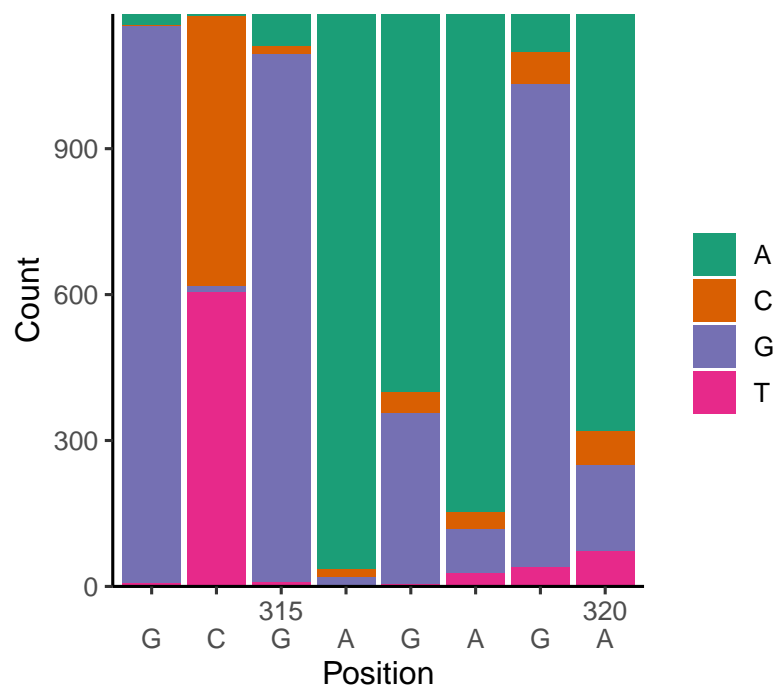
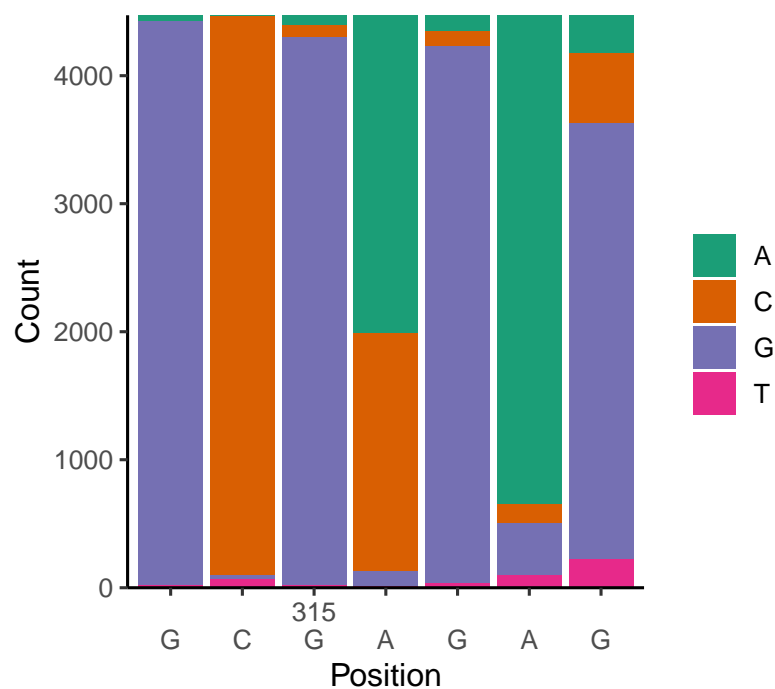


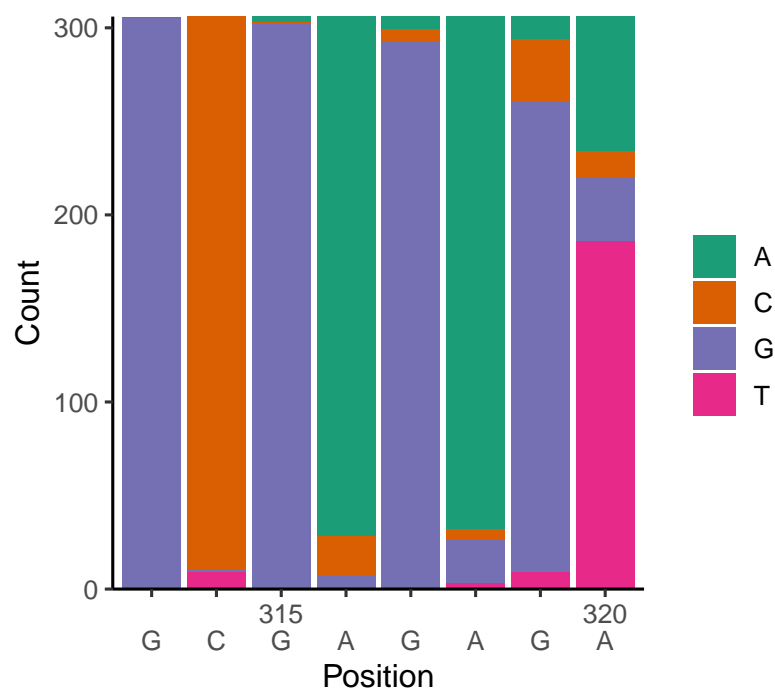
Gene IGHV3-64D*08_T76G_C90A_C108A_T114C_C118A_G170C_G173C_G187T_G188A



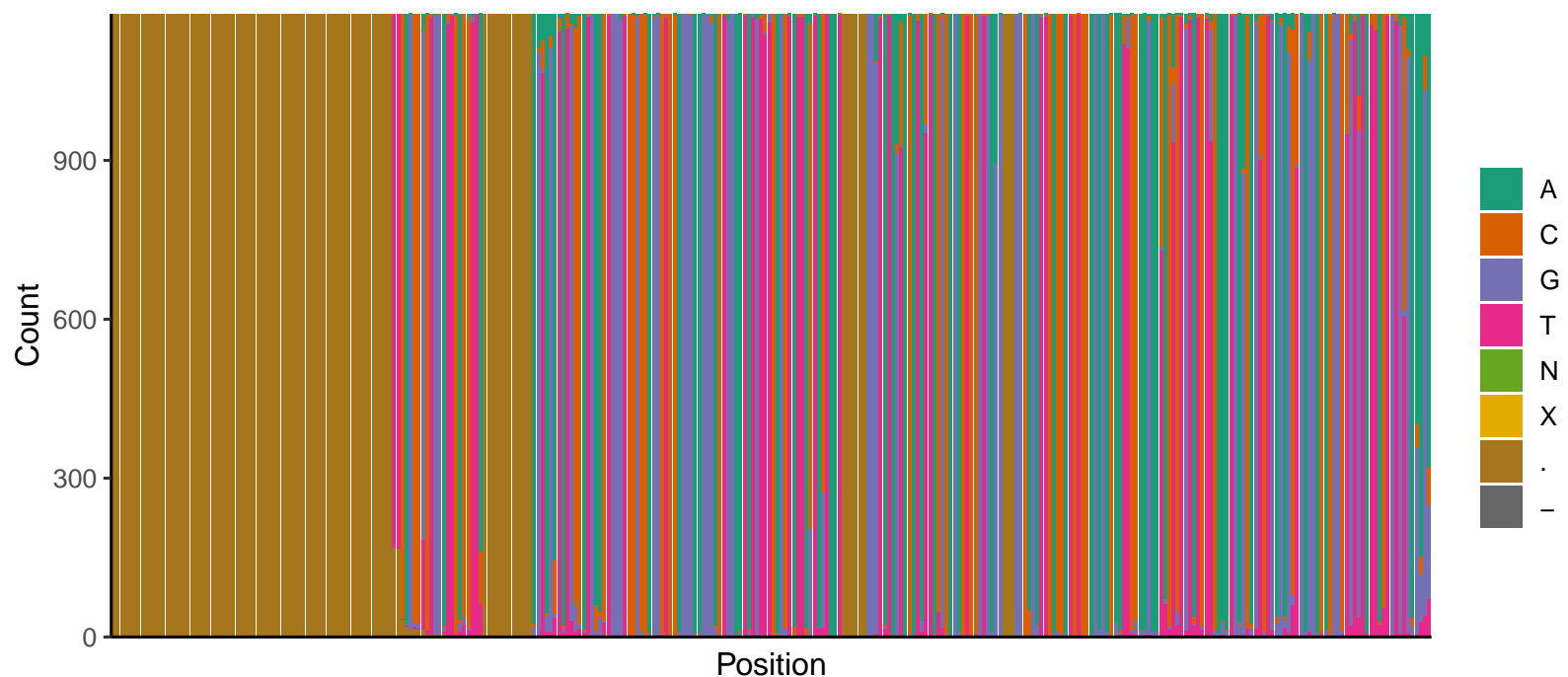
Gene IGHV4-4*02_03_G83A_C111T_T169C_A175G_A234G_A245C_A268C_G270T



Gene IGHV4/OR15-8*02_T71C_C93T_T105C_G107A_A109G_C120T_C133T_A165G_A167G



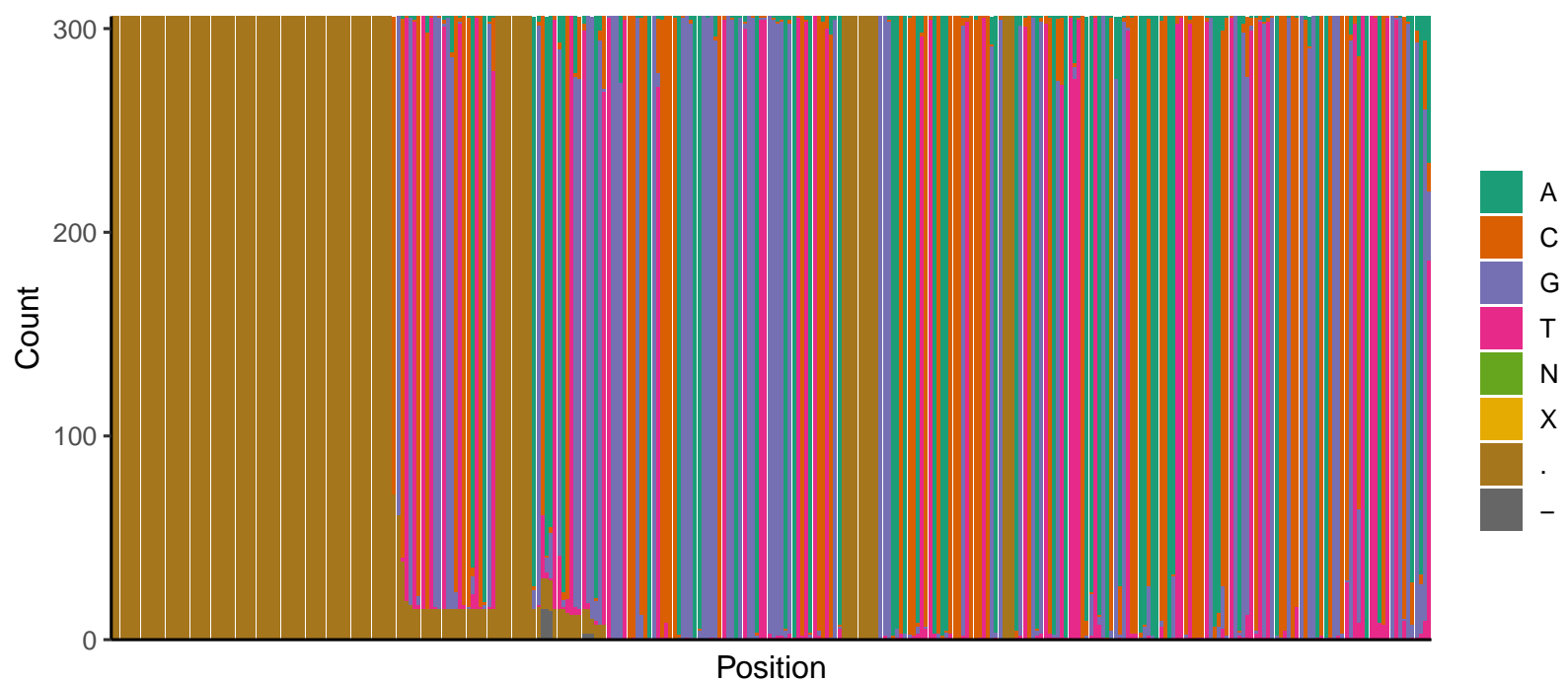
Gene IGHV3-64D*08_T76G_C90A_C108A_T114C_C118A_G170C_G173C_G187T_G188A

