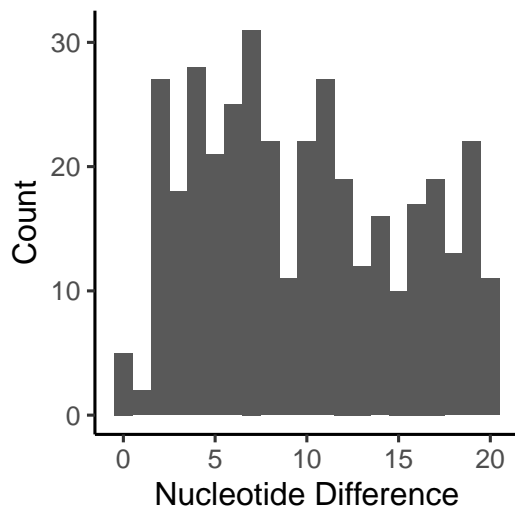


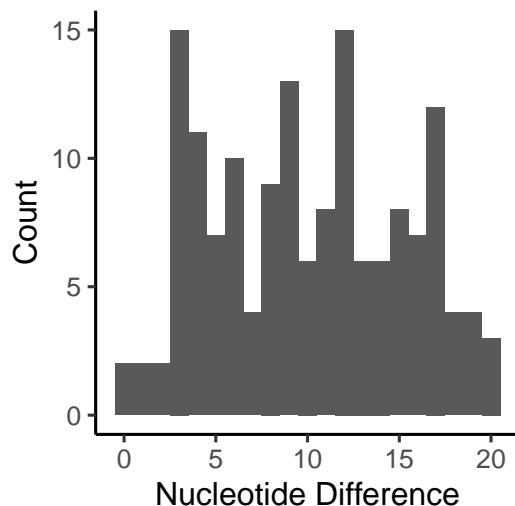
### IGHV1-2\*06

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



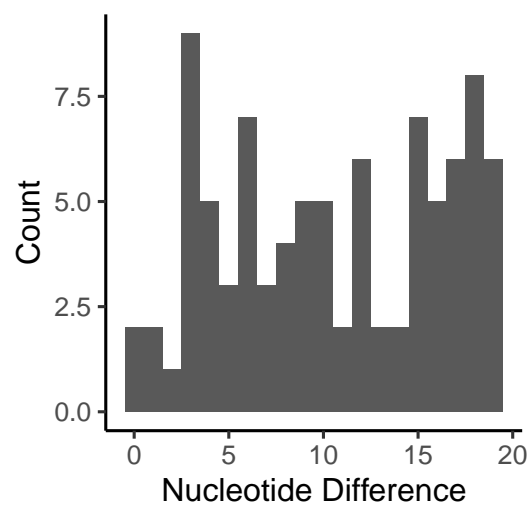
### IGHV1-8\*01

173 sequences assigned  
2 (1.2%) exact matches, in which:  
2 unique CDR3  
1 unique J



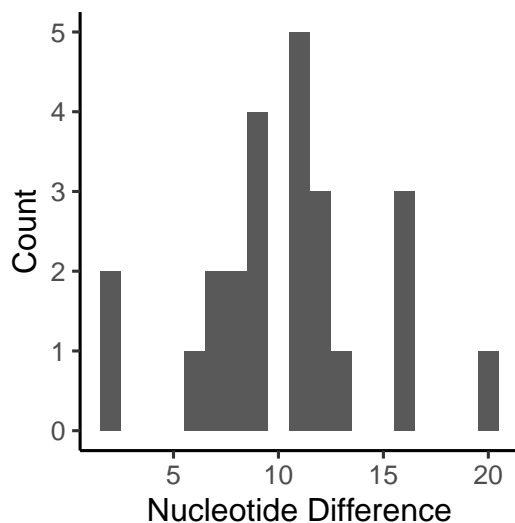
### IGHV1-24\*01

109 sequences assigned  
2 (1.8%) exact matches, in which:  
2 unique CDR3  
2 unique J



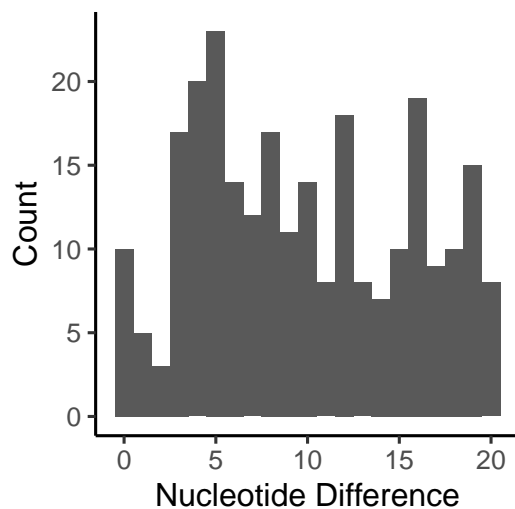
### IGHV1-3\*04

35 sequences assigned  
No exact matches.



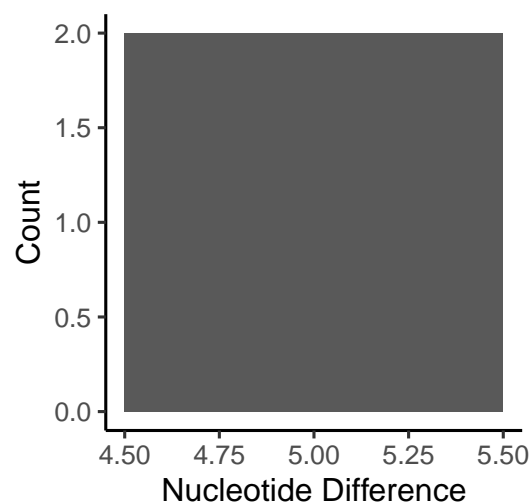
### IGHV1-18\*01

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



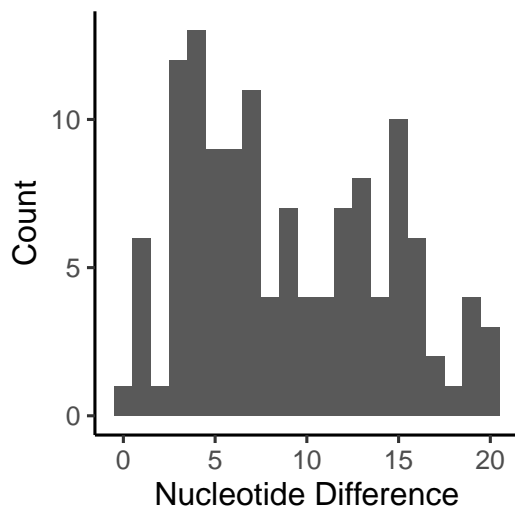
### IGHV1-45\*02

3 sequences assigned  
No exact matches.



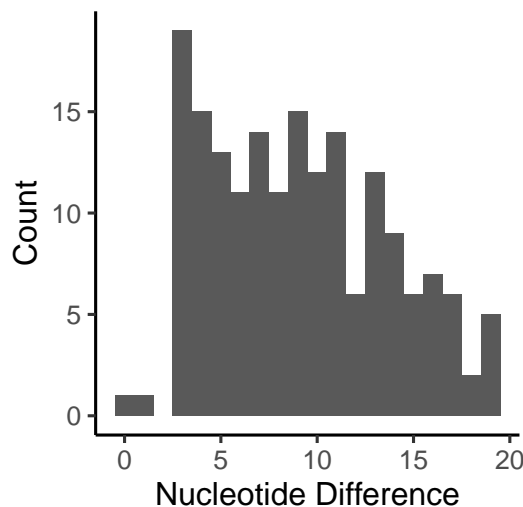
### IGHV1-3\*01\_05

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



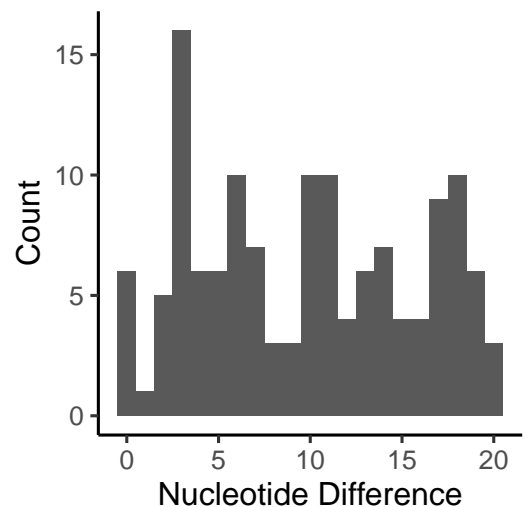
### IGHV1-18\*04

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



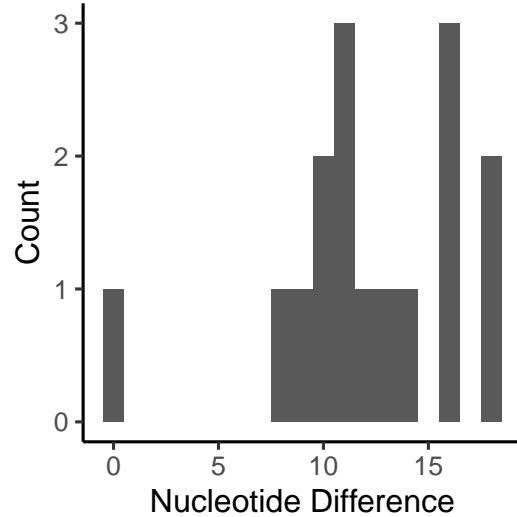
### IGHV1-46\*03

179 sequences assigned  
6 (3.4%) exact matches, in which:  
6 unique CDR3  
4 unique J



