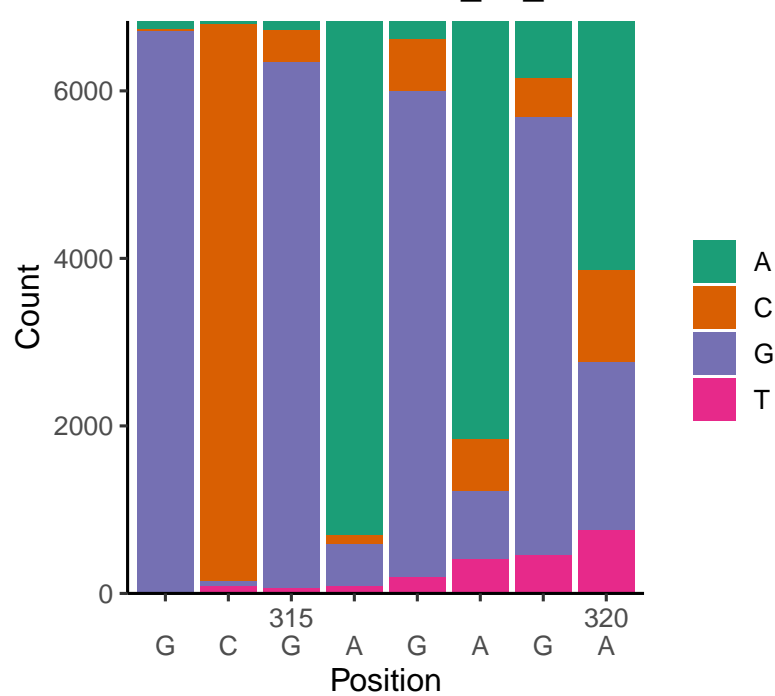
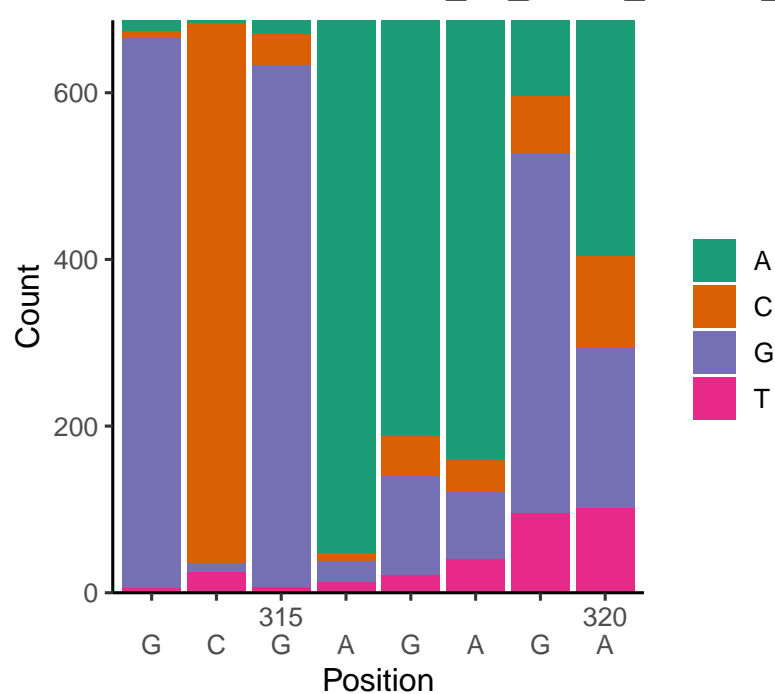


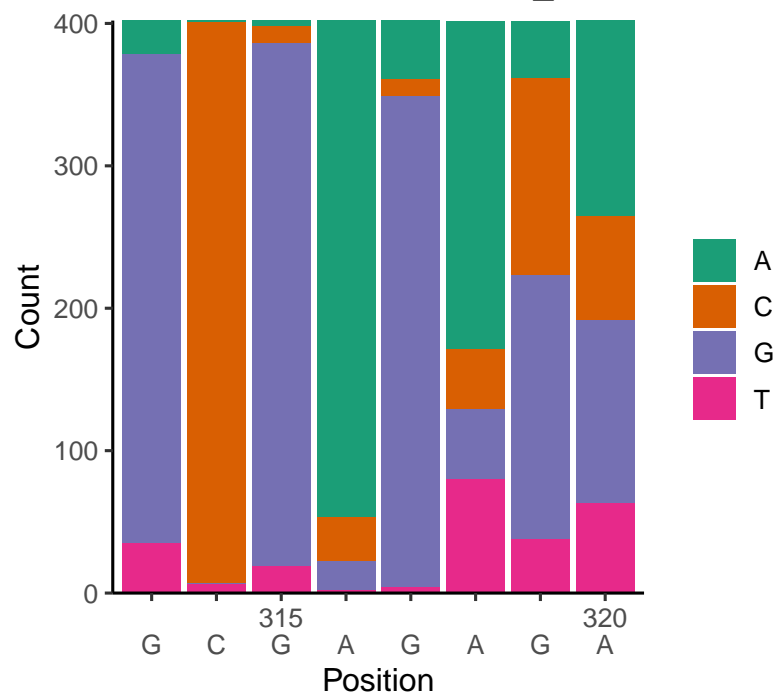
Gene IGHV1-69*04_09_A244G



Gene IGHV3-53*01_02_G81A_A225G_T267G_G303A



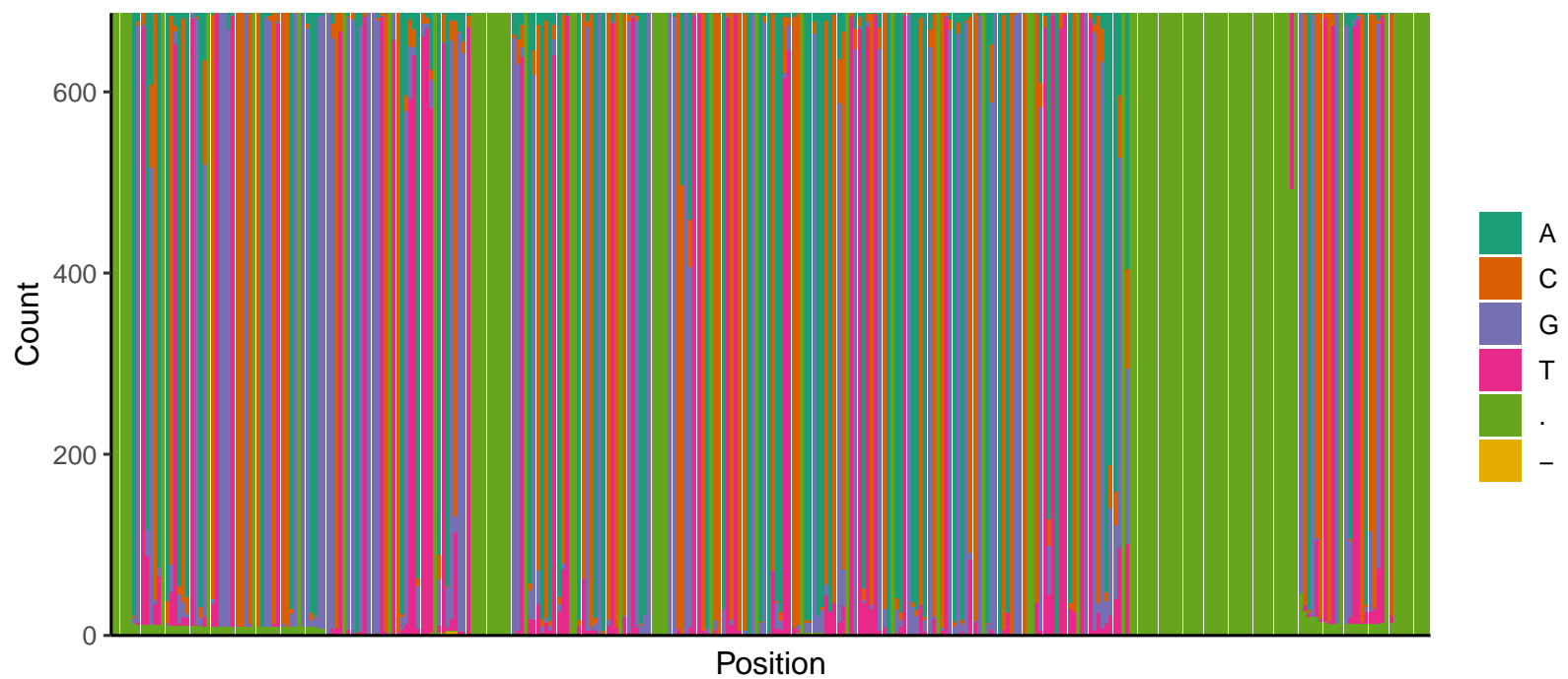
Gene IGHV4/OR15-8*01_C193A



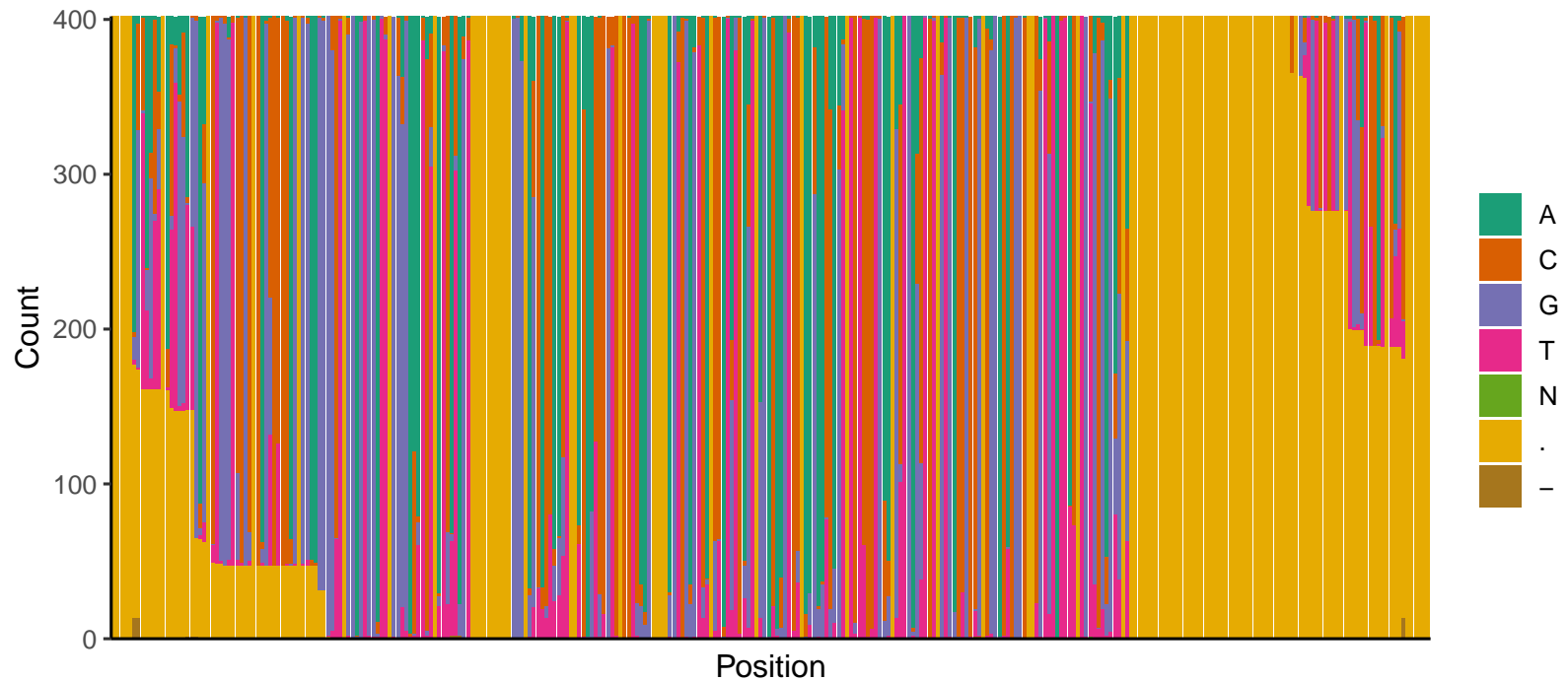
Gene IGHV1-69*04_09_A244G



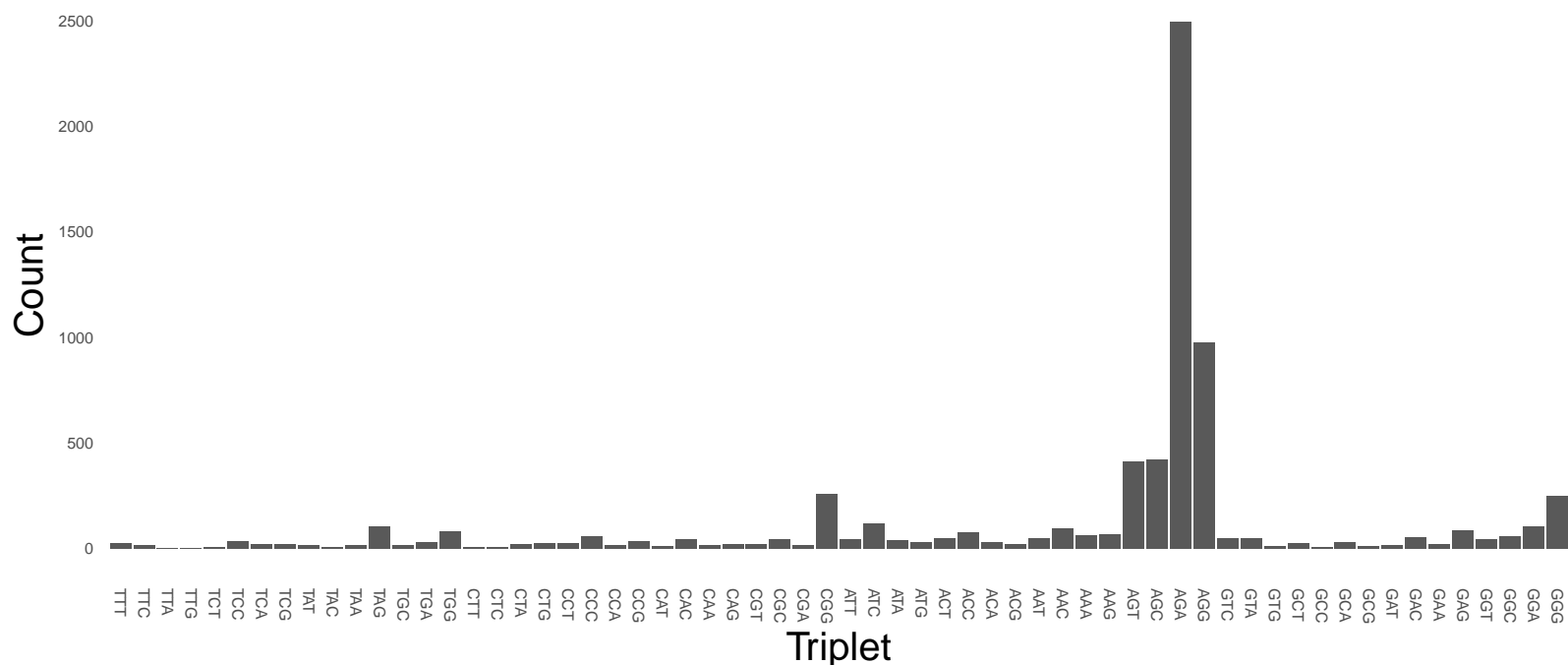
Gene IGHV3-53*01_02_G81A_A225G_T267G_G303A