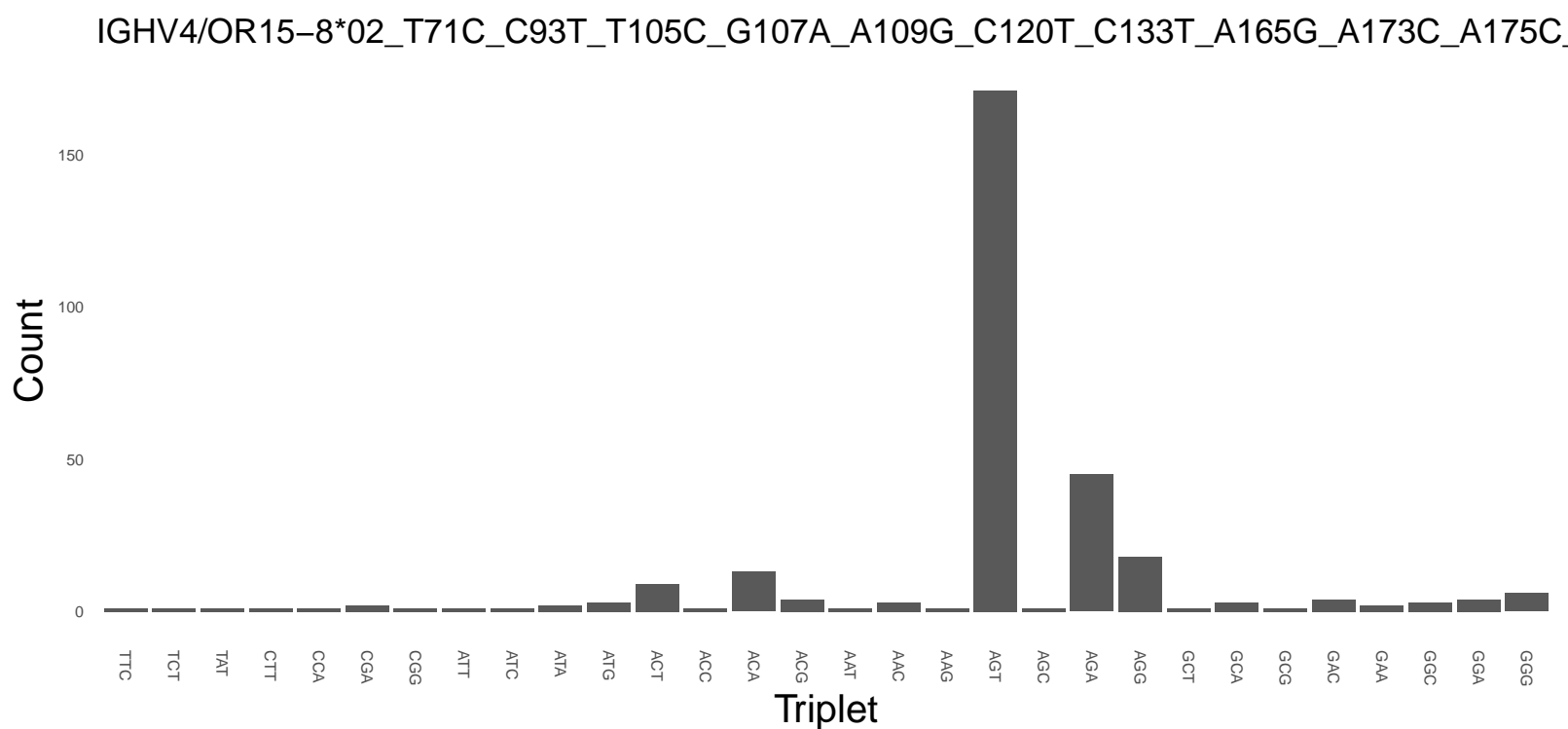
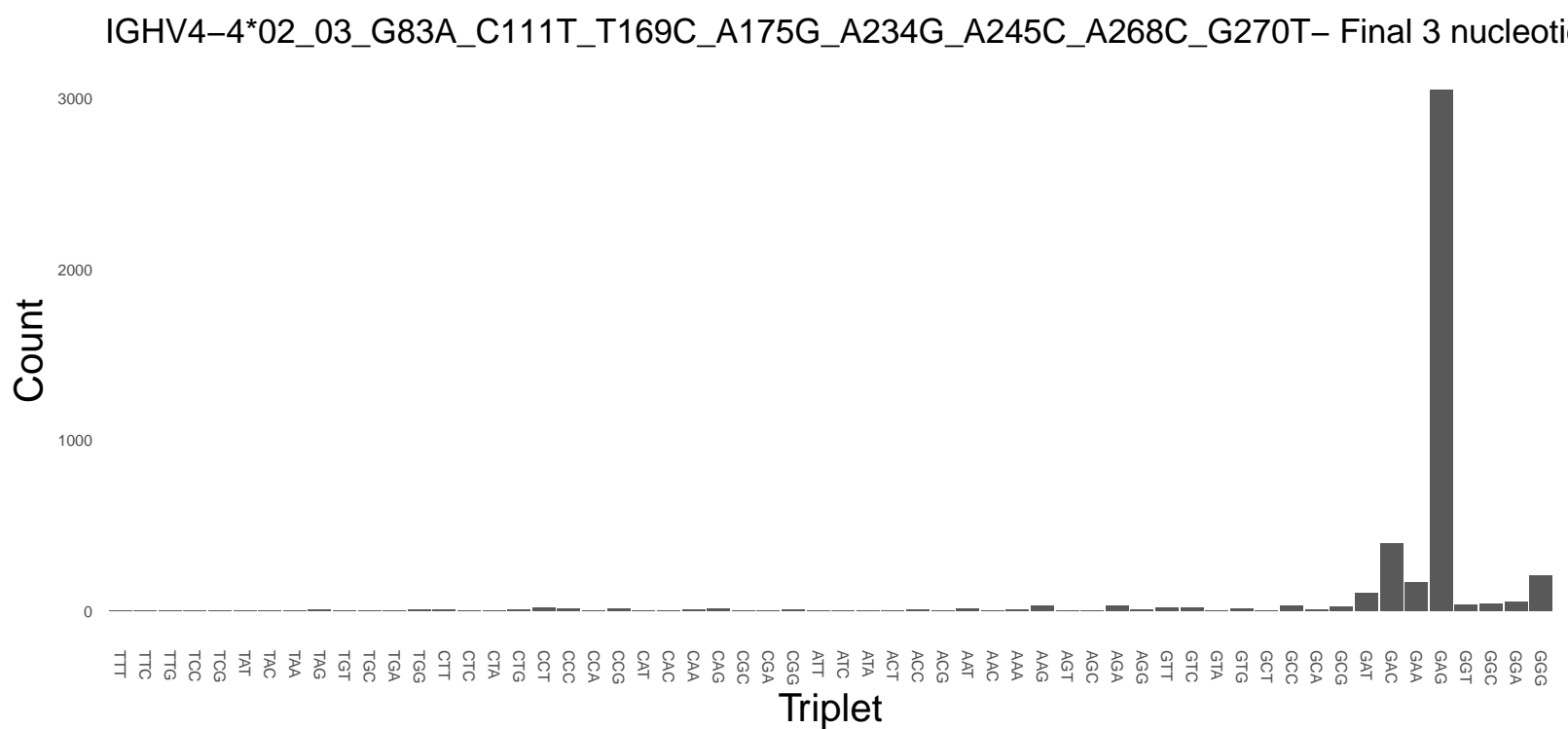
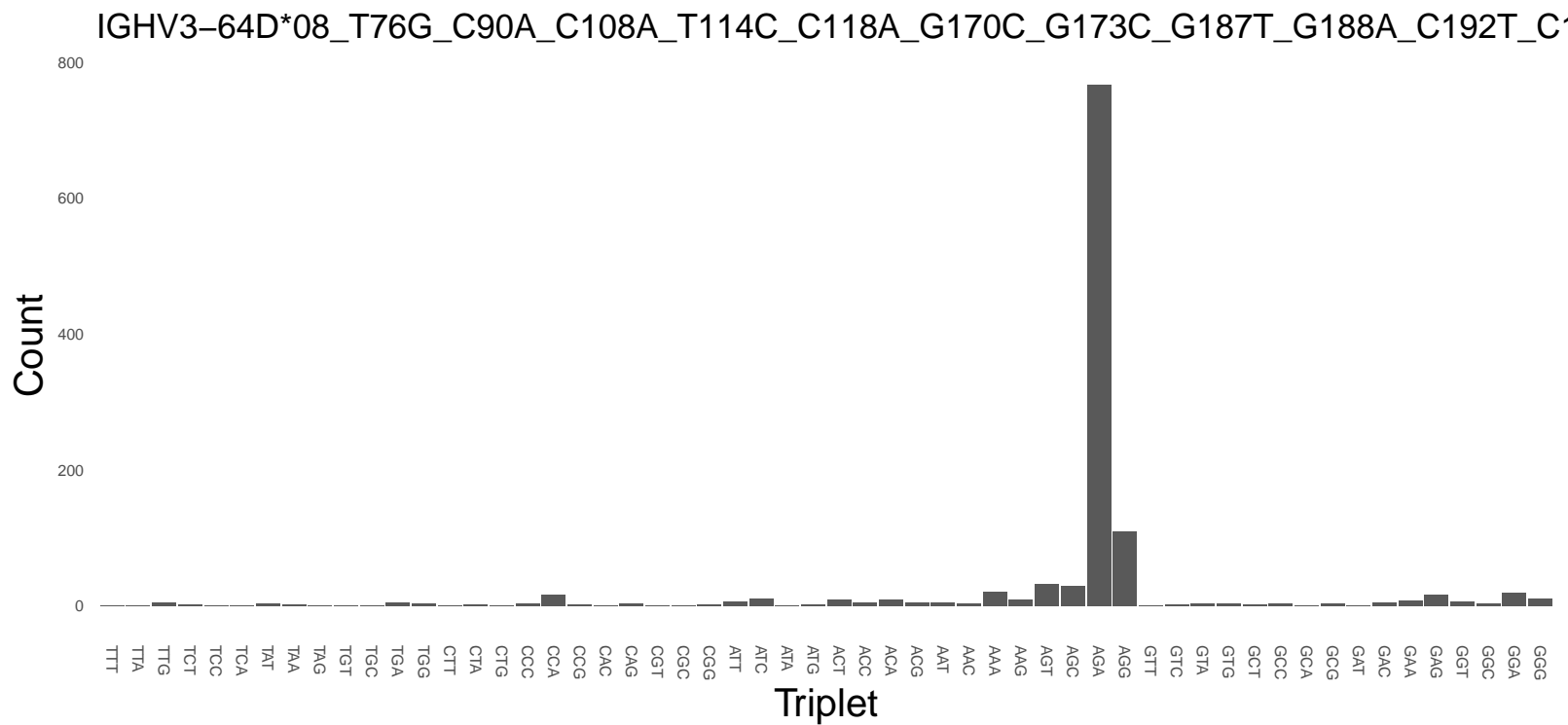


Gene IGHV4-4*02_03_G83A_C111T_T169C_A175G_A234G_A245C_A268C_G270T



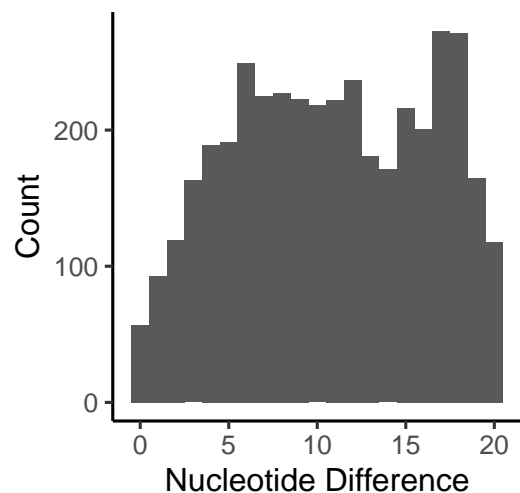
Gene IGHV4/OR15-8*02_T71C_C93T_T105C_G107A_A109G_C120T_C133T_A165G_A167G





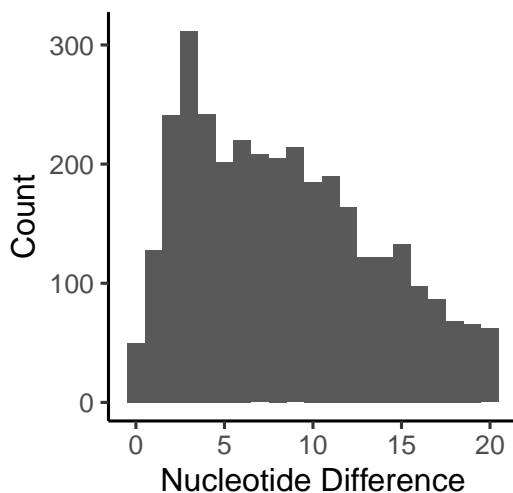
IGHV1-2*02

4765 sequences assigned
57 (1.2%) exact matches, in which:
50 unique CDR3
4 unique J



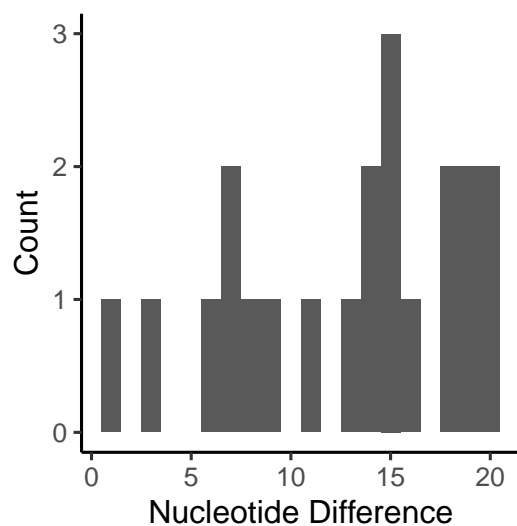
IGHV1-8*01

3555 sequences assigned
50 (1.4%) exact matches, in which:
42 unique CDR3
5 unique J



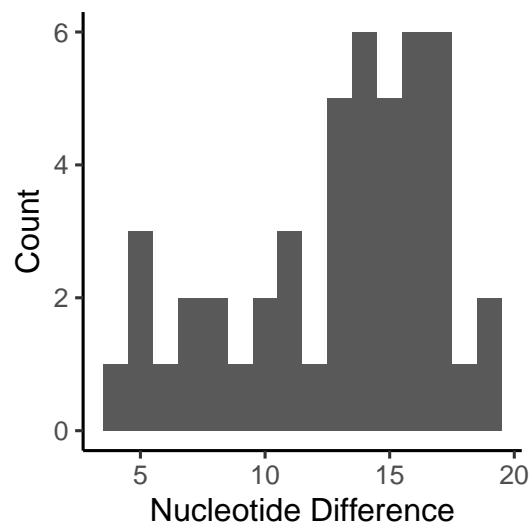
IGHV1-45*02

27 sequences assigned
No exact matches.



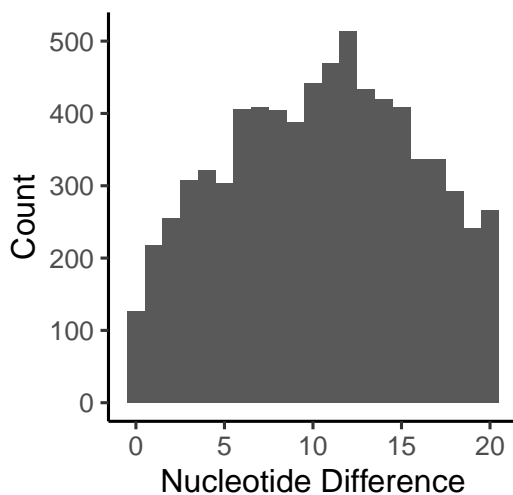
IGHV1-3*04

80 sequences assigned
No exact matches.



