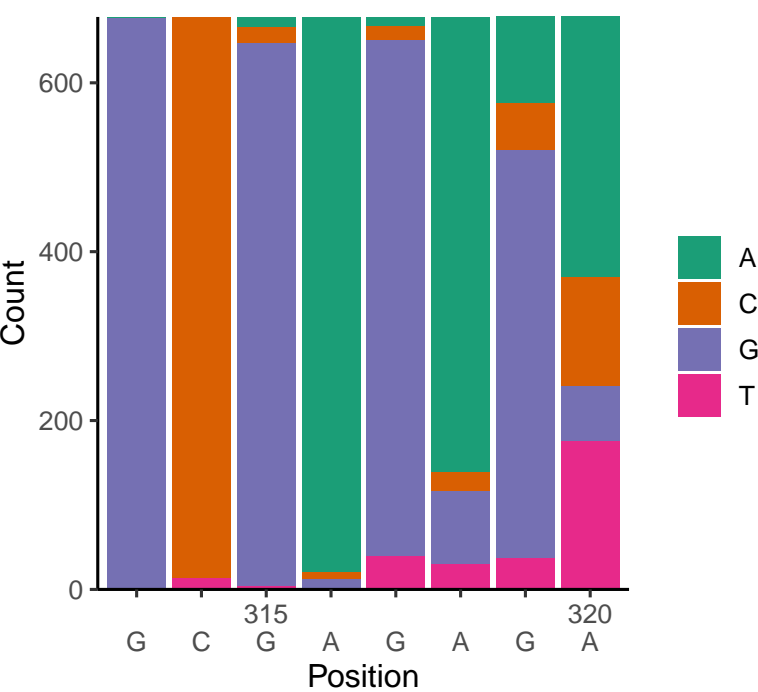


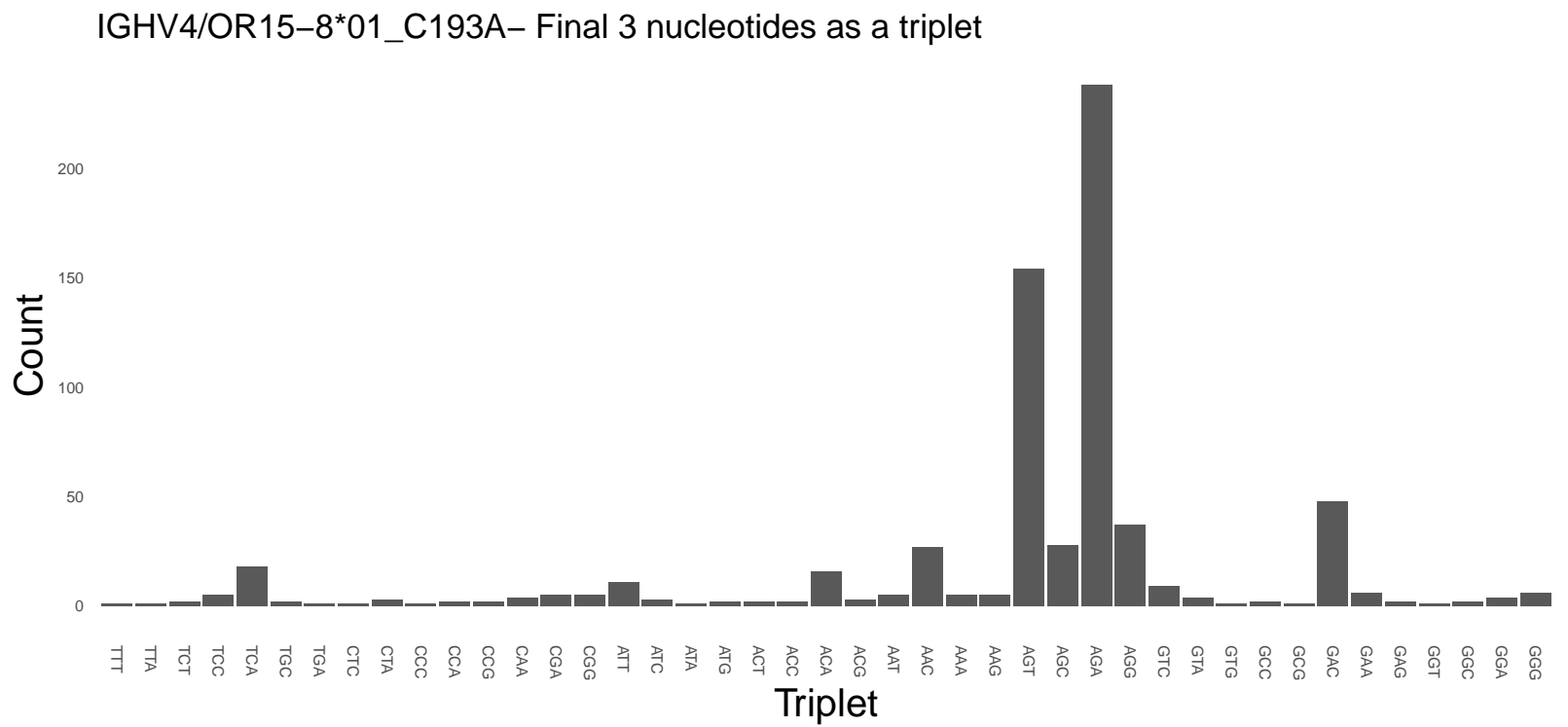
Gene IGHV4/OR15-8\*01\_C193A



Gene IGHV4/OR15-8\*01\_C193A

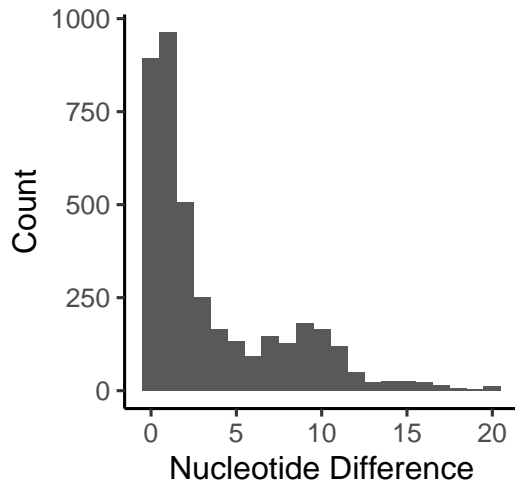


IGHV4/OR15-8\*01\_C193A- Final 3 nucleotides as a triplet



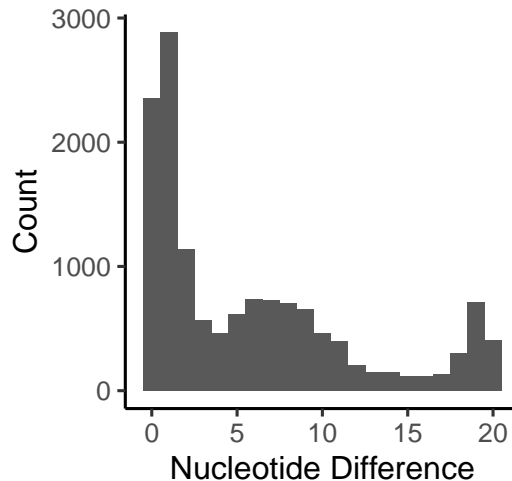
### IGHV1-2\*04

4017 sequences assigned  
895 (22.3%) exact matches, in which:  
731 unique CDR3  
6 unique J



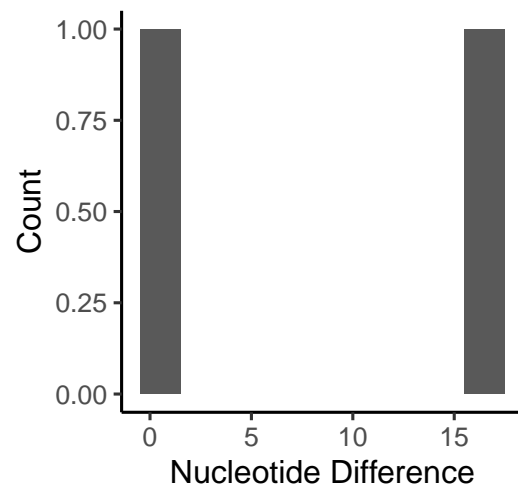
### IGHV1-8\*01

14808 sequences assigned  
2354 (15.9%) exact matches, in which:  
1889 unique CDR3  
6 unique J



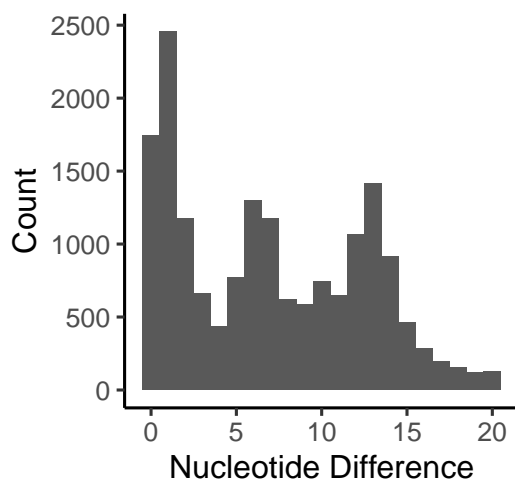
### IGHV1-45\*02

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



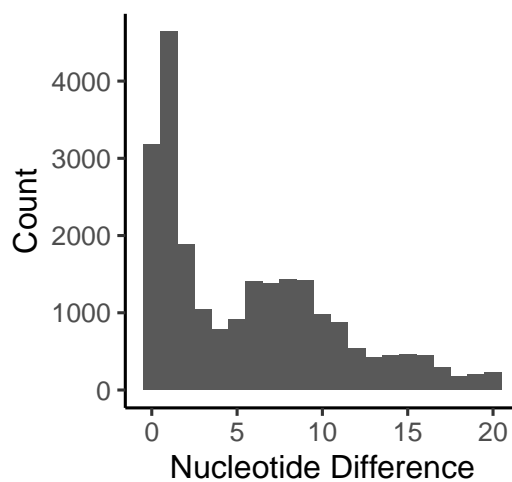
### IGHV1-2\*06

17624 sequences assigned  
1746 (9.9%) exact matches, in which:  
1390 unique CDR3  
6 unique J



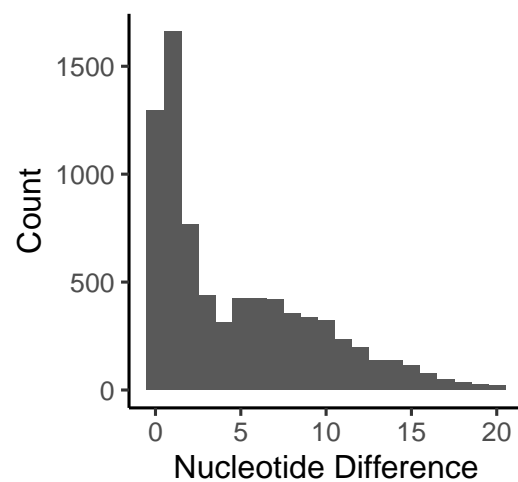
### IGHV1-18\*01

27068 sequences assigned  
3185 (11.8%) exact matches, in which:  
2444 unique CDR3  
6 unique J



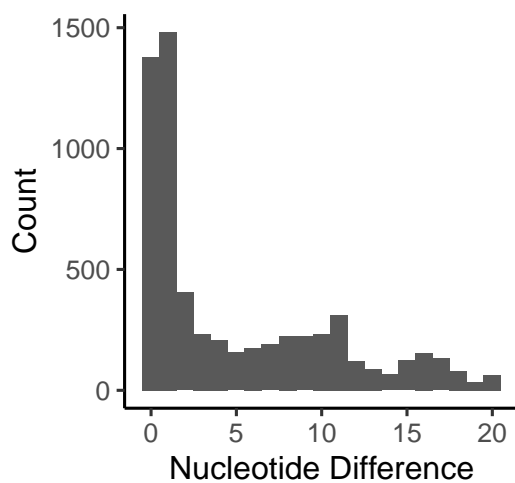
### IGHV1-46\*01

8334 sequences assigned  
1293 (15.5%) exact matches, in which:  
1086 unique CDR3  
6 unique J



