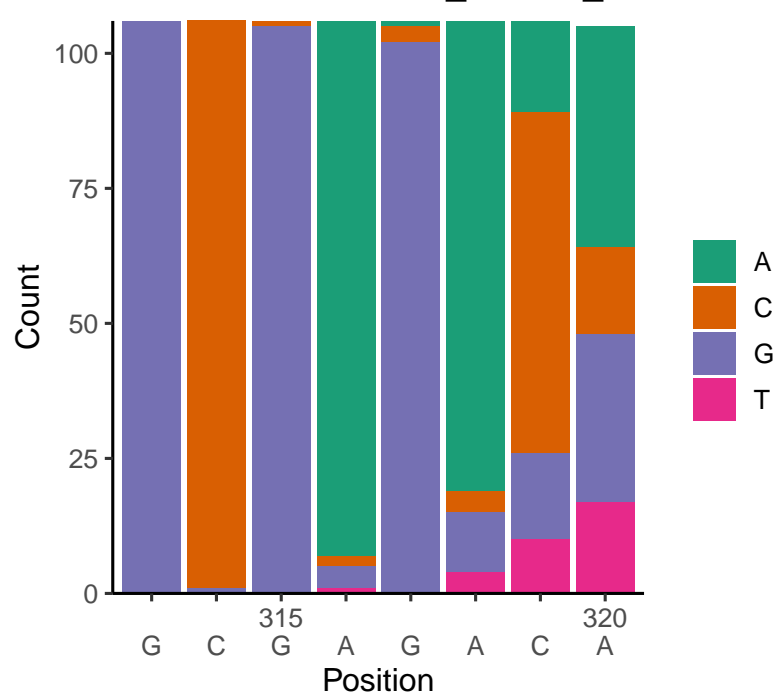
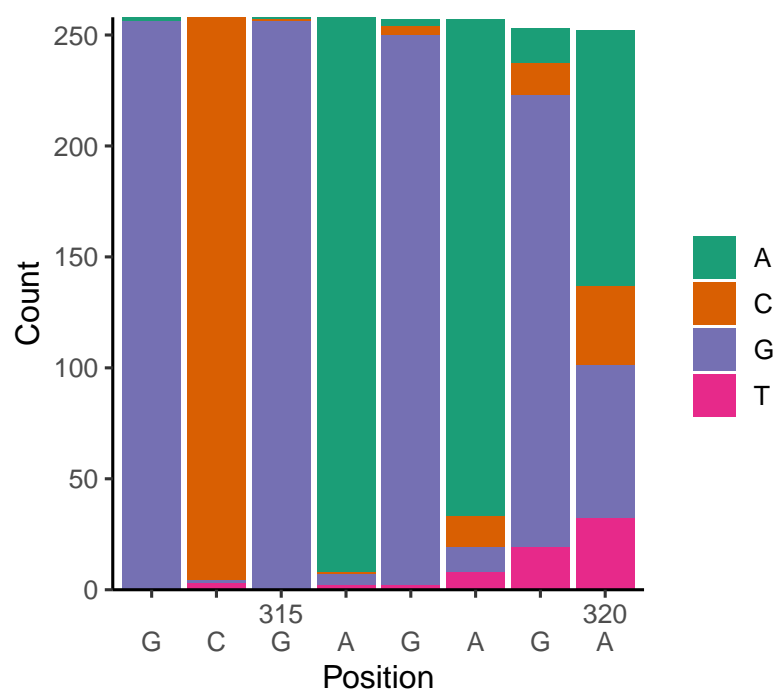


