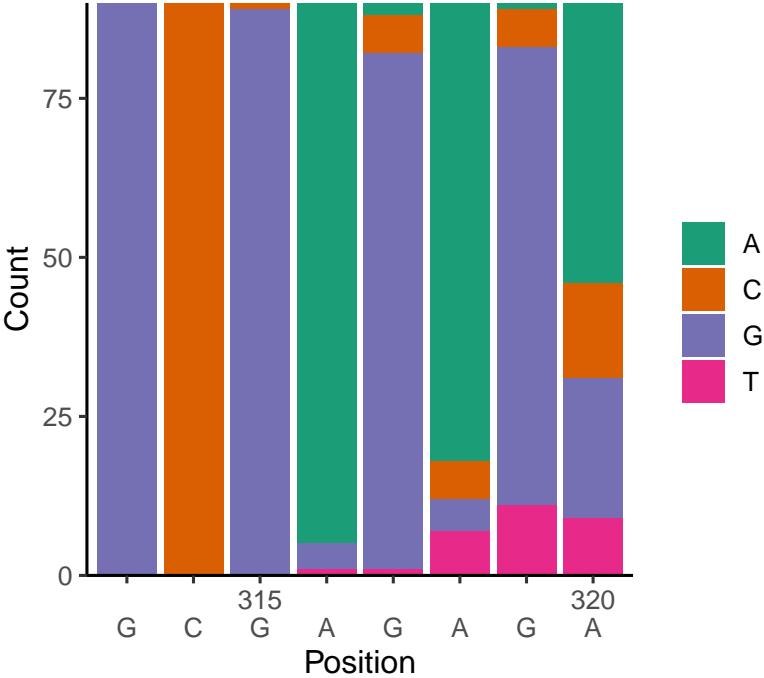
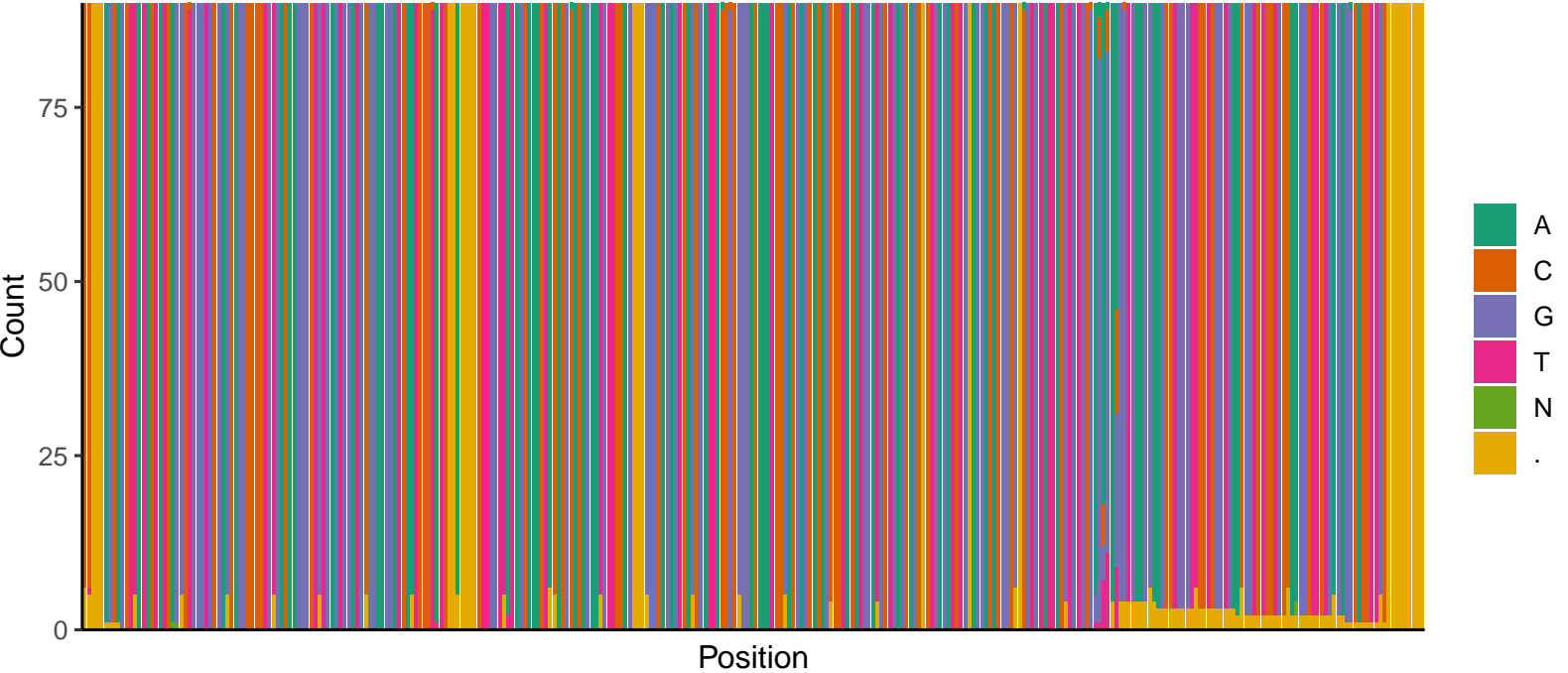


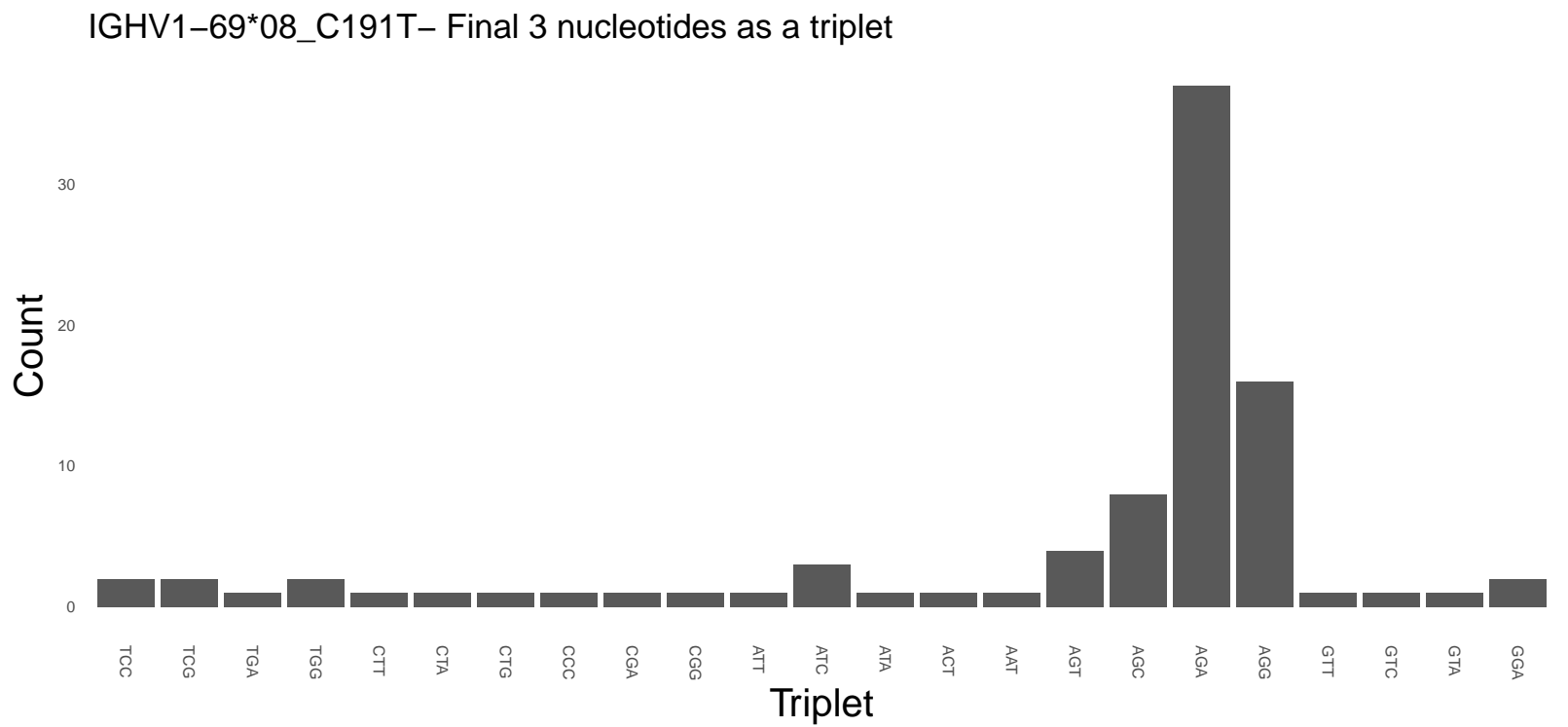
Gene IGHV1-69\*08\_C191T



Gene IGHV1-69\*08\_C191T

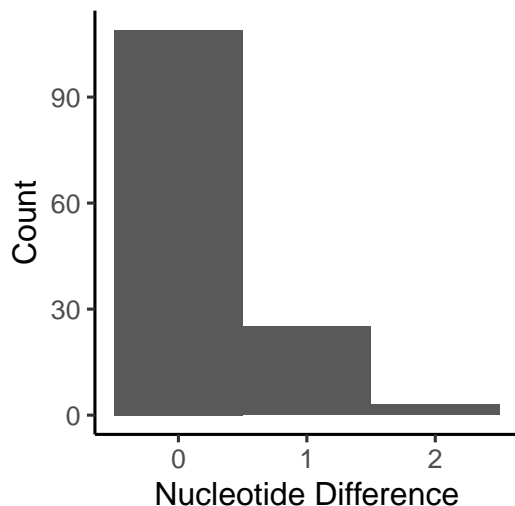


IGHV1-69\*08\_C191T- Final 3 nucleotides as a triplet



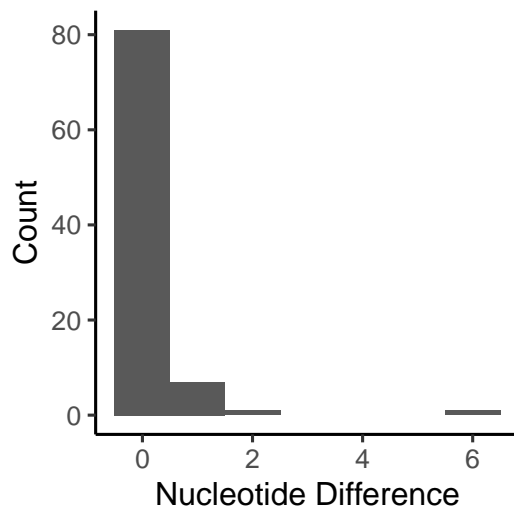
### IGHV1-2\*02

138 sequences assigned  
109 (79%) exact matches, in which:  
109 unique CDR3  
6 unique J



