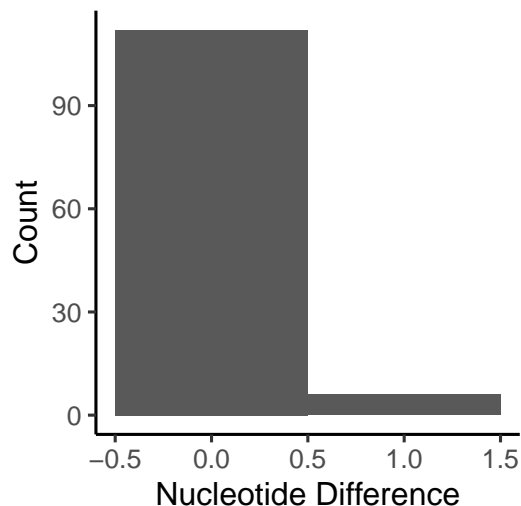


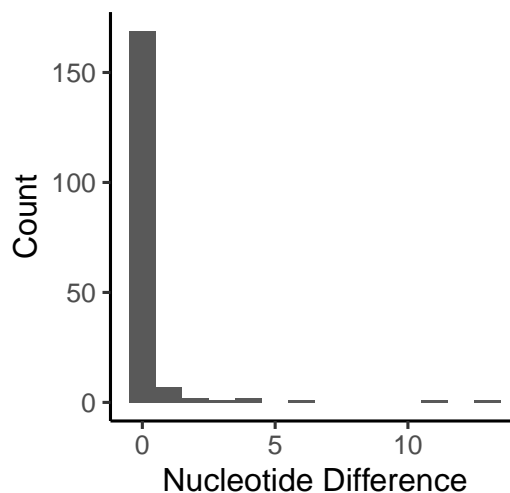
### IGHV1-2\*04

118 sequences assigned  
112 (94.9%) exact matches, in which:  
112 unique CDR3  
6 unique J



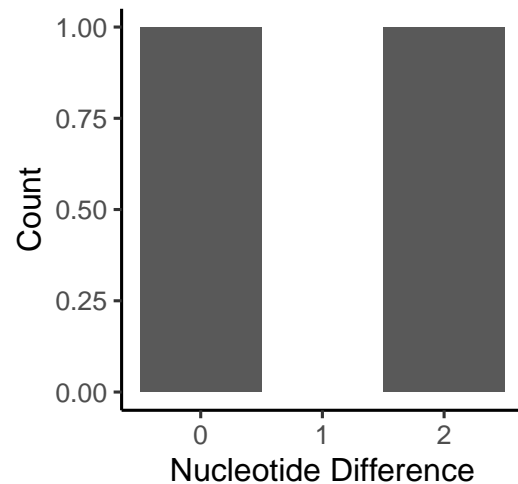
### IGHV1-18\*01

184 sequences assigned  
169 (91.8%) exact matches, in which:  
169 unique CDR3  
6 unique J



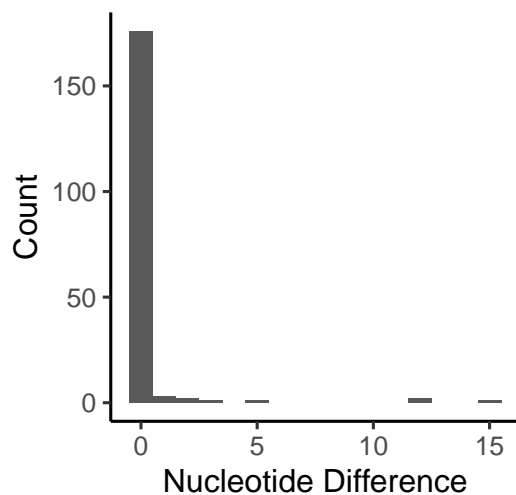
### IGHV1-45\*02

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



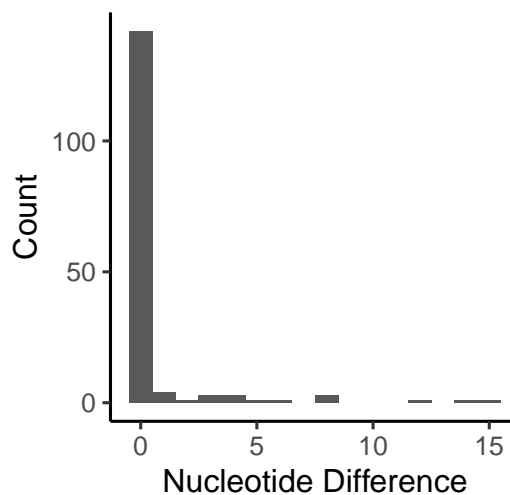
### IGHV1-3\*01

187 sequences assigned  
176 (94.1%) exact matches, in which:  
176 unique CDR3  
7 unique J



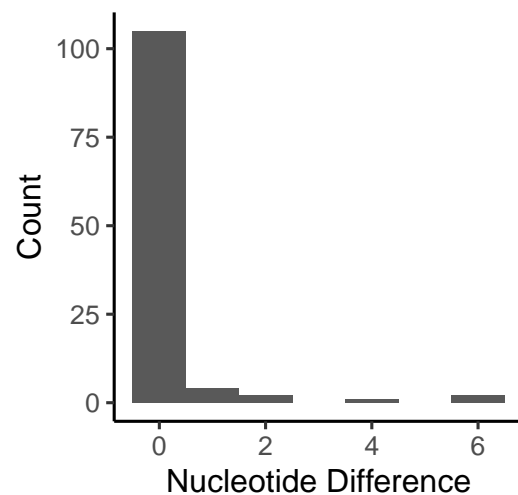
### IGHV1-18\*04

162 sequences assigned  
142 (87.7%) exact matches, in which:  
142 unique CDR3  
7 unique J



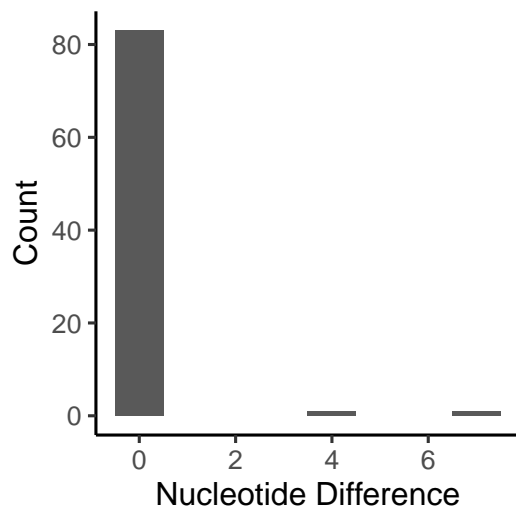
### IGHV1-46\*01

115 sequences assigned  
105 (91.3%) exact matches, in which:  
105 unique CDR3  
7 unique J



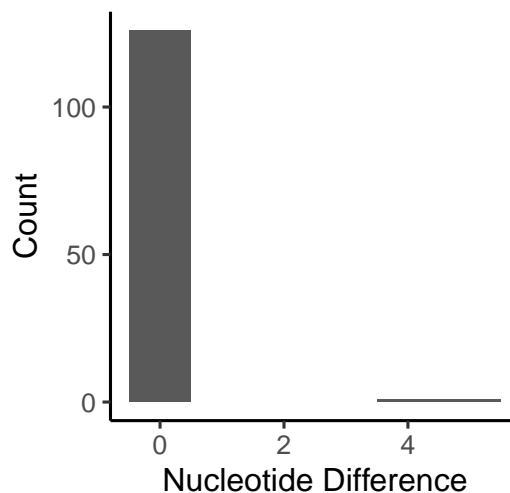
### IGHV1-8\*01

85 sequences assigned  
83 (97.6%) exact matches, in which:  
83 unique CDR3  
5 unique J