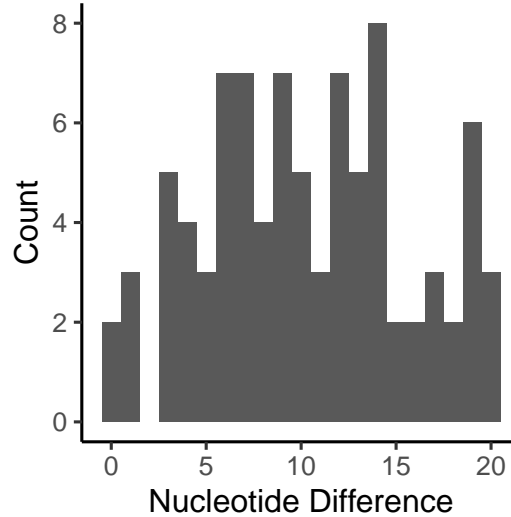
### IGHV1-58\*02

19 sequences assigned  
1 (5.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



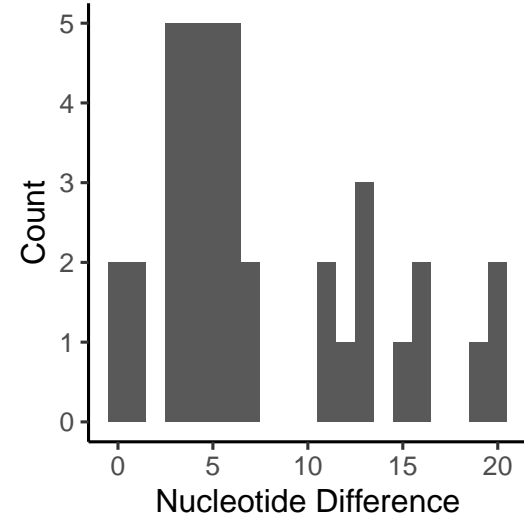
### IGHV1-69\*04\_09

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



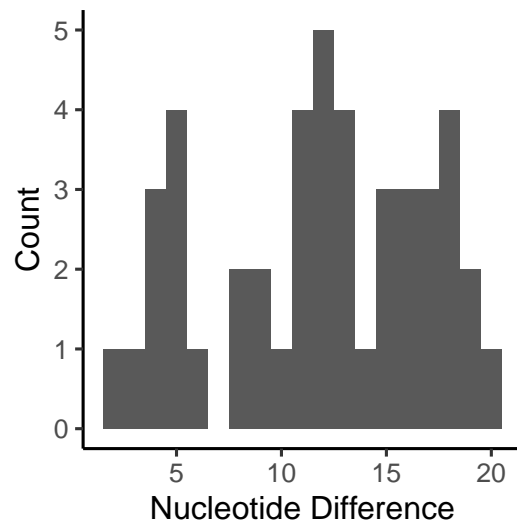
### IGHV2-70\*01

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



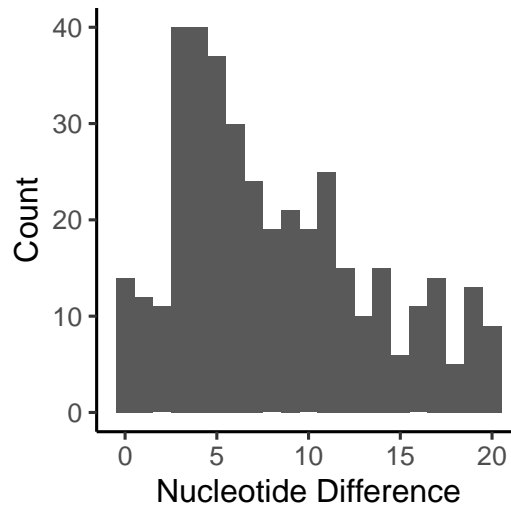
### IGHV1-58\*01\_03

81 sequences assigned  
No exact matches.



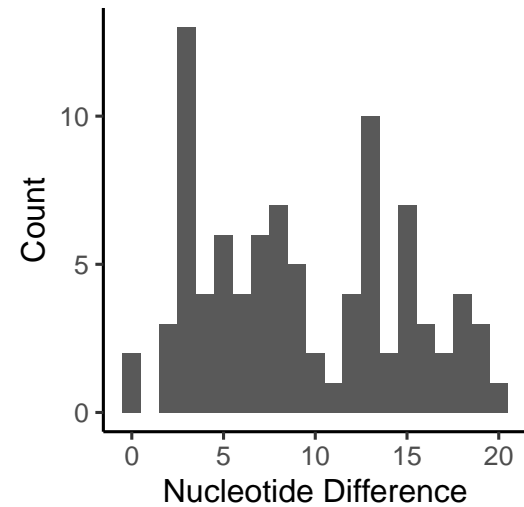
### IGHV2-5\*02

442 sequences assigned  
14 (3.2%) exact matches, in which:  
13 unique CDR3  
3 unique J



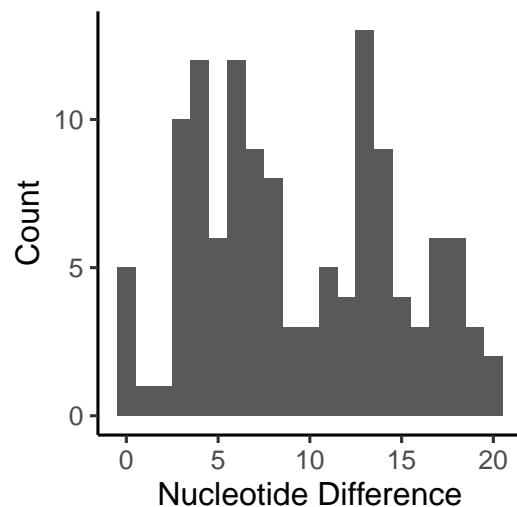
### IGHV2-70\*11\_15

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



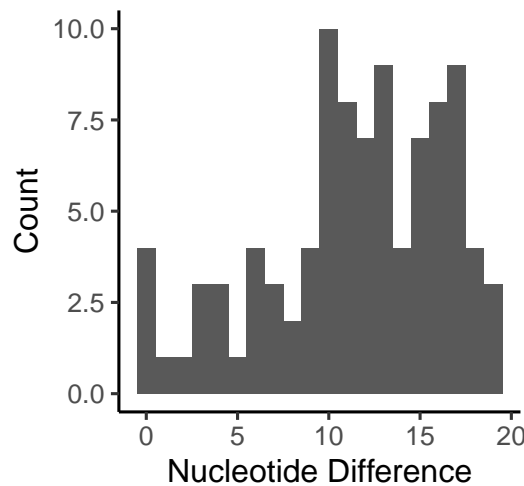
### IGHV1-69\*01\_12\_13

183 sequences assigned  
5 (2.7%) exact matches, in which:  
5 unique CDR3  
3 unique J



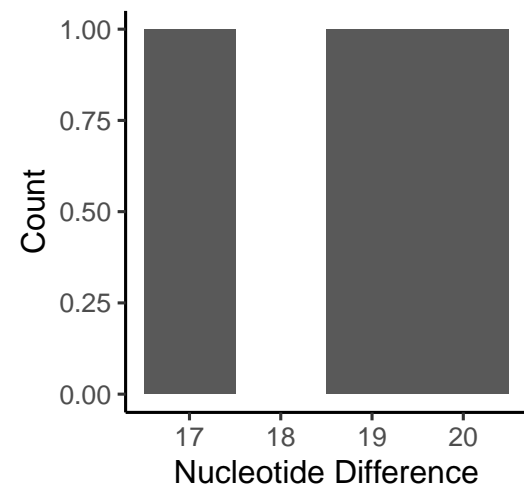
### IGHV2-26\*01

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



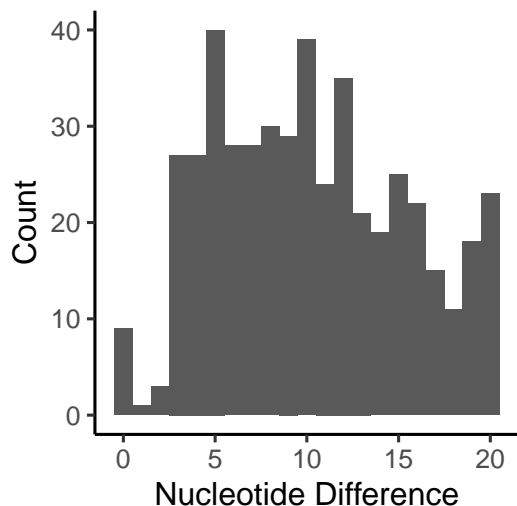
### IGHV2-70D\*04

3 sequences assigned  
No exact matches.