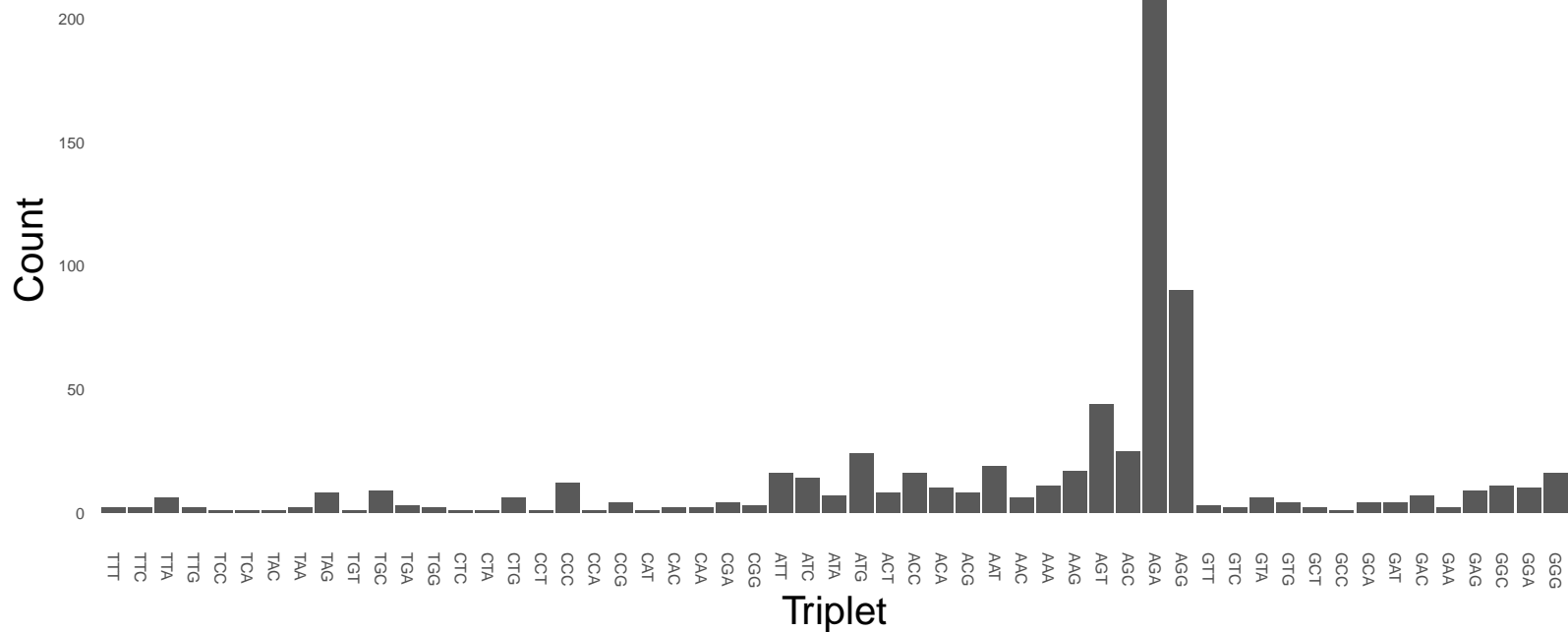
Gene IGHV4/OR15-8*01_C193A



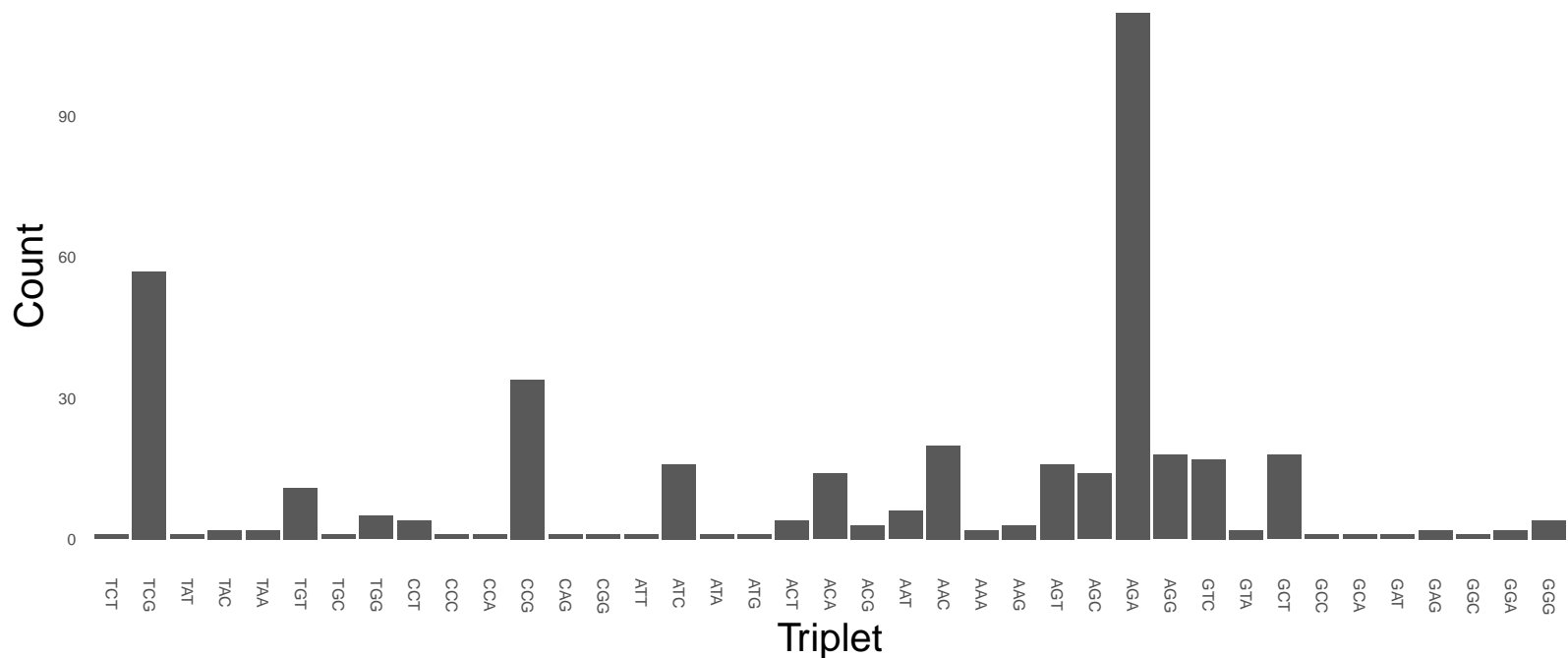
IGHV1-69*04_09_A244G- Final 3 nucleotides as a triplet



IGHV3-53*01_02_G81A_A225G_T267G_G303A- Final 3 nucleotides as a triplet

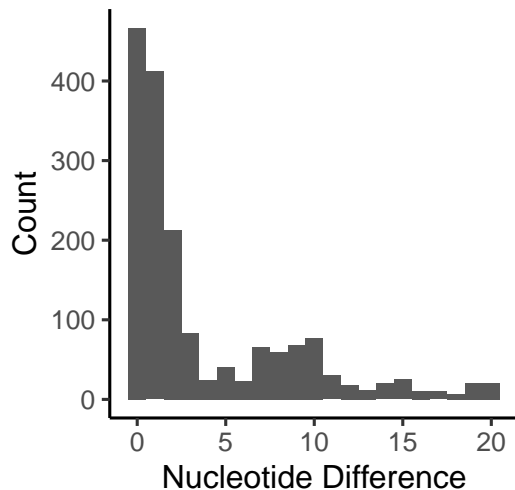


IGHV4/OR15-8*01_C193A- Final 3 nucleotides as a triplet



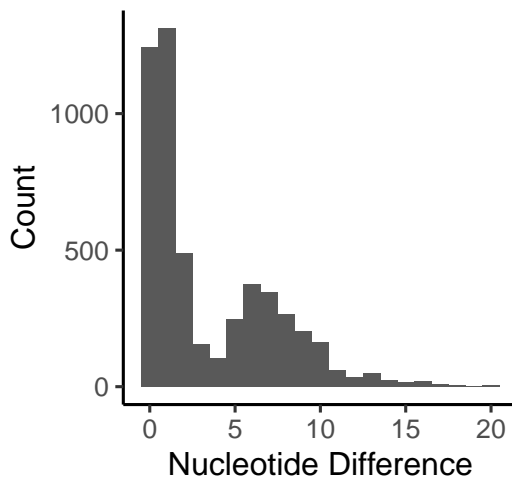
IGHV1-2*04

1731 sequences assigned
467 (27%) exact matches, in which:
407 unique CDR3
6 unique J



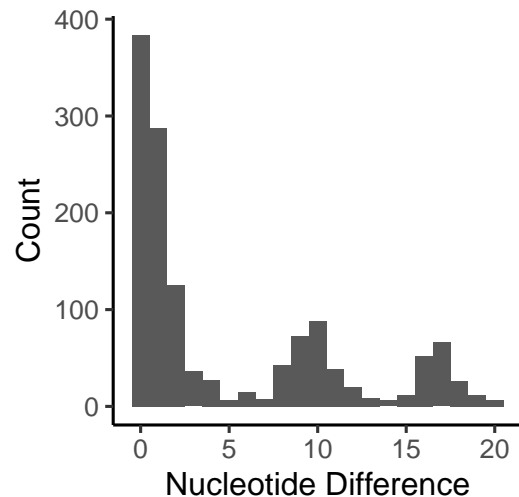
IGHV1-8*01

5207 sequences assigned
1245 (23.9%) exact matches, in which:
1031 unique CDR3
6 unique J



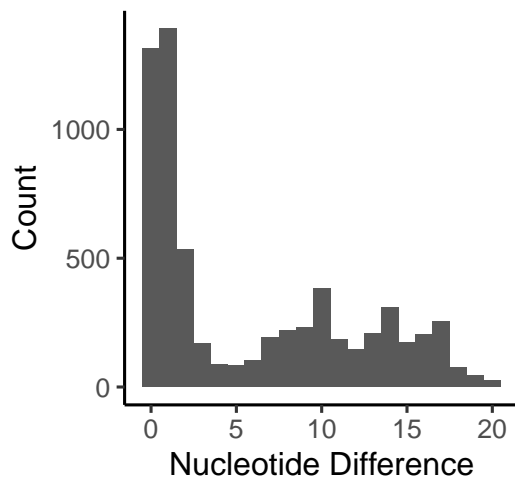
IGHV1-24*01

1397 sequences assigned
384 (27.5%) exact matches, in which:
319 unique CDR3
6 unique J



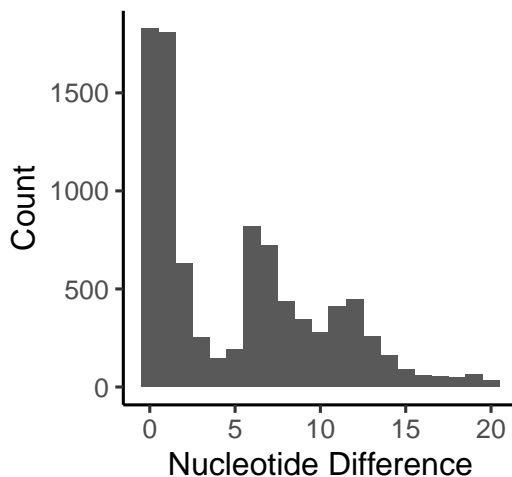
IGHV1-2*06

7231 sequences assigned
1314 (18.2%) exact matches, in which:
1059 unique CDR3
6 unique J



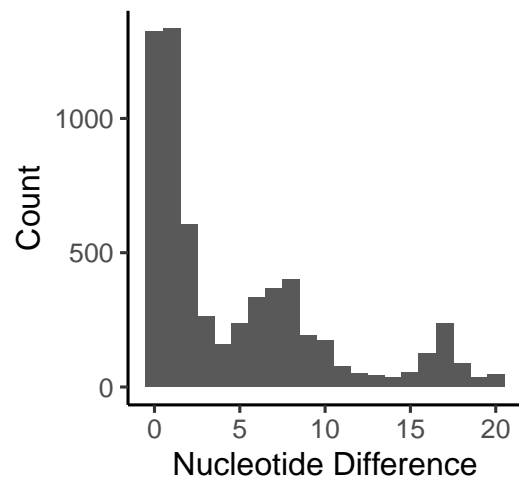
IGHV1-18*01

9341 sequences assigned
1827 (19.6%) exact matches, in which:
1513 unique CDR3
6 unique J



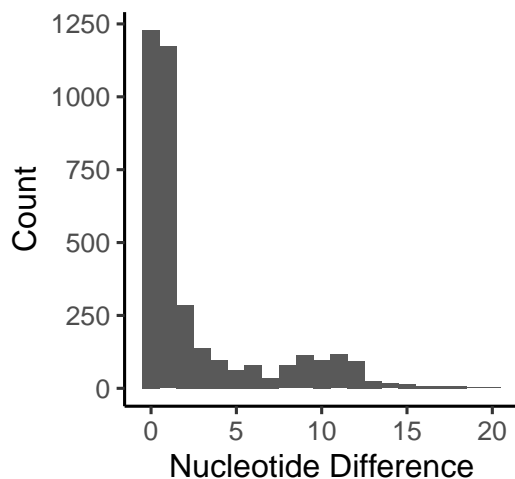
IGHV1-46*01

6387 sequences assigned
1325 (20.7%) exact matches, in which:
1135 unique CDR3
6 unique J



