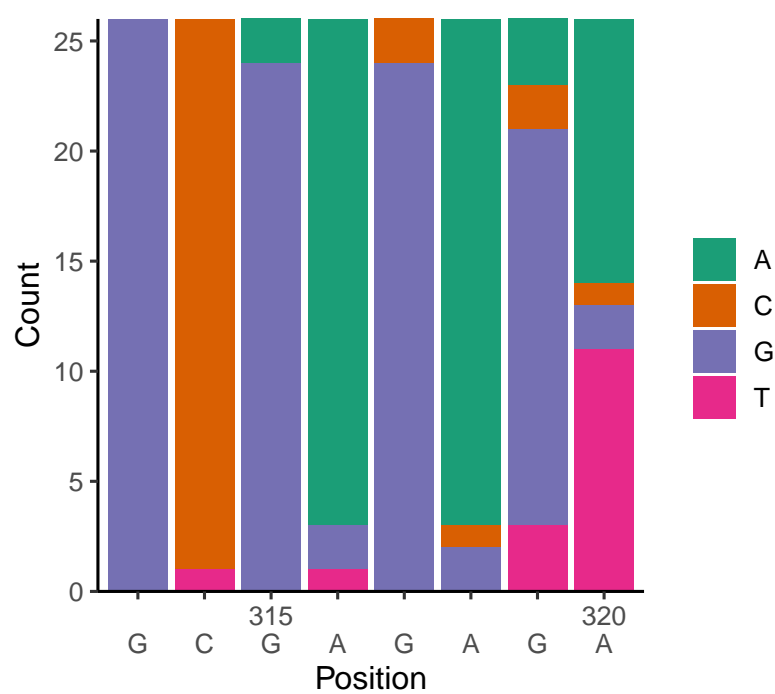
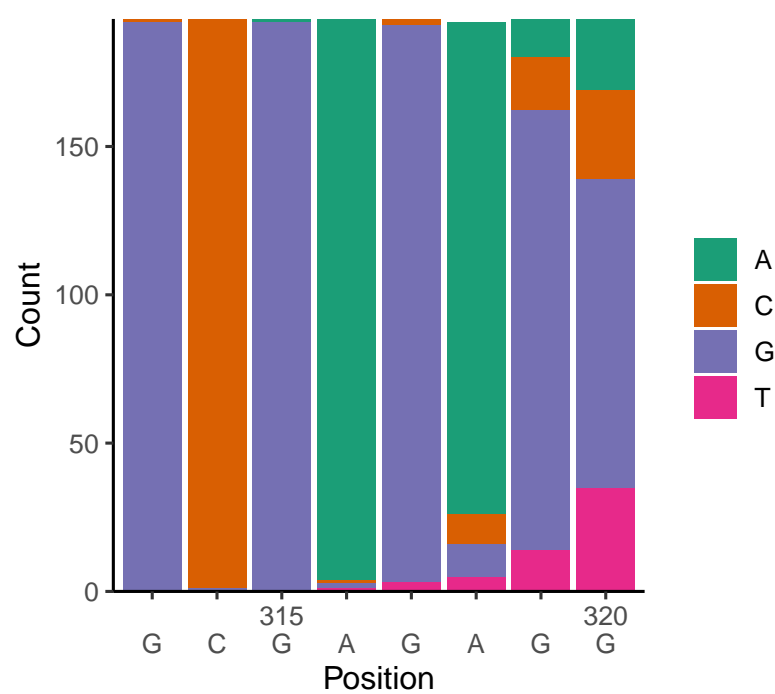


