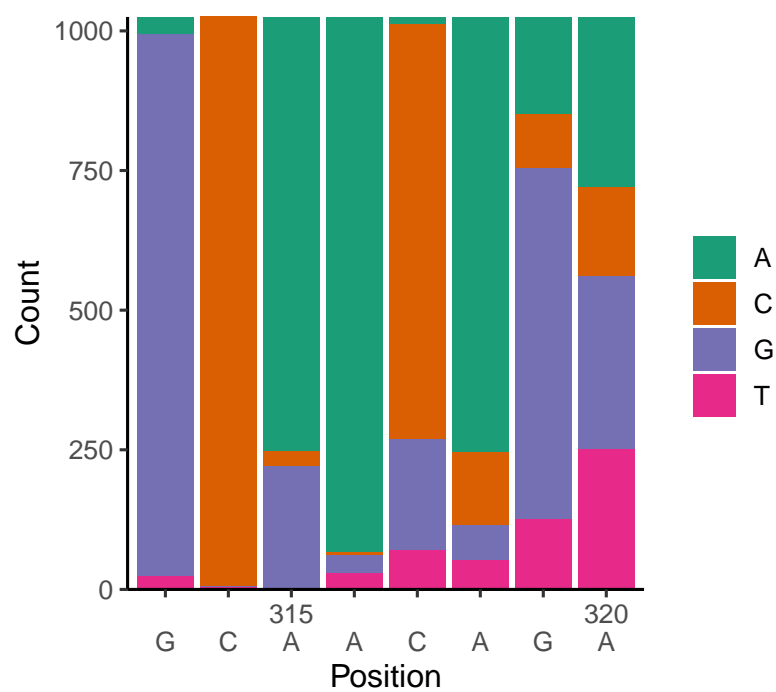
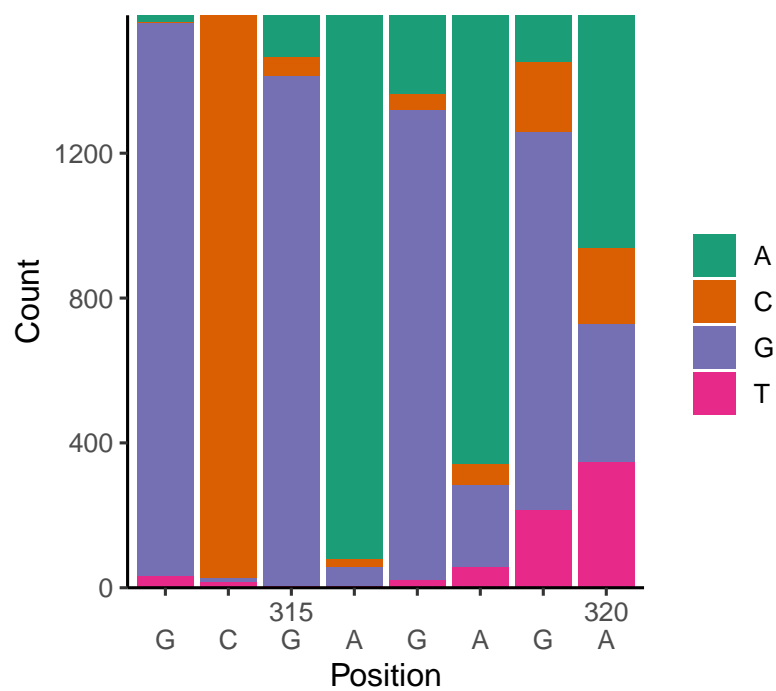


