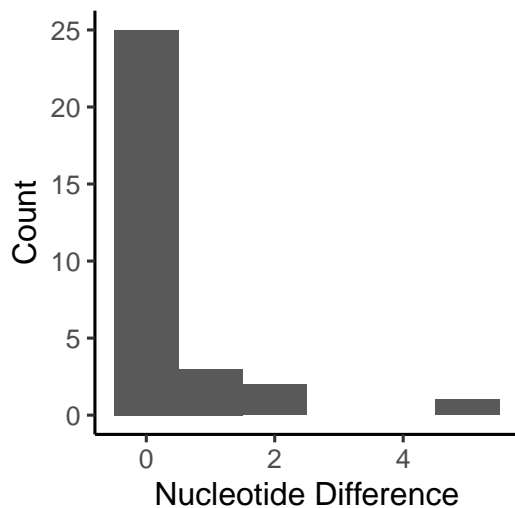


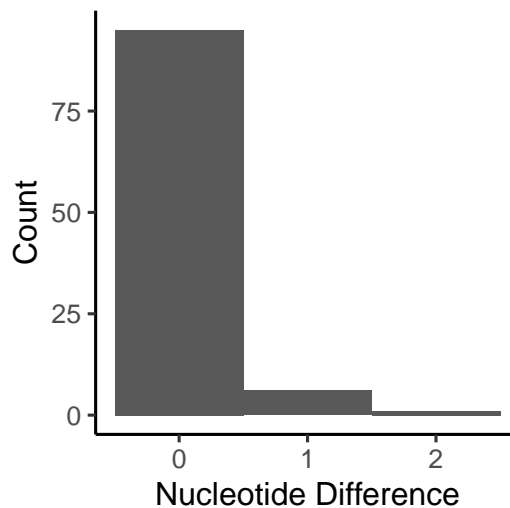
### IGHV1-2\*04

31 sequences assigned  
25 (80.6%) exact matches, in which:  
25 unique CDR3  
5 unique J



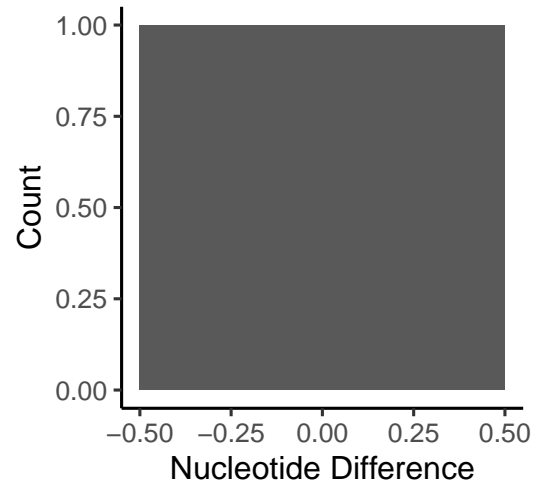
### IGHV1-8\*01

102 sequences assigned  
95 (93.1%) exact matches, in which:  
95 unique CDR3  
5 unique J



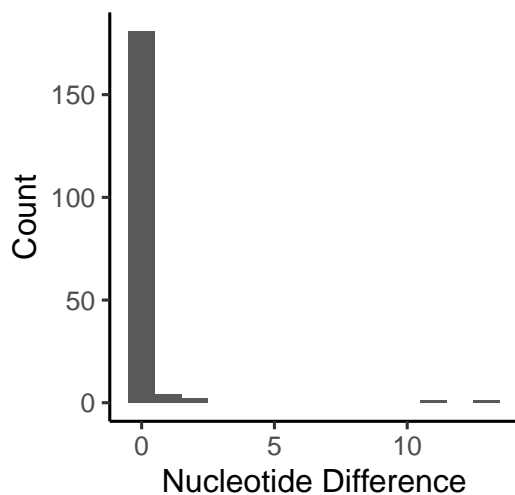
### IGHV1-45\*02

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



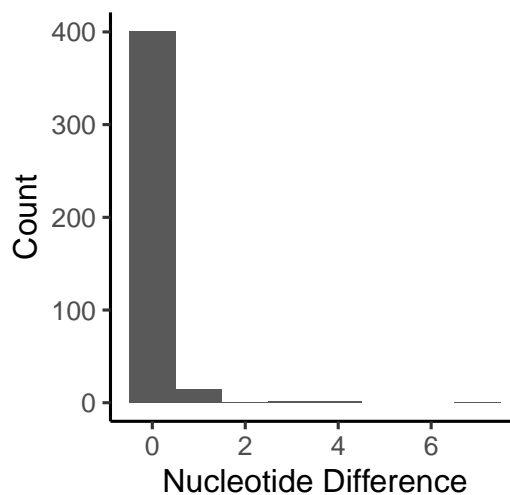
### IGHV1-2\*06

190 sequences assigned  
181 (95.3%) exact matches, in which:  
181 unique CDR3  
6 unique J



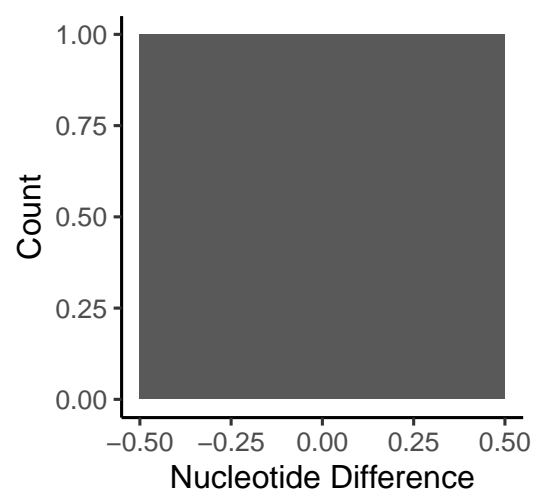
### IGHV1-18\*01

422 sequences assigned  
401 (95%) exact matches, in which:  
401 unique CDR3  
7 unique J