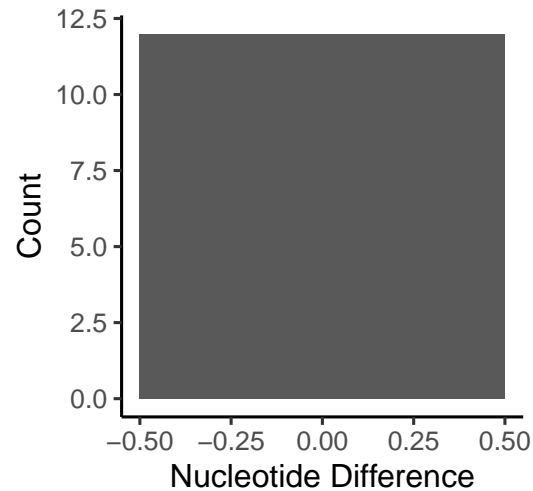
### IGHV1-24\*01

128 sequences assigned  
126 (98.4%) exact matches, in which:  
126 unique CDR3  
7 unique J



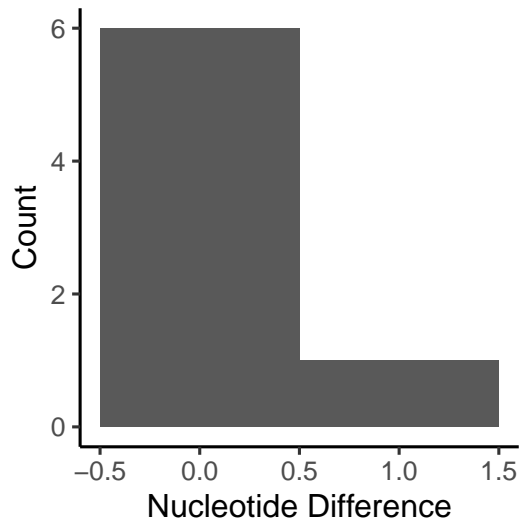
### IGHV1-58\*01

12 sequences assigned  
12 (100%) exact matches, in which:  
12 unique CDR3  
6 unique J



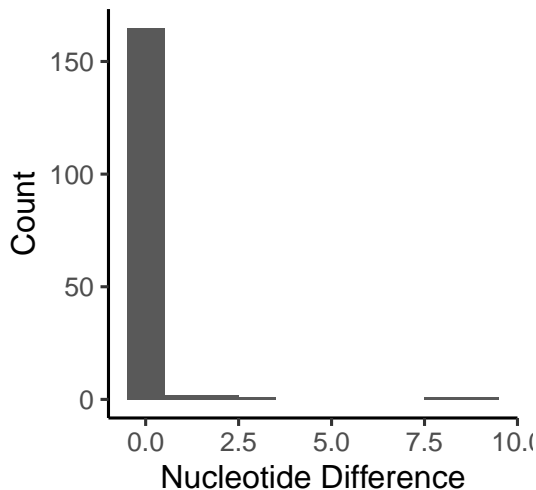
### IGHV1–58\*02

7 sequences assigned  
6 (85.7%) exact matches, in which:  
6 unique CDR3  
4 unique J



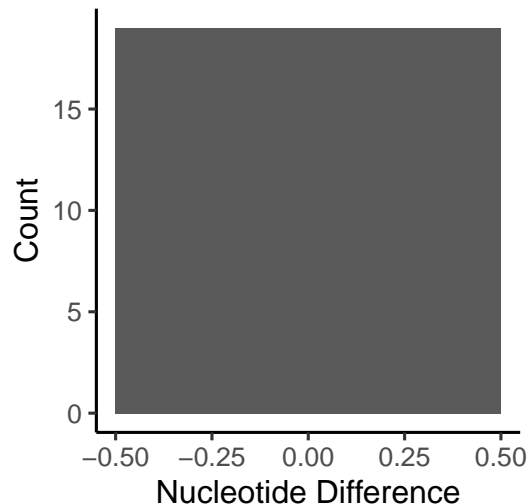
### IGHV1–69\*17

172 sequences assigned  
165 (95.9%) exact matches, in which:  
165 unique CDR3  
7 unique J



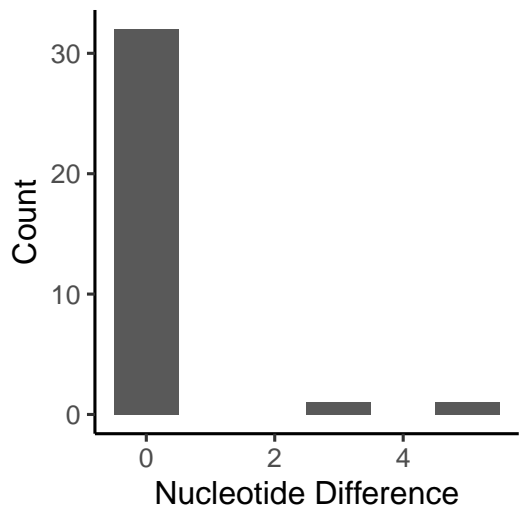
### IGHV2–70\*01

19 sequences assigned  
19 (100%) exact matches, in which:  
19 unique CDR3  
4 unique J



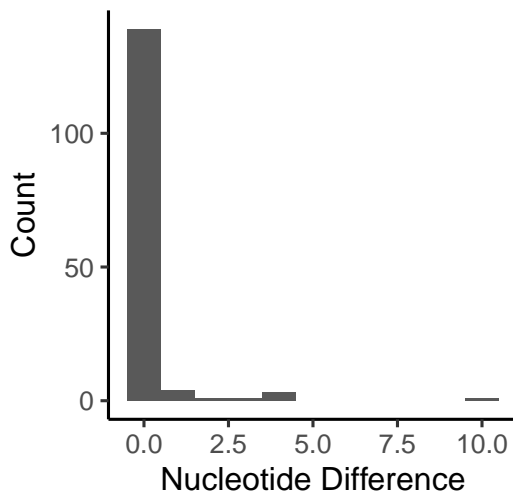
### IGHV1–69–2\*01

34 sequences assigned  
32 (94.1%) exact matches, in which:  
32 unique CDR3  
4 unique J



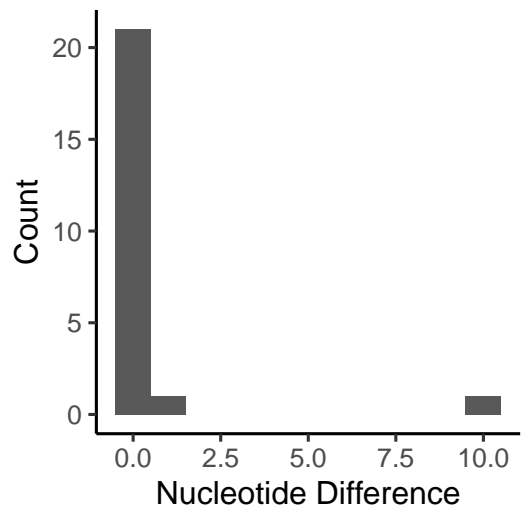
### IGHV2–5\*02

149 sequences assigned  
139 (93.3%) exact matches, in which:  
139 unique CDR3  
7 unique J



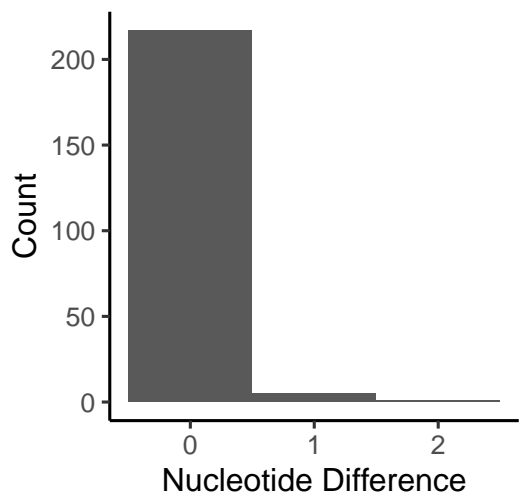
### IGHV2–70\*15

23 sequences assigned  
21 (91.3%) exact matches, in which:  
21 unique CDR3  
4 unique J