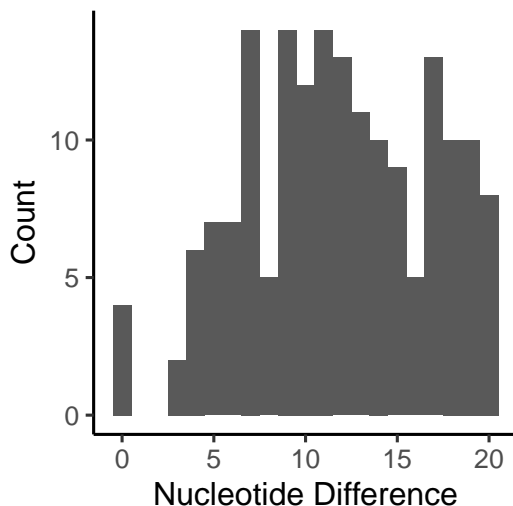
### IGHV3-7\*01

589 sequences assigned  
9 (1.5%) exact matches, in which:  
6 unique CDR3  
3 unique J



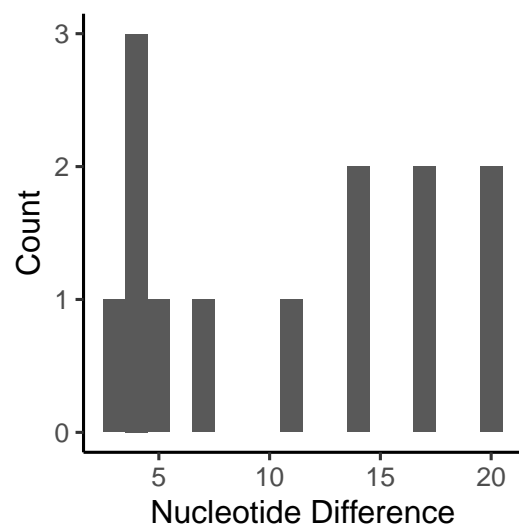
### IGHV3-11\*01

224 sequences assigned  
4 (1.8%) exact matches, in which:  
3 unique CDR3  
1 unique J



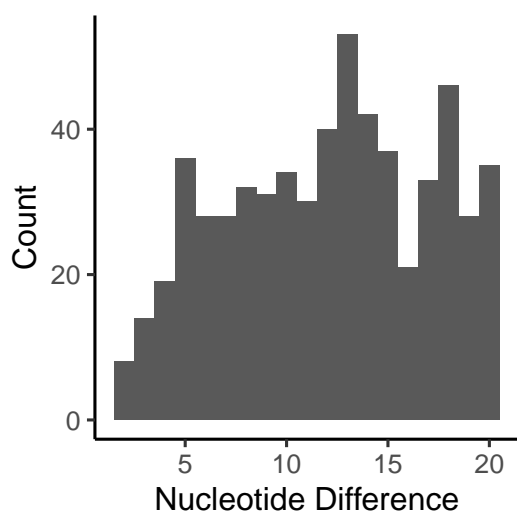
### IGHV3-13\*05

23 sequences assigned  
No exact matches.



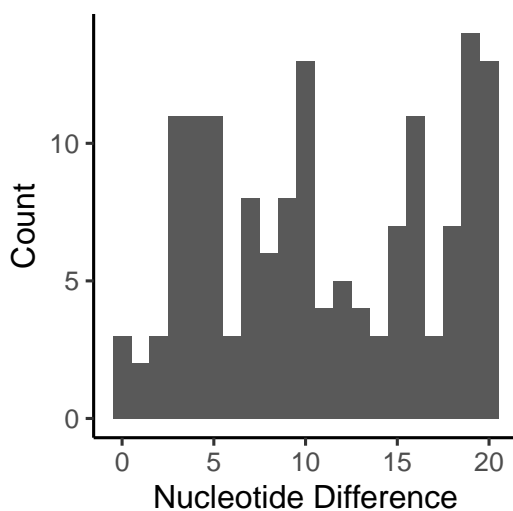
### IGHV3-7\*03

774 sequences assigned  
No exact matches.



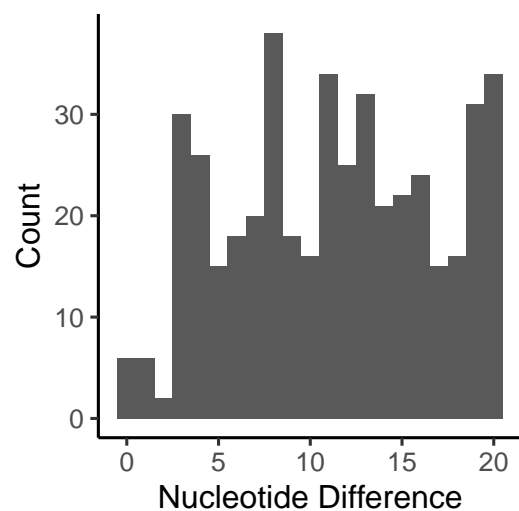
### IGHV3-11\*06

193 sequences assigned  
3 (1.6%) exact matches, in which:  
2 unique CDR3  
2 unique J



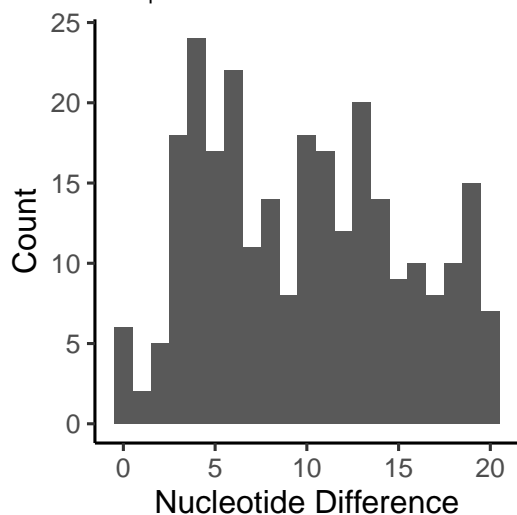
### IGHV3-15\*01\_02

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



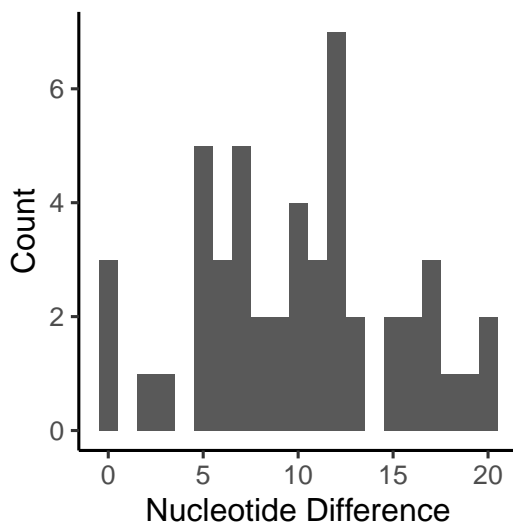
### IGHV3-9\*01

314 sequences assigned  
6 (1.9%) exact matches, in which:  
4 unique CDR3  
3 unique J



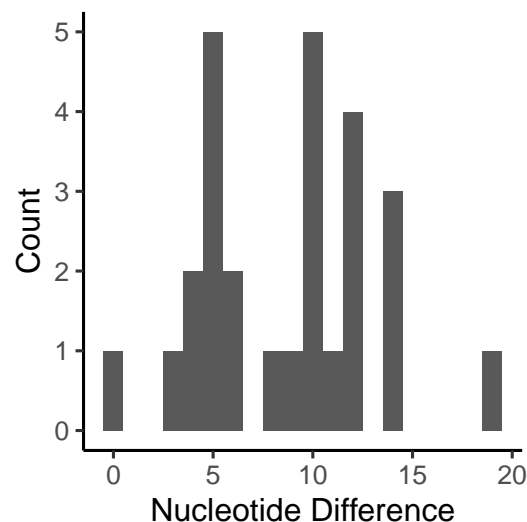
### IGHV3-13\*01

56 sequences assigned  
3 (5.4%) exact matches, in which:  
1 unique CDR3  
1 unique J



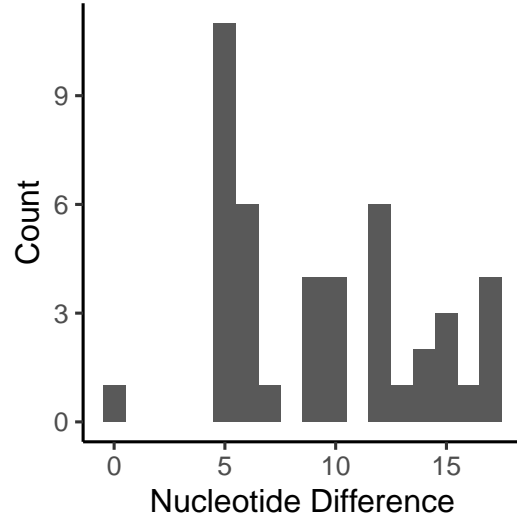
### IGHV3-20\*01\_02

28 sequences assigned  
1 (3.6%) exact matches, in which:  
1 unique CDR3  
1 unique J



