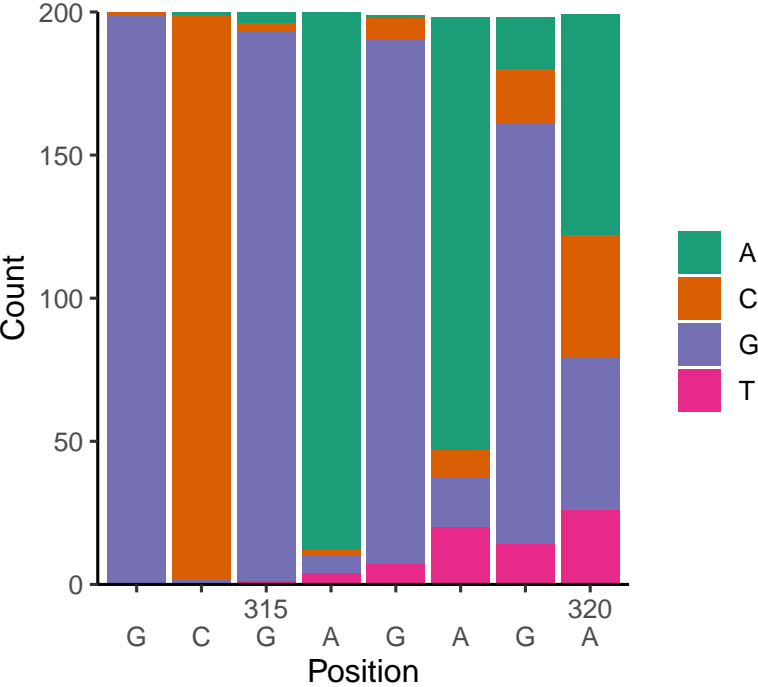
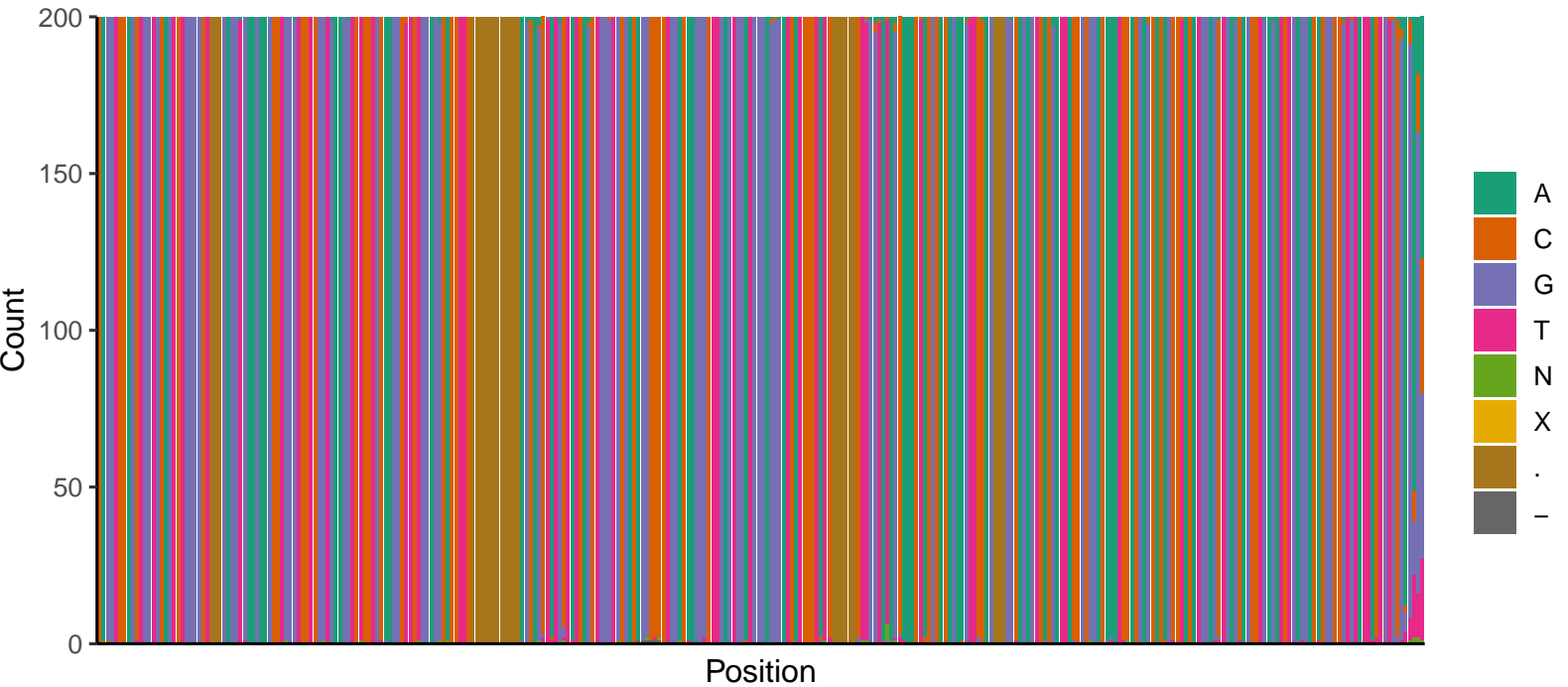


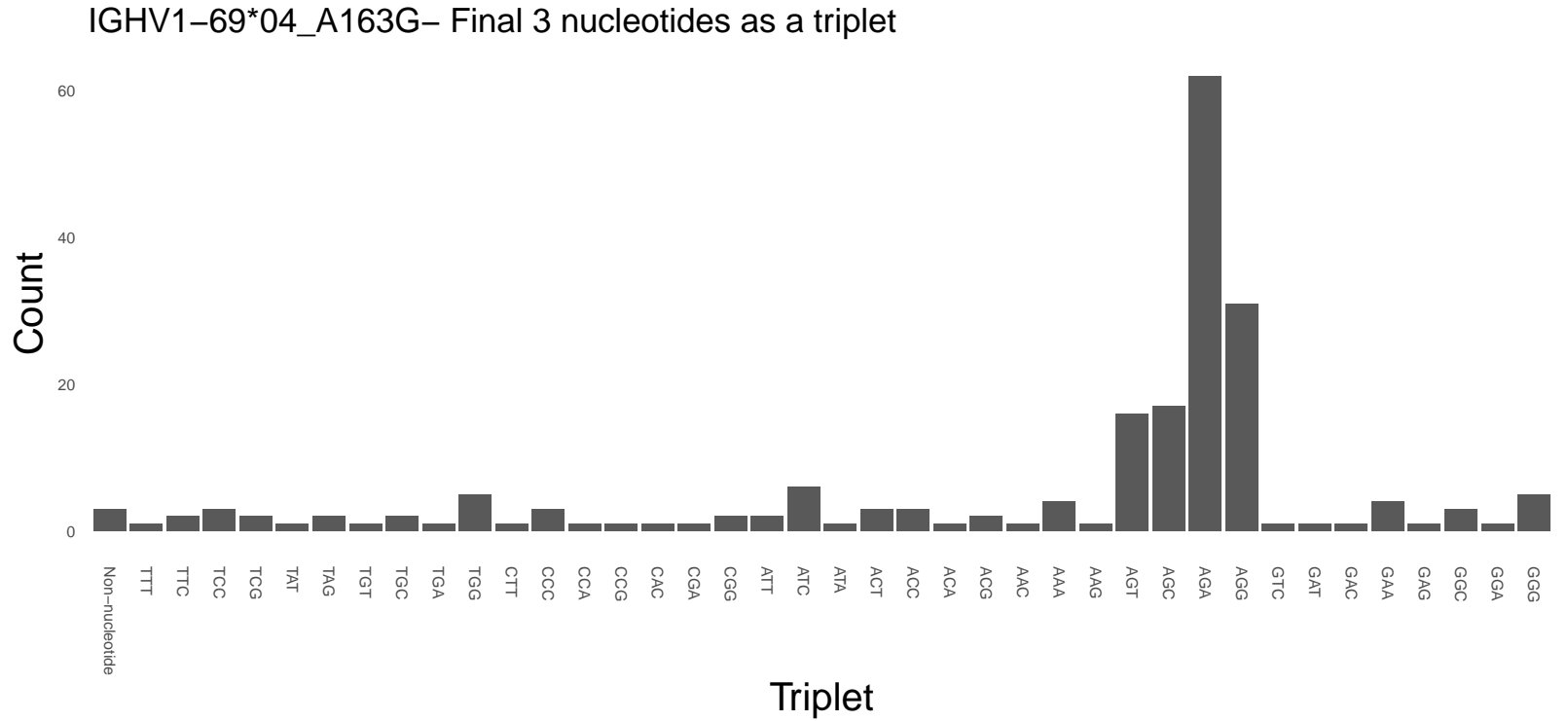
Gene IGHV1-69\*04\_A163G



Gene IGHV1-69\*04\_A163G

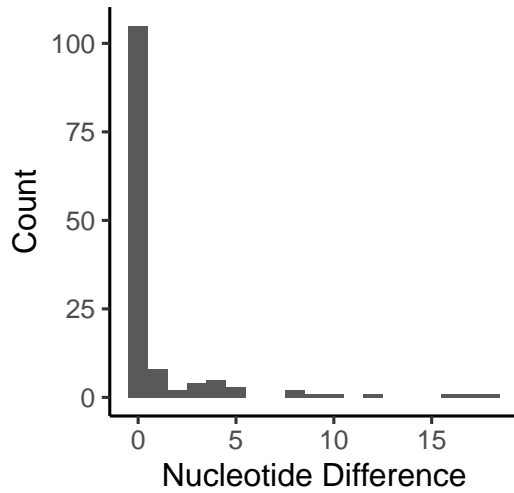


IGHV1-69\*04\_A163G- Final 3 nucleotides as a triplet



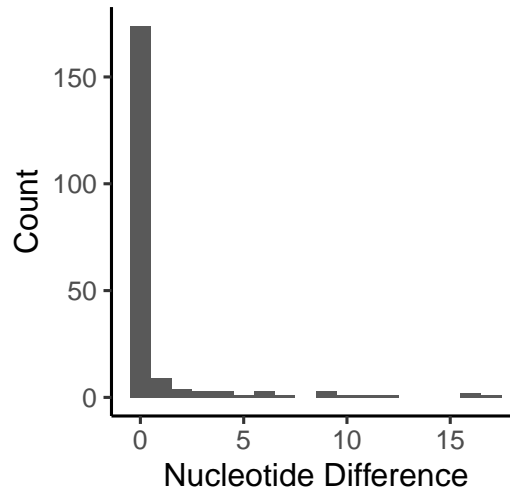
### IGHV1-2\*04

136 sequences assigned  
105 (77.2%) exact matches, in which:  
105 unique CDR3  
6 unique J