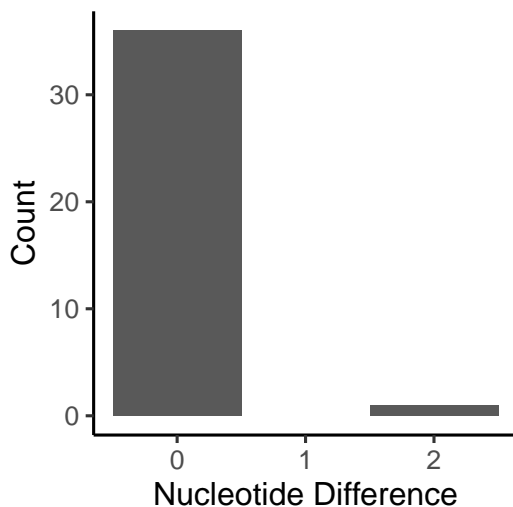
### IGHV1–69\*04

223 sequences assigned  
217 (97.3%) exact matches, in which:  
217 unique CDR3  
6 unique J



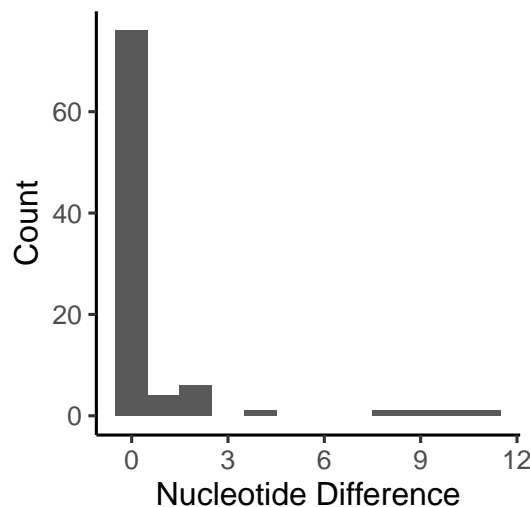
### IGHV2–26\*01

37 sequences assigned  
36 (97.3%) exact matches, in which:  
36 unique CDR3  
7 unique J



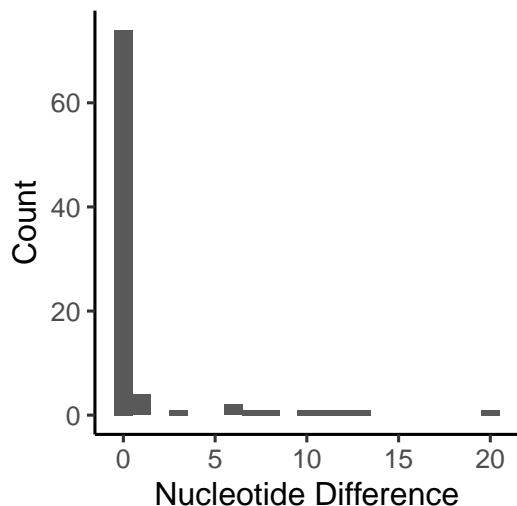
### IGHV3–7\*01

91 sequences assigned  
76 (83.5%) exact matches, in which:  
76 unique CDR3  
4 unique J



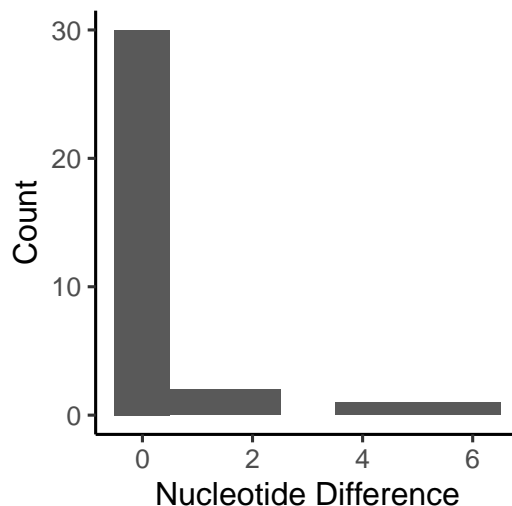
### IGHV3-7\*03

88 sequences assigned  
74 (84.1%) exact matches, in which:  
74 unique CDR3  
6 unique J



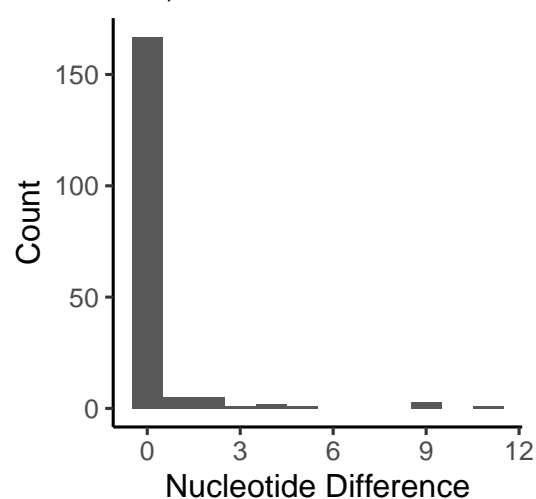
### IGHV3-11\*06

37 sequences assigned  
30 (81.1%) exact matches, in which:  
30 unique CDR3  
5 unique J



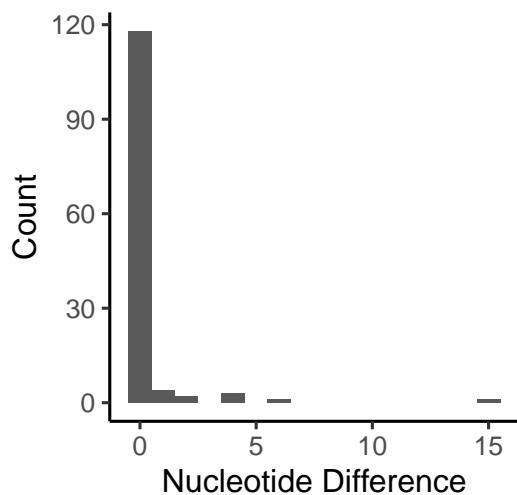
### IGHV3-15\*01

185 sequences assigned  
167 (90.3%) exact matches, in which:  
167 unique CDR3  
6 unique J



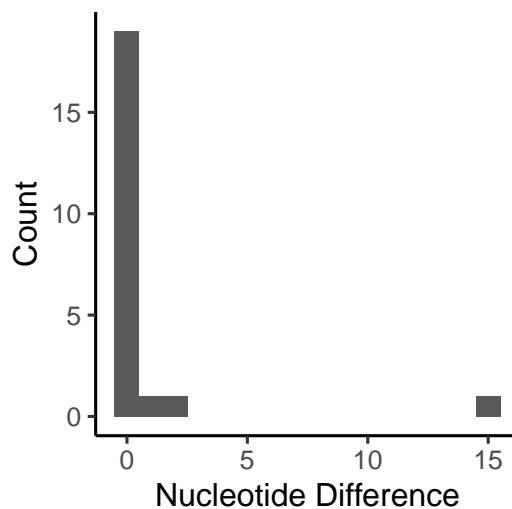
### IGHV3-9\*01

129 sequences assigned  
118 (91.5%) exact matches, in which:  
118 unique CDR3  
6 unique J



