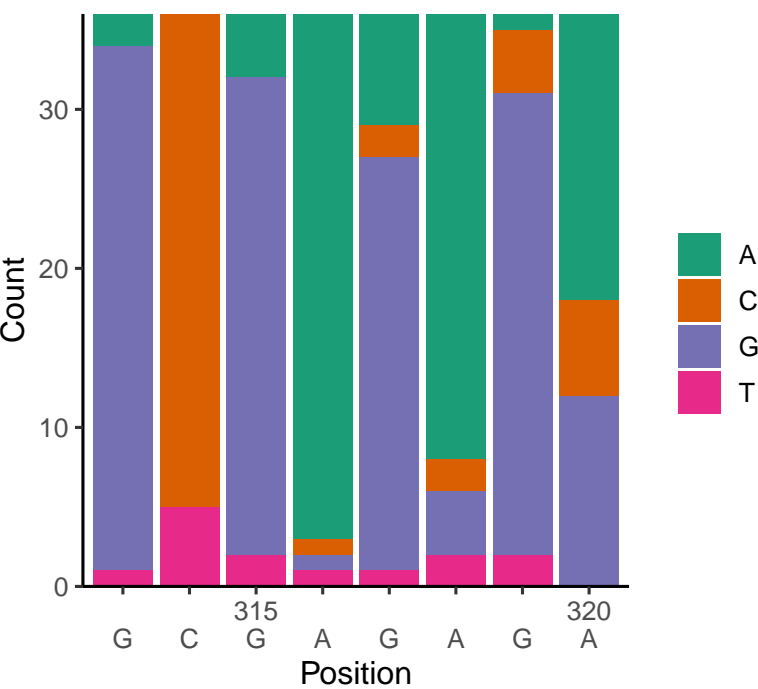
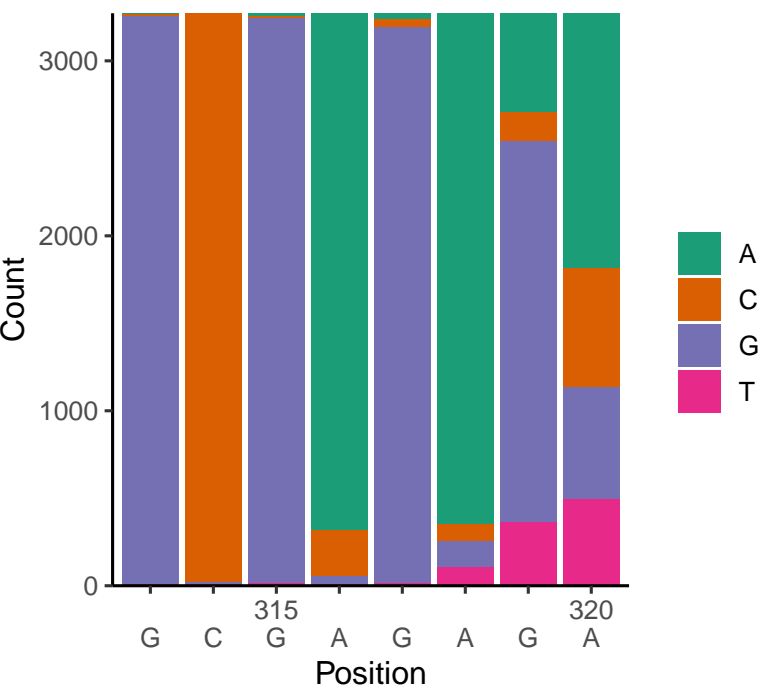


Gene IGHV3-69-1*01_A193T_C198T_A200C_C201T_T210A



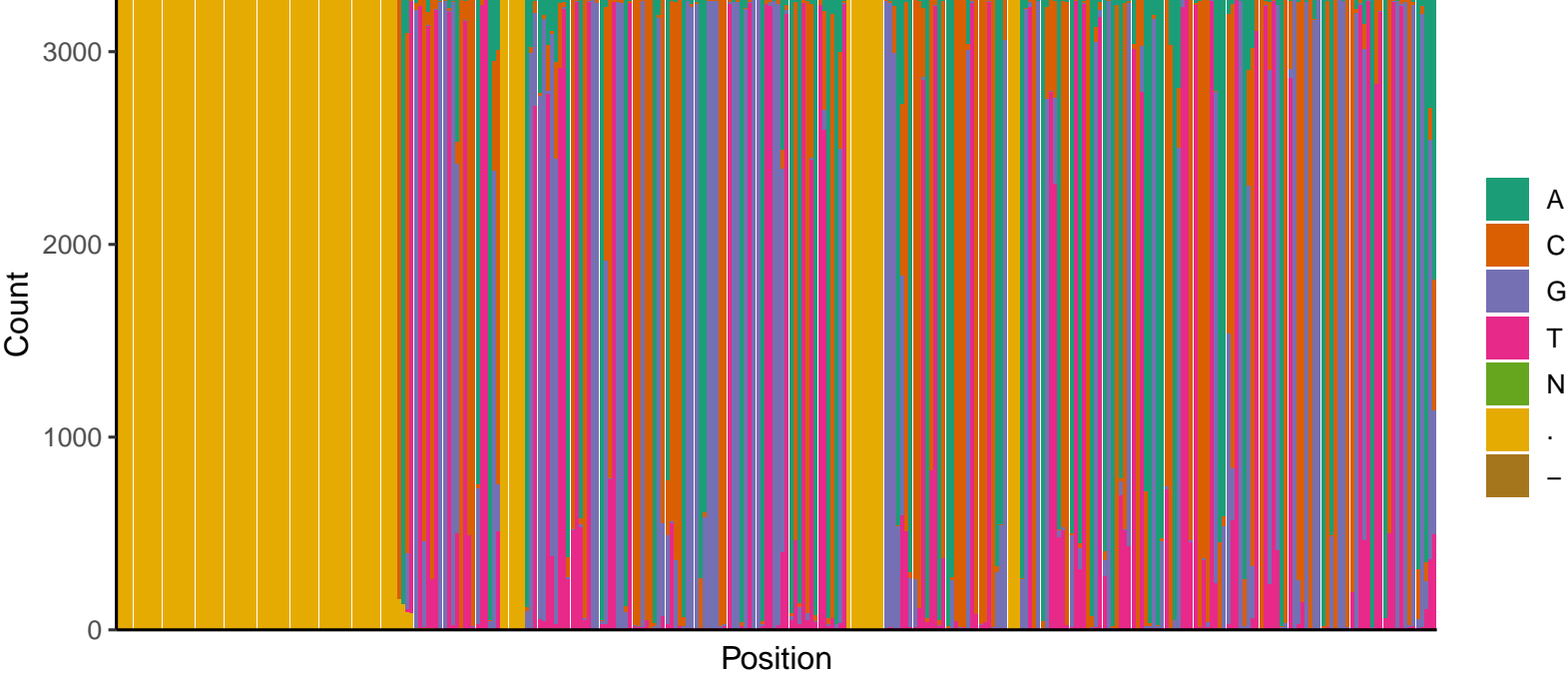
Gene IGHV4-31*03_04_C90T



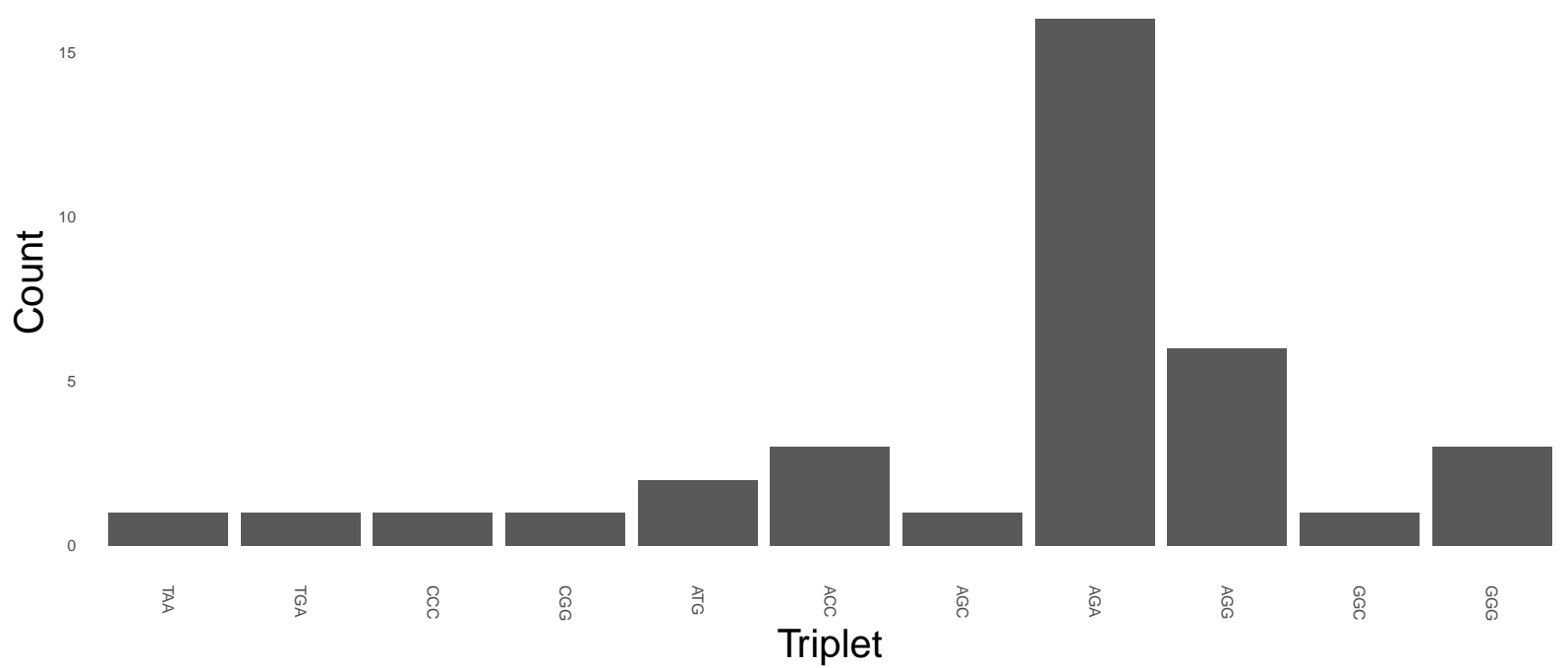
Gene IGHV3-69-1*01_A193T_C198T_A200C_C201T_T210A



