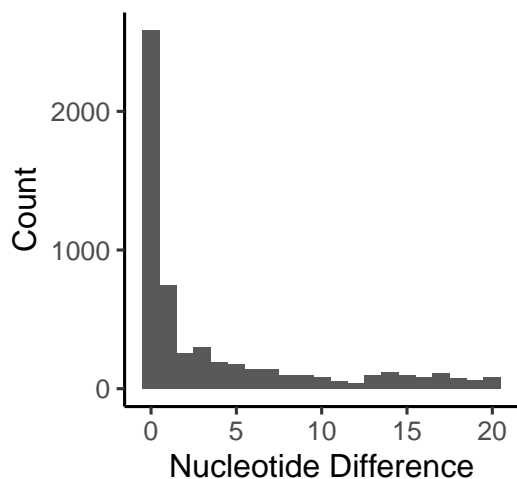
IGHV3-30-3*03

144 sequences assigned
3 (2.1%) exact matches, in which:
3 unique CDR3
2 unique J



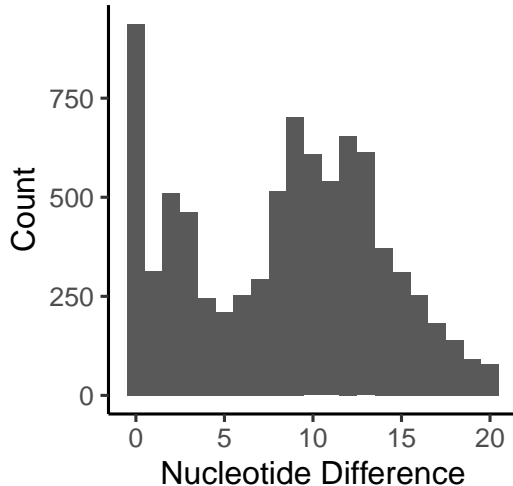
IGHV3-30*04_C203T

6665 sequences assigned
2584 (38.8%) exact matches, in which:
2202 unique CDR3
6 unique J



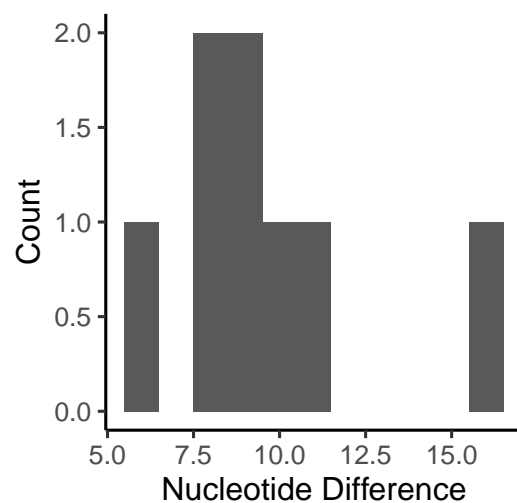
IGHV3-33*06

8960 sequences assigned
938 (10.5%) exact matches, in which:
782 unique CDR3
6 unique J



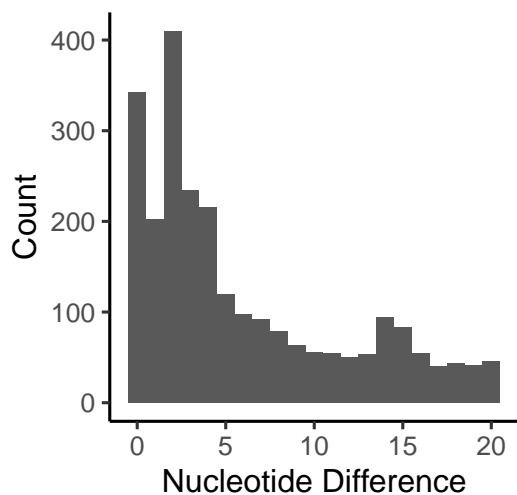
IGHV3-38*03

8 sequences assigned
No exact matches.



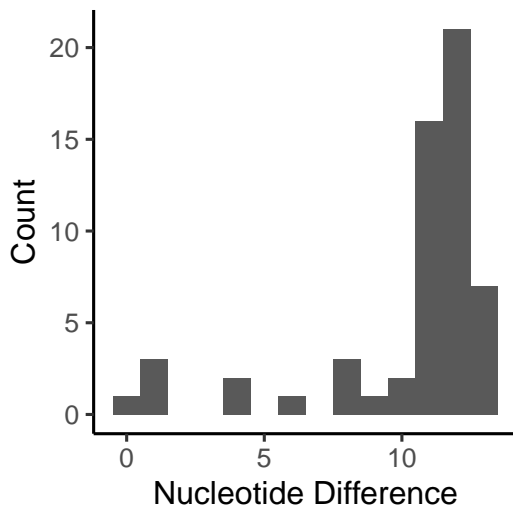
IGHV3-30*07_A150G_C203T

2737 sequences assigned
342 (12.5%) exact matches, in which:
337 unique CDR3
6 unique J



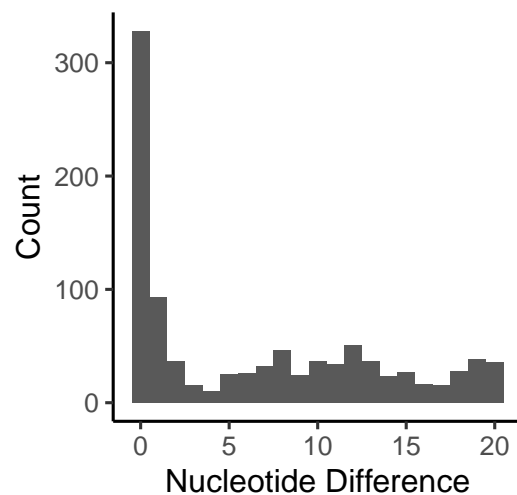
IGHV3-35*01

57 sequences assigned
1 (1.8%) exact matches, in which:
1 unique CDR3
1 unique J



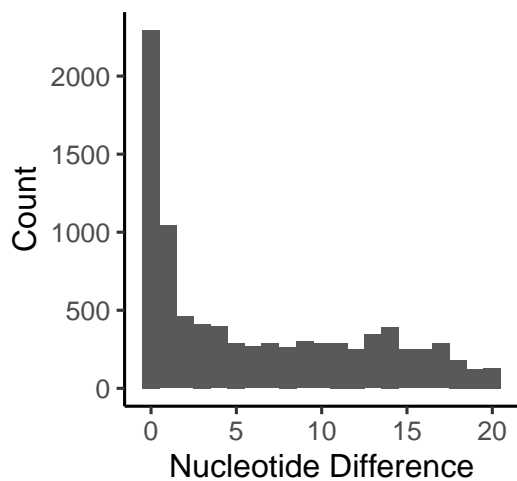
IGHV3-43*01

1168 sequences assigned
328 (28.1%) exact matches, in which:
281 unique CDR3
6 unique J