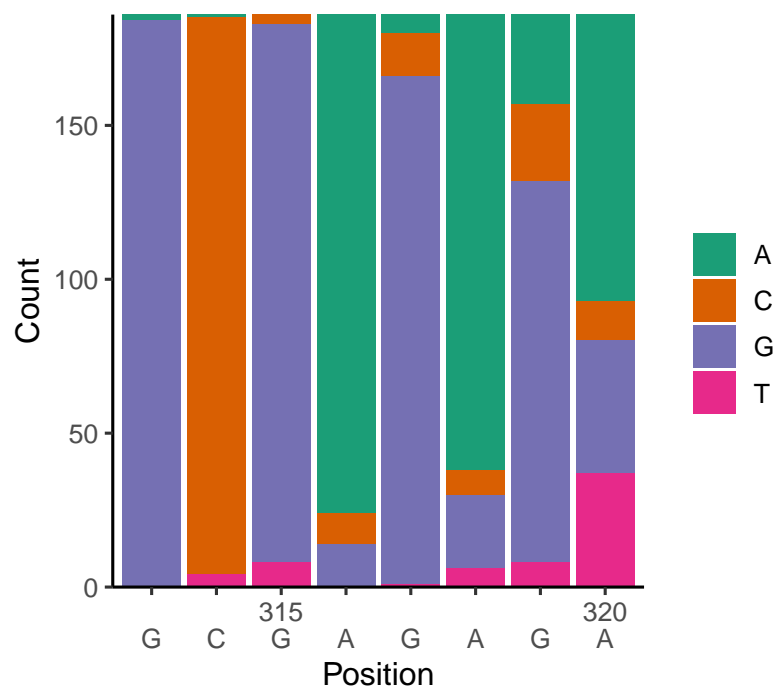
Gene IGHV1-24\*01\_G278T



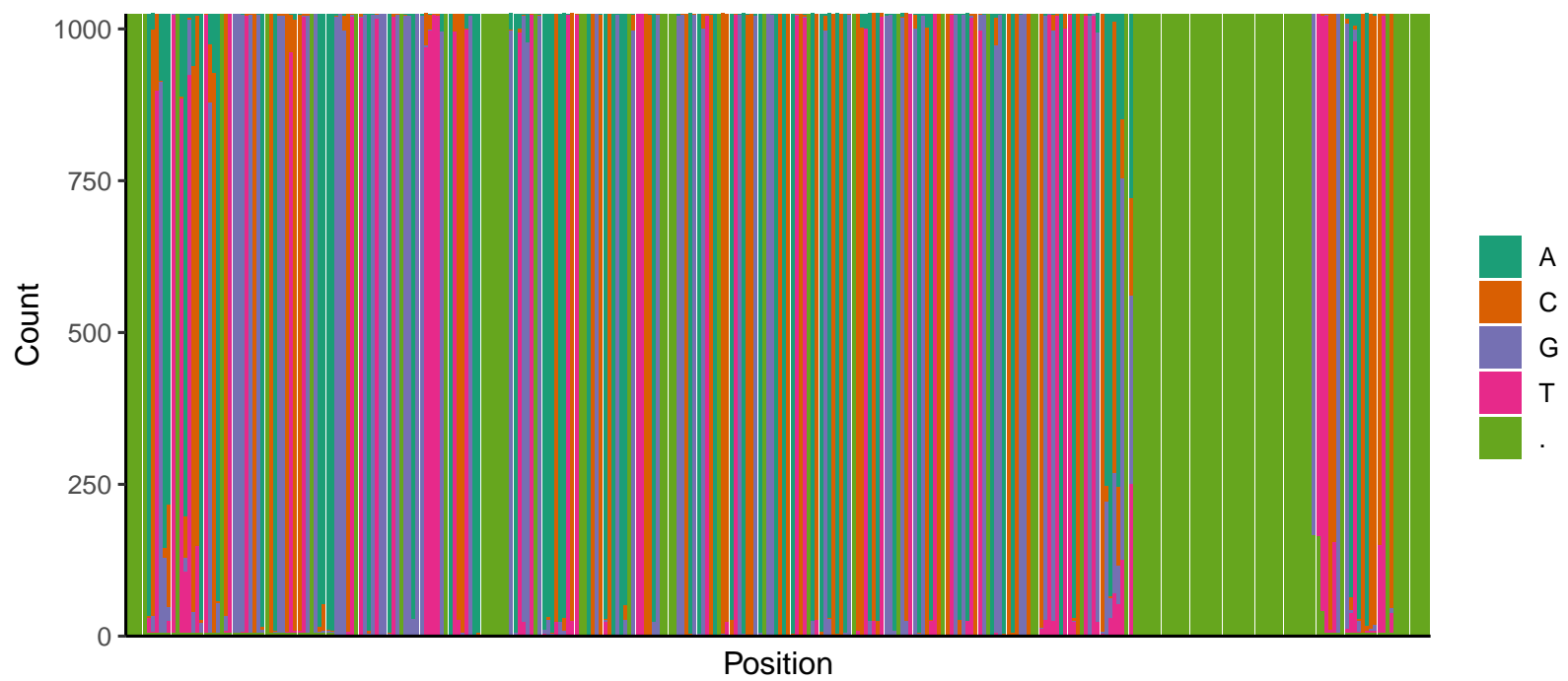
Gene IGHV3-20\*03\_04\_A104G



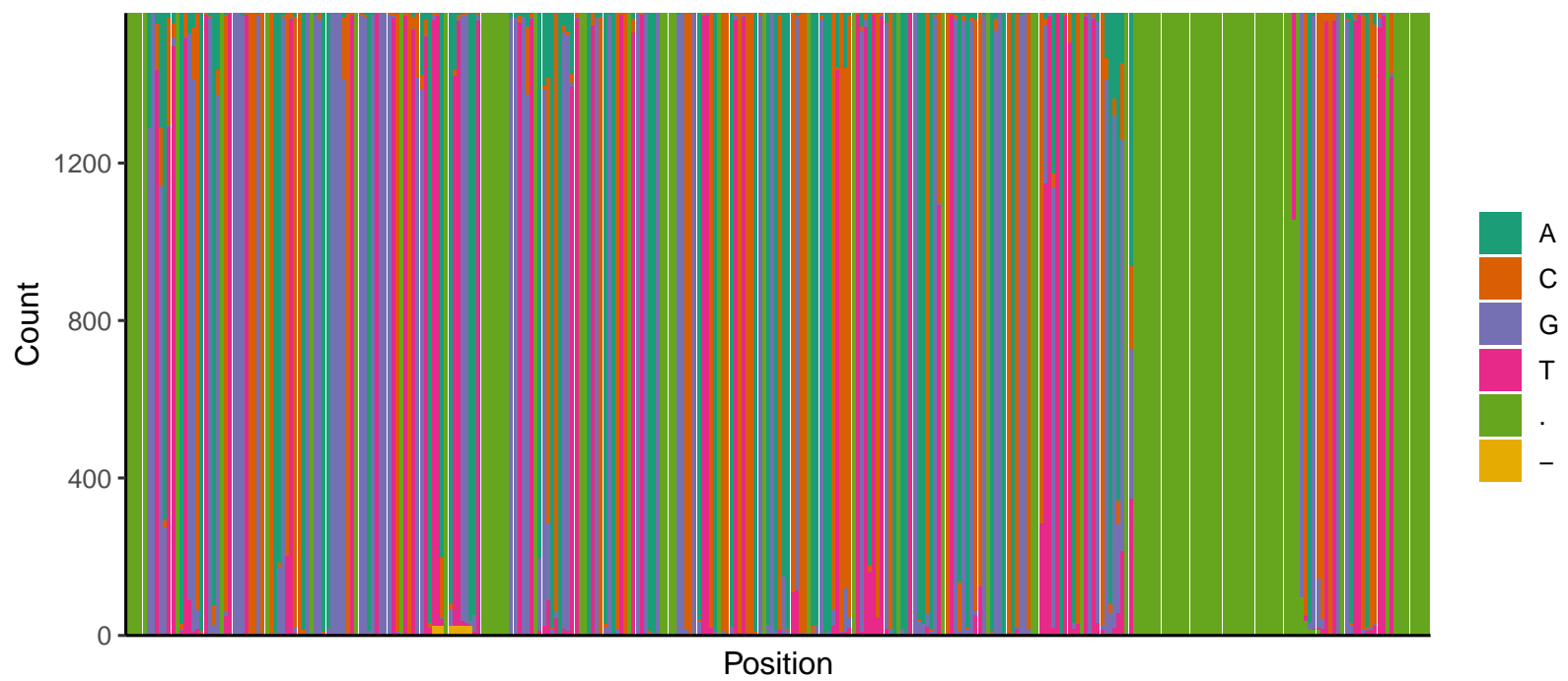
Gene IGHV4/OR15-8\*01\_C193A



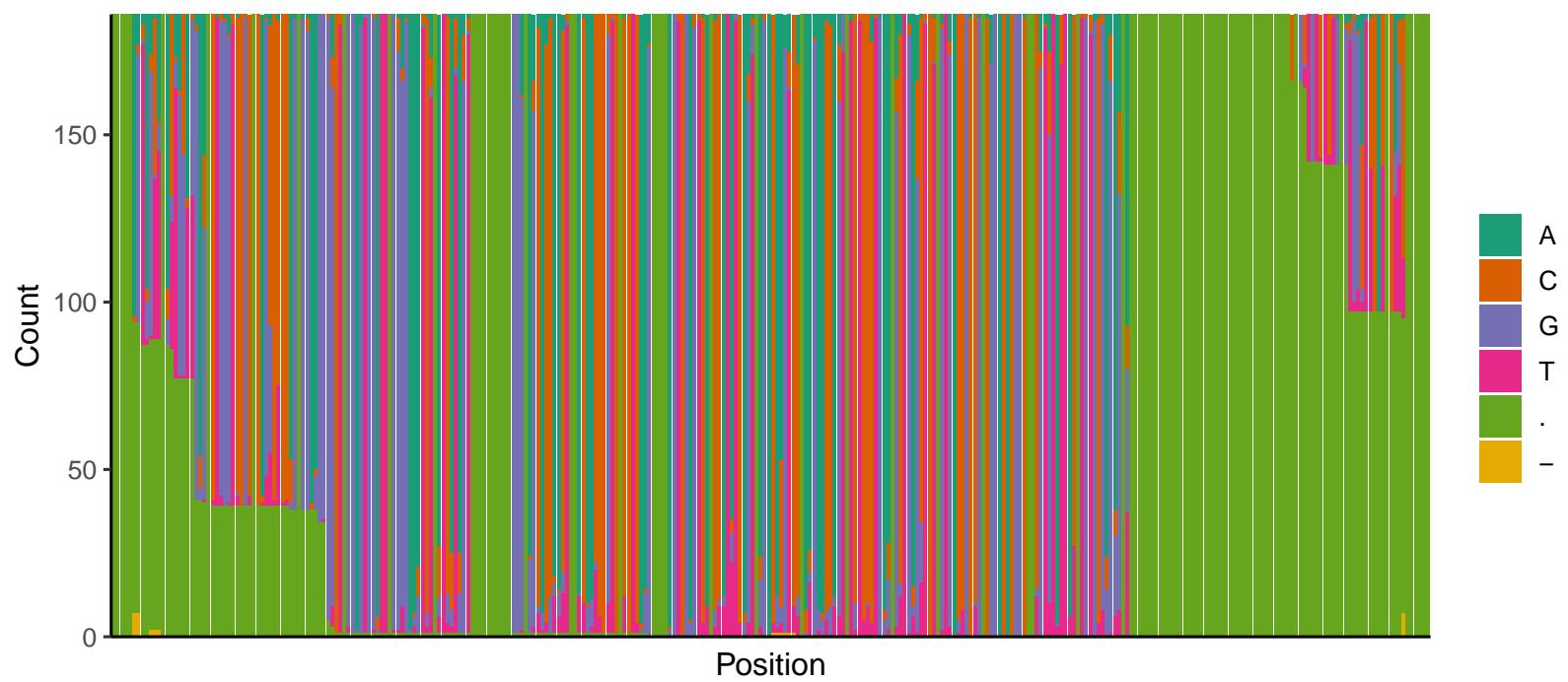
Gene IGHV1-24\*01\_G278T



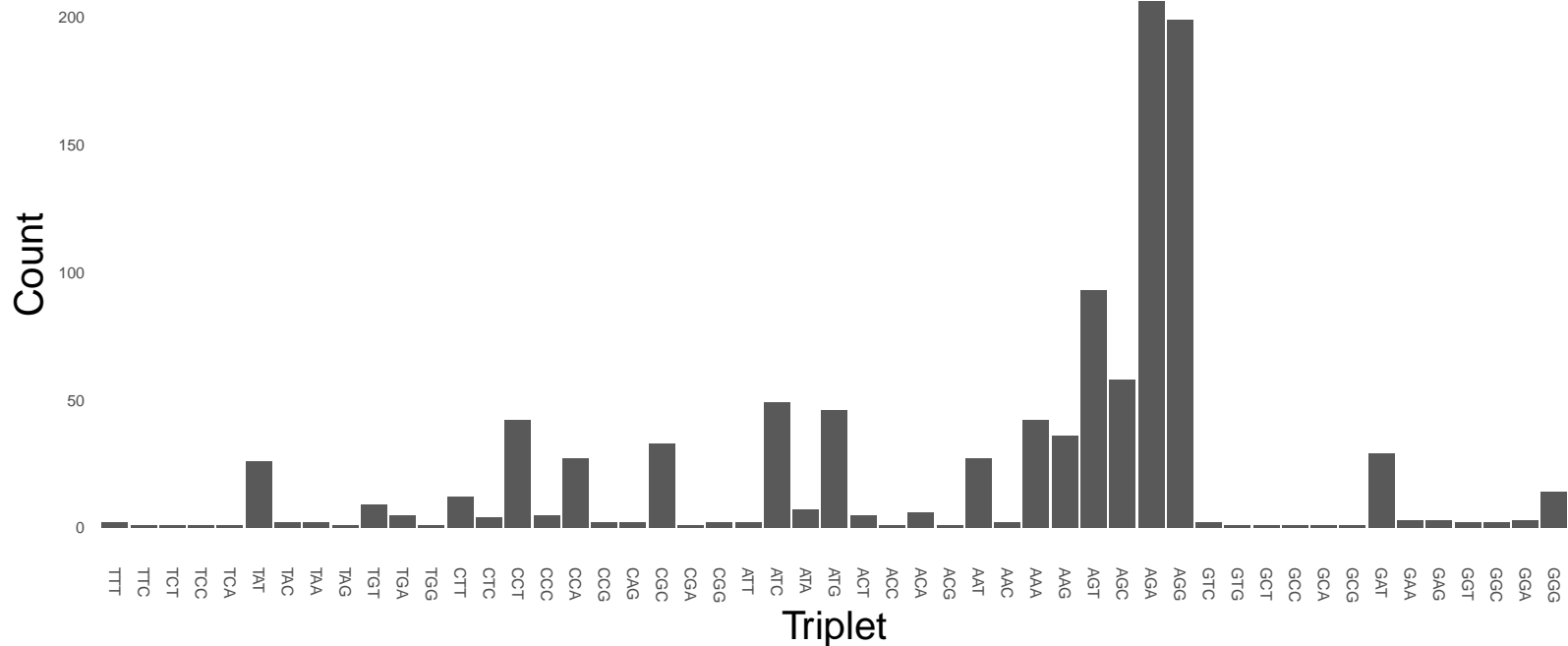
Gene IGHV3-20\*03\_04\_A104G



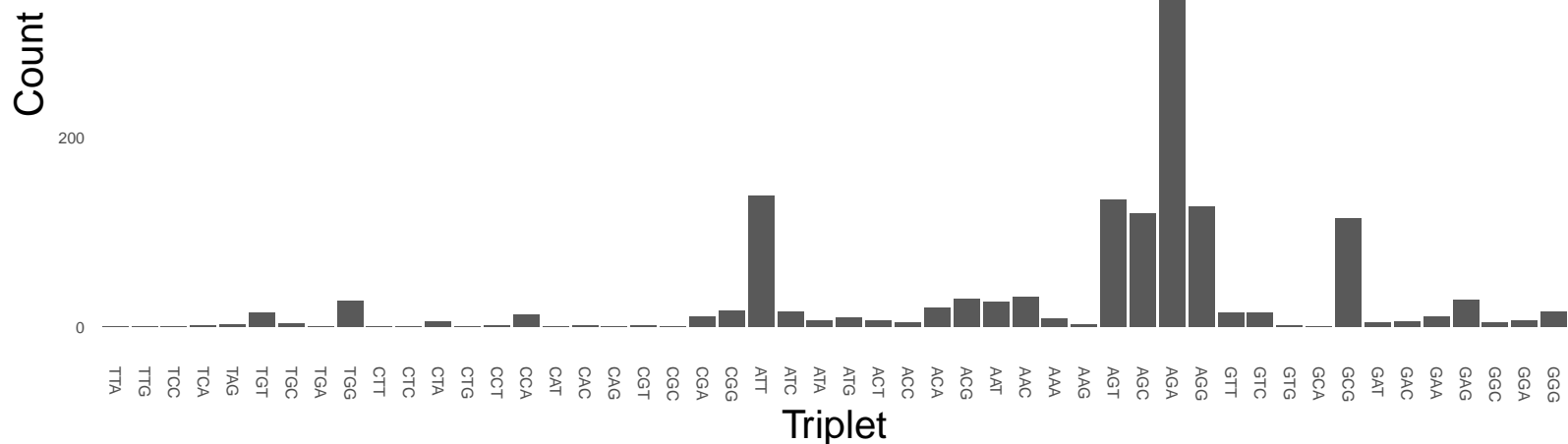
Gene IGHV4/OR15-8\*01\_C193A



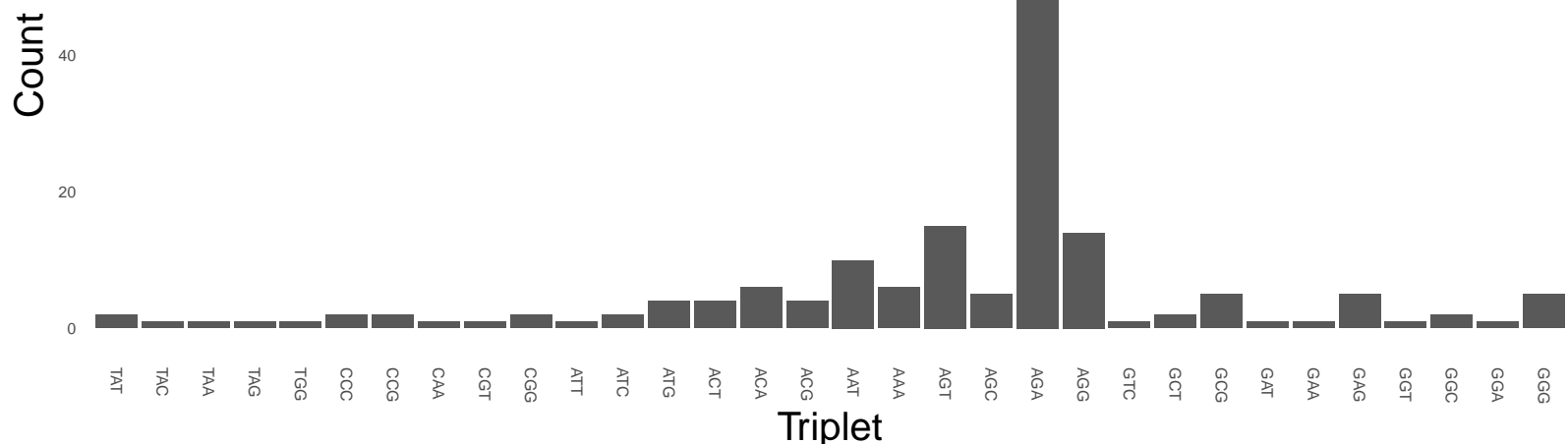
IGHV1–24\*01\_G278T– Final 3 nucleotides as a triplet



IGHV3–20\*03\_04\_A104G– Final 3 nucleotides as a triplet

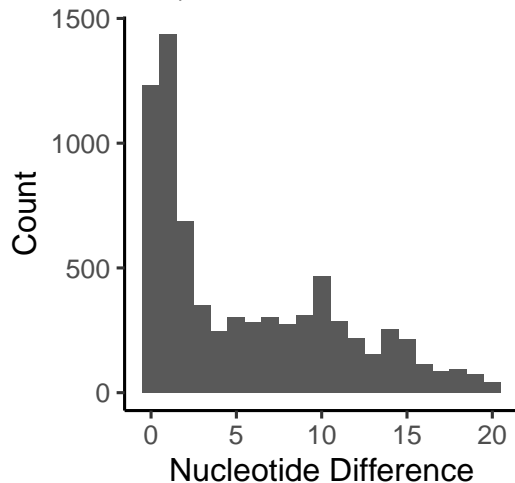


IGHV4/OR15–8\*01\_C193A– Final 3 nucleotides as a triplet



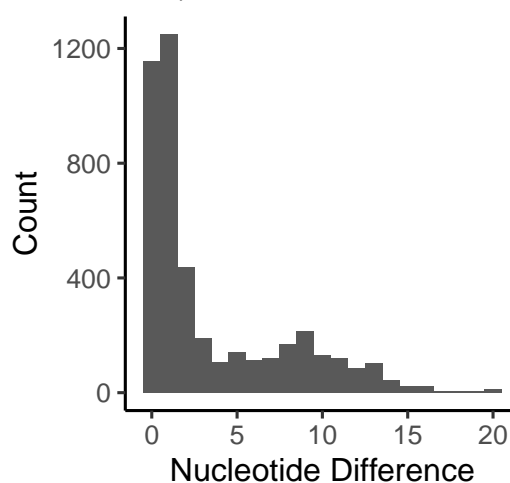
### IGHV1-2\*02

8875 sequences assigned  
1234 (13.9%) exact matches, in which:  
1030 unique CDR3  
6 unique J



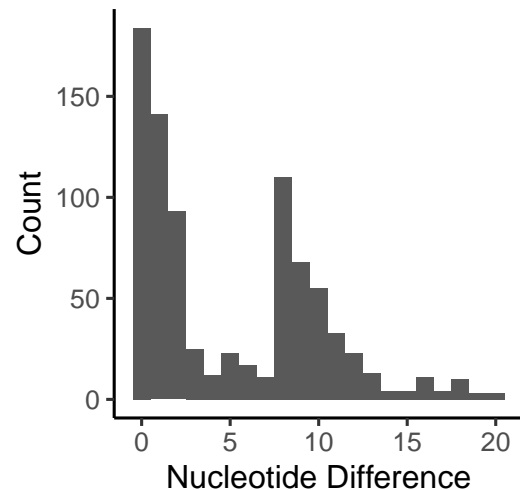
### IGHV1-8\*01

6901 sequences assigned  
1157 (16.8%) exact matches, in which:  
962 unique CDR3  
6 unique J



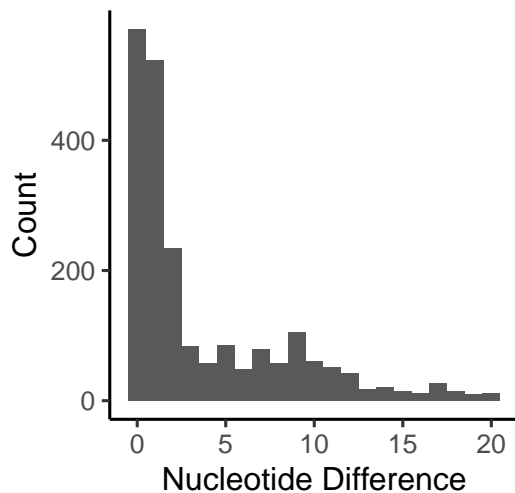
### IGHV1-24\*01

849 sequences assigned  
184 (21.7%) exact matches, in which:  
156 unique CDR3  
6 unique J



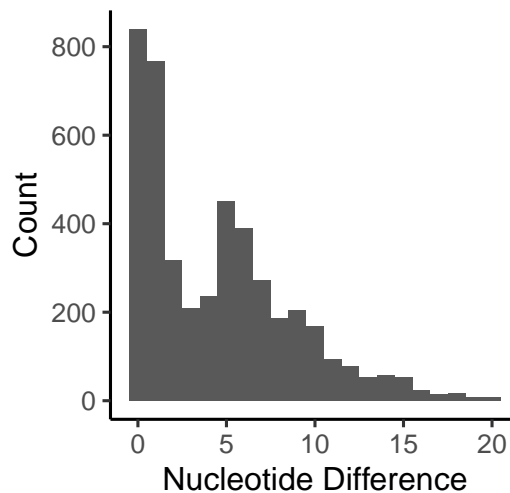
### IGHV1-2\*04

2146 sequences assigned  
571 (26.6%) exact matches, in which:  
500 unique CDR3  
6 unique J



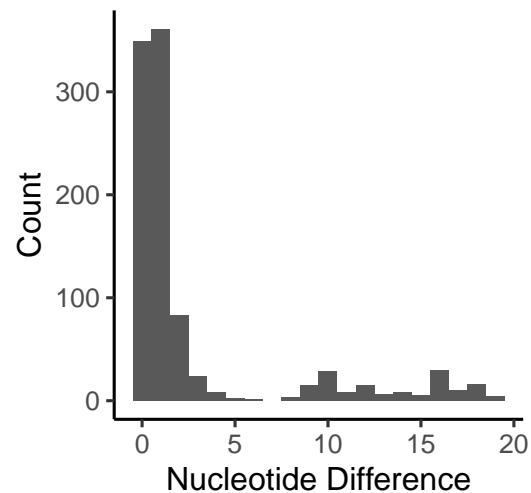
### IGHV1-8\*02

4594 sequences assigned  
840 (18.3%) exact matches, in which:  
730 unique CDR3  
6 unique J