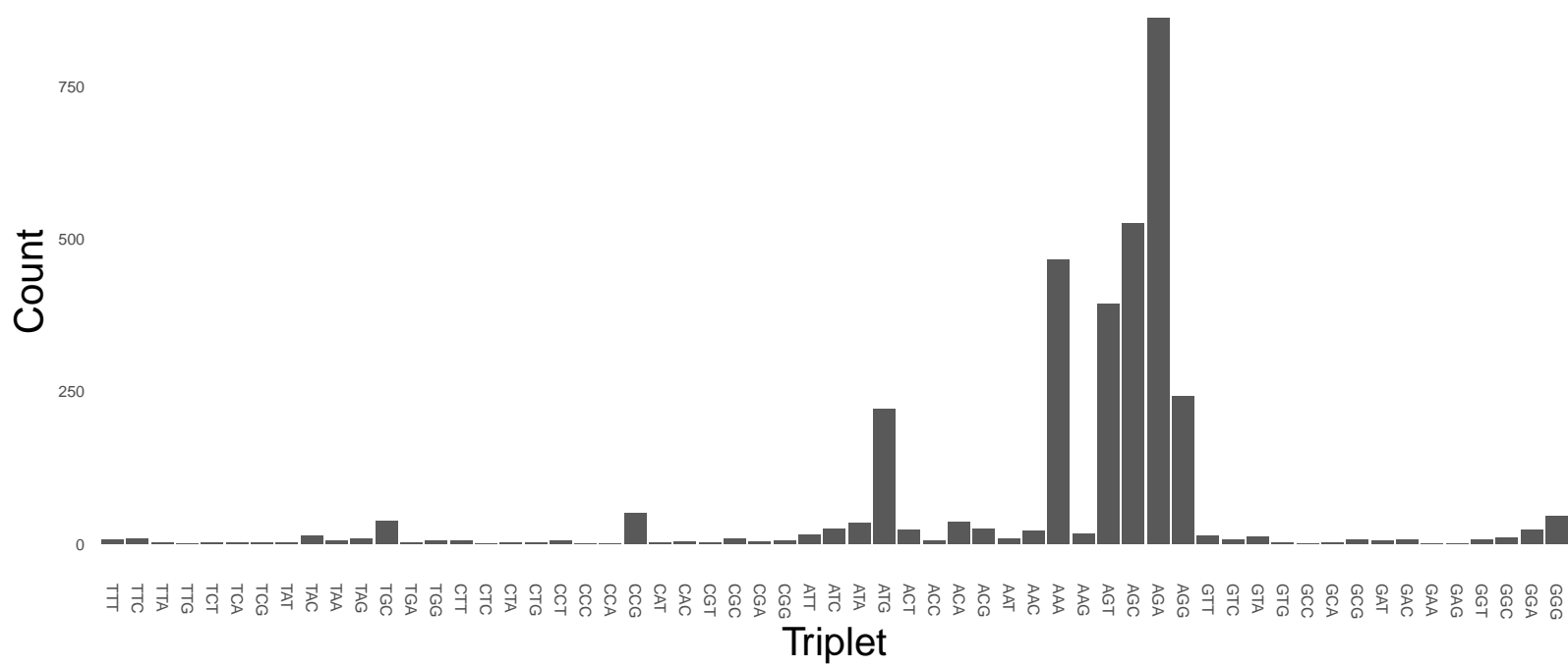
Gene IGHV4-31*03_04_C90T



IGHV3–69–1*01_A193T_C198T_A200C_C201T_T210A– Final 3 nucleotides as a triplet

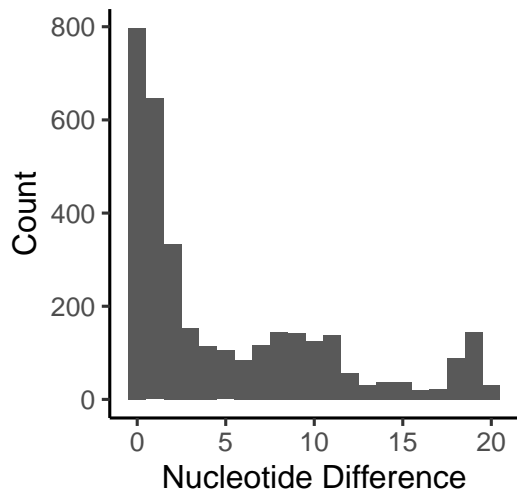


IGHV4–31*03_04_C90T– Final 3 nucleotides as a triplet



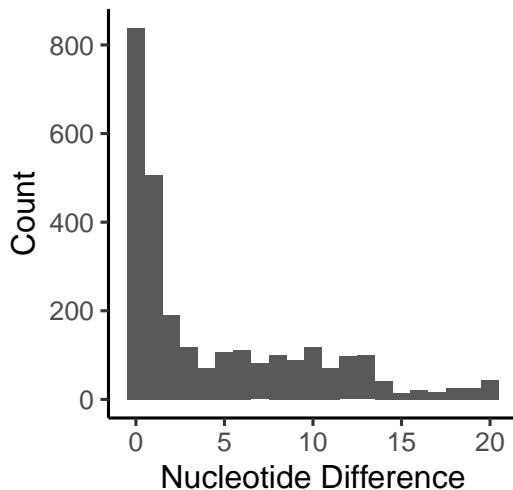
IGHV1-2*04

3463 sequences assigned
798 (23%) exact matches, in which:
700 unique CDR3
6 unique J



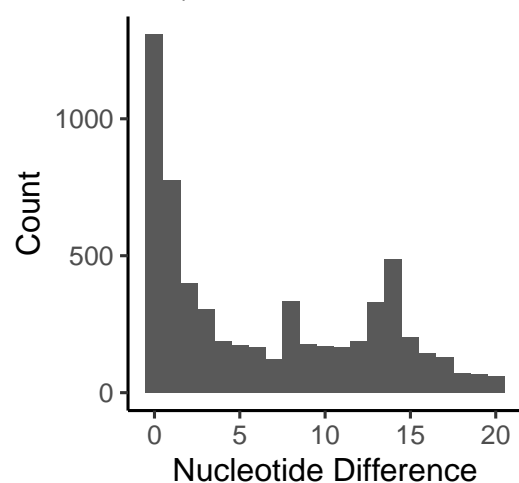
IGHV1-8*01

3448 sequences assigned
839 (24.3%) exact matches, in which:
764 unique CDR3
6 unique J



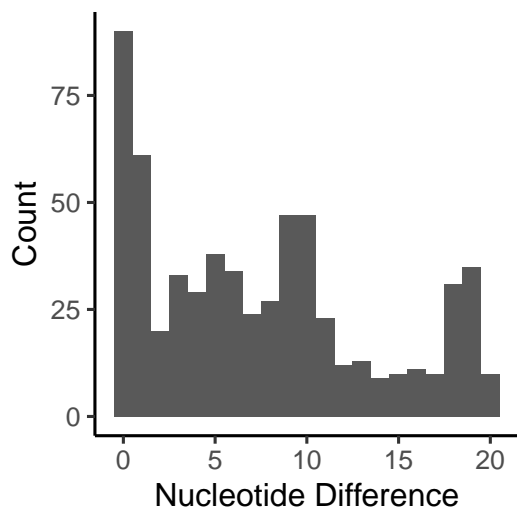
IGHV1-18*04

6581 sequences assigned
1308 (19.9%) exact matches, in which:
1173 unique CDR3
6 unique J



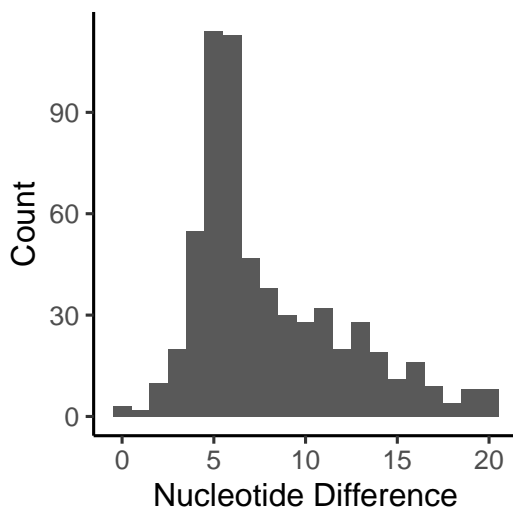
IGHV1-2*05

1038 sequences assigned
90 (8.7%) exact matches, in which:
79 unique CDR3
6 unique J



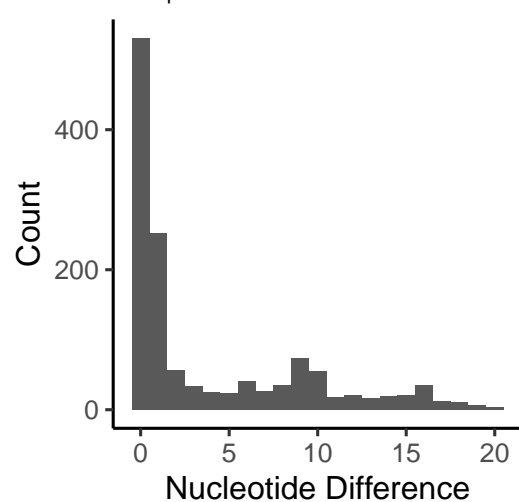
IGHV1-8*02

735 sequences assigned
3 (0.4%) exact matches, in which:
3 unique CDR3
2 unique J



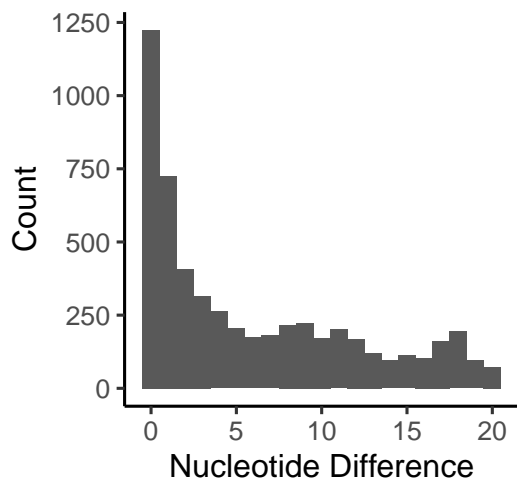
IGHV1-24*01

1394 sequences assigned
531 (38.1%) exact matches, in which:
492 unique CDR3
6 unique J



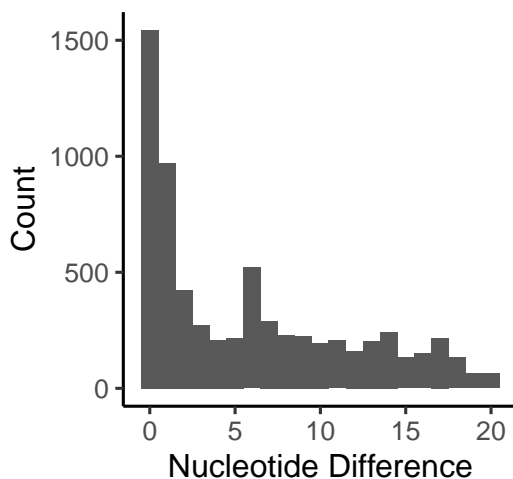
IGHV1-3*01_05

6329 sequences assigned
1224 (19.3%) exact matches, in which:
1050 unique CDR3
6 unique J



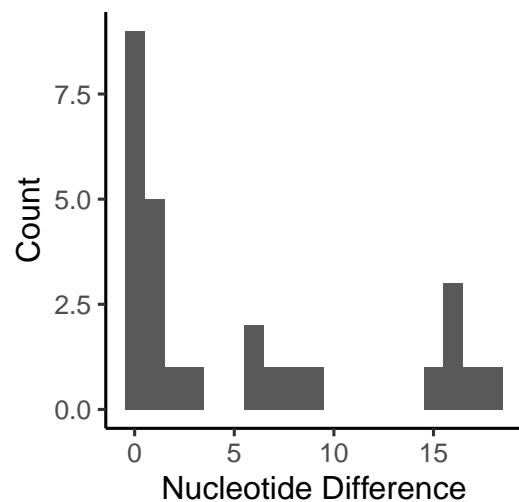
IGHV1-18*01

7672 sequences assigned
1544 (20.1%) exact matches, in which:
1390 unique CDR3
6 unique J



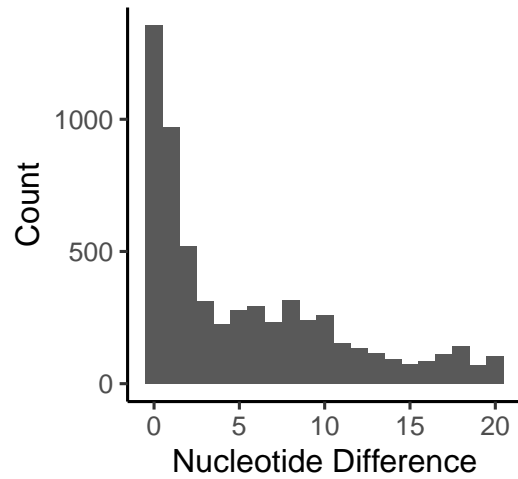
IGHV1-45*02

29 sequences assigned
9 (31%) exact matches, in which:
8 unique CDR3
4 unique J



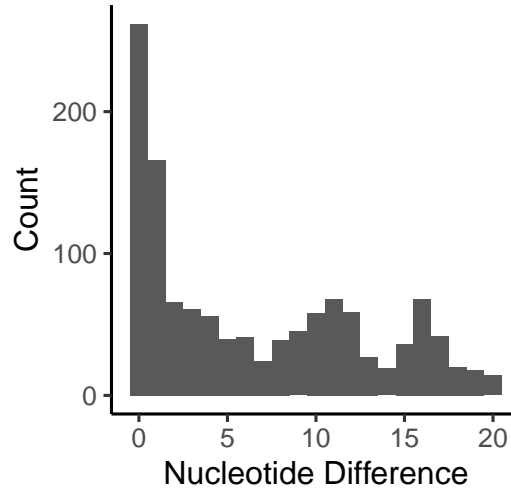
IGHV1-46*01

7323 sequences assigned
1355 (18.5%) exact matches, in which:
1225 unique CDR3
6 unique J



