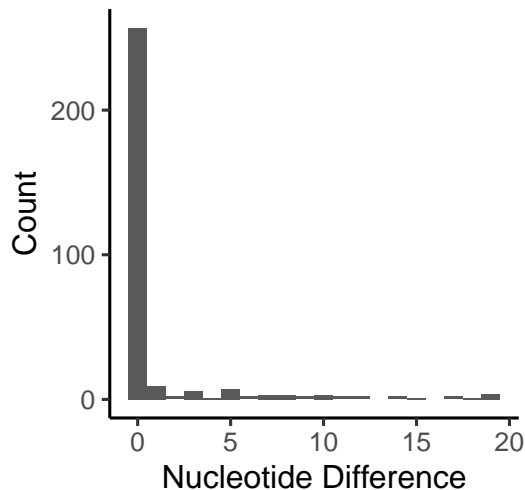


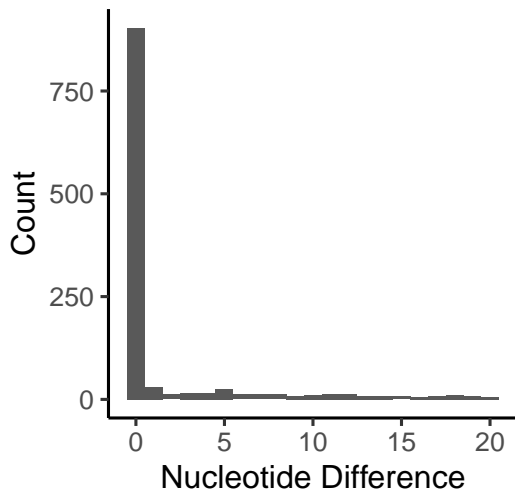
### IGHV1–2\*04

315 sequences assigned  
257 (81.6%) exact matches, in which:  
255 unique CDR3  
7 unique J



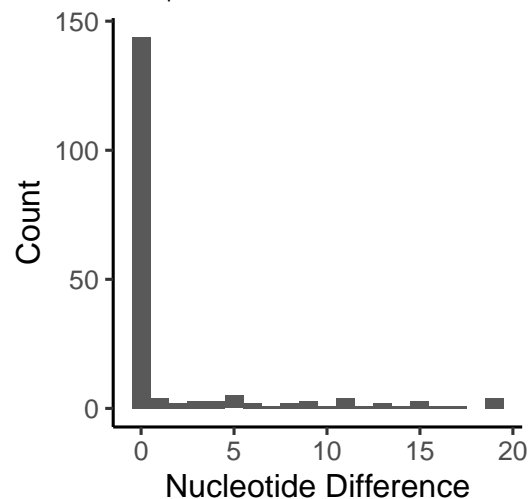
### IGHV1–18\*01

1170 sequences assigned  
904 (77.3%) exact matches, in which:  
900 unique CDR3  
7 unique J



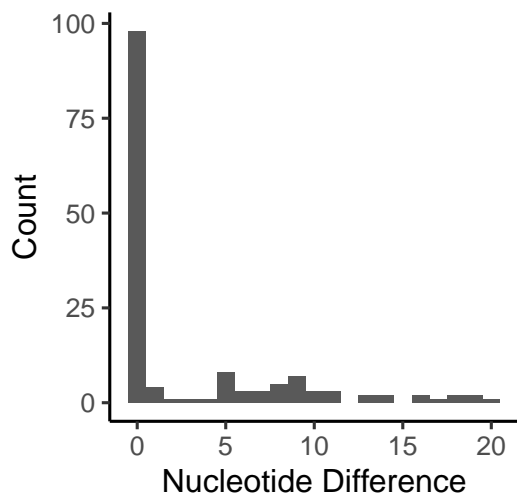
### IGHV1–46\*01

190 sequences assigned  
144 (75.8%) exact matches, in which:  
144 unique CDR3  
6 unique J



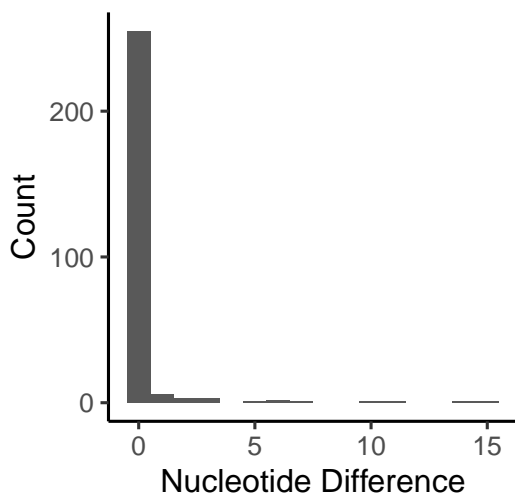
### IGHV1–3\*01\_05

150 sequences assigned  
98 (65.3%) exact matches, in which:  
98 unique CDR3  
4 unique J



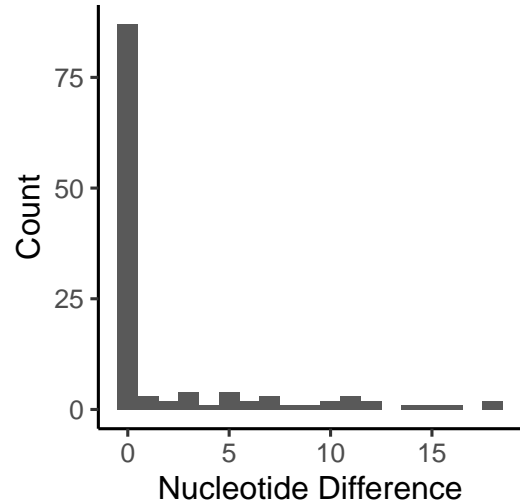
### IGHV1–24\*01

277 sequences assigned  
255 (92.1%) exact matches, in which:  
253 unique CDR3  
6 unique J



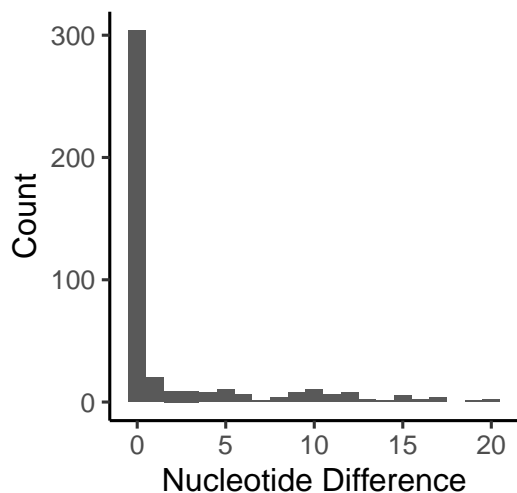
### IGHV1–46\*03

121 sequences assigned  
87 (71.9%) exact matches, in which:  
87 unique CDR3  
4 unique J



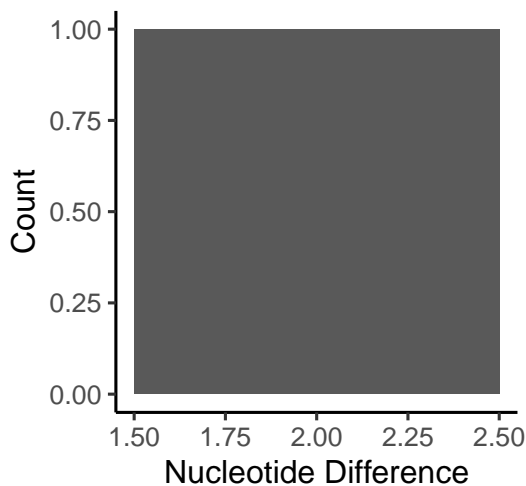
### IGHV1–8\*01

421 sequences assigned  
304 (72.2%) exact matches, in which:  
303 unique CDR3  
7 unique J