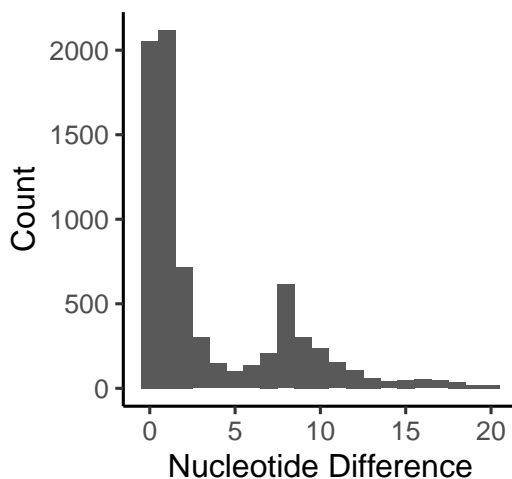
IGHV1-3*01_05

3768 sequences assigned
1229 (32.6%) exact matches, in which:
974 unique CDR3
6 unique J



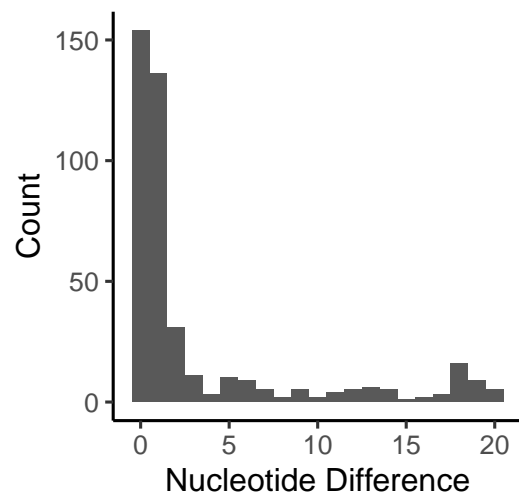
IGHV1-18*04

8120 sequences assigned
2053 (25.3%) exact matches, in which:
1690 unique CDR3
6 unique J



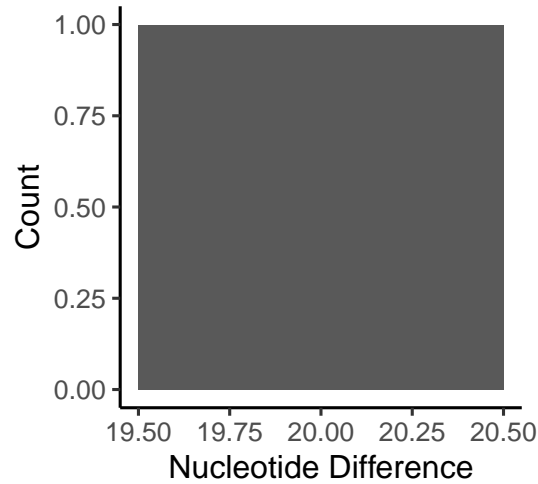
IGHV1-58*02

440 sequences assigned
154 (35%) exact matches, in which:
130 unique CDR3
5 unique J



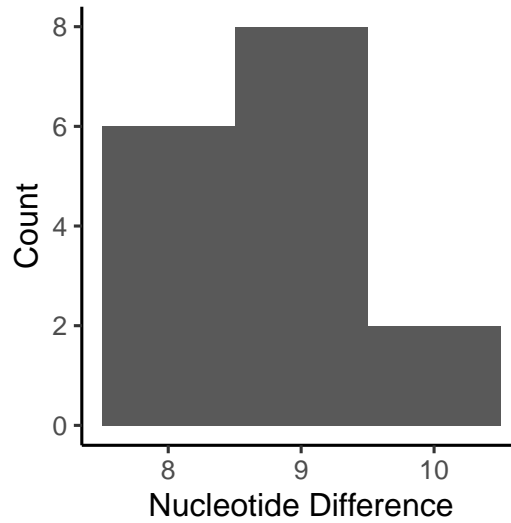
IGHV1-69-2*01

1 sequences assigned
No exact matches.



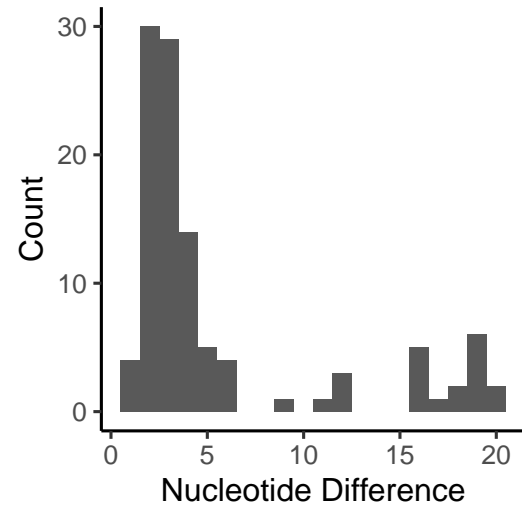
IGHV1-NL1*01

16 sequences assigned
No exact matches.



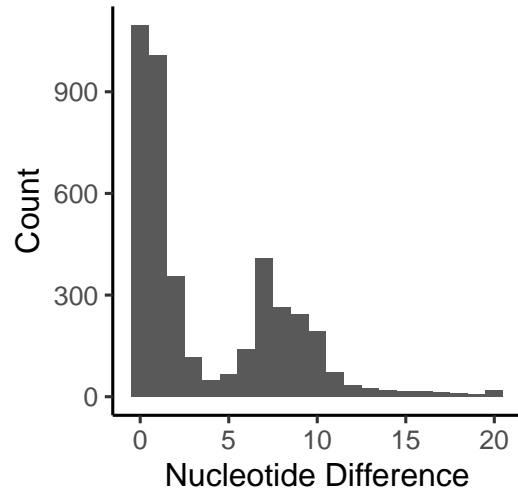
IGHV2-70*12

119 sequences assigned
No exact matches.



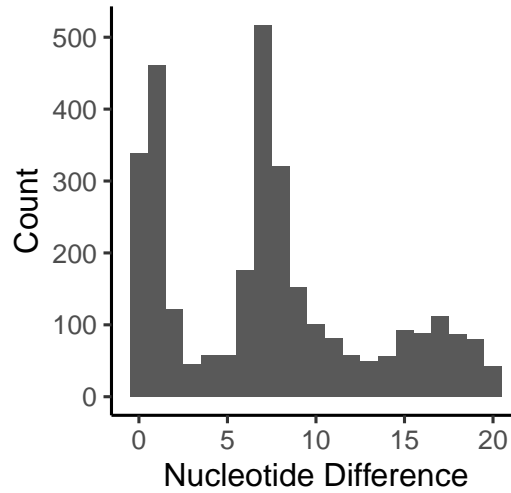
IGHV1-69*04_09

5104 sequences assigned
1097 (21.5%) exact matches, in which:
944 unique CDR3
6 unique J



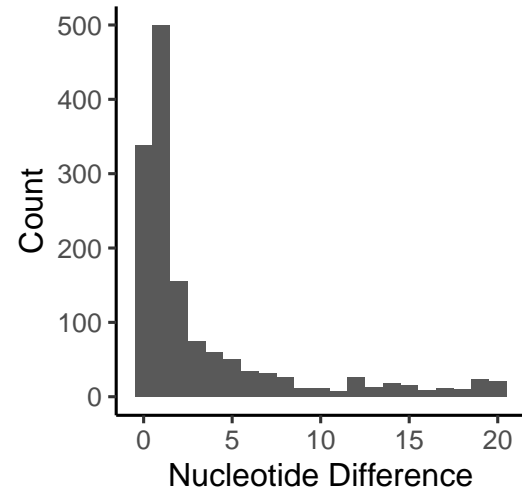
IGHV2-5*02

3345 sequences assigned
339 (10.1%) exact matches, in which:
252 unique CDR3
6 unique J



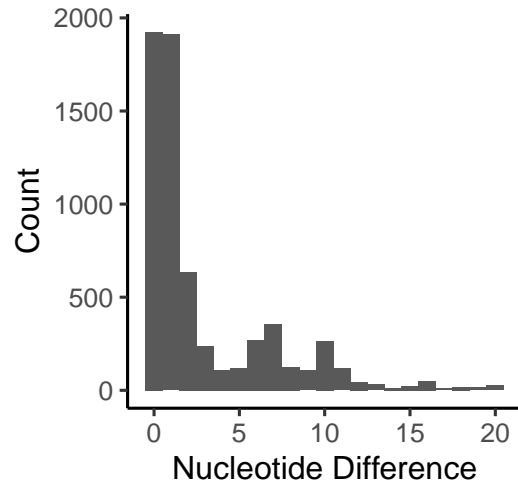
IGHV2-70*11_15

1751 sequences assigned
338 (19.3%) exact matches, in which:
223 unique CDR3
6 unique J



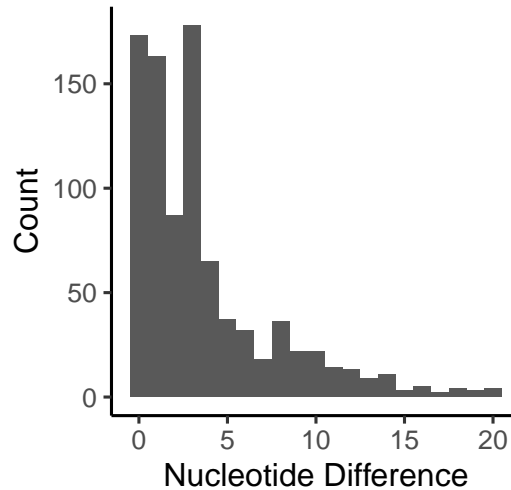
IGHV1-69*04_09_A244I

6835 sequences assigned
1924 (28.1%) exact matches, in which:
1613 unique CDR3
6 unique J



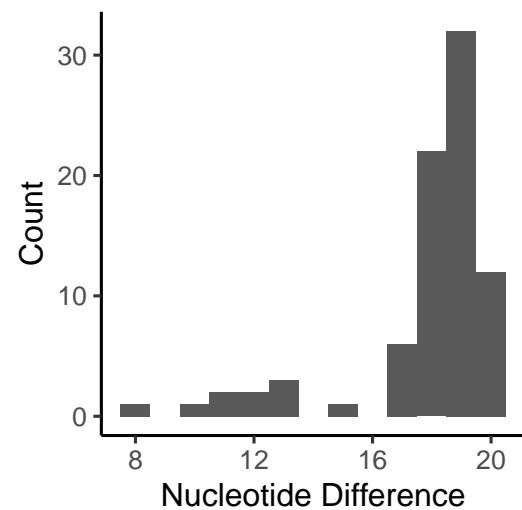
IGHV2-26*01

952 sequences assigned
173 (18.2%) exact matches, in which:
147 unique CDR3
5 unique J



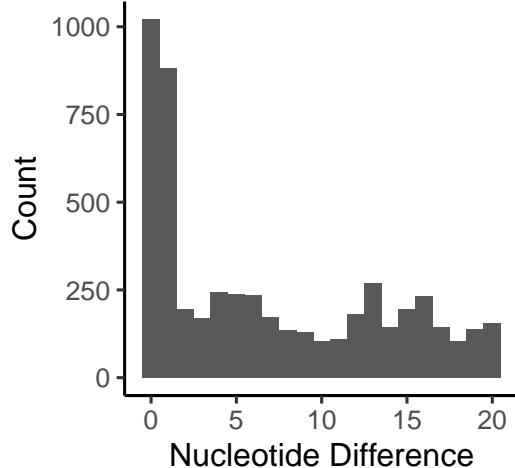
IGHV2-70D*04

104 sequences assigned
No exact matches.



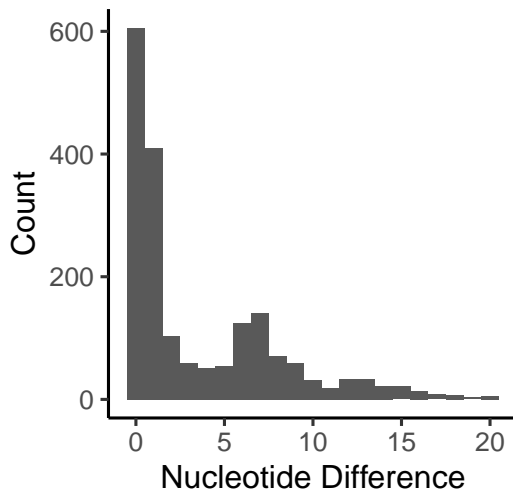
IGHV3-7*01

6756 sequences assigned
1021 (15.1%) exact matches, in which:
745 unique CDR3
6 unique J



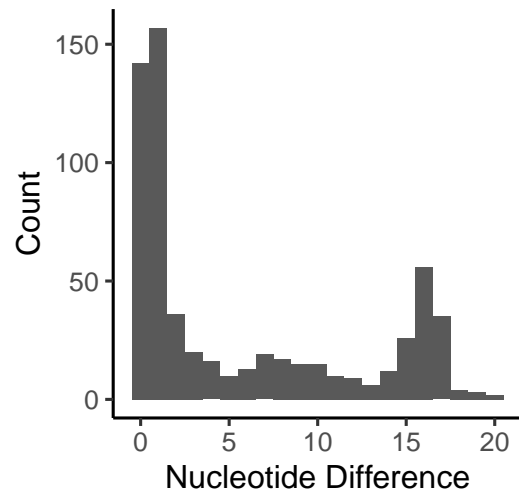
IGHV3-11*01

2301 sequences assigned
606 (26.3%) exact matches, in which:
404 unique CDR3
6 unique J



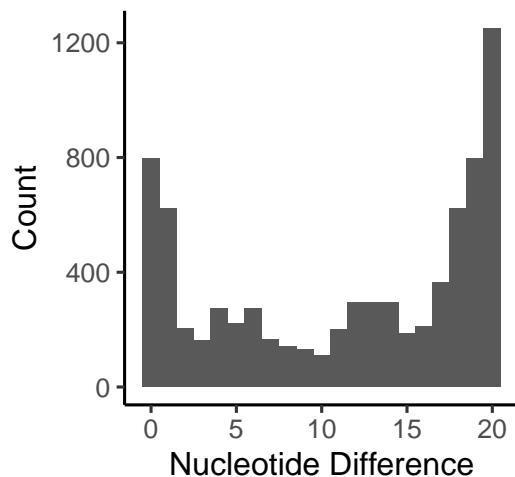
IGHV3-13*01

648 sequences assigned
142 (21.9%) exact matches, in which:
92 unique CDR3
5 unique J