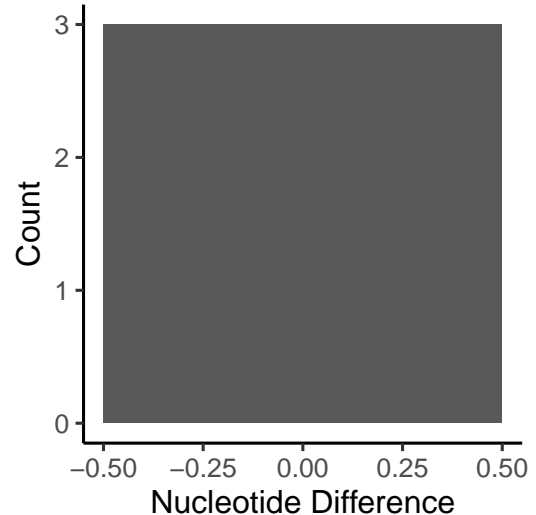
### IGHV3-13\*01

22 sequences assigned  
19 (86.4%) exact matches, in which:  
19 unique CDR3  
4 unique J



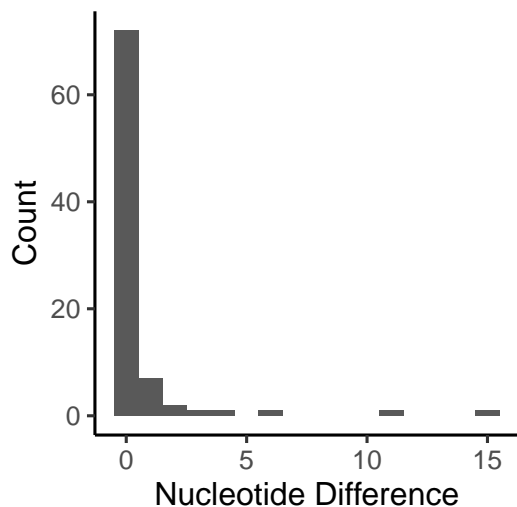
### IGHV3-20\*01

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



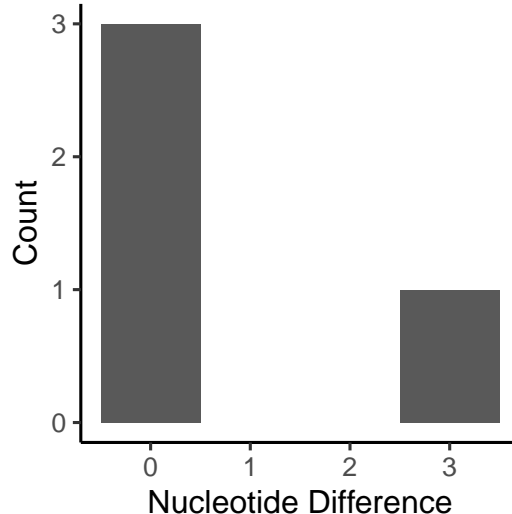
### IGHV3-11\*01

86 sequences assigned  
72 (83.7%) exact matches, in which:  
72 unique CDR3  
5 unique J



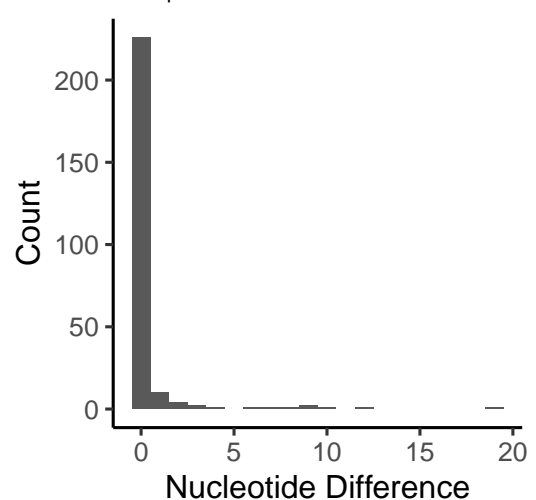
### IGHV3-13\*05

4 sequences assigned  
3 (75%) exact matches, in which:  
3 unique CDR3  
2 unique J



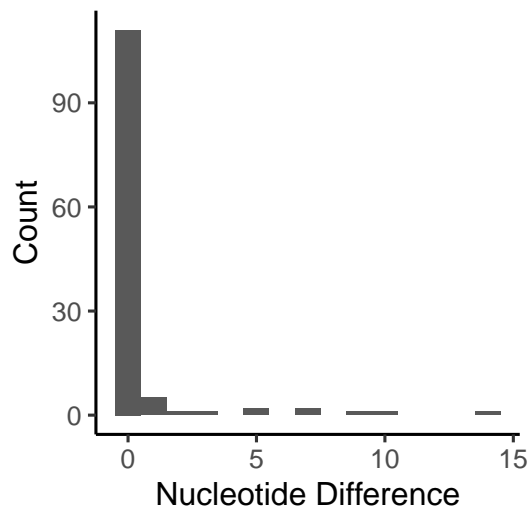
### IGHV3-21\*01

251 sequences assigned  
226 (90%) exact matches, in which:  
226 unique CDR3  
6 unique J



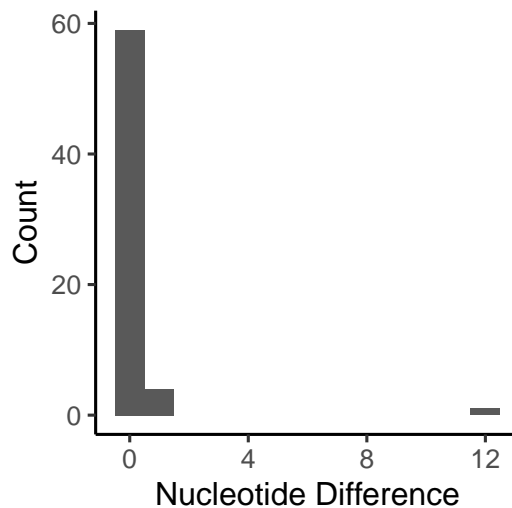
### IGHV3-23\*04

125 sequences assigned  
111 (88.8%) exact matches, in which:  
111 unique CDR3  
5 unique J



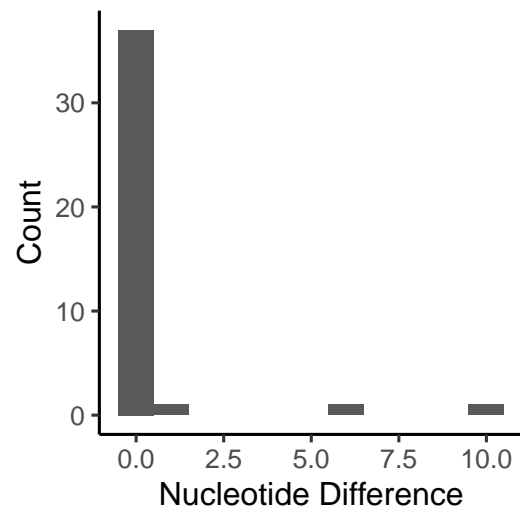
### IGHV3-48\*02

64 sequences assigned  
59 (92.2%) exact matches, in which:  
59 unique CDR3  
5 unique J



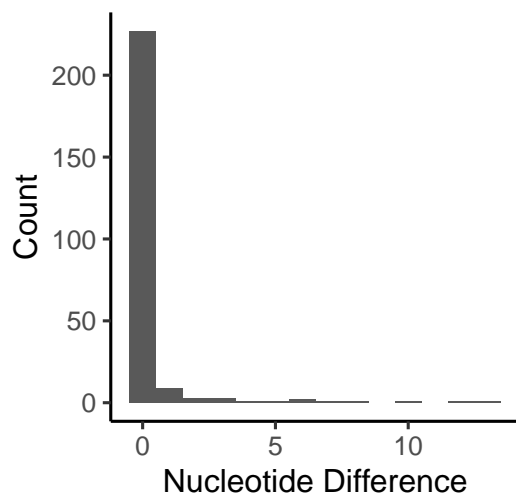
### IGHV3-49\*05

40 sequences assigned  
37 (92.5%) exact matches, in which:  
37 unique CDR3  
6 unique J



