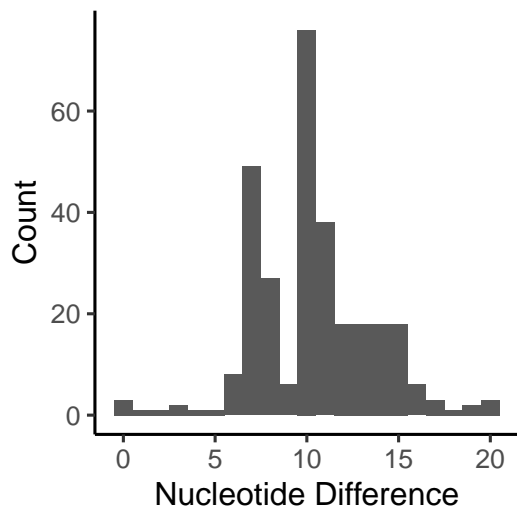


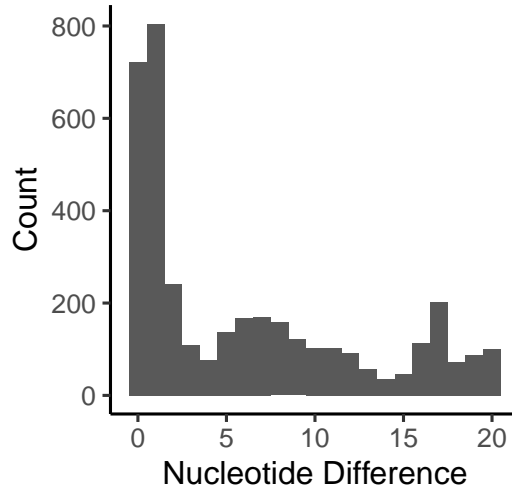
## IGHV1-2\*02

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



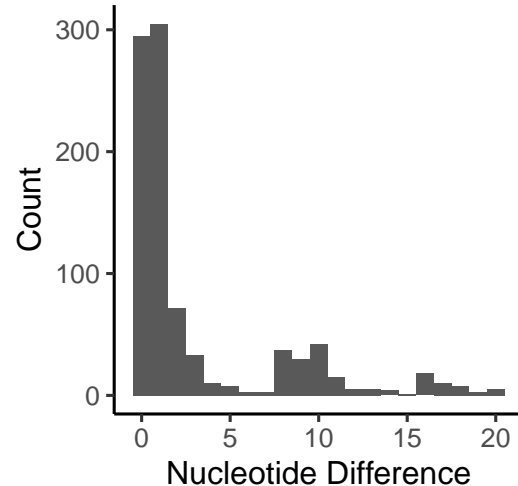
## IGHV1-8\*01

3877 sequences assigned  
722 (18.6%) exact matches, in which:  
607 unique CDR3  
6 unique J



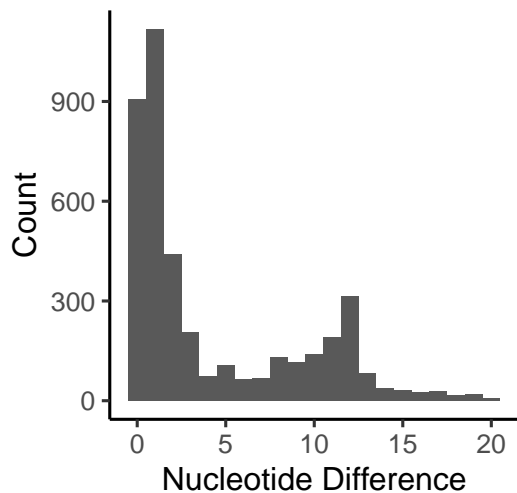
## IGHV1-24\*01

938 sequences assigned  
295 (31.4%) exact matches, in which:  
236 unique CDR3  
6 unique J



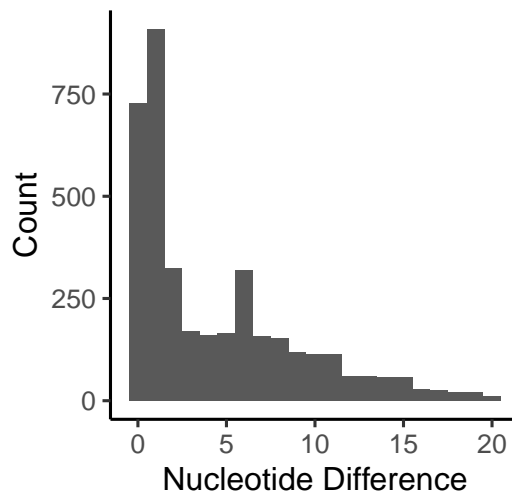
## IGHV1-2\*04

4191 sequences assigned  
906 (21.6%) exact matches, in which:  
734 unique CDR3  
6 unique J



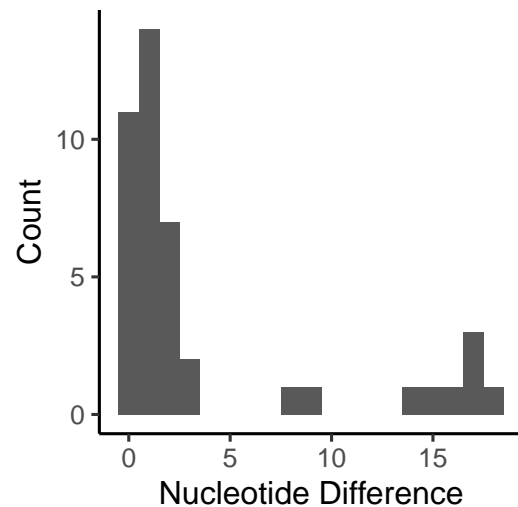
## IGHV1-18\*01

4194 sequences assigned  
728 (17.4%) exact matches, in which:  
616 unique CDR3  
6 unique J



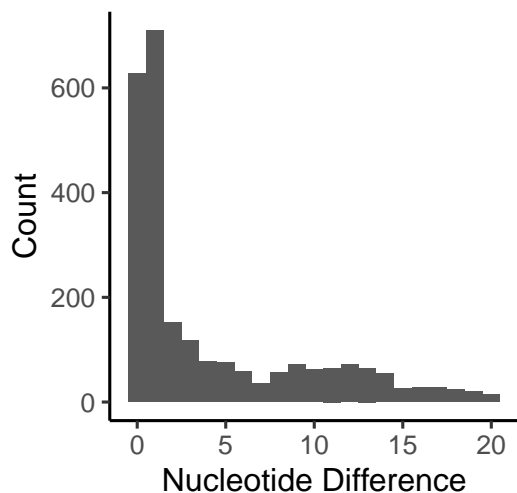
## IGHV1-45\*02

43 sequences assigned  
11 (25.6%) exact matches, in which:  
8 unique CDR3  
4 unique J



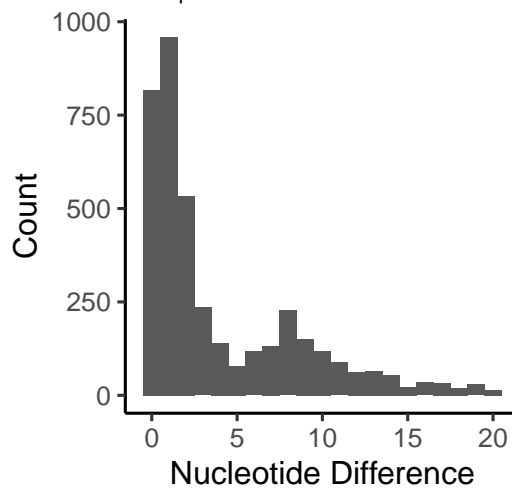
## IGHV1-3\*01\_05

2822 sequences assigned  
628 (22.3%) exact matches, in which:  
488 unique CDR3  
6 unique J



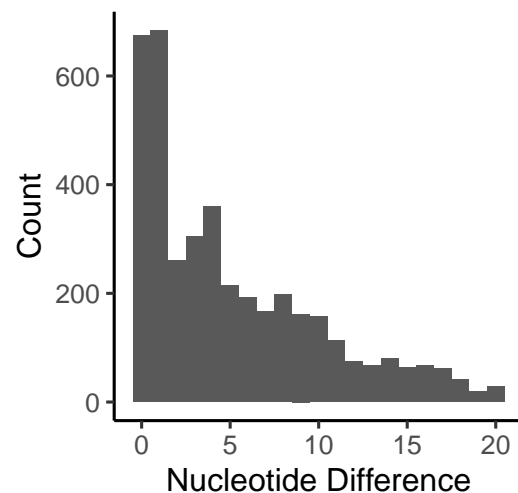
## IGHV1-18\*04

4284 sequences assigned  
818 (19.1%) exact matches, in which:  
659 unique CDR3  
6 unique J



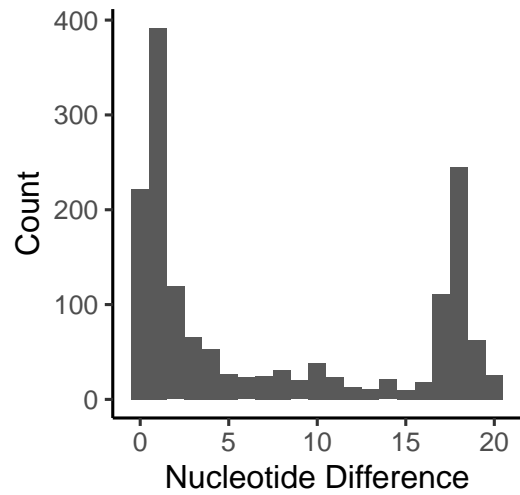
## IGHV1-46\*01

4156 sequences assigned  
674 (16.2%) exact matches, in which:  
580 unique CDR3  
6 unique J



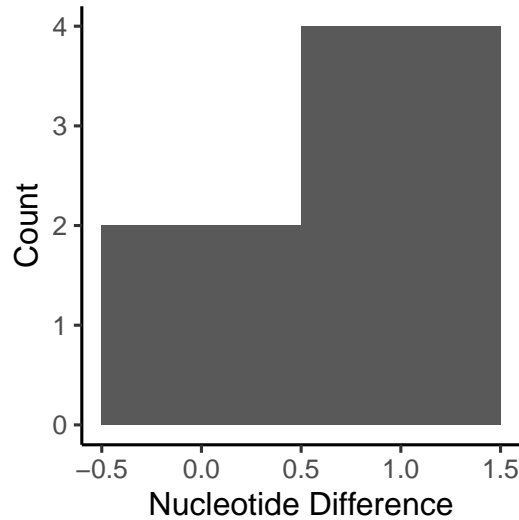
### IGHV1-46\*03

1627 sequences assigned  
222 (13.6%) exact matches, in which:  
152 unique CDR3  
5 unique J



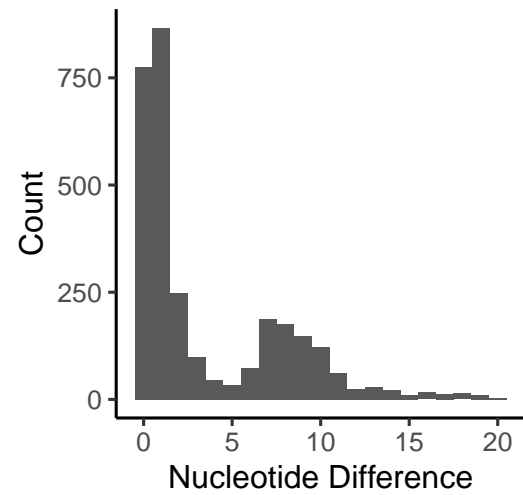
### IGHV1-68\*01

6 sequences assigned  
2 (33.3%) exact matches, in which:  
2 unique CDR3  
1 unique J