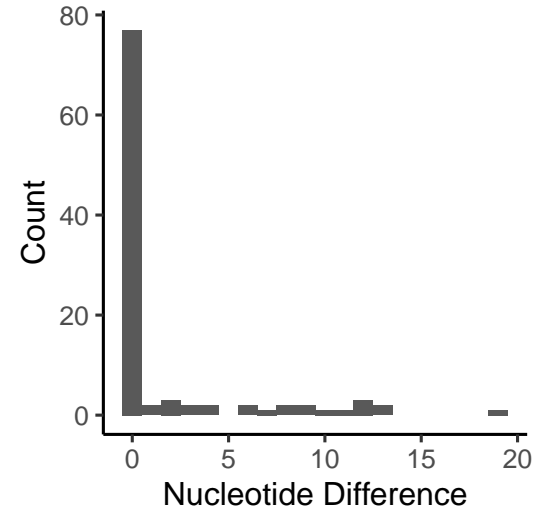
### IGHV1-18\*04

208 sequences assigned  
174 (83.7%) exact matches, in which:  
173 unique CDR3  
4 unique J



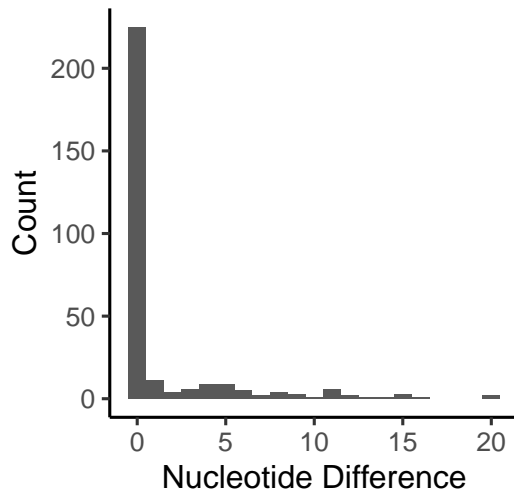
### IGHV1-46\*01

103 sequences assigned  
77 (74.8%) exact matches, in which:  
77 unique CDR3  
5 unique J



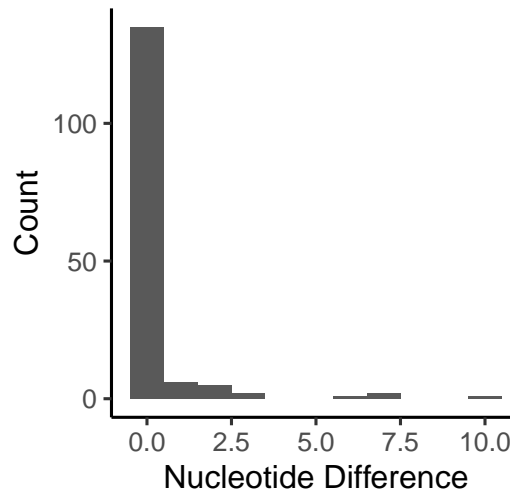
### IGHV1-3\*01

300 sequences assigned  
225 (75%) exact matches, in which:  
224 unique CDR3  
7 unique J



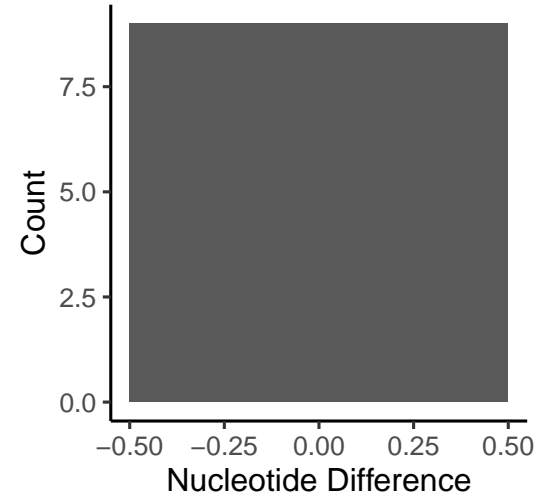
### IGHV1-24\*01

152 sequences assigned  
135 (88.8%) exact matches, in which:  
134 unique CDR3  
7 unique J



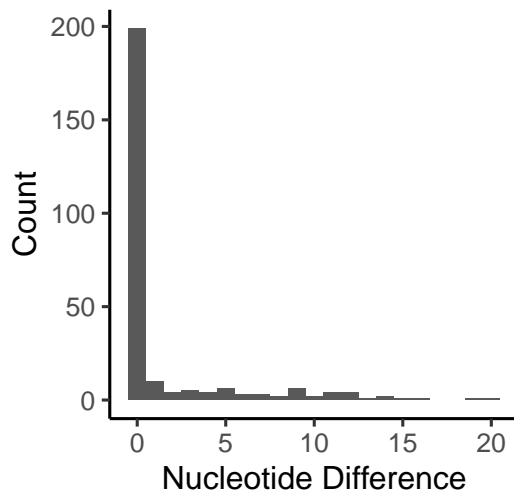
### IGHV1-58\*01

9 sequences assigned  
9 (100%) exact matches, in which:  
9 unique CDR3  
4 unique J



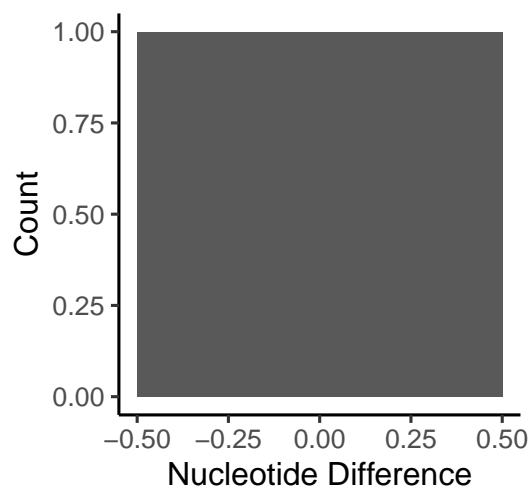
### IGHV1-18\*01

267 sequences assigned  
199 (74.5%) exact matches, in which:  
199 unique CDR3  
6 unique J



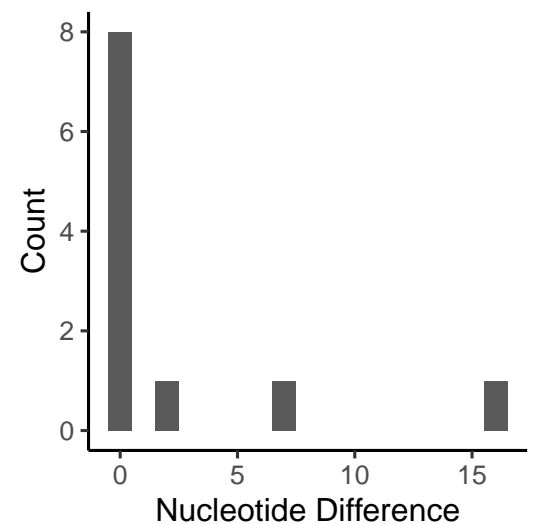
### IGHV1-45\*02

1 sequences assigned  
1 (100%) exact matches, in which:  
1 unique CDR3  
1 unique J



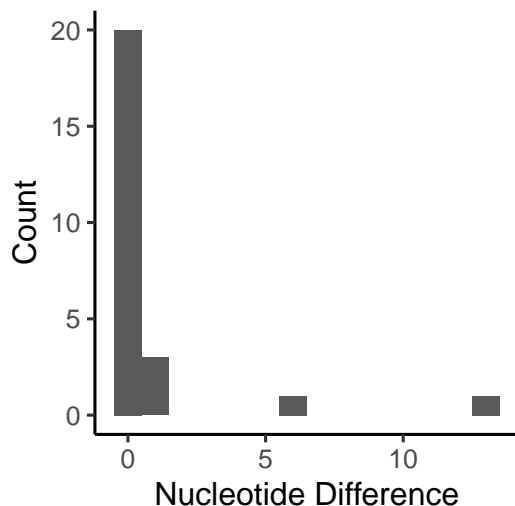
### IGHV1-58\*02

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



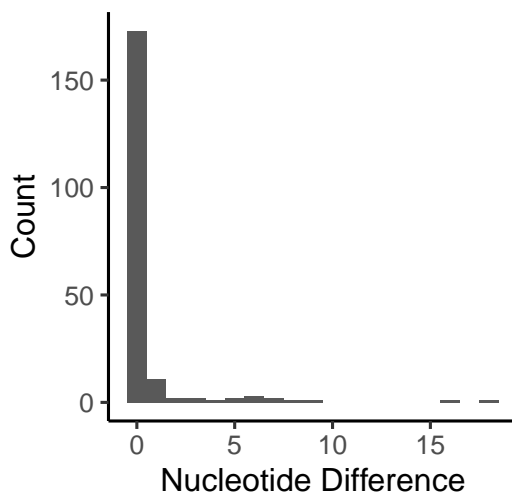
### IGHV1-69-2\*01

25 sequences assigned  
20 (80%) exact matches, in which:  
20 unique CDR3  
4 unique J



