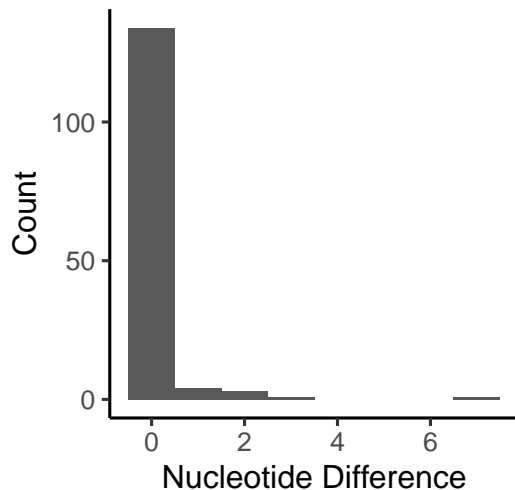


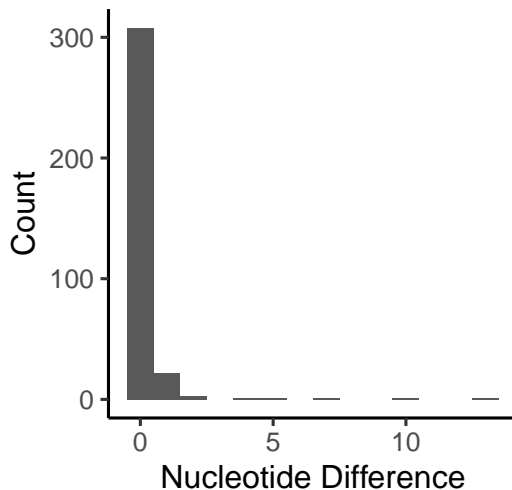
### IGHV1-2\*04

143 sequences assigned  
134 (93.7%) exact matches, in which:  
134 unique CDR3  
6 unique J



### IGHV1-18\*01

338 sequences assigned  
308 (91.1%) exact matches, in which:  
308 unique CDR3  
6 unique J



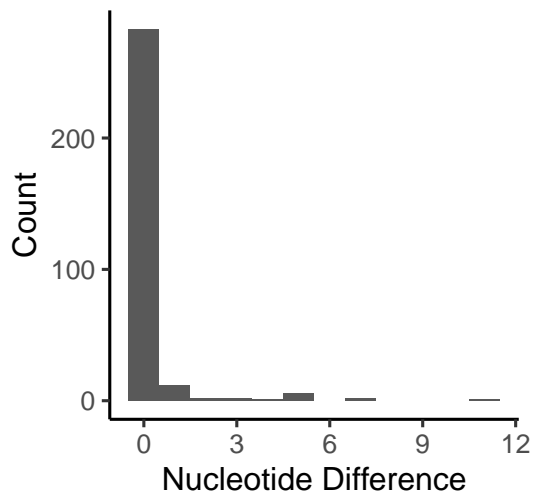
### IGHV1-45\*02

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



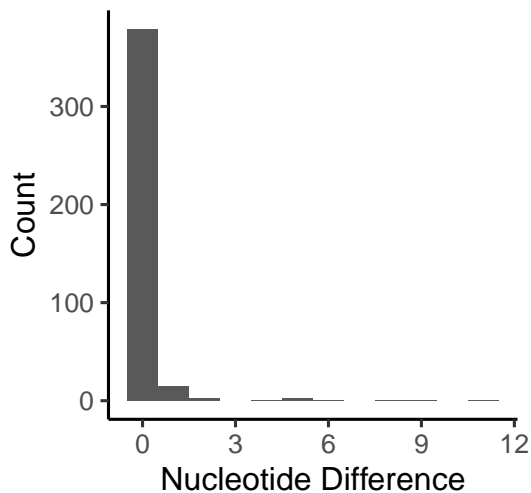
### IGHV1-3\*01

312 sequences assigned  
283 (90.7%) exact matches, in which:  
282 unique CDR3  
7 unique J



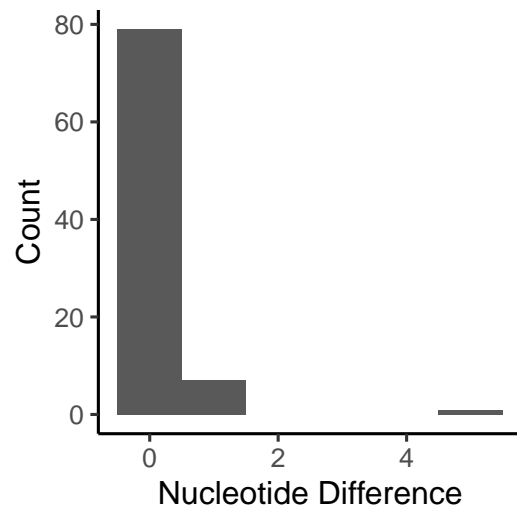
### IGHV1-18\*04

405 sequences assigned  
379 (93.6%) exact matches, in which:  
379 unique CDR3  
7 unique J



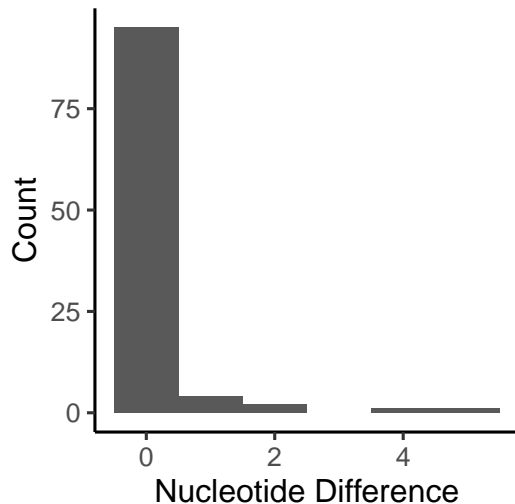
### IGHV1-46\*01

88 sequences assigned  
79 (89.8%) exact matches, in which:  
78 unique CDR3  
6 unique J



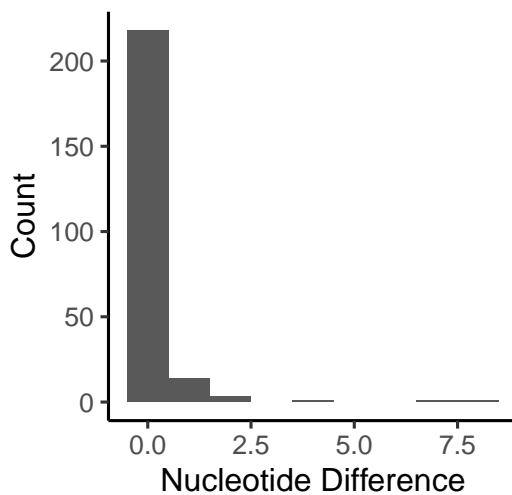
### IGHV1-8\*01

103 sequences assigned  
95 (92.2%) exact matches, in which:  
95 unique CDR3  
5 unique J