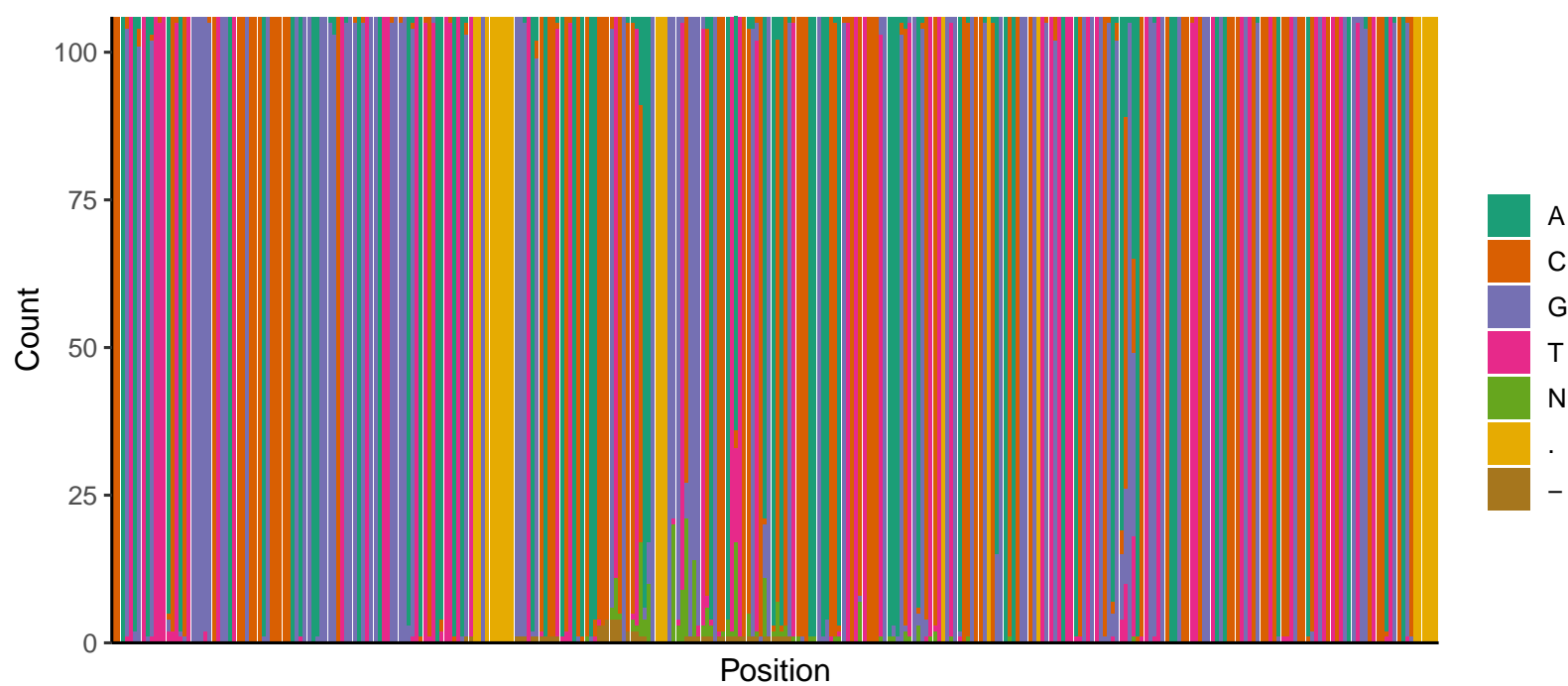
Gene IGHV4-39\*01\_A220G\_A225G



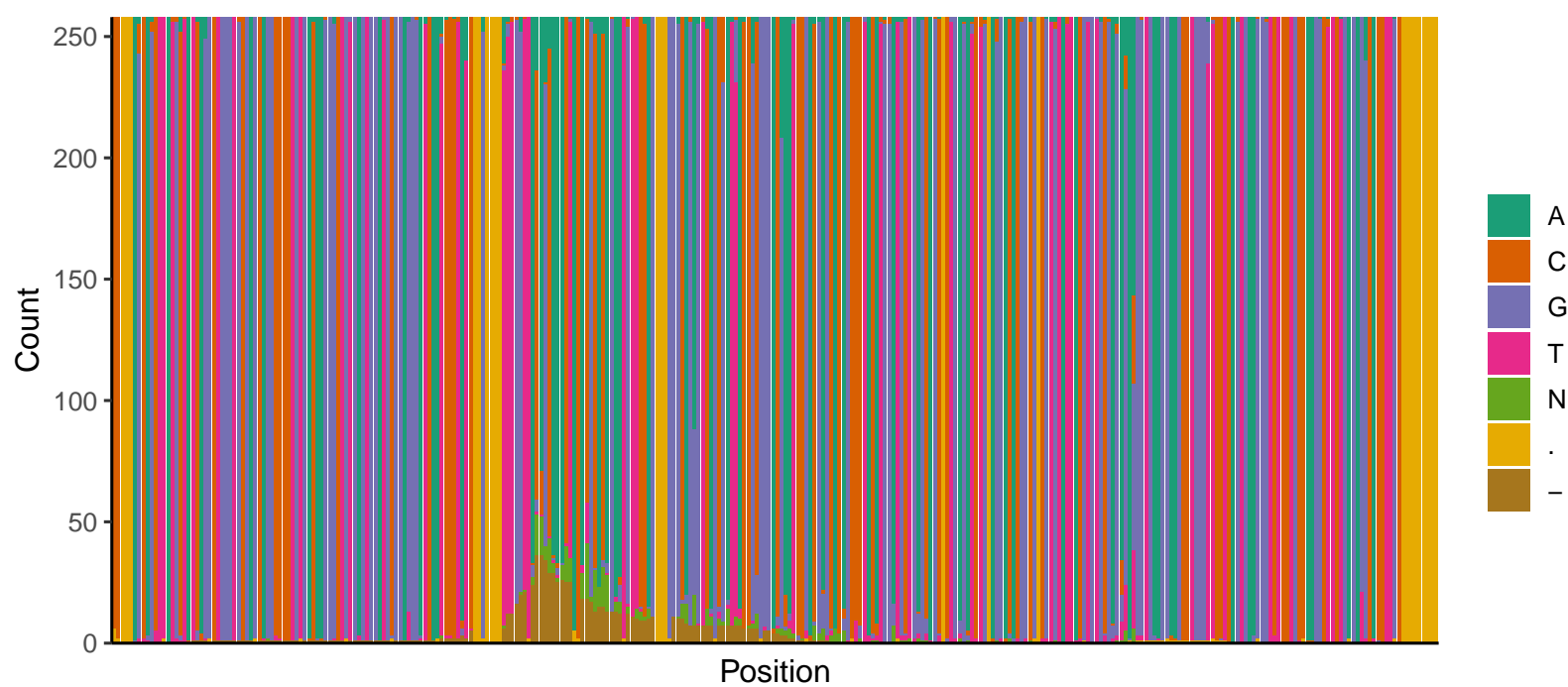
Gene IGHV1-69\*01\_G54A



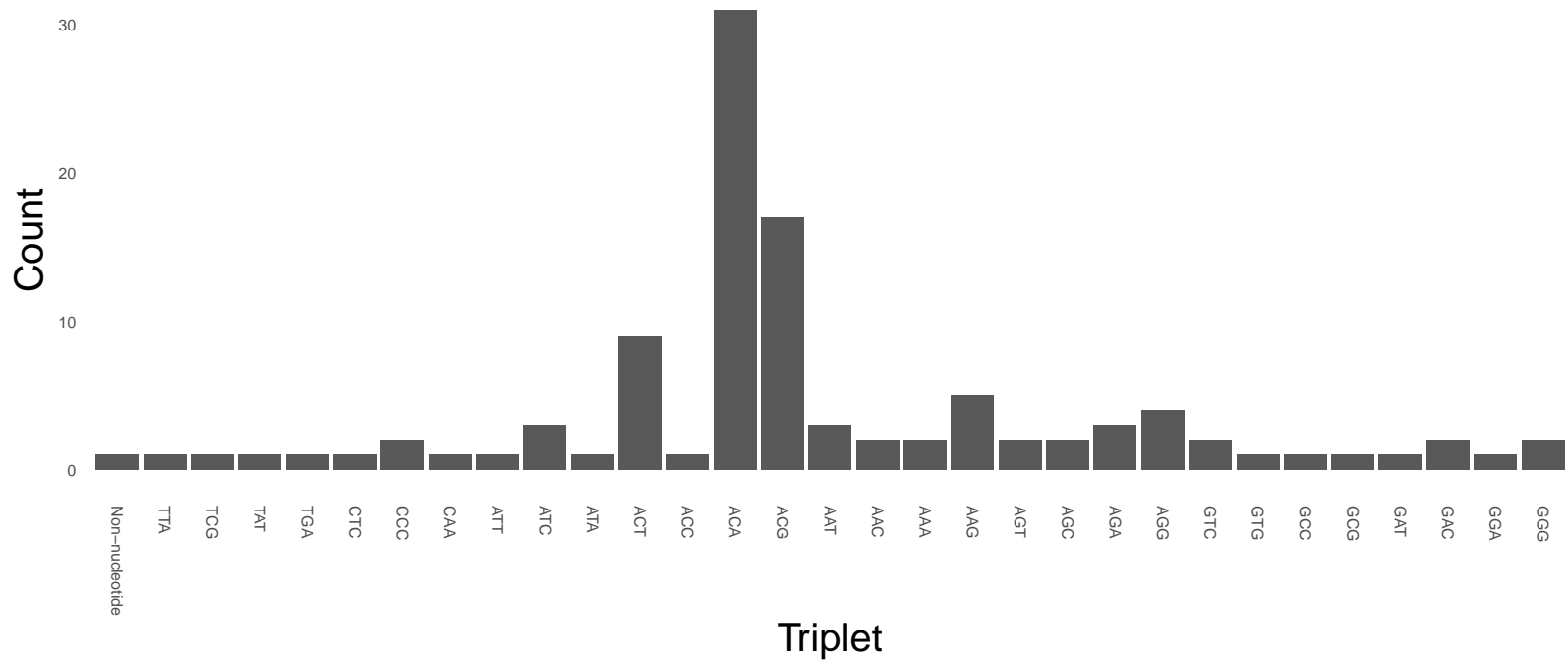
Gene IGHV4-39\*01\_A220G\_A225G



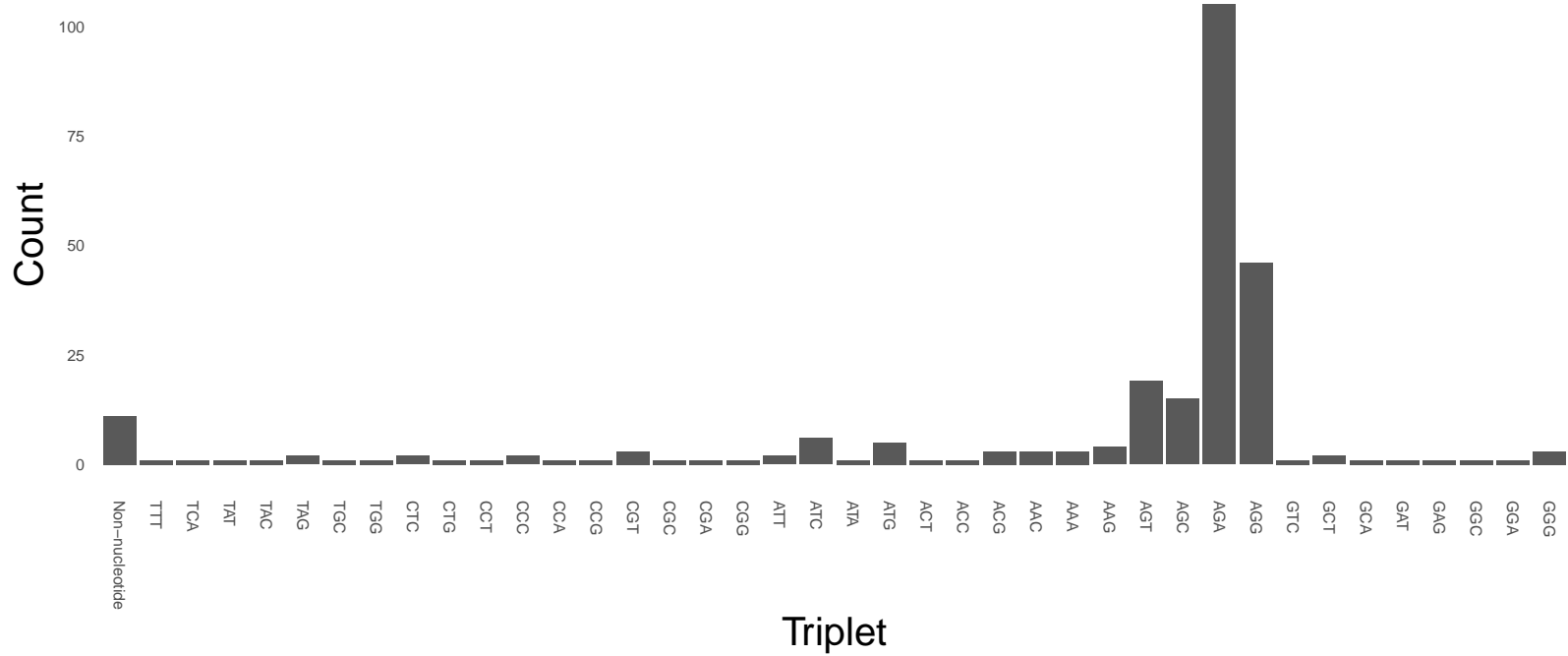
Gene IGHV1-69\*01\_G54A



IGHV4-39\*01\_A220G\_A225G- Final 3 nucleotides as a triplet

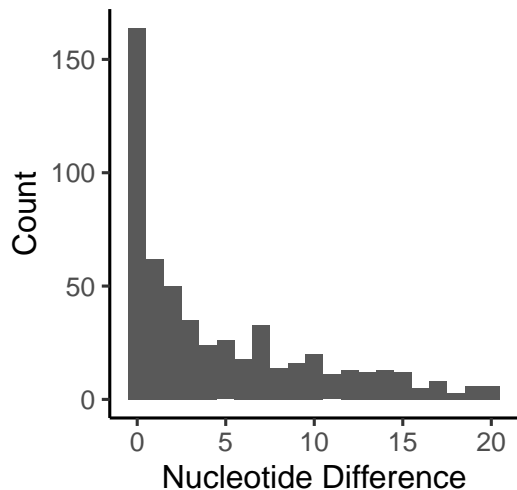


IGHV1-69\*01\_G54A- Final 3 nucleotides as a triplet



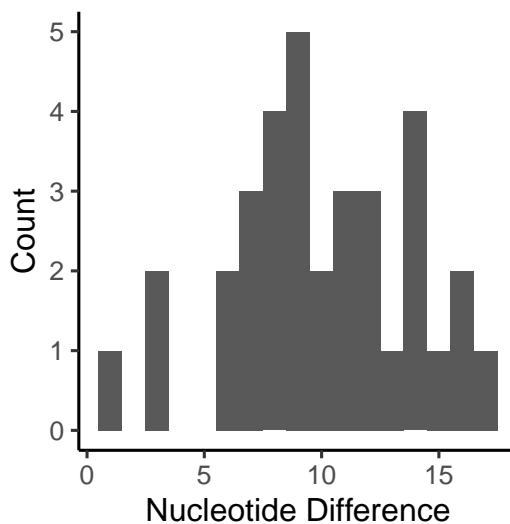
### IGHV1-2\*02

572 sequences assigned  
164 (28.7%) exact matches, in which:  
156 unique CDR3  
6 unique J



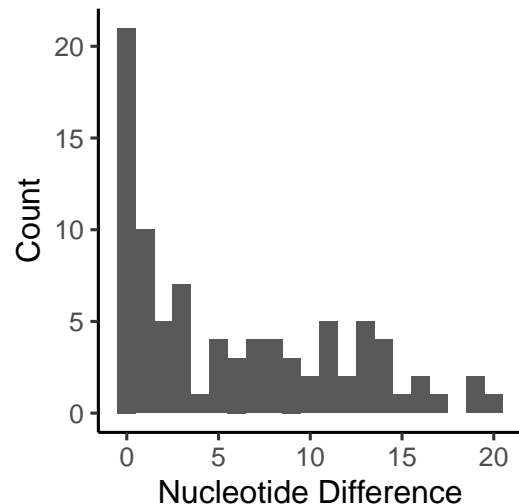
### IGHV1-8\*02

36 sequences assigned  
No exact matches.



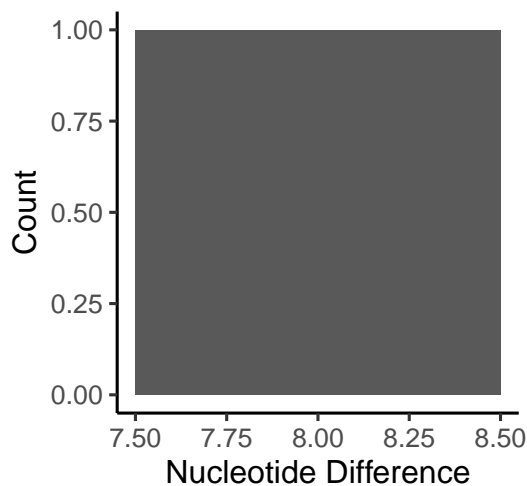
### IGHV1-46\*01

101 sequences assigned  
21 (20.8%) exact matches, in which:  
21 unique CDR3  
4 unique J



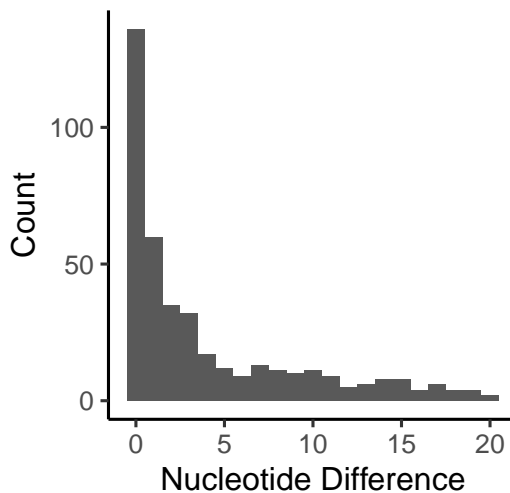
### IGHV1-3\*01

1 sequences assigned  
No exact matches.