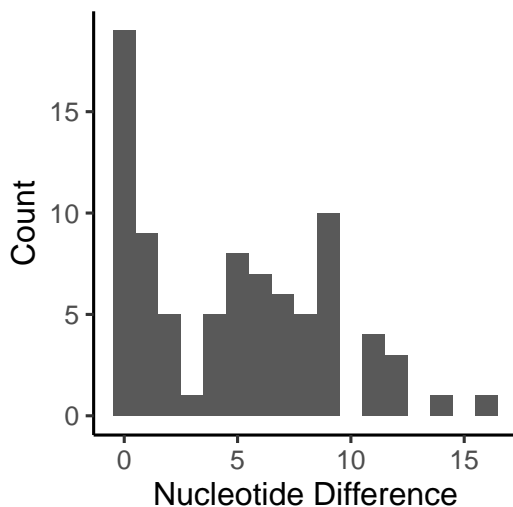
IGHV3-33*01

9776 sequences assigned
2295 (23.5%) exact matches, in which:
2028 unique CDR3
6 unique J



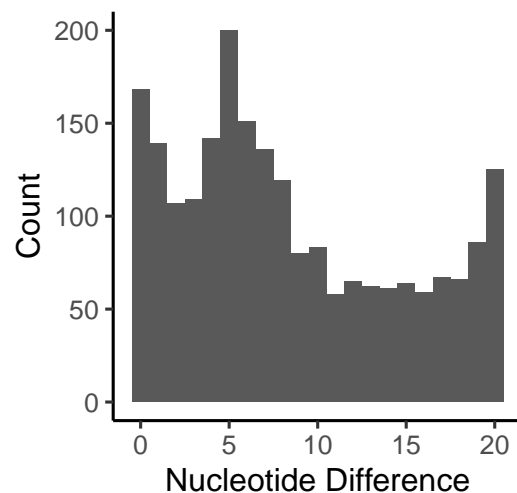
IGHV3-38-3*01

84 sequences assigned
19 (22.6%) exact matches, in which:
19 unique CDR3
4 unique J



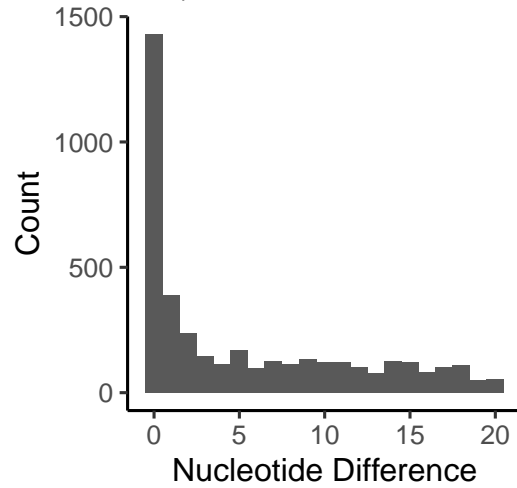
IGHV3-48*01

2589 sequences assigned
168 (6.5%) exact matches, in which:
168 unique CDR3
6 unique J



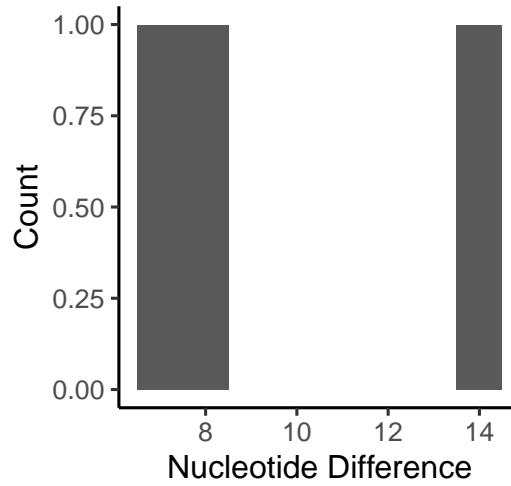
IGHV3-48*02

4461 sequences assigned
1429 (32%) exact matches, in which:
1177 unique CDR3
6 unique J



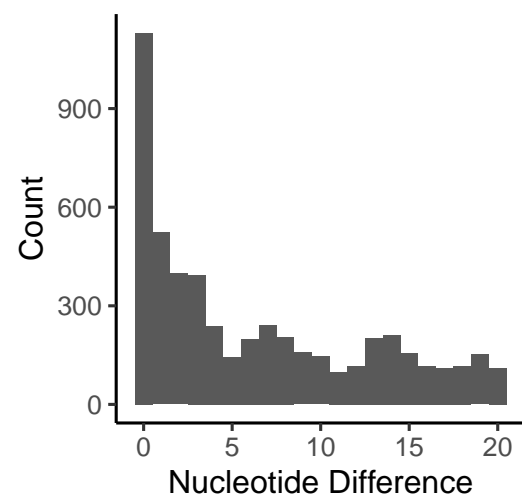
IGHV3-52*01_03

3 sequences assigned
No exact matches.



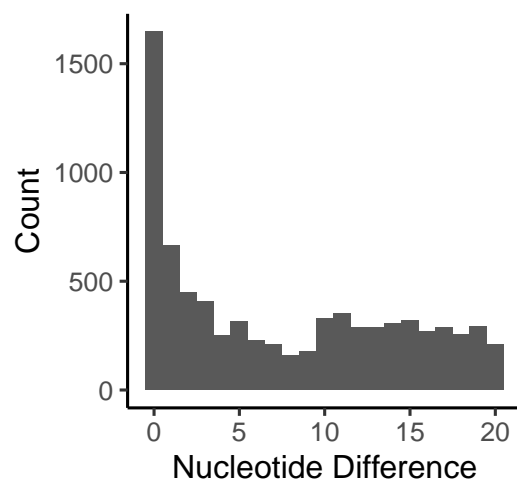
IGHV3-53*01_02

6101 sequences assigned
1131 (18.5%) exact matches, in which:
972 unique CDR3
6 unique J



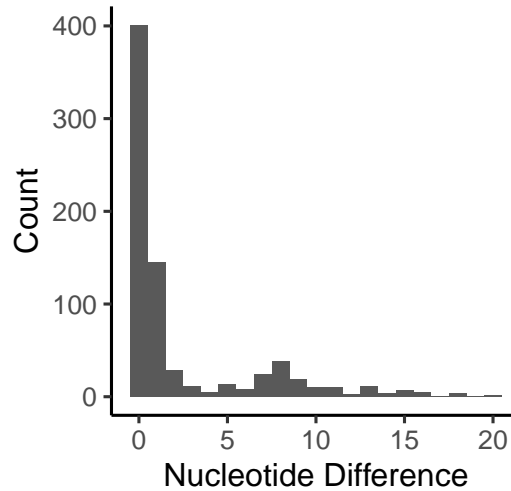
IGHV3-48*04

9631 sequences assigned
1647 (17.1%) exact matches, in which:
1439 unique CDR3
6 unique J



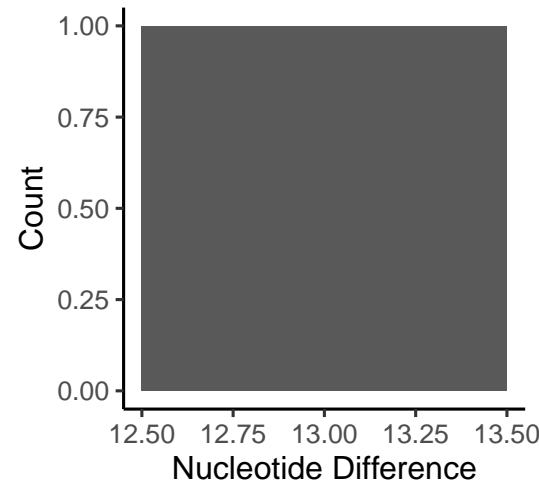
IGHV3-53*04

764 sequences assigned
401 (52.5%) exact matches, in which:
347 unique CDR3
6 unique J