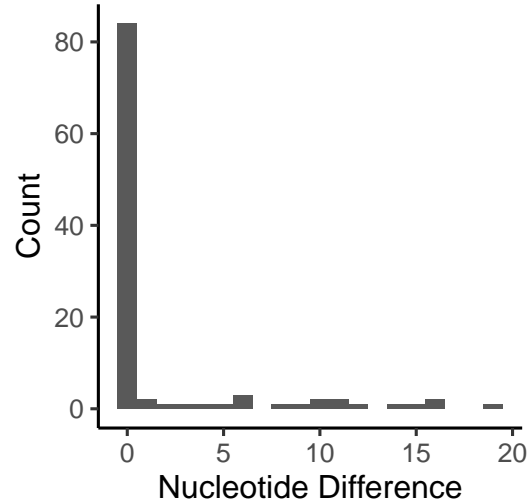
### IGHV1–45\*02

1 sequences assigned  
No exact matches.



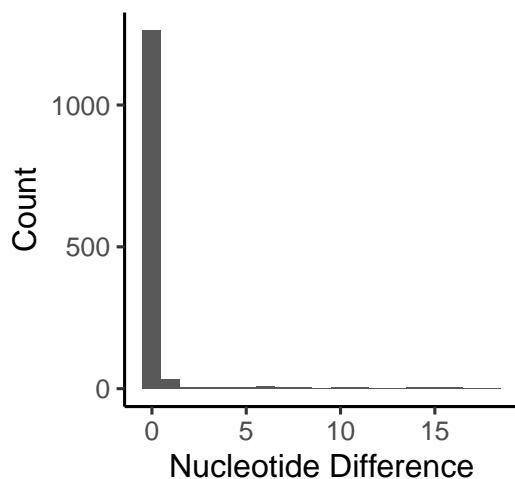
### IGHV1–58\*01\_03

109 sequences assigned  
84 (77.1%) exact matches, in which:  
84 unique CDR3  
6 unique J



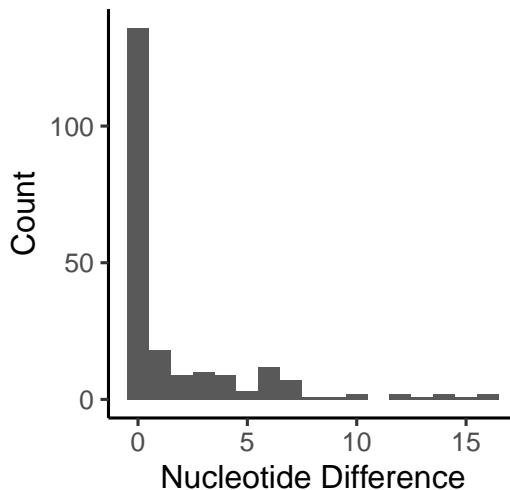
### IGHV1-69\*01\_12\_13

1383 sequences assigned  
1263 (91.3%) exact matches, in which:  
1256 unique CDR3  
7 unique J



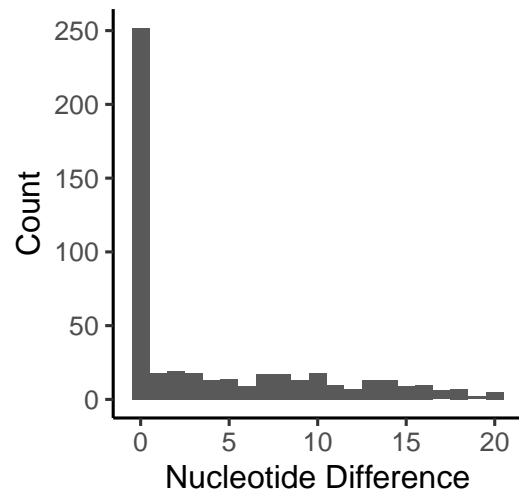
### IGHV2-5\*02

217 sequences assigned  
136 (62.7%) exact matches, in which:  
133 unique CDR3  
6 unique J



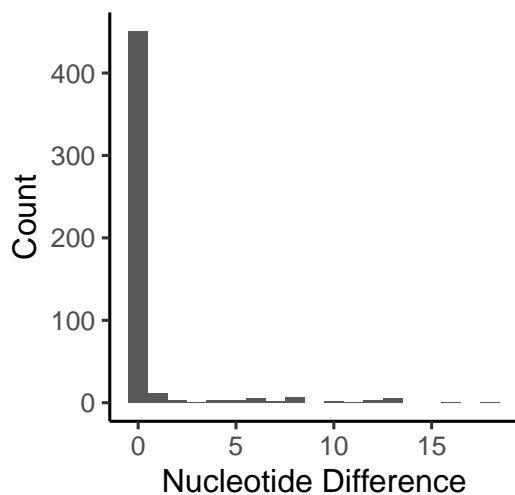
### IGHV3-7\*01

502 sequences assigned  
252 (50.2%) exact matches, in which:  
248 unique CDR3  
6 unique J



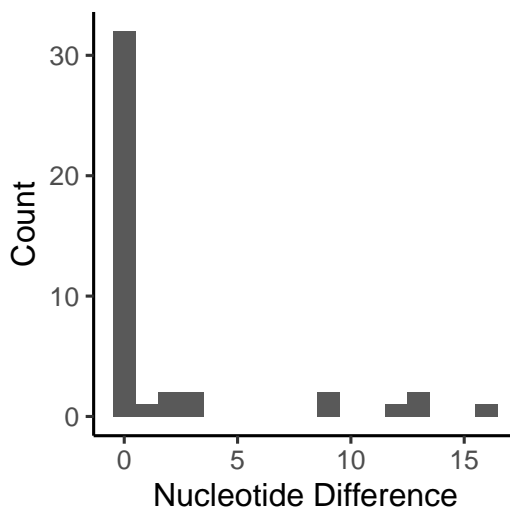
### IGHV1-69\*06\_14

506 sequences assigned  
451 (89.1%) exact matches, in which:  
450 unique CDR3  
6 unique J



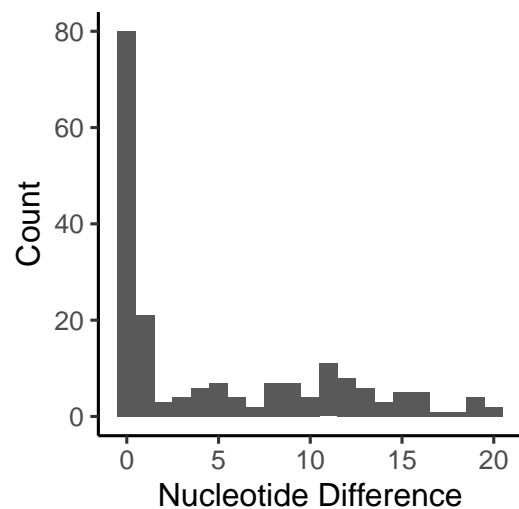
### IGHV2-26\*01

43 sequences assigned  
32 (74.4%) exact matches, in which:  
32 unique CDR3  
6 unique J