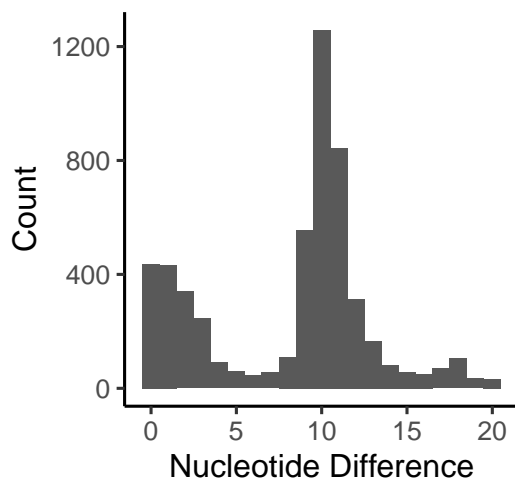
### IGHV1-24\*01\_G278T

1025 sequences assigned  
349 (34%) exact matches, in which:  
281 unique CDR3  
6 unique J



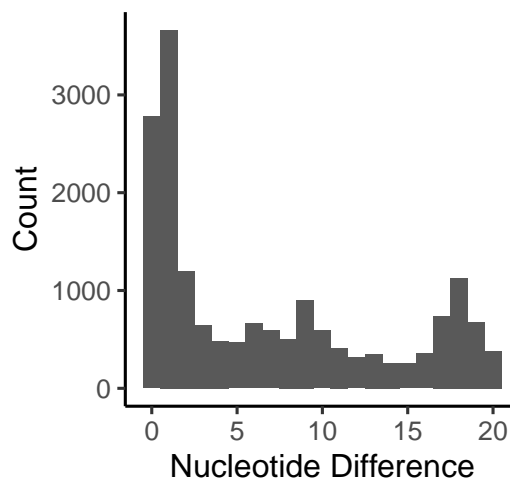
### IGHV1-3\*01\_05

5784 sequences assigned  
436 (7.5%) exact matches, in which:  
353 unique CDR3  
6 unique J



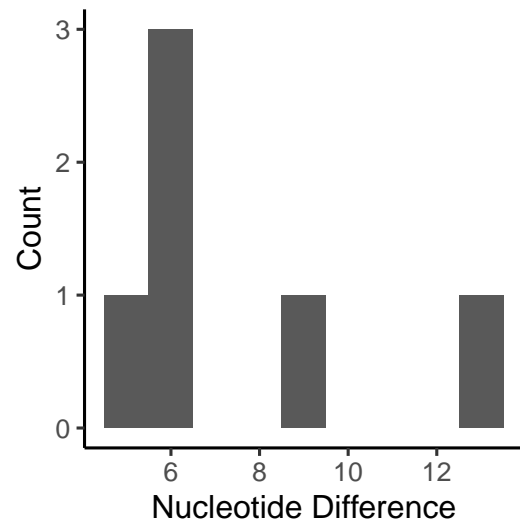
### IGHV1-18\*01

18682 sequences assigned  
2780 (14.9%) exact matches, in which:  
2160 unique CDR3  
6 unique J



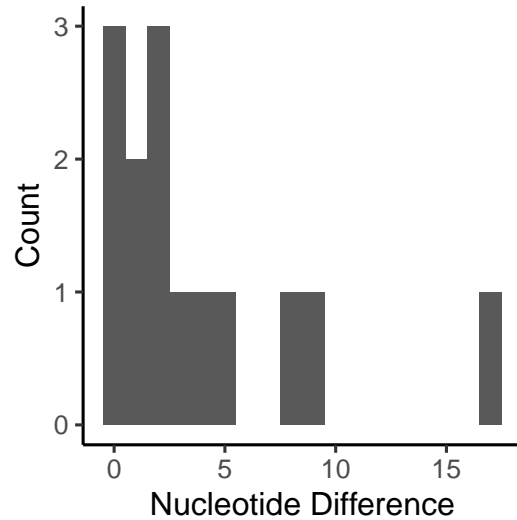
### IGHV1-38-4\*01

6 sequences assigned  
No exact matches.



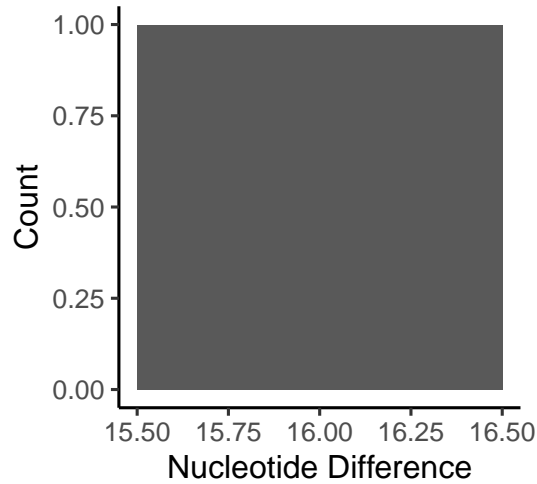
### IGHV1-45\*02

17 sequences assigned  
3 (17.6%) exact matches, in which:  
2 unique CDR3  
2 unique J



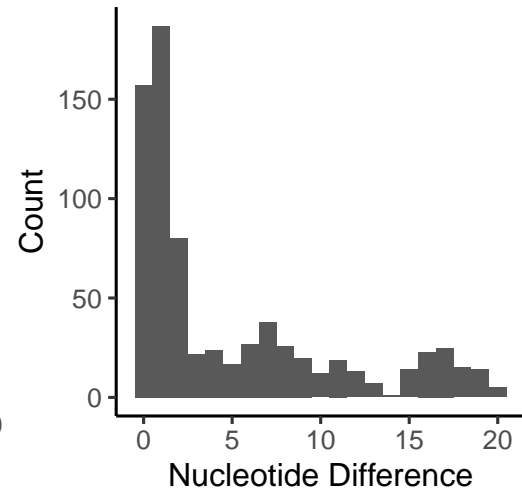
### IGHV1-69-2\*01

1 sequences assigned  
No exact matches.



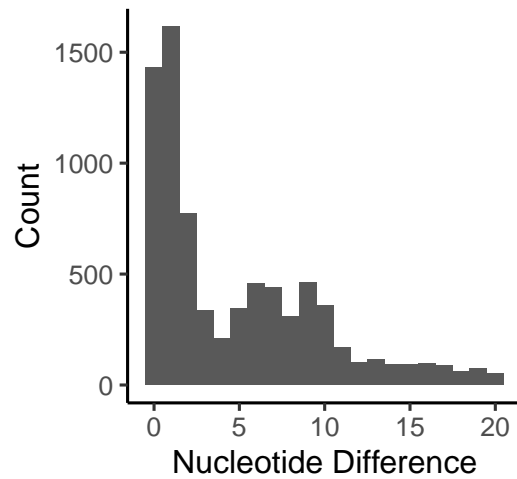
### IGHV2-5\*01

768 sequences assigned  
157 (20.4%) exact matches, in which:  
127 unique CDR3  
5 unique J



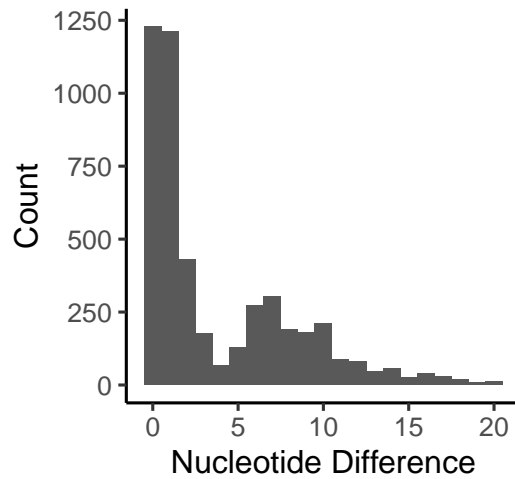
### IGHV1-46\*01

8317 sequences assigned  
1432 (17.2%) exact matches, in which:  
1182 unique CDR3  
6 unique J



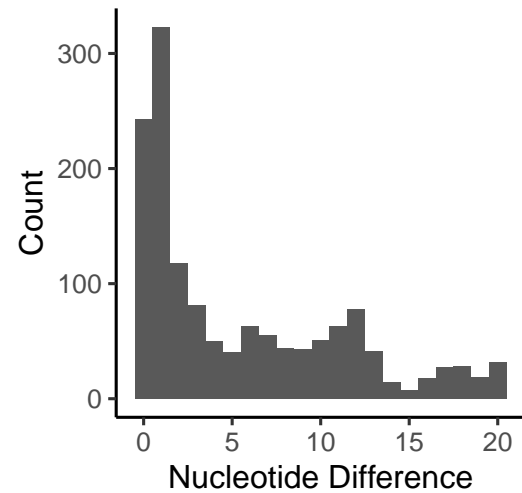
### IGHV1-69\*10

4930 sequences assigned  
1228 (24.9%) exact matches, in which:  
1063 unique CDR3  
6 unique J



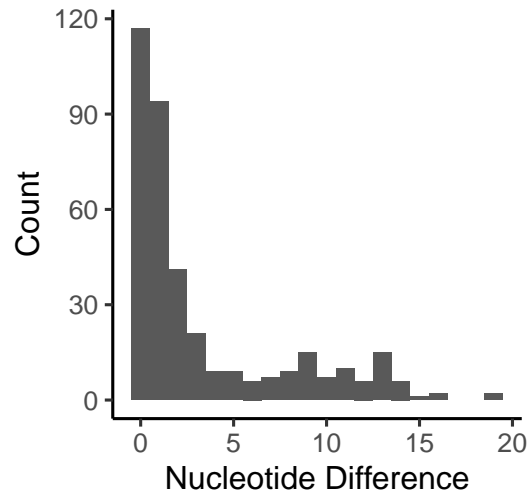
### IGHV2-5\*02

1617 sequences assigned  
243 (15%) exact matches, in which:  
179 unique CDR3  
6 unique J



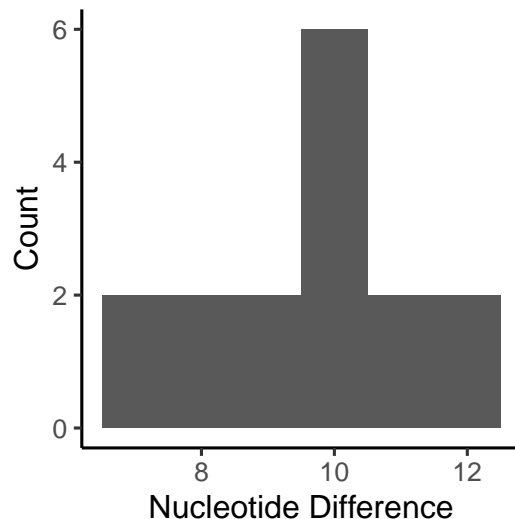
### IGHV1-58\*02

377 sequences assigned  
117 (31%) exact matches, in which:  
102 unique CDR3  
5 unique J



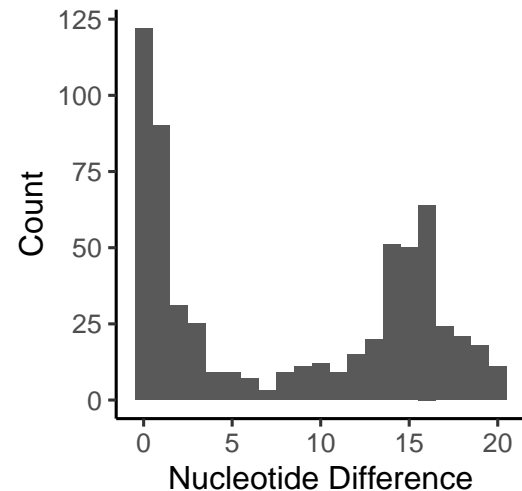
### IGHV1-NL1\*01

16 sequences assigned  
No exact matches.



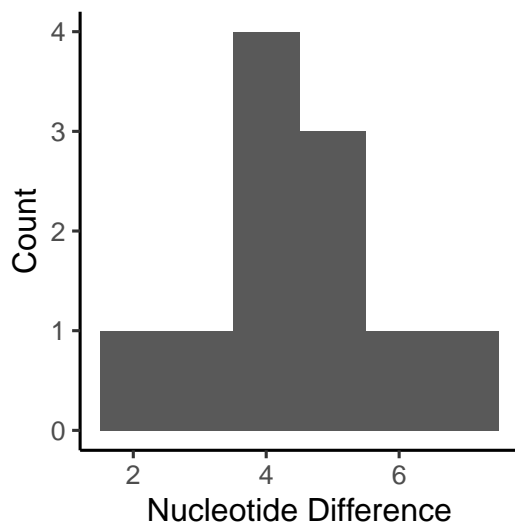
### IGHV2-26\*01

3210 sequences assigned  
122 (3.8%) exact matches, in which:  
92 unique CDR3  
5 unique J



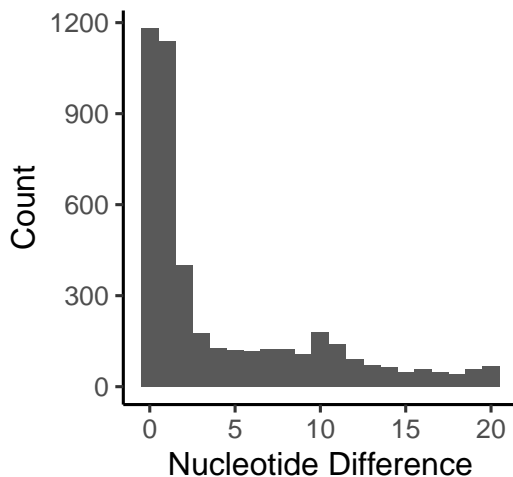
### IGHV2-70\*12

11 sequences assigned  
No exact matches.



