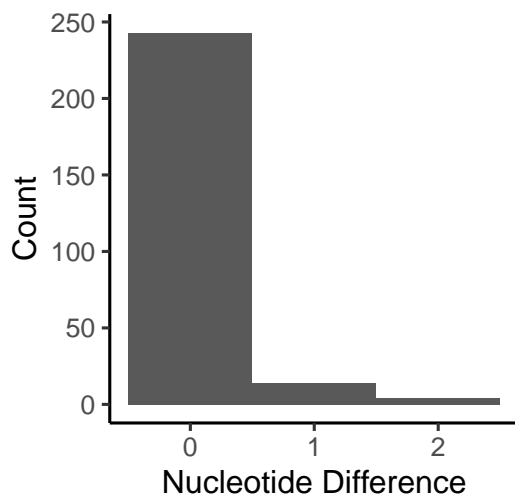


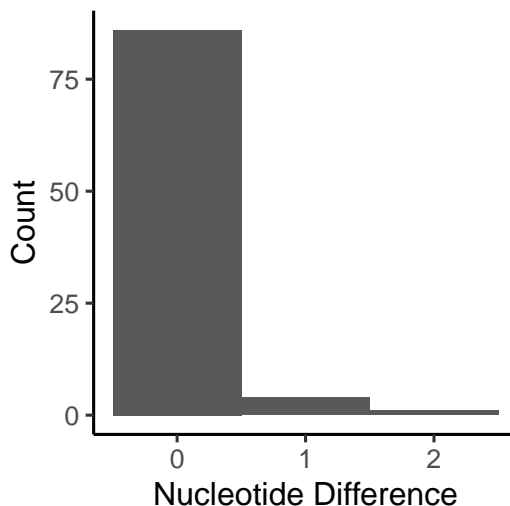
### IGHV1-2\*02

261 sequences assigned  
243 (93.1%) exact matches, in which:  
241 unique CDR3  
7 unique J



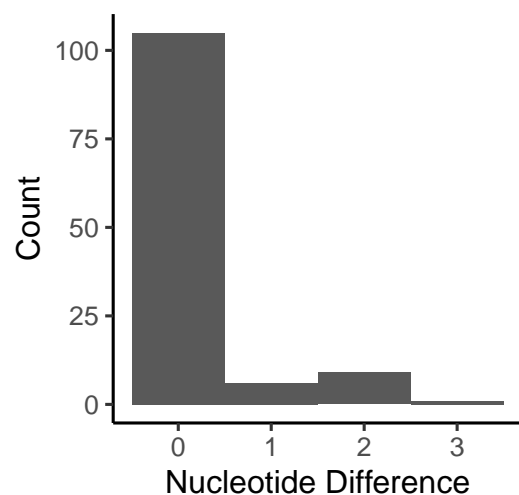
### IGHV1-8\*03

91 sequences assigned  
86 (94.5%) exact matches, in which:  
86 unique CDR3  
5 unique J



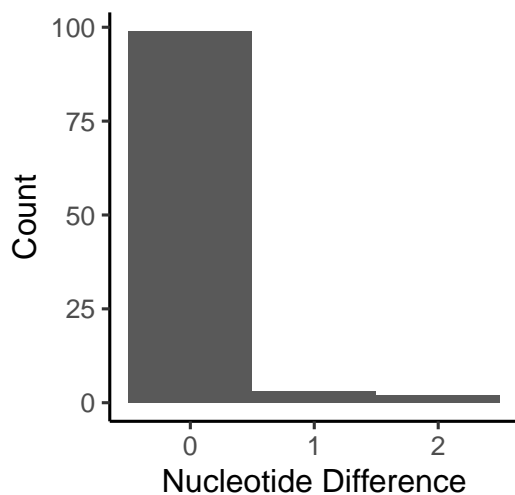
### IGHV1-46\*01

121 sequences assigned  
105 (86.8%) exact matches, in which:  
105 unique CDR3  
7 unique J



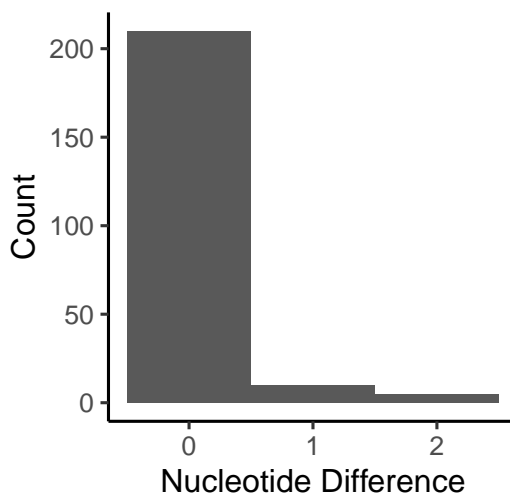
### IGHV1-2\*04

104 sequences assigned  
99 (95.2%) exact matches, in which:  
99 unique CDR3  
6 unique J



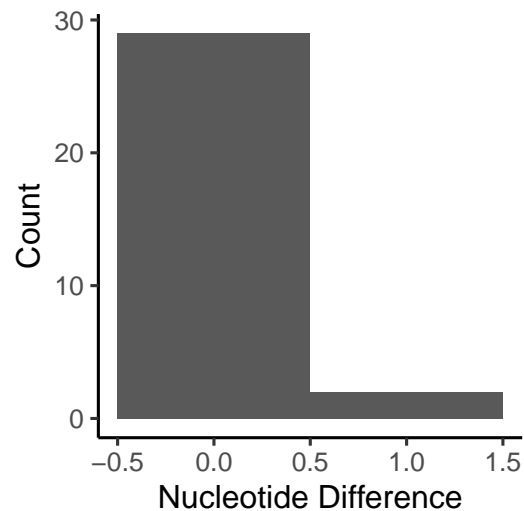
### IGHV1-18\*01

225 sequences assigned  
210 (93.3%) exact matches, in which:  
210 unique CDR3  
6 unique J



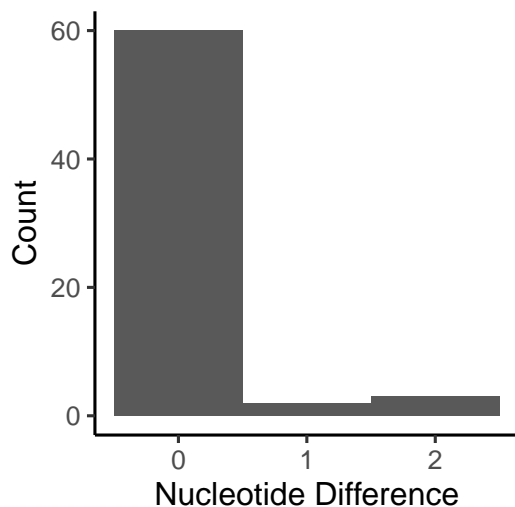
### IGHV1-58\*01\_03

31 sequences assigned  
29 (93.5%) exact matches, in which:  
29 unique CDR3  
6 unique J



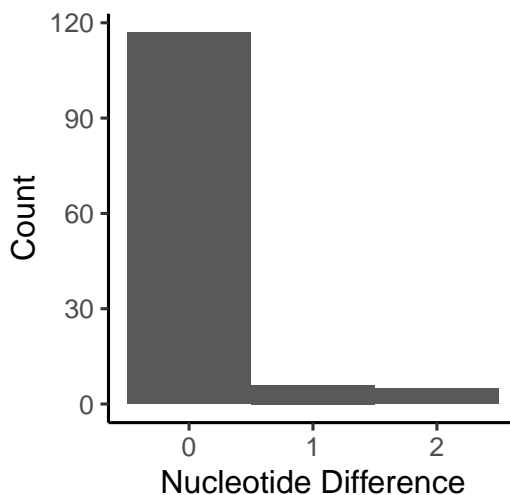
### IGHV1-3\*01\_05

65 sequences assigned  
60 (92.3%) exact matches, in which:  
60 unique CDR3  
5 unique J