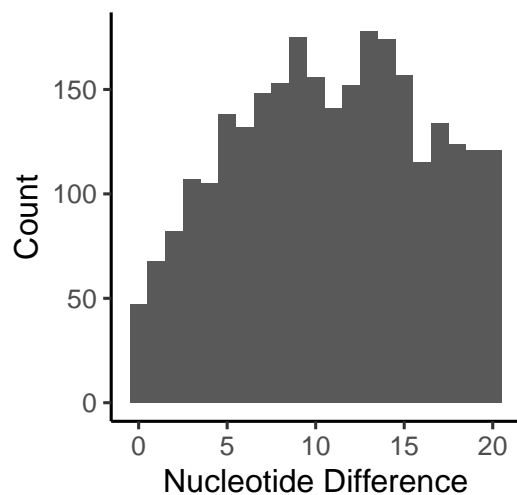
IGHV1-18*01

8650 sequences assigned
127 (1.5%) exact matches, in which:
109 unique CDR3
6 unique J



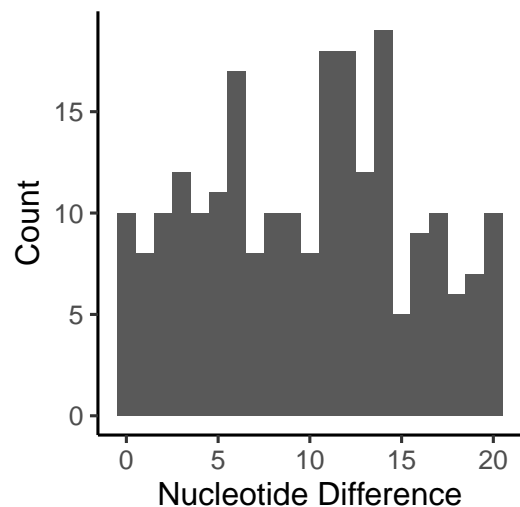
IGHV1-46*01

3574 sequences assigned
47 (1.3%) exact matches, in which:
41 unique CDR3
5 unique J



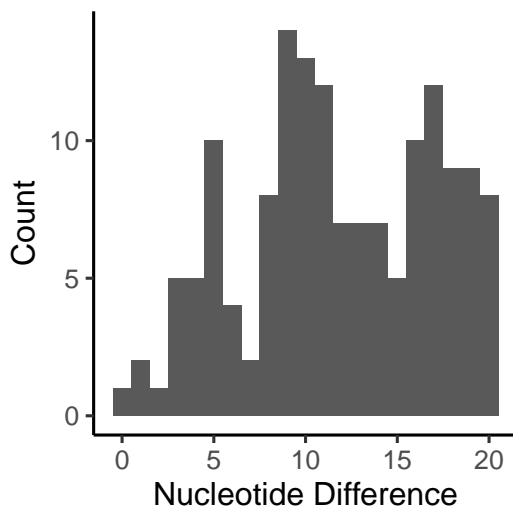
IGHV1-3*01_05

297 sequences assigned
10 (3.4%) exact matches, in which:
8 unique CDR3
2 unique J



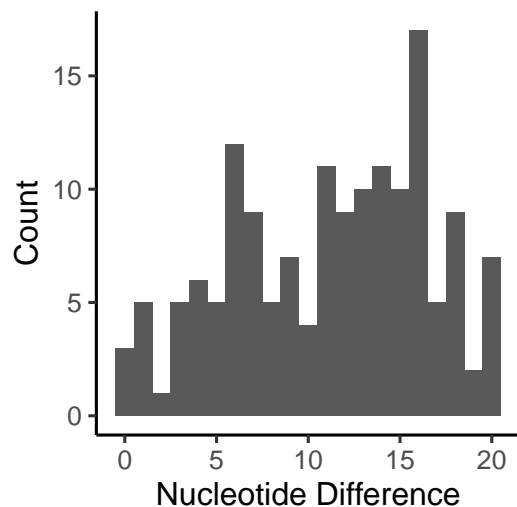
IGHV1-24*01

180 sequences assigned
1 (0.6%) exact matches, in which:
1 unique CDR3
1 unique J



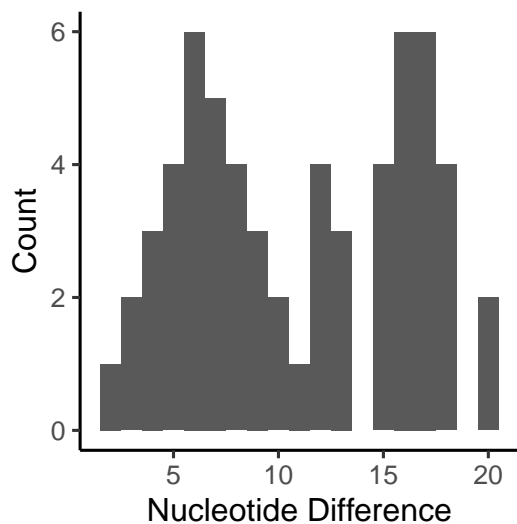
IGHV1-58*01_03

194 sequences assigned
3 (1.5%) exact matches, in which:
3 unique CDR3
2 unique J



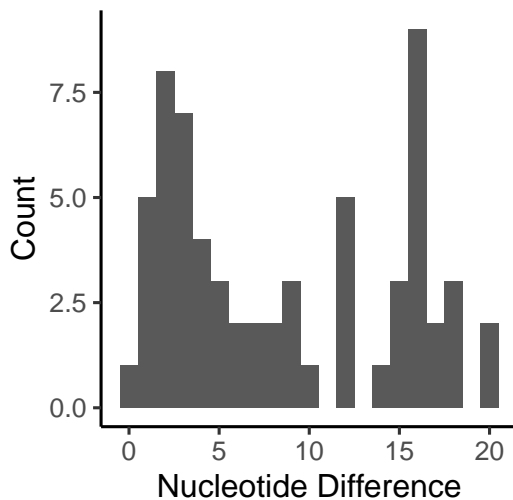
IGHV1-69-2*01

82 sequences assigned
No exact matches.



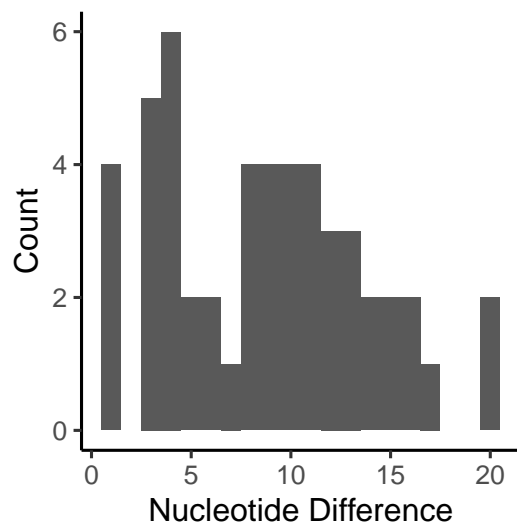
IGHV2-5*01

65 sequences assigned
1 (1.5%) exact matches, in which:
1 unique CDR3
1 unique J



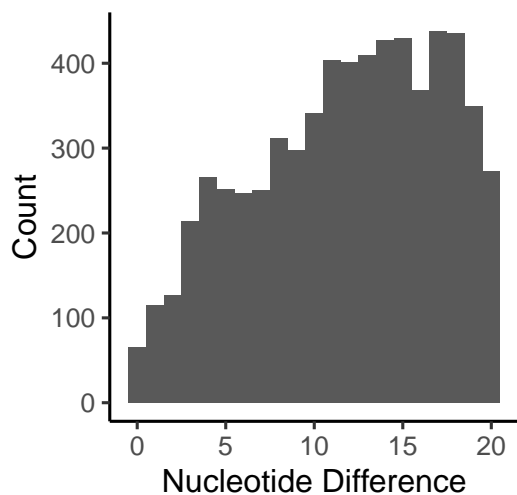
IGHV2-70*01

58 sequences assigned
No exact matches.



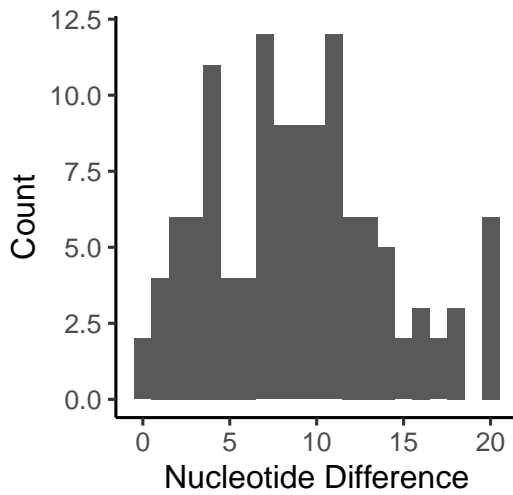
IGHV1-69*01_12_13

10255 sequences assigned
65 (0.6%) exact matches, in which:
59 unique CDR3
6 unique J



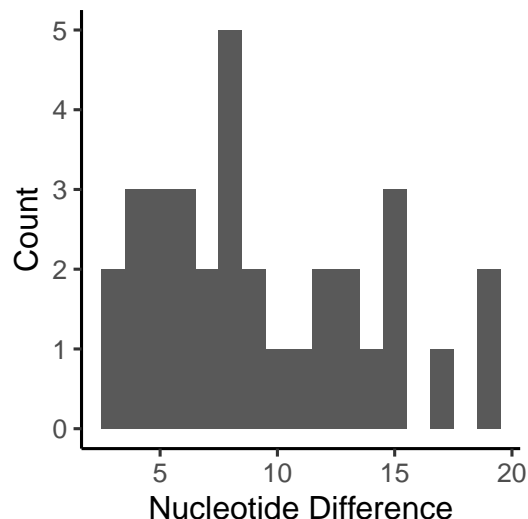
IGHV2-5*02

133 sequences assigned
2 (1.5%) exact matches, in which:
2 unique CDR3
2 unique J



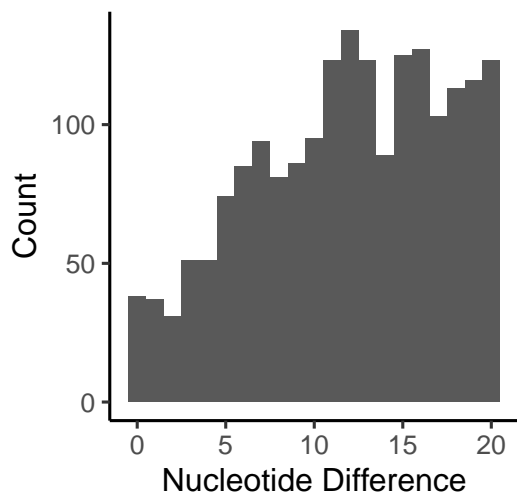
IGHV2-70*04

38 sequences assigned
No exact matches.



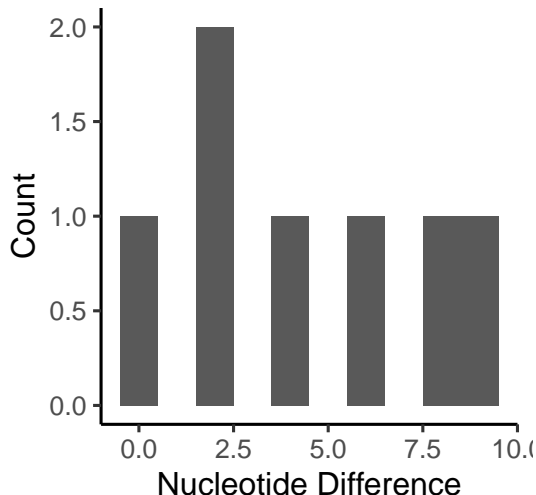
IGHV1-69*06_14

3611 sequences assigned
38 (1.1%) exact matches, in which:
35 unique CDR3
5 unique J



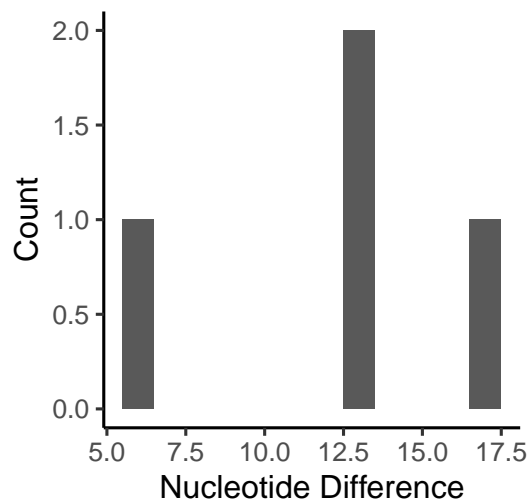
IGHV2-26*01

7 sequences assigned
1 (14.3%) exact matches, in which:
1 unique CDR3
1 unique J



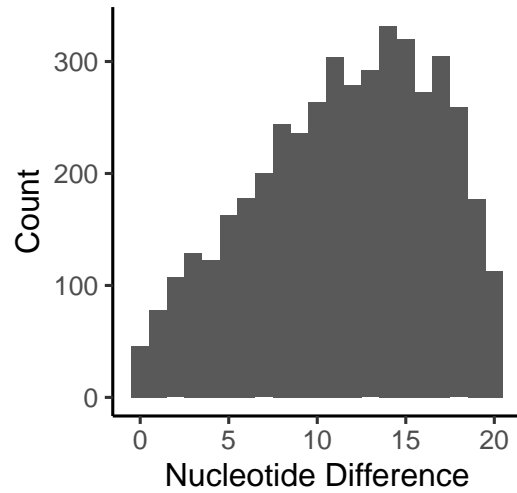
IGHV2-70*13

7 sequences assigned
No exact matches.



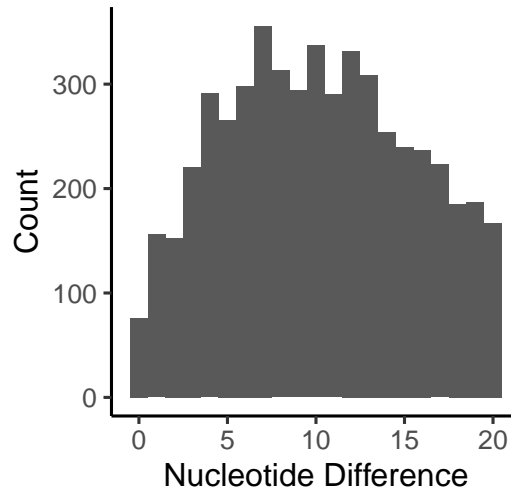
IGHV3-7*01

4987 sequences assigned
46 (0.9%) exact matches, in which:
42 unique CDR3
5 unique J



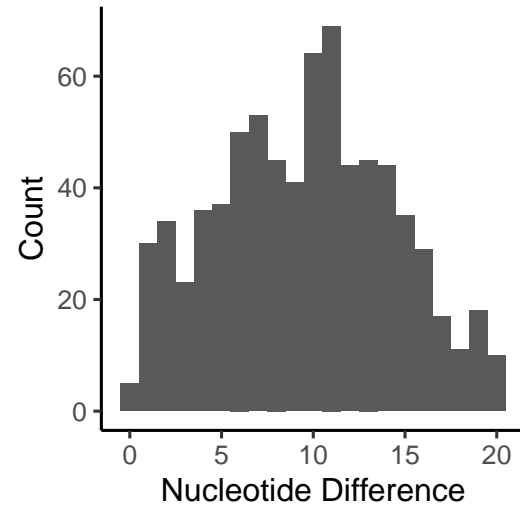
IGHV3-9*01

6346 sequences assigned
76 (1.2%) exact matches, in which:
64 unique CDR3
6 unique J



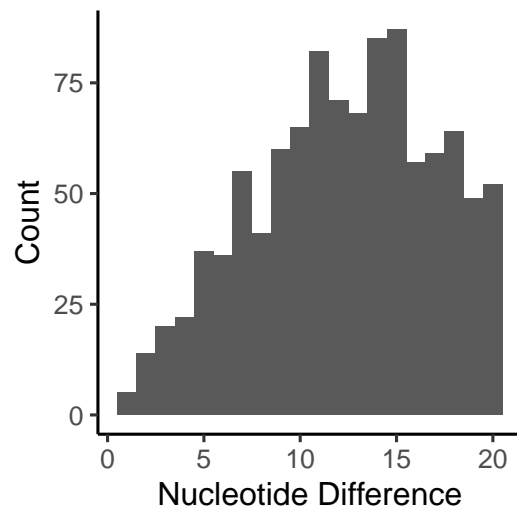
IGHV3-11*06

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



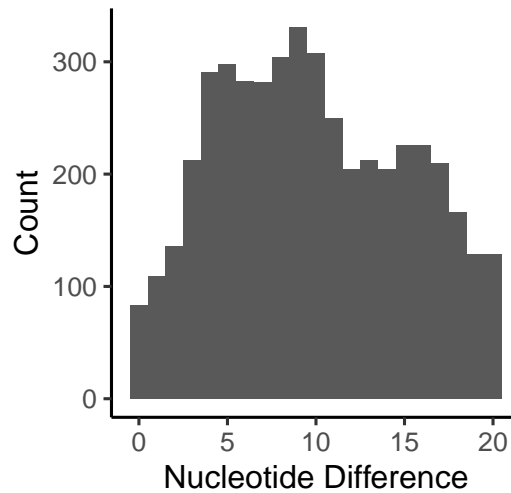
IGHV3-7*03

1240 sequences assigned
No exact matches.



