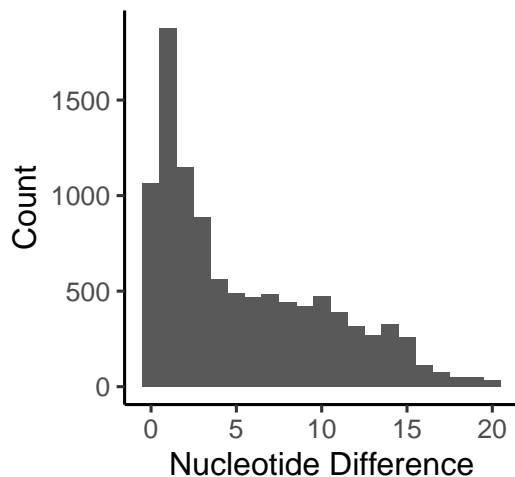


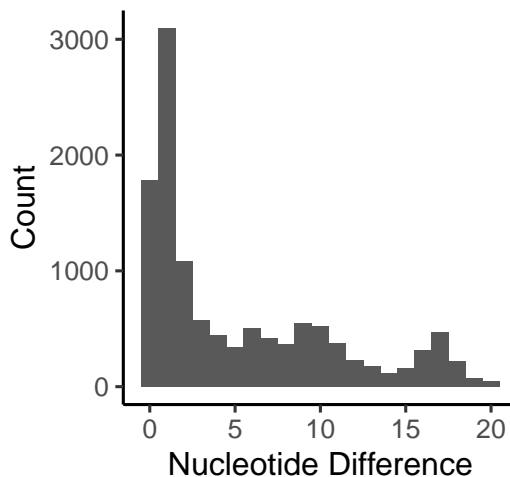
### IGHV1-2\*02

10460 sequences assigned  
1063 (10.2%) exact matches, in which:  
789 unique CDR3  
7 unique J



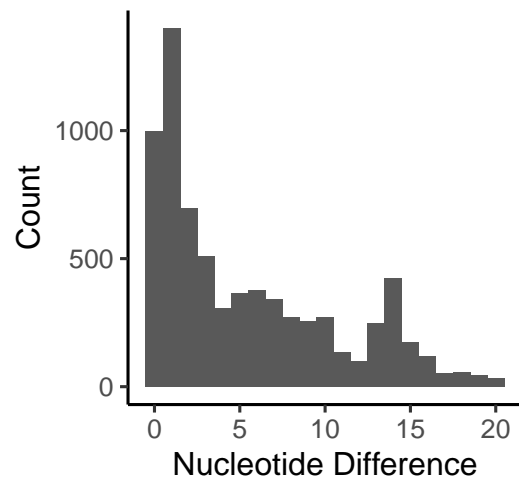
### IGHV1-18\*01

13490 sequences assigned  
1786 (13.2%) exact matches, in which:  
1314 unique CDR3  
7 unique J



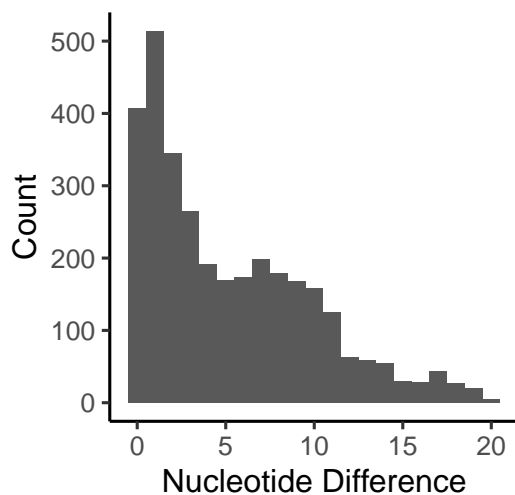
### IGHV1-46\*01

7403 sequences assigned  
999 (13.5%) exact matches, in which:  
767 unique CDR3  
7 unique J



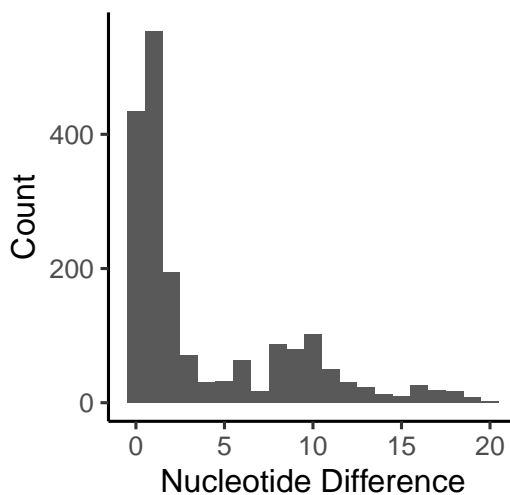
### IGHV1-3\*01\_05

7942 sequences assigned  
407 (5.1%) exact matches, in which:  
321 unique CDR3  
7 unique J



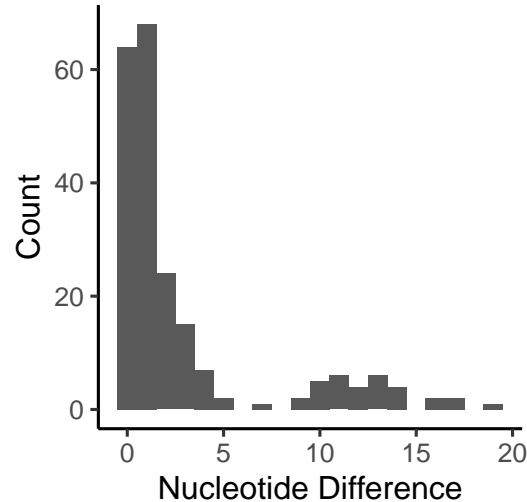
### IGHV1-24\*01

1887 sequences assigned  
435 (23.1%) exact matches, in which:  
350 unique CDR3  
7 unique J



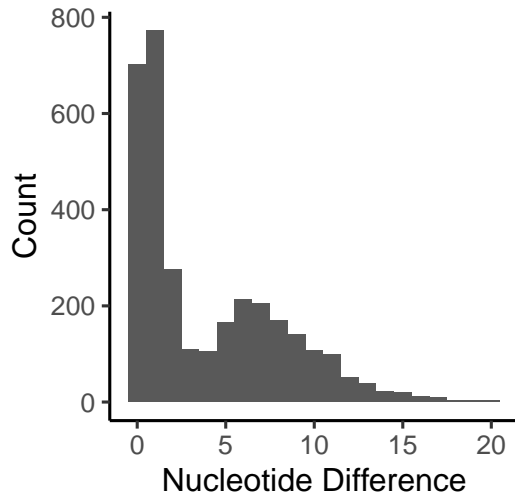
### IGHV1-58\*02

215 sequences assigned  
64 (29.8%) exact matches, in which:  
51 unique CDR3  
5 unique J



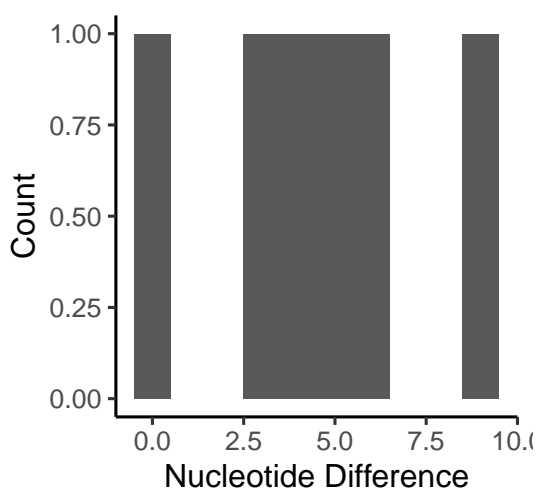
### IGHV1-8\*01

3226 sequences assigned  
701 (21.7%) exact matches, in which:  
585 unique CDR3  
7 unique J



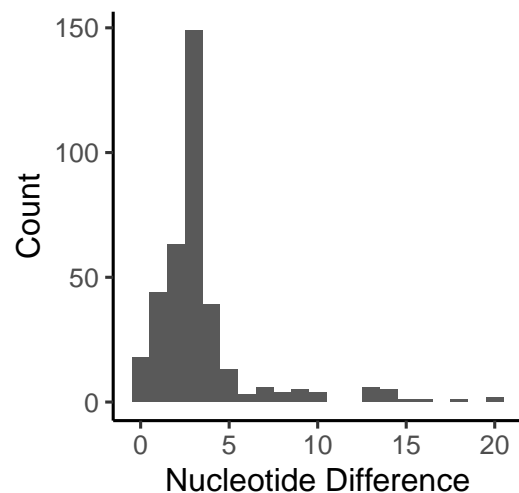
### IGHV1-45\*02

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



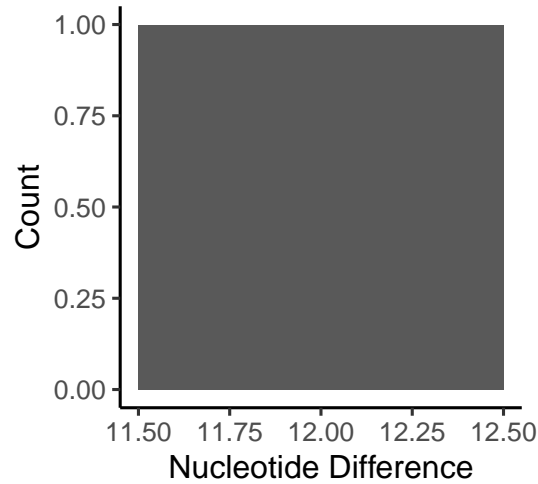
### IGHV1-58\*01\_03

368 sequences assigned  
18 (4.9%) exact matches, in which:  
16 unique CDR3  
5 unique J



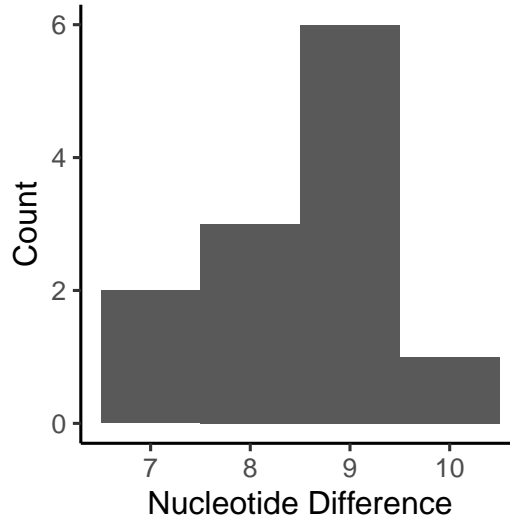
### IGHV1-69-2\*01

1 sequences assigned  
No exact matches.



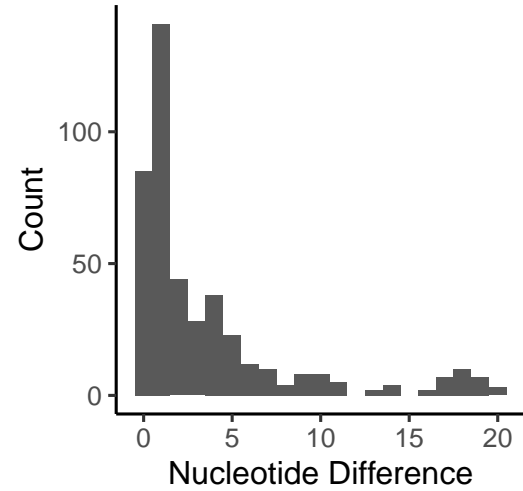
### IGHV1-NL1\*01

12 sequences assigned  
No exact matches.