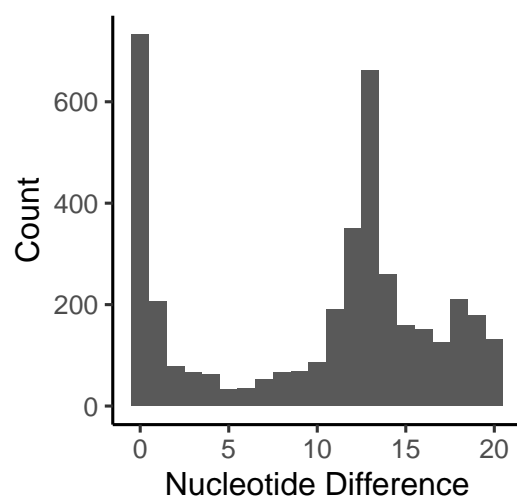
IGHV3-62*03

1 sequences assigned
No exact matches.



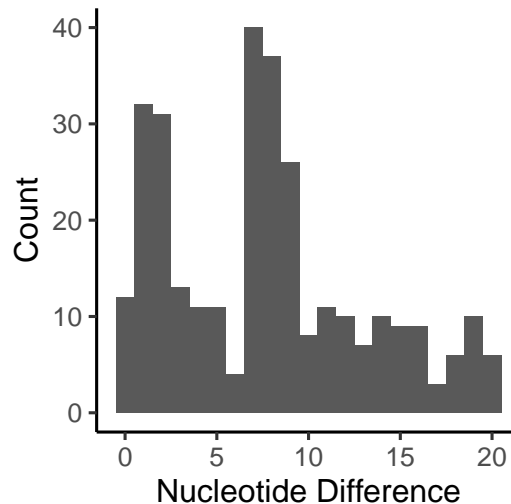
IGHV3-49*03_05

4528 sequences assigned
733 (16.2%) exact matches, in which:
627 unique CDR3
6 unique J



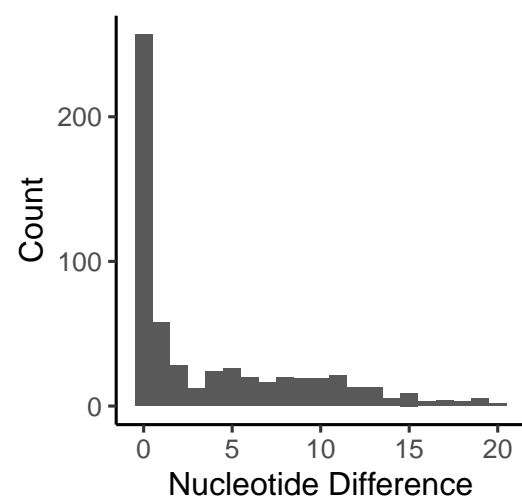
IGHV3-53*05

366 sequences assigned
12 (3.3%) exact matches, in which:
12 unique CDR3
3 unique J



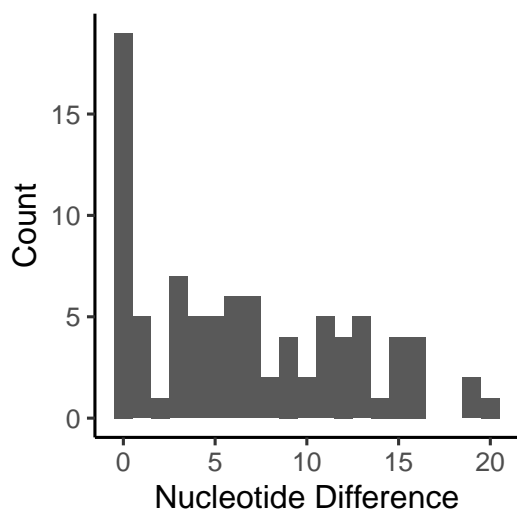
IGHV3-64*01

597 sequences assigned
257 (43%) exact matches, in which:
197 unique CDR3
6 unique J



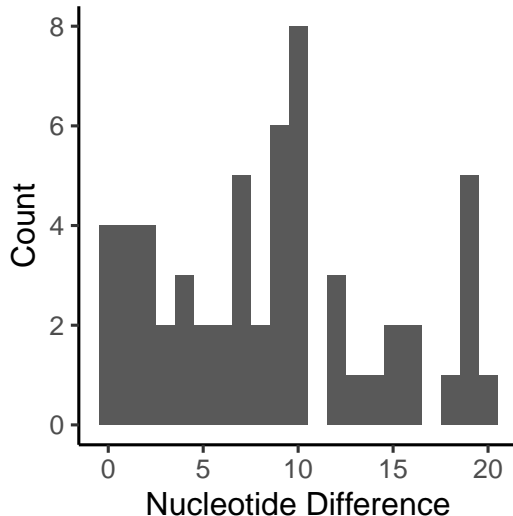
IGHV3-64*02_07

95 sequences assigned
19 (20%) exact matches, in which:
15 unique CDR3
3 unique J



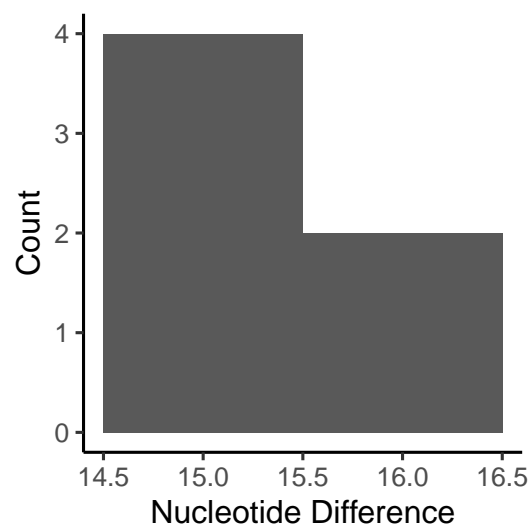
IGHV3-66*03

72 sequences assigned
4 (5.6%) exact matches, in which:
4 unique CDR3
2 unique J



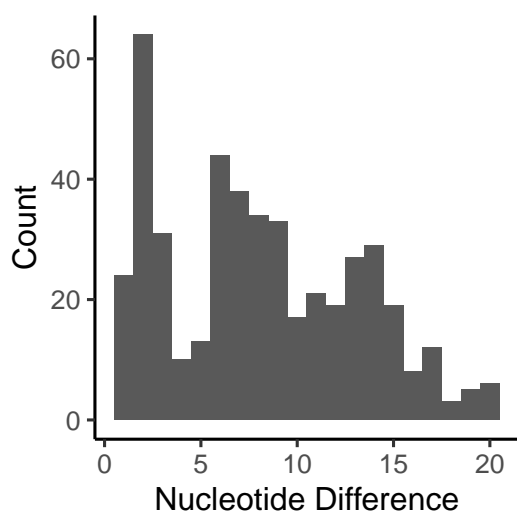
IGHV3-71*01_04

13 sequences assigned
No exact matches.