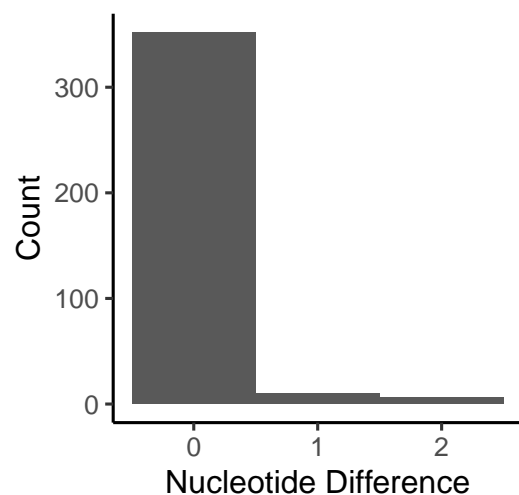
### IGHV1-24\*01

128 sequences assigned  
117 (91.4%) exact matches, in which:  
117 unique CDR3  
5 unique J



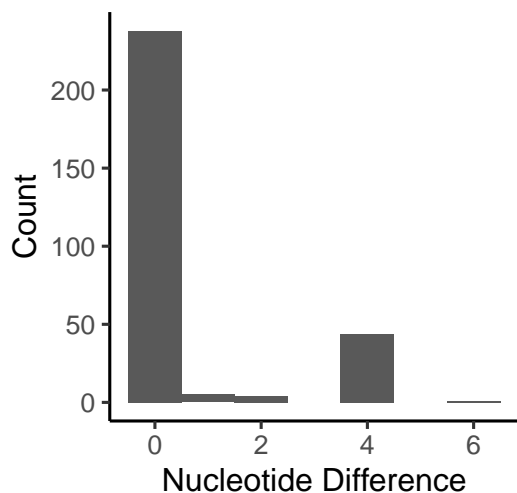
### IGHV1-69\*01\_12\_13

368 sequences assigned  
352 (95.7%) exact matches, in which:  
352 unique CDR3  
6 unique J



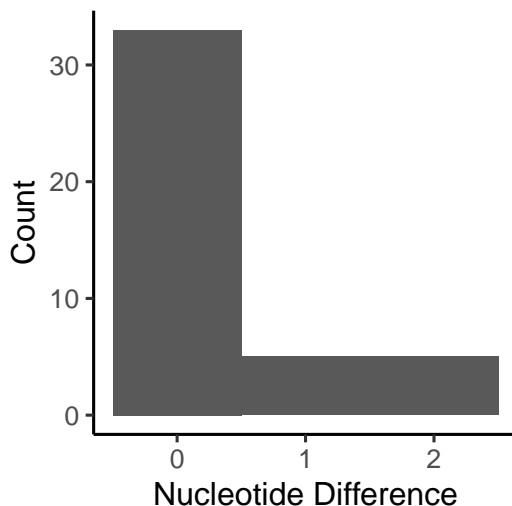
### IGHV1-69\*06\_14

292 sequences assigned  
238 (81.5%) exact matches, in which:  
238 unique CDR3  
6 unique J



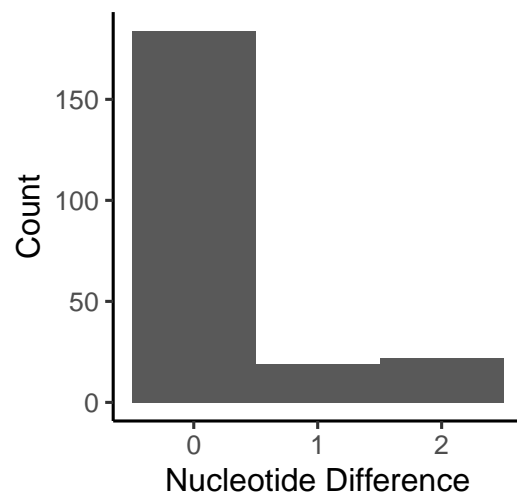
### IGHV2-5\*02

43 sequences assigned  
33 (76.7%) exact matches, in which:  
33 unique CDR3  
4 unique J



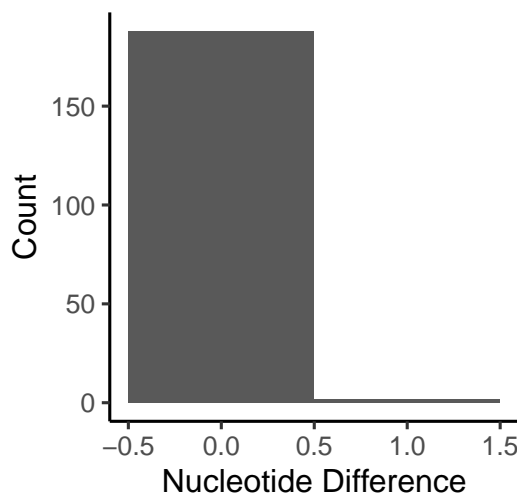
### IGHV3-7\*01

225 sequences assigned  
184 (81.8%) exact matches, in which:  
181 unique CDR3  
6 unique J



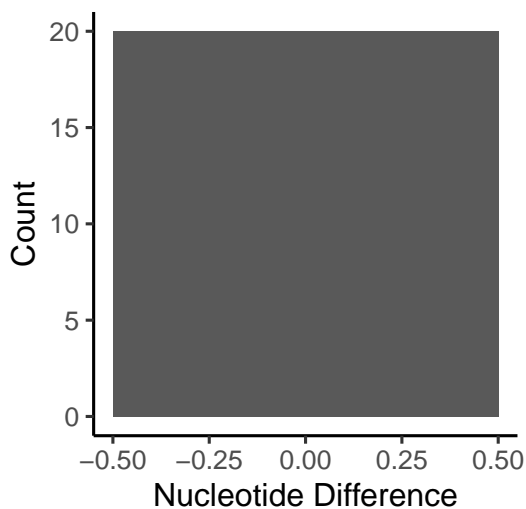
### IGHV1-69\*15\_18

190 sequences assigned  
188 (98.9%) exact matches, in which:  
188 unique CDR3  
7 unique J



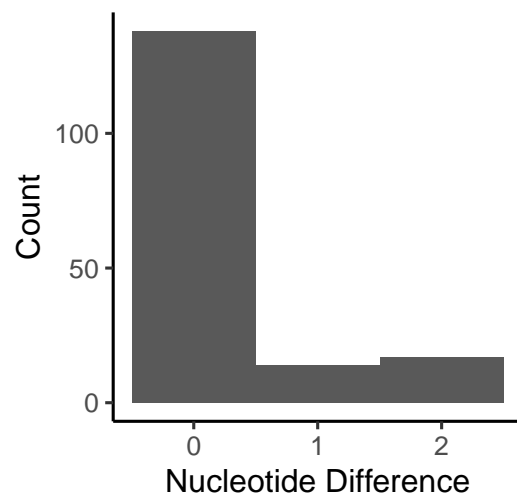
### IGHV2-26\*01

20 sequences assigned  
20 (100%) exact matches, in which:  
20 unique CDR3  
5 unique J



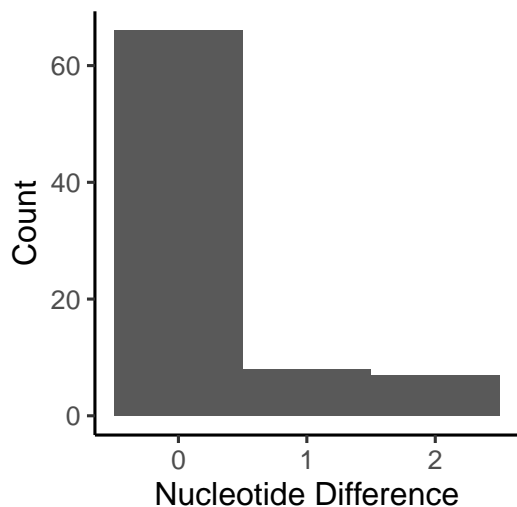
### IGHV3-7\*03

169 sequences assigned  
138 (81.7%) exact matches, in which:  
132 unique CDR3  
5 unique J