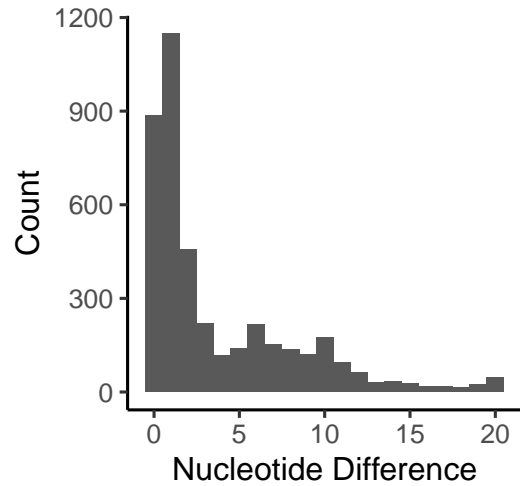
### IGHV2-70\*01

442 sequences assigned  
85 (19.2%) exact matches, in which:  
61 unique CDR3  
6 unique J



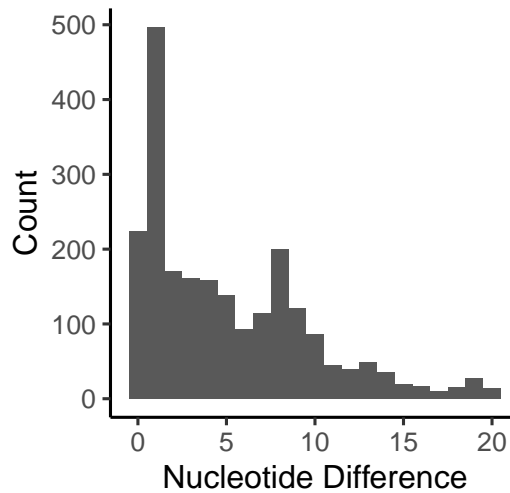
### IGHV1-69\*01\_12\_13

4391 sequences assigned  
887 (20.2%) exact matches, in which:  
744 unique CDR3  
7 unique J



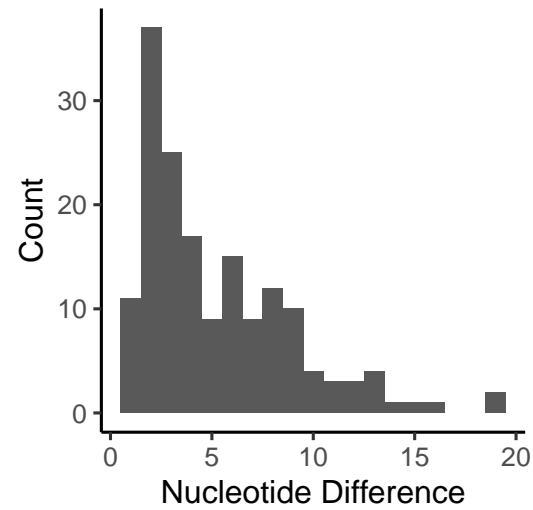
### IGHV2-5\*02

2288 sequences assigned  
224 (9.8%) exact matches, in which:  
156 unique CDR3  
6 unique J



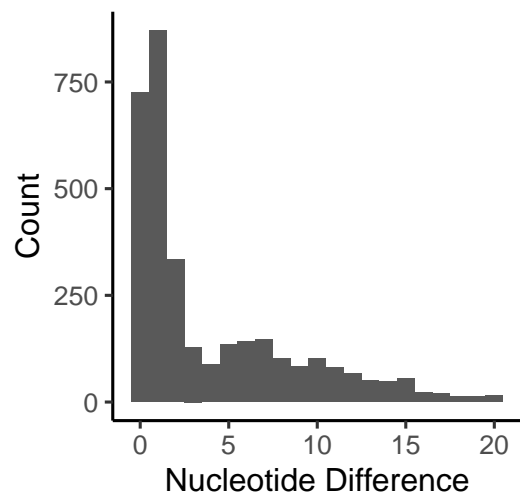
### IGHV2-70\*12

164 sequences assigned  
No exact matches.



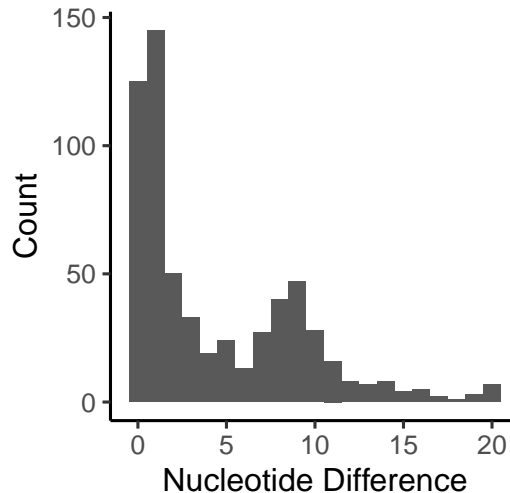
### IGHV1-69\*04\_09

3422 sequences assigned  
726 (21.2%) exact matches, in which:  
605 unique CDR3  
7 unique J



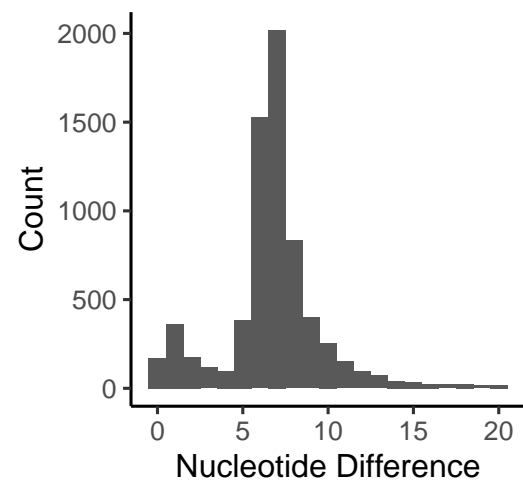
### IGHV2-26\*01

619 sequences assigned  
125 (20.2%) exact matches, in which:  
87 unique CDR3  
6 unique J



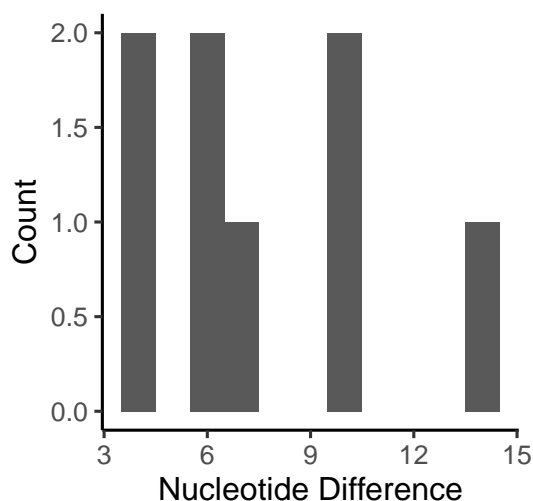
### IGHV2-70\*11\_15

6908 sequences assigned  
171 (2.5%) exact matches, in which:  
121 unique CDR3  
6 unique J



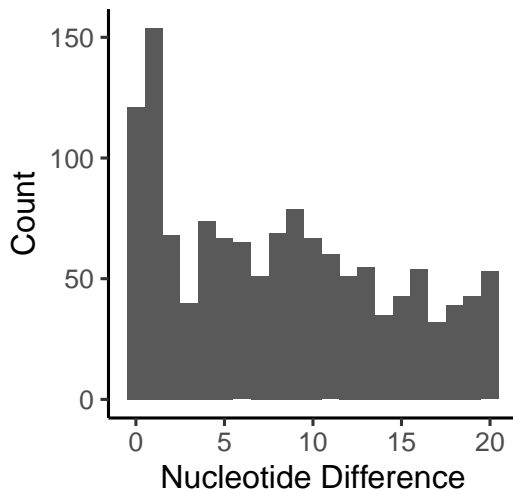
### IGHV2-70D\*04

8 sequences assigned  
No exact matches.



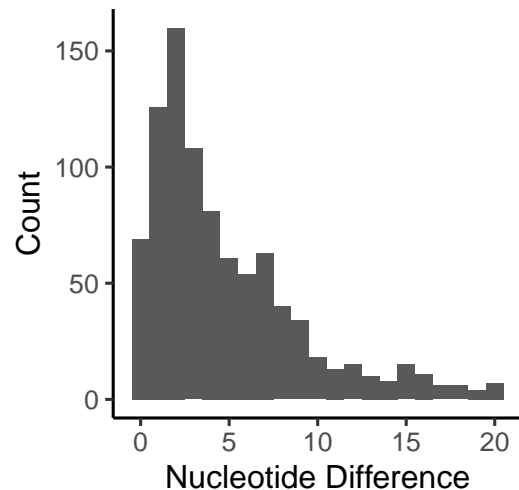
### IGHV3-7\*03

1855 sequences assigned  
121 (6.5%) exact matches, in which:  
93 unique CDR3  
7 unique J



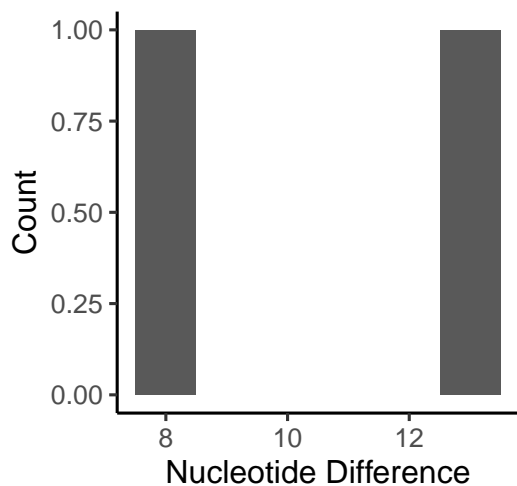
### IGHV3-11\*04

1015 sequences assigned  
69 (6.8%) exact matches, in which:  
63 unique CDR3  
6 unique J



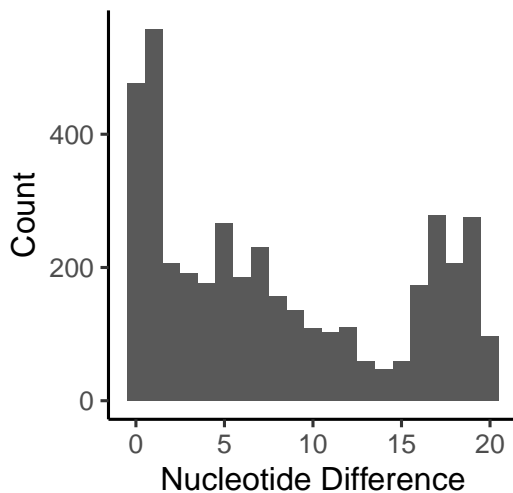
### IGHV2-70D\*14

2 sequences assigned  
No exact matches.



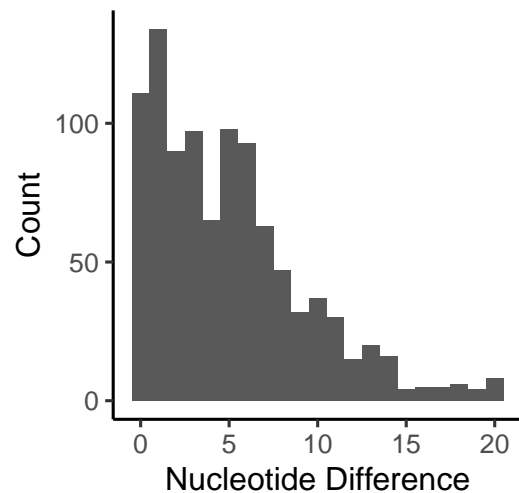
### IGHV3-9\*01

4484 sequences assigned  
476 (10.6%) exact matches, in which:  
270 unique CDR3  
7 unique J



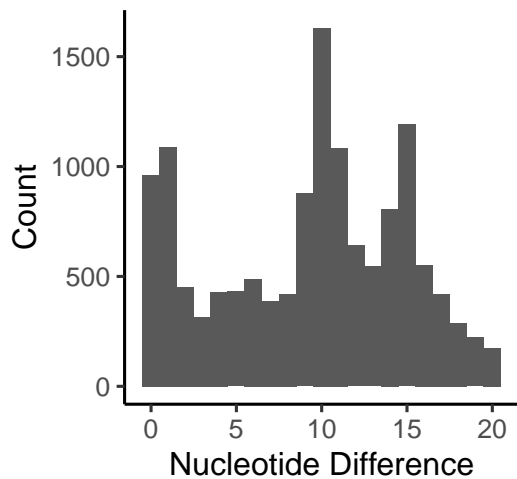
### IGHV3-11\*06

1030 sequences assigned  
111 (10.8%) exact matches, in which:  
106 unique CDR3  
6 unique J



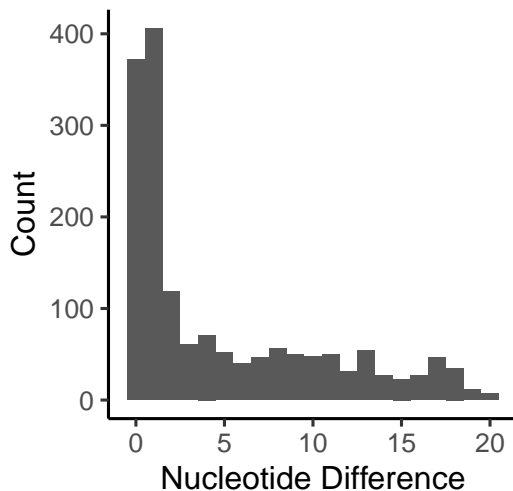
### IGHV3-7\*01

15212 sequences assigned  
961 (6.3%) exact matches, in which:  
652 unique CDR3  
7 unique J



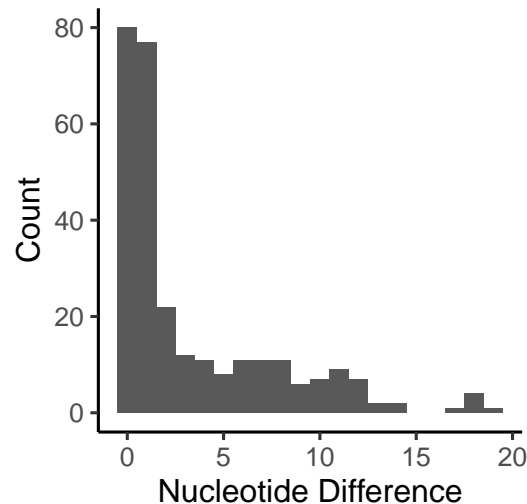
### IGHV3-11\*01

2527 sequences assigned  
372 (14.7%) exact matches, in which:  
242 unique CDR3  
7 unique J