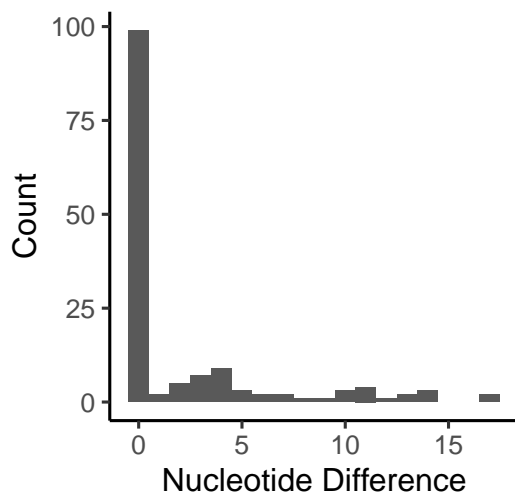
### IGHV3-7\*04

199 sequences assigned  
80 (40.2%) exact matches, in which:  
78 unique CDR3  
6 unique J



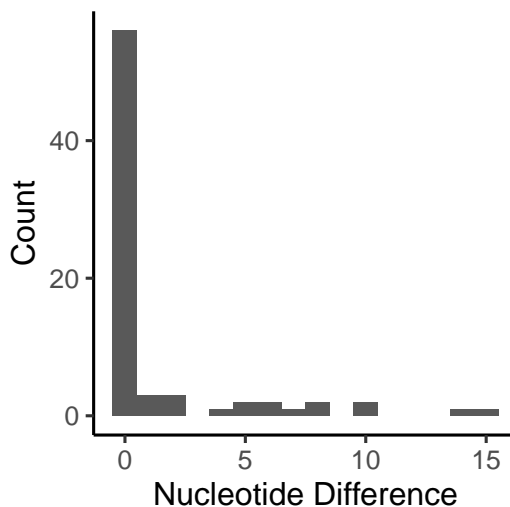
### IGHV2-5\*01

150 sequences assigned  
99 (66%) exact matches, in which:  
97 unique CDR3  
6 unique J



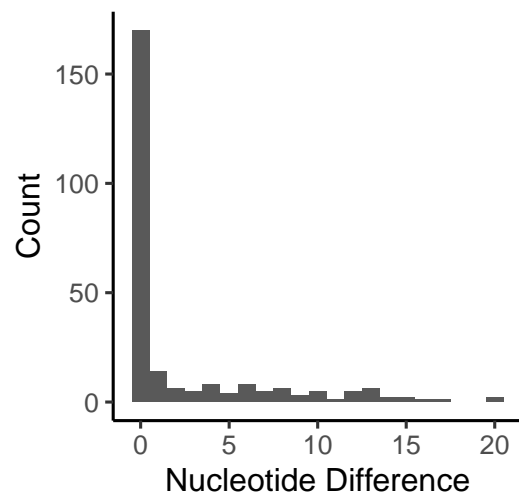
### IGHV2-70\*01

74 sequences assigned  
56 (75.7%) exact matches, in which:  
55 unique CDR3  
6 unique J



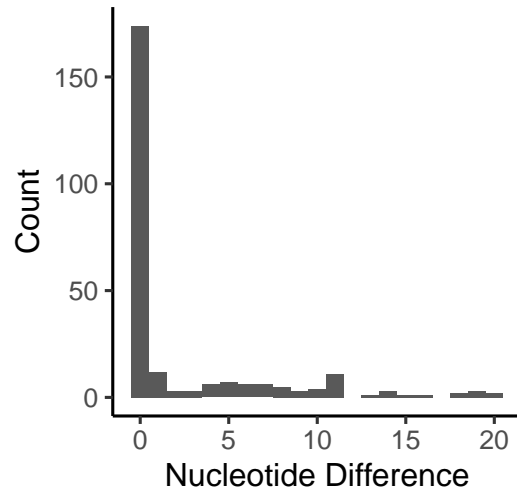
### IGHV3-9\*01

260 sequences assigned  
170 (65.4%) exact matches, in which:  
169 unique CDR3  
6 unique J



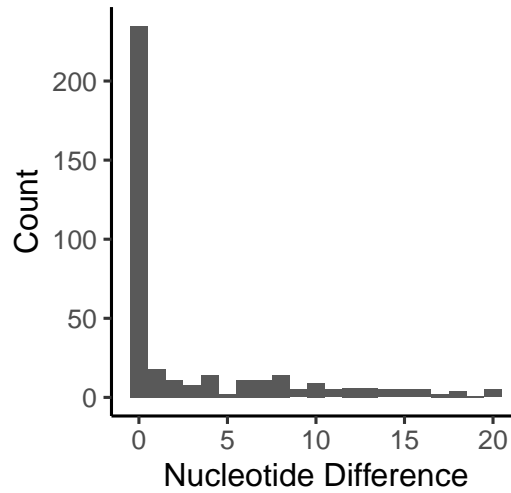
### IGHV3-11\*01

253 sequences assigned  
174 (68.8%) exact matches, in which:  
169 unique CDR3  
6 unique J



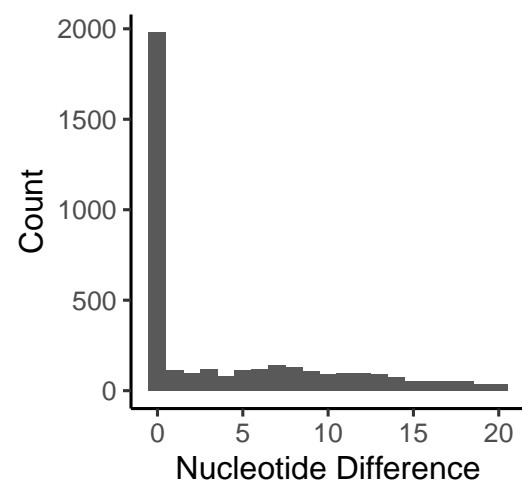
### IGHV3-15\*01\_02

406 sequences assigned  
235 (57.9%) exact matches, in which:  
231 unique CDR3  
7 unique J



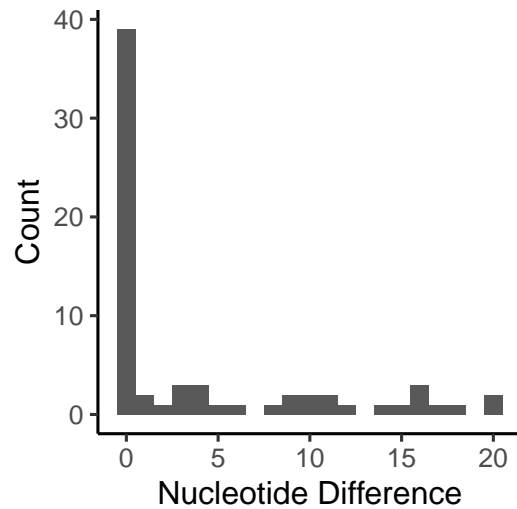
### IGHV3-23\*01\_04

3917 sequences assigned  
1980 (50.5%) exact matches, in which:  
1914 unique CDR3  
7 unique J



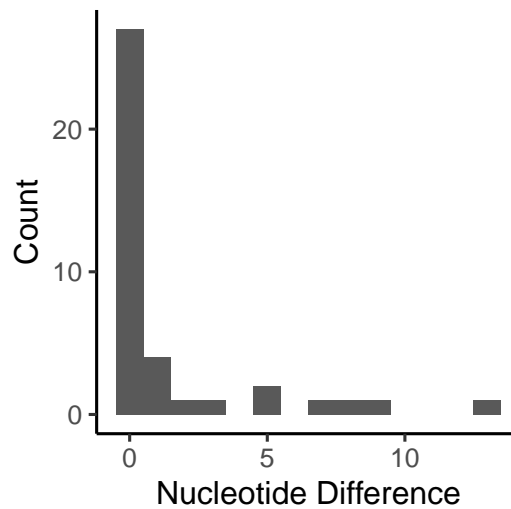
### IGHV3-11\*06

70 sequences assigned  
39 (55.7%) exact matches, in which:  
39 unique CDR3  
5 unique J