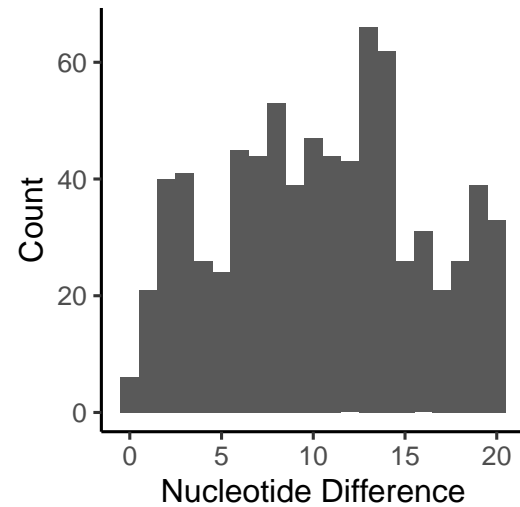
IGHV3-11*01

5470 sequences assigned
83 (1.5%) exact matches, in which:
69 unique CDR3
6 unique J



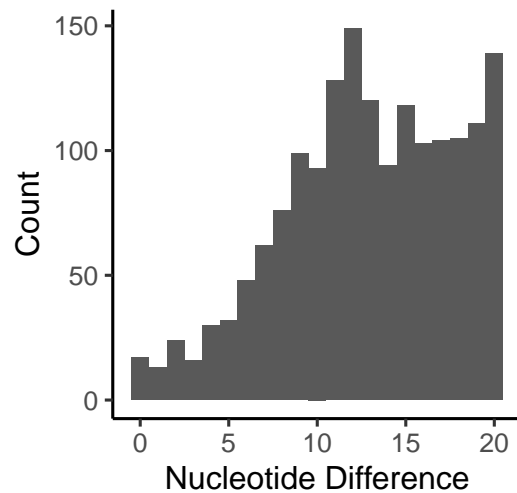
IGHV3-13*01

960 sequences assigned
6 (0.6%) exact matches, in which:
6 unique CDR3
4 unique J



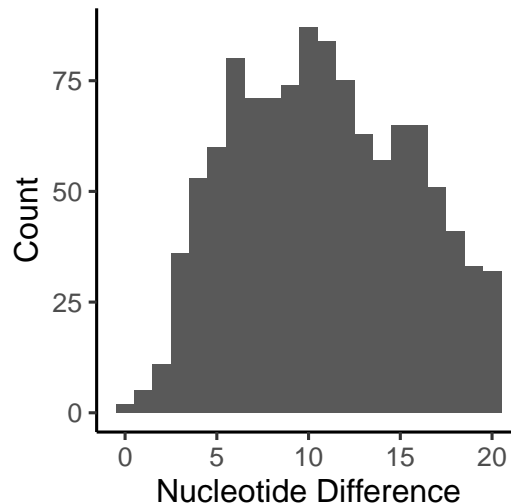
IGHV3-7*05

2279 sequences assigned
17 (0.7%) exact matches, in which:
15 unique CDR3
3 unique J



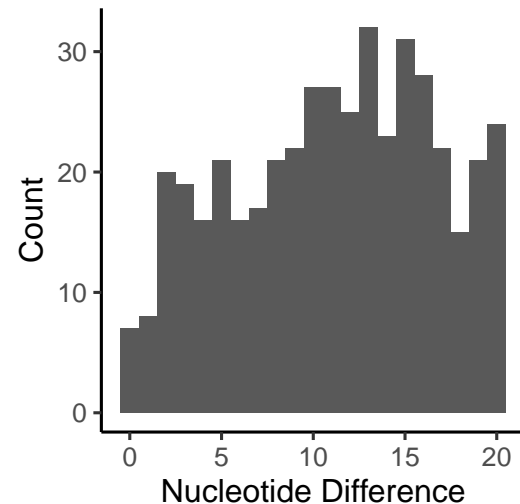
IGHV3-11*04

1272 sequences assigned
2 (0.2%) exact matches, in which:
2 unique CDR3
2 unique J



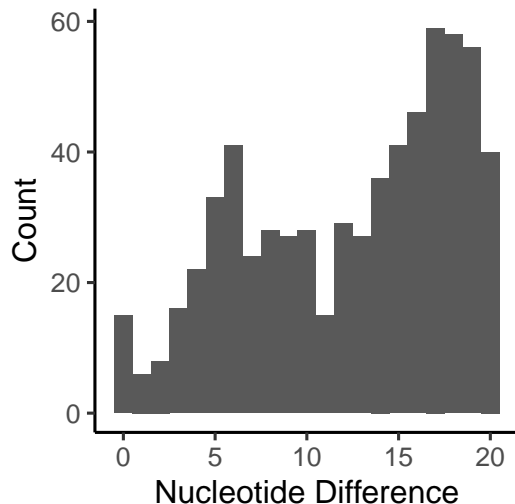
IGHV3-15*07

599 sequences assigned
7 (1.2%) exact matches, in which:
7 unique CDR3
2 unique J



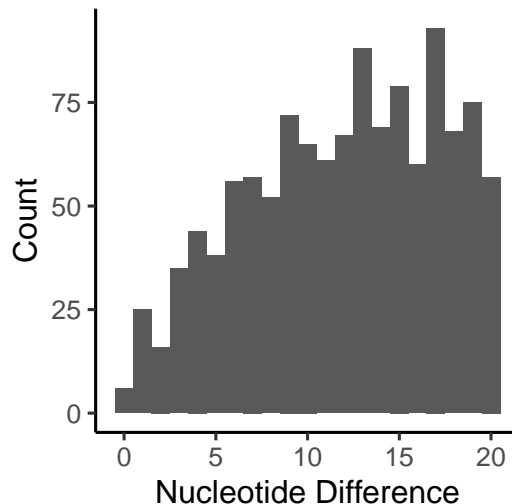
IGHV3-15*01_02

981 sequences assigned
15 (1.5%) exact matches, in which:
13 unique CDR3
4 unique J



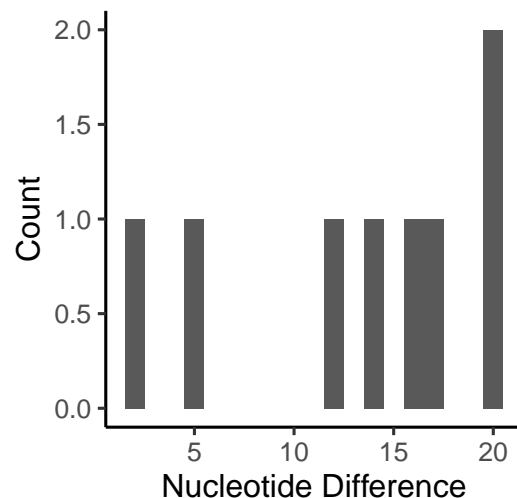
IGHV3-21*04

1442 sequences assigned
6 (0.4%) exact matches, in which:
6 unique CDR3
2 unique J



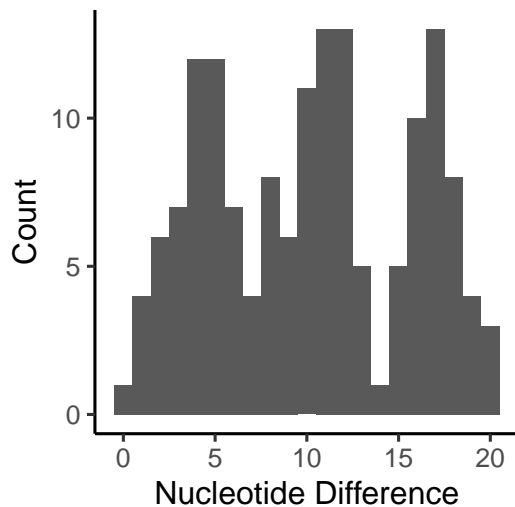
IGHV3-30-3*01

14 sequences assigned
No exact matches.



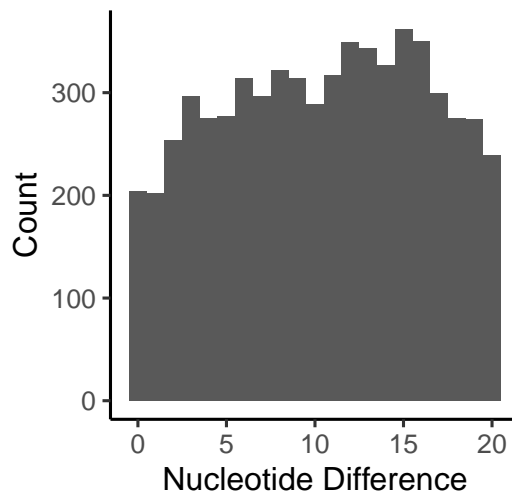
IGHV3-20*01_02

163 sequences assigned
1 (0.6%) exact matches, in which:
1 unique CDR3
1 unique J



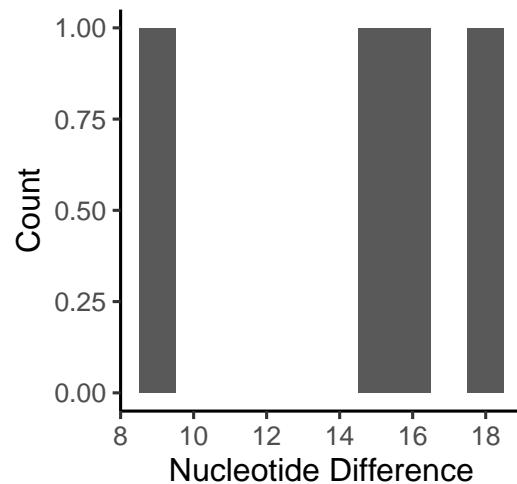
IGHV3-21*01_02

7536 sequences assigned
204 (2.7%) exact matches, in which:
168 unique CDR3
6 unique J



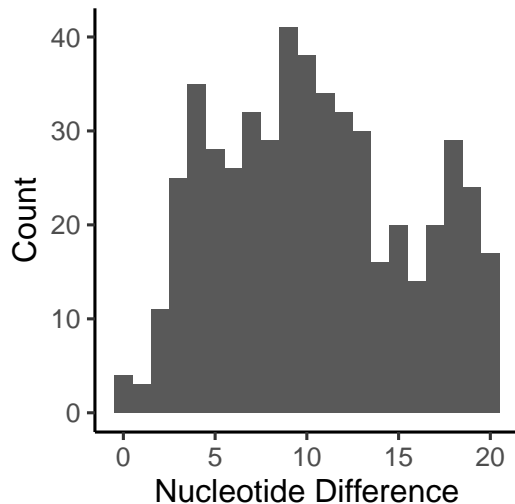
IGHV3-30-3*02

6 sequences assigned
No exact matches.



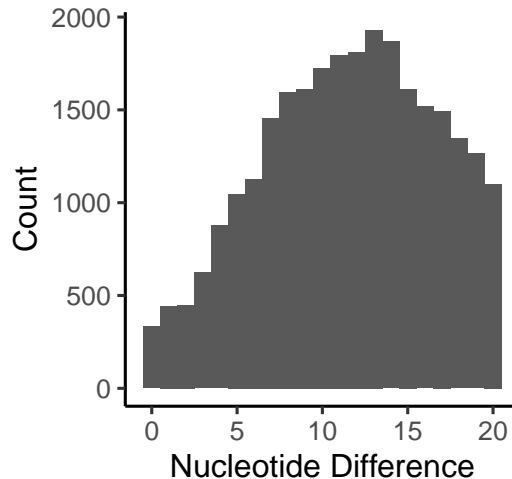
IGHV3-20*03_04

627 sequences assigned
4 (0.6%) exact matches, in which:
3 unique CDR3
2 unique J



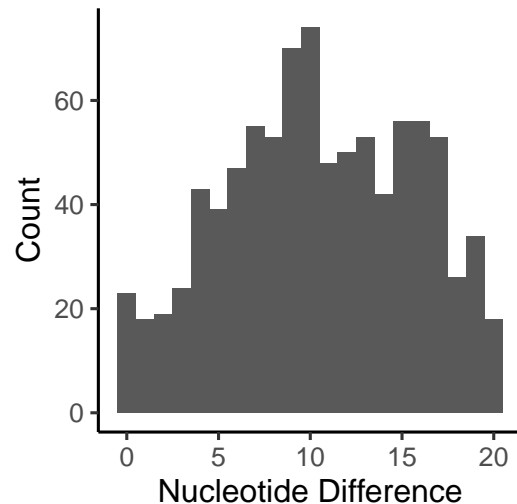
IGHV3-23*01_04

34602 sequences assigned
333 (1%) exact matches, in which:
268 unique CDR3
6 unique J



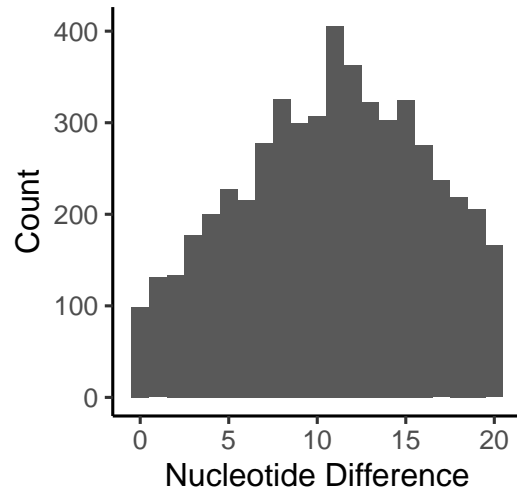
IGHV3-30*03

1146 sequences assigned
23 (2%) exact matches, in which:
23 unique CDR3
4 unique J



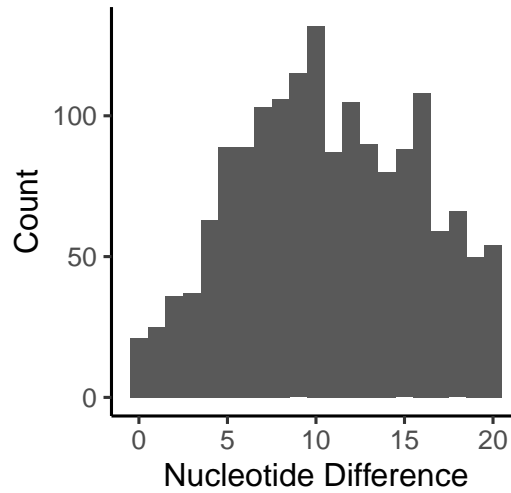
IGHV3–30*18

6525 sequences assigned
99 (1.5%) exact matches, in which:
82 unique CDR3
6 unique J