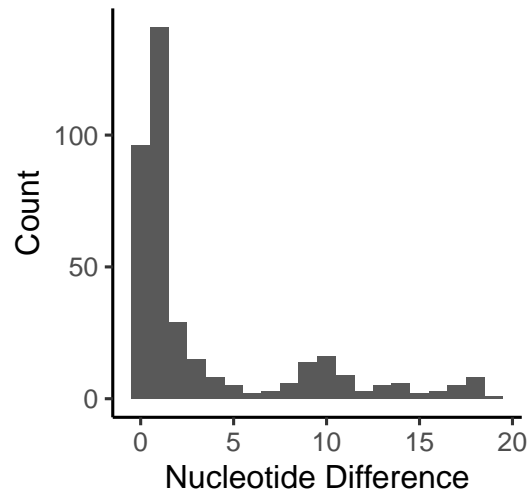
### IGHV1-69\*06\_14

3014 sequences assigned  
776 (25.7%) exact matches, in which:  
679 unique CDR3  
6 unique J



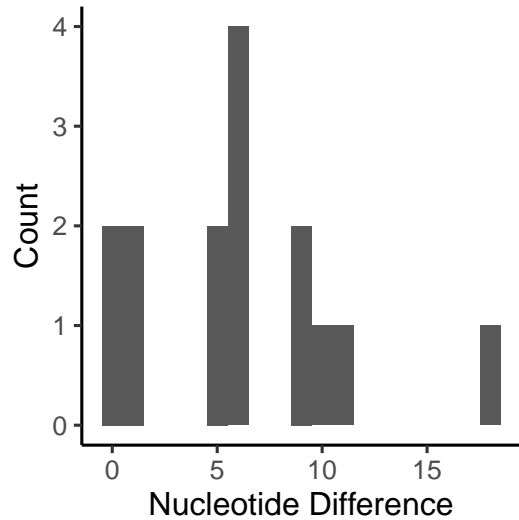
### IGHV1-58\*02

384 sequences assigned  
96 (25%) exact matches, in which:  
78 unique CDR3  
5 unique J



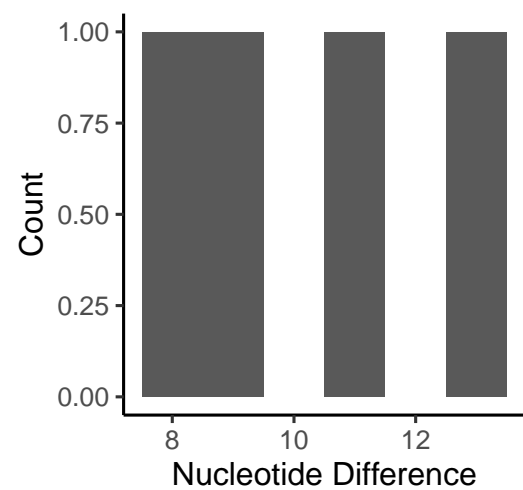
### IGHV1-69-2\*01

15 sequences assigned  
2 (13.3%) exact matches, in which:  
2 unique CDR3  
1 unique J



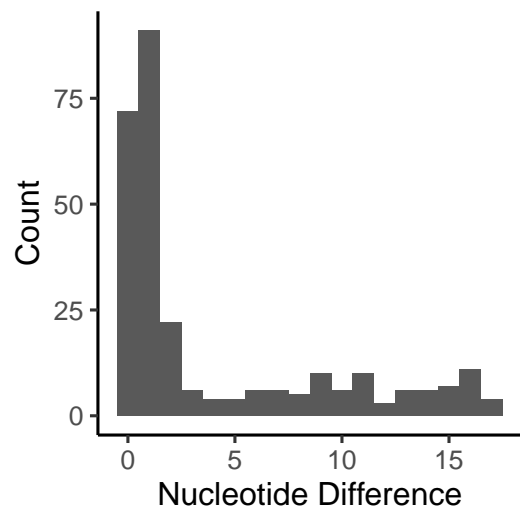
### IGHV1-NL1\*01

4 sequences assigned  
No exact matches.



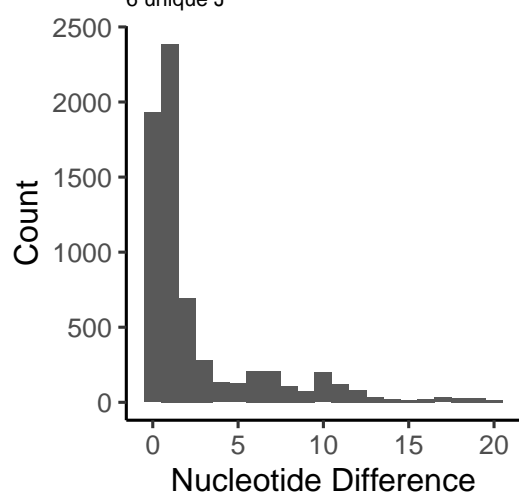
### IGHV1-58\*01\_03

288 sequences assigned  
72 (25%) exact matches, in which:  
61 unique CDR3  
6 unique J



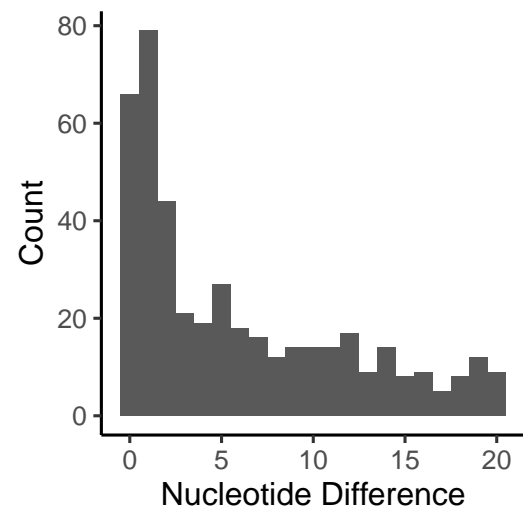
### IGHV1-69\*01\_12\_13

7052 sequences assigned  
1930 (27.4%) exact matches, in which:  
1597 unique CDR3  
6 unique J



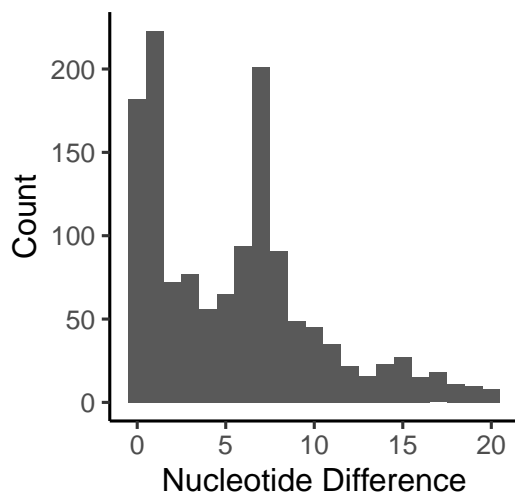
### IGHV2-5\*01

476 sequences assigned  
66 (13.9%) exact matches, in which:  
53 unique CDR3  
6 unique J



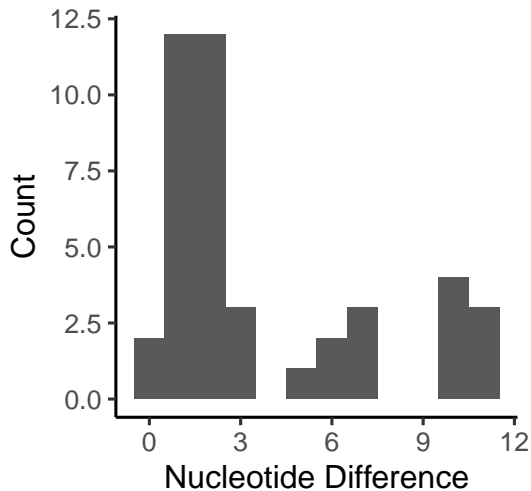
### IGHV2-5\*02

1686 sequences assigned  
182 (10.8%) exact matches, in which:  
141 unique CDR3  
5 unique J



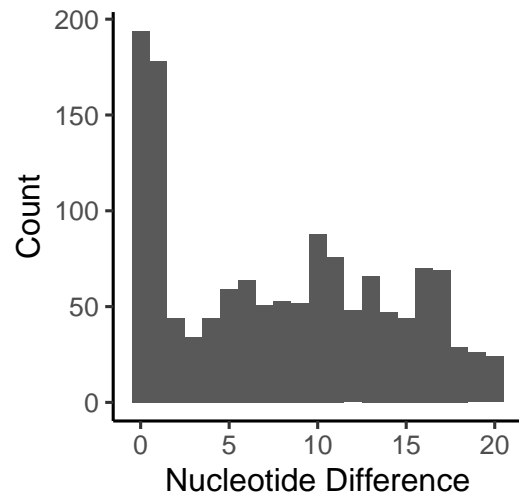
### IGHV2-70\*12

42 sequences assigned  
2 (4.8%) exact matches, in which:  
2 unique CDR3  
2 unique J



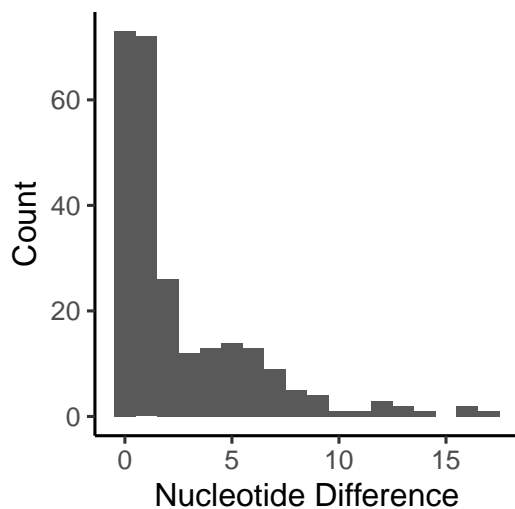
### IGHV3-7\*05

1635 sequences assigned  
194 (11.9%) exact matches, in which:  
139 unique CDR3  
5 unique J



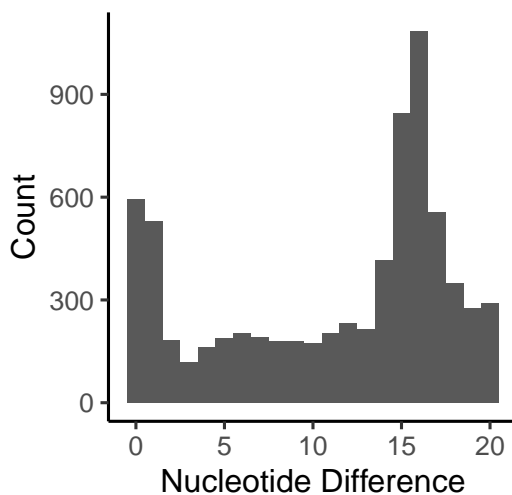
### IGHV2-26\*01

254 sequences assigned  
73 (28.7%) exact matches, in which:  
63 unique CDR3  
5 unique J



