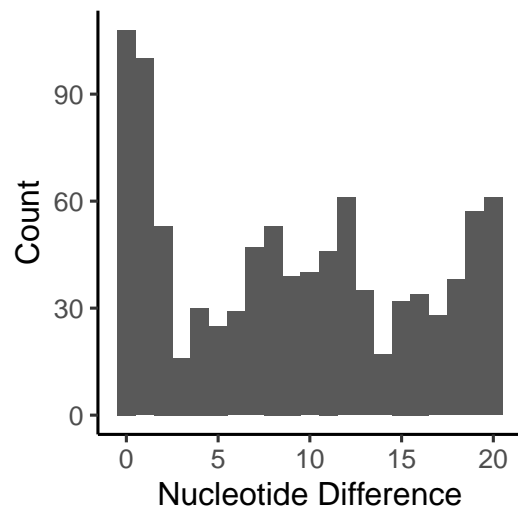


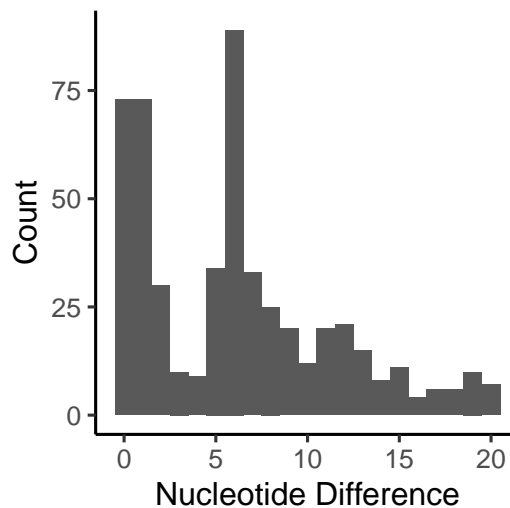
### IGHV1-2\*02

1426 sequences assigned  
108 (7.6%) exact matches, in which:  
91 unique CDR3  
5 unique J



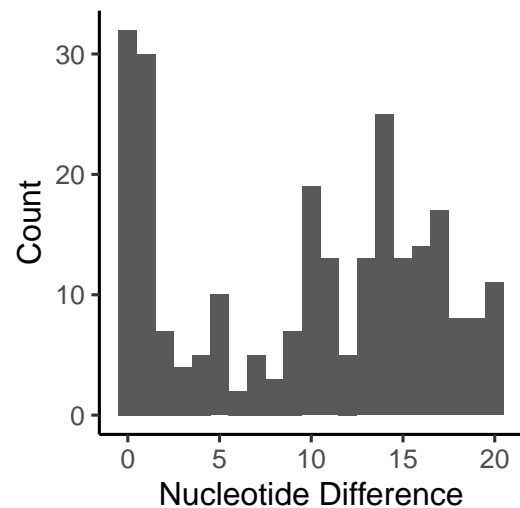
### IGHV1-8\*03

579 sequences assigned  
73 (12.6%) exact matches, in which:  
57 unique CDR3  
6 unique J



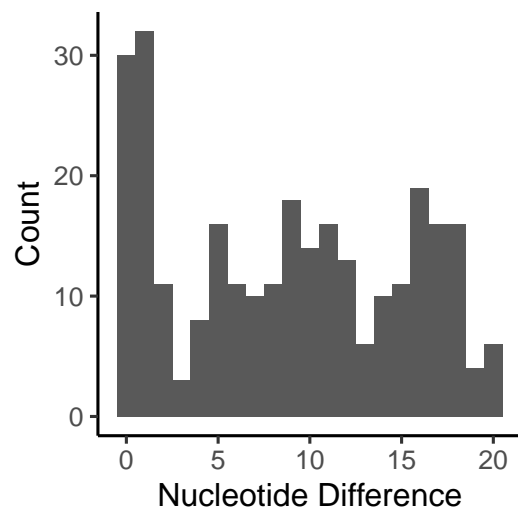
### IGHV1-24\*01

375 sequences assigned  
32 (8.5%) exact matches, in which:  
30 unique CDR3  
4 unique J



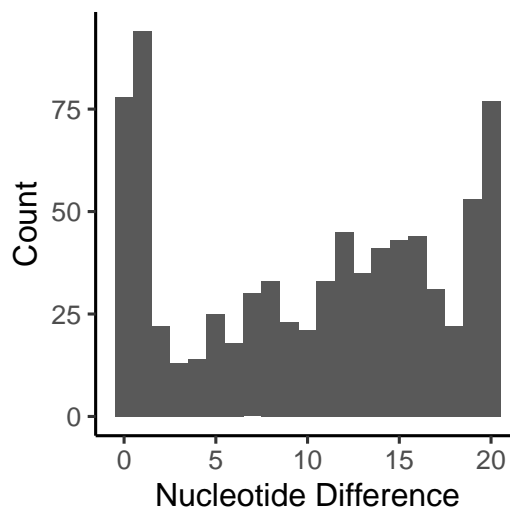
### IGHV1-3\*01

530 sequences assigned  
30 (5.7%) exact matches, in which:  
20 unique CDR3  
4 unique J



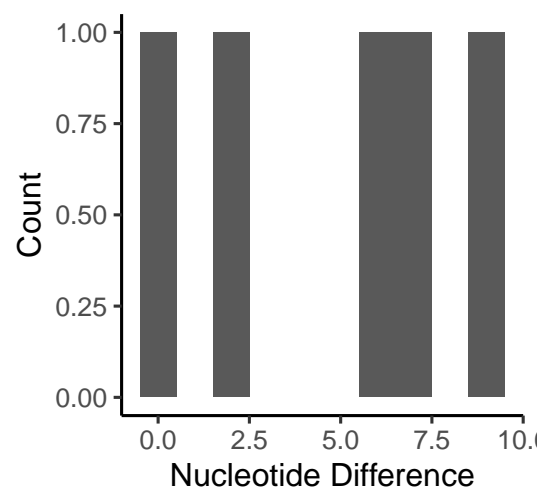
### IGHV1-18\*01

1287 sequences assigned  
78 (6.1%) exact matches, in which:  
68 unique CDR3  
6 unique J



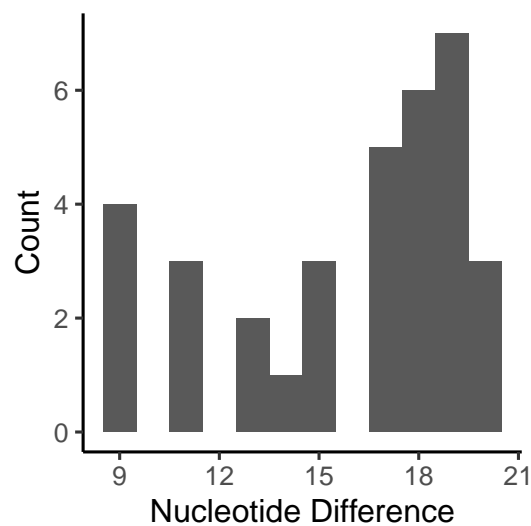
### IGHV1-45\*02

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



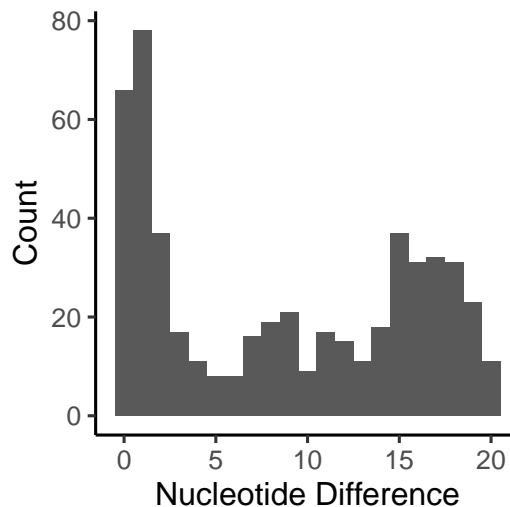
### IGHV1-3\*04

95 sequences assigned  
No exact matches.



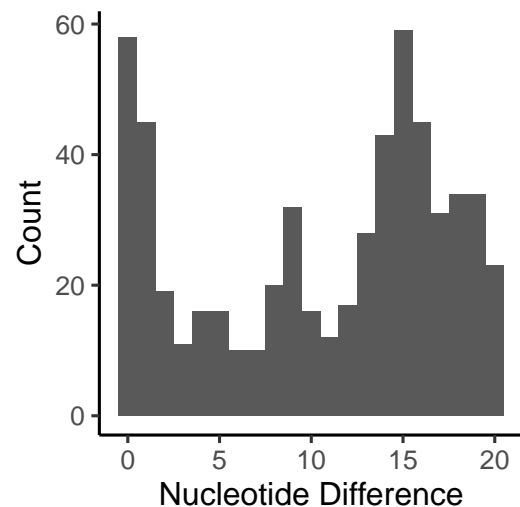
### IGHV1-18\*04

917 sequences assigned  
66 (7.2%) exact matches, in which:  
50 unique CDR3  
6 unique J



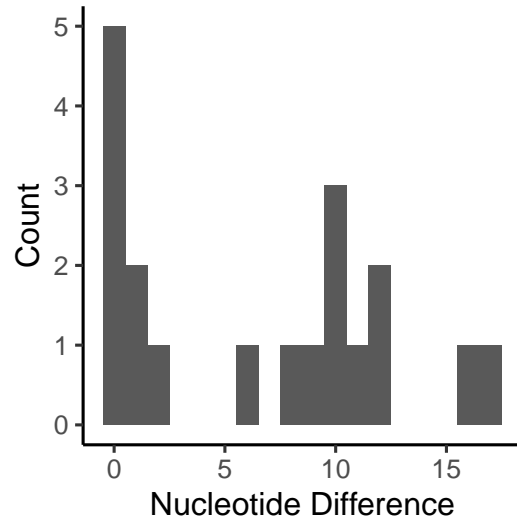
### IGHV1-46\*01

808 sequences assigned  
58 (7.2%) exact matches, in which:  
49 unique CDR3  
6 unique J