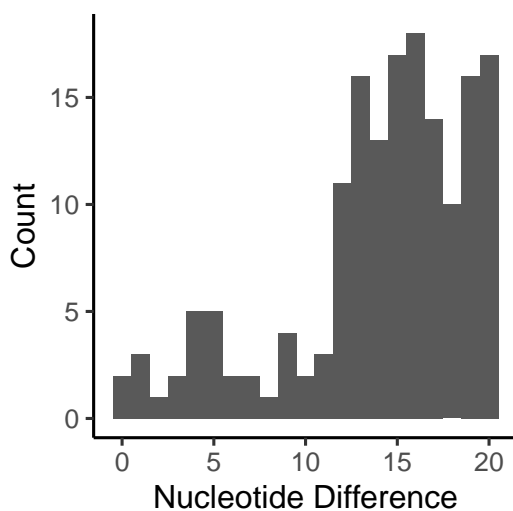
IGHV3-66*01

514 sequences assigned
No exact matches.



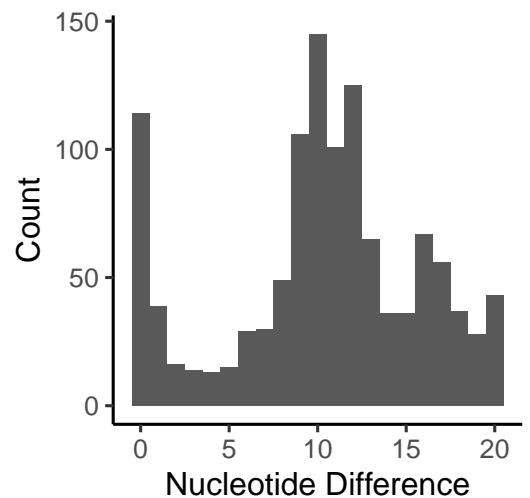
IGHV3-69-1*01

248 sequences assigned
2 (0.8%) exact matches, in which:
2 unique CDR3
1 unique J



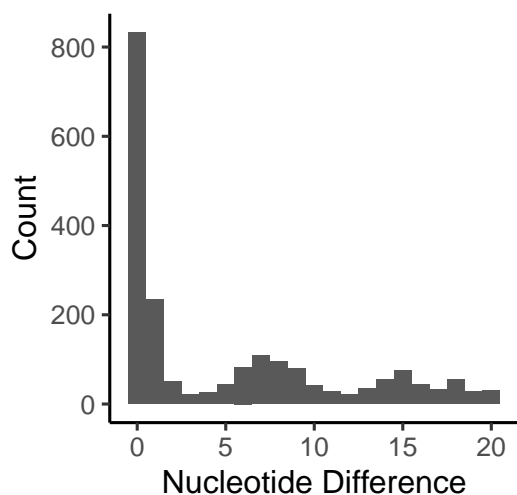
IGHV3-72*01

1732 sequences assigned
114 (6.6%) exact matches, in which:
105 unique CDR3
6 unique J



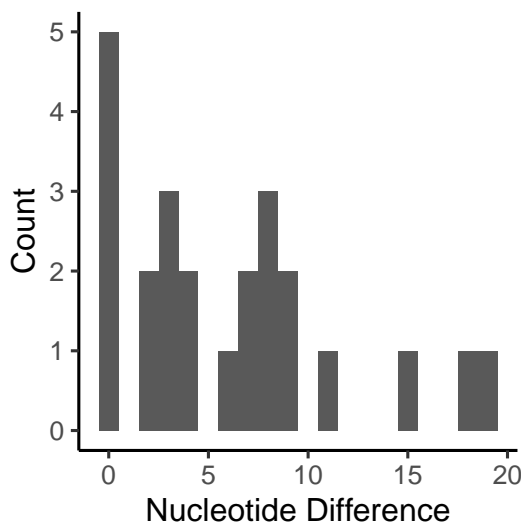
IGHV3-66*02

2567 sequences assigned
833 (32.5%) exact matches, in which:
720 unique CDR3
6 unique J



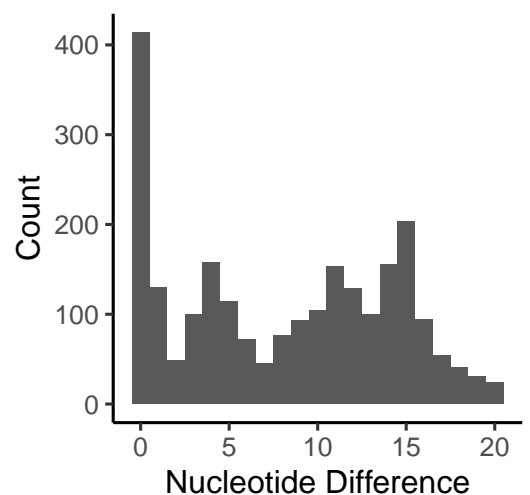
IGHV3-69-1*02

37 sequences assigned
5 (13.5%) exact matches, in which:
5 unique CDR3
3 unique J



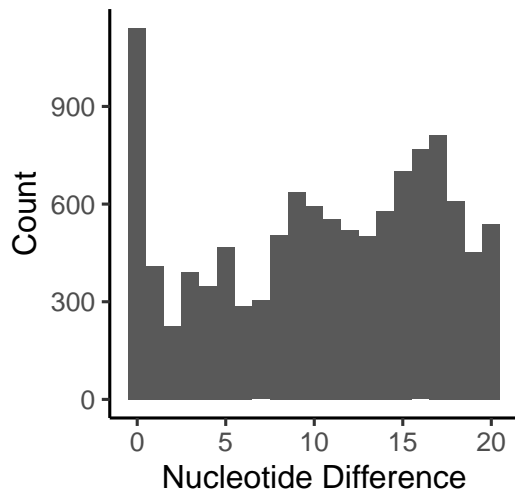
IGHV3-73*01_02

2581 sequences assigned
414 (16%) exact matches, in which:
346 unique CDR3
6 unique J



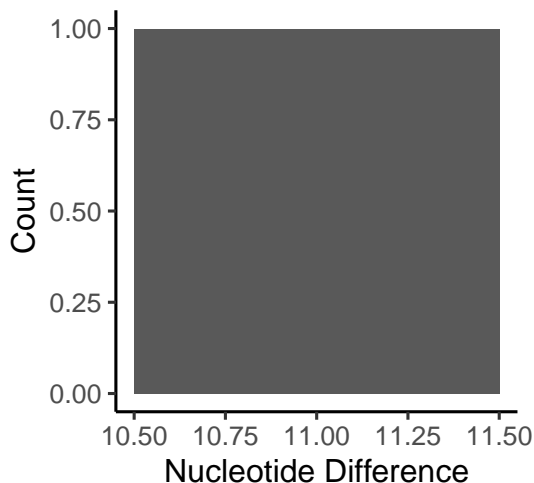
IGHV3-74*01_02

15178 sequences assigned
1142 (7.5%) exact matches, in which:
941 unique CDR3
6 unique J



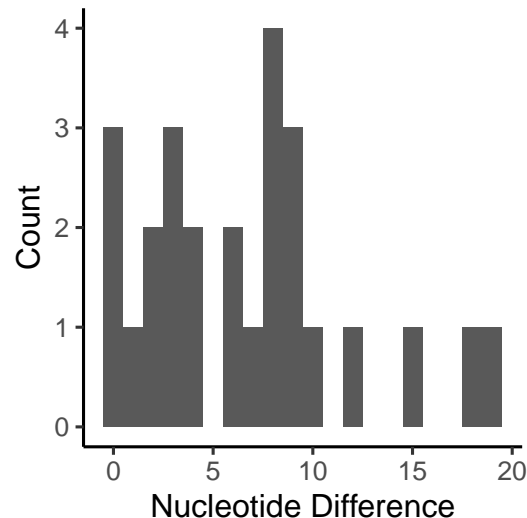
IGHV3-64D*08

1 sequences assigned
No exact matches.