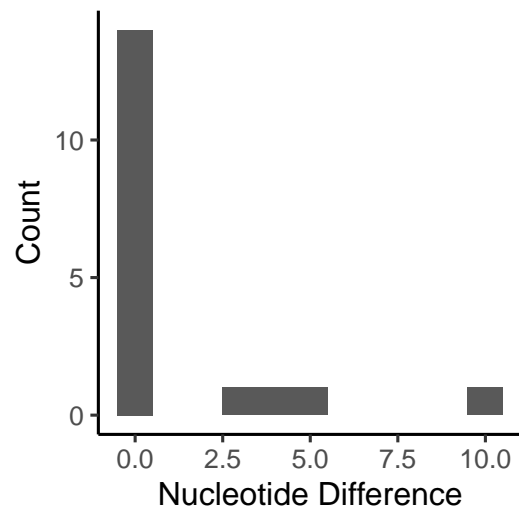
### IGHV1-69\*04\_A163G

200 sequences assigned  
173 (86.5%) exact matches, in which:  
173 unique CDR3  
6 unique J



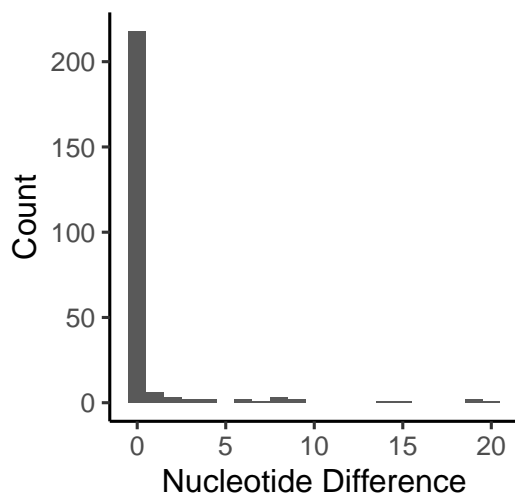
### IGHV2-70\*01

18 sequences assigned  
14 (77.8%) exact matches, in which:  
14 unique CDR3  
5 unique J



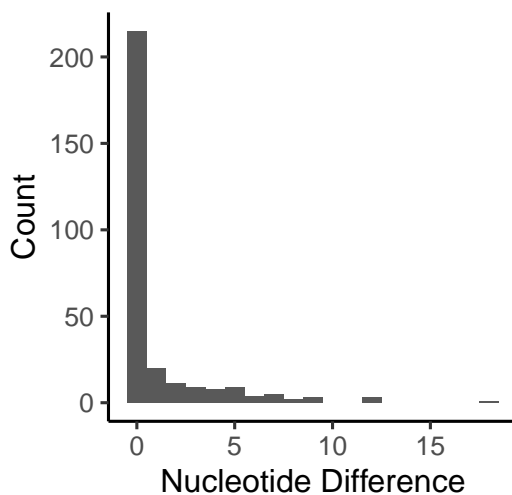
### IGHV1-69\*01

244 sequences assigned  
218 (89.3%) exact matches, in which:  
216 unique CDR3  
7 unique J



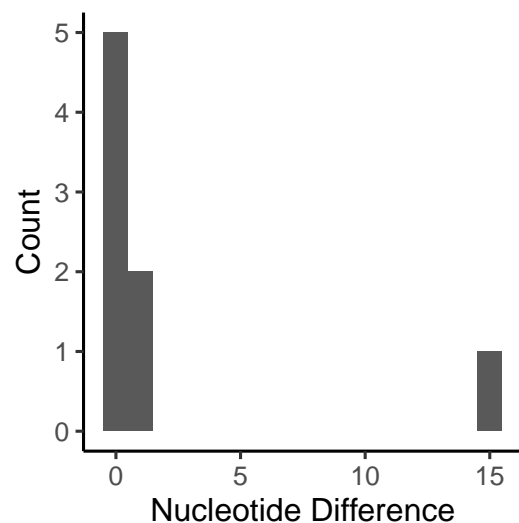
### IGHV2-5\*02

292 sequences assigned  
215 (73.6%) exact matches, in which:  
215 unique CDR3  
7 unique J



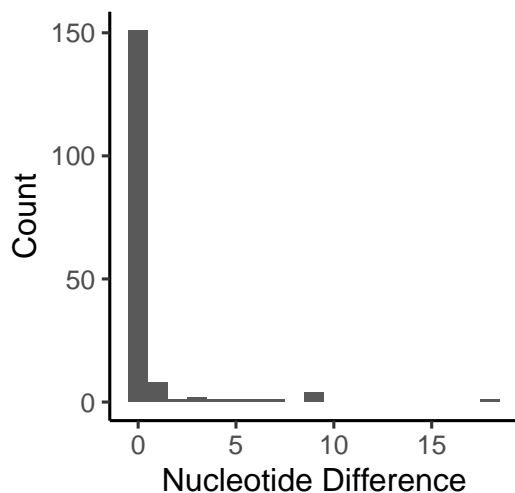
### IGHV2-70\*04

9 sequences assigned  
5 (55.6%) exact matches, in which:  
5 unique CDR3  
2 unique J



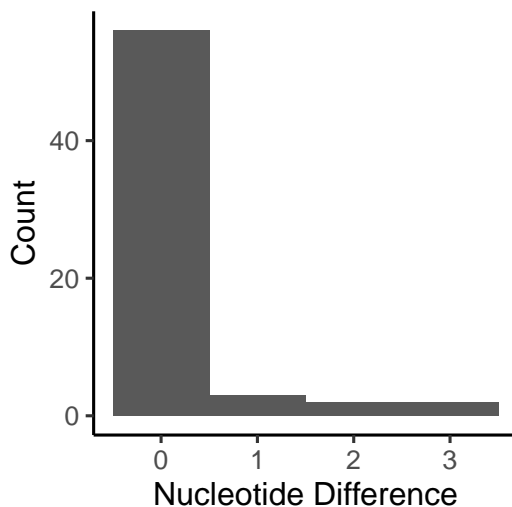
### IGHV1-69\*06

171 sequences assigned  
151 (88.3%) exact matches, in which:  
151 unique CDR3  
6 unique J



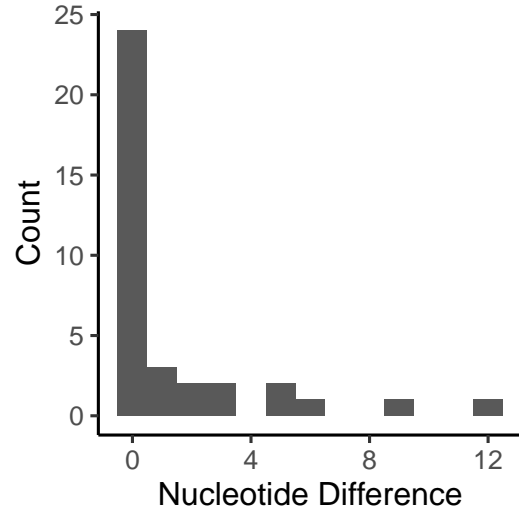
### IGHV2-26\*01

64 sequences assigned  
56 (87.5%) exact matches, in which:  
56 unique CDR3  
6 unique J



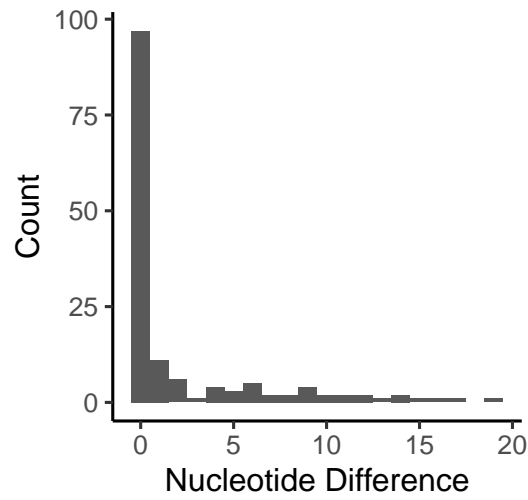
### IGHV2-70\*15

36 sequences assigned  
24 (66.7%) exact matches, in which:  
24 unique CDR3  
4 unique J



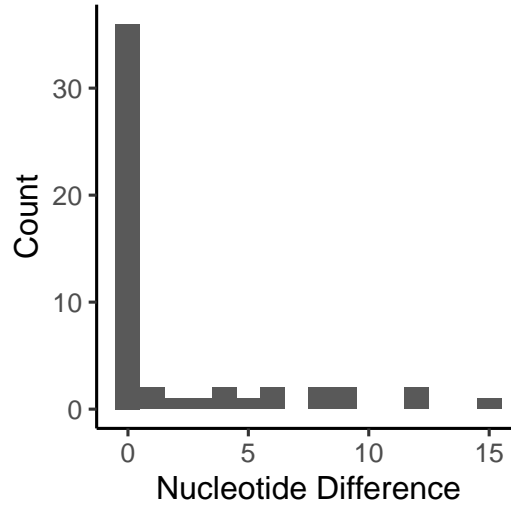
### IGHV3-7\*03

151 sequences assigned  
97 (64.2%) exact matches, in which:  
97 unique CDR3  
6 unique J