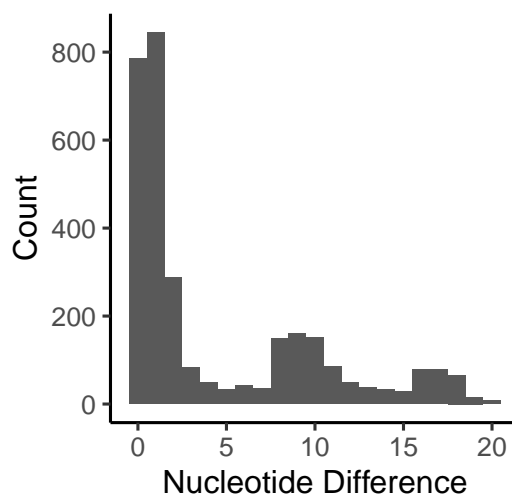
### IGHV1-3\*01\_05

6364 sequences assigned  
1379 (21.7%) exact matches, in which:  
1076 unique CDR3  
6 unique J



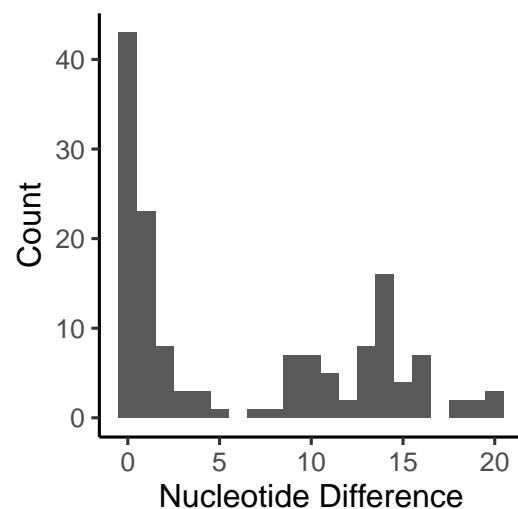
### IGHV1-24\*01

4475 sequences assigned  
785 (17.5%) exact matches, in which:  
638 unique CDR3  
6 unique J



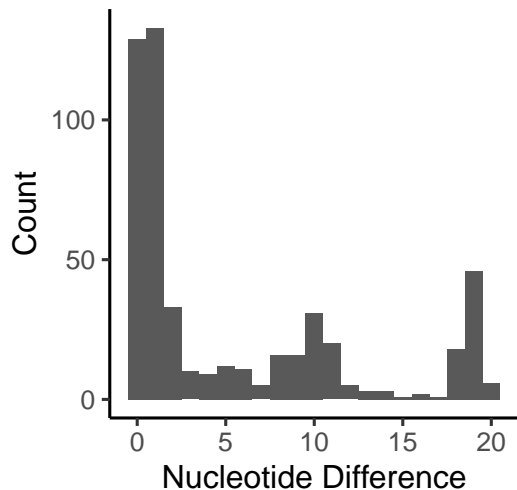
### IGHV1-58\*02

149 sequences assigned  
43 (28.9%) exact matches, in which:  
42 unique CDR3  
4 unique J



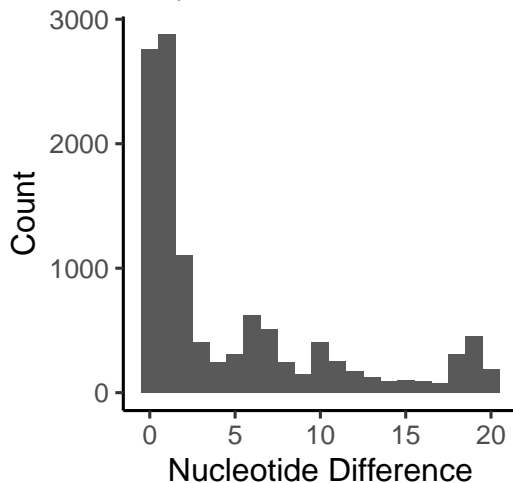
### IGHV1–58\*01\_03

534 sequences assigned  
129 (24.2%) exact matches, in which:  
105 unique CDR3  
5 unique J



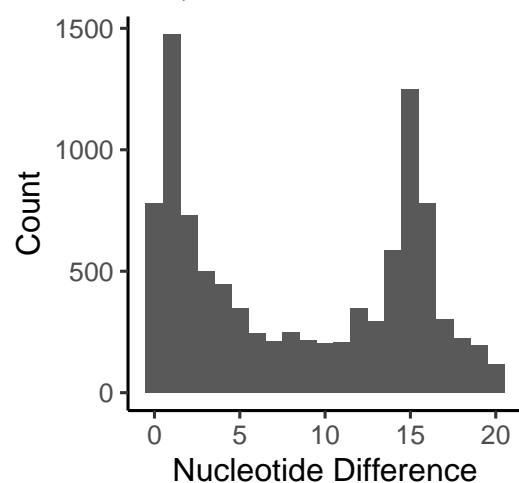
### IGHV1–69\*01\_12\_13

12117 sequences assigned  
2756 (22.7%) exact matches, in which:  
2263 unique CDR3  
6 unique J



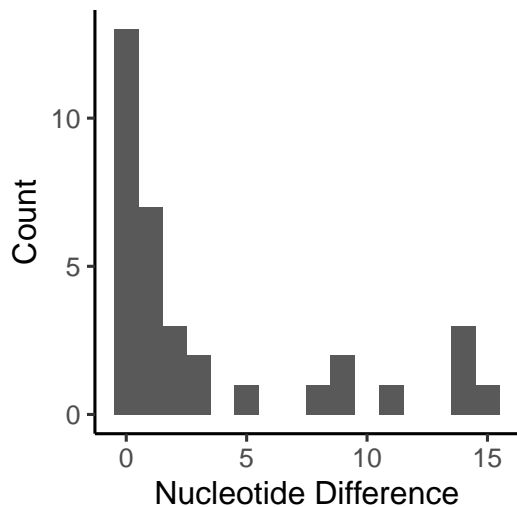
### IGHV2–5\*02

10547 sequences assigned  
781 (7.4%) exact matches, in which:  
579 unique CDR3  
6 unique J



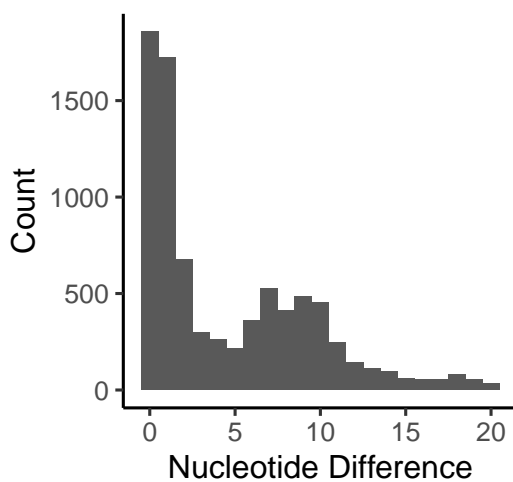
### IGHV1–68\*02\_03

34 sequences assigned  
13 (38.2%) exact matches, in which:  
10 unique CDR3  
3 unique J



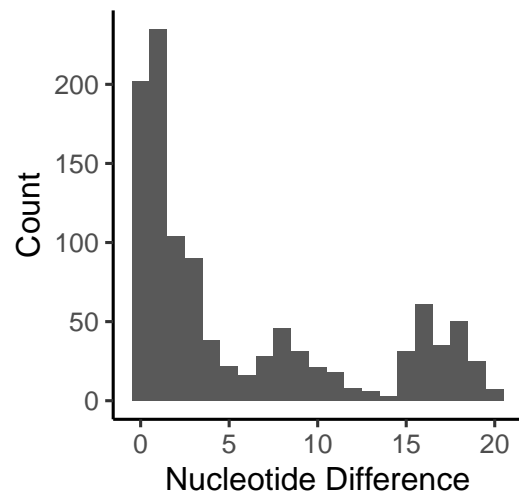
### IGHV1–69\*06\_14

8607 sequences assigned  
1857 (21.6%) exact matches, in which:  
1583 unique CDR3  
6 unique J



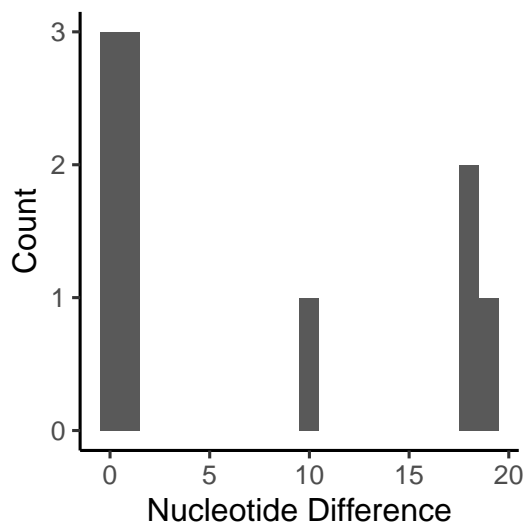
### IGHV2–26\*01

1127 sequences assigned  
202 (17.9%) exact matches, in which:  
162 unique CDR3  
5 unique J



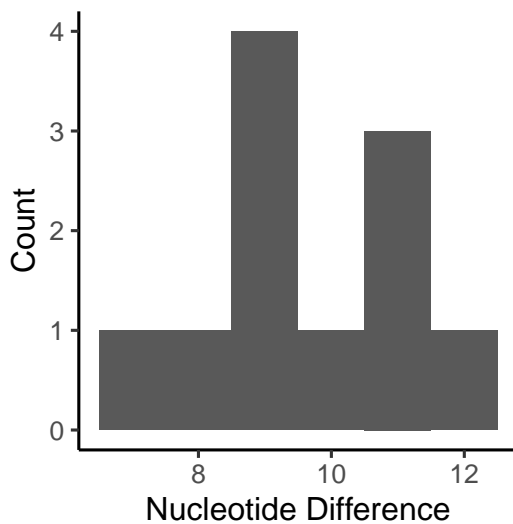
### IGHV1–69–2\*01

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



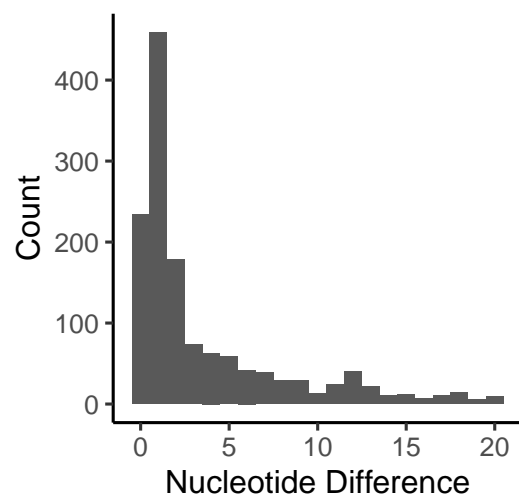
### IGHV1–NL1\*01

11 sequences assigned  
No exact matches.



