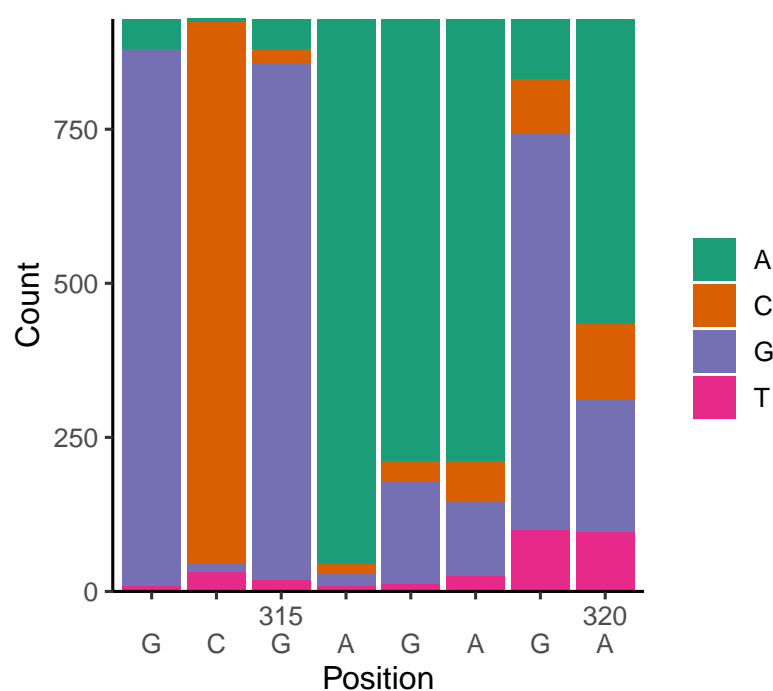
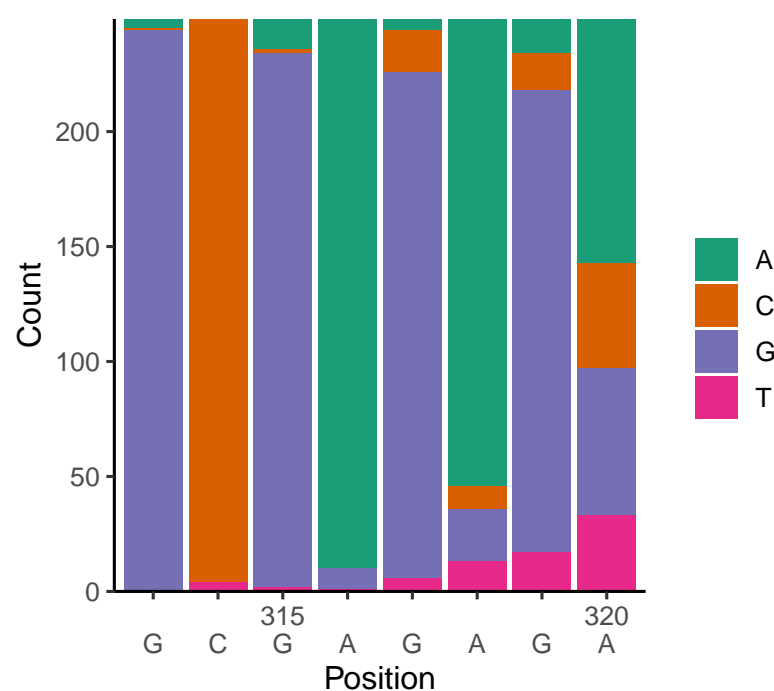


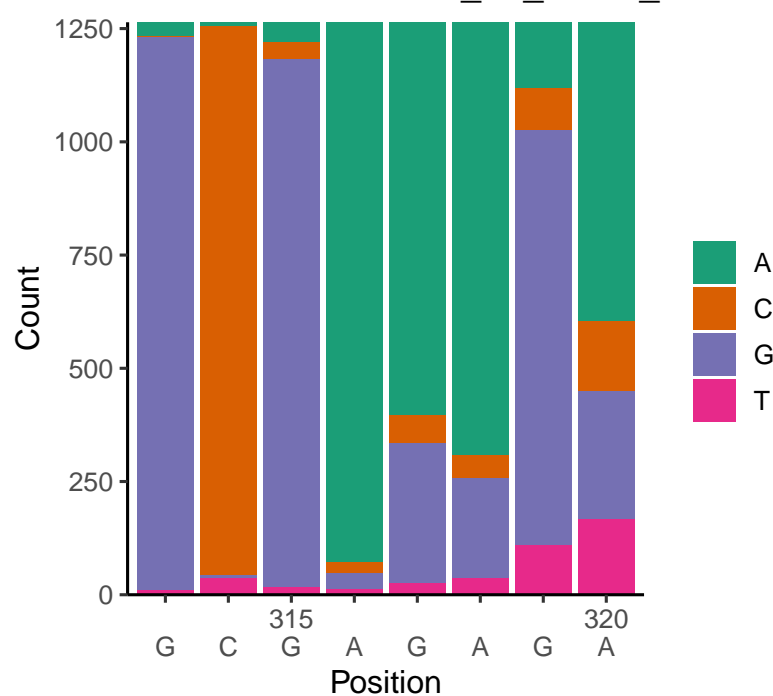
Gene IGHV3-53*01_02_A225G_T267G_()



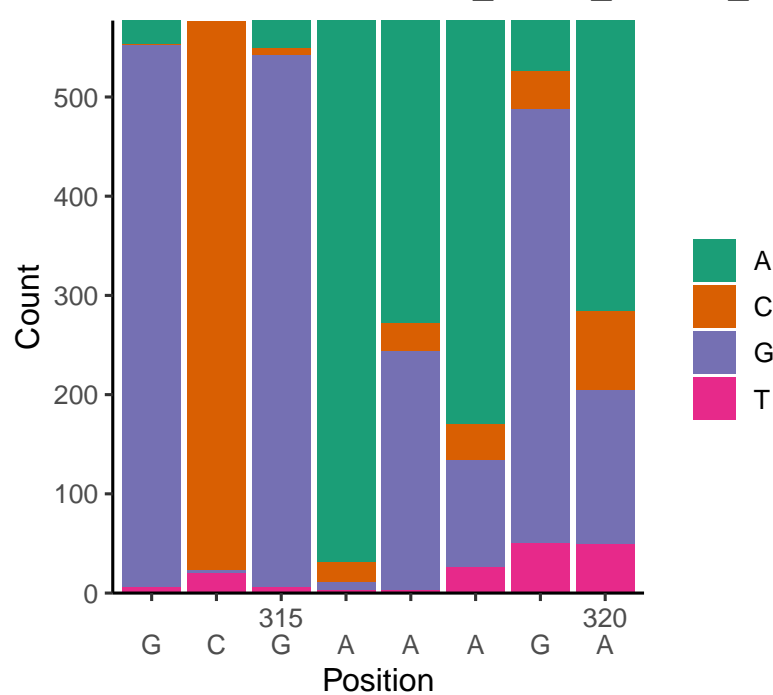
Gene IGHV1/OR15-2*02_03_T81A_T90C



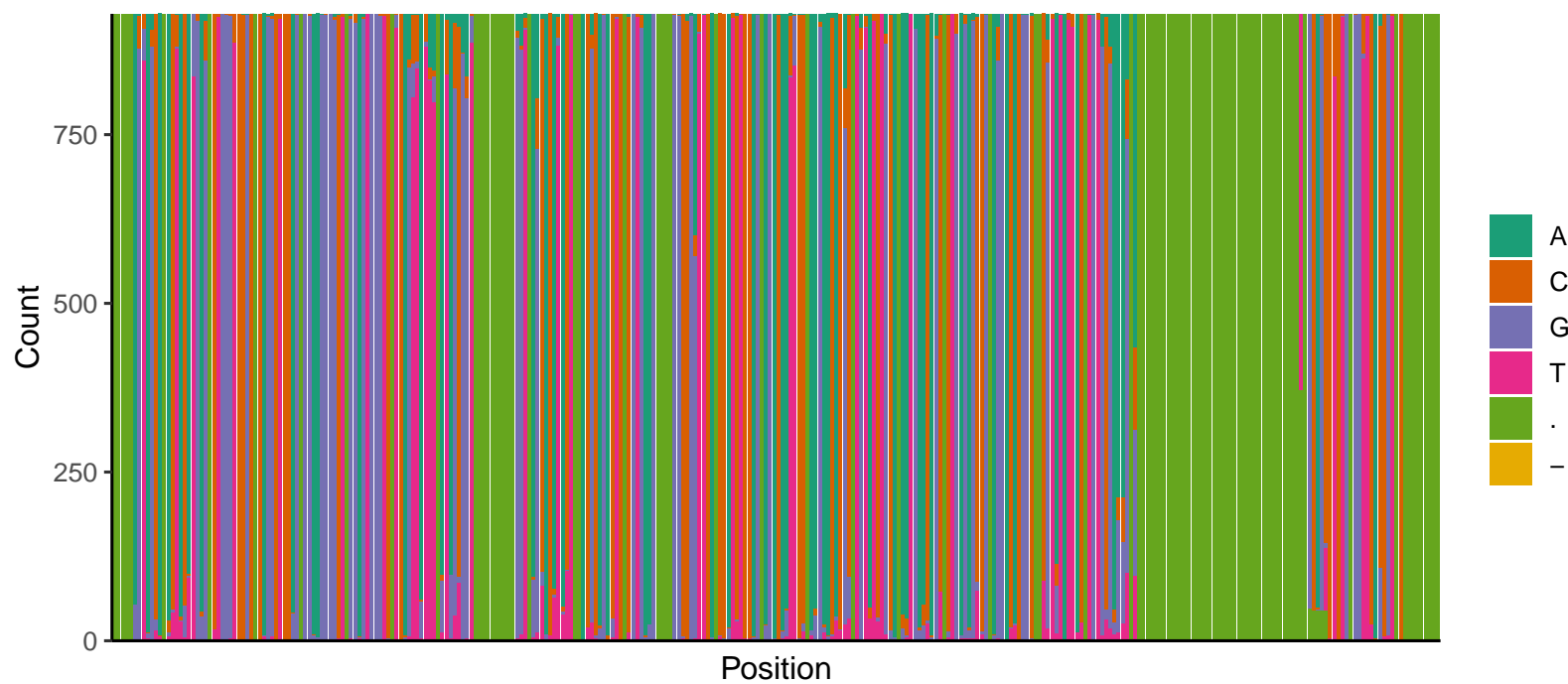
Gene IGHV3-53*01_02_G81A_A225G_T267G_G303A



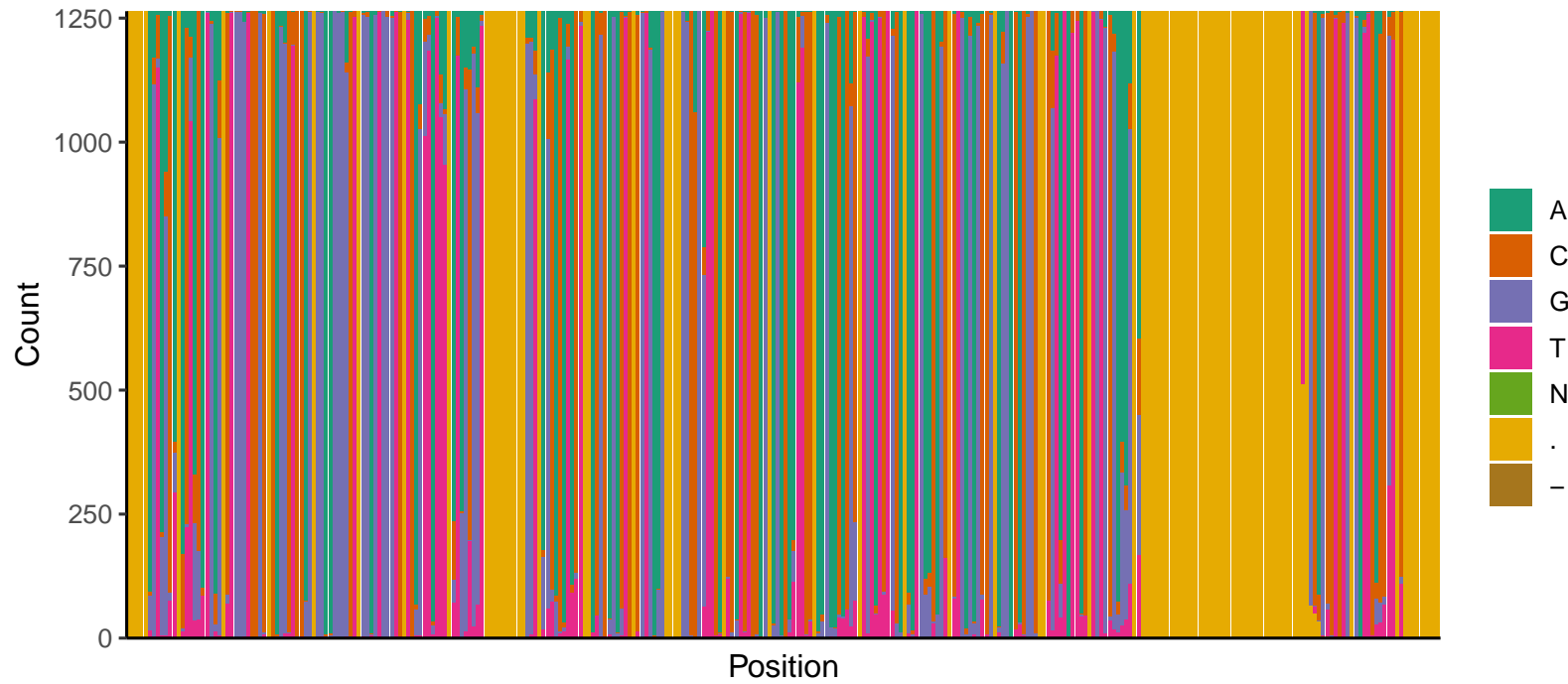
Gene IGHV3-NL1*01_G75C_G112A_C118A_C141G_T201C