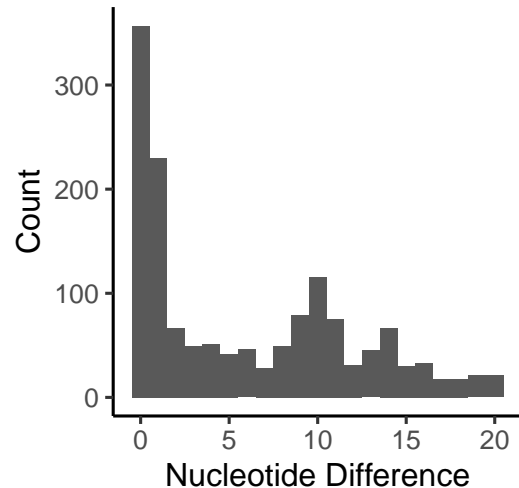
### IGHV3-9\*01

6715 sequences assigned  
1181 (17.6%) exact matches, in which:  
708 unique CDR3  
6 unique J



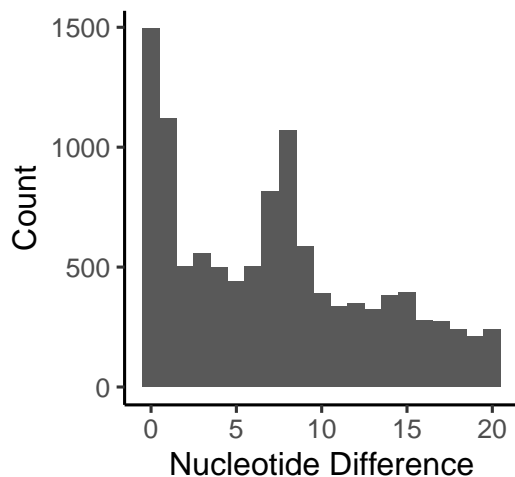
### IGHV3-13\*01

1559 sequences assigned  
357 (22.9%) exact matches, in which:  
242 unique CDR3  
6 unique J



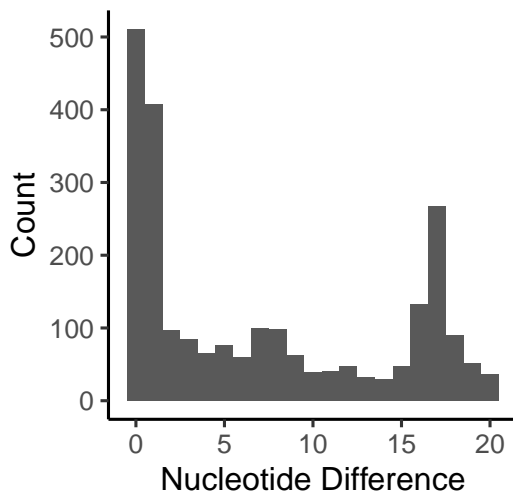
### IGHV3-7\*01

17396 sequences assigned  
1494 (8.6%) exact matches, in which:  
1024 unique CDR3  
6 unique J



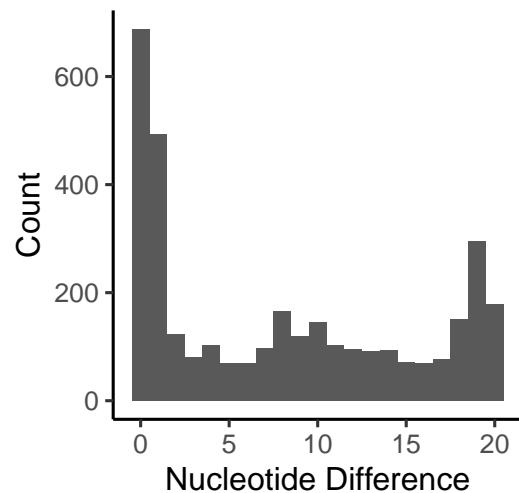
### IGHV3-11\*01

3768 sequences assigned  
511 (13.6%) exact matches, in which:  
342 unique CDR3  
6 unique J



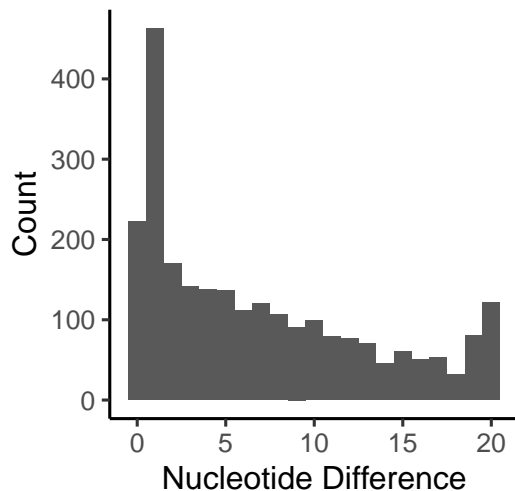
### IGHV3-15\*01\_02

3883 sequences assigned  
688 (17.7%) exact matches, in which:  
419 unique CDR3  
6 unique J



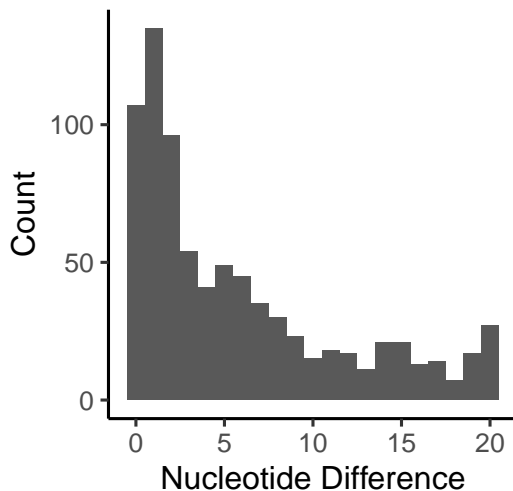
### IGHV3-7\*03

3173 sequences assigned  
222 (7%) exact matches, in which:  
138 unique CDR3  
5 unique J



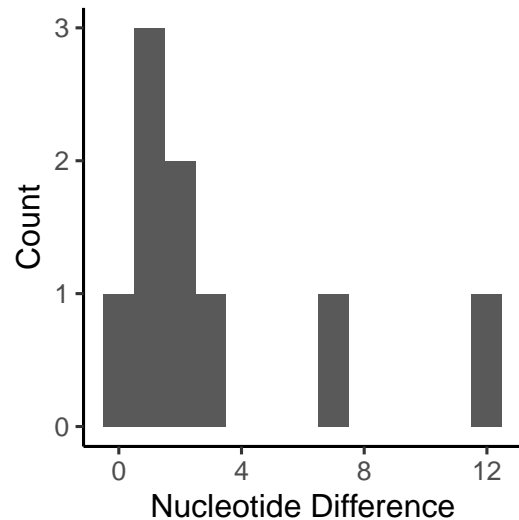
### IGHV3-11\*04

954 sequences assigned  
107 (11.2%) exact matches, in which:  
105 unique CDR3  
5 unique J



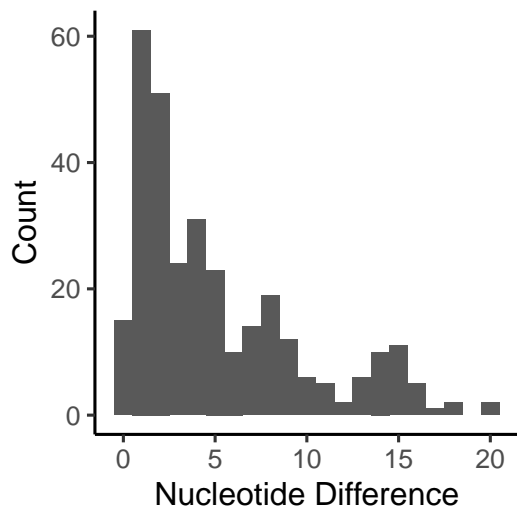
### IGHV3-19\*01

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



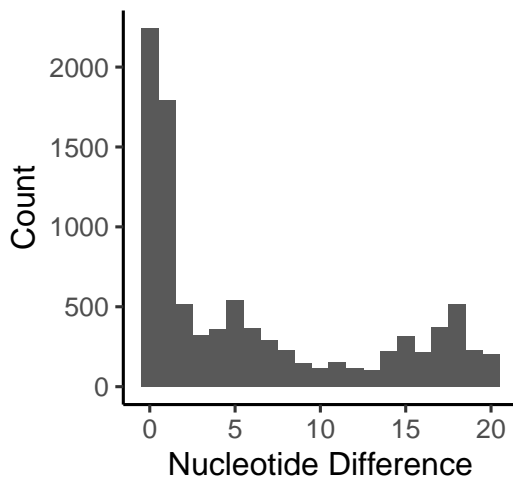
### IGHV3-20\*03\_04

413 sequences assigned  
15 (3.6%) exact matches, in which:  
14 unique CDR3  
4 unique J



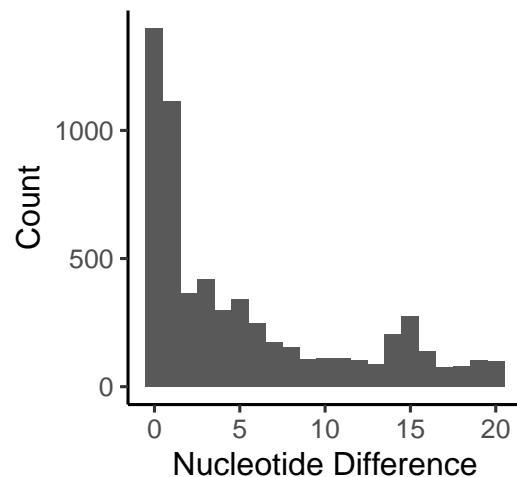
### IGHV3-21\*01\_02

10442 sequences assigned  
2242 (21.5%) exact matches, in which:  
1432 unique CDR3  
6 unique J



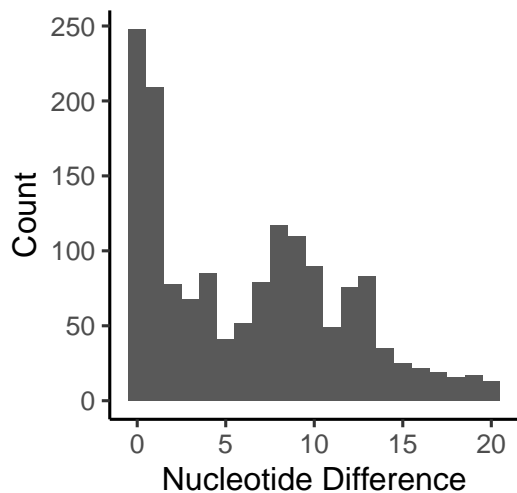
### IGHV3-30-3\*01

6496 sequences assigned  
1398 (21.5%) exact matches, in which:  
947 unique CDR3  
6 unique J



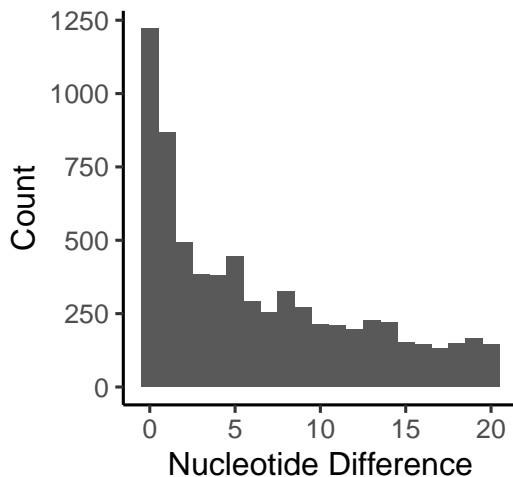
### IGHV3-20\*03\_04\_A104G

1581 sequences assigned  
248 (15.7%) exact matches, in which:  
157 unique CDR3  
6 unique J



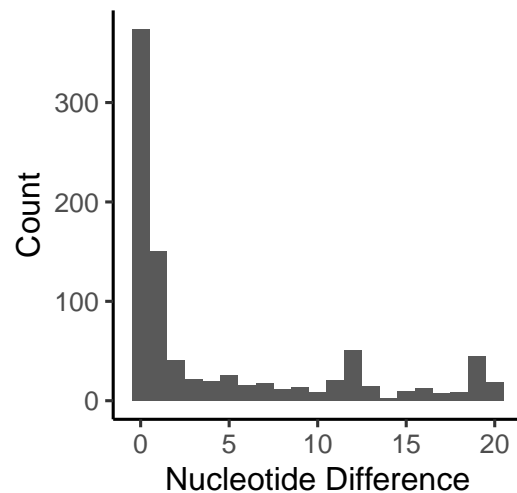
### IGHV3-23\*03

8125 sequences assigned  
1221 (15%) exact matches, in which:  
821 unique CDR3  
6 unique J



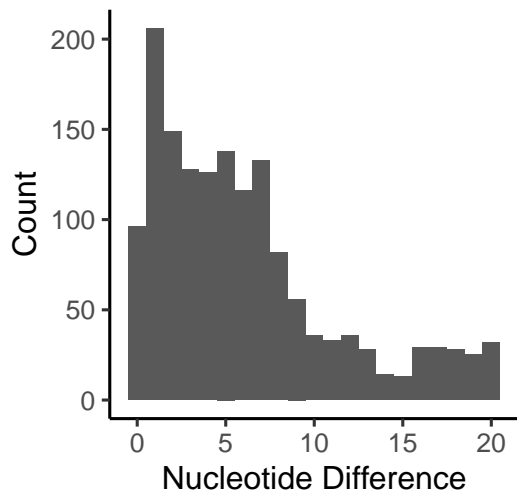
### IGHV3-30\*03

1184 sequences assigned  
374 (31.6%) exact matches, in which:  
338 unique CDR3  
6 unique J



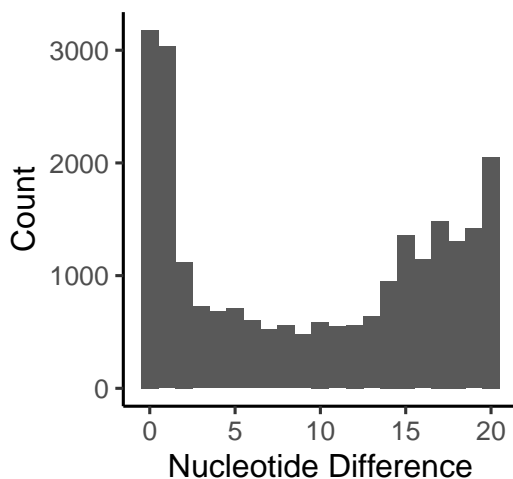
### IGHV3-21\*04

1692 sequences assigned  
96 (5.7%) exact matches, in which:  
94 unique CDR3  
5 unique J



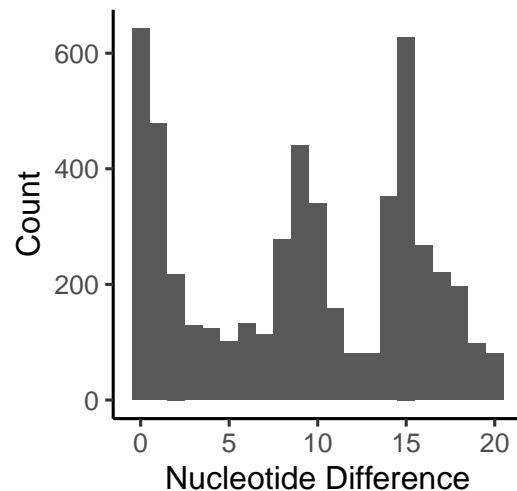
### IGHV3-23\*01\_04

37162 sequences assigned  
3179 (8.6%) exact matches, in which:  
1861 unique CDR3  
6 unique J