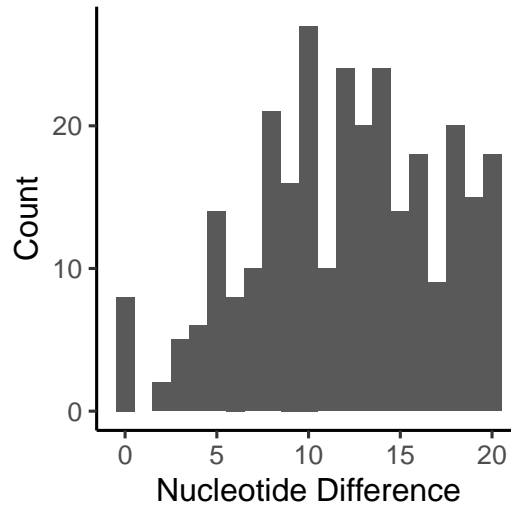
### IGHV3-20\*03\_04

61 sequences assigned  
1 (1.6%) exact matches, in which:  
1 unique CDR3  
1 unique J



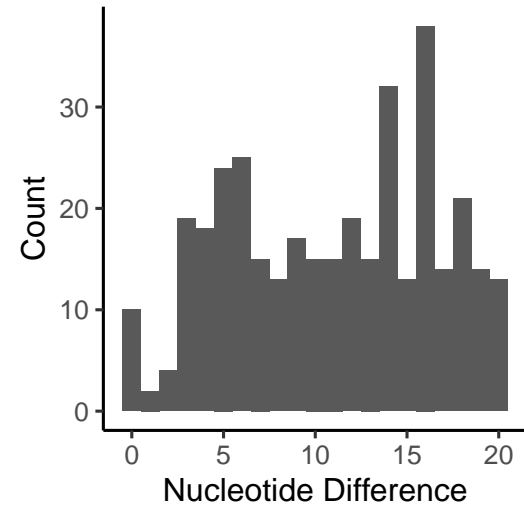
### IGHV3-33\*01

388 sequences assigned  
8 (2.1%) exact matches, in which:  
5 unique CDR3  
2 unique J



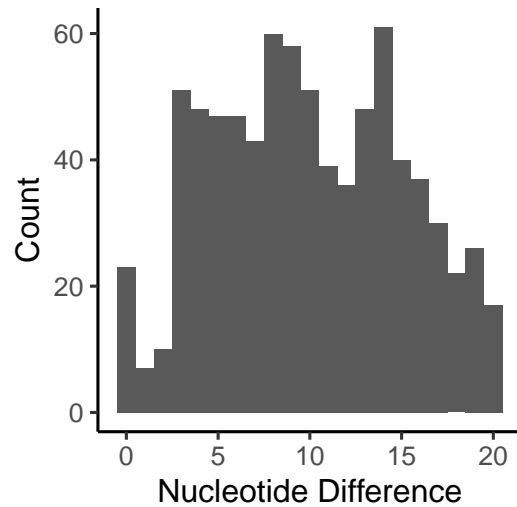
### IGHV3-48\*02

456 sequences assigned  
10 (2.2%) exact matches, in which:  
9 unique CDR3  
4 unique J



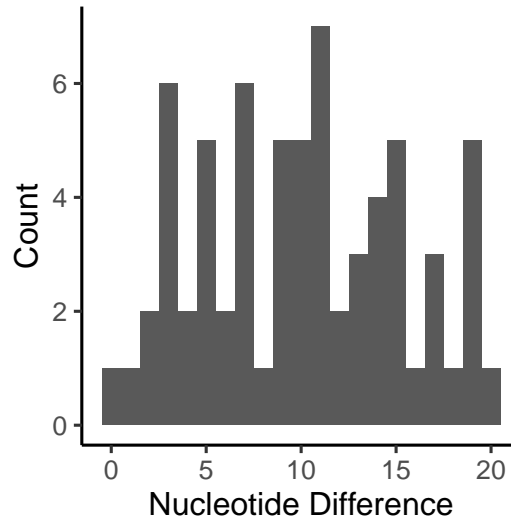
### IGHV3-21\*01\_02

938 sequences assigned  
23 (2.5%) exact matches, in which:  
12 unique CDR3  
5 unique J



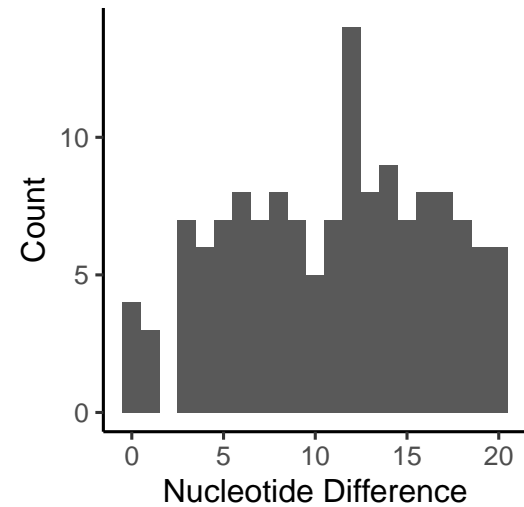
### IGHV3-43\*01

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



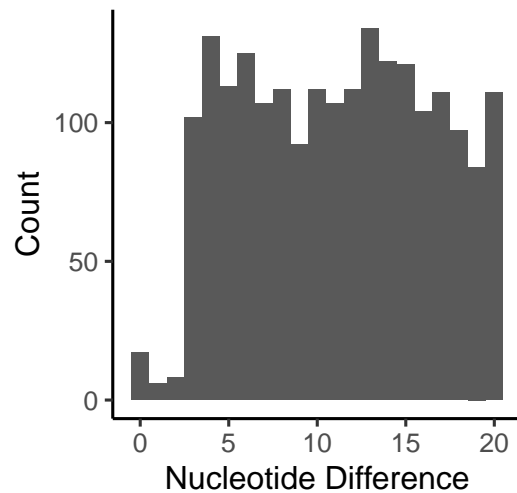
### IGHV3-49\*03\_05

175 sequences assigned  
4 (2.3%) exact matches, in which:  
4 unique CDR3  
2 unique J



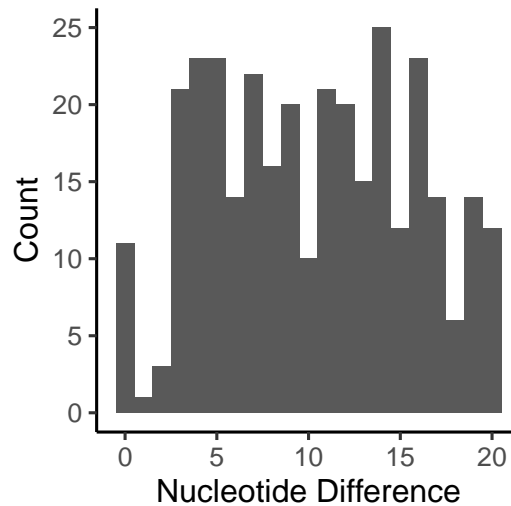
### IGHV3-23\*01\_04

2660 sequences assigned  
17 (0.6%) exact matches, in which:  
12 unique CDR3  
5 unique J



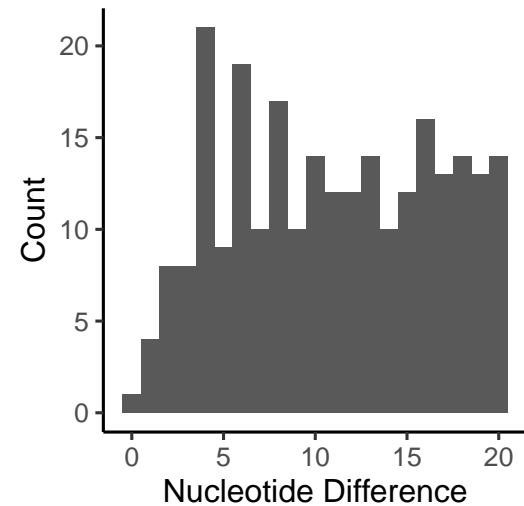
### IGHV3-48\*01

401 sequences assigned  
11 (2.7%) exact matches, in which:  
6 unique CDR3  
2 unique J



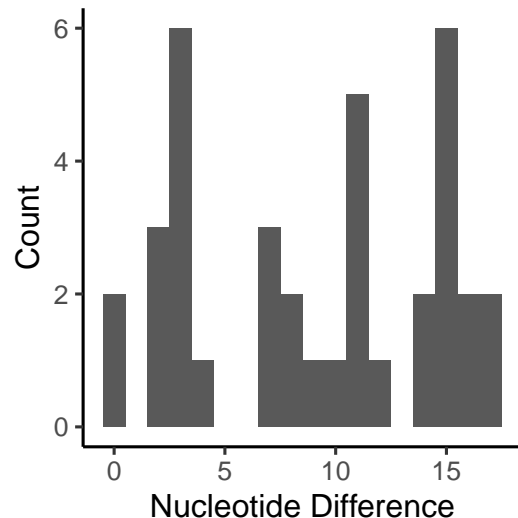
### IGHV3-53\*01\_02

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



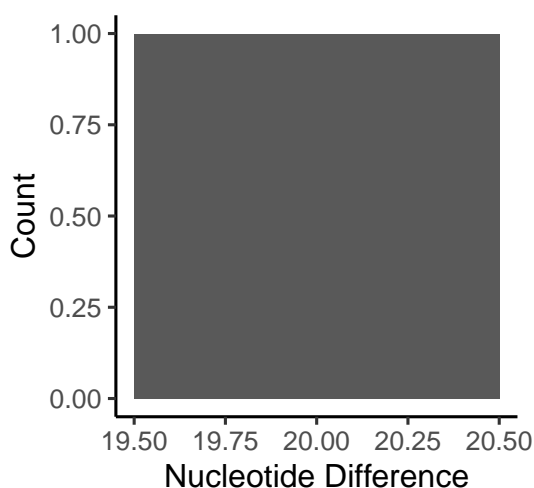
### IGHV3-64\*01

121 sequences assigned  
2 (1.7%) exact matches, in which:  
1 unique CDR3  
1 unique J



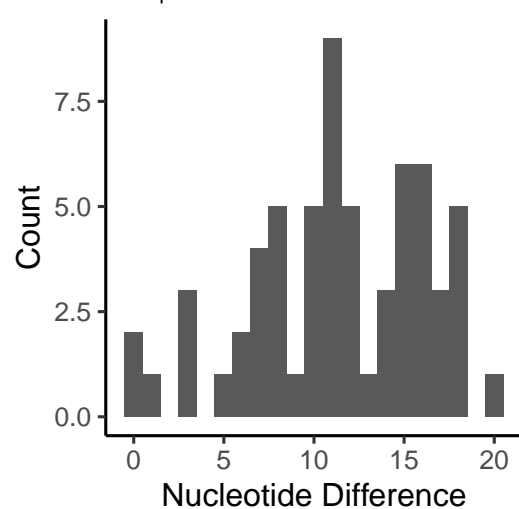
### IGHV3-69-1\*01

20 sequences assigned  
No exact matches.