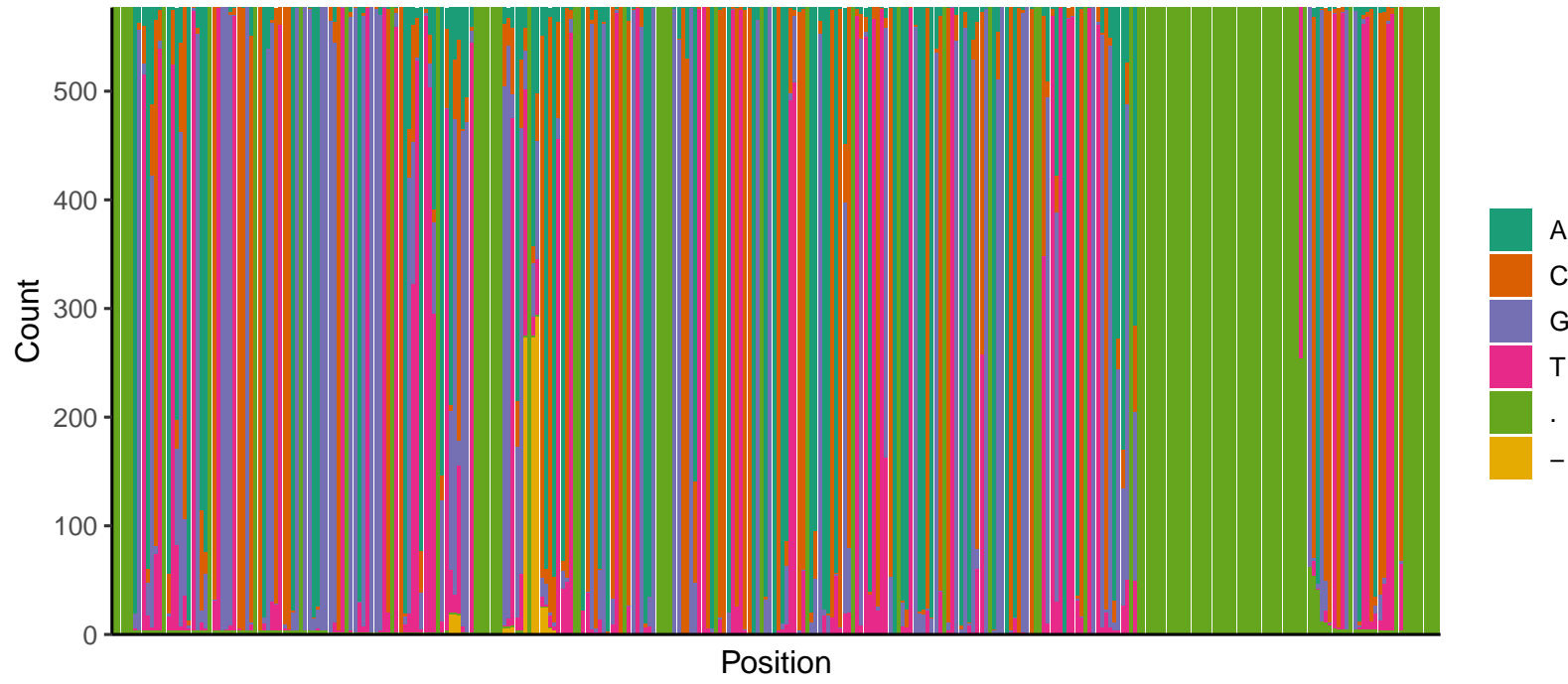
Gene IGHV3-53*01_02_A225G_T267G_G303A

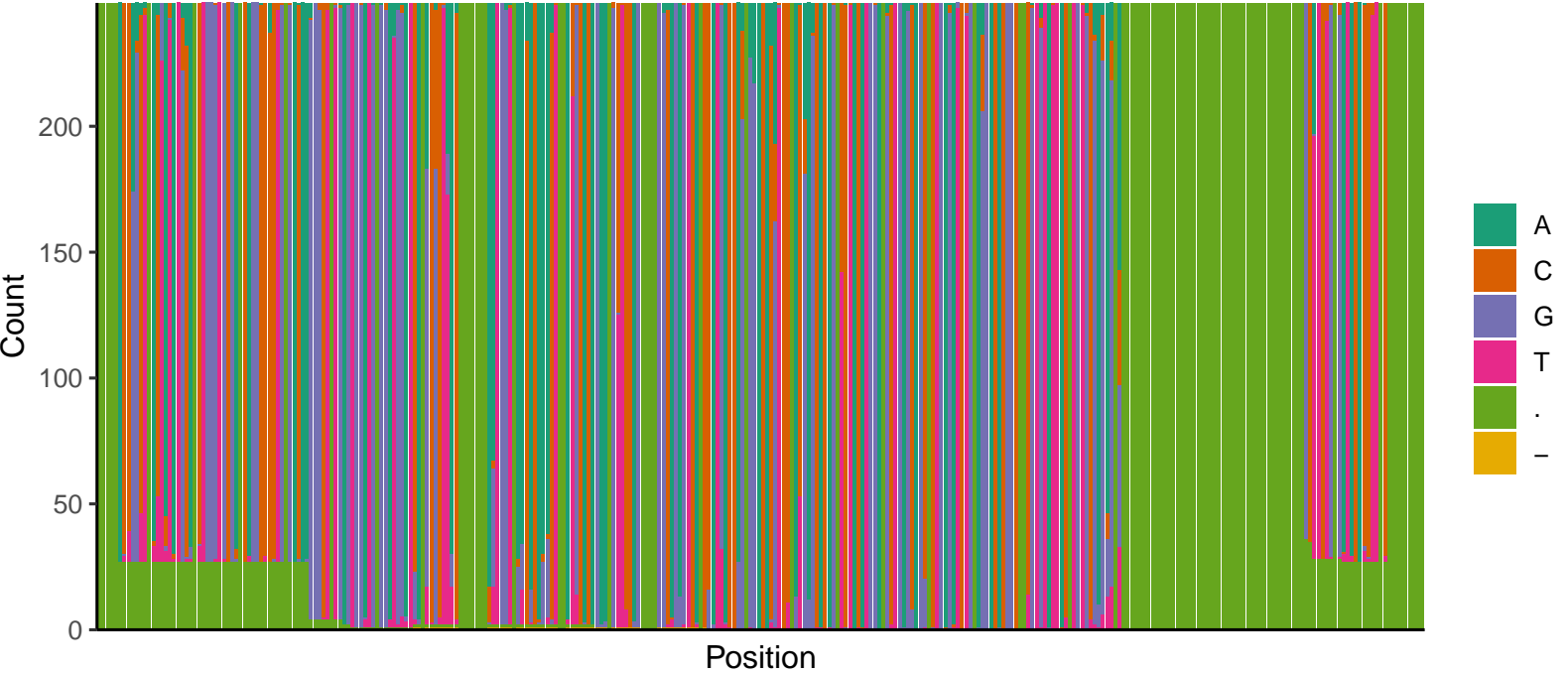


Gene IGHV3-53*01_02_G81A_A225G_T267G_G303A

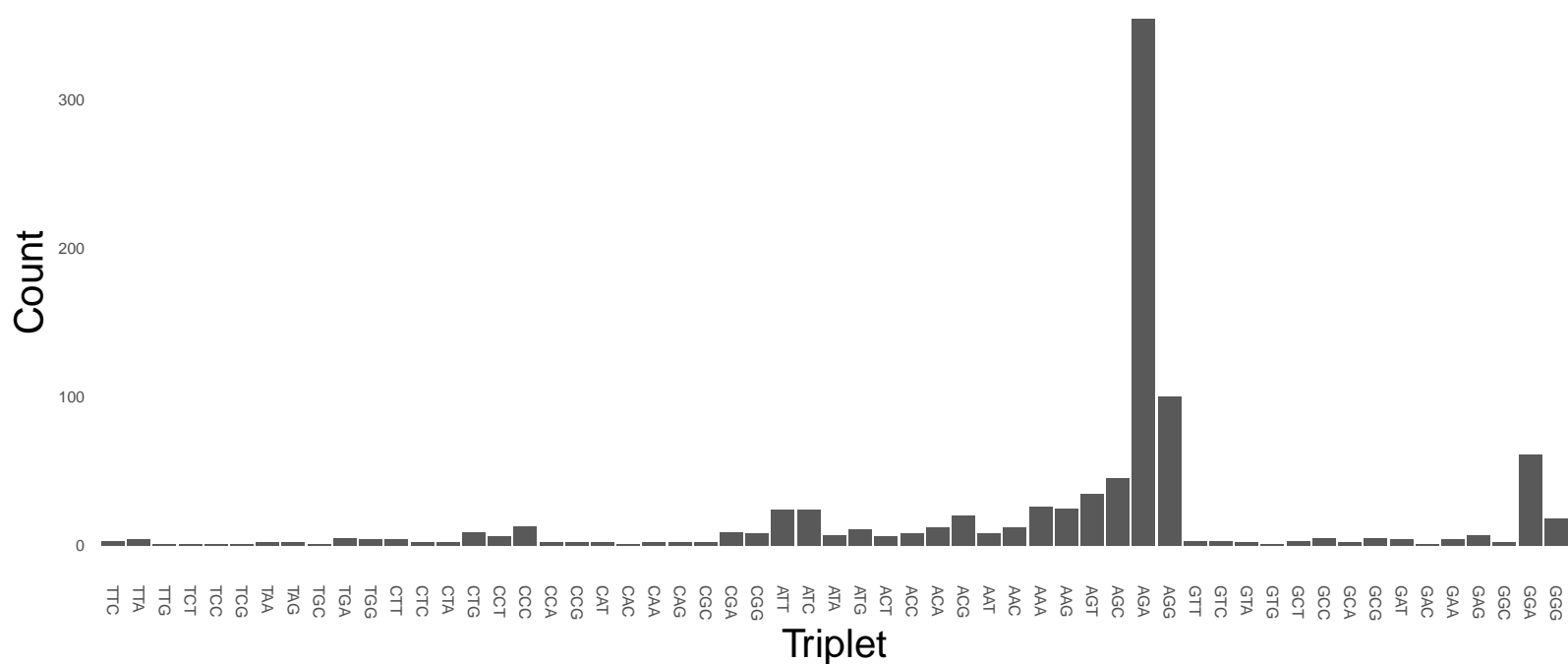


Gene IGHV3-NL1*01_G75C_G112A_C118A_C141G_T201C

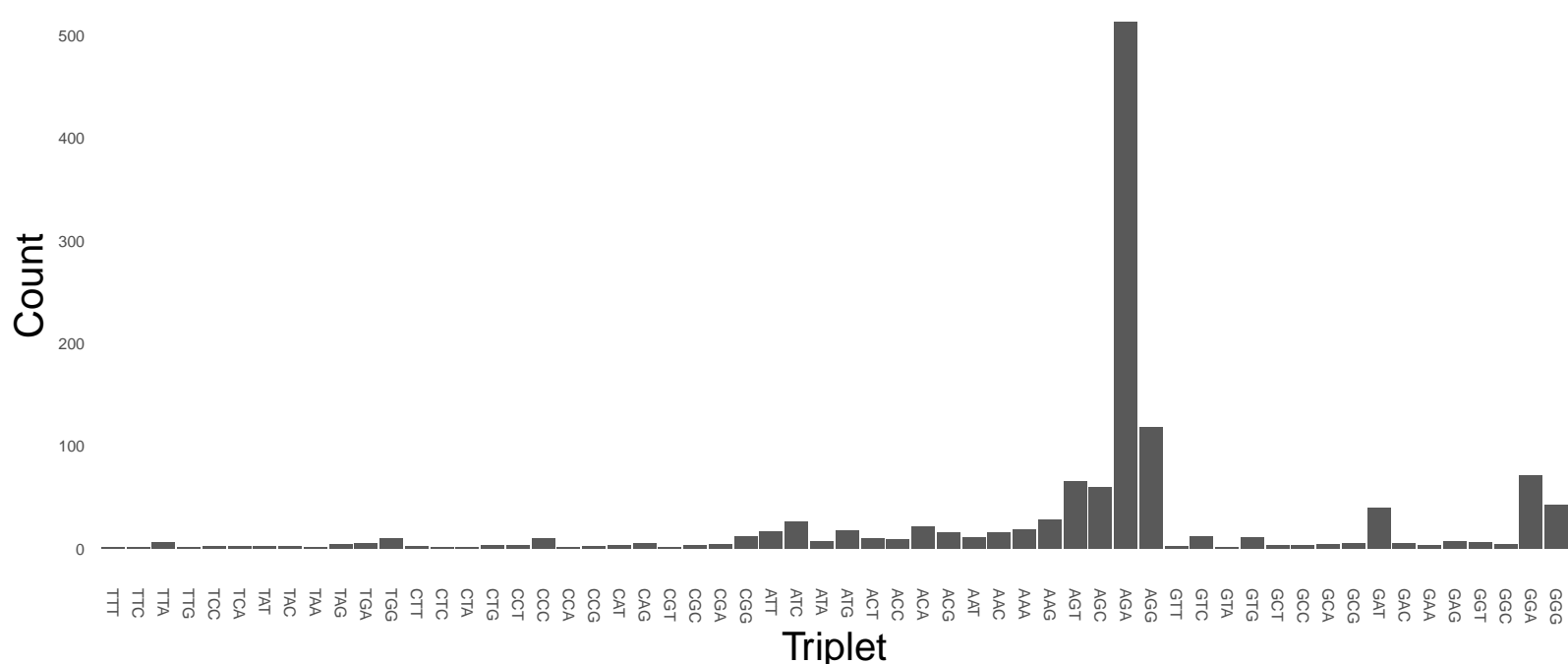




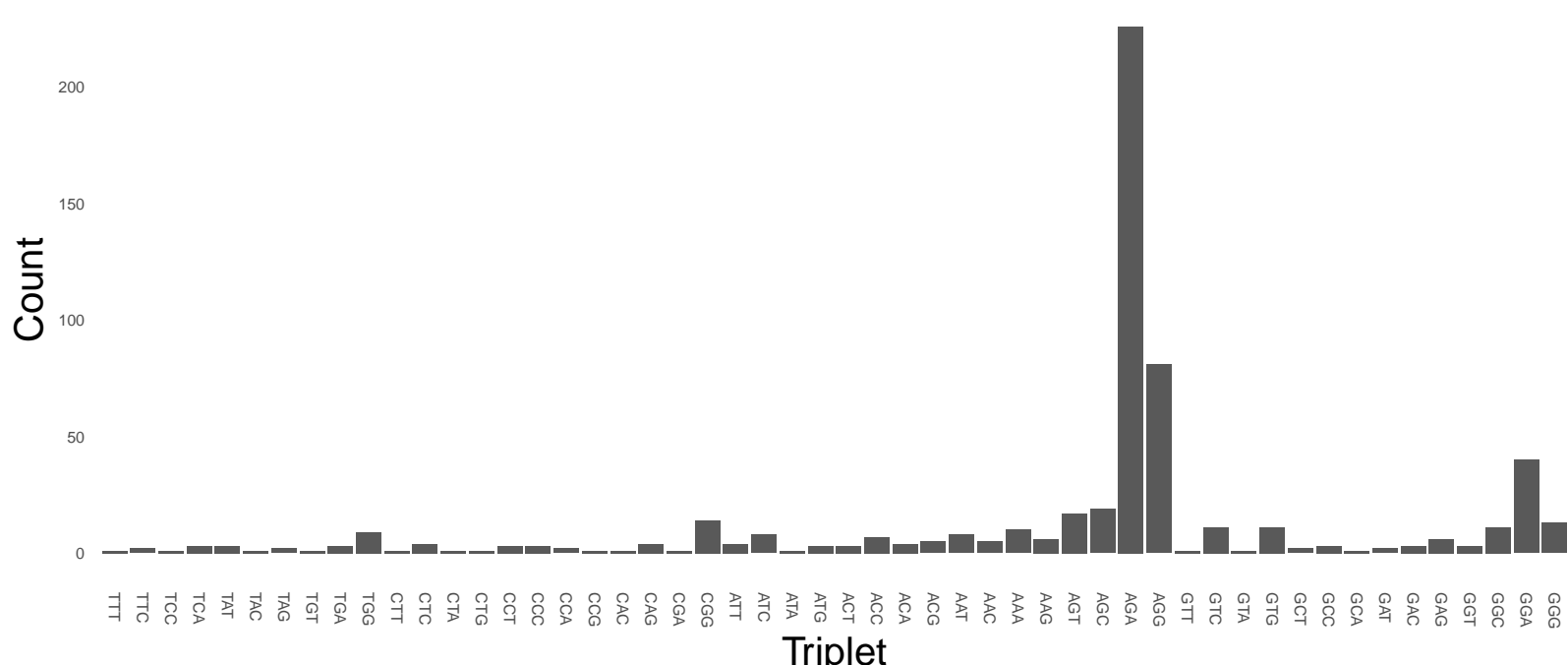
IGHV3-53*01_02_A225G_T267G_G303A- Final 3 nucleotides as a triplet

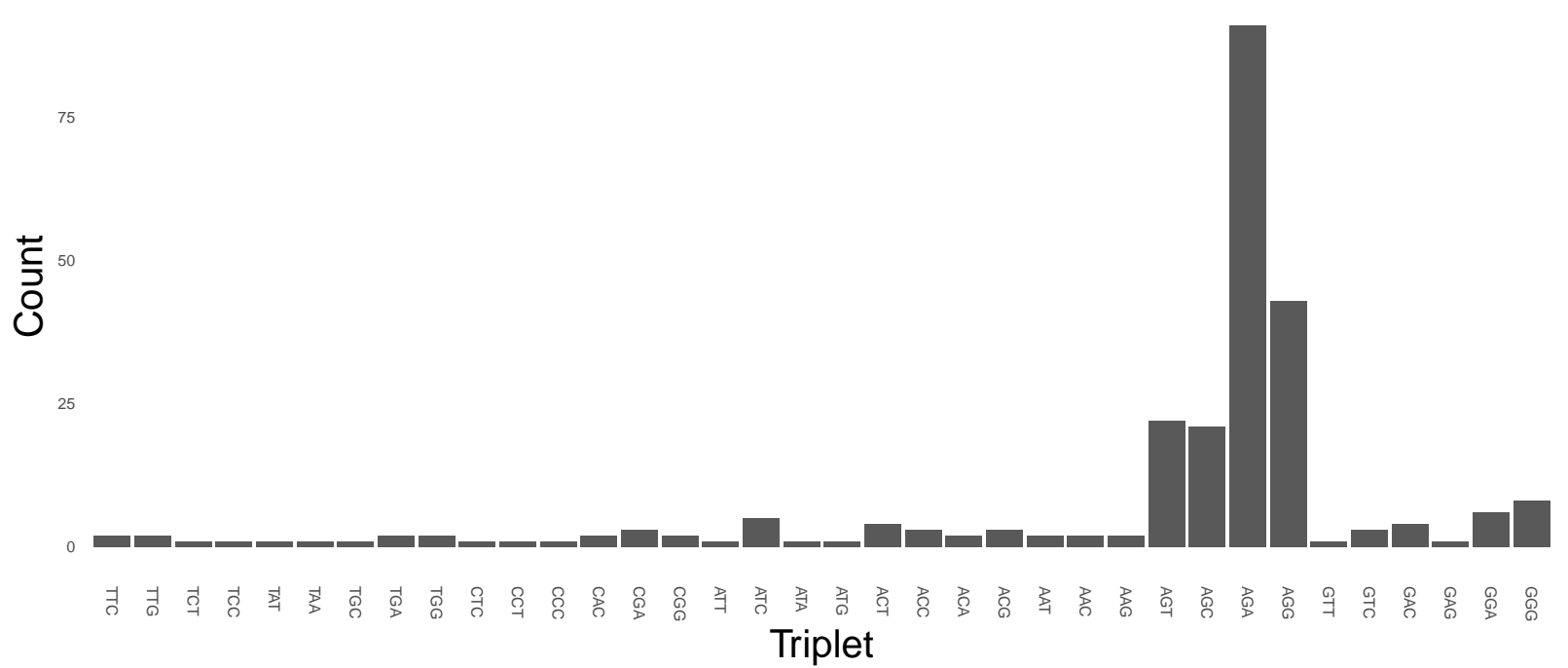


IGHV3-53*01_02_G81A_A225G_T267G_G303A- Final 3 nucleotides as a triplet



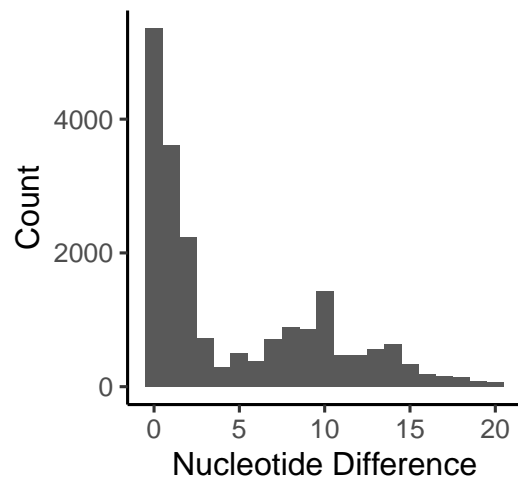
IGHV3-NL1*01_G75C_G112A_C118A_C141G_T201C- Final 3 nucleotides as a triplet