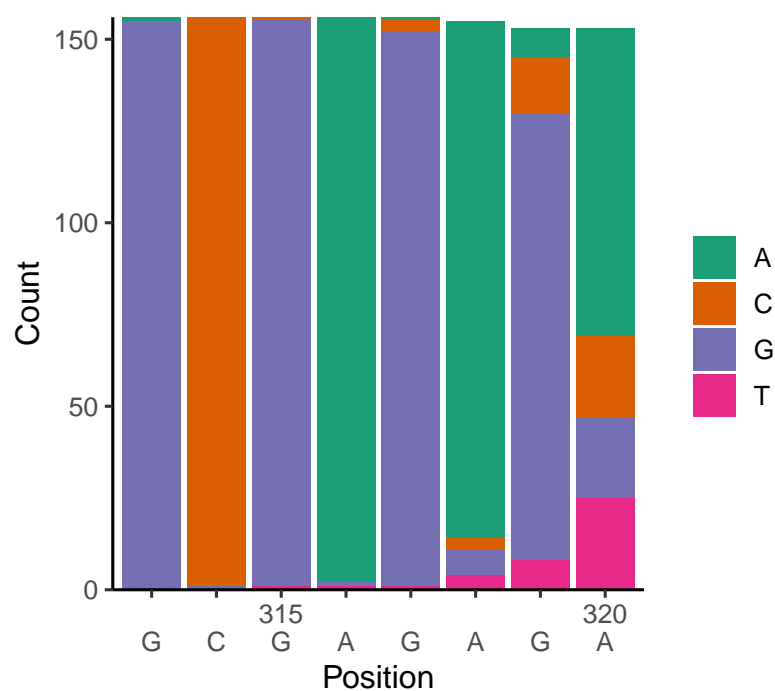
Gene IGHV4-4\*02\_A220G\_A225G



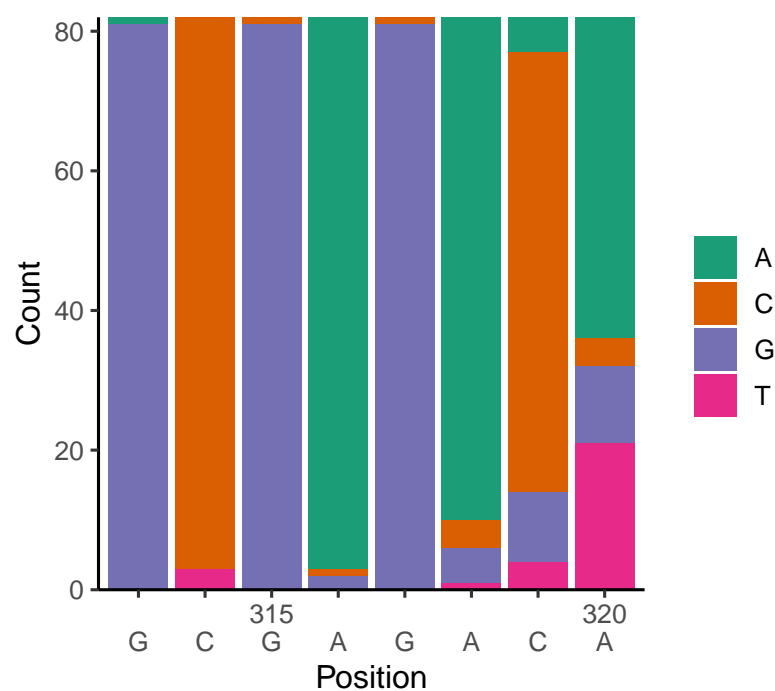
Gene IGHV4-34\*01\_A220G\_A225G



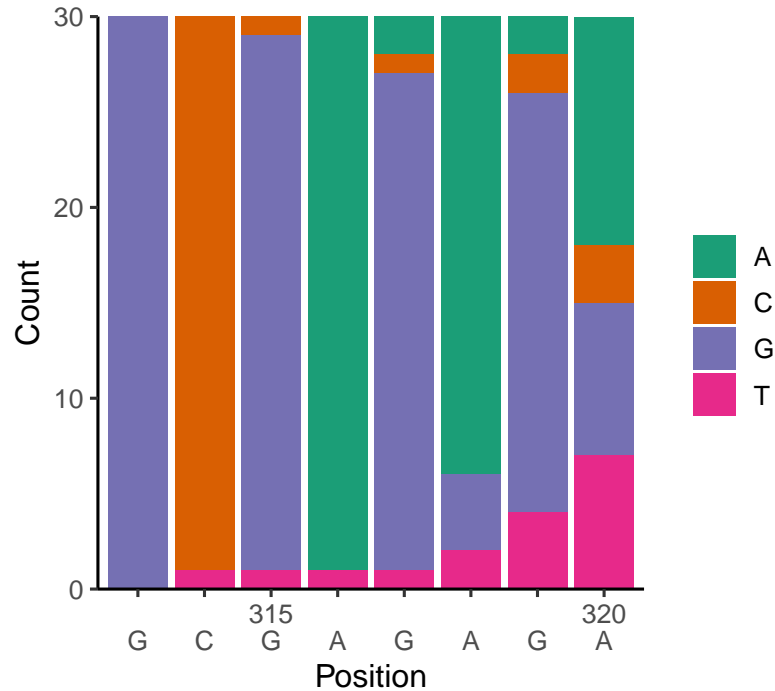
Gene IGHV4-39\*07\_A220G\_A225G



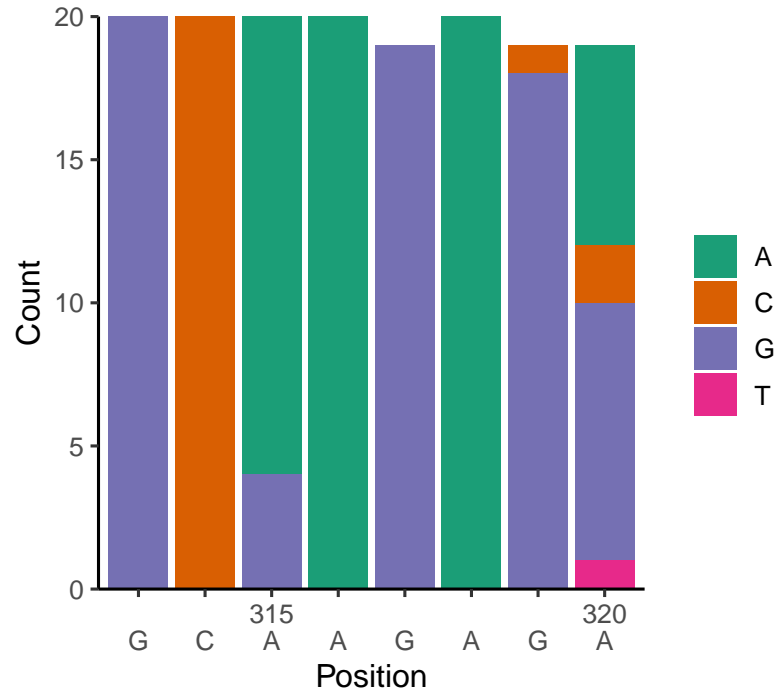
Gene IGHV4-59\*08\_A220G



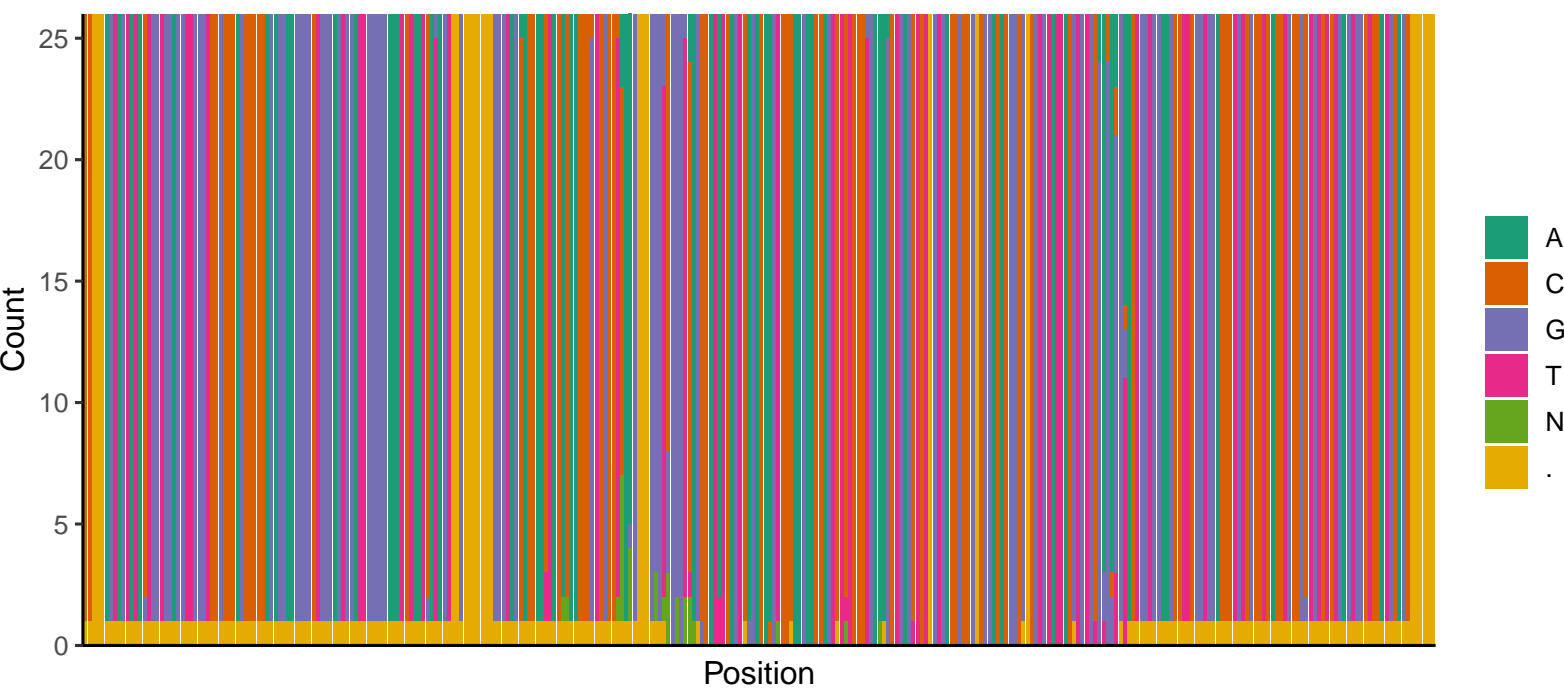
Gene IGHV7-4-1\*02\_A200T



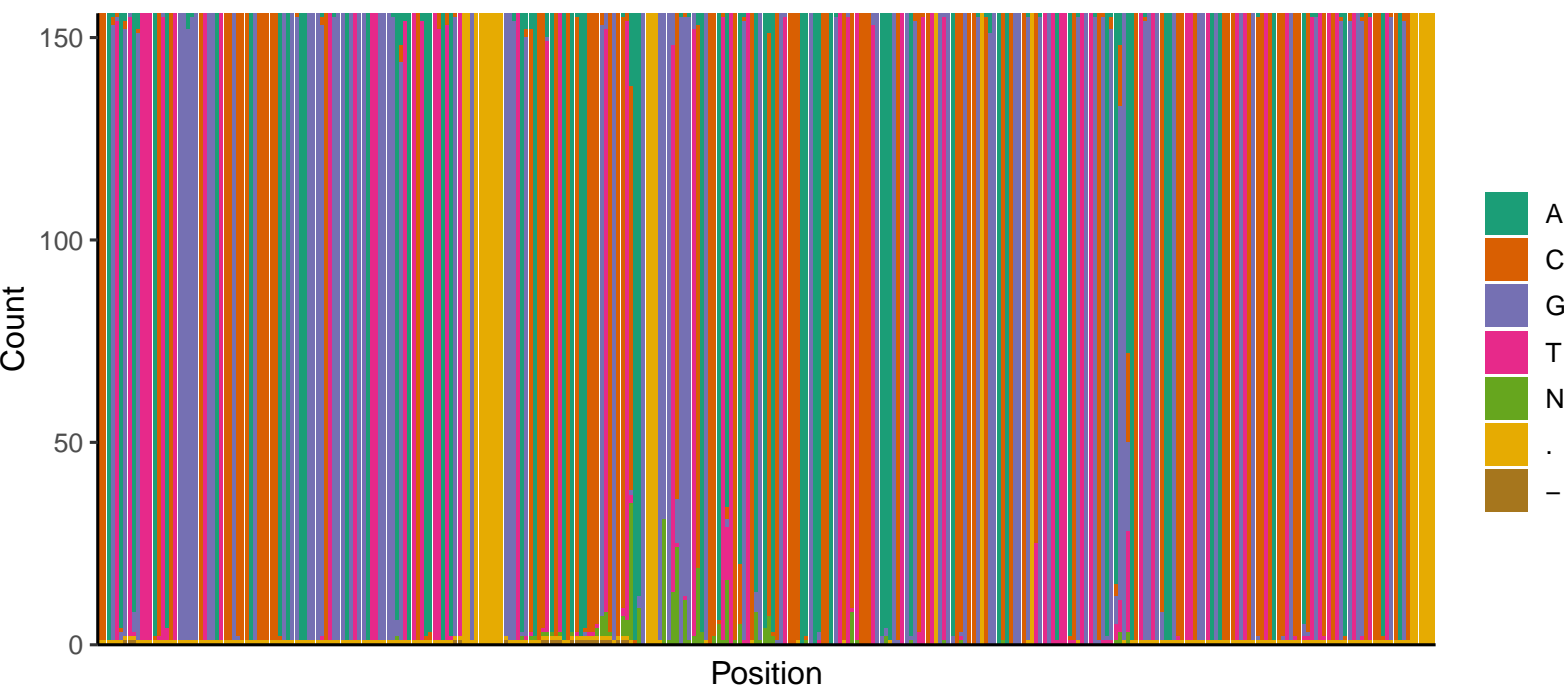
Gene IGHV3-13\*01\_G290A\_T300C



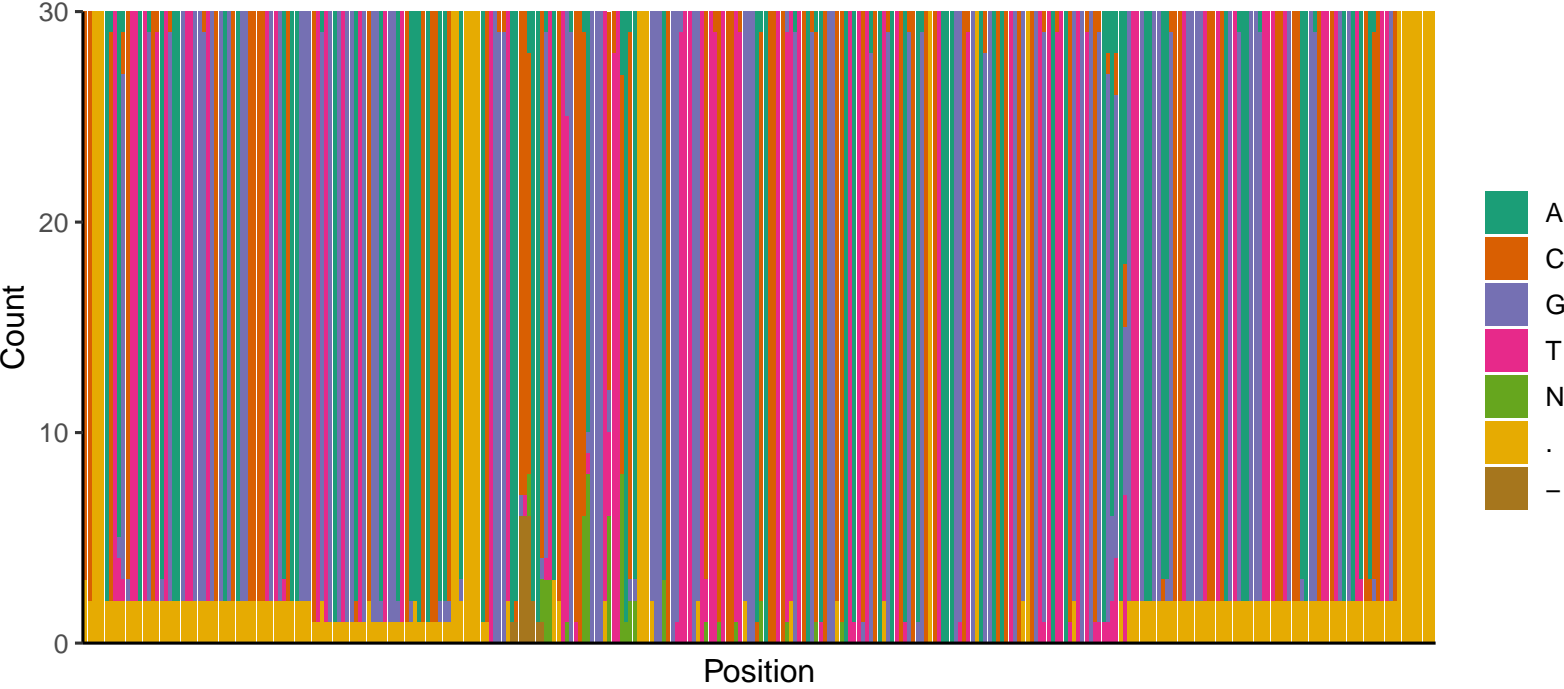
Gene IGHV4-4\*02\_A220G\_A225G



Gene IGHV4-39\*07\_A220G\_A225G



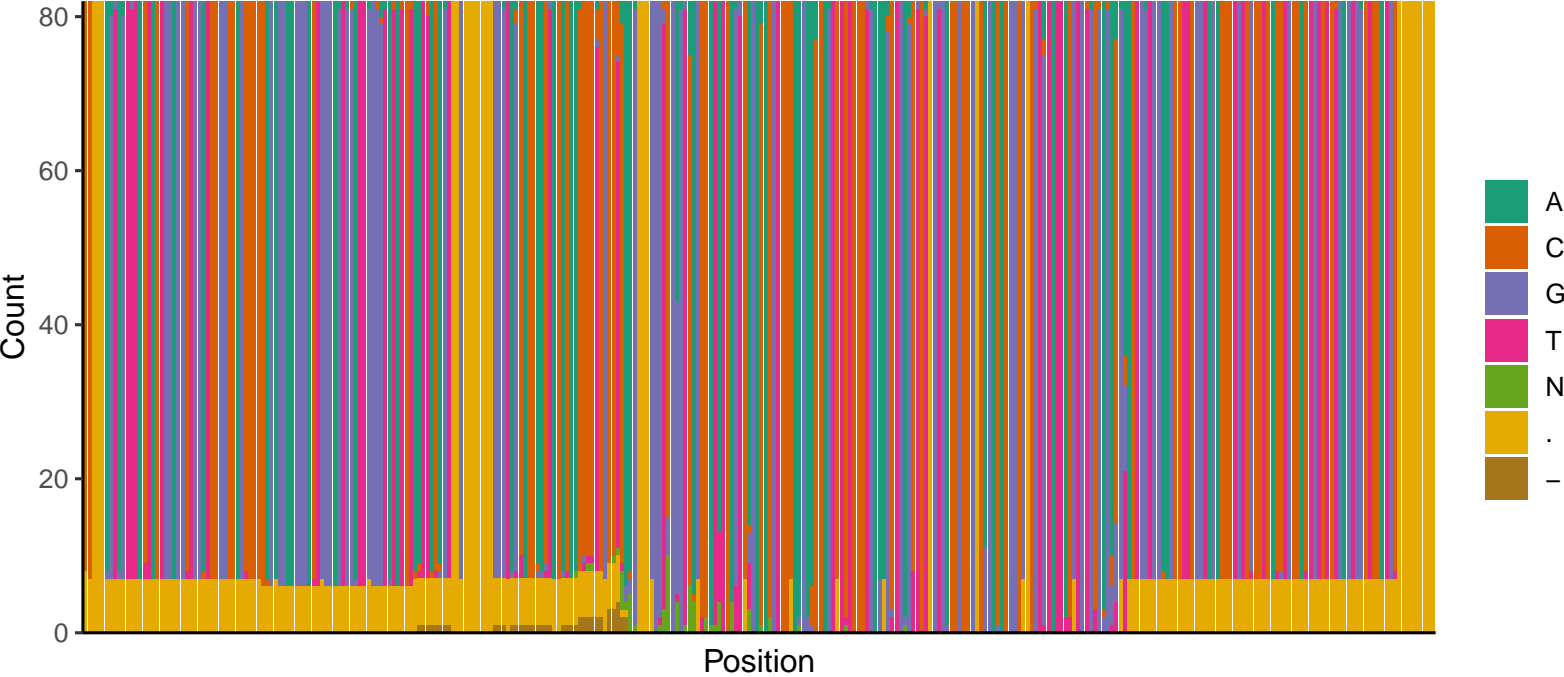
Gene IGHV7-4-1\*02\_A200T



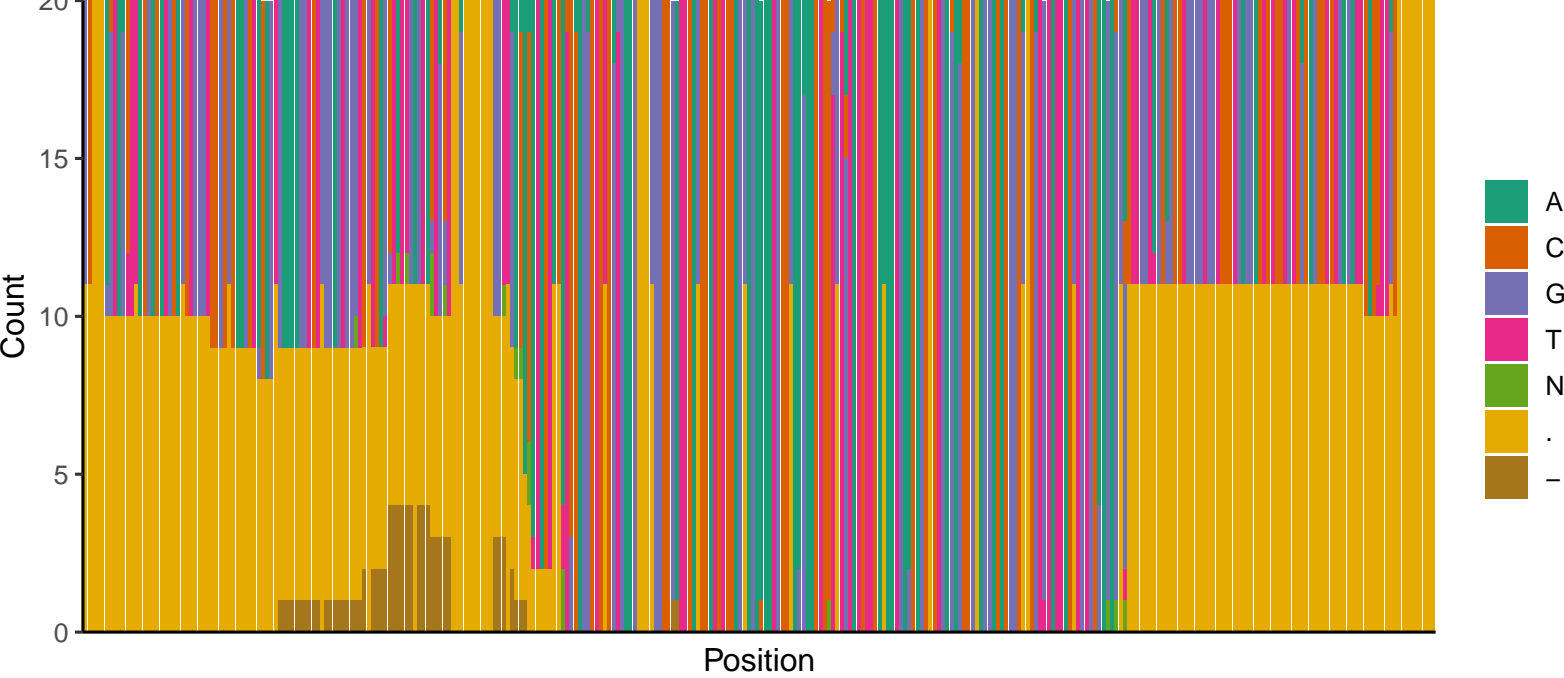
Gene IGHV4-34\*01\_A220G\_A225G



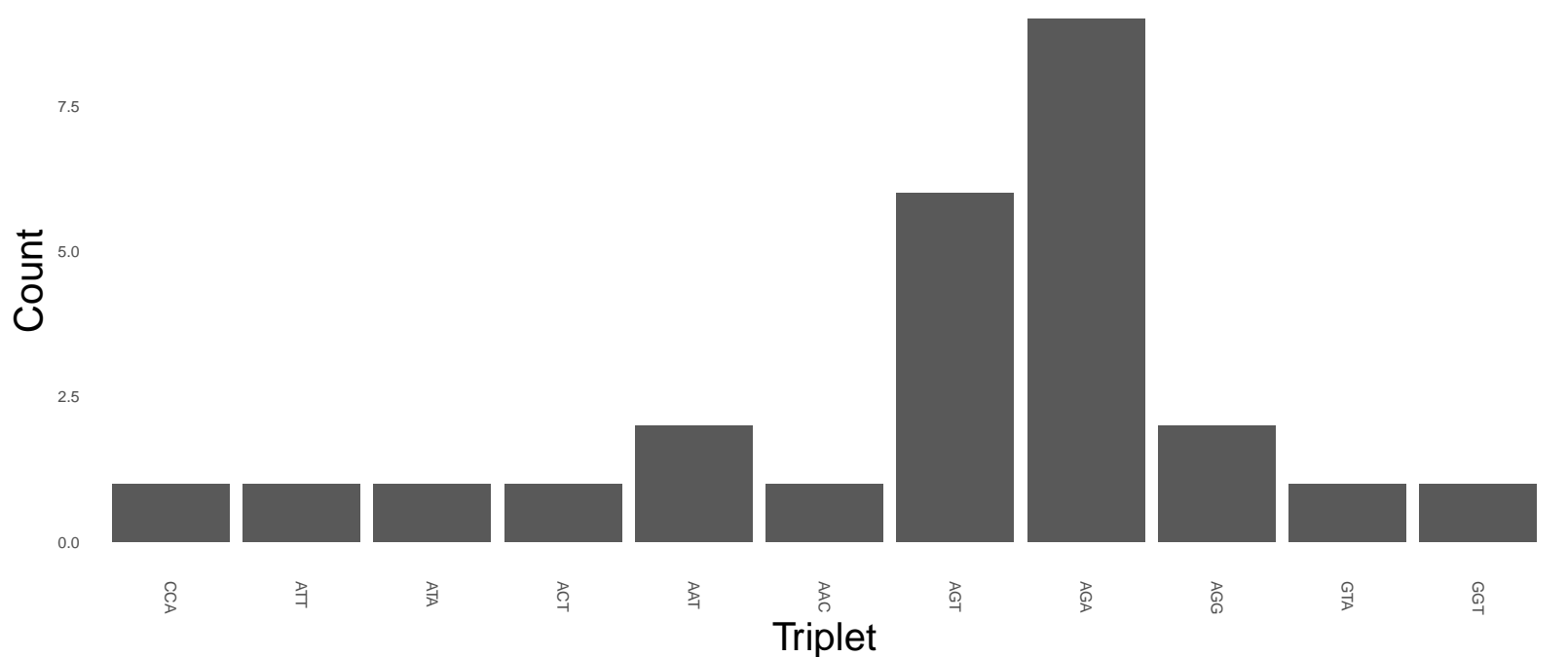
Gene IGHV4-59\*08\_A220G



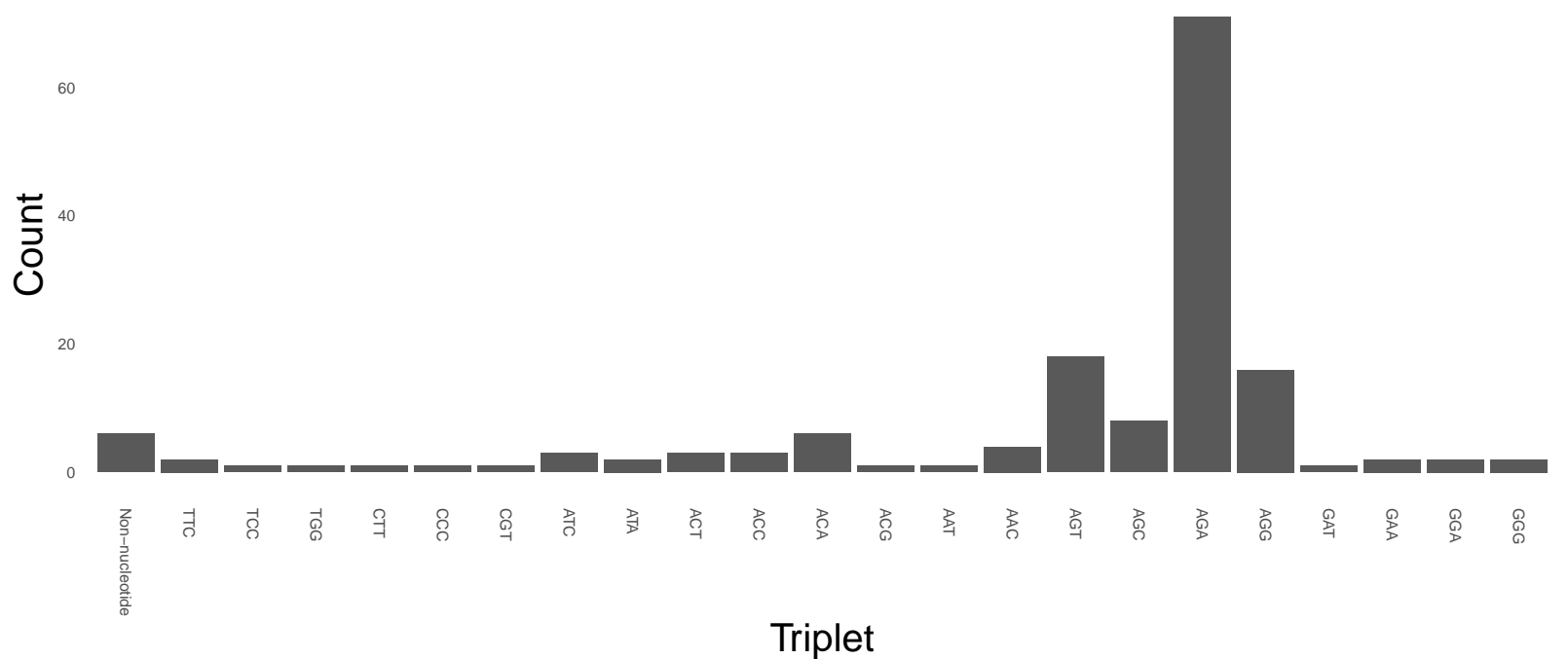
Gene IGHV3-13\*01\_G290A\_T300C