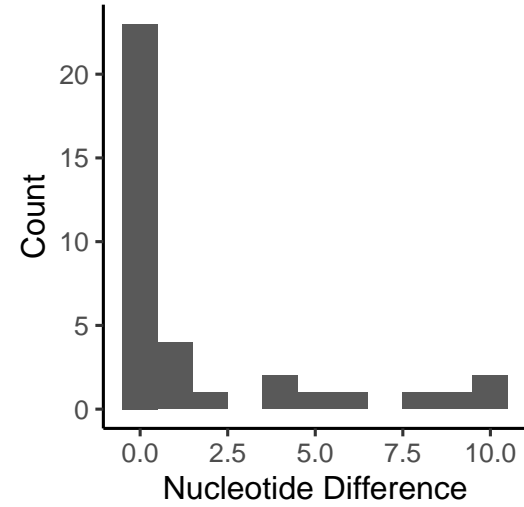
### IGHV3-11\*06

52 sequences assigned  
36 (69.2%) exact matches, in which:  
36 unique CDR3  
5 unique J



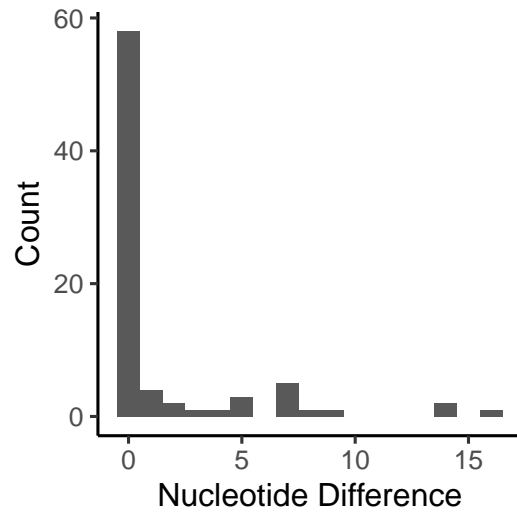
### IGHV3-20\*04

36 sequences assigned  
23 (63.9%) exact matches, in which:  
23 unique CDR3  
5 unique J



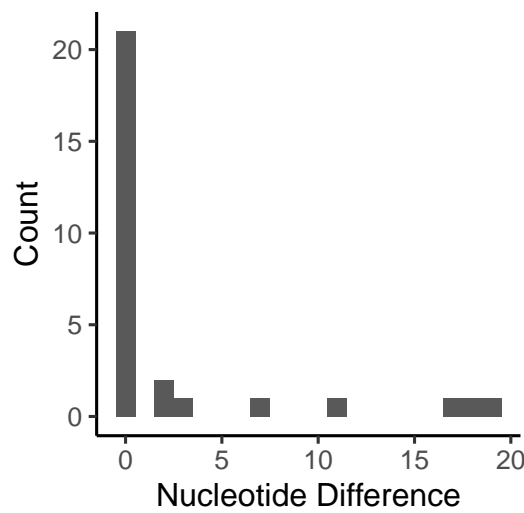
### IGHV3-7\*04

79 sequences assigned  
58 (73.4%) exact matches, in which:  
58 unique CDR3  
5 unique J



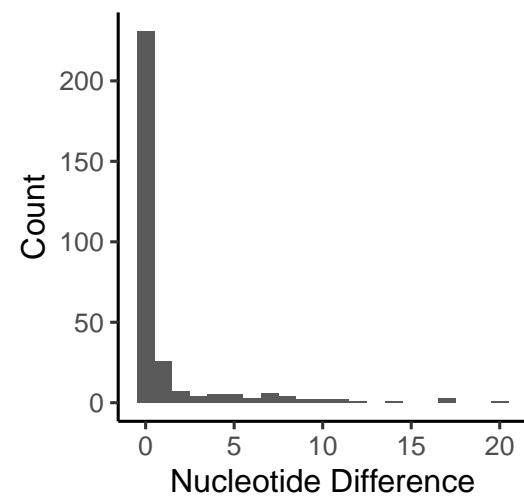
### IGHV3-13\*04

30 sequences assigned  
21 (70%) exact matches, in which:  
21 unique CDR3  
5 unique J



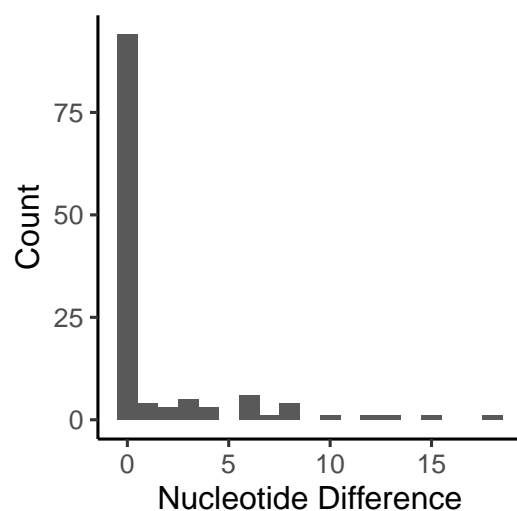
### IGHV3-21\*01

304 sequences assigned  
231 (76%) exact matches, in which:  
230 unique CDR3  
7 unique J



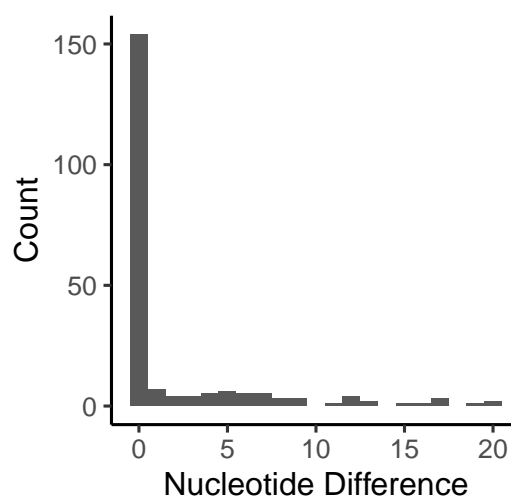
### IGHV3-11\*05

126 sequences assigned  
94 (74.6%) exact matches, in which:  
94 unique CDR3  
6 unique J



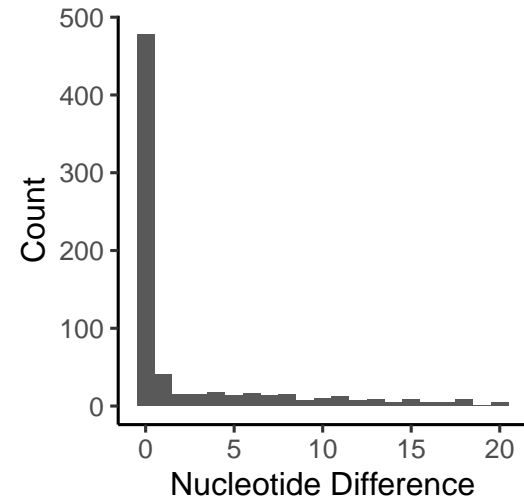
### IGHV3-15\*01

218 sequences assigned  
154 (70.6%) exact matches, in which:  
154 unique CDR3  
7 unique J



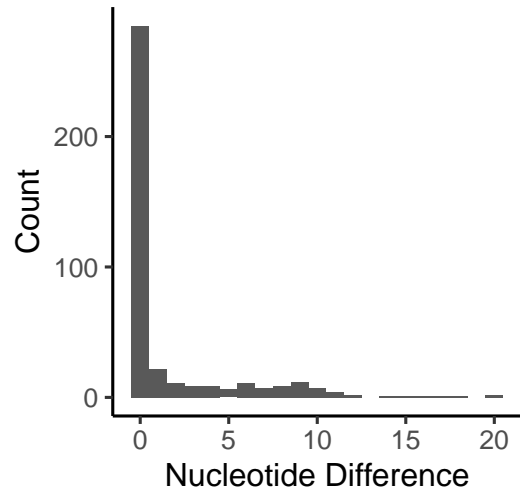
### IGHV3-23\*01

715 sequences assigned  
478 (66.9%) exact matches, in which:  
478 unique CDR3  
7 unique J



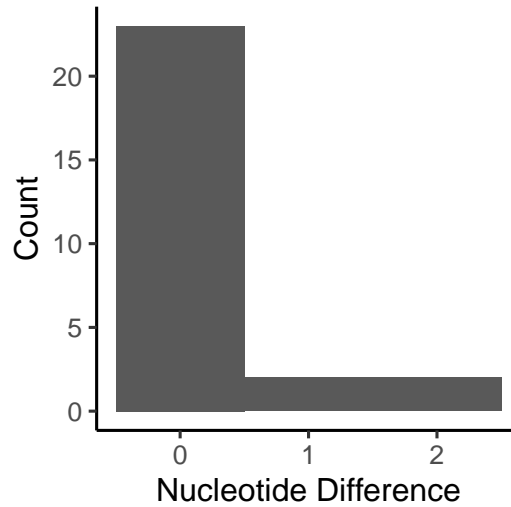
### IGHV3-30-3\*01

405 sequences assigned  
285 (70.4%) exact matches, in which:  
284 unique CDR3  
7 unique J