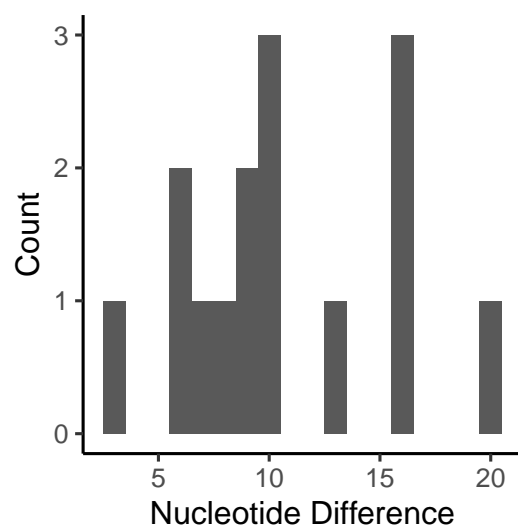
### IGHV3-73\*01\_02

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



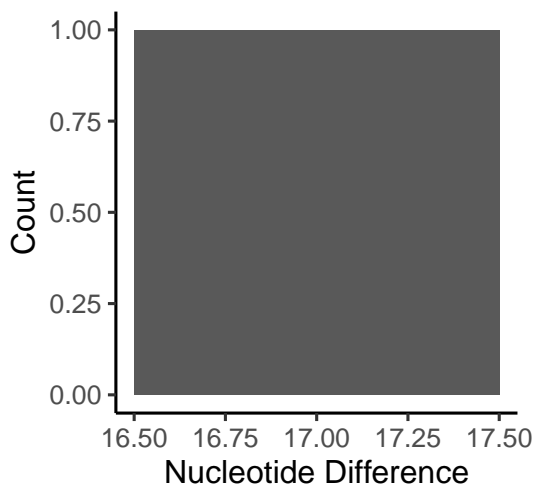
### IGHV3-64\*02\_07

18 sequences assigned  
No exact matches.



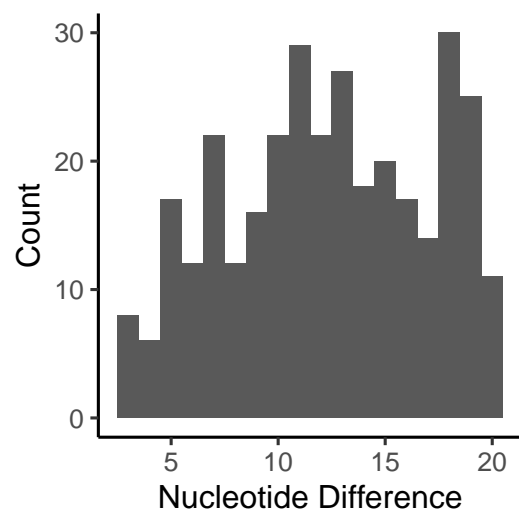
### IGHV3-69-1\*02

2 sequences assigned  
No exact matches.



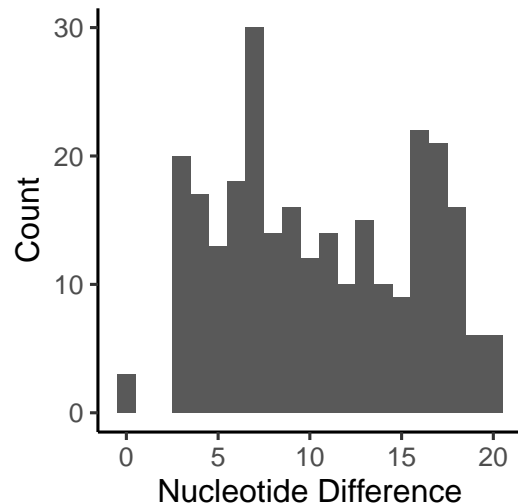
### IGHV3-74\*03

426 sequences assigned  
No exact matches.



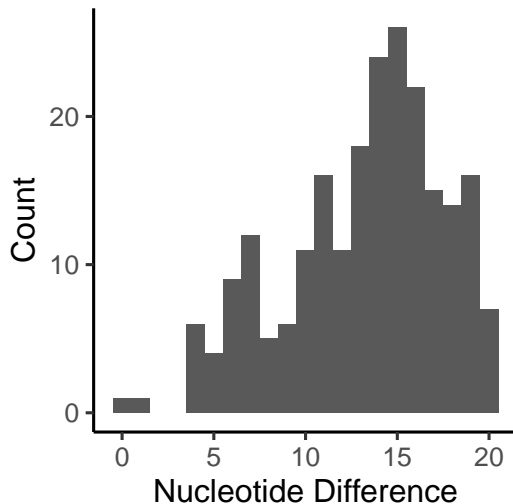
### IGHV3-66\*01

345 sequences assigned  
3 (0.9%) exact matches, in which:  
3 unique CDR3  
2 unique J



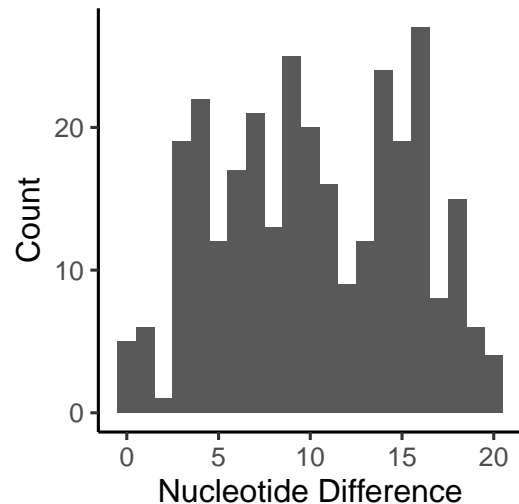
### IGHV3-72\*01

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



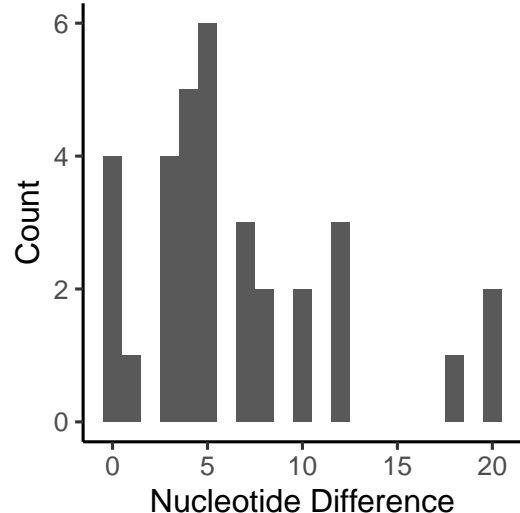
### IGHV3-74\*01\_02

330 sequences assigned  
5 (1.5%) exact matches, in which:  
4 unique CDR3  
2 unique J



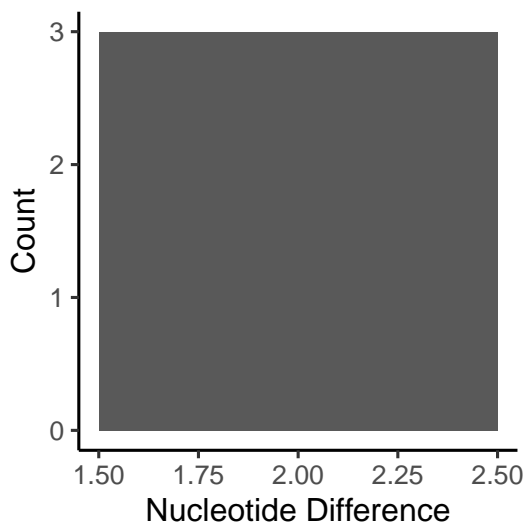
### IGHV3-43D\*03

42 sequences assigned  
4 (9.5%) exact matches, in which:  
2 unique CDR3  
1 unique J



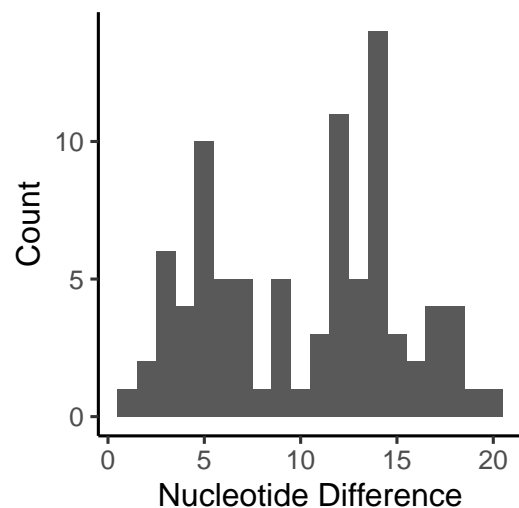
### IGHV4-28\*01\_07

4 sequences assigned  
No exact matches.