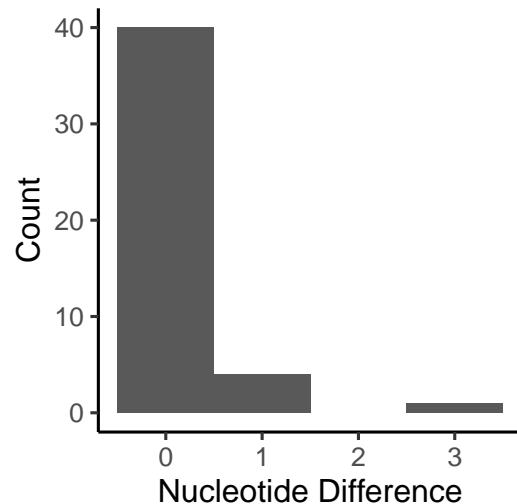
### IGHV1-24\*01

238 sequences assigned  
218 (91.6%) exact matches, in which:  
217 unique CDR3  
7 unique J



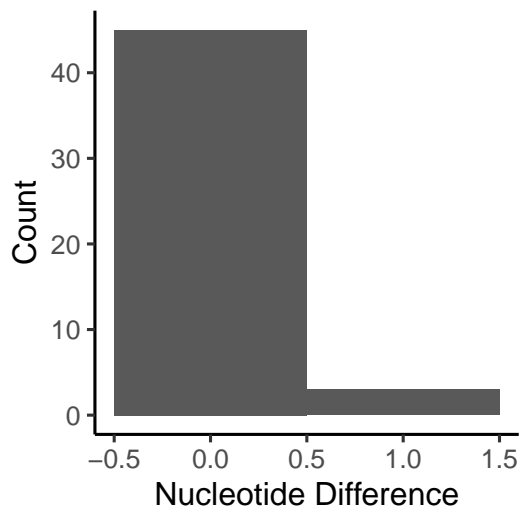
### IGHV1-58\*01

45 sequences assigned  
40 (88.9%) exact matches, in which:  
40 unique CDR3  
5 unique J



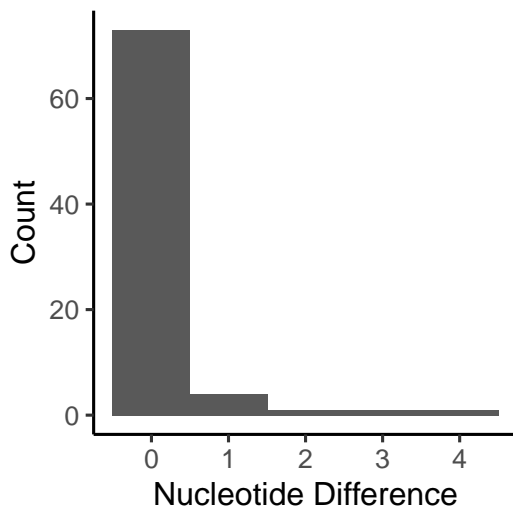
### IGHV1-69-2\*01

48 sequences assigned  
45 (93.8%) exact matches, in which:  
45 unique CDR3  
6 unique J



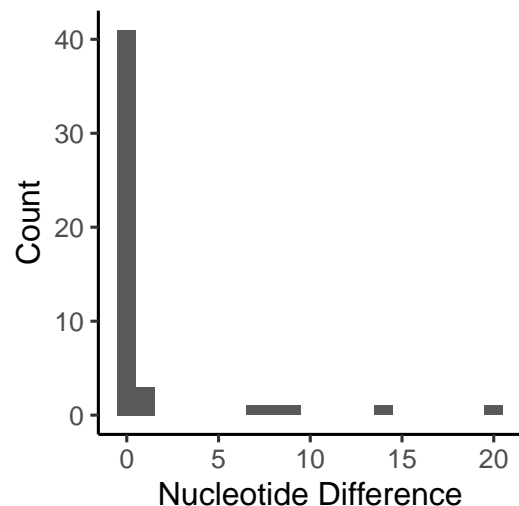
### IGHV2-26\*01

80 sequences assigned  
73 (91.2%) exact matches, in which:  
73 unique CDR3  
6 unique J



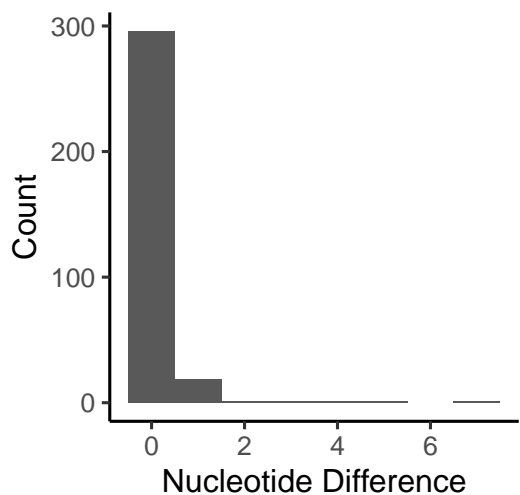
### IGHV3-7\*03

49 sequences assigned  
41 (83.7%) exact matches, in which:  
41 unique CDR3  
5 unique J



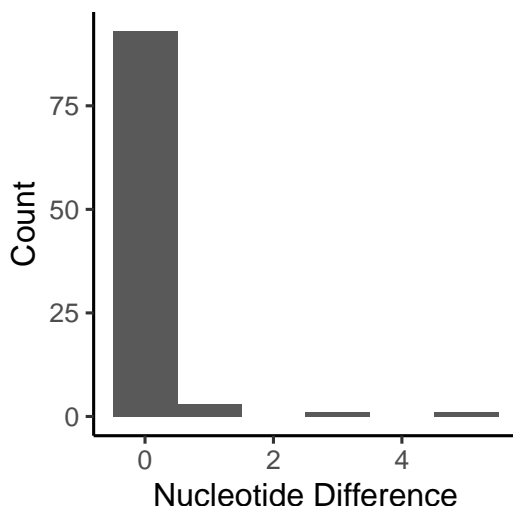
### IGHV1-69\*17

320 sequences assigned  
296 (92.5%) exact matches, in which:  
294 unique CDR3  
7 unique J



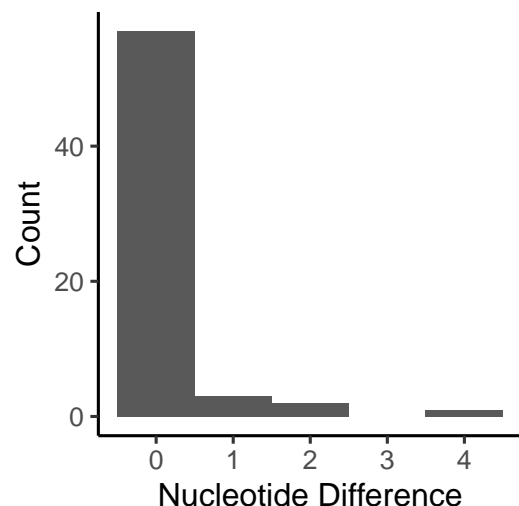
### IGHV2-70\*01

98 sequences assigned  
93 (94.9%) exact matches, in which:  
93 unique CDR3  
5 unique J



