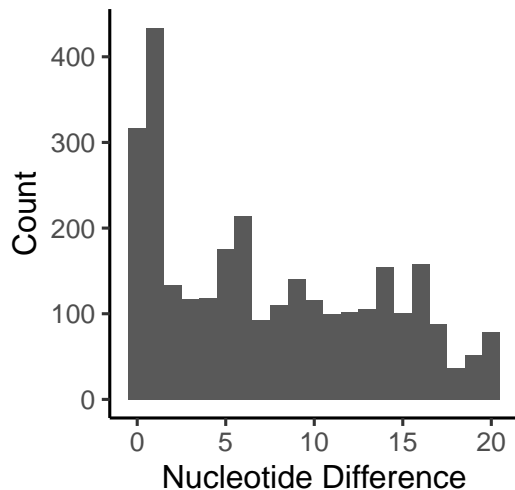


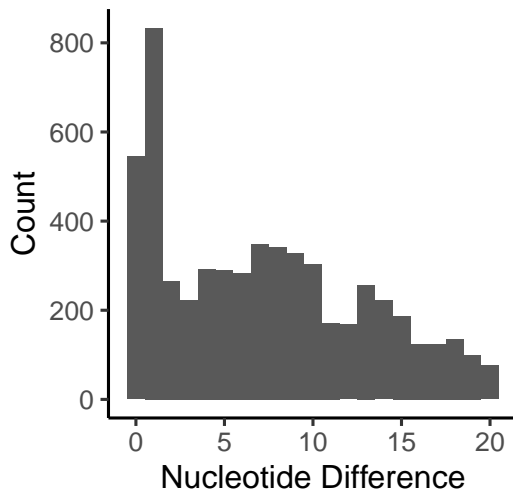
### IGHV1-2\*04

3183 sequences assigned  
317 (10%) exact matches, in which:  
238 unique CDR3  
6 unique J



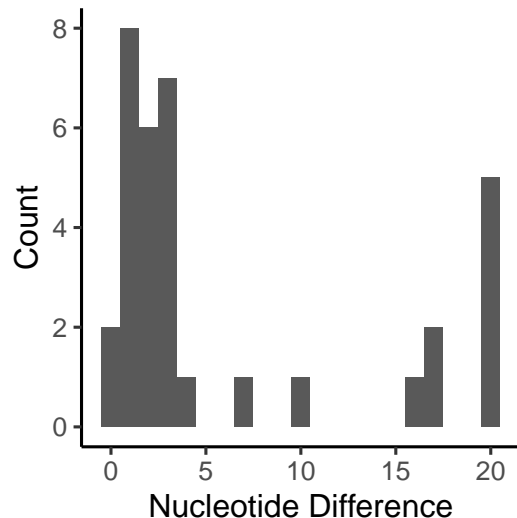
### IGHV1-18\*01

7494 sequences assigned  
545 (7.3%) exact matches, in which:  
414 unique CDR3  
7 unique J



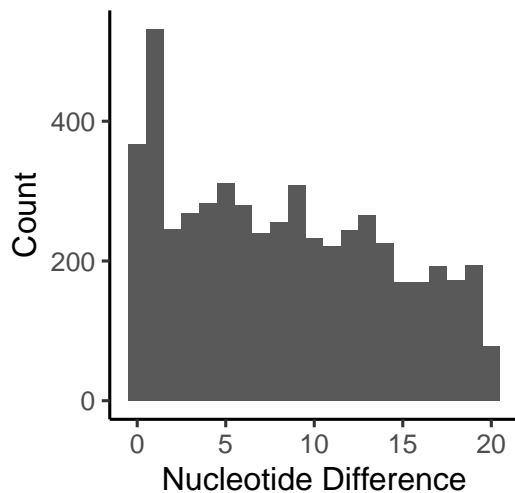
### IGHV1-45\*02

132 sequences assigned  
2 (1.5%) exact matches, in which:  
2 unique CDR3  
1 unique J



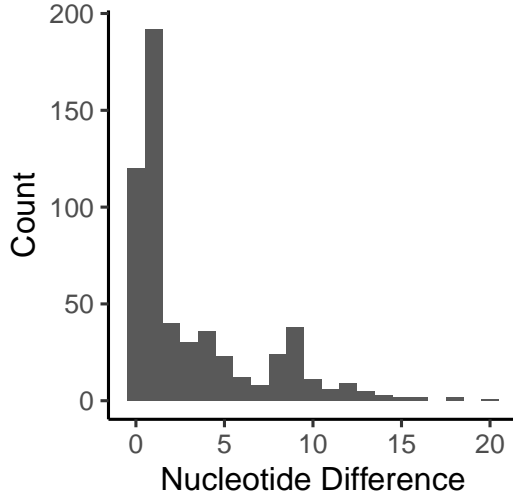
### IGHV1-3\*01\_05

5583 sequences assigned  
367 (6.6%) exact matches, in which:  
276 unique CDR3  
7 unique J



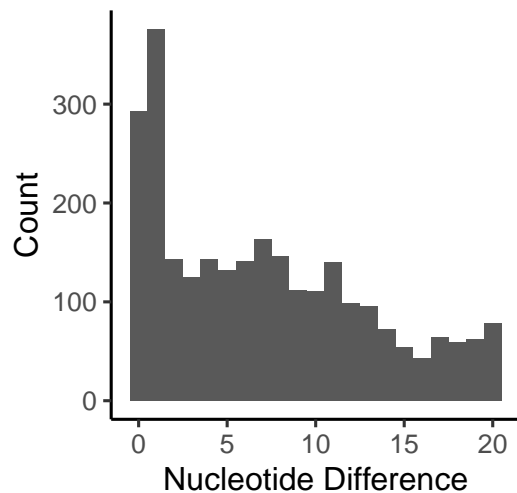
### IGHV1-24\*01

715 sequences assigned  
120 (16.8%) exact matches, in which:  
86 unique CDR3  
7 unique J



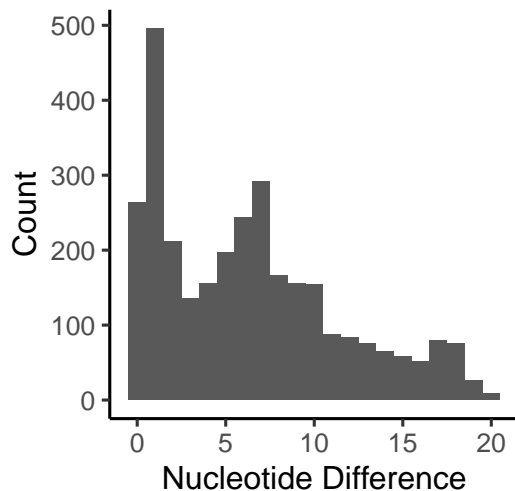
### IGHV1-46\*01

3532 sequences assigned  
293 (8.3%) exact matches, in which:  
240 unique CDR3  
7 unique J



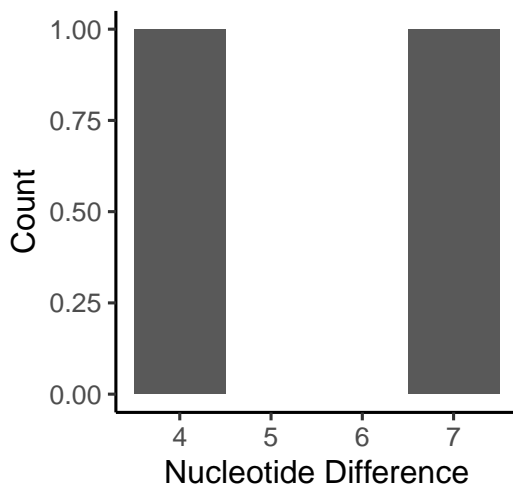
### IGHV1-8\*01

3787 sequences assigned  
264 (7%) exact matches, in which:  
218 unique CDR3  
7 unique J



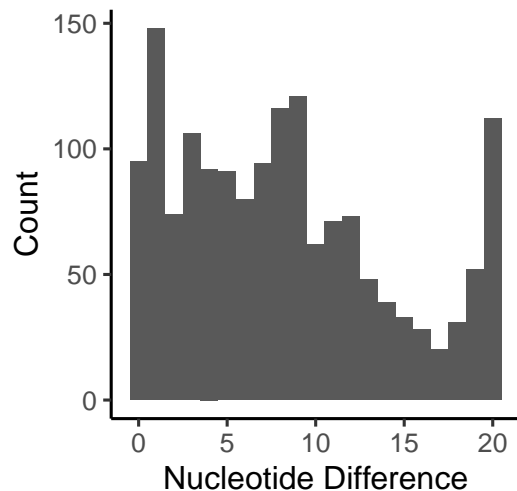
### IGHV1-45\*01

2 sequences assigned  
No exact matches.



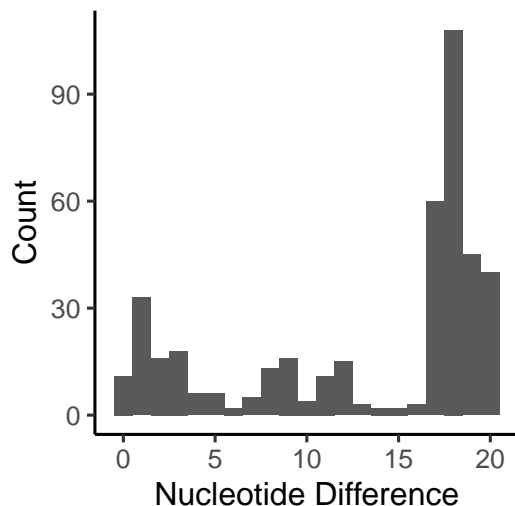
### IGHV1-46\*03

1718 sequences assigned  
95 (5.5%) exact matches, in which:  
68 unique CDR3  
6 unique J



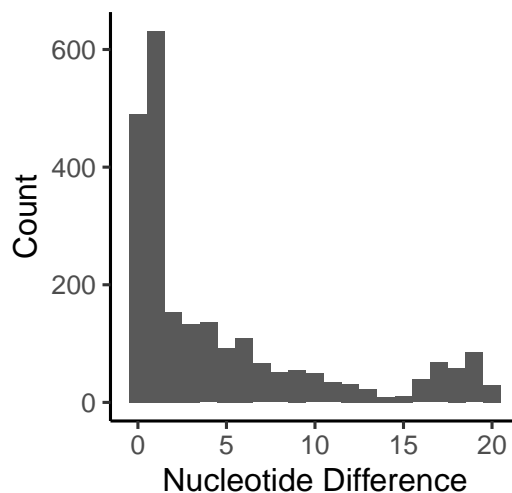
### IGHV1-58\*02

430 sequences assigned  
11 (2.6%) exact matches, in which:  
7 unique CDR3  
4 unique J



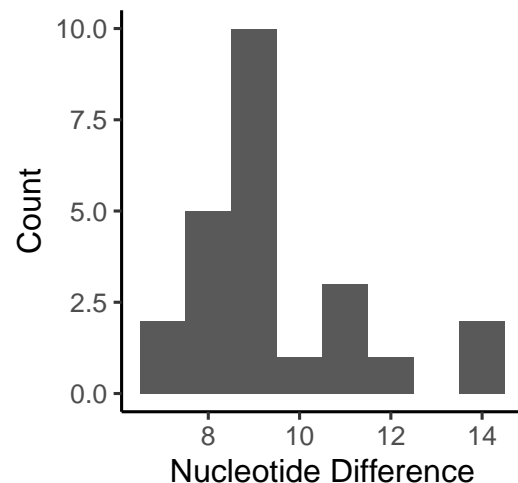
### IGHV1-69\*01\_12\_13

3402 sequences assigned  
490 (14.4%) exact matches, in which:  
393 unique CDR3  
7 unique J



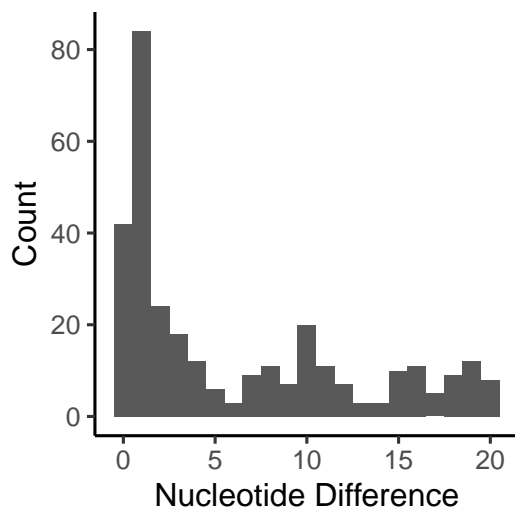
### IGHV1-NL1\*01

24 sequences assigned  
No exact matches.