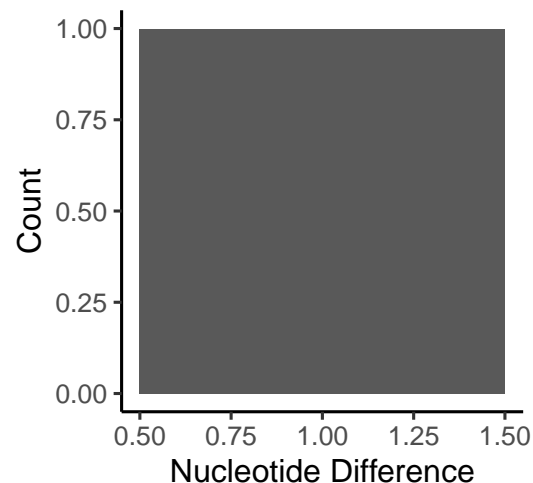
### IGHV1-8\*01

90 sequences assigned  
81 (90%) exact matches, in which:  
81 unique CDR3  
6 unique J



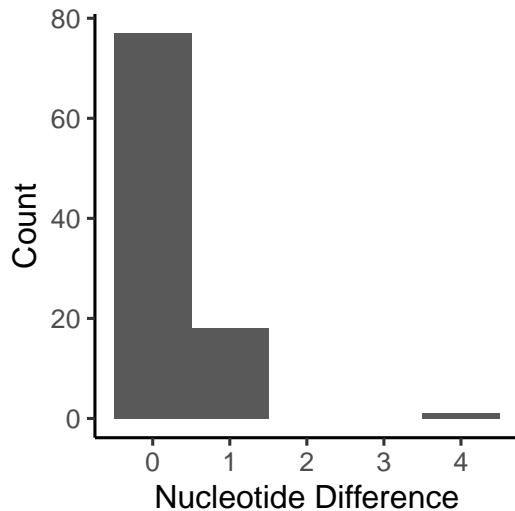
### IGHV1-45\*02

1 sequences assigned  
No exact matches.



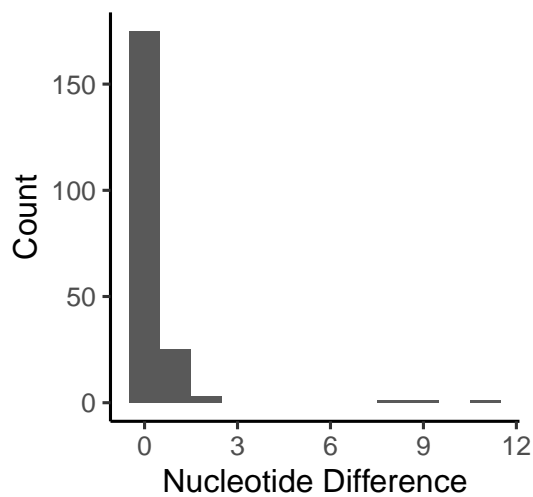
### IGHV1-2\*06

96 sequences assigned  
77 (80.2%) exact matches, in which:  
77 unique CDR3  
6 unique J



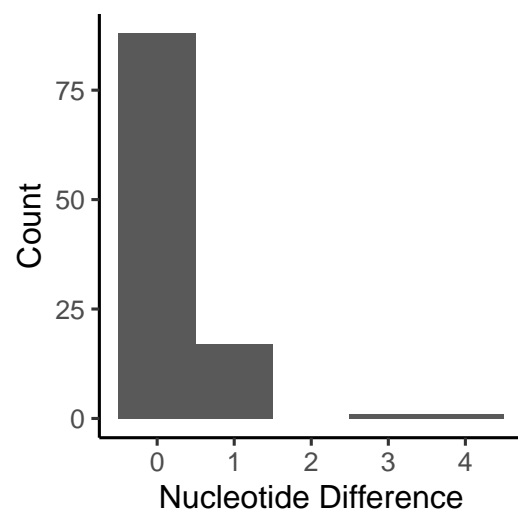
### IGHV1-18\*01

206 sequences assigned  
175 (85%) exact matches, in which:  
175 unique CDR3  
7 unique J



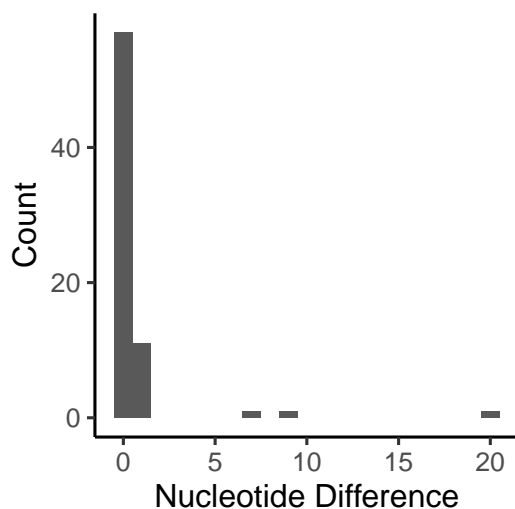
### IGHV1-46\*01

107 sequences assigned  
88 (82.2%) exact matches, in which:  
87 unique CDR3  
7 unique J



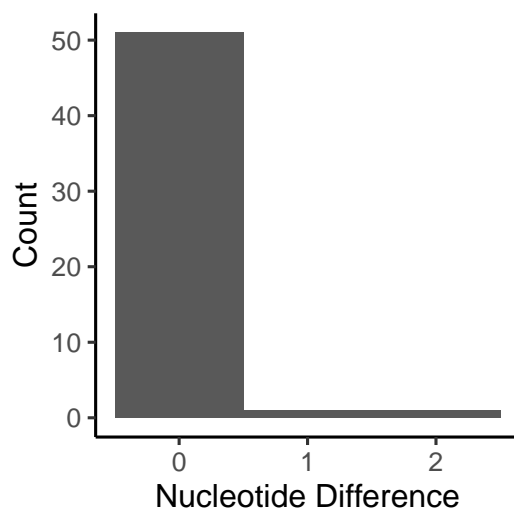
### IGHV1-3\*01

71 sequences assigned  
57 (80.3%) exact matches, in which:  
57 unique CDR3  
6 unique J



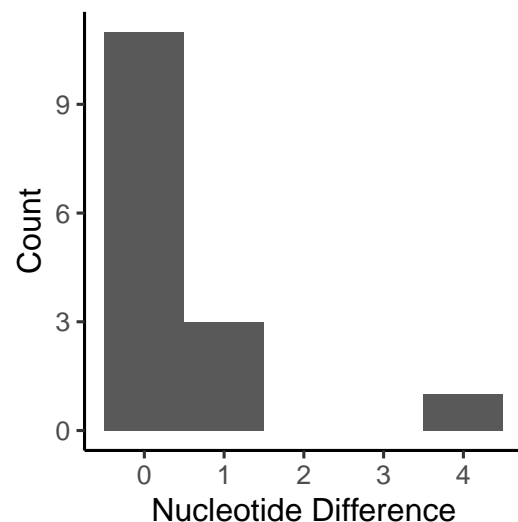
### IGHV1-24\*01

53 sequences assigned  
51 (96.2%) exact matches, in which:  
51 unique CDR3  
6 unique J



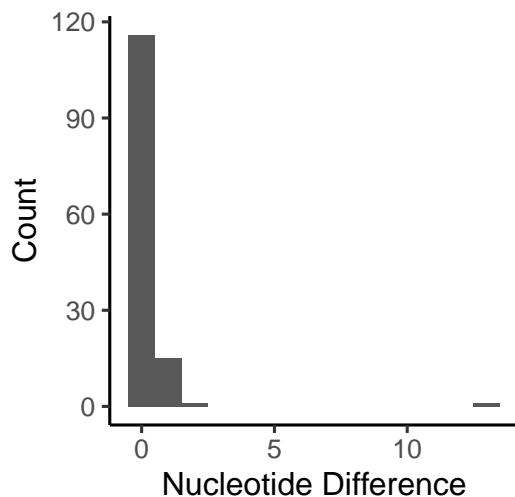
### IGHV1-58\*02

15 sequences assigned  
11 (73.3%) exact matches, in which:  
11 unique CDR3  
5 unique J