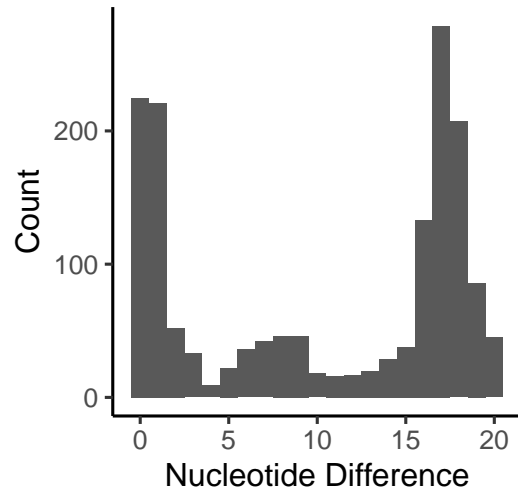
### IGHV3-13\*01

284 sequences assigned  
80 (28.2%) exact matches, in which:  
61 unique CDR3  
6 unique J



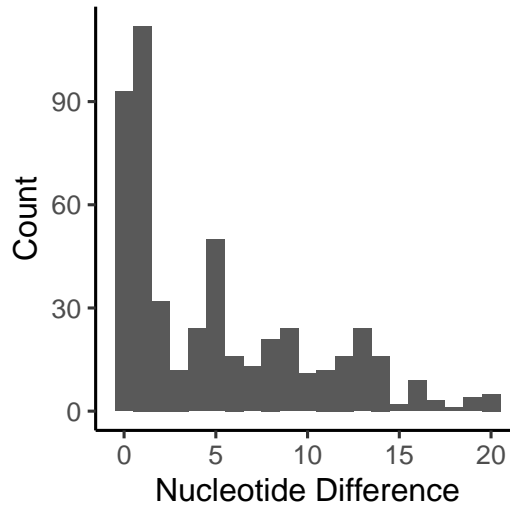
### IGHV3-13\*04

1928 sequences assigned  
225 (11.7%) exact matches, in which:  
146 unique CDR3  
6 unique J



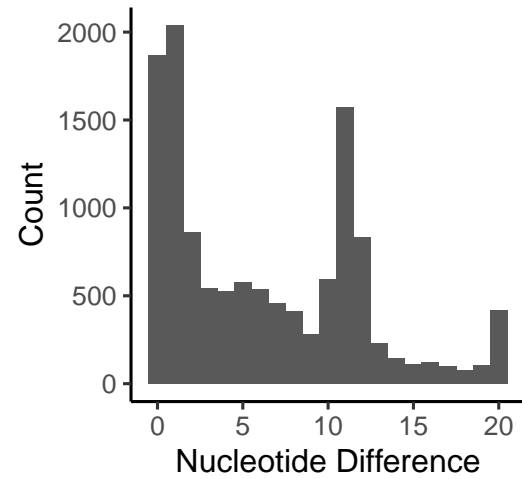
### IGHV3-20\*01\_02

1707 sequences assigned  
93 (5.4%) exact matches, in which:  
56 unique CDR3  
7 unique J



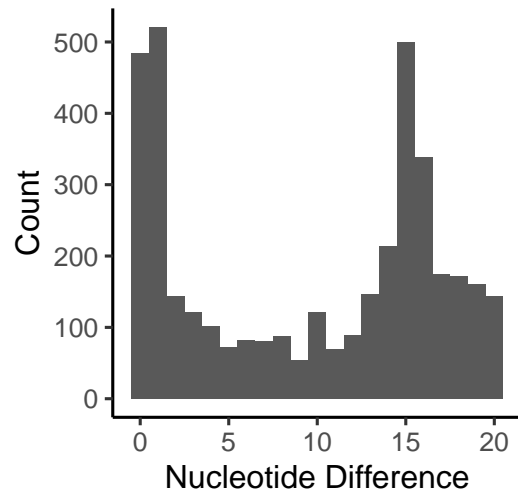
### IGHV3-21\*01\_02

16101 sequences assigned  
1867 (11.6%) exact matches, in which:  
1152 unique CDR3  
7 unique J



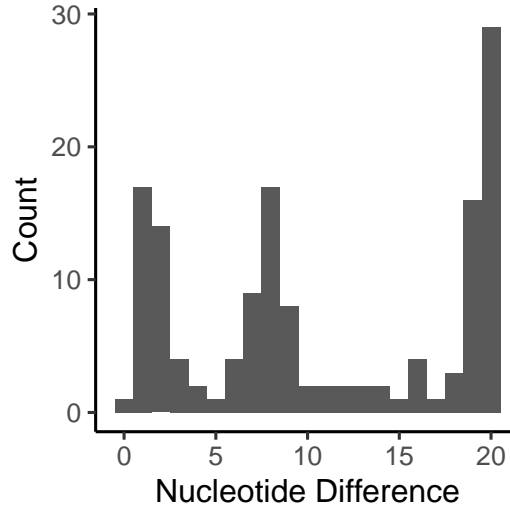
### IGHV3-15\*01\_02

5730 sequences assigned  
484 (8.4%) exact matches, in which:  
282 unique CDR3  
6 unique J



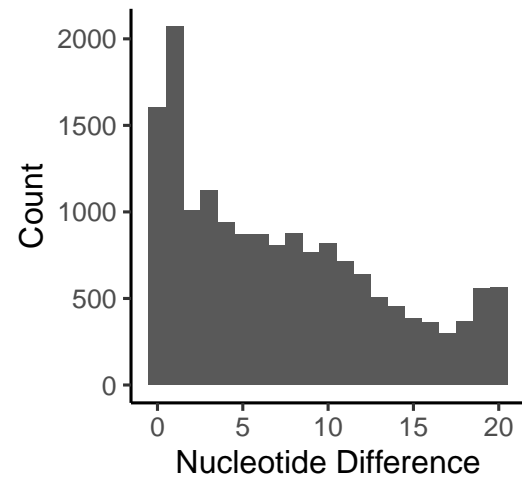
### IGHV3-20\*03\_04

222 sequences assigned  
1 (0.5%) exact matches, in which:  
1 unique CDR3  
1 unique J



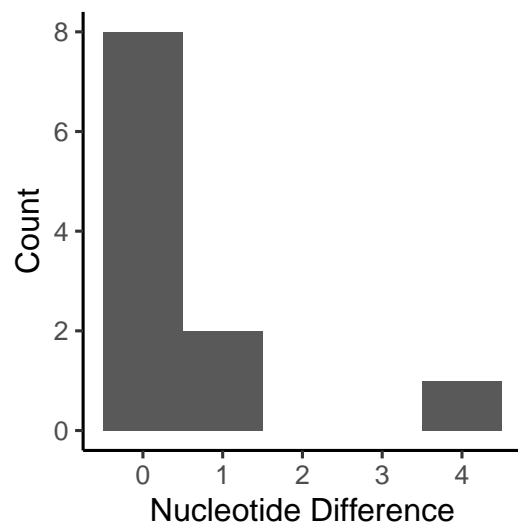
### IGHV3-23\*01\_04

25659 sequences assigned  
1603 (6.2%) exact matches, in which:  
910 unique CDR3  
7 unique J



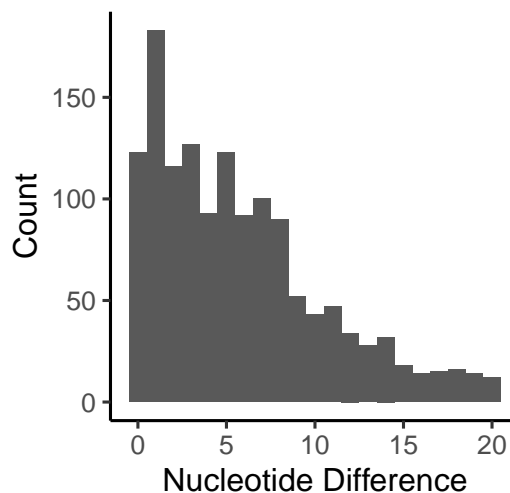
### IGHV3-19\*01

11 sequences assigned  
8 (72.7%) exact matches, in which:  
8 unique CDR3  
4 unique J



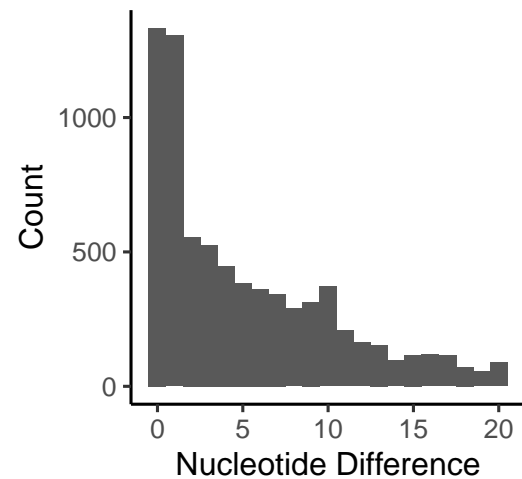
### IGHV3-21\*04

1546 sequences assigned  
123 (8%) exact matches, in which:  
103 unique CDR3  
6 unique J



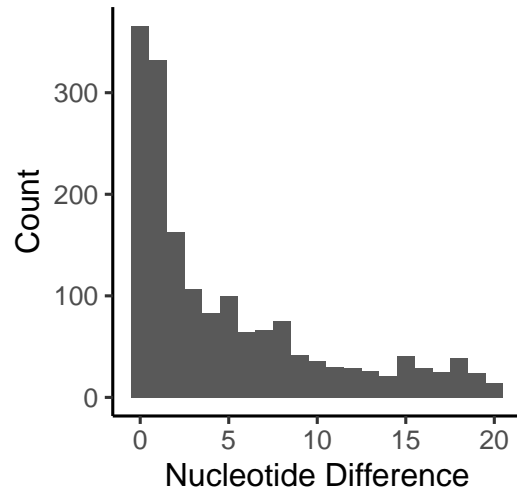
### IGHV3-30-3\*01

7871 sequences assigned  
1333 (16.9%) exact matches, in which:  
879 unique CDR3  
7 unique J



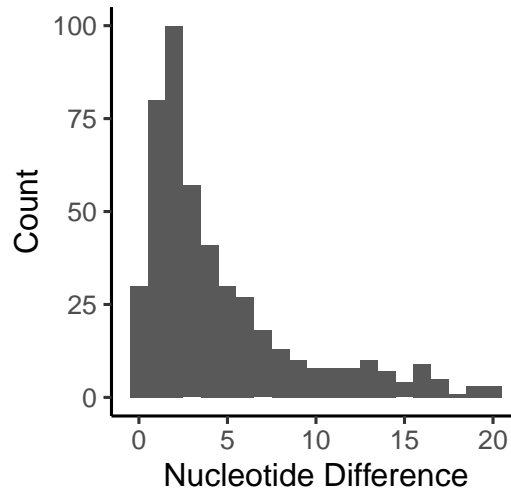
### IGHV3-30\*03

1787 sequences assigned  
366 (20.5%) exact matches, in which:  
319 unique CDR3  
7 unique J



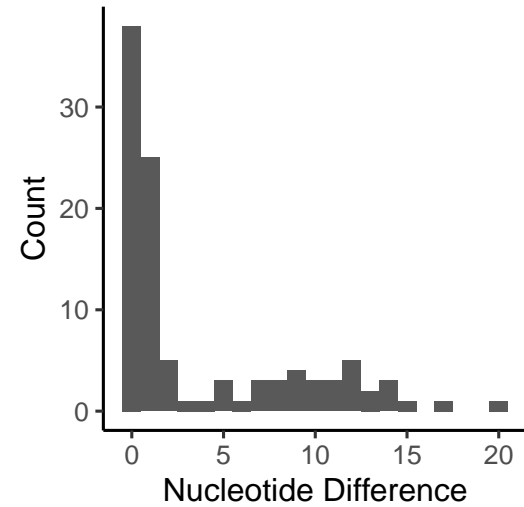
### IGHV3-33\*06

501 sequences assigned  
30 (6%) exact matches, in which:  
29 unique CDR3  
4 unique J



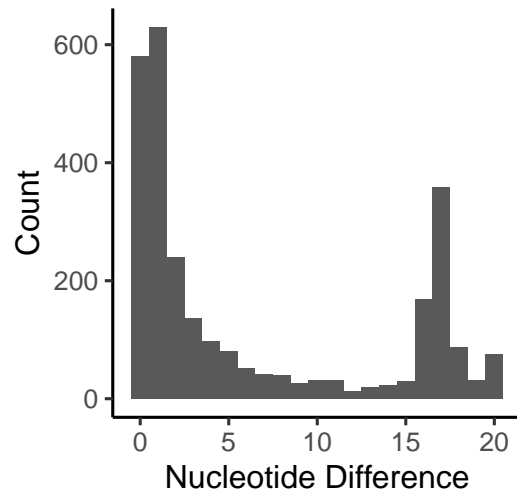
### IGHV3-43\*01

104 sequences assigned  
38 (36.5%) exact matches, in which:  
23 unique CDR3  
6 unique J