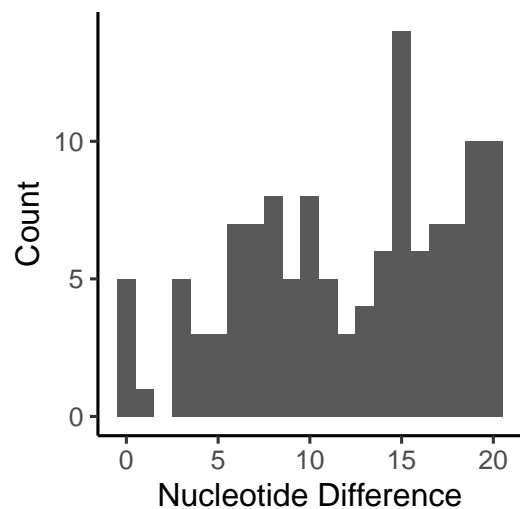
### IGHV4-30-4\*07

109 sequences assigned  
No exact matches.



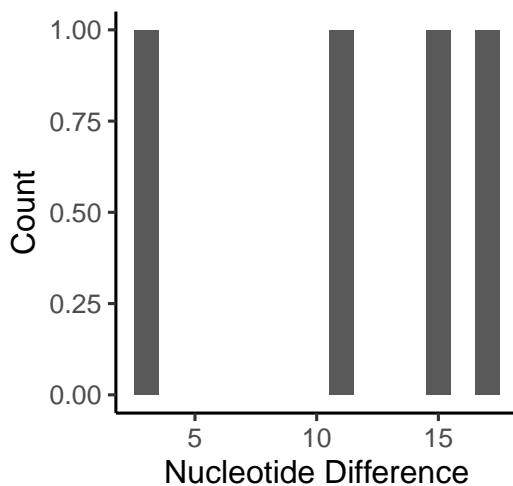
### IGHV3-64D\*06

170 sequences assigned  
5 (2.9%) exact matches, in which:  
2 unique CDR3  
2 unique J



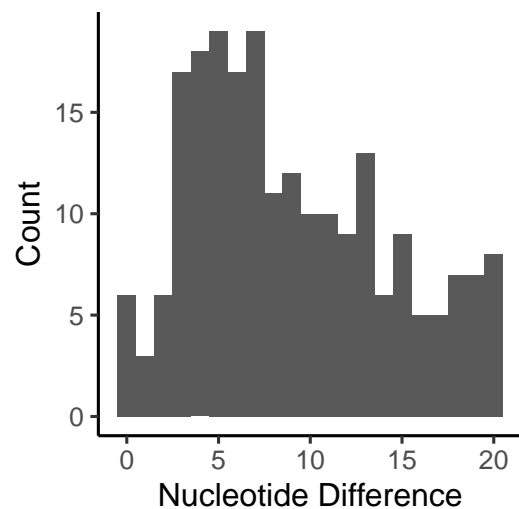
### IGHV4-28\*02\_05

6 sequences assigned  
No exact matches.



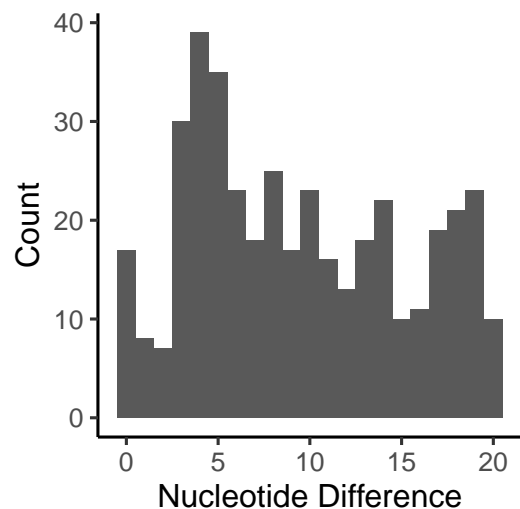
### IGHV4-31\*02

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



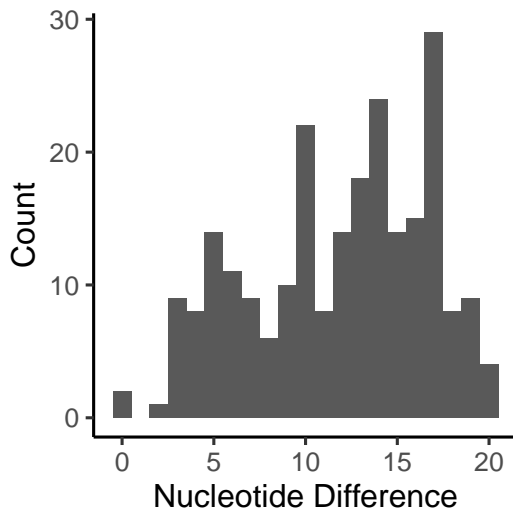
### IGHV4-4\*02\_03

531 sequences assigned  
17 (3.2%) exact matches, in which:  
11 unique CDR3  
4 unique J



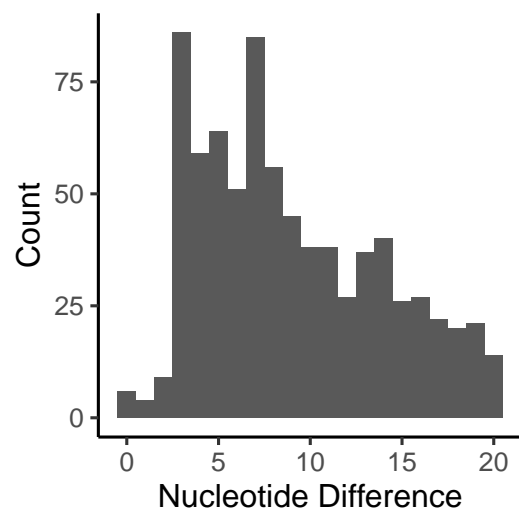
### IGHV4-30-2\*01

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



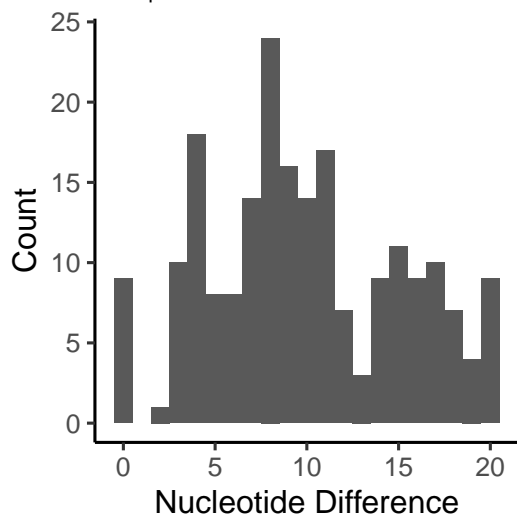
### IGHV4-34\*01\_02

964 sequences assigned  
6 (0.6%) exact matches, in which:  
5 unique CDR3  
4 unique J



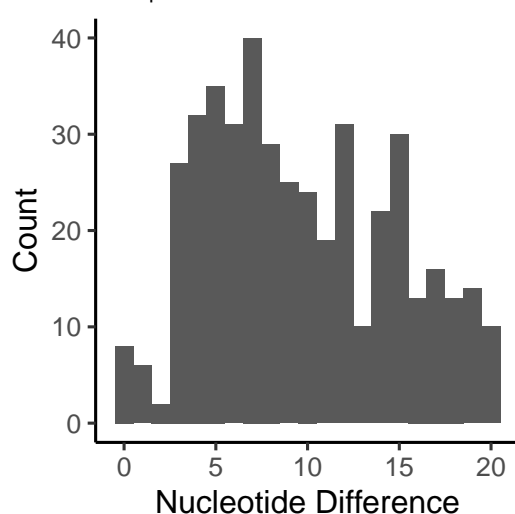
### IGHV4-38-2\*02

280 sequences assigned  
9 (3.2%) exact matches, in which:  
7 unique CDR3  
3 unique J