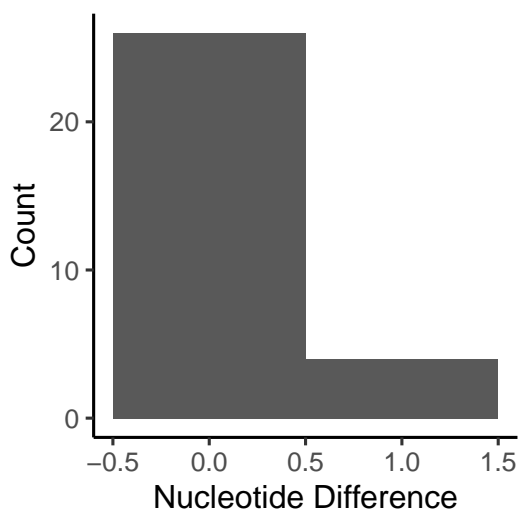
### IGHV1–69\*04

133 sequences assigned  
116 (87.2%) exact matches, in which:  
115 unique CDR3  
6 unique J



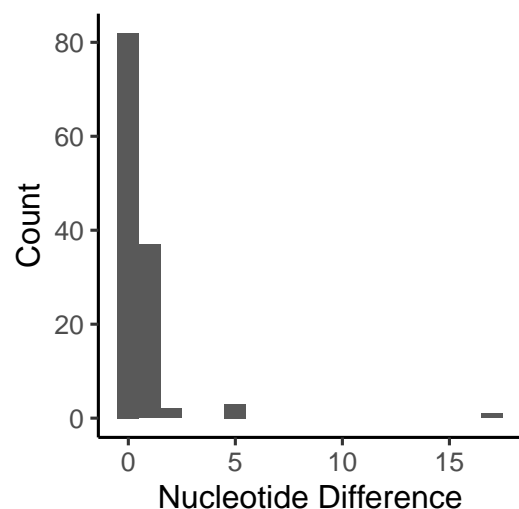
### IGHV2–5\*02

30 sequences assigned  
26 (86.7%) exact matches, in which:  
26 unique CDR3  
6 unique J



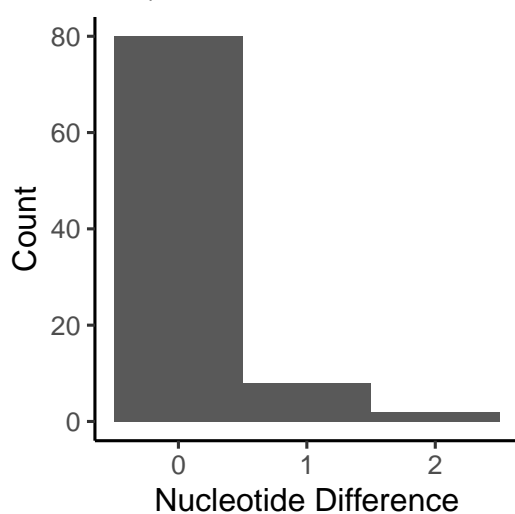
### IGHV3–7\*01

125 sequences assigned  
82 (65.6%) exact matches, in which:  
82 unique CDR3  
5 unique J



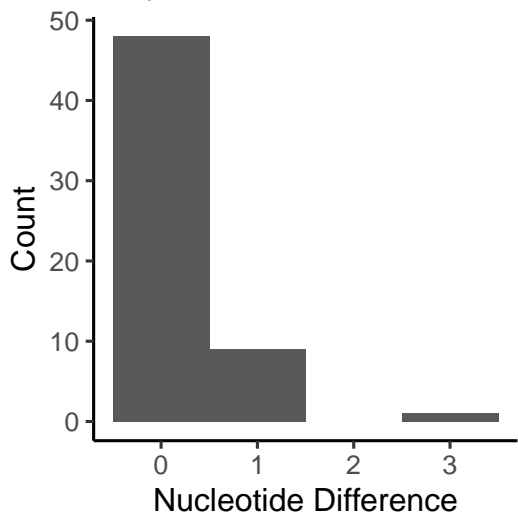
### IGHV1–69\*08\_C191T

90 sequences assigned  
80 (88.9%) exact matches, in which:  
80 unique CDR3  
5 unique J



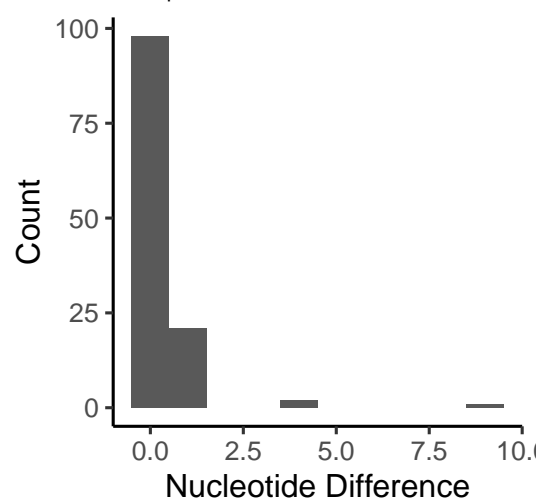
### IGHV2–26\*01

58 sequences assigned  
48 (82.8%) exact matches, in which:  
48 unique CDR3  
6 unique J



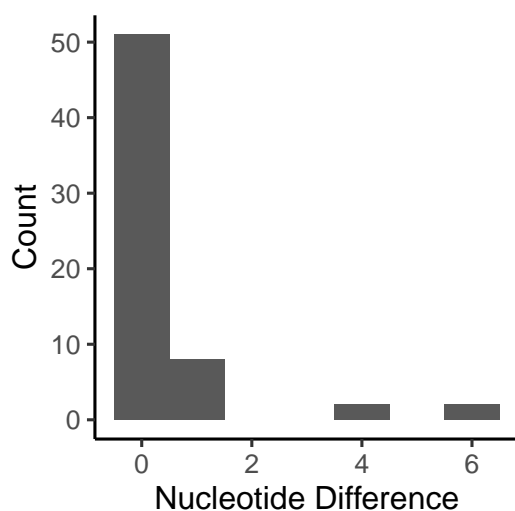
### IGHV3–7\*03

122 sequences assigned  
98 (80.3%) exact matches, in which:  
97 unique CDR3  
6 unique J



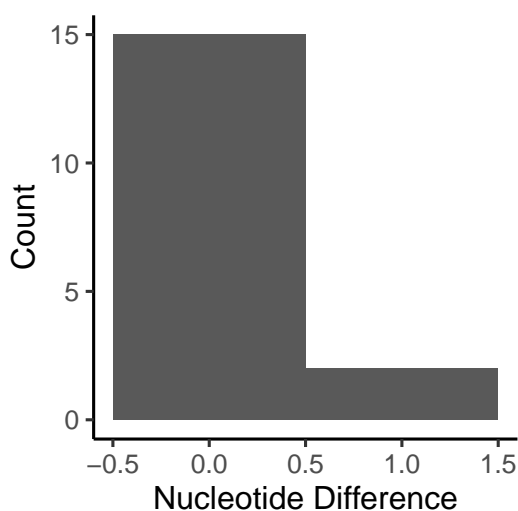
### IGHV2–5\*01

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



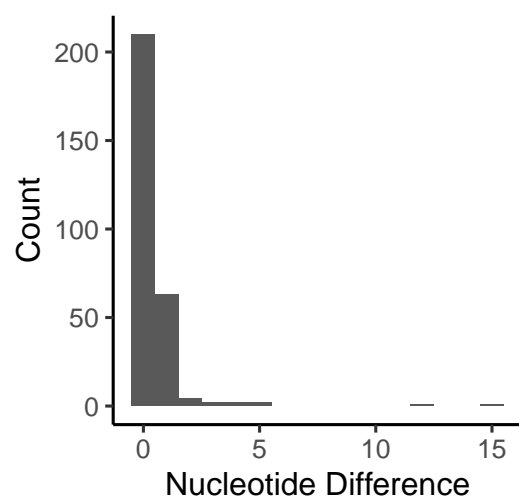
### IGHV2–70\*15

17 sequences assigned  
15 (88.2%) exact matches, in which:  
15 unique CDR3  
4 unique J



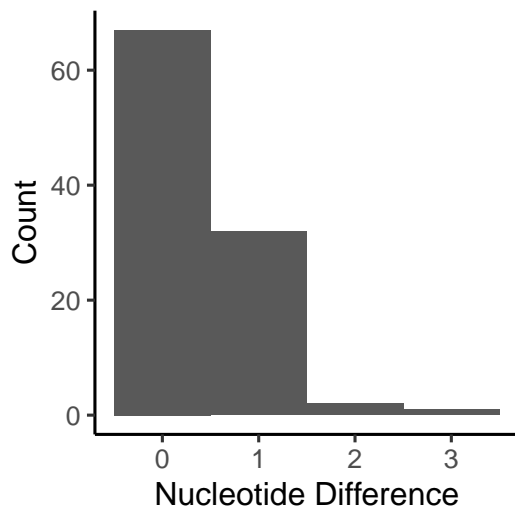
### IGHV3–9\*01

286 sequences assigned  
210 (73.4%) exact matches, in which:  
208 unique CDR3  
6 unique J



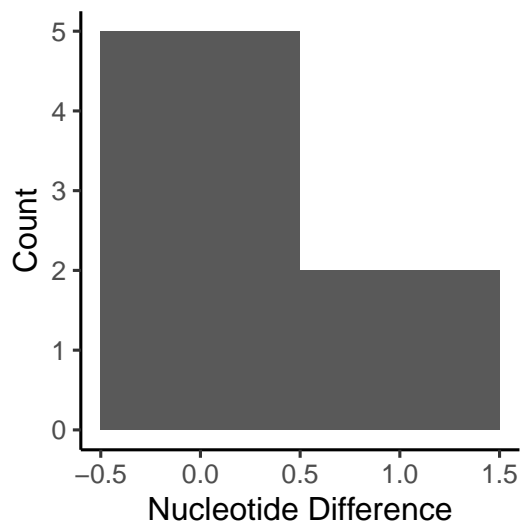
### IGHV3-11\*01

103 sequences assigned  
67 (65%) exact matches, in which:  
67 unique CDR3  
6 unique J