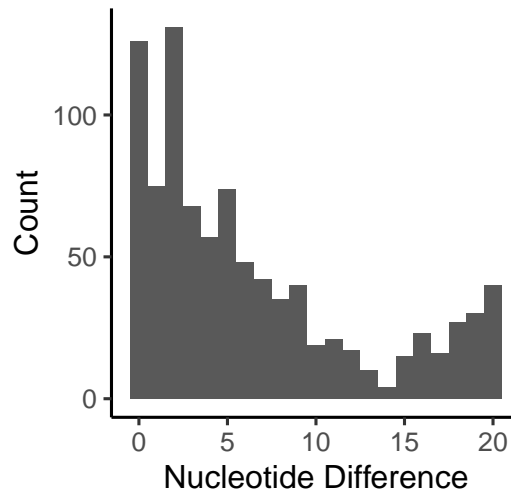
### IGHV3-33\*01

5047 sequences assigned  
580 (11.5%) exact matches, in which:  
394 unique CDR3  
7 unique J



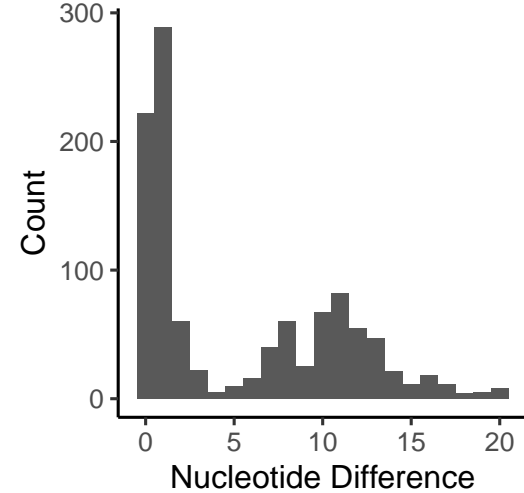
### IGHV3-33\*08

1110 sequences assigned  
126 (11.4%) exact matches, in which:  
85 unique CDR3  
6 unique J



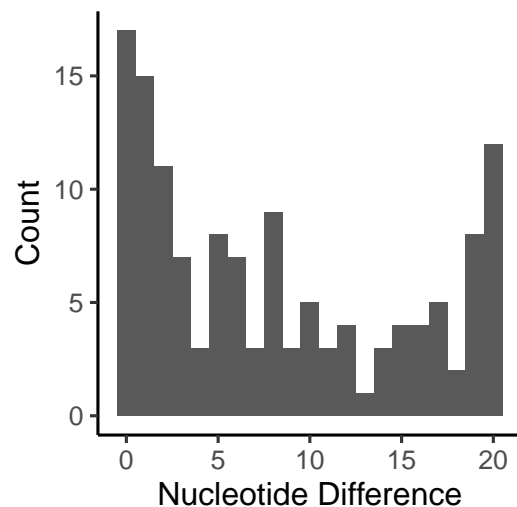
### IGHV3-43\*02

1091 sequences assigned  
222 (20.3%) exact matches, in which:  
132 unique CDR3  
6 unique J



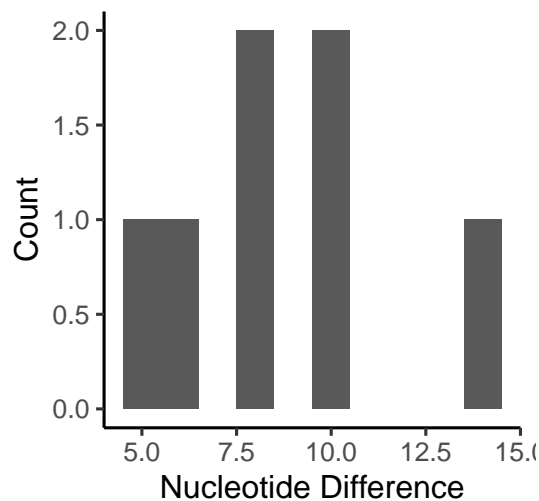
### IGHV3-33\*05

158 sequences assigned  
17 (10.8%) exact matches, in which:  
17 unique CDR3  
5 unique J



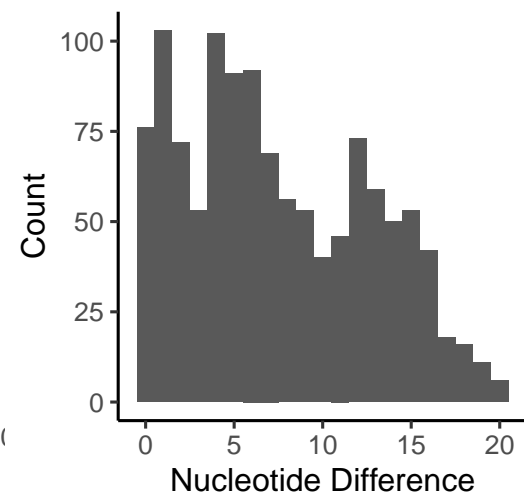
### IGHV3-35\*01

7 sequences assigned  
No exact matches.



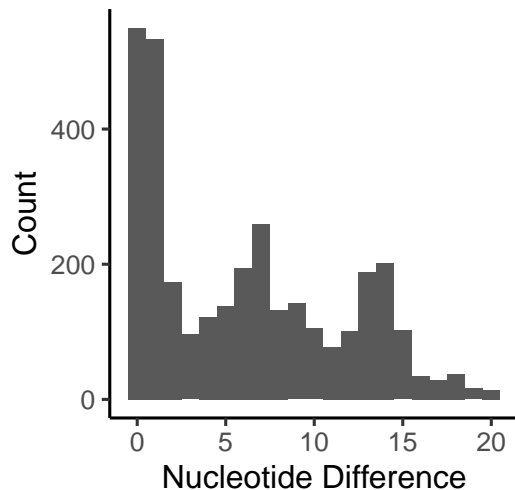
### IGHV3-48\*01

1225 sequences assigned  
76 (6.2%) exact matches, in which:  
70 unique CDR3  
5 unique J



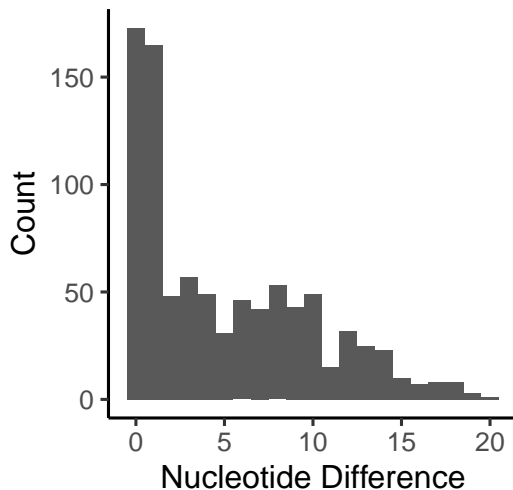
### IGHV3-48\*02

3290 sequences assigned  
550 (16.7%) exact matches, in which:  
361 unique CDR3  
7 unique J



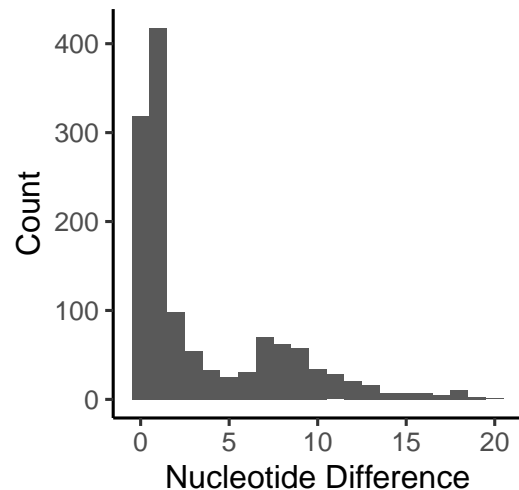
### IGHV3-49\*04

893 sequences assigned  
173 (19.4%) exact matches, in which:  
103 unique CDR3  
7 unique J



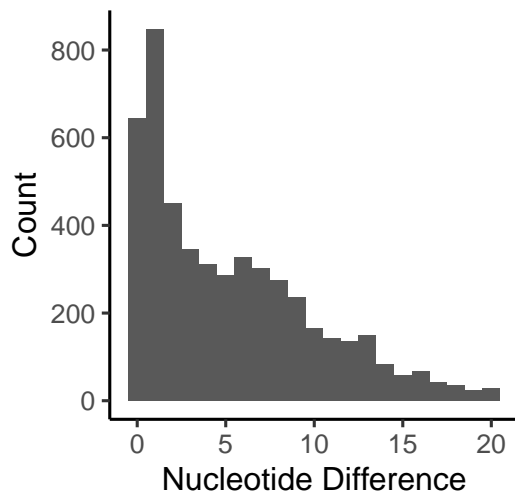
### IGHV3-53\*04

1319 sequences assigned  
319 (24.2%) exact matches, in which:  
197 unique CDR3  
7 unique J



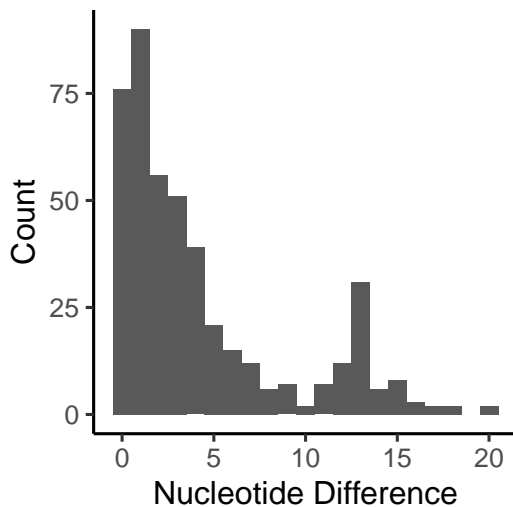
### IGHV3-48\*03

5134 sequences assigned  
644 (12.5%) exact matches, in which:  
389 unique CDR3  
7 unique J



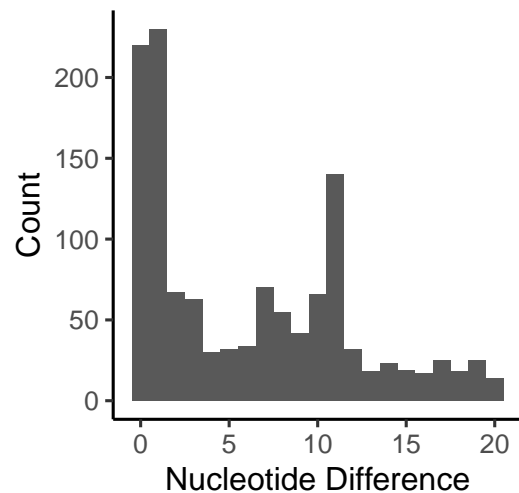
### IGHV3-49\*03\_05

450 sequences assigned  
76 (16.9%) exact matches, in which:  
46 unique CDR3  
5 unique J



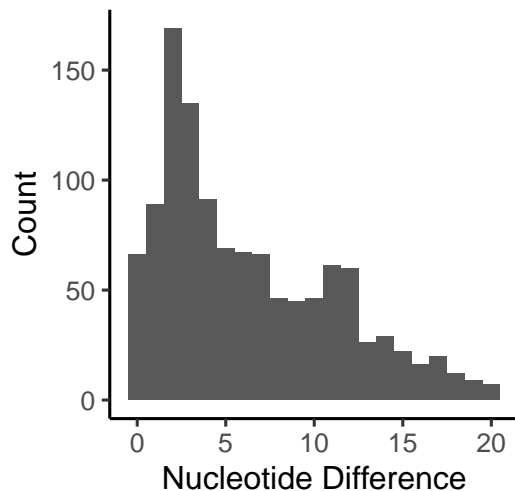
### IGHV3-53\*01\_02

1384 sequences assigned  
220 (15.9%) exact matches, in which:  
155 unique CDR3  
7 unique J



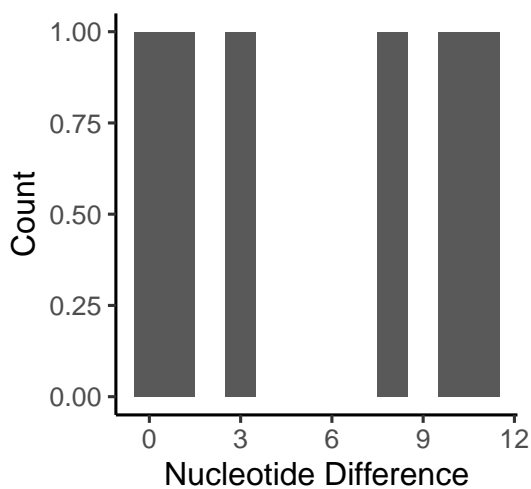
### IGHV3-48\*04

1212 sequences assigned  
66 (5.4%) exact matches, in which:  
62 unique CDR3  
6 unique J