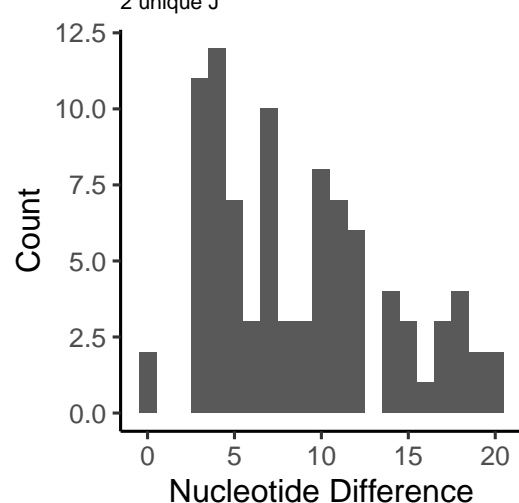
### IGHV4-59\*08

526 sequences assigned  
8 (1.5%) exact matches, in which:  
7 unique CDR3  
4 unique J



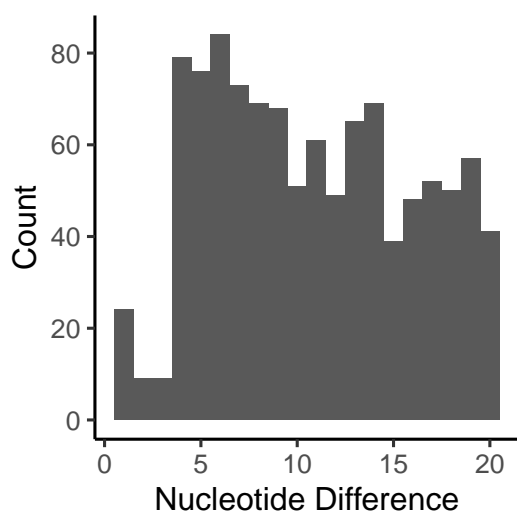
### IGHV4-61\*01

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



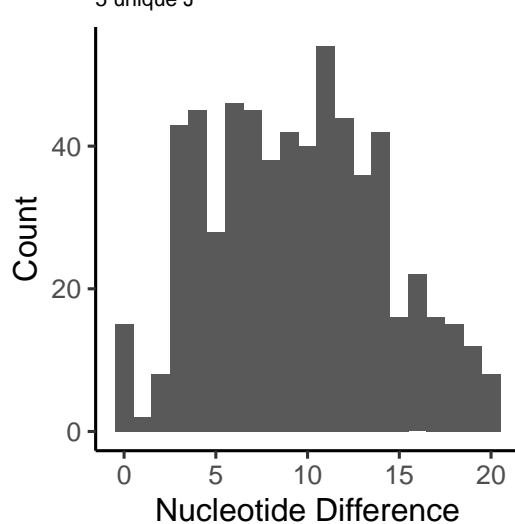
### IGHV4-39\*02

1480 sequences assigned  
No exact matches.



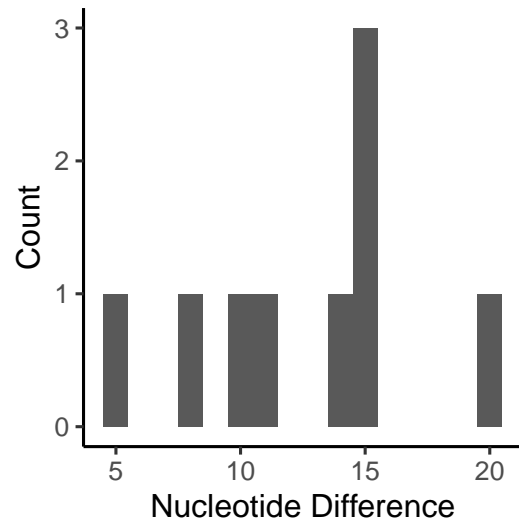
### IGHV4-59\*01\_07

718 sequences assigned  
15 (2.1%) exact matches, in which:  
11 unique CDR3  
5 unique J



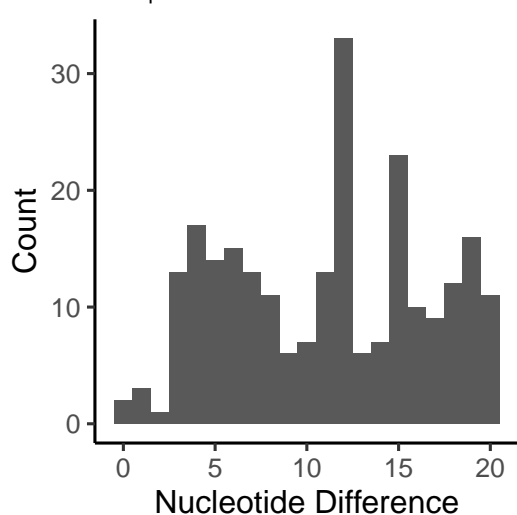
### IGHV4-61\*08

19 sequences assigned  
No exact matches.



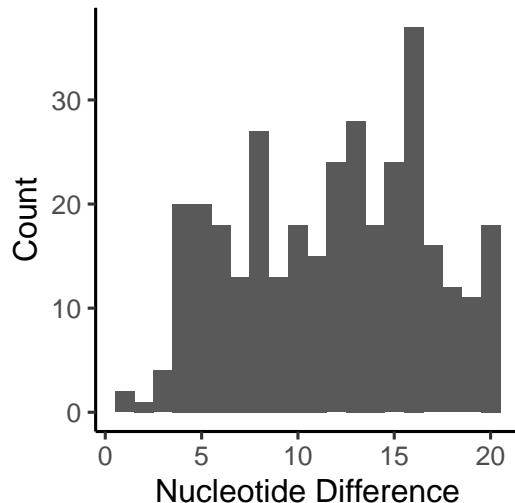
### IGHV4-39\*01\_05

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



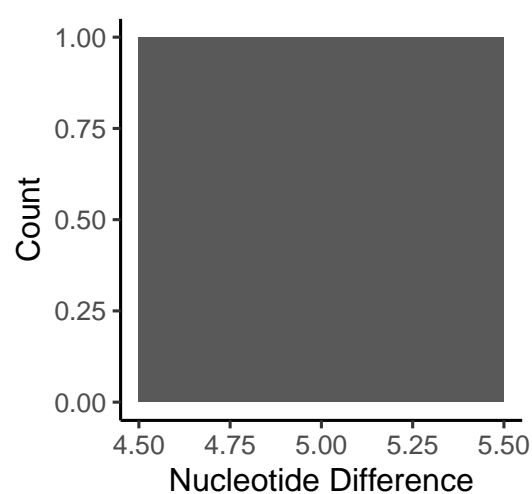
### IGHV4-59\*11

417 sequences assigned  
No exact matches.



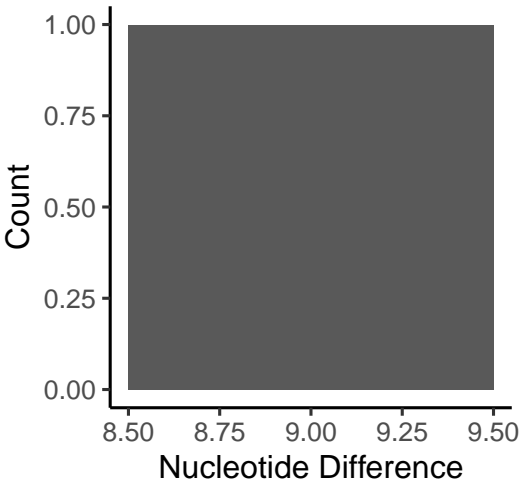
### IGHV4/OR15-8\*01

15 sequences assigned  
No exact matches.



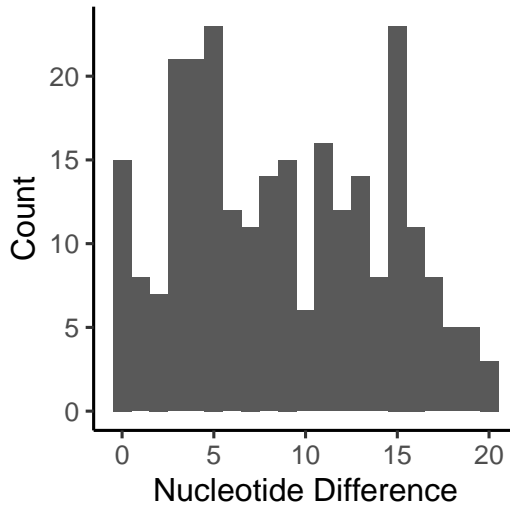
### IGHV1/OR15-9\*01

1 sequences assigned  
No exact matches.