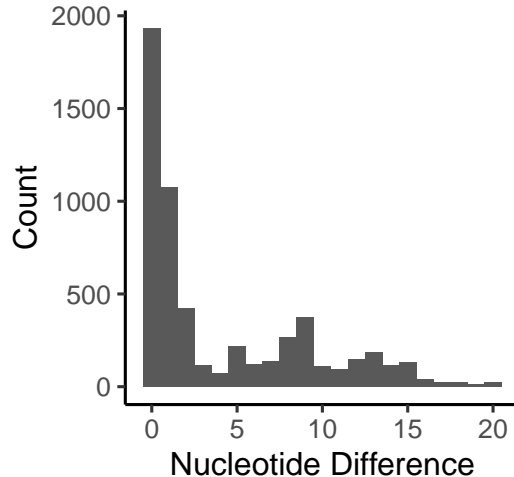
IGHV1-2*02

21185 sequences assigned
5357 (25.3%) exact matches, in which:
4850 unique CDR3
6 unique J



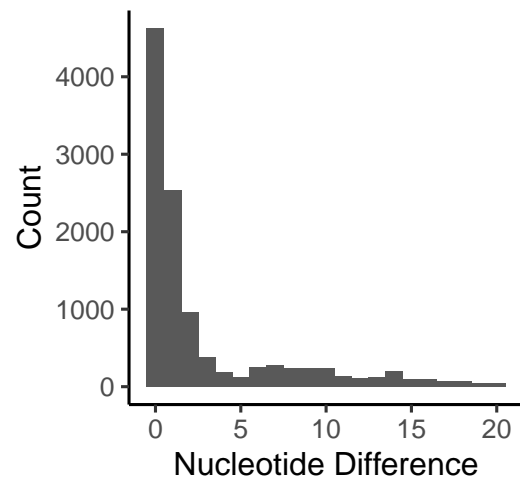
IGHV1-8*01

6007 sequences assigned
1932 (32.2%) exact matches, in which:
1811 unique CDR3
6 unique J



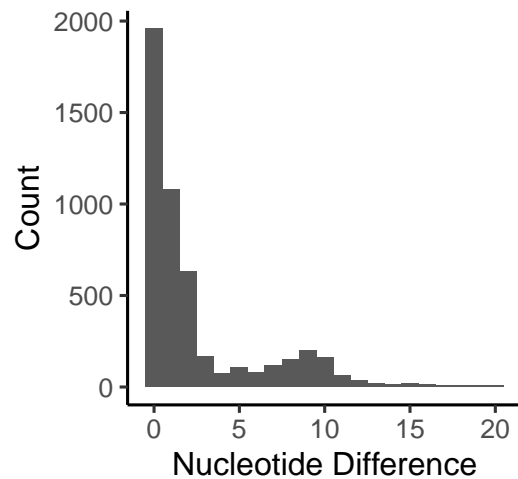
IGHV1-18*04

11940 sequences assigned
4624 (38.7%) exact matches, in which:
4258 unique CDR3
6 unique J



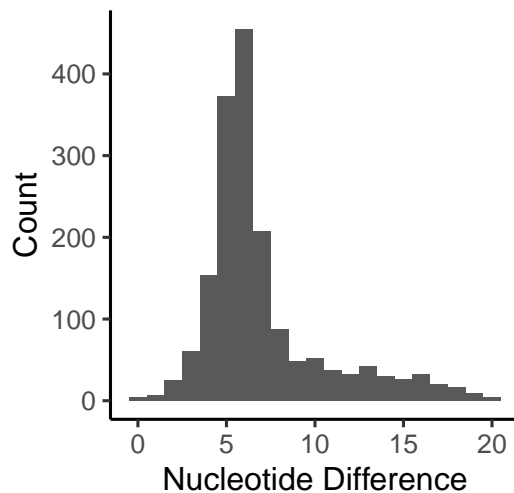
IGHV1-2*04

4980 sequences assigned
1958 (39.3%) exact matches, in which:
1804 unique CDR3
6 unique J



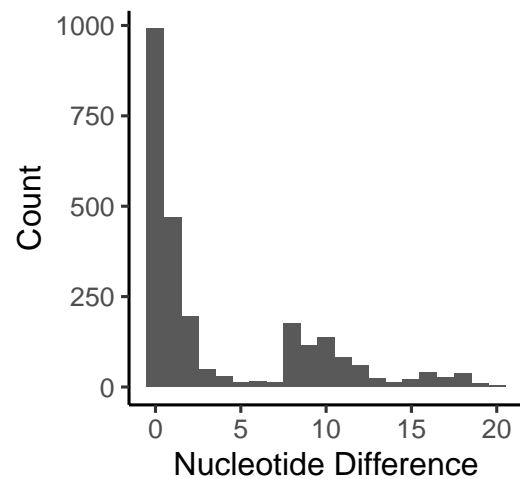
IGHV1-8*02

1743 sequences assigned
4 (0.2%) exact matches, in which:
4 unique CDR3
2 unique J



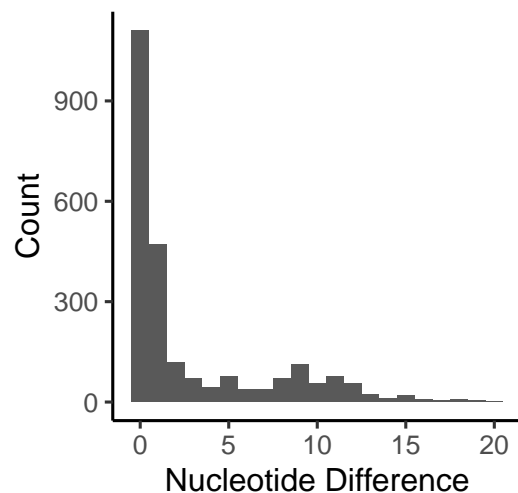
IGHV1-24*01

2591 sequences assigned
991 (38.2%) exact matches, in which:
924 unique CDR3
6 unique J



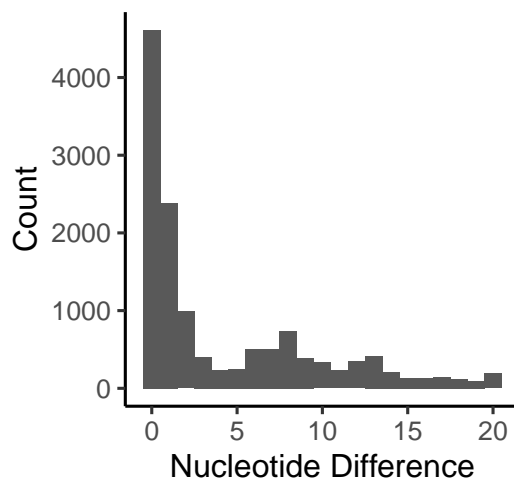
IGHV1-3*01_05

2519 sequences assigned
1111 (44.1%) exact matches, in which:
996 unique CDR3
6 unique J



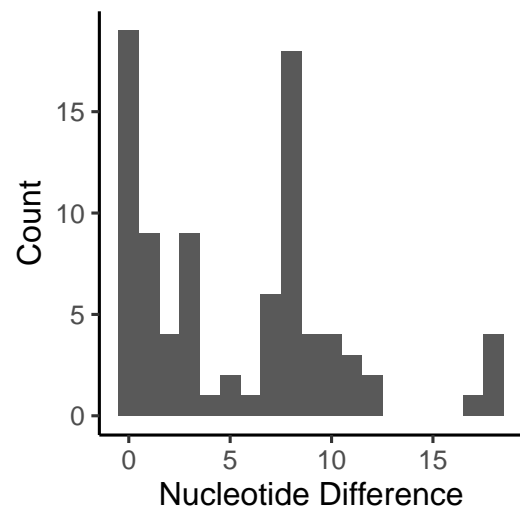
IGHV1-18*01

14540 sequences assigned
4611 (31.7%) exact matches, in which:
4266 unique CDR3
6 unique J



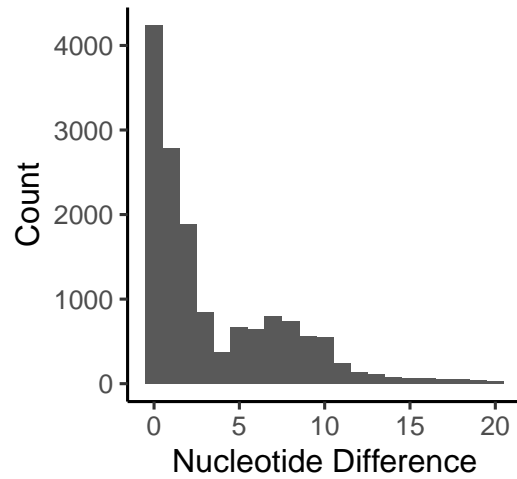
IGHV1-45*02

87 sequences assigned
19 (21.8%) exact matches, in which:
18 unique CDR3
4 unique J



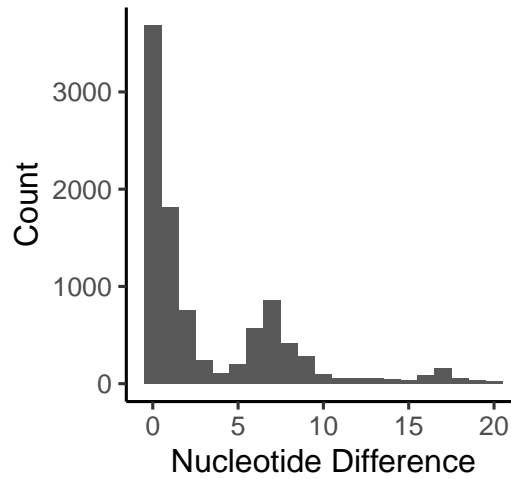
IGHV1-46*01

15560 sequences assigned
4237 (27.2%) exact matches, in which:
3916 unique CDR3
6 unique J



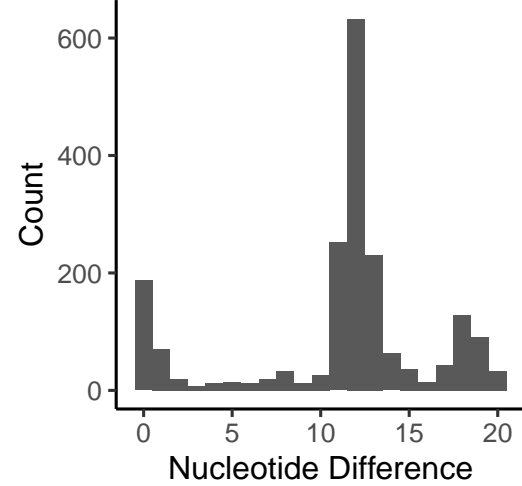
IGHV1-69*04_09

10130 sequences assigned
3684 (36.4%) exact matches, in which:
3463 unique CDR3
6 unique J



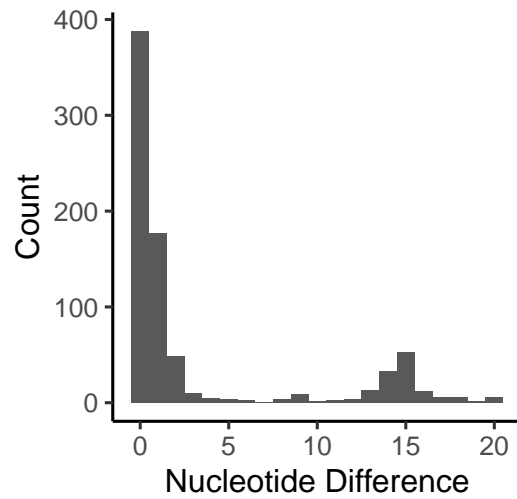
IGHV2-26*01

1993 sequences assigned
187 (9.4%) exact matches, in which:
172 unique CDR3
5 unique J



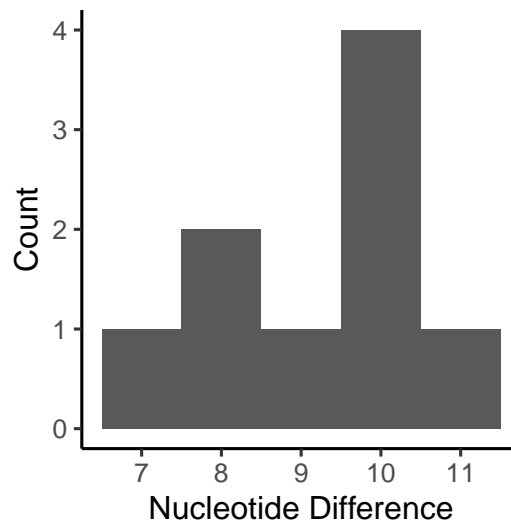
IGHV1-58*02

805 sequences assigned
388 (48.2%) exact matches, in which:
350 unique CDR3
6 unique J



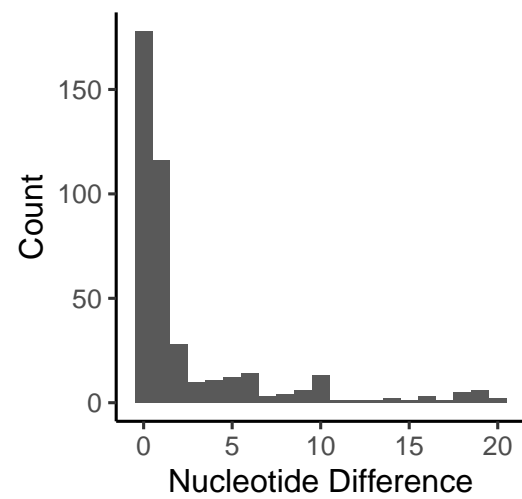
IGHV1-NL1*01

9 sequences assigned
No exact matches.



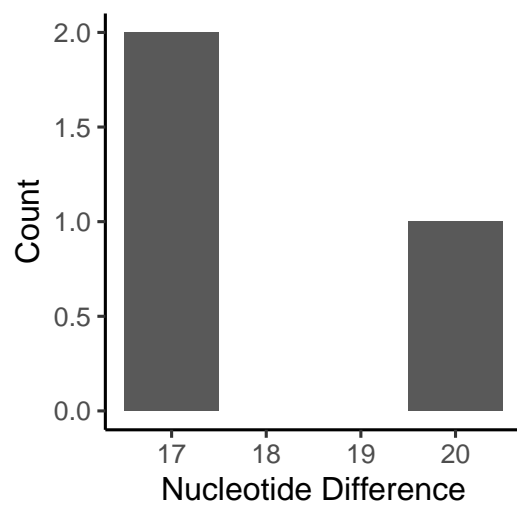
IGHV2-70*11_15

462 sequences assigned
178 (38.5%) exact matches, in which:
152 unique CDR3
5 unique J



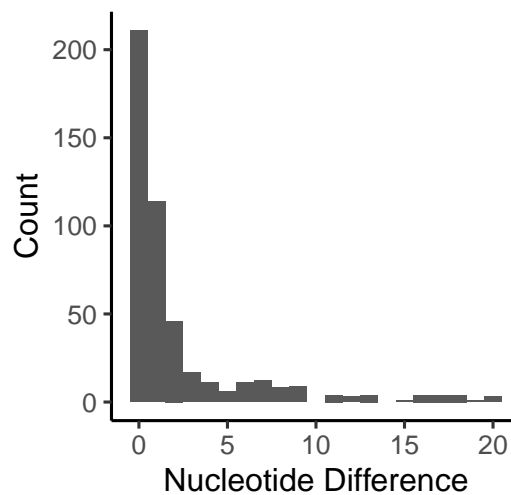
IGHV1-69-2*01

4 sequences assigned
No exact matches.



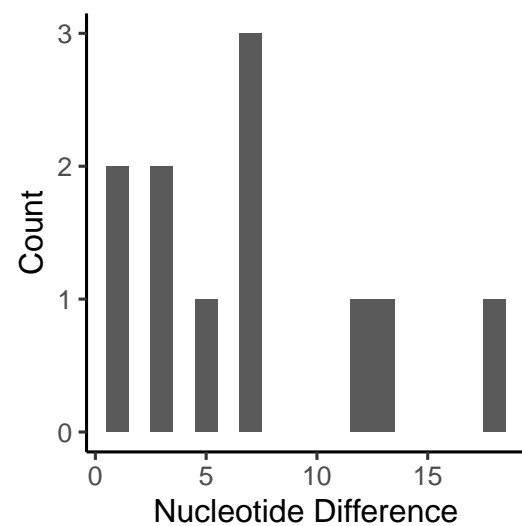
IGHV2-5*01

532 sequences assigned
211 (39.7%) exact matches, in which:
190 unique CDR3
6 unique J



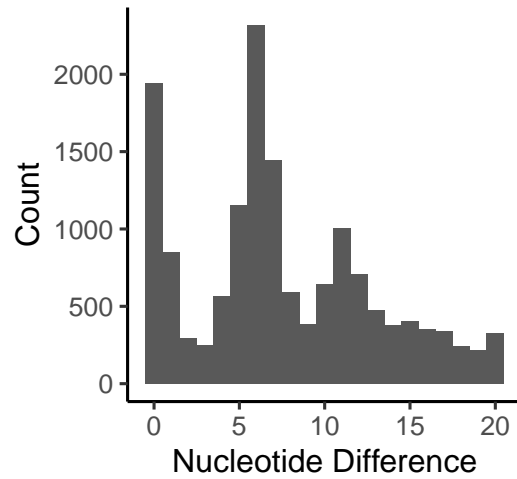
IGHV2-70D*04

11 sequences assigned
No exact matches.