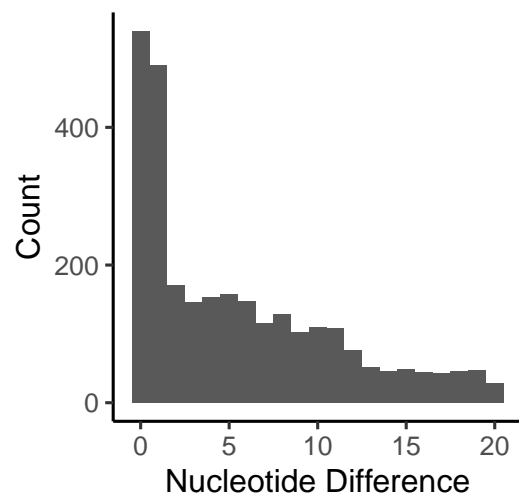
### IGHV3-7\*01

9557 sequences assigned  
595 (6.2%) exact matches, in which:  
400 unique CDR3  
5 unique J



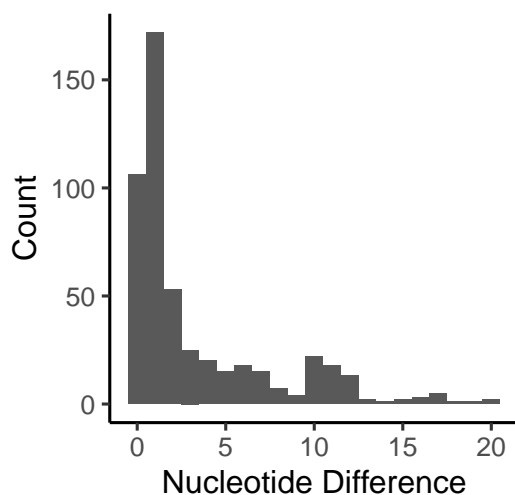
### IGHV3-9\*01

3192 sequences assigned  
540 (16.9%) exact matches, in which:  
310 unique CDR3  
6 unique J



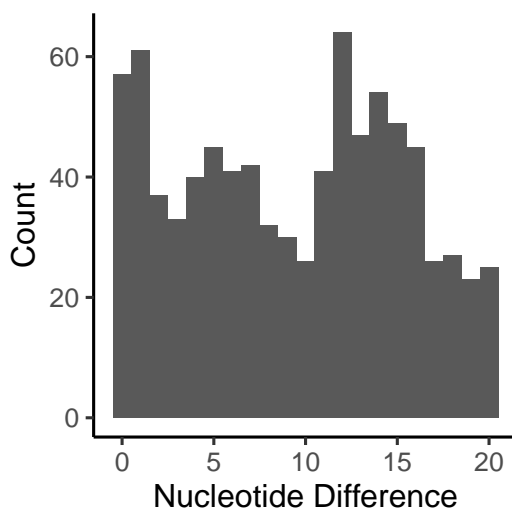
### IGHV2-70\*01

509 sequences assigned  
106 (20.8%) exact matches, in which:  
72 unique CDR3  
5 unique J



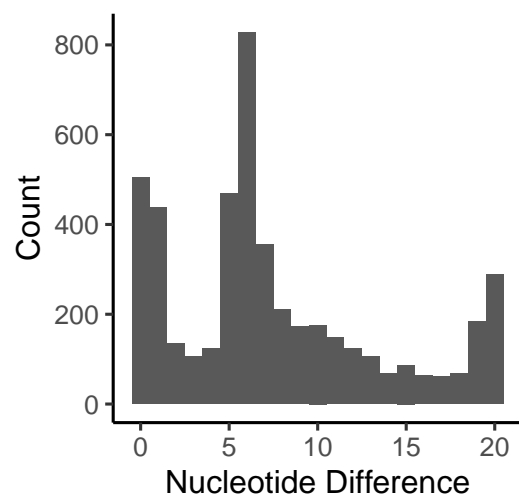
### IGHV3-7\*03

982 sequences assigned  
57 (5.8%) exact matches, in which:  
49 unique CDR3  
5 unique J



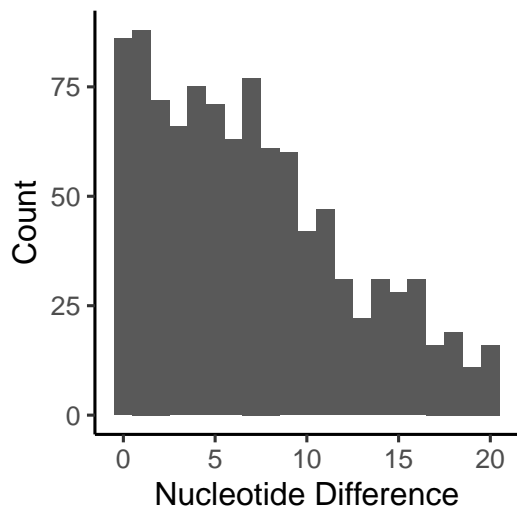
### IGHV3-11\*01

5090 sequences assigned  
505 (9.9%) exact matches, in which:  
324 unique CDR3  
6 unique J



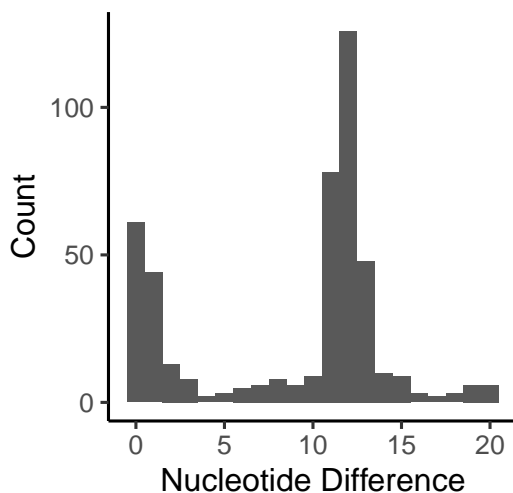
### IGHV3-11\*04

1053 sequences assigned  
86 (8.2%) exact matches, in which:  
82 unique CDR3  
5 unique J



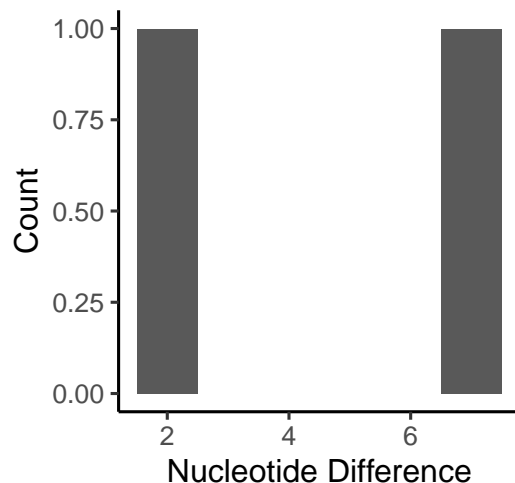
### IGHV3-13\*05

469 sequences assigned  
61 (13%) exact matches, in which:  
49 unique CDR3  
5 unique J



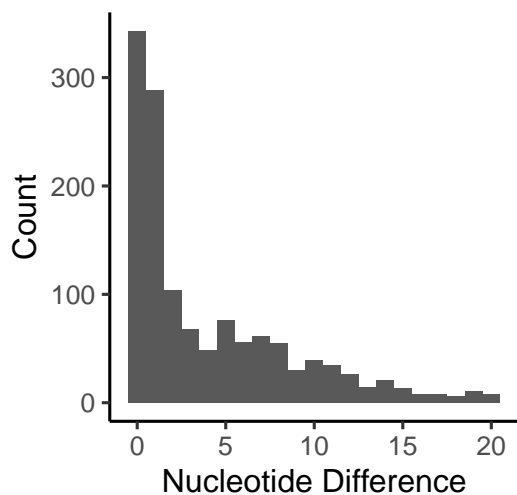
### IGHV3-19\*01

2 sequences assigned  
No exact matches.



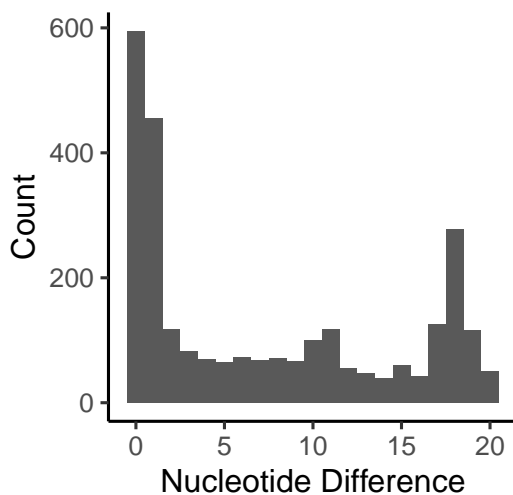
### IGHV3-11\*06

1632 sequences assigned  
343 (21%) exact matches, in which:  
243 unique CDR3  
6 unique J



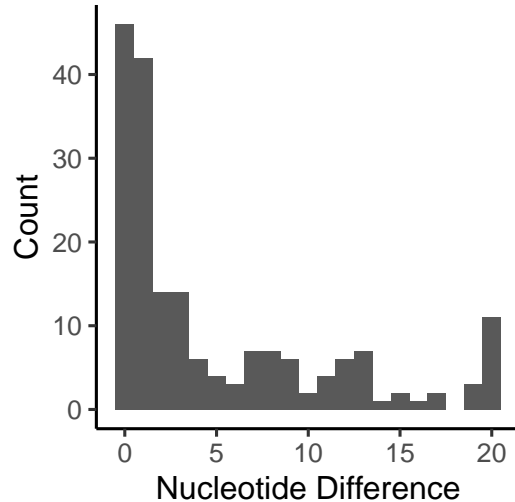
### IGHV3-15\*07

3819 sequences assigned  
595 (15.6%) exact matches, in which:  
360 unique CDR3  
5 unique J



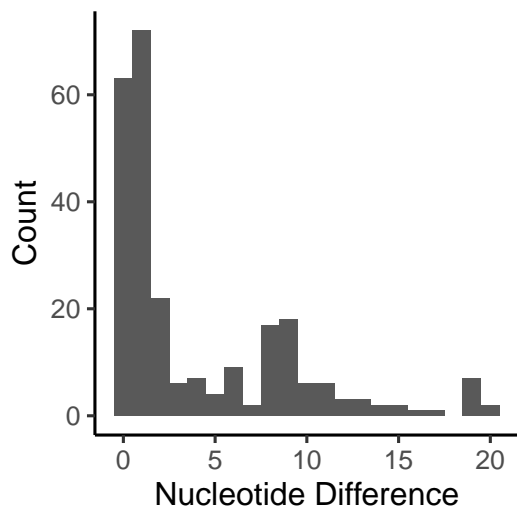
### IGHV3-20\*03\_04

392 sequences assigned  
46 (11.7%) exact matches, in which:  
30 unique CDR3  
5 unique J