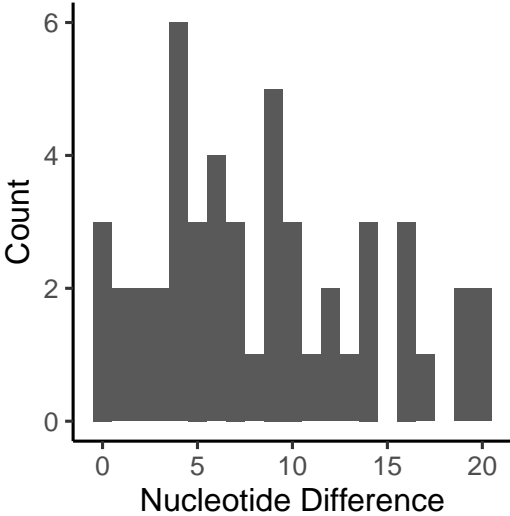
### IGHV5-51\*01\_03

280 sequences assigned  
15 (5.4%) exact matches, in which:  
15 unique CDR3  
4 unique J



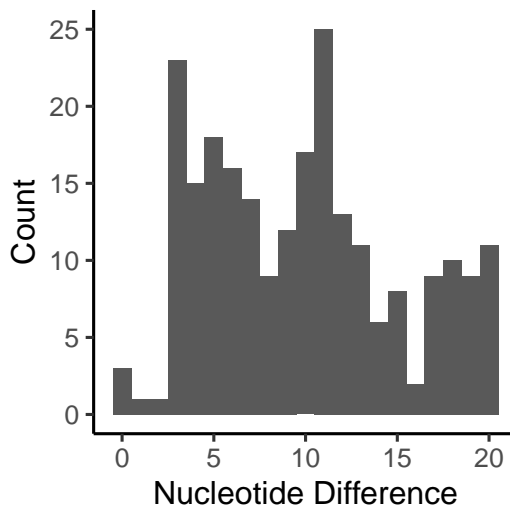
### IGHV5-10-1\*01\_03

56 sequences assigned  
3 (5.4%) exact matches, in which:  
3 unique CDR3  
2 unique J



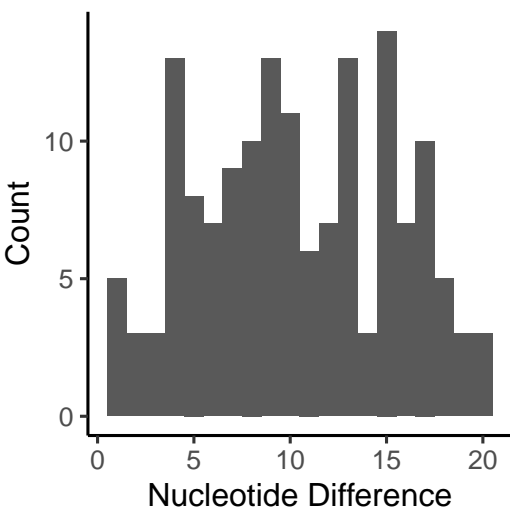
### IGHV6-1\*01\_02

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



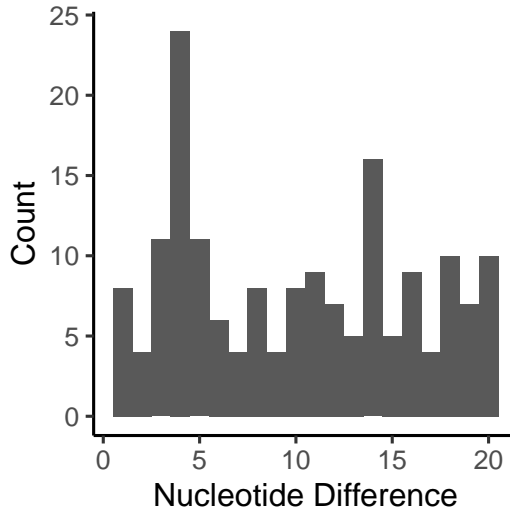
### IGHV5-51\*07

176 sequences assigned  
No exact matches.



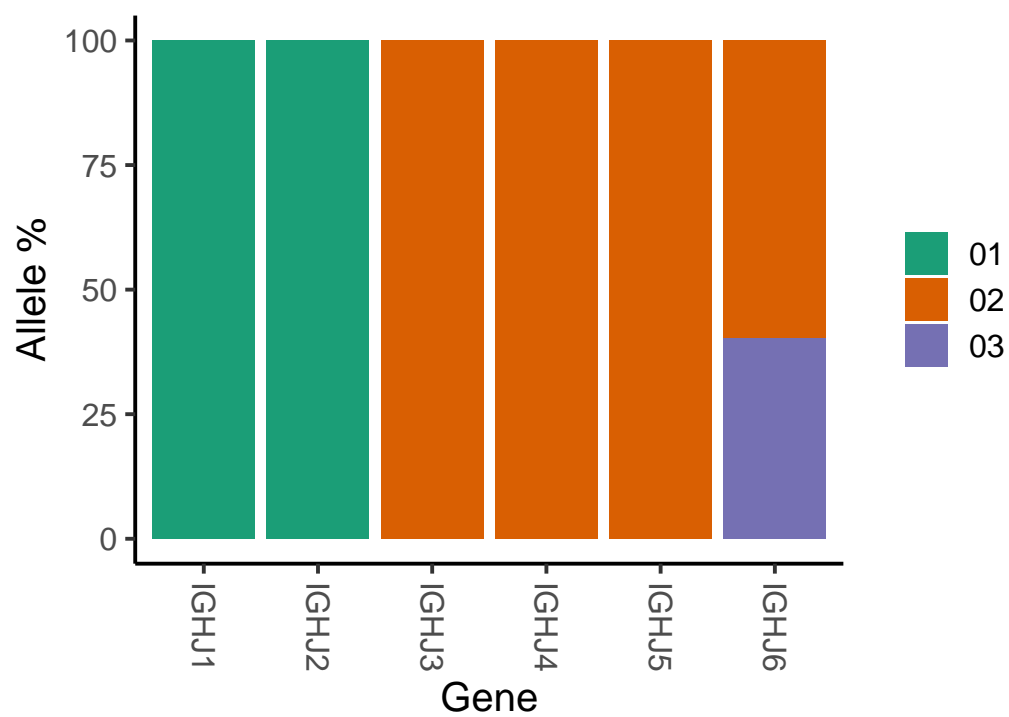
### IGHV7-4-1\*02

208 sequences assigned  
No exact matches.

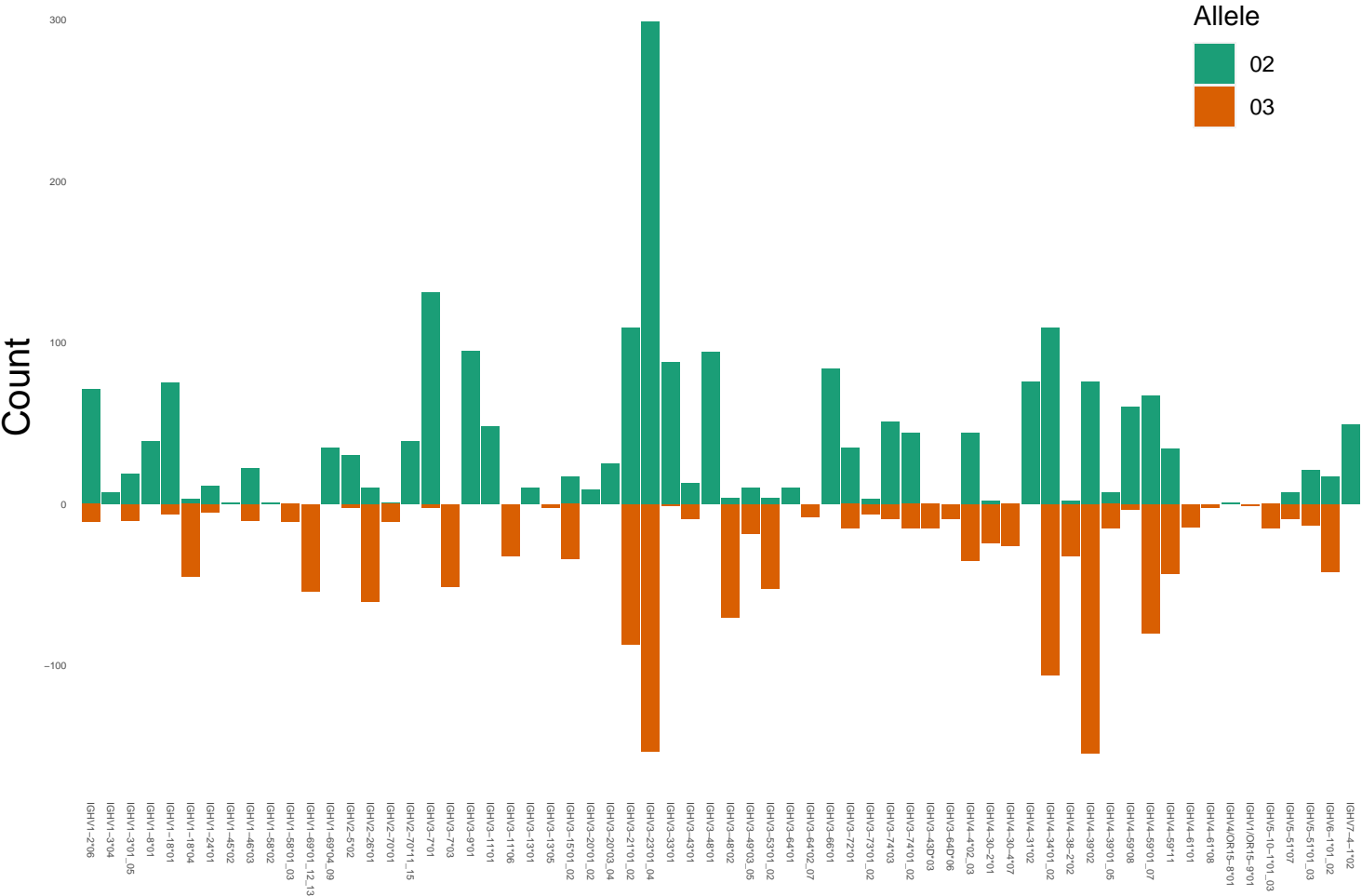




Allele Usage



Sequence Count by IGHJ6 allele usage



[illegible]