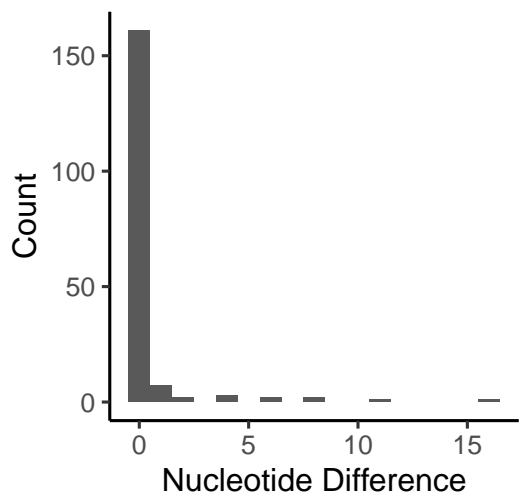
### IGHV3-9\*01

63 sequences assigned  
57 (90.5%) exact matches, in which:  
57 unique CDR3  
5 unique J



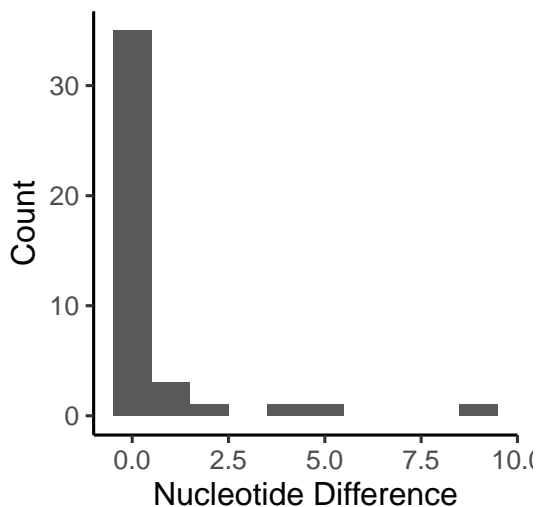
### IGHV2-5\*02

179 sequences assigned  
161 (89.9%) exact matches, in which:  
161 unique CDR3  
7 unique J



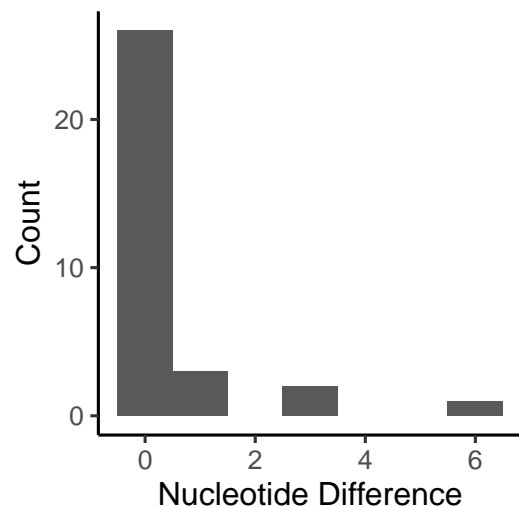
### IGHV3-7\*01

42 sequences assigned  
35 (83.3%) exact matches, in which:  
35 unique CDR3  
5 unique J



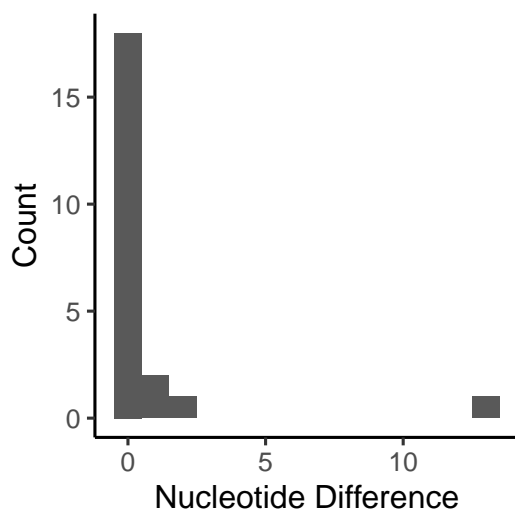
### IGHV3-11\*01

32 sequences assigned  
26 (81.2%) exact matches, in which:  
26 unique CDR3  
4 unique J



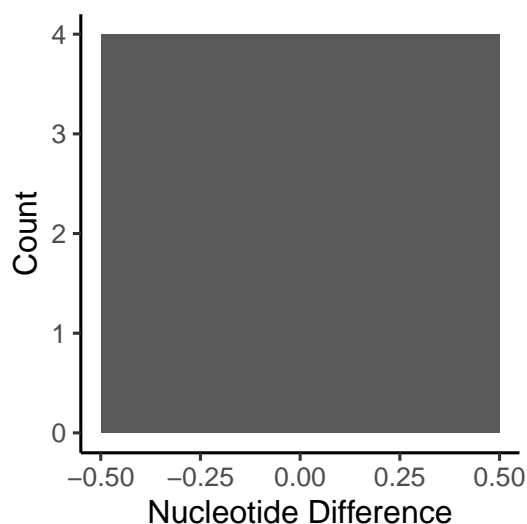
### IGHV3-11\*06

22 sequences assigned  
18 (81.8%) exact matches, in which:  
18 unique CDR3  
5 unique J



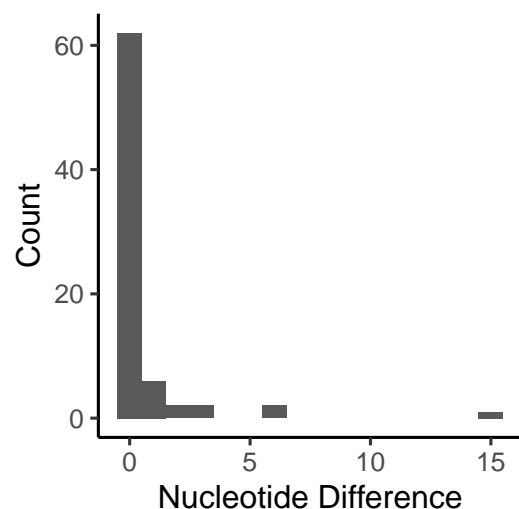
### IGHV3-20\*01

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



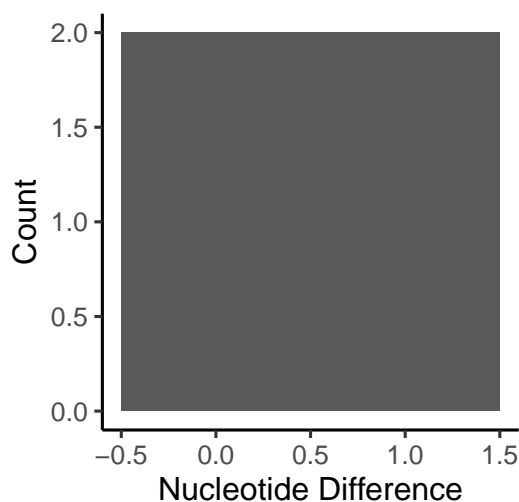
### IGHV3-30-3\*01

75 sequences assigned  
62 (82.7%) exact matches, in which:  
62 unique CDR3  
5 unique J