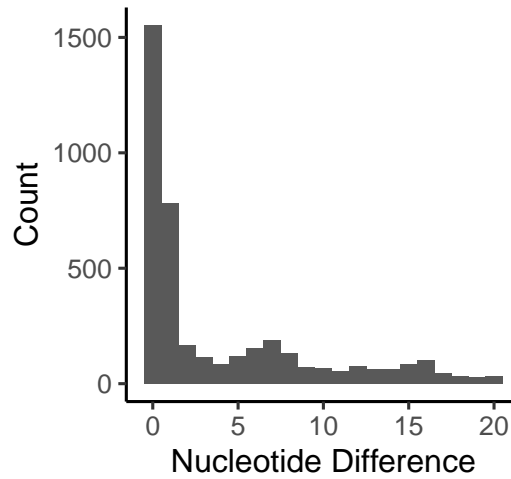
IGHV3-7*01

17251 sequences assigned
1945 (11.3%) exact matches, in which:
1581 unique CDR3
6 unique J



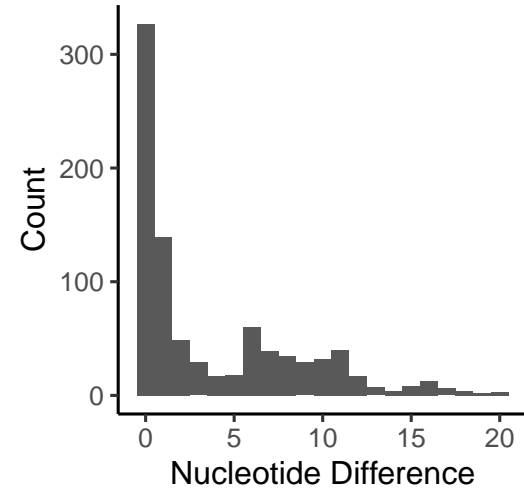
IGHV3-11*01

4829 sequences assigned
1552 (32.1%) exact matches, in which:
1168 unique CDR3
6 unique J



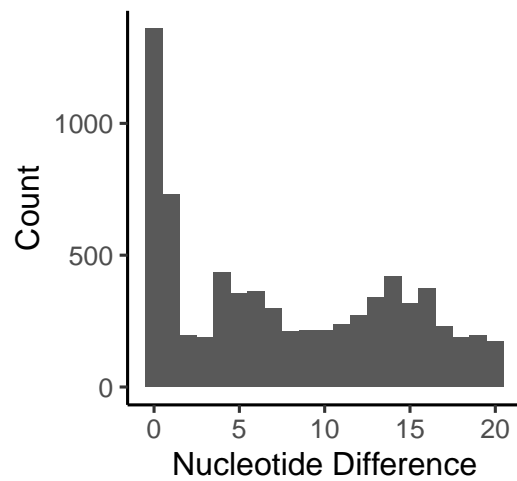
IGHV3-13*01

903 sequences assigned
327 (36.2%) exact matches, in which:
239 unique CDR3
6 unique J



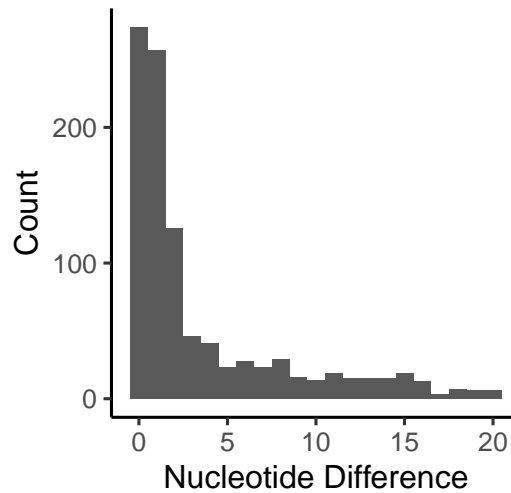
IGHV3-7*03

8337 sequences assigned
1359 (16.3%) exact matches, in which:
1036 unique CDR3
6 unique J



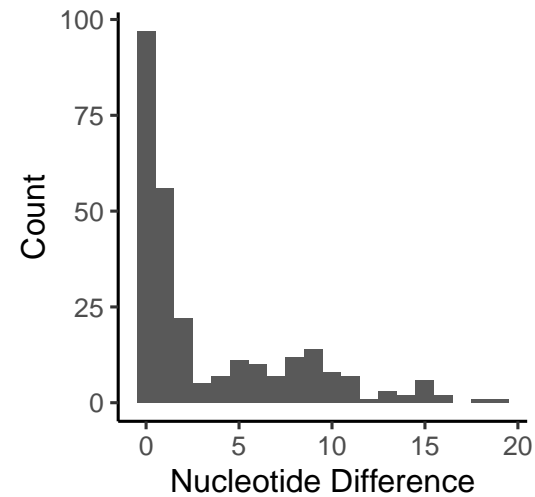
IGHV3-11*04

1076 sequences assigned
274 (25.5%) exact matches, in which:
269 unique CDR3
5 unique J



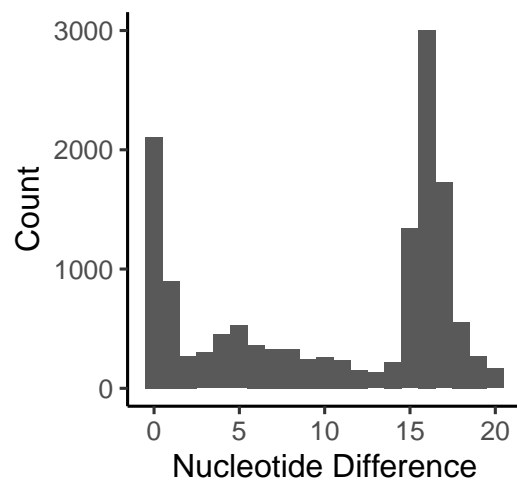
IGHV3-13*05

278 sequences assigned
97 (34.9%) exact matches, in which:
65 unique CDR3
5 unique J



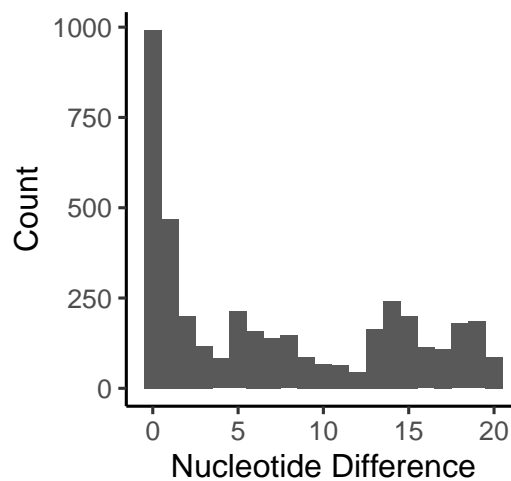
IGHV3-9*01

15607 sequences assigned
2107 (13.5%) exact matches, in which:
1494 unique CDR3
6 unique J



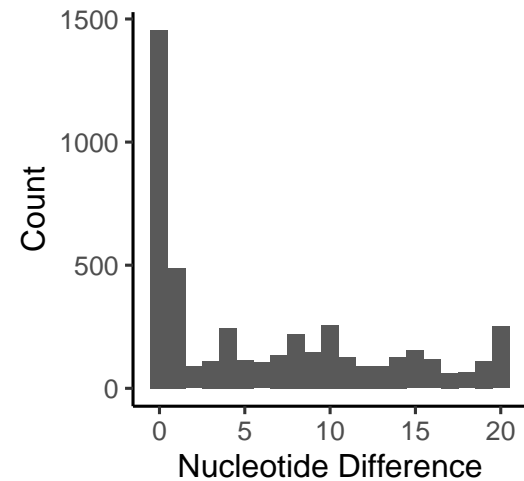
IGHV3-11*06

5908 sequences assigned
992 (16.8%) exact matches, in which:
784 unique CDR3
6 unique J



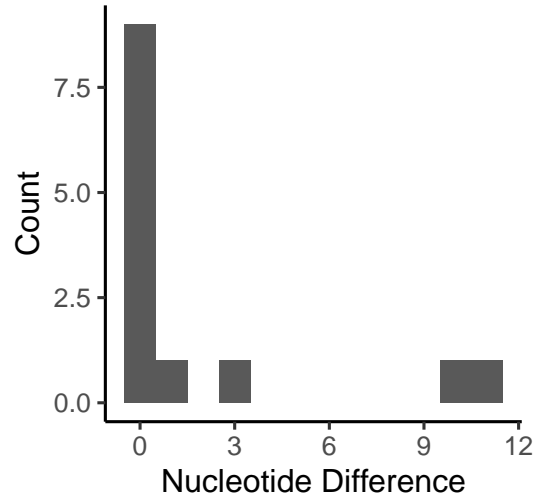
IGHV3-15*01_02

6155 sequences assigned
1455 (23.6%) exact matches, in which:
1067 unique CDR3
6 unique J



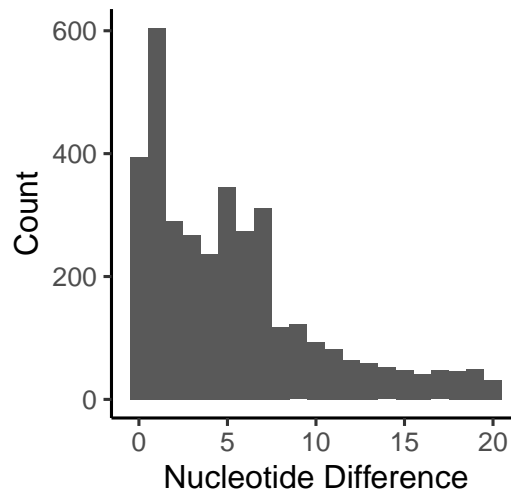
IGHV3-19*01

13 sequences assigned
9 (69.2%) exact matches, in which:
9 unique CDR3
2 unique J



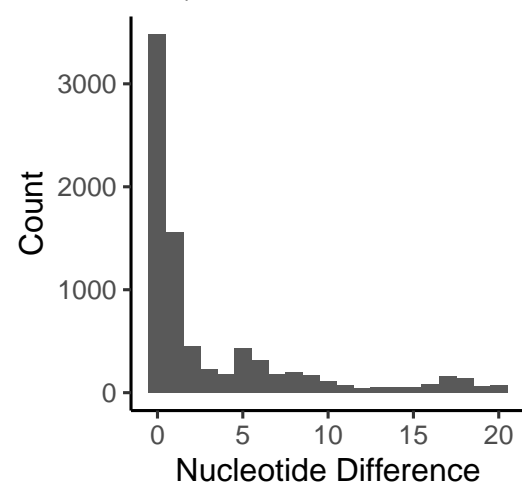
IGHV3-21*04

3965 sequences assigned
394 (9.9%) exact matches, in which:
377 unique CDR3
6 unique J



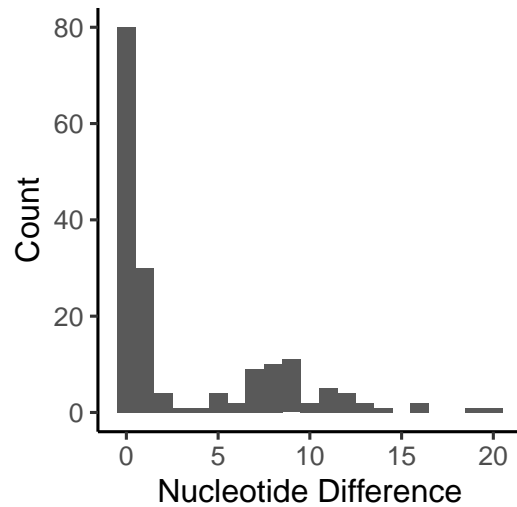
IGHV3-30-3*01

9220 sequences assigned
3480 (37.7%) exact matches, in which:
2692 unique CDR3
6 unique J



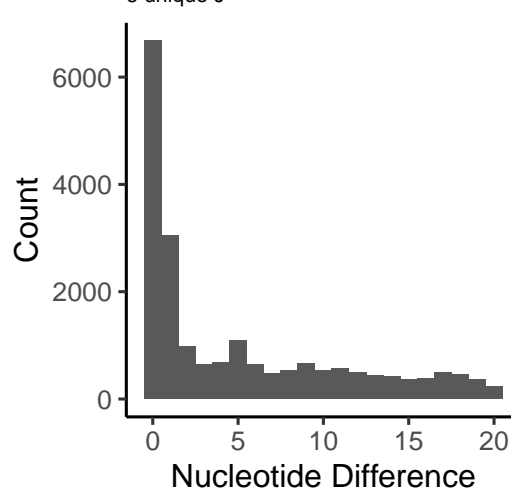
IGHV3-20*01_02

170 sequences assigned
80 (47.1%) exact matches, in which:
56 unique CDR3
5 unique J



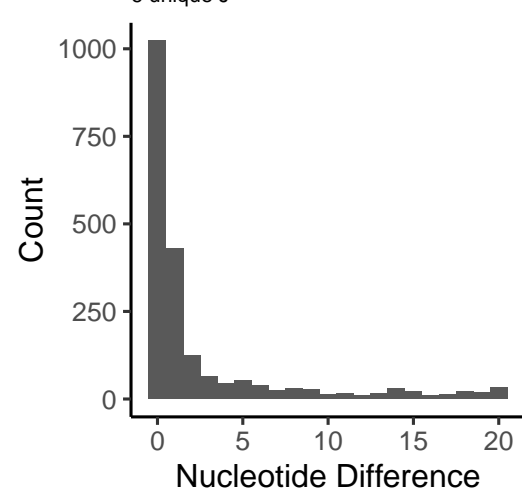
IGHV3-21*01_02

25858 sequences assigned
6678 (25.8%) exact matches, in which:
4849 unique CDR3
6 unique J



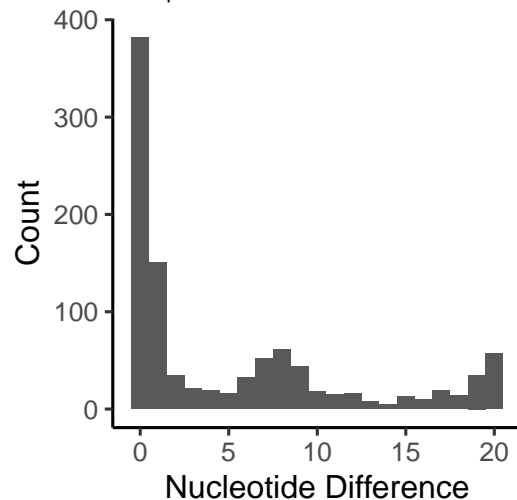
IGHV3-30*03

3101 sequences assigned
1023 (33%) exact matches, in which:
957 unique CDR3
6 unique J



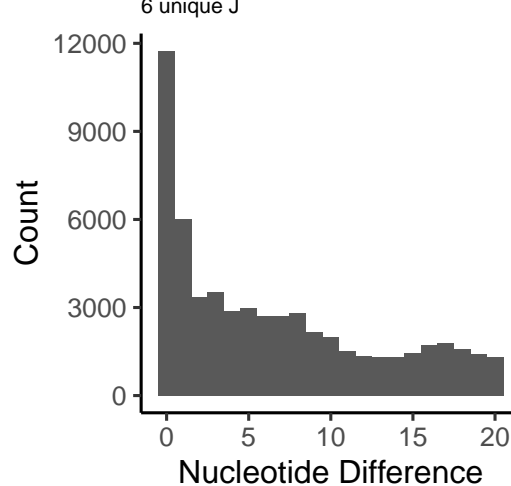
IGHV3-20*03_04

1564 sequences assigned
382 (24.4%) exact matches, in which:
283 unique CDR3
6 unique J



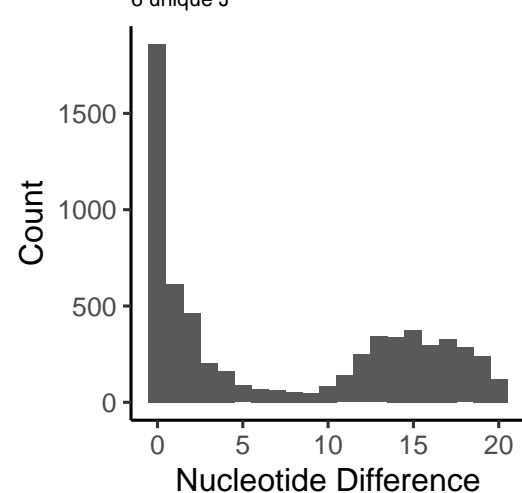
IGHV3-23*01_04

76977 sequences assigned
11746 (15.3%) exact matches, in which:
7804 unique CDR3
6 unique J