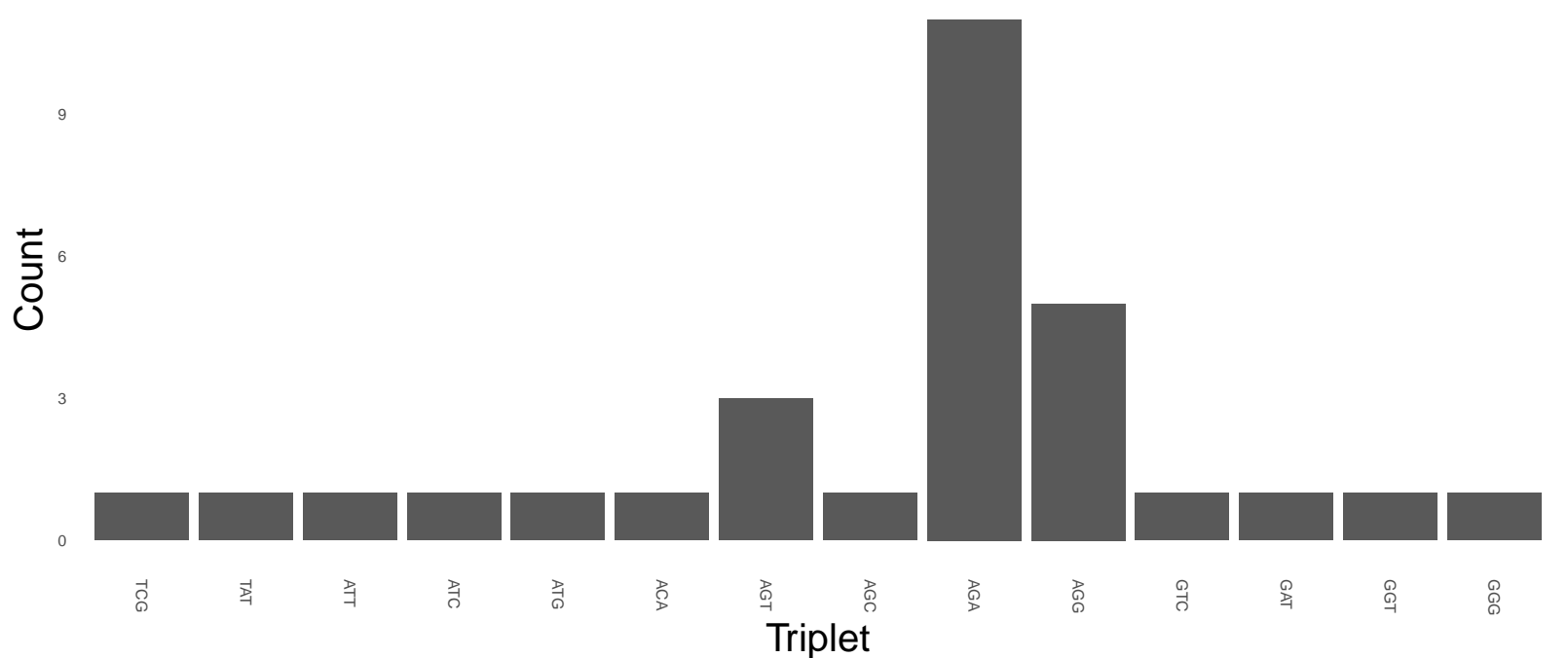
IGHV4-4\*02\_A220G\_A225G- Final 3 nucleotides as a triplet



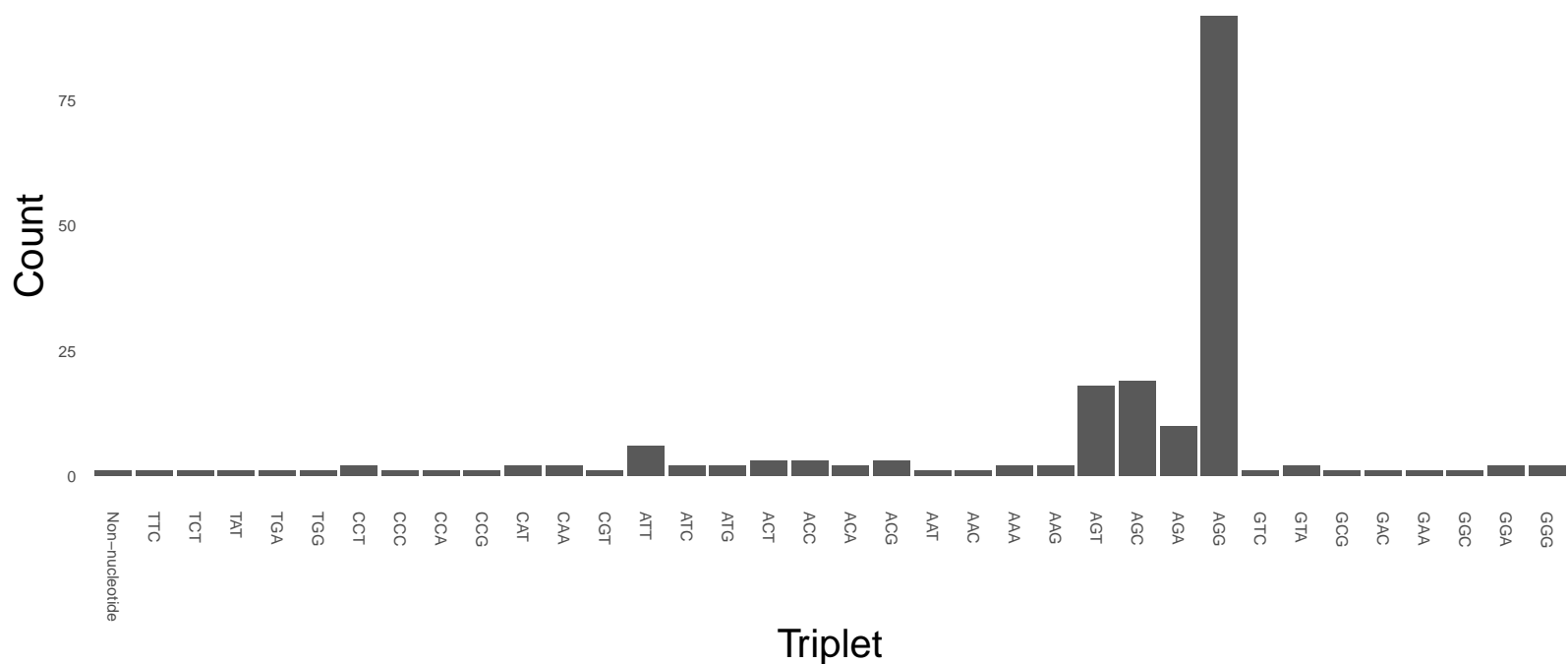
IGHV4-39\*07\_A220G\_A225G- Final 3 nucleotides as a triplet



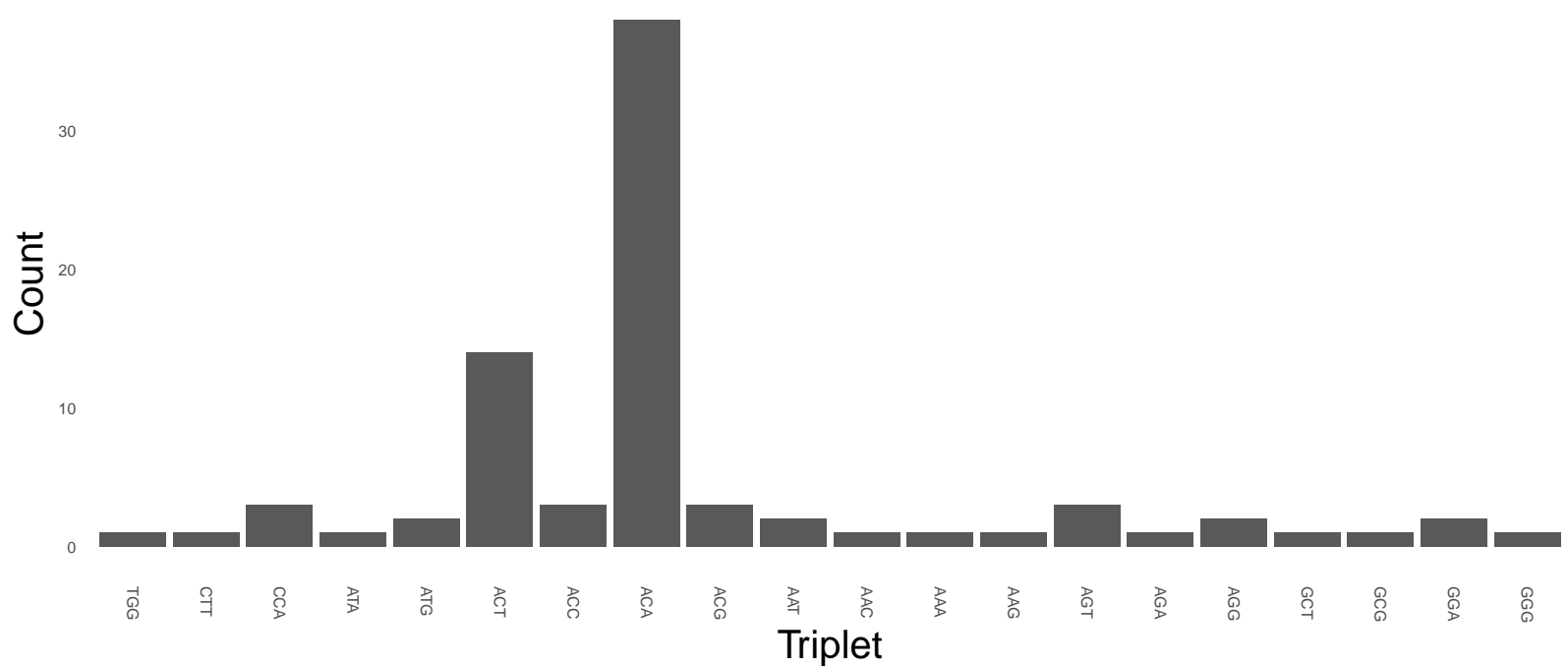
IGHV7-4-1\*02\_A200T- Final 3 nucleotides as a triplet



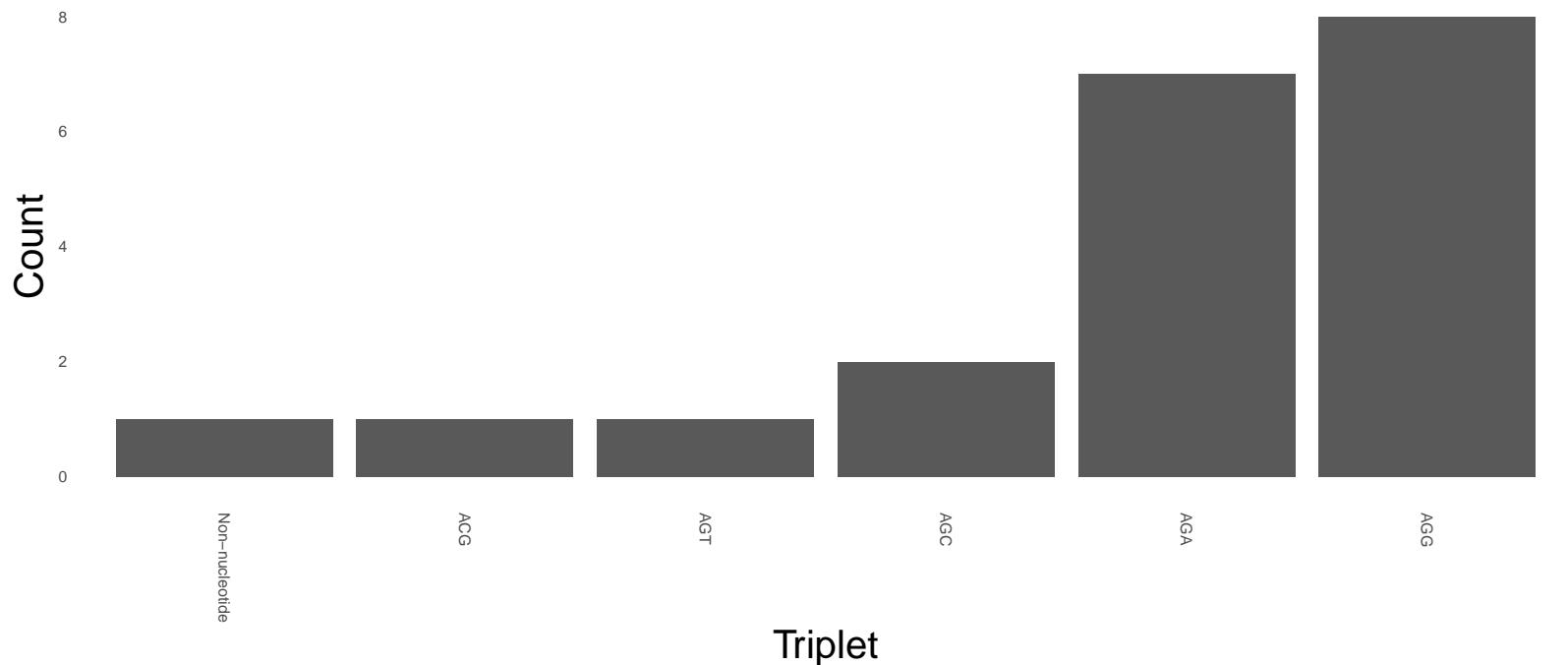
IGHV4–34\*01\_A220G\_A225G– Final 3 nucleotides as a triplet



IGHV4–59\*08\_A220G– Final 3 nucleotides as a triplet

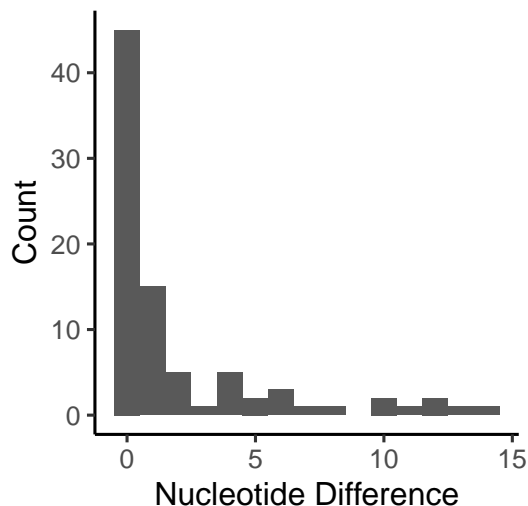


IGHV3–13\*01\_G290A\_T300C– Final 3 nucleotides as a triplet



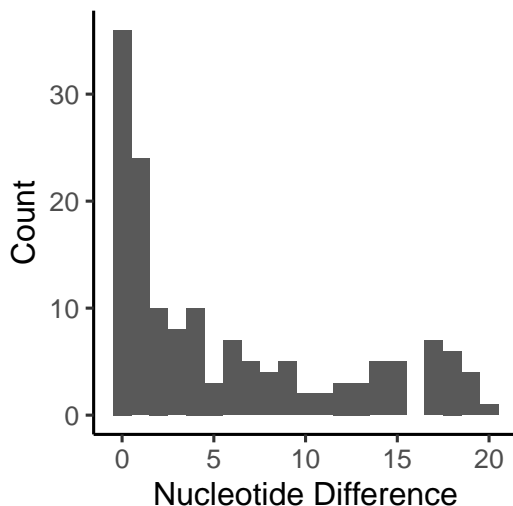
### IGHV1-2\*04

85 sequences assigned  
45 (52.9%) exact matches, in which:  
44 unique CDR3  
5 unique J



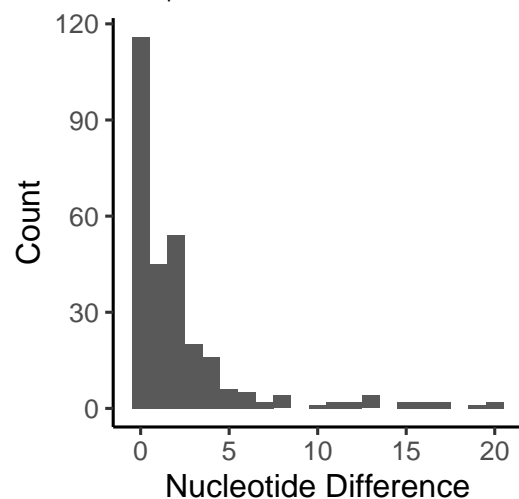
### IGHV1-8\*01

155 sequences assigned  
36 (23.2%) exact matches, in which:  
36 unique CDR3  
4 unique J