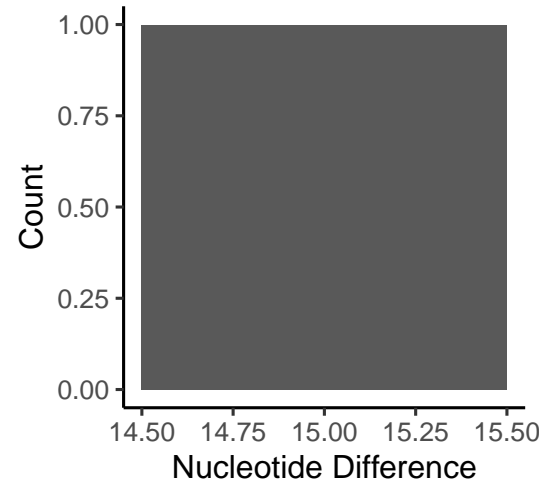
IGHV2-5*02

1954 sequences assigned
262 (13.4%) exact matches, in which:
237 unique CDR3
6 unique J



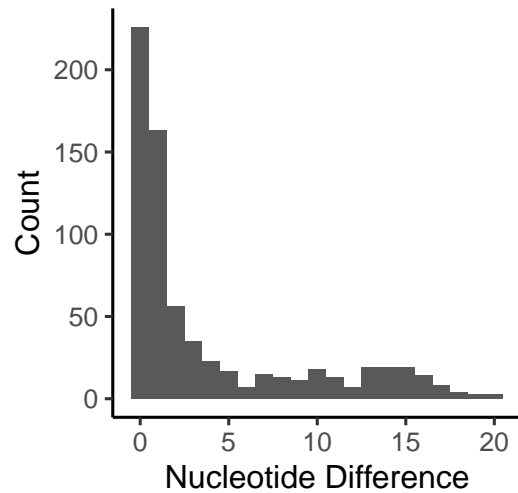
IGHV2-70D*04

5 sequences assigned
No exact matches.



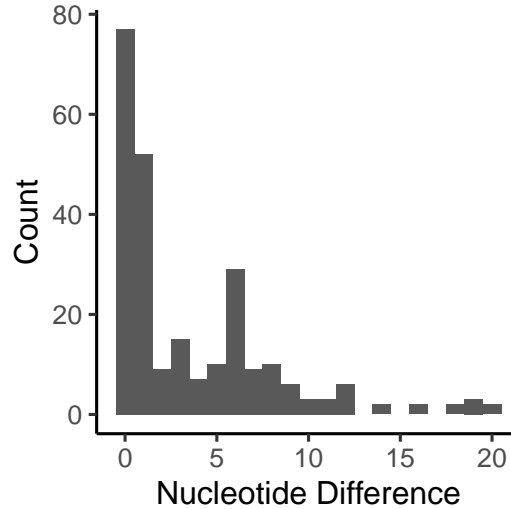
IGHV1-58*01_03

818 sequences assigned
226 (27.6%) exact matches, in which:
209 unique CDR3
5 unique J



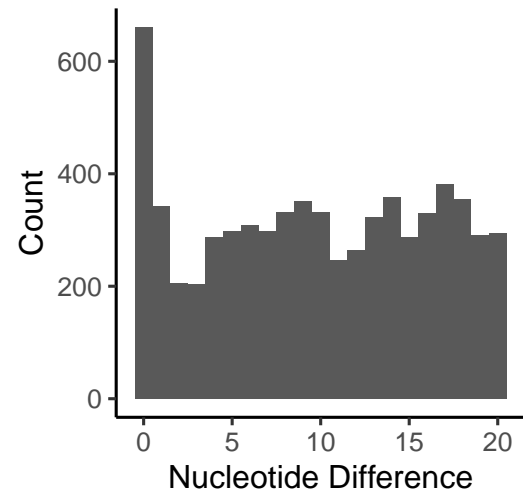
IGHV2-26*01

268 sequences assigned
77 (28.7%) exact matches, in which:
70 unique CDR3
6 unique J



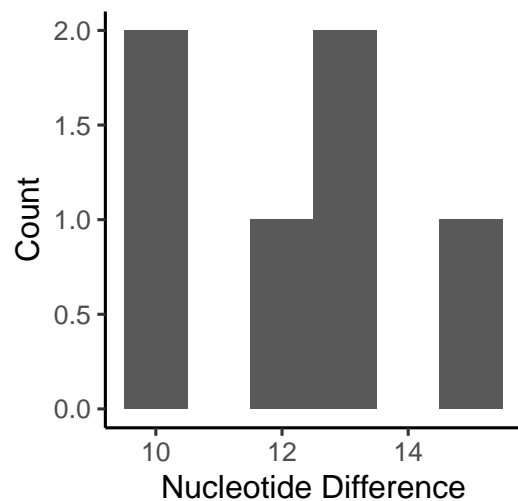
IGHV3-7*01

8520 sequences assigned
661 (7.8%) exact matches, in which:
487 unique CDR3
6 unique J



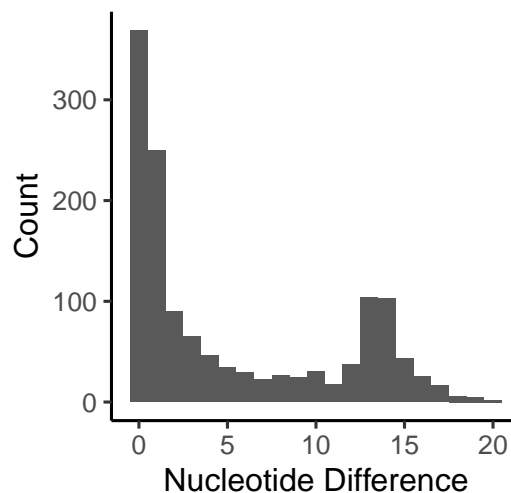
IGHV1-NL1*01

6 sequences assigned
No exact matches.



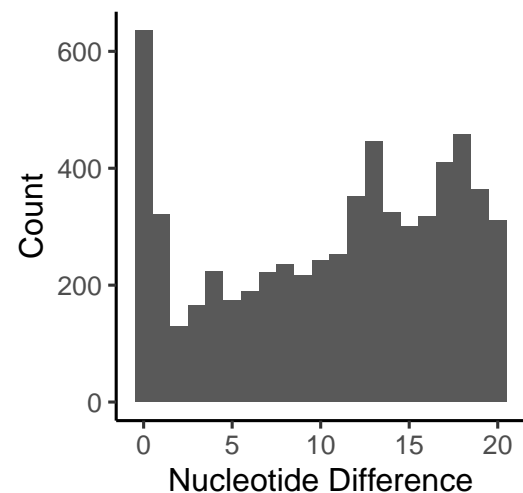
IGHV2-70*01

1618 sequences assigned
369 (22.8%) exact matches, in which:
333 unique CDR3
5 unique J



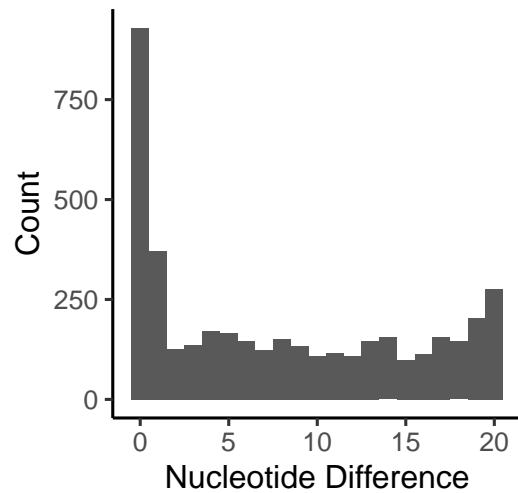
IGHV3-7*03

10111 sequences assigned
636 (6.3%) exact matches, in which:
465 unique CDR3
6 unique J



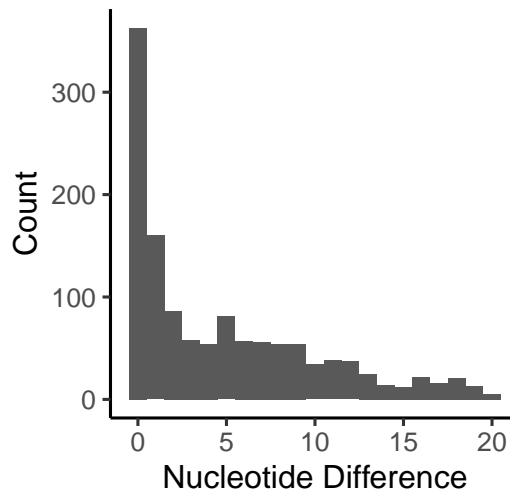
IGHV3-9*01

5999 sequences assigned
930 (15.5%) exact matches, in which:
663 unique CDR3
6 unique J



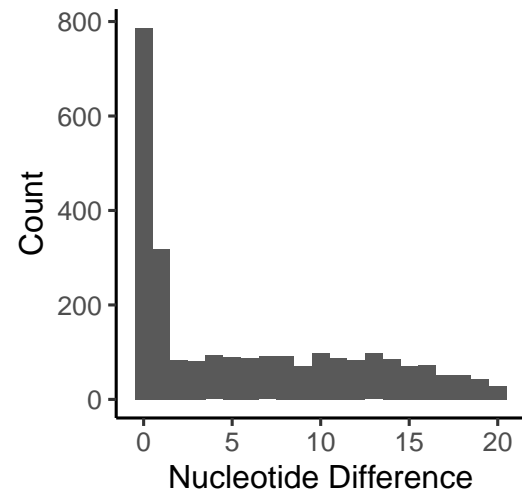
IGHV3-11*06

1336 sequences assigned
363 (27.2%) exact matches, in which:
263 unique CDR3
6 unique J



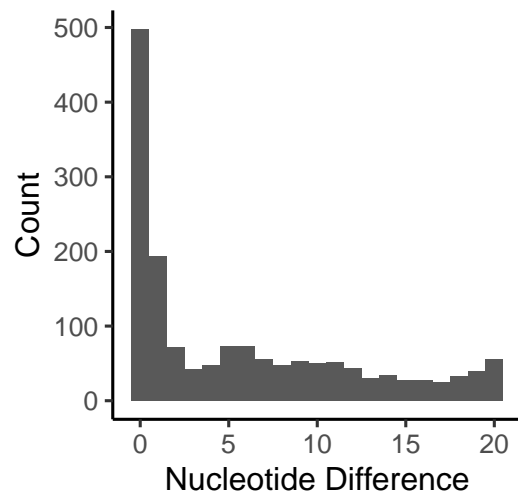
IGHV3-15*01_02

2873 sequences assigned
787 (27.4%) exact matches, in which:
579 unique CDR3
6 unique J