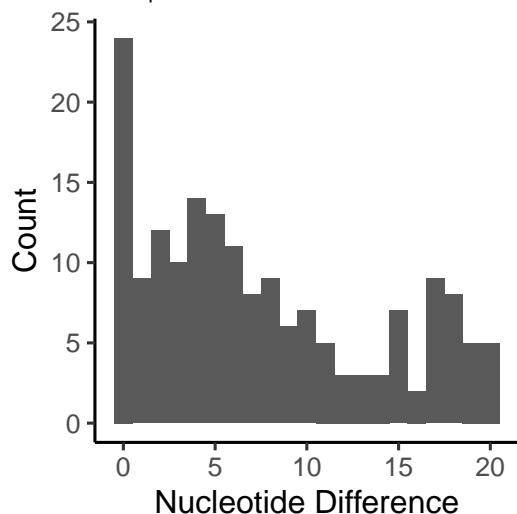
### IGHV3-33\*01

5677 sequences assigned  
643 (11.3%) exact matches, in which:  
452 unique CDR3  
6 unique J



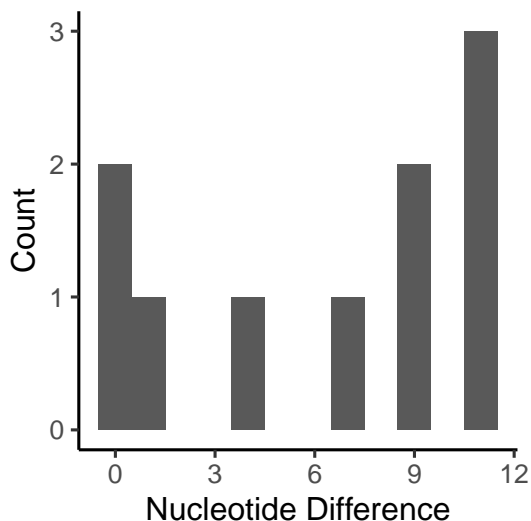
### IGHV3-33\*05

263 sequences assigned  
24 (9.1%) exact matches, in which:  
24 unique CDR3  
2 unique J



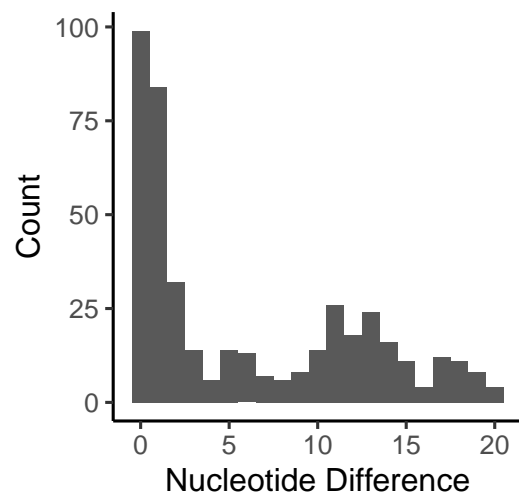
### IGHV3-35\*01

10 sequences assigned  
2 (20%) exact matches, in which:  
2 unique CDR3  
2 unique J



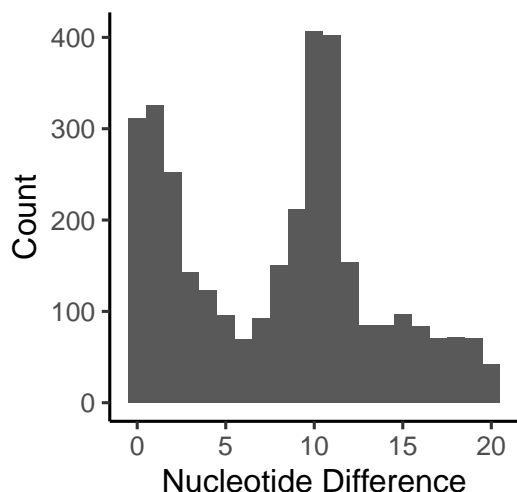
### IGHV3-43\*01

525 sequences assigned  
99 (18.9%) exact matches, in which:  
57 unique CDR3  
5 unique J



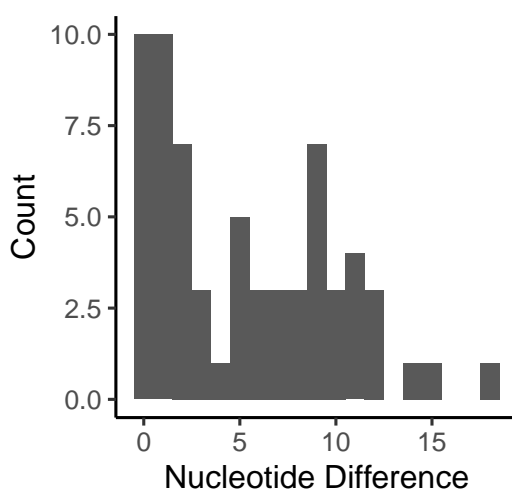
### IGHV3-33\*06

3529 sequences assigned  
312 (8.8%) exact matches, in which:  
206 unique CDR3  
5 unique J



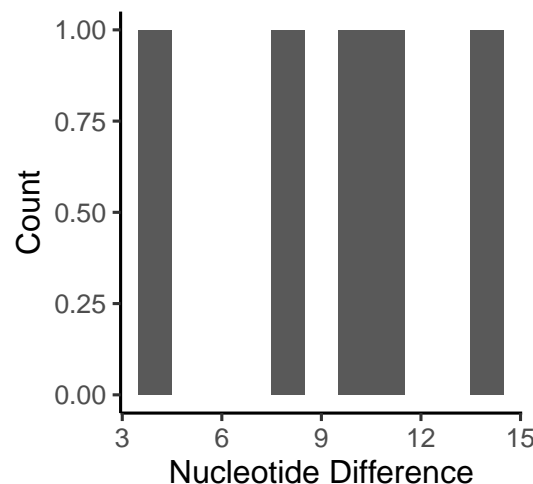
### IGHV3-38-3\*01

65 sequences assigned  
10 (15.4%) exact matches, in which:  
10 unique CDR3  
4 unique J



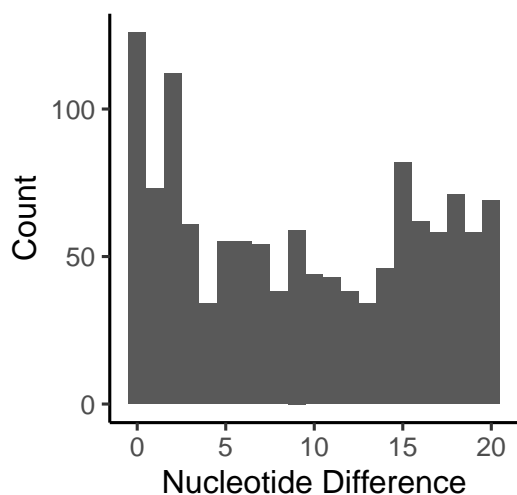
### IGHV3-47\*02

5 sequences assigned  
No exact matches.



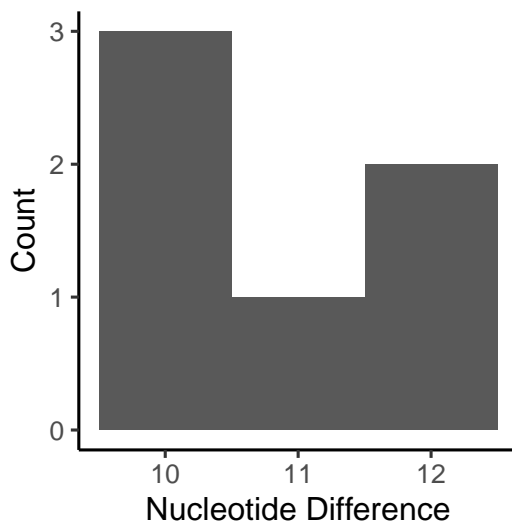
### IGHV3-33\*08

1571 sequences assigned  
126 (8%) exact matches, in which:  
99 unique CDR3  
4 unique J



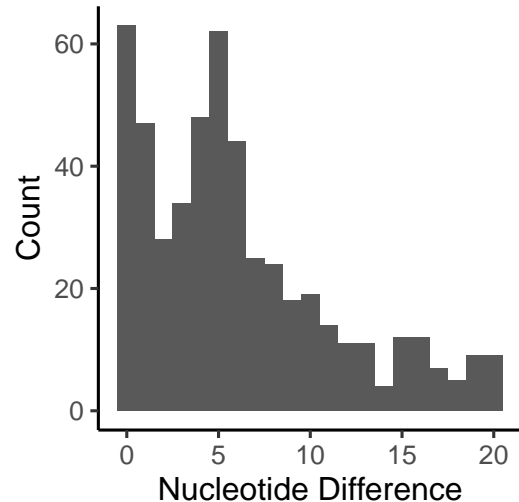
### IGHV3-38\*03

7 sequences assigned  
No exact matches.



### IGHV3-48\*01

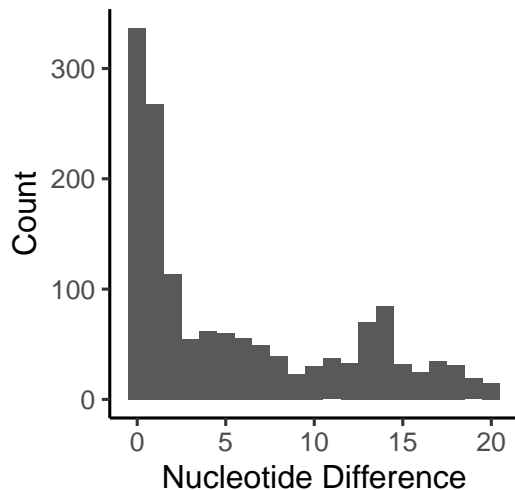
608 sequences assigned  
63 (10.4%) exact matches, in which:  
62 unique CDR3  
6 unique J





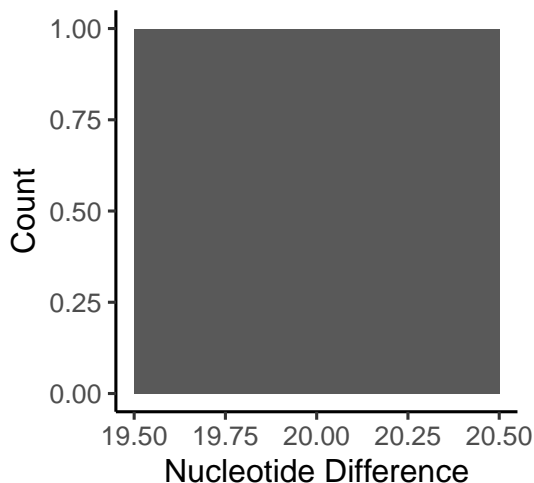
### IGHV3-48\*02

2747 sequences assigned  
337 (12.3%) exact matches, in which:  
227 unique CDR3  
6 unique J



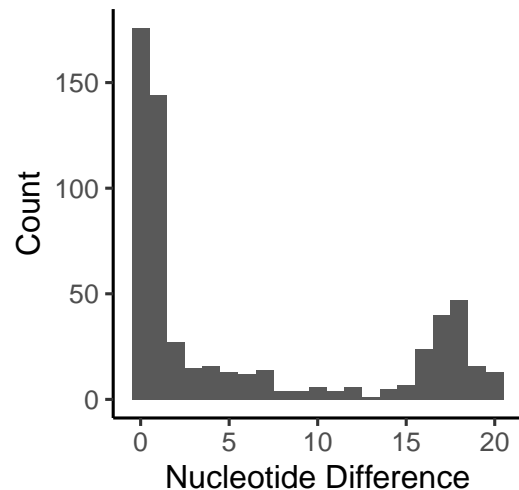
### IGHV3-52\*01\_03

2 sequences assigned  
No exact matches.



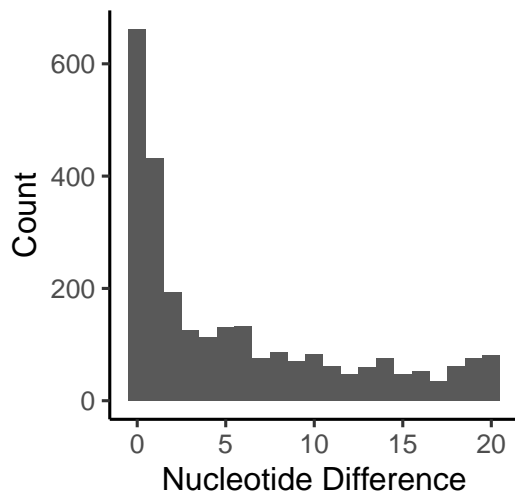
### IGHV3-64\*01

926 sequences assigned  
176 (19%) exact matches, in which:  
119 unique CDR3  
6 unique J



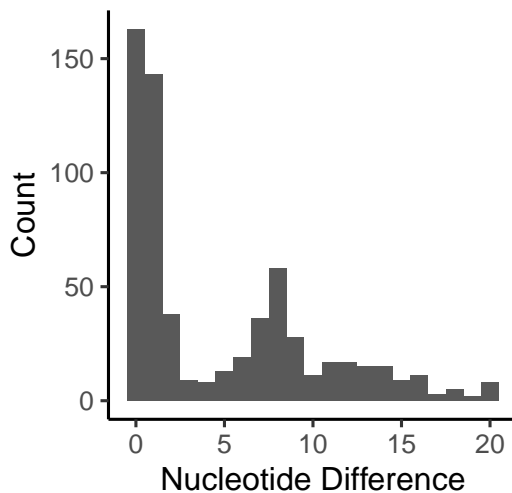
### IGHV3-48\*04

3485 sequences assigned  
662 (19%) exact matches, in which:  
465 unique CDR3  
6 unique J



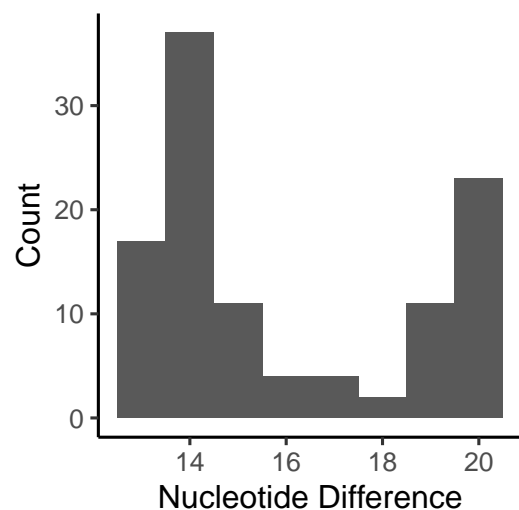
### IGHV3-53\*04

812 sequences assigned  
163 (20.1%) exact matches, in which:  
117 unique CDR3  
6 unique J



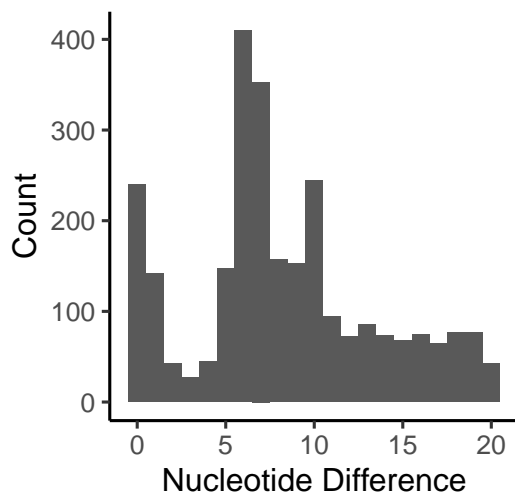
### IGHV3-64\*02\_07

329 sequences assigned  
No exact matches.