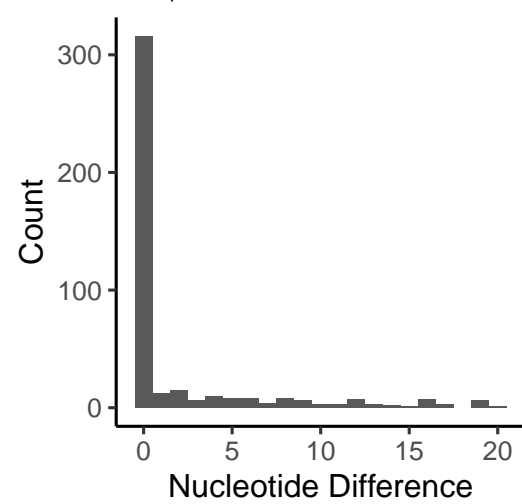
### IGHV3-20\*01\_02

39 sequences assigned  
27 (69.2%) exact matches, in which:  
25 unique CDR3  
5 unique J



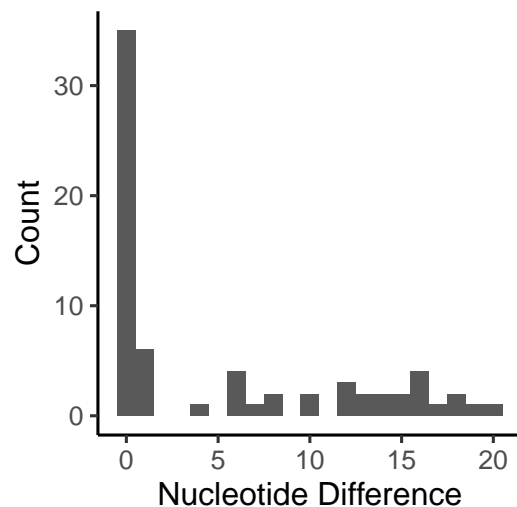
### IGHV3-30\*03

445 sequences assigned  
316 (71%) exact matches, in which:  
312 unique CDR3  
7 unique J



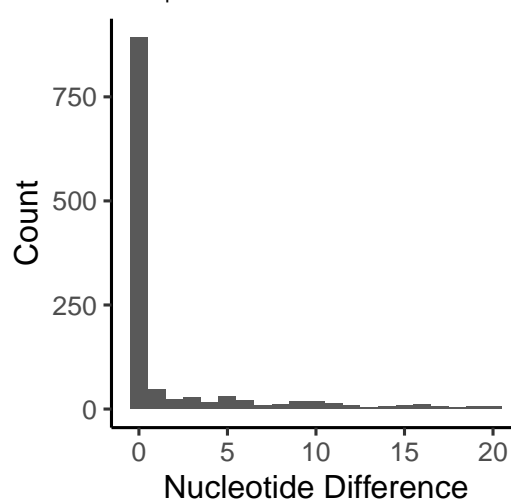
### IGHV3-13\*01

71 sequences assigned  
35 (49.3%) exact matches, in which:  
33 unique CDR3  
4 unique J



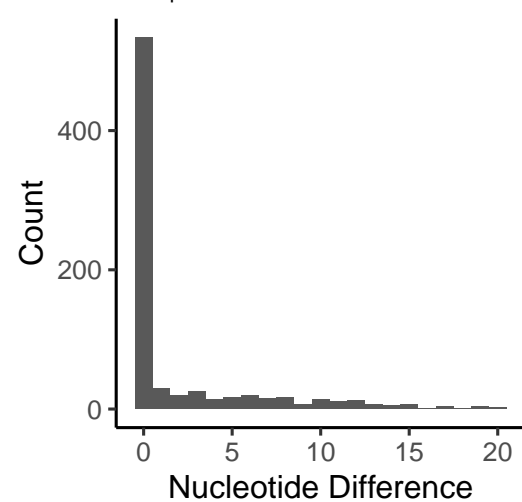
### IGHV3-21\*01\_02

1190 sequences assigned  
893 (75%) exact matches, in which:  
864 unique CDR3  
7 unique J



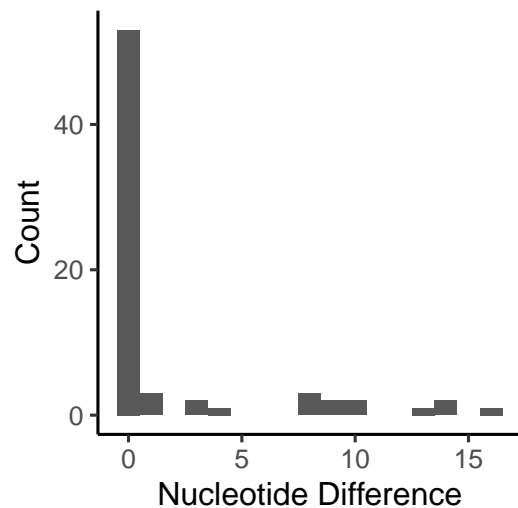
### IGHV3-33\*01

779 sequences assigned  
534 (68.5%) exact matches, in which:  
524 unique CDR3  
7 unique J



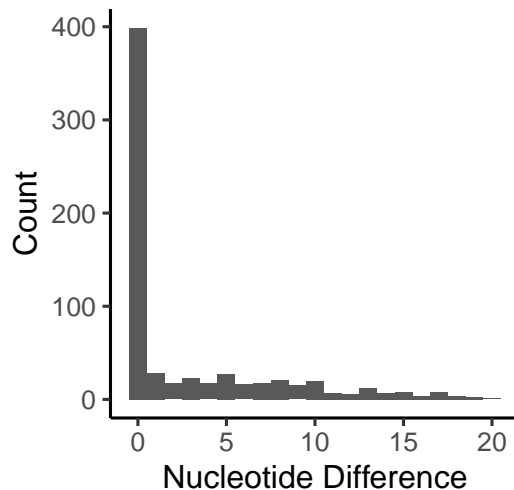
### IGHV3-43\*01

72 sequences assigned  
53 (73.6%) exact matches, in which:  
51 unique CDR3  
6 unique J



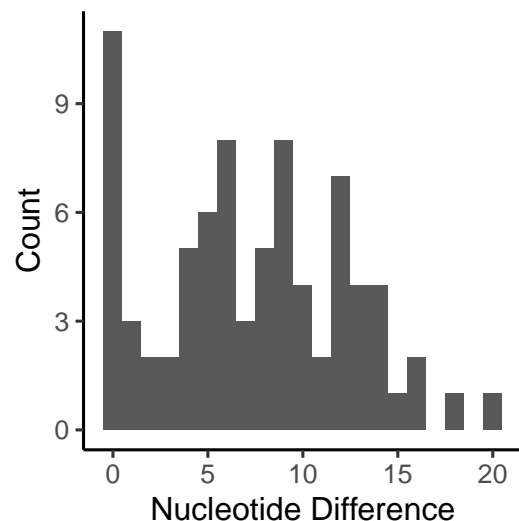
### IGHV3-53\*01\_02

673 sequences assigned  
399 (59.3%) exact matches, in which:  
390 unique CDR3  
7 unique J