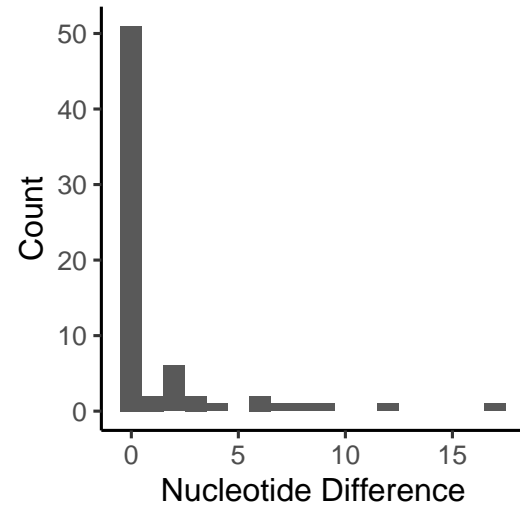
### IGHV3-43\*01

27 sequences assigned  
23 (85.2%) exact matches, in which:  
22 unique CDR3  
5 unique J



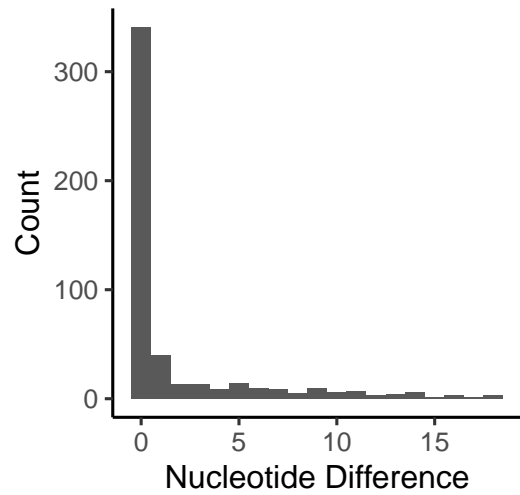
### IGHV3-49\*03

69 sequences assigned  
51 (73.9%) exact matches, in which:  
51 unique CDR3  
6 unique J



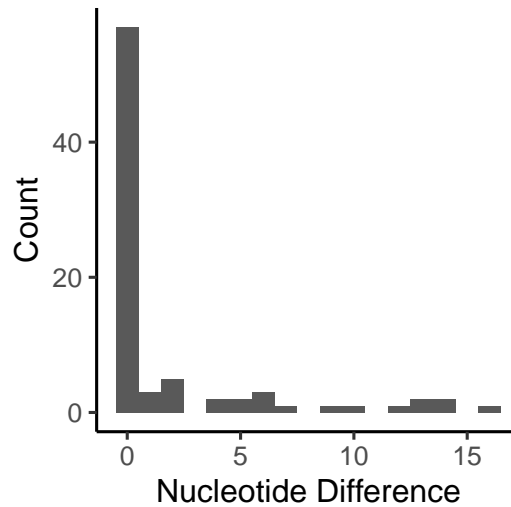
### IGHV3-30\*18

501 sequences assigned  
341 (68.1%) exact matches, in which:  
340 unique CDR3  
7 unique J



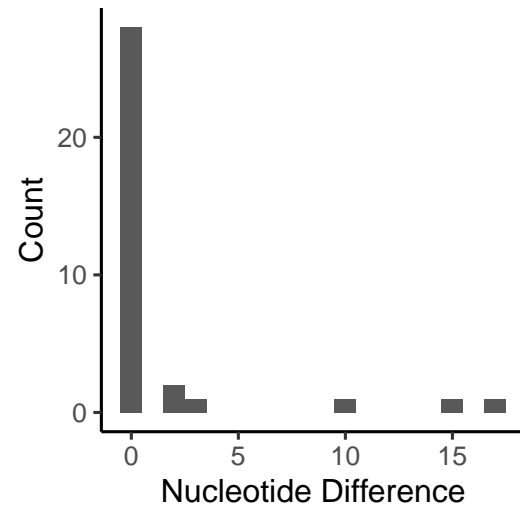
### IGHV3-48\*02

85 sequences assigned  
57 (67.1%) exact matches, in which:  
57 unique CDR3  
6 unique J



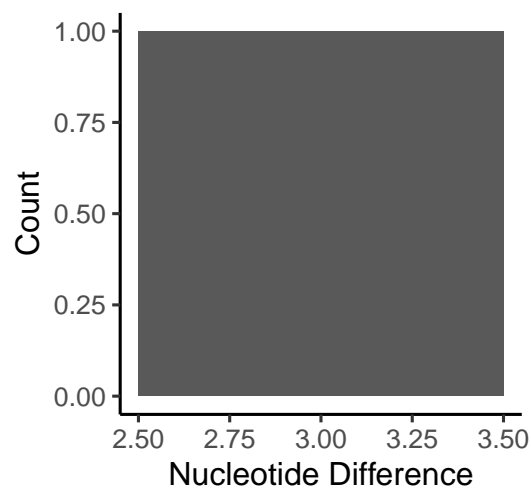
### IGHV3-49\*05

34 sequences assigned  
28 (82.4%) exact matches, in which:  
28 unique CDR3  
4 unique J



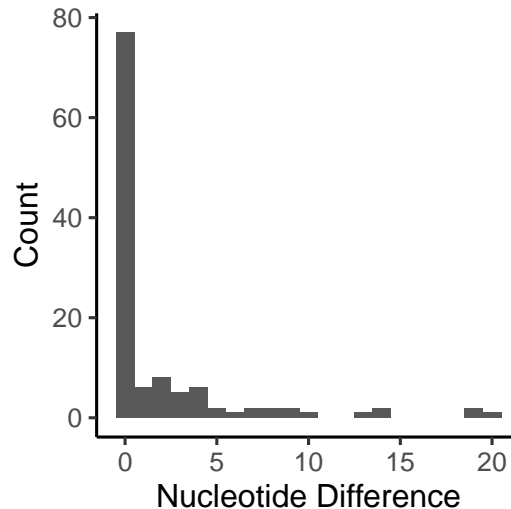
### IGHV3-33\*05

1 sequences assigned  
No exact matches.



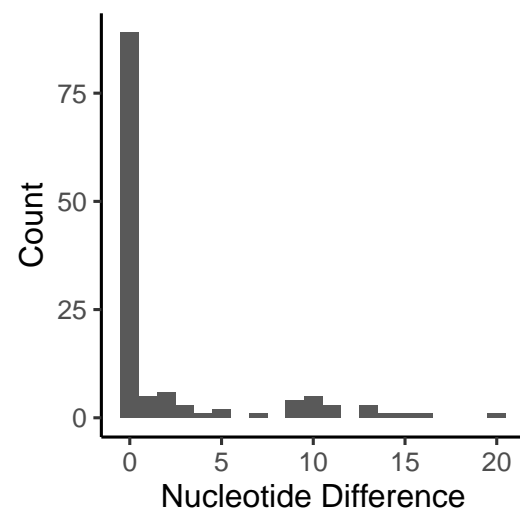
### IGHV3-48\*04

121 sequences assigned  
77 (63.6%) exact matches, in which:  
77 unique CDR3  
5 unique J



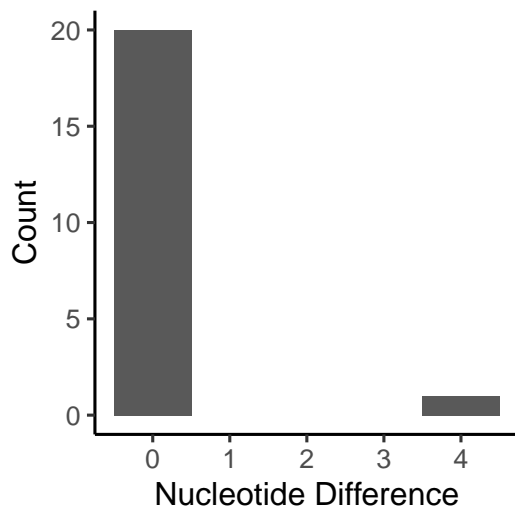
### IGHV3-53\*01

126 sequences assigned  
89 (70.6%) exact matches, in which:  
88 unique CDR3  
5 unique J



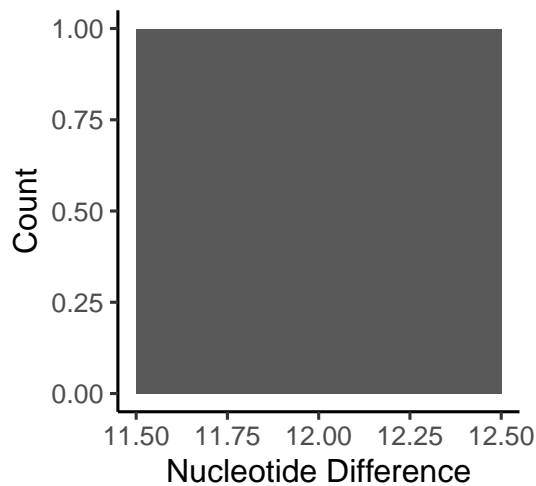
### IGHV3-53\*04

21 sequences assigned  
20 (95.2%) exact matches, in which:  
20 unique CDR3  
5 unique J



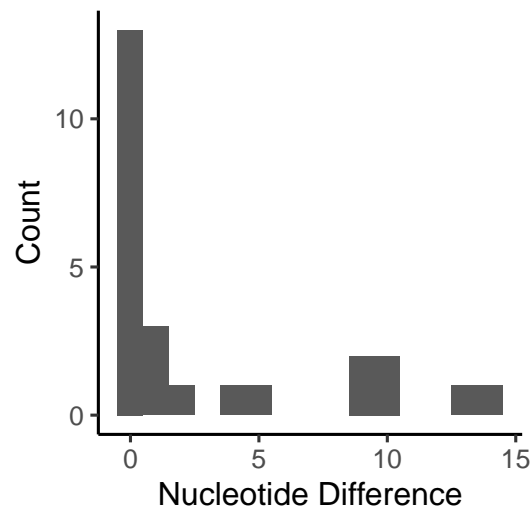
### IGHV3-64\*05

1 sequences assigned  
No exact matches.