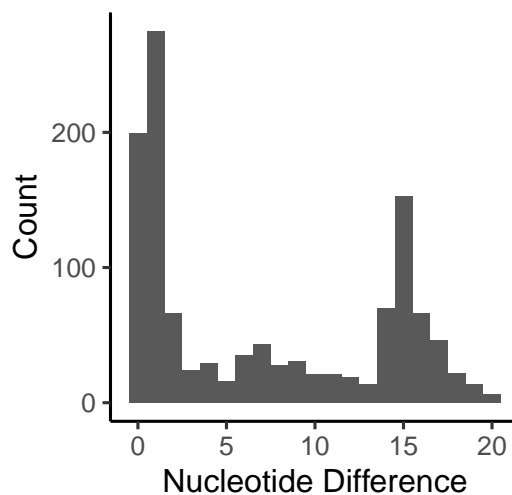
### IGHV1-58\*01\_03

351 sequences assigned  
42 (12%) exact matches, in which:  
30 unique CDR3  
5 unique J



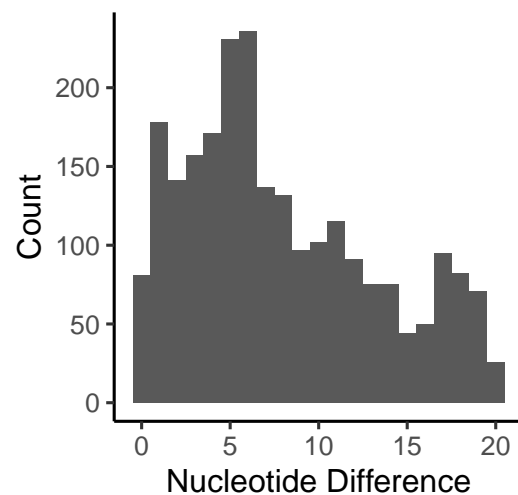
### IGHV1-69\*04\_09

1266 sequences assigned  
199 (15.7%) exact matches, in which:  
163 unique CDR3  
7 unique J



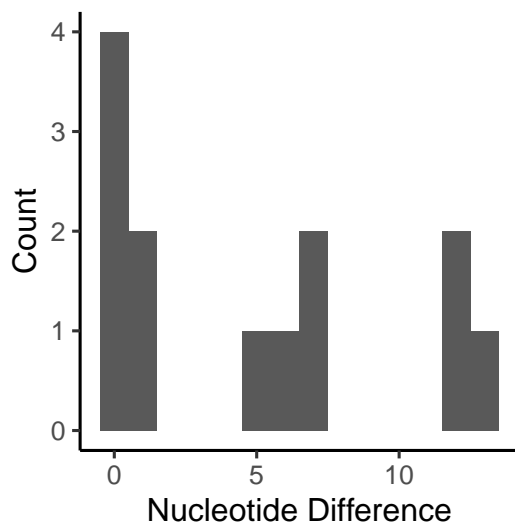
### IGHV2-5\*02

2700 sequences assigned  
81 (3%) exact matches, in which:  
61 unique CDR3  
5 unique J



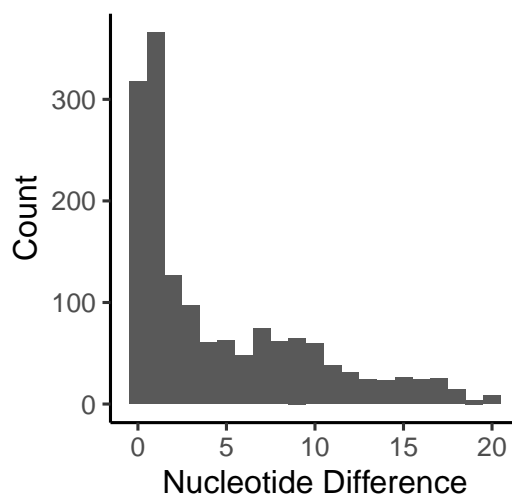
### IGHV1-69-2\*01

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



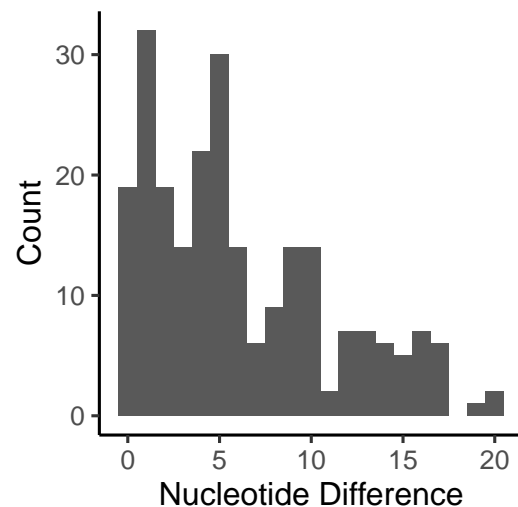
### IGHV1-69\*06\_14

1637 sequences assigned  
318 (19.4%) exact matches, in which:  
250 unique CDR3  
7 unique J



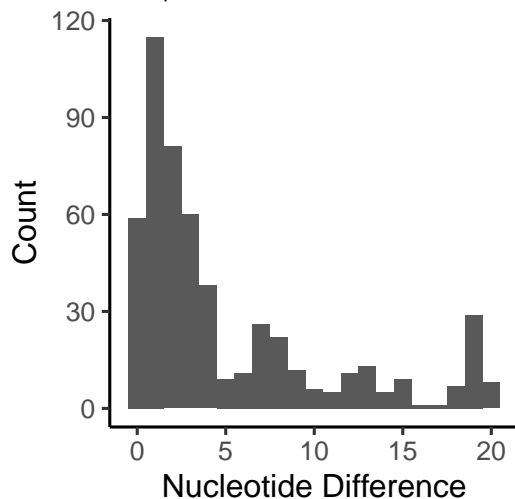
### IGHV2-26\*01

240 sequences assigned  
19 (7.9%) exact matches, in which:  
14 unique CDR3  
5 unique J



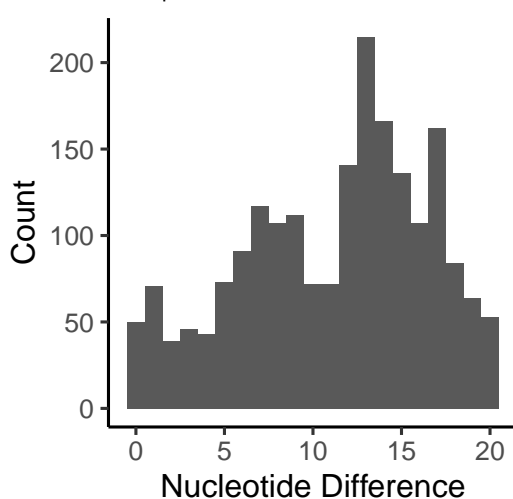
### IGHV2-70\*01

737 sequences assigned  
59 (8%) exact matches, in which:  
49 unique CDR3  
3 unique J



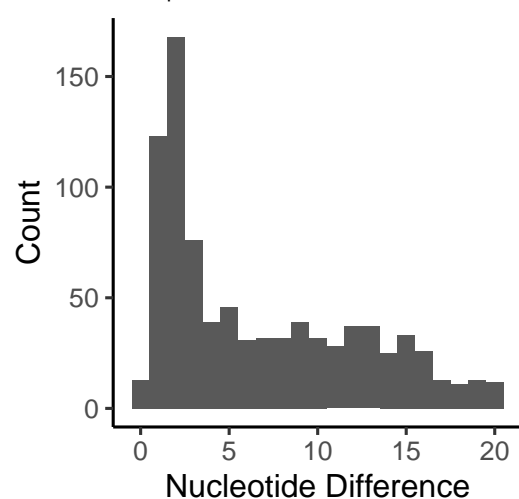
### IGHV3-7\*04

2776 sequences assigned  
50 (1.8%) exact matches, in which:  
28 unique CDR3  
4 unique J



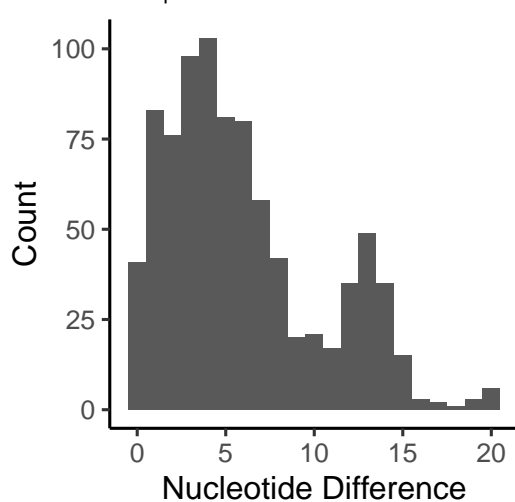
### IGHV3-11\*06

1352 sequences assigned  
13 (1%) exact matches, in which:  
13 unique CDR3  
5 unique J



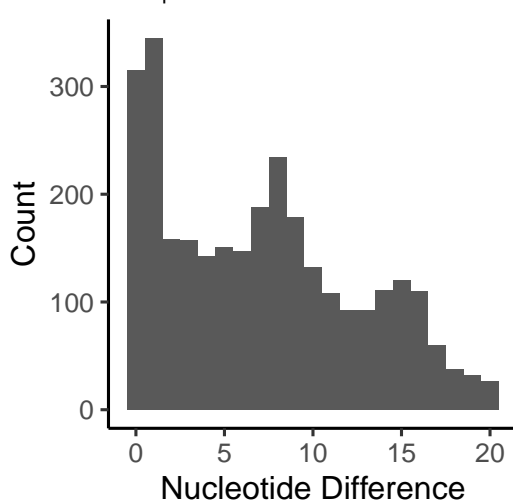
### IGHV2-70\*11\_15

1114 sequences assigned  
41 (3.7%) exact matches, in which:  
34 unique CDR3  
6 unique J



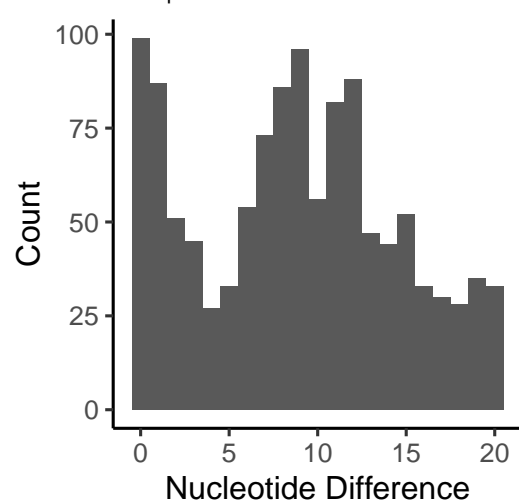
### IGHV3-9\*01

3807 sequences assigned  
315 (8.3%) exact matches, in which:  
176 unique CDR3  
7 unique J



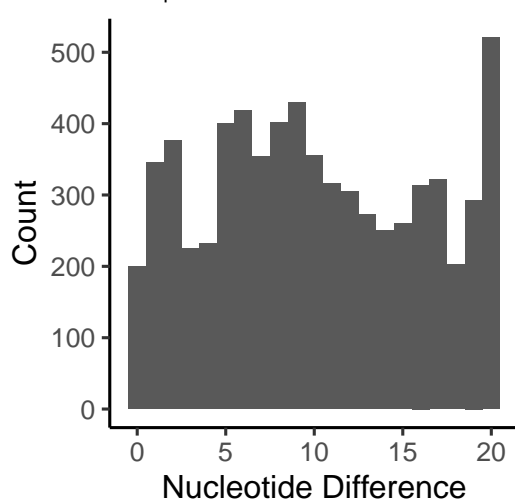
### IGHV3-11\*03\_05

1541 sequences assigned  
99 (6.4%) exact matches, in which:  
61 unique CDR3  
5 unique J



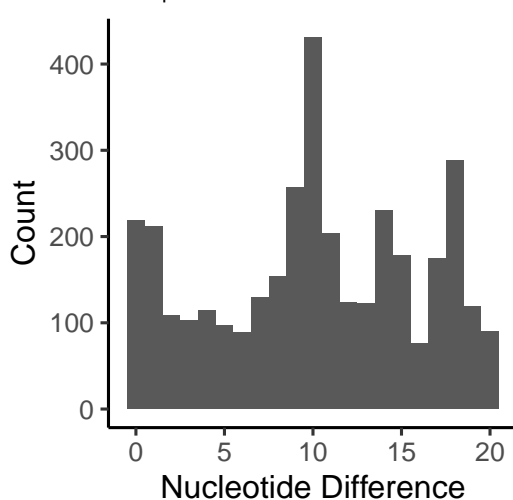
### IGHV3-7\*01

8108 sequences assigned  
200 (2.5%) exact matches, in which:  
122 unique CDR3  
7 unique J