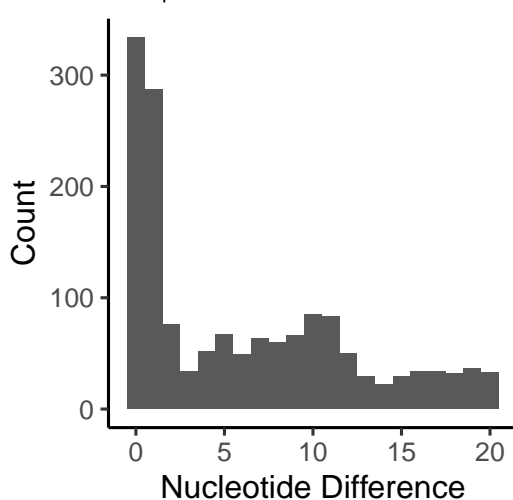
### IGHV3-13\*01

285 sequences assigned  
63 (22.1%) exact matches, in which:  
39 unique CDR3  
4 unique J



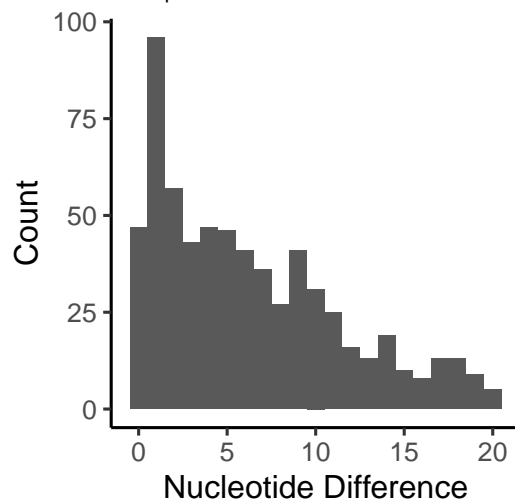
### IGHV3-15\*01\_02

1936 sequences assigned  
334 (17.3%) exact matches, in which:  
209 unique CDR3  
5 unique J



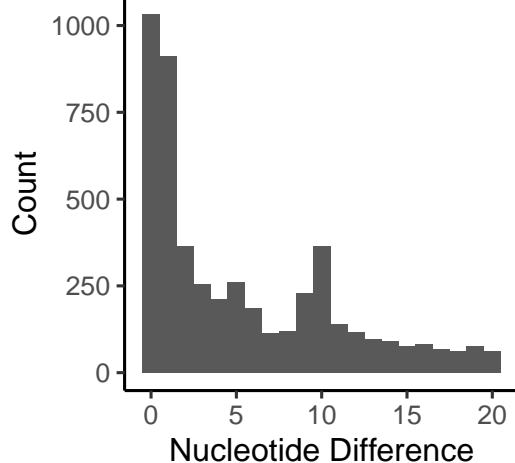
### IGHV3-21\*04

709 sequences assigned  
47 (6.6%) exact matches, in which:  
45 unique CDR3  
5 unique J



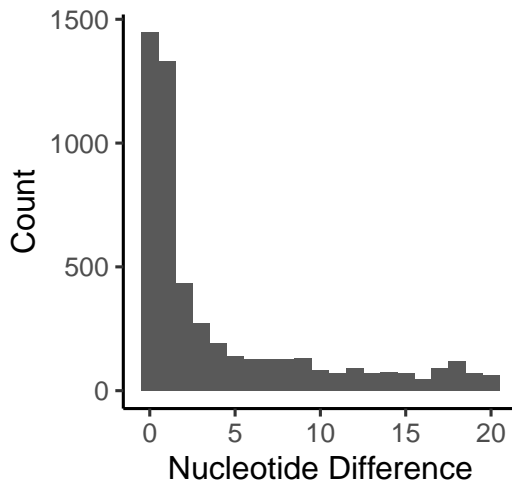
### IGHV3-21\*01\_02

5332 sequences assigned  
1032 (19.4%) exact matches, in which:  
687 unique CDR3  
6 unique J



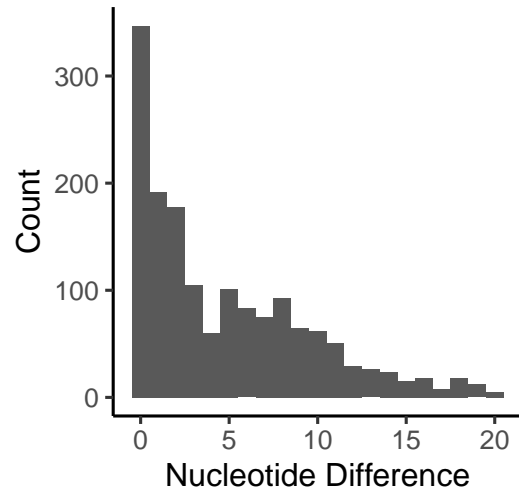
### IGHV3-30\*03

7053 sequences assigned  
1447 (20.5%) exact matches, in which:  
967 unique CDR3  
6 unique J



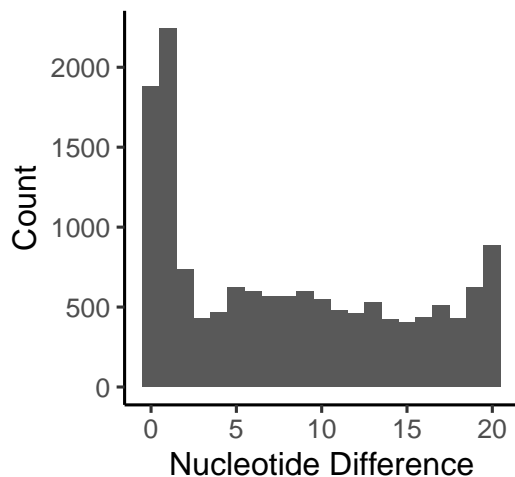
### IGHV3-33\*08

1656 sequences assigned  
347 (21%) exact matches, in which:  
260 unique CDR3  
6 unique J



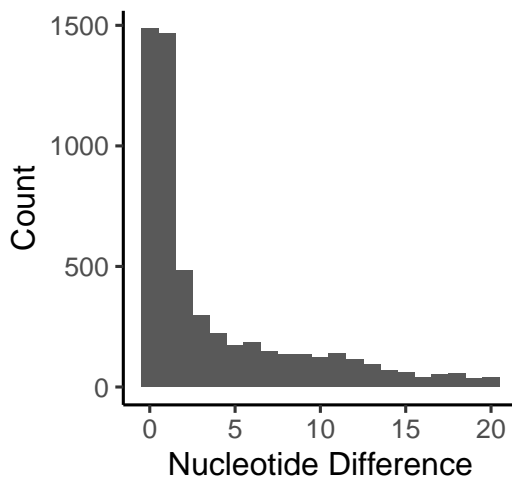
### IGHV3-23\*01\_04

23920 sequences assigned  
1877 (7.8%) exact matches, in which:  
1069 unique CDR3  
6 unique J



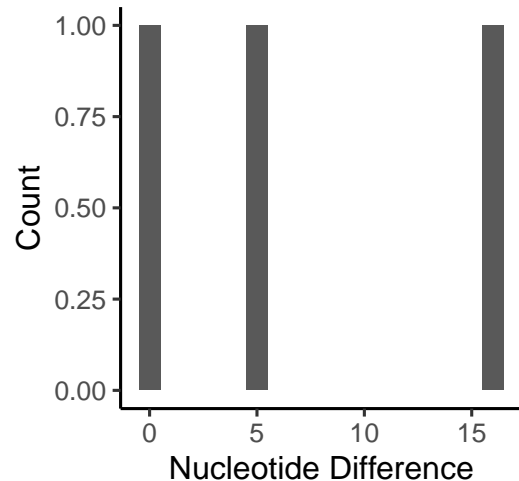
### IGHV3-33\*01

5936 sequences assigned  
1486 (25%) exact matches, in which:  
950 unique CDR3  
6 unique J



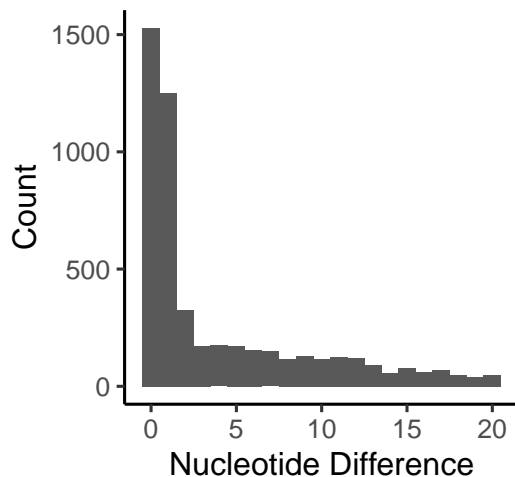
### IGHV3-35\*01

3 sequences assigned  
1 (33.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



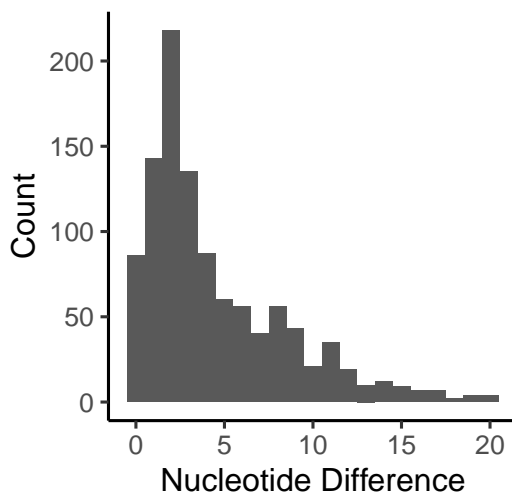
### IGHV3-30-3\*01

5272 sequences assigned  
1528 (29%) exact matches, in which:  
1026 unique CDR3  
6 unique J



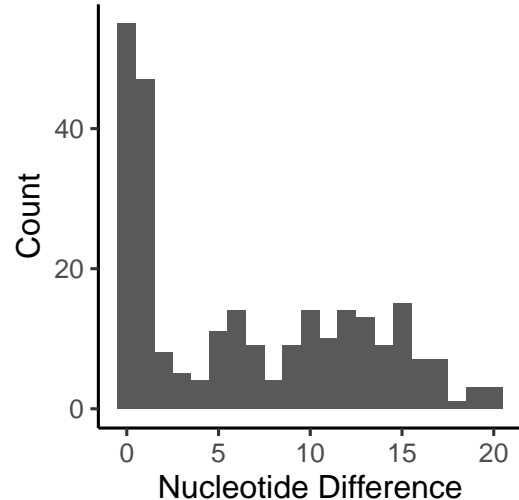
### IGHV3-33\*06

1081 sequences assigned  
86 (8%) exact matches, in which:  
82 unique CDR3  
6 unique J



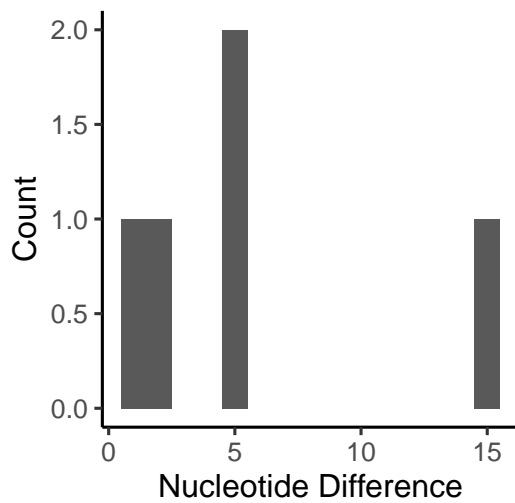
### IGHV3-43\*01

309 sequences assigned  
55 (17.8%) exact matches, in which:  
28 unique CDR3  
5 unique J



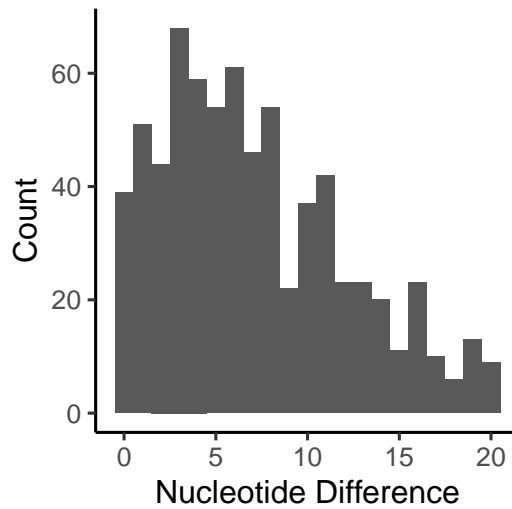
### IGHV3-47\*02

5 sequences assigned  
No exact matches.