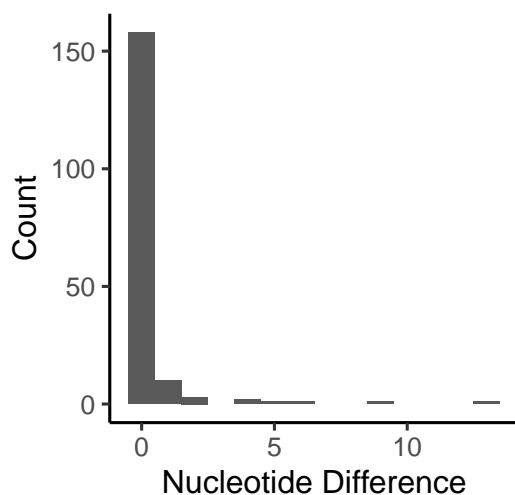
### IGHV1-45\*03

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



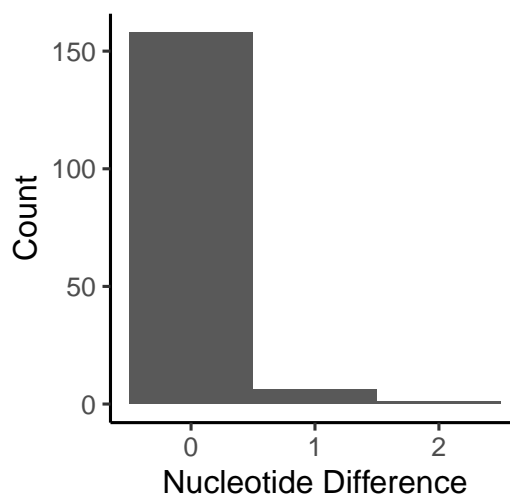
### IGHV1-3\*01

177 sequences assigned  
158 (89.3%) exact matches, in which:  
158 unique CDR3  
7 unique J



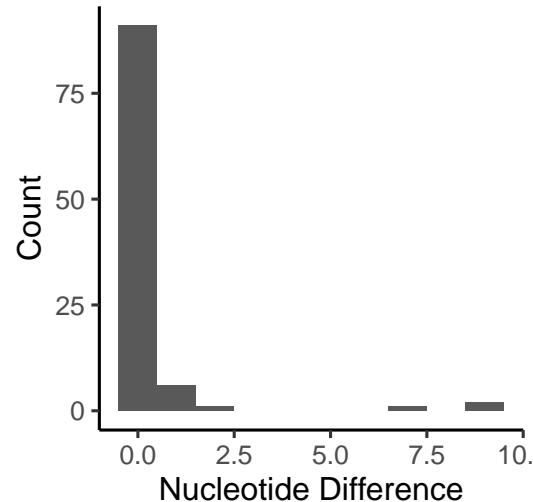
### IGHV1-24\*01

165 sequences assigned  
158 (95.8%) exact matches, in which:  
158 unique CDR3  
7 unique J



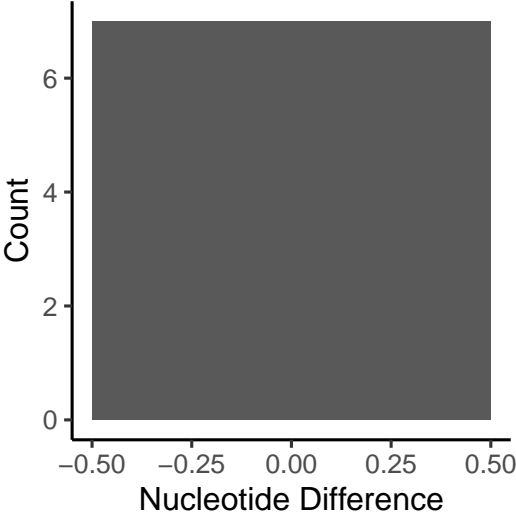
### IGHV1-46\*01

101 sequences assigned  
91 (90.1%) exact matches, in which:  
91 unique CDR3  
7 unique J



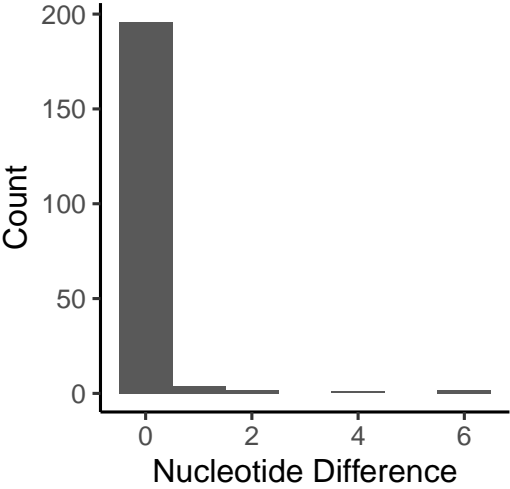
IGHV1-58\*01

7 sequences assigned  
7 (100%) exact matches, in which:  
7 unique CDR3  
2 unique J



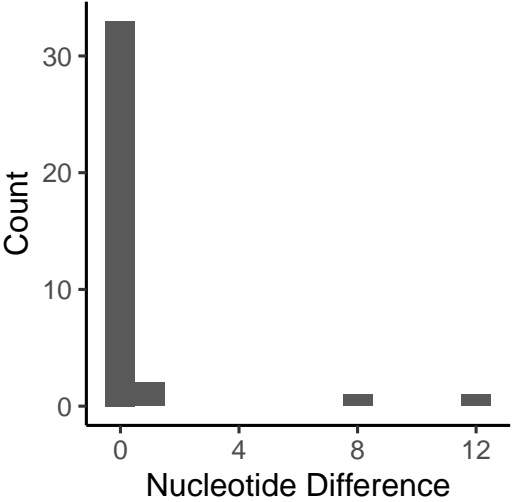
IGHV1-69\*04

205 sequences assigned  
196 (95.6%) exact matches, in which:  
196 unique CDR3  
7 unique J