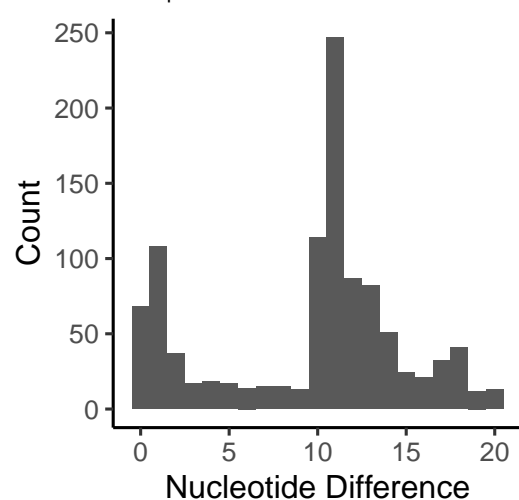
### IGHV3-11\*01

4305 sequences assigned  
219 (5.1%) exact matches, in which:  
133 unique CDR3  
6 unique J



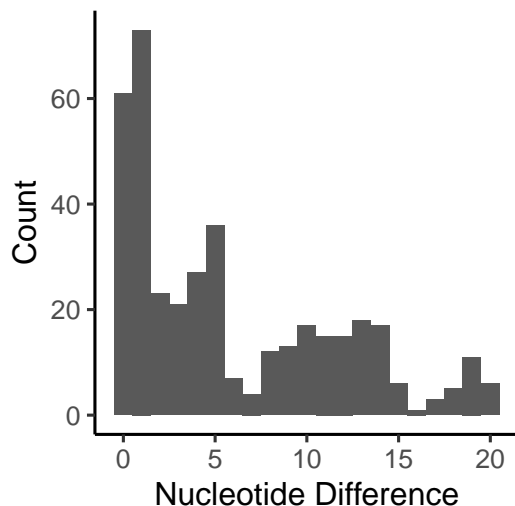
### IGHV3-13\*01

1187 sequences assigned  
68 (5.7%) exact matches, in which:  
41 unique CDR3  
4 unique J



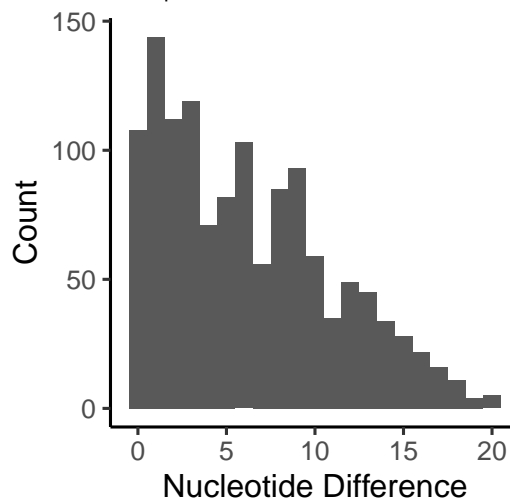
### IGHV3-13\*04

400 sequences assigned  
61 (15.2%) exact matches, in which:  
38 unique CDR3  
4 unique J



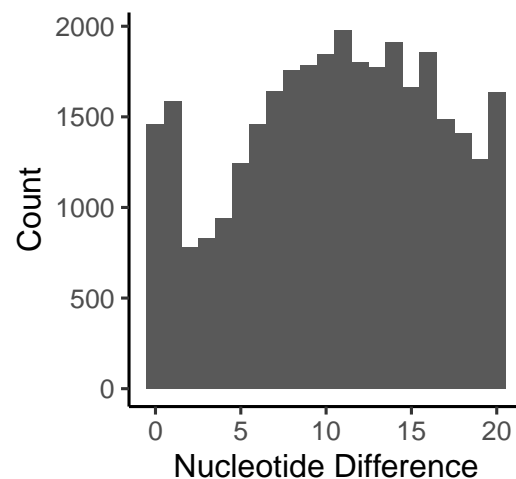
### IGHV3-20\*03\_04

1475 sequences assigned  
108 (7.3%) exact matches, in which:  
65 unique CDR3  
5 unique J



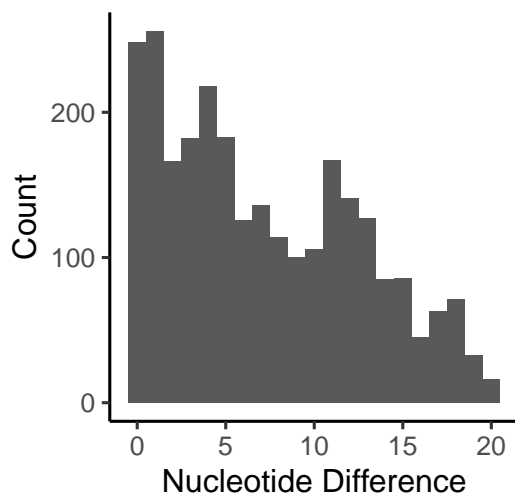
### IGHV3-23\*01\_04

45975 sequences assigned  
1459 (3.2%) exact matches, in which:  
865 unique CDR3  
6 unique J



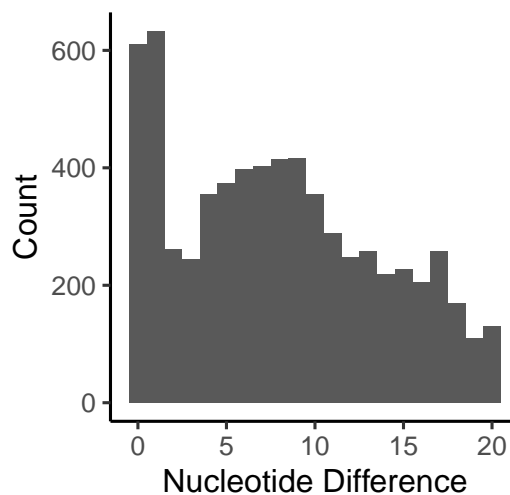
### IGHV3-15\*07

3853 sequences assigned  
248 (6.4%) exact matches, in which:  
151 unique CDR3  
7 unique J



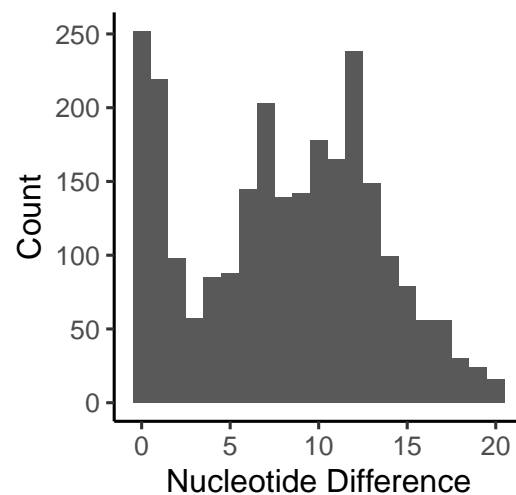
### IGHV3-21\*01\_02

7967 sequences assigned  
610 (7.7%) exact matches, in which:  
367 unique CDR3  
7 unique J



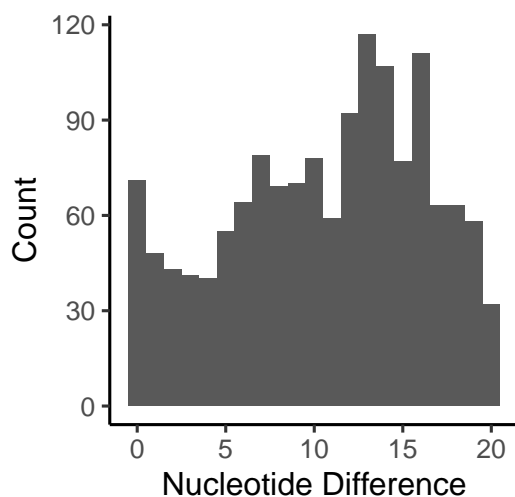
### IGHV3-30\*01

3554 sequences assigned  
252 (7.1%) exact matches, in which:  
151 unique CDR3  
6 unique J



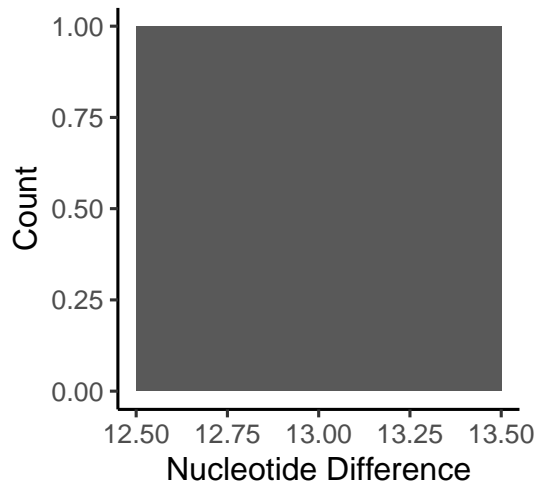
### IGHV3-15\*01\_02

1667 sequences assigned  
71 (4.3%) exact matches, in which:  
45 unique CDR3  
6 unique J



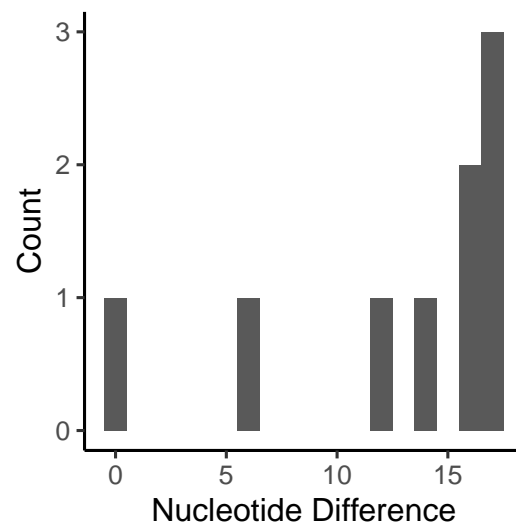
### IGHV3-22\*01\_02

1 sequences assigned  
No exact matches.



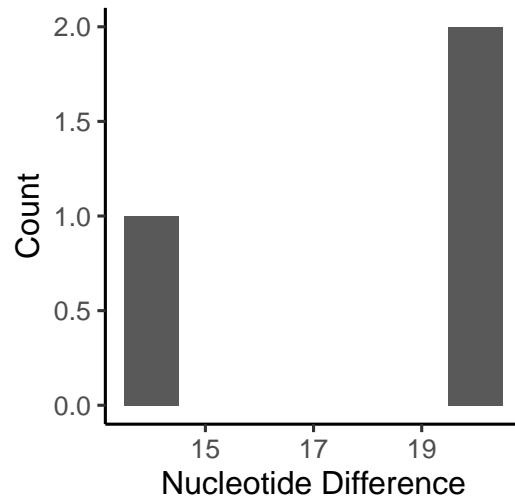
### IGHV3-30-3\*01

14 sequences assigned  
1 (7.1%) exact matches, in which:  
1 unique CDR3  
1 unique J



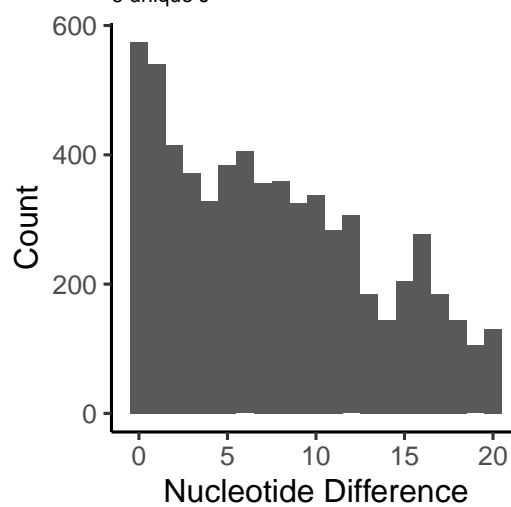
### IGHV3-30-3\*02

9 sequences assigned  
No exact matches.