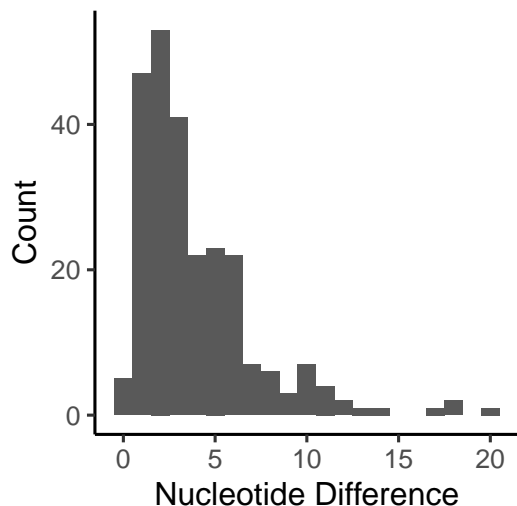
### IGHV2–70\*01

1475 sequences assigned  
234 (15.9%) exact matches, in which:  
165 unique CDR3  
5 unique J



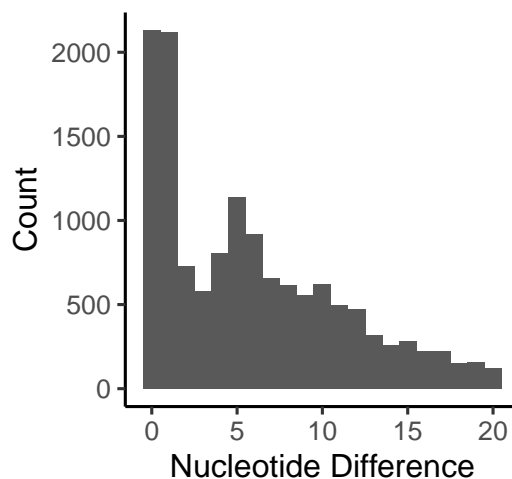
## IGHV2-70\*12

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



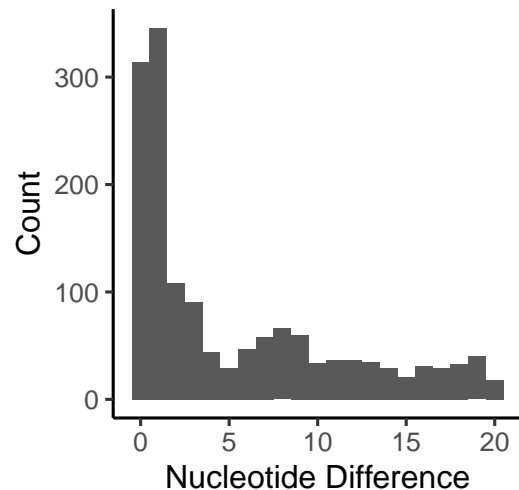
## IGHV3-9\*01

15608 sequences assigned  
2130 (13.6%) exact matches, in which:  
1198 unique CDR3  
6 unique J



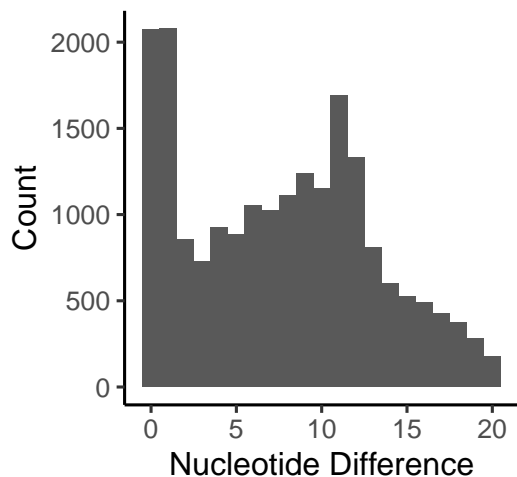
## IGHV3-13\*01

1609 sequences assigned  
314 (19.5%) exact matches, in which:  
210 unique CDR3  
6 unique J



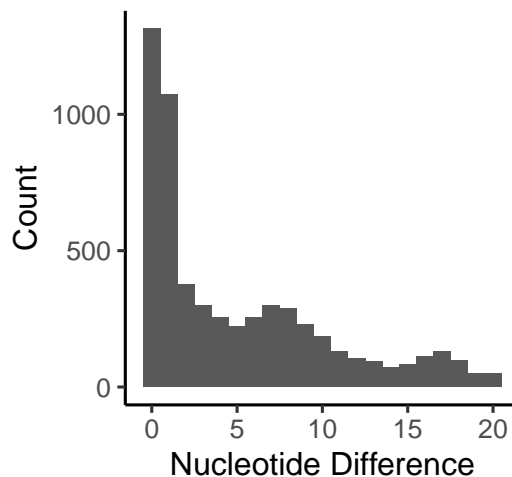
## IGHV3-7\*01

21731 sequences assigned  
2073 (9.5%) exact matches, in which:  
1357 unique CDR3  
6 unique J



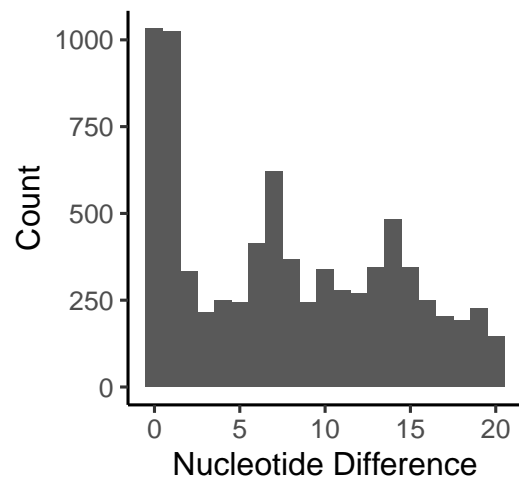
## IGHV3-11\*01

8892 sequences assigned  
1314 (14.8%) exact matches, in which:  
864 unique CDR3  
6 unique J



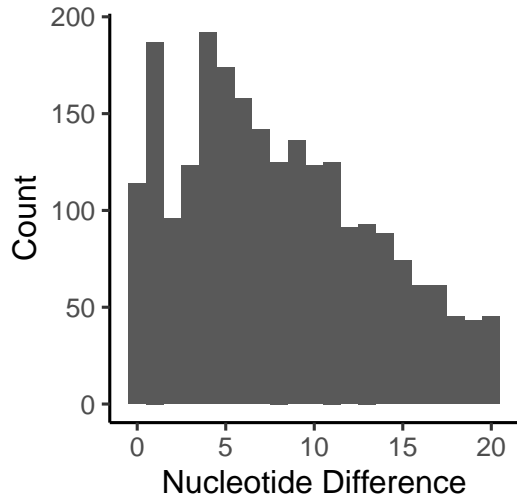
## IGHV3-15\*01\_02

8423 sequences assigned  
1032 (12.3%) exact matches, in which:  
590 unique CDR3  
6 unique J



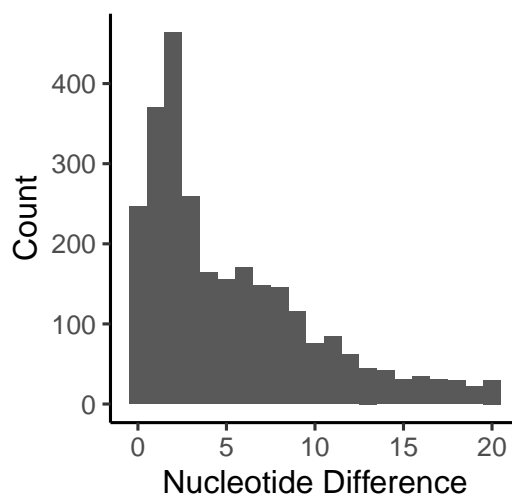
## IGHV3-7\*03

2667 sequences assigned  
114 (4.3%) exact matches, in which:  
107 unique CDR3  
5 unique J



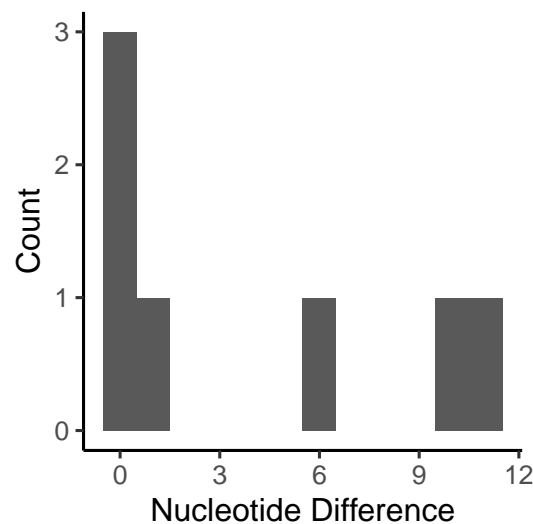
## IGHV3-11\*04

2978 sequences assigned  
247 (8.3%) exact matches, in which:  
226 unique CDR3  
6 unique J



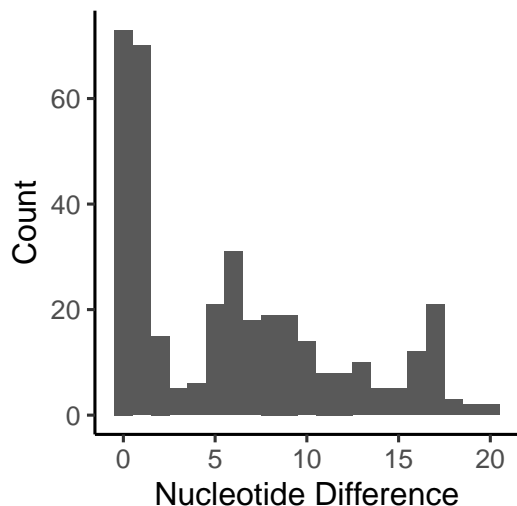
## IGHV3-19\*01

7 sequences assigned  
3 (42.9%) exact matches, in which:  
2 unique CDR3  
1 unique J



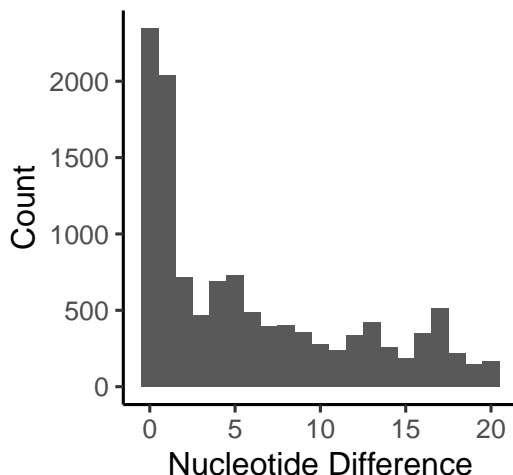
### IGHV3-20\*01\_02

517 sequences assigned  
73 (14.1%) exact matches, in which:  
38 unique CDR3  
5 unique J



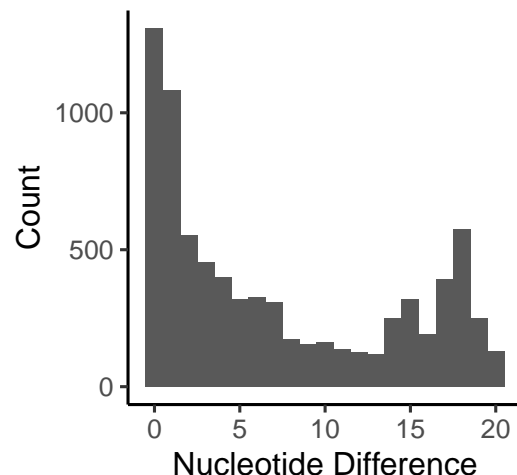
### IGHV3-21\*01\_02

15879 sequences assigned  
2346 (14.8%) exact matches, in which:  
1474 unique CDR3  
6 unique J



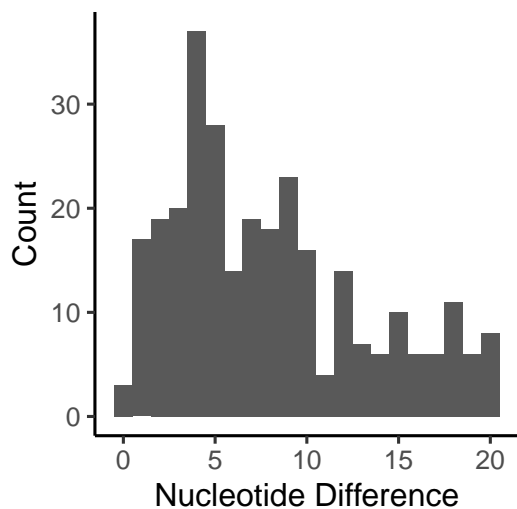
### IGHV3-30\*01

8422 sequences assigned  
1308 (15.5%) exact matches, in which:  
896 unique CDR3  
6 unique J



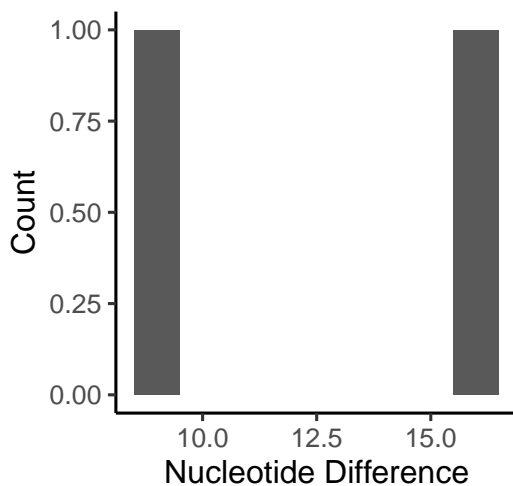
### IGHV3-20\*03\_04

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



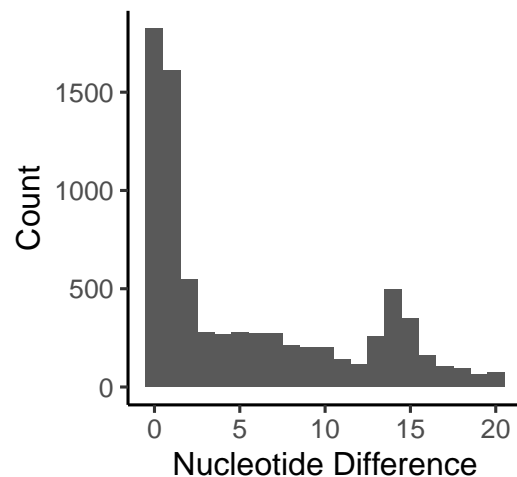
### IGHV3-22\*01\_02

2 sequences assigned  
No exact matches.