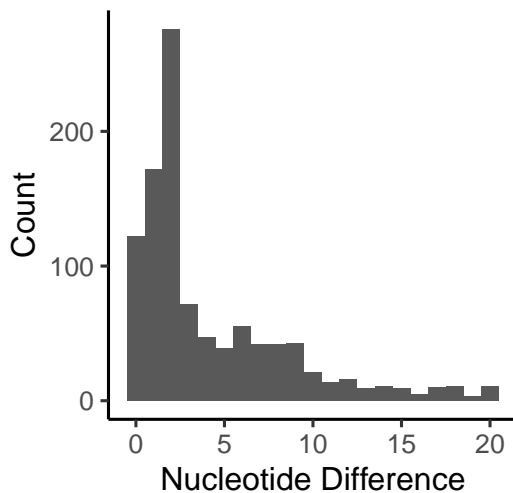
IGHV3-7*03

11309 sequences assigned
795 (7%) exact matches, in which:
546 unique CDR3
6 unique J



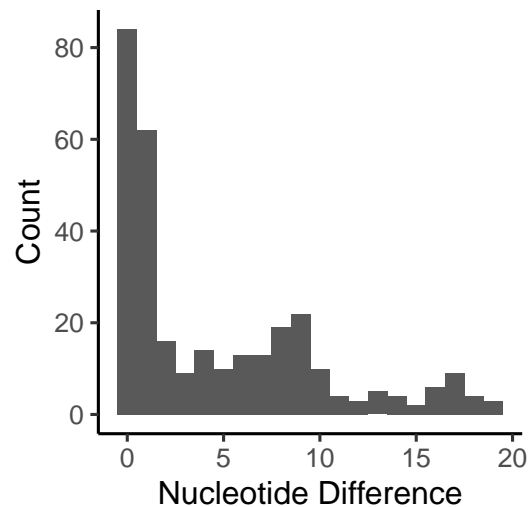
IGHV3-11*04

1120 sequences assigned
122 (10.9%) exact matches, in which:
119 unique CDR3
6 unique J



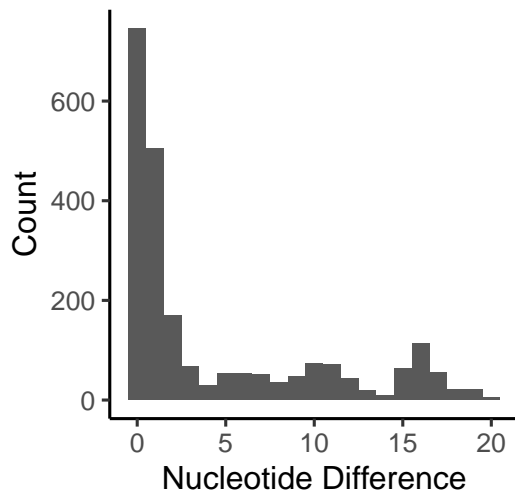
IGHV3-13*05

319 sequences assigned
84 (26.3%) exact matches, in which:
60 unique CDR3
6 unique J



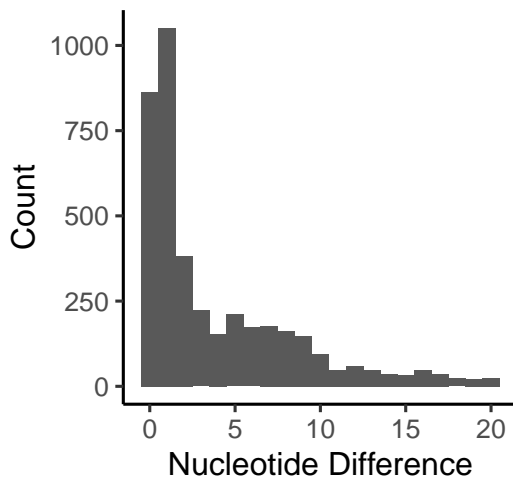
IGHV3-9*01

2718 sequences assigned
746 (27.4%) exact matches, in which:
420 unique CDR3
6 unique J



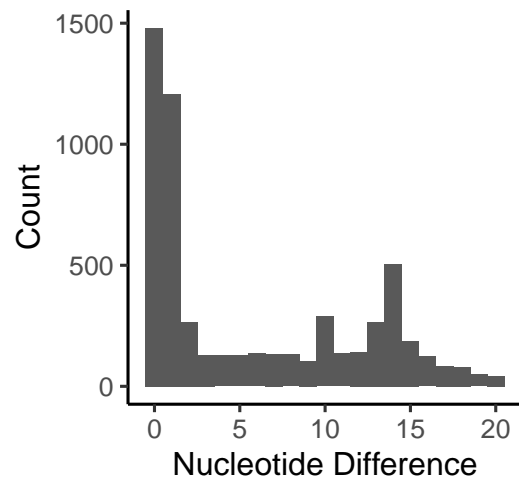
IGHV3-11*06

4532 sequences assigned
864 (19.1%) exact matches, in which:
542 unique CDR3
6 unique J



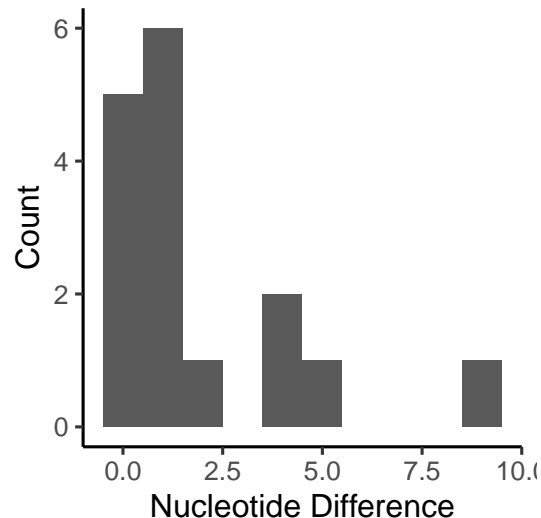
IGHV3-15*01_02

6401 sequences assigned
1480 (23.1%) exact matches, in which:
849 unique CDR3
6 unique J



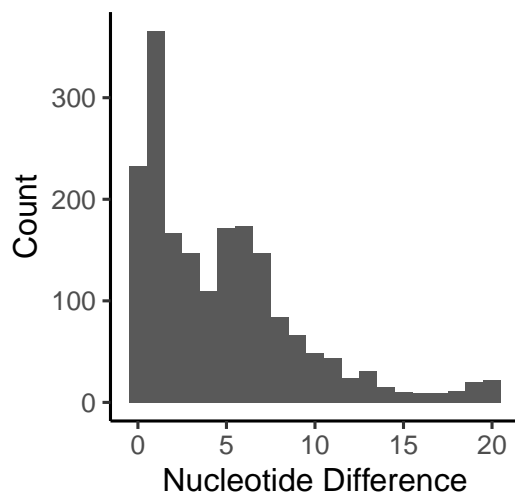
IGHV3-19*01

16 sequences assigned
5 (31.2%) exact matches, in which:
4 unique CDR3
4 unique J



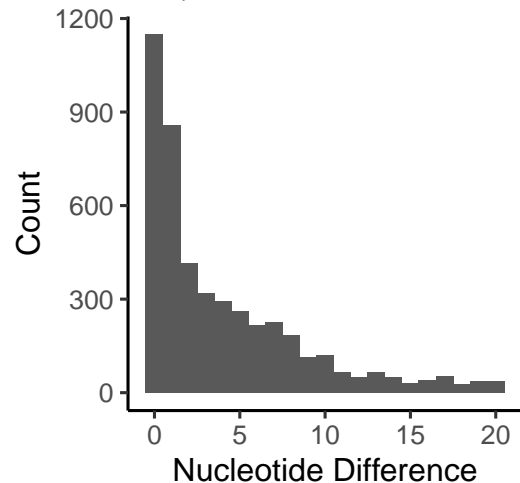
IGHV3-21*04

2318 sequences assigned
233 (10.1%) exact matches, in which:
214 unique CDR3
6 unique J



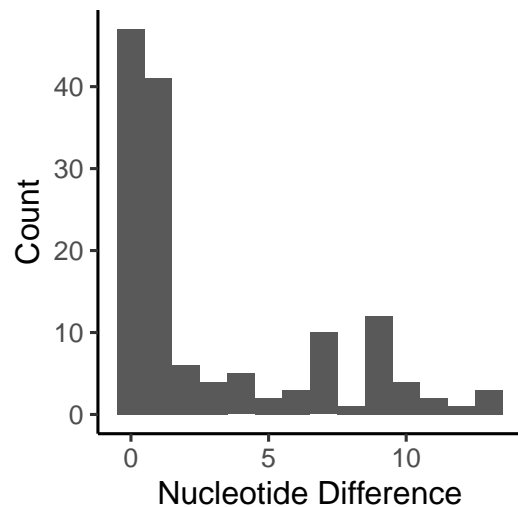
IGHV3-23*03

5330 sequences assigned
1149 (21.6%) exact matches, in which:
739 unique CDR3
6 unique J



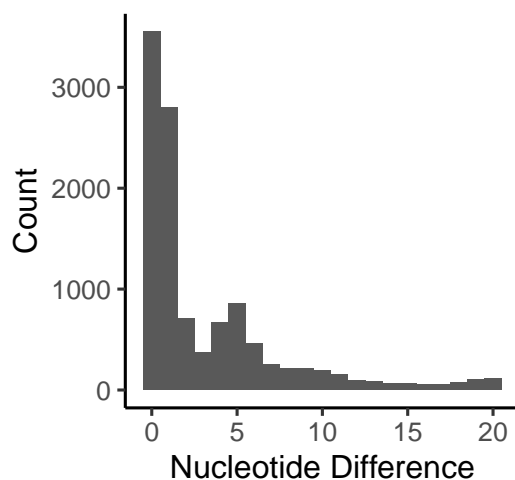
IGHV3-20*01_02

152 sequences assigned
47 (30.9%) exact matches, in which:
25 unique CDR3
5 unique J



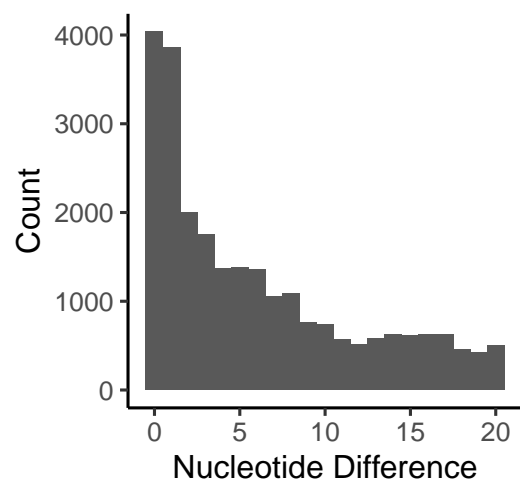
IGHV3-21*01_02

13202 sequences assigned
3551 (26.9%) exact matches, in which:
2190 unique CDR3
6 unique J



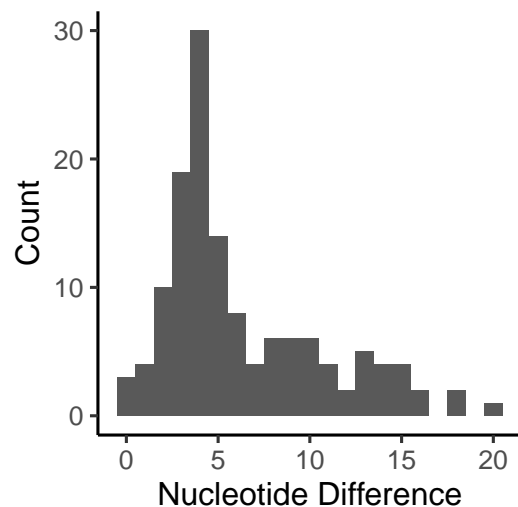
IGHV3-23*01_04

31233 sequences assigned
4037 (12.9%) exact matches, in which:
2286 unique CDR3
6 unique J



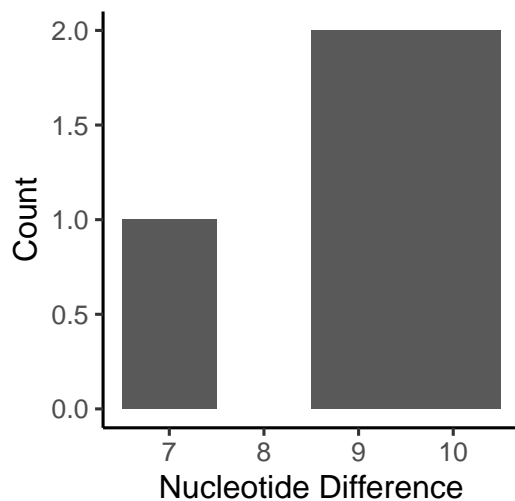
IGHV3-20*03_04

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



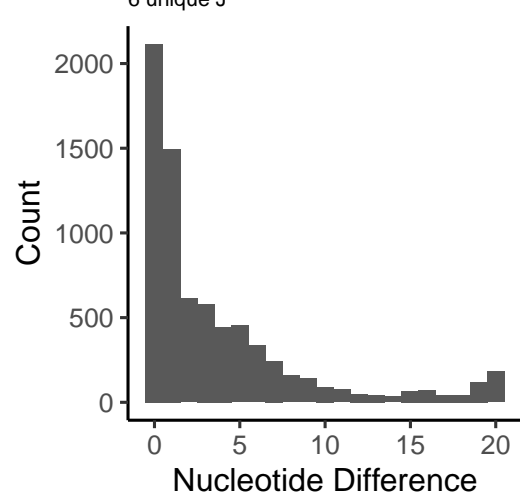
IGHV3-22*01_02

9 sequences assigned
No exact matches.