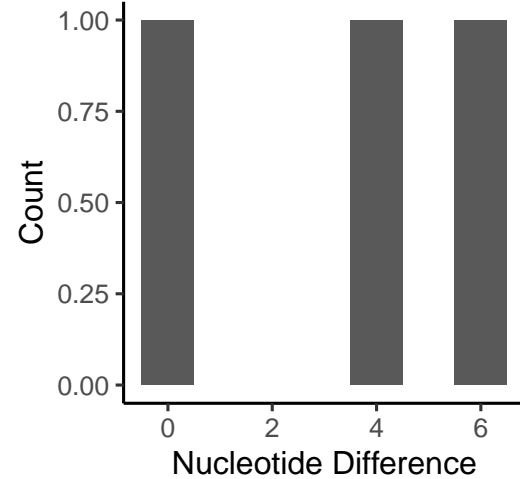
### IGHV3-48\*04

810 sequences assigned  
39 (4.8%) exact matches, in which:  
38 unique CDR3  
6 unique J



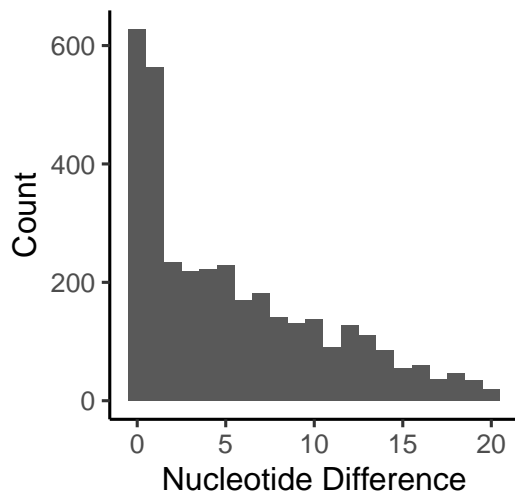
### IGHV3-52\*01\_03

3 sequences assigned  
1 (33.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



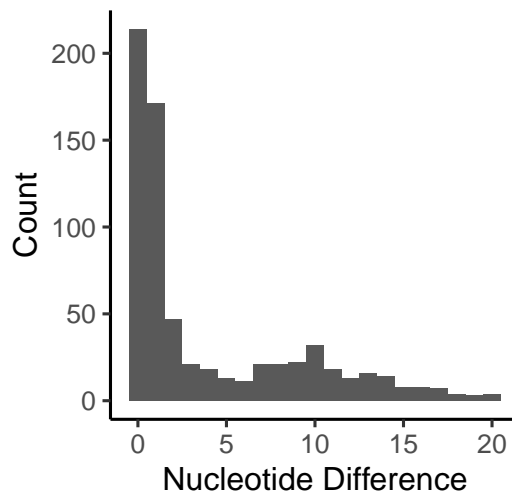
### IGHV3-48\*01

3630 sequences assigned  
628 (17.3%) exact matches, in which:  
418 unique CDR3  
6 unique J



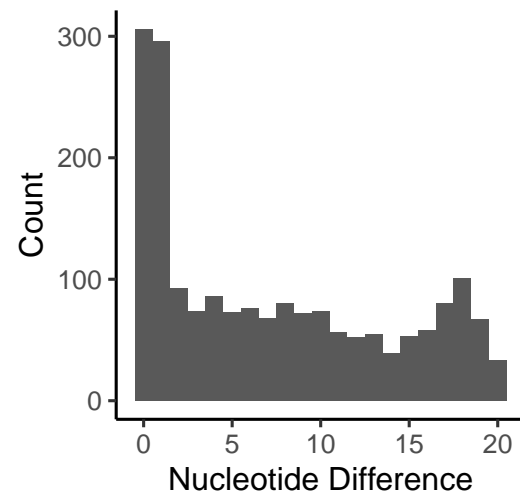
### IGHV3-49\*03\_05

925 sequences assigned  
214 (23.1%) exact matches, in which:  
125 unique CDR3  
5 unique J



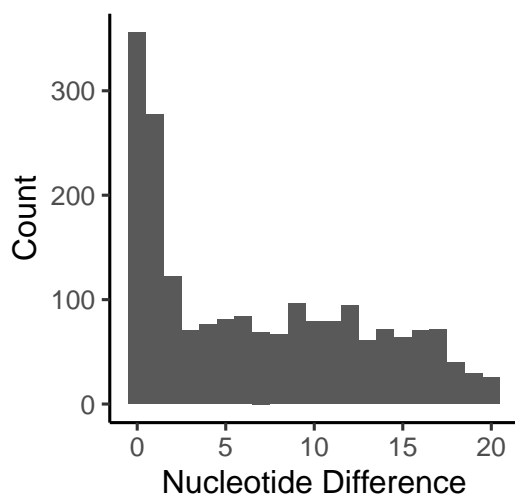
### IGHV3-53\*01\_02

2215 sequences assigned  
306 (13.8%) exact matches, in which:  
201 unique CDR3  
6 unique J



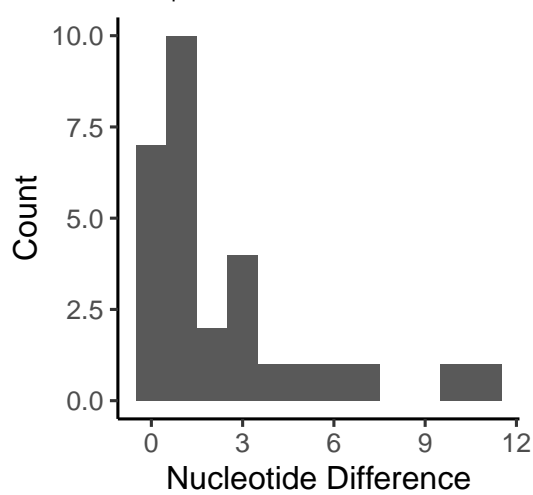
### IGHV3-48\*02

2119 sequences assigned  
356 (16.8%) exact matches, in which:  
224 unique CDR3  
6 unique J



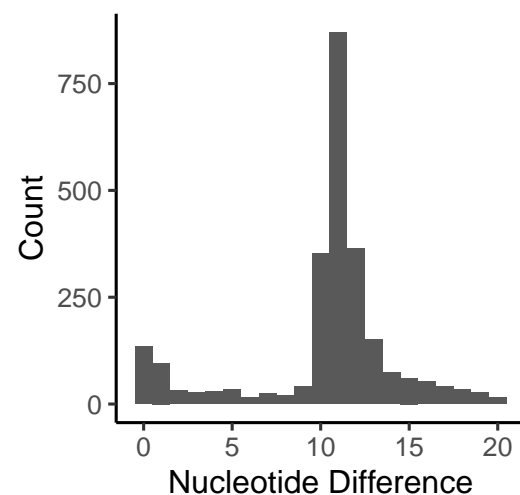
### IGHV3-52\*02

30 sequences assigned  
7 (23.3%) exact matches, in which:  
5 unique CDR3  
1 unique J



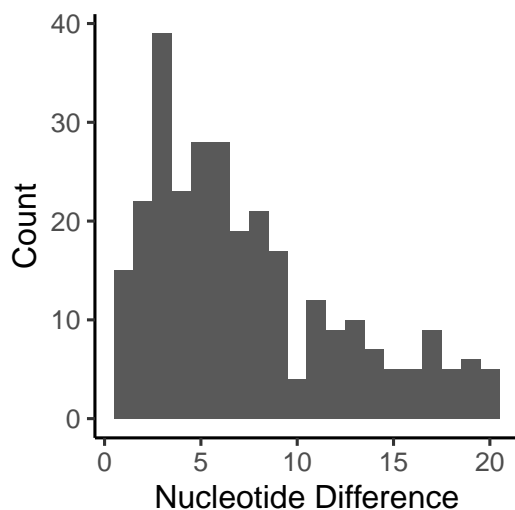
### IGHV3-64\*01

2656 sequences assigned  
134 (5%) exact matches, in which:  
88 unique CDR3  
5 unique J



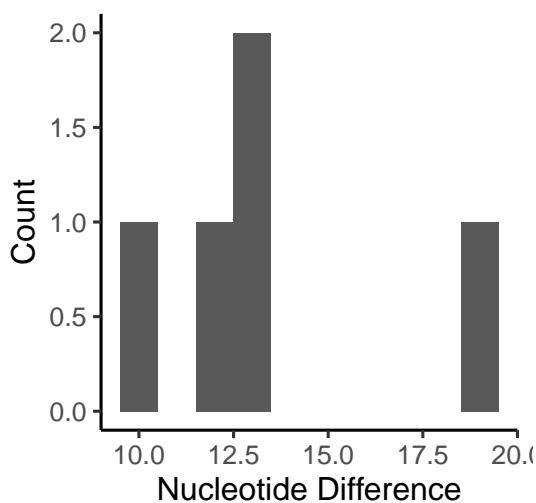
### IGHV3-64\*04

312 sequences assigned  
No exact matches.



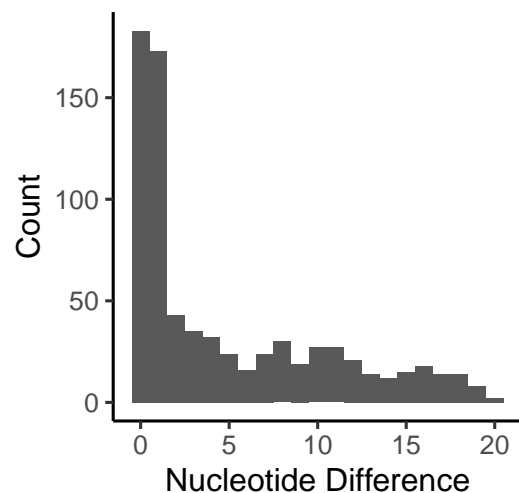
### IGHV3-69-1\*02

17 sequences assigned  
No exact matches.