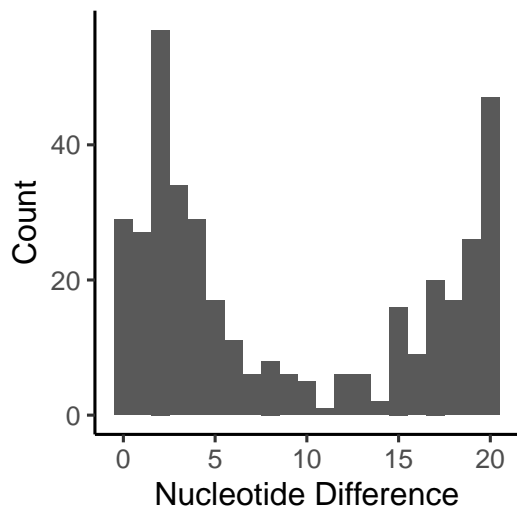
IGHV3-33*01

6843 sequences assigned
1860 (27.2%) exact matches, in which:
1483 unique CDR3
6 unique J



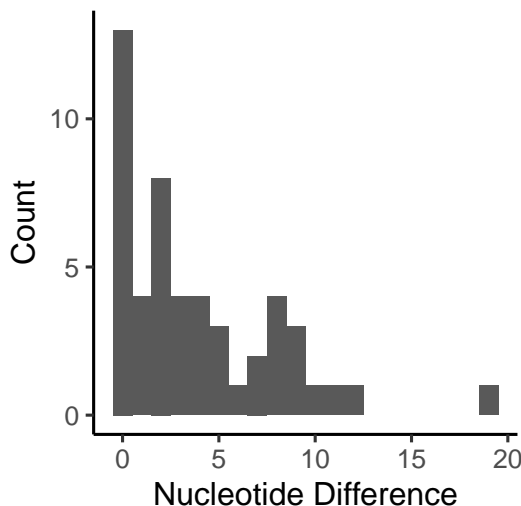
IGHV3-33*05

444 sequences assigned
29 (6.5%) exact matches, in which:
29 unique CDR3
4 unique J



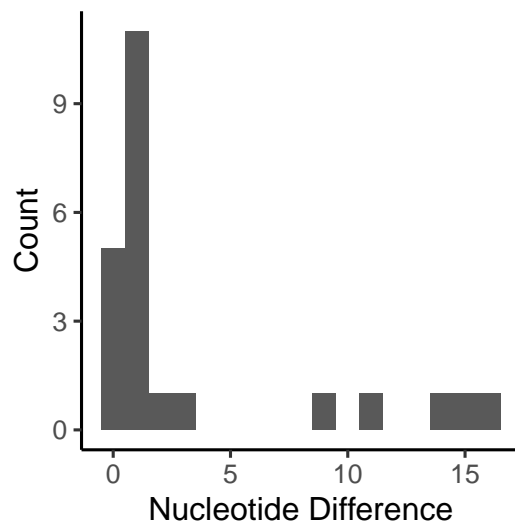
IGHV3-38-3*01

51 sequences assigned
13 (25.5%) exact matches, in which:
11 unique CDR3
4 unique J



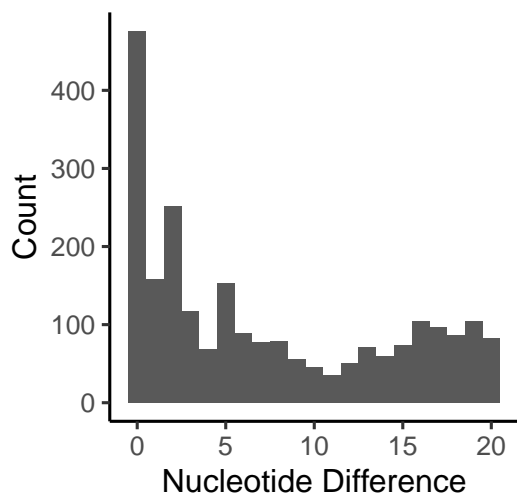
IGHV3-47*02

23 sequences assigned
5 (21.7%) exact matches, in which:
3 unique CDR3
2 unique J



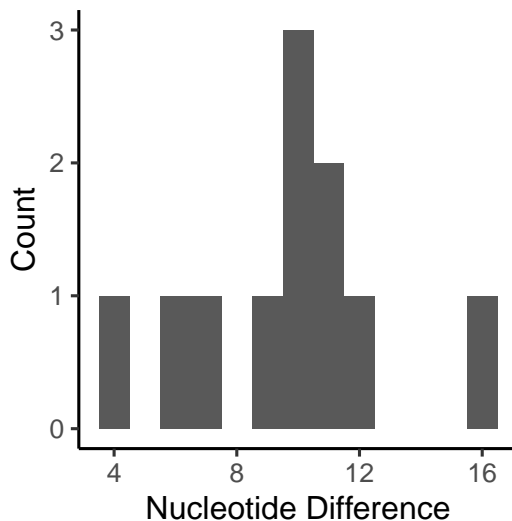
IGHV3-33*08

2717 sequences assigned
476 (17.5%) exact matches, in which:
429 unique CDR3
6 unique J



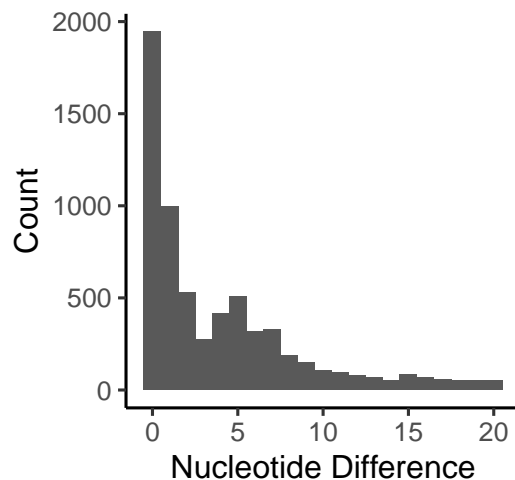
IGHV3-38*03

11 sequences assigned
No exact matches.



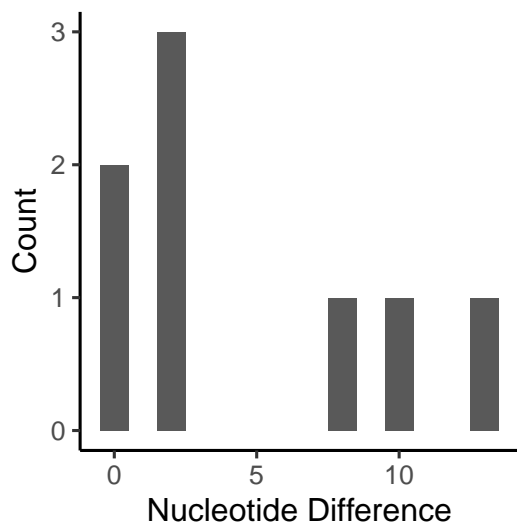
IGHV3-48*01

6958 sequences assigned
1945 (28%) exact matches, in which:
1513 unique CDR3
6 unique J



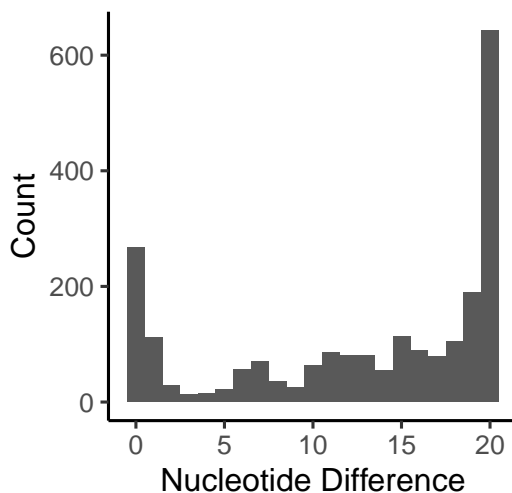
IGHV3-35*01

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



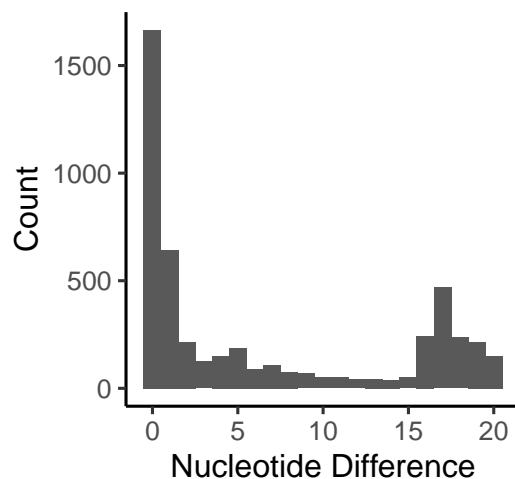
IGHV3-43*01

14689 sequences assigned
268 (1.8%) exact matches, in which:
205 unique CDR3
6 unique J



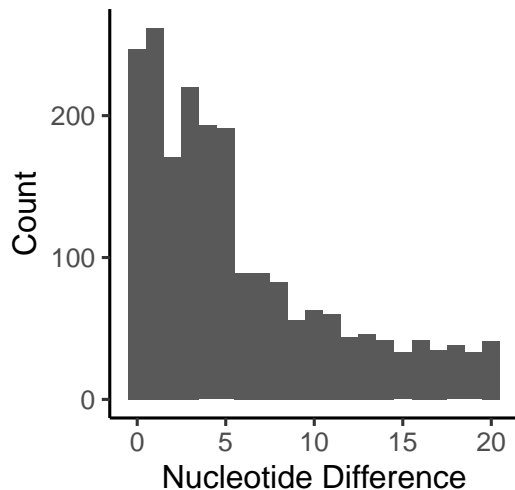
IGHV3-48*02

5633 sequences assigned
1665 (29.6%) exact matches, in which:
1217 unique CDR3
6 unique J



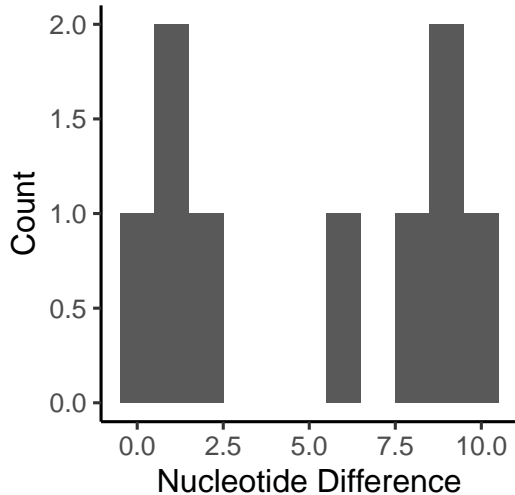
IGHV3-48*04

2357 sequences assigned
247 (10.5%) exact matches, in which:
241 unique CDR3
6 unique J



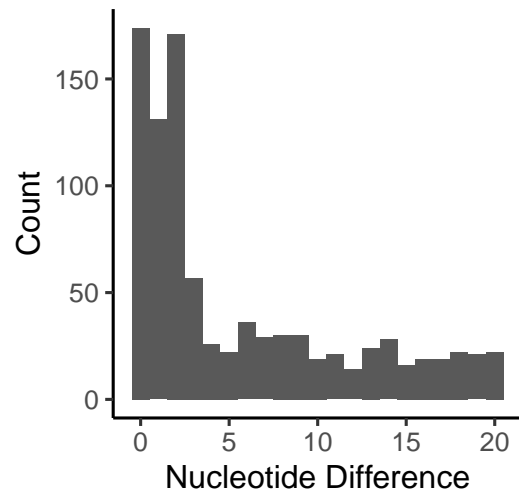
IGHV3-52*01_03

10 sequences assigned
1 (10%) exact matches, in which:
1 unique CDR3
1 unique J



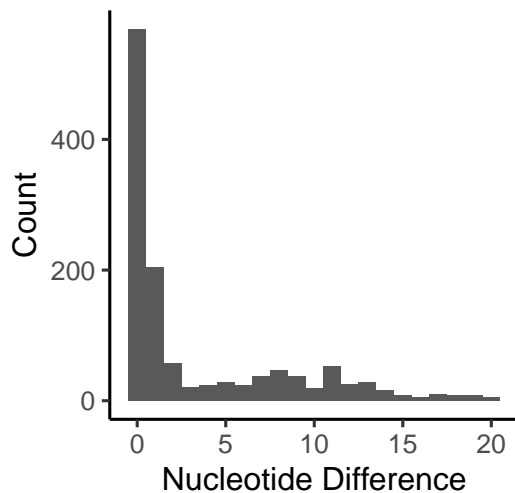
IGHV3-53*01_02_G81A_

1264 sequences assigned
174 (13.8%) exact matches, in which:
173 unique CDR3
6 unique J



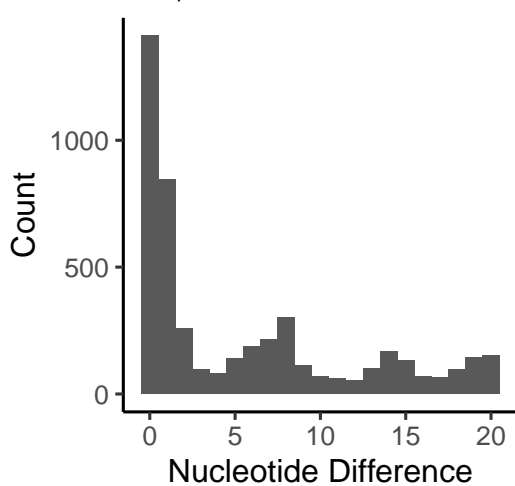
IGHV3-49*03_05

1527 sequences assigned
569 (37.3%) exact matches, in which:
424 unique CDR3
6 unique J



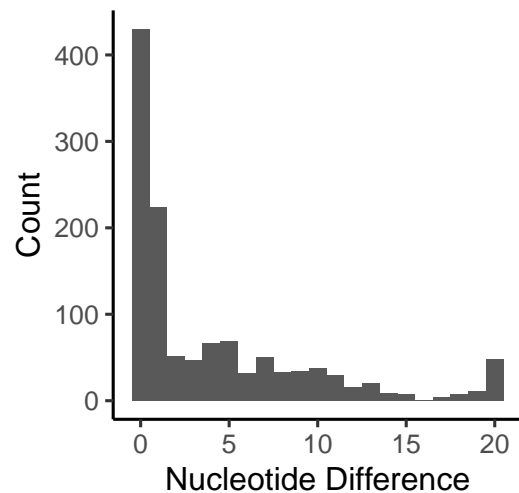
IGHV3-53*01_02

5512 sequences assigned
1412 (25.6%) exact matches, in which:
1088 unique CDR3
6 unique J



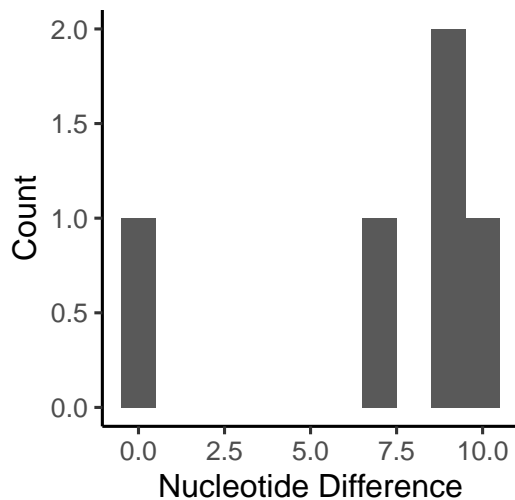
IGHV3-64*01

1435 sequences assigned
430 (30%) exact matches, in which:
309 unique CDR3
6 unique J



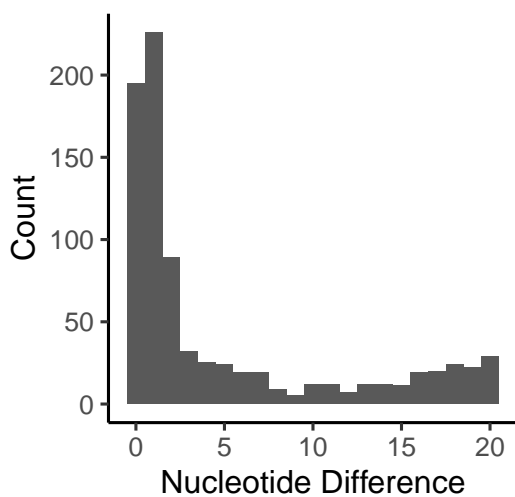
IGHV3-52*02

5 sequences assigned
1 (20%) exact matches, in which:
1 unique CDR3
1 unique J



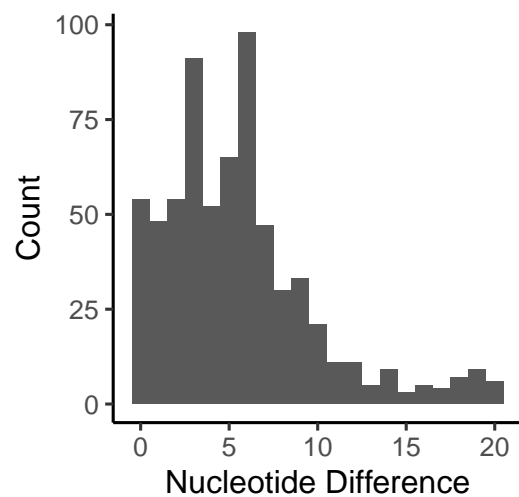
IGHV3-53*01_02_A225G

929 sequences assigned
195 (21%) exact matches, in which:
193 unique CDR3
6 unique J