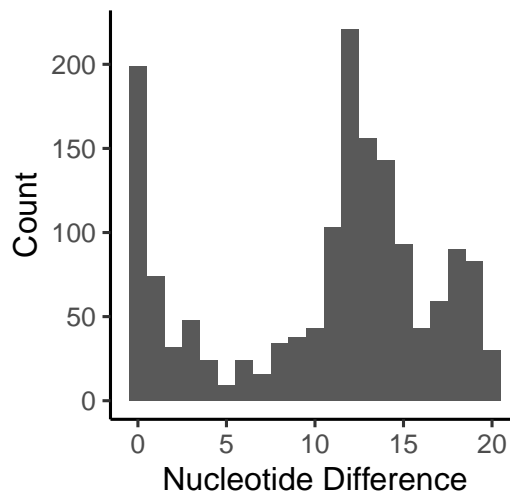
IGHV3-11*01

1860 sequences assigned
498 (26.8%) exact matches, in which:
369 unique CDR3
6 unique J



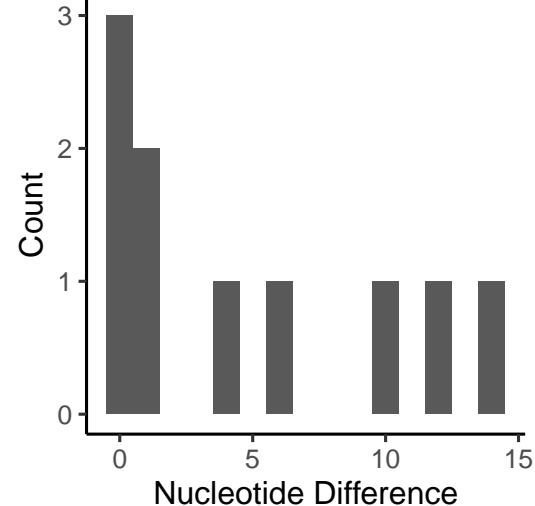
IGHV3-13*01

1701 sequences assigned
199 (11.7%) exact matches, in which:
141 unique CDR3
5 unique J



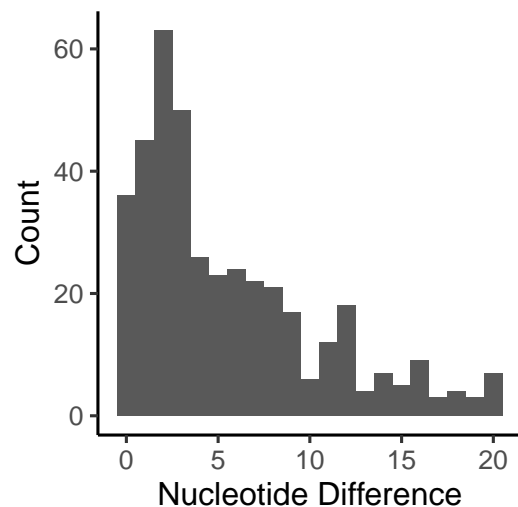
IGHV3-19*01

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



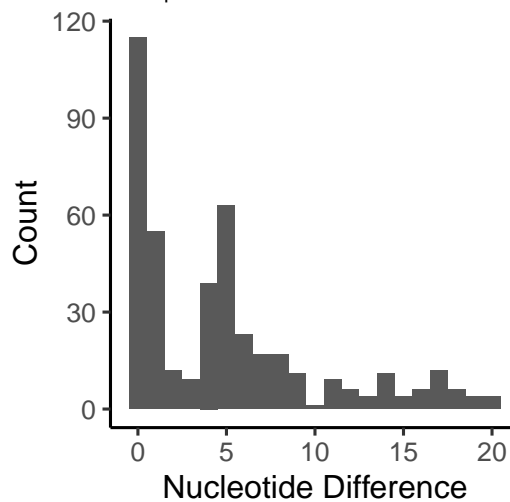
IGHV3-11*04

429 sequences assigned
36 (8.4%) exact matches, in which:
36 unique CDR3
5 unique J



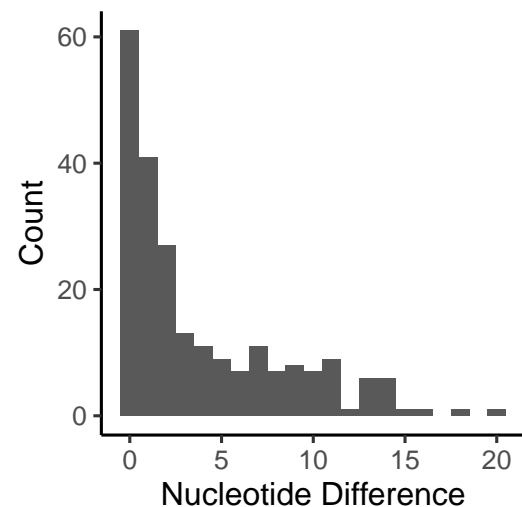
IGHV3-13*05

434 sequences assigned
115 (26.5%) exact matches, in which:
79 unique CDR3
5 unique J



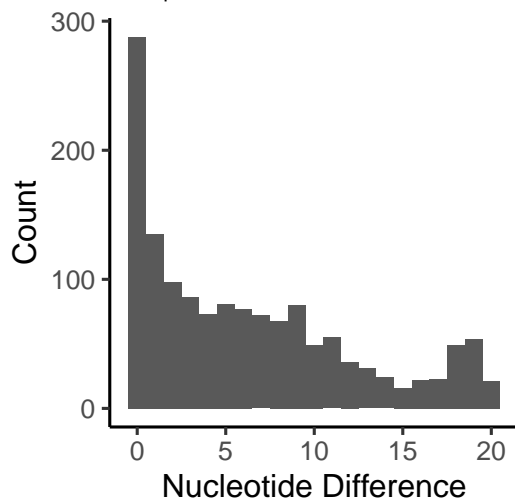
IGHV3-20*01_02

237 sequences assigned
61 (25.7%) exact matches, in which:
45 unique CDR3
4 unique J



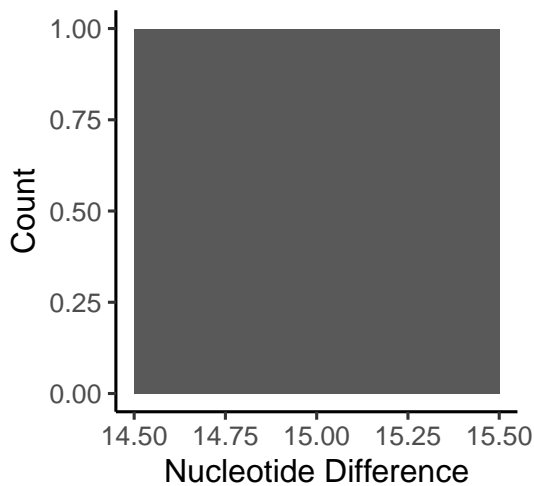
IGHV3-20*03_04

1682 sequences assigned
288 (17.1%) exact matches, in which:
212 unique CDR3
6 unique J



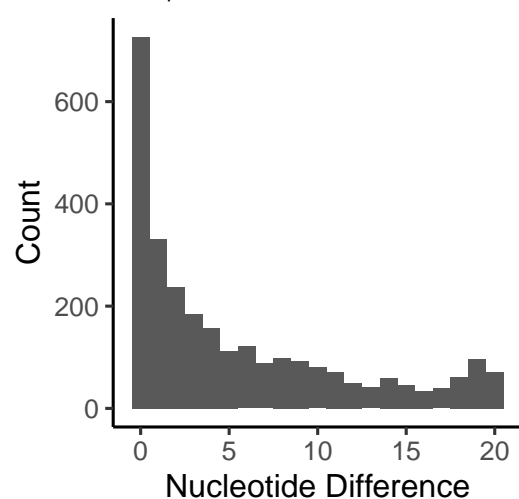
IGHV3-22*01_02

1 sequences assigned
No exact matches.



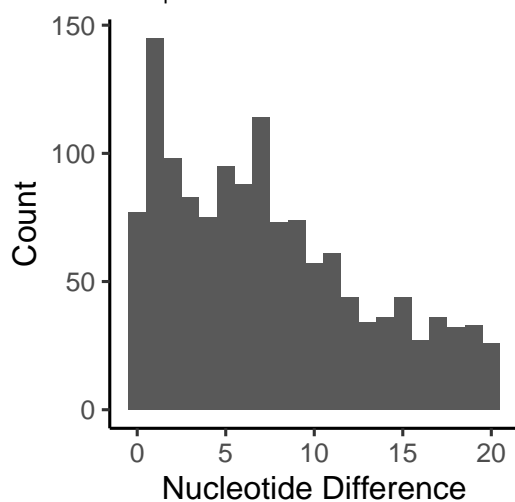
IGHV3-33*06

3196 sequences assigned
727 (22.7%) exact matches, in which:
535 unique CDR3
6 unique J



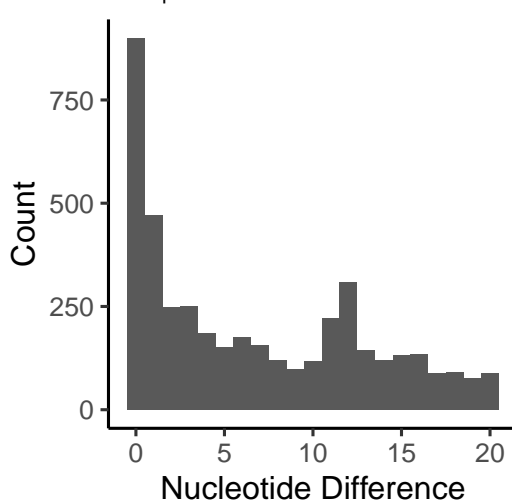
IGHV3-21*04

1644 sequences assigned
77 (4.7%) exact matches, in which:
75 unique CDR3
5 unique J



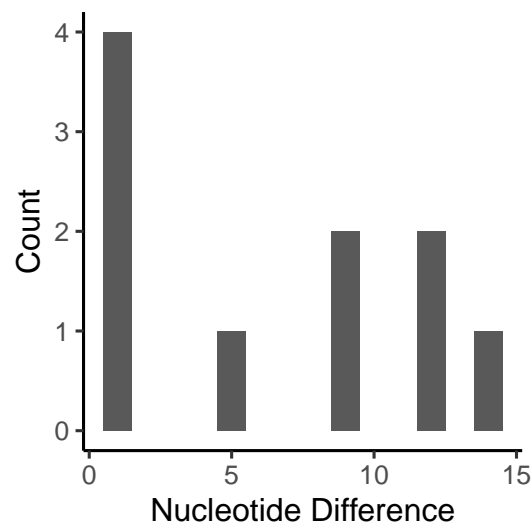
IGHV3-33*01

5236 sequences assigned
900 (17.2%) exact matches, in which:
695 unique CDR3
6 unique J



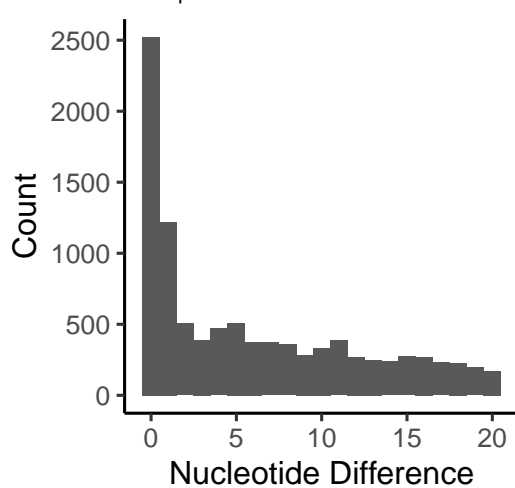
IGHV3-35*01

10 sequences assigned
No exact matches.