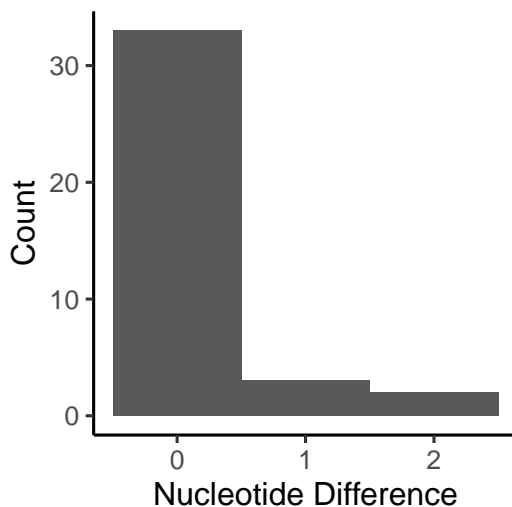
### IGHV2-5\*01

81 sequences assigned  
66 (81.5%) exact matches, in which:  
66 unique CDR3  
6 unique J



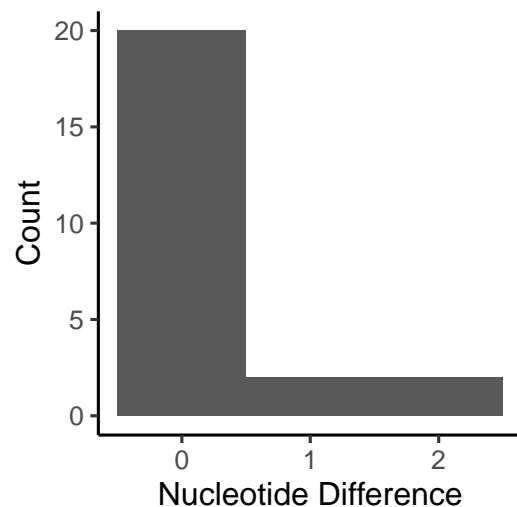
### IGHV2-70\*01

38 sequences assigned  
33 (86.8%) exact matches, in which:  
32 unique CDR3  
4 unique J



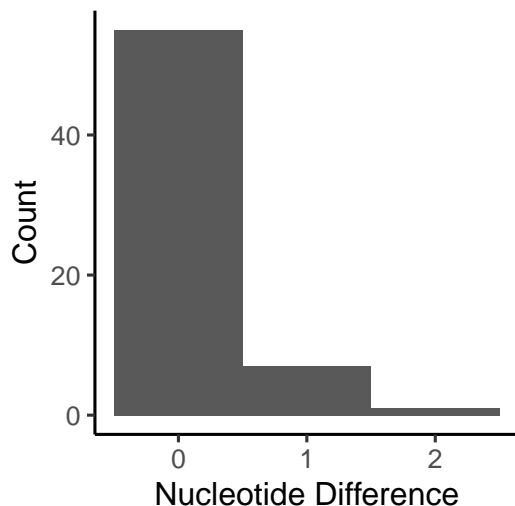
### IGHV3-9\*03

24 sequences assigned  
20 (83.3%) exact matches, in which:  
19 unique CDR3  
4 unique J



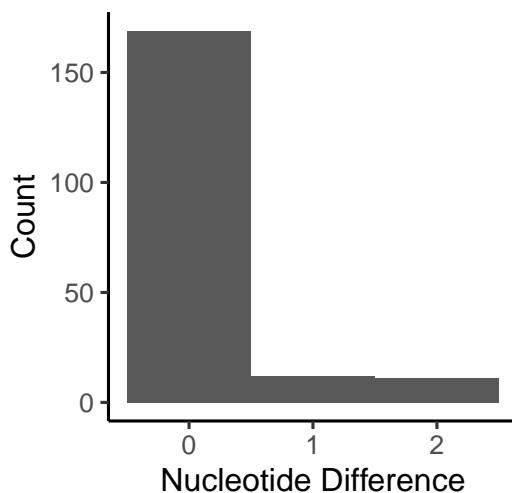
### IGHV3-11\*04

63 sequences assigned  
55 (87.3%) exact matches, in which:  
54 unique CDR3  
6 unique J



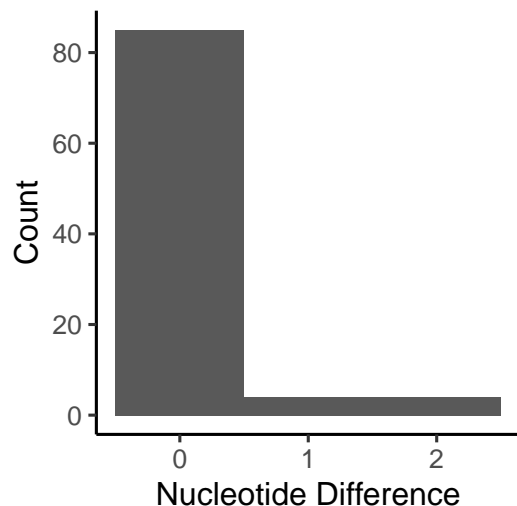
### IGHV3-21\*01\_02

192 sequences assigned  
169 (88%) exact matches, in which:  
162 unique CDR3  
7 unique J



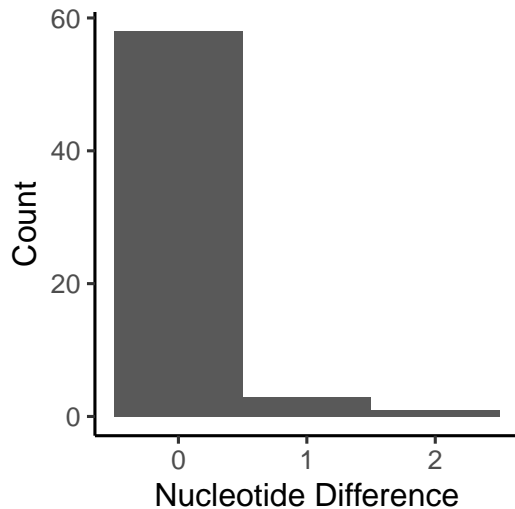
### IGHV3-33\*01

93 sequences assigned  
85 (91.4%) exact matches, in which:  
85 unique CDR3  
5 unique J



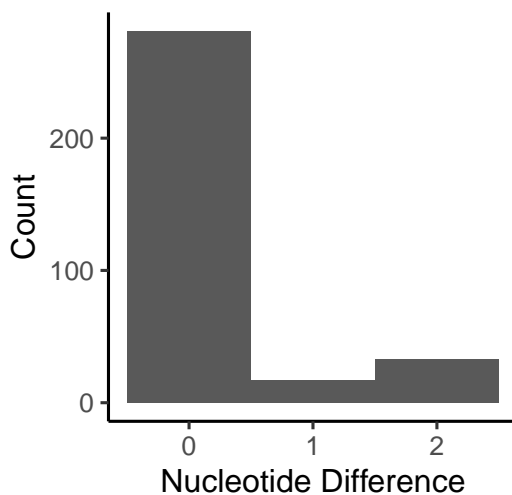
### IGHV3-15\*01\_02

62 sequences assigned  
58 (93.5%) exact matches, in which:  
57 unique CDR3  
6 unique J



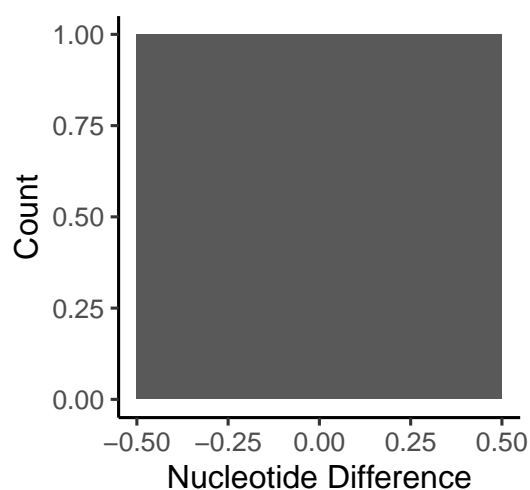
### IGHV3-23\*01\_04

331 sequences assigned  
281 (84.9%) exact matches, in which:  
273 unique CDR3  
7 unique J