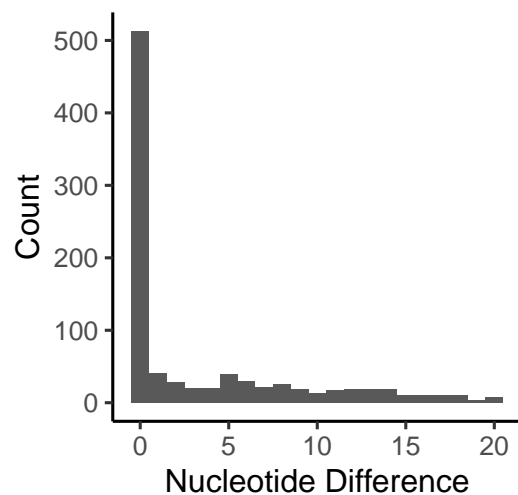
### IGHV3-72\*01

84 sequences assigned  
11 (13.1%) exact matches, in which:  
11 unique CDR3  
3 unique J



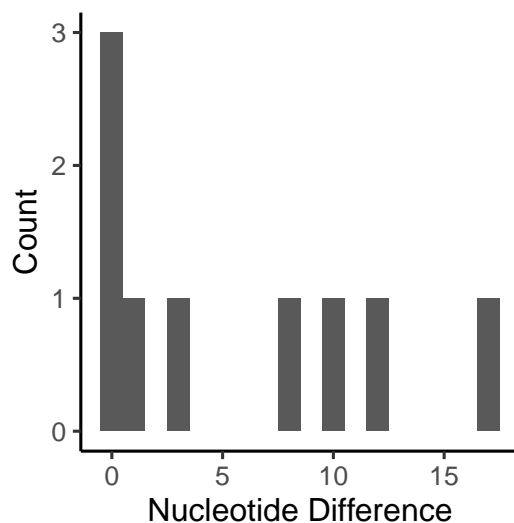
### IGHV3-48\*02

925 sequences assigned  
513 (55.5%) exact matches, in which:  
501 unique CDR3  
7 unique J



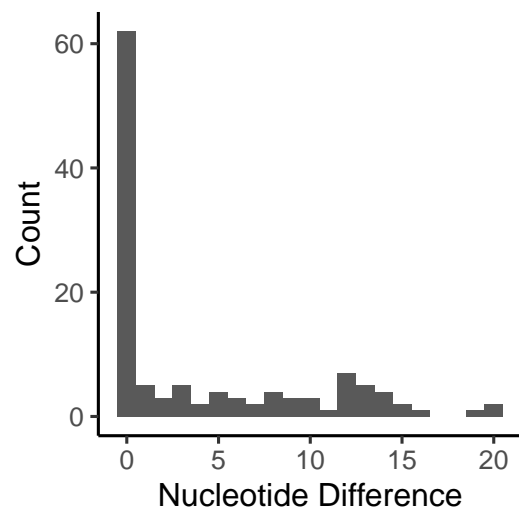
### IGHV3-64\*02\_07

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



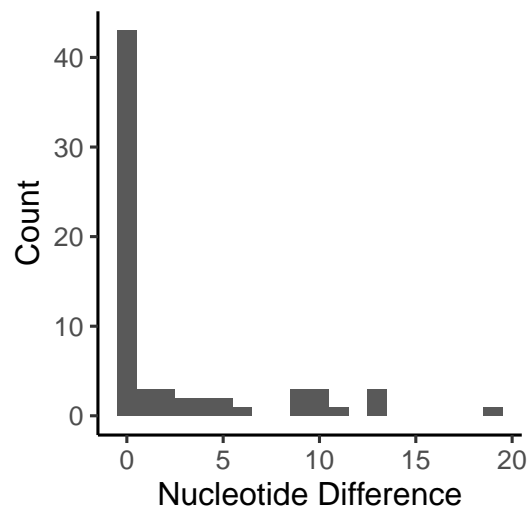
### IGHV3-73\*01\_02

129 sequences assigned  
62 (48.1%) exact matches, in which:  
61 unique CDR3  
6 unique J



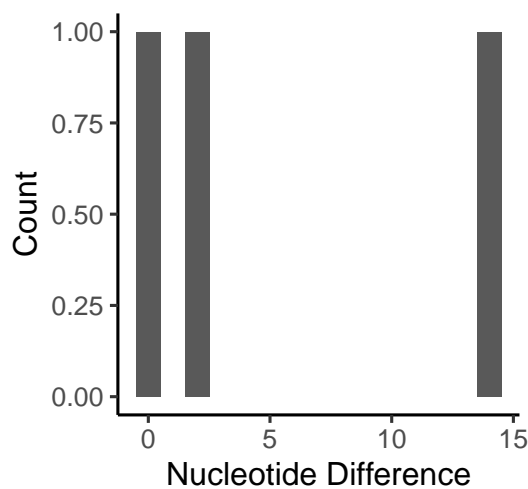
### IGHV3-49\*03\_05

69 sequences assigned  
43 (62.3%) exact matches, in which:  
43 unique CDR3  
6 unique J



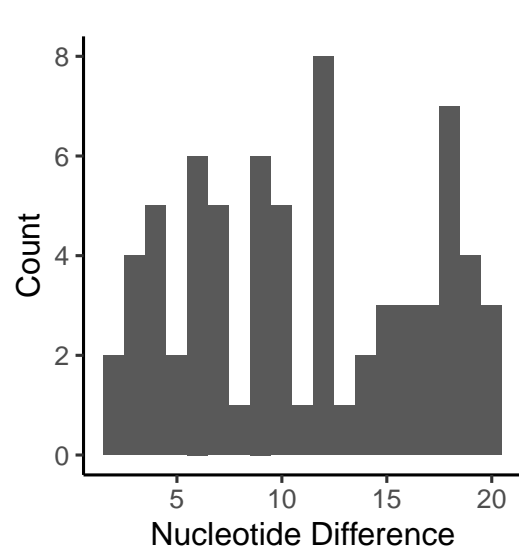
### IGHV3-69-1\*01

4 sequences assigned  
1 (25%) exact matches, in which:  
1 unique CDR3  
1 unique J



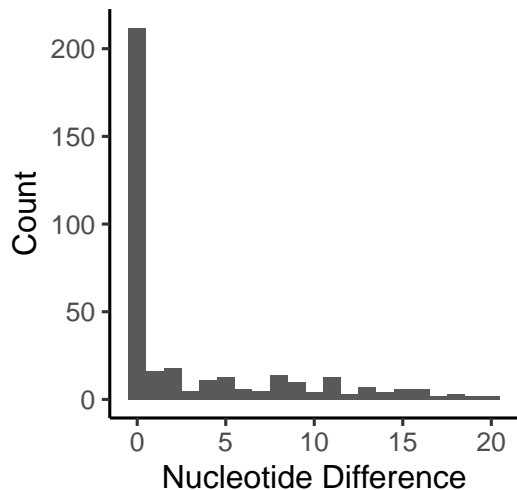
### IGHV3-74\*03

79 sequences assigned  
No exact matches.