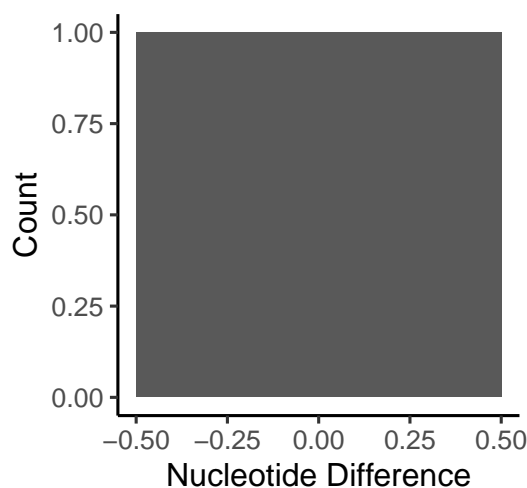
### IGHV3-13\*01

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



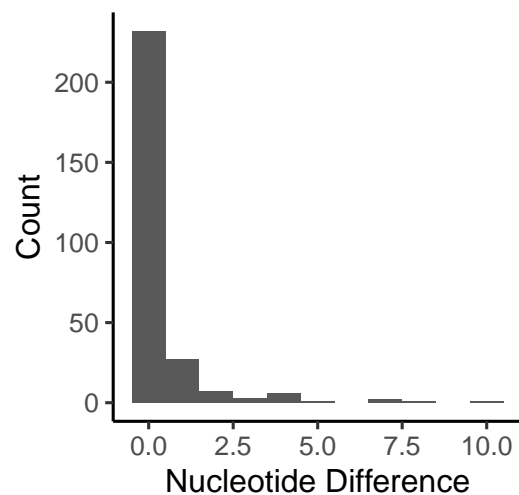
### IGHV3-20\*04

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



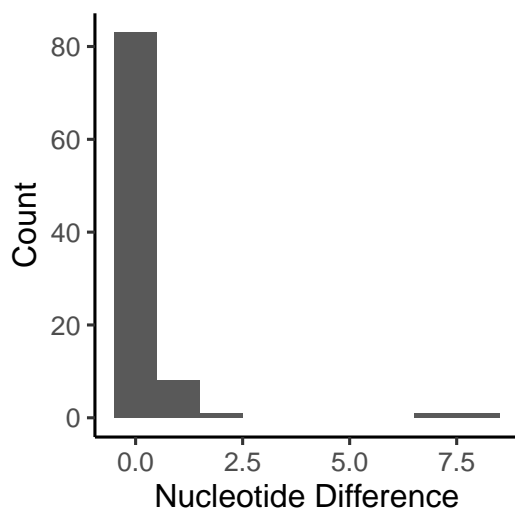
### IGHV3-33\*01

281 sequences assigned  
232 (82.6%) exact matches, in which:  
232 unique CDR3  
7 unique J



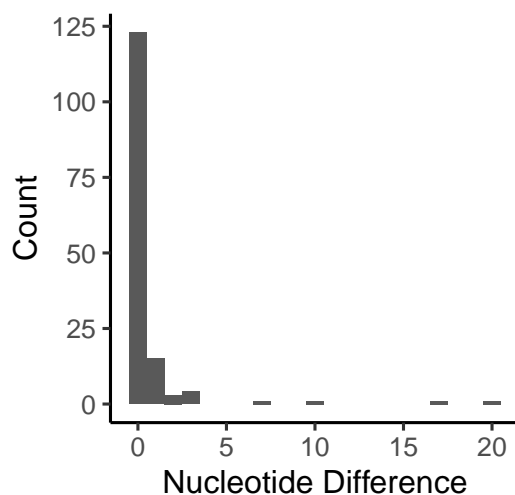
### IGHV3-15\*01

94 sequences assigned  
83 (88.3%) exact matches, in which:  
83 unique CDR3  
7 unique J



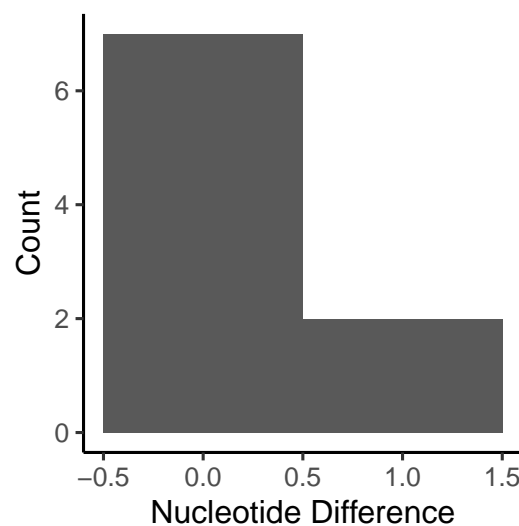
### IGHV3-21\*01

149 sequences assigned  
123 (82.6%) exact matches, in which:  
123 unique CDR3  
6 unique J



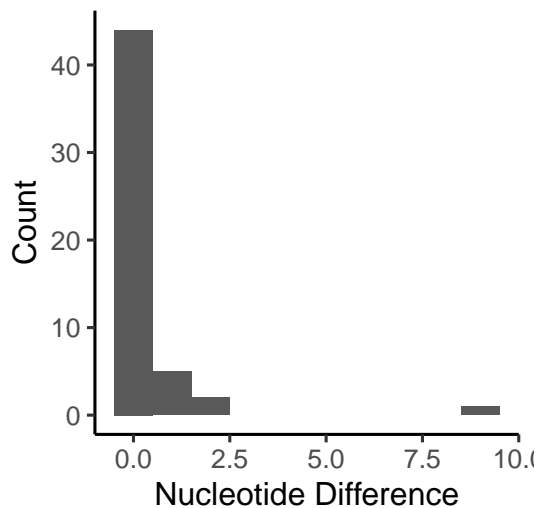
### IGHV3-43\*01

9 sequences assigned  
7 (77.8%) exact matches, in which:  
7 unique CDR3  
2 unique J



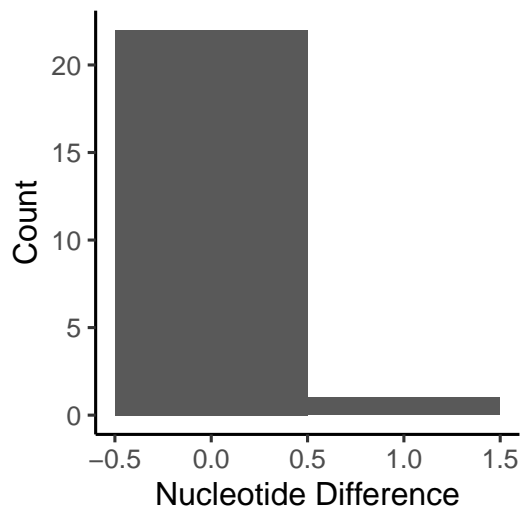
### IGHV3-48\*02

52 sequences assigned  
44 (84.6%) exact matches, in which:  
44 unique CDR3  
5 unique J



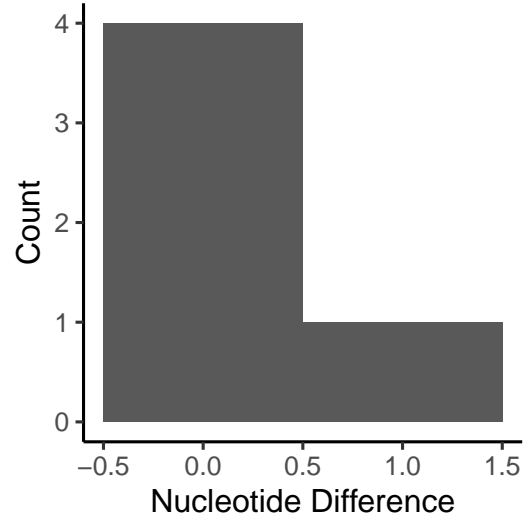
### IGHV3-49\*05

23 sequences assigned  
22 (95.7%) exact matches, in which:  
22 unique CDR3  
5 unique J