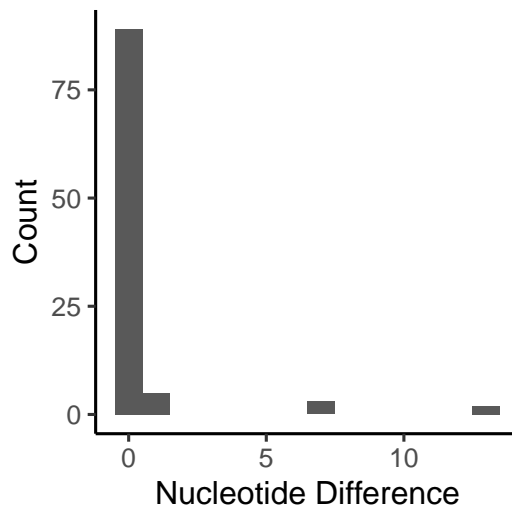
### IGHV3-33\*01

252 sequences assigned  
227 (90.1%) exact matches, in which:  
227 unique CDR3  
7 unique J



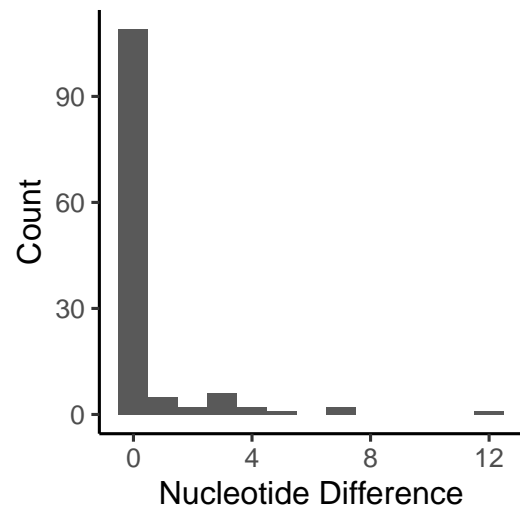
### IGHV3-48\*04

101 sequences assigned  
89 (88.1%) exact matches, in which:  
89 unique CDR3  
5 unique J



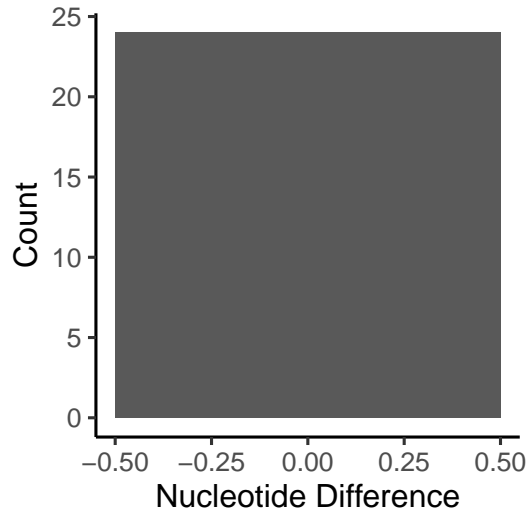
### IGHV3-53\*01

130 sequences assigned  
109 (83.8%) exact matches, in which:  
109 unique CDR3  
7 unique J



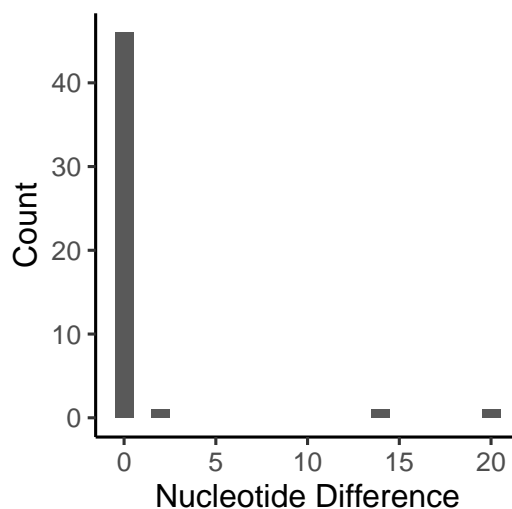
### IGHV3-43\*01

24 sequences assigned  
24 (100%) exact matches, in which:  
24 unique CDR3  
4 unique J



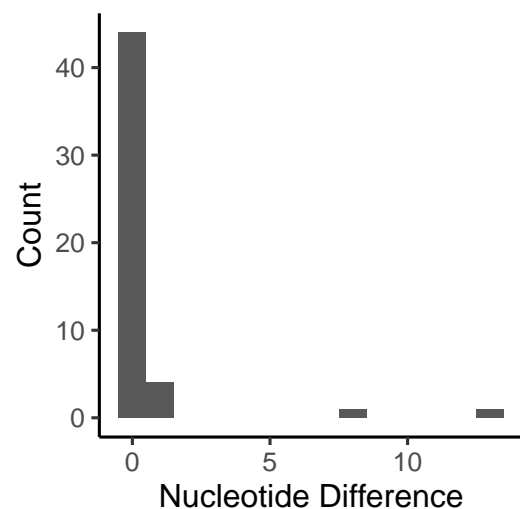
### IGHV3-49\*03

49 sequences assigned  
46 (93.9%) exact matches, in which:  
46 unique CDR3  
5 unique J



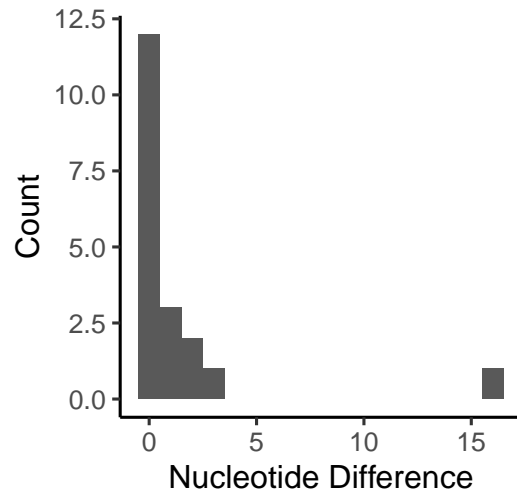
### IGHV3-53\*04

50 sequences assigned  
44 (88%) exact matches, in which:  
44 unique CDR3  
5 unique J



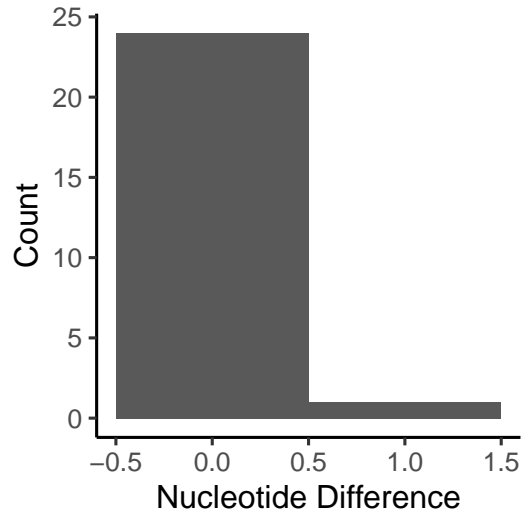
### IGHV3-64\*01

19 sequences assigned  
12 (63.2%) exact matches, in which:  
12 unique CDR3  
4 unique J



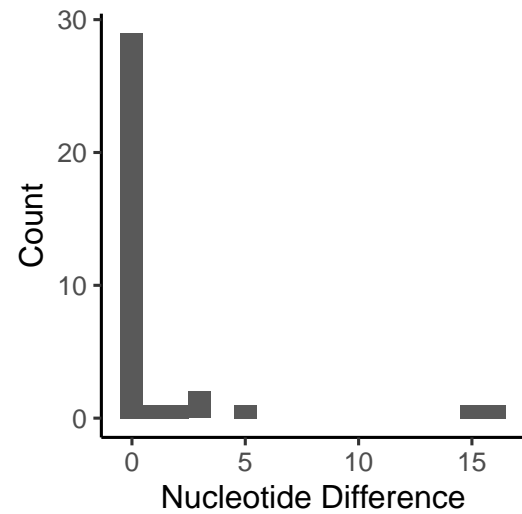
### IGHV3-73\*01

25 sequences assigned  
24 (96%) exact matches, in which:  
24 unique CDR3  
4 unique J