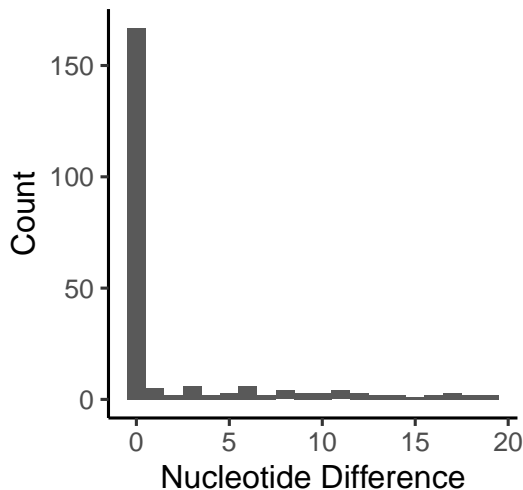
### IGHV3-74\*01\_02

368 sequences assigned  
212 (57.6%) exact matches, in which:  
202 unique CDR3  
7 unique J



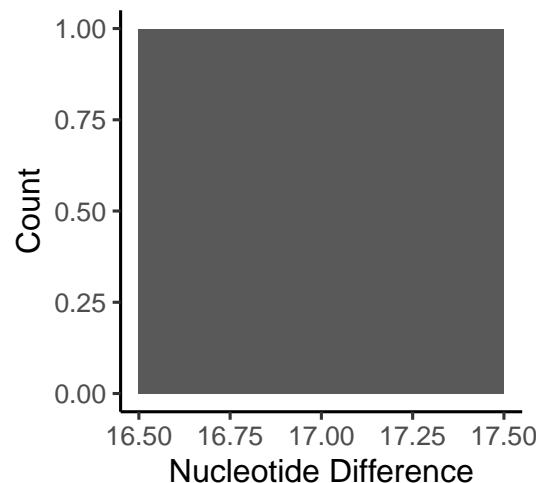
### IGHV4-4\*02\_03

231 sequences assigned  
167 (72.3%) exact matches, in which:  
161 unique CDR3  
6 unique J



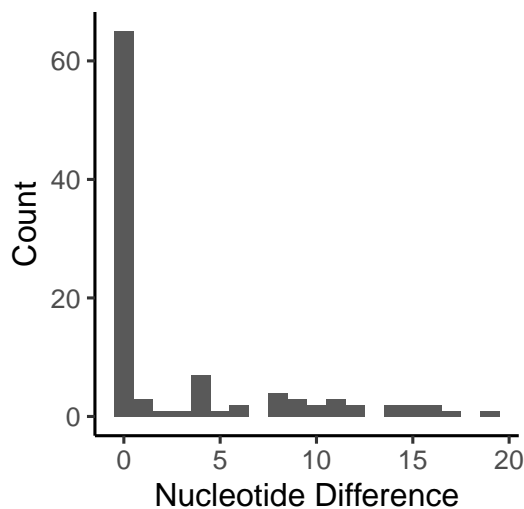
### IGHV4-30-4\*01

2 sequences assigned  
No exact matches.



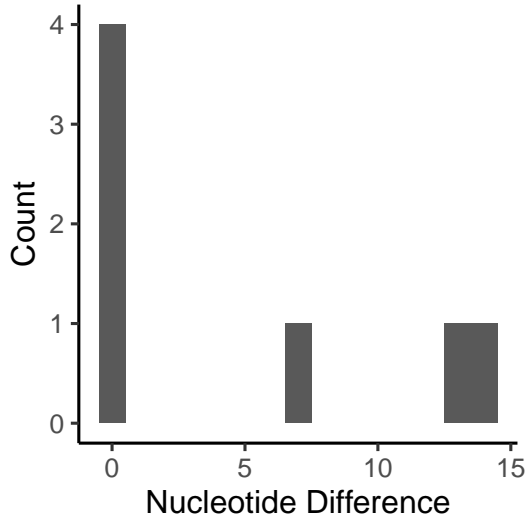
### IGHV3-64D\*06

107 sequences assigned  
65 (60.7%) exact matches, in which:  
63 unique CDR3  
5 unique J



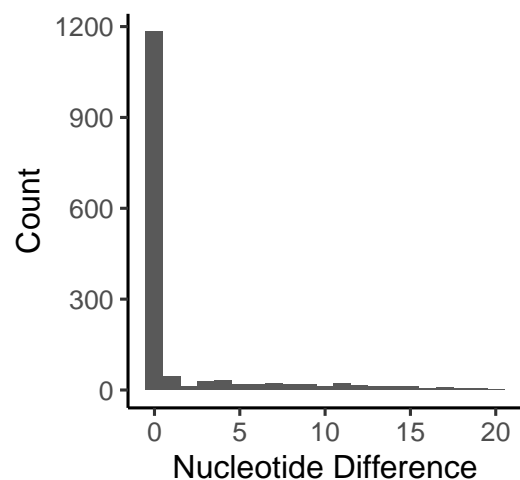
### IGHV4-28\*01\_07

7 sequences assigned  
4 (57.1%) exact matches, in which:  
4 unique CDR3  
3 unique J



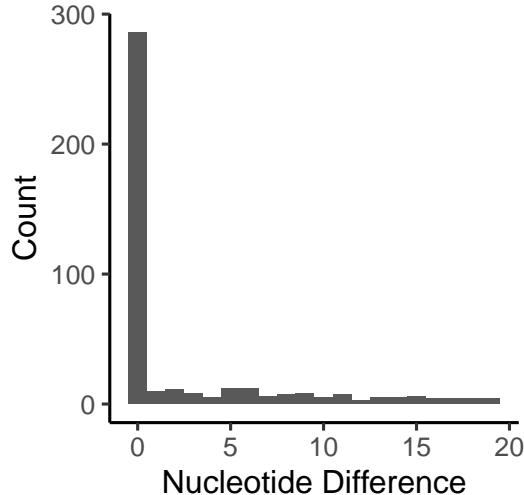
### IGHV4-31\*02

1521 sequences assigned  
1183 (77.8%) exact matches, in which:  
1160 unique CDR3  
7 unique J



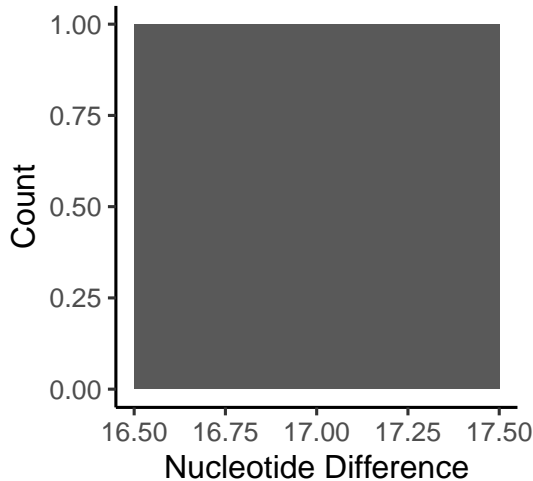
### IGHV4-4\*07

416 sequences assigned  
286 (68.8%) exact matches, in which:  
282 unique CDR3  
5 unique J



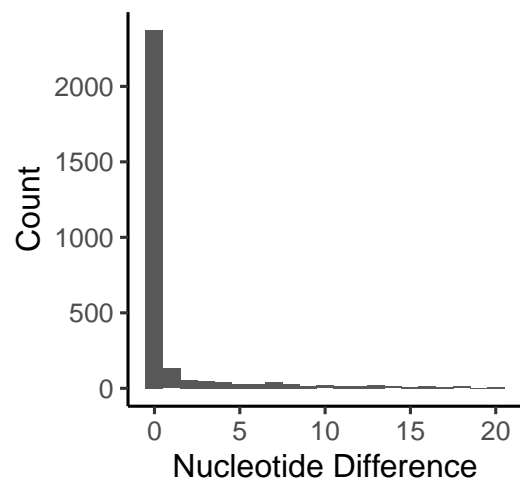
### IGHV4-30-2\*01

1 sequences assigned  
No exact matches.