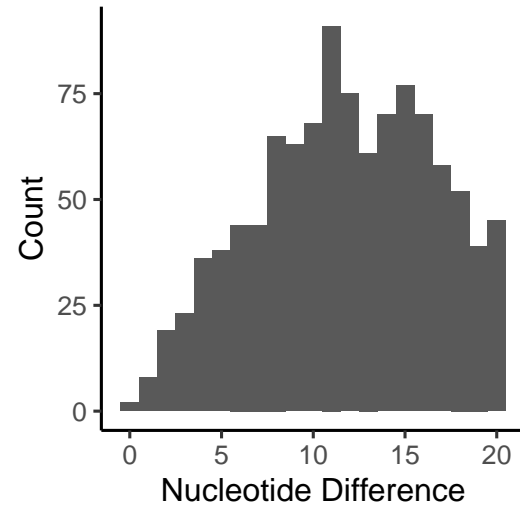
IGHV3–33*06

1864 sequences assigned
21 (1.1%) exact matches, in which:
19 unique CDR3
4 unique J



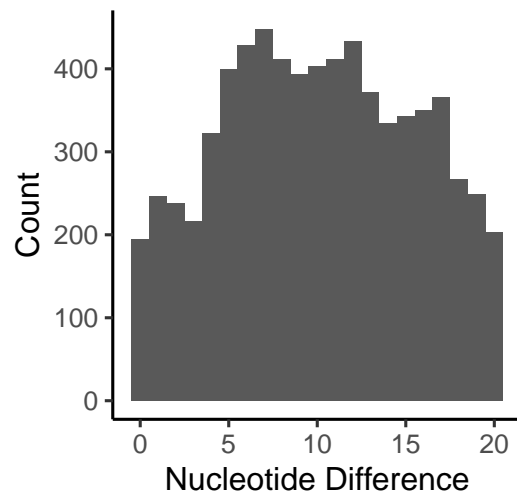
IGHV3–48*01

1242 sequences assigned
2 (0.2%) exact matches, in which:
2 unique CDR3
2 unique J



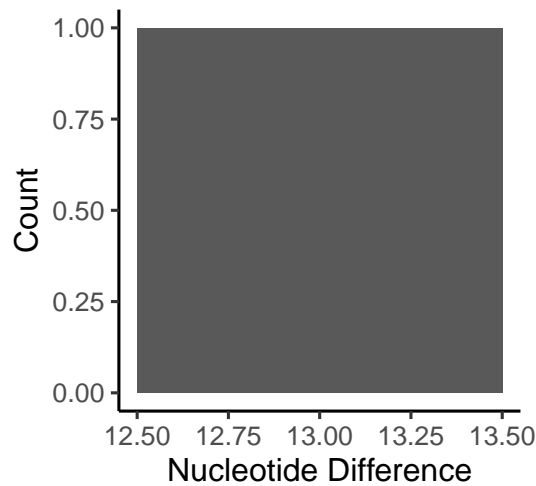
IGHV3–33*01

8212 sequences assigned
195 (2.4%) exact matches, in which:
146 unique CDR3
6 unique J



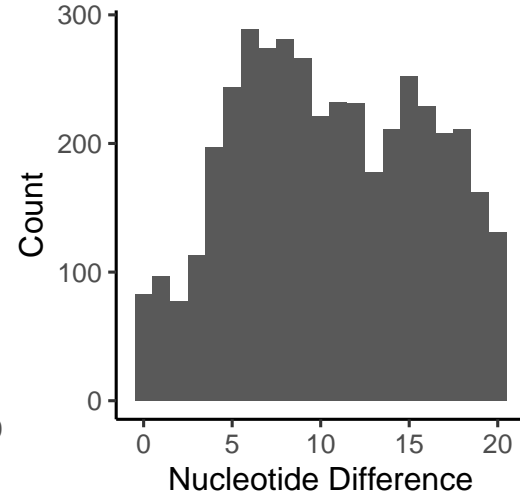
IGHV3–35*01

1 sequences assigned
No exact matches.



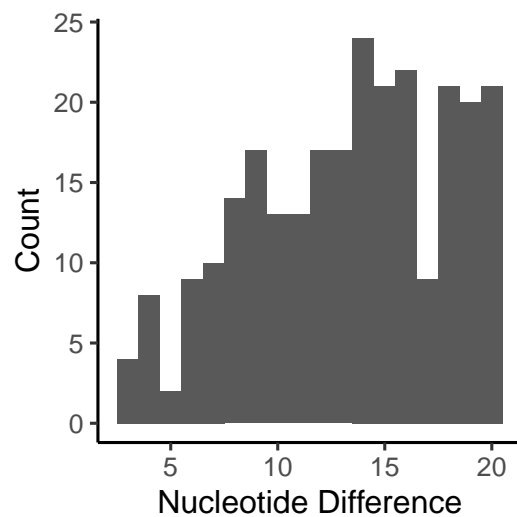
IGHV3–48*02

4914 sequences assigned
83 (1.7%) exact matches, in which:
71 unique CDR3
4 unique J



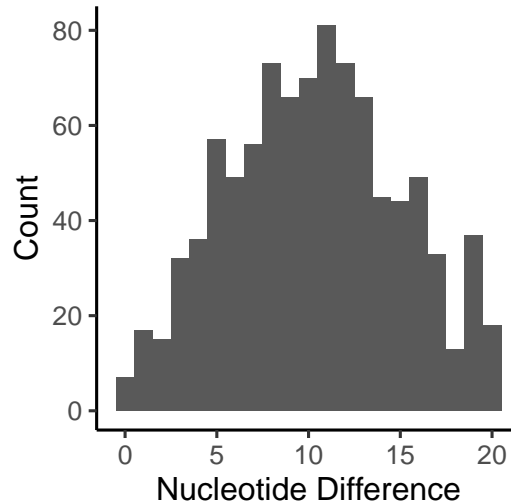
IGHV3–33*05

697 sequences assigned
No exact matches.



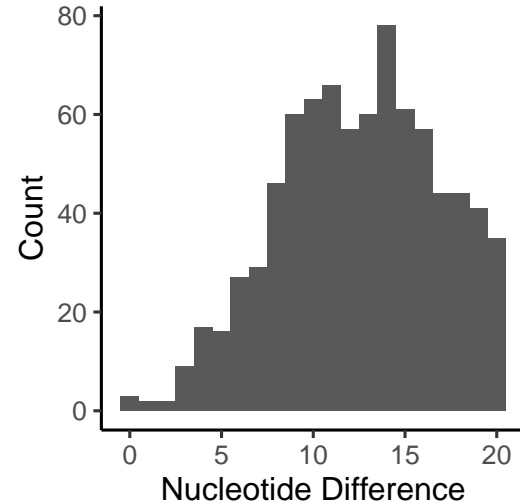
IGHV3–43*01

1135 sequences assigned
7 (0.6%) exact matches, in which:
6 unique CDR3
2 unique J



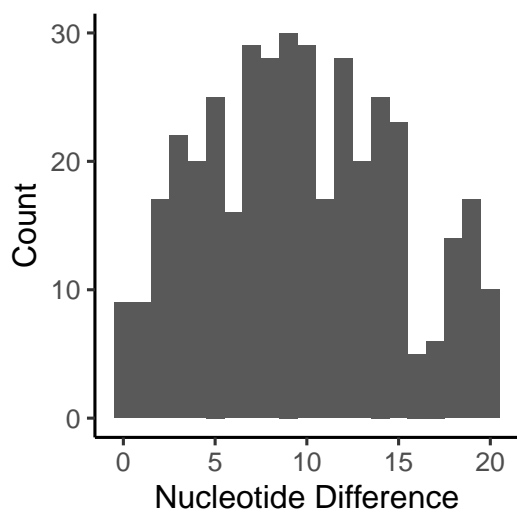
IGHV3–48*04

1028 sequences assigned
3 (0.3%) exact matches, in which:
3 unique CDR3
3 unique J



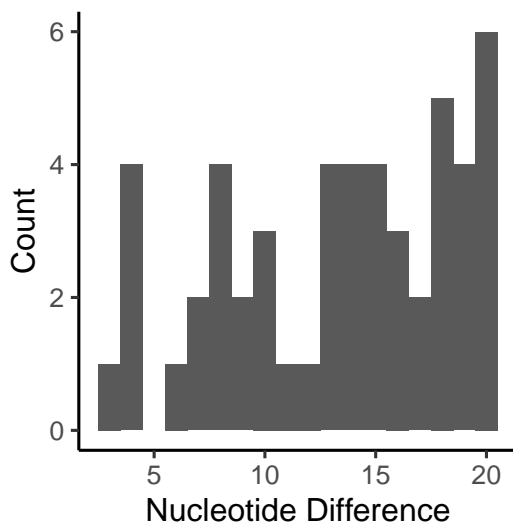
IGHV3-49*03_05

474 sequences assigned
9 (1.9%) exact matches, in which:
8 unique CDR3
3 unique J



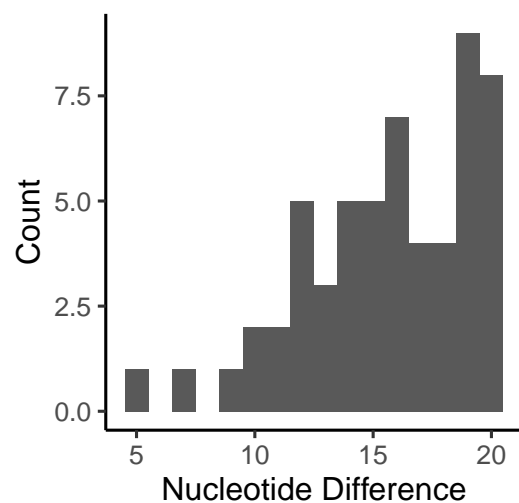
IGHV3-53*05

72 sequences assigned
No exact matches.



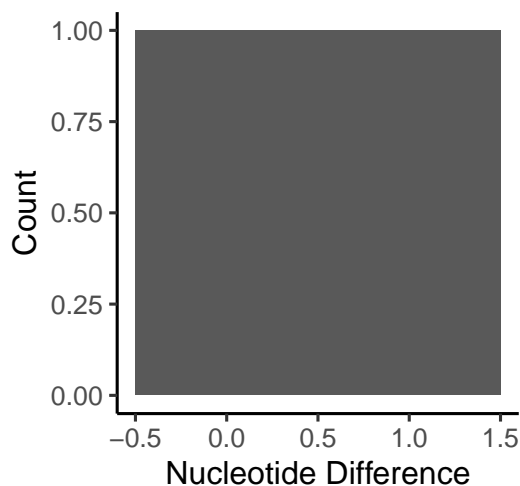
IGHV3-66*01

89 sequences assigned
No exact matches.



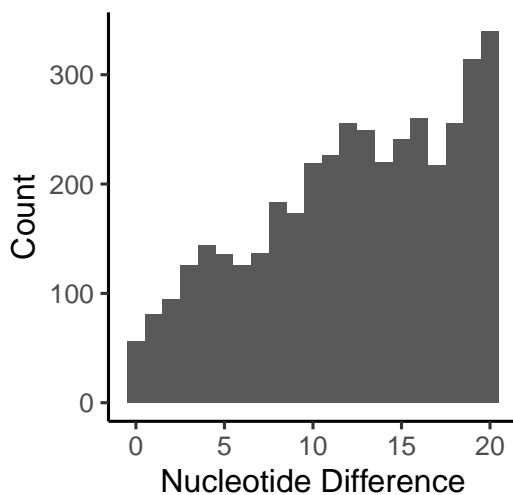
IGHV3-52*02

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



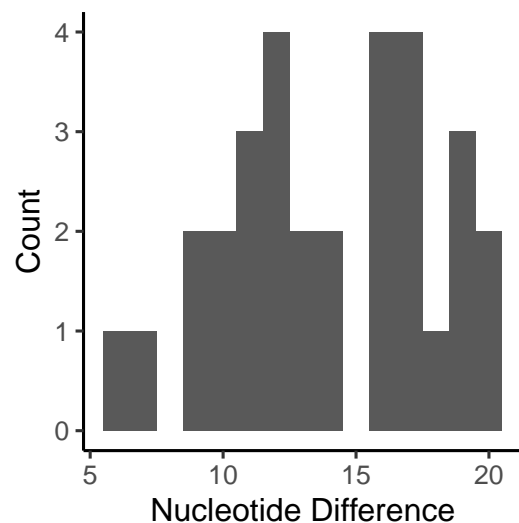
IGHV3-53*01_02

6058 sequences assigned
56 (0.9%) exact matches, in which:
49 unique CDR3
5 unique J



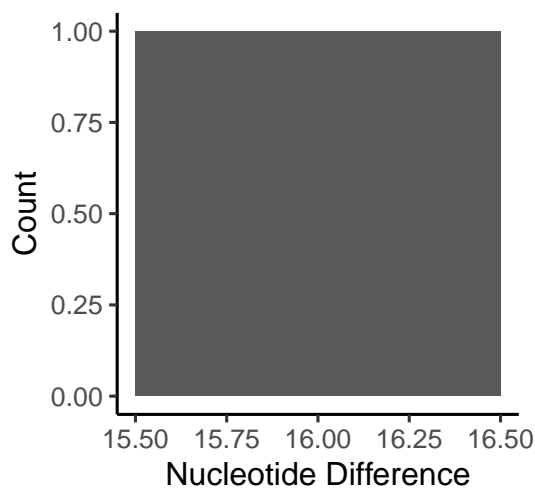
IGHV3-66*02

51 sequences assigned
No exact matches.



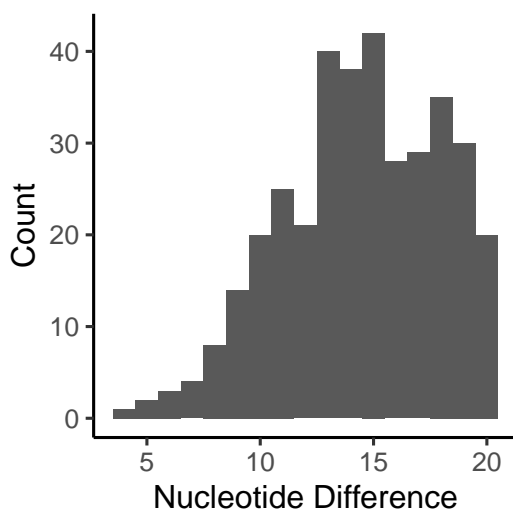
IGHV3-52*01_03

1 sequences assigned
No exact matches.