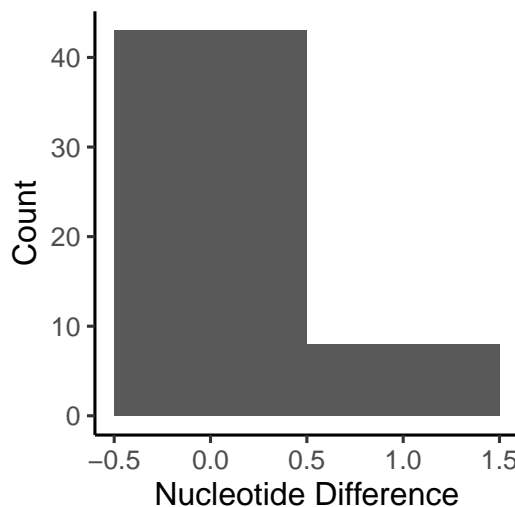
### IGHV3-38-3\*01

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



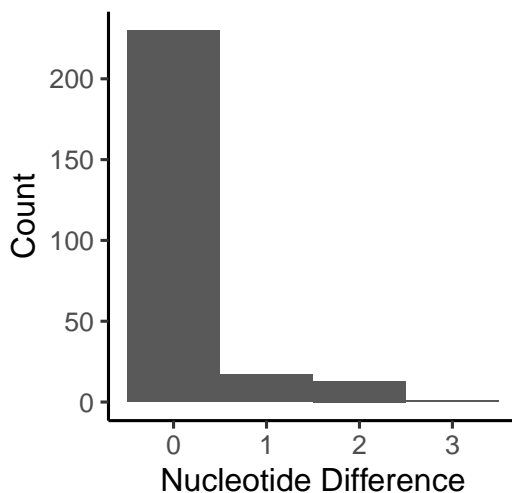
### IGHV3-20\*03\_04

51 sequences assigned  
43 (84.3%) exact matches, in which:  
42 unique CDR3  
5 unique J



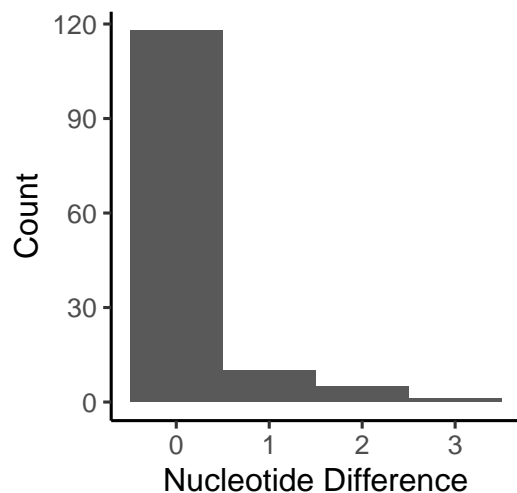
### IGHV3-30-3\*01

261 sequences assigned  
230 (88.1%) exact matches, in which:  
229 unique CDR3  
7 unique J



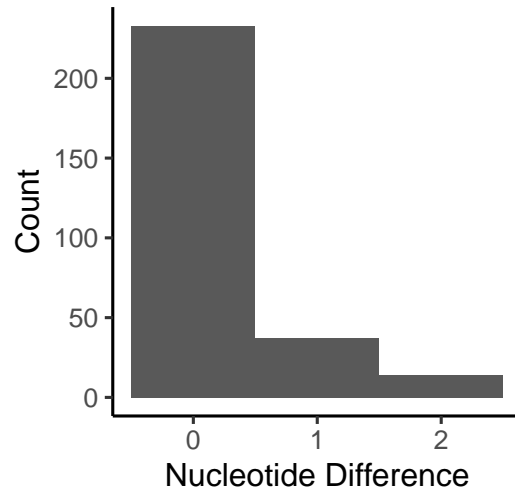
### IGHV3-43\*02

134 sequences assigned  
118 (88.1%) exact matches, in which:  
115 unique CDR3  
6 unique J



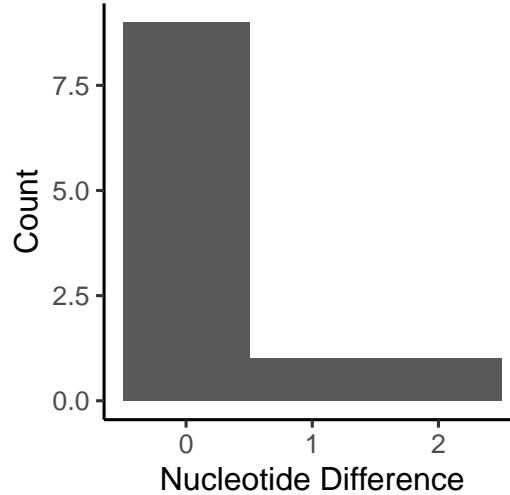
### IGHV3-48\*03

284 sequences assigned  
233 (82%) exact matches, in which:  
226 unique CDR3  
6 unique J



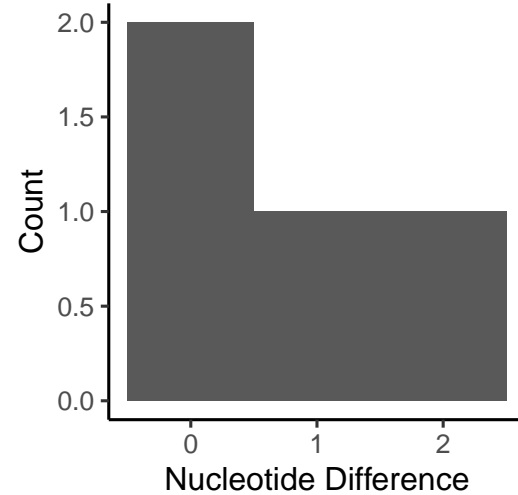
### IGHV3-49\*03\_05

11 sequences assigned  
9 (81.8%) exact matches, in which:  
9 unique CDR3  
4 unique J



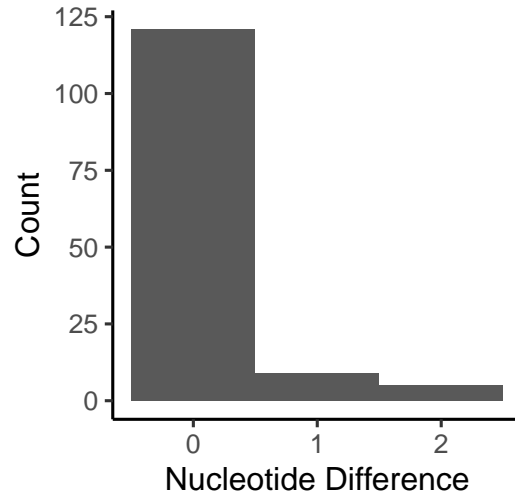
### IGHV3-64\*02\_07

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



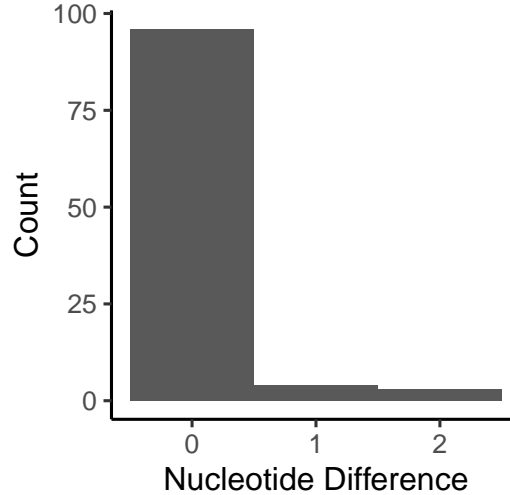
### IGHV3-48\*04

135 sequences assigned  
121 (89.6%) exact matches, in which:  
118 unique CDR3  
6 unique J



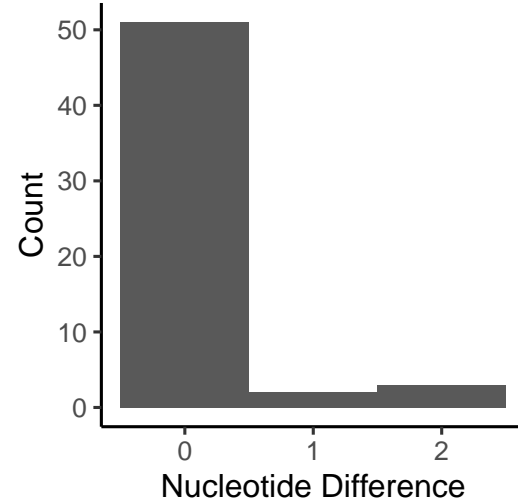
### IGHV3-53\*04

103 sequences assigned  
96 (93.2%) exact matches, in which:  
96 unique CDR3  
6 unique J