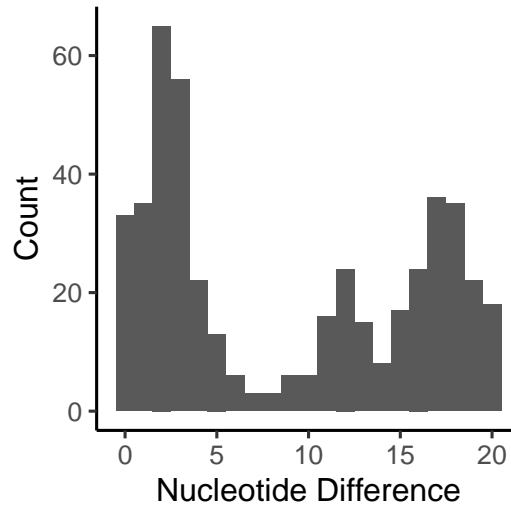
### IGHV1-58\*02

46 sequences assigned  
5 (10.9%) exact matches, in which:  
4 unique CDR3  
3 unique J



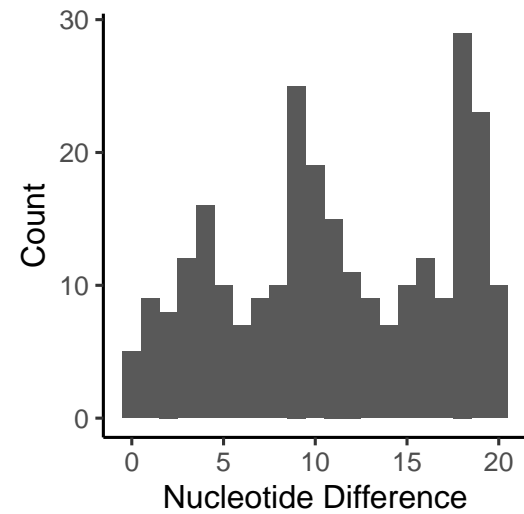
### IGHV1-69\*10

860 sequences assigned  
33 (3.8%) exact matches, in which:  
26 unique CDR3  
5 unique J



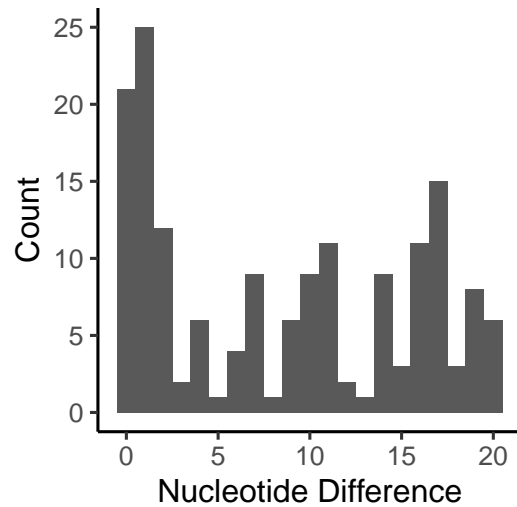
### IGHV2-5\*02

378 sequences assigned  
5 (1.3%) exact matches, in which:  
5 unique CDR3  
3 unique J



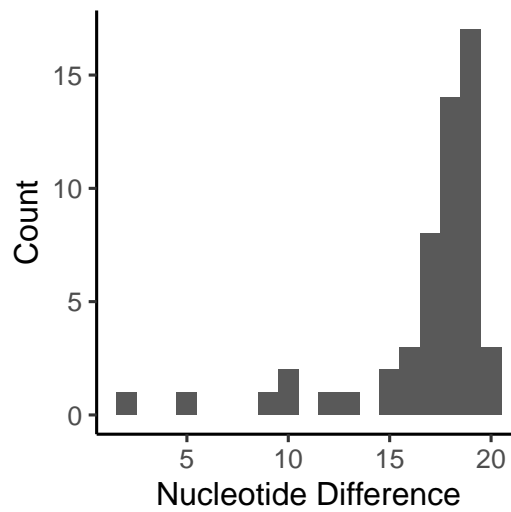
### IGHV1-69-2\*01

355 sequences assigned  
21 (5.9%) exact matches, in which:  
20 unique CDR3  
5 unique J



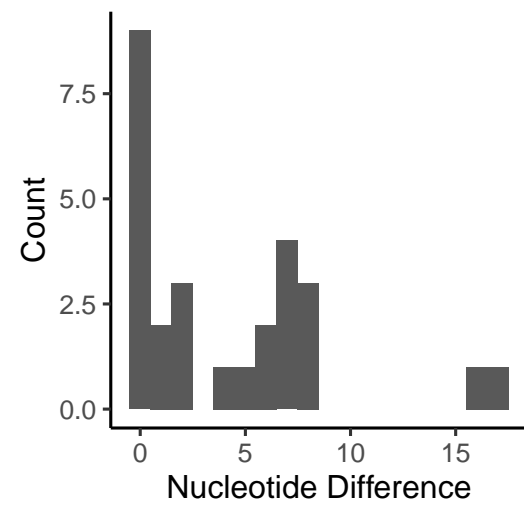
### IGHV1-69\*13

110 sequences assigned  
No exact matches.



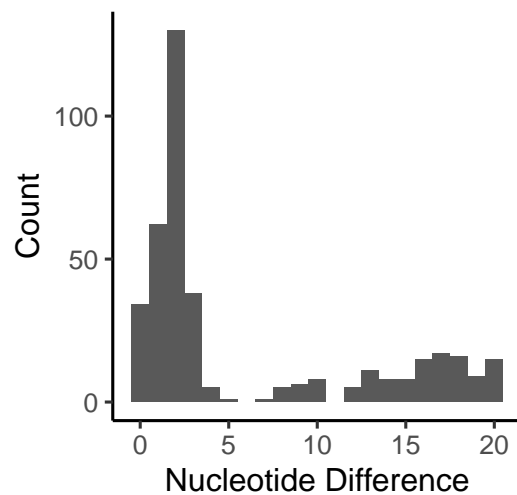
### IGHV2-26\*01

27 sequences assigned  
9 (33.3%) exact matches, in which:  
8 unique CDR3  
3 unique J



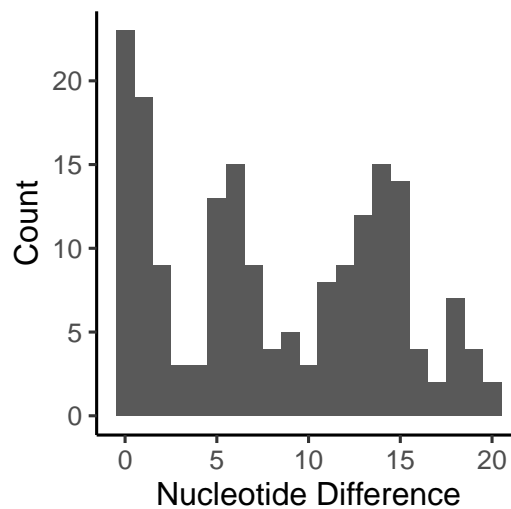
### IGHV1-69\*09

759 sequences assigned  
34 (4.5%) exact matches, in which:  
34 unique CDR3  
4 unique J



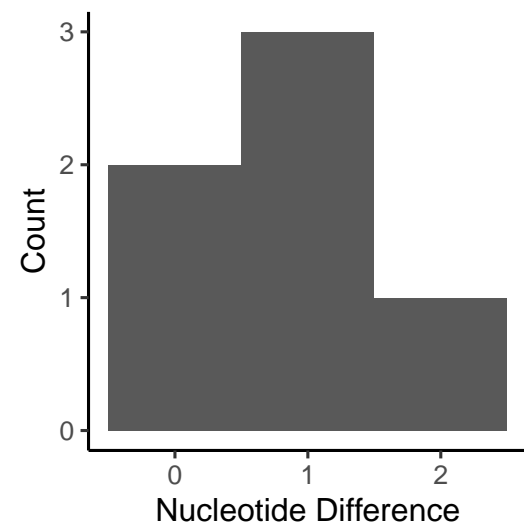
### IGHV2-5\*01

216 sequences assigned  
23 (10.6%) exact matches, in which:  
21 unique CDR3  
5 unique J



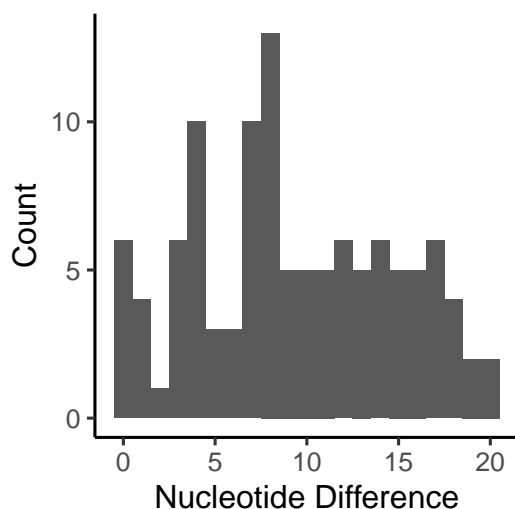
### IGHV2-26\*04

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



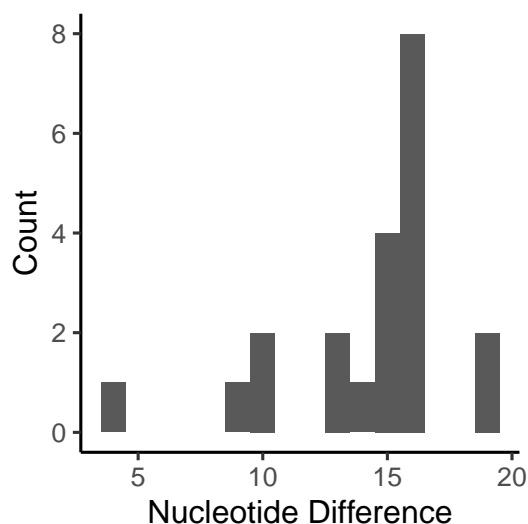
### IGHV2-70\*15

130 sequences assigned  
6 (4.6%) exact matches, in which:  
6 unique CDR3  
2 unique J



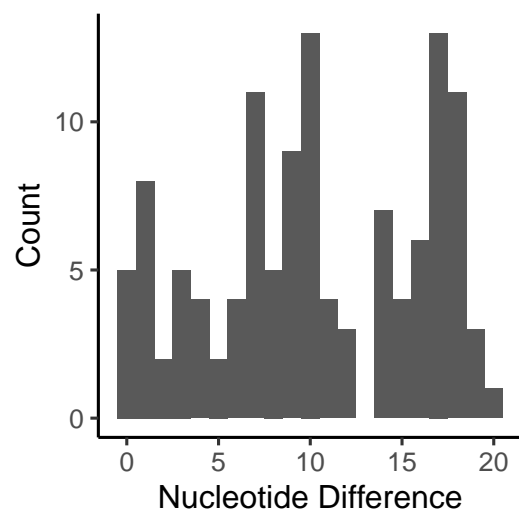
### IGHV3-9\*01

45 sequences assigned  
No exact matches.