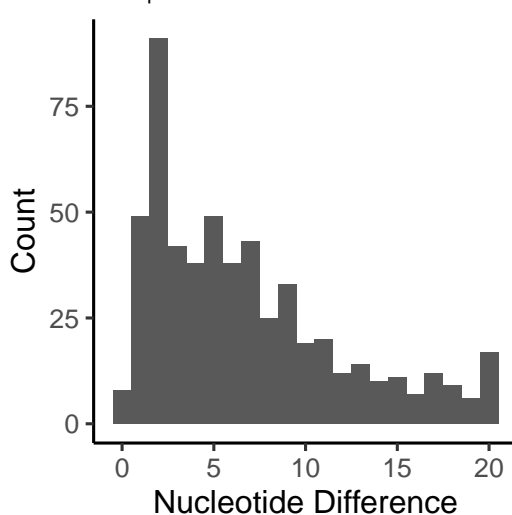
IGHV3-21*01_02

11933 sequences assigned
2522 (21.1%) exact matches, in which:
1762 unique CDR3
6 unique J



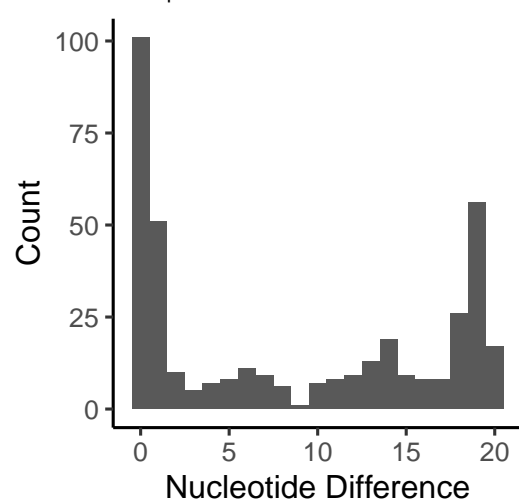
IGHV3-33*05

688 sequences assigned
8 (1.2%) exact matches, in which:
8 unique CDR3
2 unique J



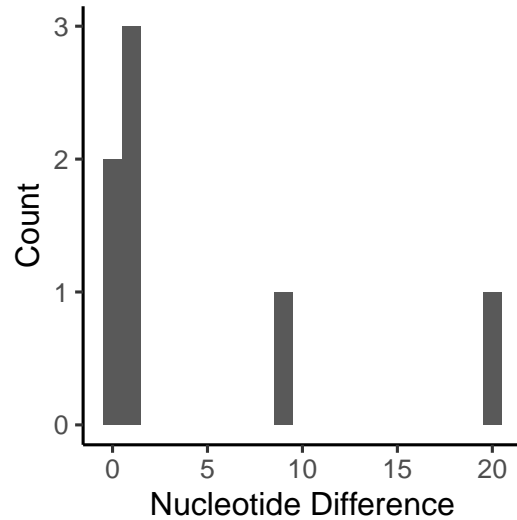
IGHV3-43*01

721 sequences assigned
101 (14%) exact matches, in which:
73 unique CDR3
5 unique J



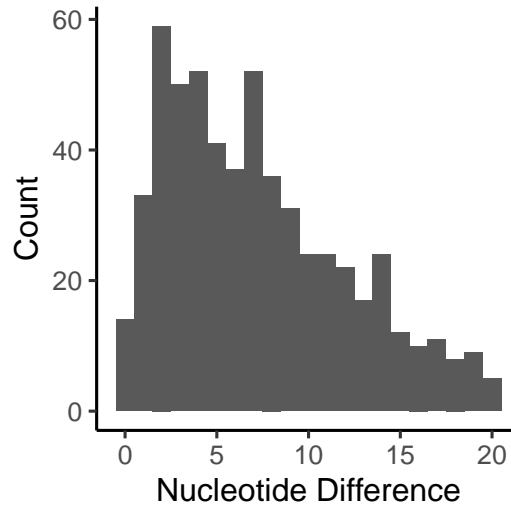
IGHV3-47*02

7 sequences assigned
2 (28.6%) exact matches, in which:
1 unique CDR3
1 unique J



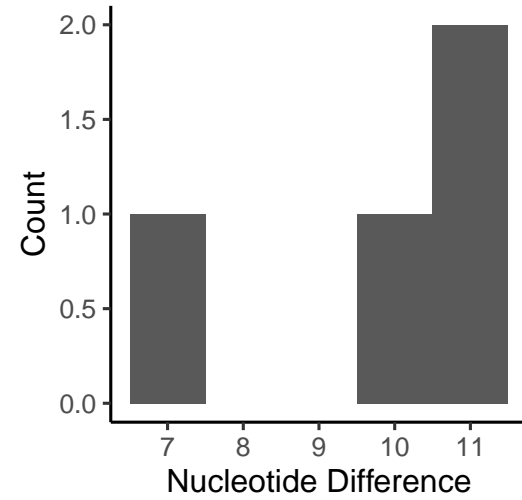
IGHV3-48*04

612 sequences assigned
14 (2.3%) exact matches, in which:
14 unique CDR3
4 unique J



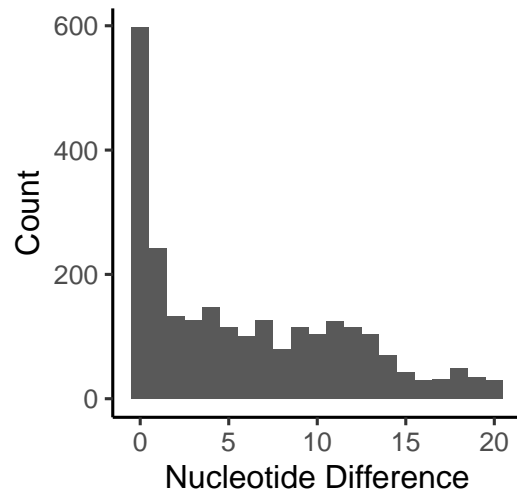
IGHV3-52*01_03

4 sequences assigned
No exact matches.



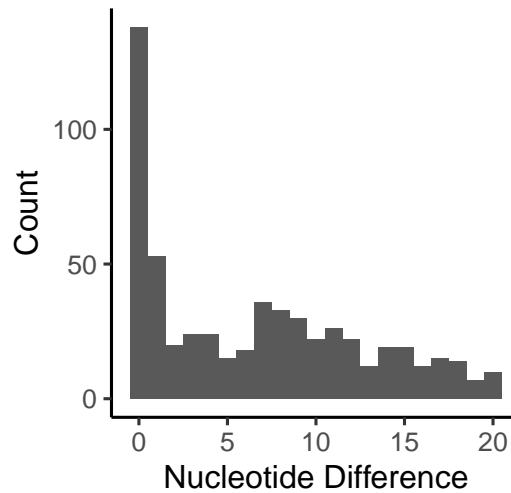
IGHV3-48*02

2933 sequences assigned
598 (20.4%) exact matches, in which:
431 unique CDR3
6 unique J



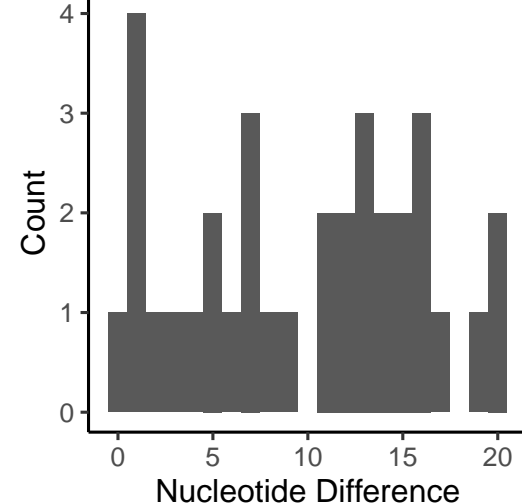
IGHV3-49*04

752 sequences assigned
138 (18.4%) exact matches, in which:
113 unique CDR3
6 unique J



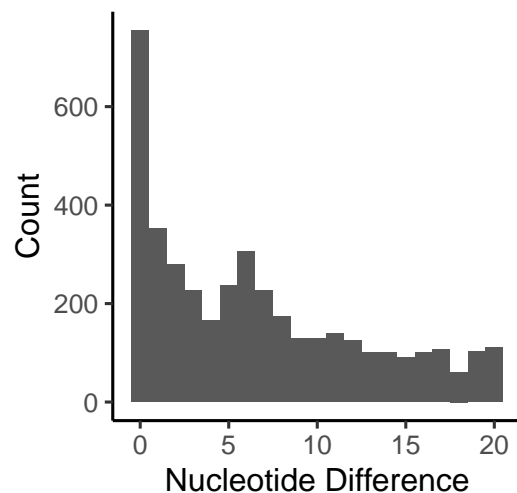
IGHV3-53*05

53 sequences assigned
1 (1.9%) exact matches, in which:
1 unique CDR3
1 unique J



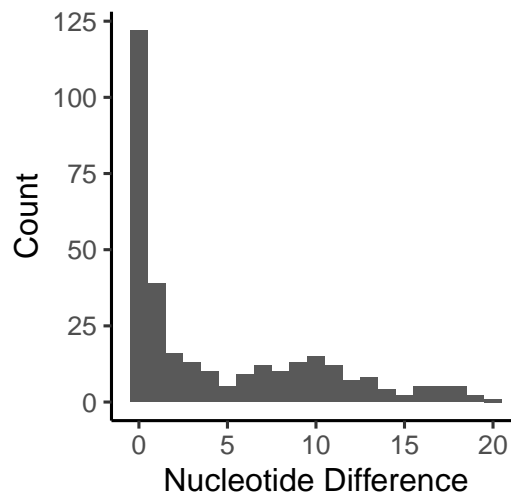
IGHV3-48*03

4784 sequences assigned
755 (15.8%) exact matches, in which:
540 unique CDR3
6 unique J



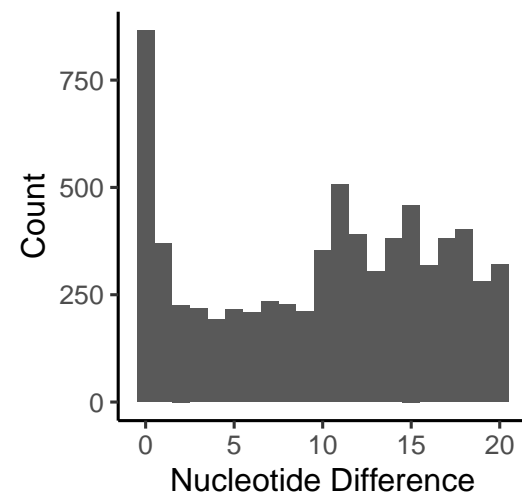
IGHV3-49*03_05

346 sequences assigned
122 (35.3%) exact matches, in which:
93 unique CDR3
4 unique J



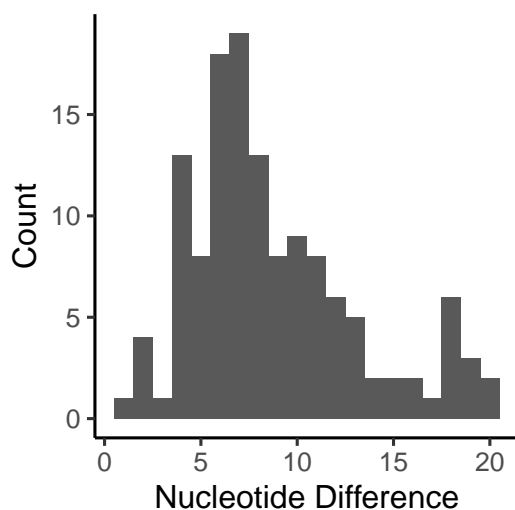
IGHV3-53*01_02

9544 sequences assigned
866 (9.1%) exact matches, in which:
635 unique CDR3
6 unique J



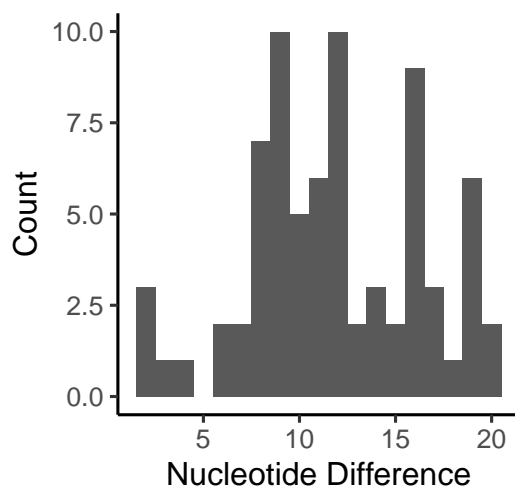
IGHV3-64*04

161 sequences assigned
No exact matches.