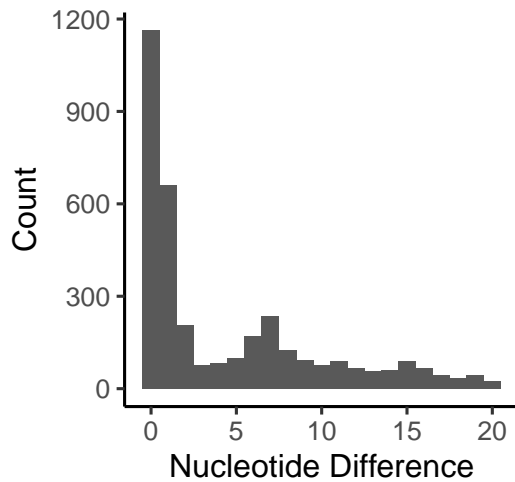
IGHV3-64*04

725 sequences assigned
54 (7.4%) exact matches, in which:
54 unique CDR3
6 unique J



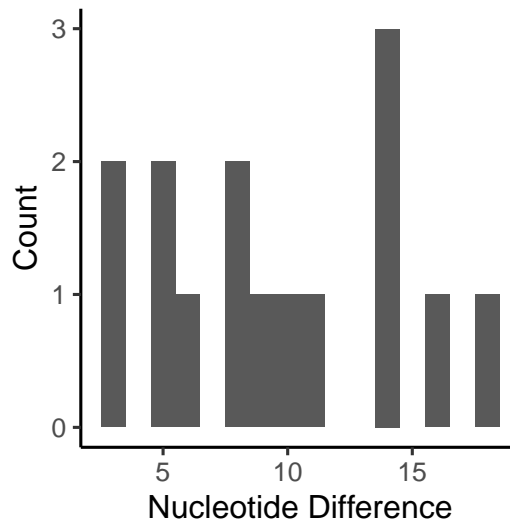
IGHV3-66*01

4410 sequences assigned
1163 (26.4%) exact matches, in which:
890 unique CDR3
6 unique J



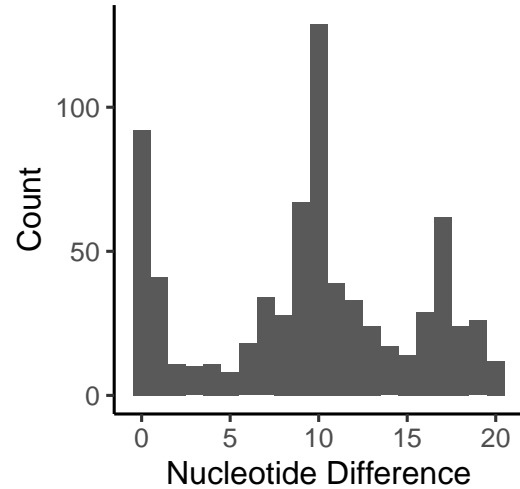
IGHV3-69-1*02

38 sequences assigned
No exact matches.



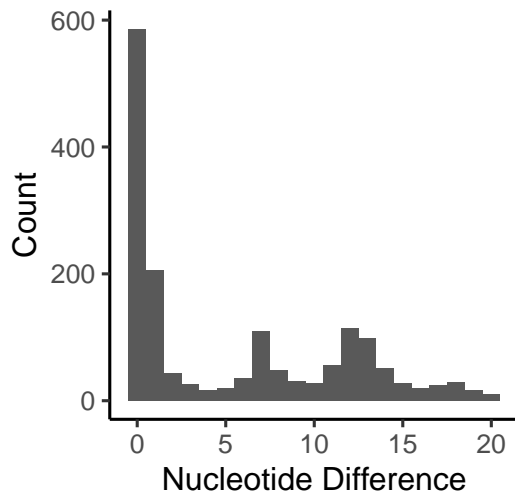
IGHV3-72*01

940 sequences assigned
92 (9.8%) exact matches, in which:
68 unique CDR3
5 unique J



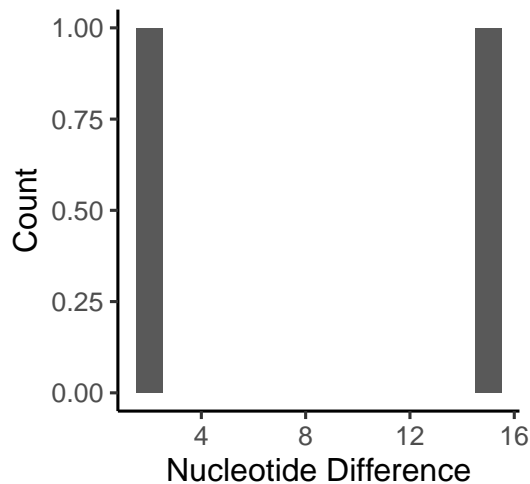
IGHV3-66*02

2061 sequences assigned
586 (28.4%) exact matches, in which:
459 unique CDR3
6 unique J



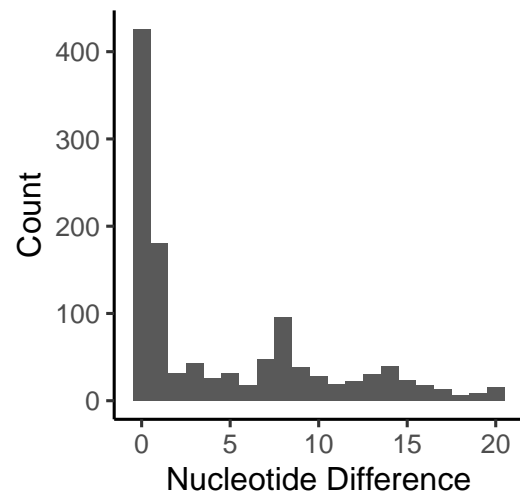
IGHV3-71*03

2 sequences assigned
No exact matches.



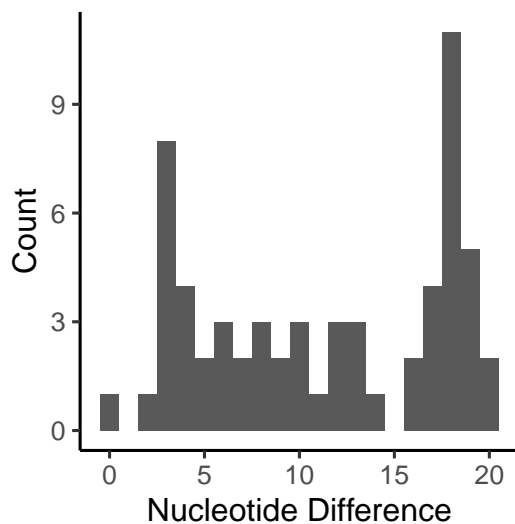
IGHV3-73*01_02

1247 sequences assigned
426 (34.2%) exact matches, in which:
323 unique CDR3
5 unique J



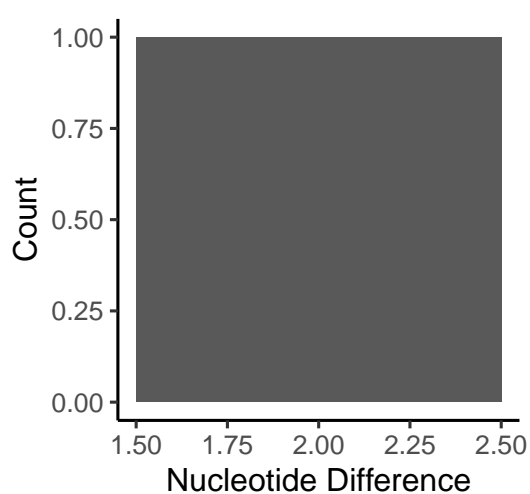
IGHV3-69-1*01

83 sequences assigned
1 (1.2%) exact matches, in which:
1 unique CDR3
1 unique J



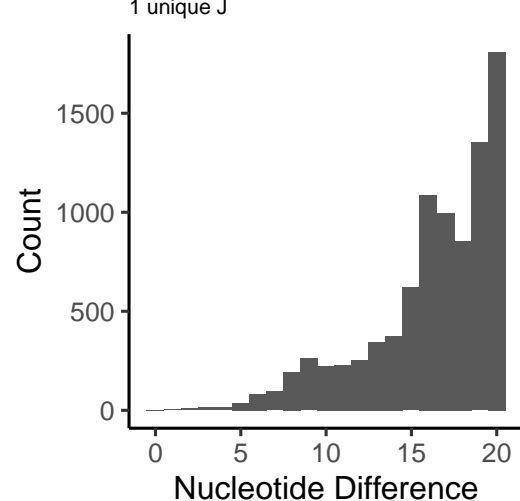
IGHV3-71*01_04

1 sequences assigned
No exact matches.



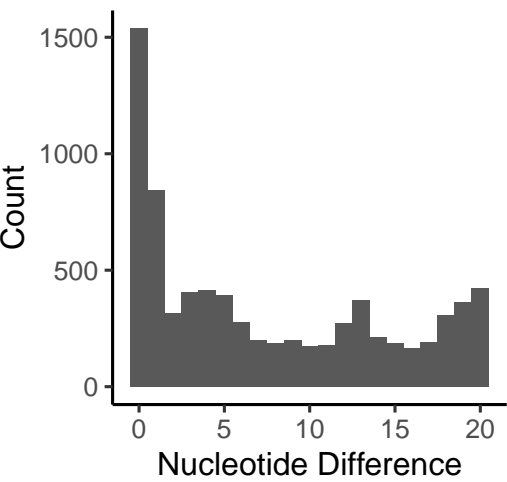
IGHV3-74*03

21382 sequences assigned
1 (0%) exact matches, in which:
1 unique CDR3
1 unique J



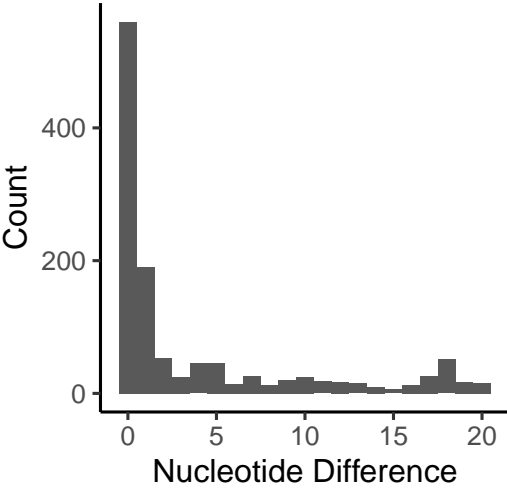
IGHV3-74*01_02

13416 sequences assigned
1538 (11.5%) exact matches, in which:
1132 unique CDR3
6 unique J



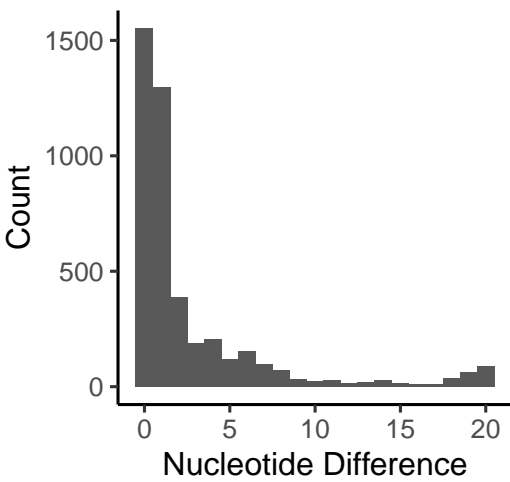
IGHV3-64D*09

1803 sequences assigned
560 (31.1%) exact matches, in which:
341 unique CDR3
6 unique J



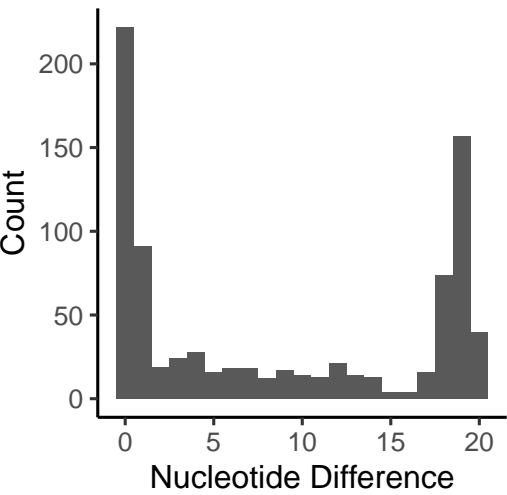
IGHV4-4*07

5081 sequences assigned
1552 (30.5%) exact matches, in which:
1448 unique CDR3
6 unique J



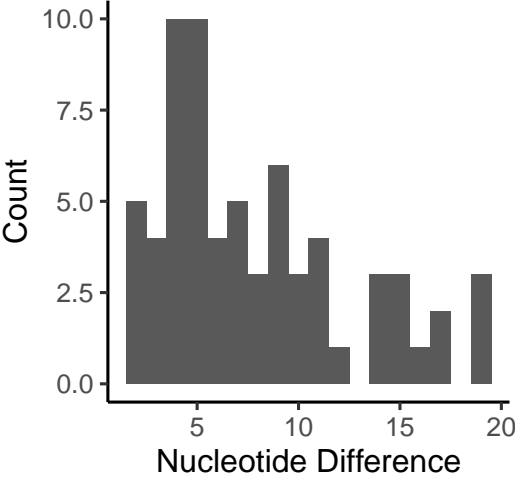
IGHV3-43D*03

1009 sequences assigned
222 (22%) exact matches, in which:
162 unique CDR3
5 unique J



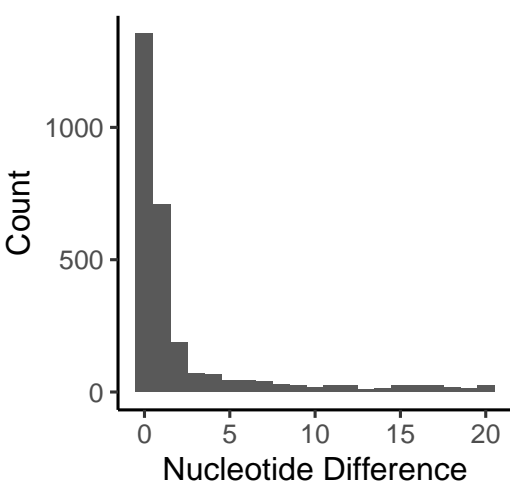
IGHV3-NL1*01

93 sequences assigned
No exact matches.



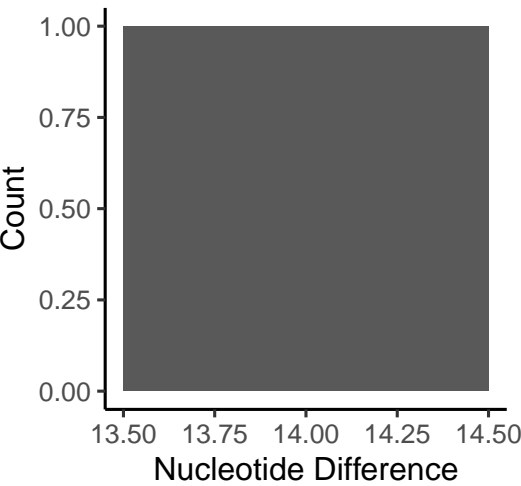
IGHV4-4*02_03

3670 sequences assigned
1354 (36.9%) exact matches, in which:
1210 unique CDR3
6 unique J



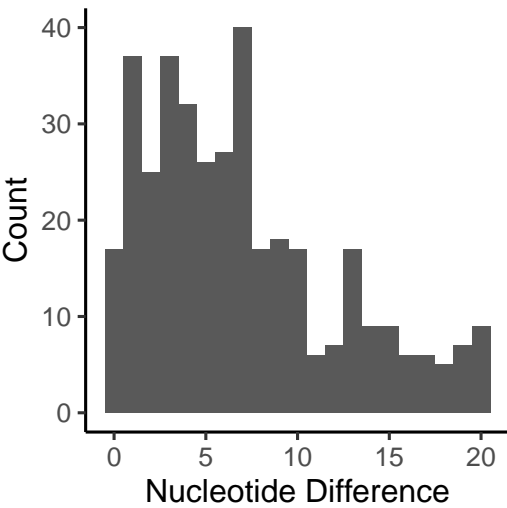
IGHV3-64D*06

2 sequences assigned
No exact matches.