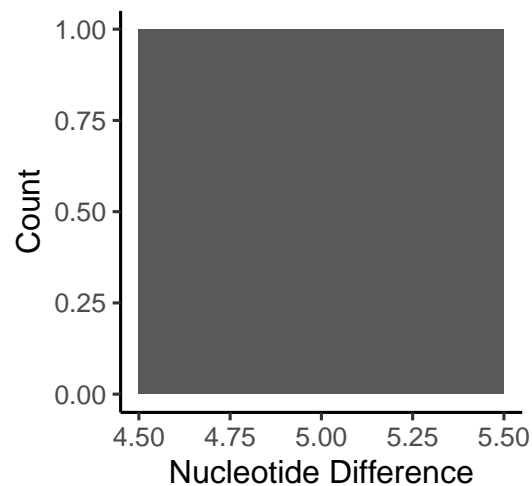
### IGHV3-52\*01\_03

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



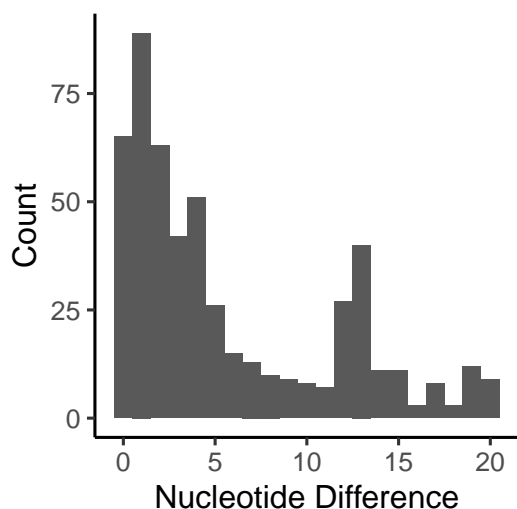
### IGHV3-62\*03

1 sequences assigned  
No exact matches.



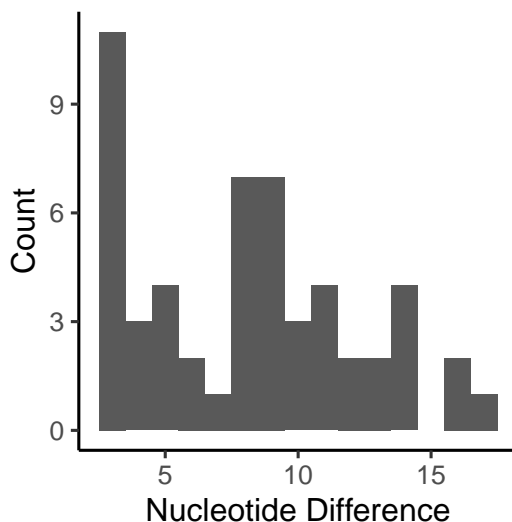
### IGHV3-64\*01

548 sequences assigned  
65 (11.9%) exact matches, in which:  
48 unique CDR3  
5 unique J



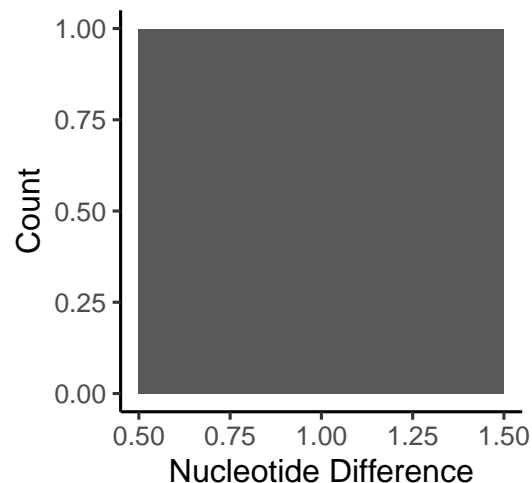
### IGHV3-69-1\*01

93 sequences assigned  
No exact matches.



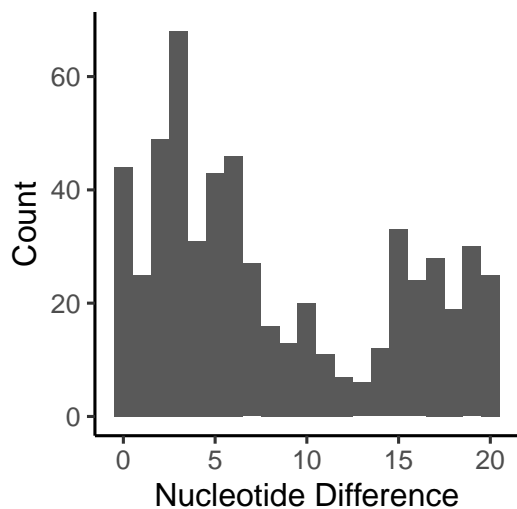
### IGHV3-71\*01\_04

1 sequences assigned  
No exact matches.



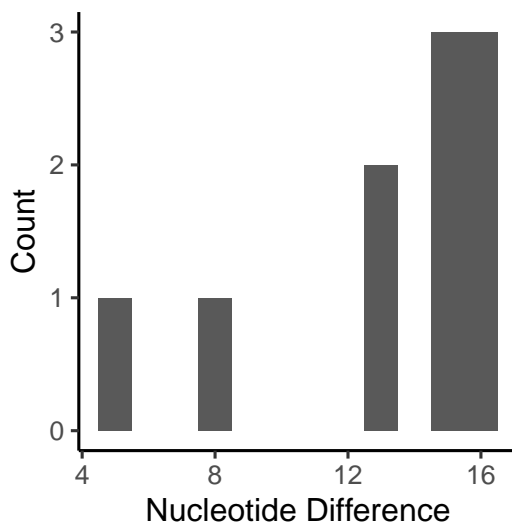
### IGHV3-64\*04

3008 sequences assigned  
44 (1.5%) exact matches, in which:  
43 unique CDR3  
5 unique J



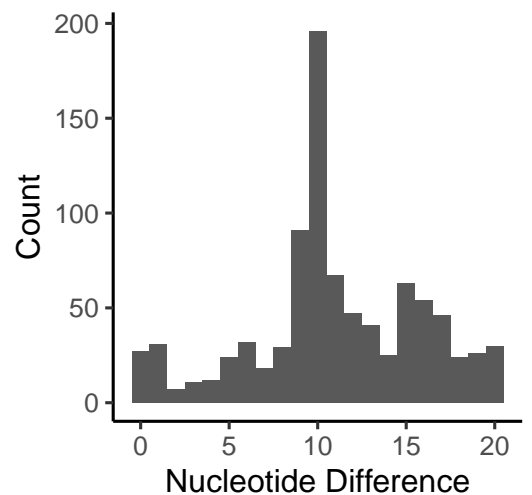
### IGHV3-69-1\*02

25 sequences assigned  
No exact matches.



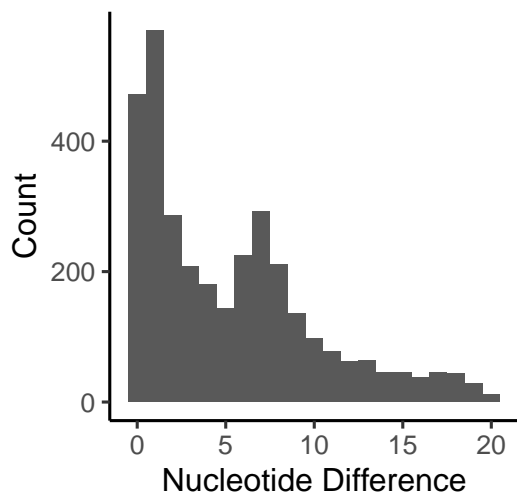
### IGHV3-72\*01

994 sequences assigned  
27 (2.7%) exact matches, in which:  
13 unique CDR3  
4 unique J



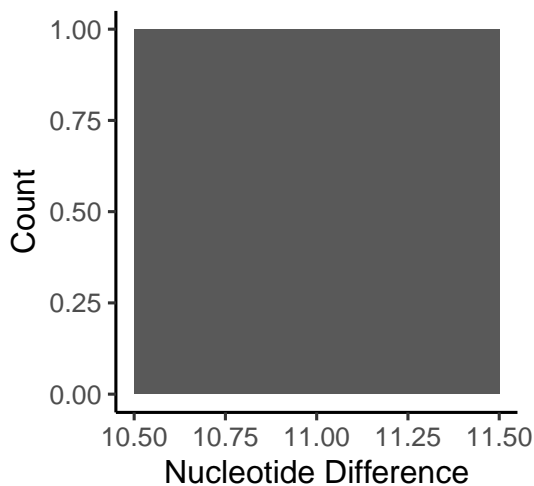
### IGHV3-66\*01

3357 sequences assigned  
472 (14.1%) exact matches, in which:  
333 unique CDR3  
7 unique J



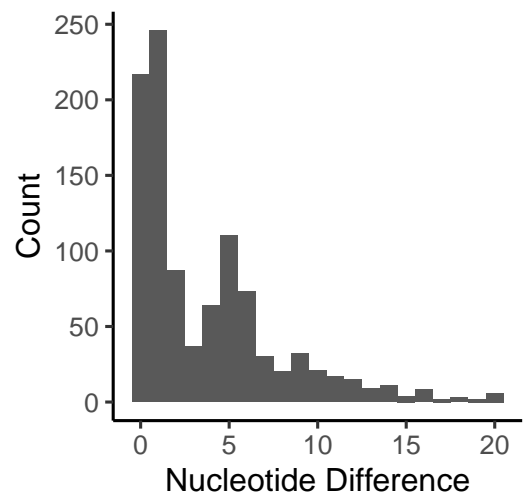
### IGHV3-71\*03

1 sequences assigned  
No exact matches.



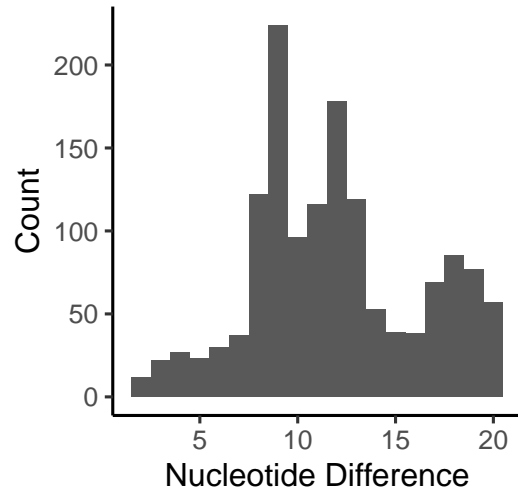
### IGHV3-73\*01\_02

2577 sequences assigned  
217 (8.4%) exact matches, in which:  
127 unique CDR3  
6 unique J



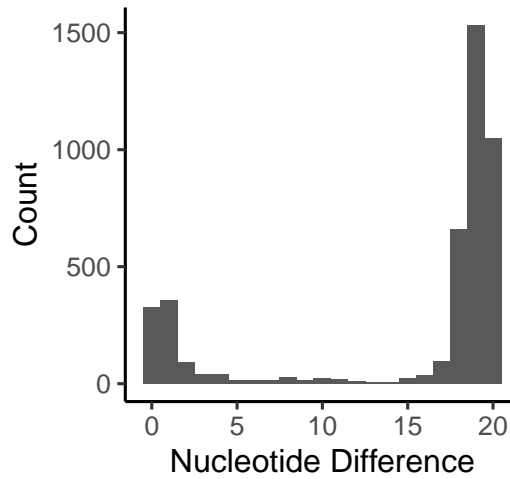
### IGHV3-74\*03

2527 sequences assigned  
No exact matches.



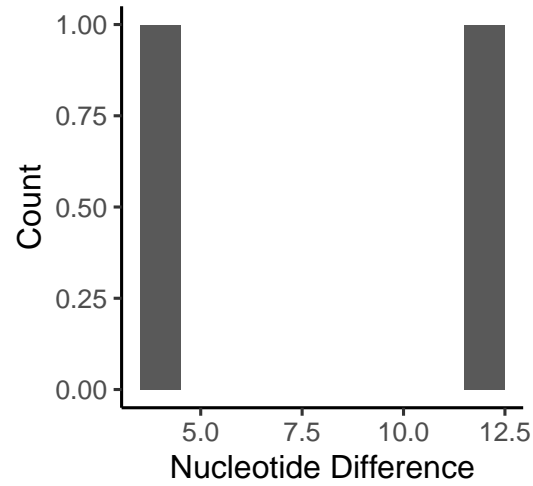
### IGHV3-64D\*09

5246 sequences assigned  
329 (6.3%) exact matches, in which:  
191 unique CDR3  
7 unique J



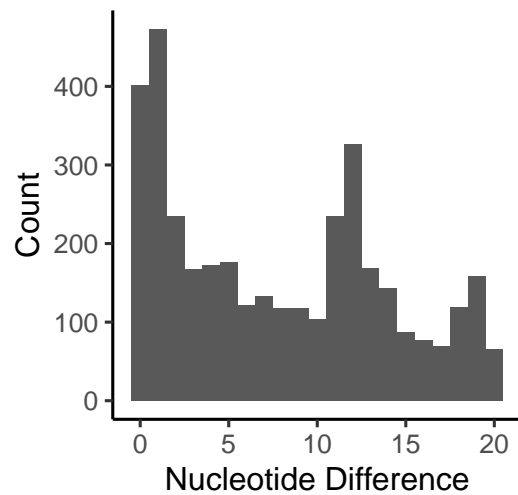
### IGHV4-28\*03

2 sequences assigned  
No exact matches.