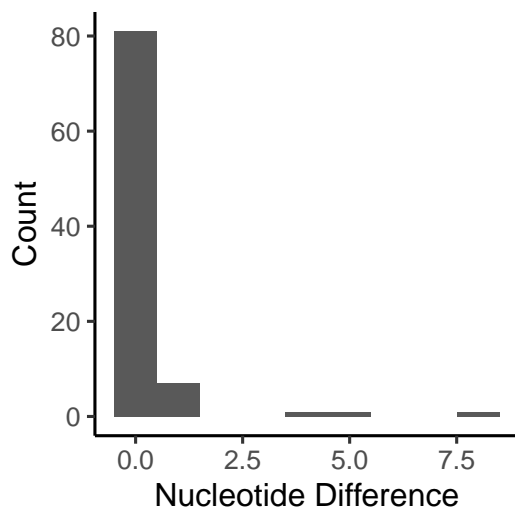
### IGHV3-72\*01

5 sequences assigned  
4 (80%) exact matches, in which:  
4 unique CDR3  
2 unique J



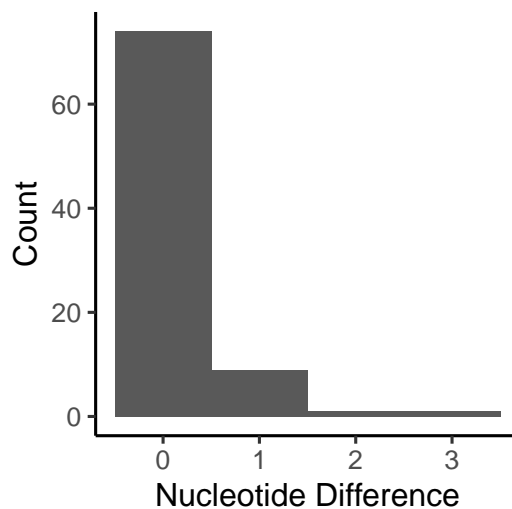
### IGHV3-48\*03

91 sequences assigned  
81 (89%) exact matches, in which:  
81 unique CDR3  
5 unique J



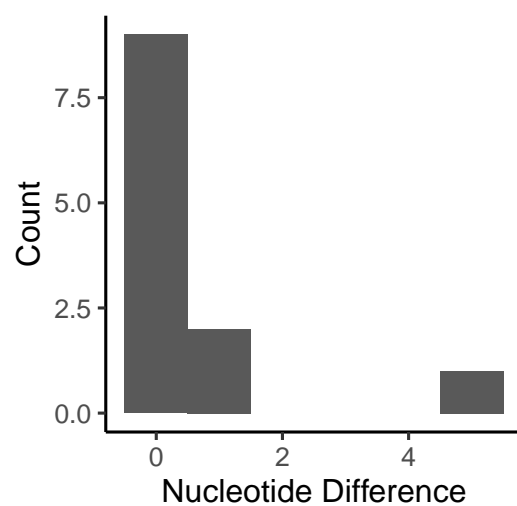
### IGHV3-53\*01

85 sequences assigned  
74 (87.1%) exact matches, in which:  
74 unique CDR3  
6 unique J



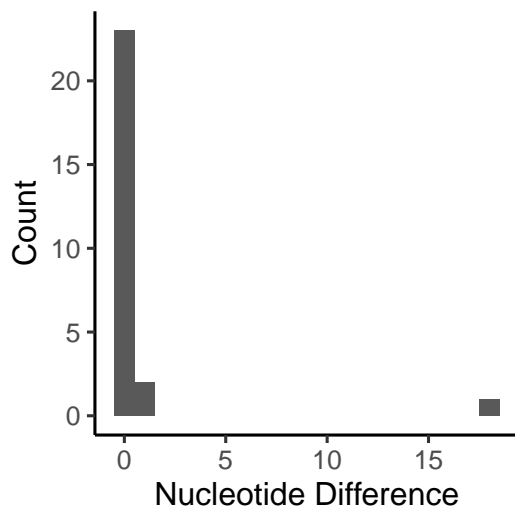
### IGHV3-73\*02

12 sequences assigned  
9 (75%) exact matches, in which:  
9 unique CDR3  
3 unique J



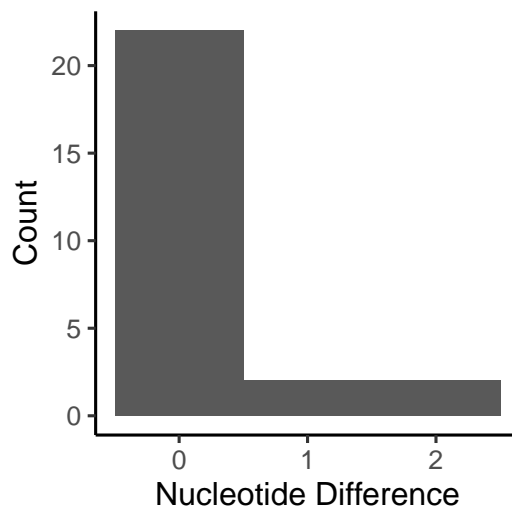
### IGHV3-49\*04

26 sequences assigned  
23 (88.5%) exact matches, in which:  
22 unique CDR3  
4 unique J



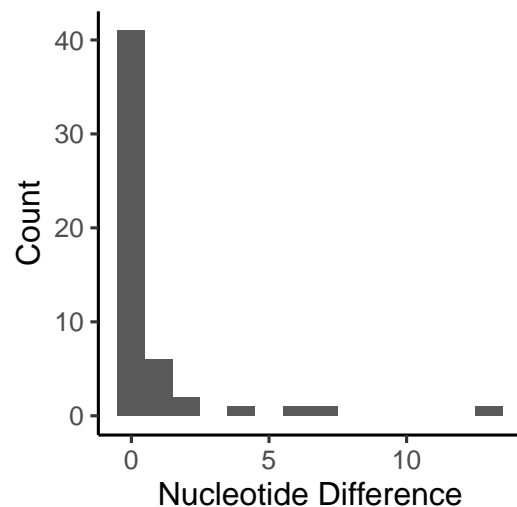
### IGHV3-53\*02

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



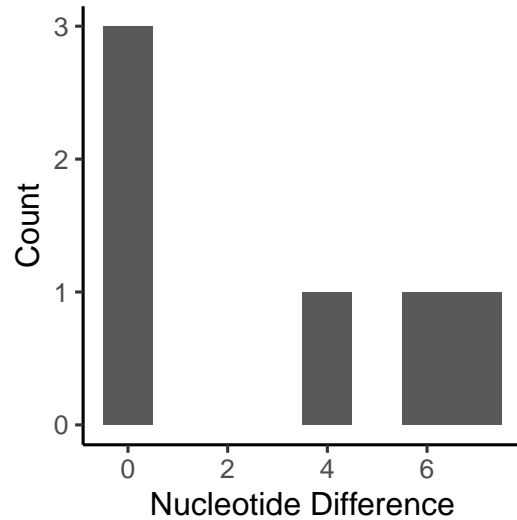
### IGHV3-74\*01

55 sequences assigned  
41 (74.5%) exact matches, in which:  
41 unique CDR3  
5 unique J