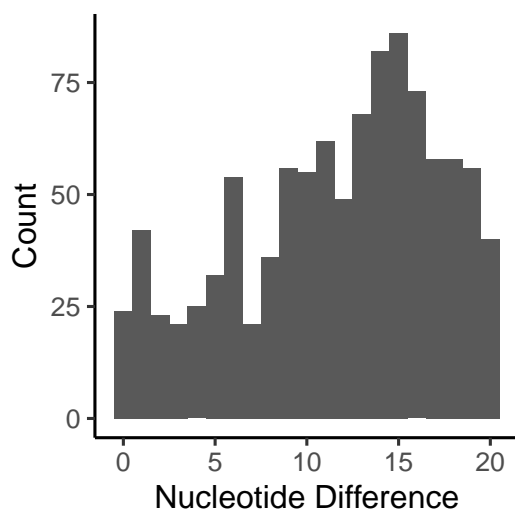
### IGHV3-11\*06

191 sequences assigned  
5 (2.6%) exact matches, in which:  
5 unique CDR3  
1 unique J



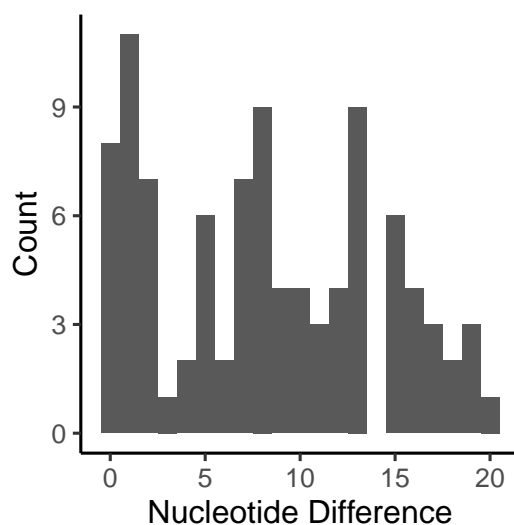
### IGHV3-7\*01

1267 sequences assigned  
24 (1.9%) exact matches, in which:  
21 unique CDR3  
4 unique J



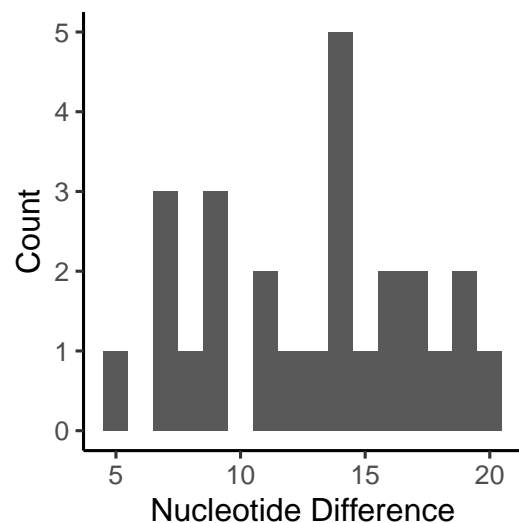
### IGHV3-9\*03

104 sequences assigned  
8 (7.7%) exact matches, in which:  
6 unique CDR3  
4 unique J



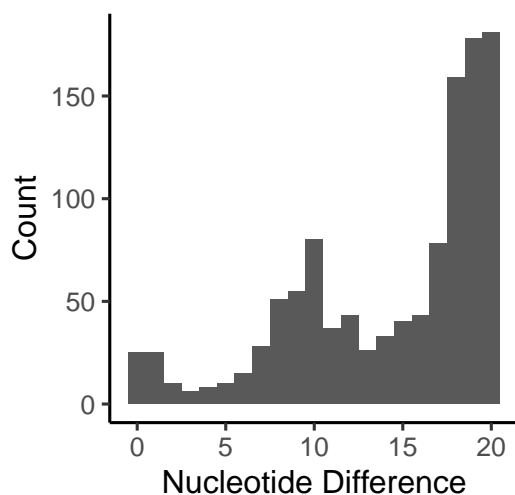
### IGHV3-13\*01

28 sequences assigned  
No exact matches.



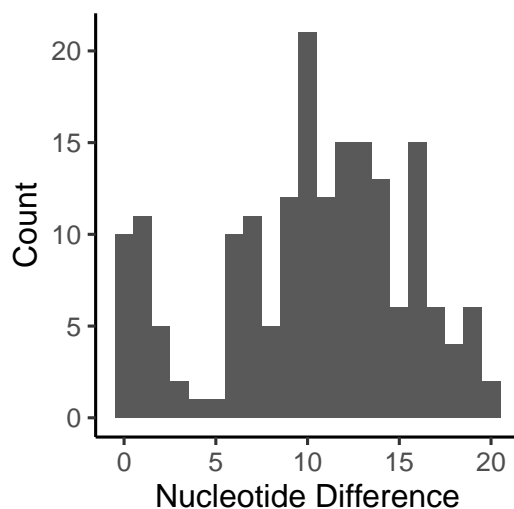
### IGHV3-7\*03

1725 sequences assigned  
25 (1.4%) exact matches, in which:  
18 unique CDR3  
5 unique J



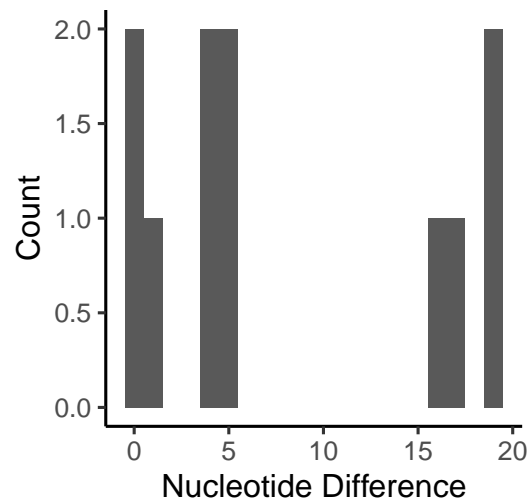
### IGHV3-11\*04

233 sequences assigned  
10 (4.3%) exact matches, in which:  
10 unique CDR3  
3 unique J



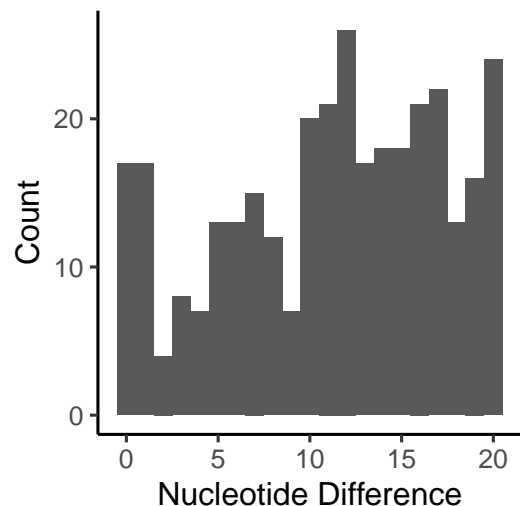
### IGHV3-13\*05

17 sequences assigned  
2 (11.8%) exact matches, in which:  
2 unique CDR3  
2 unique J



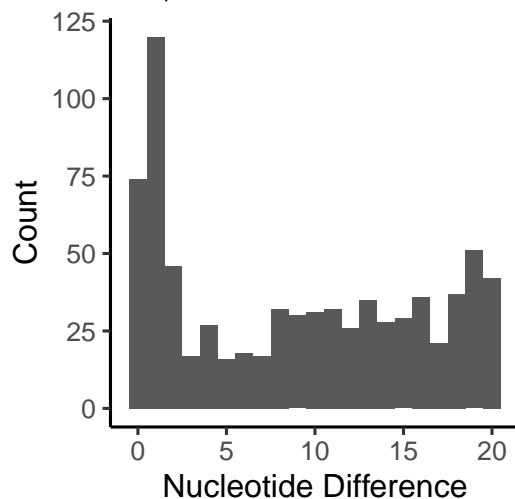
### IGHV3-15\*01

511 sequences assigned  
17 (3.3%) exact matches, in which:  
16 unique CDR3  
5 unique J



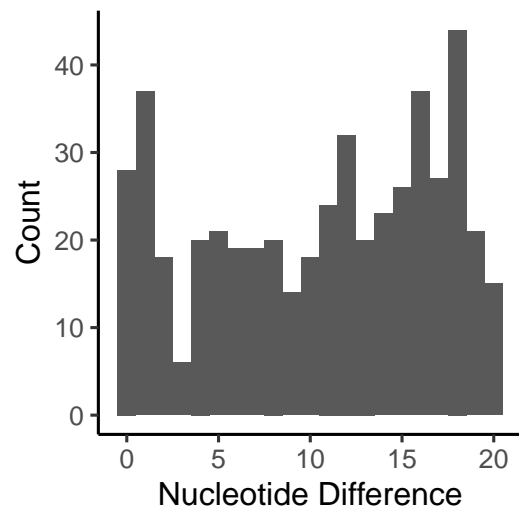
### IGHV3-23\*04

1260 sequences assigned  
74 (5.9%) exact matches, in which:  
58 unique CDR3  
4 unique J