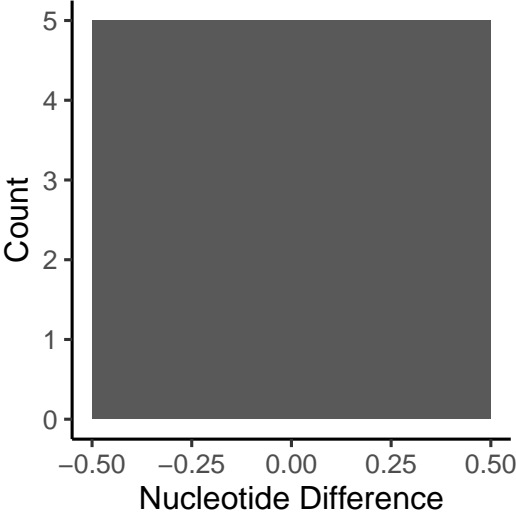
IGHV2-26\*01

37 sequences assigned  
33 (89.2%) exact matches, in which:  
33 unique CDR3  
6 unique J



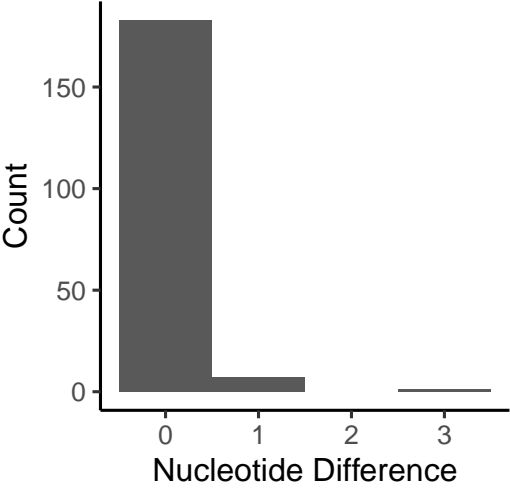
IGHV1-58\*02

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



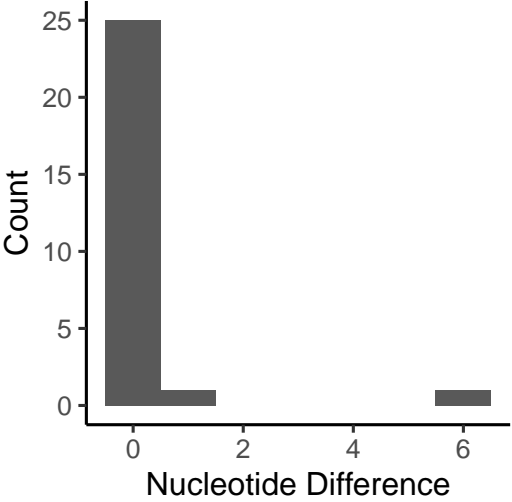
IGHV1-69\*06

191 sequences assigned  
183 (95.8%) exact matches, in which:  
183 unique CDR3  
7 unique J



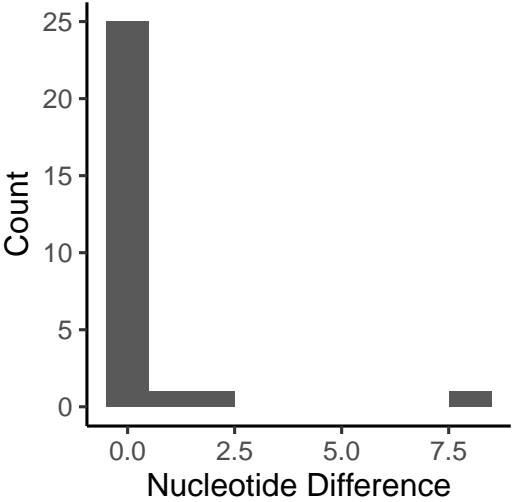
IGHV2-70\*01

27 sequences assigned  
25 (92.6%) exact matches, in which:  
25 unique CDR3  
4 unique J



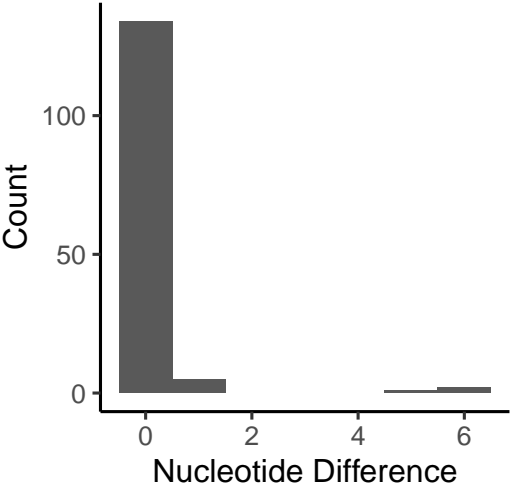
IGHV1-69-2\*01

28 sequences assigned  
25 (89.3%) exact matches, in which:  
25 unique CDR3  
5 unique J



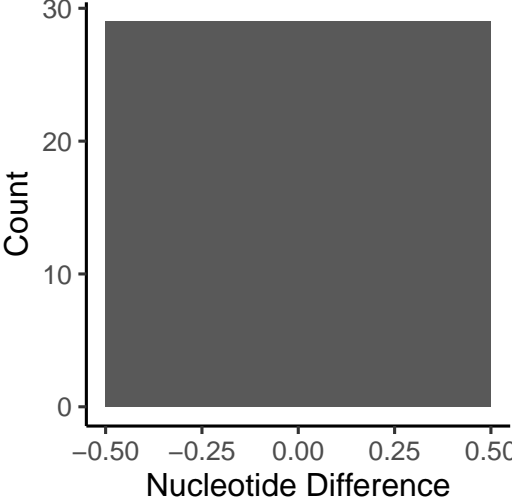
IGHV2-5\*02

142 sequences assigned  
134 (94.4%) exact matches, in which:  
134 unique CDR3  
7 unique J