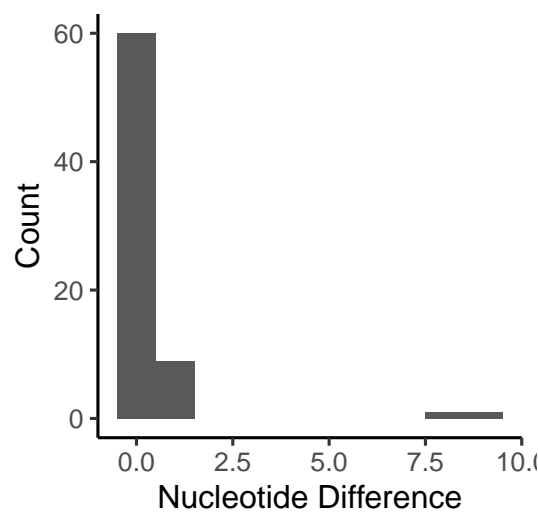
### IGHV3-64D\*06

37 sequences assigned  
29 (78.4%) exact matches, in which:  
29 unique CDR3  
3 unique J



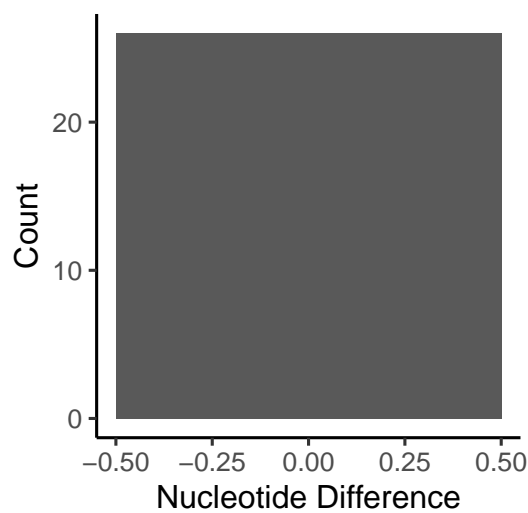
### IGHV3-66\*01

71 sequences assigned  
60 (84.5%) exact matches, in which:  
60 unique CDR3  
6 unique J



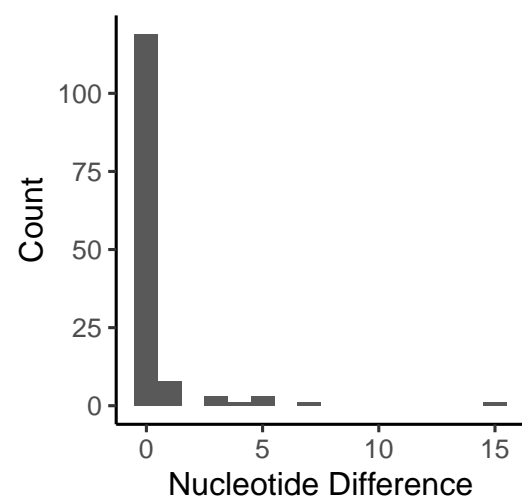
### IGHV3-73\*02

26 sequences assigned  
26 (100%) exact matches, in which:  
26 unique CDR3  
5 unique J



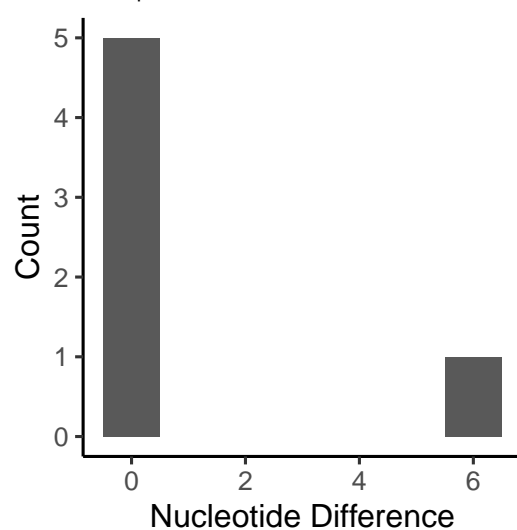
### IGHV4-4\*02

136 sequences assigned  
119 (87.5%) exact matches, in which:  
119 unique CDR3  
6 unique J



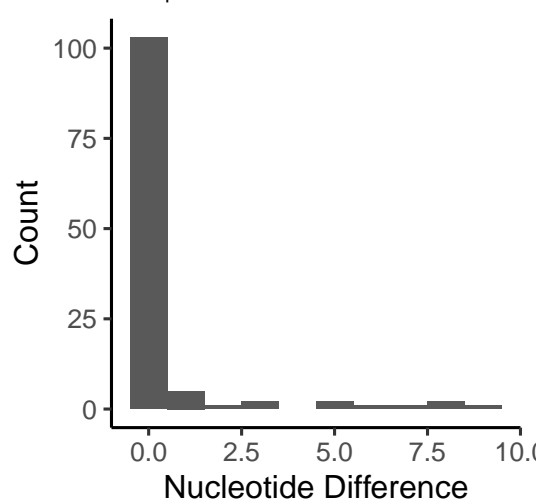
### IGHV3-72\*01

6 sequences assigned  
5 (83.3%) exact matches, in which:  
5 unique CDR3  
3 unique J



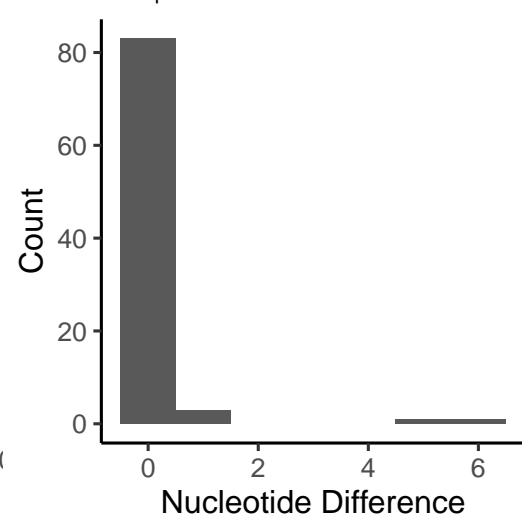
### IGHV3-74\*01

118 sequences assigned  
103 (87.3%) exact matches, in which:  
103 unique CDR3  
7 unique J



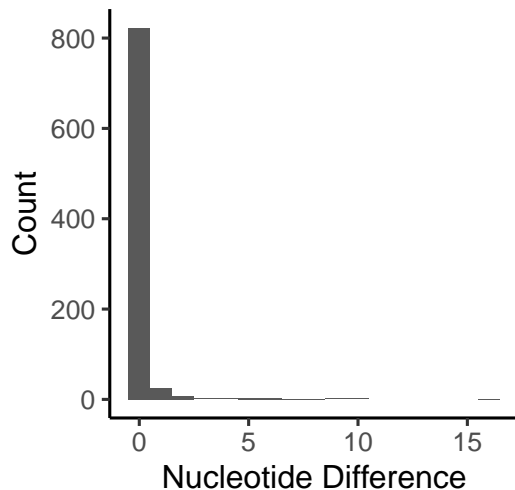
### IGHV4-30-2\*01

88 sequences assigned  
83 (94.3%) exact matches, in which:  
83 unique CDR3  
7 unique J