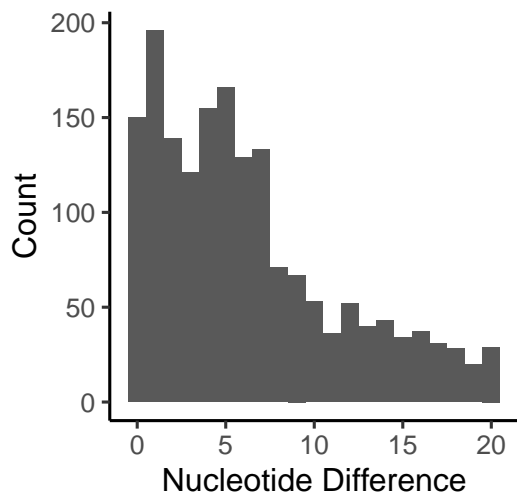
### IGHV3-30-3\*01

8858 sequences assigned  
1823 (20.6%) exact matches, in which:  
1189 unique CDR3  
6 unique J



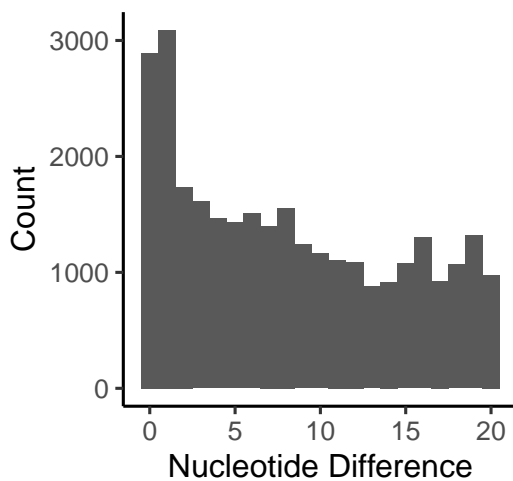
### IGHV3-21\*04

2016 sequences assigned  
150 (7.4%) exact matches, in which:  
144 unique CDR3  
5 unique J



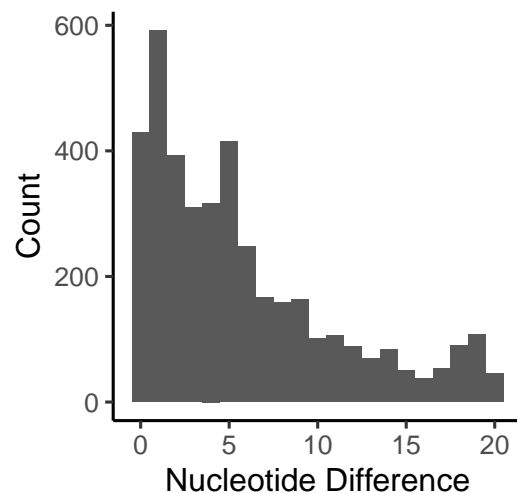
### IGHV3-23\*01\_04

42888 sequences assigned  
2891 (6.7%) exact matches, in which:  
1654 unique CDR3  
6 unique J



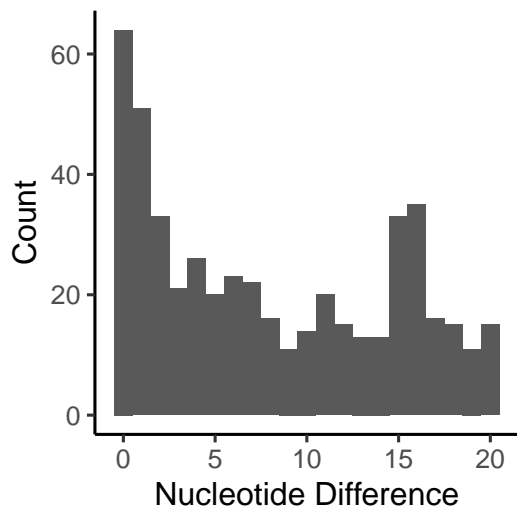
### IGHV3-30\*03

4395 sequences assigned  
429 (9.8%) exact matches, in which:  
378 unique CDR3  
6 unique J



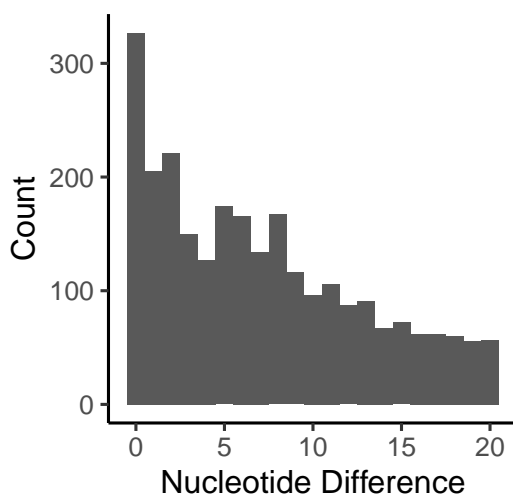
### IGHV3-30\*04

558 sequences assigned  
64 (11.5%) exact matches, in which:  
58 unique CDR3  
5 unique J



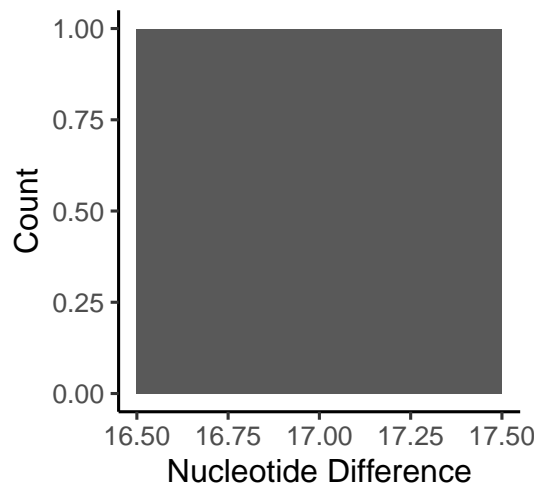
### IGHV3-33\*08

2888 sequences assigned  
327 (11.3%) exact matches, in which:  
257 unique CDR3  
6 unique J



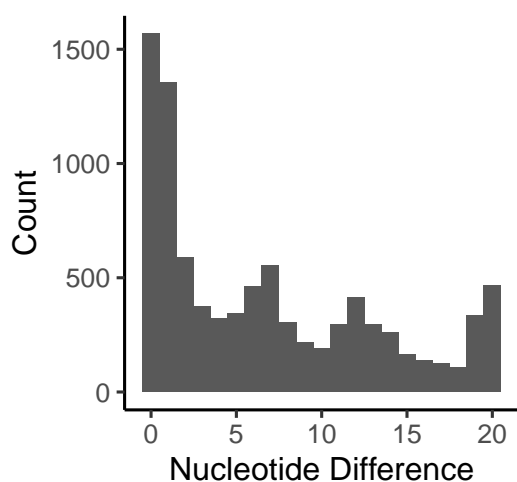
### IGHV3-43\*02

2 sequences assigned  
No exact matches.



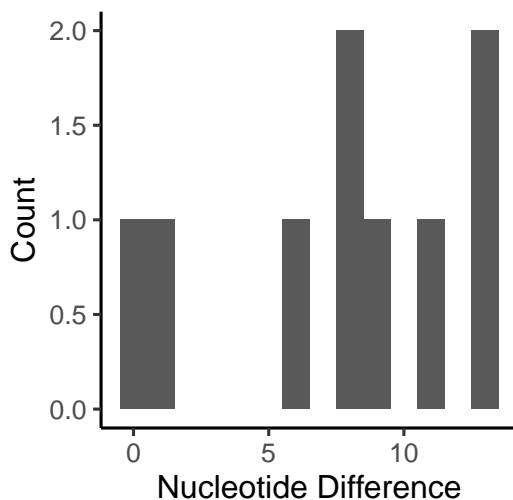
### IGHV3-33\*01

10105 sequences assigned  
1568 (15.5%) exact matches, in which:  
1025 unique CDR3  
6 unique J



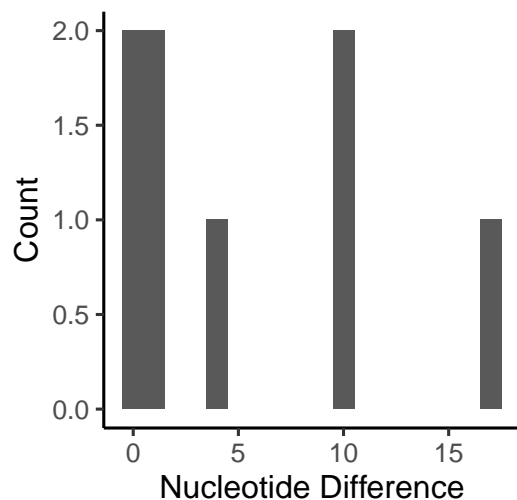
### IGHV3-35\*01

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



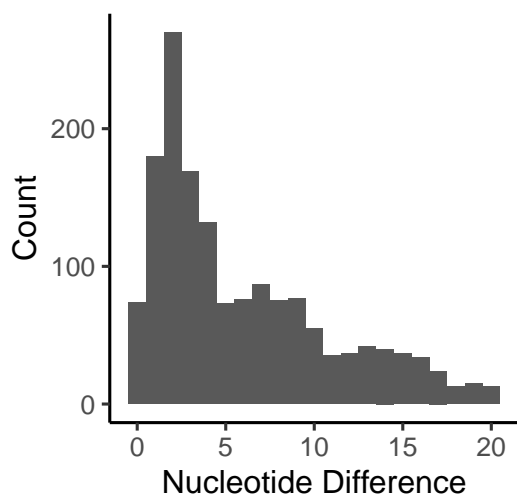
### IGHV3-47\*01

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



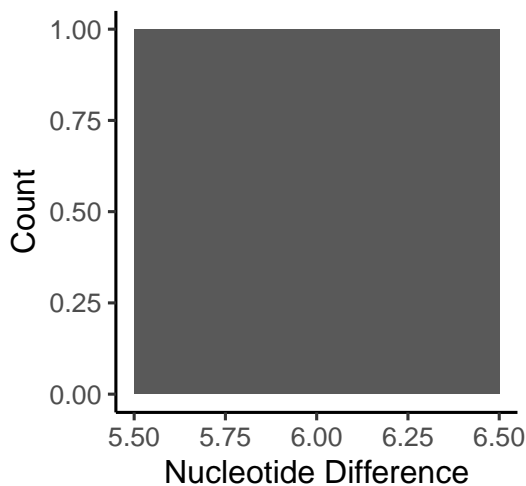
### IGHV3-33\*06

1626 sequences assigned  
74 (4.6%) exact matches, in which:  
73 unique CDR3  
6 unique J



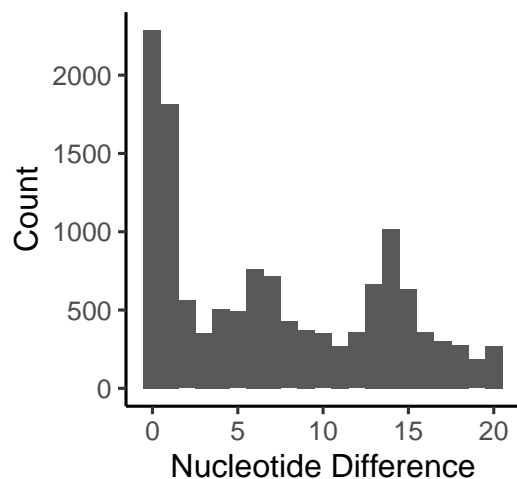
### IGHV3-43\*01

1 sequences assigned  
No exact matches.