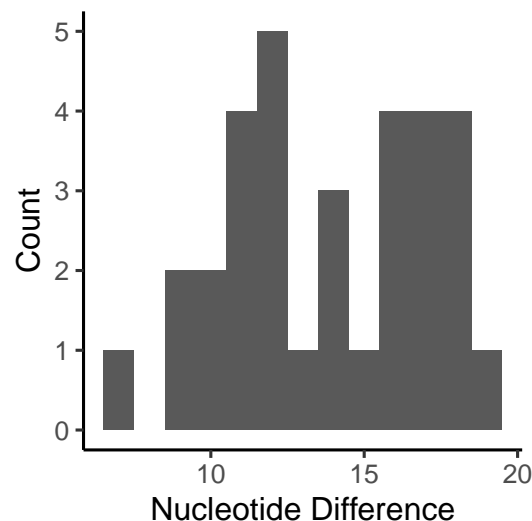
IGHV3-64*04

454 sequences assigned
No exact matches.



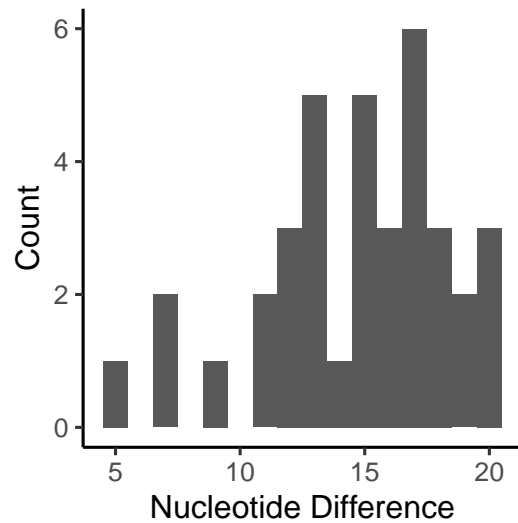
IGHV3-66*03

41 sequences assigned
No exact matches.



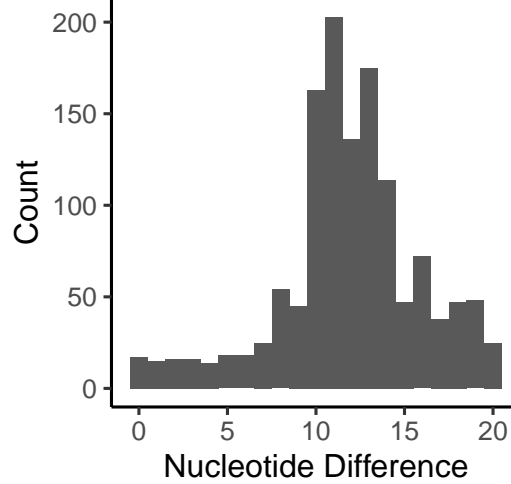
IGHV3-69-1*01

82 sequences assigned
No exact matches.



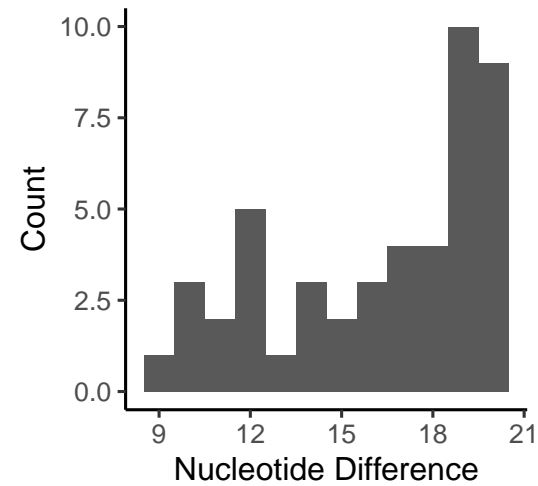
IGHV3-73*01_02

1403 sequences assigned
17 (1.2%) exact matches, in which:
10 unique CDR3
2 unique J



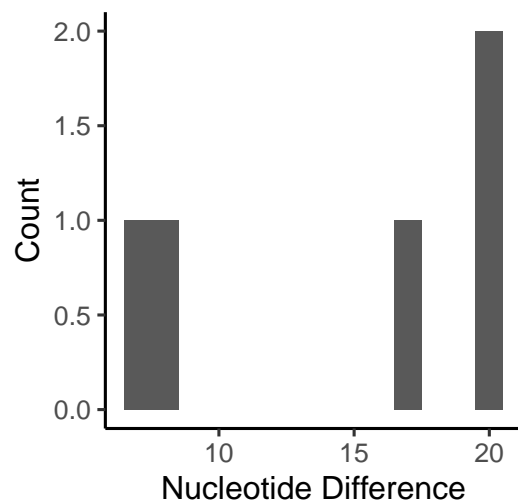
IGHV3-43D*04

70 sequences assigned
No exact matches.



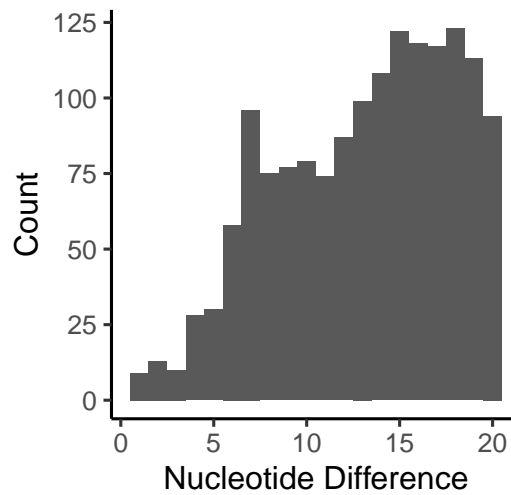
IGHV3-69-1*02

14 sequences assigned
No exact matches.



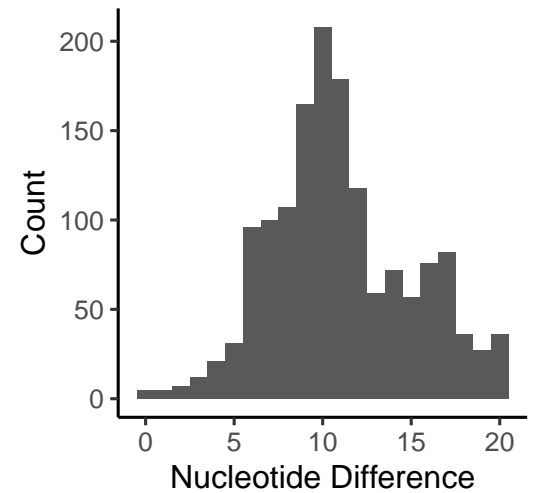
IGHV3-74*03

2369 sequences assigned
No exact matches.



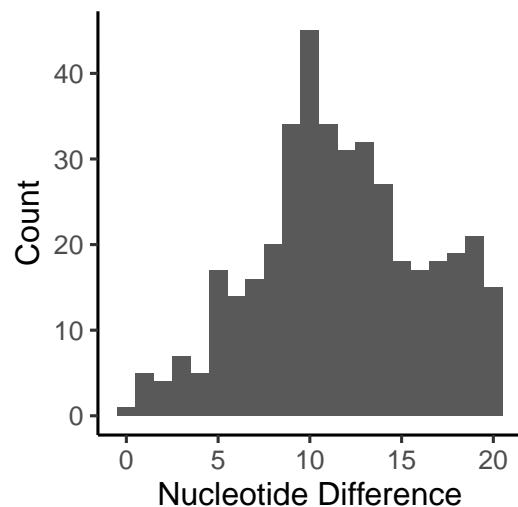
IGHV3-64D*08

1655 sequences assigned
5 (0.3%) exact matches, in which:
4 unique CDR3
2 unique J



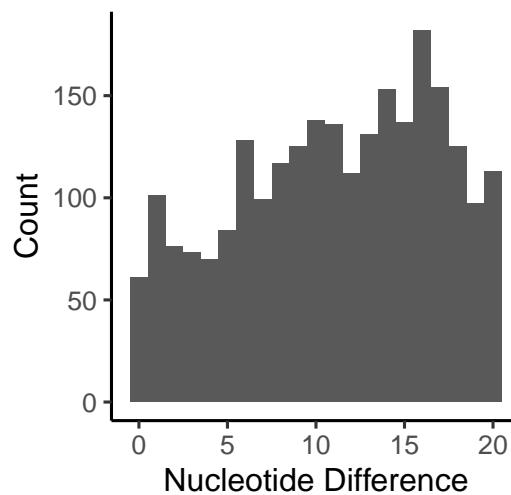
IGHV3-72*01

475 sequences assigned
1 (0.2%) exact matches, in which:
1 unique CDR3
1 unique J



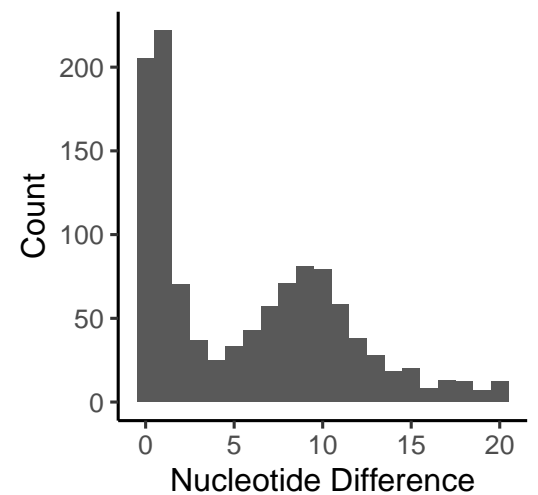
IGHV3-74*01_02

2882 sequences assigned
61 (2.1%) exact matches, in which:
51 unique CDR3
6 unique J



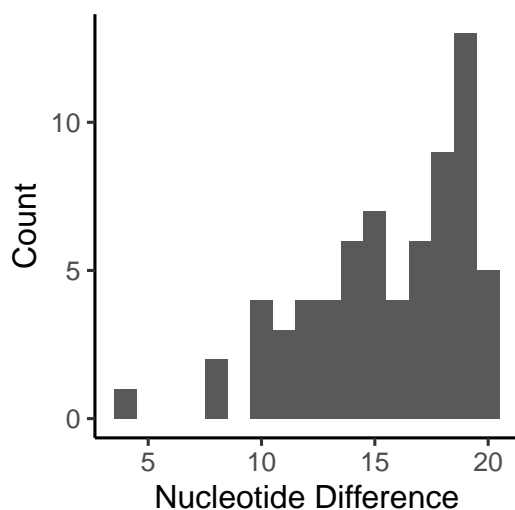
IGHV3-64D*08_T76G_C

1177 sequences assigned
205 (17.4%) exact matches, in which:
165 unique CDR3
6 unique J



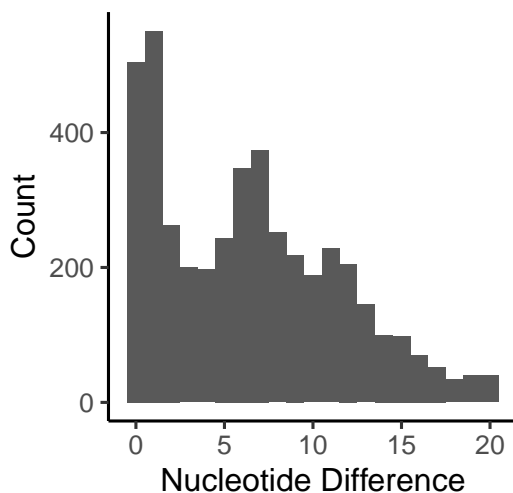
IGHV3–NL1*01

129 sequences assigned
No exact matches.



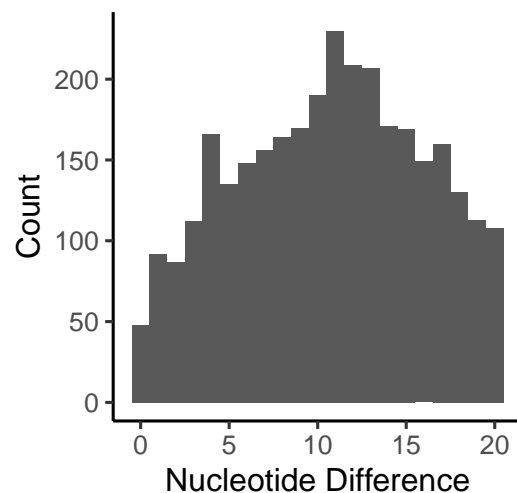
IGHV4–4*02_03_G83A_C

4472 sequences assigned
504 (11.3%) exact matches, in which:
382 unique CDR3
6 unique J



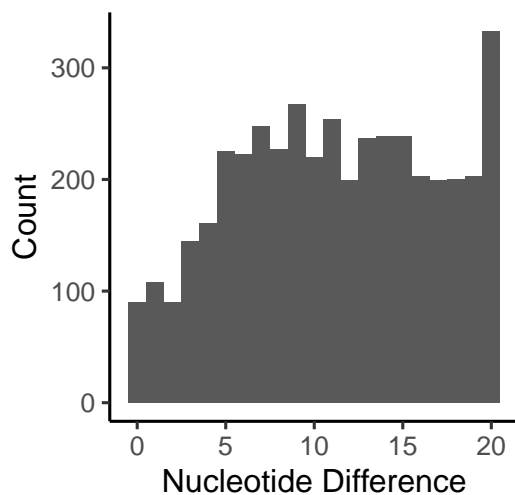
IGHV4–30–4*01

4918 sequences assigned
48 (1%) exact matches, in which:
34 unique CDR3
4 unique J



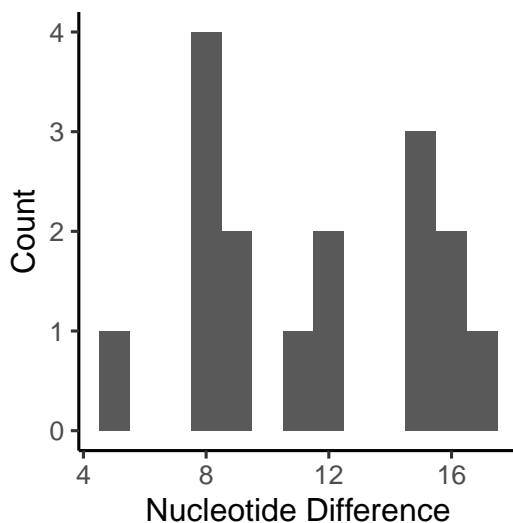
IGHV4–4*07

6348 sequences assigned
90 (1.4%) exact matches, in which:
74 unique CDR3
5 unique J



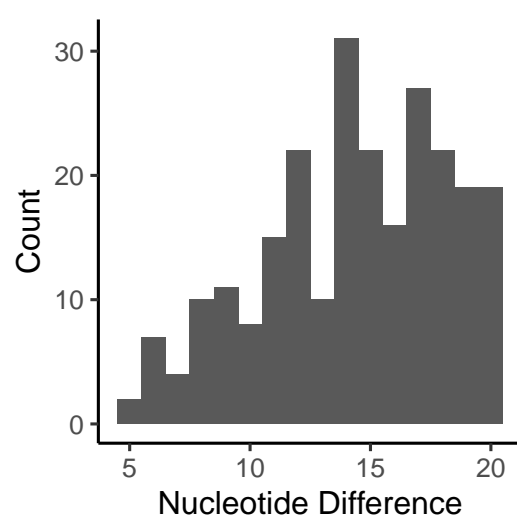
IGHV4–28*03

23 sequences assigned
No exact matches.