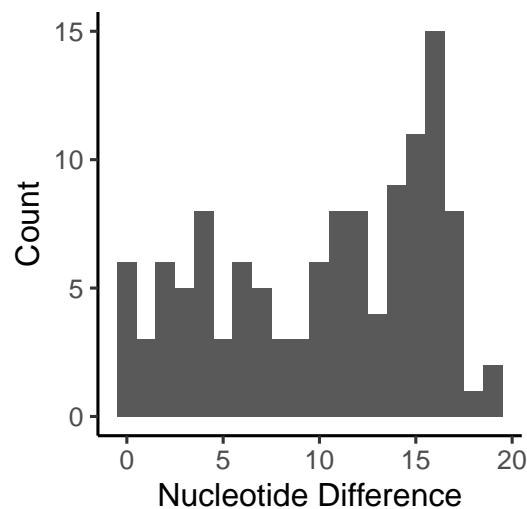
### IGHV3-33\*08

720 sequences assigned  
28 (3.9%) exact matches, in which:  
23 unique CDR3  
5 unique J



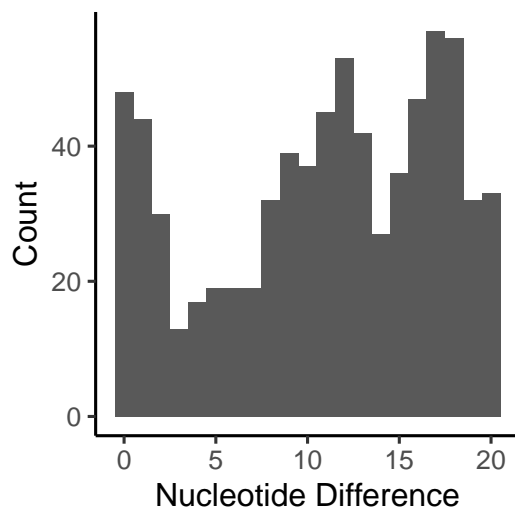
### IGHV3-20\*04

155 sequences assigned  
6 (3.9%) exact matches, in which:  
6 unique CDR3  
3 unique J



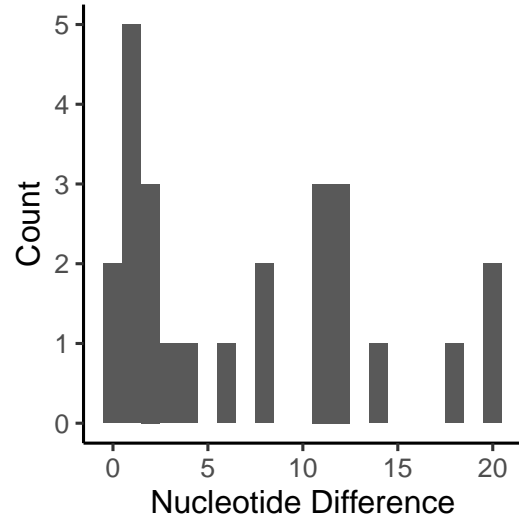
### IGHV3-30-3\*01

1048 sequences assigned  
48 (4.6%) exact matches, in which:  
39 unique CDR3  
4 unique J



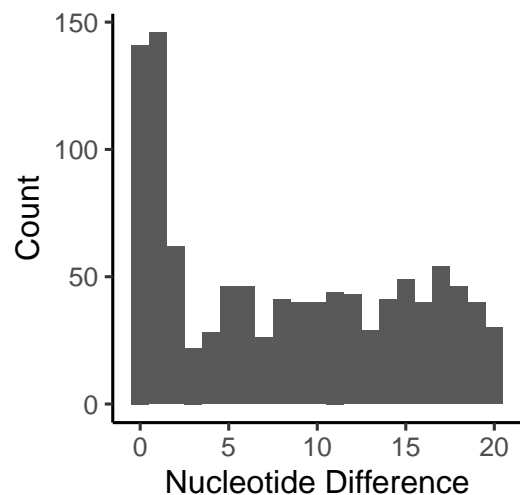
### IGHV3-43\*01

64 sequences assigned  
2 (3.1%) exact matches, in which:  
2 unique CDR3  
2 unique J



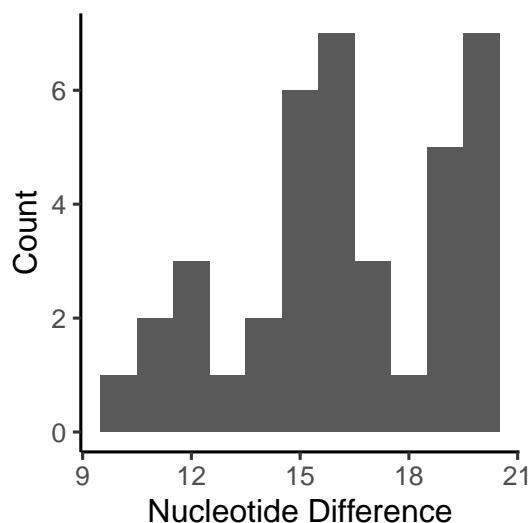
### IGHV3-21\*01

1358 sequences assigned  
141 (10.4%) exact matches, in which:  
95 unique CDR3  
7 unique J



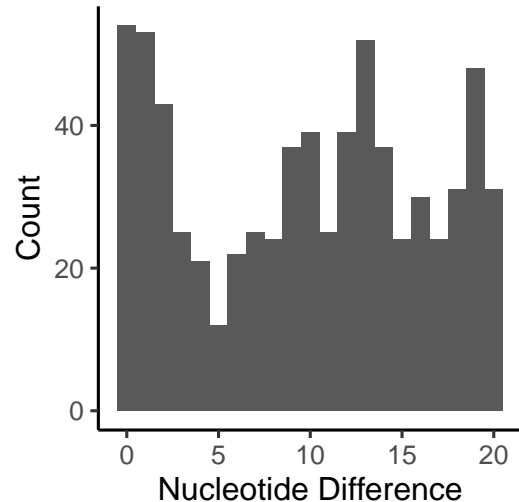
### IGHV3-30\*04

125 sequences assigned  
No exact matches.



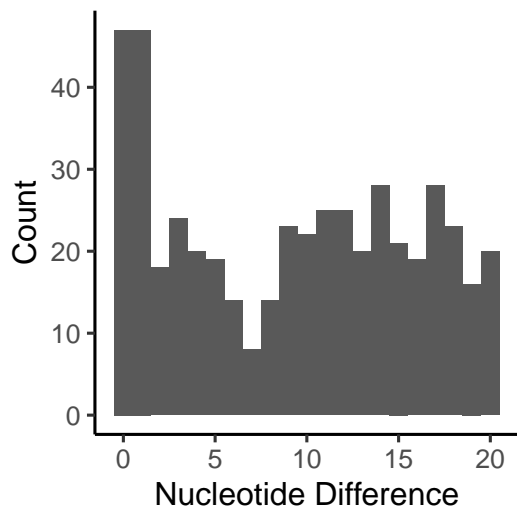
### IGHV3-48\*03

1023 sequences assigned  
54 (5.3%) exact matches, in which:  
42 unique CDR3  
5 unique J



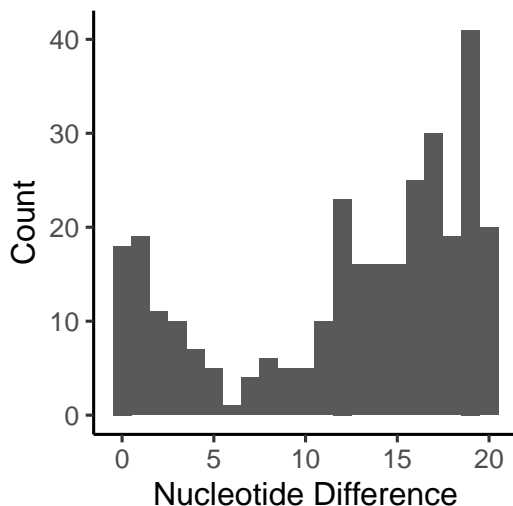
### IGHV3-48\*04

761 sequences assigned  
47 (6.2%) exact matches, in which:  
39 unique CDR3  
6 unique J



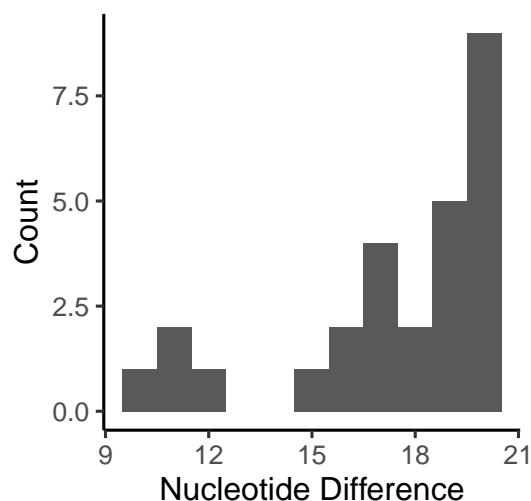
### IGHV3-53\*02

512 sequences assigned  
18 (3.5%) exact matches, in which:  
18 unique CDR3  
3 unique J



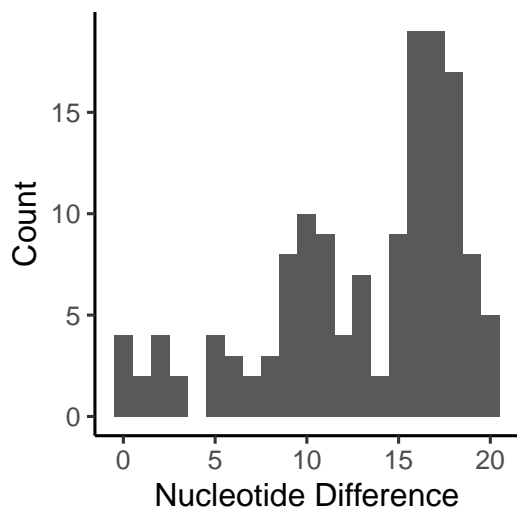
### IGHV3-64\*07

38 sequences assigned  
No exact matches.