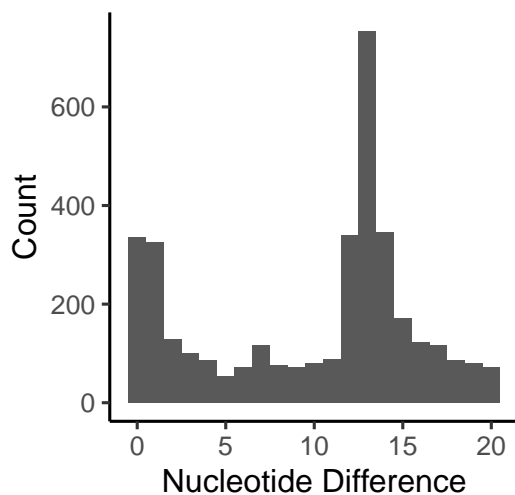
### IGHV3-73\*01\_02

1718 sequences assigned  
183 (10.7%) exact matches, in which:  
111 unique CDR3  
5 unique J



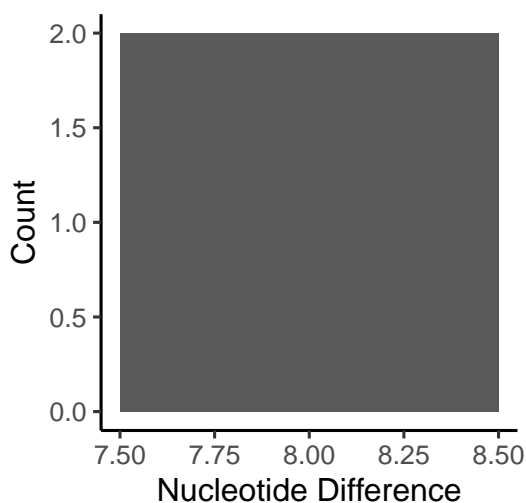
### IGHV3-66\*01

3917 sequences assigned  
336 (8.6%) exact matches, in which:  
215 unique CDR3  
6 unique J



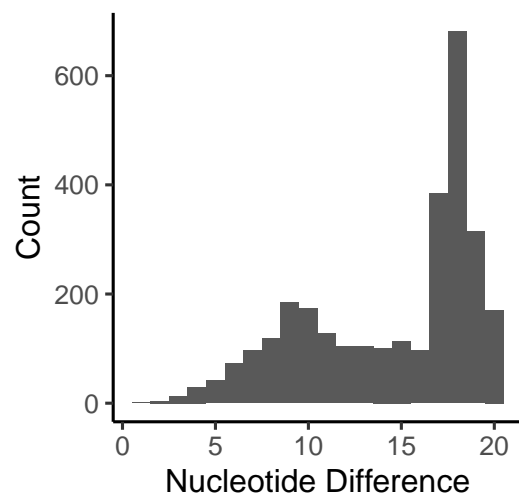
### IGHV3-71\*01\_04

2 sequences assigned  
No exact matches.



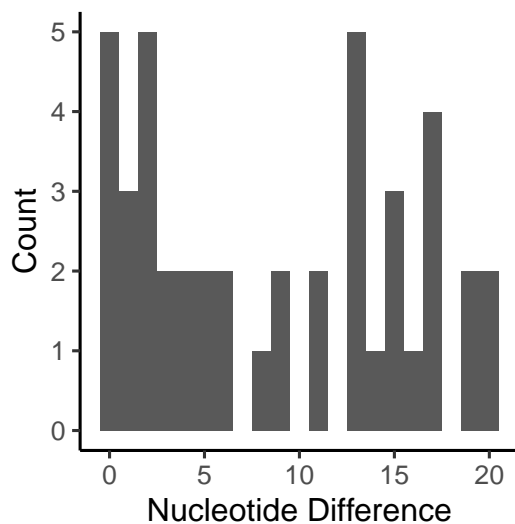
### IGHV3-74\*03

5840 sequences assigned  
No exact matches.



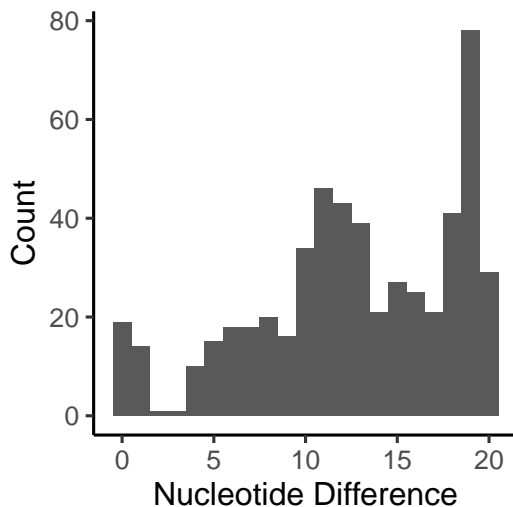
### IGHV3-69-1\*01

57 sequences assigned  
5 (8.8%) exact matches, in which:  
5 unique CDR3  
3 unique J



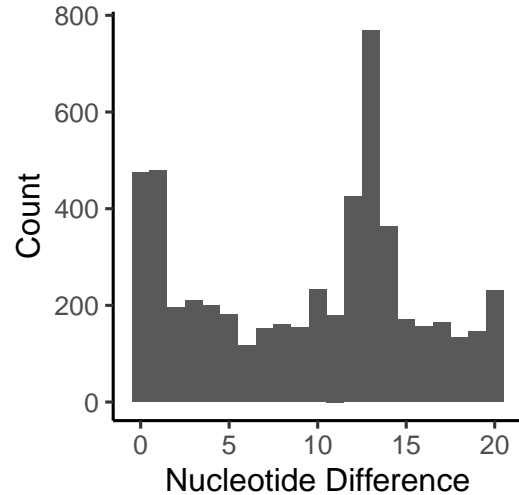
### IGHV3-72\*01

661 sequences assigned  
19 (2.9%) exact matches, in which:  
10 unique CDR3  
3 unique J



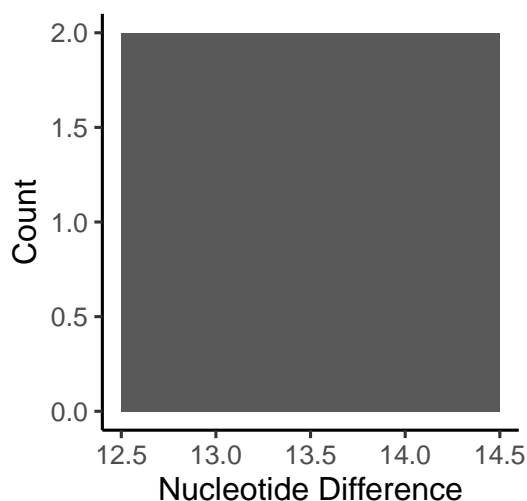
### IGHV3-74\*01\_02

6370 sequences assigned  
474 (7.4%) exact matches, in which:  
302 unique CDR3  
5 unique J



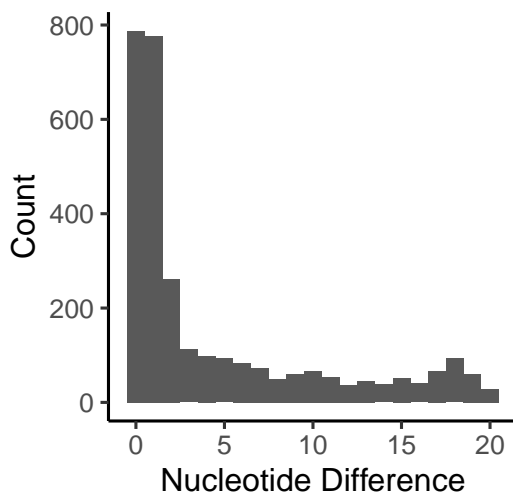
### IGHV3-43D\*04

4 sequences assigned  
No exact matches.



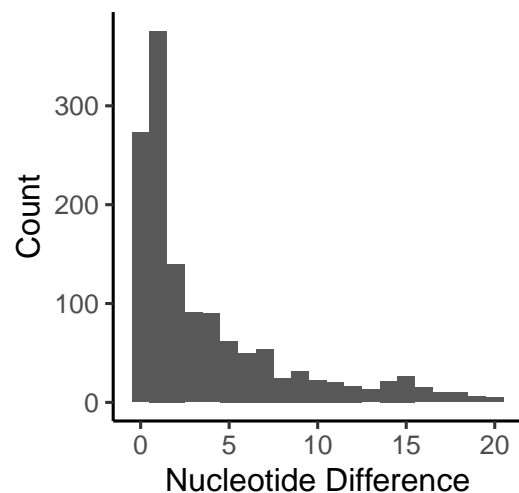
### IGHV4-4\*02\_03

5031 sequences assigned  
788 (15.7%) exact matches, in which:  
591 unique CDR3  
6 unique J



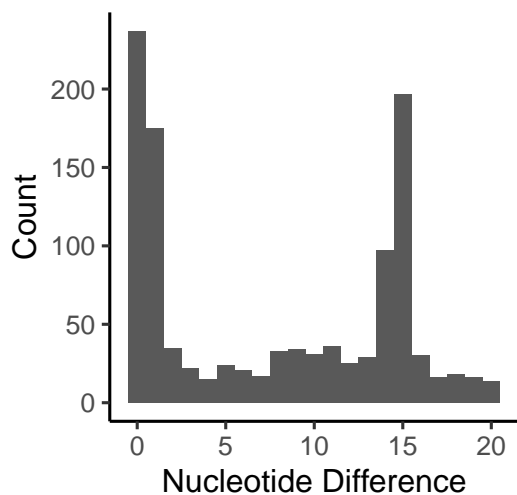
### IGHV4-30-2\*01

1884 sequences assigned  
273 (14.5%) exact matches, in which:  
162 unique CDR3  
5 unique J



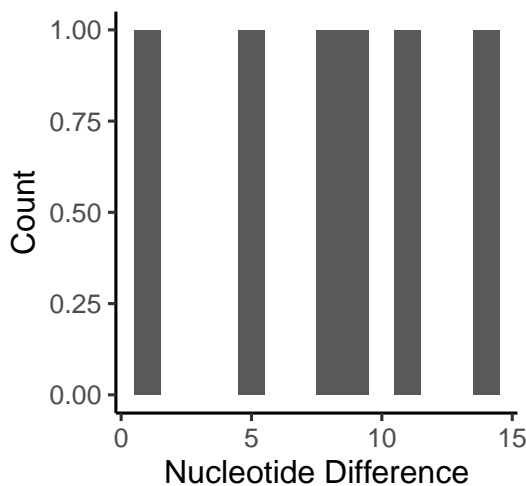
### IGHV3-64D\*08

1237 sequences assigned  
237 (19.2%) exact matches, in which:  
138 unique CDR3  
5 unique J



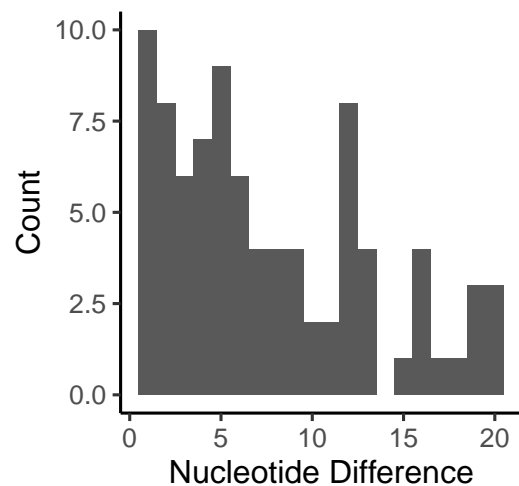
### IGHV4-28\*03

6 sequences assigned  
No exact matches.