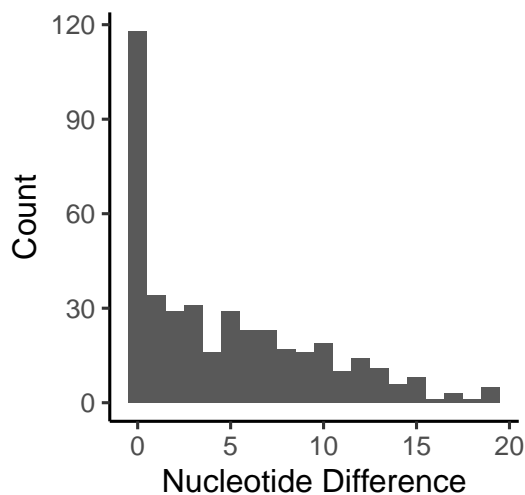
### IGHV1-24\*01

290 sequences assigned  
116 (40%) exact matches, in which:  
115 unique CDR3  
5 unique J



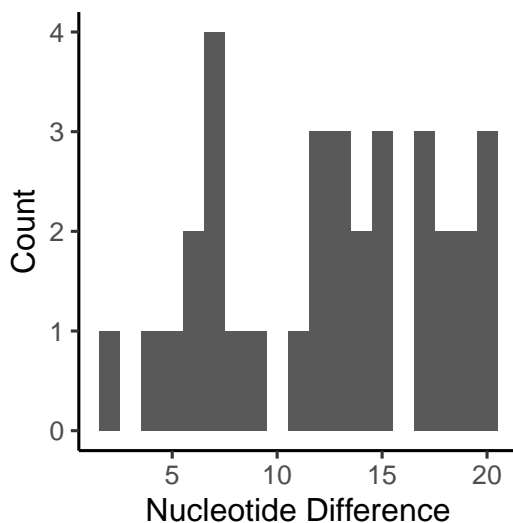
### IGHV1-2\*06

424 sequences assigned  
118 (27.8%) exact matches, in which:  
115 unique CDR3  
5 unique J



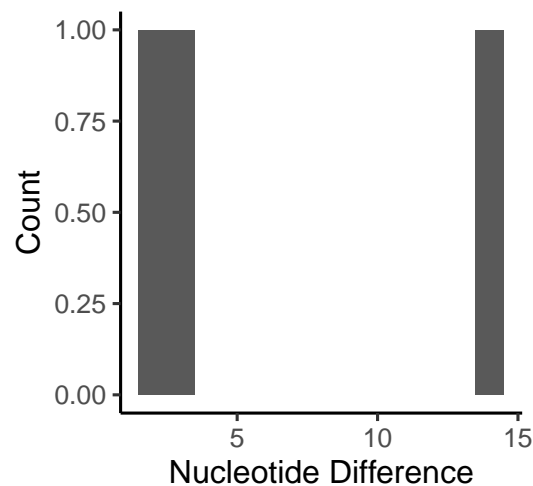
### IGHV1-8\*02

37 sequences assigned  
No exact matches.



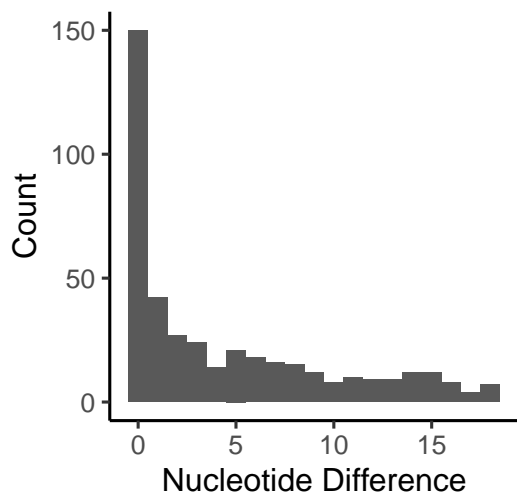
### IGHV1-45\*02

3 sequences assigned  
No exact matches.



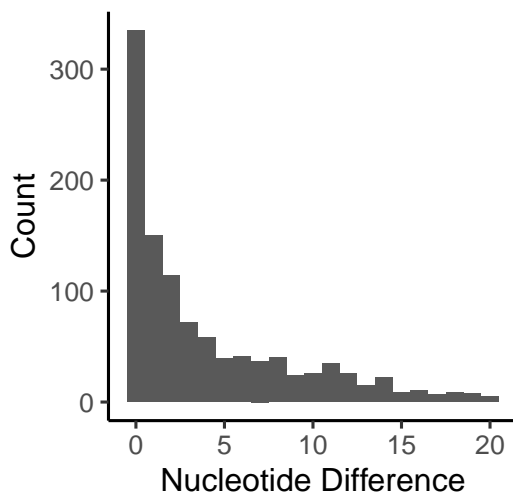
### IGHV1-3\*01

430 sequences assigned  
150 (34.9%) exact matches, in which:  
142 unique CDR3  
6 unique J



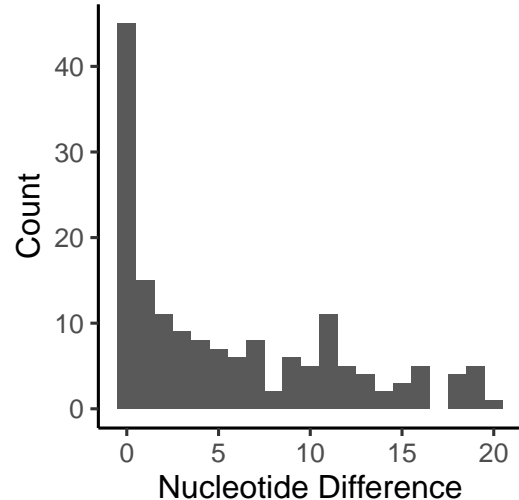
### IGHV1-18\*01

1106 sequences assigned  
335 (30.3%) exact matches, in which:  
324 unique CDR3  
6 unique J



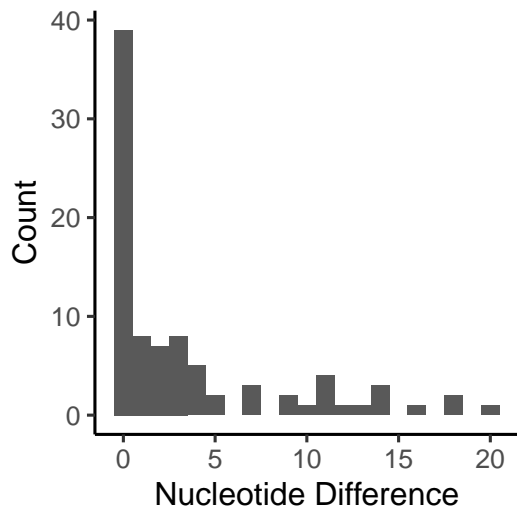
### IGHV1-46\*01

179 sequences assigned  
45 (25.1%) exact matches, in which:  
41 unique CDR3  
5 unique J



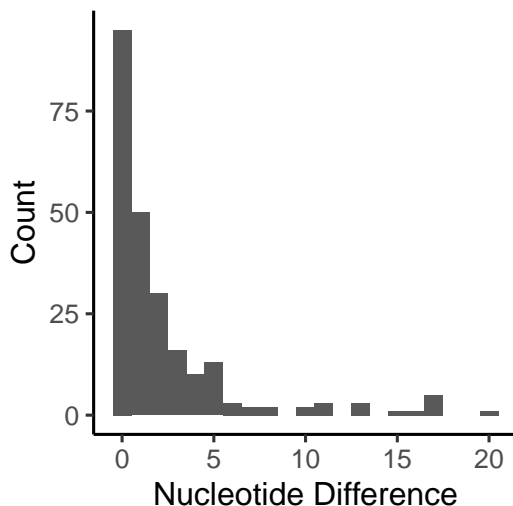
### IGHV1-46\*03

90 sequences assigned  
39 (43.3%) exact matches, in which:  
37 unique CDR3  
4 unique J



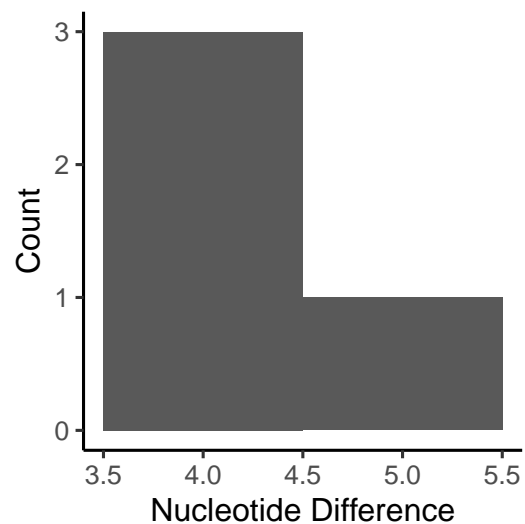
### IGHV1-69\*04

242 sequences assigned  
95 (39.3%) exact matches, in which:  
93 unique CDR3  
6 unique J



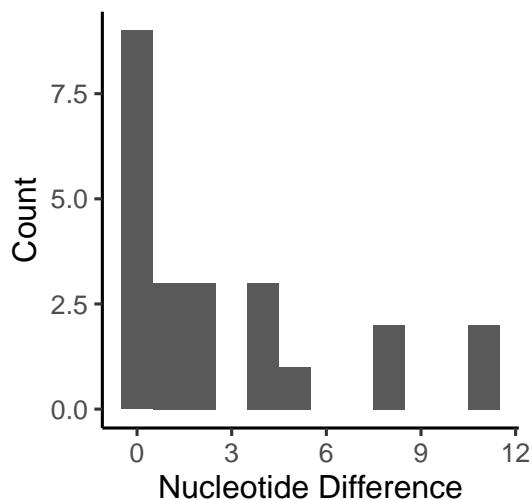
### IGHV1-NL1\*01

4 sequences assigned  
No exact matches.



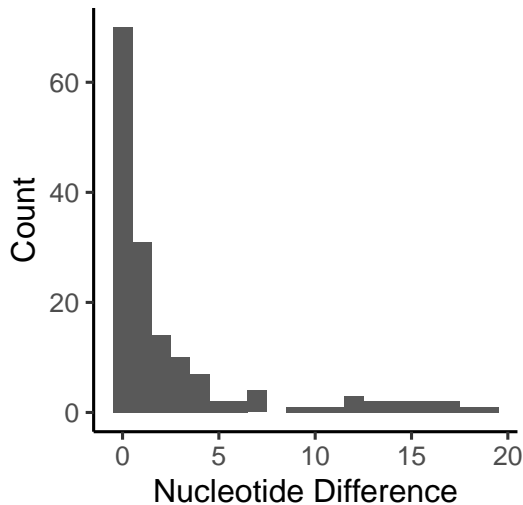
### IGHV1-58\*02

34 sequences assigned  
9 (26.5%) exact matches, in which:  
9 unique CDR3  
2 unique J



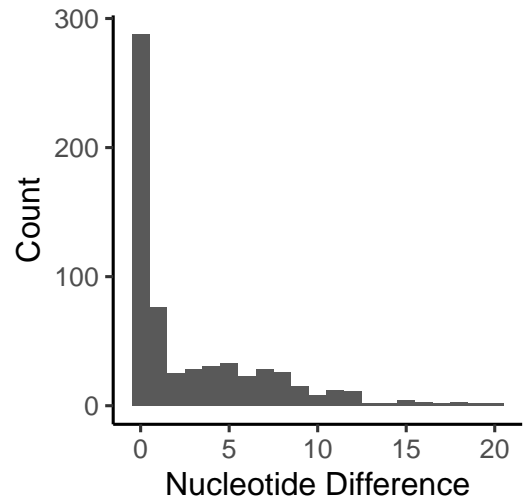
### IGHV1-69\*10

168 sequences assigned  
70 (41.7%) exact matches, in which:  
69 unique CDR3  
6 unique J



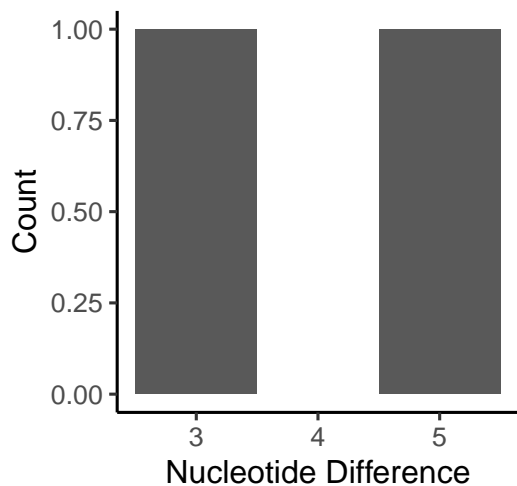
### IGHV2-5\*02

637 sequences assigned  
288 (45.2%) exact matches, in which:  
277 unique CDR3  
6 unique J



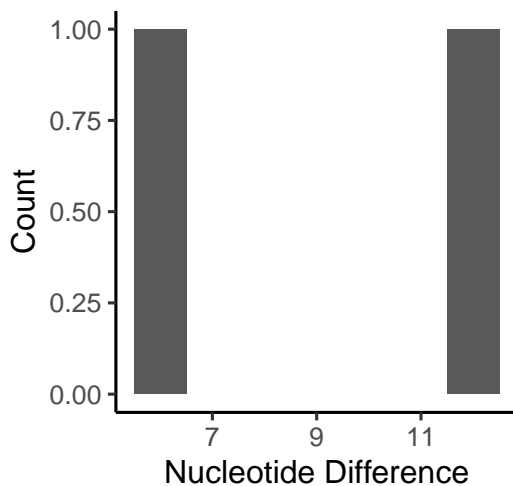
### IGHV1-68\*02

2 sequences assigned  
No exact matches.



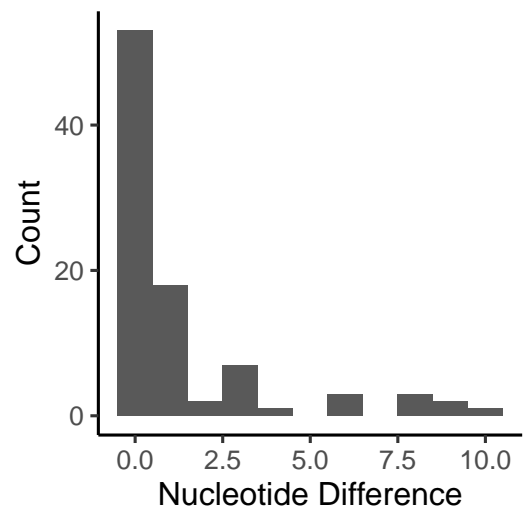
### IGHV1-69D\*01

2 sequences assigned  
No exact matches.