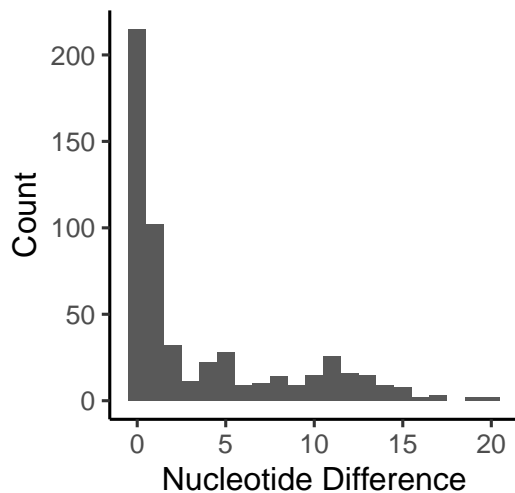
IGHV4-28*03

28 sequences assigned
3 (10.7%) exact matches, in which:
3 unique CDR3
2 unique J



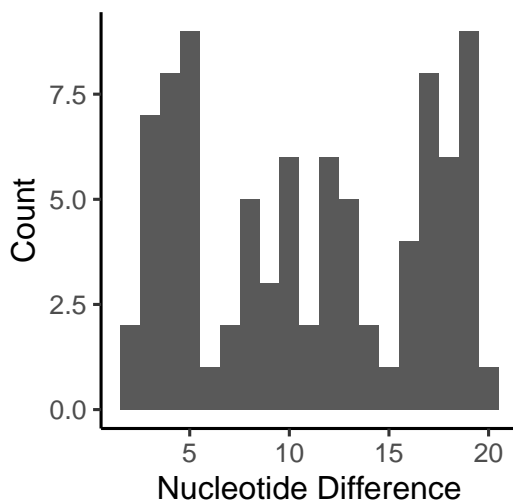
IGHV3-43D*03

758 sequences assigned
215 (28.4%) exact matches, in which:
187 unique CDR3
6 unique J



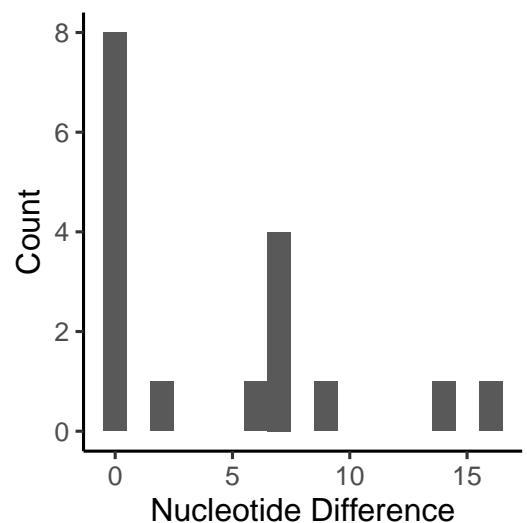
IGHV3-NL1*01

135 sequences assigned
No exact matches.



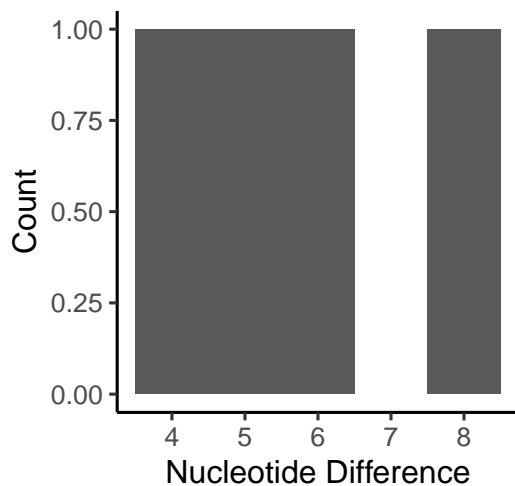
IGHV4-28*01_07

18 sequences assigned
8 (44.4%) exact matches, in which:
8 unique CDR3
2 unique J



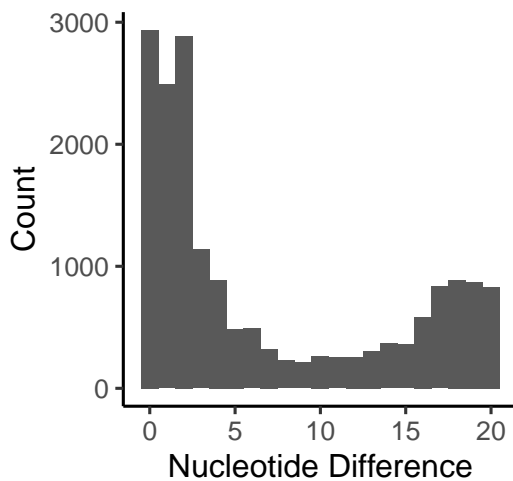
IGHV3-64D*06

6 sequences assigned
No exact matches.



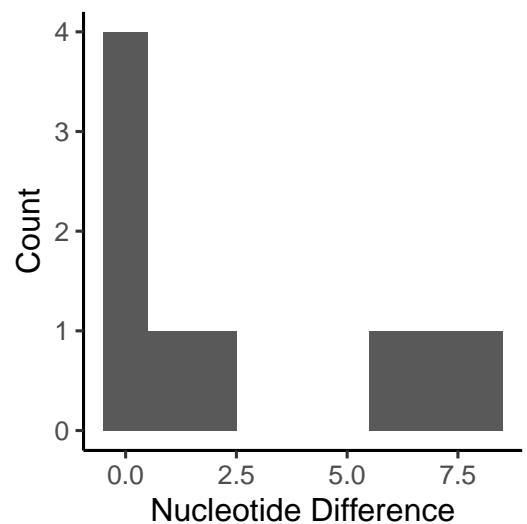
IGHV4-4*07

27155 sequences assigned
2936 (10.8%) exact matches, in which:
2794 unique CDR3
6 unique J