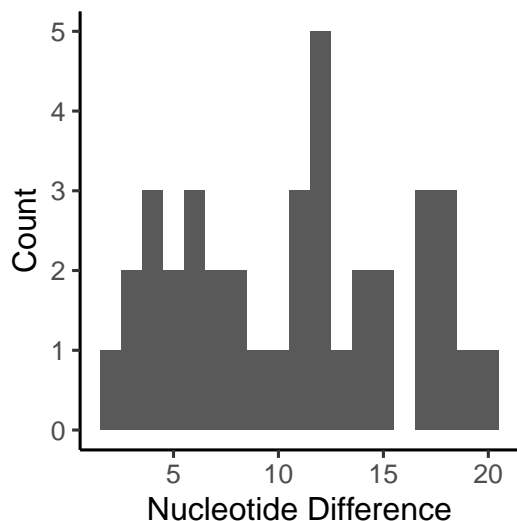
### IGHV4-30-2\*03

121 sequences assigned  
No exact matches.



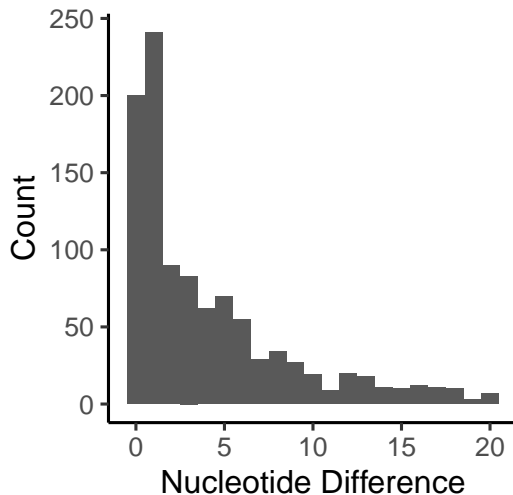
### IGHV3-NL1\*01

130 sequences assigned  
No exact matches.



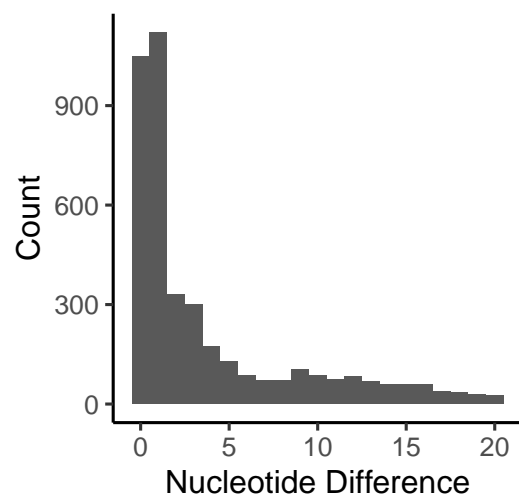
### IGHV4-30-4\*01

1102 sequences assigned  
200 (18.1%) exact matches, in which:  
160 unique CDR3  
6 unique J



### IGHV4-31\*02

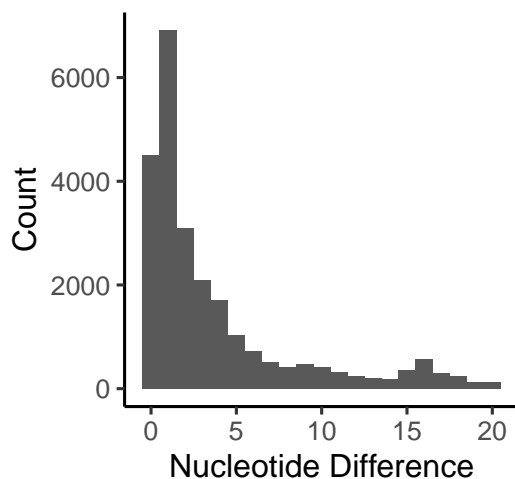
4926 sequences assigned  
1048 (21.3%) exact matches, in which:  
822 unique CDR3  
6 unique J





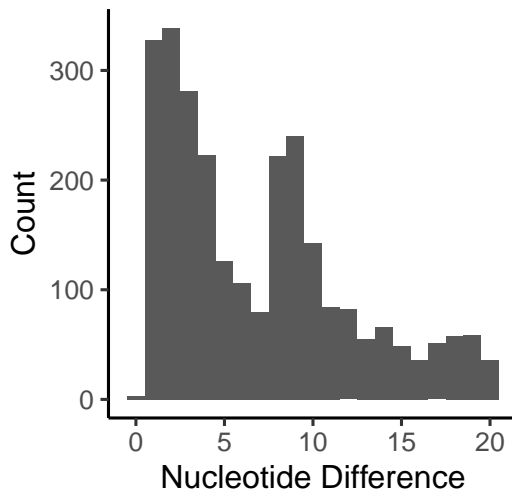
### IGHV4-34\*01\_02

27537 sequences assigned  
4499 (16.3%) exact matches, in which:  
2992 unique CDR3  
6 unique J



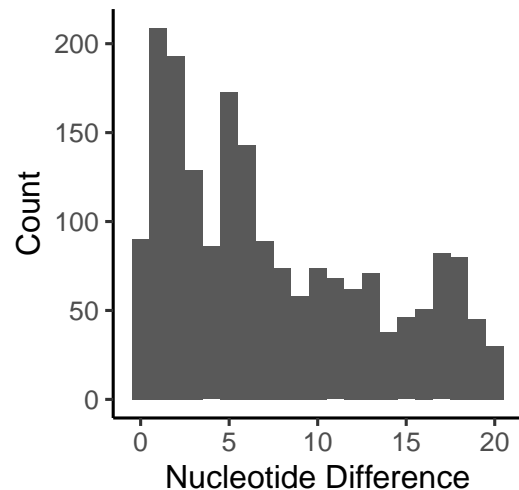
### IGHV4-39\*07

3033 sequences assigned  
3 (0.1%) exact matches, in which:  
3 unique CDR3  
2 unique J



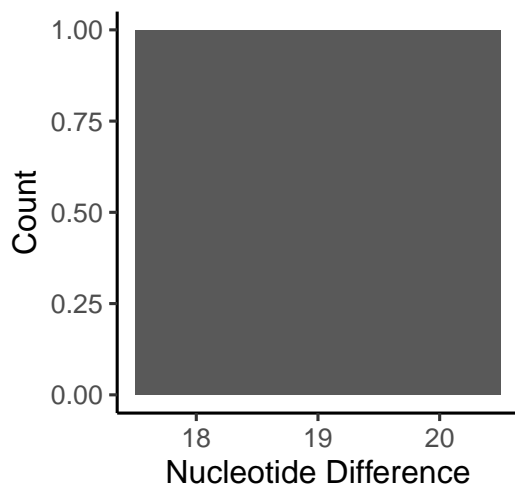
### IGHV4-59\*12

2547 sequences assigned  
90 (3.5%) exact matches, in which:  
85 unique CDR3  
4 unique J



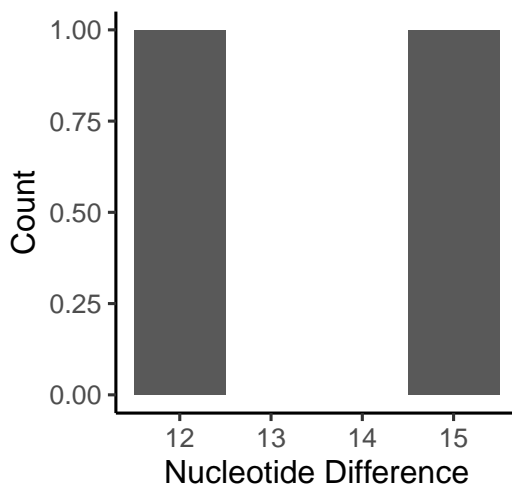
### IGHV4-38-2\*01

12 sequences assigned  
No exact matches.



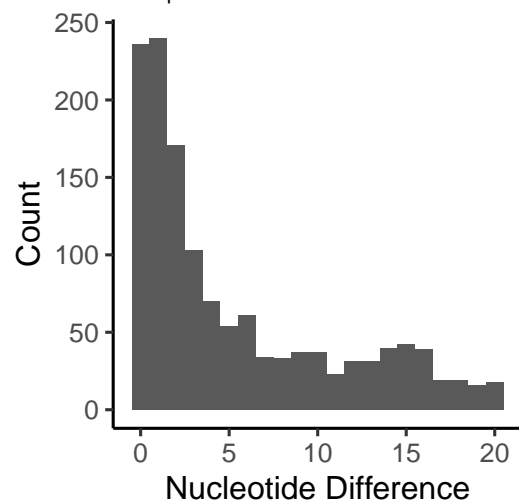
### IGHV4-55\*09

2 sequences assigned  
No exact matches.



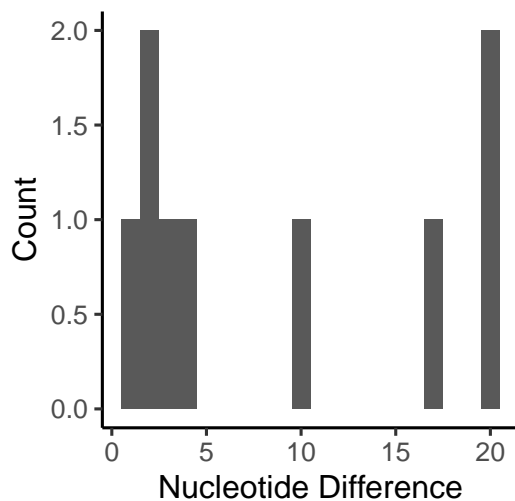
### IGHV4-61\*01

1517 sequences assigned  
236 (15.6%) exact matches, in which:  
187 unique CDR3  
6 unique J



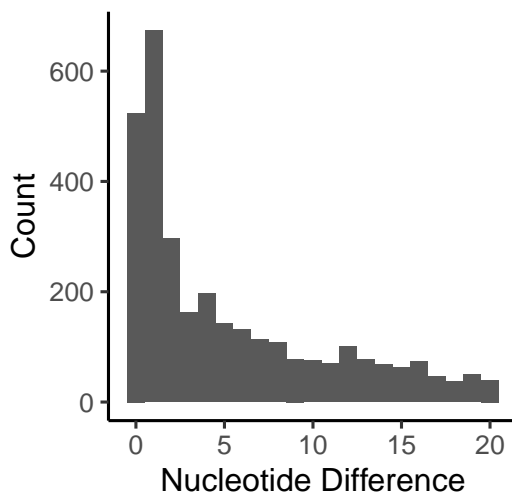
### IGHV4-38-2\*02

20 sequences assigned  
No exact matches.