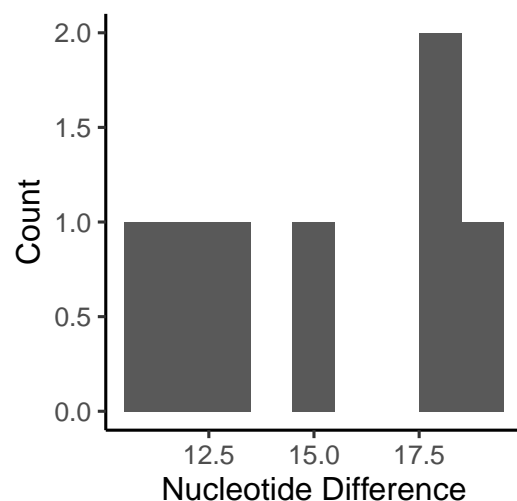
IGHV3-66*02

80 sequences assigned
No exact matches.



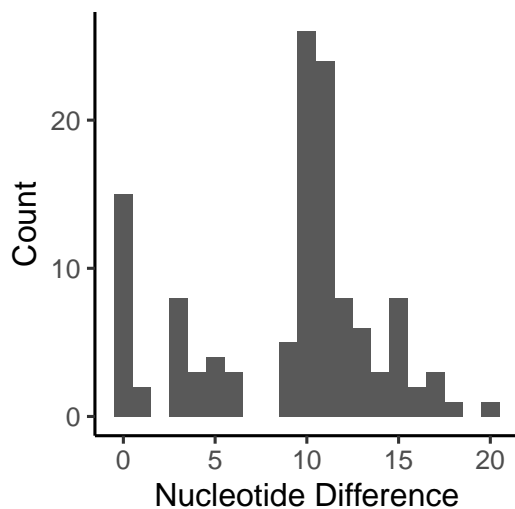
IGHV3-69-1*02

19 sequences assigned
No exact matches.



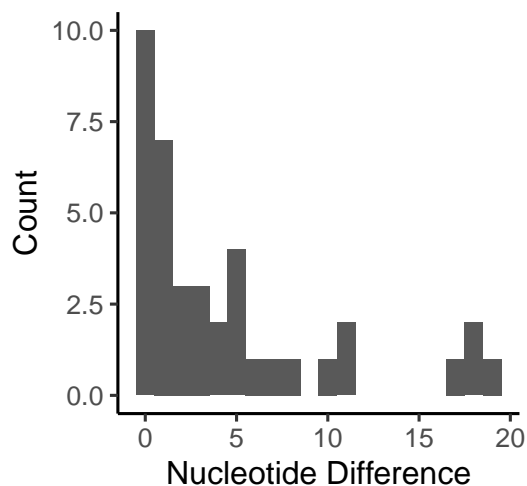
IGHV3-64*02_07

137 sequences assigned
15 (10.9%) exact matches, in which:
13 unique CDR3
3 unique J



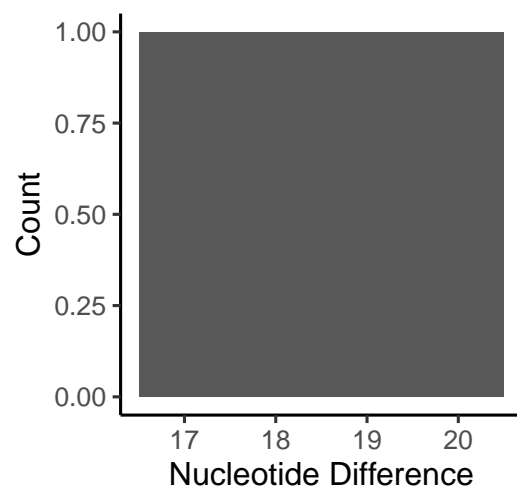
IGHV3-66*03

43 sequences assigned
10 (23.3%) exact matches, in which:
10 unique CDR3
3 unique J



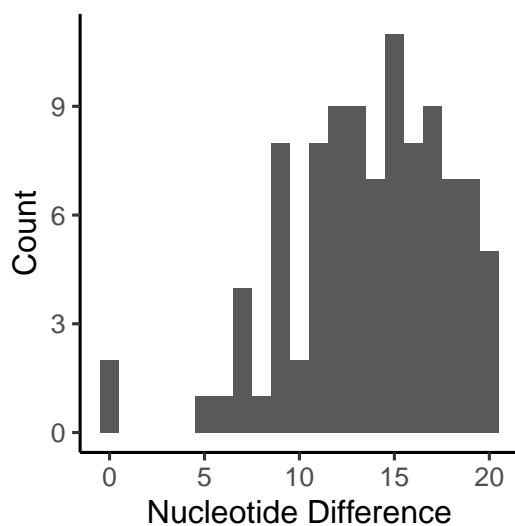
IGHV3-69-1*01_A193T_

36 sequences assigned
No exact matches.



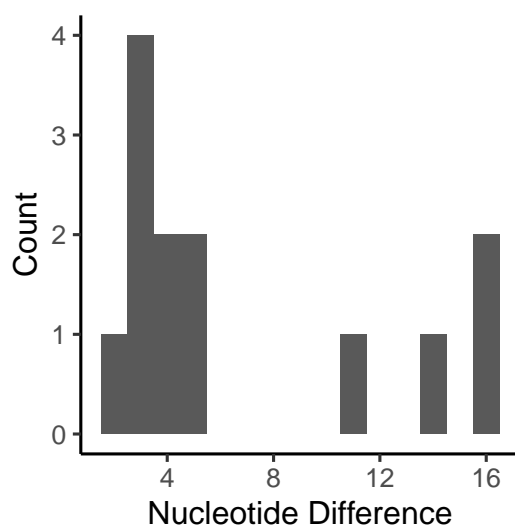
IGHV3-66*01

146 sequences assigned
2 (1.4%) exact matches, in which:
2 unique CDR3
1 unique J



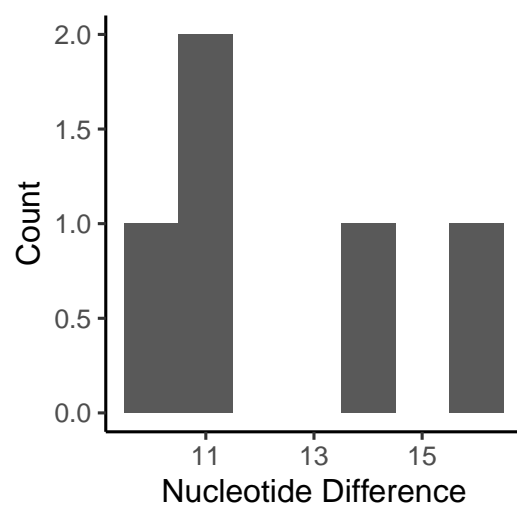
IGHV3-69-1*01

18 sequences assigned
No exact matches.



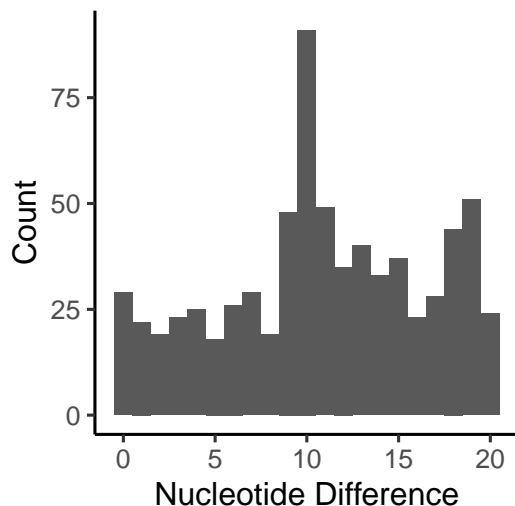
IGHV3-71*01_04

6 sequences assigned
No exact matches.



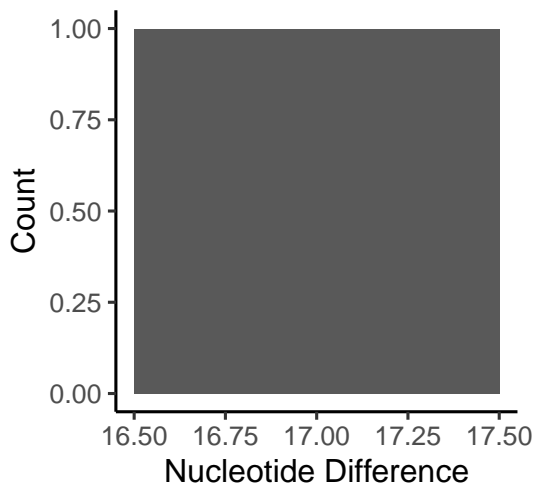
IGHV3-72*01

962 sequences assigned
29 (3%) exact matches, in which:
22 unique CDR3
4 unique J



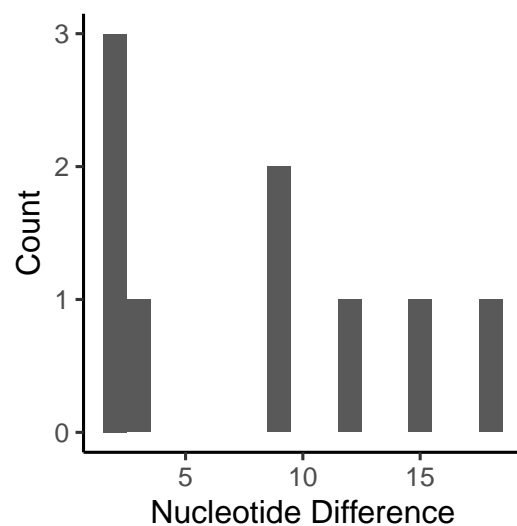
IGHV3-43D*04

53 sequences assigned
No exact matches.



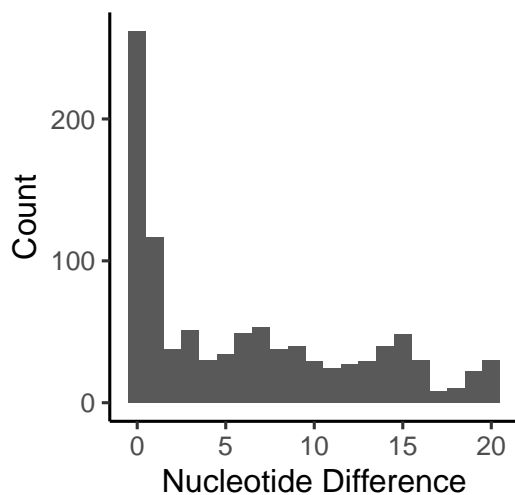
IGHV4-28*03

9 sequences assigned
No exact matches.