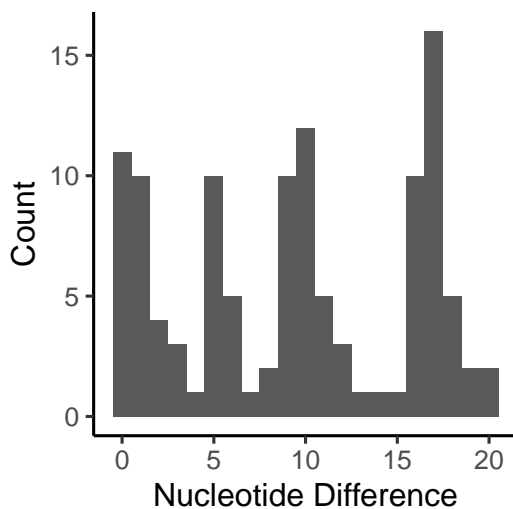
### IGHV3-49\*03

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



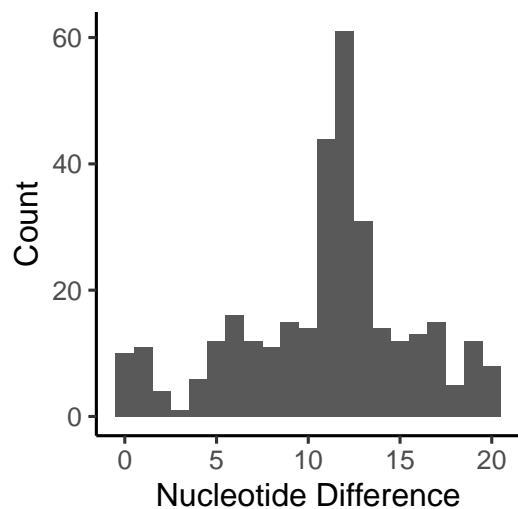
### IGHV3-53\*04

148 sequences assigned  
11 (7.4%) exact matches, in which:  
11 unique CDR3  
5 unique J



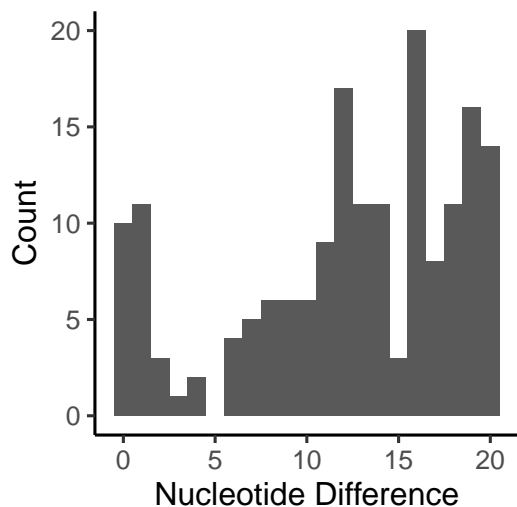
### IGHV3-66\*01

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



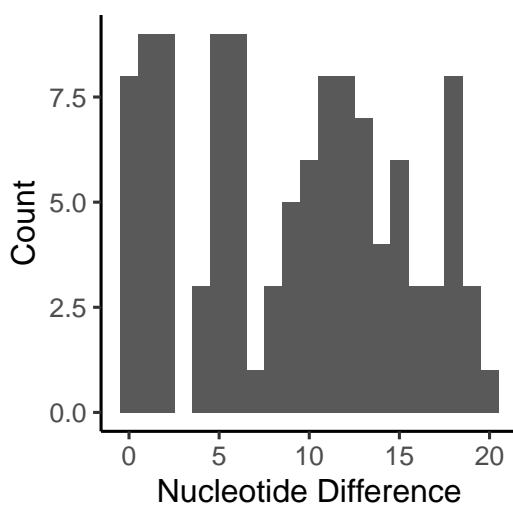
### IGHV3-49\*04

220 sequences assigned  
10 (4.5%) exact matches, in which:  
7 unique CDR3  
3 unique J



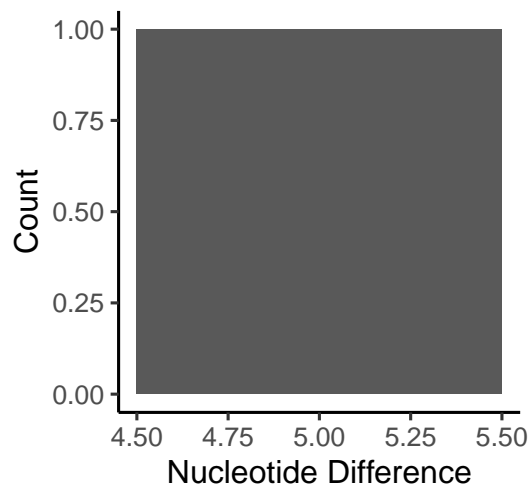
### IGHV3-64\*01

154 sequences assigned  
8 (5.2%) exact matches, in which:  
6 unique CDR3  
1 unique J



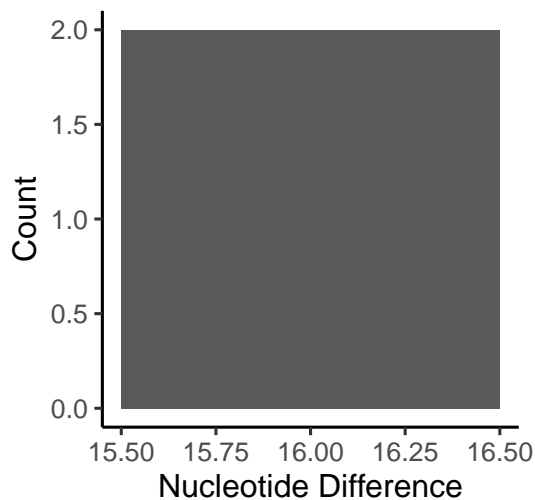
### IGHV3-69-1\*01

5 sequences assigned  
No exact matches.



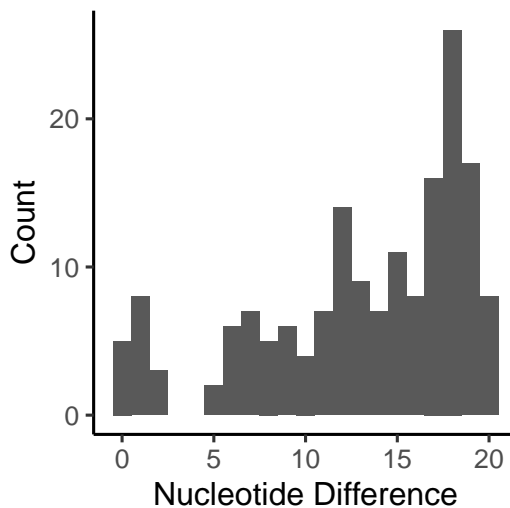
### IGHV3-69-1\*02

2 sequences assigned  
No exact matches.



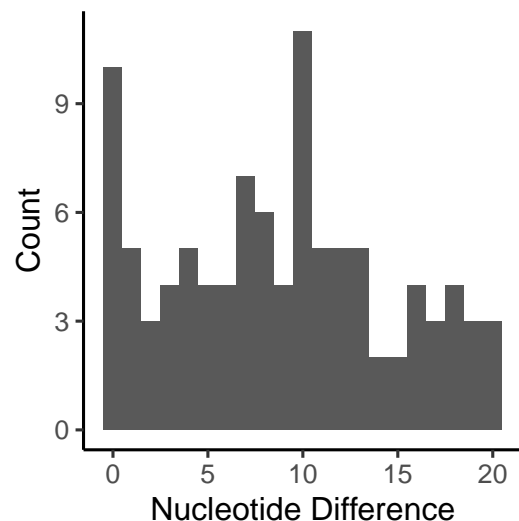
### IGHV3-73\*02

230 sequences assigned  
5 (2.2%) exact matches, in which:  
5 unique CDR3  
3 unique J



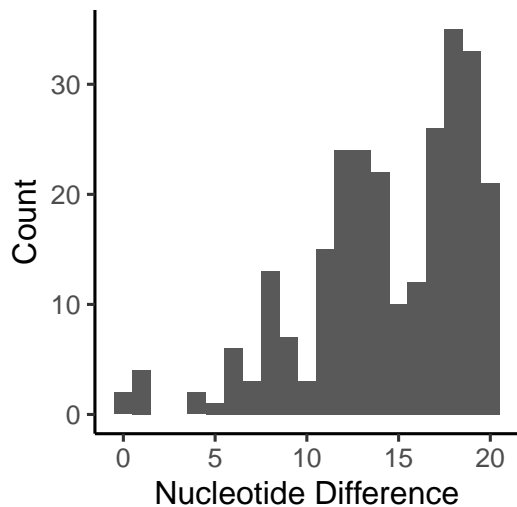
### IGHV3-64D\*06

132 sequences assigned  
10 (7.6%) exact matches, in which:  
9 unique CDR3  
2 unique J