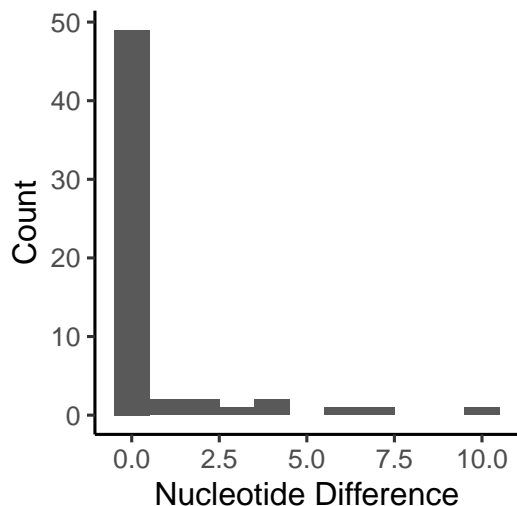
IGHV2-70\*15

29 sequences assigned  
29 (100%) exact matches, in which:  
29 unique CDR3  
5 unique J



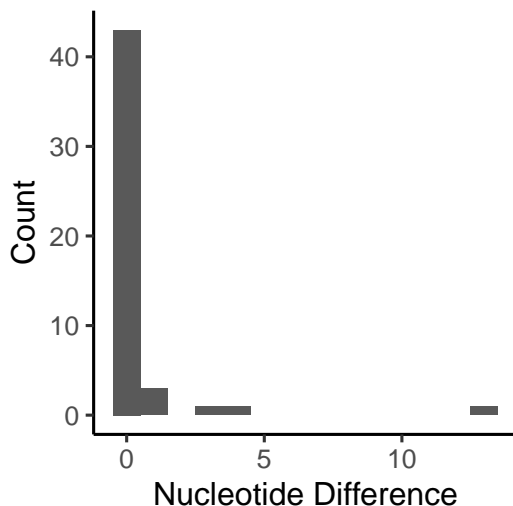
### IGHV3-7\*01

60 sequences assigned  
49 (81.7%) exact matches, in which:  
49 unique CDR3  
5 unique J



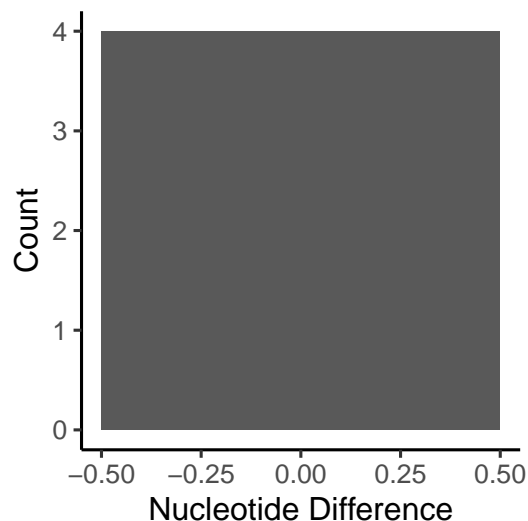
### IGHV3-11\*01

49 sequences assigned  
43 (87.8%) exact matches, in which:  
43 unique CDR3  
6 unique J



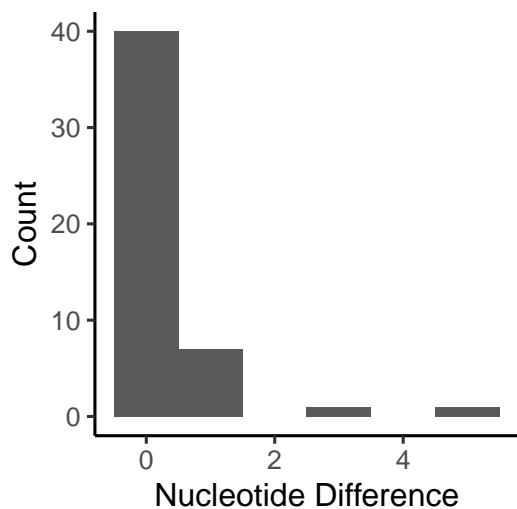
### IGHV3-13\*05

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



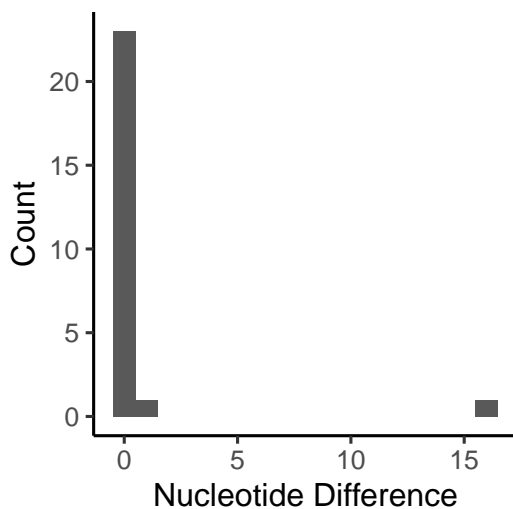
### IGHV3-7\*03

49 sequences assigned  
40 (81.6%) exact matches, in which:  
40 unique CDR3  
5 unique J



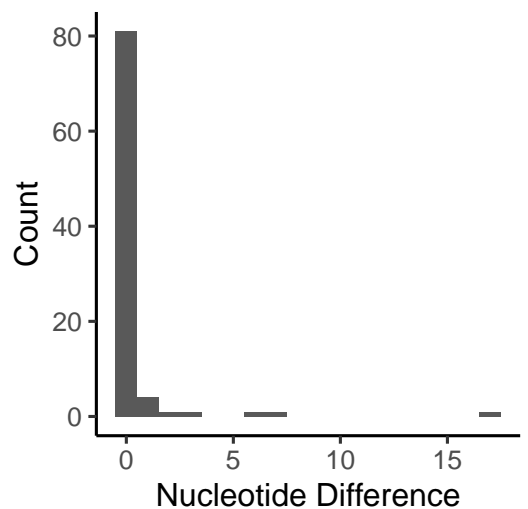
### IGHV3-11\*06

25 sequences assigned  
23 (92%) exact matches, in which:  
23 unique CDR3  
5 unique J