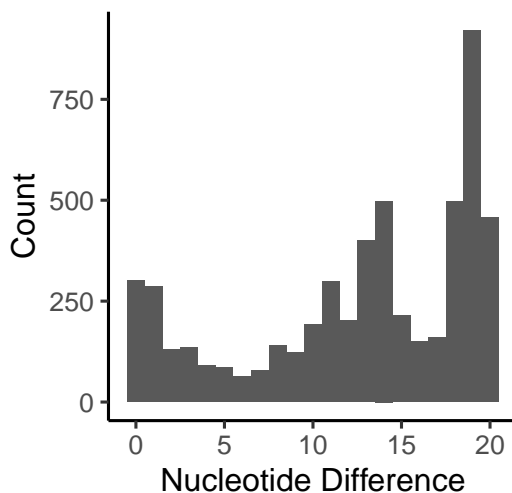
### IGHV3-49\*03\_05

2898 sequences assigned  
240 (8.3%) exact matches, in which:  
150 unique CDR3  
6 unique J



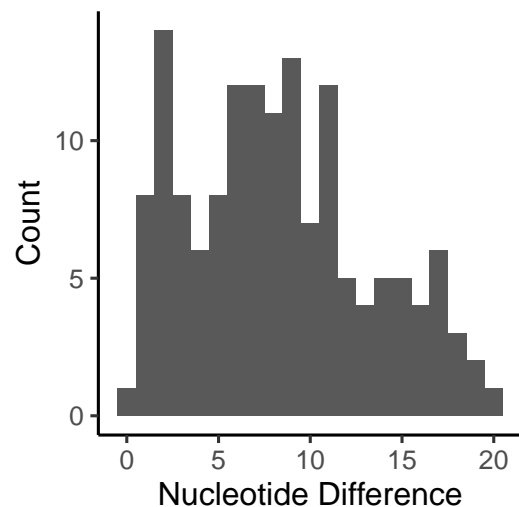
### IGHV3-53\*01\_02

6592 sequences assigned  
300 (4.6%) exact matches, in which:  
218 unique CDR3  
6 unique J



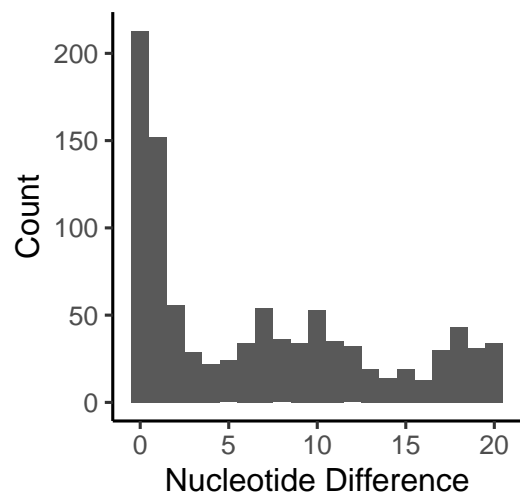
### IGHV3-66\*01

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



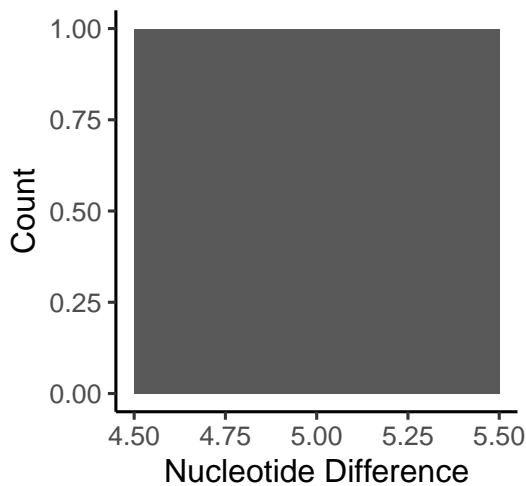
### IGHV3-66\*02

1103 sequences assigned  
213 (19.3%) exact matches, in which:  
149 unique CDR3  
5 unique J



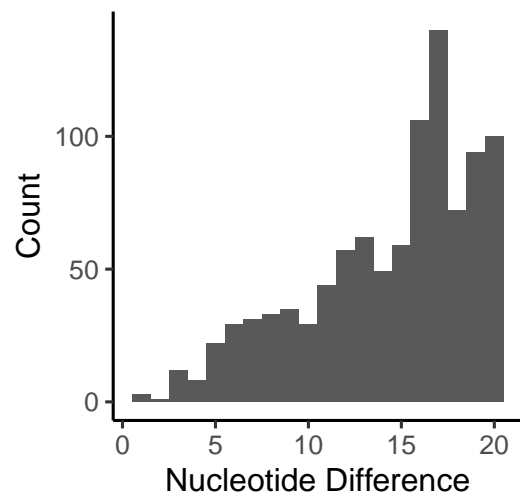
### IGHV3-71\*01\_04

1 sequences assigned  
No exact matches.



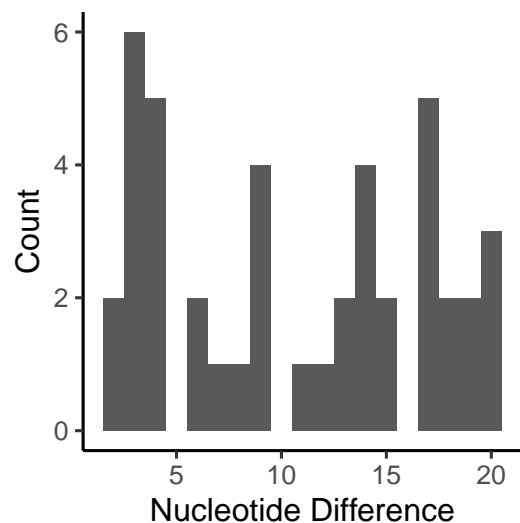
### IGHV3-74\*03

1269 sequences assigned  
No exact matches.



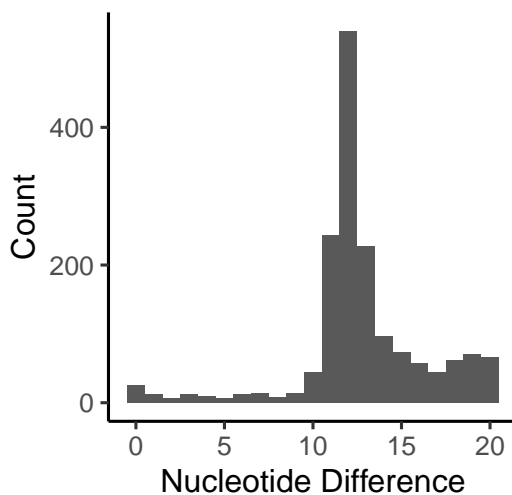
### IGHV3-69-1\*01

232 sequences assigned  
No exact matches.



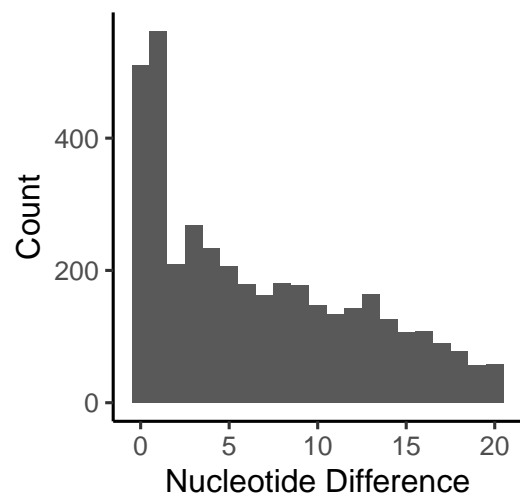
### IGHV3-72\*01

1993 sequences assigned  
25 (1.3%) exact matches, in which:  
18 unique CDR3  
5 unique J



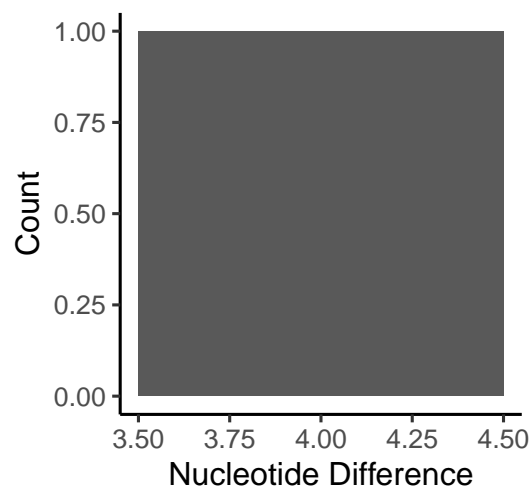
### IGHV3-74\*01\_02

4194 sequences assigned  
511 (12.2%) exact matches, in which:  
346 unique CDR3  
6 unique J



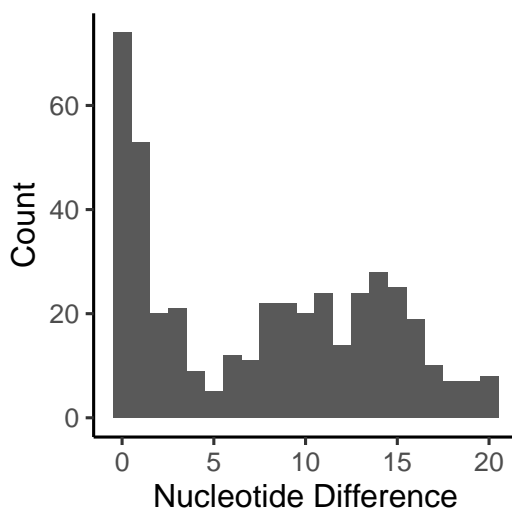
### IGHV3-71\*03

1 sequences assigned  
No exact matches.



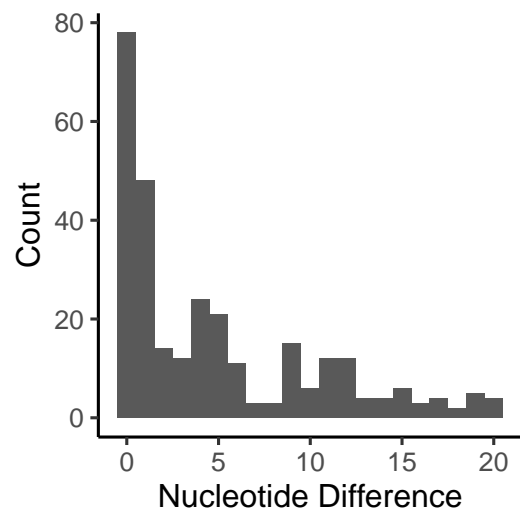
### IGHV3-73\*01\_02

468 sequences assigned  
74 (15.8%) exact matches, in which:  
49 unique CDR3  
4 unique J



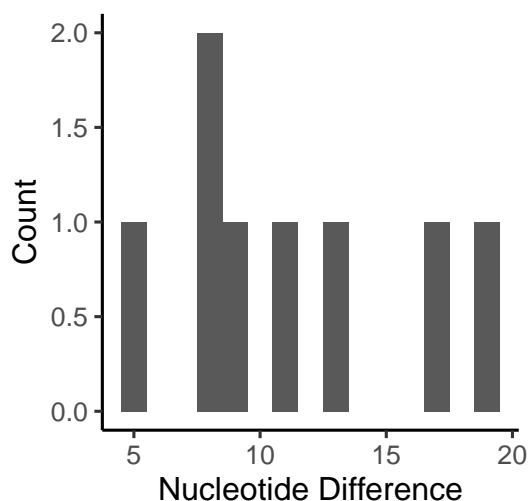
### IGHV3-43D\*03

295 sequences assigned  
78 (26.4%) exact matches, in which:  
47 unique CDR3  
6 unique J



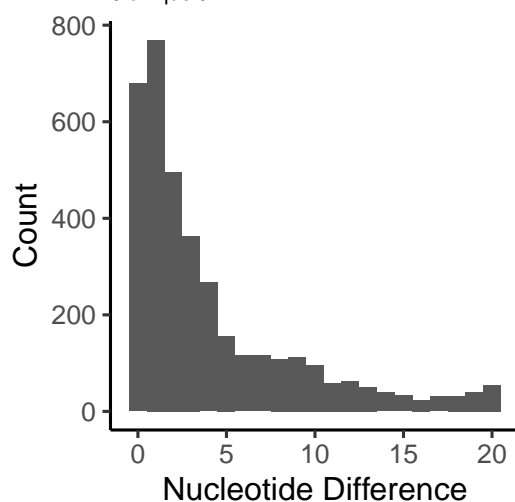
### IGHV3-64D\*06

37 sequences assigned  
No exact matches.