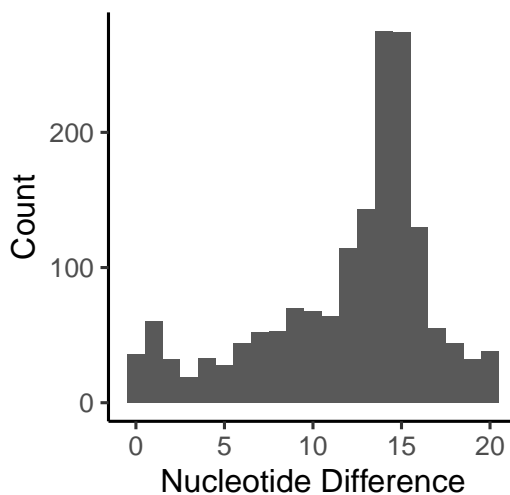
### IGHV3-72\*01

398 sequences assigned  
2 (0.5%) exact matches, in which:  
2 unique CDR3  
1 unique J



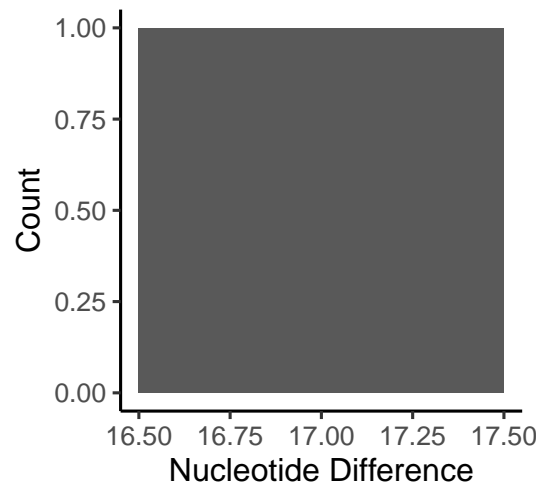
### IGHV3-74\*01

2194 sequences assigned  
36 (1.6%) exact matches, in which:  
27 unique CDR3  
3 unique J



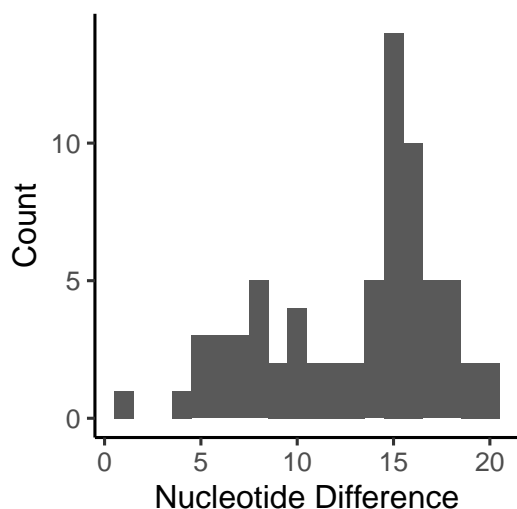
### IGHV3-NL1\*01

2 sequences assigned  
No exact matches.



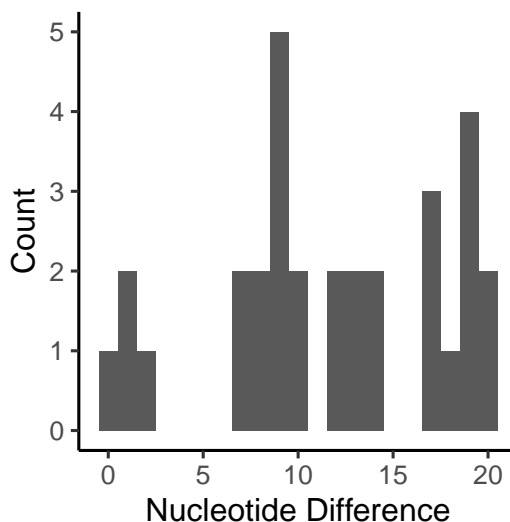
### IGHV3-73\*01

109 sequences assigned  
No exact matches.



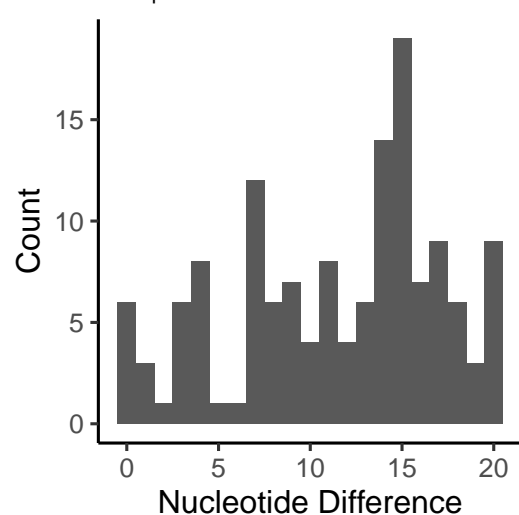
### IGHV3-43D\*04

58 sequences assigned  
1 (1.7%) exact matches, in which:  
1 unique CDR3  
1 unique J



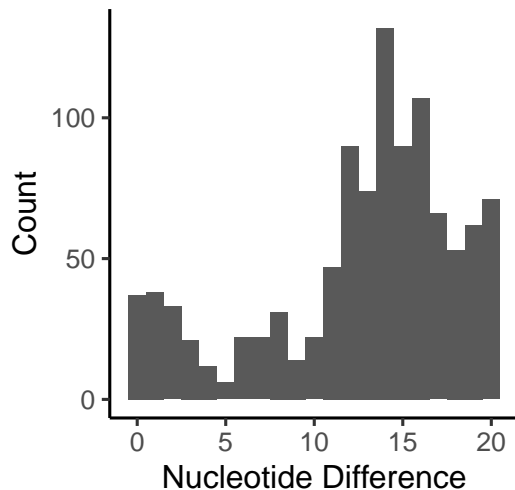
### IGHV4-4\*02

275 sequences assigned  
6 (2.2%) exact matches, in which:  
5 unique CDR3  
4 unique J



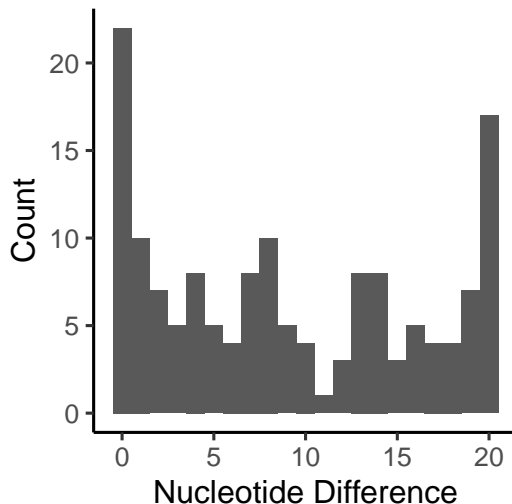
### IGHV4-4\*07

1501 sequences assigned  
37 (2.5%) exact matches, in which:  
32 unique CDR3  
5 unique J



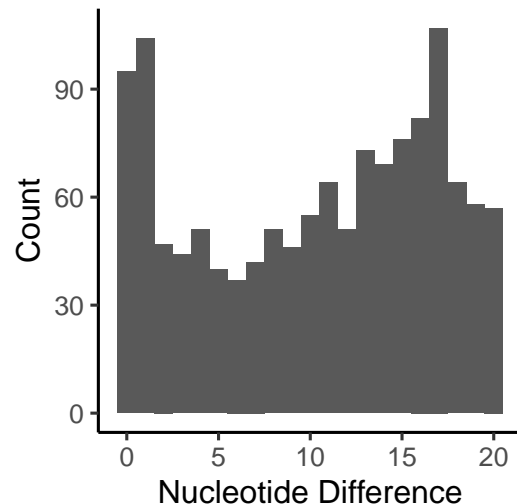
### IGHV4-30-4\*08

246 sequences assigned  
22 (8.9%) exact matches, in which:  
21 unique CDR3  
3 unique J



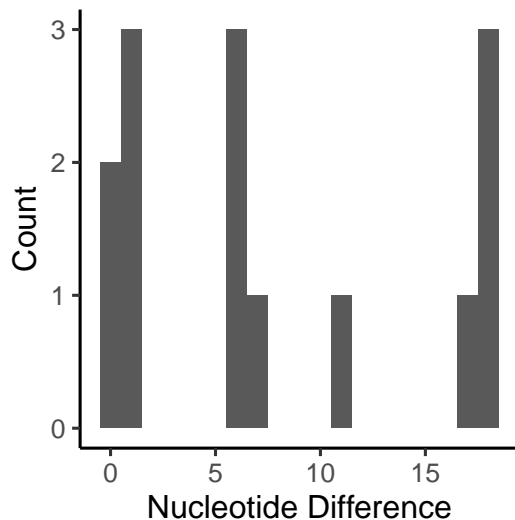
### IGHV4-38-2\*01

2167 sequences assigned  
95 (4.4%) exact matches, in which:  
72 unique CDR3  
5 unique J



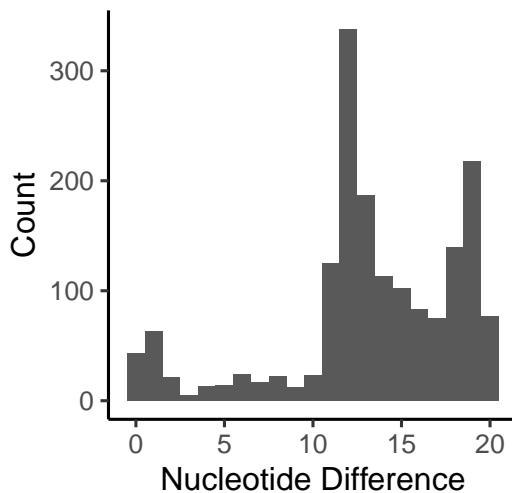
### IGHV4-28\*07

14 sequences assigned  
2 (14.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