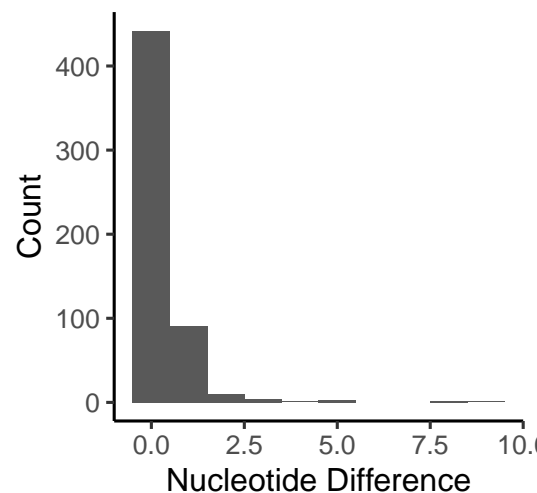
### IGHV3-13\*05

7 sequences assigned  
5 (71.4%) exact matches, in which:  
5 unique CDR3  
3 unique J



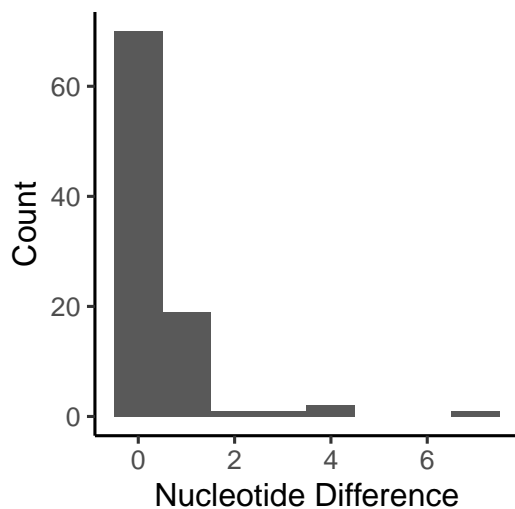
### IGHV3-21\*01

554 sequences assigned  
442 (79.8%) exact matches, in which:  
438 unique CDR3  
7 unique J



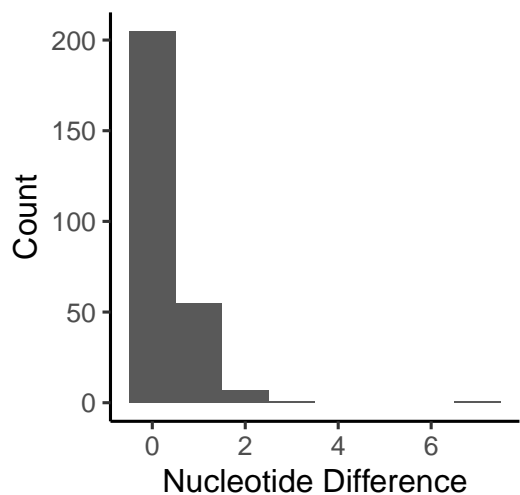
### IGHV3-11\*06

95 sequences assigned  
70 (73.7%) exact matches, in which:  
69 unique CDR3  
6 unique J



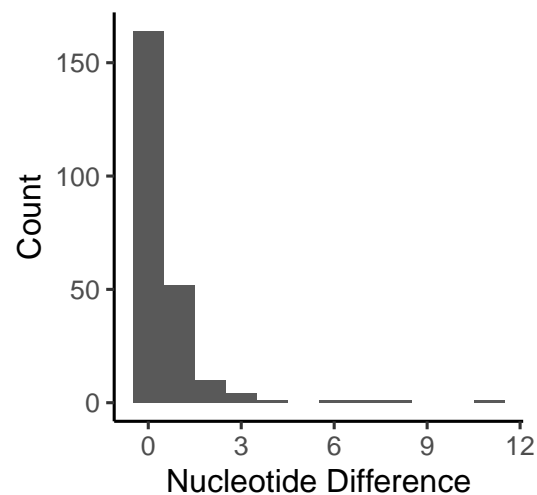
### IGHV3-15\*01

269 sequences assigned  
205 (76.2%) exact matches, in which:  
204 unique CDR3  
7 unique J



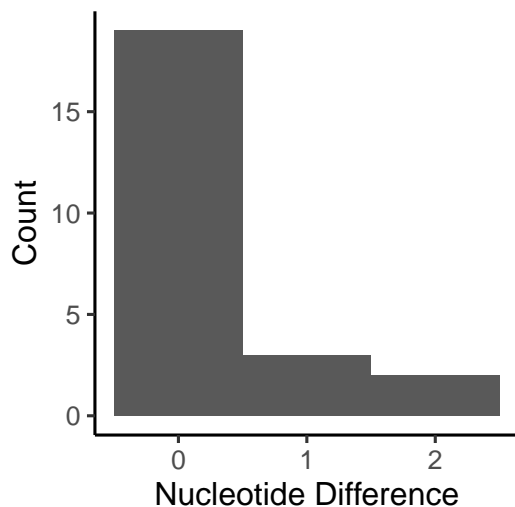
### IGHV3-30-3\*01

237 sequences assigned  
164 (69.2%) exact matches, in which:  
164 unique CDR3  
6 unique J



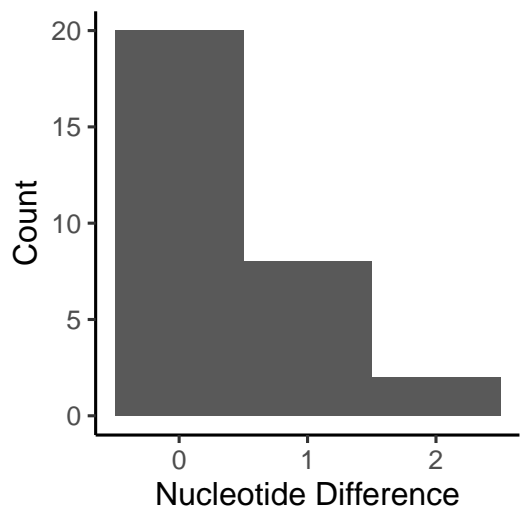
### IGHV3-13\*01

24 sequences assigned  
19 (79.2%) exact matches, in which:  
19 unique CDR3  
5 unique J



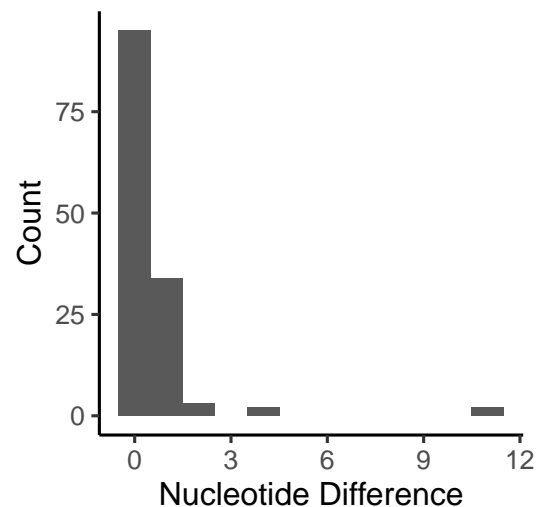
### IGHV3-20\*01

31 sequences assigned  
20 (64.5%) exact matches, in which:  
20 unique CDR3  
5 unique J



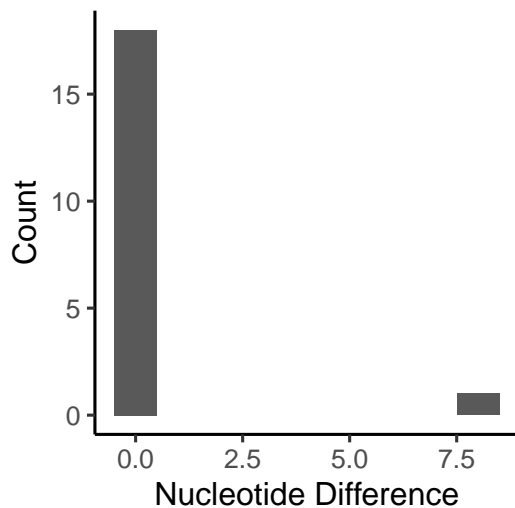
### IGHV3-33\*01

136 sequences assigned  
95 (69.9%) exact matches, in which:  
93 unique CDR3  
6 unique J



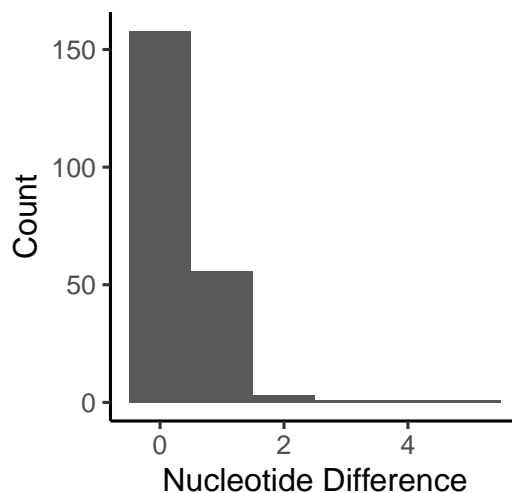
### IGHV3-43\*01

19 sequences assigned  
18 (94.7%) exact matches, in which:  
18 unique CDR3  
4 unique J