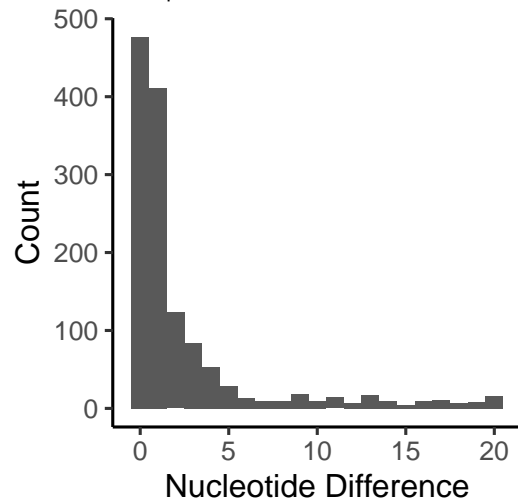
IGHV3-30-3*01

9532 sequences assigned
2115 (22.2%) exact matches, in which:
1405 unique CDR3
6 unique J



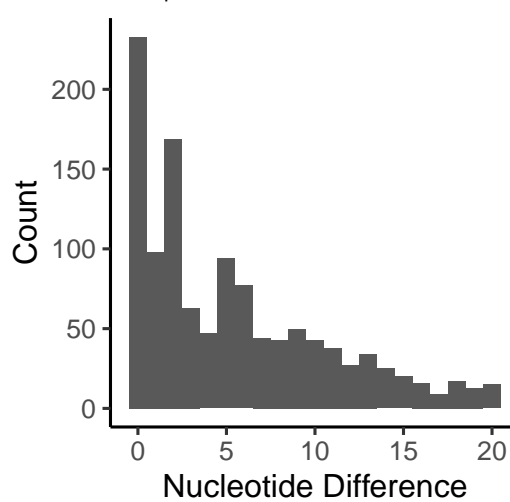
IGHV3–30*03

2980 sequences assigned
477 (16%) exact matches, in which:
433 unique CDR3
6 unique J



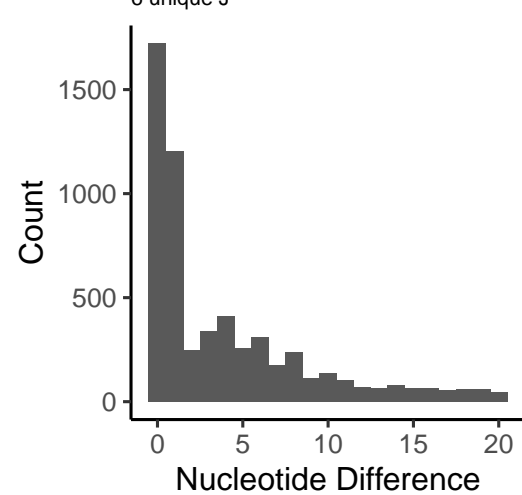
IGHV3–33*08

1262 sequences assigned
233 (18.5%) exact matches, in which:
189 unique CDR3
6 unique J



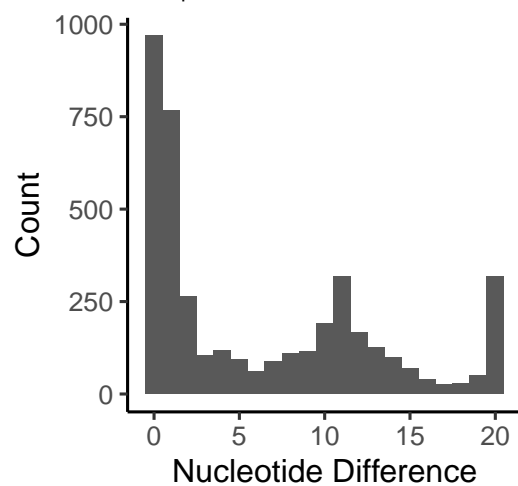
IGHV3–48*03

6435 sequences assigned
1722 (26.8%) exact matches, in which:
999 unique CDR3
6 unique J



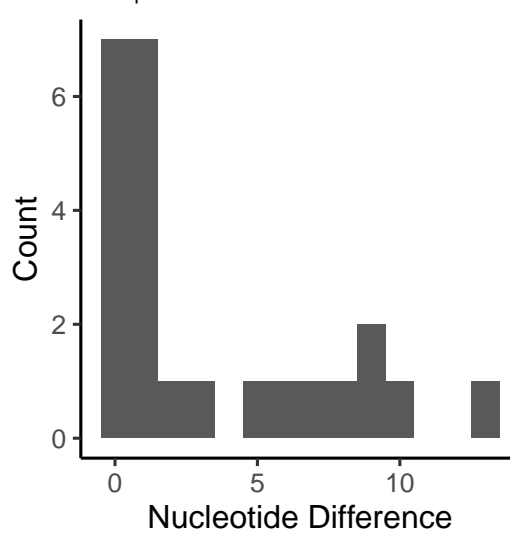
IGHV3–33*01

5311 sequences assigned
969 (18.2%) exact matches, in which:
655 unique CDR3
6 unique J



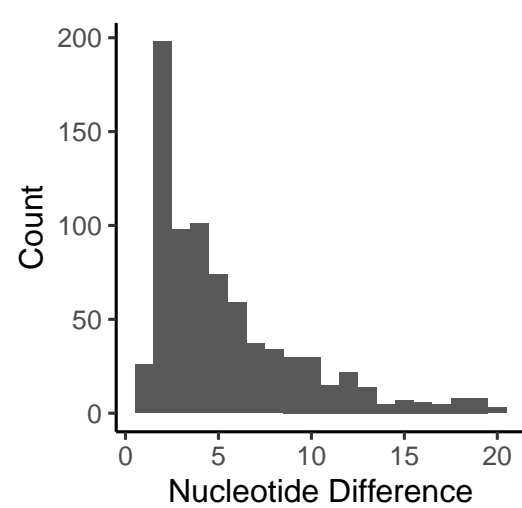
IGHV3–35*01

24 sequences assigned
7 (29.2%) exact matches, in which:
5 unique CDR3
3 unique J



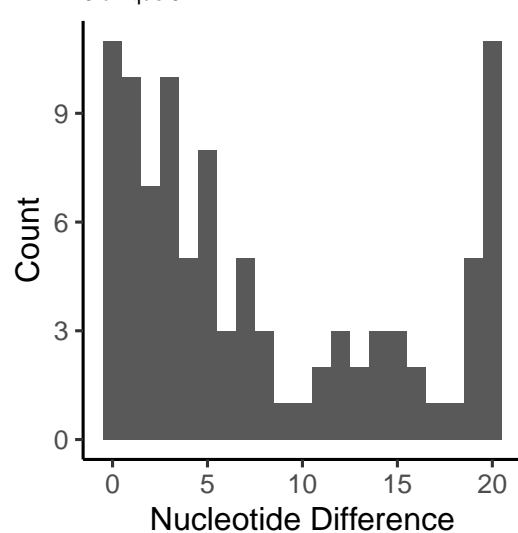
IGHV3–48*04

876 sequences assigned
No exact matches.



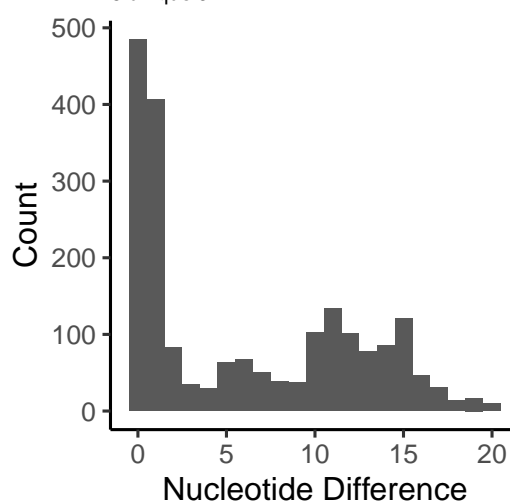
IGHV3–33*05

292 sequences assigned
11 (3.8%) exact matches, in which:
9 unique CDR3
3 unique J



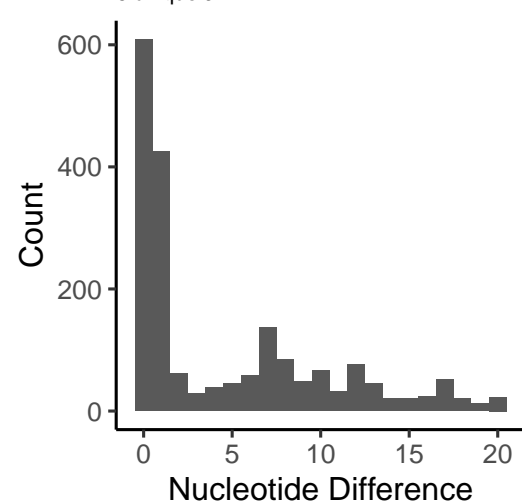
IGHV3–43*02

2238 sequences assigned
485 (21.7%) exact matches, in which:
272 unique CDR3
6 unique J



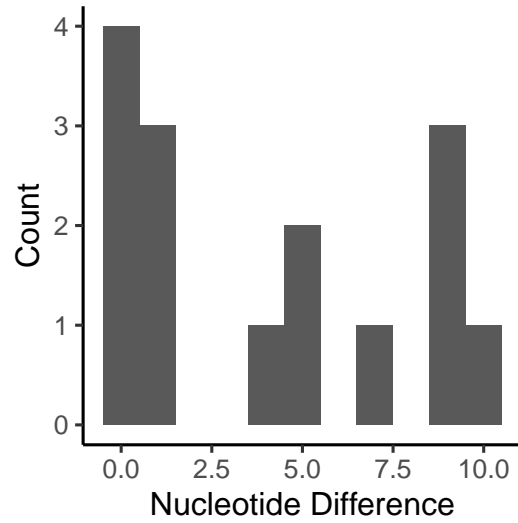
IGHV3–49*04

2488 sequences assigned
609 (24.5%) exact matches, in which:
373 unique CDR3
6 unique J



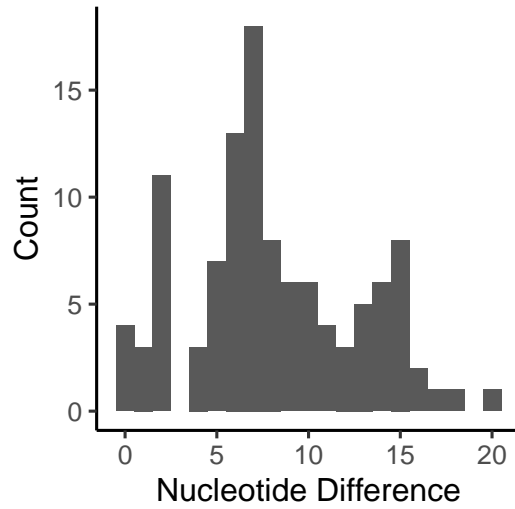
IGHV3-52*01_03

15 sequences assigned
4 (26.7%) exact matches, in which:
3 unique CDR3
2 unique J



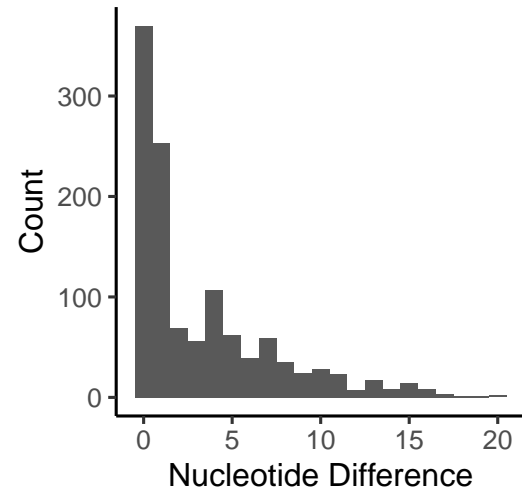
IGHV3-53*01_02

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



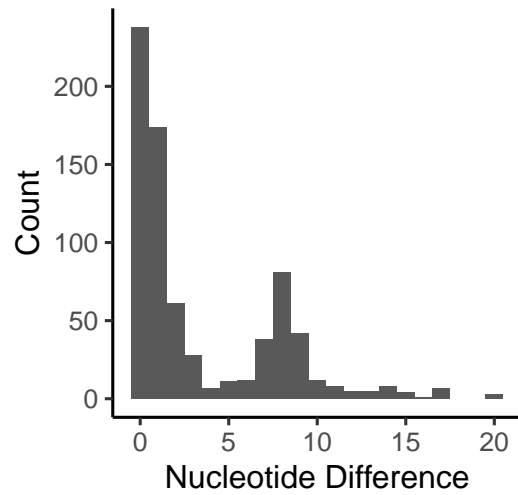
IGHV3-64*01

1253 sequences assigned
370 (29.5%) exact matches, in which:
240 unique CDR3
5 unique J



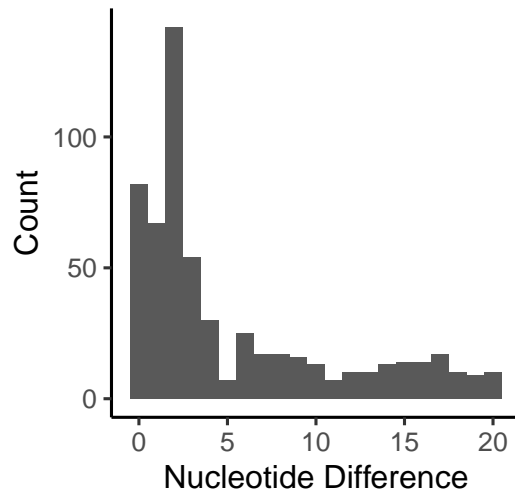
IGHV3-53*04

854 sequences assigned
238 (27.9%) exact matches, in which:
168 unique CDR3
6 unique J



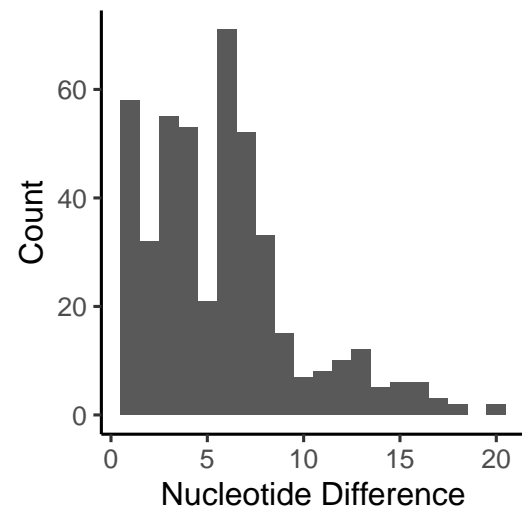
IGHV3-53*01_02_G81A_

687 sequences assigned
82 (11.9%) exact matches, in which:
79 unique CDR3
4 unique J



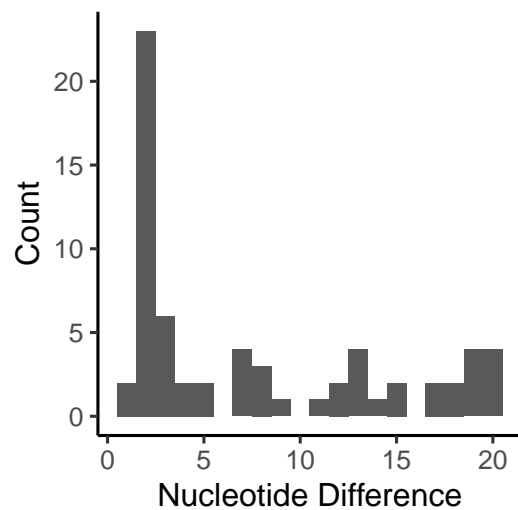
IGHV3-64*04

471 sequences assigned
No exact matches.