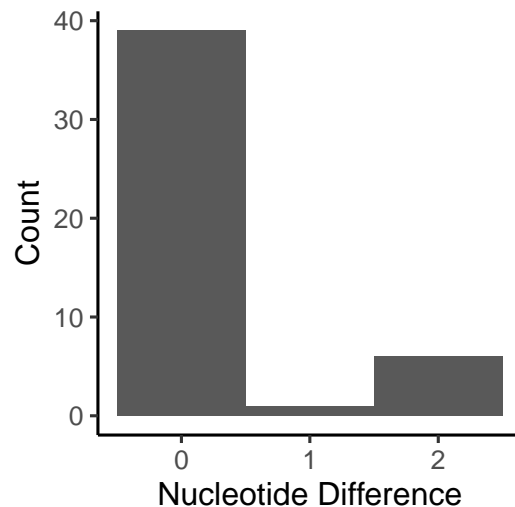
### IGHV3-66\*02

56 sequences assigned  
51 (91.1%) exact matches, in which:  
47 unique CDR3  
5 unique J



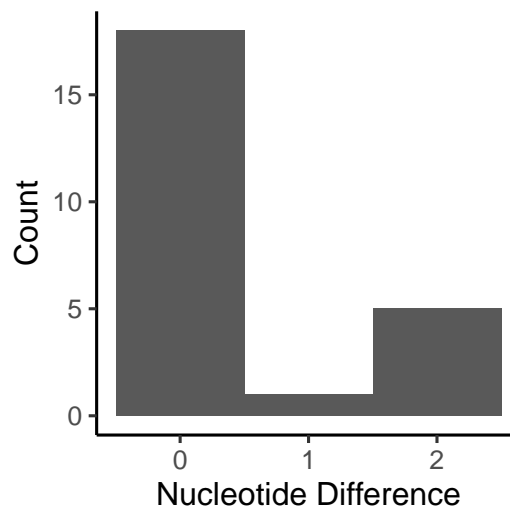
### IGHV3-49\*04

46 sequences assigned  
39 (84.8%) exact matches, in which:  
39 unique CDR3  
6 unique J



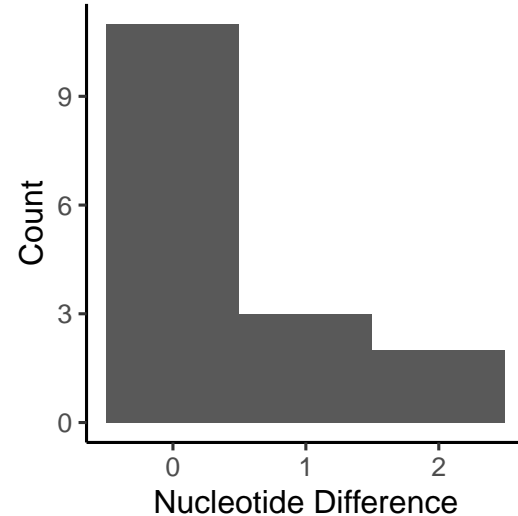
### IGHV3-64\*01

24 sequences assigned  
18 (75%) exact matches, in which:  
17 unique CDR3  
4 unique J



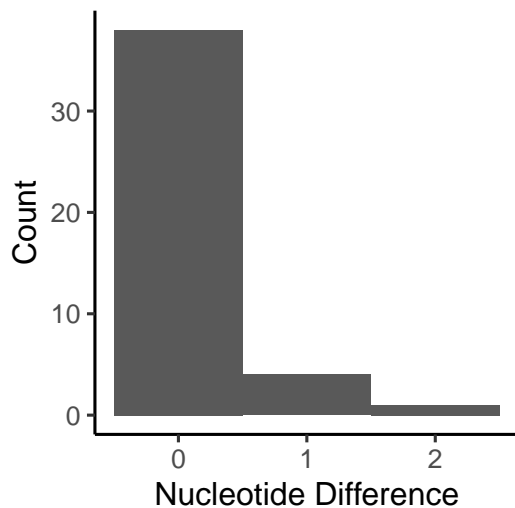
### IGHV3-72\*01

16 sequences assigned  
11 (68.8%) exact matches, in which:  
11 unique CDR3  
3 unique J



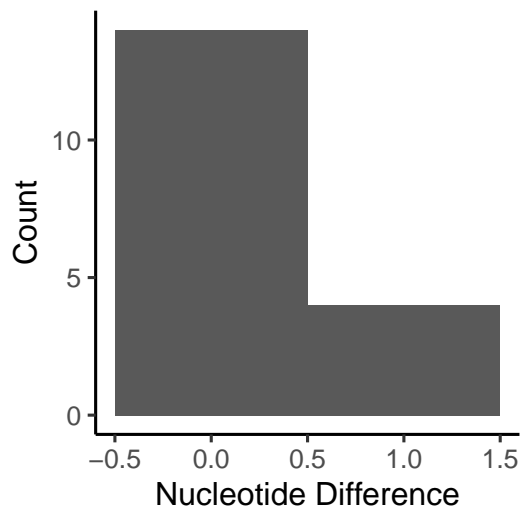
### IGHV3-73\*01\_02

43 sequences assigned  
38 (88.4%) exact matches, in which:  
38 unique CDR3  
5 unique J



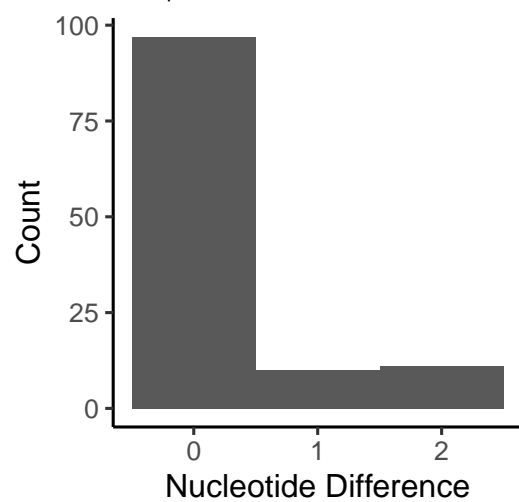
### IGHV3-43D\*04

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



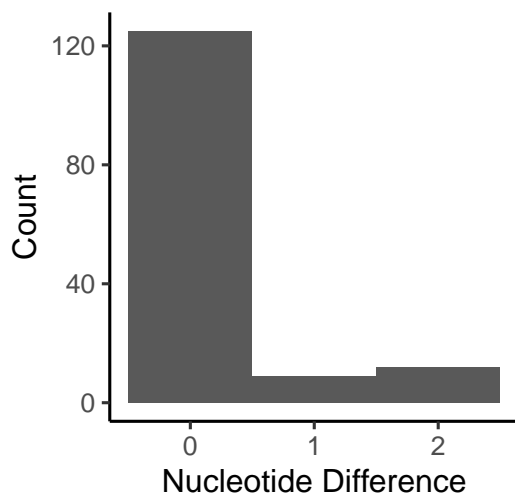
### IGHV4-30-4\*01

118 sequences assigned  
97 (82.2%) exact matches, in which:  
96 unique CDR3  
6 unique J



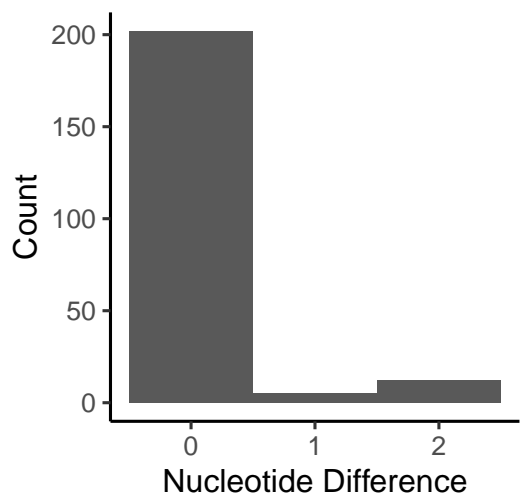
### IGHV3-74\*01\_02

146 sequences assigned  
125 (85.6%) exact matches, in which:  
118 unique CDR3  
7 unique J