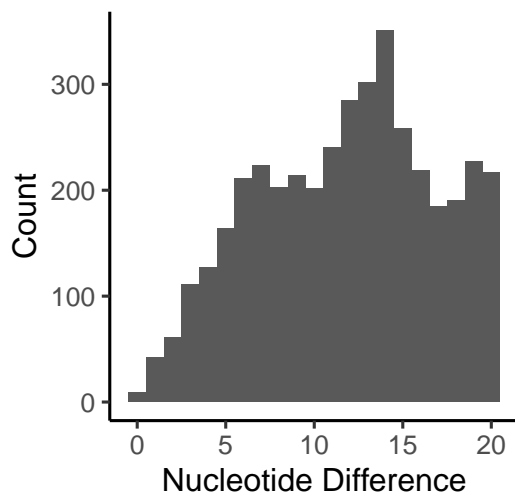
IGHV4–30–2*03

347 sequences assigned
No exact matches.



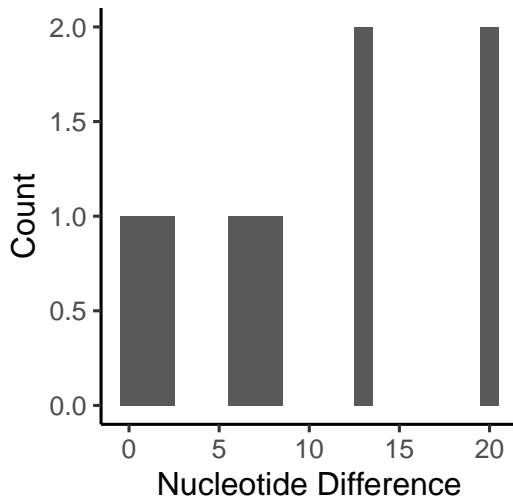
IGHV4–4*02_03

5701 sequences assigned
9 (0.2%) exact matches, in which:
8 unique CDR3
3 unique J



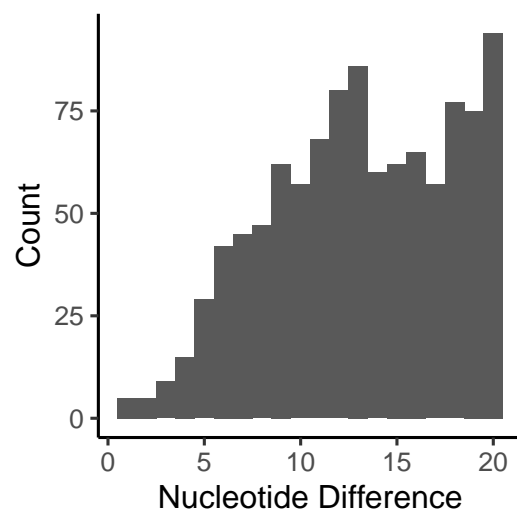
IGHV4–28*01_07

11 sequences assigned
1 (9.1%) exact matches, in which:
1 unique CDR3
1 unique J



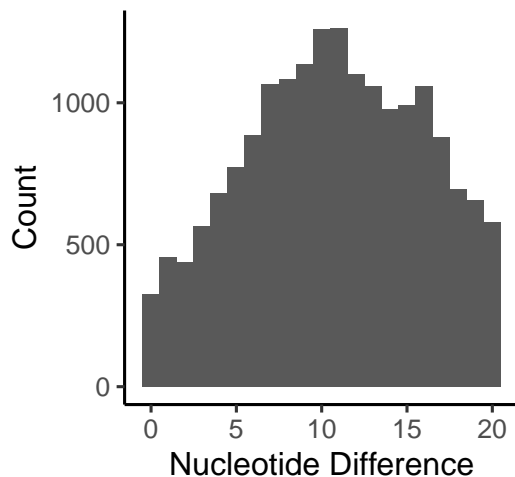
IGHV4–30–4*08

1590 sequences assigned
No exact matches.



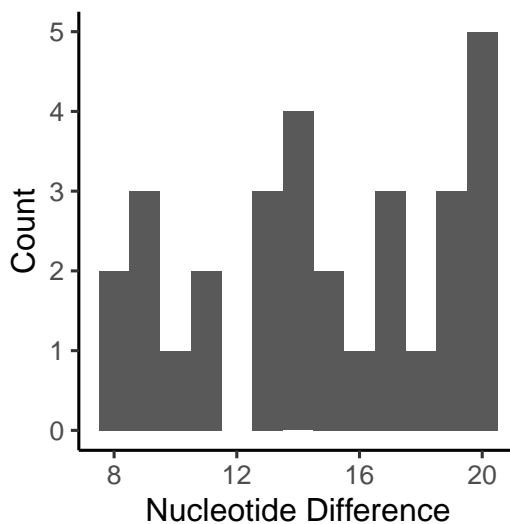
IGHV4-31*02

22541 sequences assigned
327 (1.5%) exact matches, in which:
250 unique CDR3
6 unique J



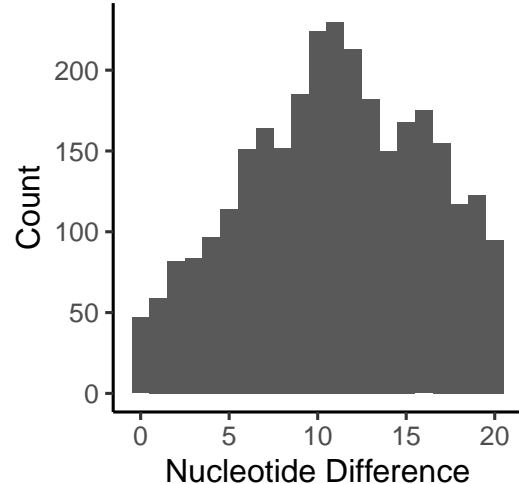
IGHV4-38-2*02

61 sequences assigned
No exact matches.



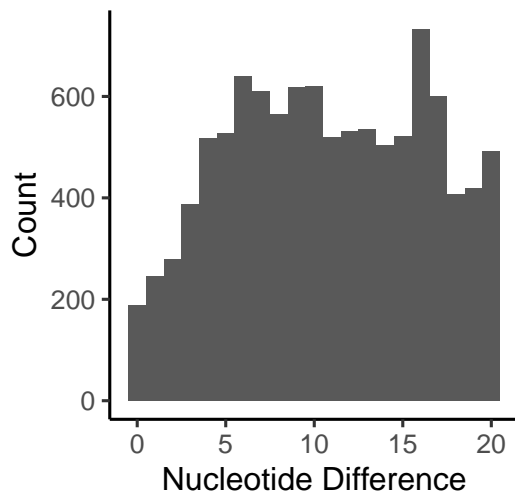
IGHV4-39*01_05

3605 sequences assigned
47 (1.3%) exact matches, in which:
40 unique CDR3
5 unique J



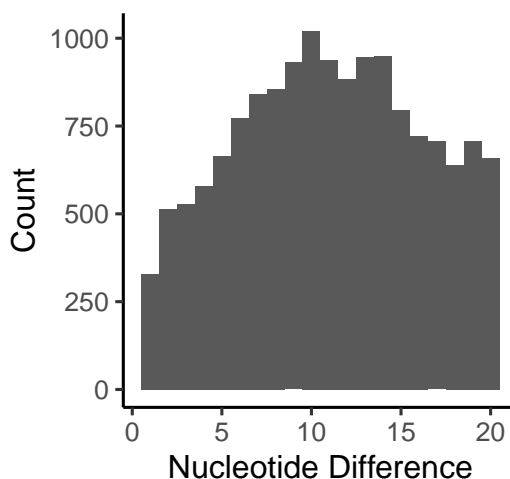
IGHV4-34*01_02

12182 sequences assigned
188 (1.5%) exact matches, in which:
147 unique CDR3
5 unique J



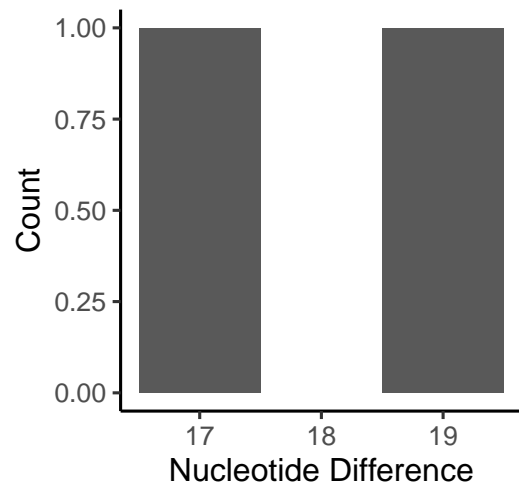
IGHV4-39*02

20142 sequences assigned
No exact matches.



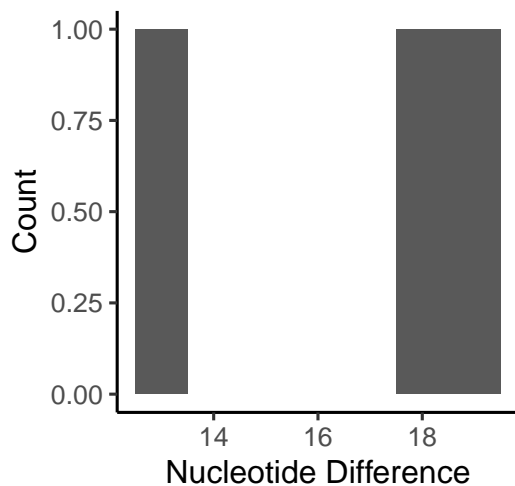
IGHV4-55*09

35 sequences assigned
No exact matches.



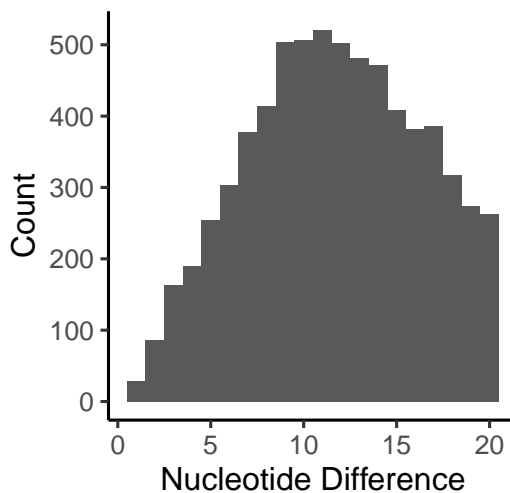
IGHV4-38-2*01

7 sequences assigned
No exact matches.



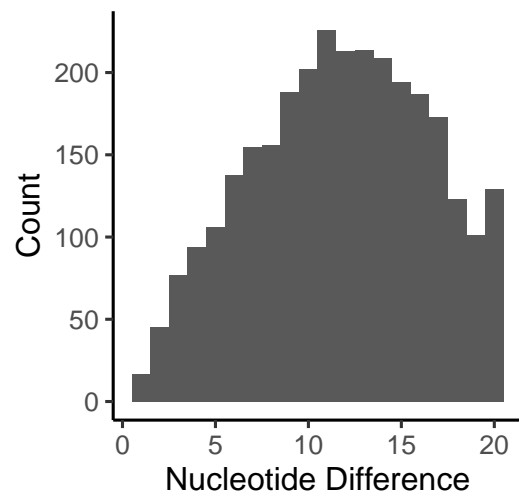
IGHV4-39*07

8154 sequences assigned
No exact matches.



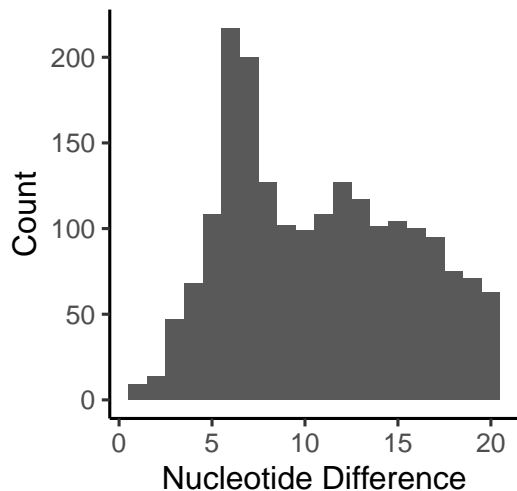
IGHV4-59*08

3564 sequences assigned
No exact matches.



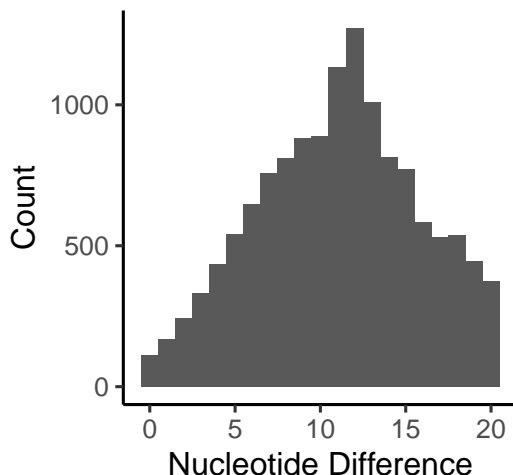
IGHV4-59*11

2824 sequences assigned
No exact matches.



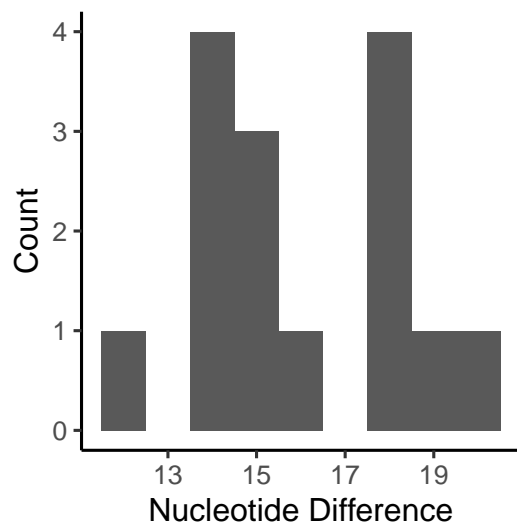
IGHV4-61*01

15723 sequences assigned
112 (0.7%) exact matches, in which:
96 unique CDR3
6 unique J



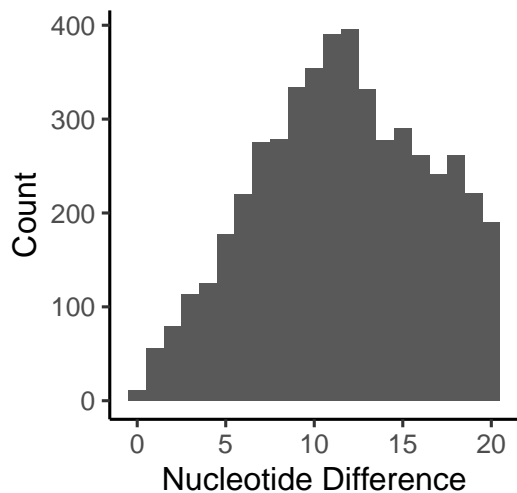
IGHV1/OR15-2*02_03

25 sequences assigned
No exact matches.