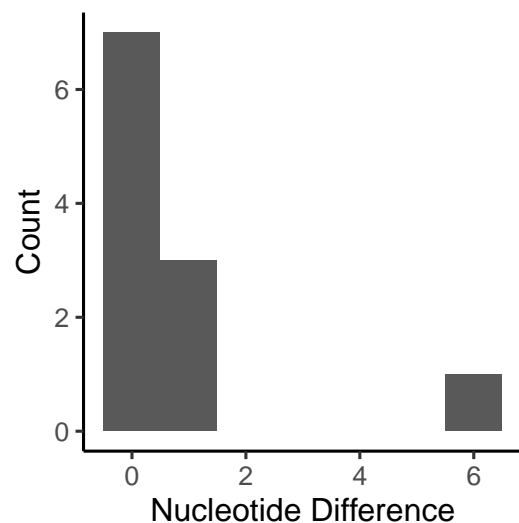
### IGHV1-18\*01

425 sequences assigned  
136 (32%) exact matches, in which:  
125 unique CDR3  
5 unique J



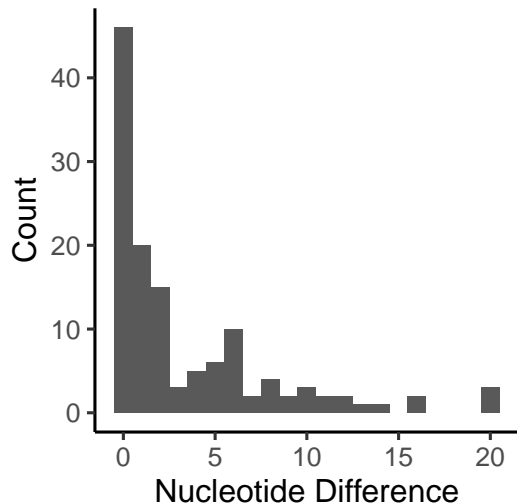
### IGHV1-58\*01

13 sequences assigned  
7 (53.8%) exact matches, in which:  
6 unique CDR3  
3 unique J



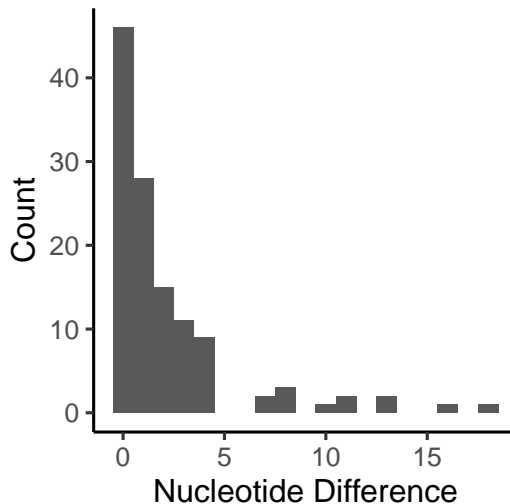
### IGHV1-8\*01

129 sequences assigned  
46 (35.7%) exact matches, in which:  
41 unique CDR3  
6 unique J



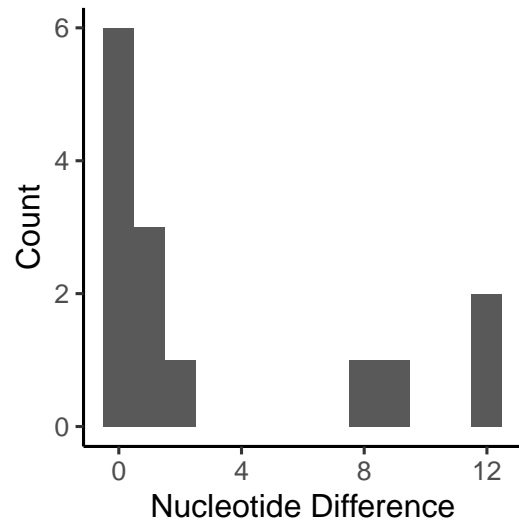
### IGHV1-24\*01

121 sequences assigned  
46 (38%) exact matches, in which:  
45 unique CDR3  
5 unique J



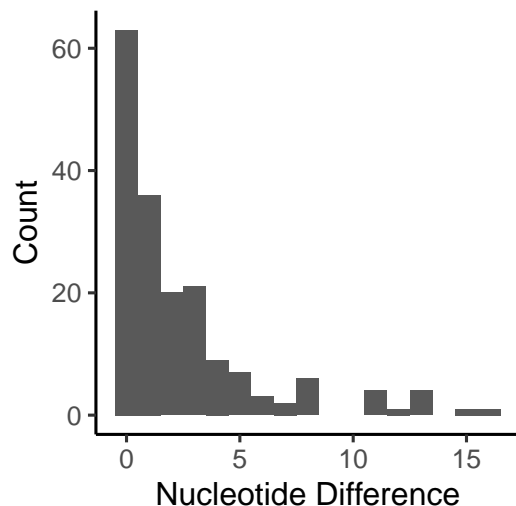
### IGHV1-58\*02

14 sequences assigned  
6 (42.9%) exact matches, in which:  
6 unique CDR3  
3 unique J



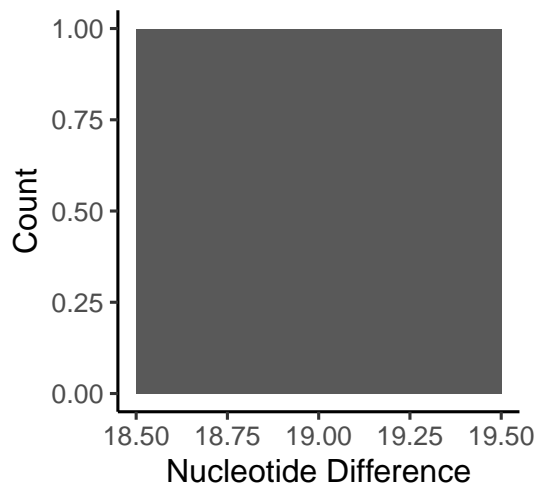
### IGHV1-69\*04

184 sequences assigned  
63 (34.2%) exact matches, in which:  
62 unique CDR3  
5 unique J



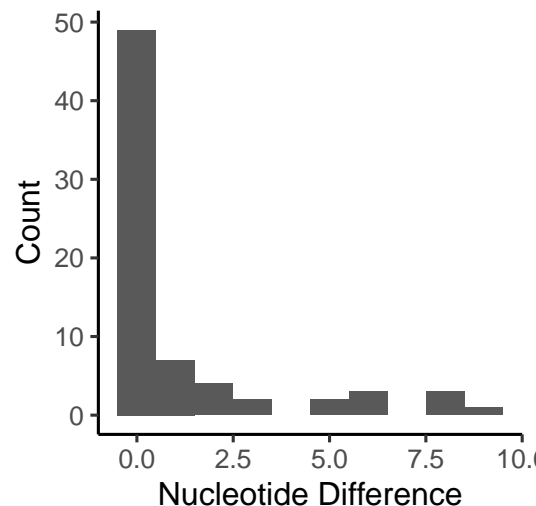
### IGHV1-NL1\*01

1 sequences assigned  
No exact matches.



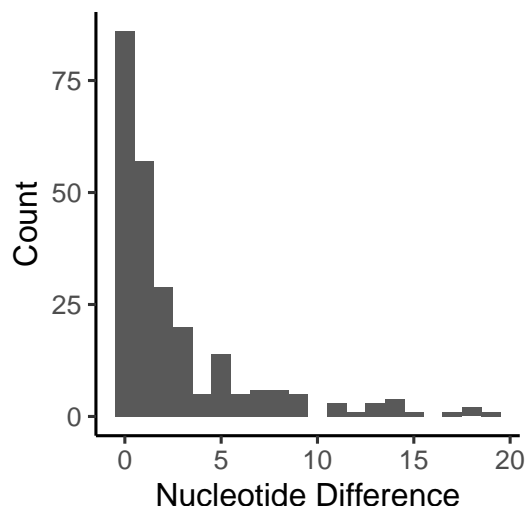
### IGHV2-26\*01

71 sequences assigned  
49 (69%) exact matches, in which:  
47 unique CDR3  
5 unique J



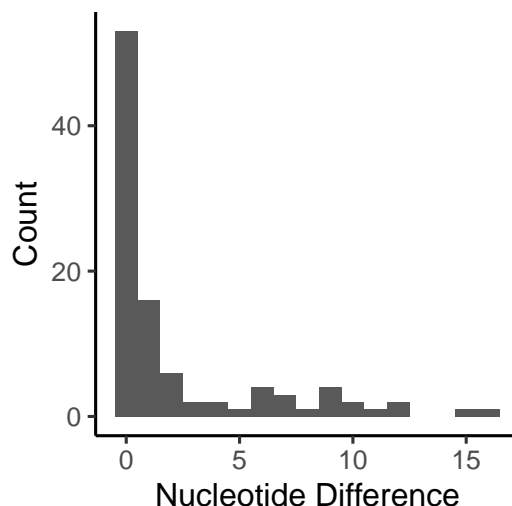
### IGHV1-69\*01\_G54A

258 sequences assigned  
86 (33.3%) exact matches, in which:  
83 unique CDR3  
5 unique J



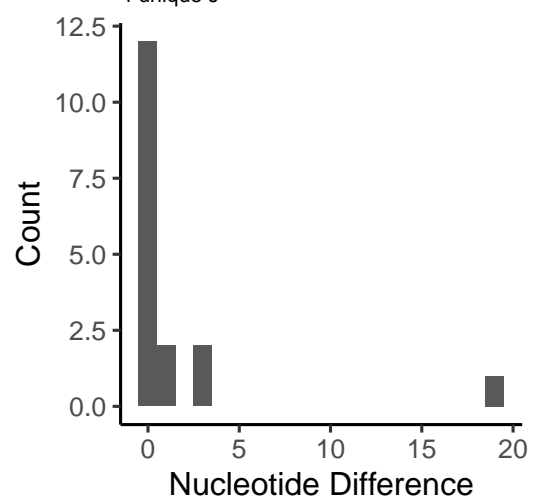
### IGHV2-5\*01

103 sequences assigned  
53 (51.5%) exact matches, in which:  
52 unique CDR3  
5 unique J



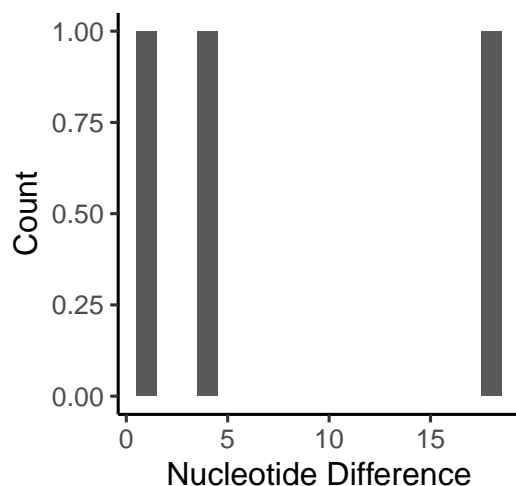
### IGHV2-70\*01

17 sequences assigned  
12 (70.6%) exact matches, in which:  
12 unique CDR3  
4 unique J



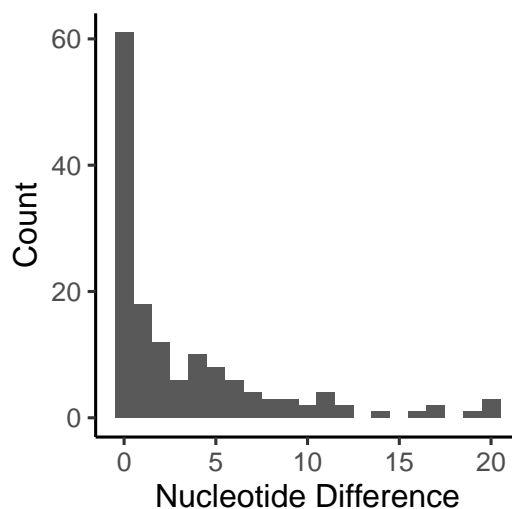
### IGHV1-69D\*01

3 sequences assigned  
No exact matches.