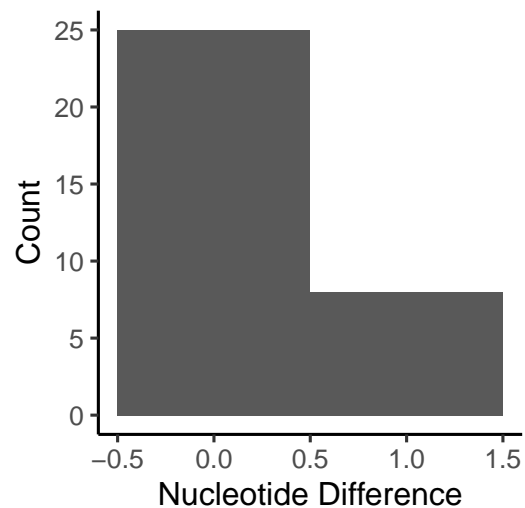
### IGHV3-48\*03

220 sequences assigned  
158 (71.8%) exact matches, in which:  
157 unique CDR3  
6 unique J



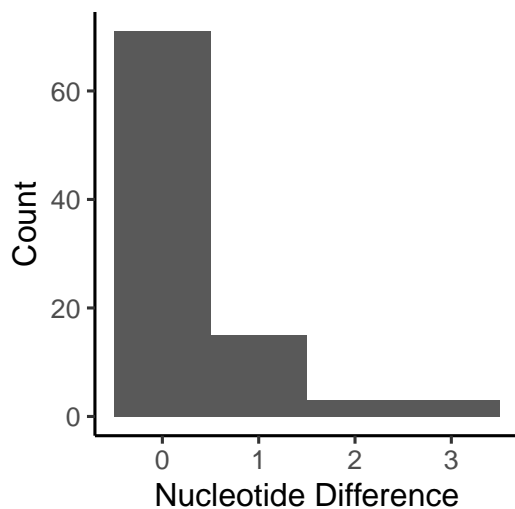
### IGHV3-53\*02

34 sequences assigned  
25 (73.5%) exact matches, in which:  
25 unique CDR3  
5 unique J



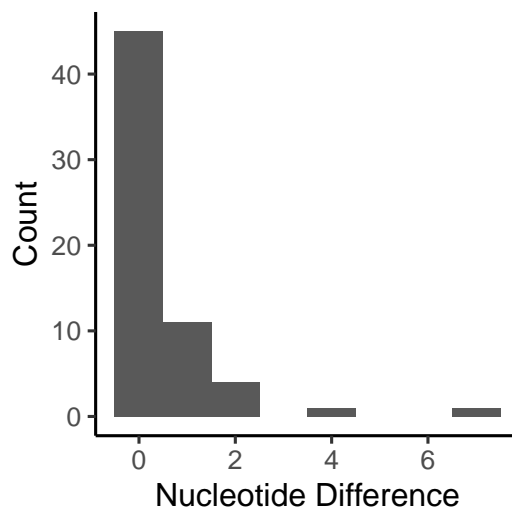
### IGHV3-43\*02

92 sequences assigned  
71 (77.2%) exact matches, in which:  
70 unique CDR3  
6 unique J



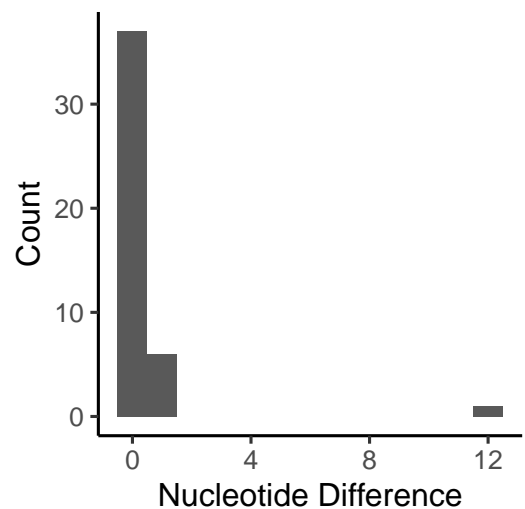
### IGHV3-49\*03

62 sequences assigned  
45 (72.6%) exact matches, in which:  
45 unique CDR3  
5 unique J



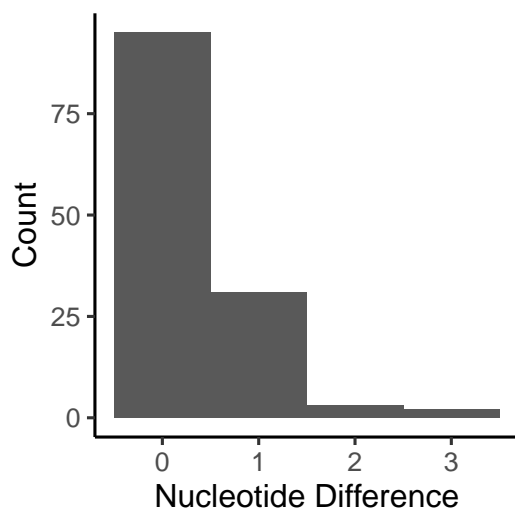
### IGHV3-53\*04

44 sequences assigned  
37 (84.1%) exact matches, in which:  
36 unique CDR3  
5 unique J



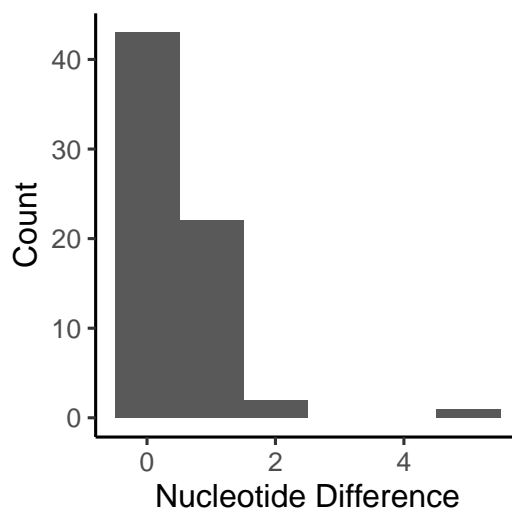
### IGHV3-48\*01

131 sequences assigned  
95 (72.5%) exact matches, in which:  
95 unique CDR3  
6 unique J



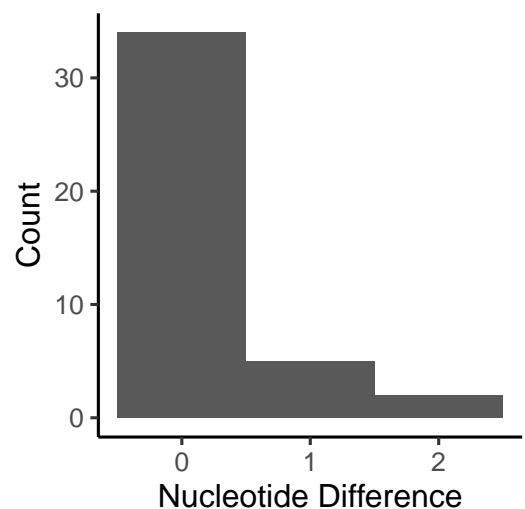
### IGHV3-49\*04

68 sequences assigned  
43 (63.2%) exact matches, in which:  
43 unique CDR3  
5 unique J



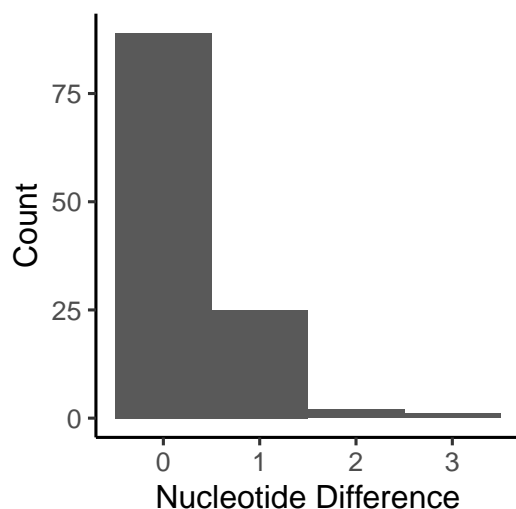
### IGHV3-64\*01

41 sequences assigned  
34 (82.9%) exact matches, in which:  
34 unique CDR3  
6 unique J



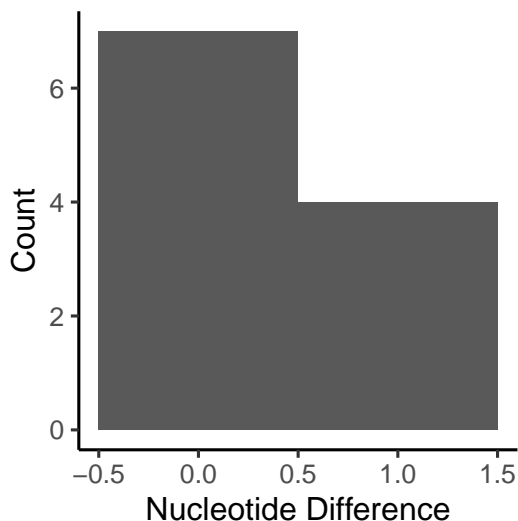
### IGHV3-66\*01

117 sequences assigned  
89 (76.1%) exact matches, in which:  
87 unique CDR3  
7 unique J



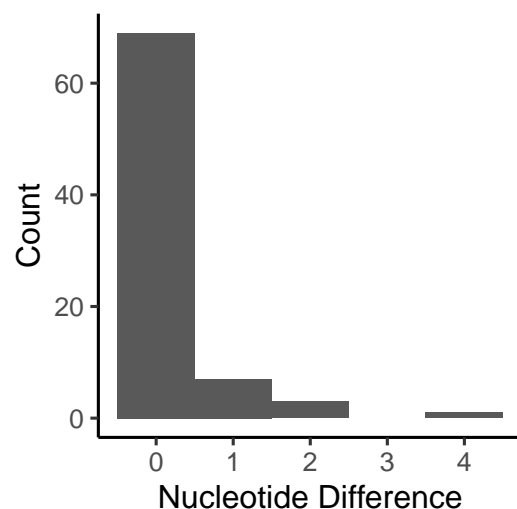
### IGHV3-72\*01

11 sequences assigned  
7 (63.6%) exact matches, in which:  
7 unique CDR3  
4 unique J