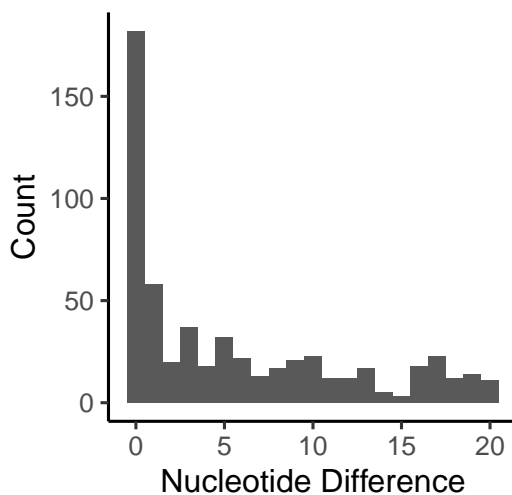
IGHV3-73*01_02

1153 sequences assigned
262 (22.7%) exact matches, in which:
186 unique CDR3
5 unique J



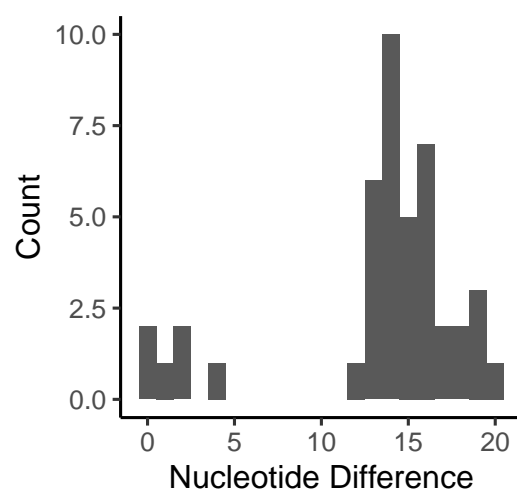
IGHV3-64D*06

739 sequences assigned
182 (24.6%) exact matches, in which:
124 unique CDR3
5 unique J



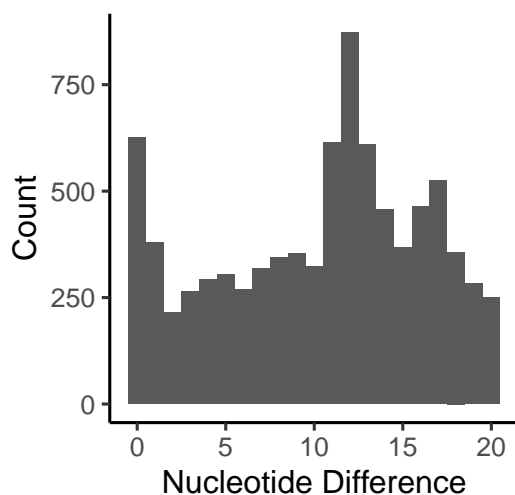
IGHV4-28*01_07

57 sequences assigned
2 (3.5%) exact matches, in which:
2 unique CDR3
2 unique J



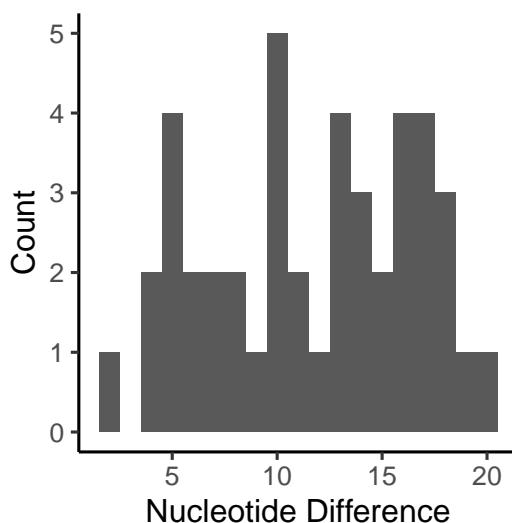
IGHV3-74*01_02

10735 sequences assigned
625 (5.8%) exact matches, in which:
415 unique CDR3
6 unique J



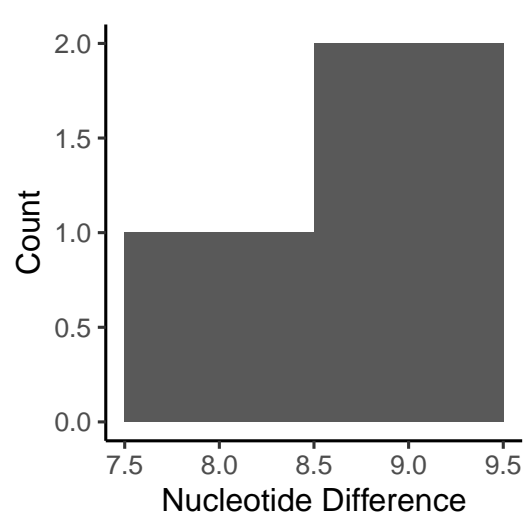
IGHV3-NL1*01

63 sequences assigned
No exact matches.



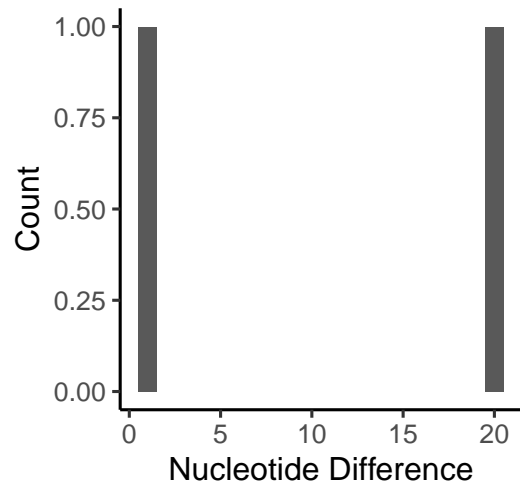
IGHV4-30-4*01

92 sequences assigned
No exact matches.



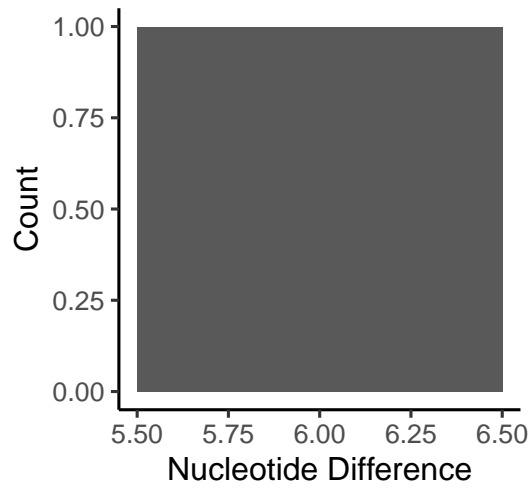
IGHV4-30-2*01

7 sequences assigned
No exact matches.



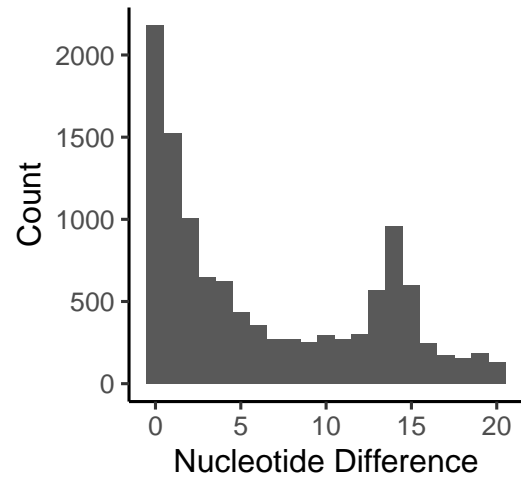
IGHV4-30-4*08

11 sequences assigned
No exact matches.



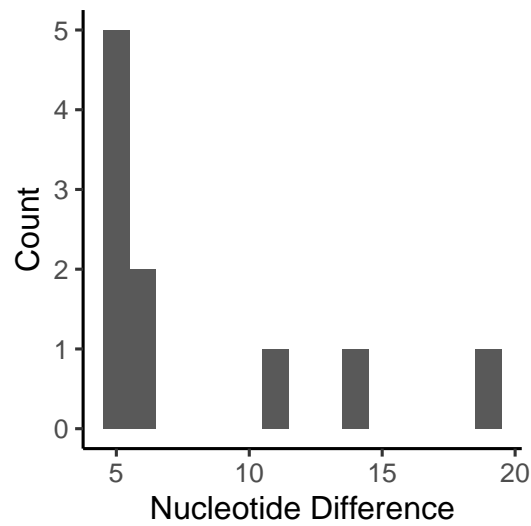
IGHV4-34*01_02

12339 sequences assigned
2180 (17.7%) exact matches, in which:
1845 unique CDR3
6 unique J



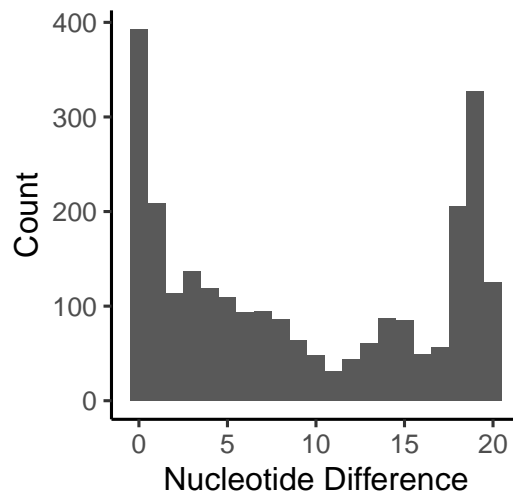
IGHV4-30-2*03

12 sequences assigned
No exact matches.



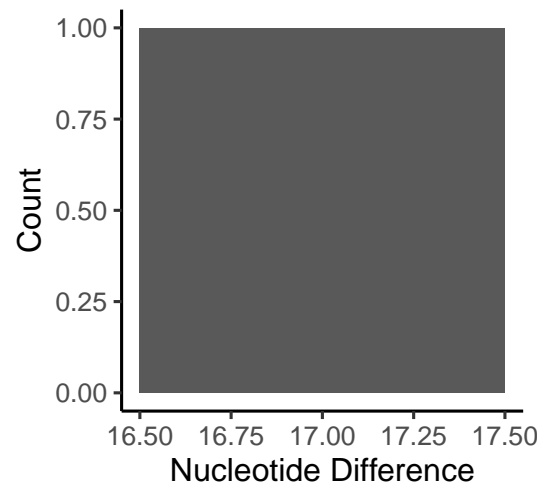
IGHV4-31*03_04

2986 sequences assigned
393 (13.2%) exact matches, in which:
376 unique CDR3
6 unique J



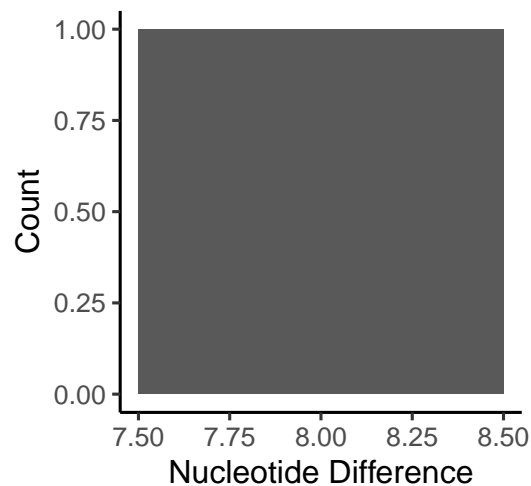
IGHV4-38-2*01

4 sequences assigned
No exact matches.



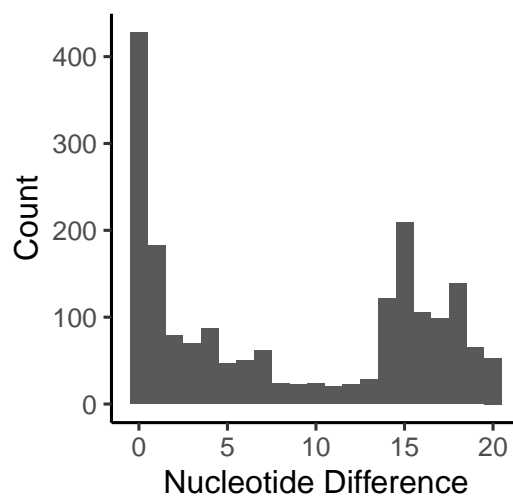
IGHV4-30-2*04

1 sequences assigned
No exact matches.