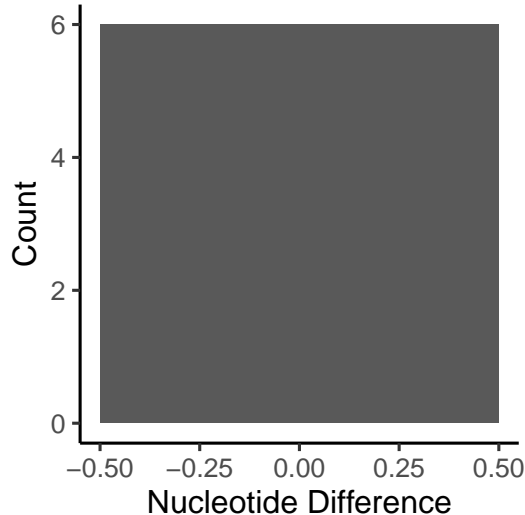
### IGHV3-73\*01

25 sequences assigned  
13 (52%) exact matches, in which:  
13 unique CDR3  
3 unique J



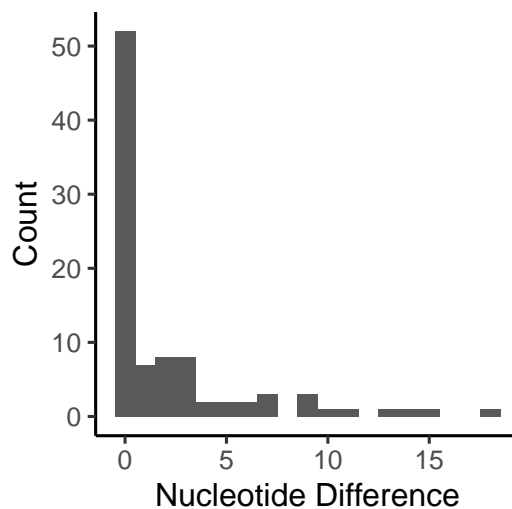
### IGHV3-64\*01

6 sequences assigned  
6 (100%) exact matches, in which:  
6 unique CDR3  
3 unique J



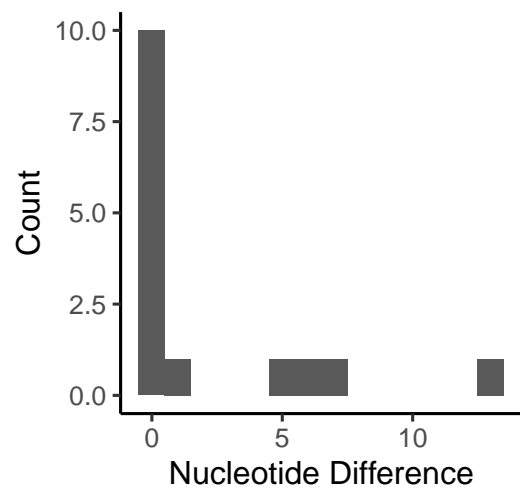
### IGHV3-66\*01

94 sequences assigned  
52 (55.3%) exact matches, in which:  
52 unique CDR3  
5 unique J



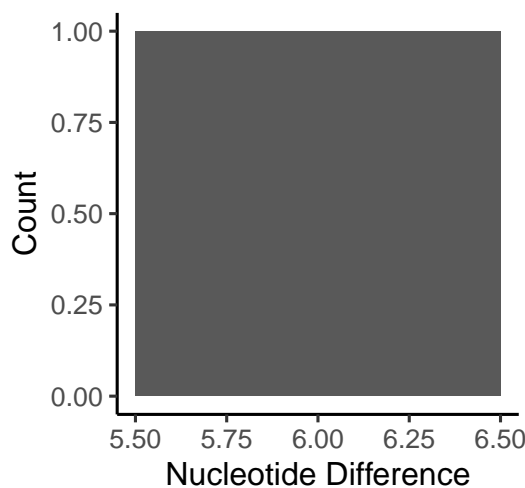
### IGHV3-73\*02

15 sequences assigned  
10 (66.7%) exact matches, in which:  
10 unique CDR3  
3 unique J



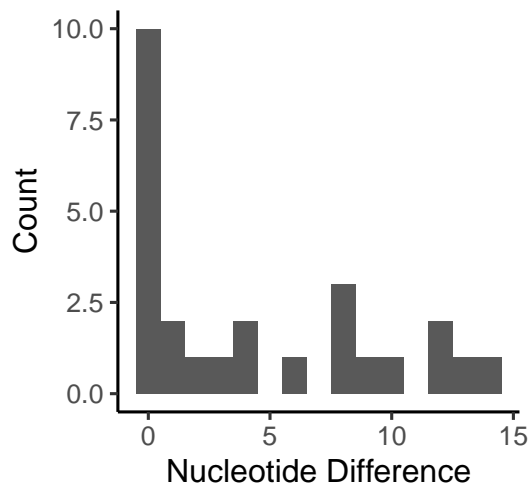
### IGHV3-64\*02

1 sequences assigned  
No exact matches.



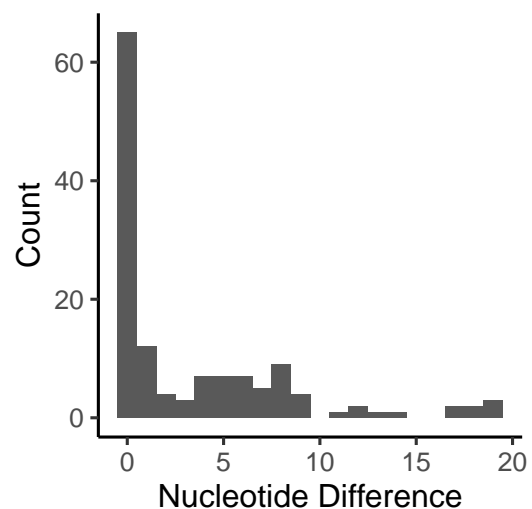
### IGHV3-72\*01

27 sequences assigned  
10 (37%) exact matches, in which:  
10 unique CDR3  
3 unique J



### IGHV3-74\*01

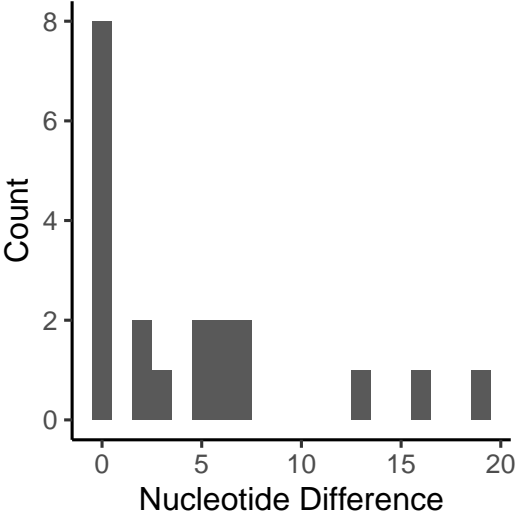
137 sequences assigned  
65 (47.4%) exact matches, in which:  
65 unique CDR3  
6 unique J





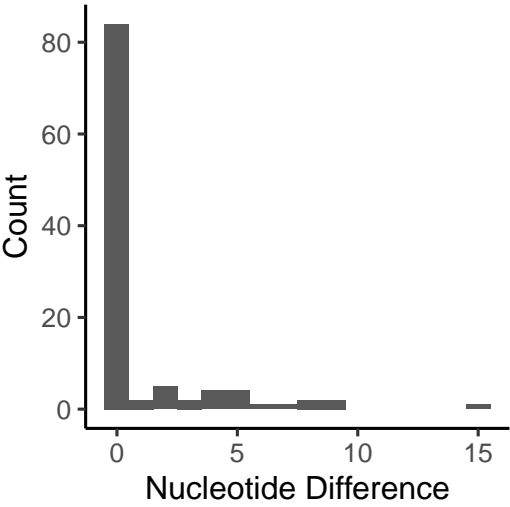
IGHV3-43D\*03

21 sequences assigned  
8 (38.1%) exact matches, in which:  
8 unique CDR3  
2 unique J



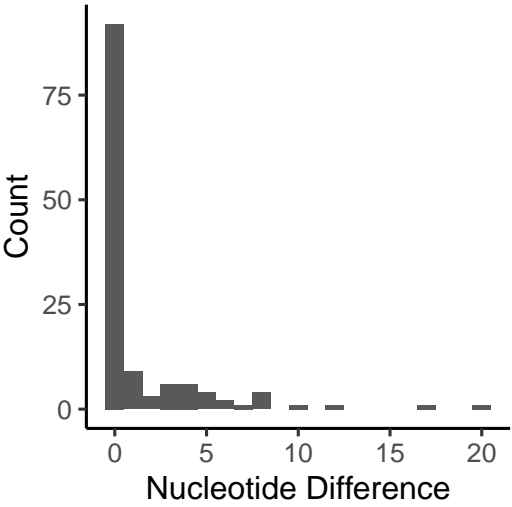
IGHV4-4\*02

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



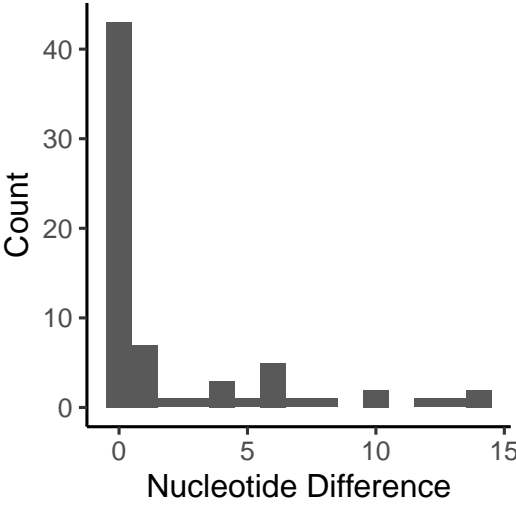
IGHV4-30-4\*01

132 sequences assigned  
92 (69.7%) exact matches, in which:  
92 unique CDR3  
7 unique J