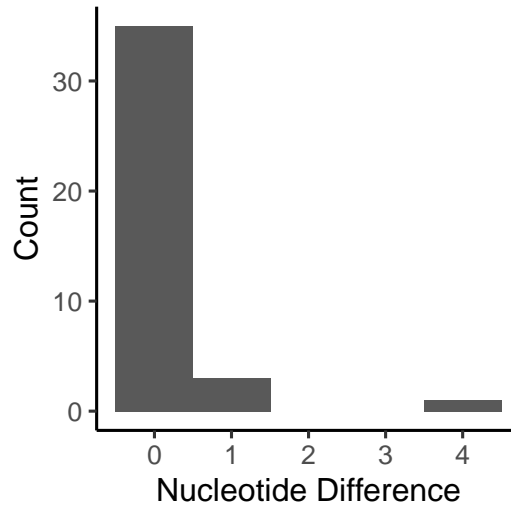
### IGHV3-43D\*04

6 sequences assigned  
3 (50%) exact matches, in which:  
3 unique CDR3  
2 unique J



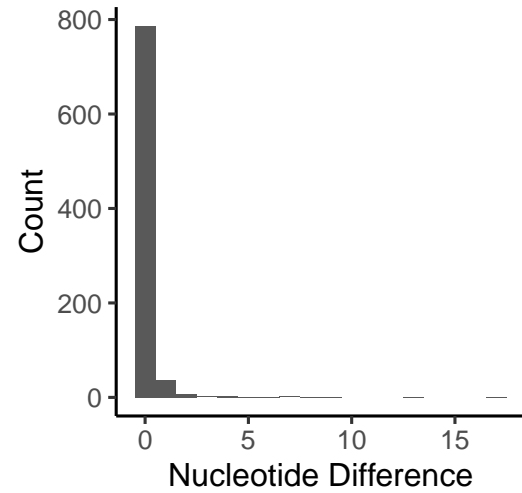
### IGHV4-30-4\*01

39 sequences assigned  
35 (89.7%) exact matches, in which:  
35 unique CDR3  
5 unique J



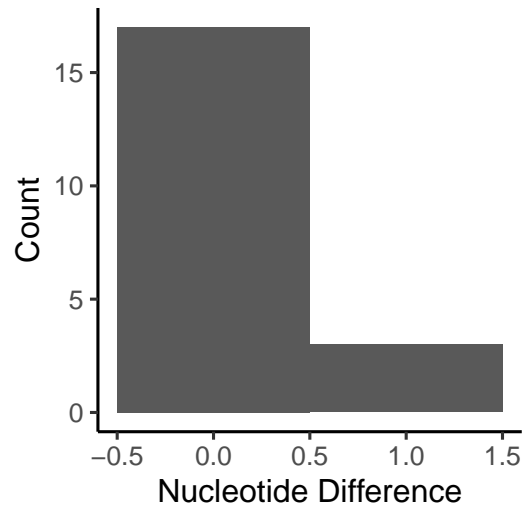
### IGHV4-34\*01

844 sequences assigned  
787 (93.2%) exact matches, in which:  
787 unique CDR3  
7 unique J



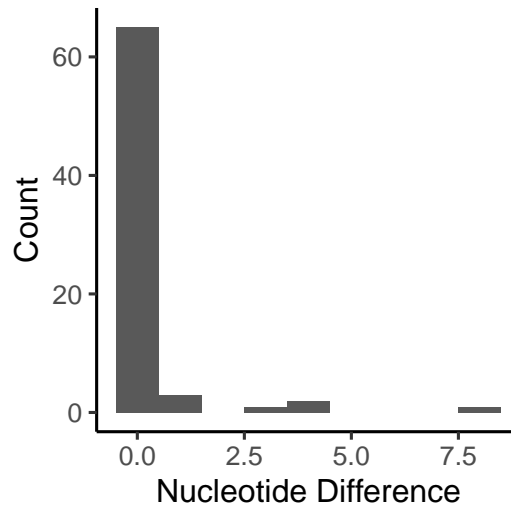
### IGHV3-64D\*06

20 sequences assigned  
17 (85%) exact matches, in which:  
17 unique CDR3  
3 unique J



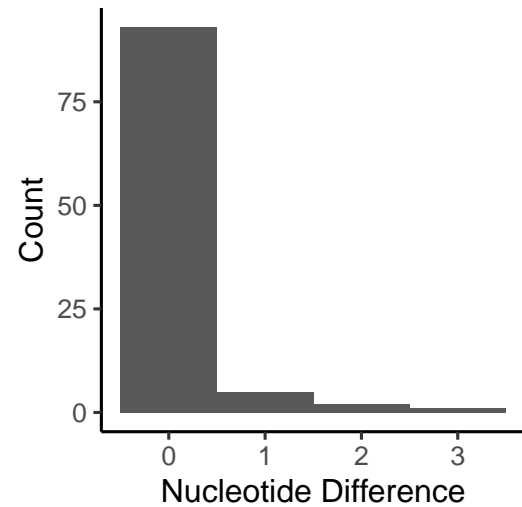
### IGHV4-30-2\*01

72 sequences assigned  
65 (90.3%) exact matches, in which:  
65 unique CDR3  
7 unique J



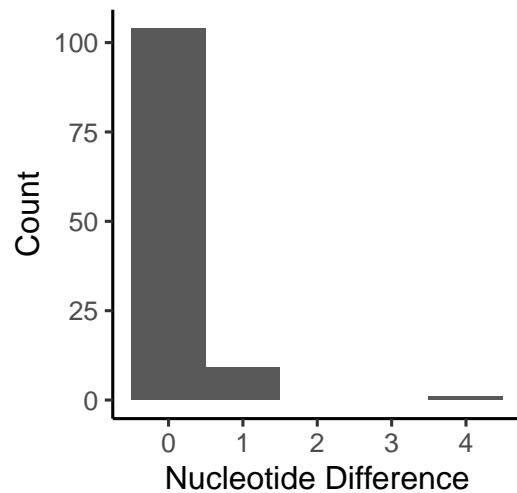
### IGHV4-38-2\*01

101 sequences assigned  
93 (92.1%) exact matches, in which:  
93 unique CDR3  
6 unique J



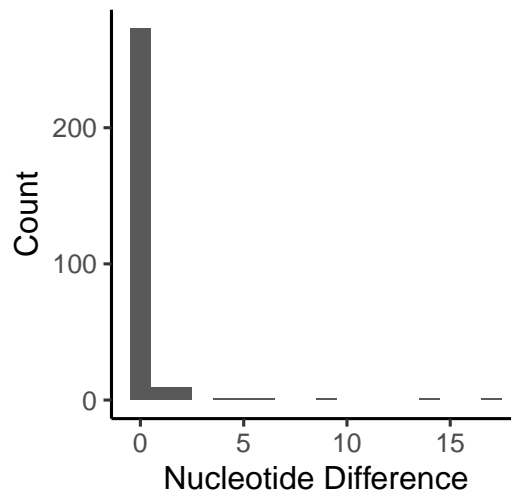
### IGHV4-4\*02

114 sequences assigned  
104 (91.2%) exact matches, in which:  
104 unique CDR3  
6 unique J