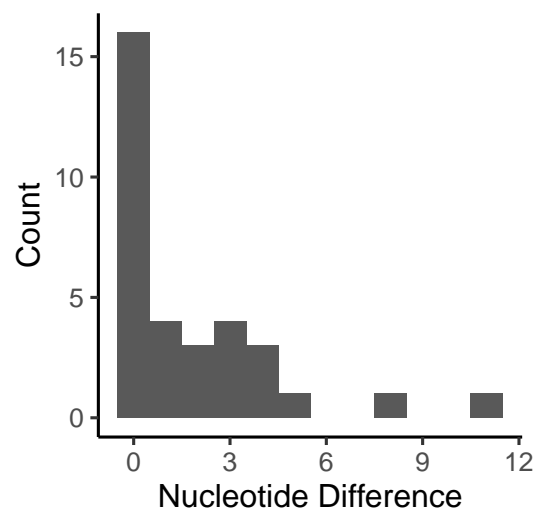
### IGHV2-5\*02

152 sequences assigned  
61 (40.1%) exact matches, in which:  
58 unique CDR3  
5 unique J



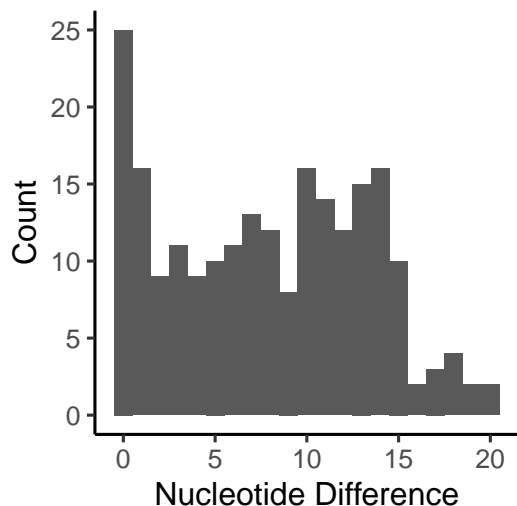
### IGHV2-70\*15

33 sequences assigned  
16 (48.5%) exact matches, in which:  
16 unique CDR3  
4 unique J



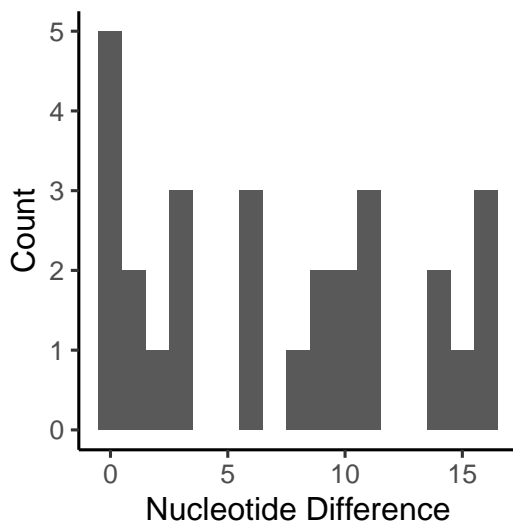
### IGHV3-7\*01

234 sequences assigned  
25 (10.7%) exact matches, in which:  
24 unique CDR3  
5 unique J



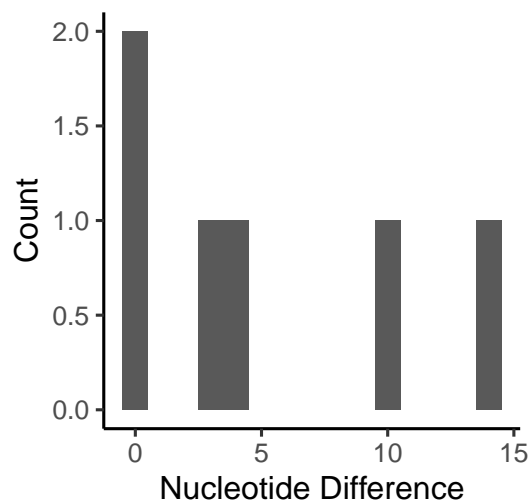
### IGHV3-11\*01

30 sequences assigned  
5 (16.7%) exact matches, in which:  
5 unique CDR3  
3 unique J



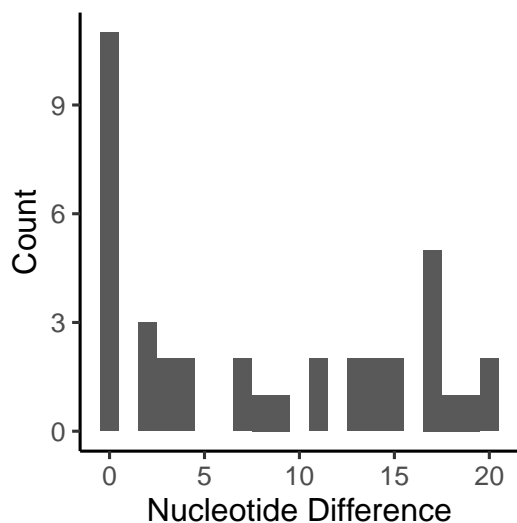
### IGHV3-13\*01

7 sequences assigned  
2 (28.6%) exact matches, in which:  
2 unique CDR3  
2 unique J



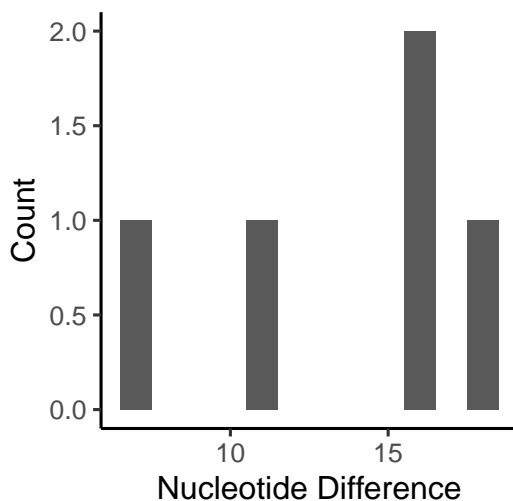
### IGHV3-7\*05

49 sequences assigned  
11 (22.4%) exact matches, in which:  
10 unique CDR3  
3 unique J



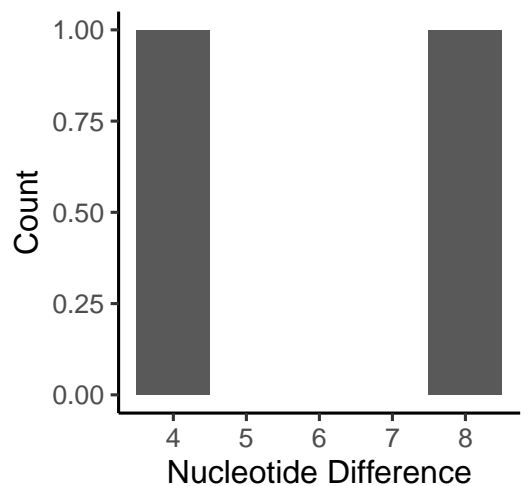
### IGHV3-11\*04

7 sequences assigned  
No exact matches.



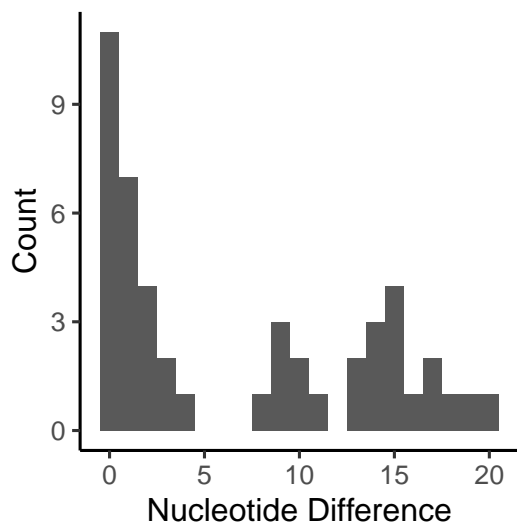
### IGHV3-13\*05

2 sequences assigned  
No exact matches.



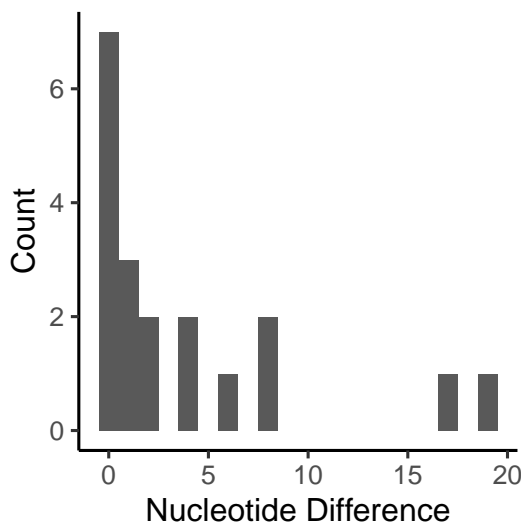
### IGHV3-9\*01

52 sequences assigned  
11 (21.2%) exact matches, in which:  
11 unique CDR3  
4 unique J



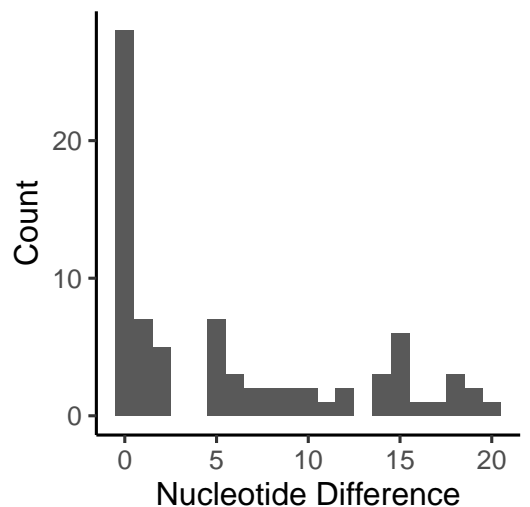
### IGHV3-11\*06

19 sequences assigned  
7 (36.8%) exact matches, in which:  
7 unique CDR3  
4 unique J



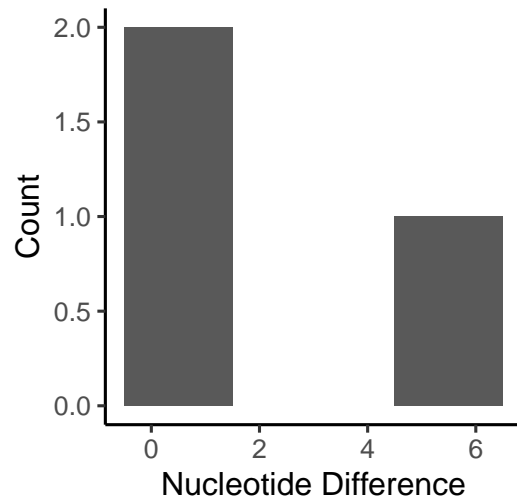
### IGHV3-15\*01

105 sequences assigned  
28 (26.7%) exact matches, in which:  
26 unique CDR3  
5 unique J



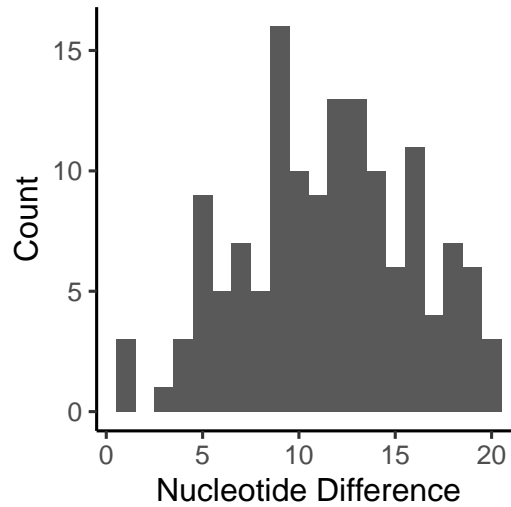
### IGHV3-20\*01

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



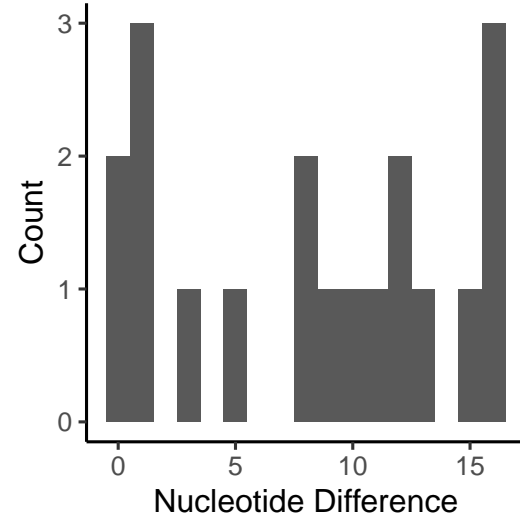
### IGHV3-23\*04

152 sequences assigned  
No exact matches.