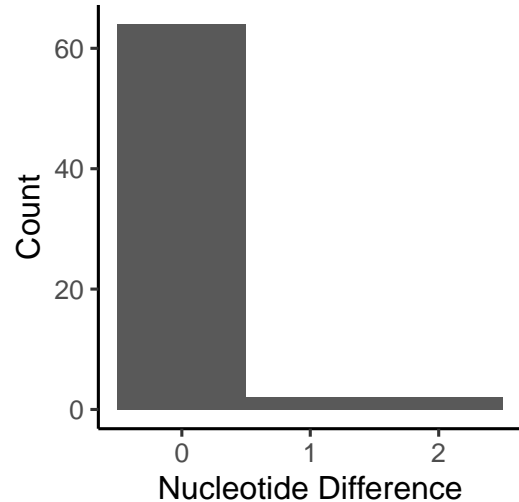
### IGHV4-4\*07

219 sequences assigned  
202 (92.2%) exact matches, in which:  
195 unique CDR3  
7 unique J



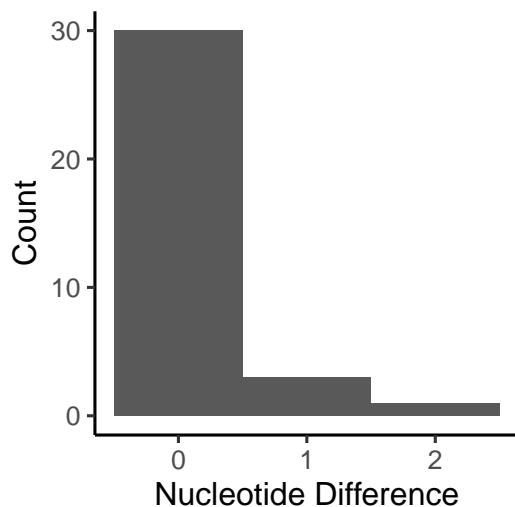
### IGHV4-30-2\*01

68 sequences assigned  
64 (94.1%) exact matches, in which:  
62 unique CDR3  
5 unique J



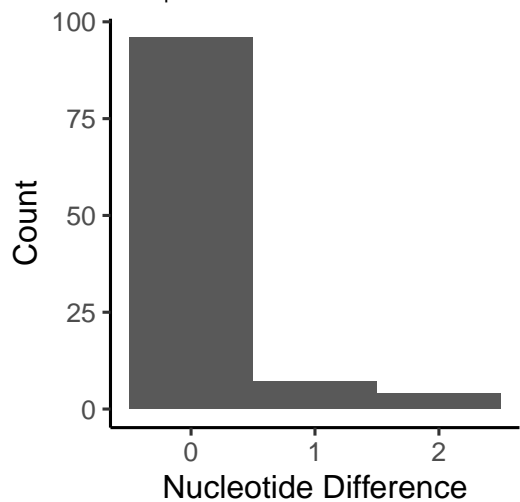
### IGHV3-43D\*03

34 sequences assigned  
30 (88.2%) exact matches, in which:  
30 unique CDR3  
5 unique J



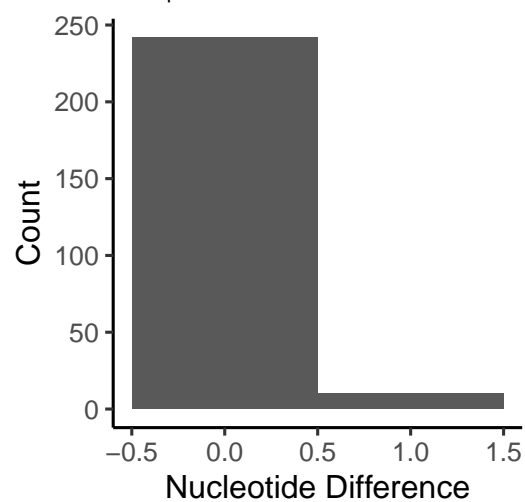
### IGHV4-4\*02\_03

107 sequences assigned  
96 (89.7%) exact matches, in which:  
95 unique CDR3  
5 unique J



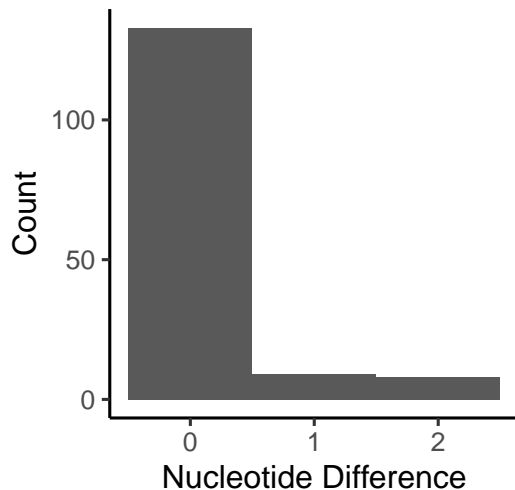
### IGHV4-30-4\*08

252 sequences assigned  
242 (96%) exact matches, in which:  
240 unique CDR3  
6 unique J



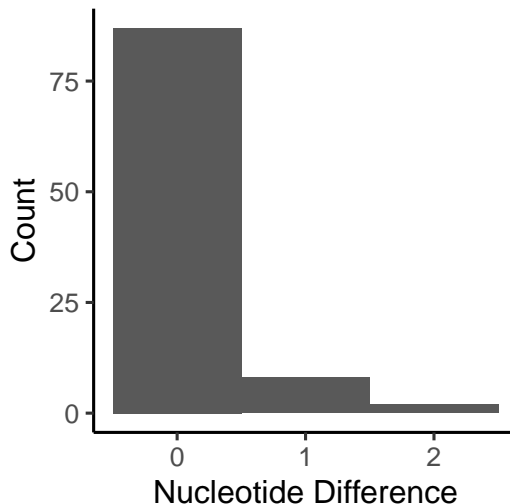
### IGHV4–31\*02

150 sequences assigned  
133 (88.7%) exact matches, in which:  
131 unique CDR3  
6 unique J



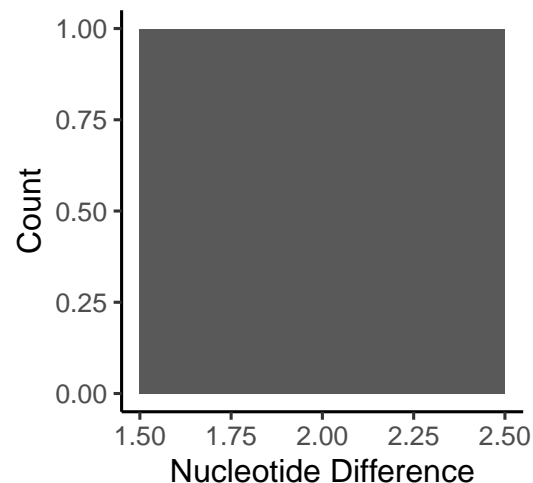
### IGHV4–38–2\*02

97 sequences assigned  
87 (89.7%) exact matches, in which:  
84 unique CDR3  
5 unique J



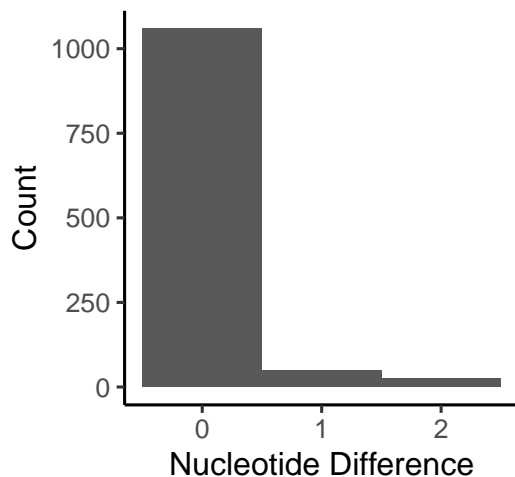
### IGHV4–59\*02

1 sequences assigned  
No exact matches.