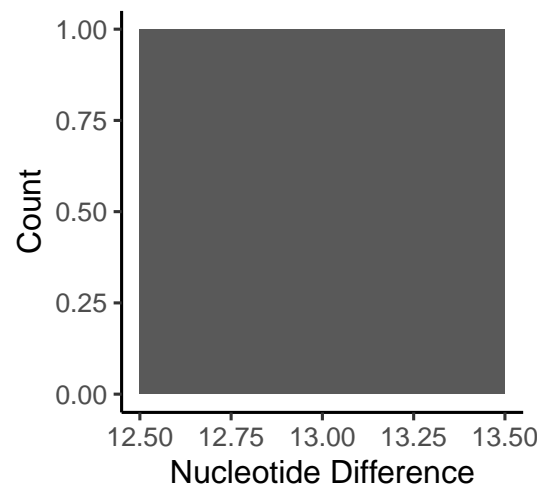
IGHV4-31*03_04_C90T

3272 sequences assigned
428 (13.1%) exact matches, in which:
406 unique CDR3
6 unique J



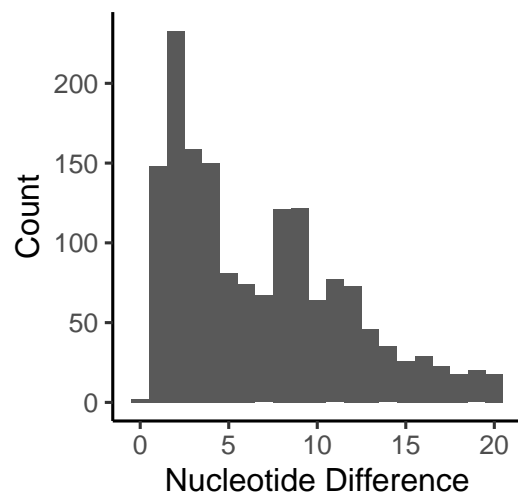
IGHV4-38-2*02

4 sequences assigned
No exact matches.



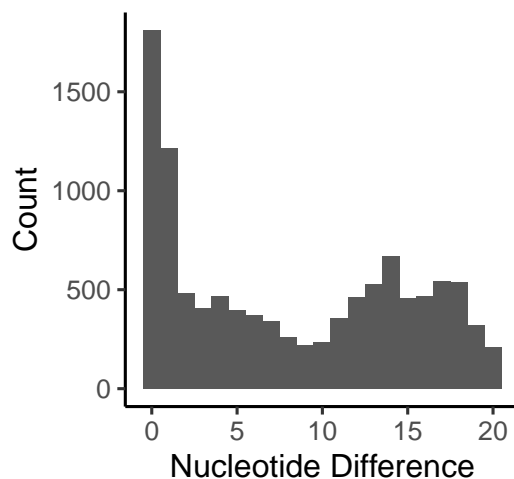
IGHV4-39*07

1743 sequences assigned
2 (0.1%) exact matches, in which:
2 unique CDR3
1 unique J



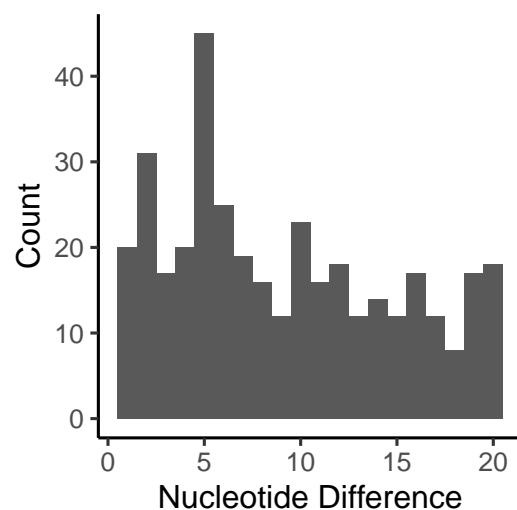
IGHV4-59*01_07

14054 sequences assigned
1810 (12.9%) exact matches, in which:
1615 unique CDR3
6 unique J



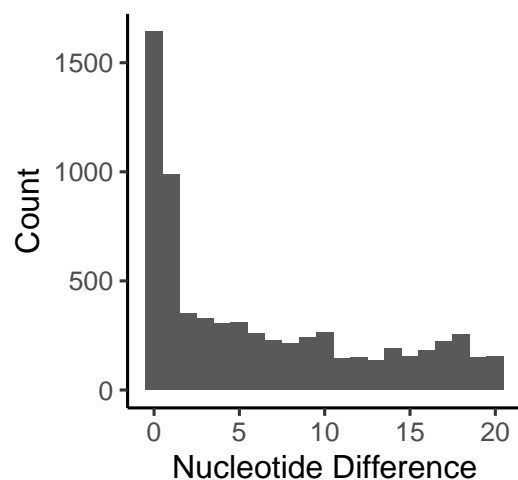
IGHV4-61*08

713 sequences assigned
No exact matches.



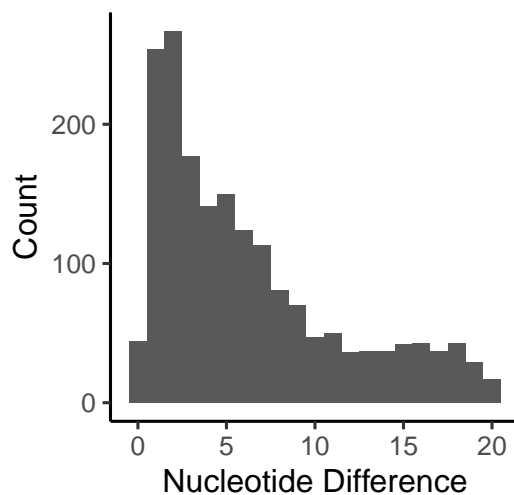
IGHV4-39*01_05

8816 sequences assigned
1642 (18.6%) exact matches, in which:
1432 unique CDR3
6 unique J



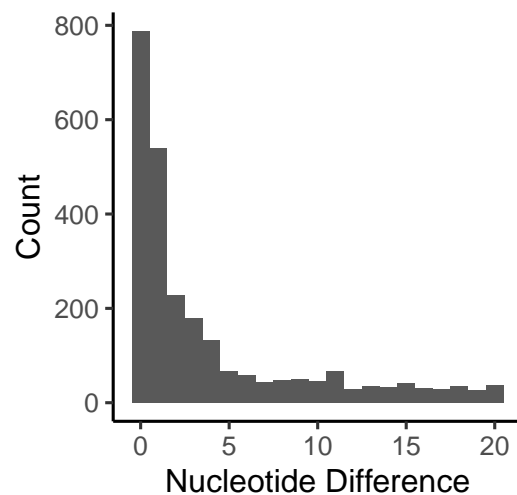
IGHV4-59*12

2053 sequences assigned
44 (2.1%) exact matches, in which:
44 unique CDR3
5 unique J



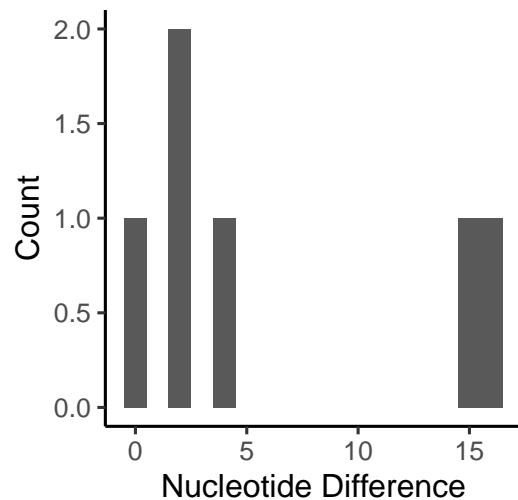
IGHV5-10-1*01_03

2952 sequences assigned
788 (26.7%) exact matches, in which:
592 unique CDR3
6 unique J



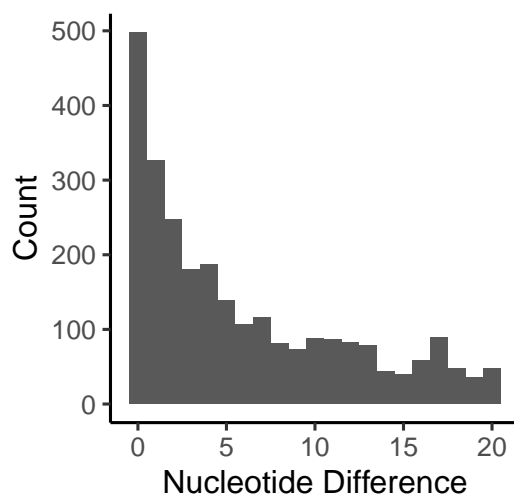
IGHV4-55*02_04_08

6 sequences assigned
1 (16.7%) exact matches, in which:
1 unique CDR3
1 unique J



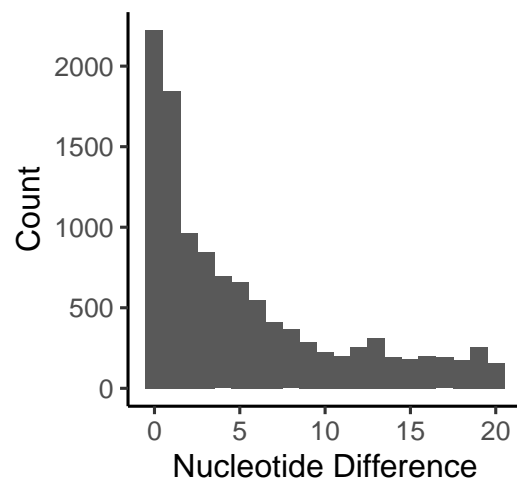
IGHV4-61*01

3032 sequences assigned
498 (16.4%) exact matches, in which:
465 unique CDR3
6 unique J



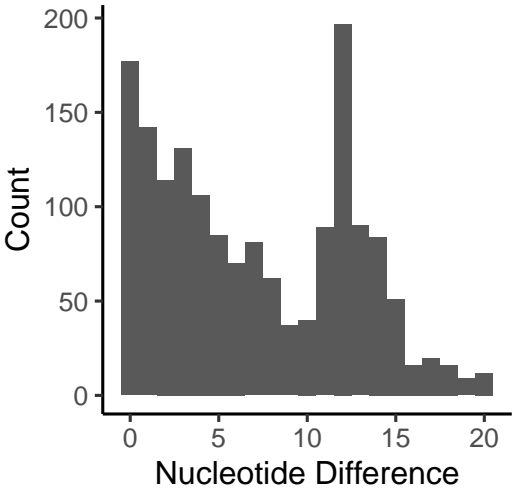
IGHV5-51*01_03

12287 sequences assigned
2224 (18.1%) exact matches, in which:
1549 unique CDR3
6 unique J



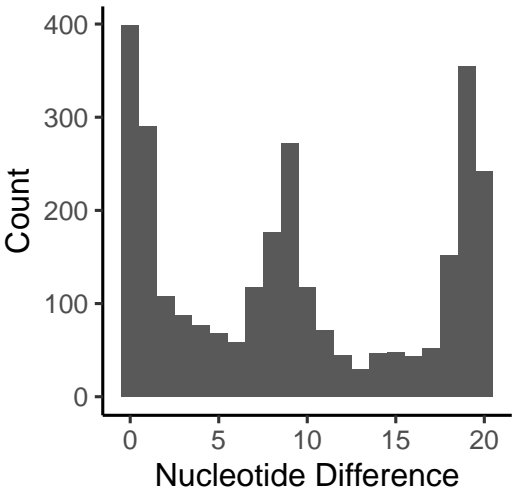
IGHV6-1*01_02

1975 sequences assigned
177 (9%) exact matches, in which:
164 unique CDR3
5 unique J



IGHV7-4-1*02

3168 sequences assigned
399 (12.6%) exact matches, in which:
365 unique CDR3
6 unique J





Warning - no inferred sequences found.

Novel sequence(s) IGHV1-69*04_09_G112A IGHV4-59*02_G88A IGHV5-10-1*01_03_T258C IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Warning - no inferred sequences found.

Novel sequence(s) IGHV1-69*08_C191T IGHV3-48*03_T303G IGHV4-59*02_G88A IGHV5-51*07_A128G are not listed in the genotype and will be ignored.

Warning - no inferred sequences found.

Warning - no inferred sequences found.

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

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

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

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

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

Warning - no inferred sequences found.

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

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

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

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

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

Warning - no inferred sequences found.

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

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

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

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

Warning - no inferred sequences found.

Warning - no inferred sequences found.

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

Warning - no inferred sequences found.

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