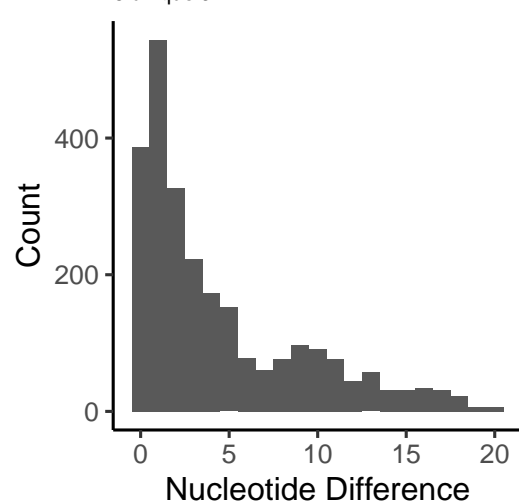
### IGHV4-4\*02\_03

3970 sequences assigned  
679 (17.1%) exact matches, in which:  
520 unique CDR3  
6 unique J



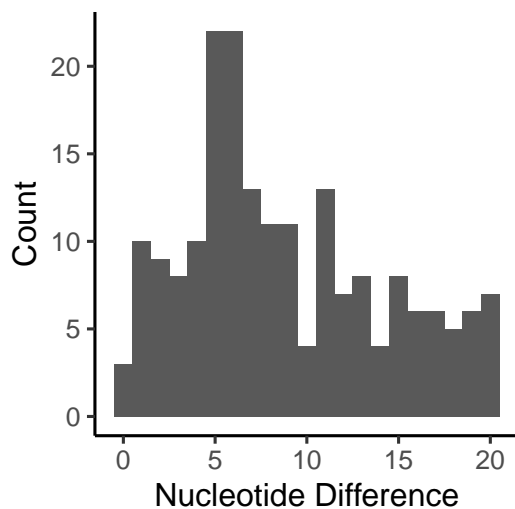
### IGHV4-30-4\*01

2748 sequences assigned  
387 (14.1%) exact matches, in which:  
321 unique CDR3  
6 unique J



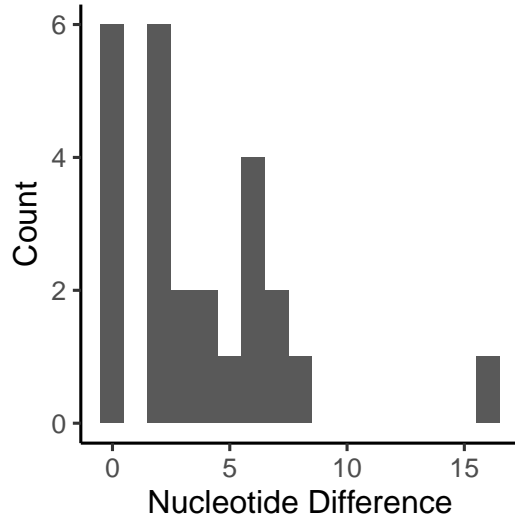
### IGHV3-NL1\*01

230 sequences assigned  
3 (1.3%) exact matches, in which:  
3 unique CDR3  
2 unique J



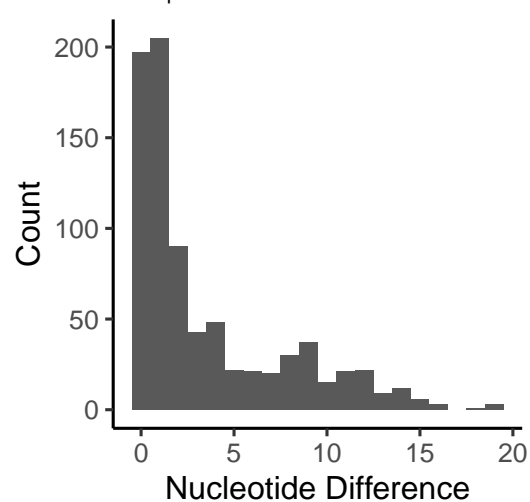
### IGHV4-28\*03

25 sequences assigned  
6 (24%) exact matches, in which:  
6 unique CDR3  
4 unique J



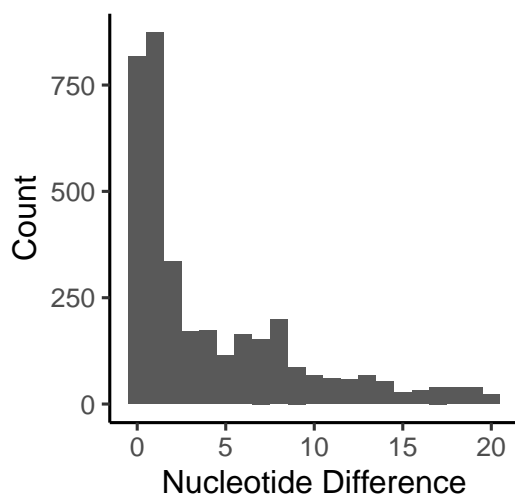
### IGHV4-30-2\*01

815 sequences assigned  
197 (24.2%) exact matches, in which:  
145 unique CDR3  
6 unique J



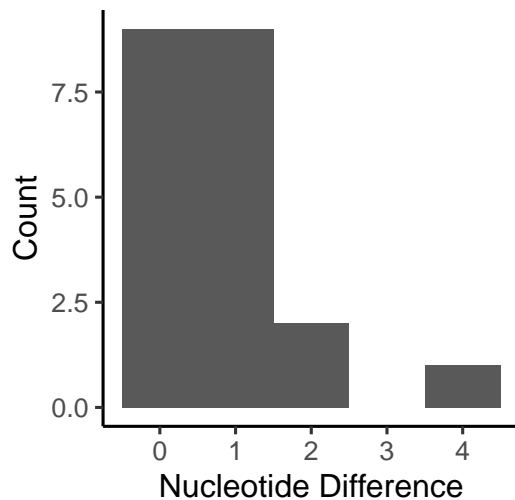
### IGHV4-4\*07

4134 sequences assigned  
818 (19.8%) exact matches, in which:  
686 unique CDR3  
6 unique J



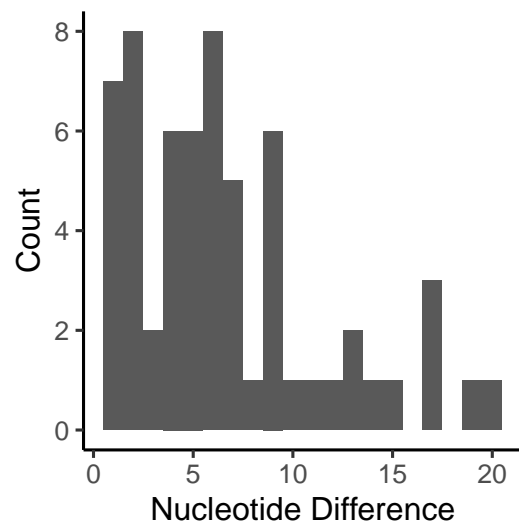
### IGHV4-28\*01\_07

21 sequences assigned  
9 (42.9%) exact matches, in which:  
5 unique CDR3  
3 unique J



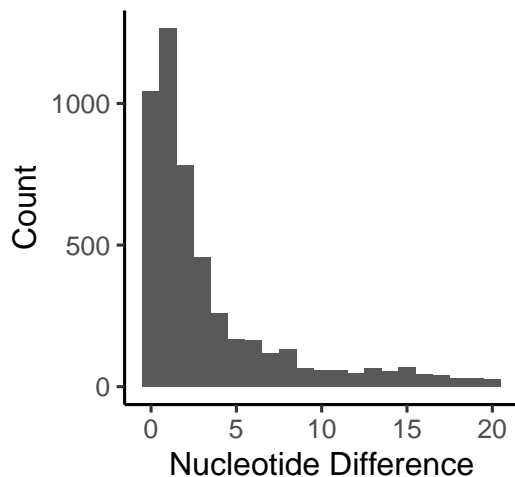
### IGHV4-30-2\*03

69 sequences assigned  
No exact matches.



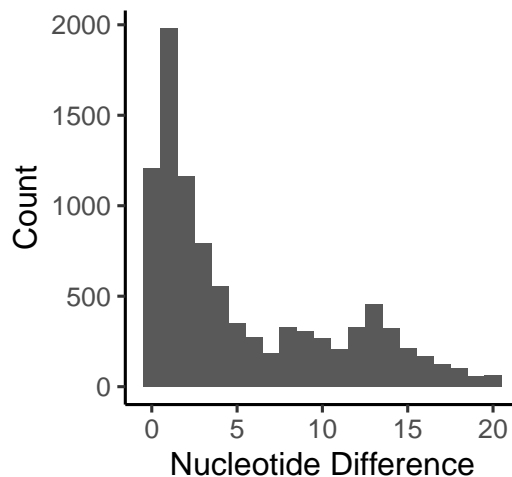
### IGHV4-31\*02

6033 sequences assigned  
1044 (17.3%) exact matches, in which:  
853 unique CDR3  
6 unique J



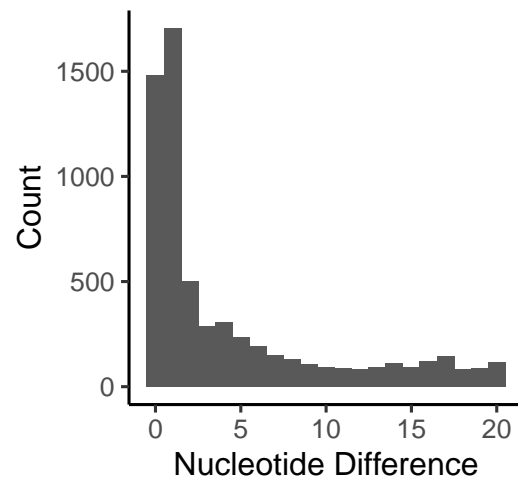
### IGHV4-39\*07

11390 sequences assigned  
1210 (10.6%) exact matches, in which:  
946 unique CDR3  
6 unique J



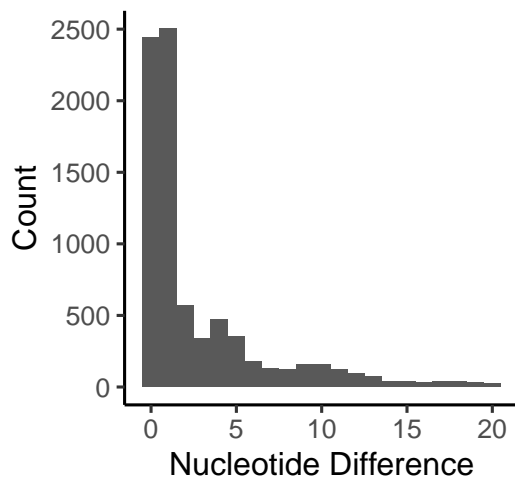
### IGHV4-59\*01\_07

8235 sequences assigned  
1480 (18%) exact matches, in which:  
1188 unique CDR3  
6 unique J



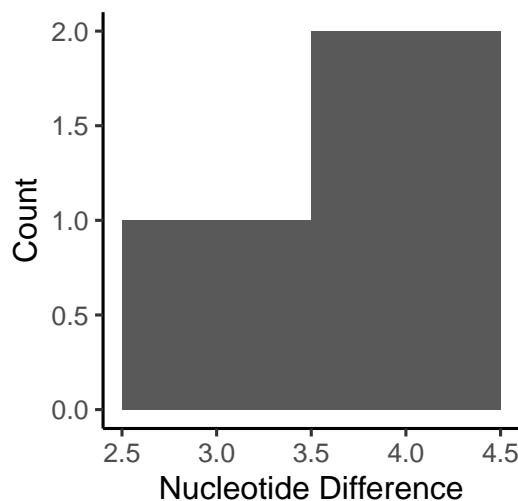
### IGHV4-34\*01\_02

8864 sequences assigned  
2442 (27.5%) exact matches, in which:  
1645 unique CDR3  
6 unique J



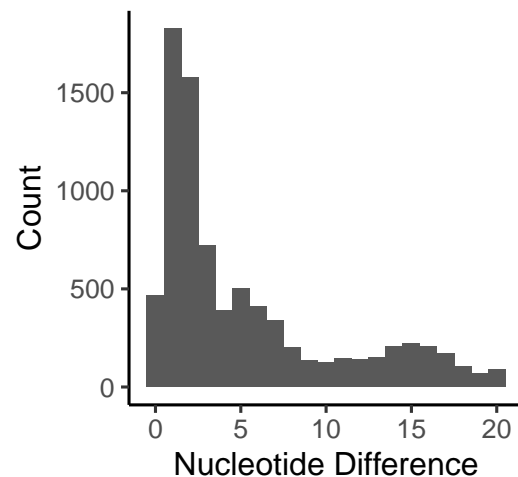
### IGHV4-55\*09

3 sequences assigned  
No exact matches.



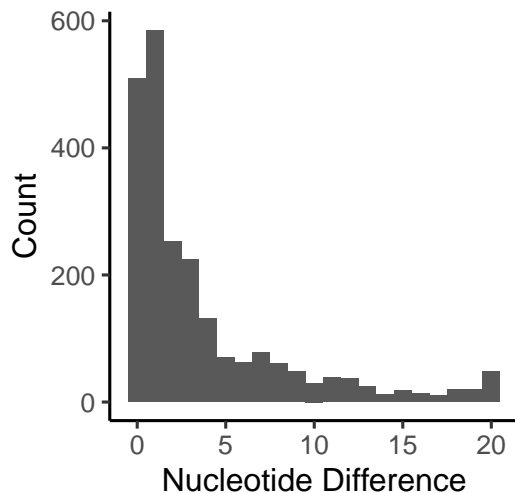
### IGHV4-59\*12

9045 sequences assigned  
466 (5.2%) exact matches, in which:  
443 unique CDR3  
6 unique J



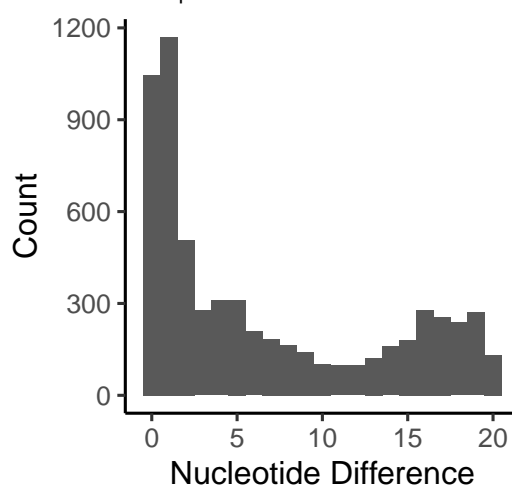
### IGHV4-38-2\*02

2691 sequences assigned  
509 (18.9%) exact matches, in which:  
445 unique CDR3  
6 unique J



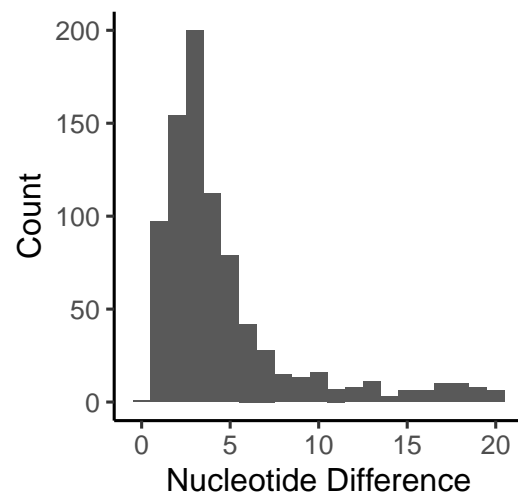
### IGHV4-59\*08

7663 sequences assigned  
1046 (13.7%) exact matches, in which:  
827 unique CDR3  
6 unique J