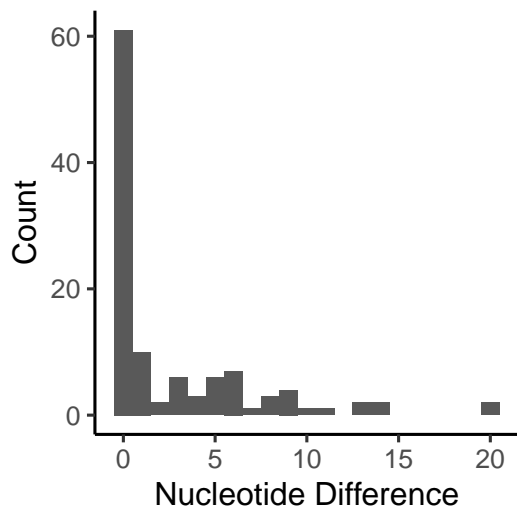
### IGHV2-26\*01

91 sequences assigned  
53 (58.2%) exact matches, in which:  
52 unique CDR3  
6 unique J



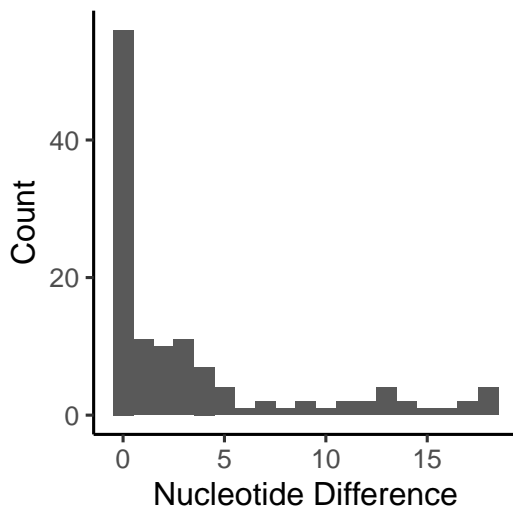
### IGHV2-70\*15

113 sequences assigned  
61 (54%) exact matches, in which:  
61 unique CDR3  
4 unique J



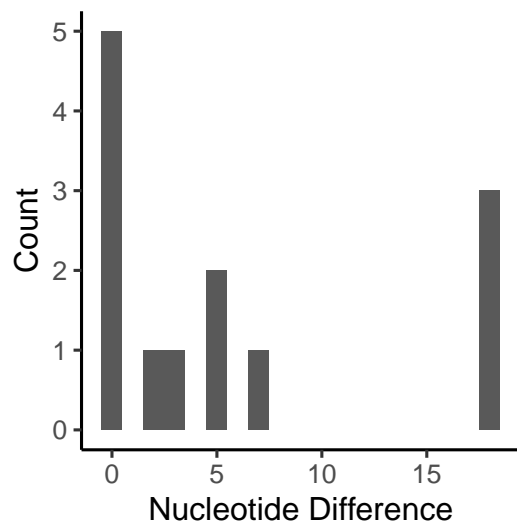
### IGHV3-9\*01

126 sequences assigned  
56 (44.4%) exact matches, in which:  
55 unique CDR3  
6 unique J



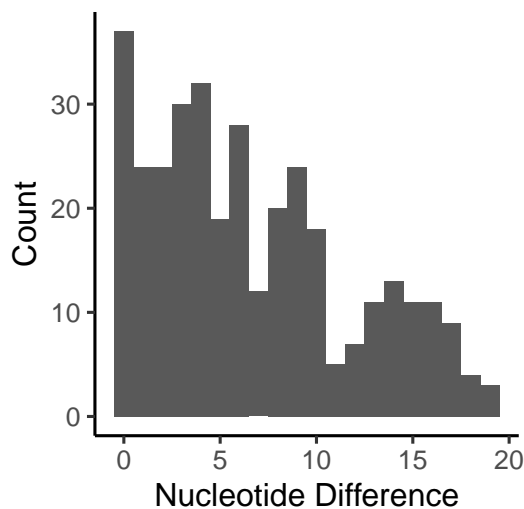
### IGHV3-11\*06

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



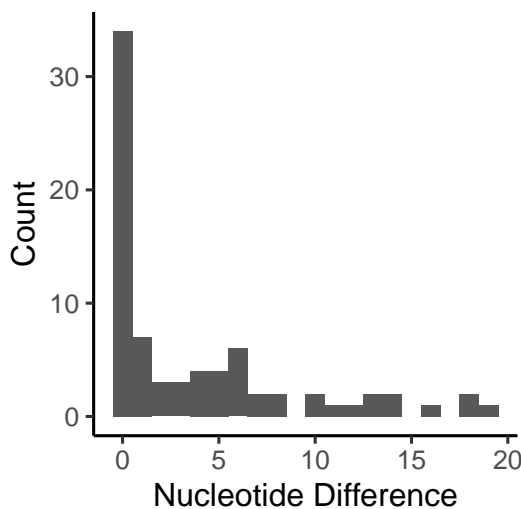
### IGHV3-7\*01

362 sequences assigned  
37 (10.2%) exact matches, in which:  
37 unique CDR3  
4 unique J



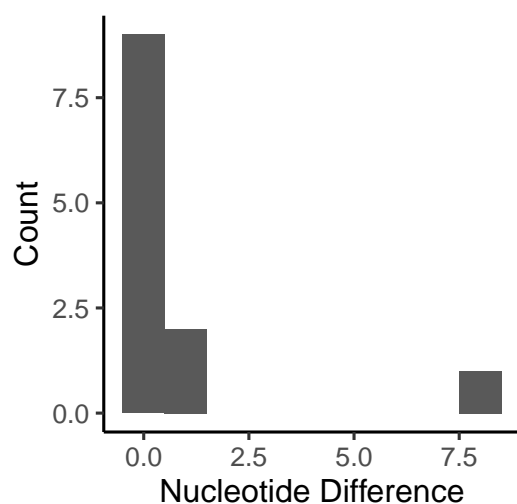
### IGHV3-11\*01

78 sequences assigned  
34 (43.6%) exact matches, in which:  
33 unique CDR3  
5 unique J



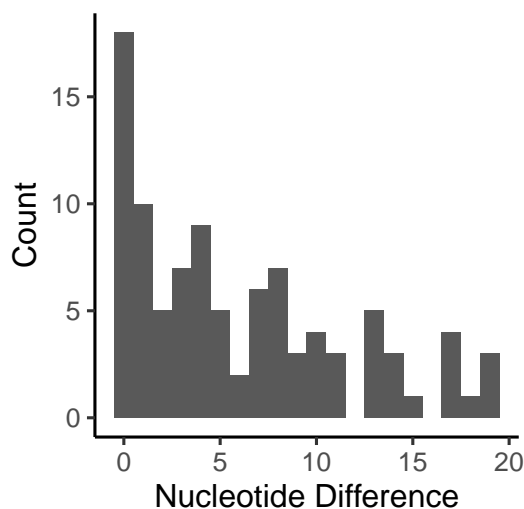
### IGHV3-13\*01

13 sequences assigned  
9 (69.2%) exact matches, in which:  
9 unique CDR3  
4 unique J



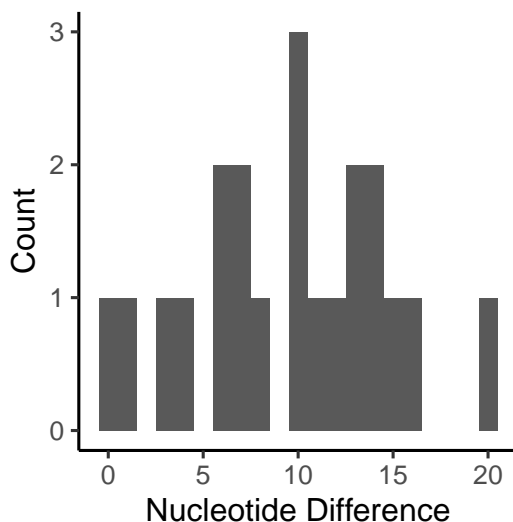
### IGHV3-7\*04

104 sequences assigned  
18 (17.3%) exact matches, in which:  
17 unique CDR3  
5 unique J



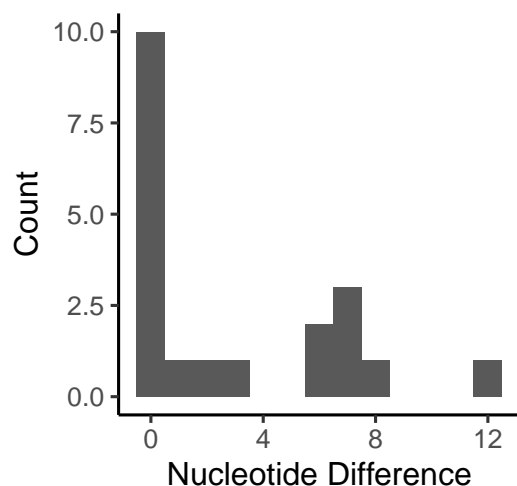
### IGHV3-11\*04

24 sequences assigned  
1 (4.2%) exact matches, in which:  
1 unique CDR3  
1 unique J



### IGHV3-13\*01\_G290A\_T

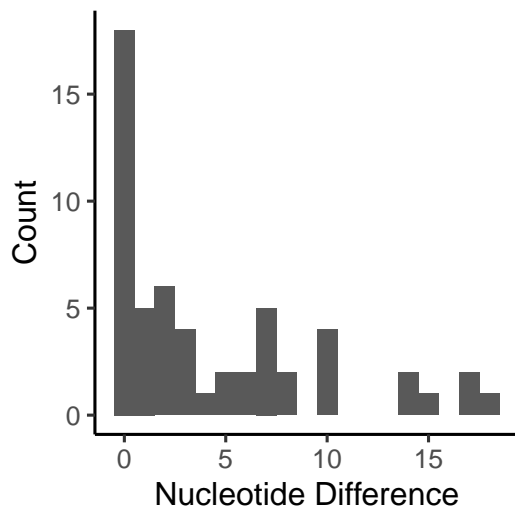
20 sequences assigned  
10 (50%) exact matches, in which:  
9 unique CDR3  
4 unique J





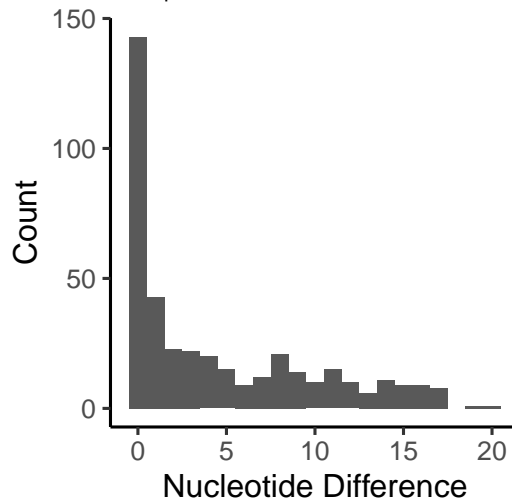
### IGHV3-15\*01

61 sequences assigned  
18 (29.5%) exact matches, in which:  
17 unique CDR3  
4 unique J



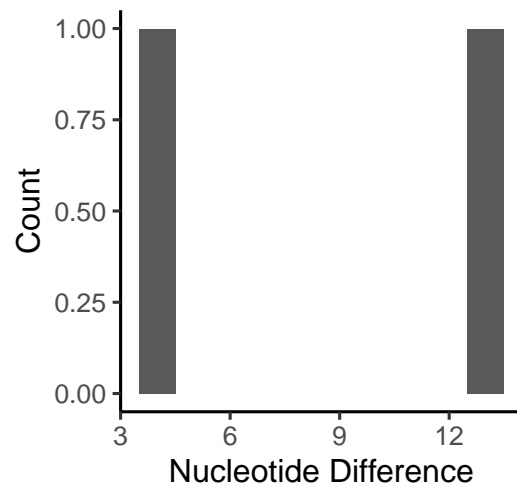
### IGHV3-21\*01

417 sequences assigned  
143 (34.3%) exact matches, in which:  
137 unique CDR3  
6 unique J



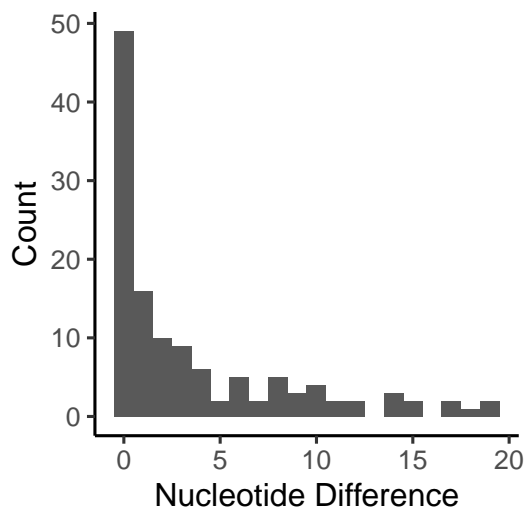
### IGHV3-30-5\*02

3 sequences assigned  
No exact matches.



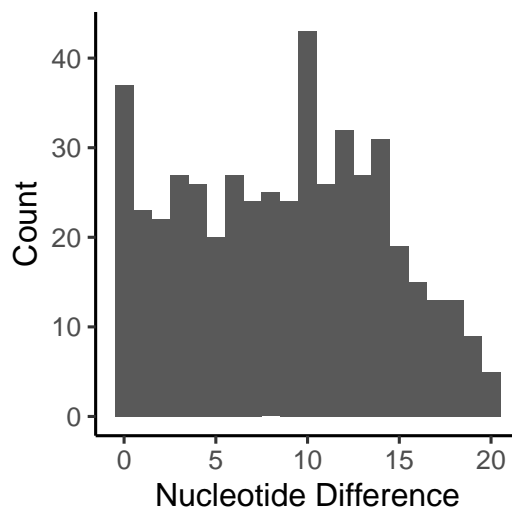
### IGHV3-15\*07

134 sequences assigned  
49 (36.6%) exact matches, in which:  
49 unique CDR3  
5 unique J



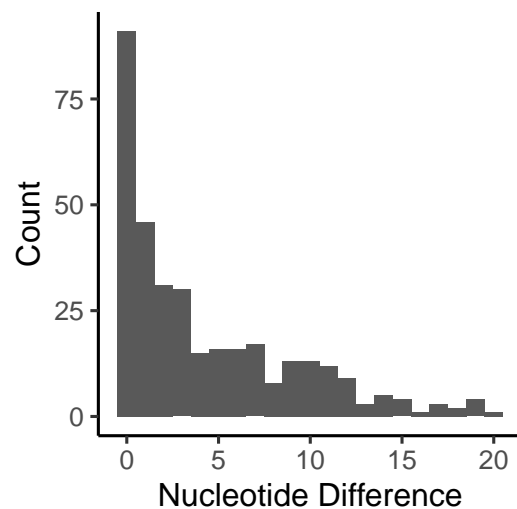
### IGHV3-23\*04

504 sequences assigned  
37 (7.3%) exact matches, in which:  
37 unique CDR3  
4 unique J



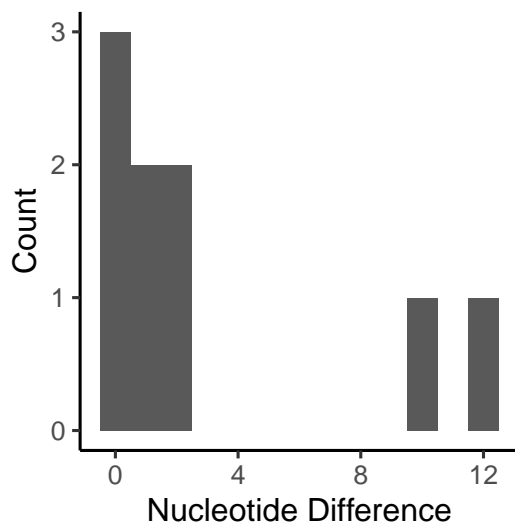
### IGHV3-33\*01

344 sequences assigned  
91 (26.5%) exact matches, in which:  
91 unique CDR3  
5 unique J



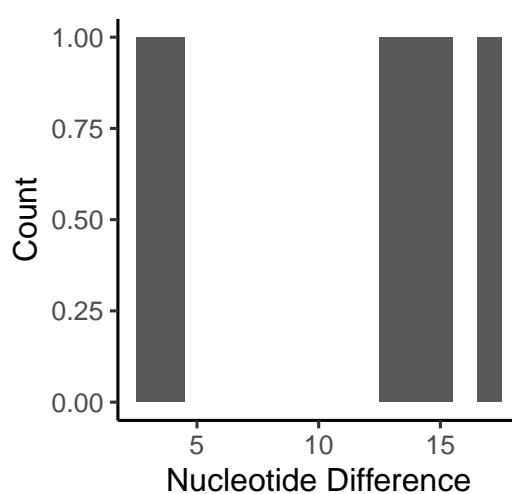
### IGHV3-20\*04

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



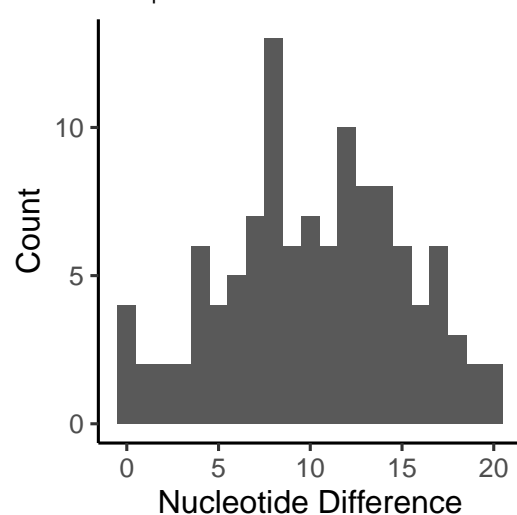
### IGHV3-30-5\*01

6 sequences assigned  
No exact matches.



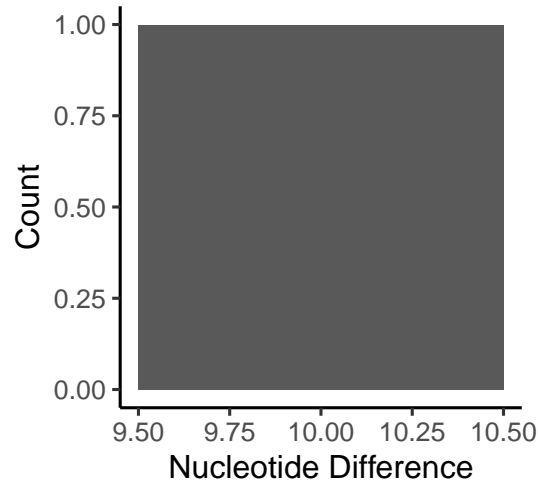
### IGHV3-33\*08

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



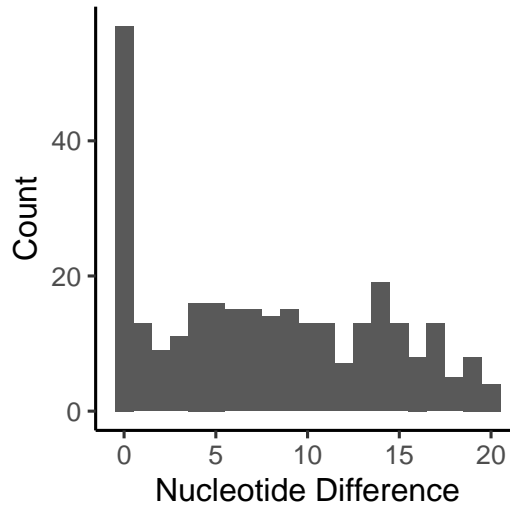
### IGHV3-38-3\*01

1 sequences assigned  
No exact matches.