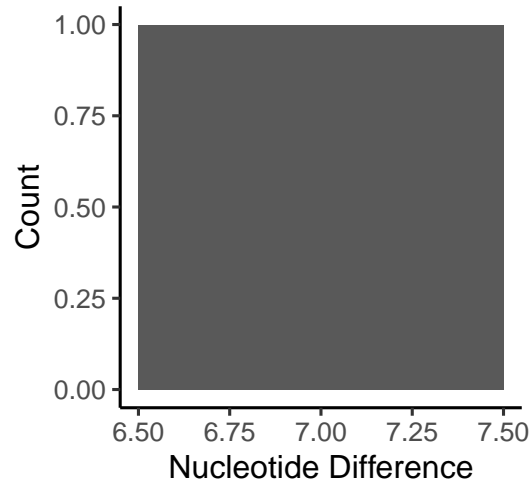
### IGHV4-34\*01\_02

2950 sequences assigned  
2373 (80.4%) exact matches, in which:  
2291 unique CDR3  
7 unique J



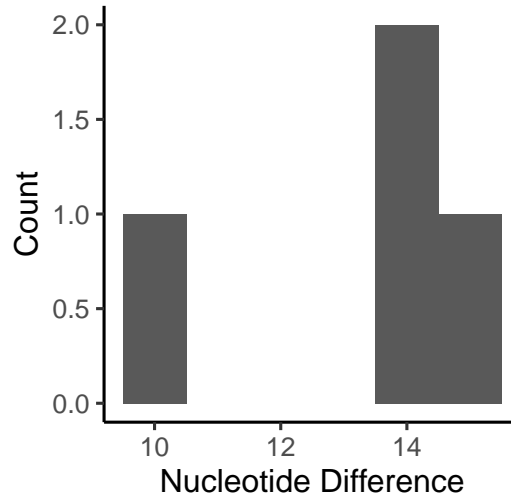
### IGHV4-38-2\*02

1 sequences assigned  
No exact matches.



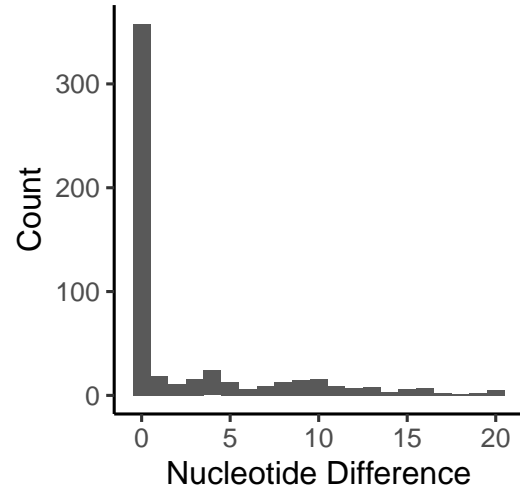
### IGHV4-59\*03

4 sequences assigned  
No exact matches.



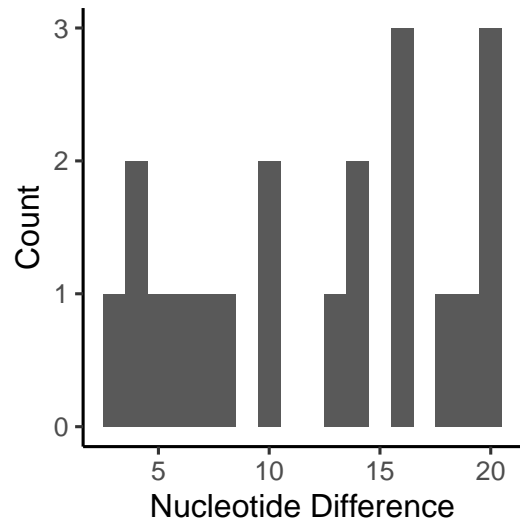
### IGHV4-61\*01

566 sequences assigned  
358 (63.3%) exact matches, in which:  
349 unique CDR3  
7 unique J



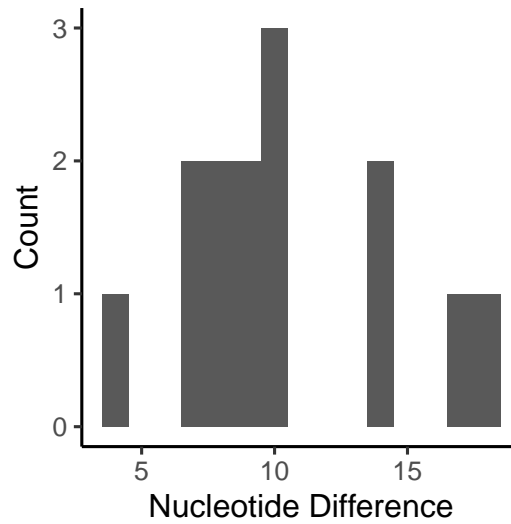
### IGHV4-39\*02

25 sequences assigned  
No exact matches.



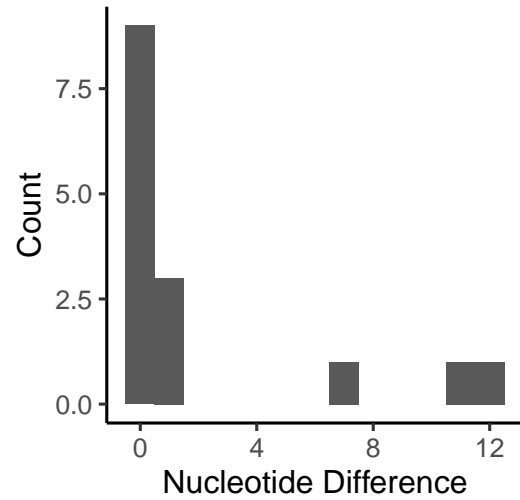
### IGHV4-59\*11

17 sequences assigned  
No exact matches.



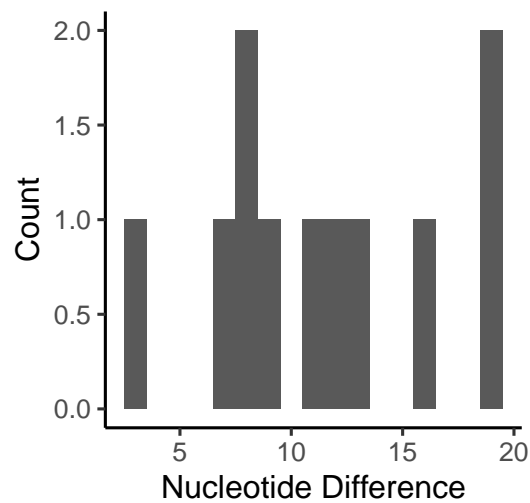
### IGHV5-10-1\*01\_03

16 sequences assigned  
9 (56.2%) exact matches, in which:  
9 unique CDR3  
4 unique J



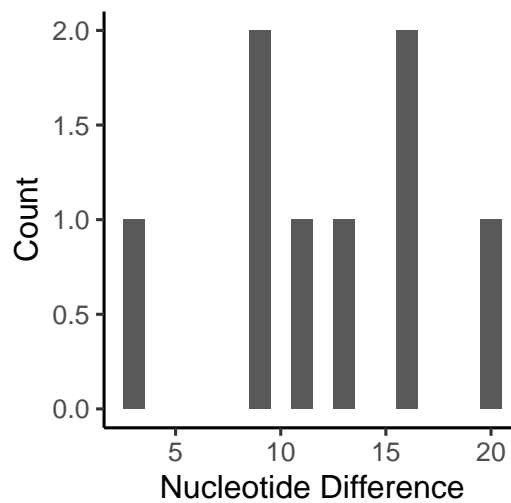
### IGHV4-59\*02

16 sequences assigned  
No exact matches.