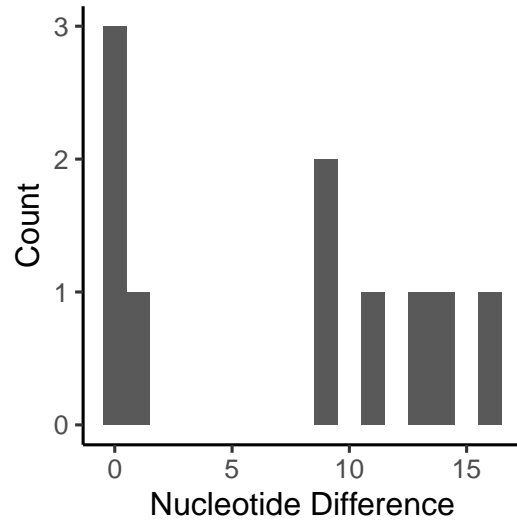
IGHV4-28*02_05

11 sequences assigned
4 (36.4%) exact matches, in which:
4 unique CDR3
3 unique J



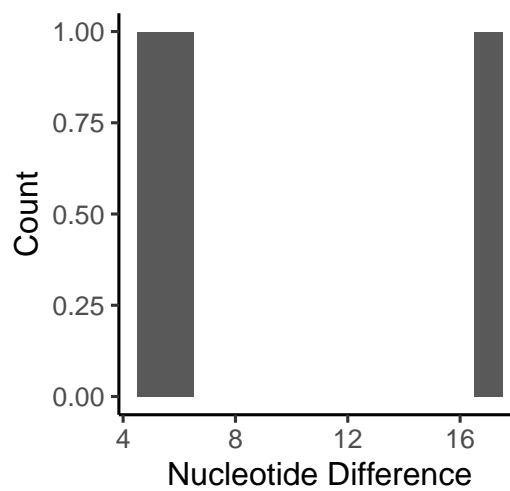
IGHV4-30-2*01

10 sequences assigned
3 (30%) exact matches, in which:
3 unique CDR3
2 unique J



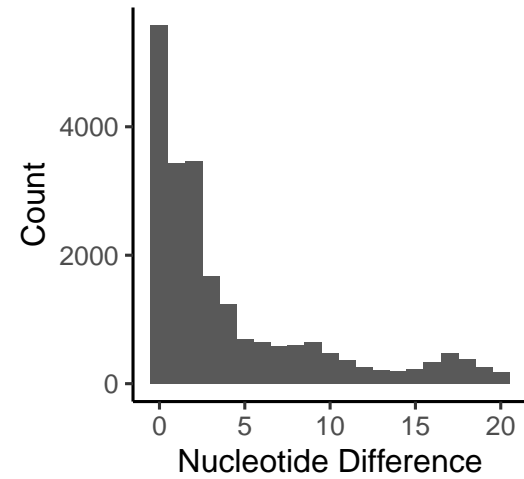
IGHV4-30-4*07

6 sequences assigned
No exact matches.



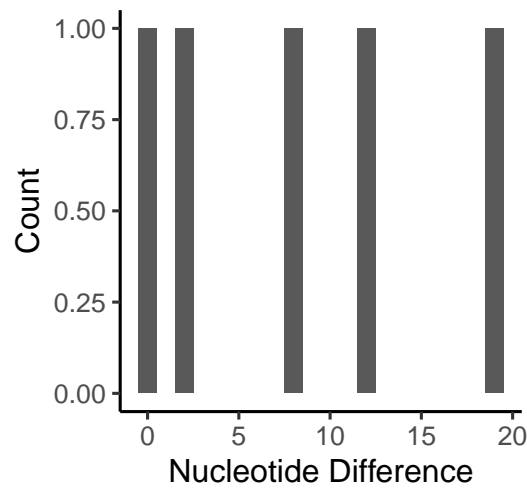
IGHV4-34*01_02

24554 sequences assigned
5578 (22.7%) exact matches, in which:
5267 unique CDR3
6 unique J



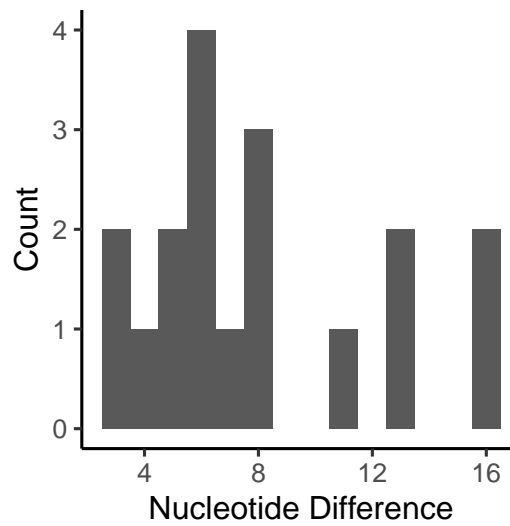
IGHV4-30-4*01

9 sequences assigned
1 (11.1%) exact matches, in which:
1 unique CDR3
1 unique J



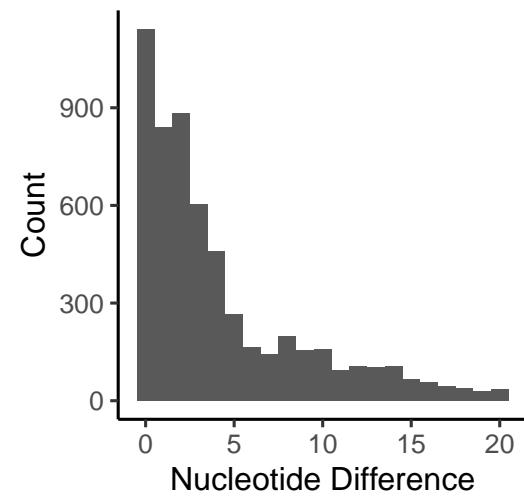
IGHV4-30-4*08

26 sequences assigned
No exact matches.



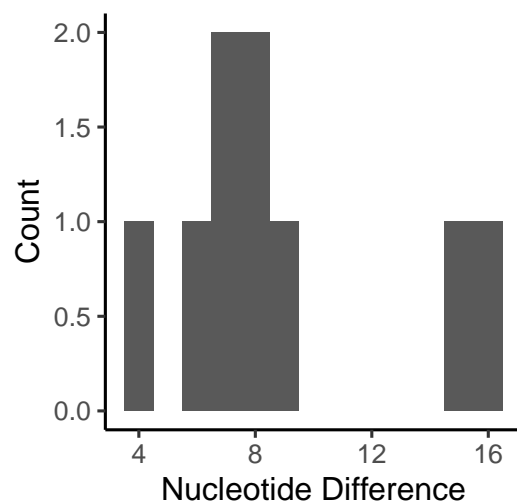
IGHV4-38-2*02

6019 sequences assigned
1142 (19%) exact matches, in which:
1089 unique CDR3
6 unique J



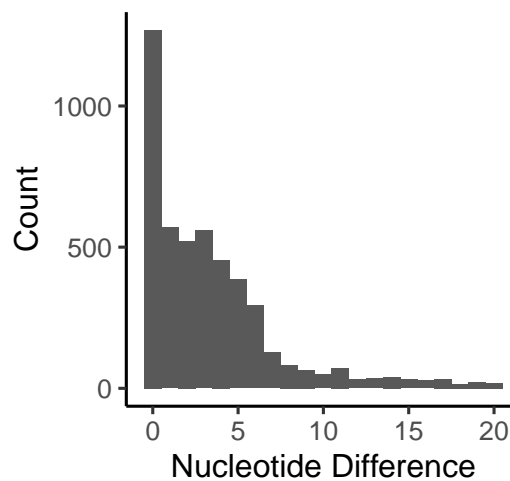
IGHV4-30-2*03

9 sequences assigned
No exact matches.