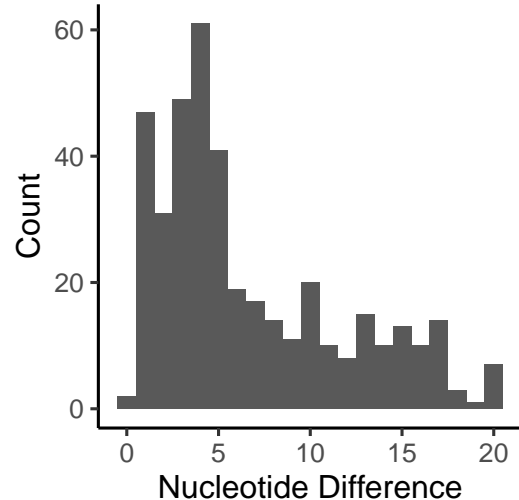
### IGHV4-59\*08

3435 sequences assigned  
524 (15.3%) exact matches, in which:  
412 unique CDR3  
5 unique J



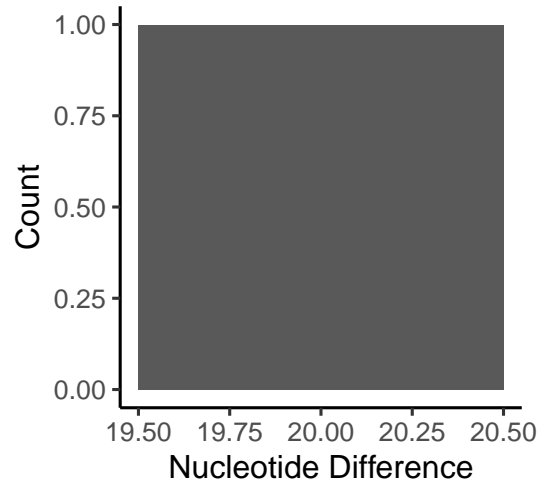
### IGHV4-61\*08

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



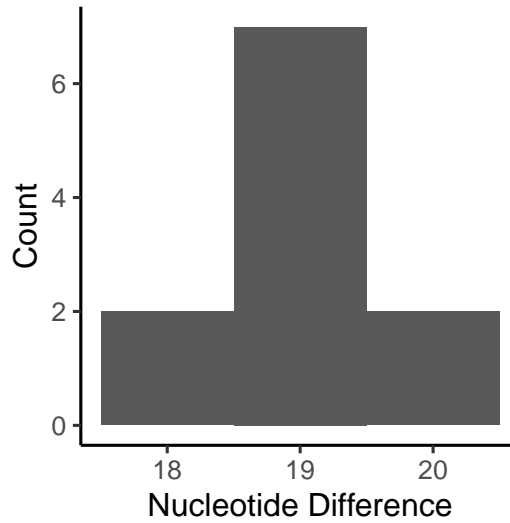
### IGHV1/OR15-2\*02\_03

1 sequences assigned  
No exact matches.



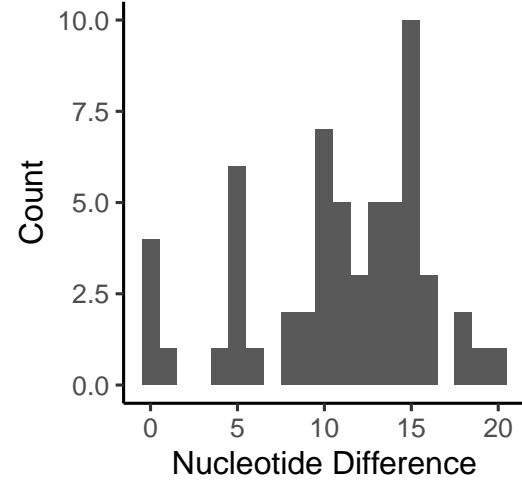
### IGHV4/OR15-8\*02

53 sequences assigned  
No exact matches.



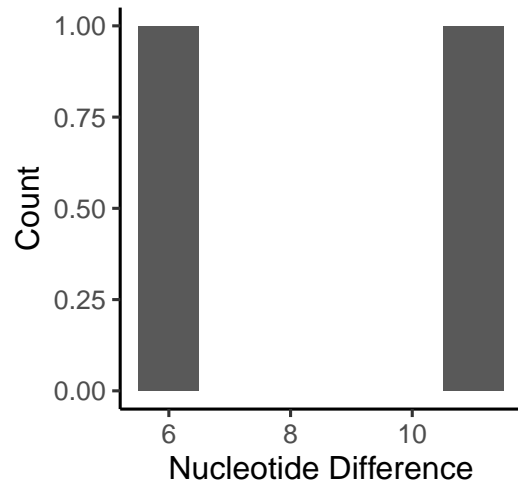
### IGHV5-51\*06

61 sequences assigned  
4 (6.6%) exact matches, in which:  
4 unique CDR3  
2 unique J



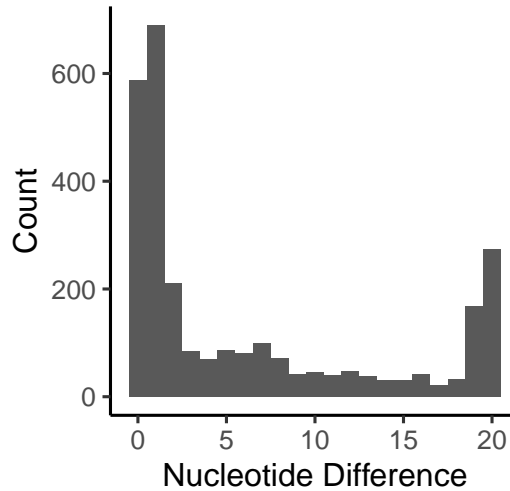
### IGHV1/OR15-3\*02

2 sequences assigned  
No exact matches.



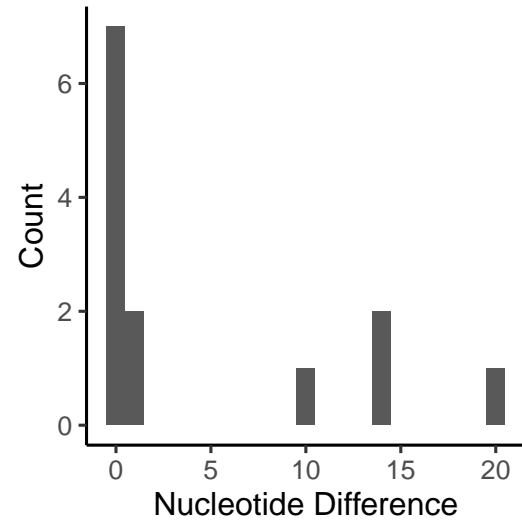
### IGHV5-10-1\*01\_03

3501 sequences assigned  
588 (16.8%) exact matches, in which:  
366 unique CDR3  
5 unique J



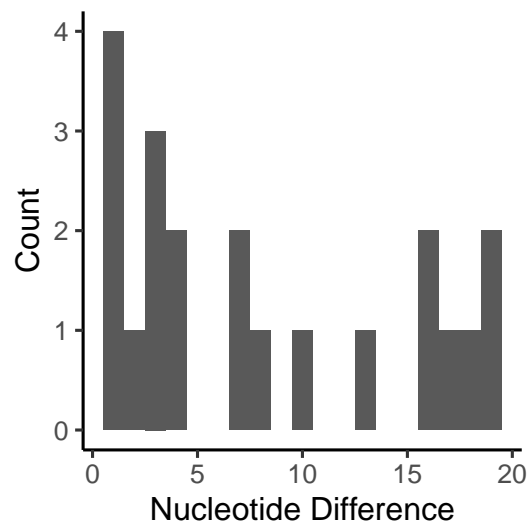
### IGHV5-51\*07

14 sequences assigned  
7 (50%) exact matches, in which:  
7 unique CDR3  
4 unique J



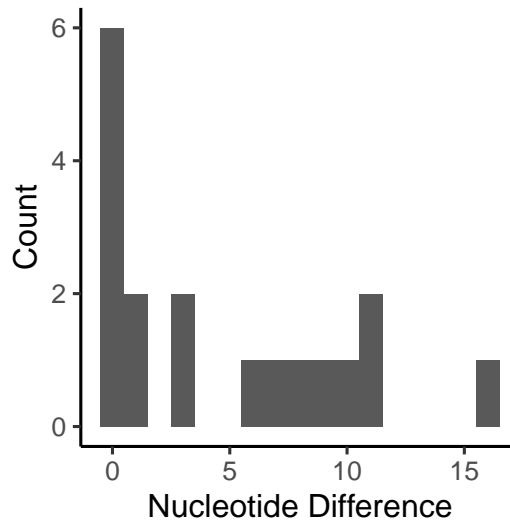
### IGHV4/OR15-8\*01

30 sequences assigned  
No exact matches.



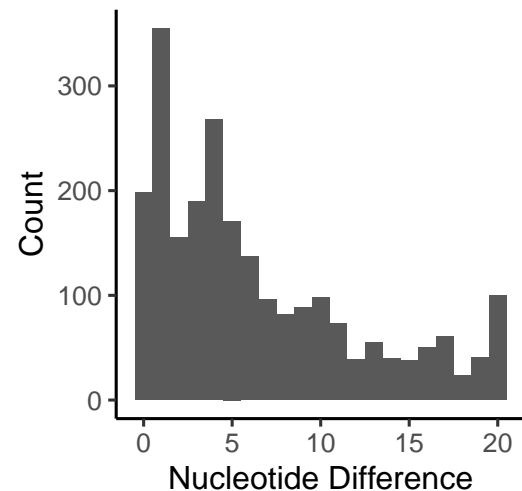
### IGHV5-51\*04

21 sequences assigned  
6 (28.6%) exact matches, in which:  
6 unique CDR3  
2 unique J



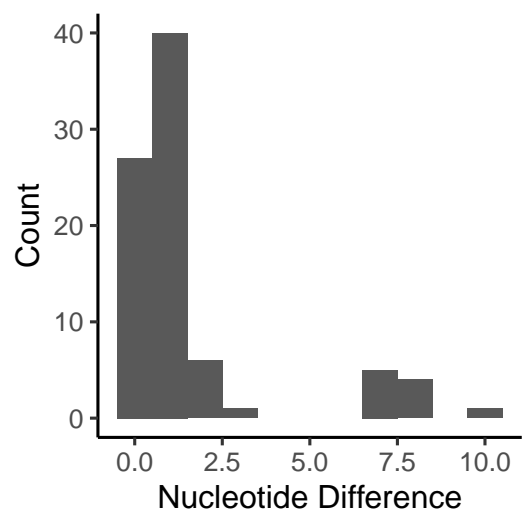
### IGHV6-1\*01\_02

2515 sequences assigned  
198 (7.9%) exact matches, in which:  
161 unique CDR3  
6 unique J



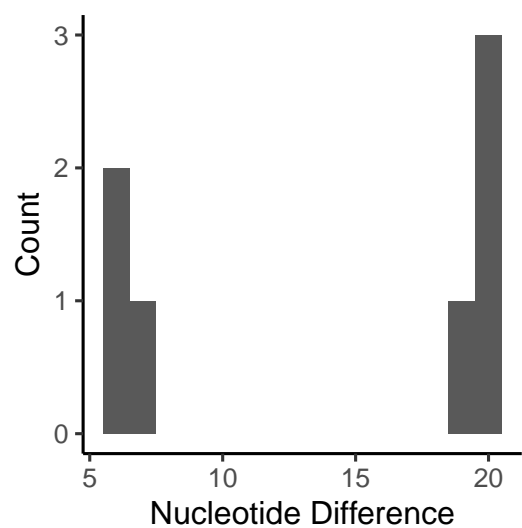
## IGHV7-4-1\*01

84 sequences assigned  
27 (32.1%) exact matches, in which:  
23 unique CDR3  
4 unique J



## IGHV7-4-1\*02

12 sequences assigned  
No exact matches.





[illegible]