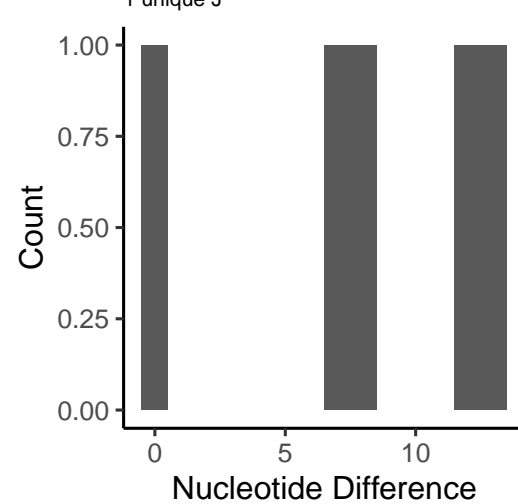
### IGHV3-33\*01

8644 sequences assigned  
575 (6.7%) exact matches, in which:  
352 unique CDR3  
6 unique J



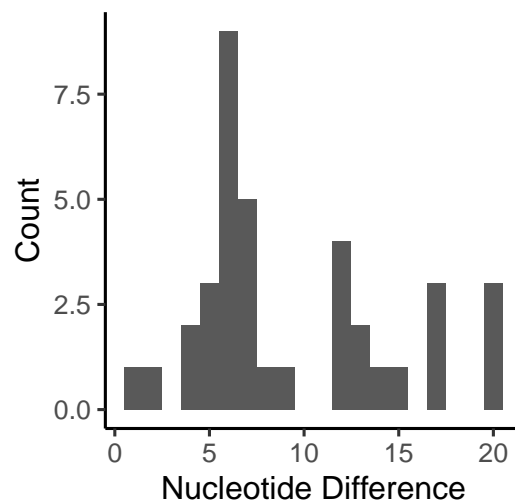
### IGHV3-47\*02

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



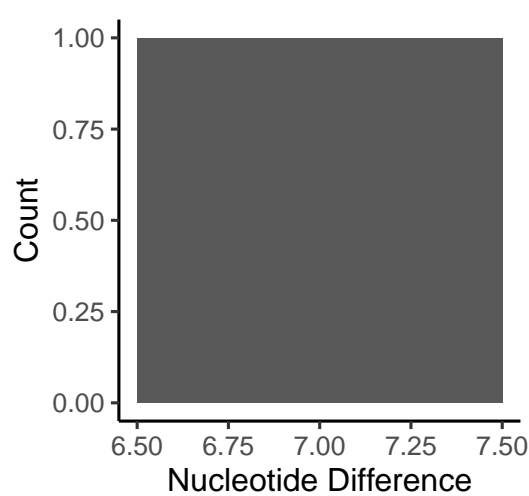
### IGHV3-30-3\*03

146 sequences assigned  
No exact matches.



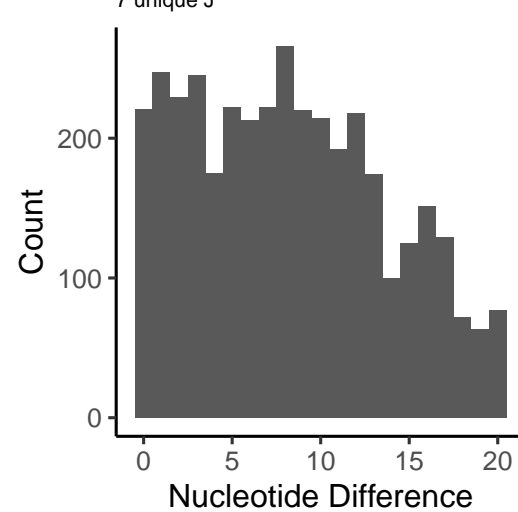
### IGHV3-35\*01

1 sequences assigned  
No exact matches.



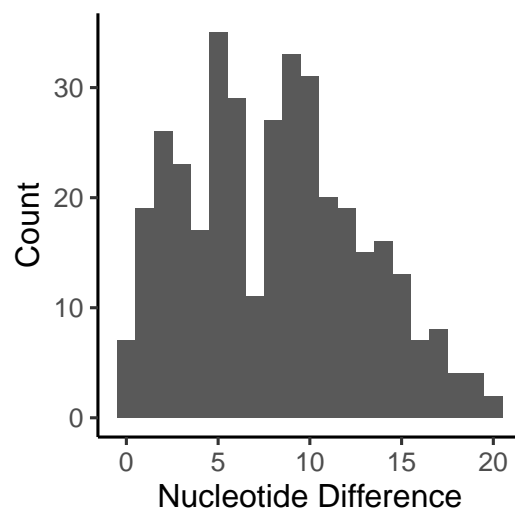
### IGHV3-48\*01

4116 sequences assigned  
221 (5.4%) exact matches, in which:  
141 unique CDR3  
7 unique J



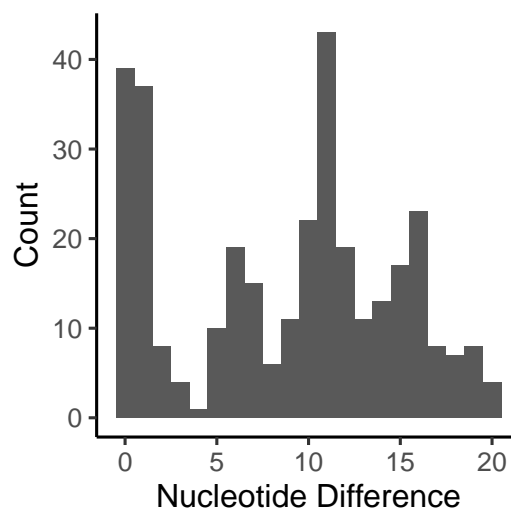
### IGHV3-30\*07

389 sequences assigned  
7 (1.8%) exact matches, in which:  
7 unique CDR3  
3 unique J



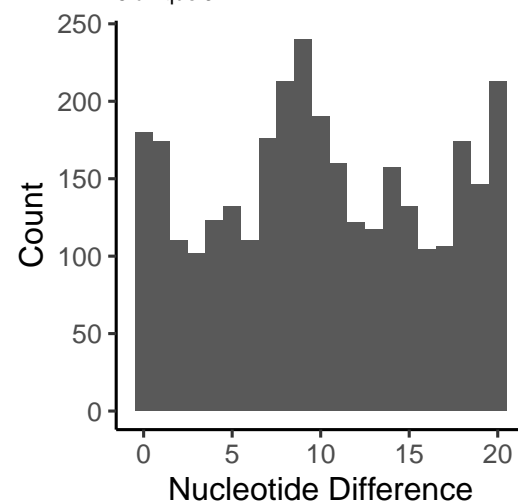
### IGHV3-43\*01

386 sequences assigned  
39 (10.1%) exact matches, in which:  
23 unique CDR3  
5 unique J



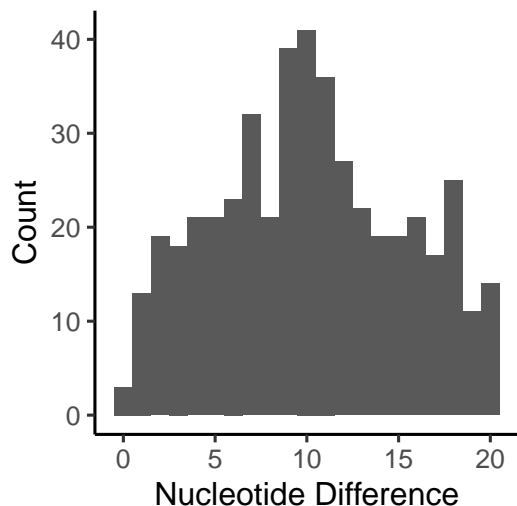
### IGHV3-48\*02

4279 sequences assigned  
180 (4.2%) exact matches, in which:  
103 unique CDR3  
6 unique J



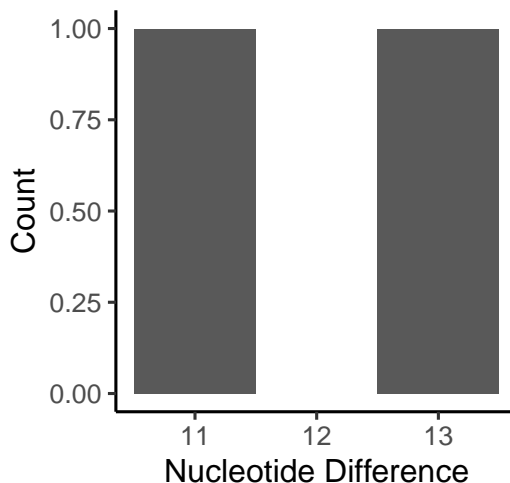
### IGHV3-48\*04

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



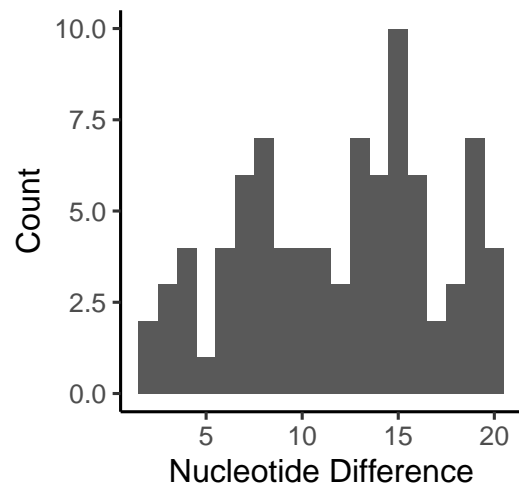
### IGHV3-52\*01\_03

2 sequences assigned  
No exact matches.



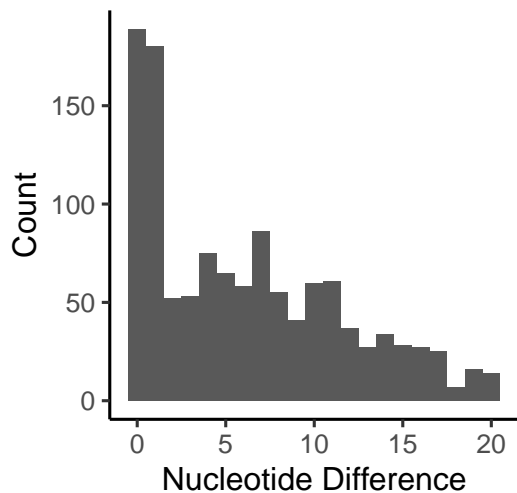
### IGHV3-64\*04

114 sequences assigned  
No exact matches.



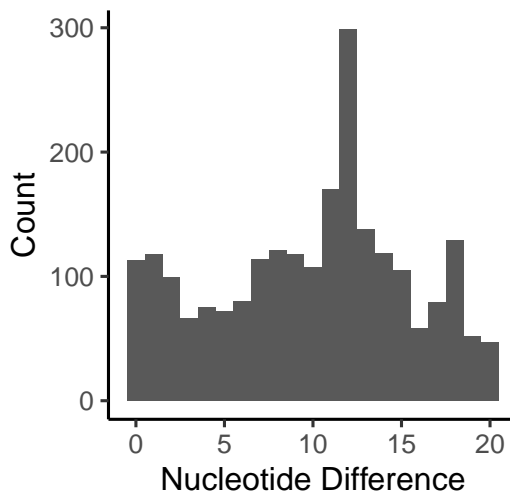
### IGHV3-49\*03\_05

1332 sequences assigned  
189 (14.2%) exact matches, in which:  
98 unique CDR3  
6 unique J



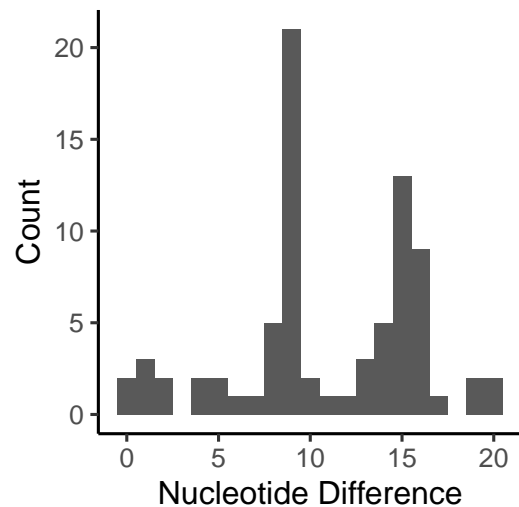
### IGHV3-53\*01\_02

2585 sequences assigned  
113 (4.4%) exact matches, in which:  
68 unique CDR3  
7 unique J



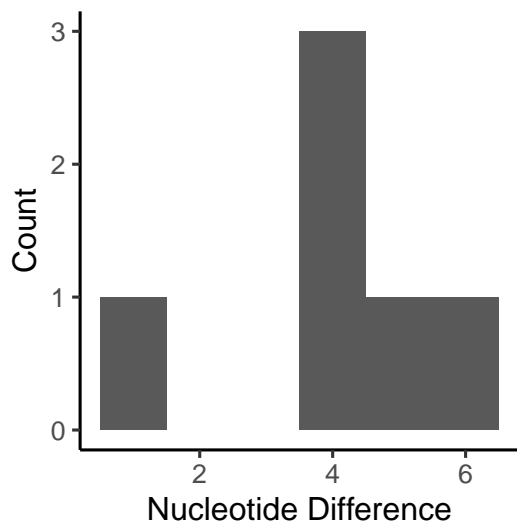
### IGHV3-64\*02\_07

86 sequences assigned  
2 (2.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



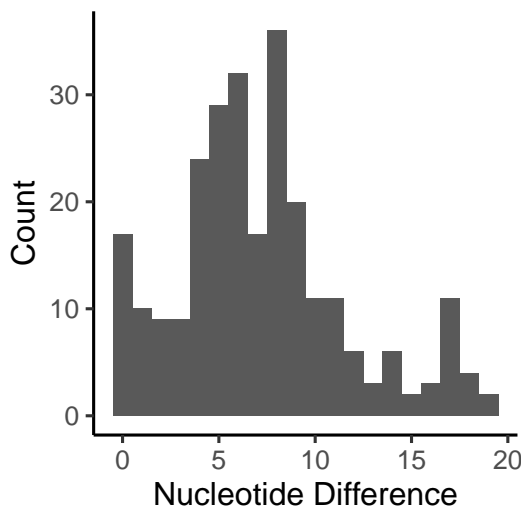
### IGHV3-52\*02

6 sequences assigned  
No exact matches.