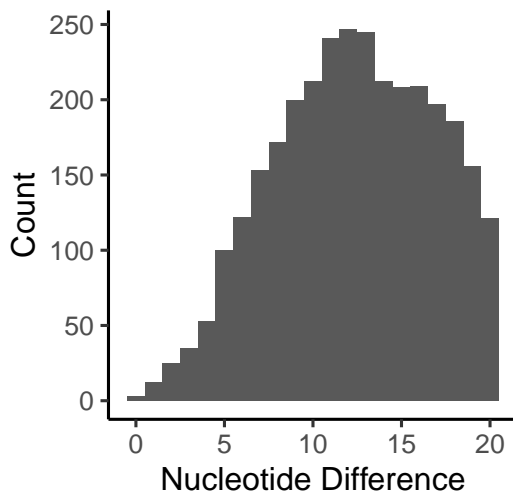
IGHV4-59*12

5770 sequences assigned
11 (0.2%) exact matches, in which:
11 unique CDR3
4 unique J



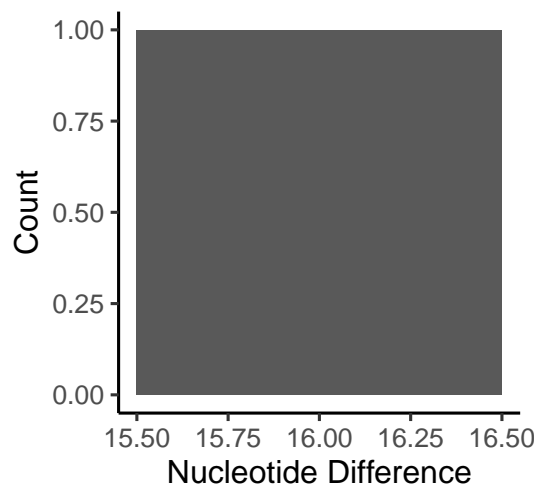
IGHV4-61*08

3935 sequences assigned
3 (0.1%) exact matches, in which:
3 unique CDR3
3 unique J



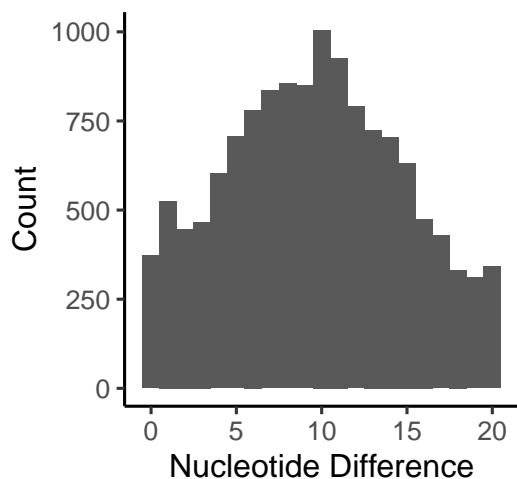
IGHV1/OR15-3*02

1 sequences assigned
No exact matches.



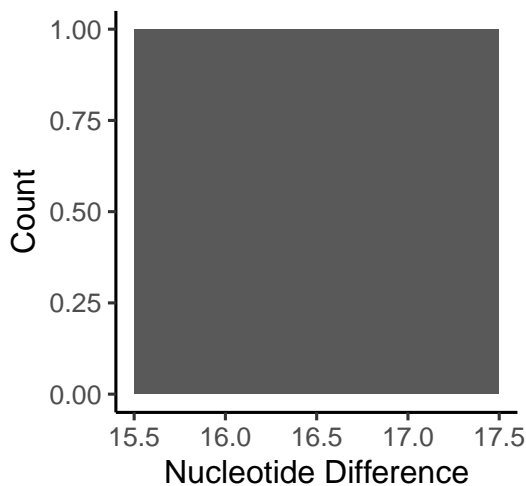
IGHV4-59*01_07

15047 sequences assigned
373 (2.5%) exact matches, in which:
287 unique CDR3
6 unique J



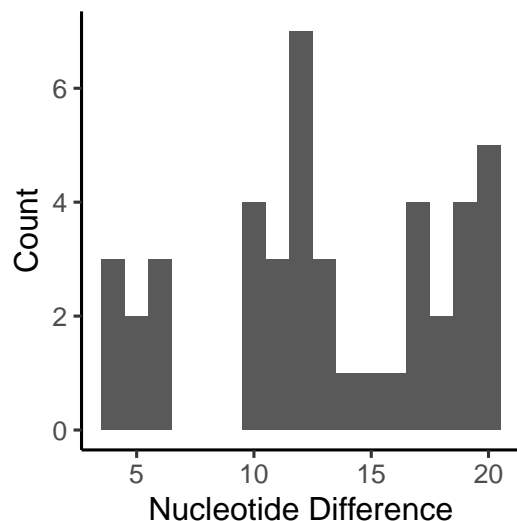
IGHV1/OR15-1*04

2 sequences assigned
No exact matches.



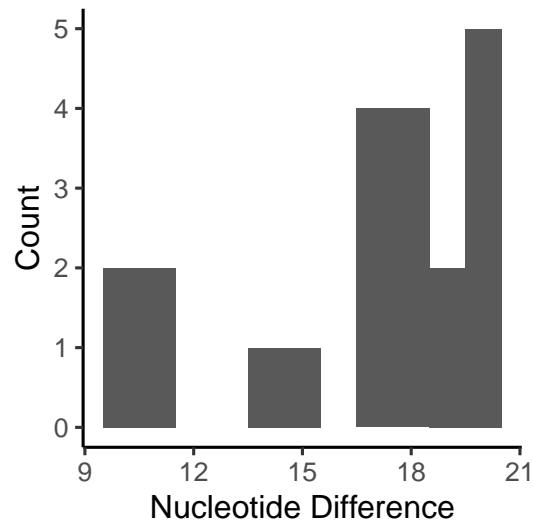
IGHV4/OR15-8*01

75 sequences assigned
No exact matches.



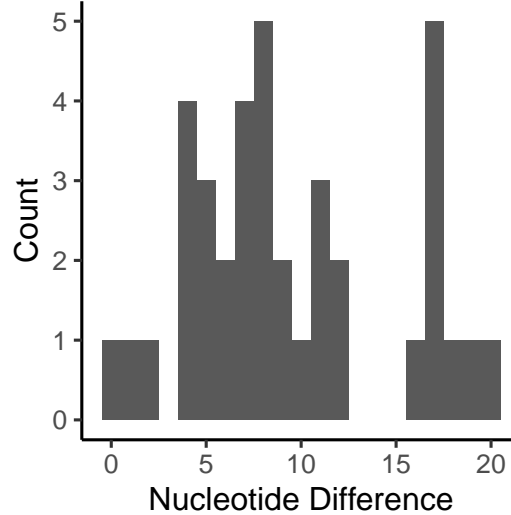
IGHV4/OR15–8*02

53 sequences assigned
No exact matches.



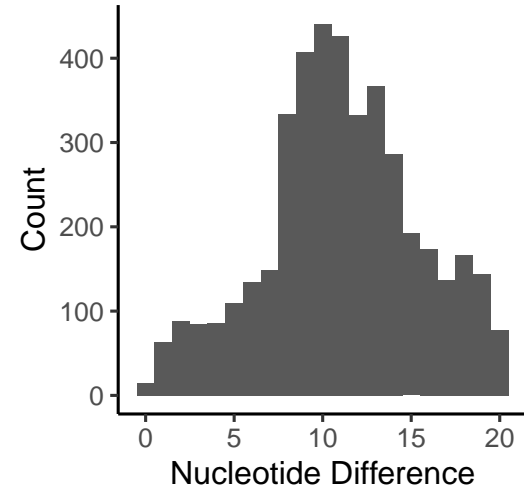
IGHV5–51*04

41 sequences assigned
1 (2.4%) exact matches, in which:
1 unique CDR3
1 unique J



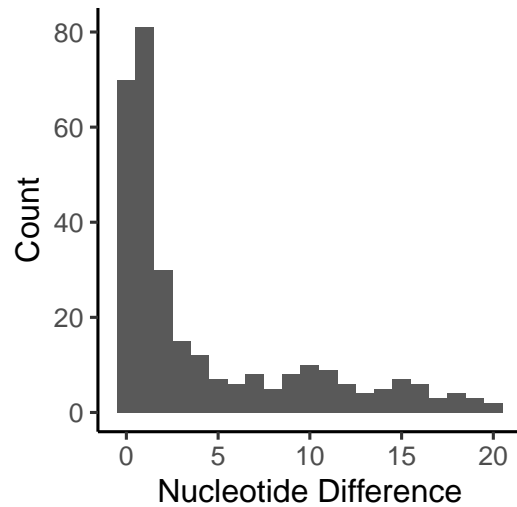
IGHV6–1*01_02

4947 sequences assigned
15 (0.3%) exact matches, in which:
13 unique CDR3
4 unique J



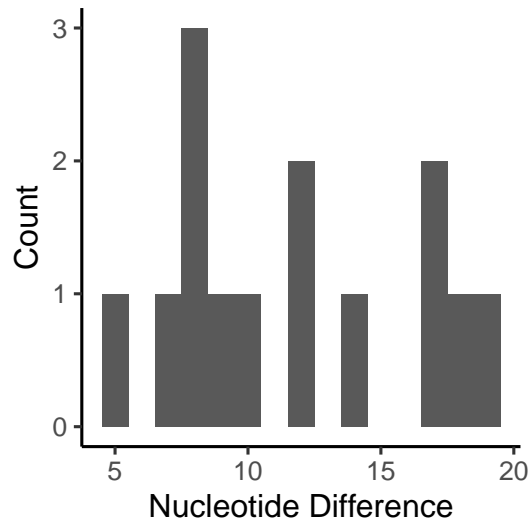
IGHV4/OR15–8*02_T71C_

306 sequences assigned
70 (22.9%) exact matches, in which:
50 unique CDR3
4 unique J



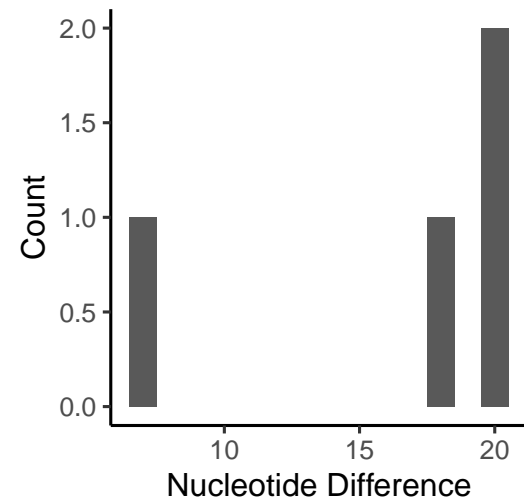
IGHV5–51*06

16 sequences assigned
No exact matches.



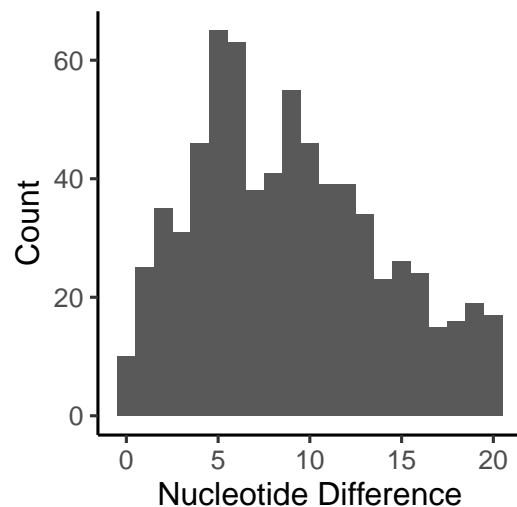
IGHV7–4–1*02

38 sequences assigned
No exact matches.



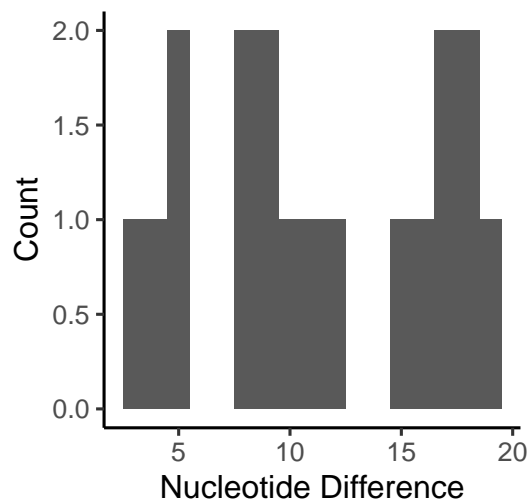
IGHV5–10–1*01_03

778 sequences assigned
10 (1.3%) exact matches, in which:
9 unique CDR3
4 unique J

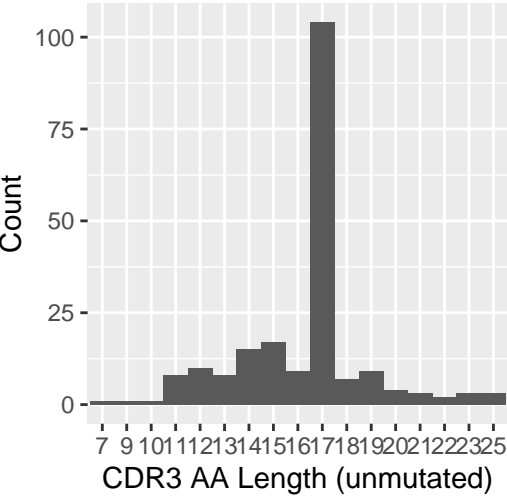


IGHV5–51*07

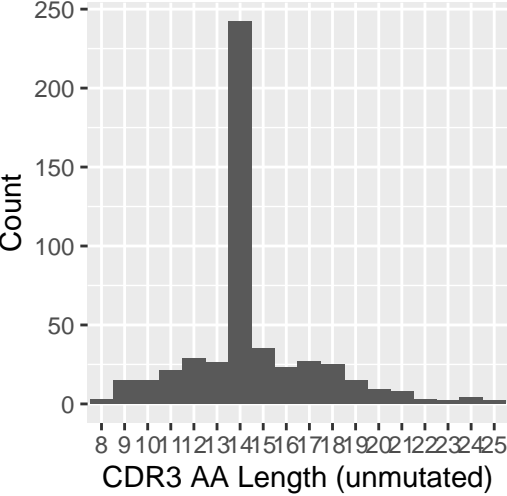
21 sequences assigned
No exact matches.



IGHV3-64D*08_T76G_C90A_C108A_T114C_C118A_G170C_G173C_G187T_G188A_C192T_C



IGHV4-4*02_03_G83A_C111T_T169C_A175G_A234G_A245C_A268C_G270T



IGHV4/OR15-8*02_T71C_C93T_T105C_G107A_A109G_C120T_C133T_A165G_A173C_A175C_