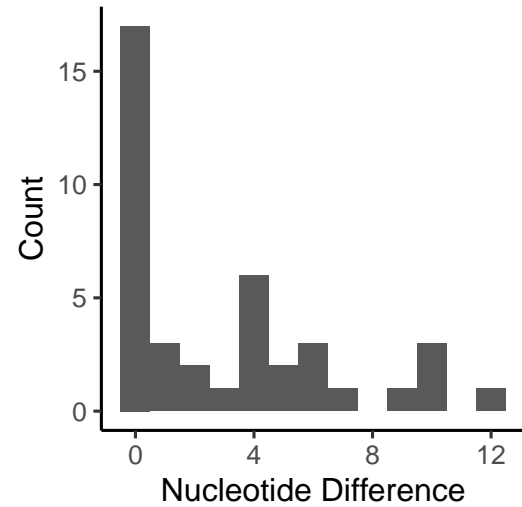
### IGHV3-48\*04

318 sequences assigned  
57 (17.9%) exact matches, in which:  
55 unique CDR3  
5 unique J



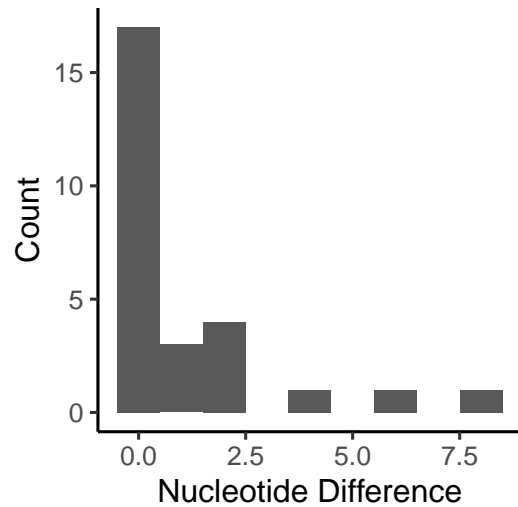
### IGHV3-64\*01

41 sequences assigned  
17 (41.5%) exact matches, in which:  
17 unique CDR3  
5 unique J



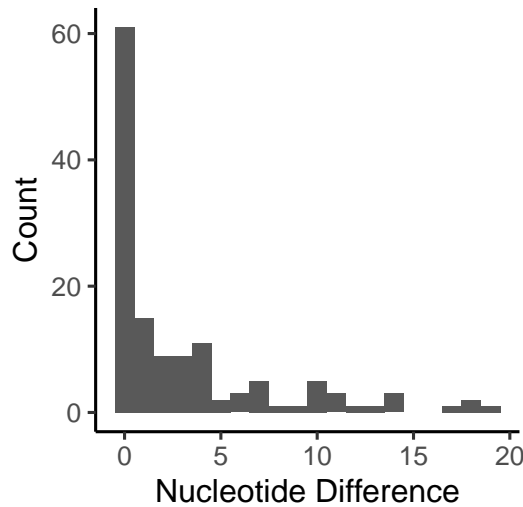
### IGHV3-43\*01

27 sequences assigned  
17 (63%) exact matches, in which:  
16 unique CDR3  
3 unique J



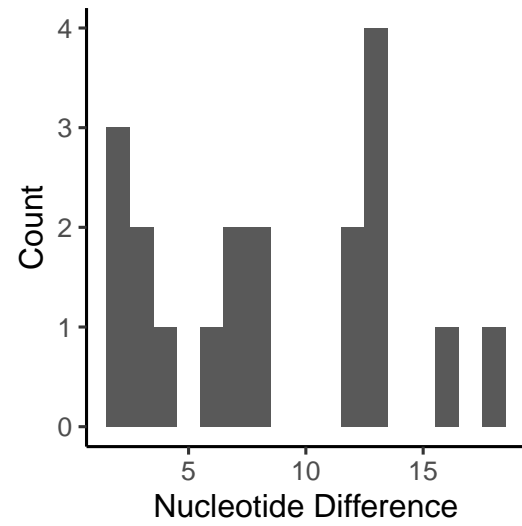
### IGHV3-49\*03

137 sequences assigned  
61 (44.5%) exact matches, in which:  
58 unique CDR3  
5 unique J



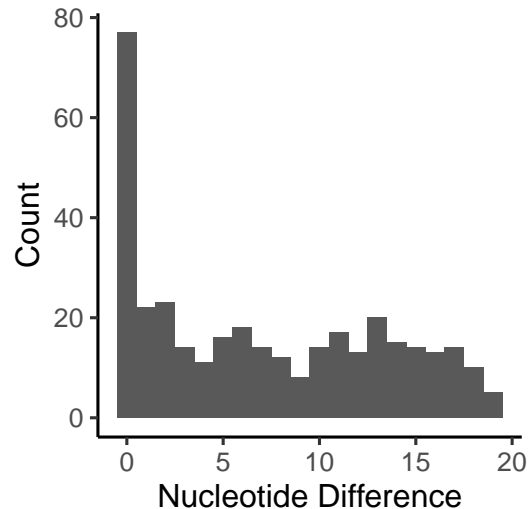
### IGHV3-64\*04

19 sequences assigned  
No exact matches.



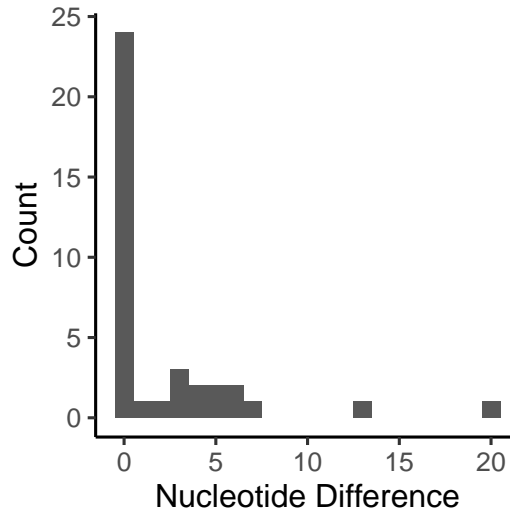
### IGHV3-48\*01

361 sequences assigned  
77 (21.3%) exact matches, in which:  
76 unique CDR3  
6 unique J



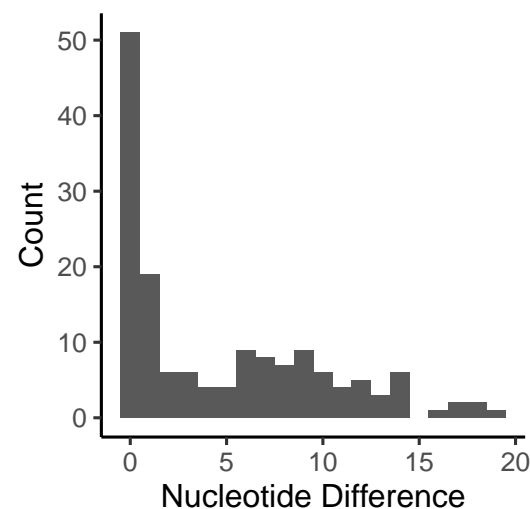
### IGHV3-53\*04

38 sequences assigned  
24 (63.2%) exact matches, in which:  
21 unique CDR3  
4 unique J



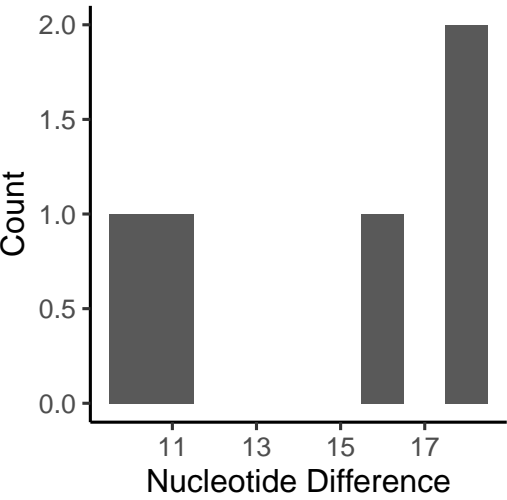
### IGHV3-66\*01

158 sequences assigned  
51 (32.3%) exact matches, in which:  
48 unique CDR3  
6 unique J



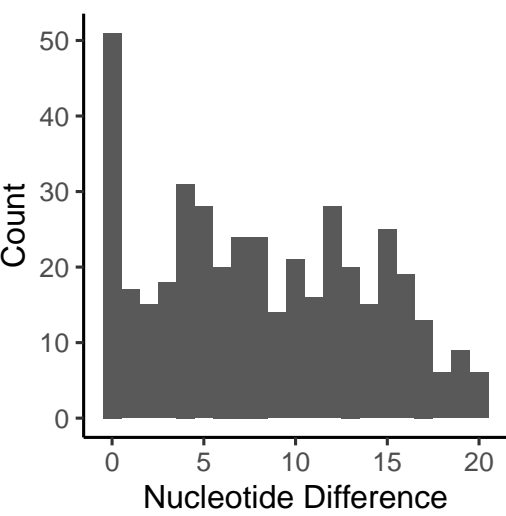
IGHV3-69-1\*01

6 sequences assigned  
No exact matches.



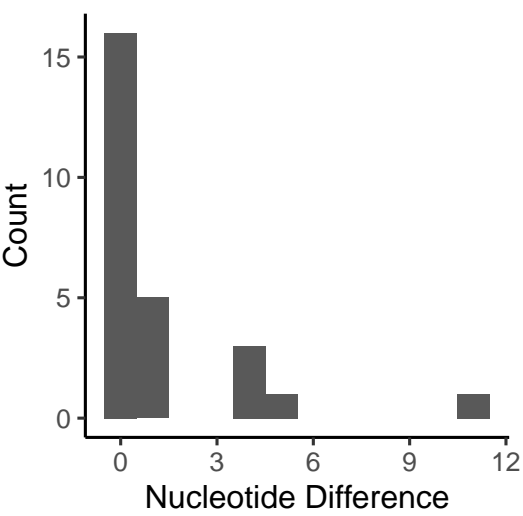
IGHV3-74\*01

449 sequences assigned  
51 (11.4%) exact matches, in which:  
49 unique CDR3  
6 unique J



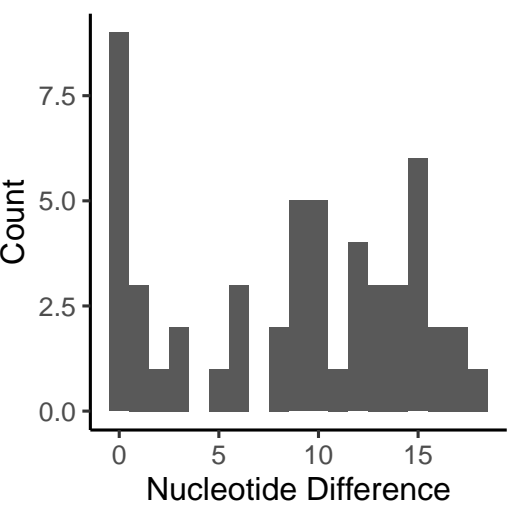
IGHV3-64D\*06

29 sequences assigned  
16 (55.2%) exact matches, in which:  
15 unique CDR3  
4 unique J



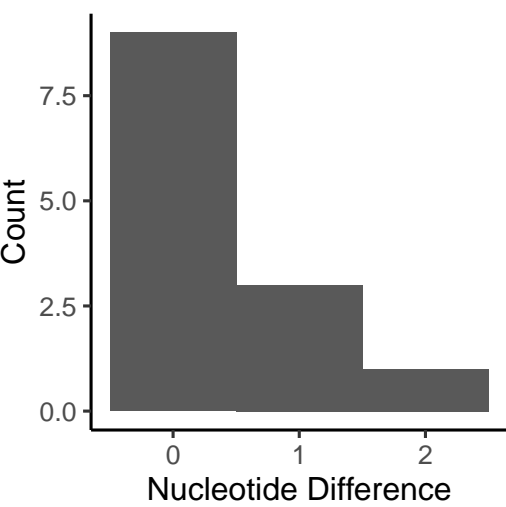
IGHV3-72\*01

58 sequences assigned  
9 (15.5%) exact matches, in which:  
9 unique CDR3  
2 unique J



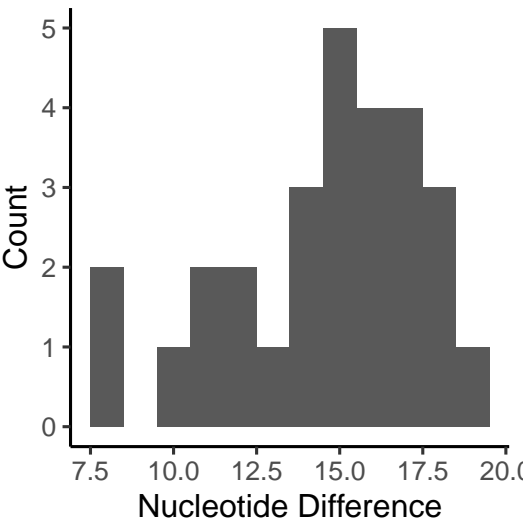
IGHV3-43D\*03

13 sequences assigned  
9 (69.2%) exact matches, in which:  
9 unique CDR3  
3 unique J



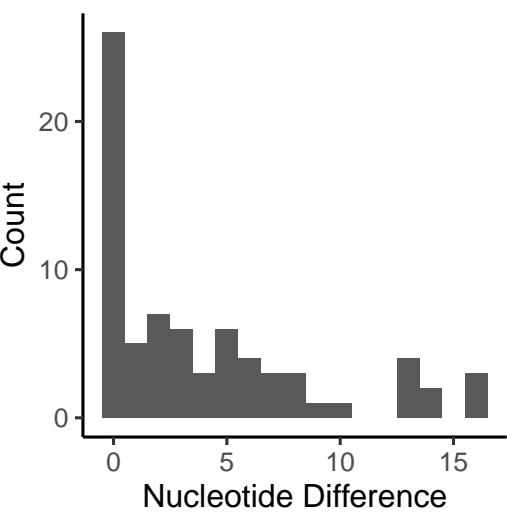
IGHV3-NL1\*01

29 sequences assigned  
No exact matches.



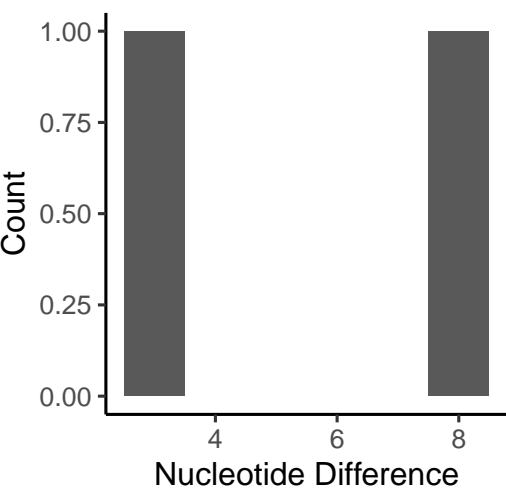
IGHV3-73\*01

76 sequences assigned  
26 (34.2%) exact matches, in which:  
24 unique CDR3  
4 unique J



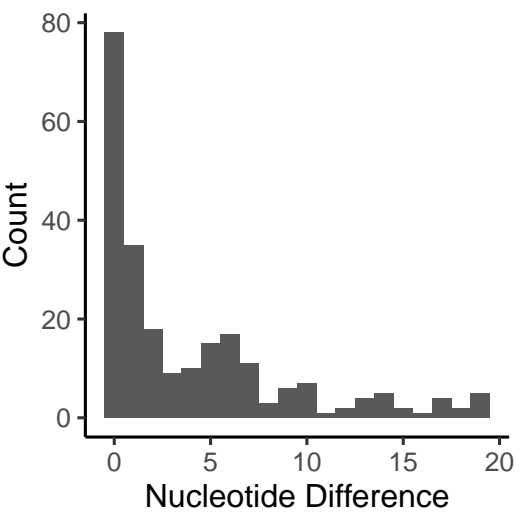
IGHV3-43D\*04

2 sequences assigned  
No exact matches.