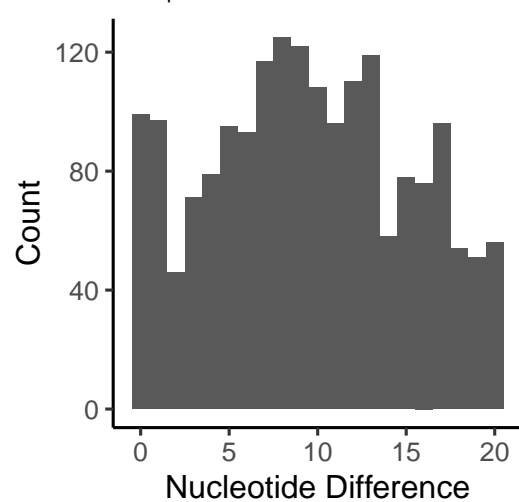
### IGHV3-64\*01

299 sequences assigned  
17 (5.7%) exact matches, in which:  
10 unique CDR3  
3 unique J



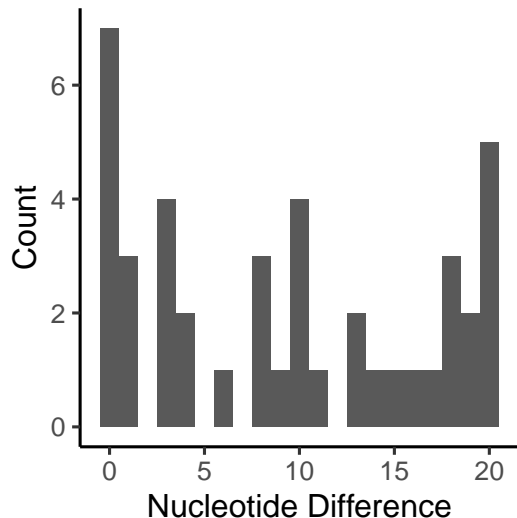
### IGHV3-66\*01

3107 sequences assigned  
99 (3.2%) exact matches, in which:  
62 unique CDR3  
6 unique J



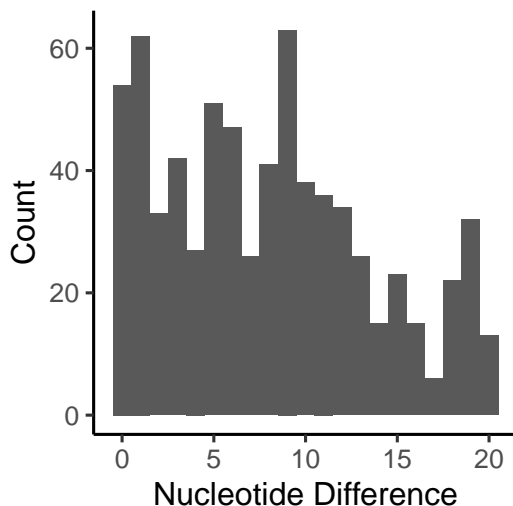
### IGHV3-69-1\*01

265 sequences assigned  
7 (2.6%) exact matches, in which:  
5 unique CDR3  
3 unique J



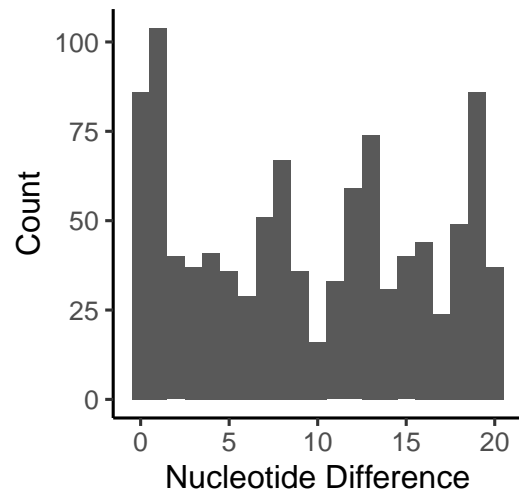
### IGHV3-73\*01\_02

1255 sequences assigned  
54 (4.3%) exact matches, in which:  
29 unique CDR3  
4 unique J



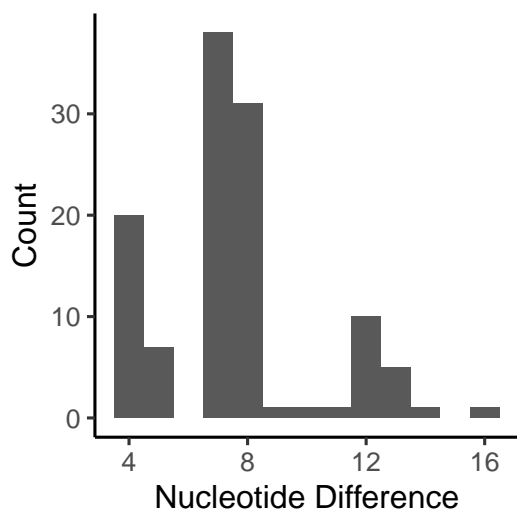
### IGHV3-64D\*06

1901 sequences assigned  
86 (4.5%) exact matches, in which:  
52 unique CDR3  
5 unique J



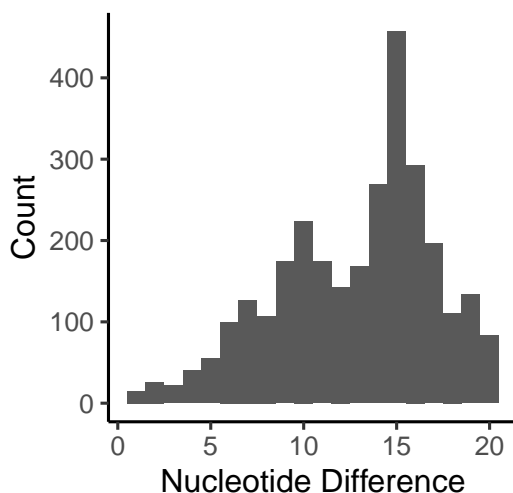
### IGHV3-69-1\*02

192 sequences assigned  
No exact matches.



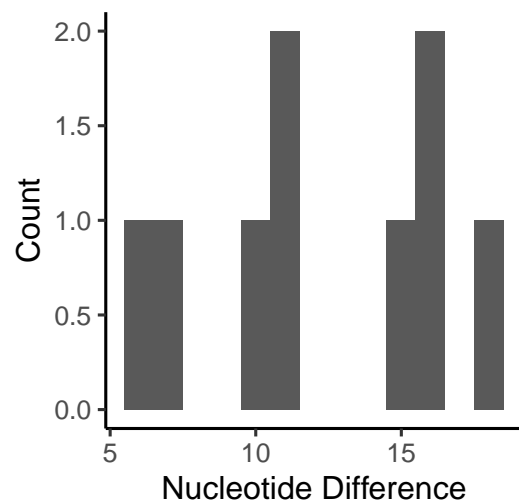
### IGHV3-74\*03

3606 sequences assigned  
No exact matches.



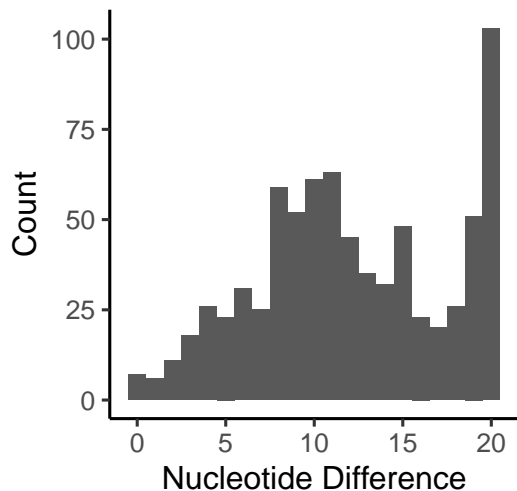
### IGHV3-NL1\*01

17 sequences assigned  
No exact matches.



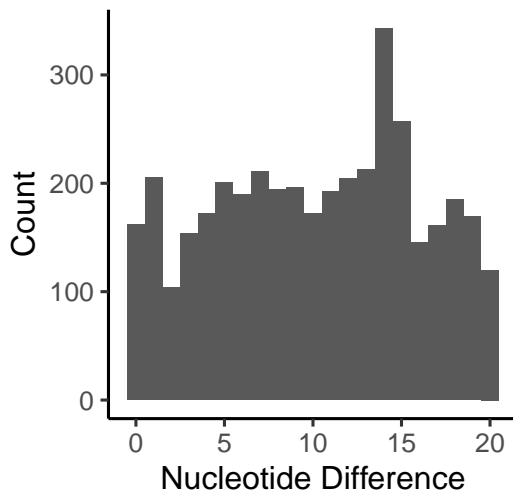
### IGHV3-72\*01

1311 sequences assigned  
7 (0.5%) exact matches, in which:  
3 unique CDR3  
2 unique J



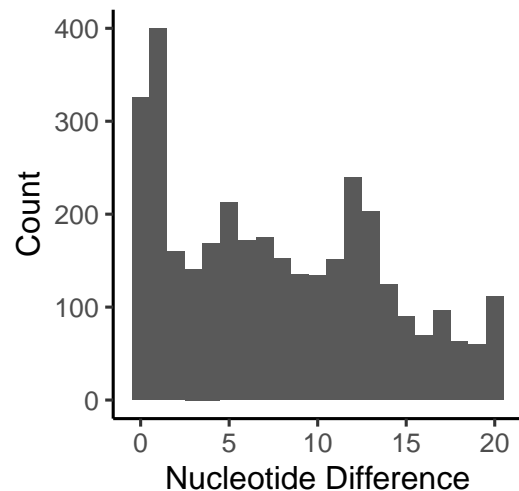
### IGHV3-74\*01\_02

5053 sequences assigned  
162 (3.2%) exact matches, in which:  
96 unique CDR3  
6 unique J



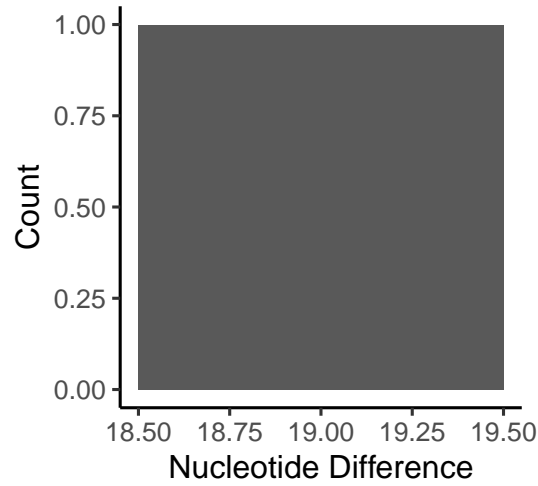
### IGHV4-4\*02\_03

4515 sequences assigned  
326 (7.2%) exact matches, in which:  
246 unique CDR3  
7 unique J



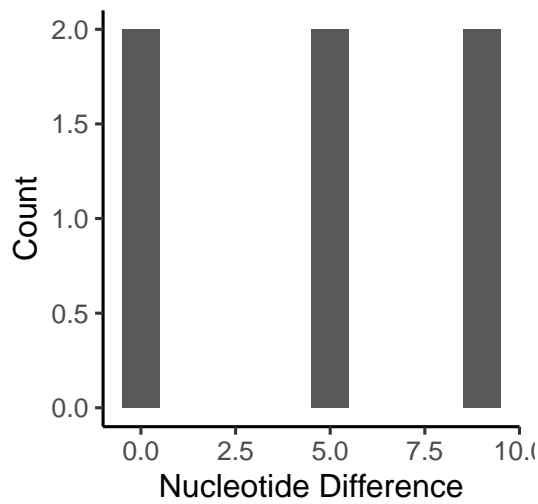
### IGHV4-28\*03

1 sequences assigned  
No exact matches.