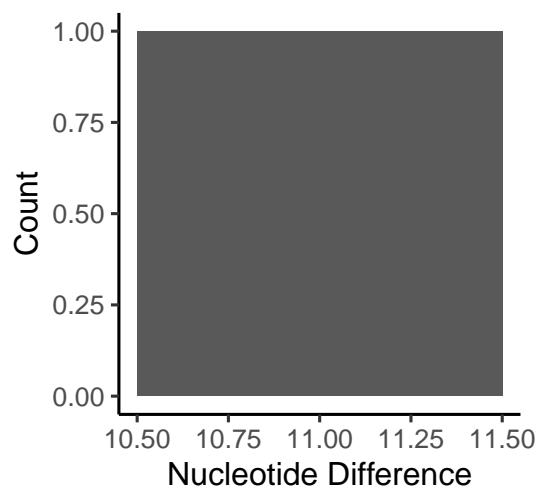
IGHV3-53*05

412 sequences assigned
No exact matches.



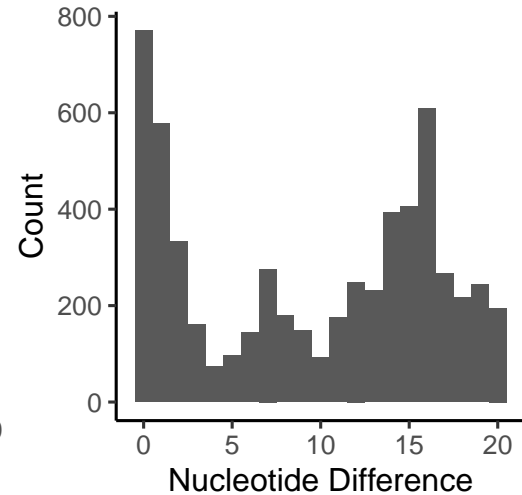
IGHV3-62*03

1 sequences assigned
No exact matches.



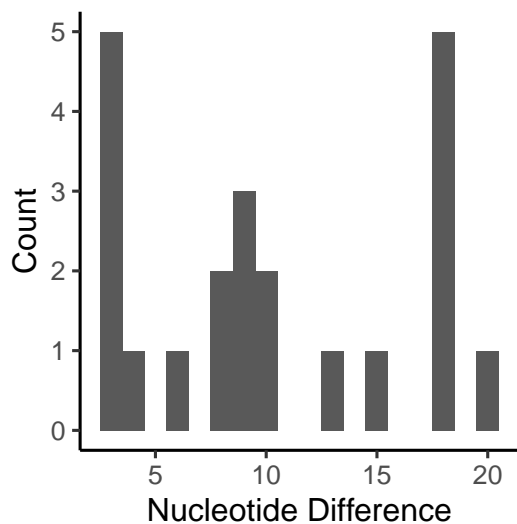
IGHV3-66*01

7229 sequences assigned
771 (10.7%) exact matches, in which:
530 unique CDR3
6 unique J



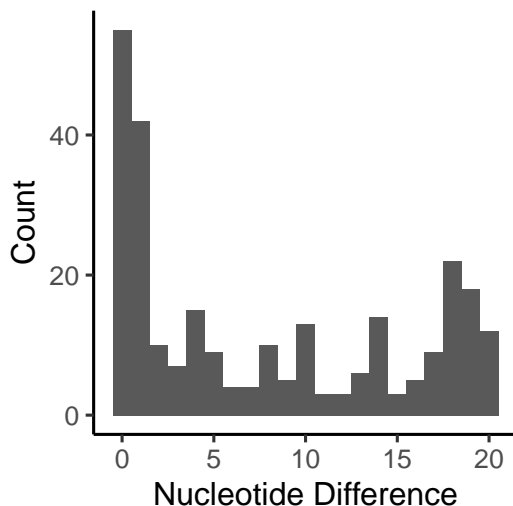
IGHV3-69-1*01

26 sequences assigned
No exact matches.



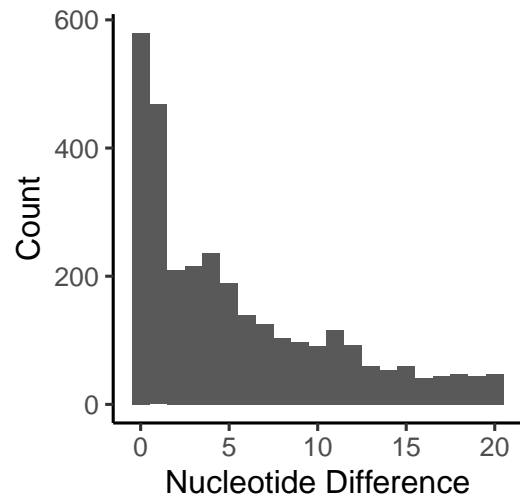
IGHV3-72*01

468 sequences assigned
55 (11.8%) exact matches, in which:
40 unique CDR3
5 unique J



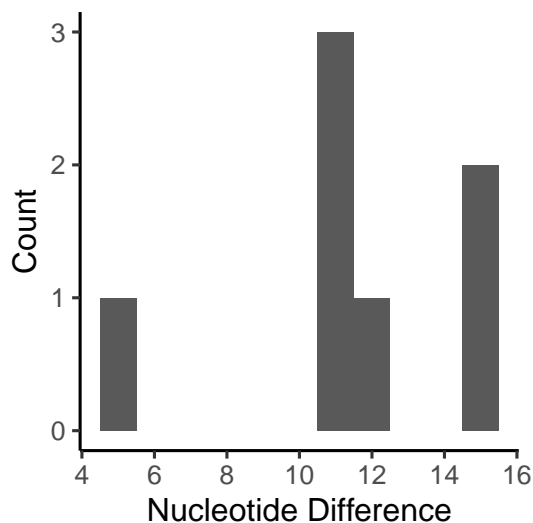
IGHV3-74*01_02

3429 sequences assigned
580 (16.9%) exact matches, in which:
404 unique CDR3
6 unique J



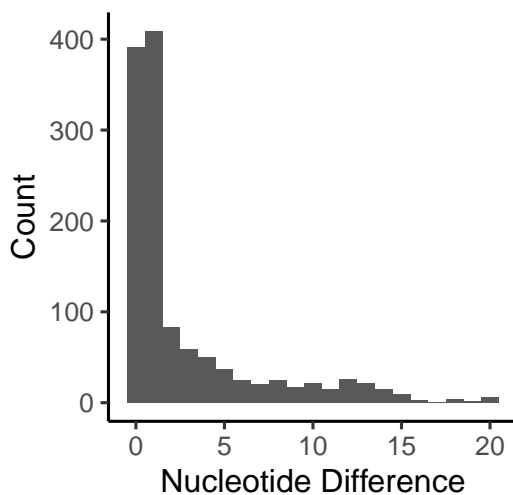
IGHV3-69-1*02

36 sequences assigned
No exact matches.



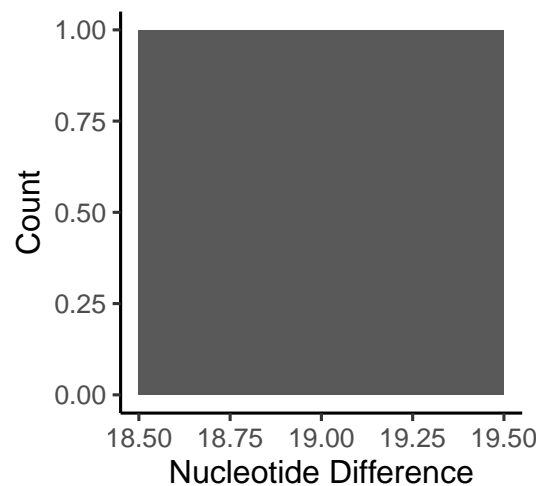
IGHV3-73*01_02

1518 sequences assigned
391 (25.8%) exact matches, in which:
240 unique CDR3
5 unique J



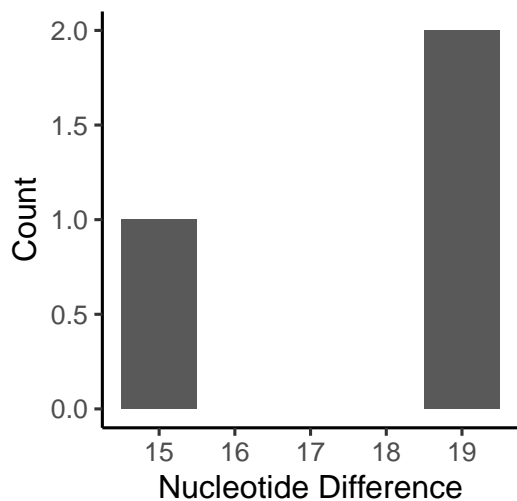
IGHV3-43D*04

1 sequences assigned
No exact matches.



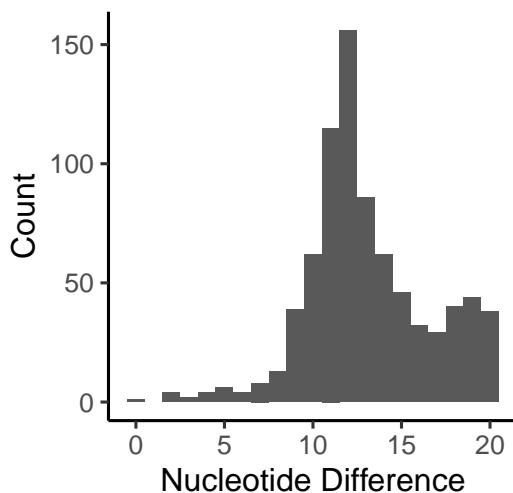
IGHV3-71*01_04

10 sequences assigned
No exact matches.



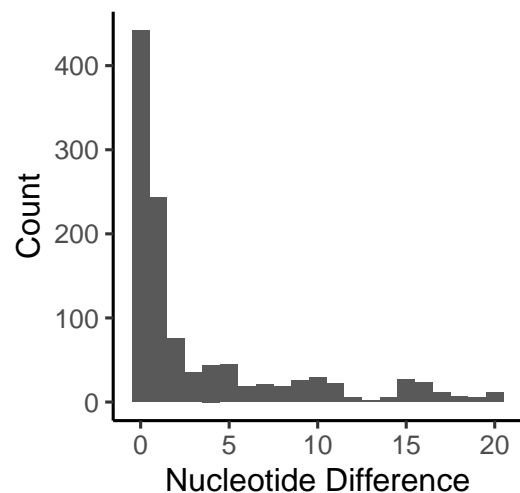
IGHV3-74*03

1144 sequences assigned
1 (0.1%) exact matches, in which:
1 unique CDR3
1 unique J



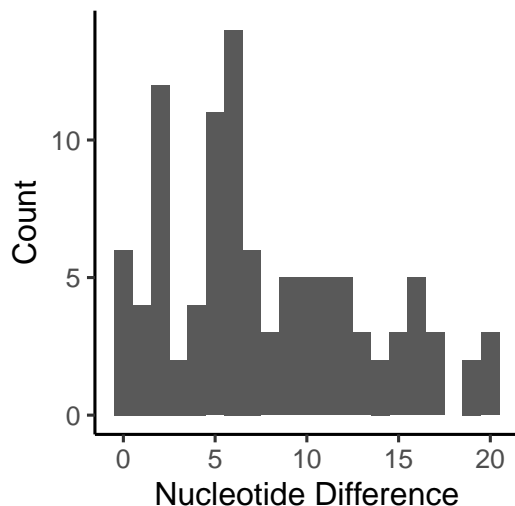
IGHV3-64D*06

1327 sequences assigned
442 (33.3%) exact matches, in which:
261 unique CDR3
6 unique J



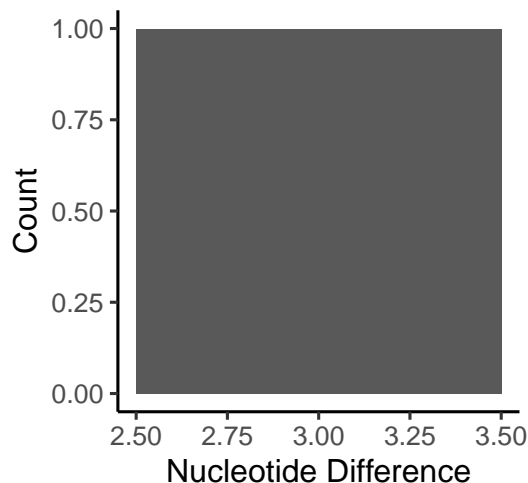
IGHV3–NL1*01

138 sequences assigned
6 (4.3%) exact matches, in which:
6 unique CDR3
2 unique J



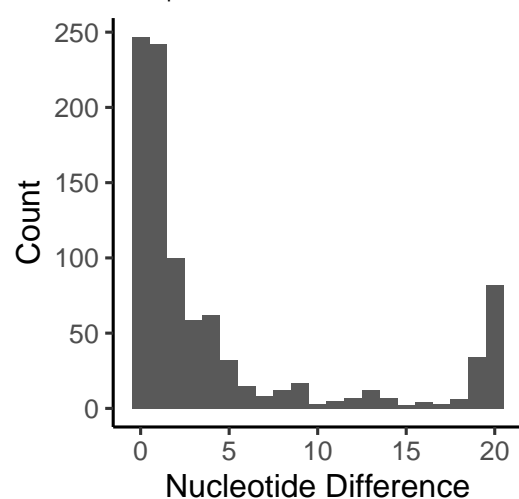
IGHV4–28*01_07

2 sequences assigned
No exact matches.