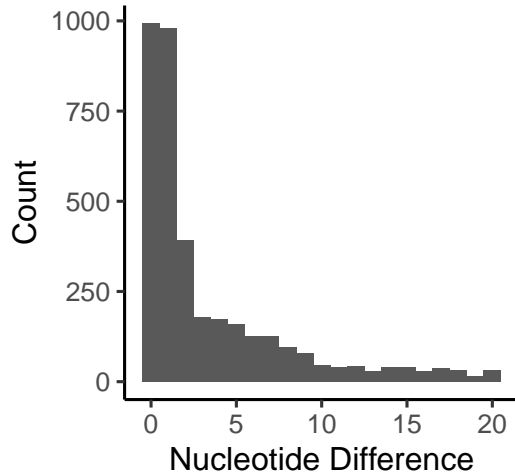
### IGHV4-61\*01

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



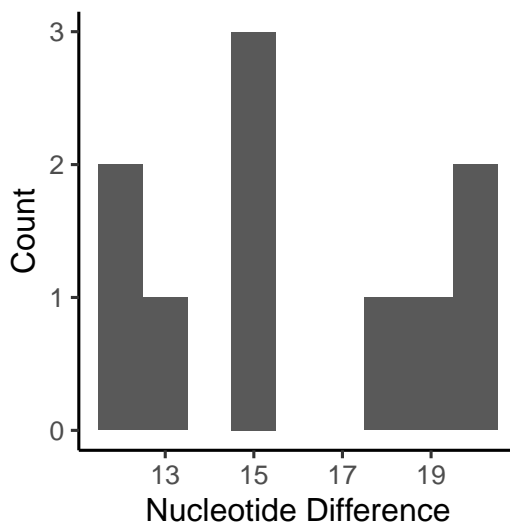
### IGHV4-61\*02

4137 sequences assigned  
993 (24%) exact matches, in which:  
833 unique CDR3  
6 unique J



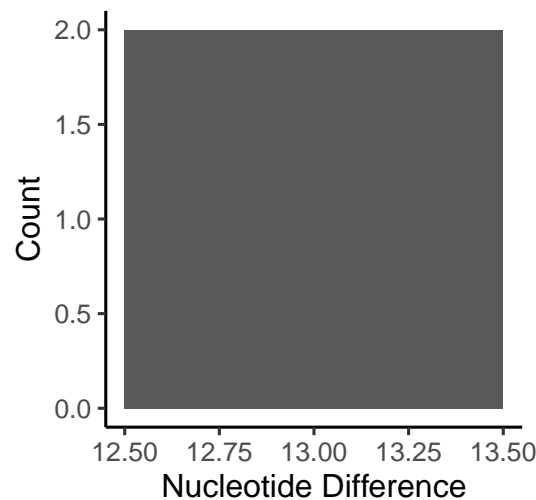
### IGHV1/OR15-2\*02\_03

12 sequences assigned  
No exact matches.



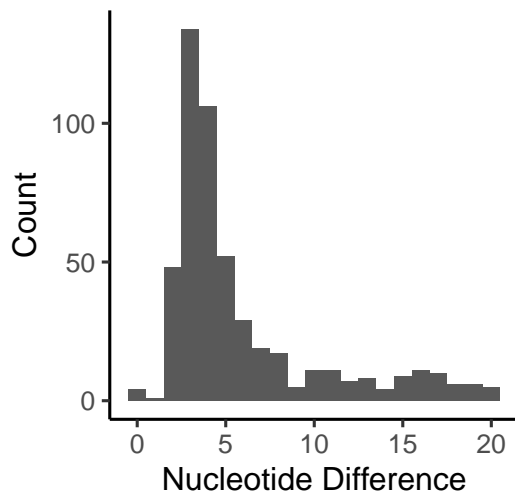
### IGHV1/OR15-9\*01

2 sequences assigned  
No exact matches.



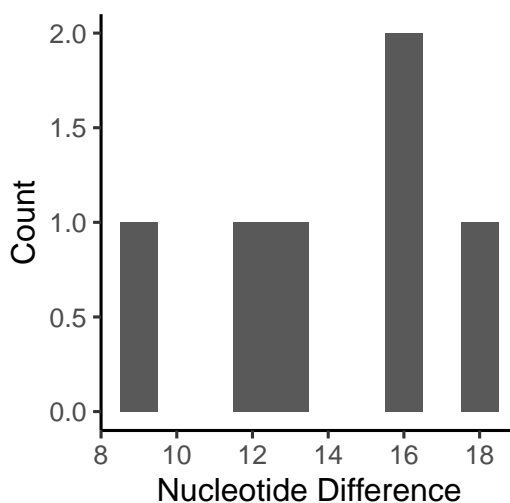
### IGHV4-61\*05

545 sequences assigned  
4 (0.7%) exact matches, in which:  
4 unique CDR3  
2 unique J



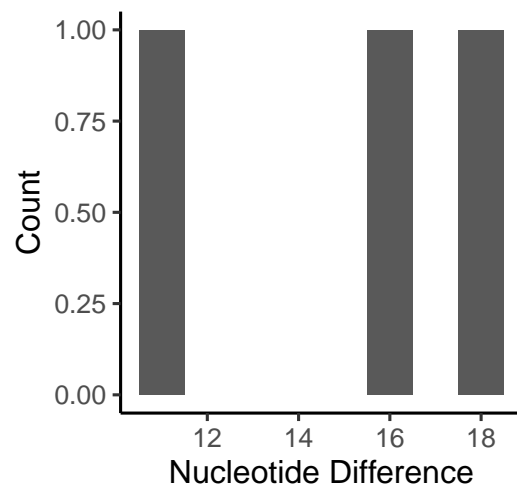
### IGHV1/OR15-3\*02

6 sequences assigned  
No exact matches.



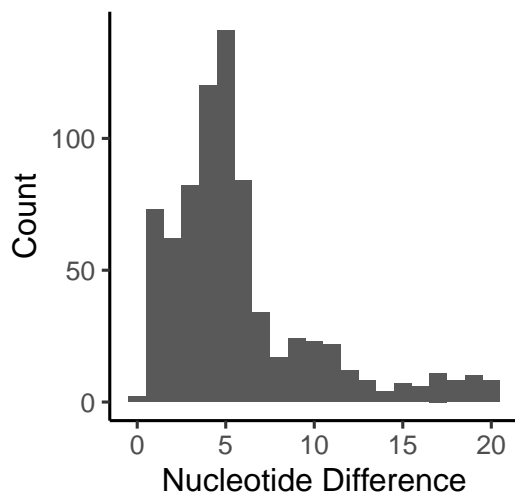
### IGHV5-10-1\*01\_03

3 sequences assigned  
No exact matches.



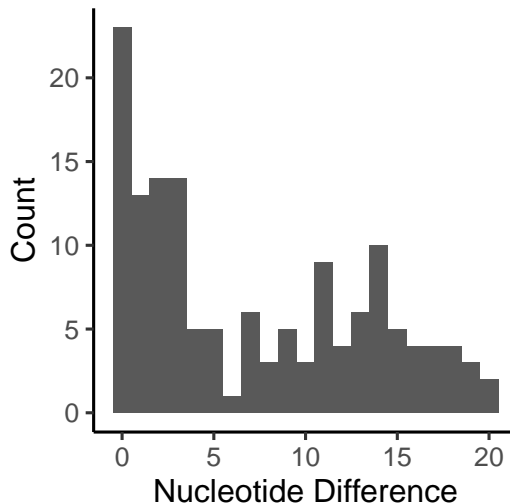
### IGHV4-61\*08

787 sequences assigned  
2 (0.3%) exact matches, in which:  
2 unique CDR3  
1 unique J



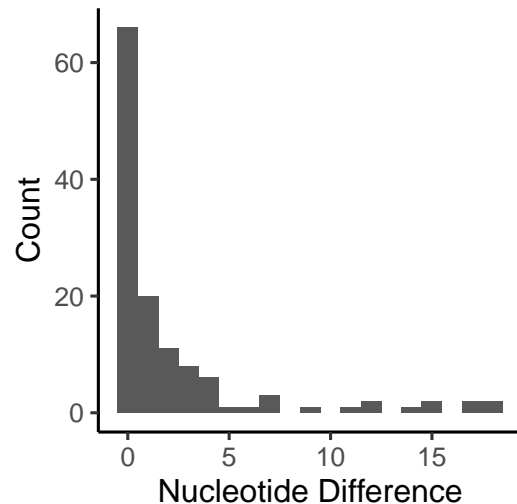
### IGHV4/OR15-8\*01\_C193/

186 sequences assigned  
23 (12.4%) exact matches, in which:  
20 unique CDR3  
5 unique J



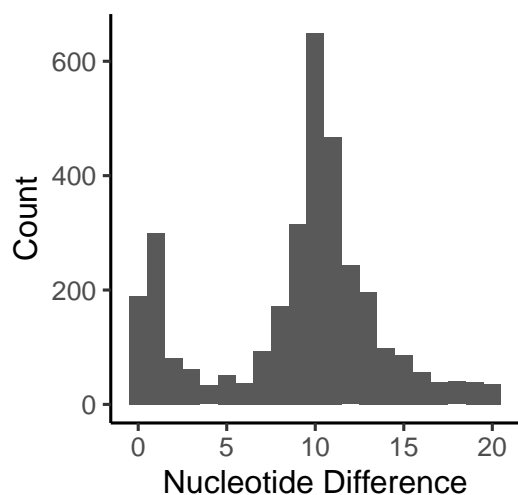
### IGHV5-51\*07

132 sequences assigned  
66 (50%) exact matches, in which:  
56 unique CDR3  
5 unique J



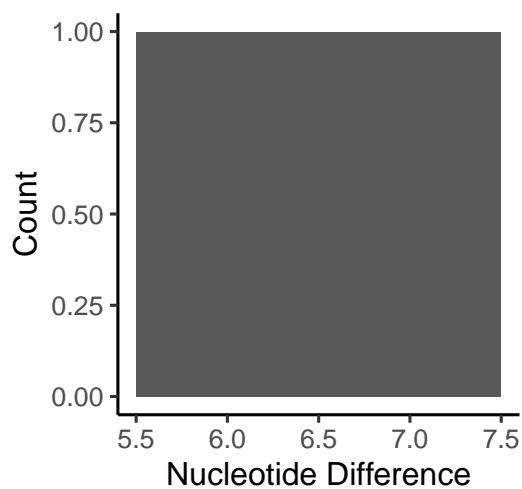
## IGHV6-1\*01\_02

3470 sequences assigned  
189 (5.4%) exact matches, in which:  
153 unique CDR3  
6 unique J



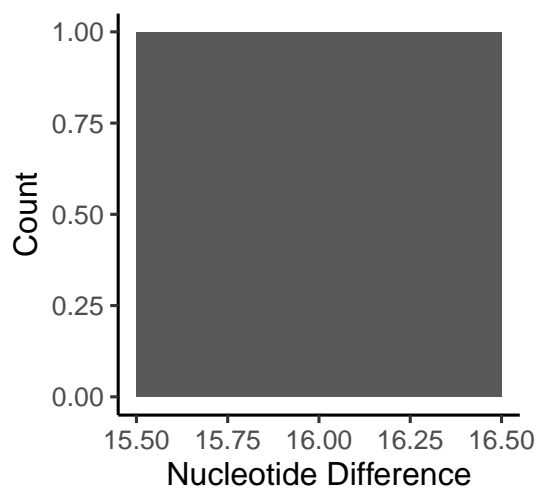
## IGHV7-40\*03

2 sequences assigned  
No exact matches.



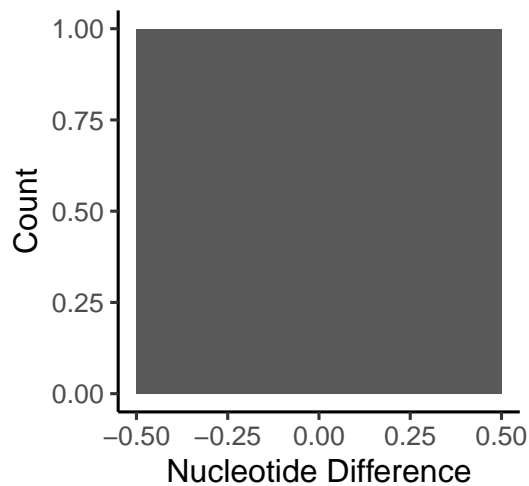
## IGHV3/OR16-6\*02

1 sequences assigned  
No exact matches.

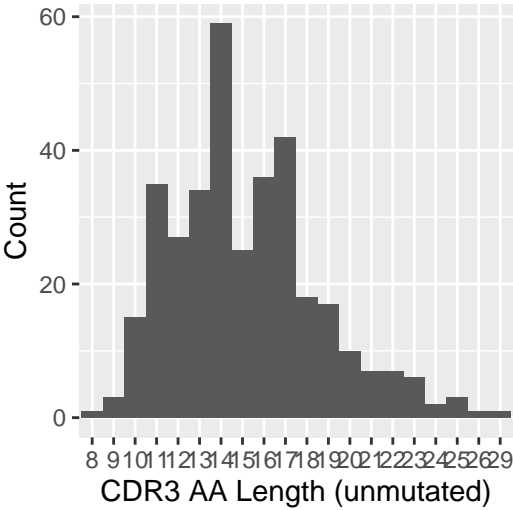


## IGHV7-4-1\*02

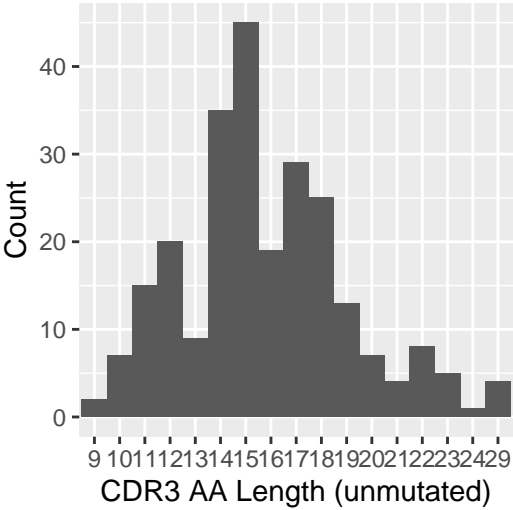
1 sequences assigned  
1 (100%) exact matches, in which:  
1 unique CDR3  
1 unique J



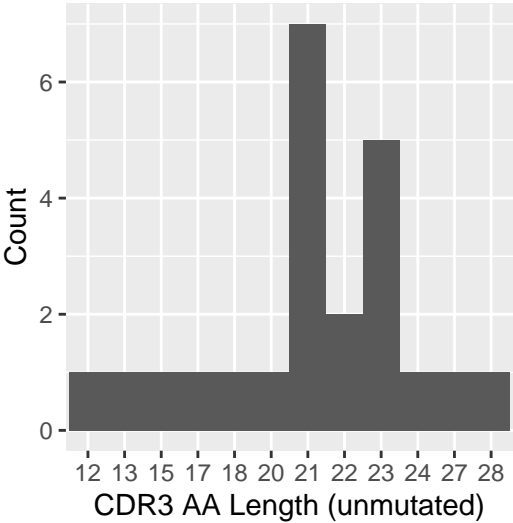
IGHV1-24\*01\_G278T



IGHV3-20\*03\_04\_A104G



IGHV4/OR15-8\*01\_C193A







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