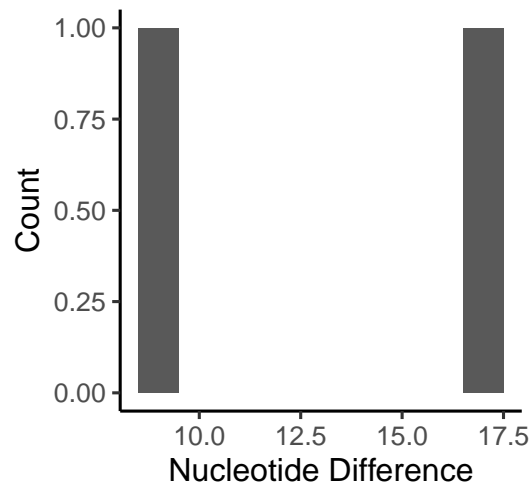
### IGHV3-33\*05

19 sequences assigned  
2 (10.5%) exact matches, in which:  
2 unique CDR3  
1 unique J



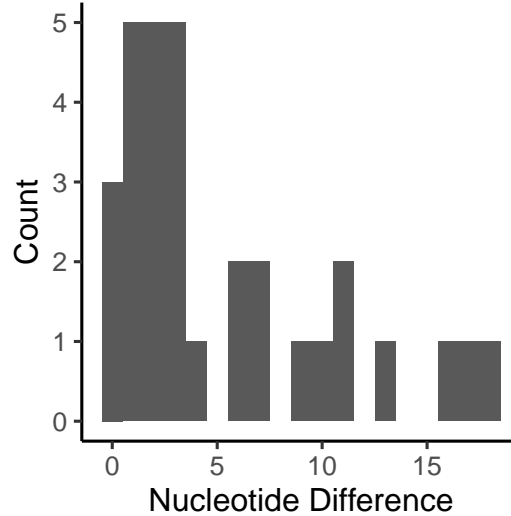
### IGHV3-20\*04

4 sequences assigned  
No exact matches.



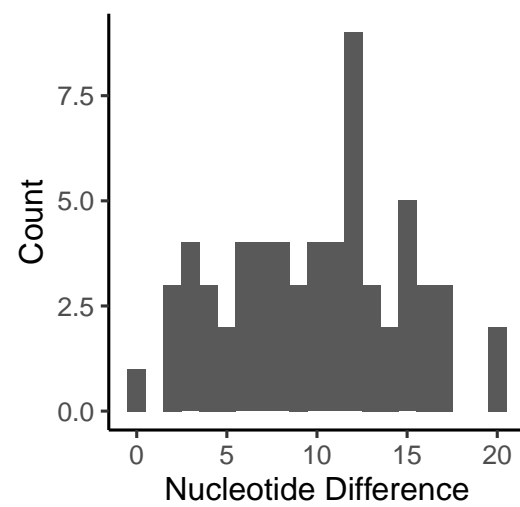
### IGHV3-30\*03

33 sequences assigned  
3 (9.1%) exact matches, in which:  
3 unique CDR3  
1 unique J



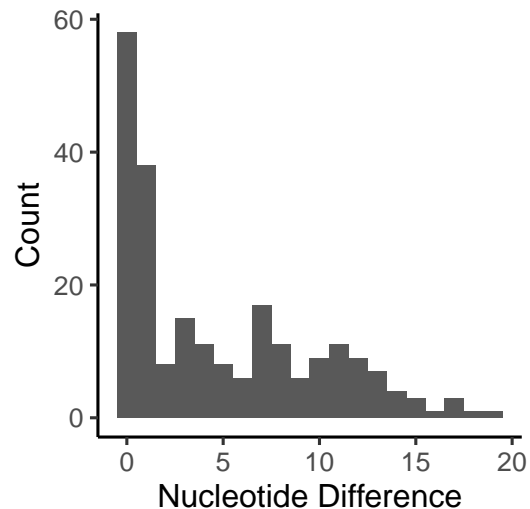
### IGHV3-33\*08

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



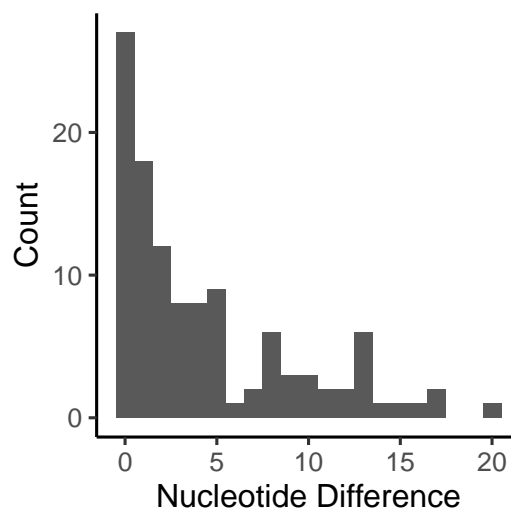
### IGHV3-21\*01

231 sequences assigned  
58 (25.1%) exact matches, in which:  
57 unique CDR3  
4 unique J



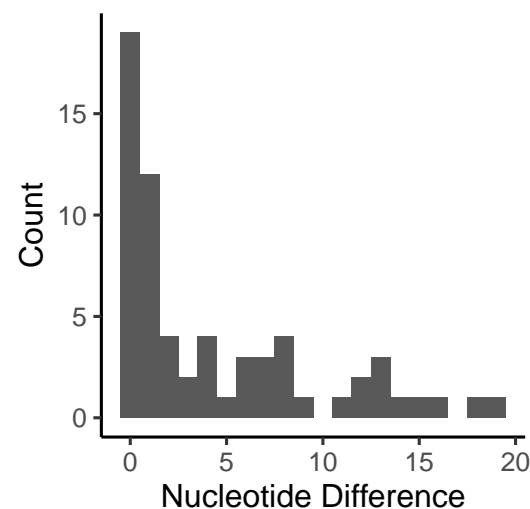
### IGHV3-33\*01

115 sequences assigned  
27 (23.5%) exact matches, in which:  
26 unique CDR3  
5 unique J



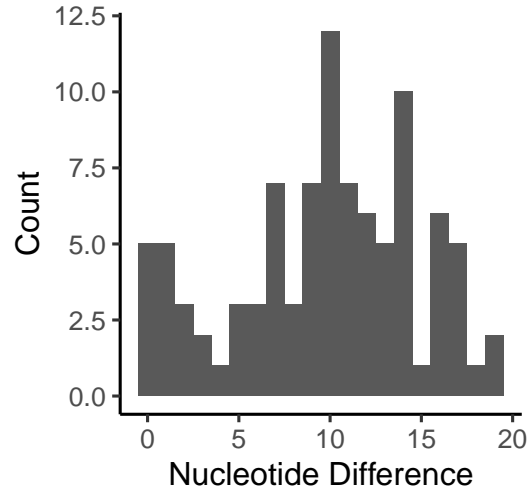
### IGHV3-43\*02

66 sequences assigned  
19 (28.8%) exact matches, in which:  
19 unique CDR3  
4 unique J



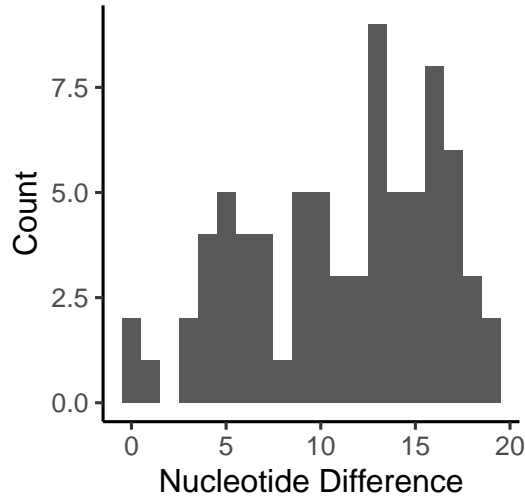
### IGHV3-48\*01

106 sequences assigned  
5 (4.7%) exact matches, in which:  
5 unique CDR3  
2 unique J



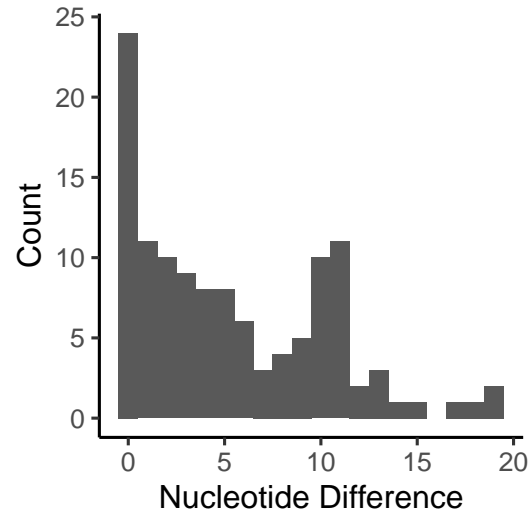
### IGHV3-48\*04

85 sequences assigned  
2 (2.4%) exact matches, in which:  
2 unique CDR3  
2 unique J



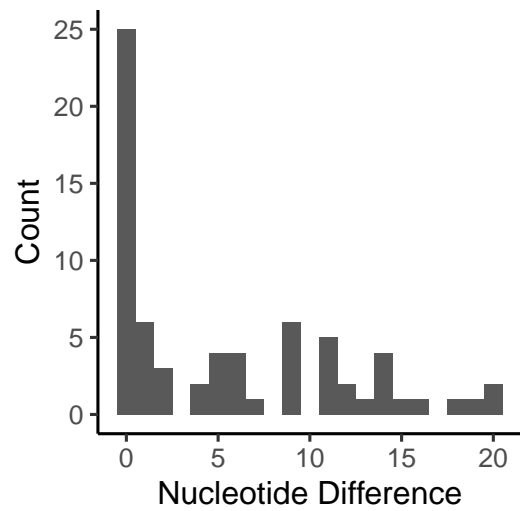
### IGHV3-53\*01

125 sequences assigned  
24 (19.2%) exact matches, in which:  
22 unique CDR3  
4 unique J



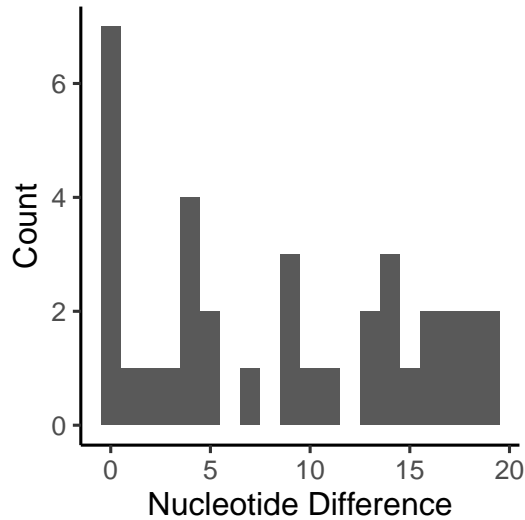
### IGHV3-48\*02

74 sequences assigned  
25 (33.8%) exact matches, in which:  
25 unique CDR3  
5 unique J