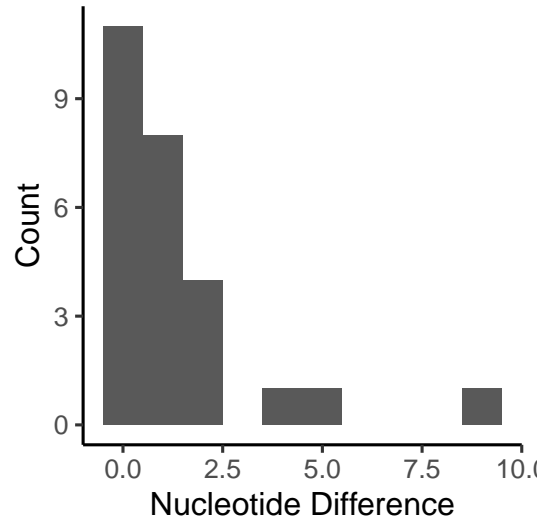
IGHV4-4\*02

239 sequences assigned  
78 (32.6%) exact matches, in which:  
78 unique CDR3  
6 unique J



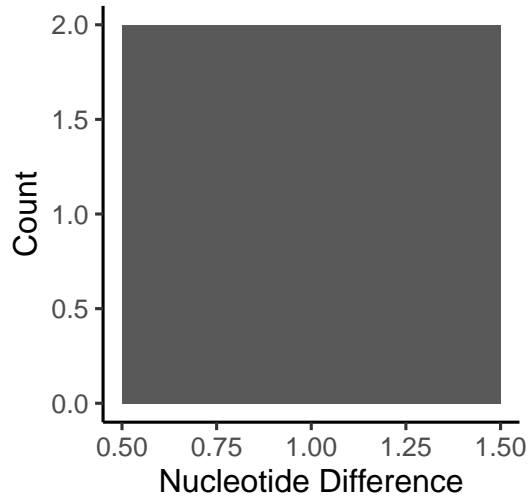
### IGHV4-4\*02\_A220G\_A225

26 sequences assigned  
11 (42.3%) exact matches, in which:  
11 unique CDR3  
3 unique J



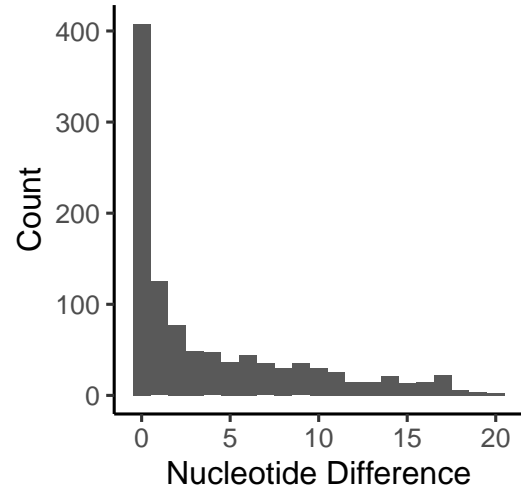
### IGHV4-30-4\*07

2 sequences assigned  
No exact matches.



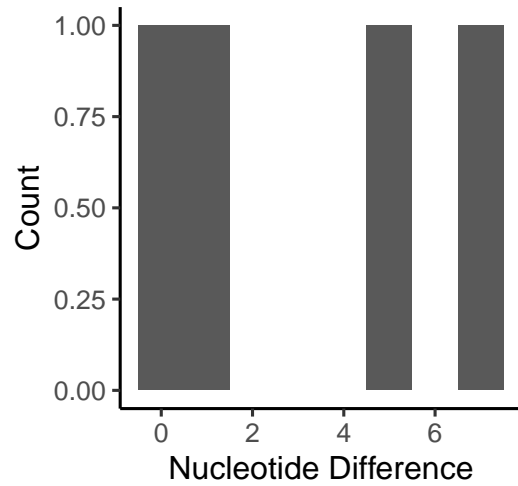
### IGHV4-34\*01

1100 sequences assigned  
408 (37.1%) exact matches, in which:  
405 unique CDR3  
6 unique J



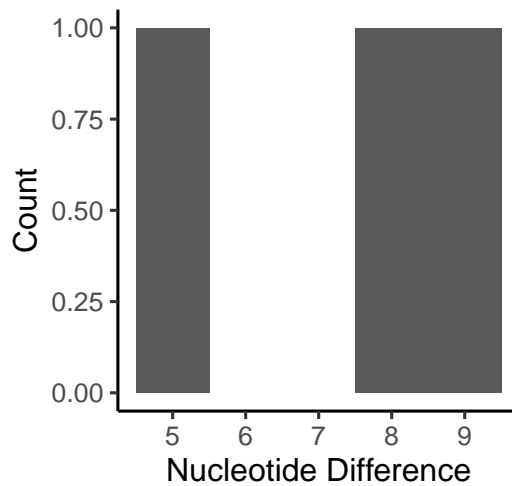
### IGHV4-28\*03

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



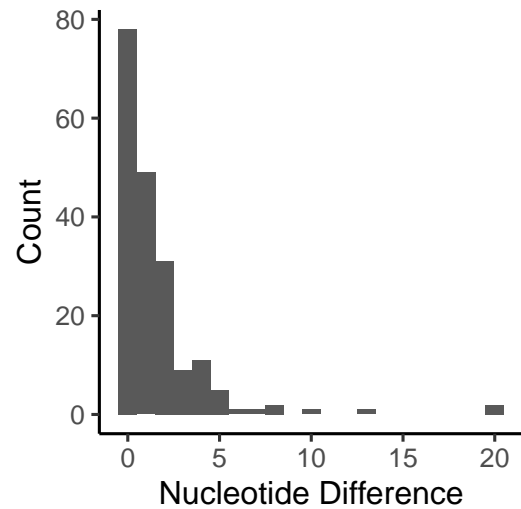
### IGHV4-30-4\*08

3 sequences assigned  
No exact matches.



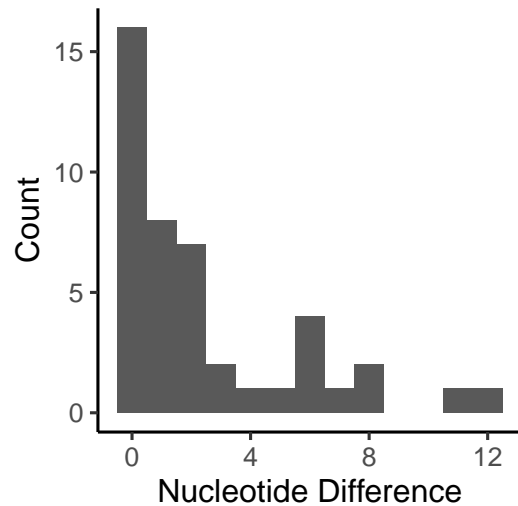
### IGHV4-34\*01\_A220G\_A225

193 sequences assigned  
78 (40.4%) exact matches, in which:  
77 unique CDR3  
5 unique J



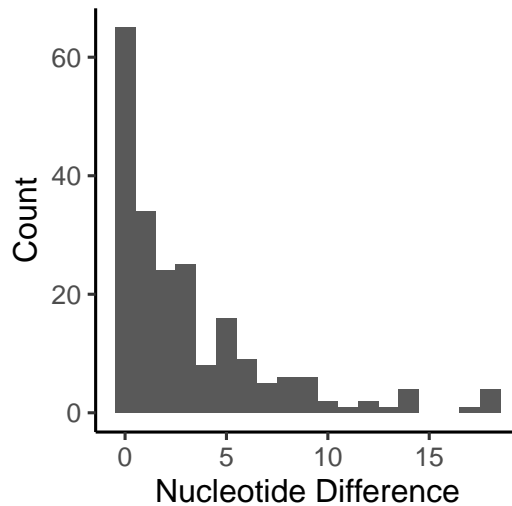
### IGHV4-30-2\*01

45 sequences assigned  
16 (35.6%) exact matches, in which:  
15 unique CDR3  
5 unique J



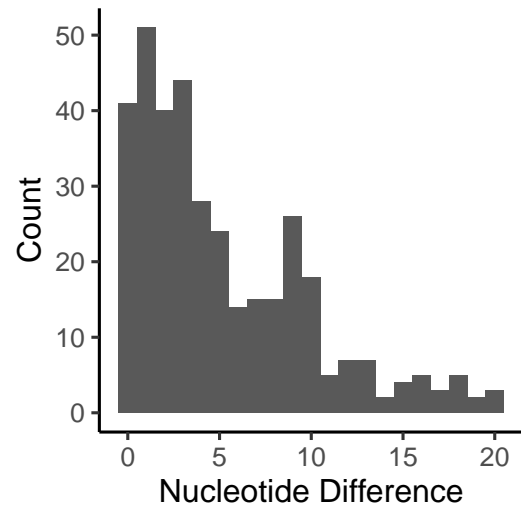
### IGHV4-31\*03

215 sequences assigned  
65 (30.2%) exact matches, in which:  
64 unique CDR3  
4 unique J



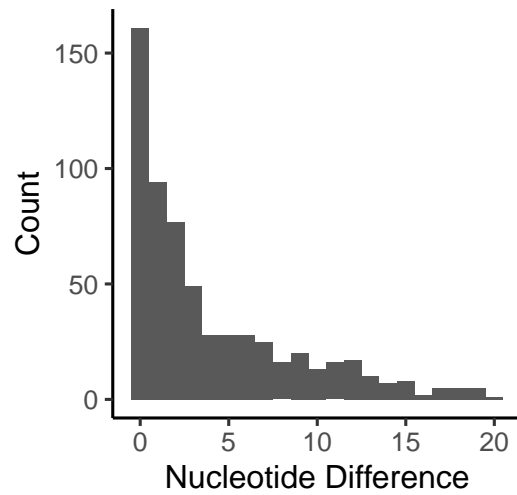
### IGHV4-38-2\*02

369 sequences assigned  
41 (11.1%) exact matches, in which:  
41 unique CDR3  
4 unique J



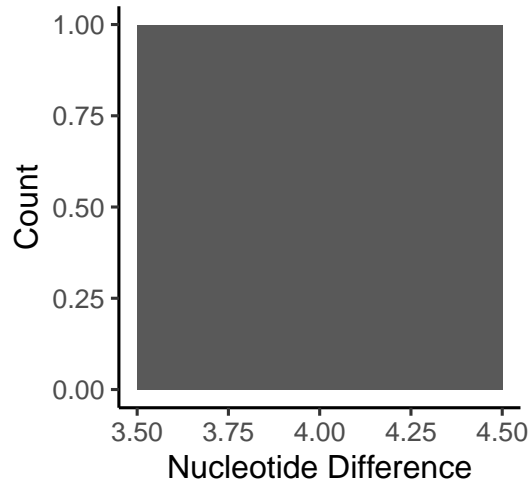
### IGHV4-39\*01

644 sequences assigned  
161 (25%) exact matches, in which:  
151 unique CDR3  
6 unique J



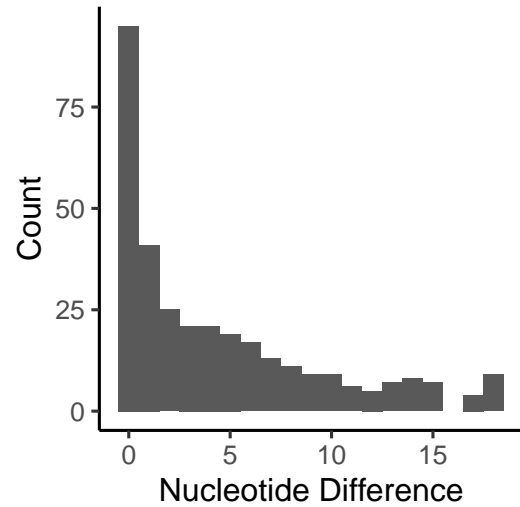
### IGHV4-55\*08

1 sequences assigned  
No exact matches.



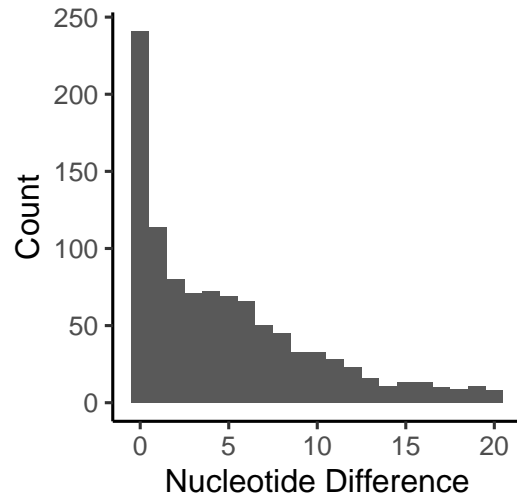
### IGHV4-59\*08

334 sequences assigned  
95 (28.4%) exact matches, in which:  
92 unique CDR3  
5 unique J



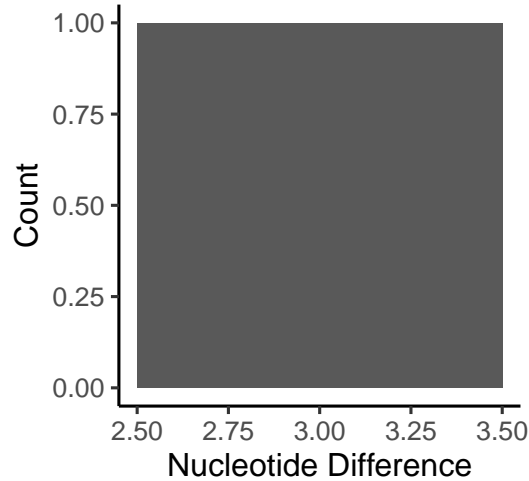
### IGHV4-39\*07

1057 sequences assigned  
241 (22.8%) exact matches, in which:  
239 unique CDR3  
6 unique J



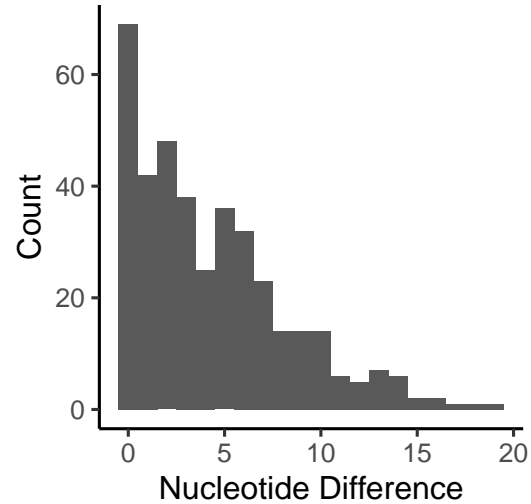
### IGHV4-55\*09

1 sequences assigned  
No exact matches.



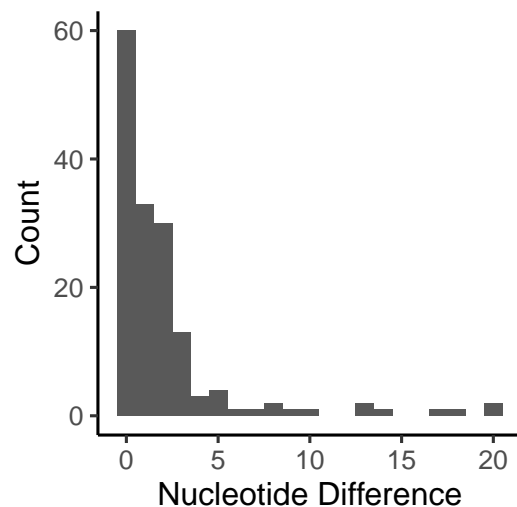
### IGHV4-59\*12

388 sequences assigned  
69 (17.8%) exact matches, in which:  
69 unique CDR3  
5 unique J



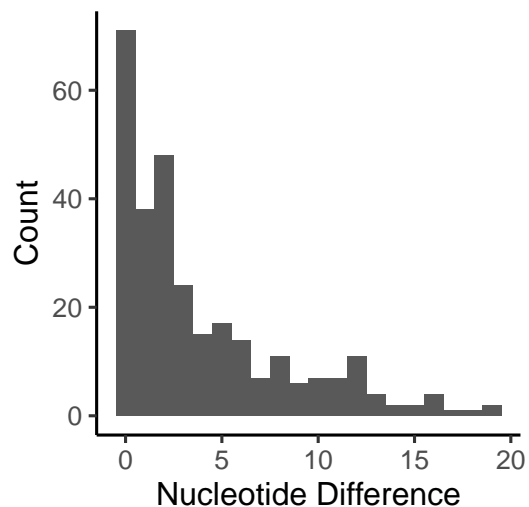
### IGHV4-39\*07\_A220G\_A2:

156 sequences assigned  
60 (38.5%) exact matches, in which:  
60 unique CDR3  
6 unique J



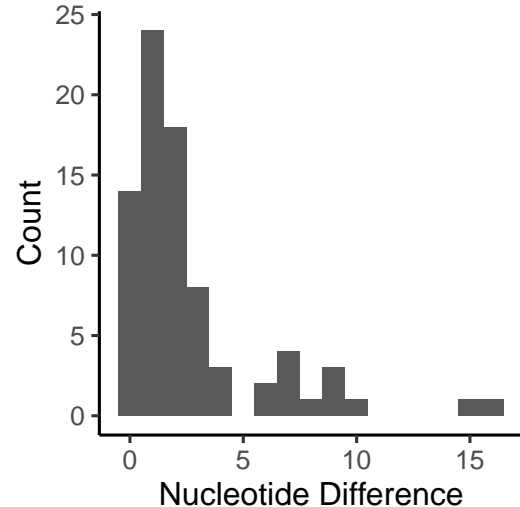
### IGHV4-59\*01

298 sequences assigned  
71 (23.8%) exact matches, in which:  
71 unique CDR3  
5 unique J



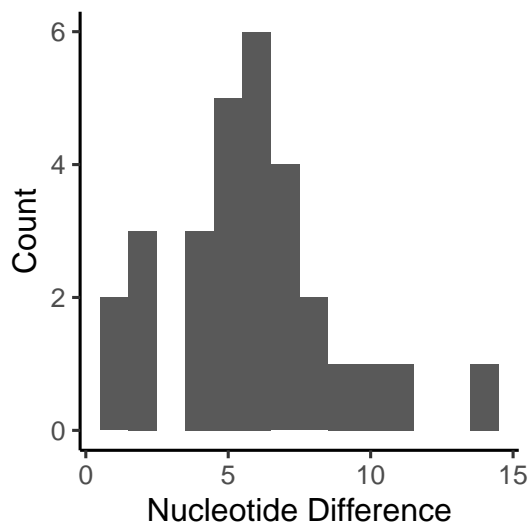
### IGHV4-59\*08\_A220G

82 sequences assigned  
14 (17.1%) exact matches, in which:  
14 unique CDR3  
4 unique J



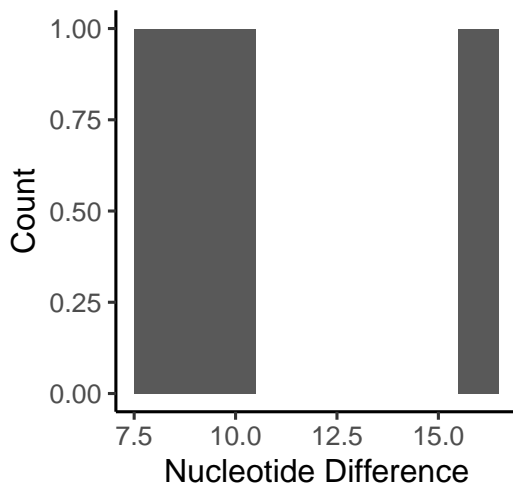
### IGHV4-61\*01

29 sequences assigned  
No exact matches.