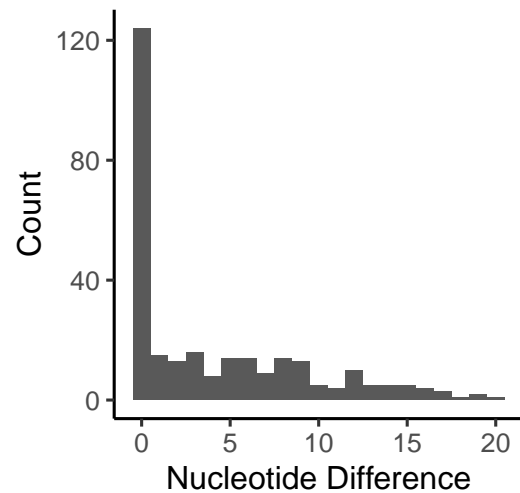
### IGHV4-59\*12

8 sequences assigned  
No exact matches.

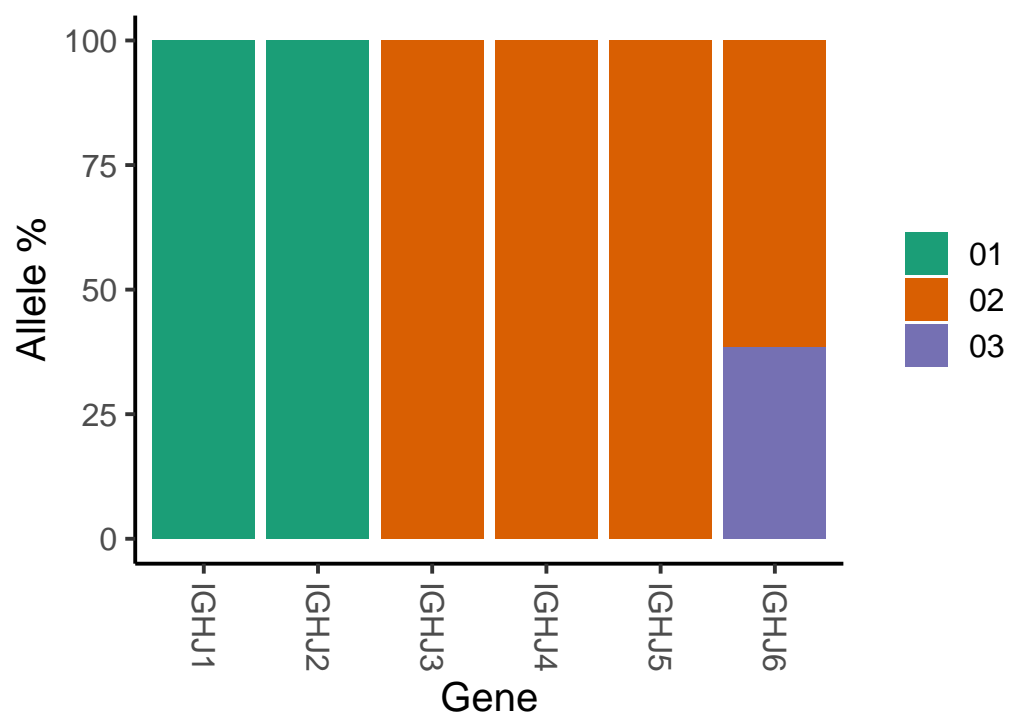


### IGHV6-1\*01\_02

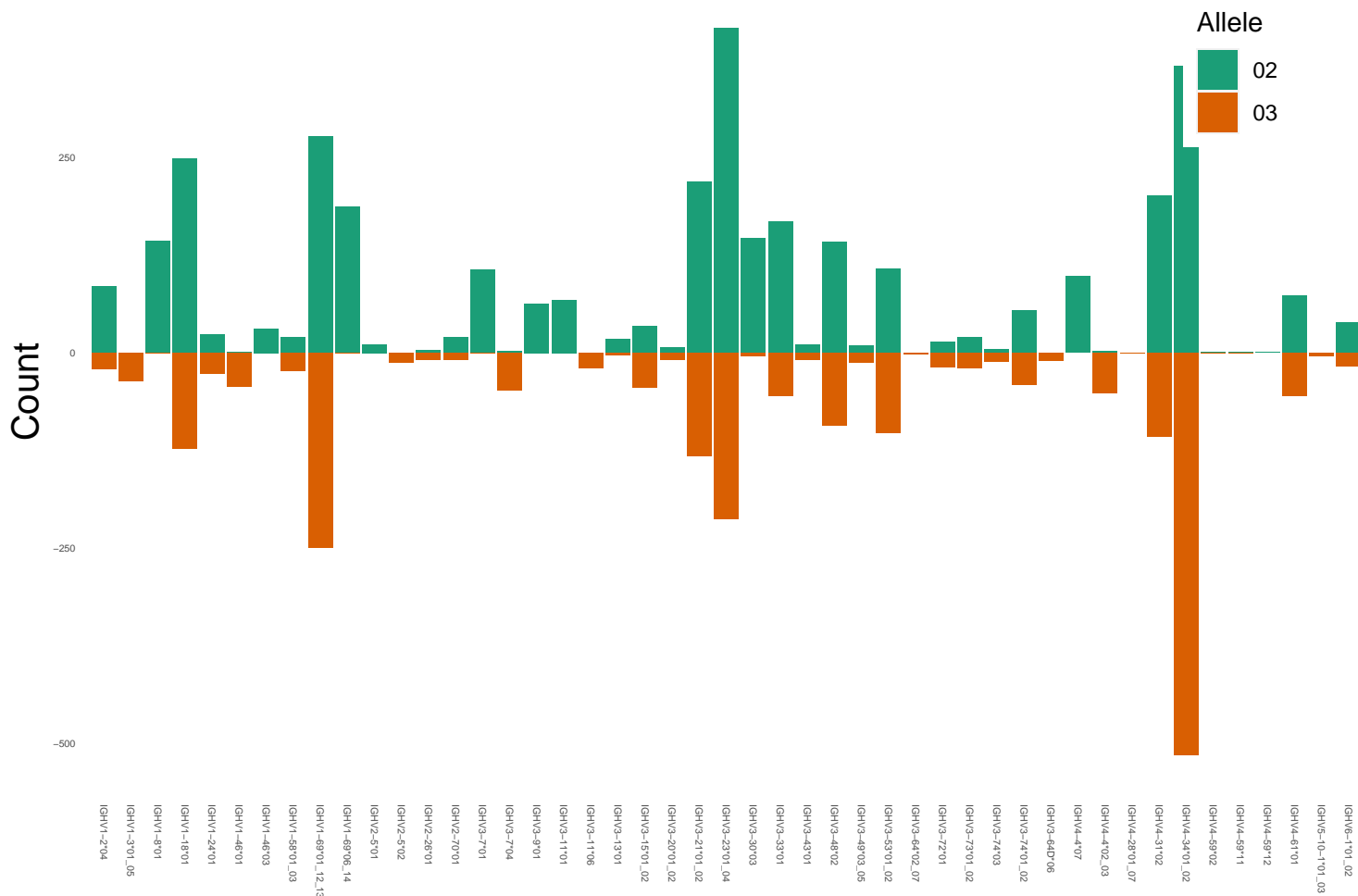
287 sequences assigned  
124 (43.2%) exact matches, in which:  
124 unique CDR3  
7 unique J



Allele Usage



Sequence Count by IGHJ6 allele usage





[illegible]