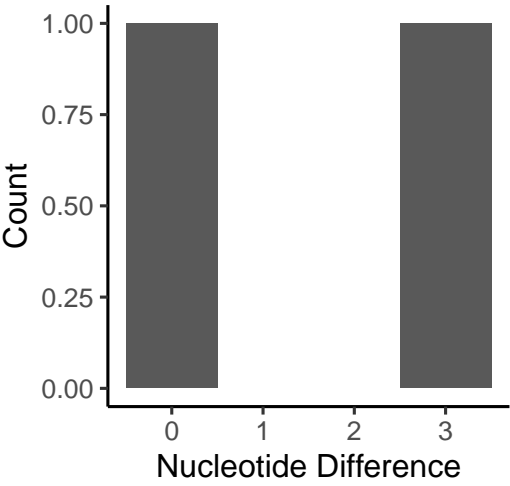
IGHV3-64D\*06

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



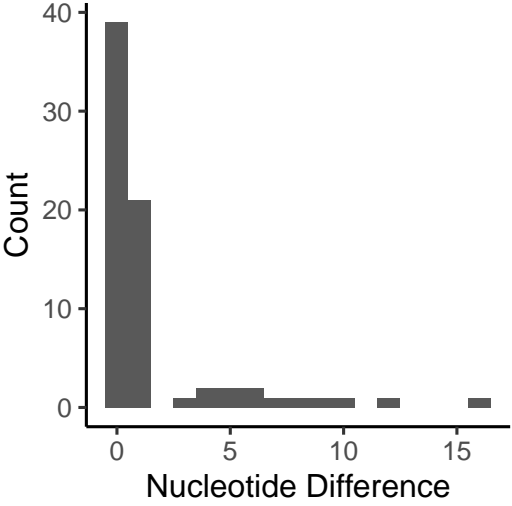
IGHV4-28\*01

2 sequences assigned  
1 (50%) exact matches, in which:  
1 unique CDR3  
1 unique J



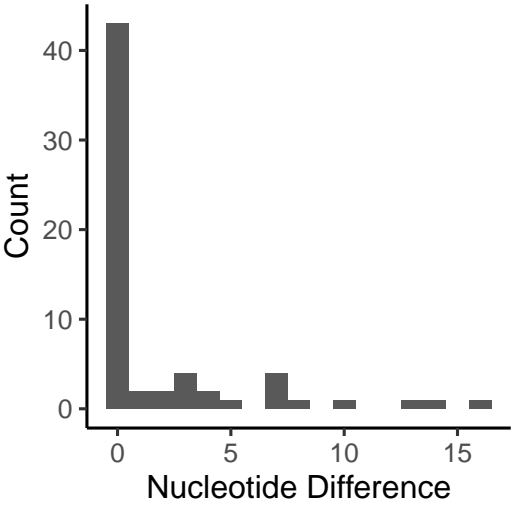
IGHV4-30-2\*01

73 sequences assigned  
39 (53.4%) exact matches, in which:  
39 unique CDR3  
6 unique J



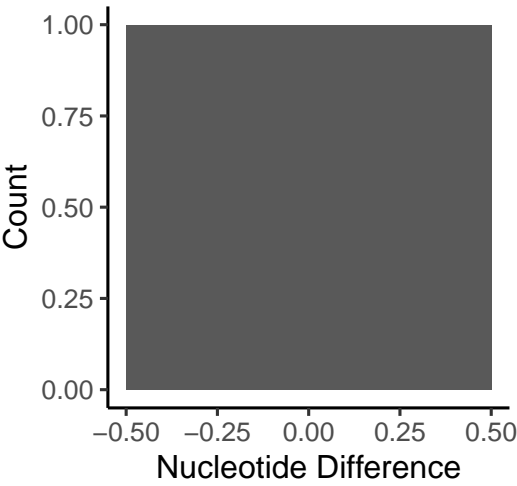
IGHV3-64D\*09

66 sequences assigned  
43 (65.2%) exact matches, in which:  
43 unique CDR3  
5 unique J



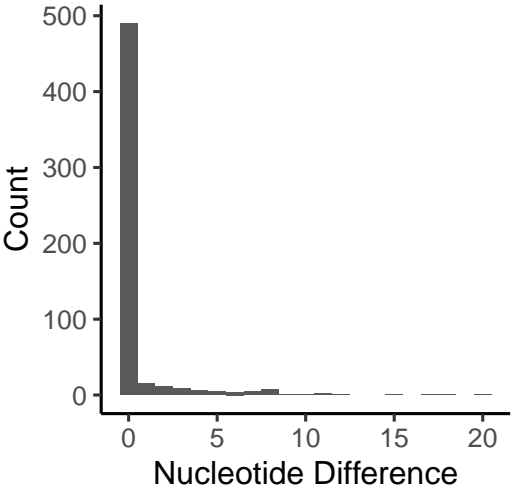
IGHV4-28\*03

1 sequences assigned  
1 (100%) exact matches, in which:  
1 unique CDR3  
1 unique J



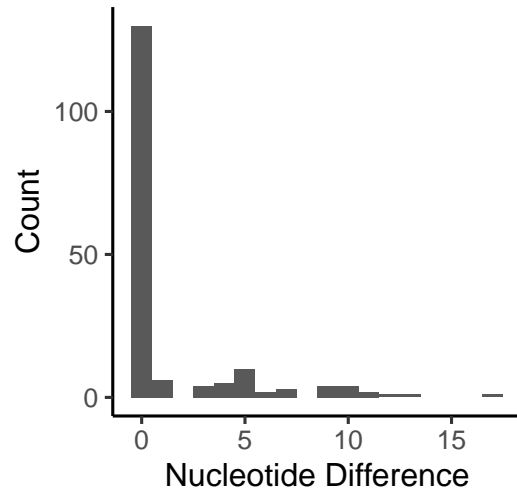
IGHV4-34\*01

567 sequences assigned  
490 (86.4%) exact matches, in which:  
489 unique CDR3  
7 unique J



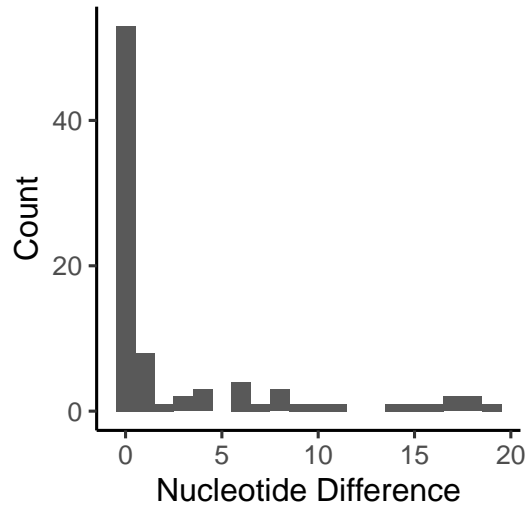
### IGHV4-38-2\*02

174 sequences assigned  
130 (74.7%) exact matches, in which:  
130 unique CDR3  
6 unique J



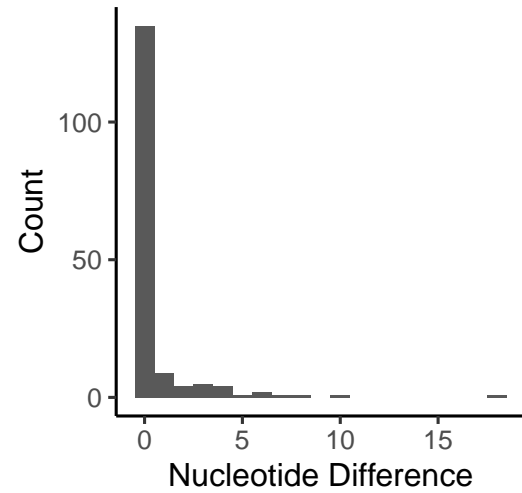
### IGHV4-59\*08

88 sequences assigned  
53 (60.2%) exact matches, in which:  
53 unique CDR3  
5 unique J



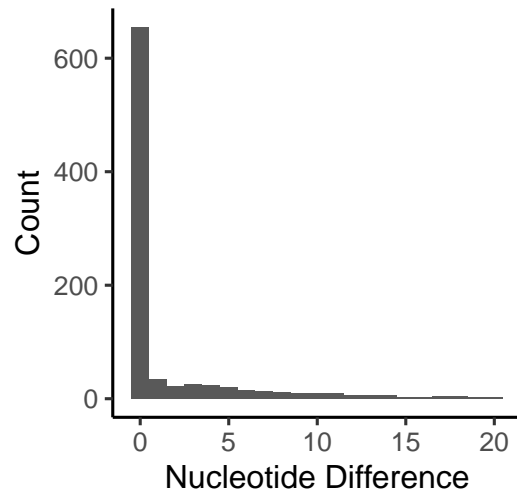
### IGHV5-10-1\*03

164 sequences assigned  
135 (82.3%) exact matches, in which:  
135 unique CDR3  
5 unique J