### IGHV3-48\*03

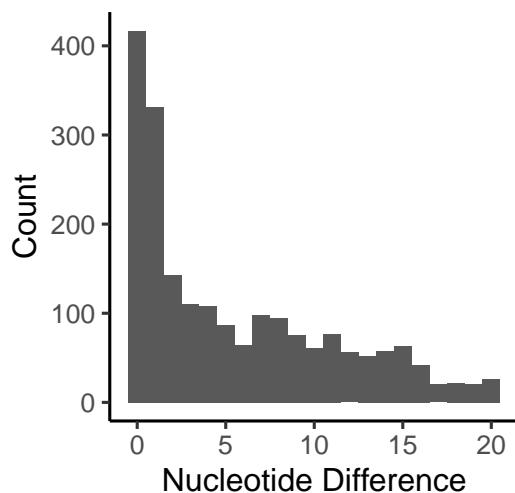
15716 sequences assigned  
2288 (14.6%) exact matches, in which:  
1357 unique CDR3  
6 unique J





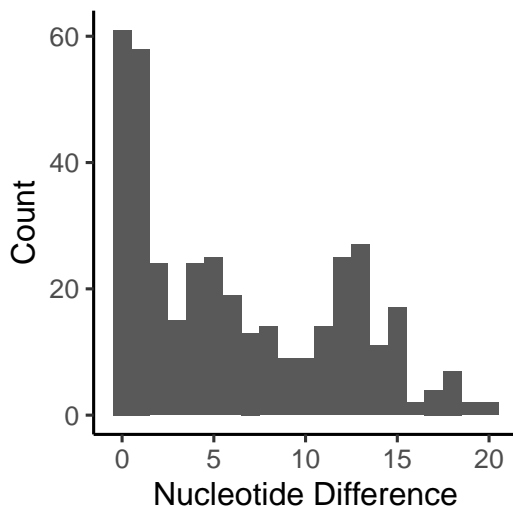
### IGHV3-49\*04

2729 sequences assigned  
417 (15.3%) exact matches, in which:  
257 unique CDR3  
6 unique J



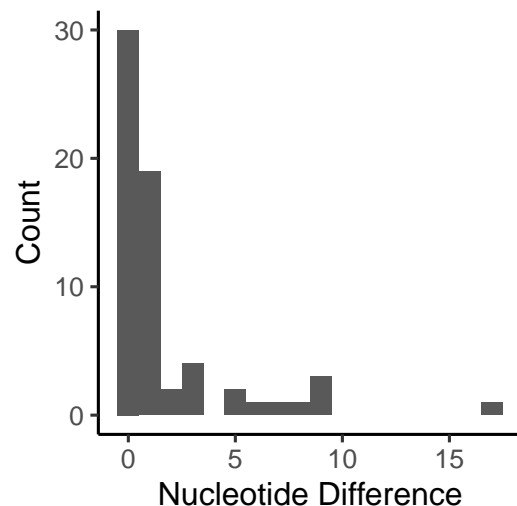
### IGHV3-64\*01

415 sequences assigned  
61 (14.7%) exact matches, in which:  
42 unique CDR3  
5 unique J



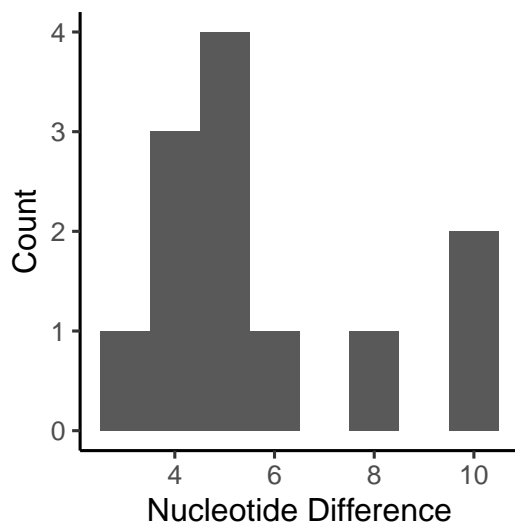
### IGHV3-66\*03

65 sequences assigned  
30 (46.2%) exact matches, in which:  
27 unique CDR3  
3 unique J



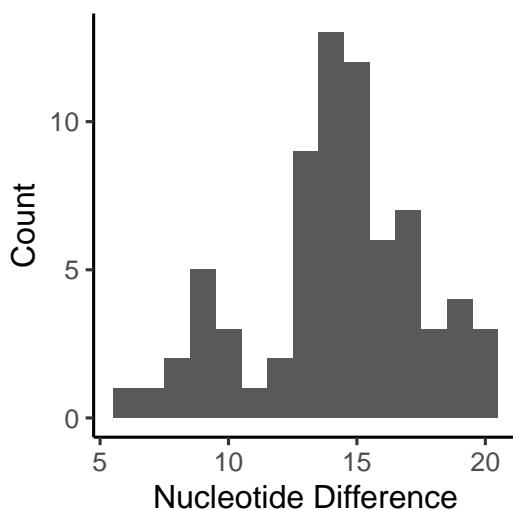
### IGHV3-52\*01\_03

12 sequences assigned  
No exact matches.



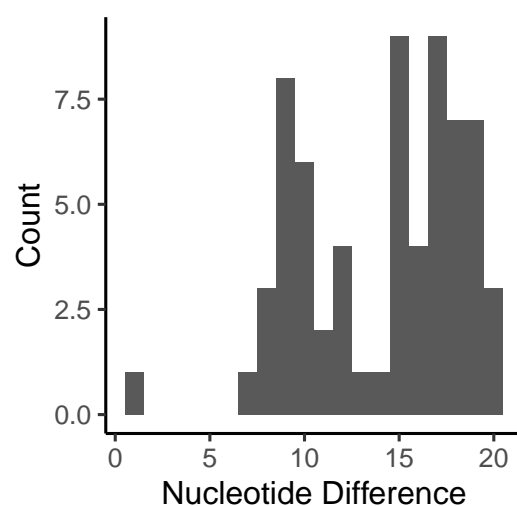
### IGHV3-66\*01

82 sequences assigned  
No exact matches.



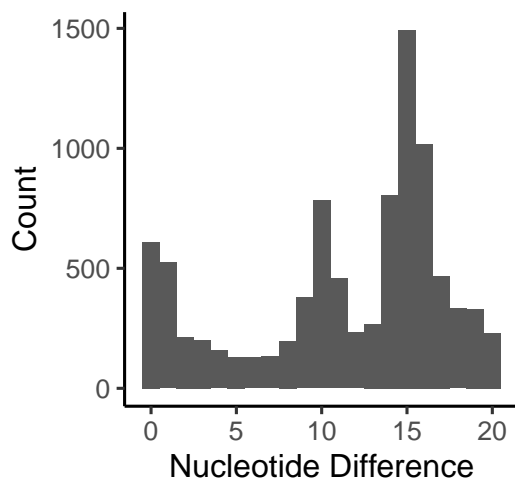
### IGHV3-66\*04

70 sequences assigned  
No exact matches.



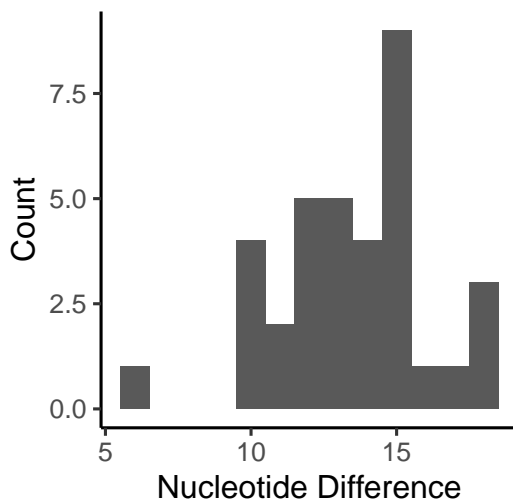
### IGHV3-53\*01\_02

9639 sequences assigned  
609 (6.3%) exact matches, in which:  
400 unique CDR3  
6 unique J



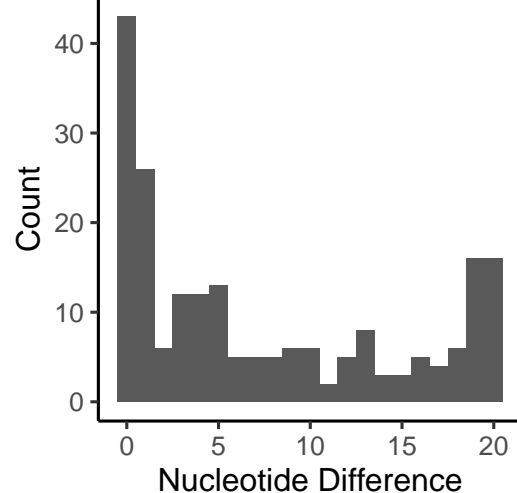
### IGHV3-66\*02

38 sequences assigned  
No exact matches.



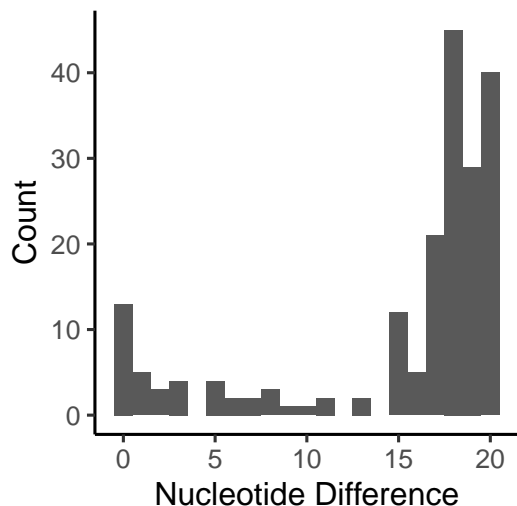
### IGHV3-69-1\*01

255 sequences assigned  
43 (16.9%) exact matches, in which:  
42 unique CDR3  
4 unique J



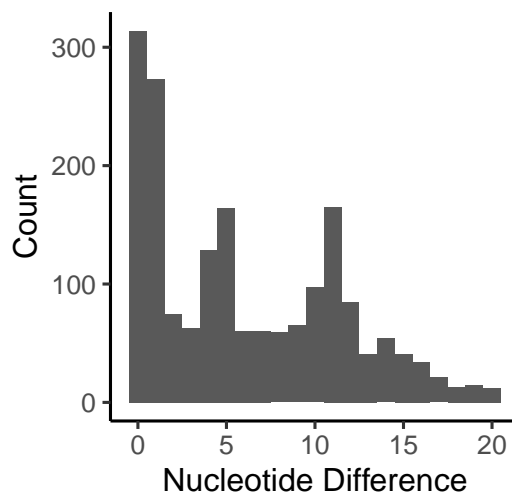
### IGHV3-69-1\*02

454 sequences assigned  
13 (2.9%) exact matches, in which:  
12 unique CDR3  
4 unique J