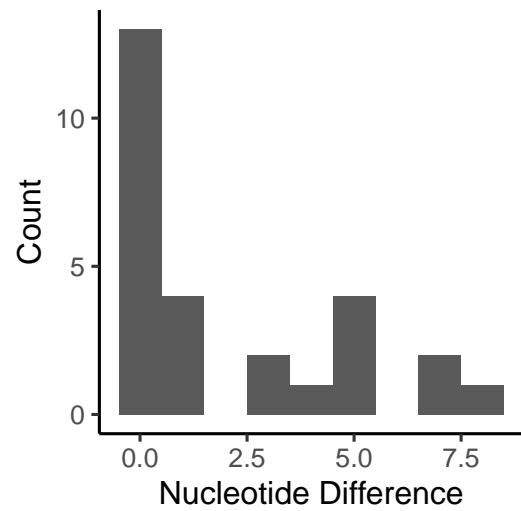
### IGHV3-49\*04

44 sequences assigned  
7 (15.9%) exact matches, in which:  
7 unique CDR3  
4 unique J



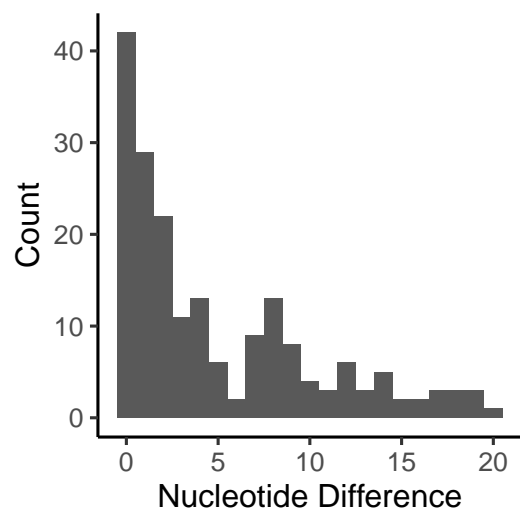
### IGHV3-53\*04

27 sequences assigned  
13 (48.1%) exact matches, in which:  
13 unique CDR3  
4 unique J



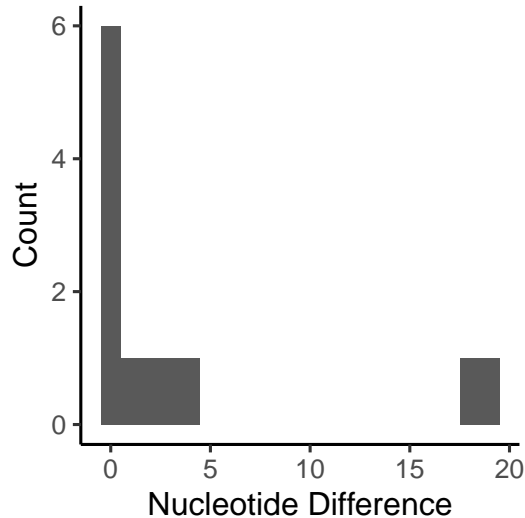
### IGHV3-48\*03

199 sequences assigned  
42 (21.1%) exact matches, in which:  
40 unique CDR3  
5 unique J



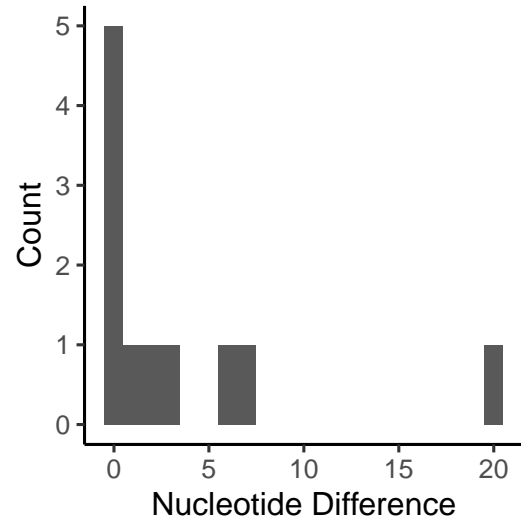
### IGHV3-49\*05

15 sequences assigned  
6 (40%) exact matches, in which:  
6 unique CDR3  
4 unique J



### IGHV3-64\*01

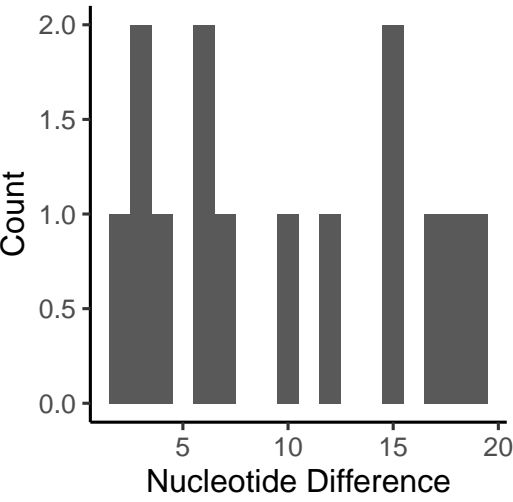
11 sequences assigned  
5 (45.5%) exact matches, in which:  
5 unique CDR3  
3 unique J





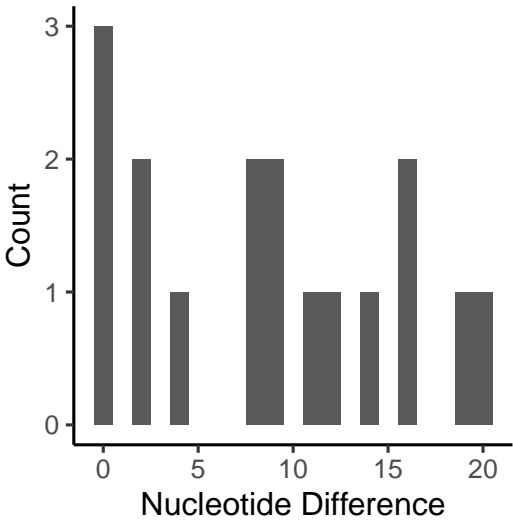
IGHV3-64\*04

15 sequences assigned  
No exact matches.



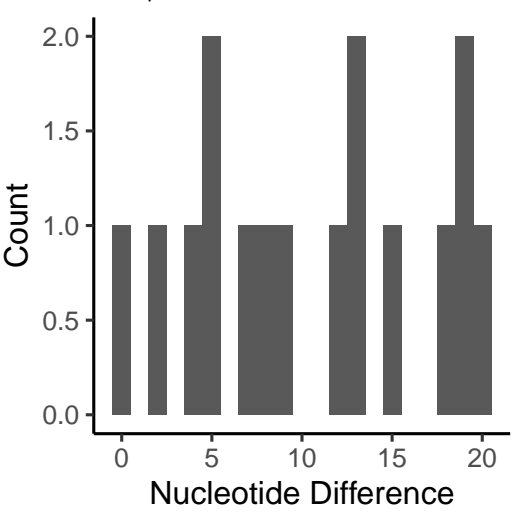
IGHV3-66\*02

18 sequences assigned  
3 (16.7%) exact matches, in which:  
3 unique CDR3  
1 unique J



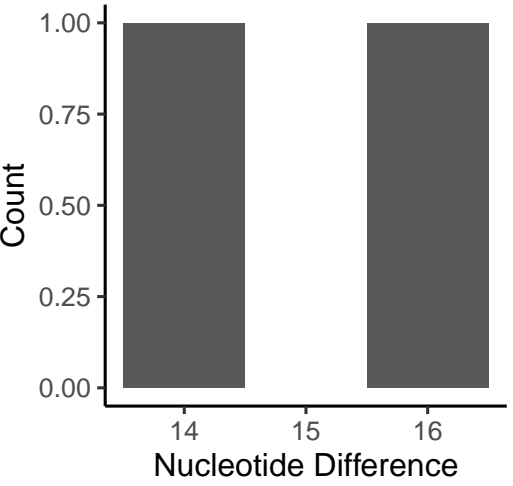
IGHV3-72\*01

18 sequences assigned  
1 (5.6%) exact matches, in which:  
1 unique CDR3  
1 unique J



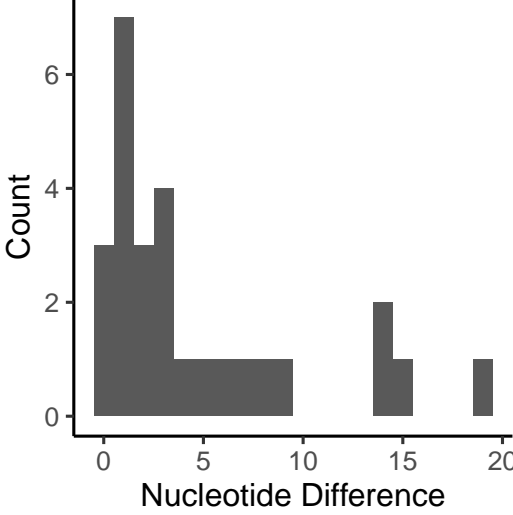
IGHV3-64\*07

3 sequences assigned  
No exact matches.



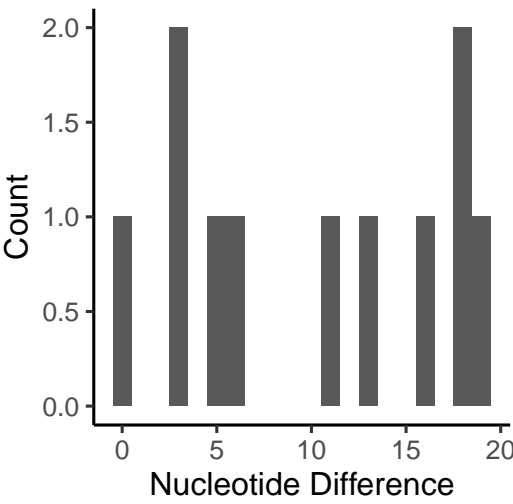
IGHV3-66\*03

28 sequences assigned  
3 (10.7%) exact matches, in which:  
3 unique CDR3  
2 unique J



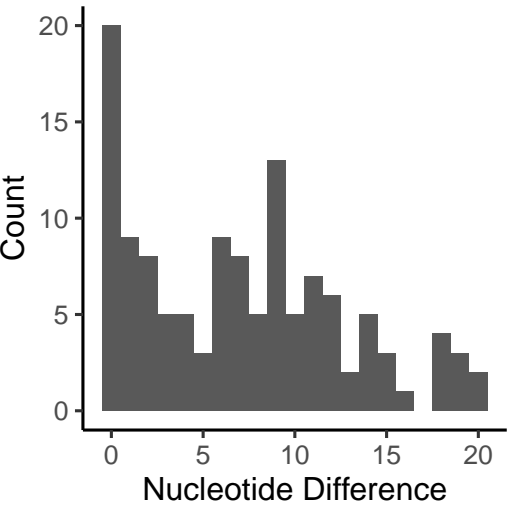
IGHV3-73\*01

15 sequences assigned  
1 (6.7%) exact matches, in which:  
1 unique CDR3  
1 unique J



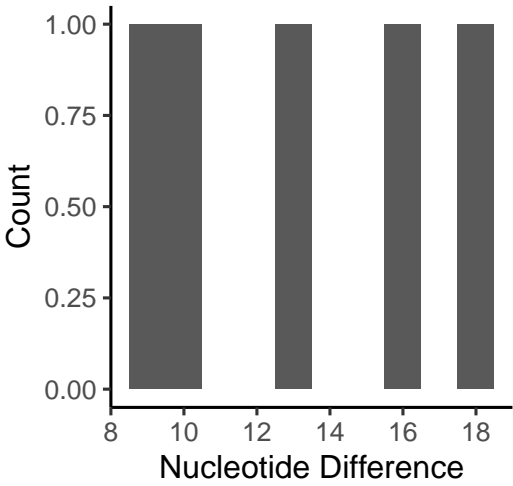
IGHV3-66\*01

130 sequences assigned  
20 (15.4%) exact matches, in which:  
18 unique CDR3  
4 unique J



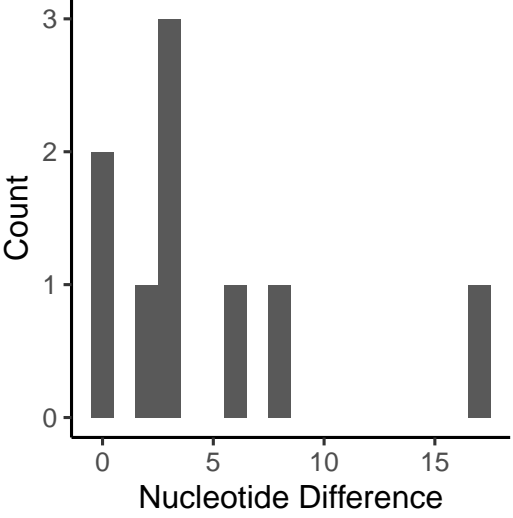
IGHV3-69-1\*01

7 sequences assigned  
No exact matches.