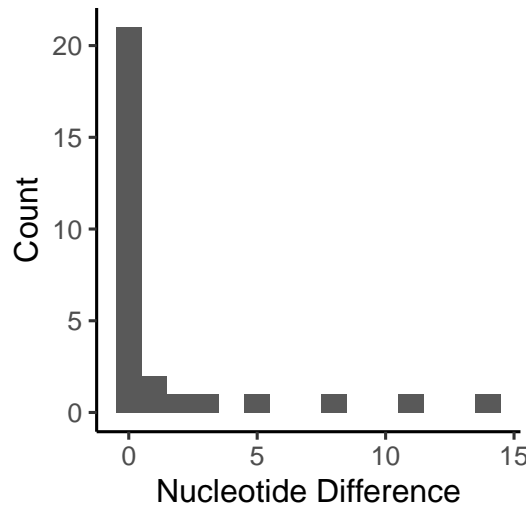
### IGHV4-39\*07

896 sequences assigned  
655 (73.1%) exact matches, in which:  
653 unique CDR3  
7 unique J



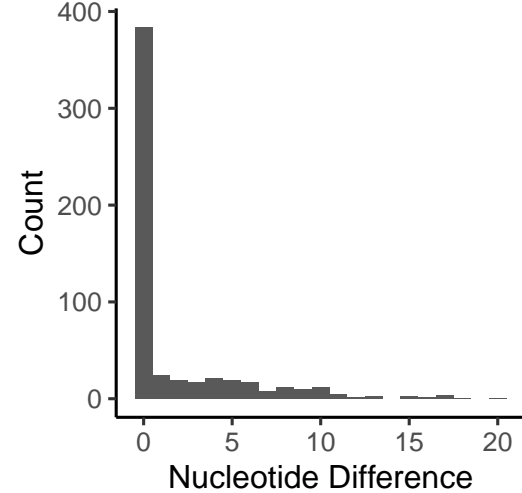
### IGHV4-61\*01

29 sequences assigned  
21 (72.4%) exact matches, in which:  
21 unique CDR3  
5 unique J



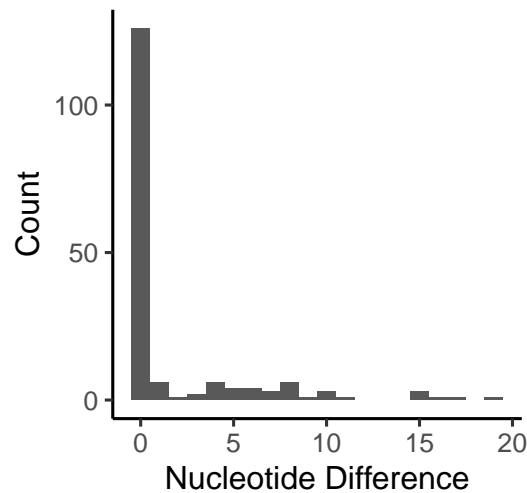
### IGHV5-51\*01

569 sequences assigned  
384 (67.5%) exact matches, in which:  
383 unique CDR3  
7 unique J



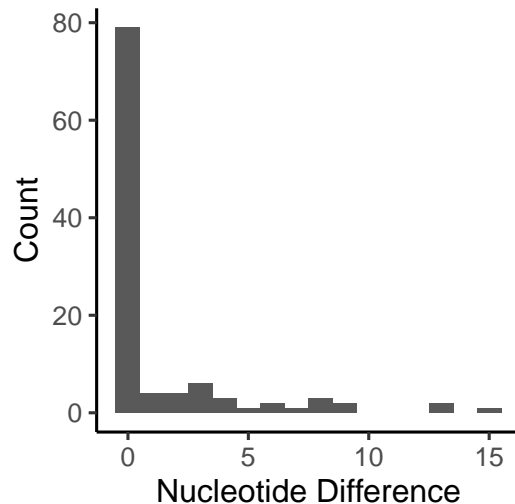
### IGHV4-59\*01

170 sequences assigned  
126 (74.1%) exact matches, in which:  
126 unique CDR3  
6 unique J



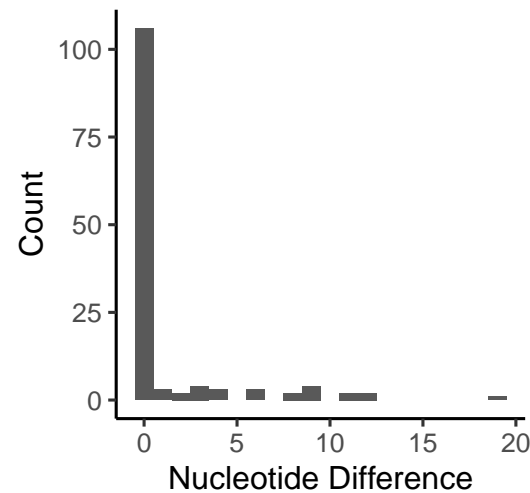
### IGHV5-10-1\*01

108 sequences assigned  
79 (73.1%) exact matches, in which:  
79 unique CDR3  
7 unique J



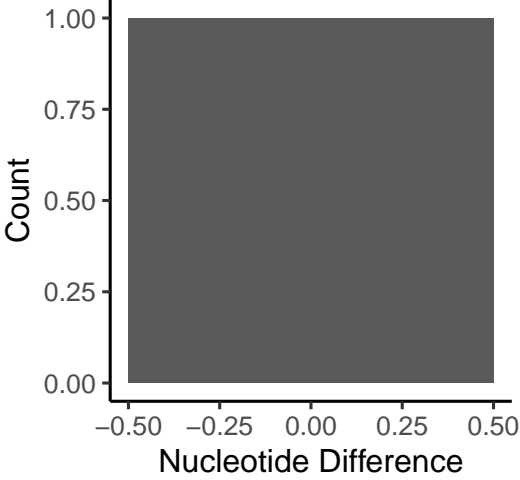
### IGHV6-1\*01

132 sequences assigned  
106 (80.3%) exact matches, in which:  
106 unique CDR3  
6 unique J

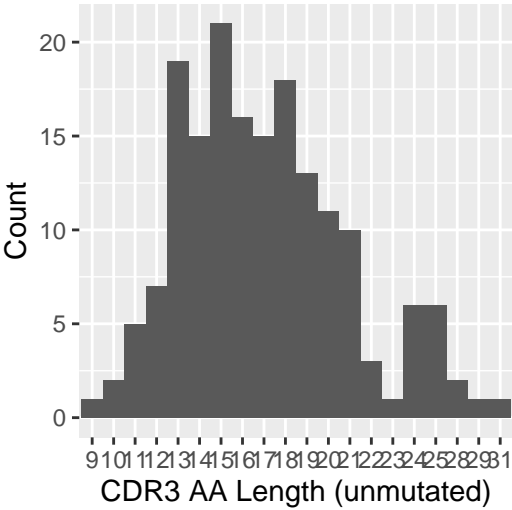


IGHV7-4-1\*01

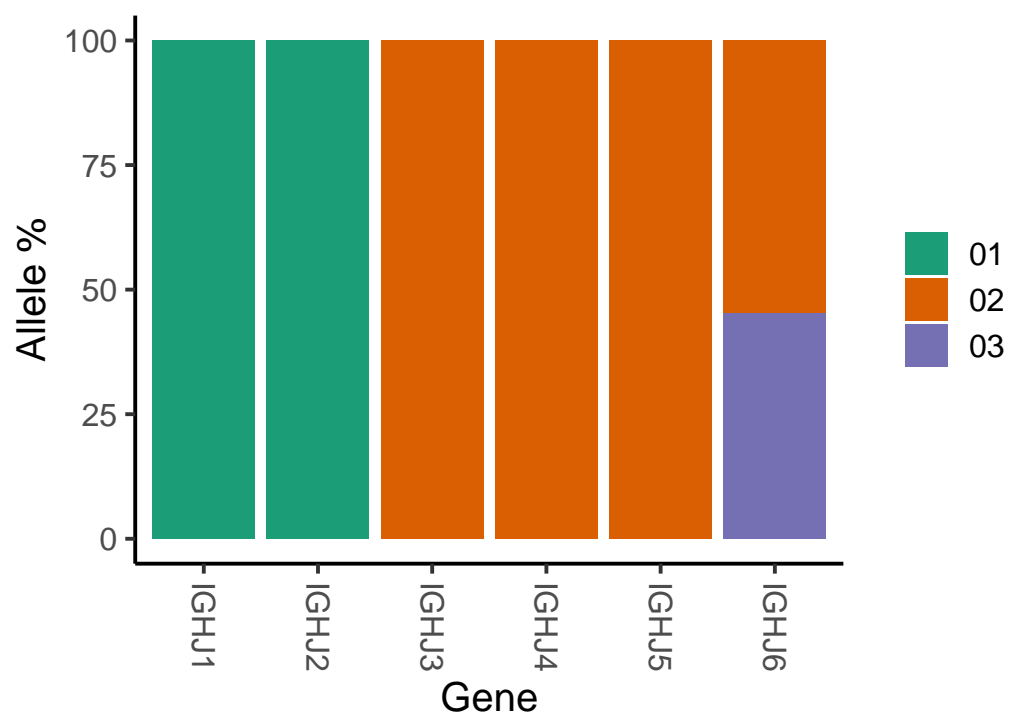
1 sequences assigned  
1 (100%) exact matches, in which:  
1 unique CDR3  
1 unique J



IGHV1-69\*04\_A163G



Allele Usage



Sequence Count by IGHJ6 allele usage