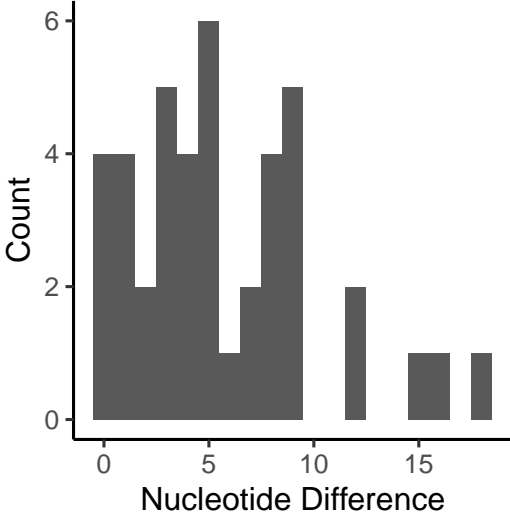
IGHV3-NL1*01_G75C_G1

577 sequences assigned
17 (2.9%) exact matches, in which:
17 unique CDR3
4 unique J



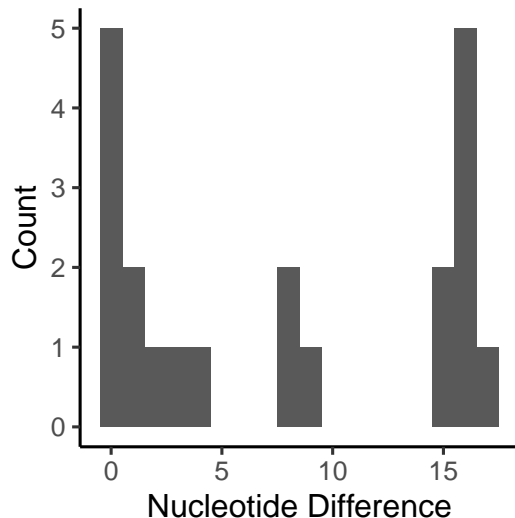
IGHV4-28*03

45 sequences assigned
4 (8.9%) exact matches, in which:
4 unique CDR3
2 unique J



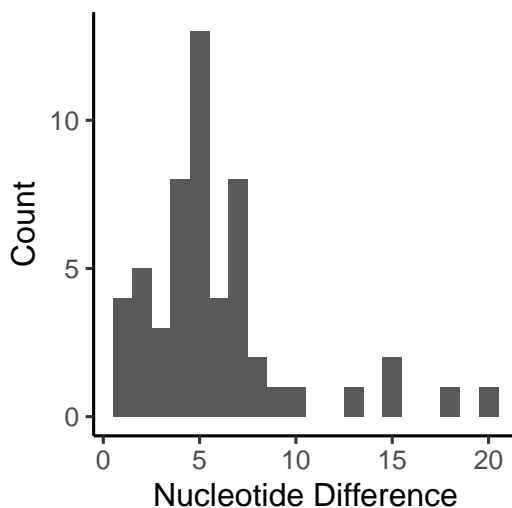
IGHV4-28*01_07

21 sequences assigned
5 (23.8%) exact matches, in which:
5 unique CDR3
2 unique J



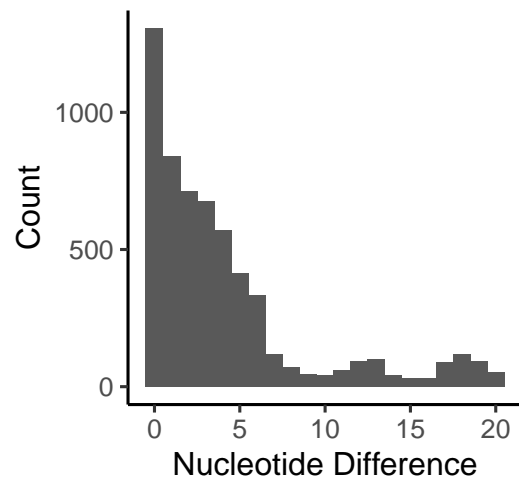
IGHV4-30-2*03

64 sequences assigned
No exact matches.



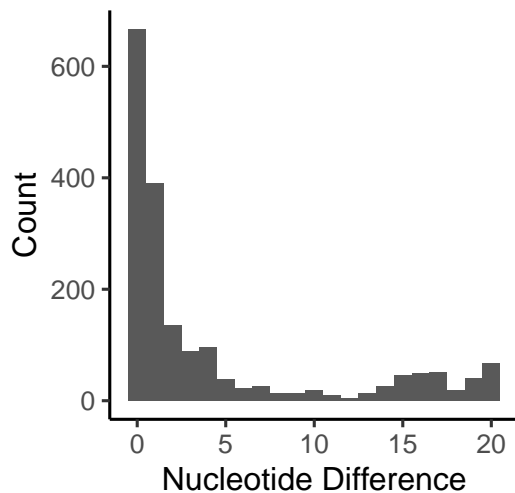
IGHV4-31*02

8184 sequences assigned
1306 (16%) exact matches, in which:
1196 unique CDR3
6 unique J



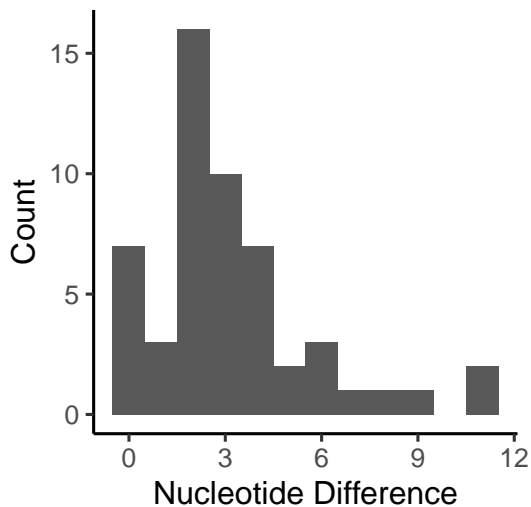
IGHV4-30-4*01

2125 sequences assigned
667 (31.4%) exact matches, in which:
622 unique CDR3
6 unique J



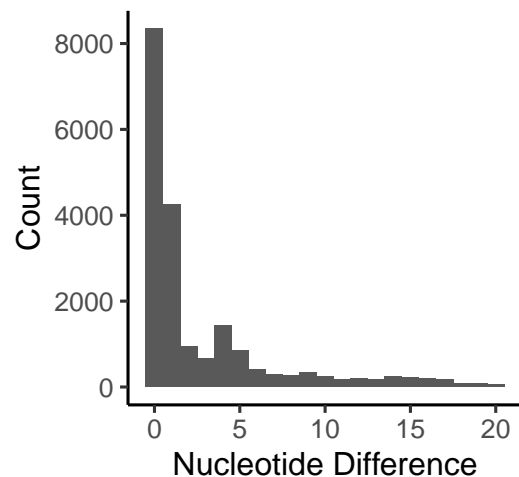
IGHV4-30-2*05

53 sequences assigned
7 (13.2%) exact matches, in which:
7 unique CDR3
3 unique J



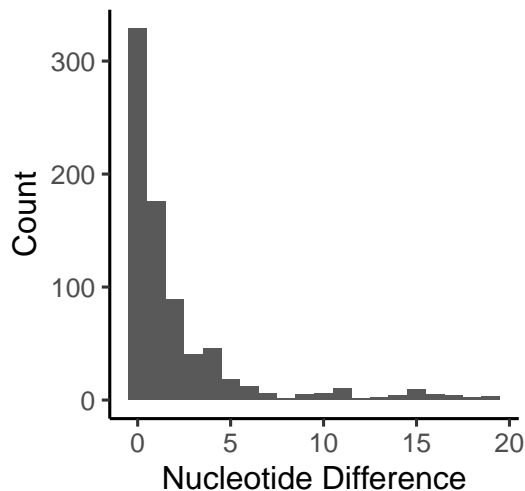
IGHV4-34*01_02

20339 sequences assigned
8345 (41%) exact matches, in which:
7301 unique CDR3
6 unique J



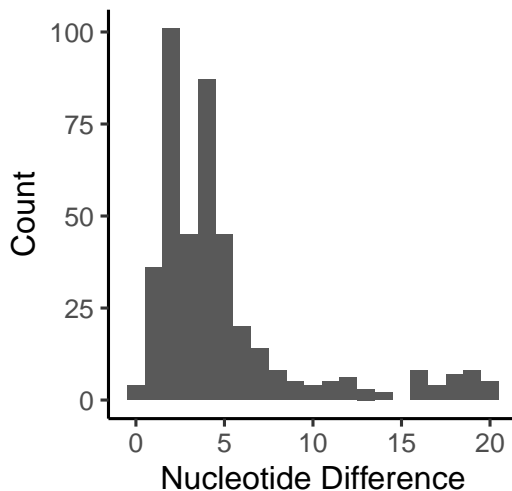
IGHV4-30-2*01

789 sequences assigned
329 (41.7%) exact matches, in which:
251 unique CDR3
6 unique J



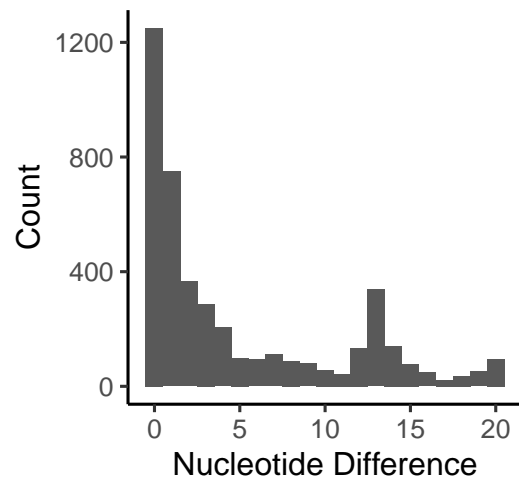
IGHV4-30-4*08

460 sequences assigned
4 (0.9%) exact matches, in which:
4 unique CDR3
2 unique J



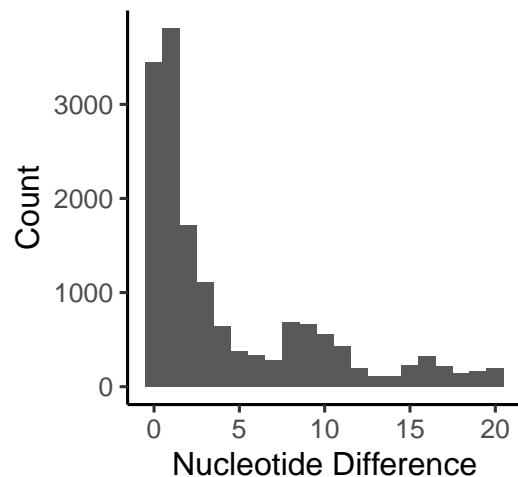
IGHV4-38-2*02

4767 sequences assigned
1250 (26.2%) exact matches, in which:
1175 unique CDR3
6 unique J



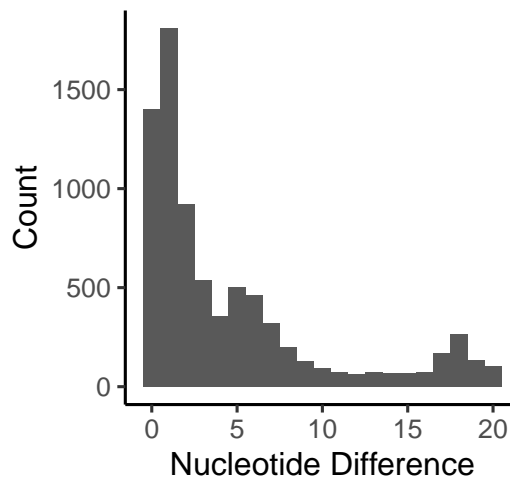
IGHV4-39*07

18060 sequences assigned
3452 (19.1%) exact matches, in which:
3051 unique CDR3
6 unique J



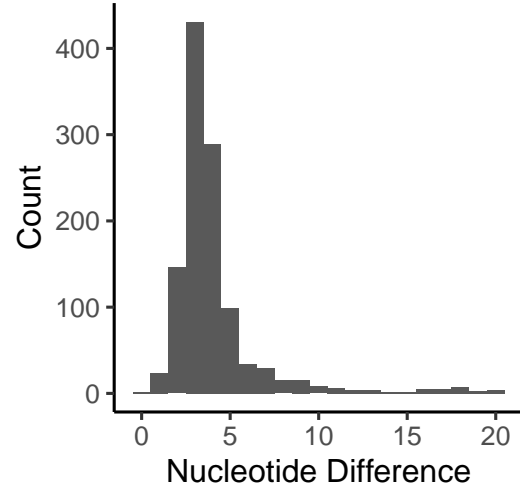
IGHV4-59*12

8386 sequences assigned
1400 (16.7%) exact matches, in which:
1373 unique CDR3
6 unique J



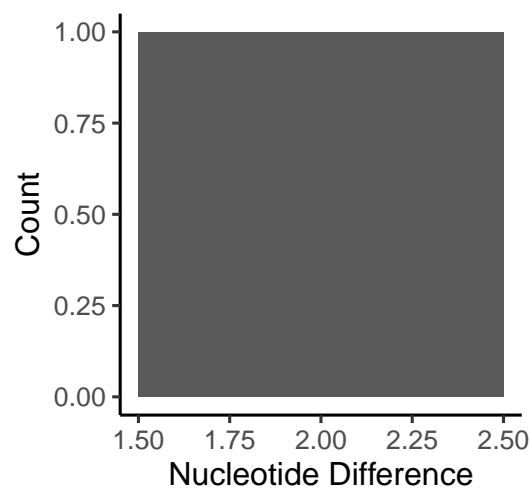
IGHV4-61*05

1157 sequences assigned
2 (0.2%) exact matches, in which:
2 unique CDR3
2 unique J



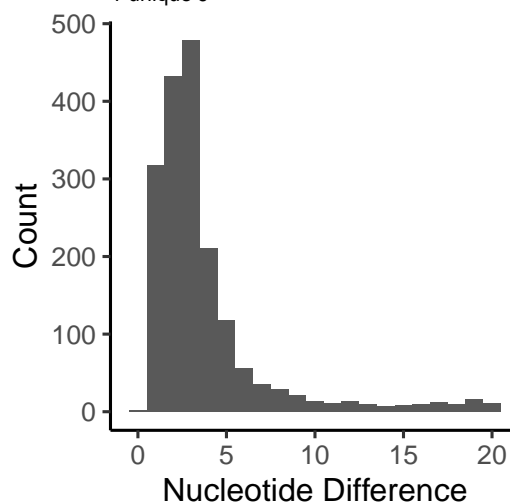
IGHV4-55*09

2 sequences assigned
No exact matches.



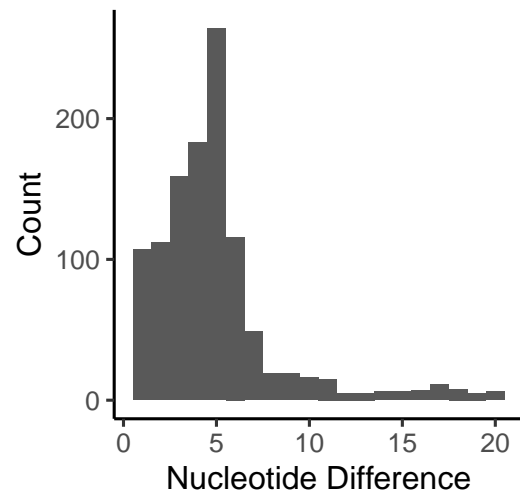
IGHV4-61*01

1882 sequences assigned
2 (0.1%) exact matches, in which:
2 unique CDR3
1 unique J



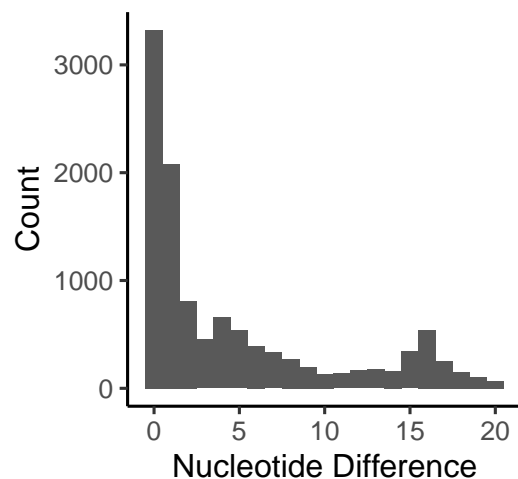
IGHV4-61*08

1182 sequences assigned
No exact matches.