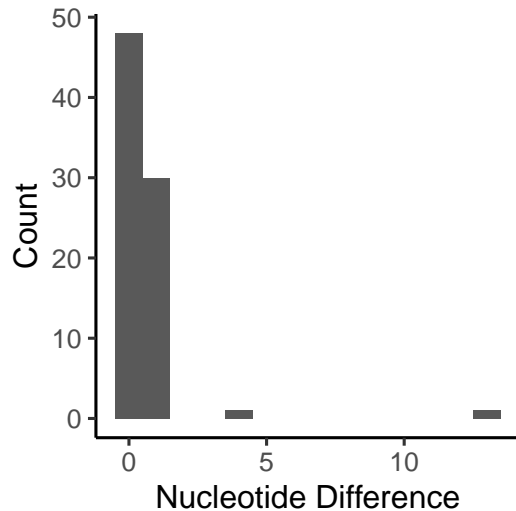
### IGHV3-64D\*06

80 sequences assigned  
69 (86.2%) exact matches, in which:  
69 unique CDR3  
6 unique J



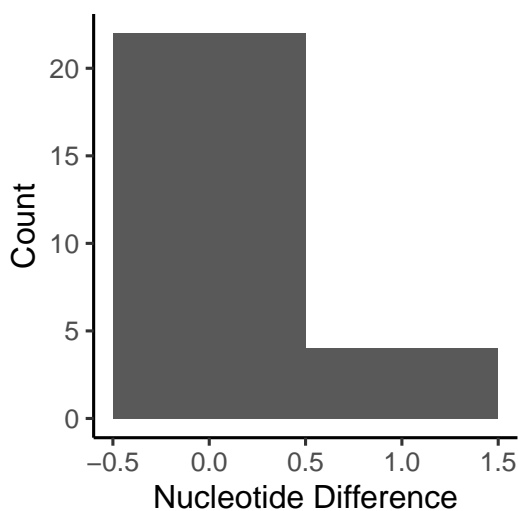
### IGHV3-66\*02

80 sequences assigned  
48 (60%) exact matches, in which:  
48 unique CDR3  
6 unique J



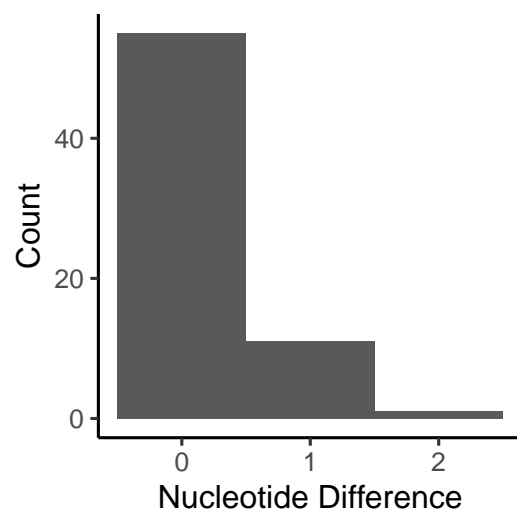
### IGHV3-73\*01

26 sequences assigned  
22 (84.6%) exact matches, in which:  
22 unique CDR3  
5 unique J



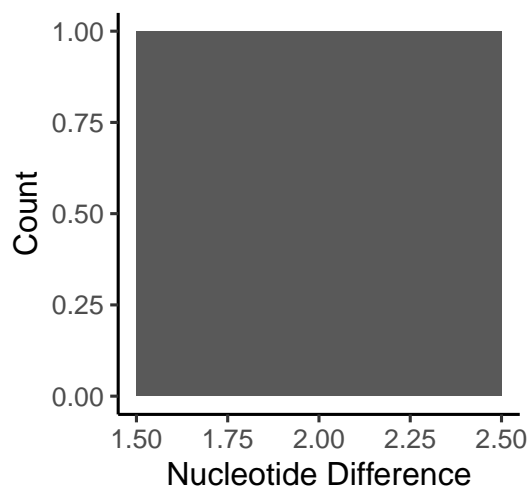
### IGHV4-4\*02

67 sequences assigned  
55 (82.1%) exact matches, in which:  
55 unique CDR3  
5 unique J



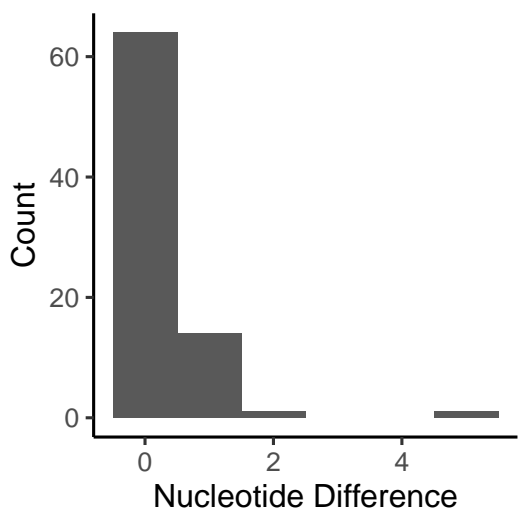
### IGHV3-71\*03

1 sequences assigned  
No exact matches.



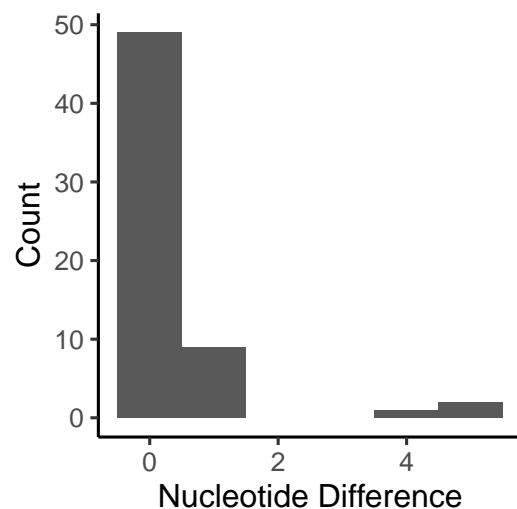
### IGHV3-74\*01

80 sequences assigned  
64 (80%) exact matches, in which:  
63 unique CDR3  
7 unique J



### IGHV4-4\*07

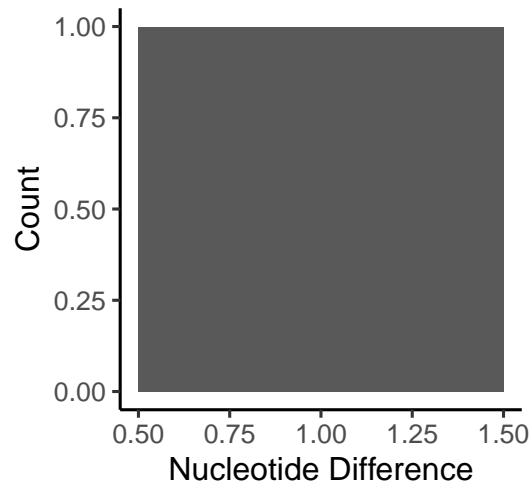
61 sequences assigned  
49 (80.3%) exact matches, in which:  
49 unique CDR3  
5 unique J





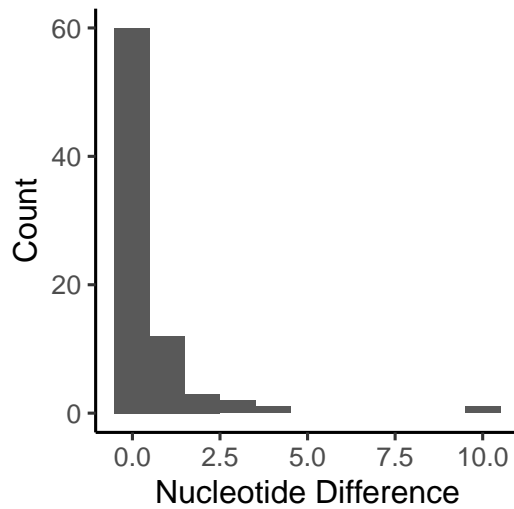
### IGHV4-28\*04

1 sequences assigned  
No exact matches.