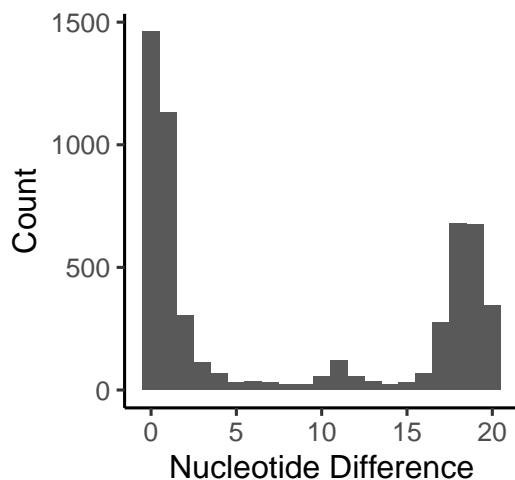
IGHV4–30–2*01

1413 sequences assigned
247 (17.5%) exact matches, in which:
174 unique CDR3
6 unique J



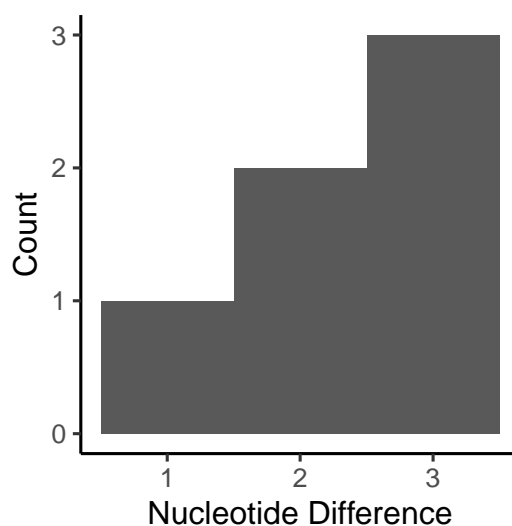
IGHV4–4*02_03

7349 sequences assigned
1461 (19.9%) exact matches, in which:
1079 unique CDR3
6 unique J



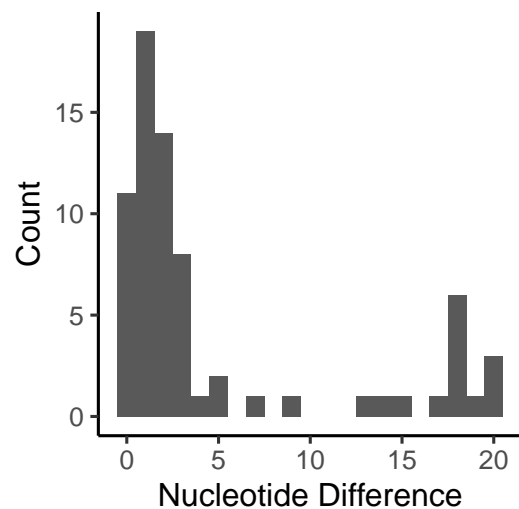
IGHV4–28*02_05

6 sequences assigned
No exact matches.



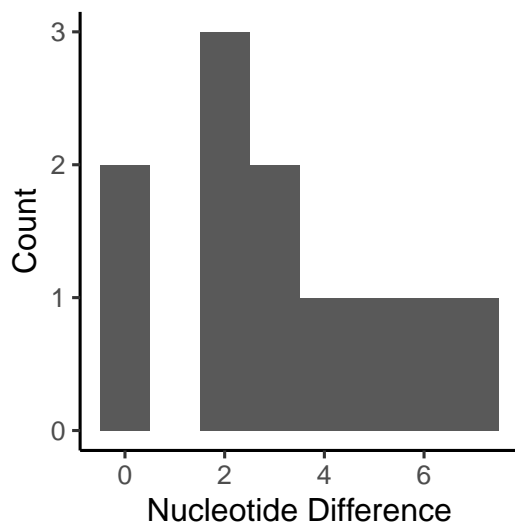
IGHV4–30–2*02

81 sequences assigned
11 (13.6%) exact matches, in which:
11 unique CDR3
4 unique J



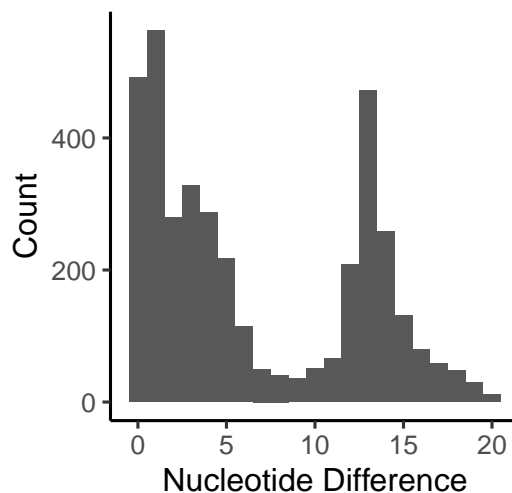
IGHV4–28*03

11 sequences assigned
2 (18.2%) exact matches, in which:
2 unique CDR3
2 unique J



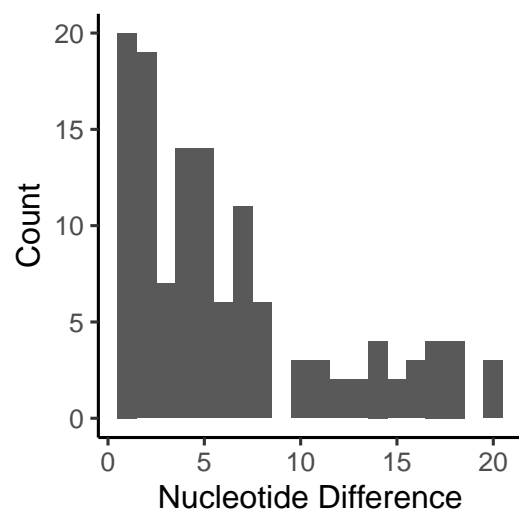
IGHV4–30–4*01

4888 sequences assigned
492 (10.1%) exact matches, in which:
379 unique CDR3
6 unique J



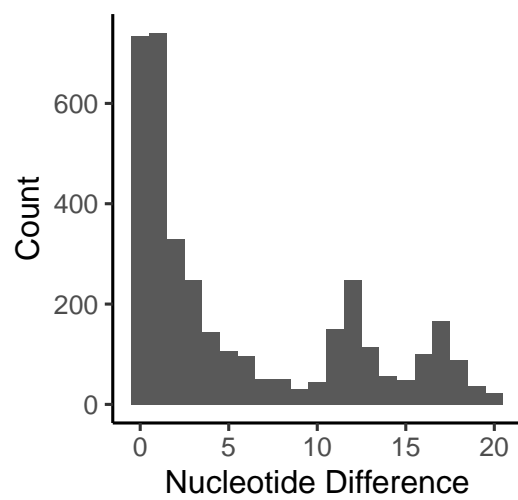
IGHV4–30–2*03

240 sequences assigned
No exact matches.



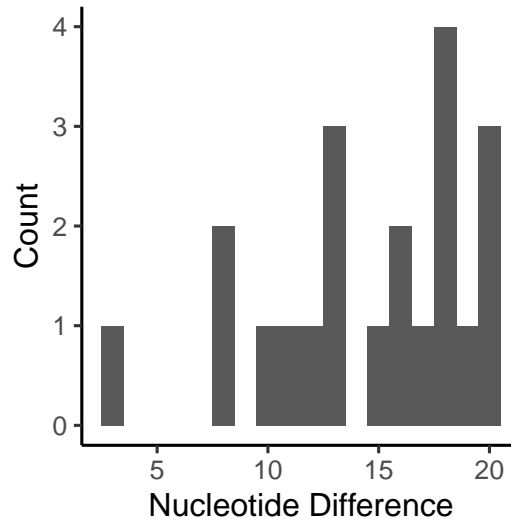
IGHV4-31*02

4817 sequences assigned
735 (15.3%) exact matches, in which:
614 unique CDR3
6 unique J



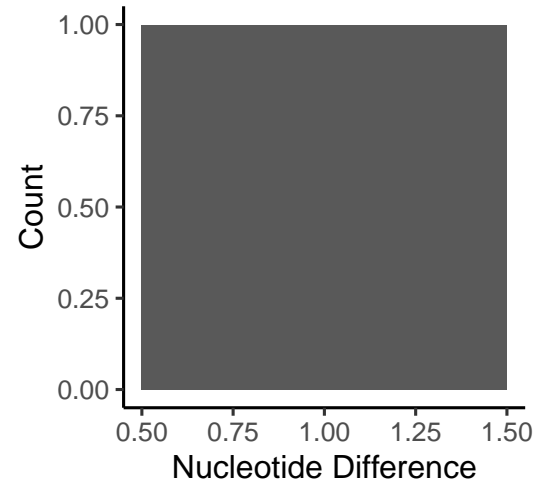
IGHV4-38-2*02

42 sequences assigned
No exact matches.



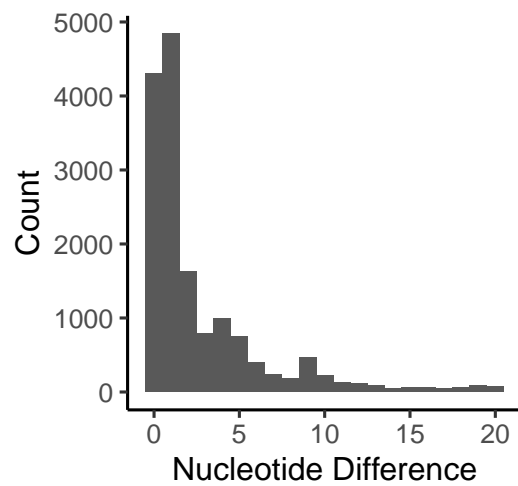
IGHV4-55*02_04_08

1 sequences assigned
No exact matches.



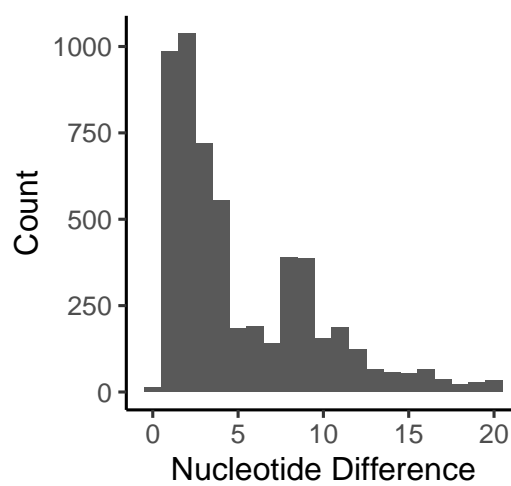
IGHV4-34*01_02

19291 sequences assigned
4298 (22.3%) exact matches, in which:
2890 unique CDR3
6 unique J



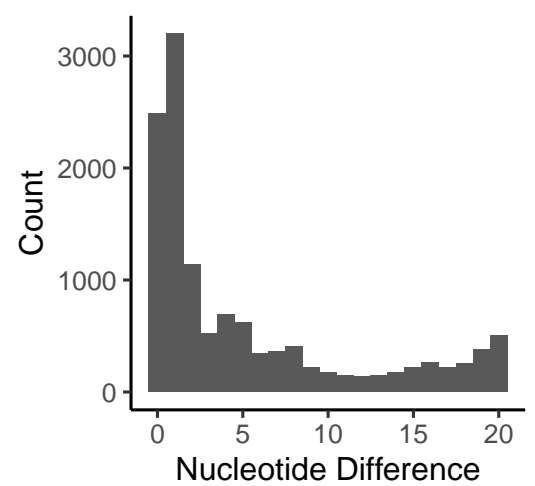
IGHV4-39*07

6114 sequences assigned
13 (0.2%) exact matches, in which:
13 unique CDR3
4 unique J



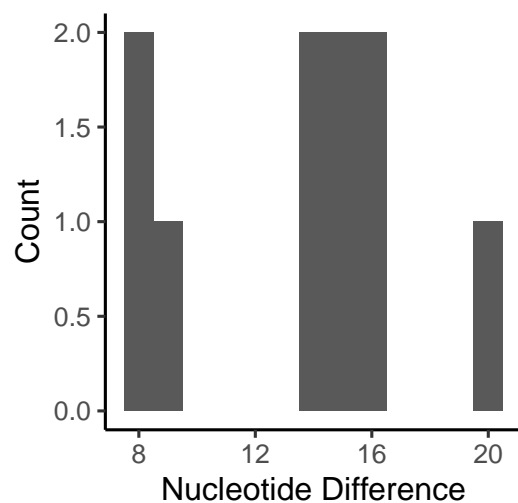
IGHV4-59*08

19007 sequences assigned
2488 (13.1%) exact matches, in which:
1893 unique CDR3
6 unique J



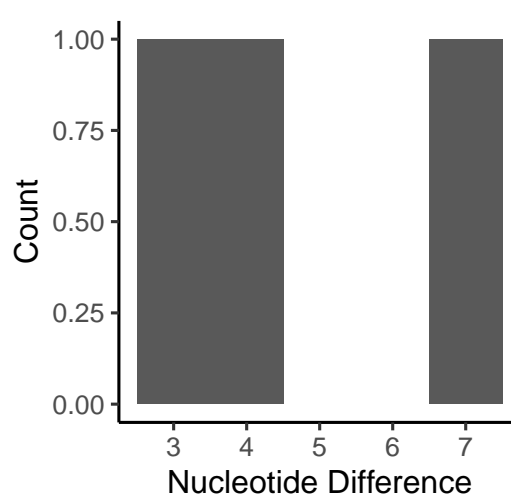
IGHV4-38-2*01

36 sequences assigned
No exact matches.



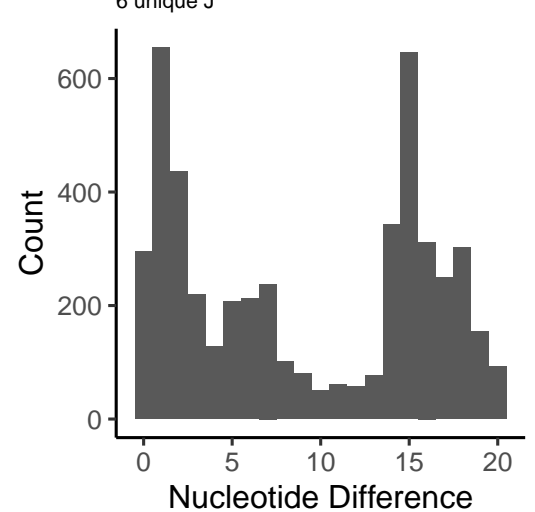
IGHV4-55*09

12 sequences assigned
No exact matches.