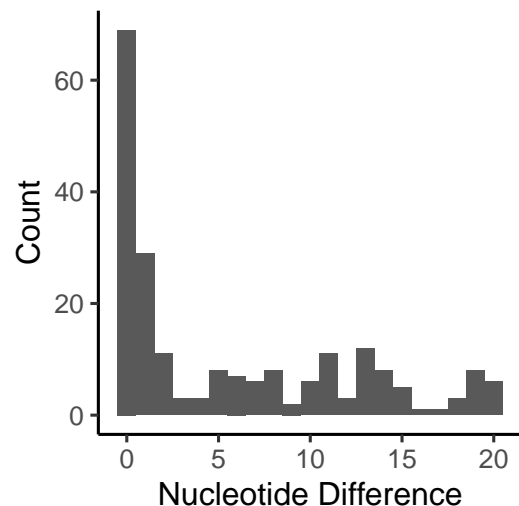
### IGHV3-73\*01\_02

1963 sequences assigned  
314 (16%) exact matches, in which:  
189 unique CDR3  
5 unique J



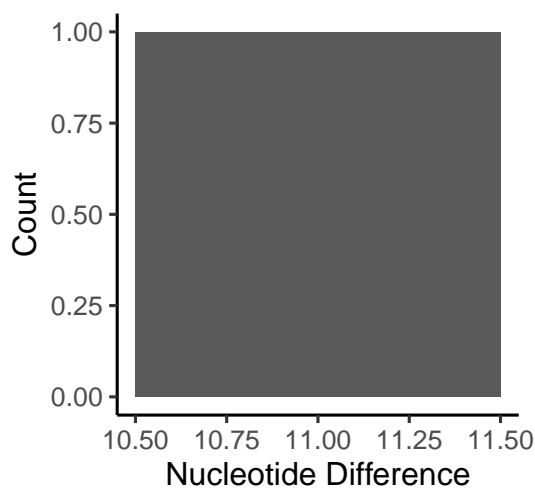
### IGHV3-43D\*04

572 sequences assigned  
69 (12.1%) exact matches, in which:  
42 unique CDR3  
5 unique J



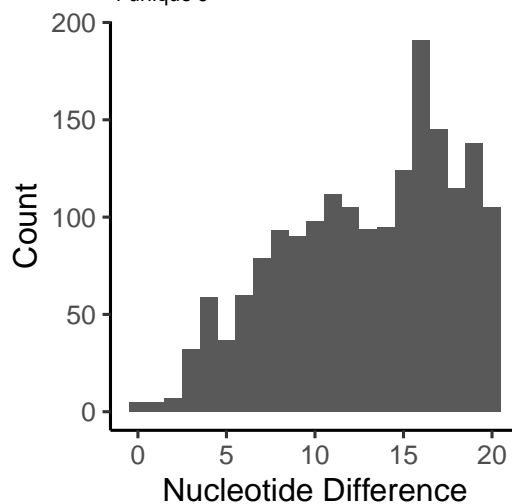
### IGHV3-71\*01\_04

1 sequences assigned  
No exact matches.



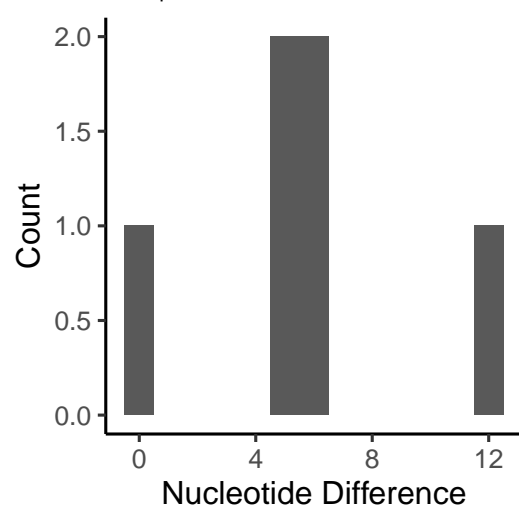
### IGHV3-74\*03

2491 sequences assigned  
5 (0.2%) exact matches, in which:  
4 unique CDR3  
4 unique J



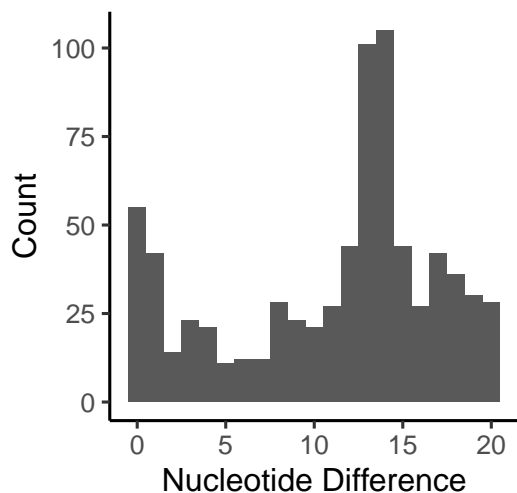
### IGHV3-64D\*06

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



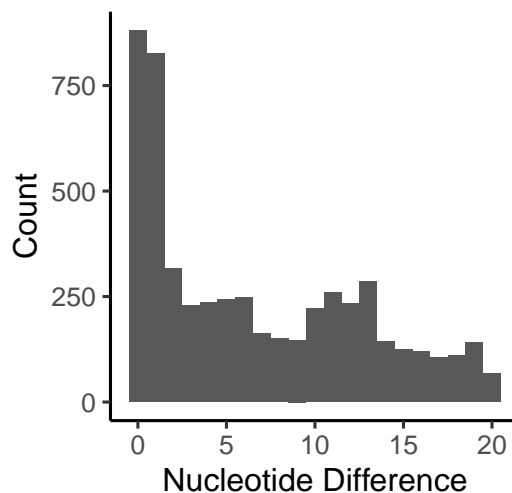
### IGHV3-72\*01

927 sequences assigned  
55 (5.9%) exact matches, in which:  
32 unique CDR3  
4 unique J



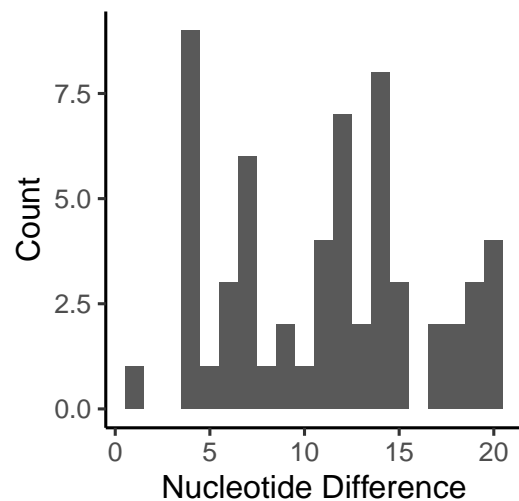
### IGHV3-74\*01\_02

6455 sequences assigned  
881 (13.6%) exact matches, in which:  
588 unique CDR3  
6 unique J



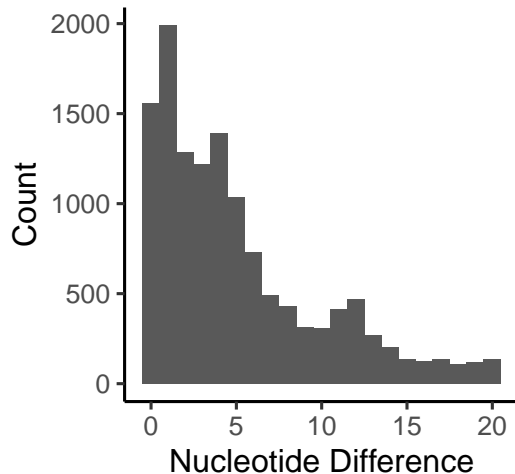
### IGHV3-NL1\*01

69 sequences assigned  
No exact matches.



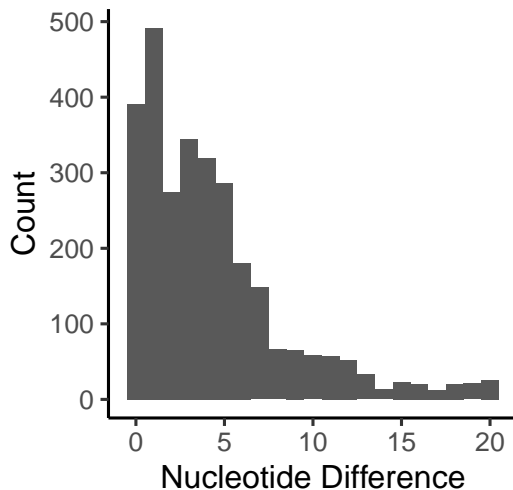
### IGHV4-4\*02\_03

13888 sequences assigned  
1560 (11.2%) exact matches, in which:  
1088 unique CDR3  
6 unique J



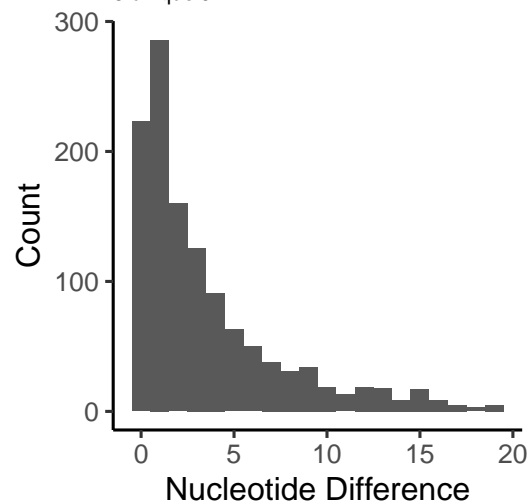
### IGHV4-30-4\*01

5576 sequences assigned  
391 (7%) exact matches, in which:  
311 unique CDR3  
5 unique J



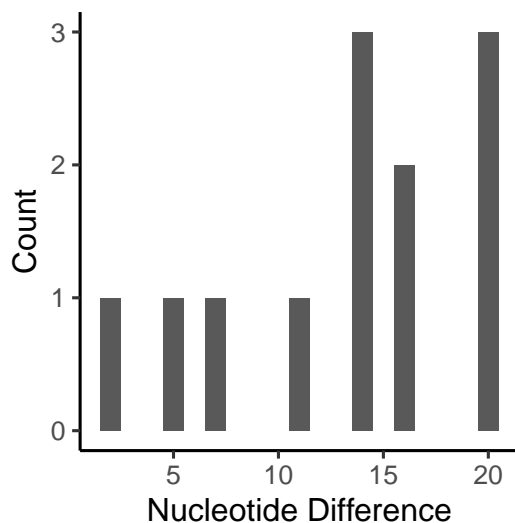
### IGHV4-31\*01

1696 sequences assigned  
223 (13.1%) exact matches, in which:  
181 unique CDR3  
5 unique J



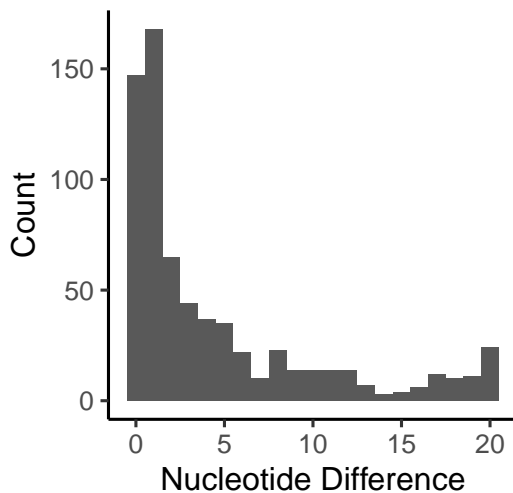
### IGHV4-28\*03

25 sequences assigned  
No exact matches.