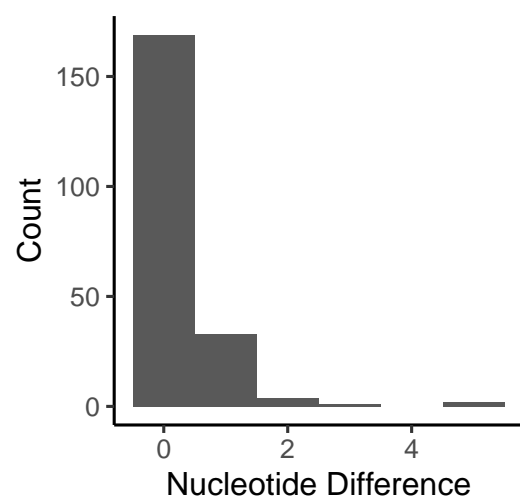
### IGHV4-31\*03

79 sequences assigned  
60 (75.9%) exact matches, in which:  
60 unique CDR3  
5 unique J



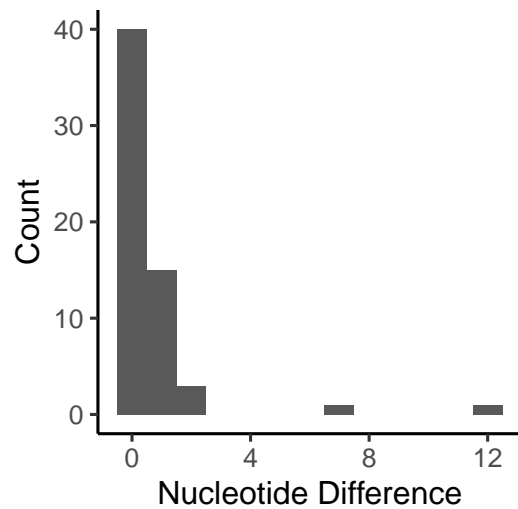
### IGHV4-39\*07

210 sequences assigned  
169 (80.5%) exact matches, in which:  
169 unique CDR3  
6 unique J



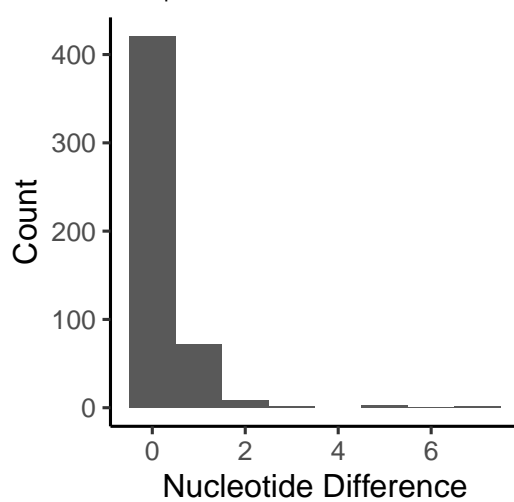
### IGHV4-30-4\*01

60 sequences assigned  
40 (66.7%) exact matches, in which:  
40 unique CDR3  
5 unique J



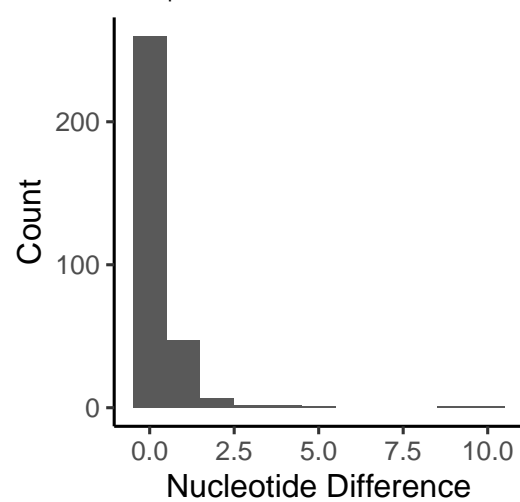
### IGHV4-34\*01

509 sequences assigned  
421 (82.7%) exact matches, in which:  
421 unique CDR3  
7 unique J



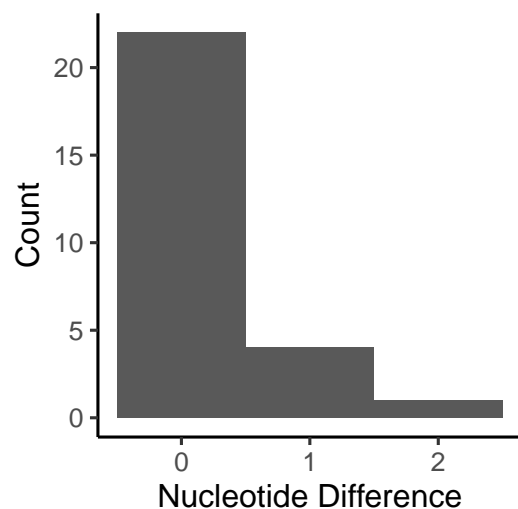
### IGHV4-59\*01

322 sequences assigned  
260 (80.7%) exact matches, in which:  
257 unique CDR3  
7 unique J



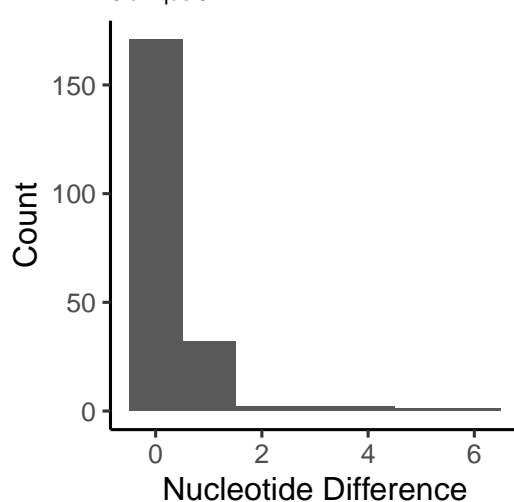
### IGHV4-30-2\*01

27 sequences assigned  
22 (81.5%) exact matches, in which:  
22 unique CDR3  
5 unique J



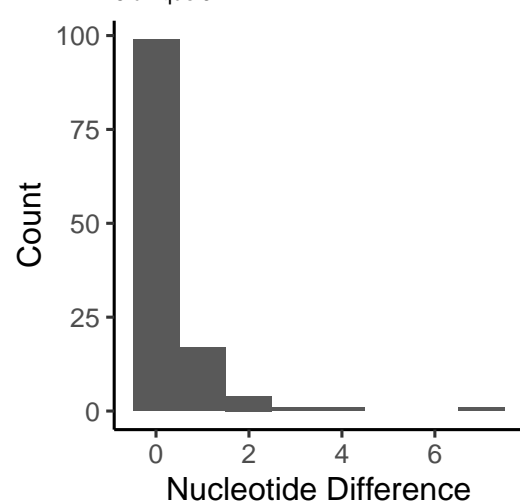
### IGHV4-39\*01

216 sequences assigned  
171 (79.2%) exact matches, in which:  
170 unique CDR3  
6 unique J



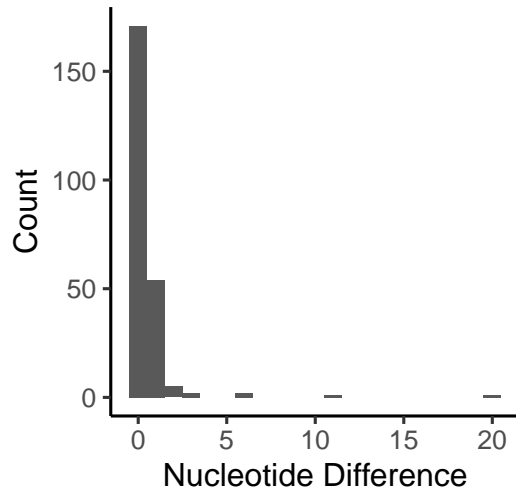
### IGHV4-59\*08

123 sequences assigned  
99 (80.5%) exact matches, in which:  
99 unique CDR3  
6 unique J



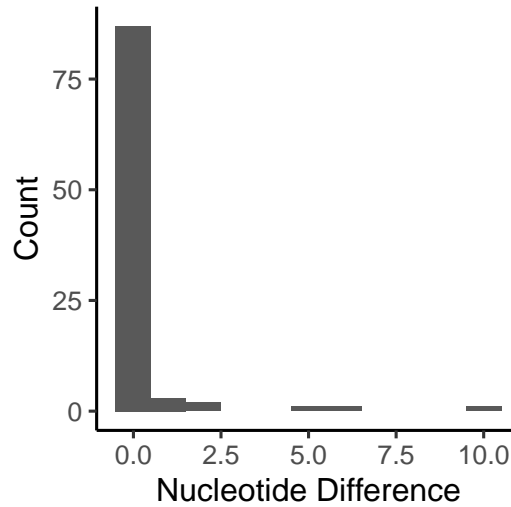
### IGHV4–61\*02

237 sequences assigned  
171 (72.2%) exact matches, in which:  
171 unique CDR3  
6 unique J



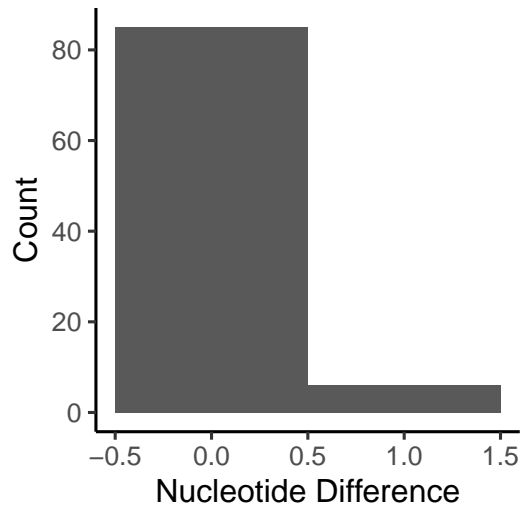
### IGHV5–51\*03

96 sequences assigned  
87 (90.6%) exact matches, in which:  
86 unique CDR3  
5 unique J



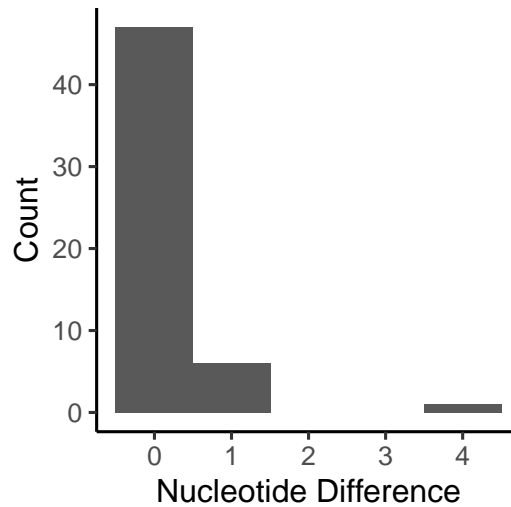
### IGHV5–10–1\*03

91 sequences assigned  
85 (93.4%) exact matches, in which:  
85 unique CDR3  
6 unique J