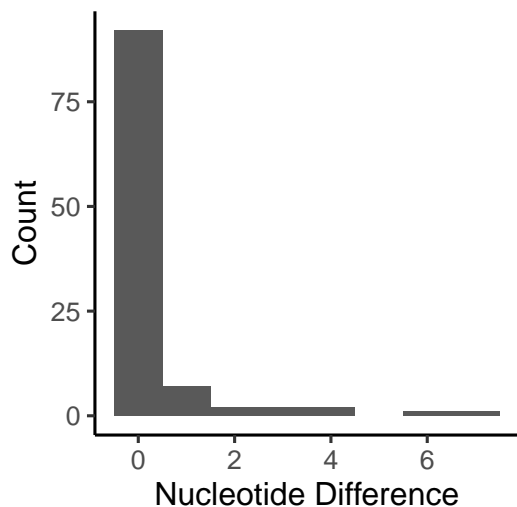
### IGHV3-15\*01

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



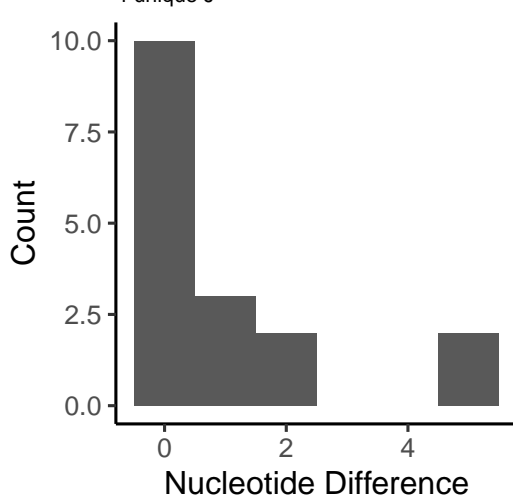
### IGHV3-9\*01

107 sequences assigned  
92 (86%) exact matches, in which:  
92 unique CDR3  
5 unique J



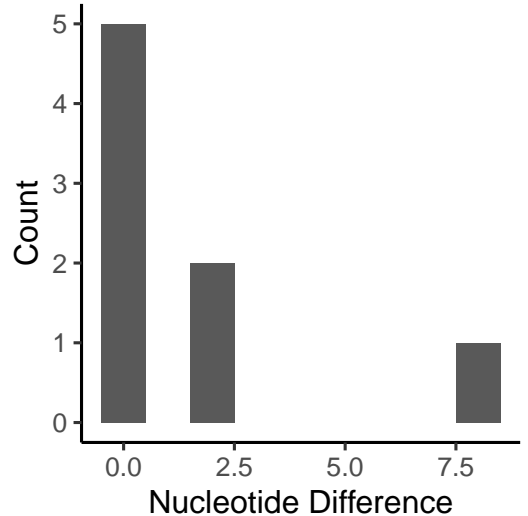
### IGHV3-13\*01

17 sequences assigned  
10 (58.8%) exact matches, in which:  
10 unique CDR3  
4 unique J



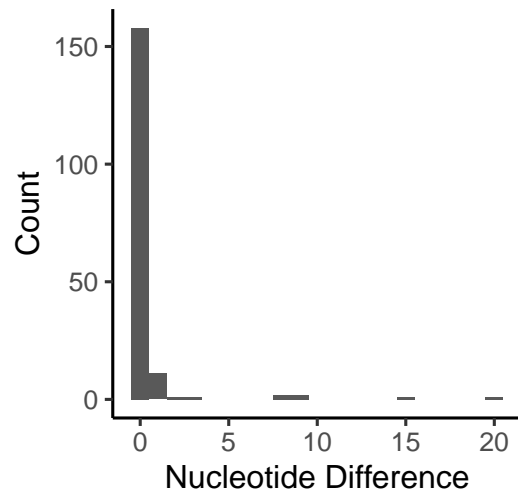
### IGHV3-20\*01

8 sequences assigned  
5 (62.5%) exact matches, in which:  
5 unique CDR3  
4 unique J



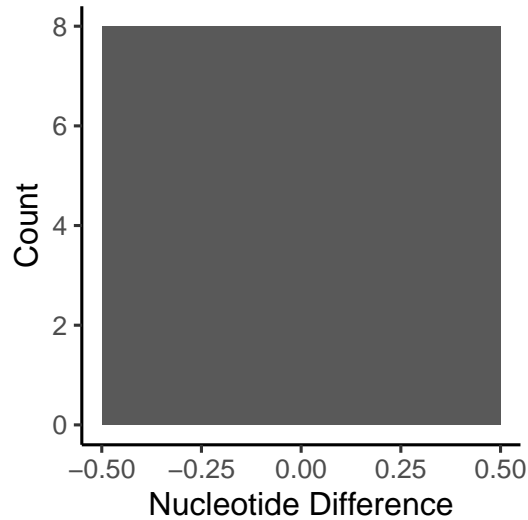
### IGHV3-21\*01

177 sequences assigned  
158 (89.3%) exact matches, in which:  
158 unique CDR3  
6 unique J