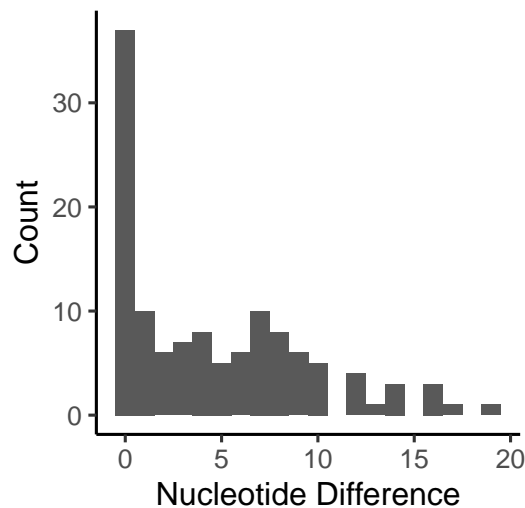
### IGHV4/OR15-8\*02

6 sequences assigned  
No exact matches.



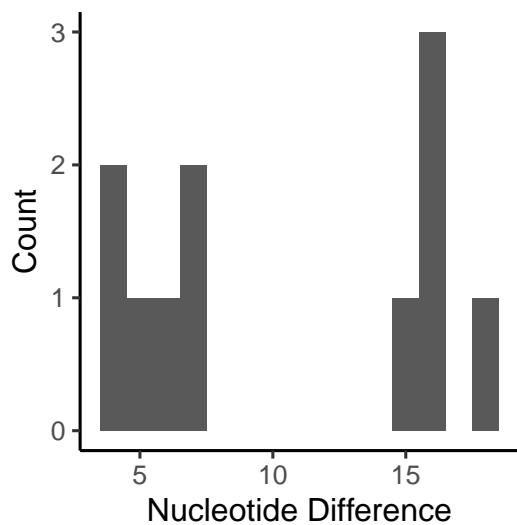
### IGHV5-51\*03

123 sequences assigned  
37 (30.1%) exact matches, in which:  
34 unique CDR3  
6 unique J



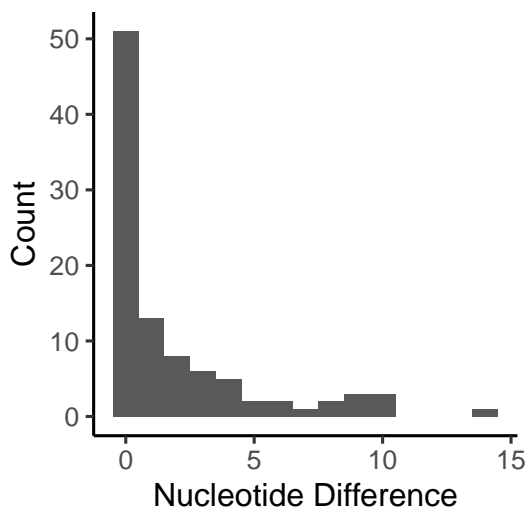
### IGHV4-61\*08

12 sequences assigned  
No exact matches.



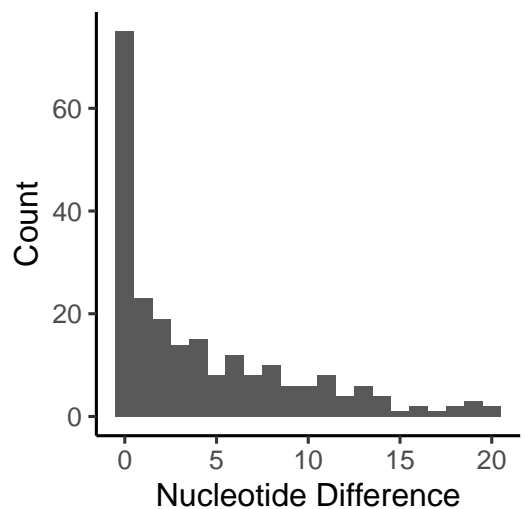
### IGHV5-10-1\*03

97 sequences assigned  
51 (52.6%) exact matches, in which:  
44 unique CDR3  
4 unique J



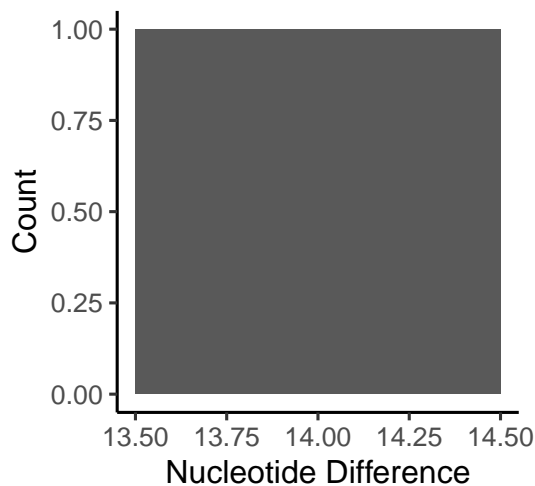
### IGHV6-1\*01

231 sequences assigned  
75 (32.5%) exact matches, in which:  
73 unique CDR3  
5 unique J



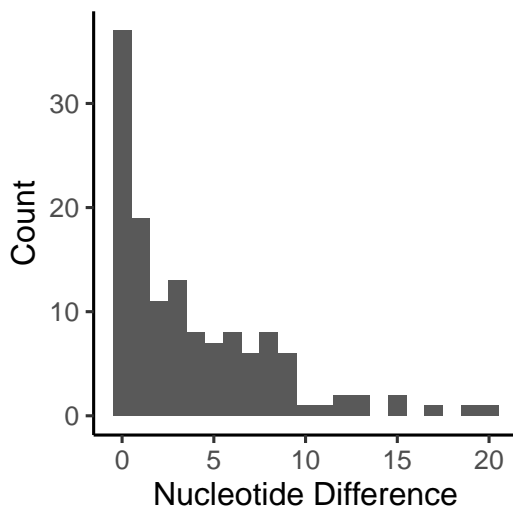
### IGHV1/OR15-2\*02

1 sequences assigned  
No exact matches.



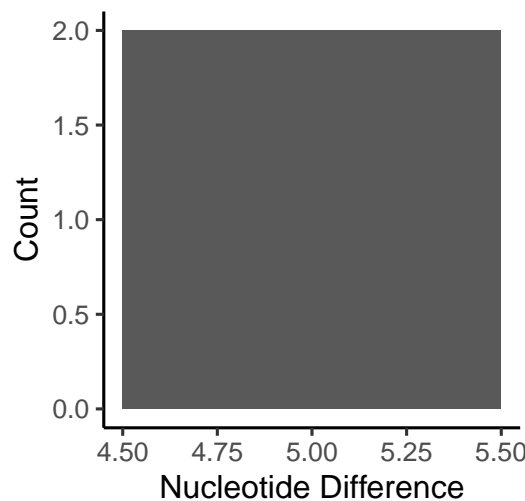
### IGHV5-51\*01

142 sequences assigned  
37 (26.1%) exact matches, in which:  
36 unique CDR3  
5 unique J



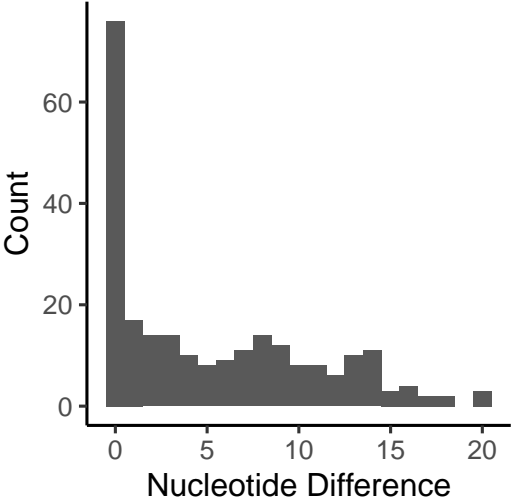
### IGHV3/OR16-9\*01

2 sequences assigned  
No exact matches.



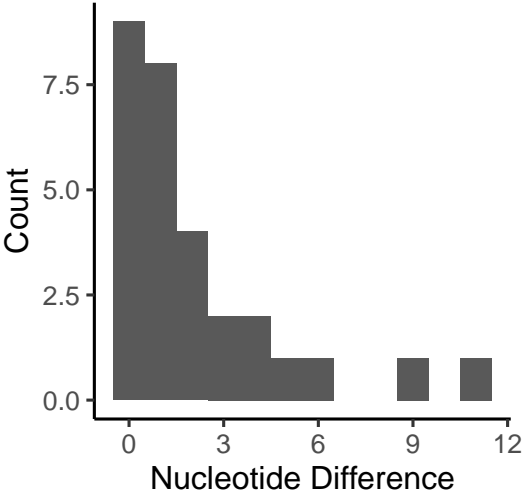
IGHV7-4-1\*02

251 sequences assigned  
76 (30.3%) exact matches, in which:  
69 unique CDR3  
5 unique J



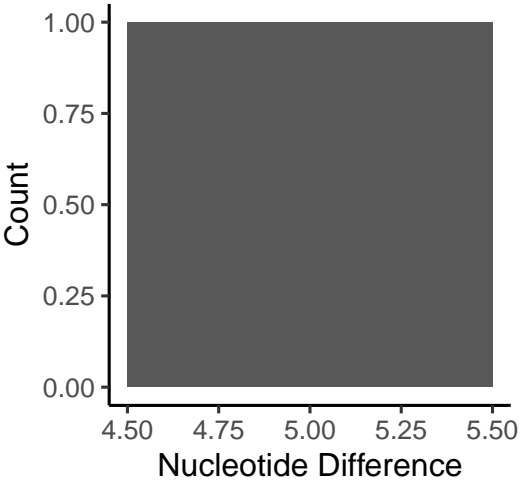
IGHV7-4-1\*02\_A200T

30 sequences assigned  
9 (30%) exact matches, in which:  
9 unique CDR3  
4 unique J

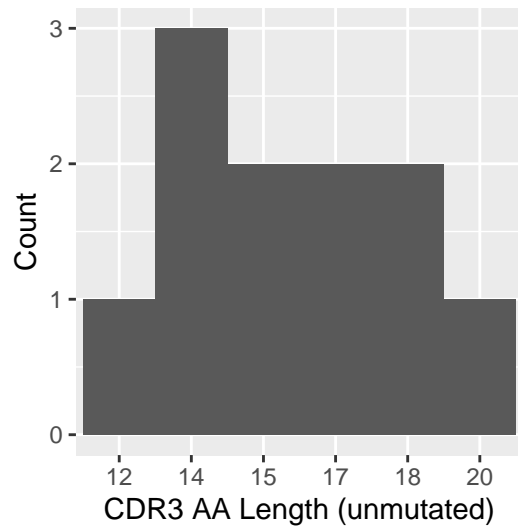


IGHV7-40\*03

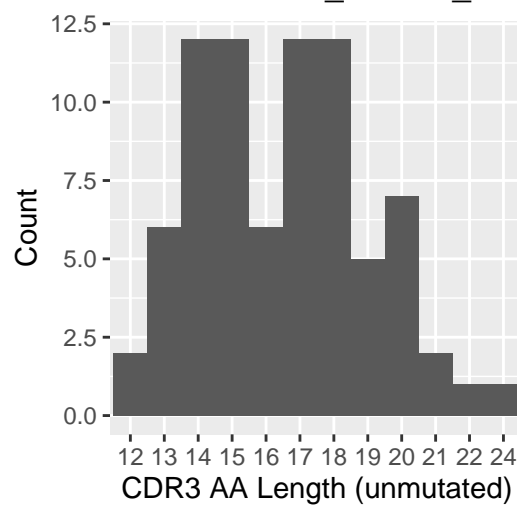
1 sequences assigned  
No exact matches.



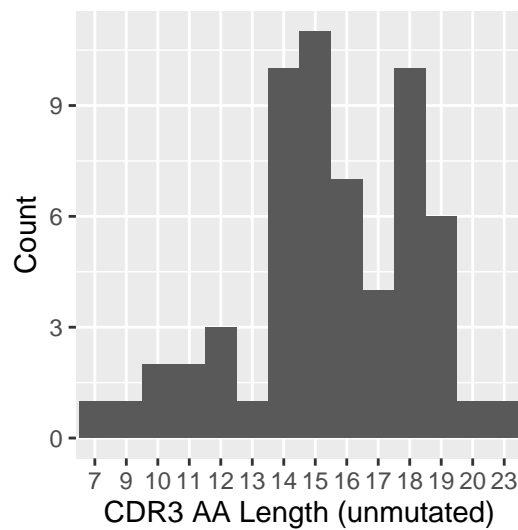
IGHV4-4\*02\_A220G\_A225G



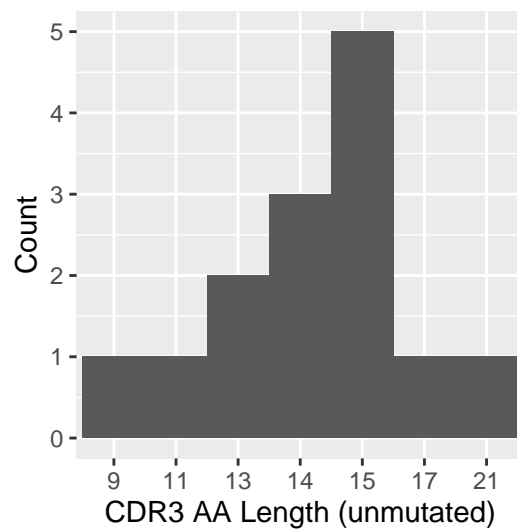
IGHV4-34\*01\_A220G\_A225G



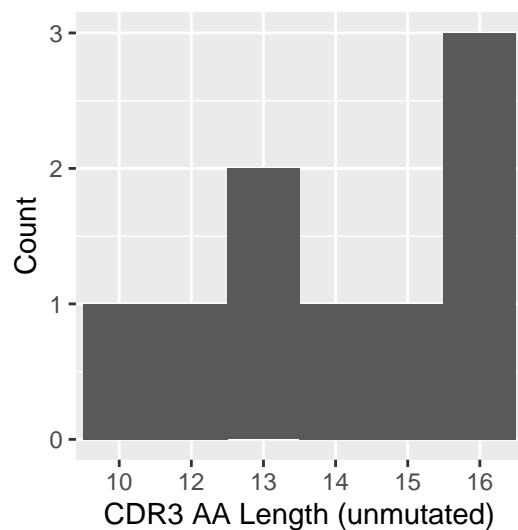
IGHV4-39\*07\_A220G\_A225G



IGHV4-59\*08\_A220G



IGHV7-4-1\*02\_A200T



IGHV3-13\*01\_G290A\_T300C