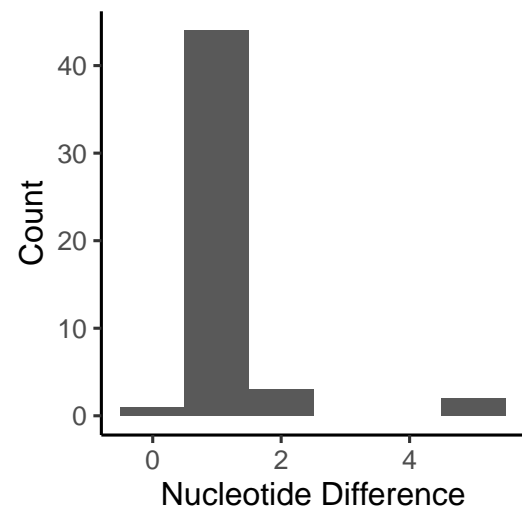
### IGHV4-31\*03

297 sequences assigned  
273 (91.9%) exact matches, in which:  
272 unique CDR3  
7 unique J



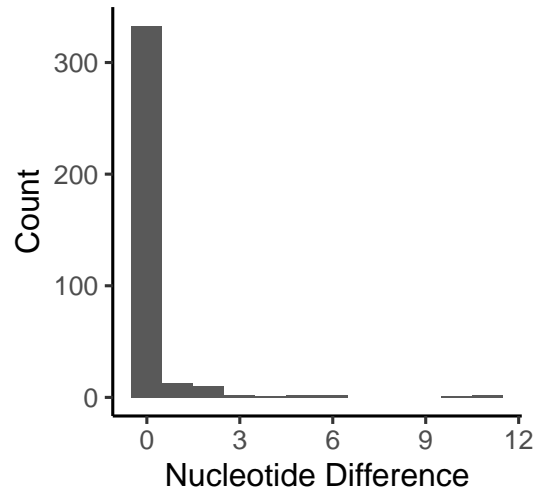
### IGHV4-38-2\*02

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



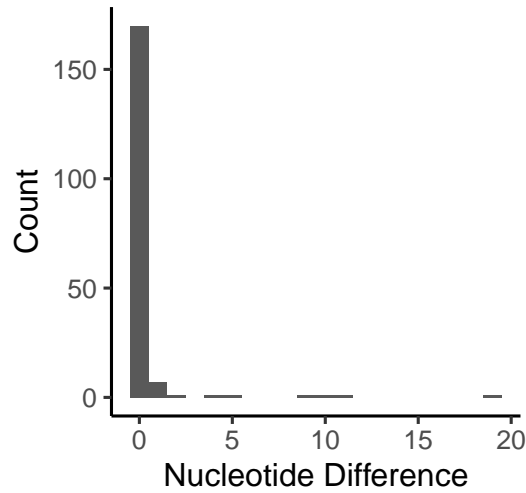
### IGHV4–39\*01

366 sequences assigned  
333 (91%) exact matches, in which:  
332 unique CDR3  
6 unique J



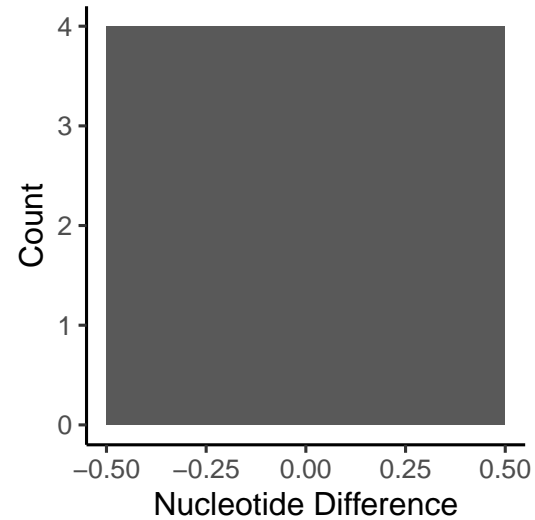
### IGHV5–10–1\*03

185 sequences assigned  
170 (91.9%) exact matches, in which:  
170 unique CDR3  
5 unique J



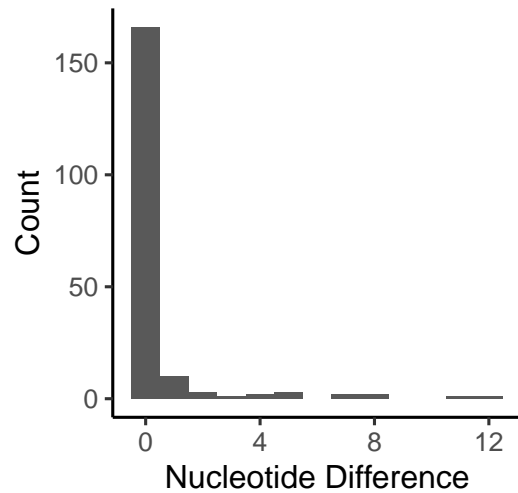
### IGHV7–4–1\*01

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



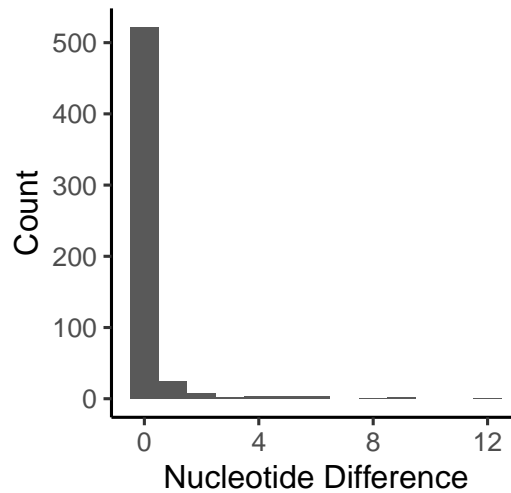
### IGHV4–59\*01

193 sequences assigned  
166 (86%) exact matches, in which:  
165 unique CDR3  
7 unique J



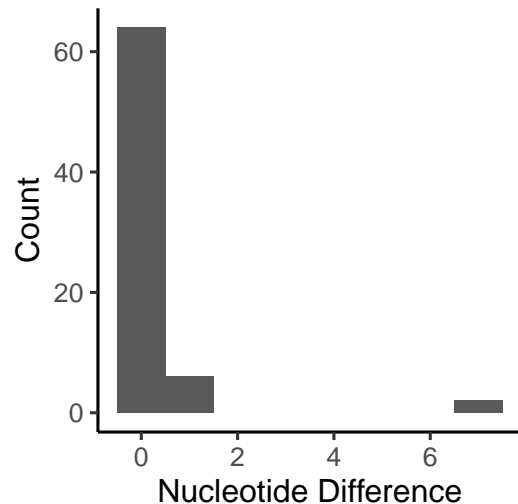
### IGHV5–51\*01

571 sequences assigned  
522 (91.4%) exact matches, in which:  
522 unique CDR3  
7 unique J