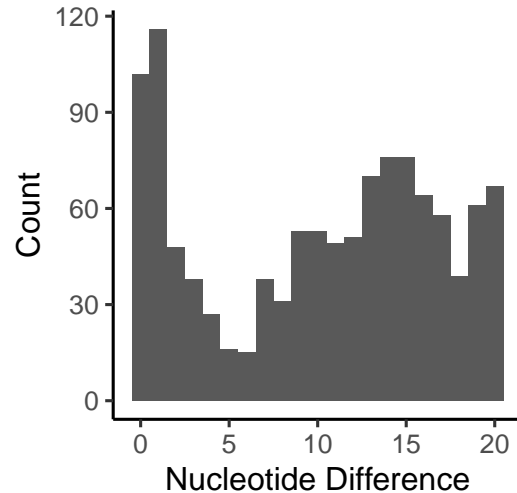
### IGHV4-34\*01

1961 sequences assigned  
43 (2.2%) exact matches, in which:  
37 unique CDR3  
6 unique J



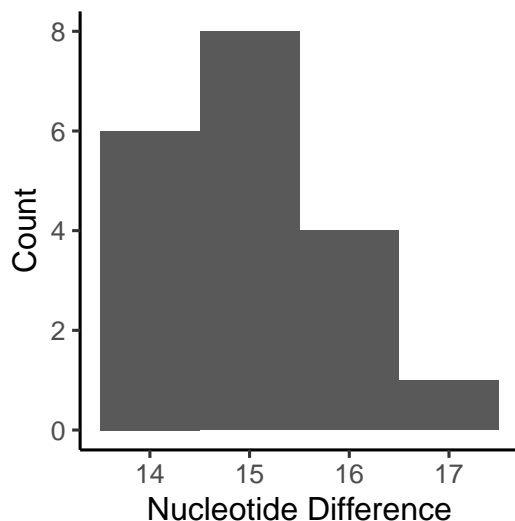
### IGHV4-39\*01

1961 sequences assigned  
102 (5.2%) exact matches, in which:  
83 unique CDR3  
5 unique J



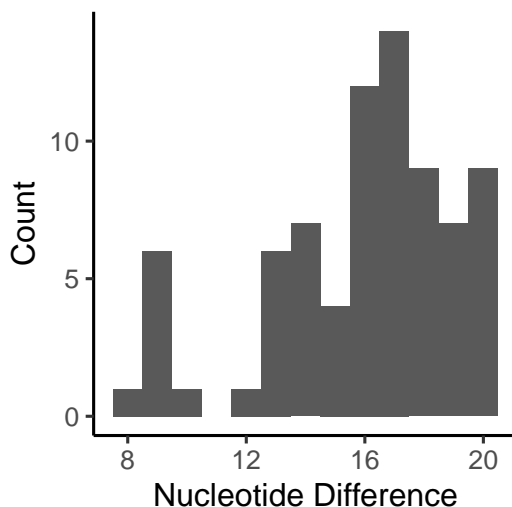
### IGHV4-30-4\*01

53 sequences assigned  
No exact matches.



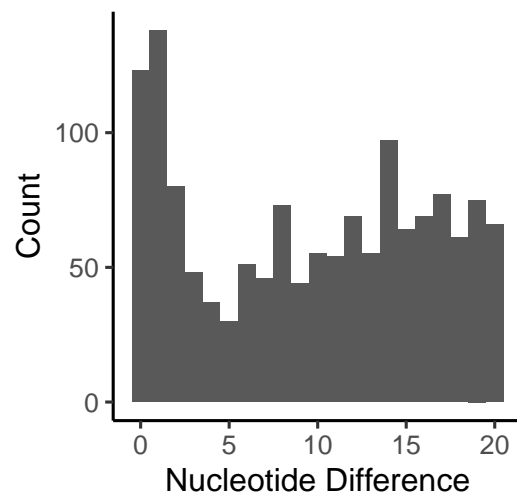
### IGHV4-34\*02

263 sequences assigned  
No exact matches.



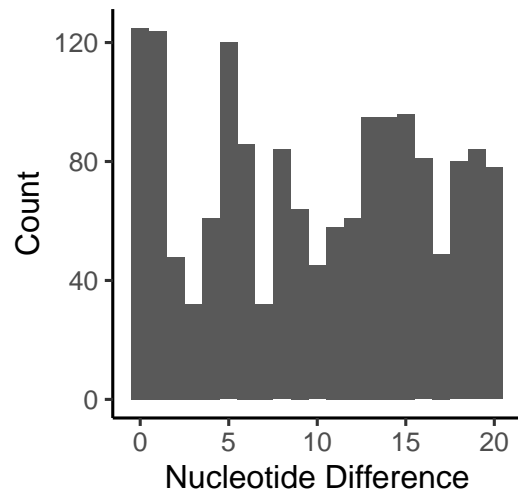
### IGHV4-39\*07

2244 sequences assigned  
123 (5.5%) exact matches, in which:  
104 unique CDR3  
6 unique J



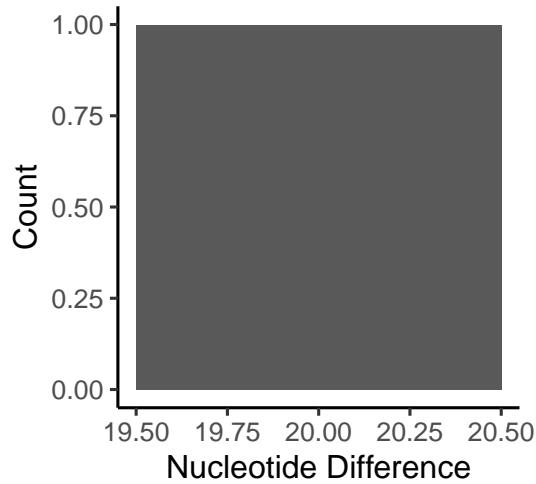
### IGHV4-59\*01

2252 sequences assigned  
125 (5.6%) exact matches, in which:  
93 unique CDR3  
7 unique J



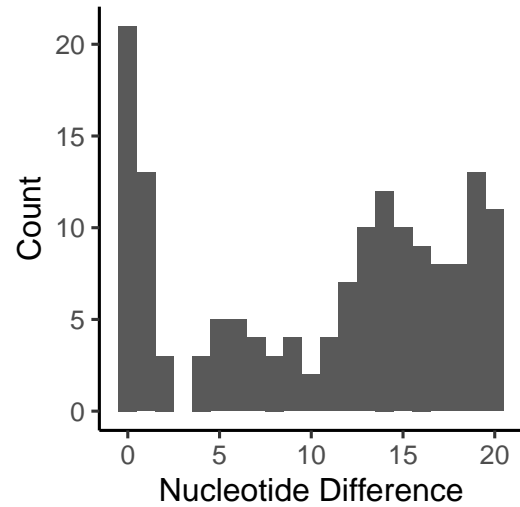
### IGHV4-61\*05

4 sequences assigned  
No exact matches.



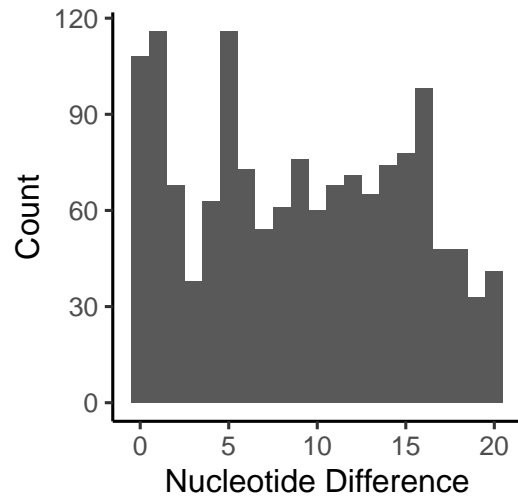
### IGHV5-10-1\*03

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



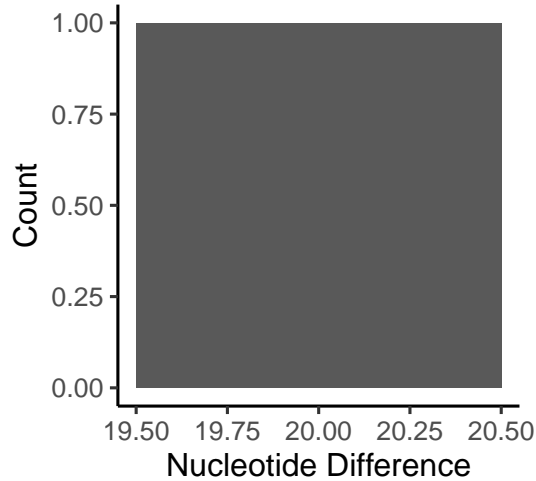
### IGHV4-59\*08

2122 sequences assigned  
108 (5.1%) exact matches, in which:  
81 unique CDR3  
7 unique J



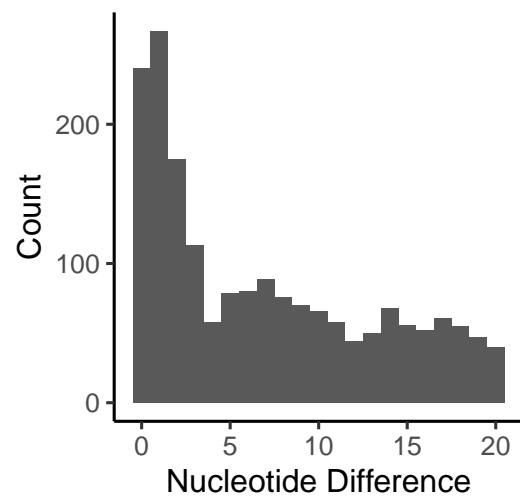
### IGHV4-61\*07

1 sequences assigned  
No exact matches.