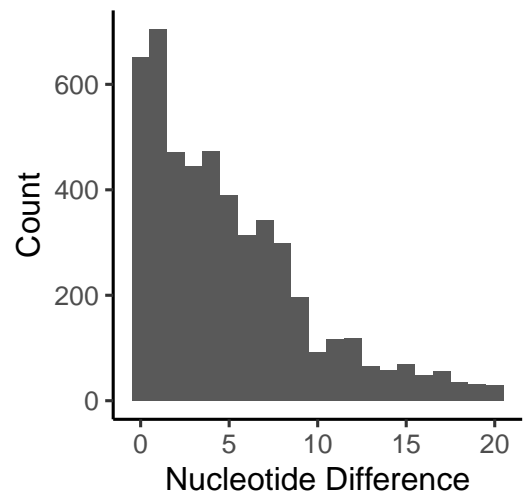
### IGHV4-30-2\*01

835 sequences assigned  
147 (17.6%) exact matches, in which:  
82 unique CDR3  
6 unique J



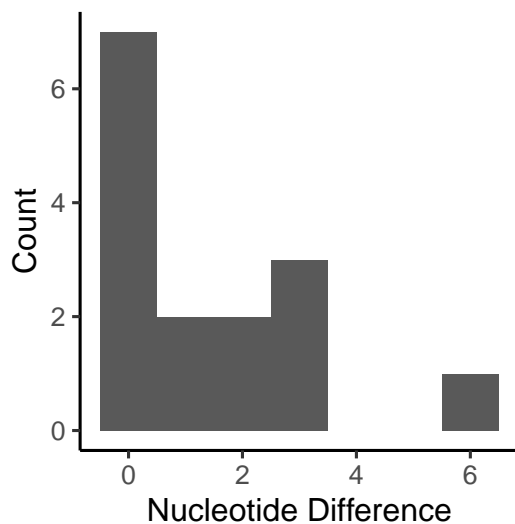
### IGHV4-31\*02

5279 sequences assigned  
651 (12.3%) exact matches, in which:  
532 unique CDR3  
6 unique J



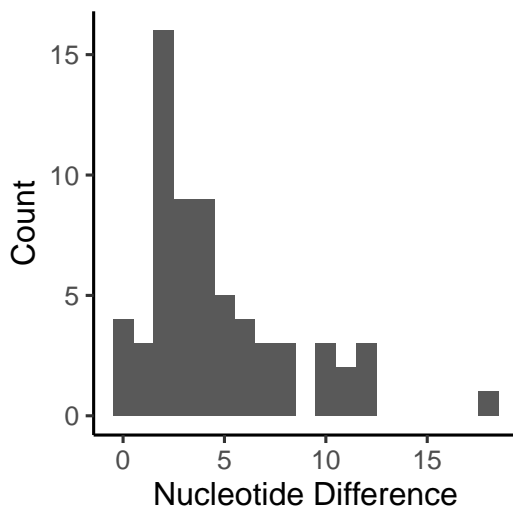
### IGHV4-28\*02\_05

15 sequences assigned  
7 (46.7%) exact matches, in which:  
5 unique CDR3  
2 unique J



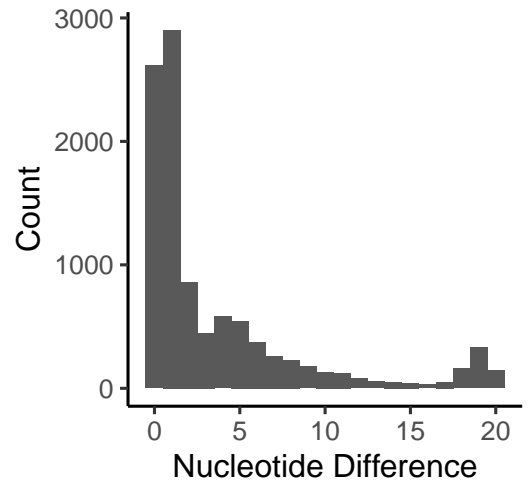
### IGHV4-30-2\*05

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



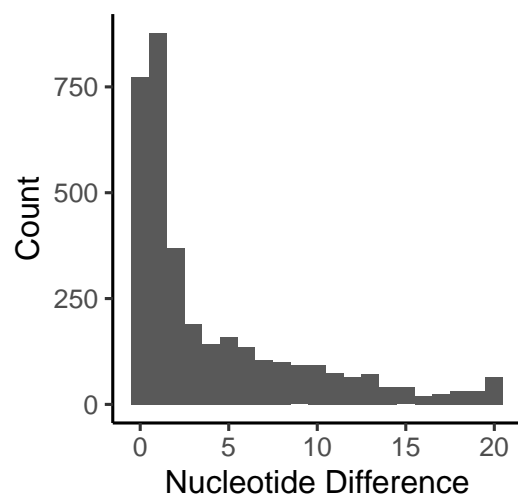
### IGHV4-34\*01\_02

11030 sequences assigned  
2614 (23.7%) exact matches, in which:  
1768 unique CDR3  
6 unique J



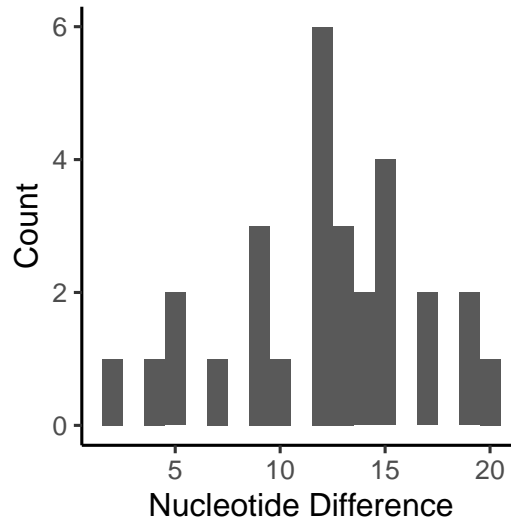
### IGHV4-38-2\*01

6309 sequences assigned  
774 (12.3%) exact matches, in which:  
648 unique CDR3  
6 unique J



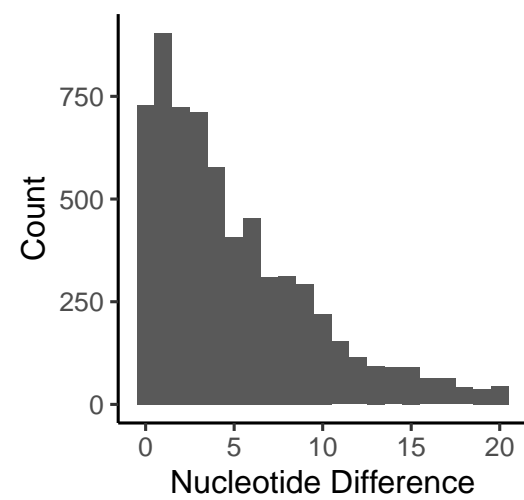
### IGHV4-39\*07

49 sequences assigned  
No exact matches.



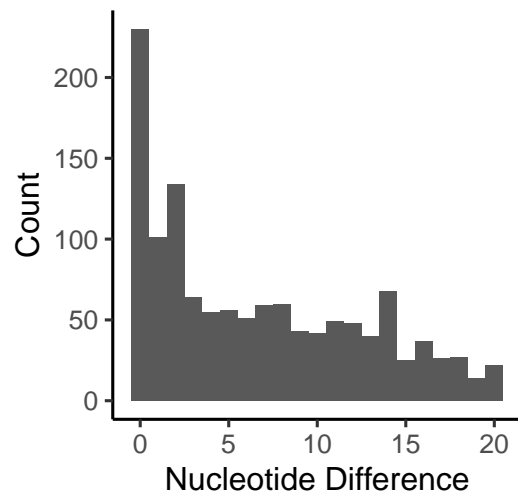
### IGHV4-61\*01

8131 sequences assigned  
728 (9%) exact matches, in which:  
622 unique CDR3  
6 unique J



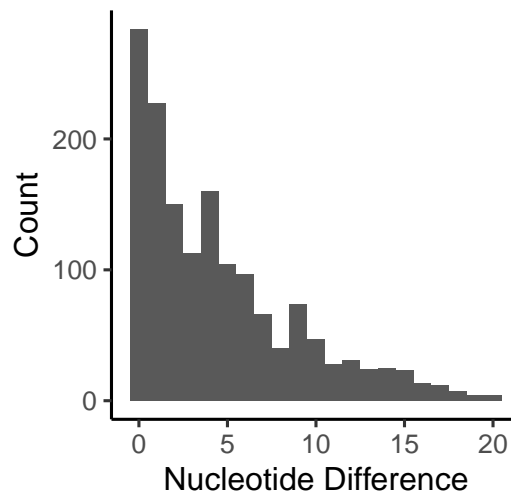
### IGHV4-38-2\*02

1593 sequences assigned  
230 (14.4%) exact matches, in which:  
192 unique CDR3  
5 unique J



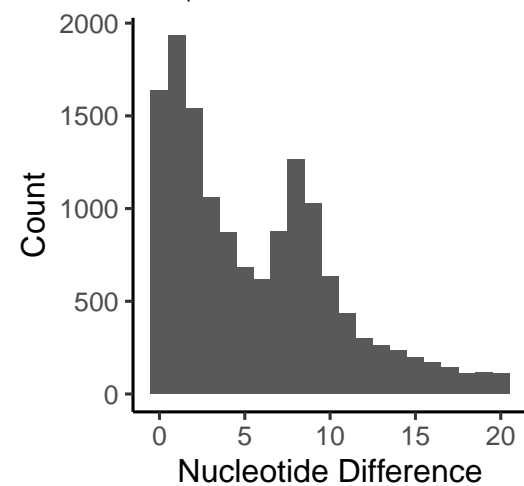
### IGHV4-59\*08

1687 sequences assigned  
284 (16.8%) exact matches, in which:  
265 unique CDR3  
6 unique J



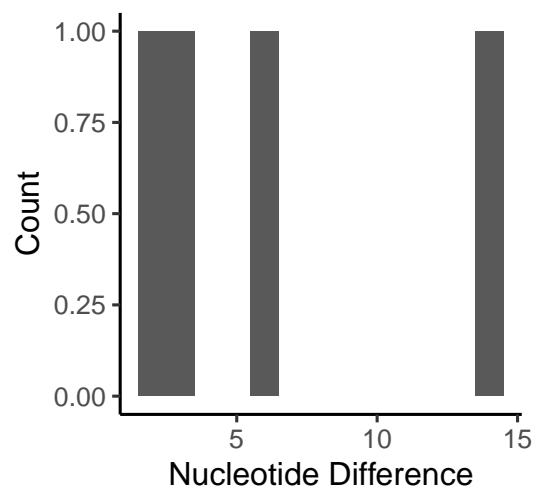
### IGHV4-61\*02

16986 sequences assigned  
1638 (9.6%) exact matches, in which:  
1195 unique CDR3  
6 unique J



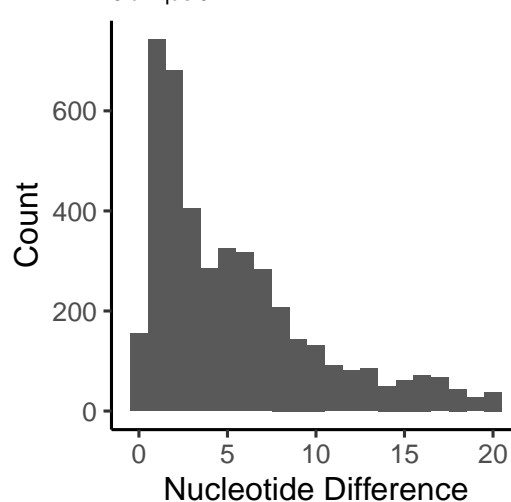
### IGHV4-39\*02

8 sequences assigned  
No exact matches.