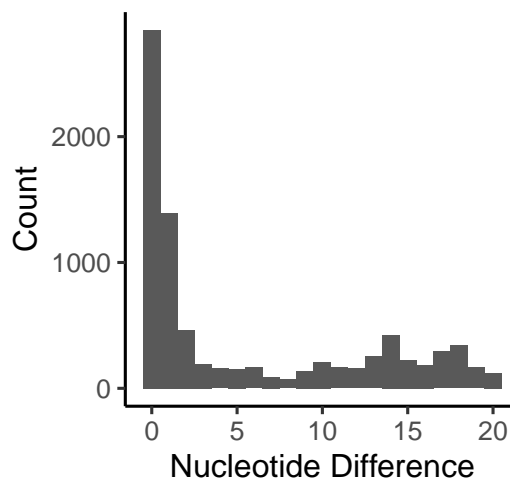
IGHV4-59*08

12319 sequences assigned
3323 (27%) exact matches, in which:
3014 unique CDR3
6 unique J



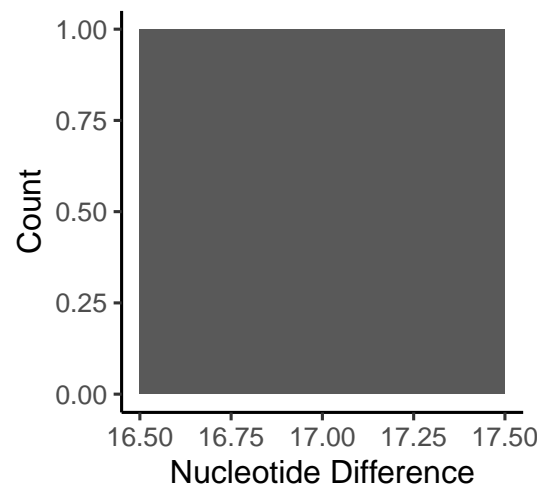
IGHV4-61*02

9110 sequences assigned
2847 (31.3%) exact matches, in which:
2679 unique CDR3
6 unique J



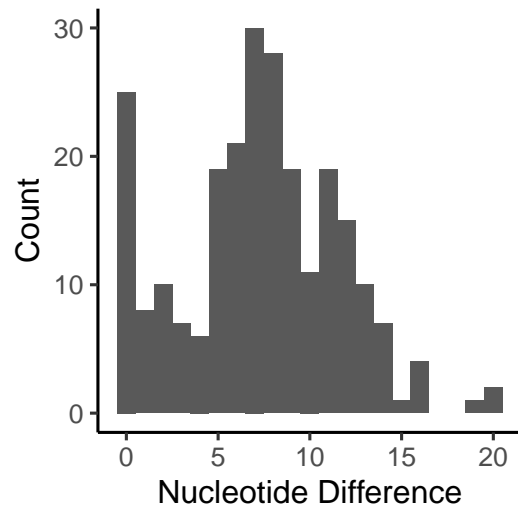
IGHV1/OR15-1*04

1 sequences assigned
No exact matches.



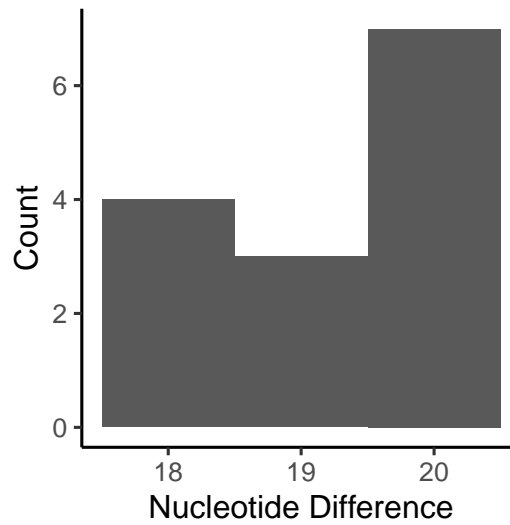
IGHV1/OR15-2*02_03_T8

249 sequences assigned
25 (10%) exact matches, in which:
25 unique CDR3
4 unique J



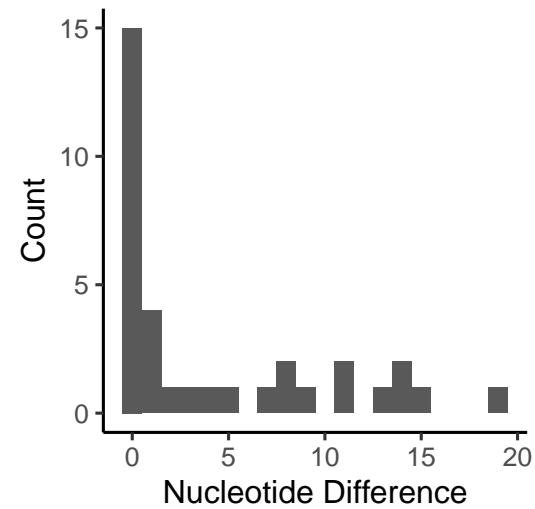
IGHV4/OR15-8*02

68 sequences assigned
No exact matches.



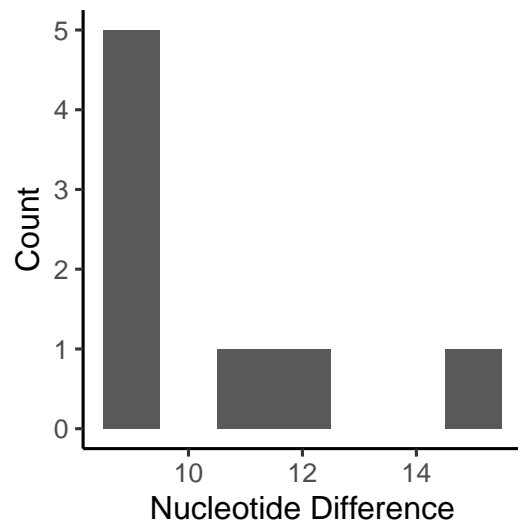
IGHV5-51*06

37 sequences assigned
15 (40.5%) exact matches, in which:
15 unique CDR3
6 unique J



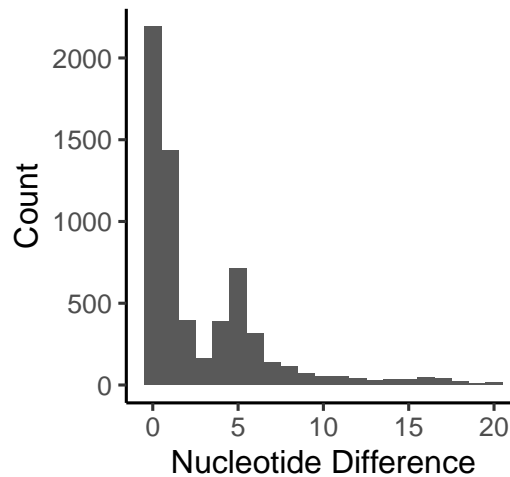
IGHV1/OR15-3*02

8 sequences assigned
No exact matches.



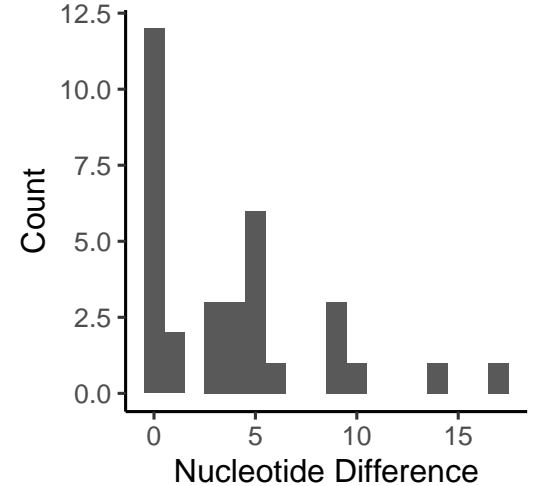
IGHV5-10-1*01_03

6374 sequences assigned
2191 (34.4%) exact matches, in which:
1655 unique CDR3
6 unique J



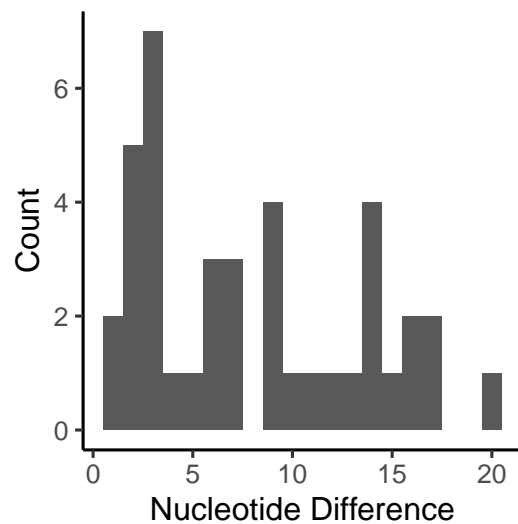
IGHV5-51*07

34 sequences assigned
12 (35.3%) exact matches, in which:
12 unique CDR3
6 unique J



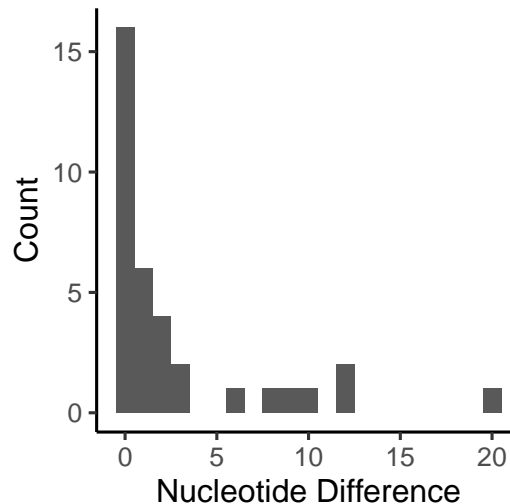
IGHV4/OR15-8*01

54 sequences assigned
No exact matches.



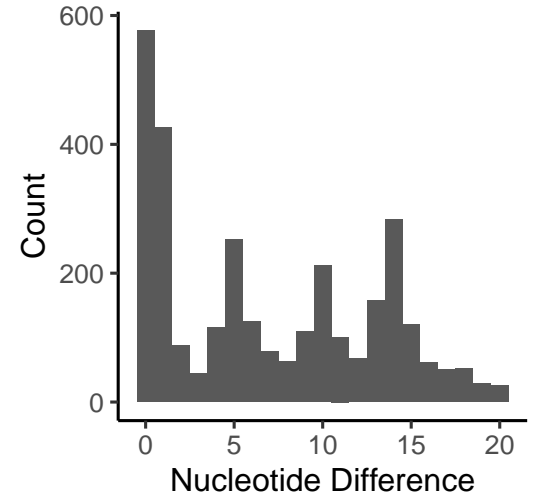
IGHV5-51*04

36 sequences assigned
16 (44.4%) exact matches, in which:
15 unique CDR3
6 unique J



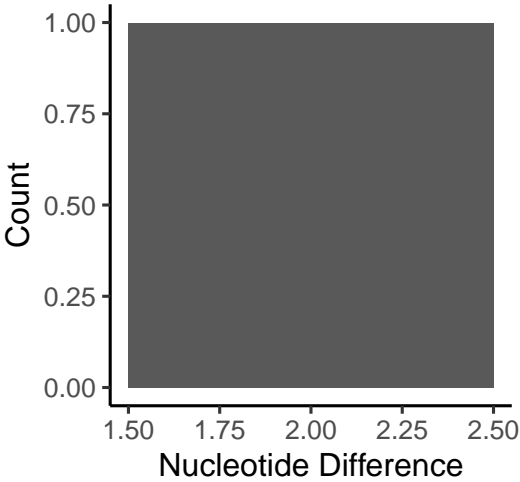
IGHV6-1*01_02

3134 sequences assigned
577 (18.4%) exact matches, in which:
531 unique CDR3
6 unique J



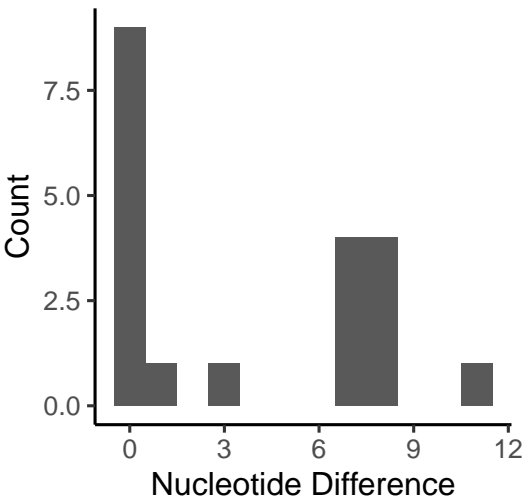
IGHV3/OR16-8*01

2 sequences assigned
No exact matches.



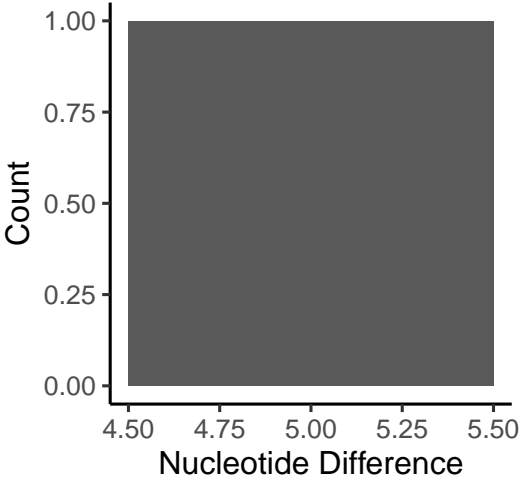
IGHV7-4-1*01

20 sequences assigned
9 (45%) exact matches, in which:
8 unique CDR3
3 unique J



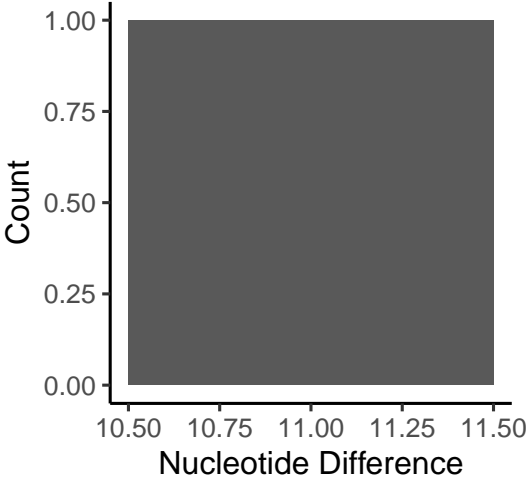
IGHV3/OR16-10*01_03

3 sequences assigned
No exact matches.

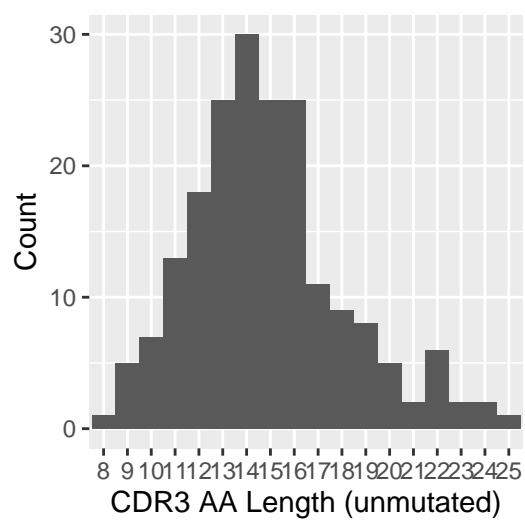


IGHV3/OR16-13*01

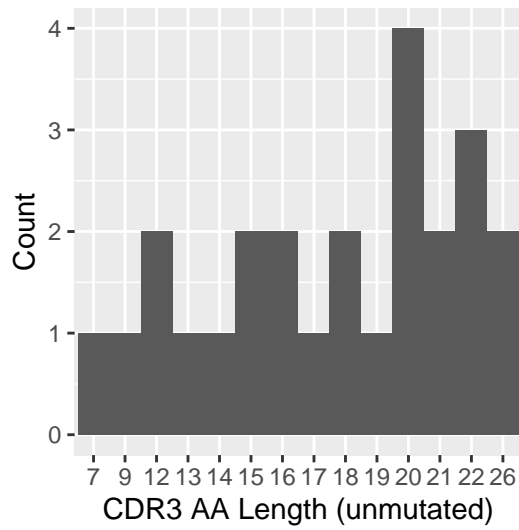
1 sequences assigned
No exact matches.



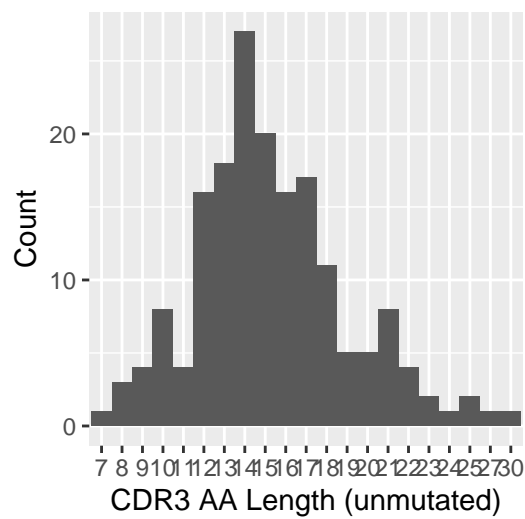
IGHV3-53*01_02_A225G_T:



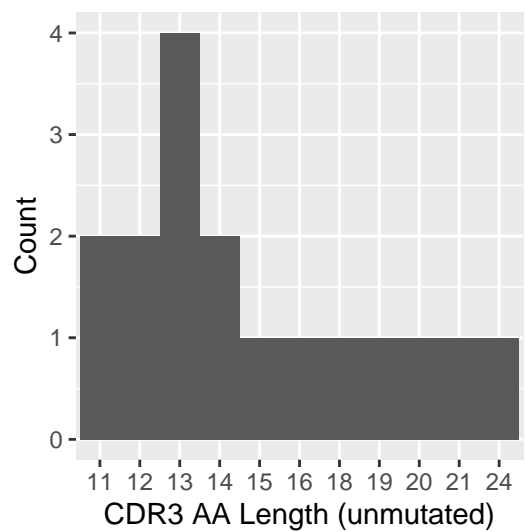
IGHV1/OR15-2*02_03_T81A_T90C_A106G_T127C_A140G_A1



IGHV3-53*01_02_G81A_A225G_T267G_G303A



IGHV3-NL1*01_G75C_G112A_C118A_C141G_T201C





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