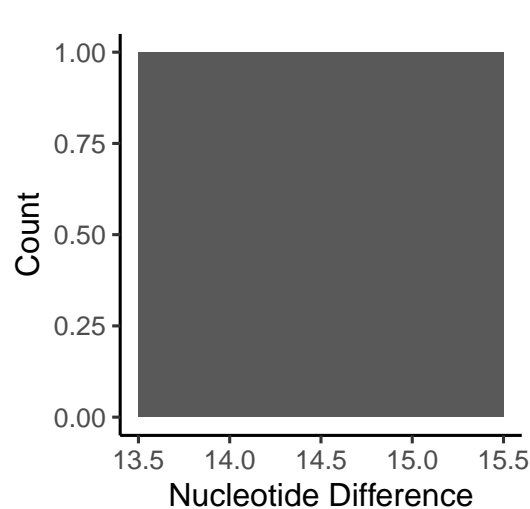
### IGHV5-51\*01

2263 sequences assigned  
240 (10.6%) exact matches, in which:  
177 unique CDR3  
7 unique J



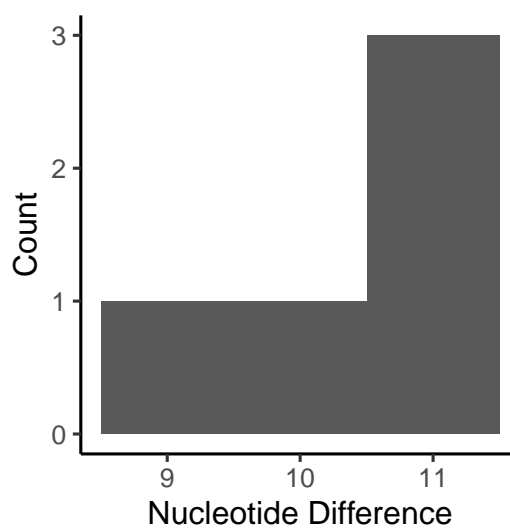
### IGHV4-61\*01

6 sequences assigned  
No exact matches.



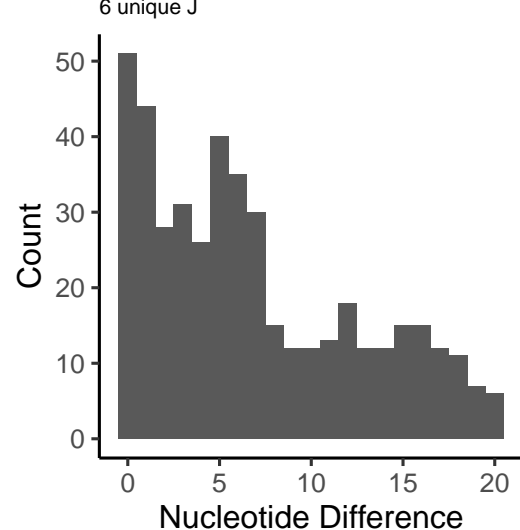
### IGHV4-61\*08

9 sequences assigned  
No exact matches.



### IGHV6-1\*01

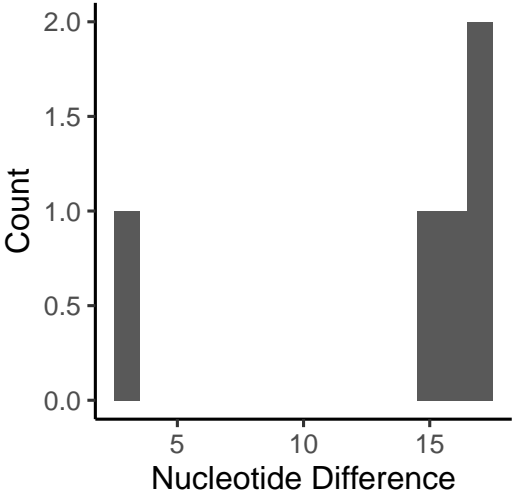
609 sequences assigned  
51 (8.4%) exact matches, in which:  
40 unique CDR3  
6 unique J



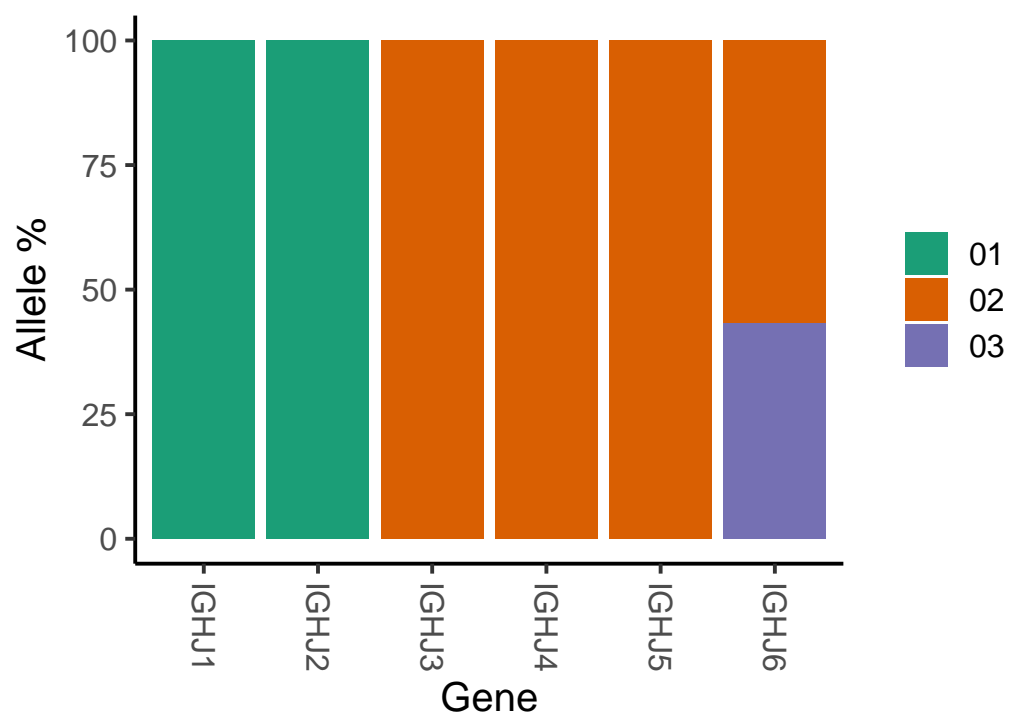


IGHV7-4-1\*01

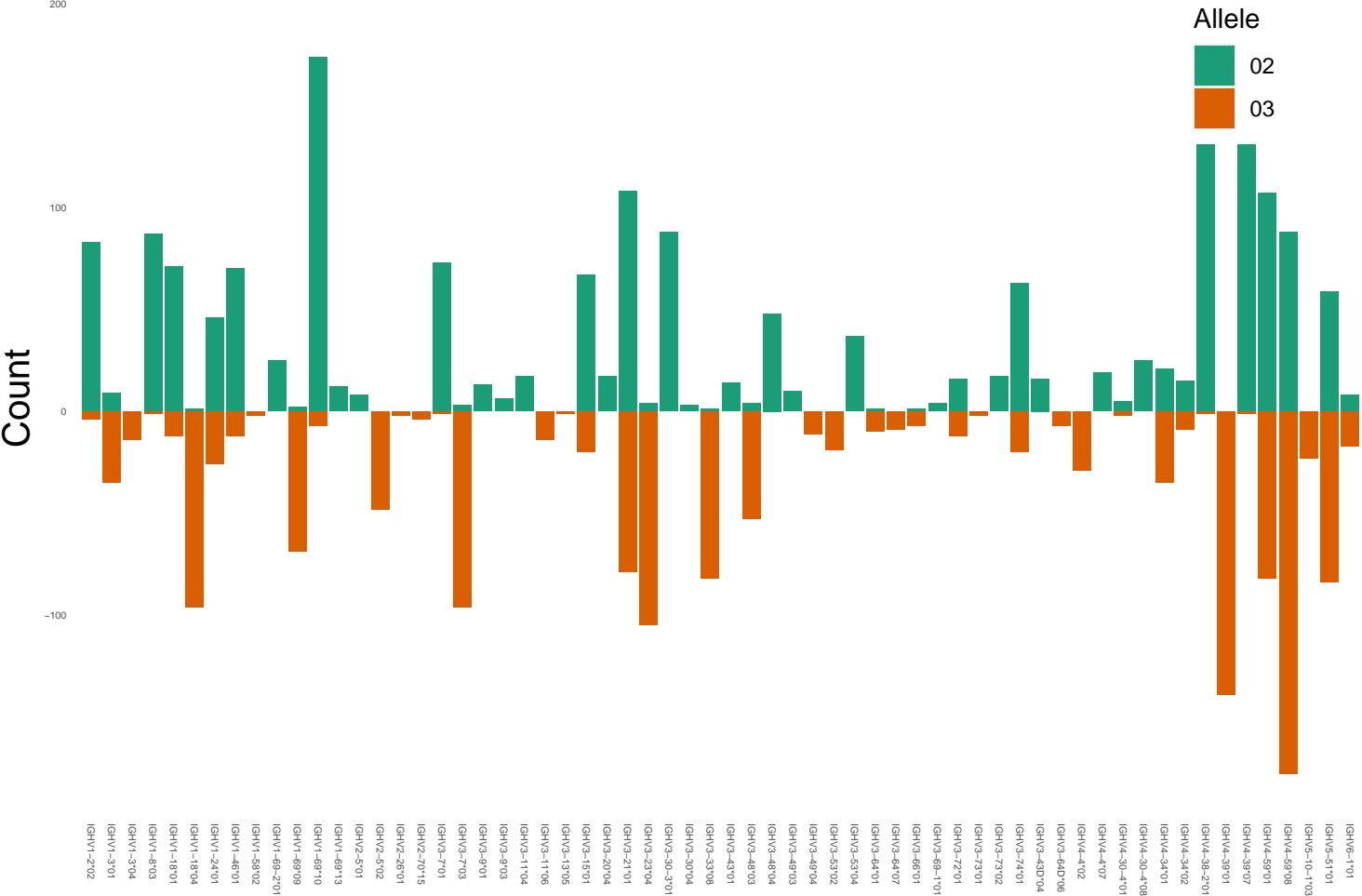
6 sequences assigned  
No exact matches.



Allele Usage



Sequence Count by IGHJ6 allele usage



[illegible]