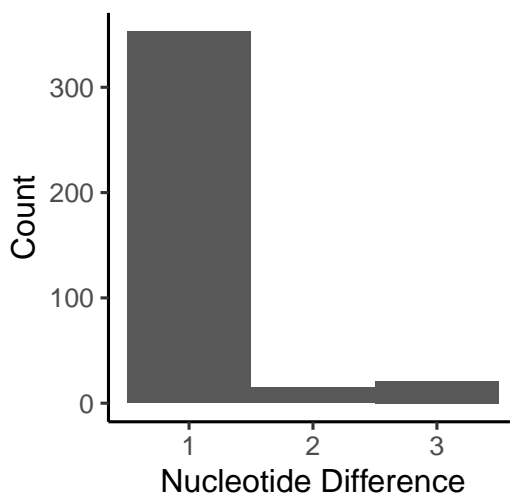
### IGHV4–34\*01\_02

1134 sequences assigned  
1059 (93.4%) exact matches, in which:  
1019 unique CDR3  
7 unique J



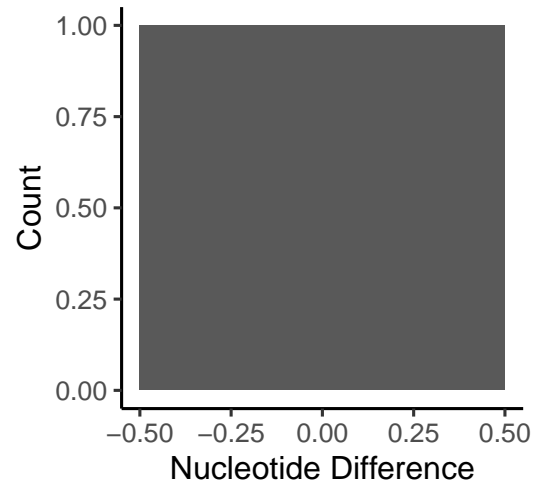
### IGHV4–39\*02

389 sequences assigned  
No exact matches.



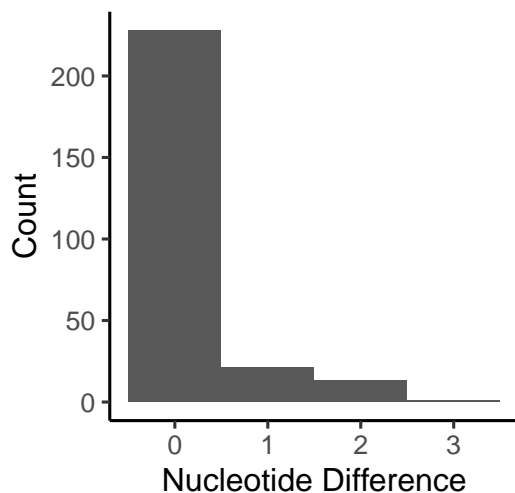
### IGHV4–59\*11

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



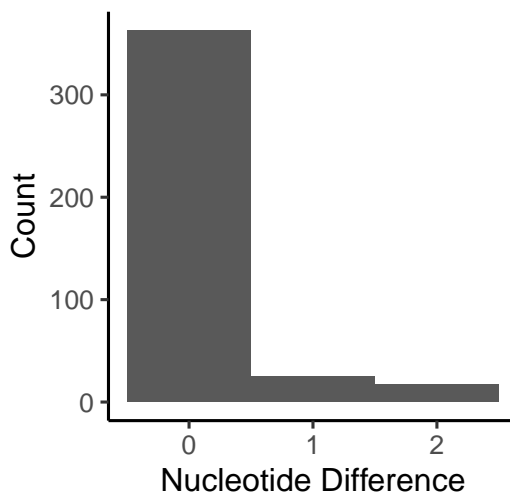
### IGHV4–38–2\*01

263 sequences assigned  
228 (86.7%) exact matches, in which:  
228 unique CDR3  
6 unique J



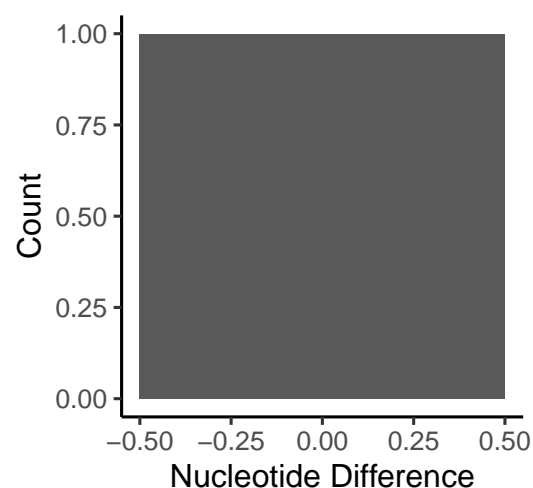
### IGHV4–39\*07

405 sequences assigned  
363 (89.6%) exact matches, in which:  
352 unique CDR3  
6 unique J



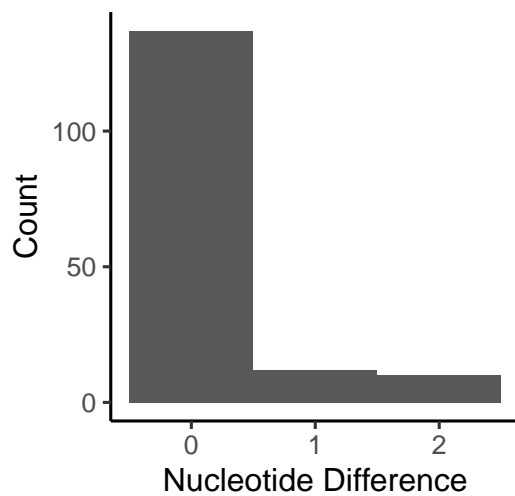
### IGHV4–59\*13

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



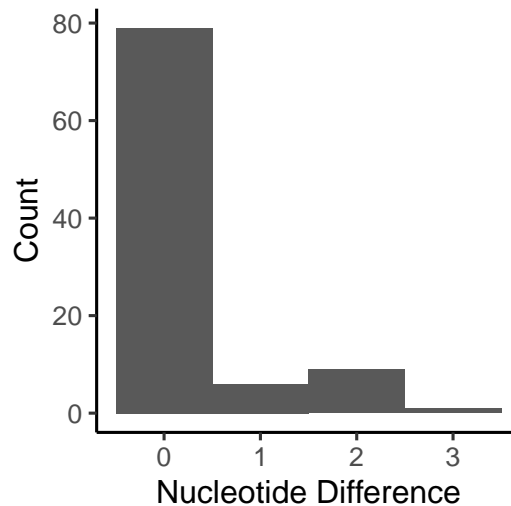
### IGHV4-61\*01

159 sequences assigned  
137 (86.2%) exact matches, in which:  
137 unique CDR3  
5 unique J



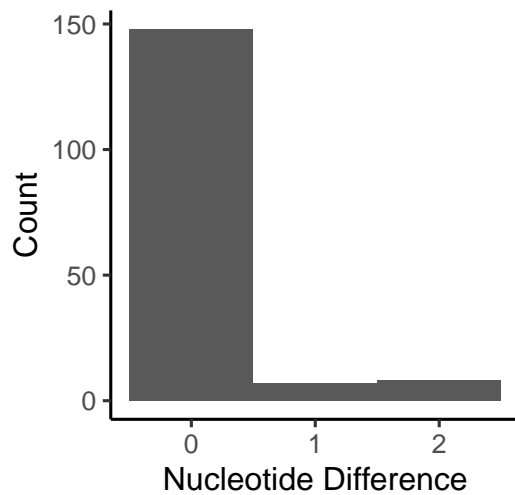
### IGHV6-1\*01\_02

95 sequences assigned  
79 (83.2%) exact matches, in which:  
79 unique CDR3  
7 unique J