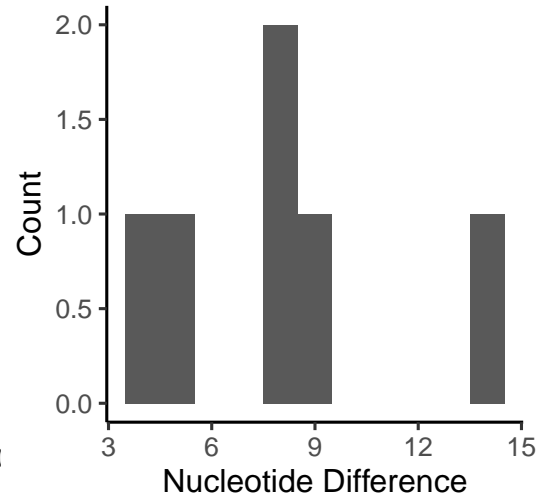
### IGHV4-30-4\*01

11 sequences assigned  
2 (18.2%) exact matches, in which:  
2 unique CDR3  
2 unique J



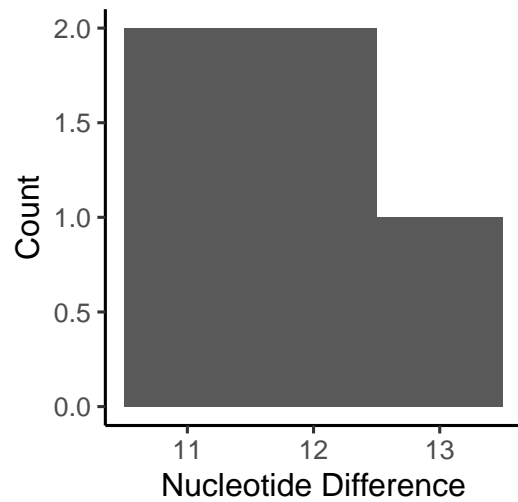
### IGHV4-30-2\*04

6 sequences assigned  
No exact matches.



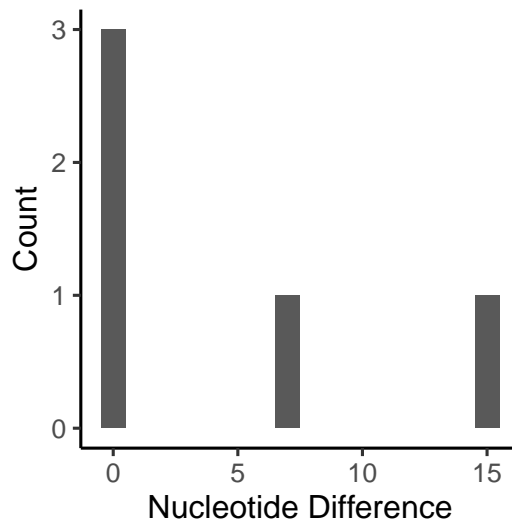
### IGHV4-28\*01\_07

5 sequences assigned  
No exact matches.



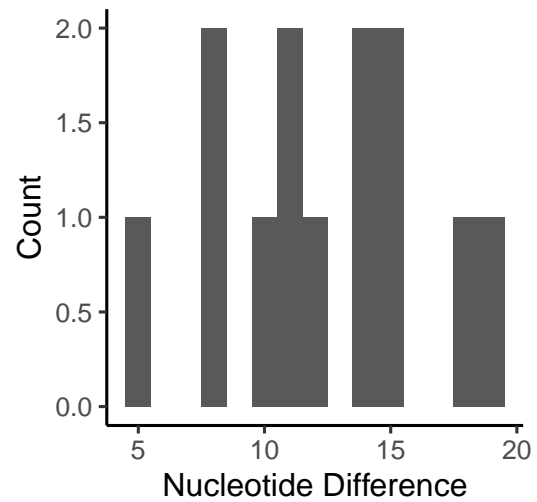
### IGHV4-30-2\*01

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



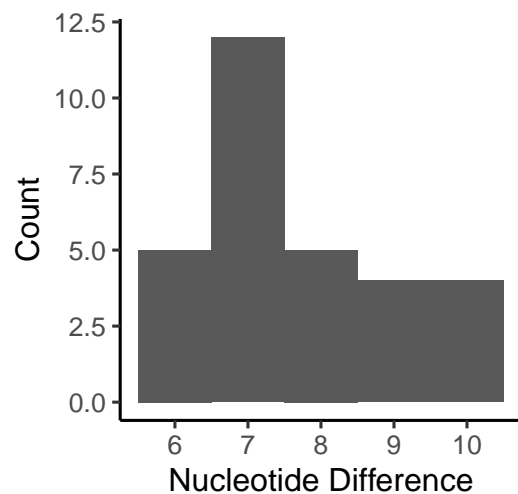
### IGHV4-30-4\*08

14 sequences assigned  
No exact matches.



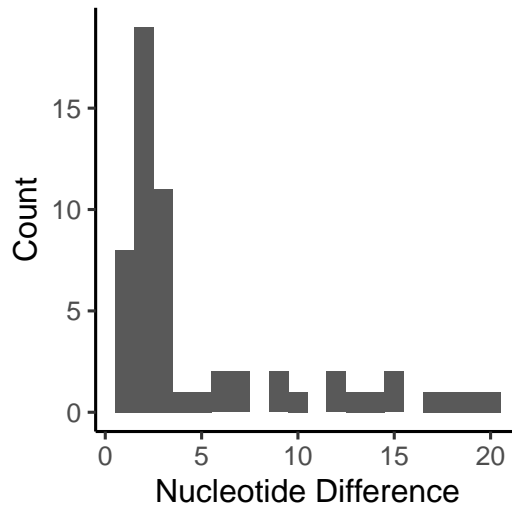
### IGHV4-28\*02\_05

30 sequences assigned  
No exact matches.



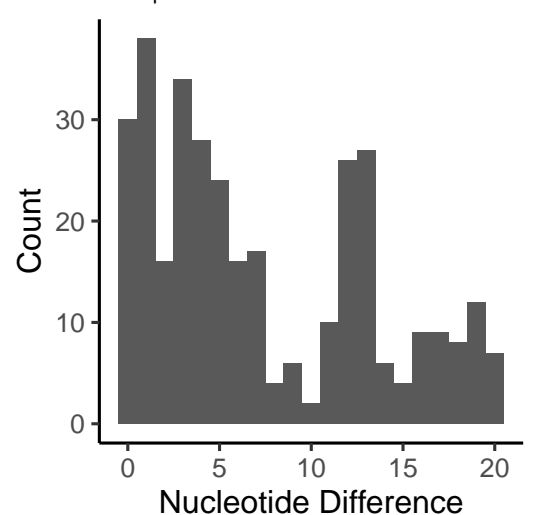
### IGHV4-30-2\*03

66 sequences assigned  
No exact matches.



### IGHV4-31\*01

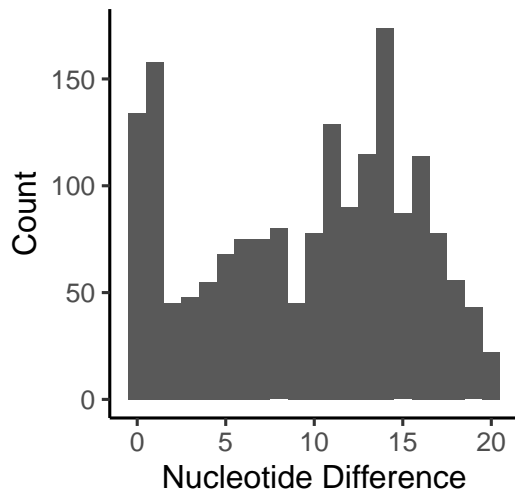
1270 sequences assigned  
30 (2.4%) exact matches, in which:  
23 unique CDR3  
5 unique J





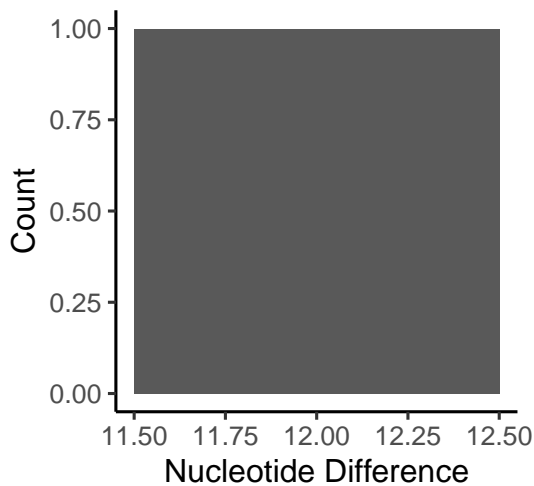
### IGHV4-31\*02

2973 sequences assigned  
134 (4.5%) exact matches, in which:  
107 unique CDR3  
7 unique J



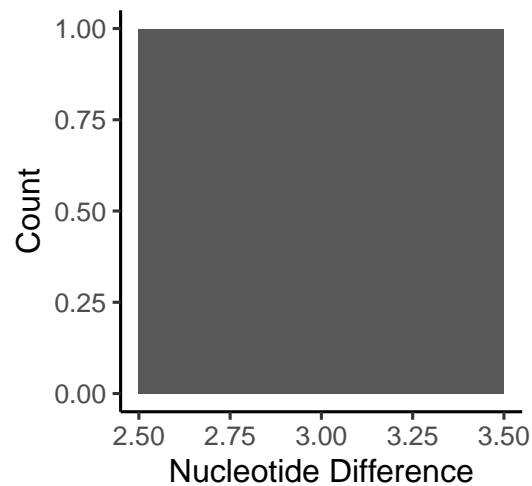
### IGHV4-38-2\*02

6 sequences assigned  
No exact matches.



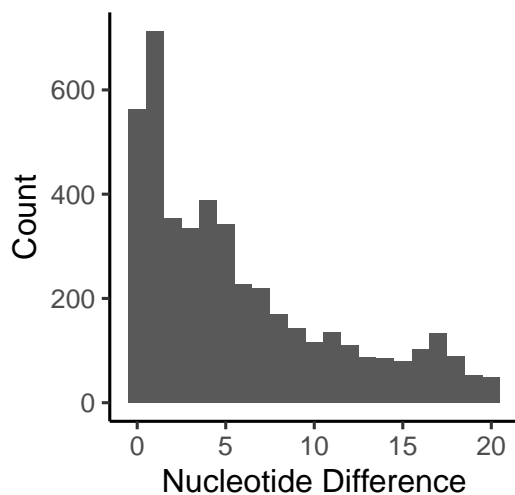
### IGHV4-55\*09

1 sequences assigned  
No exact matches.



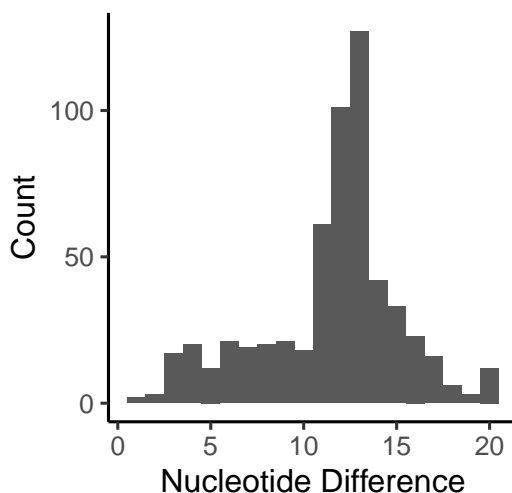
### IGHV4-34\*01\_02

5028 sequences assigned  
563 (11.2%) exact matches, in which:  
411 unique CDR3  
7 unique J



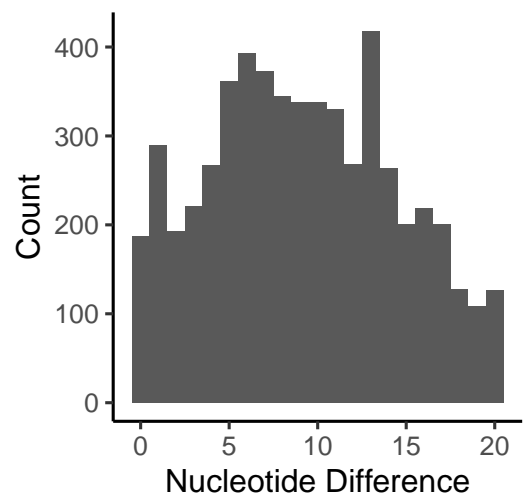
### IGHV4-39\*02

1596 sequences assigned  
No exact matches.