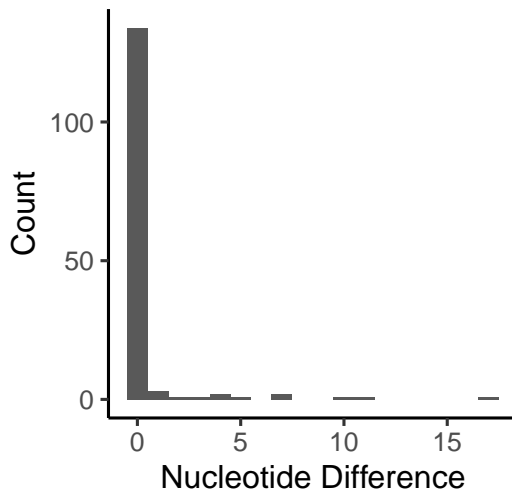
### IGHV4-34\*01

875 sequences assigned  
823 (94.1%) exact matches, in which:  
822 unique CDR3  
7 unique J



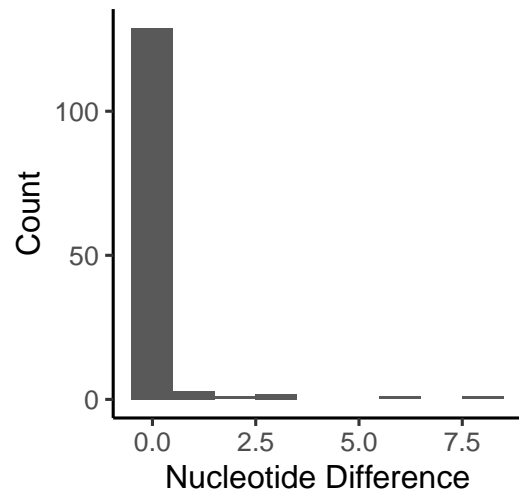
### IGHV4-59\*01

149 sequences assigned  
134 (89.9%) exact matches, in which:  
134 unique CDR3  
7 unique J



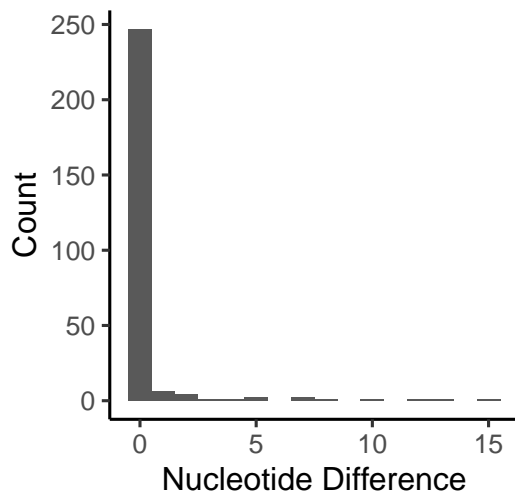
### IGHV5-10-1\*03

137 sequences assigned  
129 (94.2%) exact matches, in which:  
129 unique CDR3  
6 unique J



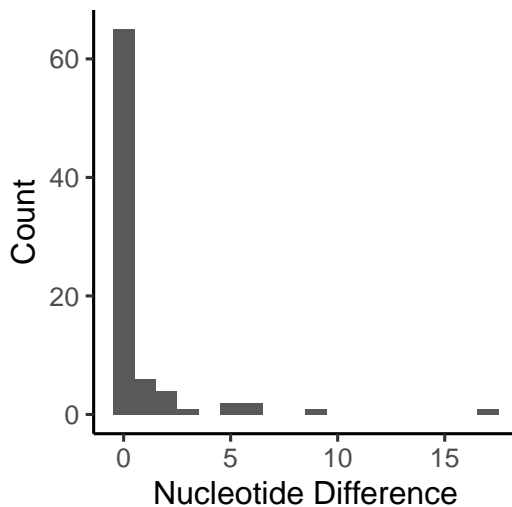
### IGHV4-39\*01

268 sequences assigned  
247 (92.2%) exact matches, in which:  
247 unique CDR3  
7 unique J



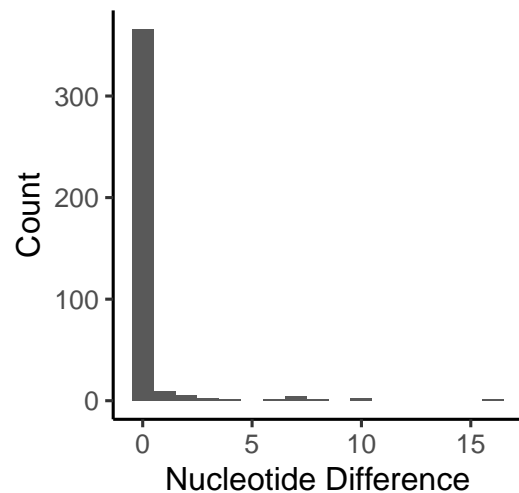
### IGHV4-59\*08

82 sequences assigned  
65 (79.3%) exact matches, in which:  
65 unique CDR3  
6 unique J



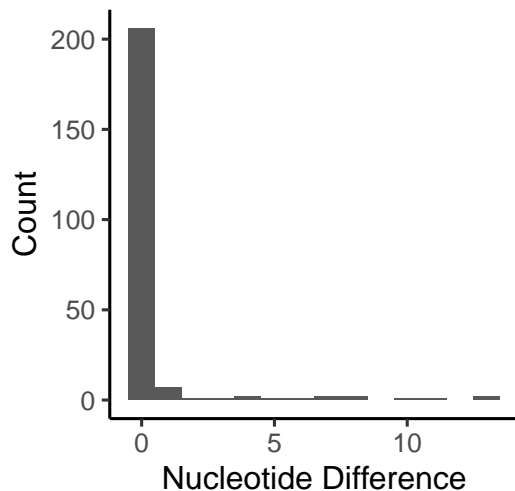
### IGHV5-51\*01

392 sequences assigned  
366 (93.4%) exact matches, in which:  
366 unique CDR3  
7 unique J



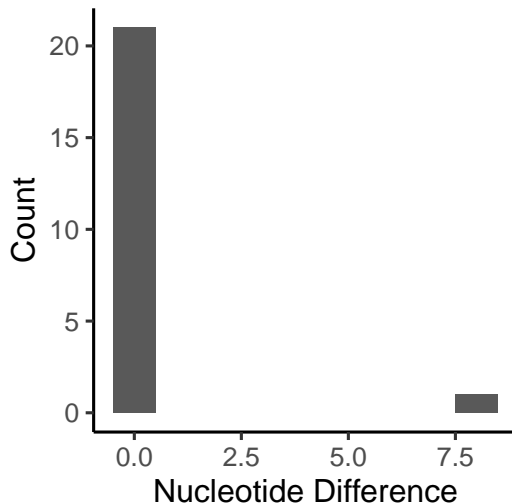
### IGHV4-39\*07

227 sequences assigned  
206 (90.7%) exact matches, in which:  
206 unique CDR3  
7 unique J



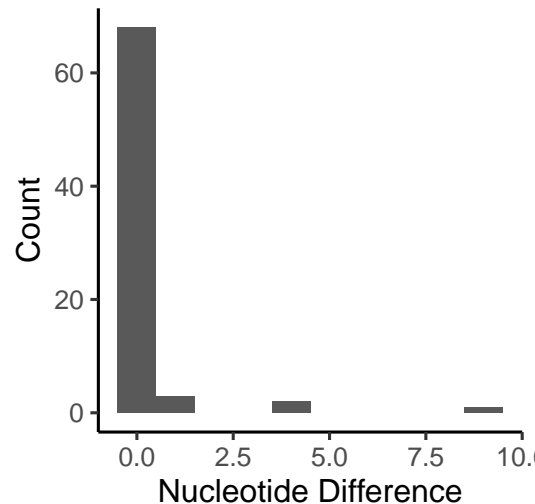
### IGHV4-61\*01

22 sequences assigned  
21 (95.5%) exact matches, in which:  
21 unique CDR3  
5 unique J