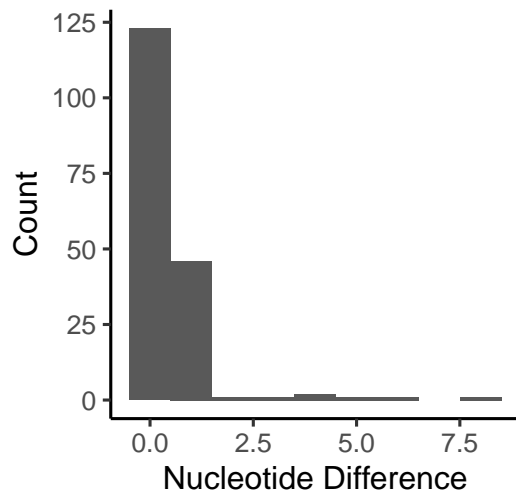
### IGHV6–1\*01

54 sequences assigned  
47 (87%) exact matches, in which:  
47 unique CDR3  
6 unique J



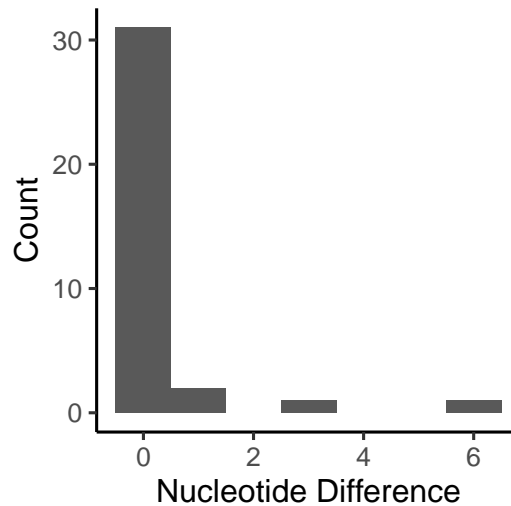
### IGHV5–51\*01

176 sequences assigned  
123 (69.9%) exact matches, in which:  
123 unique CDR3  
7 unique J

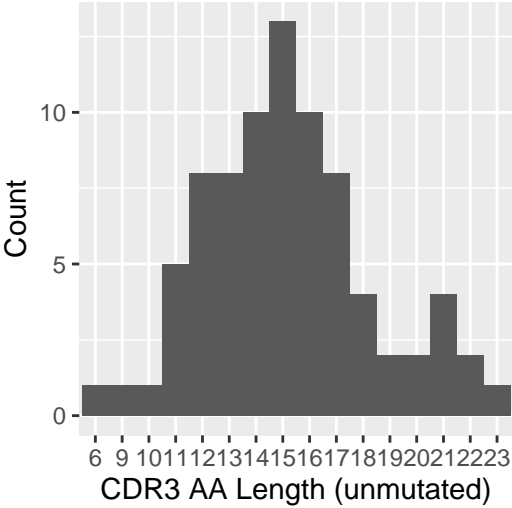


### IGHV7–4–1\*02

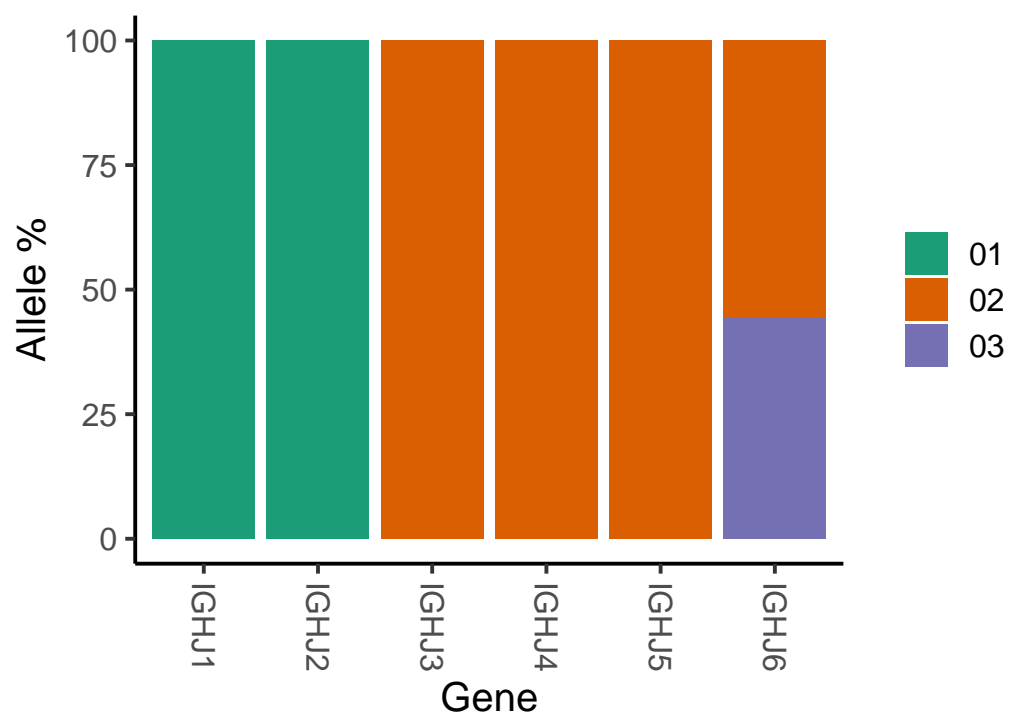
35 sequences assigned  
31 (88.6%) exact matches, in which:  
30 unique CDR3  
5 unique J



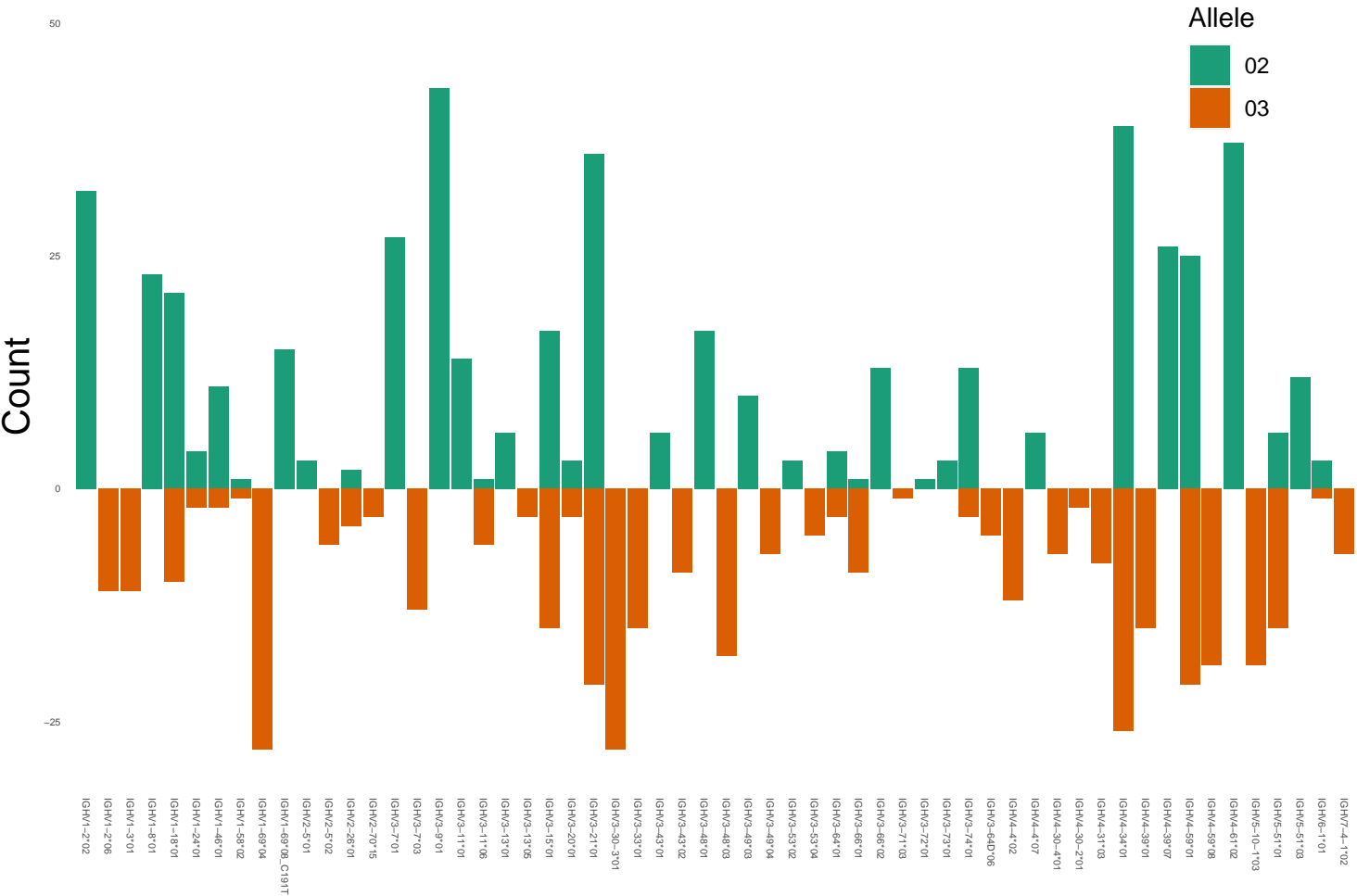
IGHV1-69\*08\_C191T



Allele Usage



Sequence Count by IGHJ6 allele usage



[illegible]