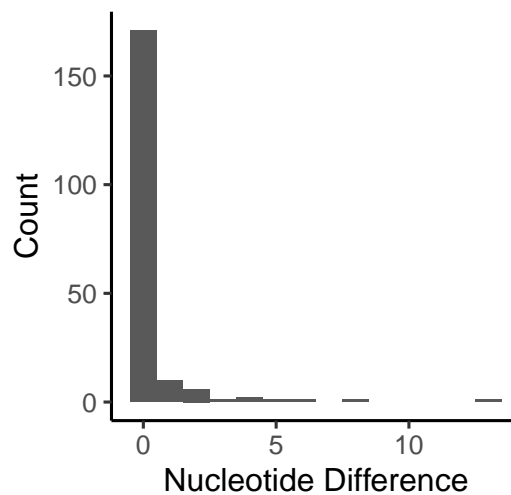
### IGHV4–61\*01

73 sequences assigned  
64 (87.7%) exact matches, in which:  
64 unique CDR3  
6 unique J

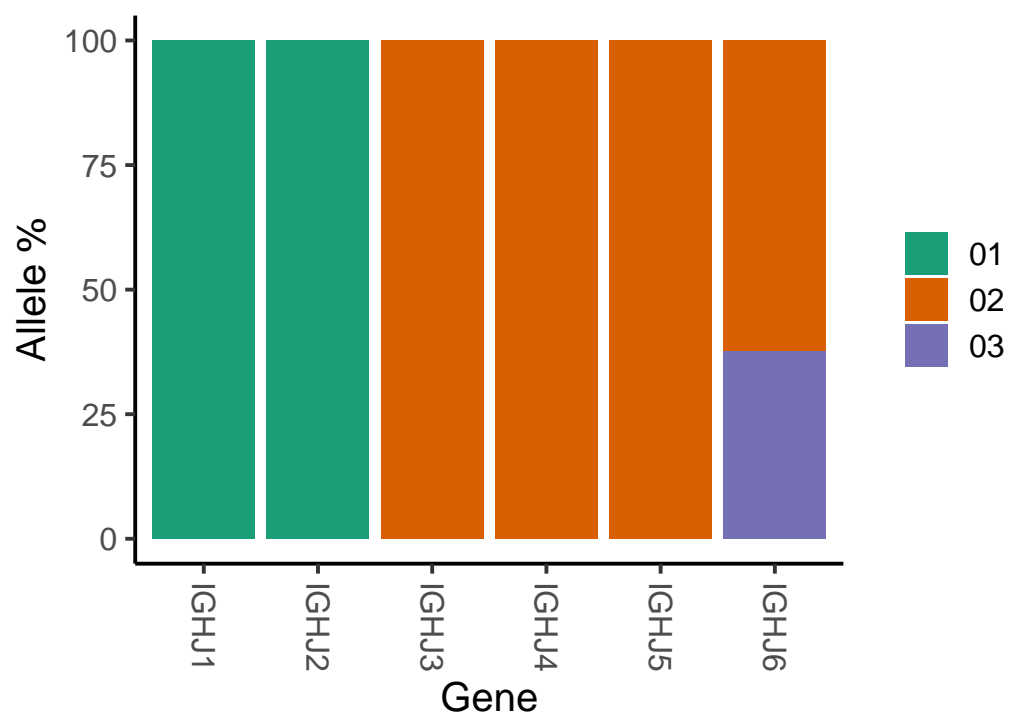


### IGHV6–1\*01

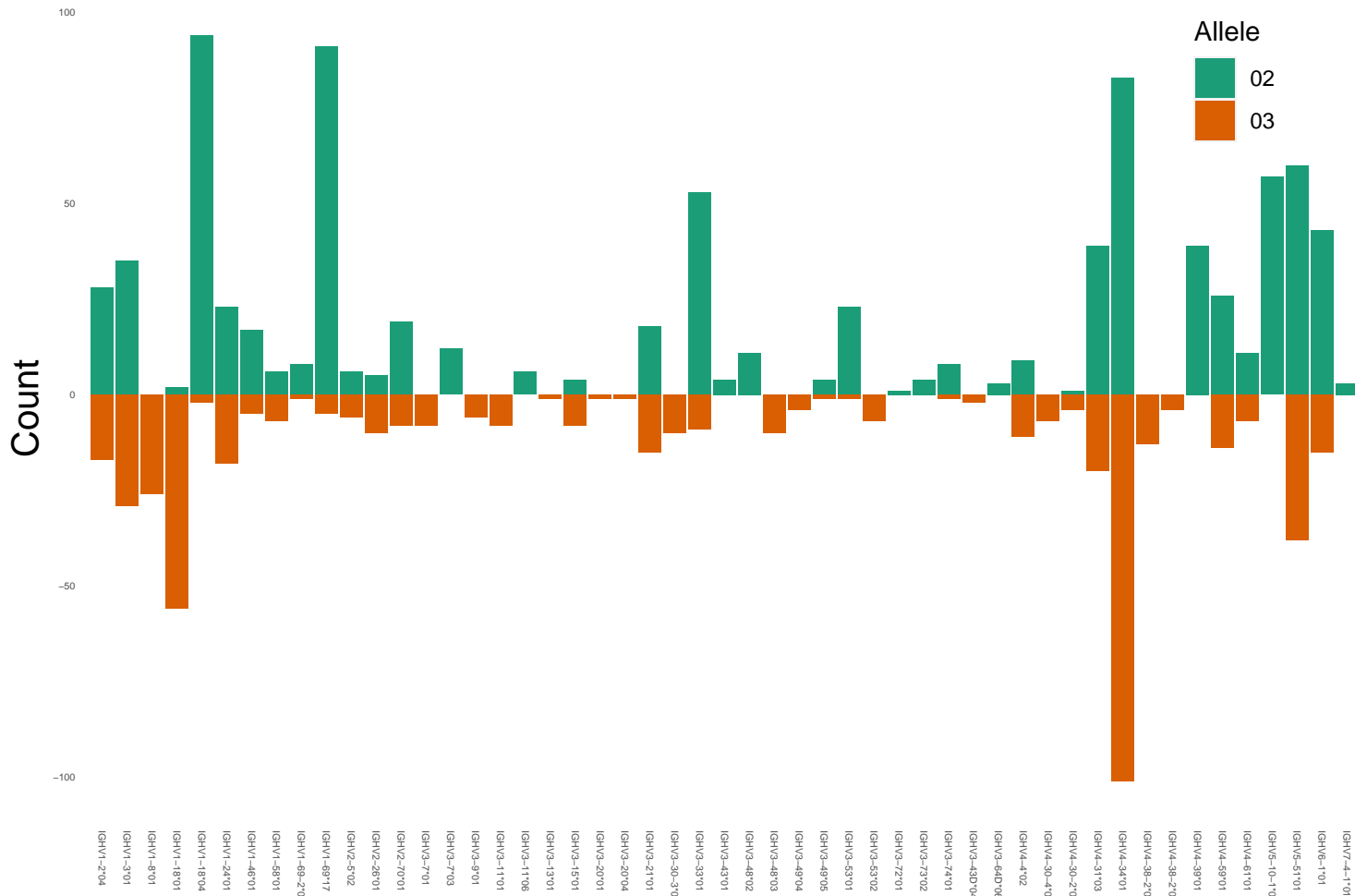
194 sequences assigned  
171 (88.1%) exact matches, in which:  
171 unique CDR3  
6 unique J



Allele Usage



Sequence Count by IGHJ6 allele usage





Novel sequence(s)IGHV4-38-2\*02\_A70G are not listed in the genotype and will be ignored.