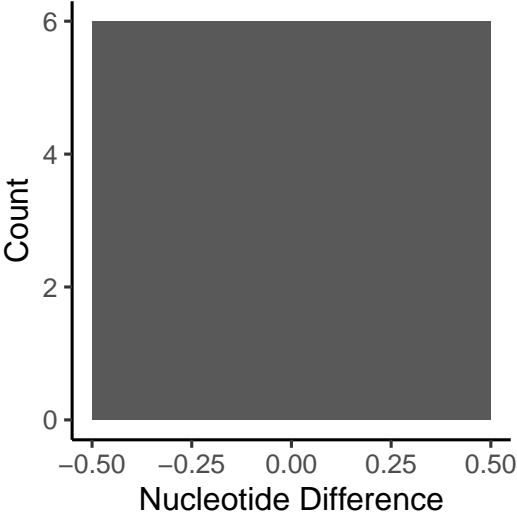
### IGHV6-1\*01

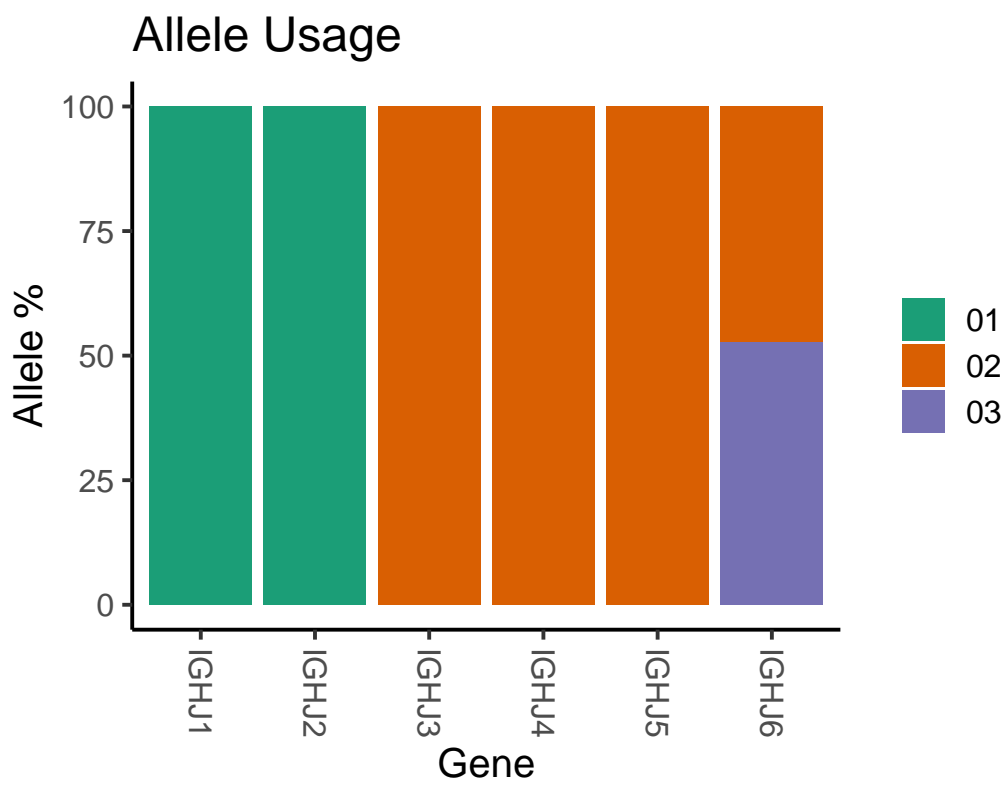
74 sequences assigned  
68 (91.9%) exact matches, in which:  
68 unique CDR3  
6 unique J



# IGHV7-4-1\*01

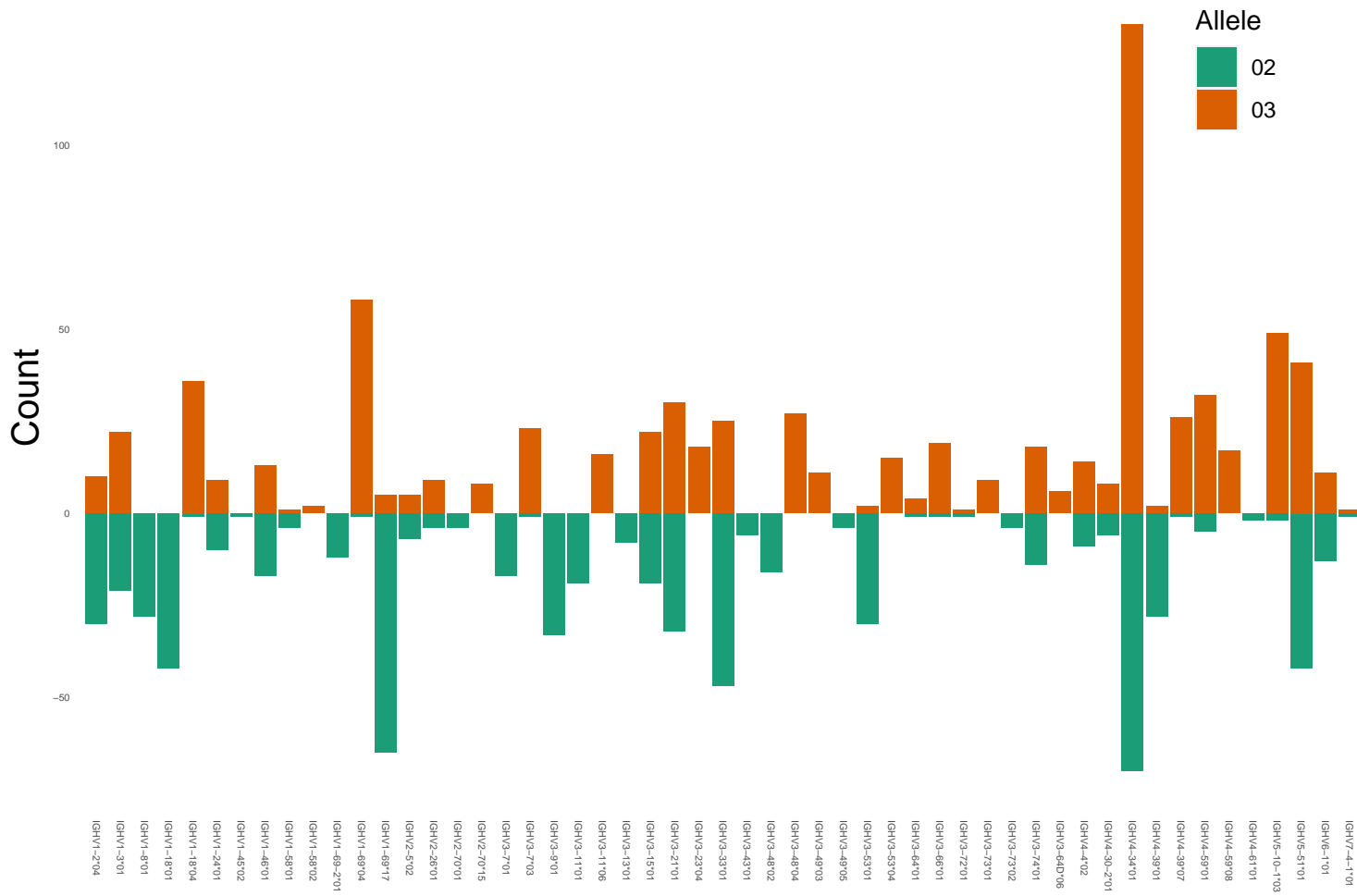
6 sequences assigned  
6 (100%) exact matches, in which:  
6 unique CDR3  
4 unique J







Sequence Count by IGHJ6 allele usage



[illegible]