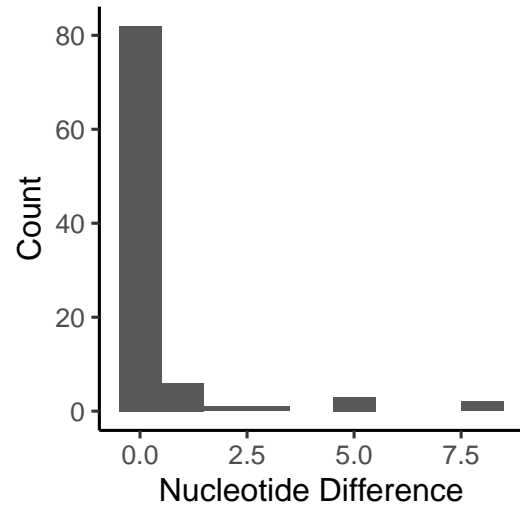
### IGHV3-43\*01

8 sequences assigned  
8 (100%) exact matches, in which:  
8 unique CDR3  
2 unique J



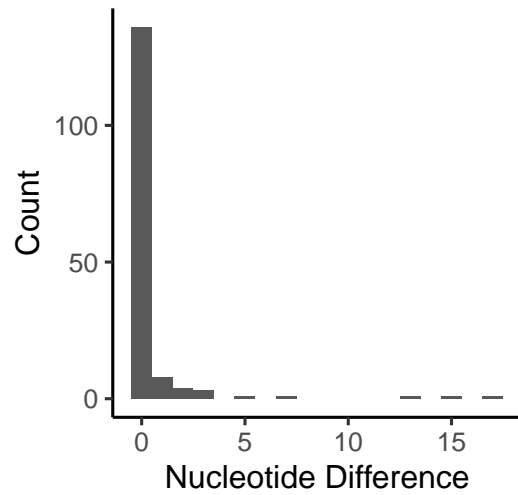
### IGHV3-48\*03

95 sequences assigned  
82 (86.3%) exact matches, in which:  
82 unique CDR3  
6 unique J



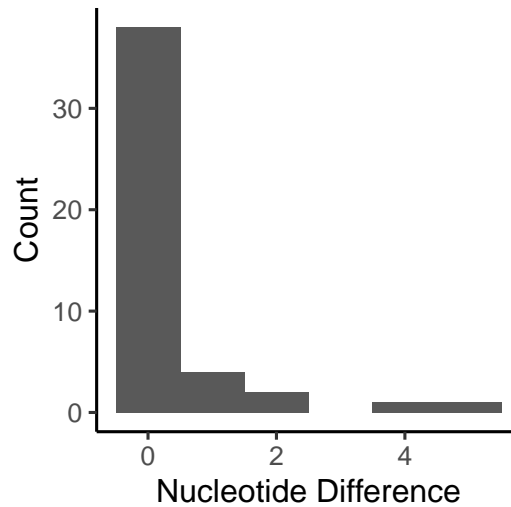
### IGHV3-30-3\*01

156 sequences assigned  
136 (87.2%) exact matches, in which:  
136 unique CDR3  
7 unique J



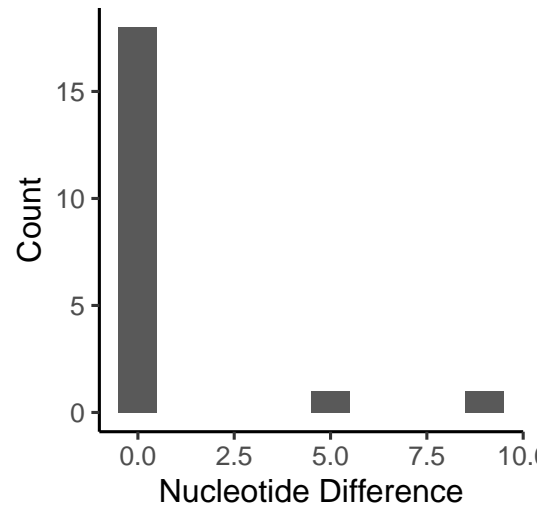
### IGHV3-43\*02

46 sequences assigned  
38 (82.6%) exact matches, in which:  
38 unique CDR3  
6 unique J



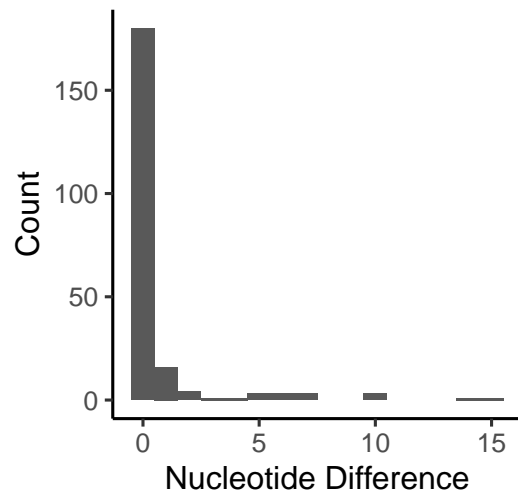
### IGHV3-49\*03

20 sequences assigned  
18 (90%) exact matches, in which:  
18 unique CDR3  
4 unique J



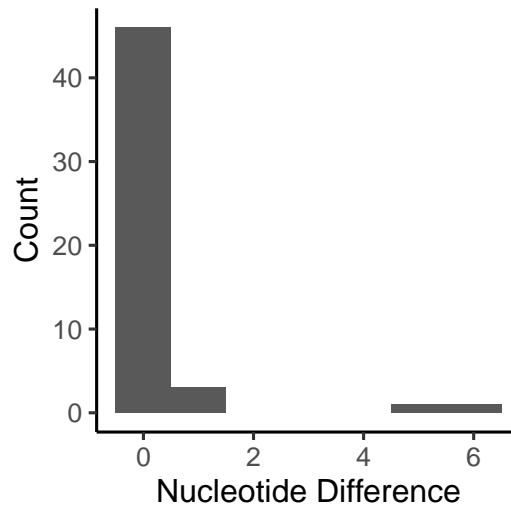
### IGHV3-33\*01

216 sequences assigned  
180 (83.3%) exact matches, in which:  
179 unique CDR3  
6 unique J