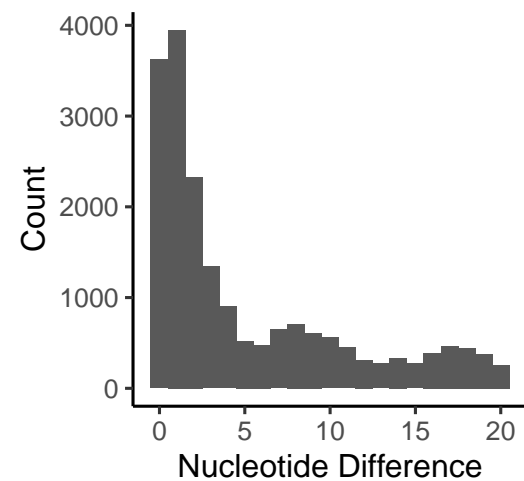
IGHV4-31*03_04

4858 sequences assigned
1269 (26.1%) exact matches, in which:
1239 unique CDR3
6 unique J



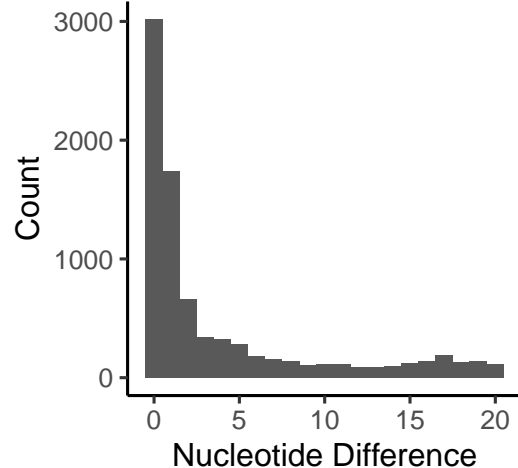
IGHV4-39*07

22020 sequences assigned
3625 (16.5%) exact matches, in which:
3441 unique CDR3
6 unique J



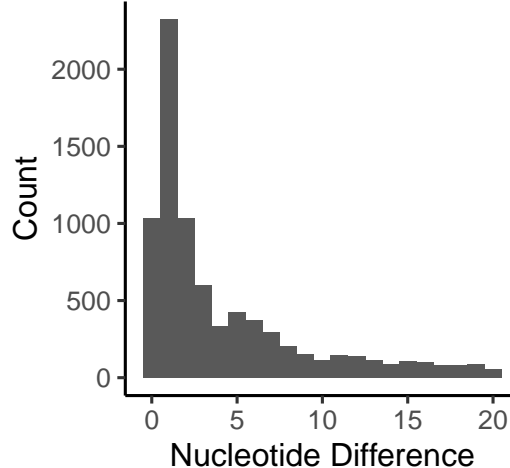
IGHV4-39*01_05

12918 sequences assigned
3017 (23.4%) exact matches, in which:
2806 unique CDR3
6 unique J



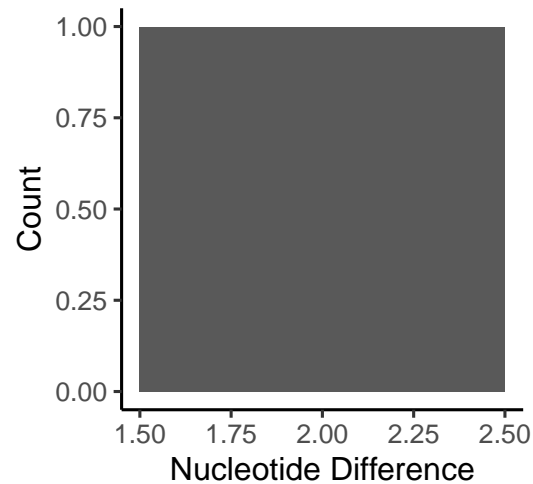
IGHV4-59*12

8297 sequences assigned
1031 (12.4%) exact matches, in which:
1026 unique CDR3
6 unique J



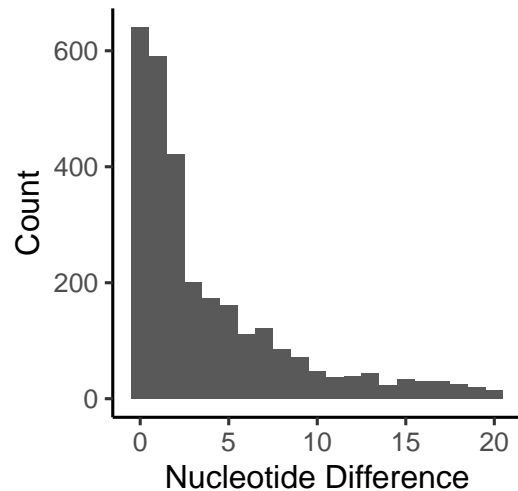
IGHV5-10-1*01_03

1 sequences assigned
No exact matches.



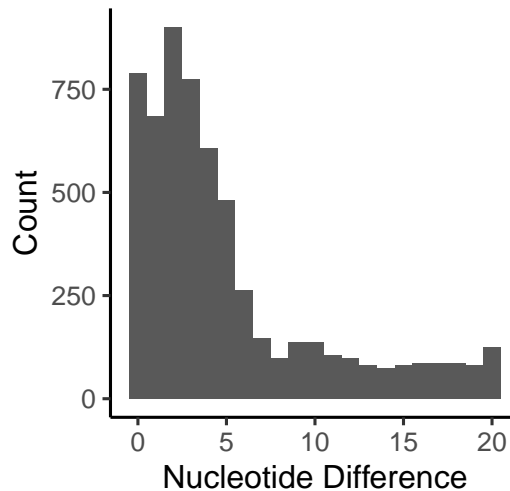
IGHV4-59*08

3081 sequences assigned
641 (20.8%) exact matches, in which:
634 unique CDR3
6 unique J



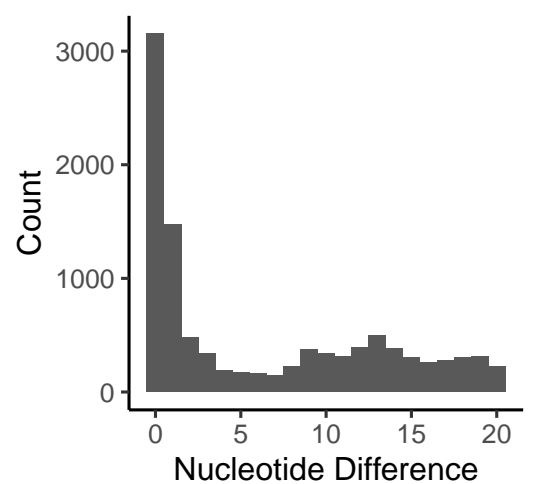
IGHV4-61*01

7578 sequences assigned
790 (10.4%) exact matches, in which:
778 unique CDR3
6 unique J