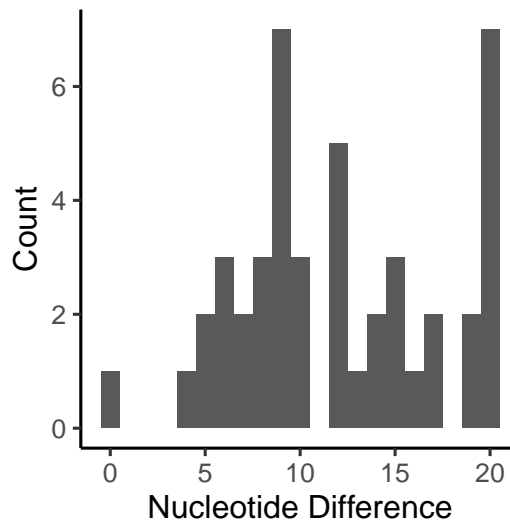
### IGHV3-74\*01\_02

3861 sequences assigned  
402 (10.4%) exact matches, in which:  
284 unique CDR3  
7 unique J



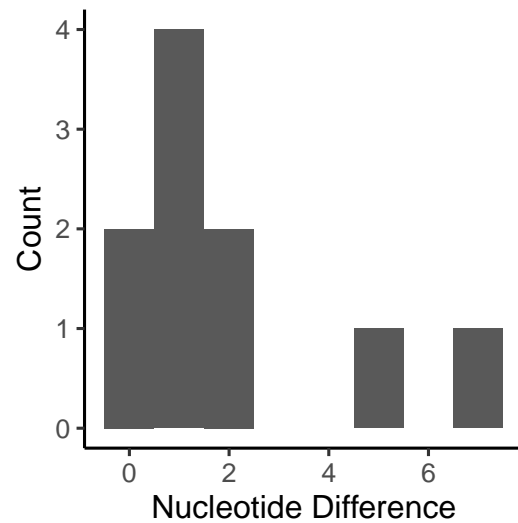
### IGHV3-NL1\*01

80 sequences assigned  
1 (1.2%) exact matches, in which:  
1 unique CDR3  
1 unique J



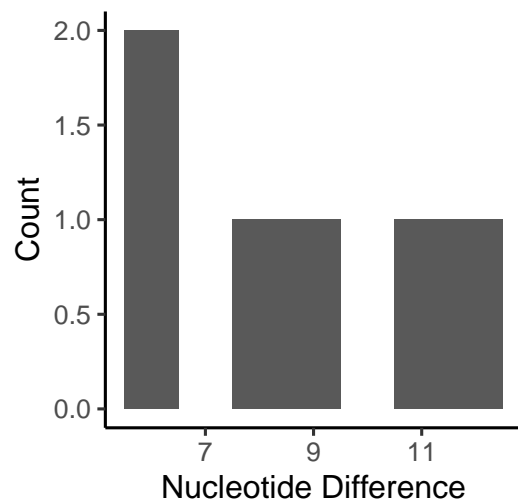
### IGHV4-28\*01\_07

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



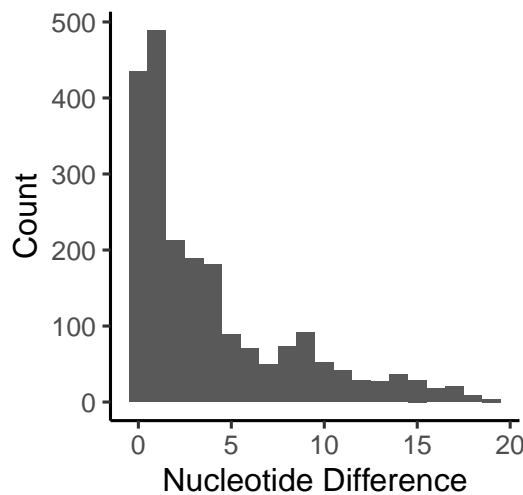
### IGHV3-43D\*04

6 sequences assigned  
No exact matches.



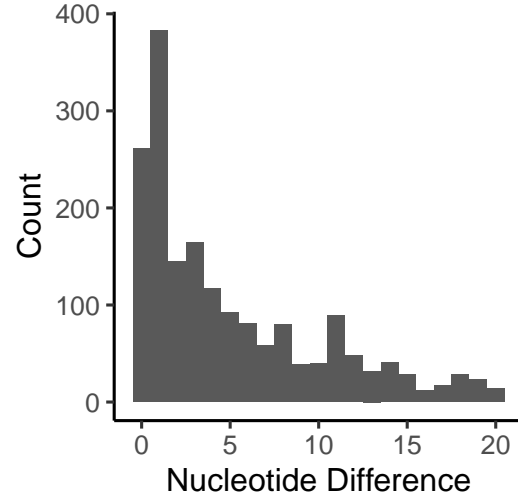
### IGHV4-4\*07

2219 sequences assigned  
435 (19.6%) exact matches, in which:  
340 unique CDR3  
7 unique J



### IGHV4-30-4\*01

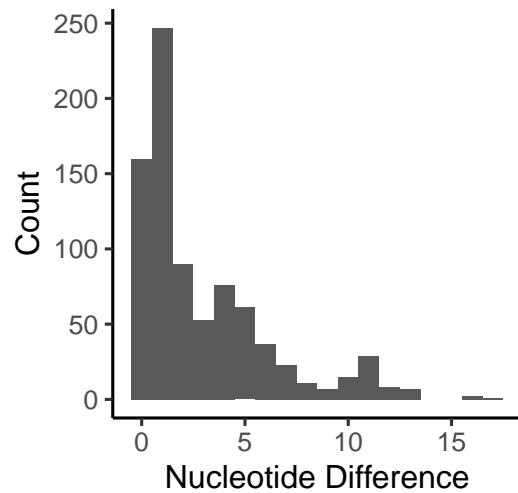
1887 sequences assigned  
261 (13.8%) exact matches, in which:  
202 unique CDR3  
6 unique J





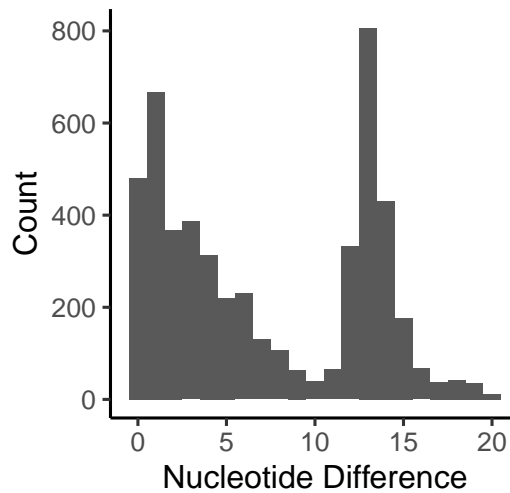
### IGHV4-30-2\*01

886 sequences assigned  
160 (18.1%) exact matches, in which:  
72 unique CDR3  
7 unique J



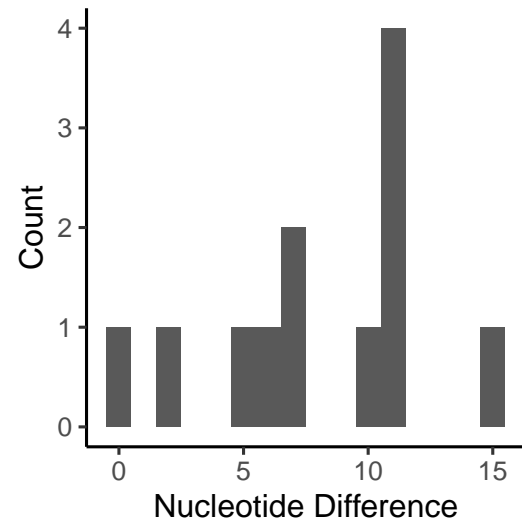
### IGHV4-31\*02

5155 sequences assigned  
480 (9.3%) exact matches, in which:  
367 unique CDR3  
7 unique J



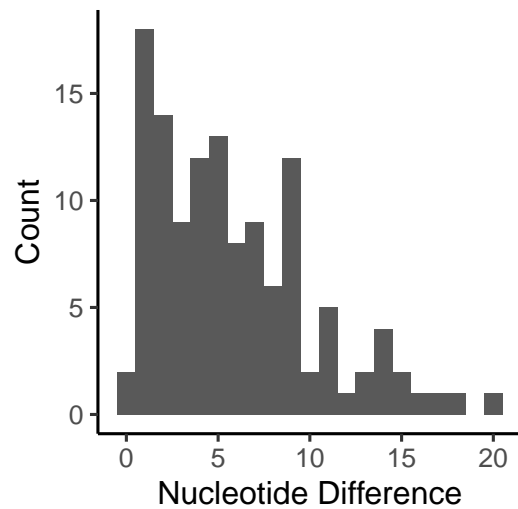
### IGHV4-38-2\*02

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



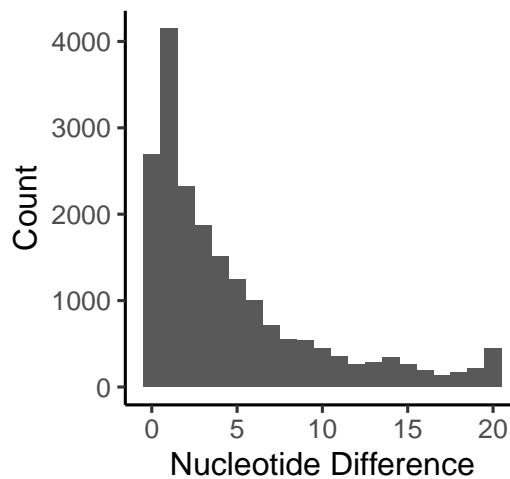
### IGHV4-30-2\*03

128 sequences assigned  
2 (1.6%) exact matches, in which:  
2 unique CDR3  
2 unique J



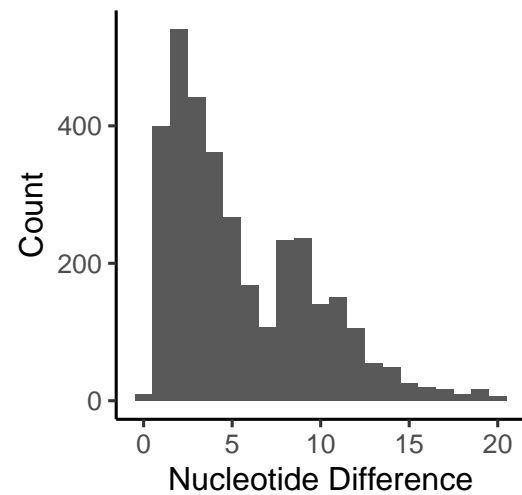
### IGHV4-34\*01\_02

22519 sequences assigned  
2687 (11.9%) exact matches, in which:  
1735 unique CDR3  
7 unique J



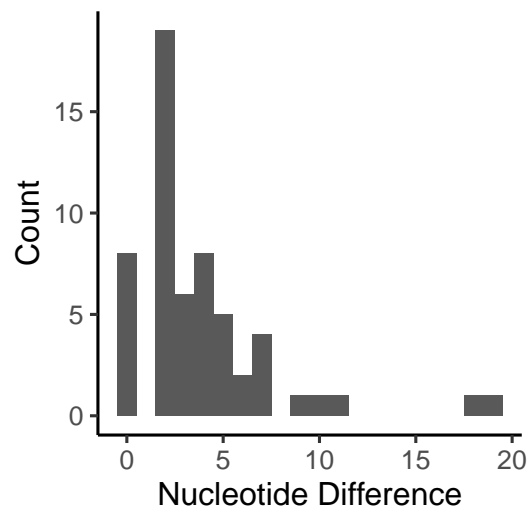
### IGHV4-39\*07

3565 sequences assigned  
10 (0.3%) exact matches, in which:  
10 unique CDR3  
4 unique J



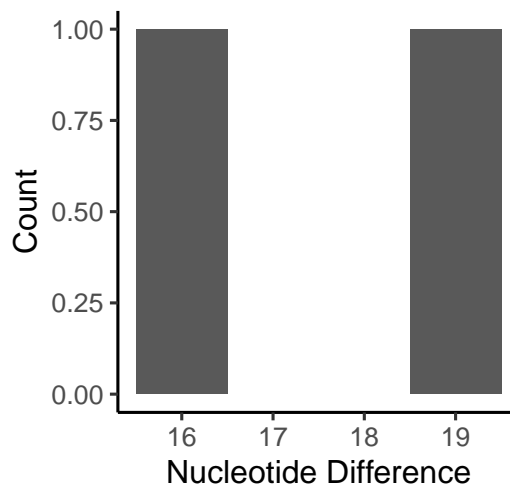
### IGHV4-30-2\*05

57 sequences assigned  
8 (14%) exact matches, in which:  
8 unique CDR3  
3 unique J



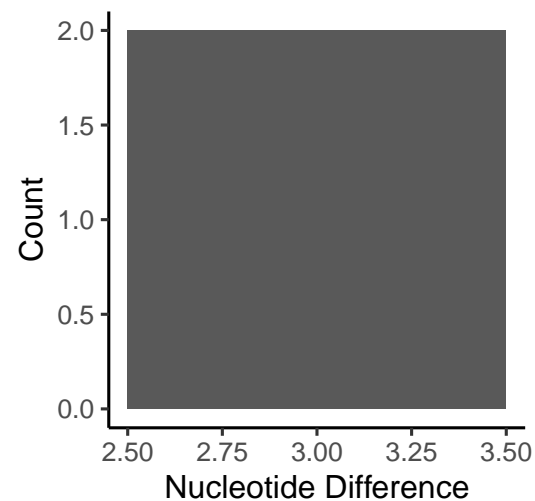
### IGHV4-38-2\*01

3 sequences assigned  
No exact matches.