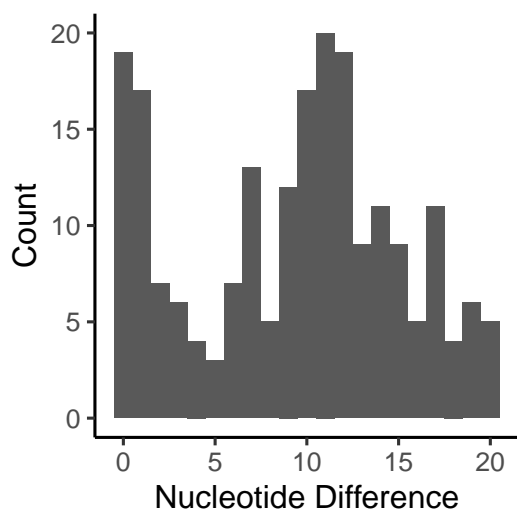
IGHV3-73\*02

10 sequences assigned  
2 (20%) exact matches, in which:  
2 unique CDR3  
2 unique J



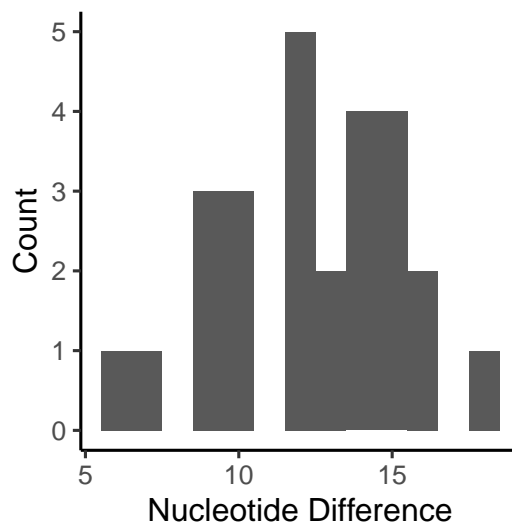
### IGHV3-74\*01

222 sequences assigned  
19 (8.6%) exact matches, in which:  
19 unique CDR3  
5 unique J



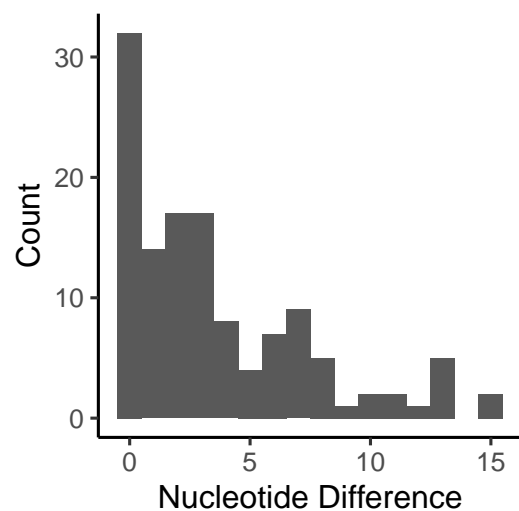
### IGHV3-NL1\*01

29 sequences assigned  
No exact matches.



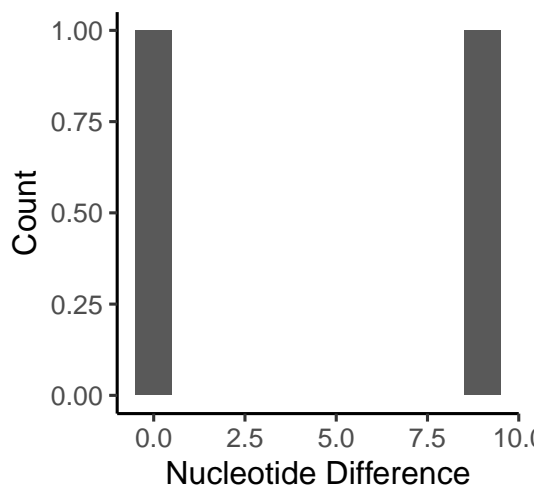
### IGHV4-31\*03

132 sequences assigned  
32 (24.2%) exact matches, in which:  
31 unique CDR3  
5 unique J



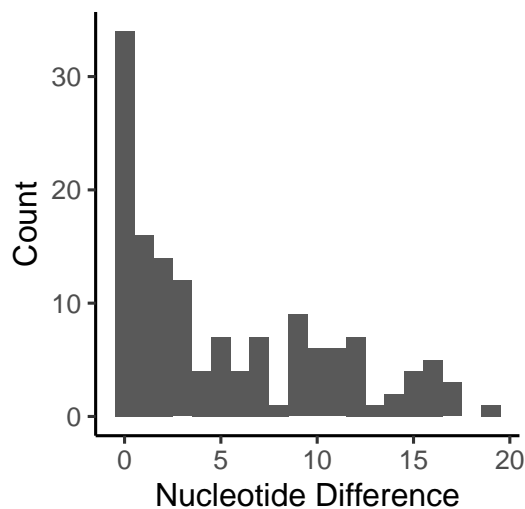
### IGHV3-64D\*06

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



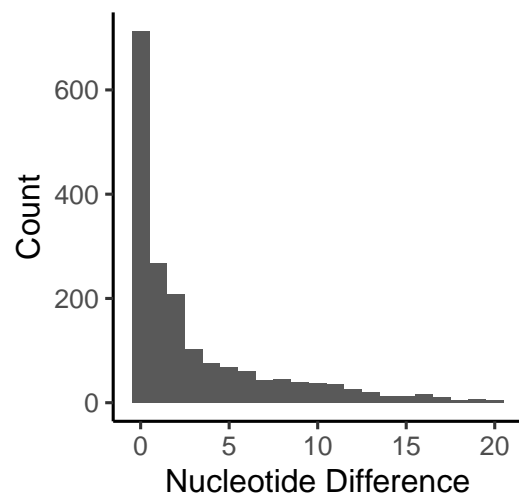
### IGHV4-4\*07

160 sequences assigned  
34 (21.2%) exact matches, in which:  
33 unique CDR3  
5 unique J



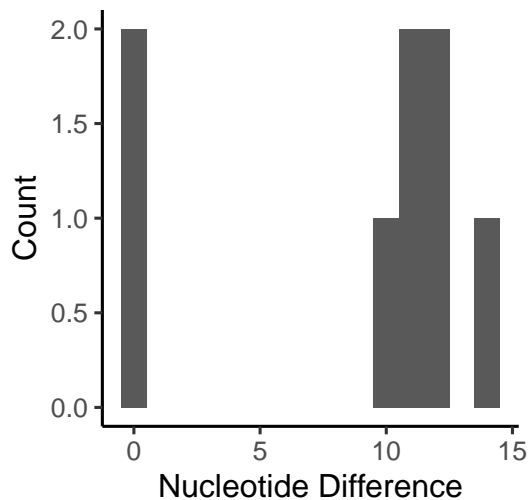
### IGHV4-34\*01

1869 sequences assigned  
713 (38.1%) exact matches, in which:  
700 unique CDR3  
6 unique J



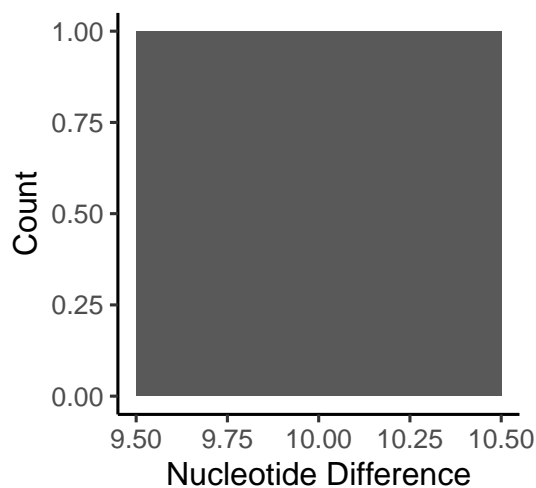
### IGHV3-64D\*09

10 sequences assigned  
2 (20%) exact matches, in which:  
2 unique CDR3  
1 unique J



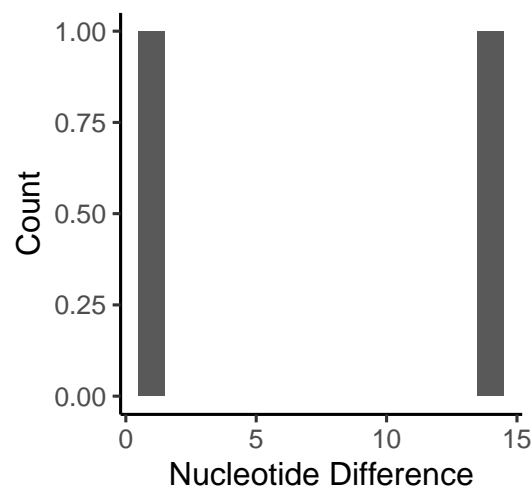
### IGHV4-30-4\*07

1 sequences assigned  
No exact matches.



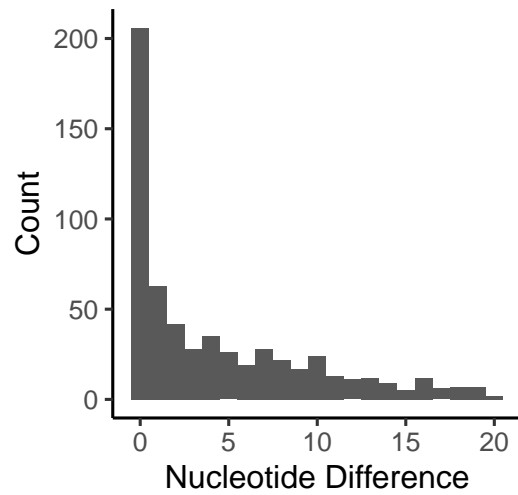
### IGHV4-38-2\*02

2 sequences assigned  
No exact matches.