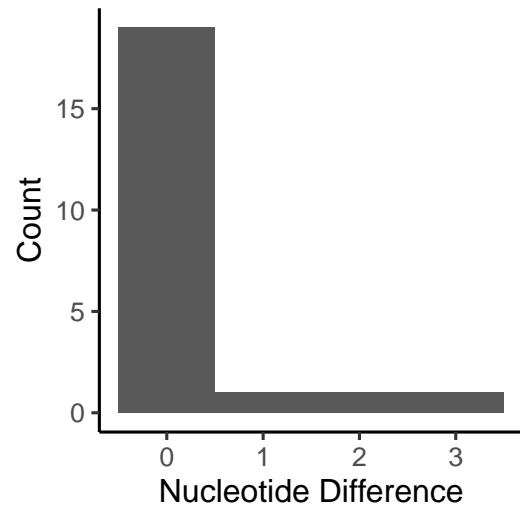
### IGHV3-48\*01

51 sequences assigned  
46 (90.2%) exact matches, in which:  
46 unique CDR3  
4 unique J



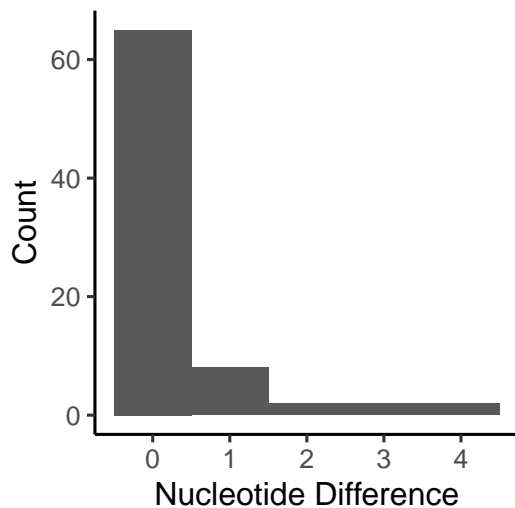
### IGHV3-49\*04

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



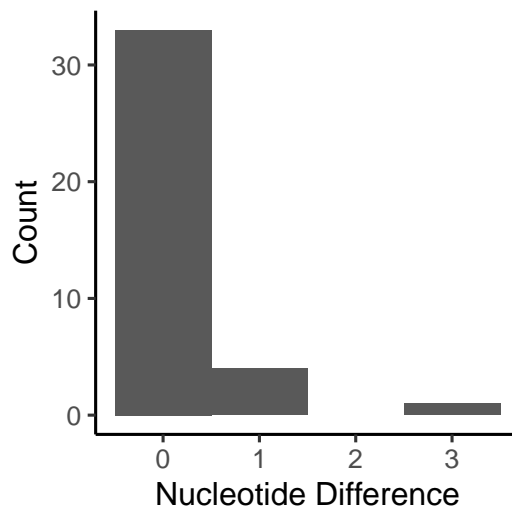
### IGHV3-53\*01

79 sequences assigned  
65 (82.3%) exact matches, in which:  
65 unique CDR3  
6 unique J



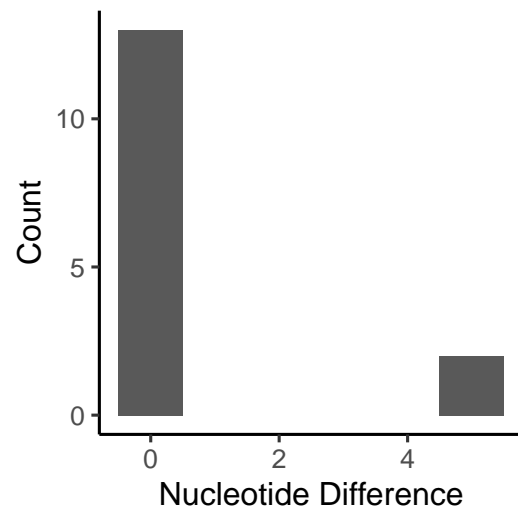
### IGHV3-66\*01

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



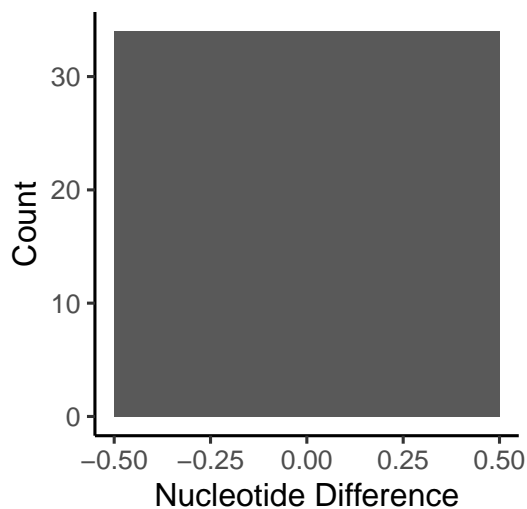
### IGHV3-73\*02

15 sequences assigned  
13 (86.7%) exact matches, in which:  
13 unique CDR3  
3 unique J



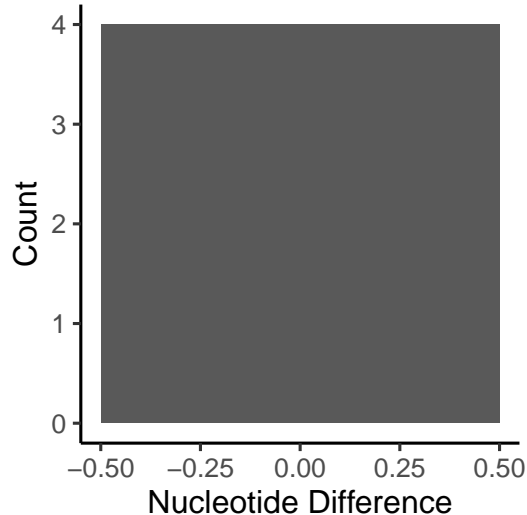
### IGHV3-53\*04

34 sequences assigned  
34 (100%) exact matches, in which:  
34 unique CDR3  
7 unique J