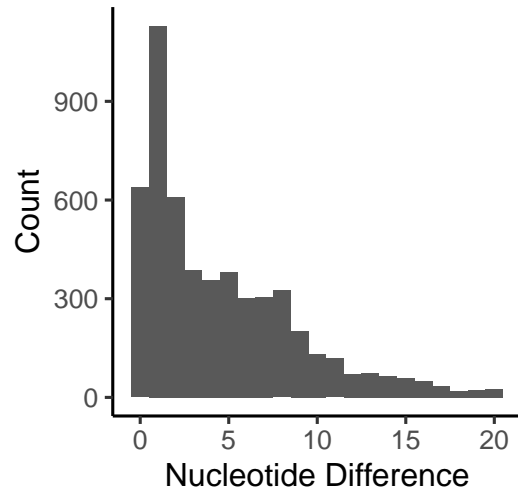
### IGHV4-55\*09

2 sequences assigned  
No exact matches.



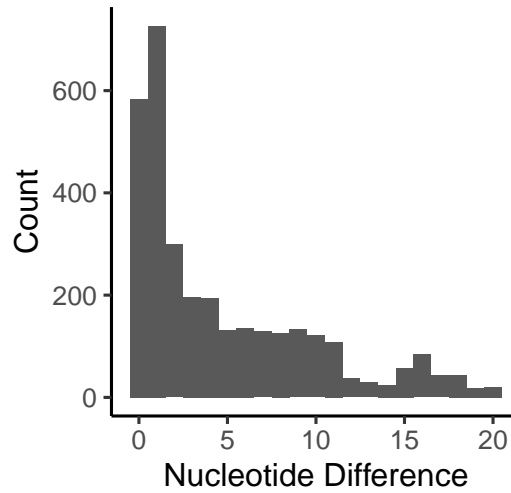
### IGHV4–59\*08

5510 sequences assigned  
638 (11.6%) exact matches, in which:  
467 unique CDR3  
7 unique J



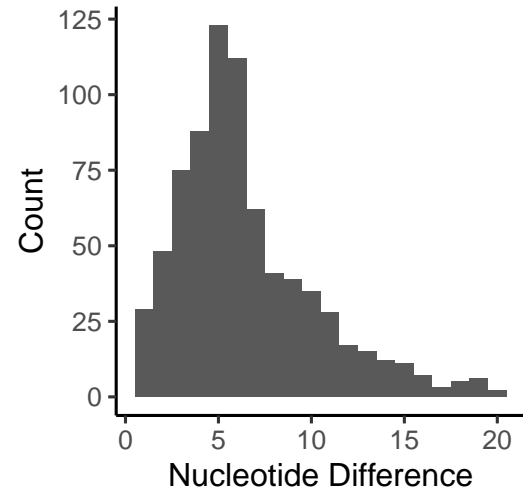
### IGHV4–59\*13

3416 sequences assigned  
584 (17.1%) exact matches, in which:  
454 unique CDR3  
7 unique J



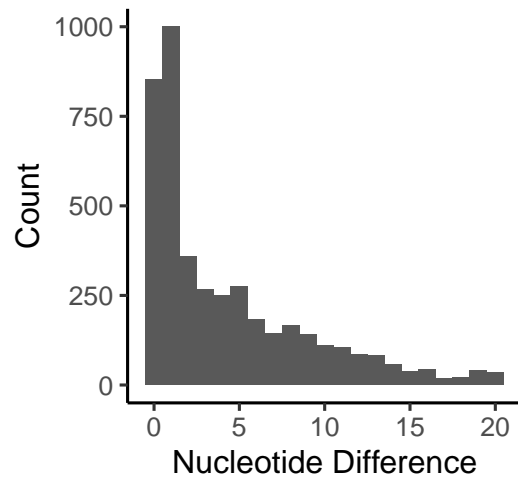
### IGHV4–61\*08

795 sequences assigned  
No exact matches.



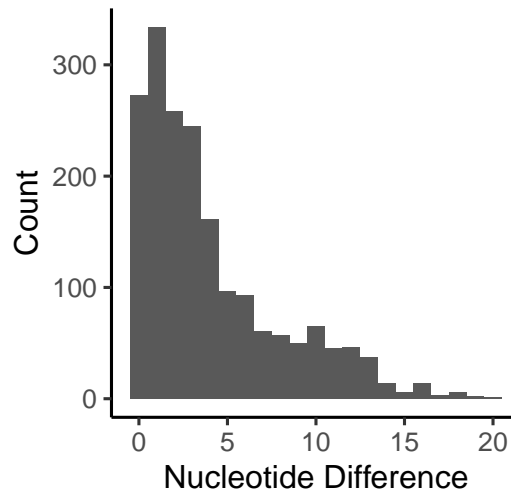
### IGHV4–59\*01\_07

5647 sequences assigned  
853 (15.1%) exact matches, in which:  
667 unique CDR3  
7 unique J



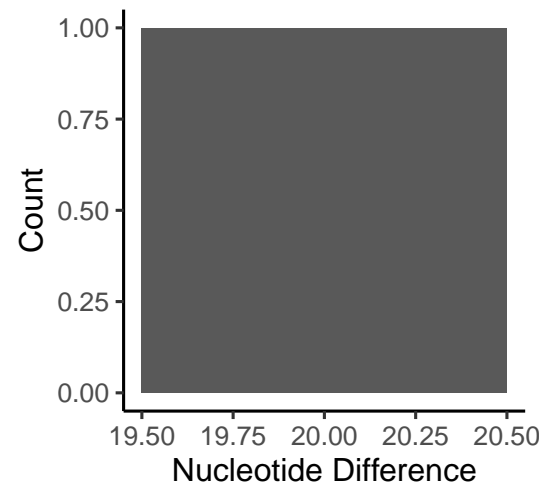
### IGHV4–61\*01

1911 sequences assigned  
273 (14.3%) exact matches, in which:  
224 unique CDR3  
7 unique J



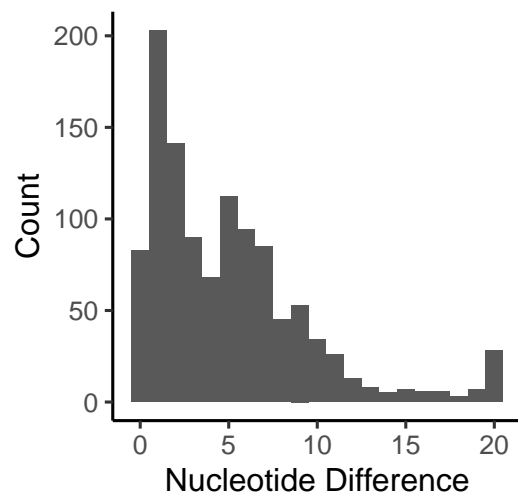
### IGHV1/OR15–2\*01

1 sequences assigned  
No exact matches.



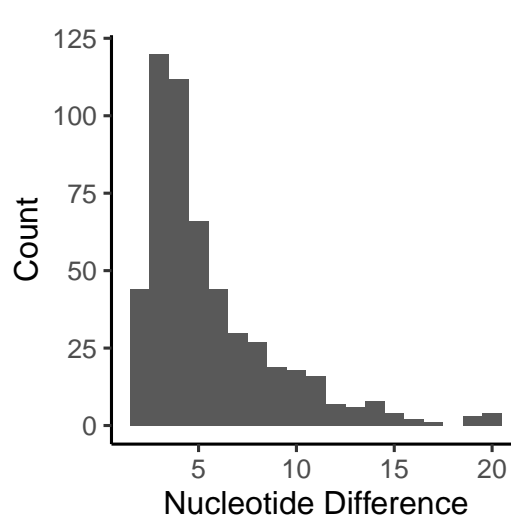
### IGHV4–59\*12

1246 sequences assigned  
83 (6.7%) exact matches, in which:  
75 unique CDR3  
6 unique J



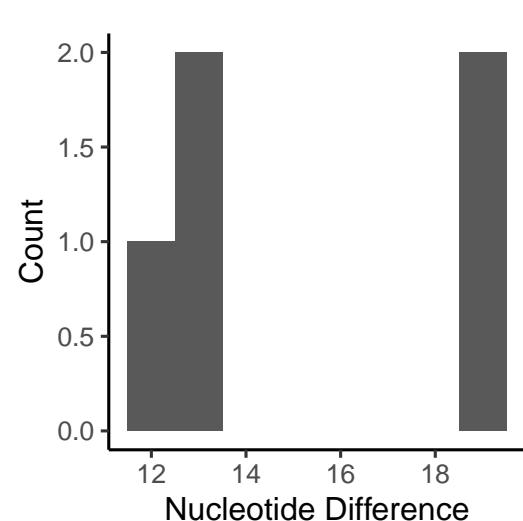
### IGHV4–61\*05

544 sequences assigned  
No exact matches.



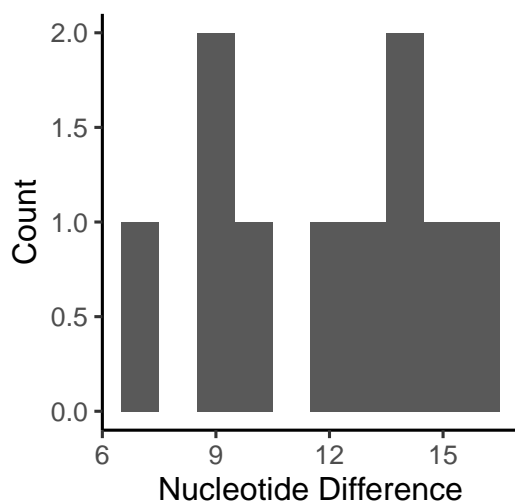
### IGHV1/OR15–2\*02\_03

6 sequences assigned  
No exact matches.



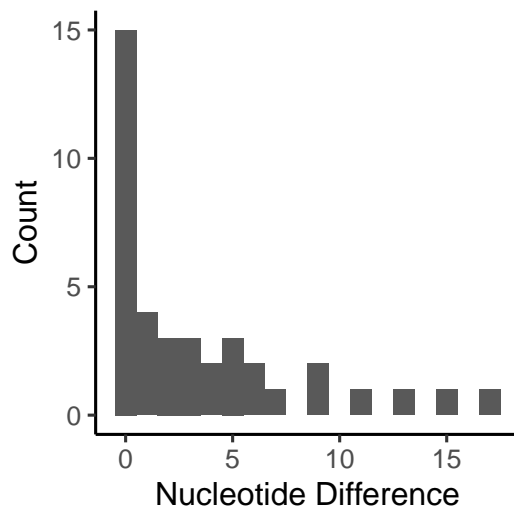
### IGHV1/OR15-3\*02

10 sequences assigned  
No exact matches.