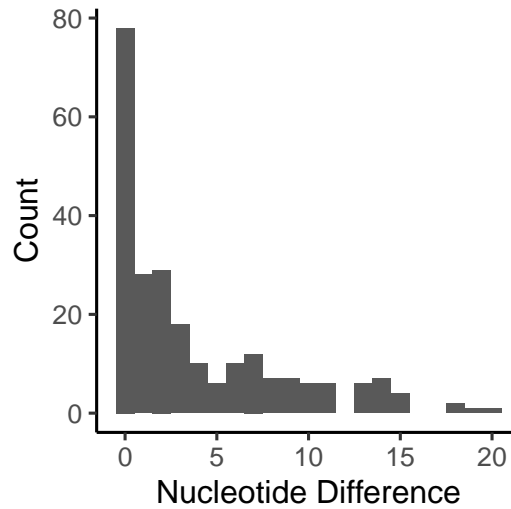
### IGHV4-39\*01

629 sequences assigned  
206 (32.8%) exact matches, in which:  
198 unique CDR3  
5 unique J



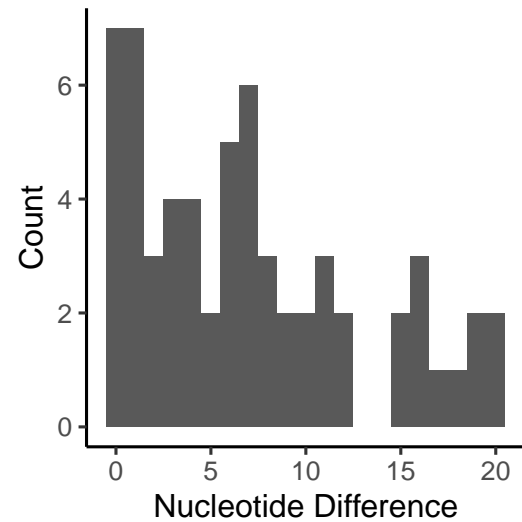
### IGHV4-59\*01

241 sequences assigned  
78 (32.4%) exact matches, in which:  
76 unique CDR3  
6 unique J



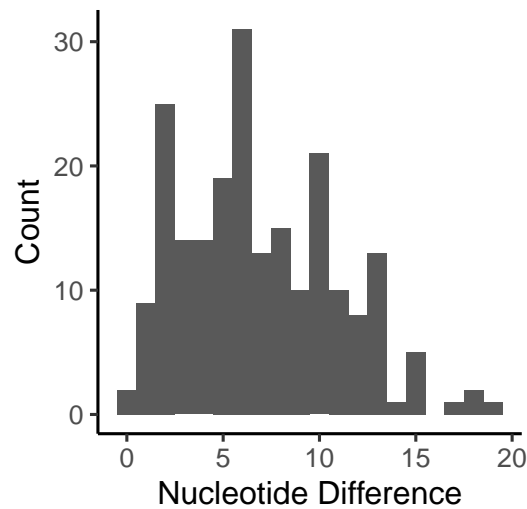
### IGHV4-61\*01

67 sequences assigned  
7 (10.4%) exact matches, in which:  
7 unique CDR3  
3 unique J



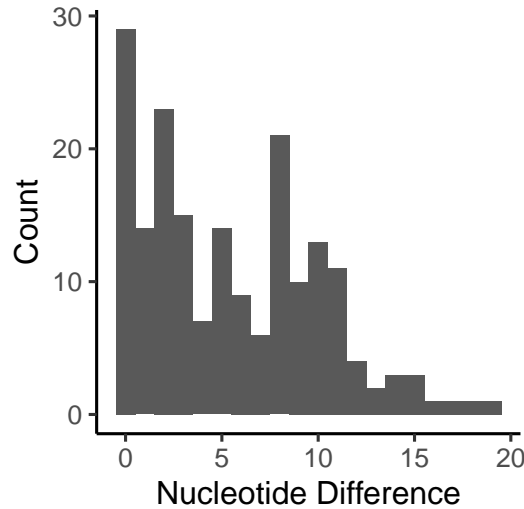
### IGHV4-39\*07

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



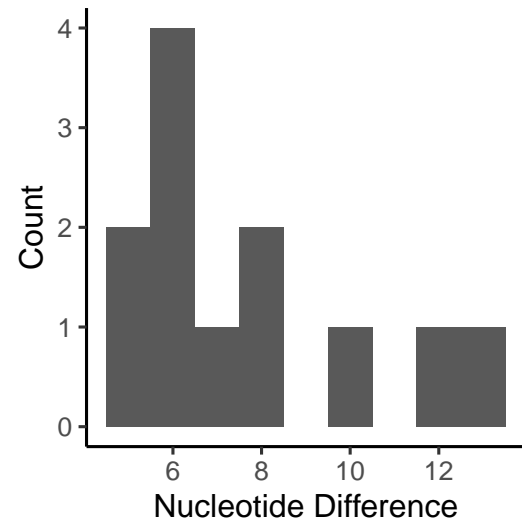
### IGHV4-59\*08

197 sequences assigned  
29 (14.7%) exact matches, in which:  
29 unique CDR3  
6 unique J



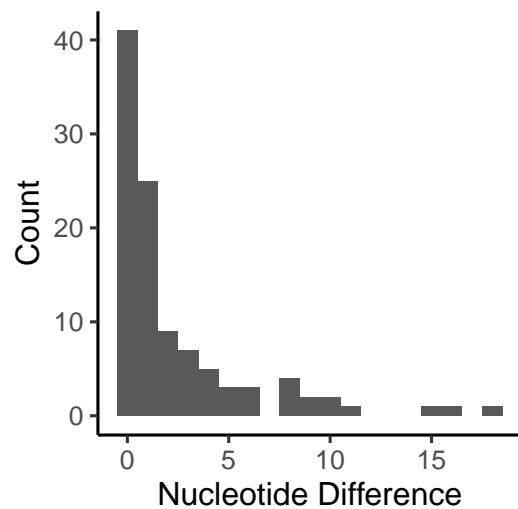
### IGHV4-61\*08

13 sequences assigned  
No exact matches.



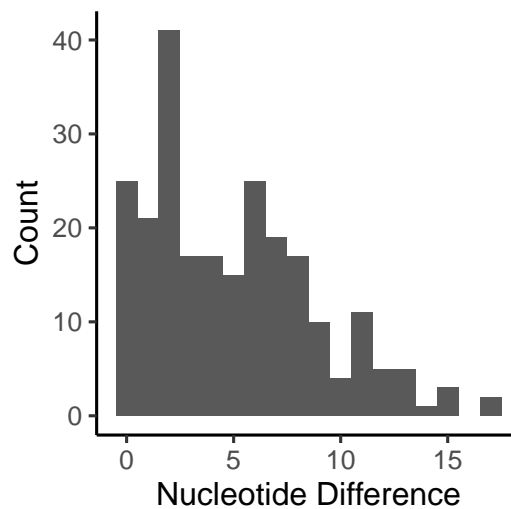
### IGHV4-39\*01\_A220G\_A2:

106 sequences assigned  
41 (38.7%) exact matches, in which:  
41 unique CDR3  
5 unique J



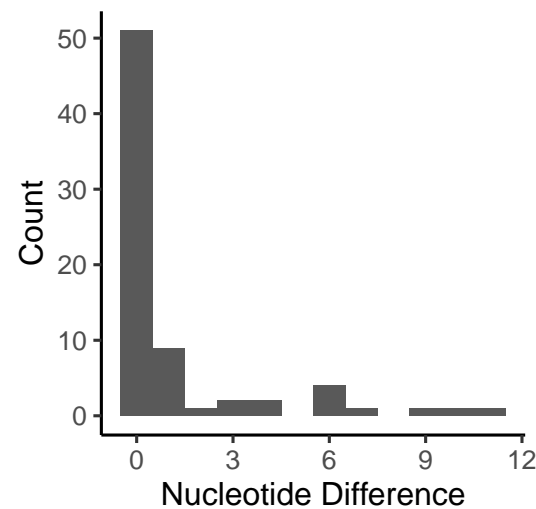
### IGHV4-59\*12

244 sequences assigned  
25 (10.2%) exact matches, in which:  
25 unique CDR3  
4 unique J



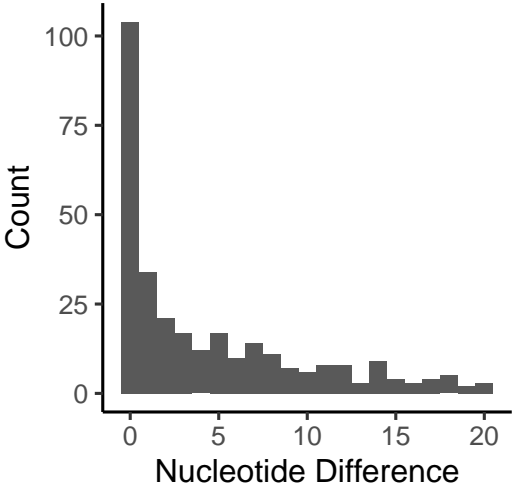
### IGHV5-10-1\*03

81 sequences assigned  
51 (63%) exact matches, in which:  
49 unique CDR3  
5 unique J



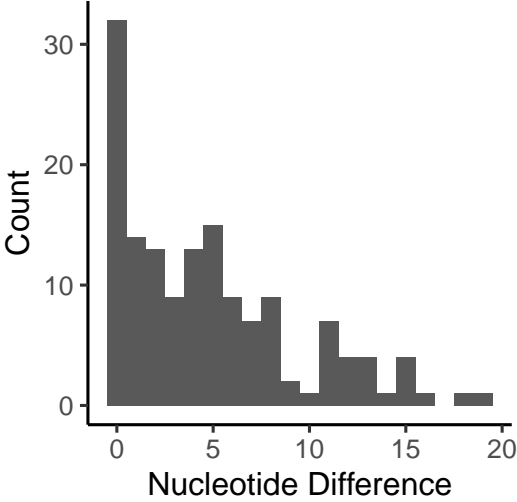
# IGHV5-51\*01

314 sequences assigned  
104 (33.1%) exact matches, in which:  
104 unique CDR3  
6 unique J



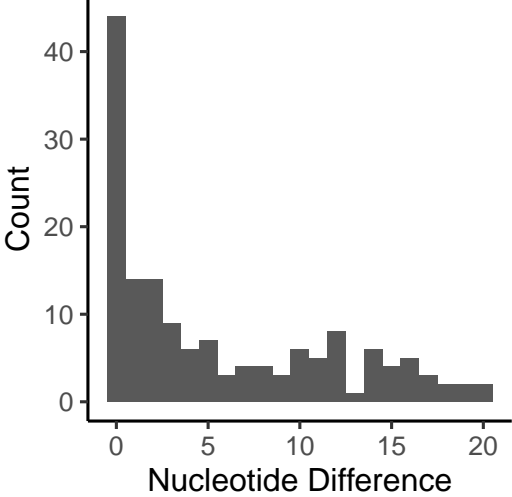
# IGHV6-1\*01

155 sequences assigned  
32 (20.6%) exact matches, in which:  
32 unique CDR3  
4 unique J

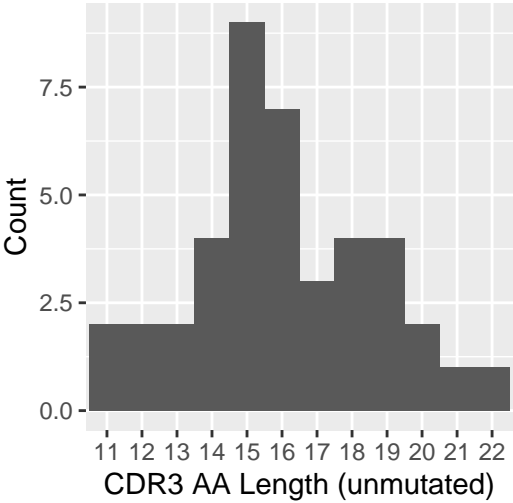


# IGHV7-4-1\*02

157 sequences assigned  
44 (28%) exact matches, in which:  
44 unique CDR3  
4 unique J



IGHV4-39\*01\_A220G\_A225G



IGHV1-69\*01\_G54A