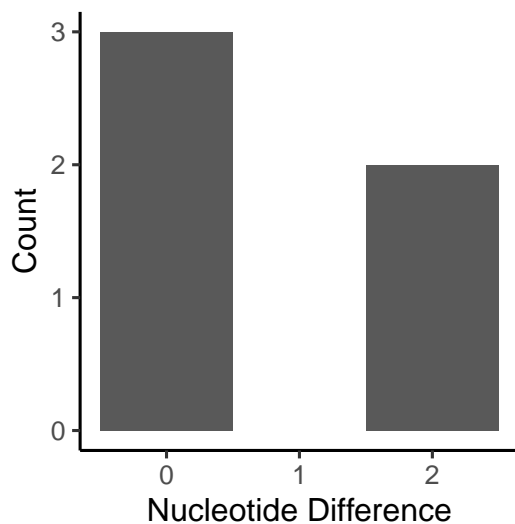
### IGHV4-59\*08

7590 sequences assigned  
187 (2.5%) exact matches, in which:  
149 unique CDR3  
7 unique J



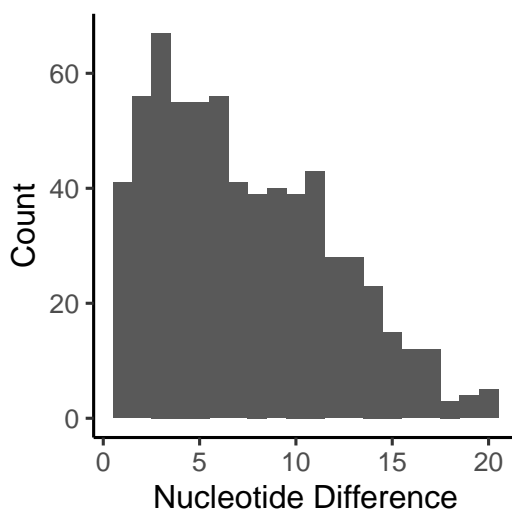
### IGHV4-38-2\*01

6 sequences assigned  
3 (50%) exact matches, in which:  
3 unique CDR3  
2 unique J



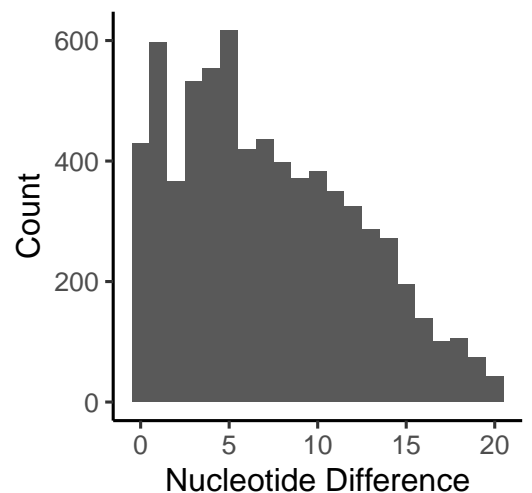
### IGHV4-39\*07

690 sequences assigned  
No exact matches.



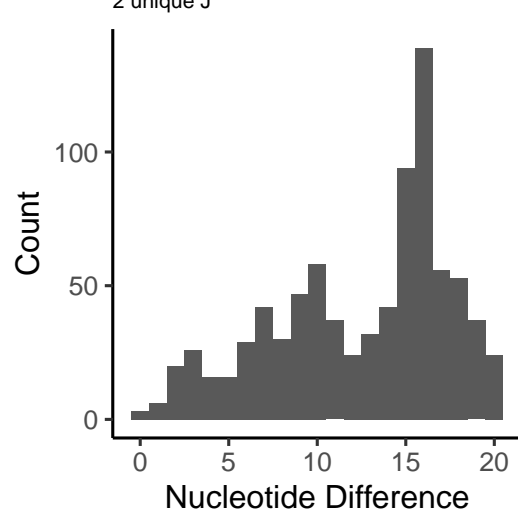
### IGHV4-59\*01\_07

8140 sequences assigned  
429 (5.3%) exact matches, in which:  
337 unique CDR3  
7 unique J



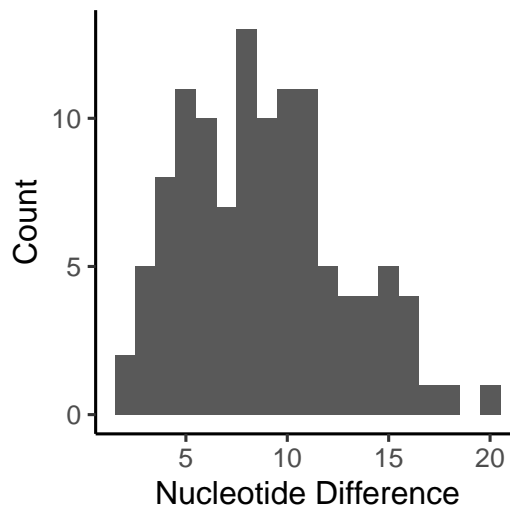
### IGHV4–59\*11

1183 sequences assigned  
3 (0.3%) exact matches, in which:  
3 unique CDR3  
2 unique J



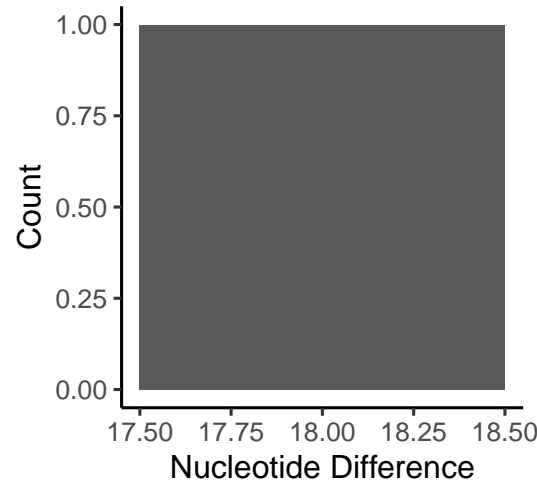
### IGHV4–61\*05

126 sequences assigned  
No exact matches.



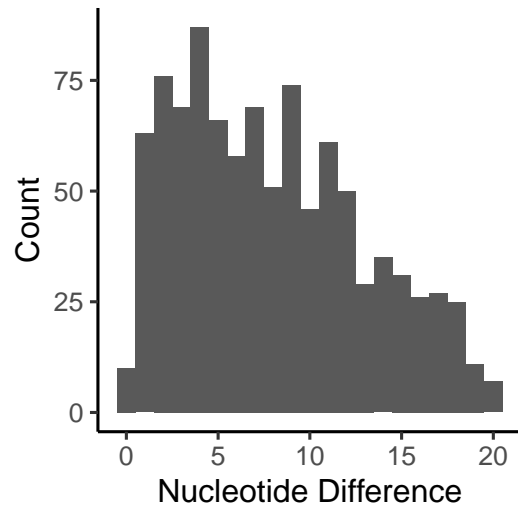
### IGHV1/OR15–3\*02

1 sequences assigned  
No exact matches.



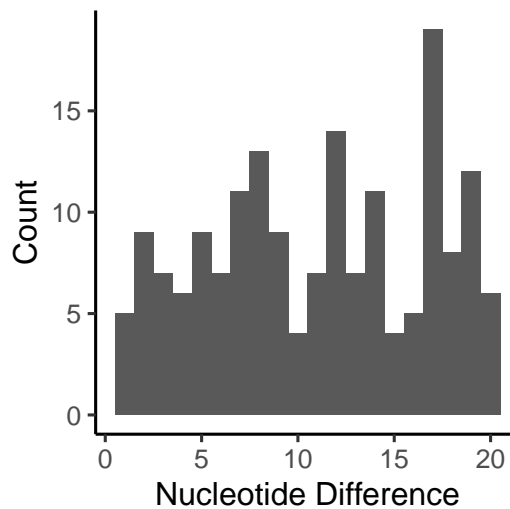
### IGHV4–59\*12

1096 sequences assigned  
10 (0.9%) exact matches, in which:  
10 unique CDR3  
4 unique J



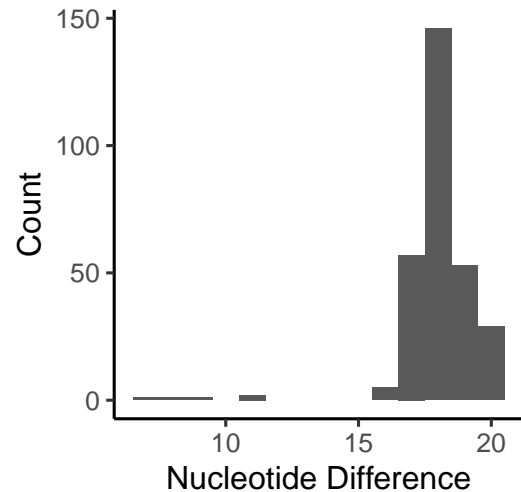
### IGHV4–61\*08

374 sequences assigned  
No exact matches.



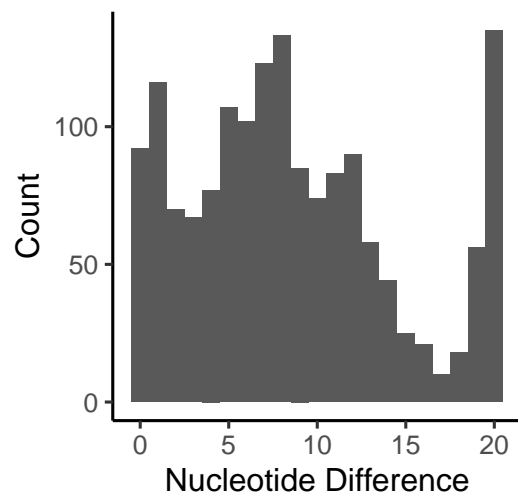
### IGHV4/OR15–8\*01

343 sequences assigned  
No exact matches.



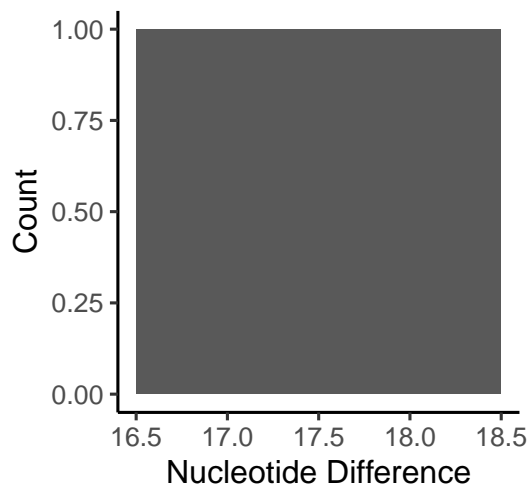
### IGHV4–61\*01

2379 sequences assigned  
92 (3.9%) exact matches, in which:  
72 unique CDR3  
6 unique J



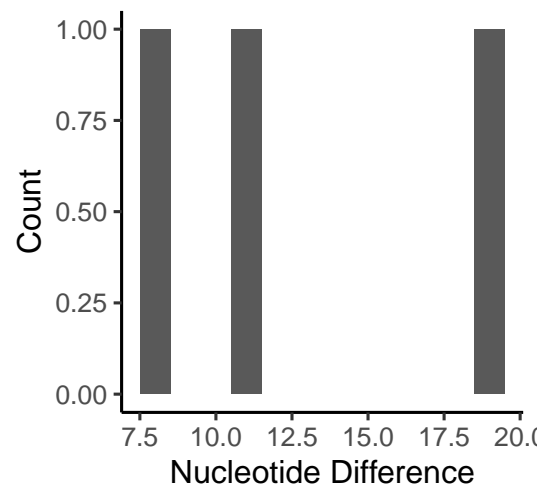
### IGHV1/OR15–2\*02\_03

2 sequences assigned  
No exact matches.