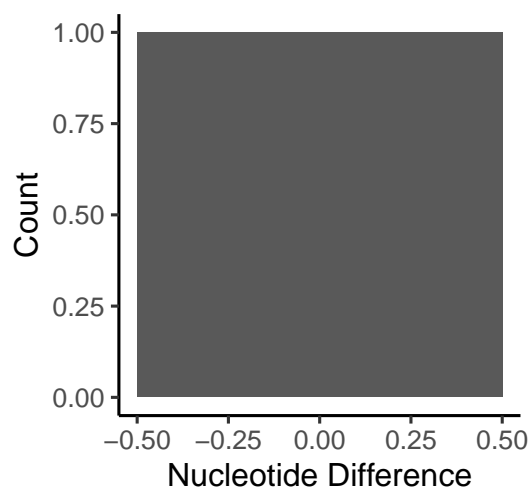
### IGHV4-61\*02

163 sequences assigned  
148 (90.8%) exact matches, in which:  
145 unique CDR3  
6 unique J



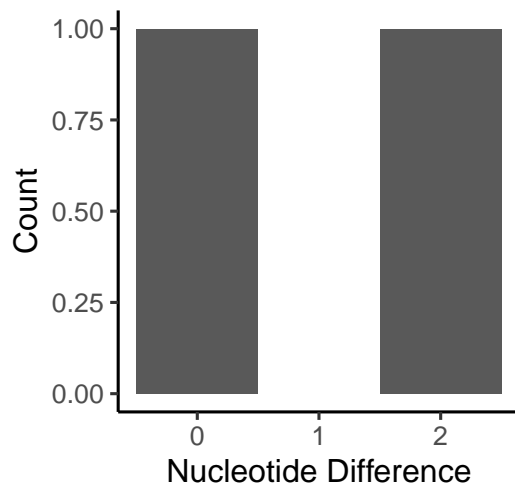
### IGHV7-4-1\*01

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

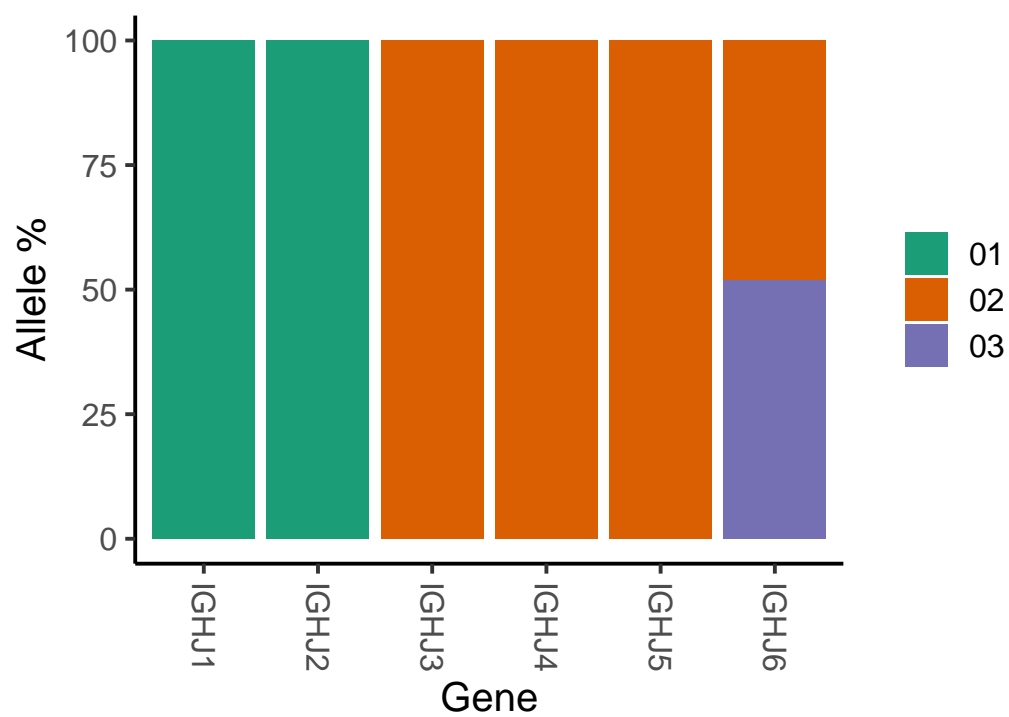


### IGHV5-51\*01\_03

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

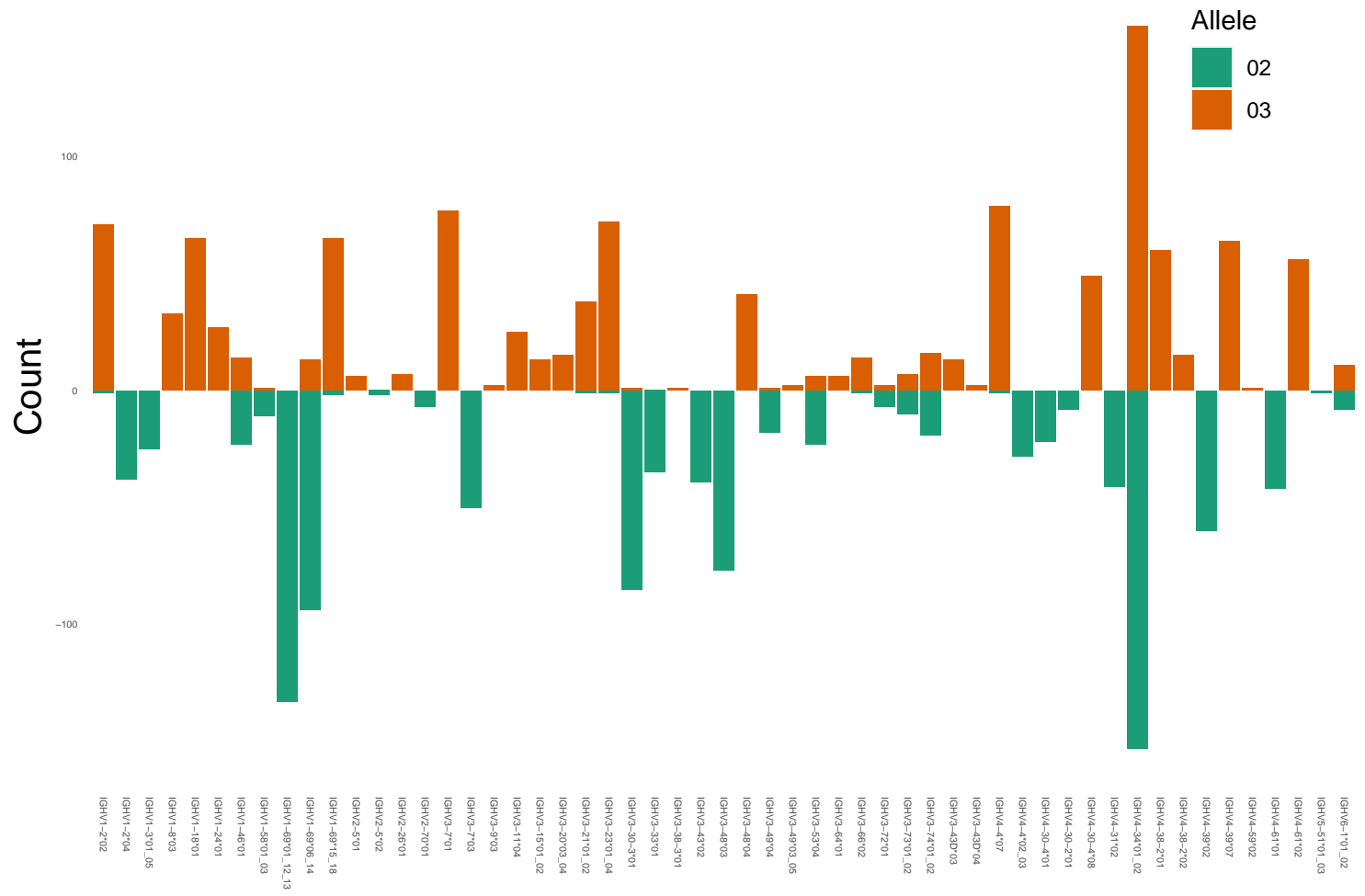


Allele Usage





## Sequence Count byIGHJ6 allele usage



[illegible]