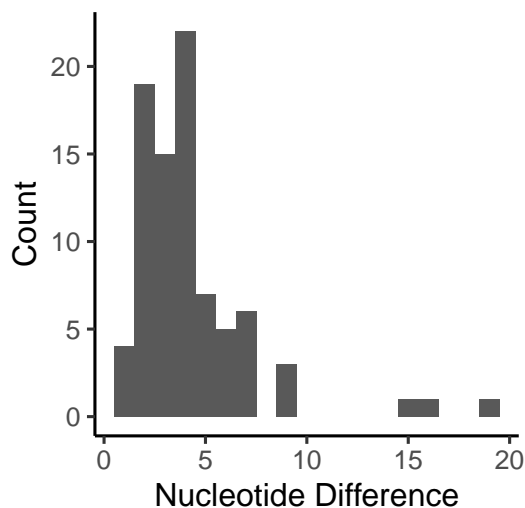
IGHV4-59*12

5903 sequences assigned
296 (5%) exact matches, in which:
279 unique CDR3
6 unique J



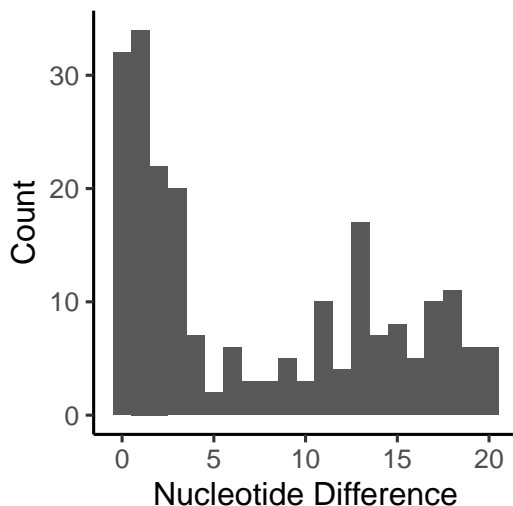
IGHV4–61*05

98 sequences assigned
No exact matches.



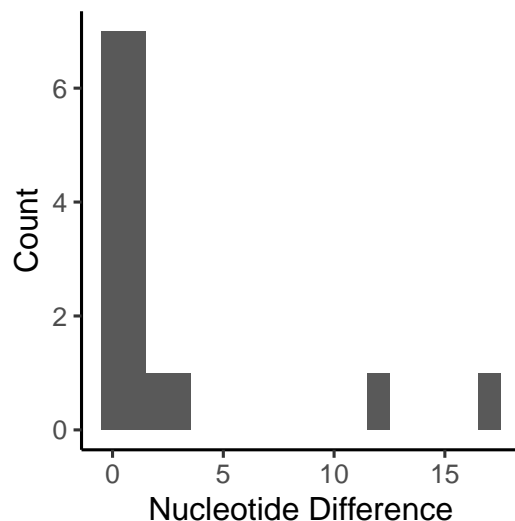
IGHV4/OR15–8*01_C193/

402 sequences assigned
32 (8%) exact matches, in which:
24 unique CDR3
5 unique J



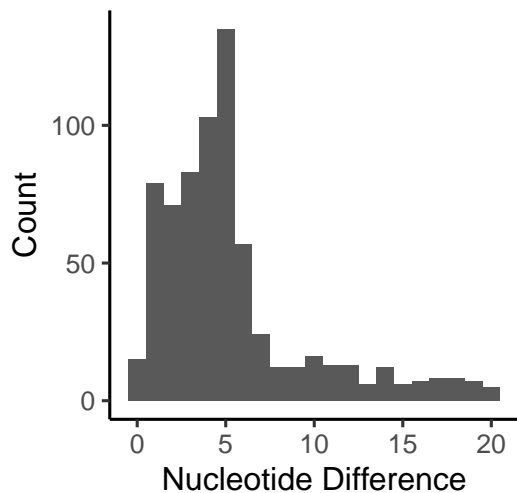
IGHV5–51*06

19 sequences assigned
7 (36.8%) exact matches, in which:
7 unique CDR3
4 unique J



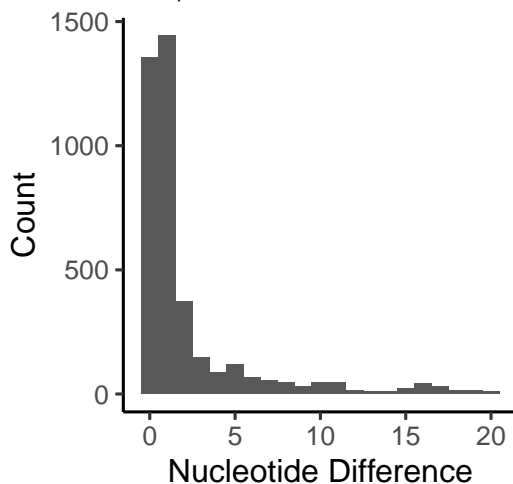
IGHV4–61*08

749 sequences assigned
15 (2%) exact matches, in which:
11 unique CDR3
3 unique J



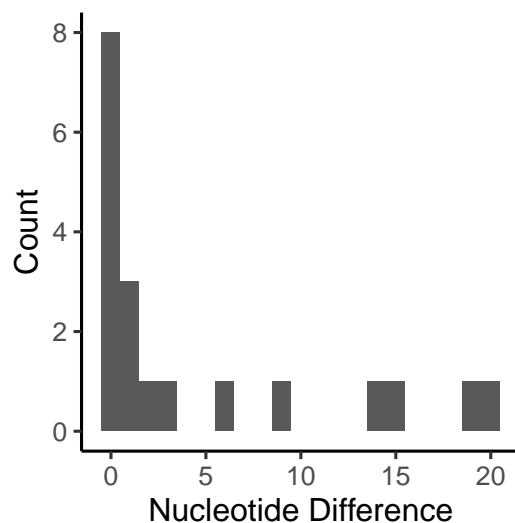
IGHV5–10–1*01_03

4365 sequences assigned
1356 (31.1%) exact matches, in which:
850 unique CDR3
6 unique J



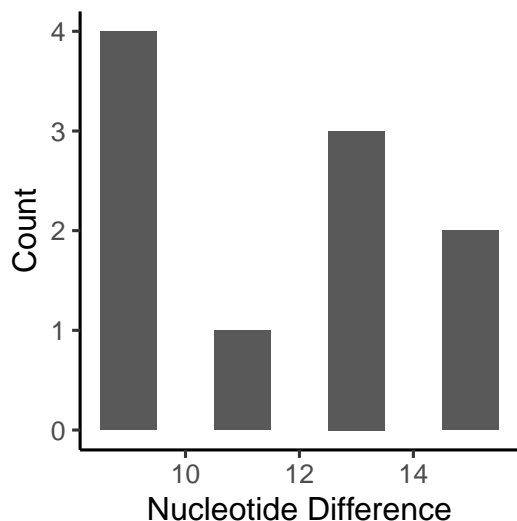
IGHV5–51*07

29 sequences assigned
8 (27.6%) exact matches, in which:
8 unique CDR3
4 unique J



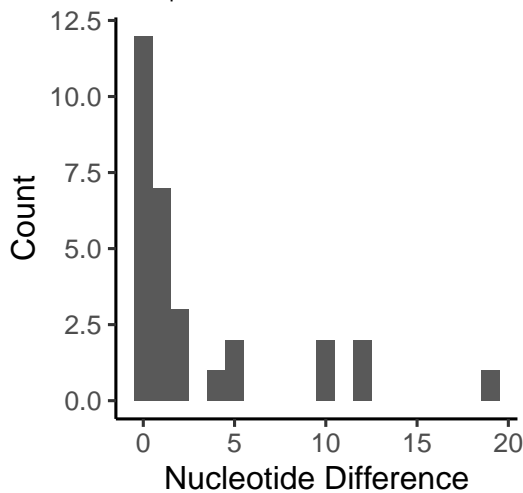
IGHV1/OR15–3*02

10 sequences assigned
No exact matches.



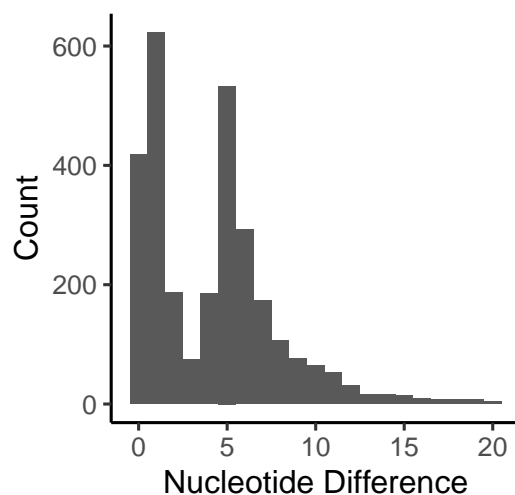
IGHV5–51*04

45 sequences assigned
12 (26.7%) exact matches, in which:
12 unique CDR3
5 unique J



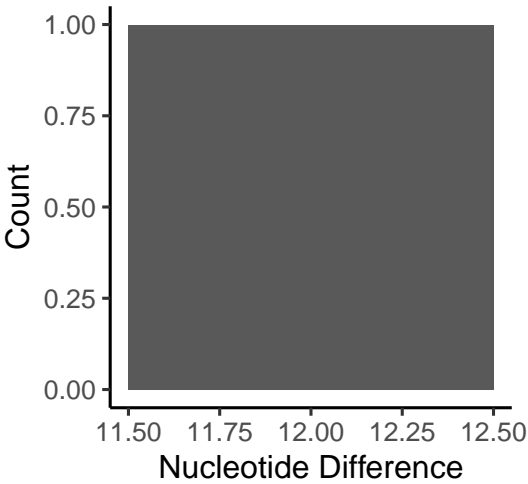
IGHV6–1*01_02

3023 sequences assigned
419 (13.9%) exact matches, in which:
319 unique CDR3
6 unique J



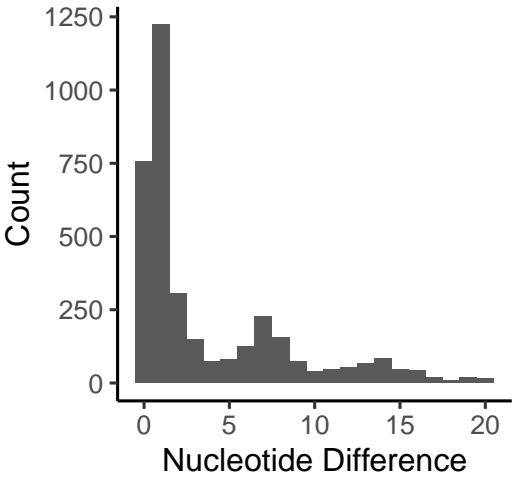
IGHV3/OR16-10*01_03

1 sequences assigned
No exact matches.



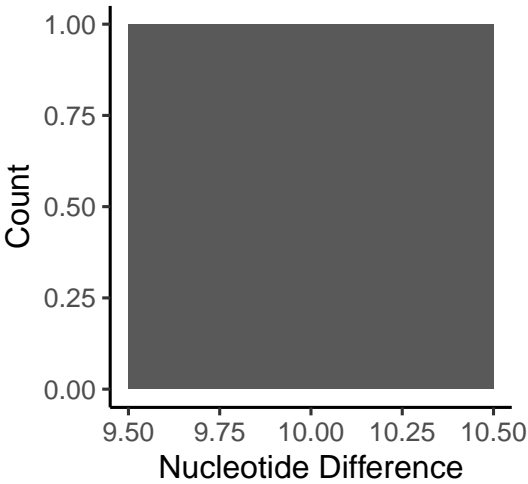
IGHV7-4-1*02

3673 sequences assigned
757 (20.6%) exact matches, in which:
578 unique CDR3
6 unique J

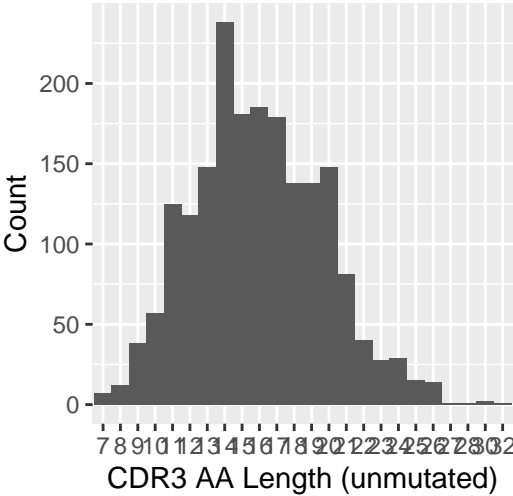


IGHV7-81*01

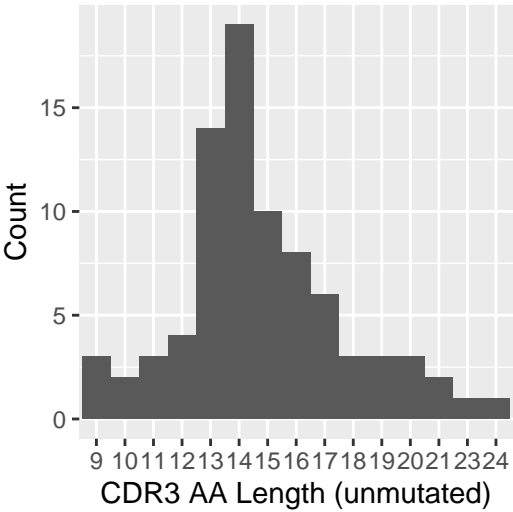
1 sequences assigned
No exact matches.



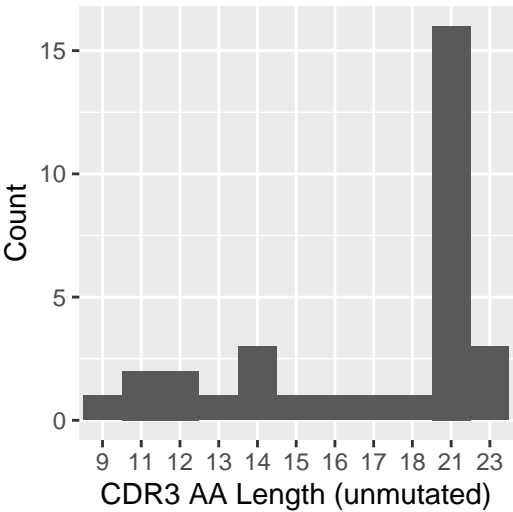
IGHV1-69*04_09_A244G



IGHV3-53*01_02_G81A_A225G_T267G_G303A



IGHV4/OR15-8*01_C193A



Allele Usage



[illegible]