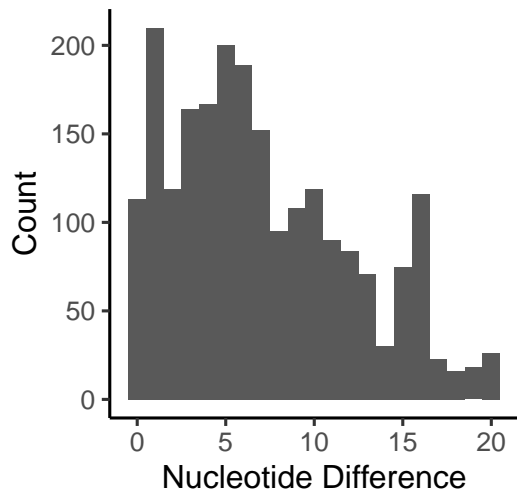
### IGHV4/OR15–8\*02

5 sequences assigned  
No exact matches.



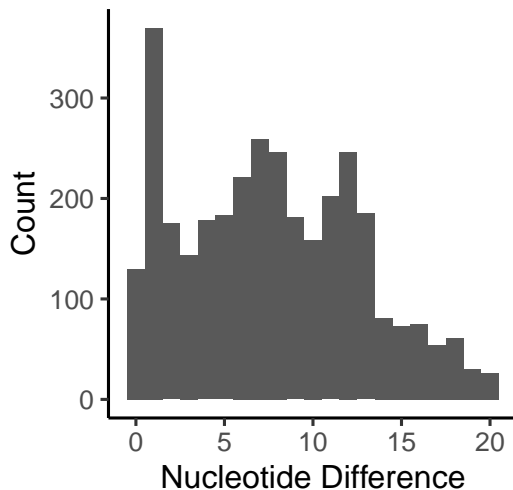
### IGHV5-10-1\*01\_03

2499 sequences assigned  
113 (4.5%) exact matches, in which:  
72 unique CDR3  
6 unique J



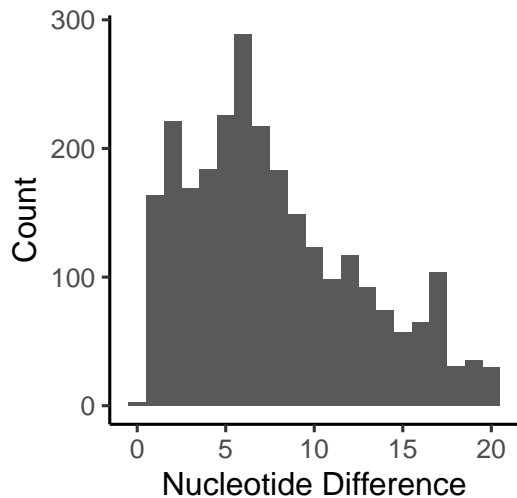
### IGHV6-1\*01\_02

3528 sequences assigned  
130 (3.7%) exact matches, in which:  
91 unique CDR3  
5 unique J



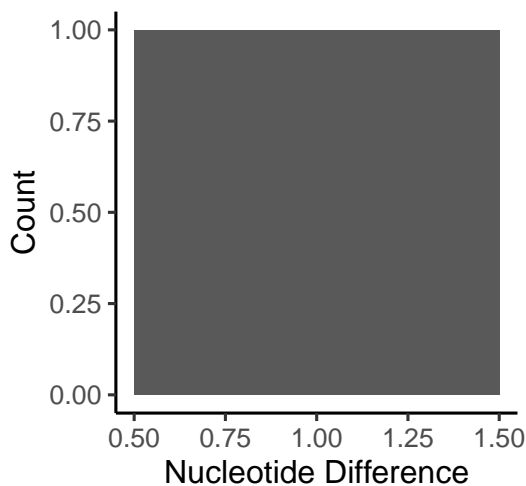
### IGHV5-51\*07

3354 sequences assigned  
3 (0.1%) exact matches, in which:  
3 unique CDR3  
2 unique J



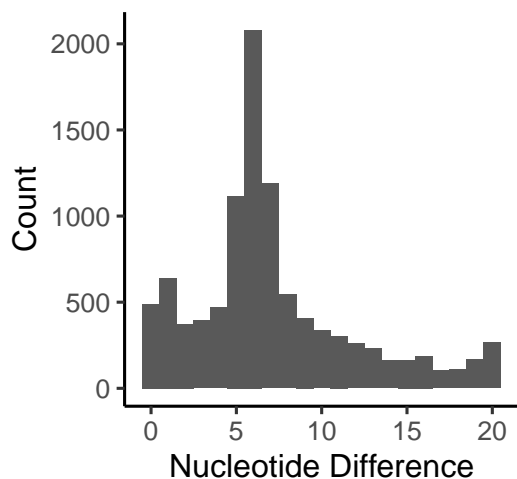
### IGHV7-4-1\*01

1 sequences assigned  
No exact matches.



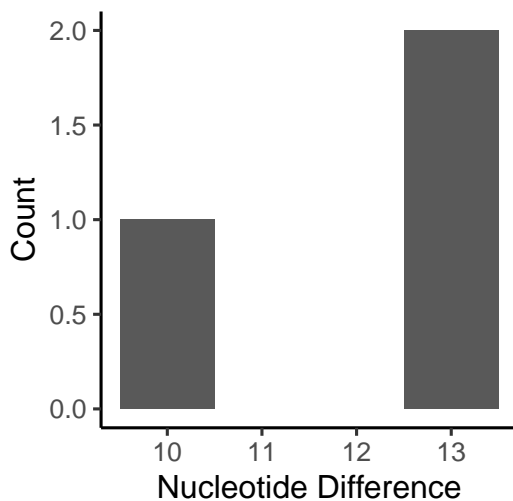
### IGHV5-51\*01\_03

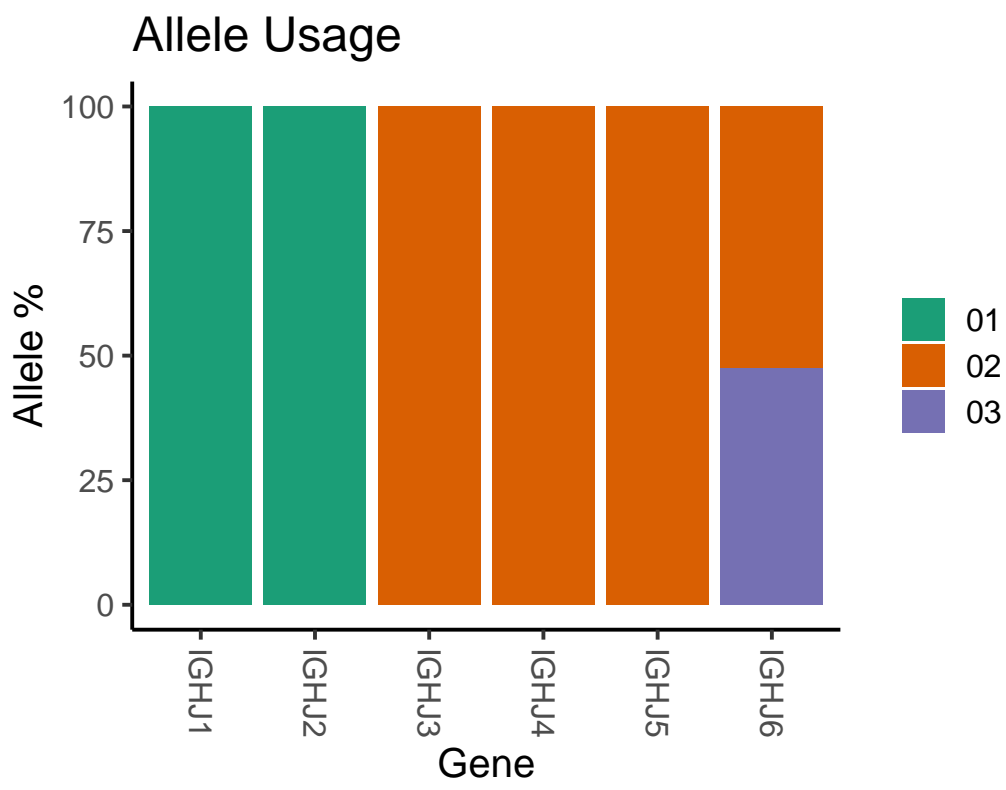
11451 sequences assigned  
491 (4.3%) exact matches, in which:  
288 unique CDR3  
7 unique J



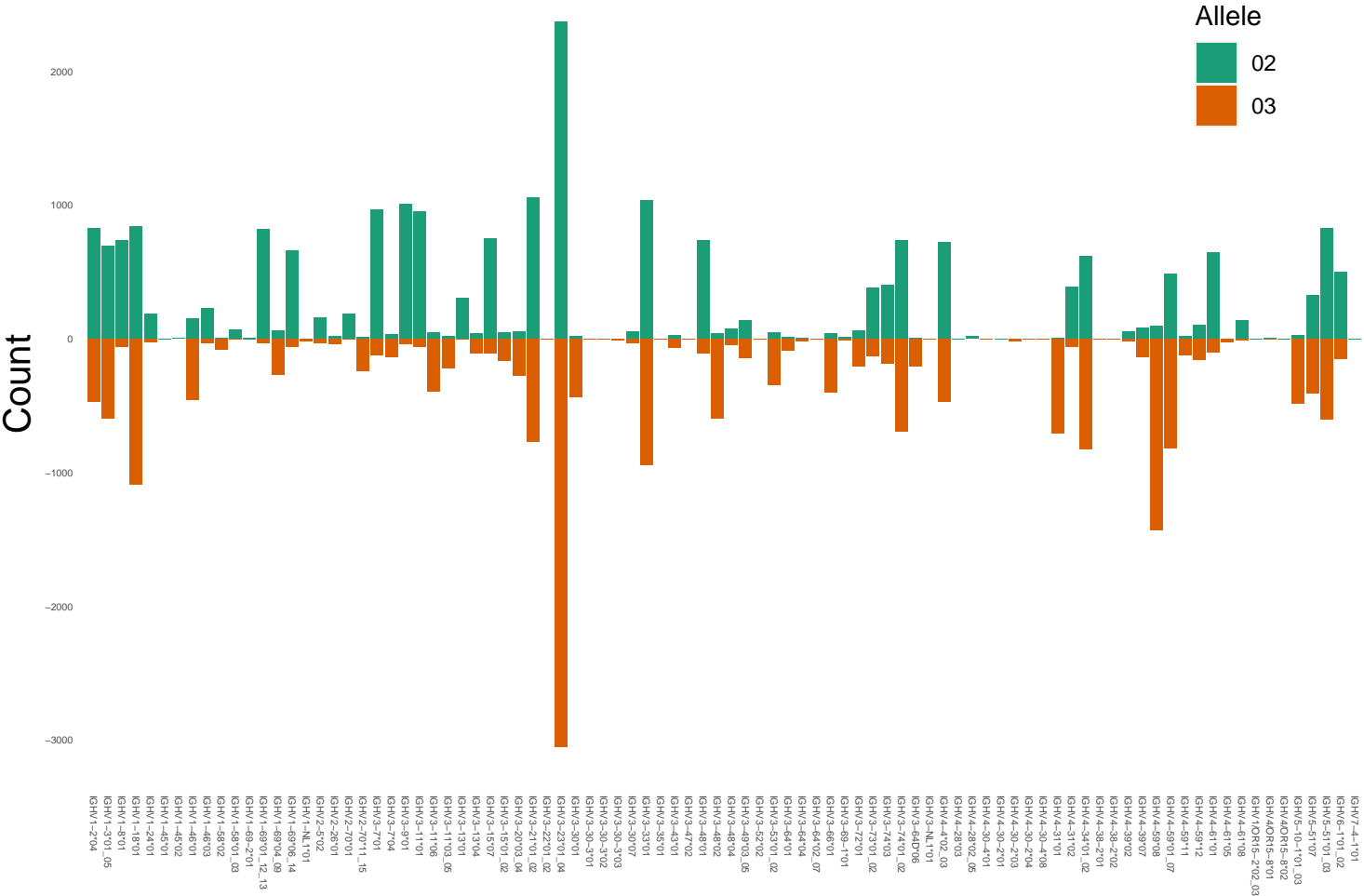
### IGHV7-4-1\*02

3 sequences assigned  
No exact matches.





Sequence Count byIGHJ6 allele usage



[illegible]