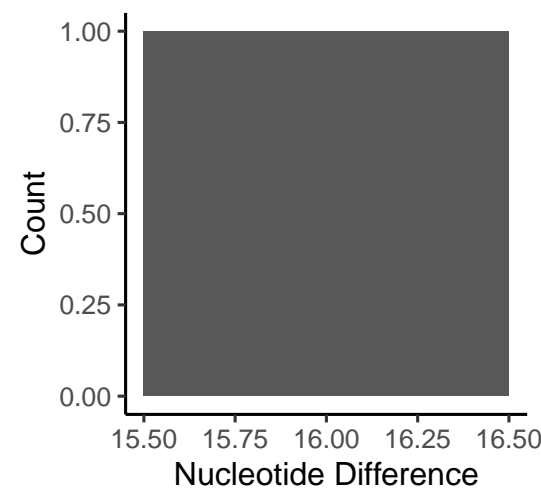
### IGHV4-59\*12

5980 sequences assigned  
155 (2.6%) exact matches, in which:  
151 unique CDR3  
6 unique J



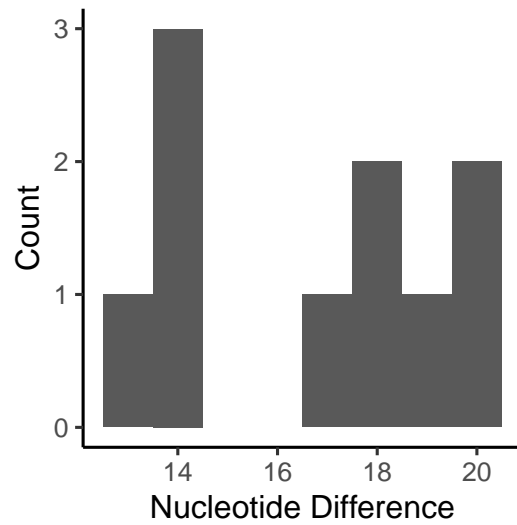
### IGHV1/OR15-2\*01

1 sequences assigned  
No exact matches.



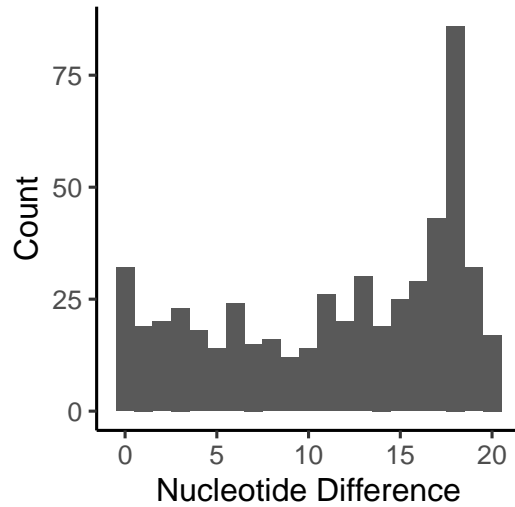
### IGHV1/OR15-2\*02\_03

11 sequences assigned  
No exact matches.



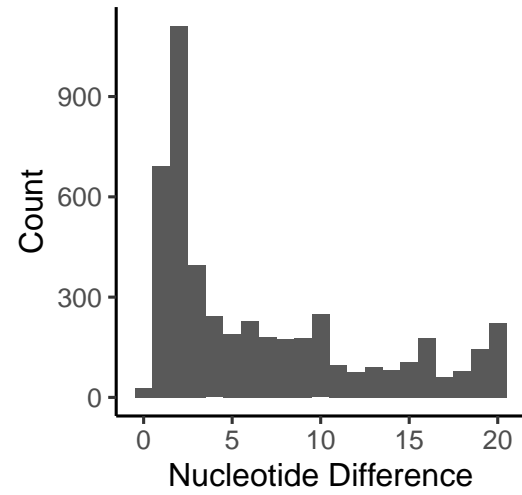
### IGHV4/OR15-8\*01\_C193/

678 sequences assigned  
32 (4.7%) exact matches, in which:  
28 unique CDR3  
3 unique J



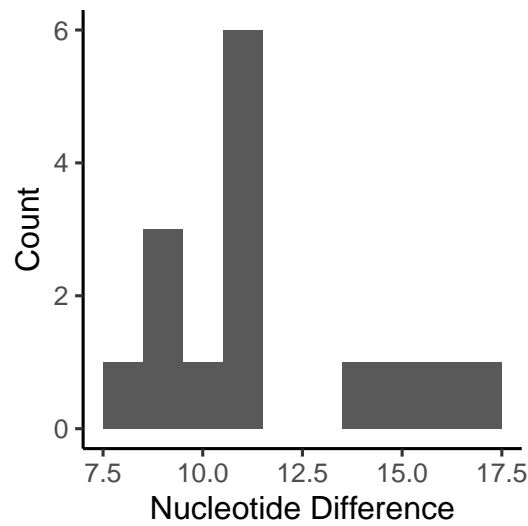
### IGHV5-51\*07

5437 sequences assigned  
28 (0.5%) exact matches, in which:  
24 unique CDR3  
4 unique J



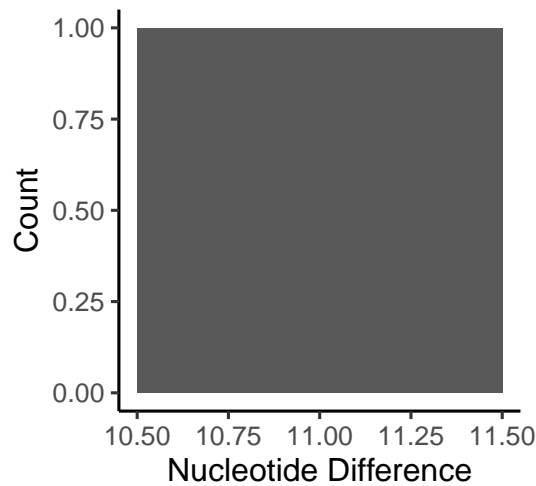
### IGHV1/OR15-3\*02

17 sequences assigned  
No exact matches.



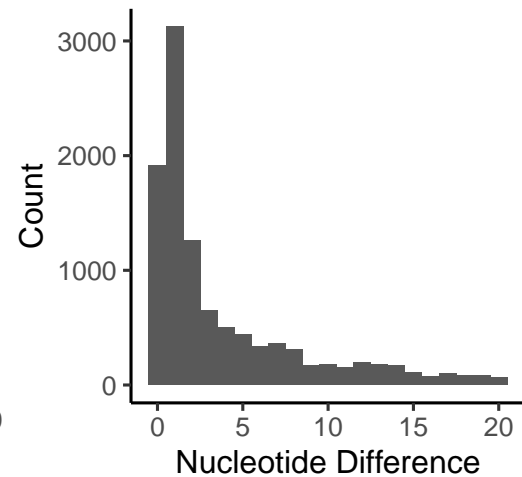
### IGHV1/OR15-9\*01

1 sequences assigned  
No exact matches.



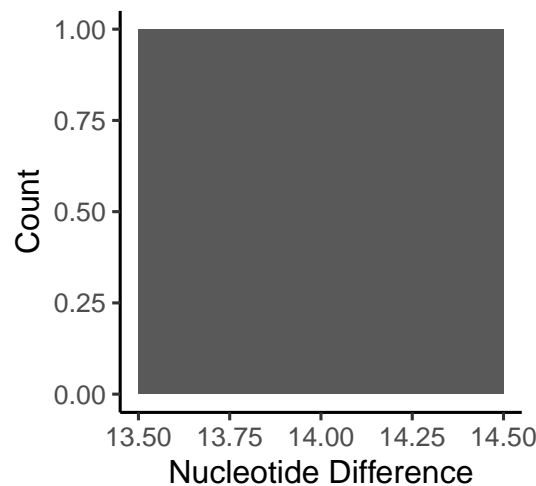
### IGHV5-51\*01\_03

13350 sequences assigned  
1916 (14.4%) exact matches, in which:  
946 unique CDR3  
6 unique J



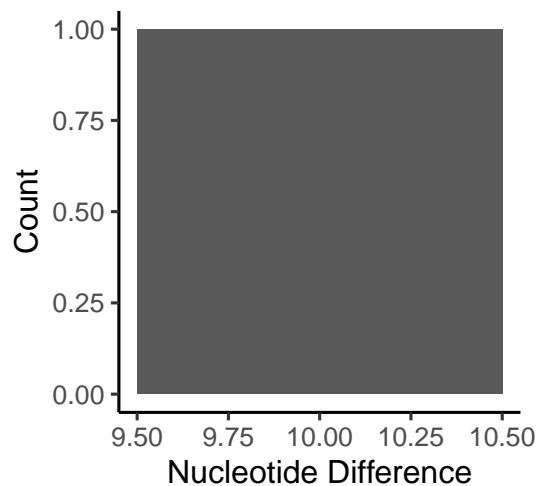
### IGHV1/OR15-4\*01

2 sequences assigned  
No exact matches.



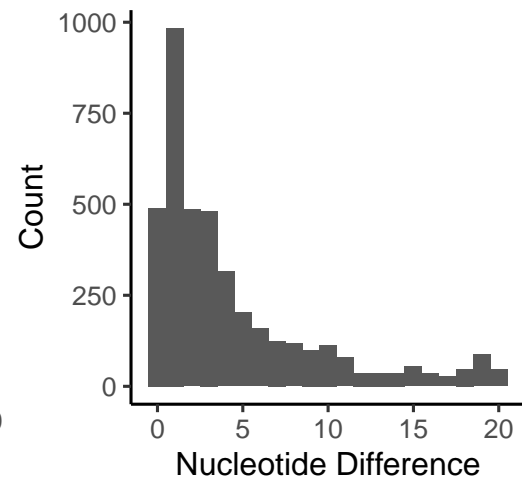
### IGHV5-10-1\*01\_03

1 sequences assigned  
No exact matches.



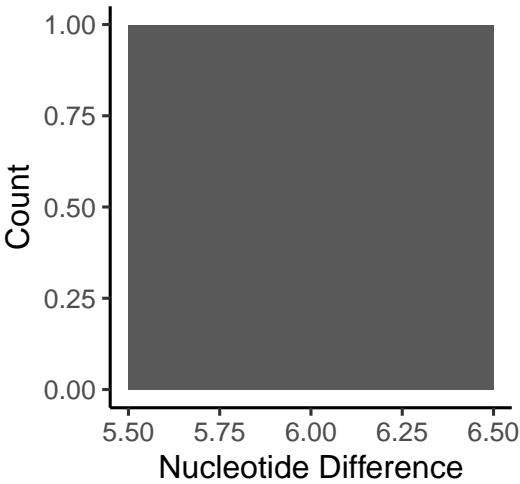
### IGHV6-1\*01\_02

4286 sequences assigned  
490 (11.4%) exact matches, in which:  
348 unique CDR3  
6 unique J



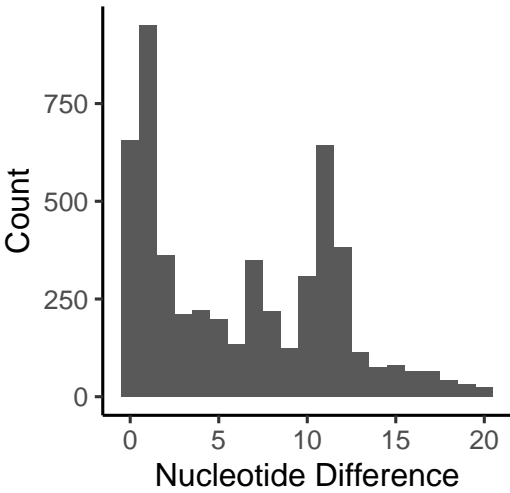
# IGHV3/OR16-13\*01

1 sequences assigned  
No exact matches.

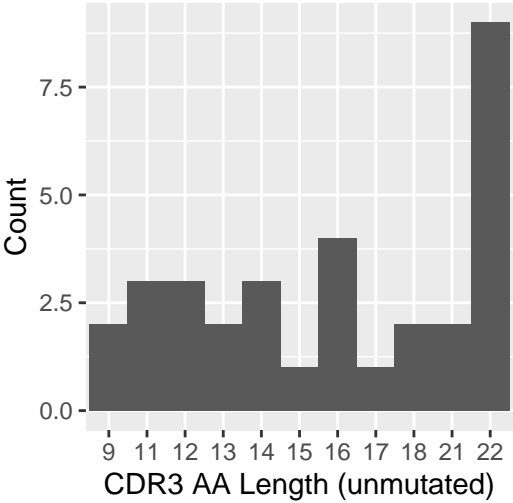


# IGHV7-4-1\*02

5311 sequences assigned  
655 (12.3%) exact matches, in which:  
491 unique CDR3  
6 unique J



IGHV4/OR15-8\*01\_C193A







[illegible]