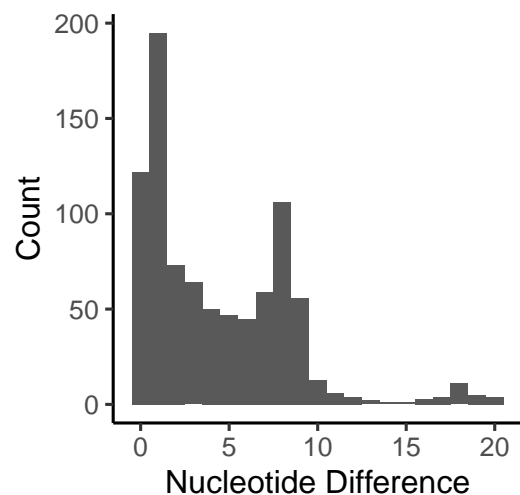
### IGHV5-51\*04

44 sequences assigned  
15 (34.1%) exact matches, in which:  
14 unique CDR3  
4 unique J



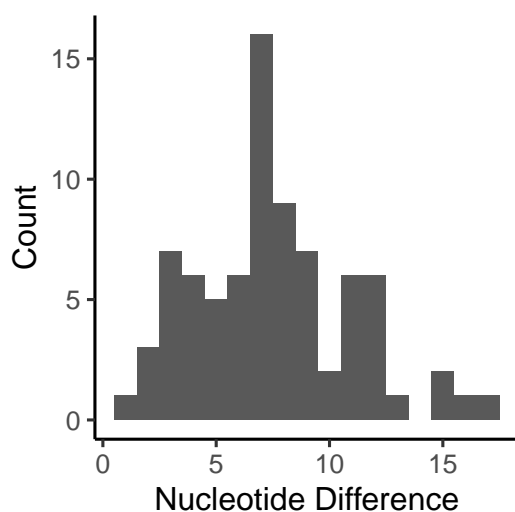
### IGHV6-1\*01\_02

912 sequences assigned  
122 (13.4%) exact matches, in which:  
89 unique CDR3  
5 unique J



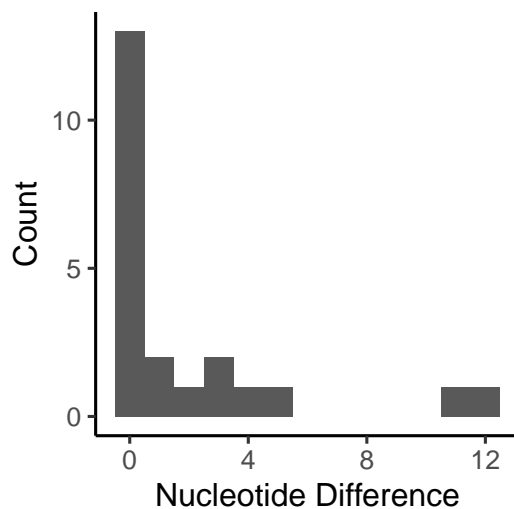
### IGHV4/OR15-8\*01

87 sequences assigned  
No exact matches.



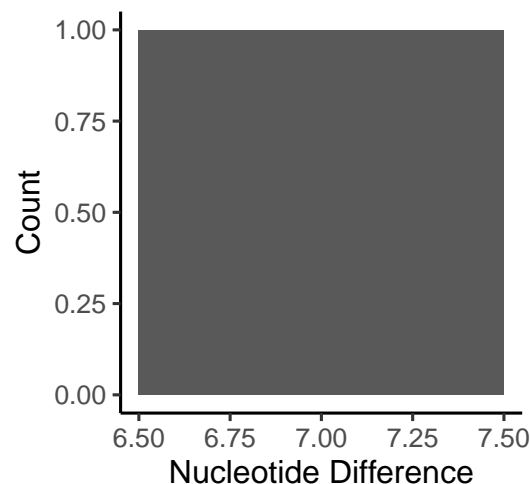
### IGHV5-51\*06

27 sequences assigned  
13 (48.1%) exact matches, in which:  
13 unique CDR3  
4 unique J



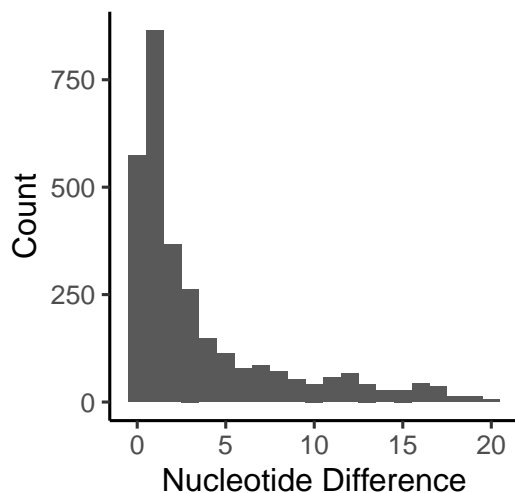
### IGHV3/OR16-10\*01\_03

1 sequences assigned  
No exact matches.



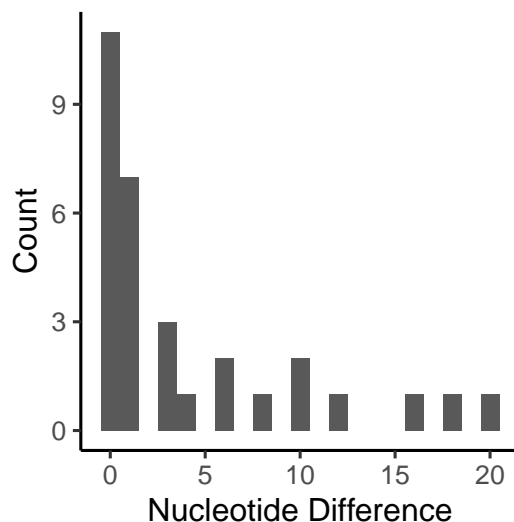
### IGHV5-10-1\*01\_03

3000 sequences assigned  
574 (19.1%) exact matches, in which:  
366 unique CDR3  
7 unique J



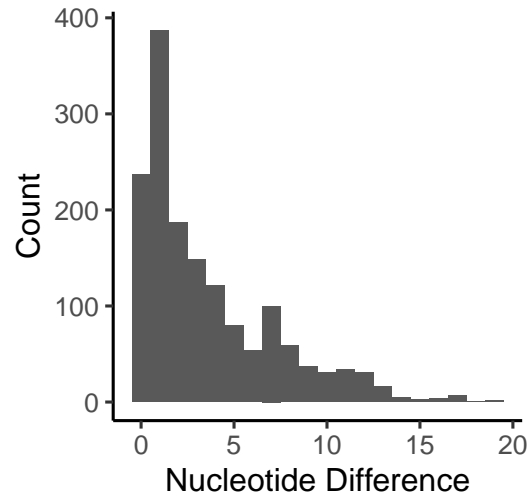
### IGHV5-51\*07

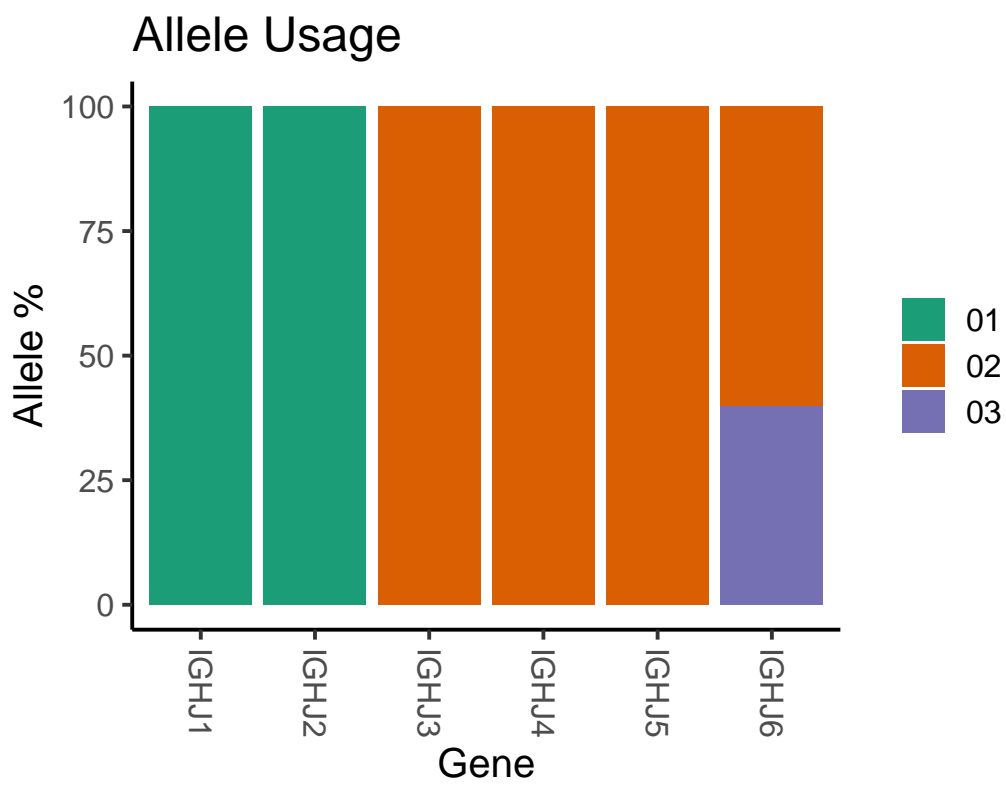
35 sequences assigned  
11 (31.4%) exact matches, in which:  
10 unique CDR3  
4 unique J



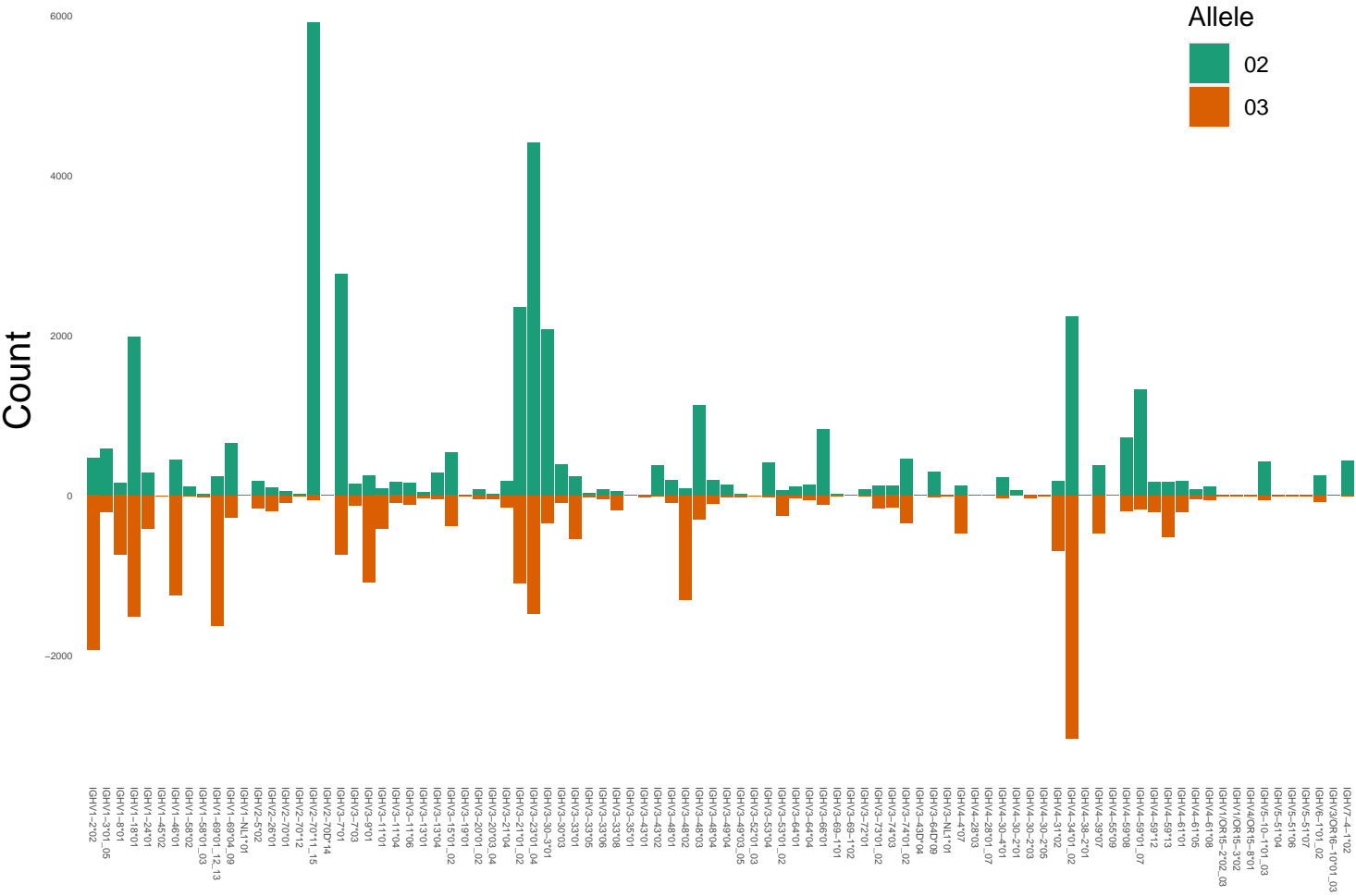
### IGHV7-4-1\*02

1716 sequences assigned  
237 (13.8%) exact matches, in which:  
181 unique CDR3  
6 unique J





Sequence Count by IGHJ6 allele usage



[illegible]