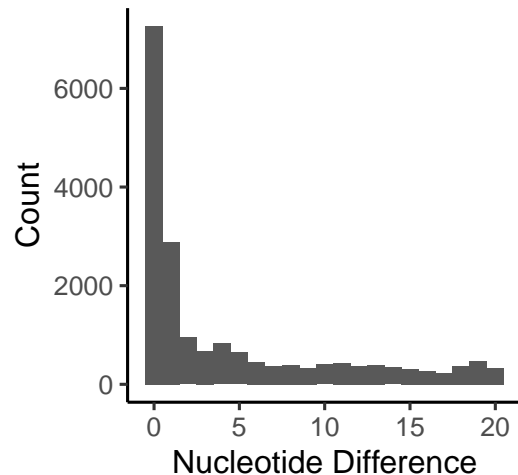
IGHV5-51*01_03

12159 sequences assigned
3153 (25.9%) exact matches, in which:
2376 unique CDR3
6 unique J



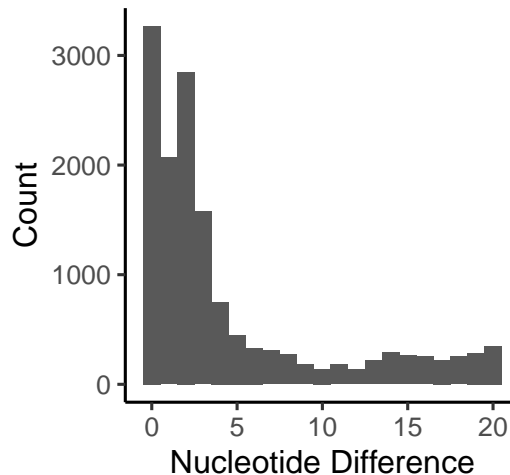
IGHV4-59*01_07

20006 sequences assigned
7264 (36.3%) exact matches, in which:
6881 unique CDR3
6 unique J



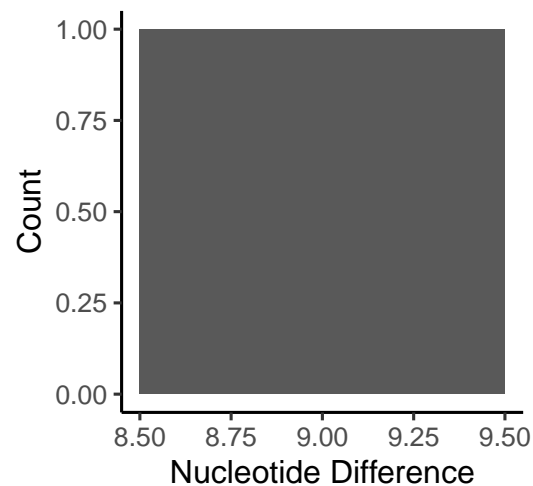
IGHV4-61*02

17346 sequences assigned
3268 (18.8%) exact matches, in which:
3156 unique CDR3
6 unique J



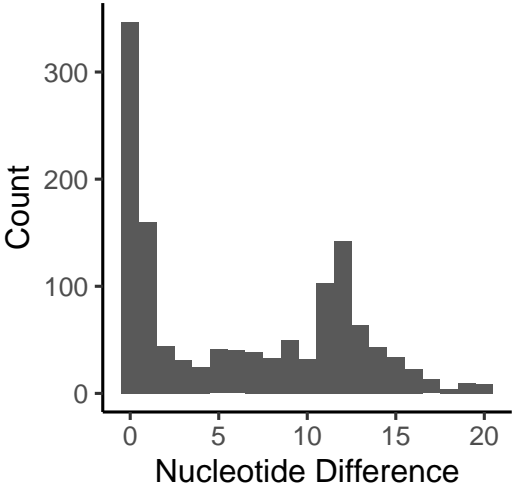
IGHV5-78*01

1 sequences assigned
No exact matches.



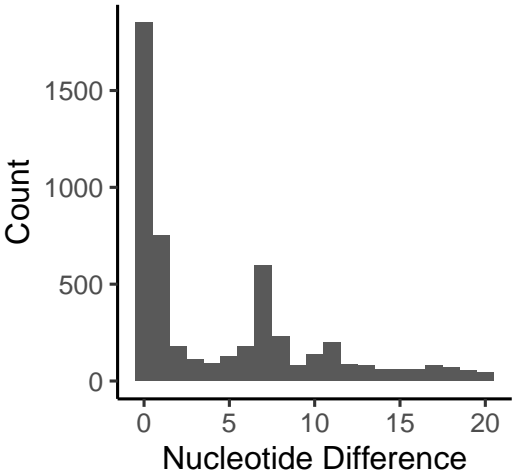
IGHV6-1*01_02

1536 sequences assigned
347 (22.6%) exact matches, in which:
338 unique CDR3
6 unique J



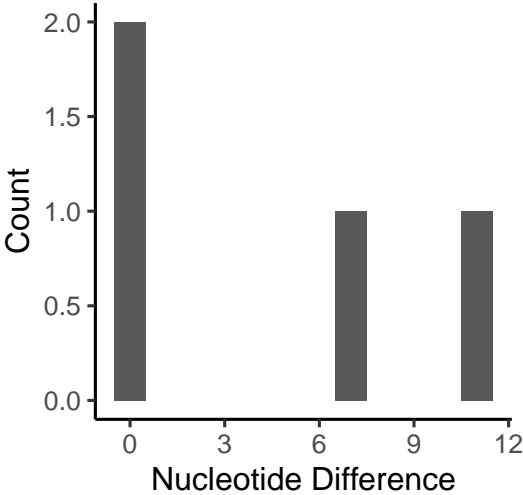
IGHV7-4-1*02

5695 sequences assigned
1850 (32.5%) exact matches, in which:
1744 unique CDR3
6 unique J



IGHV7-81*01

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





Warning - no inferred sequences found.

Novel sequence(s) IGHV3-30*03_T288C IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Warning: IGHV4-31*02, IGHV4-31*03_04 have identical germline sequences.

Novel sequence(s) IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV1-69*04_09_G112A are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Warning - no inferred sequences found.

Novel sequence(s) IGHV1-69*08_C191T IGHV3-30*03_T288C IGHV3-30-3*02_G75C IGHV4-59*02_G88A IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV4-59*02_G88A IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV4-4*02_03_C300T IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Warning - no inferred sequences found.

Novel sequence(s) IGHV4-59*02_G88A are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV1-69*08_C191T IGHV3-11*06_T300C IGHV3-30*03_T288C IGHV4-59*02_G88A IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV4-59*02_G88A IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Warning - no inferred sequences found.

Warning - no inferred sequences found.

Novel sequence(s) IGHV3-30*03_T288C IGHV3-30-3*01_T288C IGHV4-59*02_G88A IGHV5-10-1*01_03_T258C IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Warning - no inferred sequences found.

Novel sequence(s) IGHV3-48*04_A193T_C198T_A200C_C201T_T210A are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV4-59*02_G88A are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV3-33*01_C288T IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV4-59*02_G88A IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV3-33*01_T105C_A173T_T192G_C288T are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV3-30*04_T288C IGHV3-33*01_G75C IGHV4-30-2*03_T288C IGHV4-59*02_G88A are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV3-11*06_T300C are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV4-59*02_G88A IGHV5-51*07_A128G are not listed in the genotype and will be ignored.