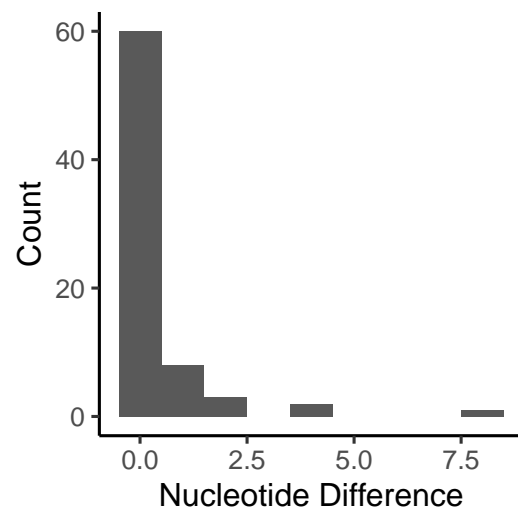
### IGHV3-72\*01

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



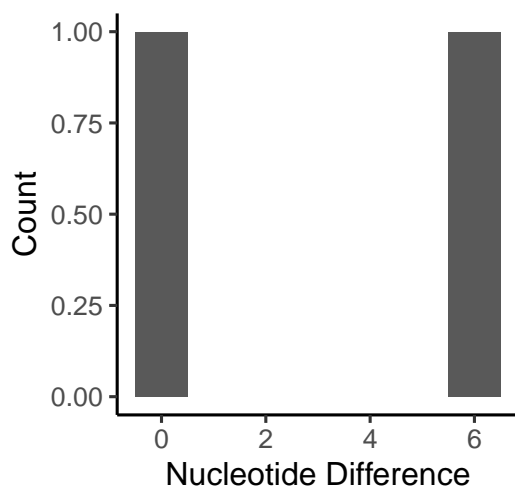
### IGHV3-74\*01

74 sequences assigned  
60 (81.1%) exact matches, in which:  
60 unique CDR3  
7 unique J



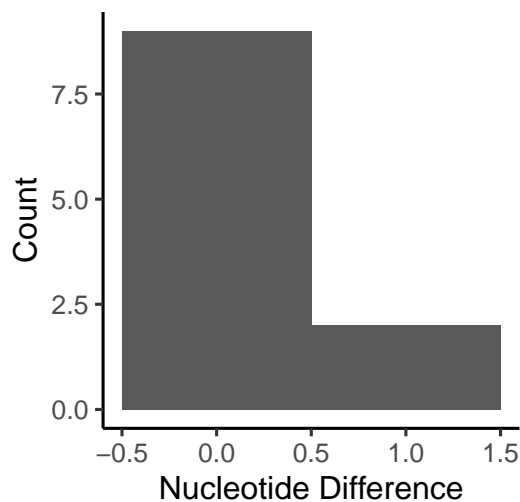
### IGHV3-64\*01

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



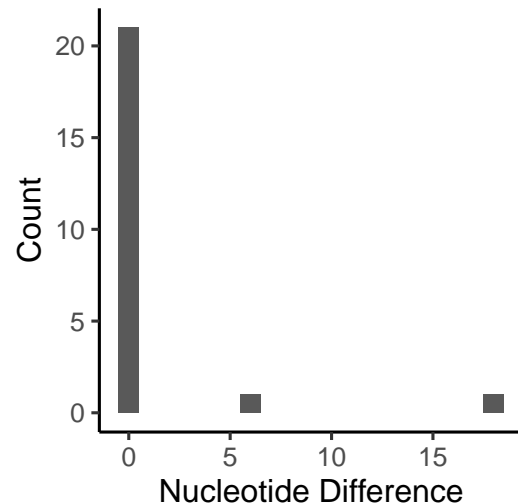
### IGHV3-73\*01

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



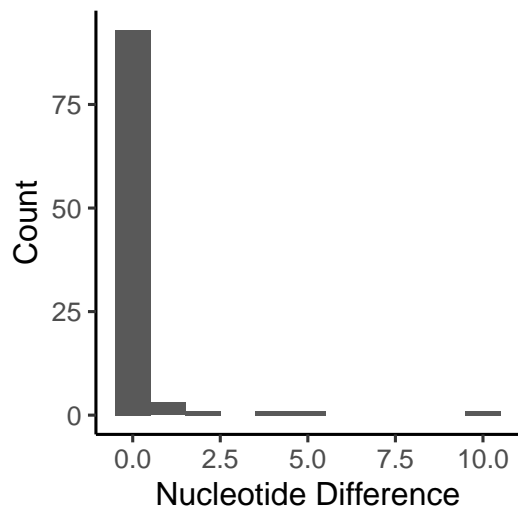
### IGHV3-64D\*09

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



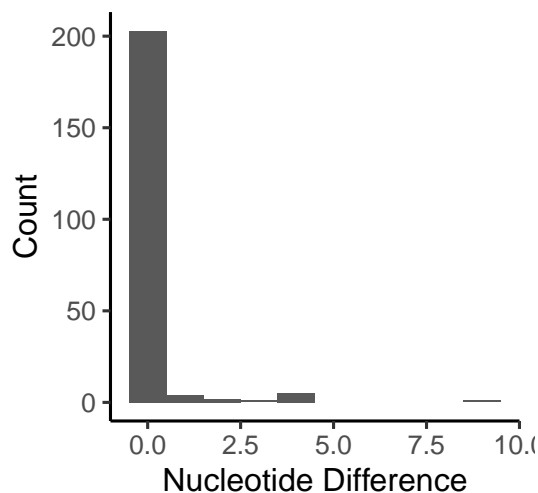
### IGHV4-4\*02

100 sequences assigned  
93 (93%) exact matches, in which:  
92 unique CDR3  
7 unique J



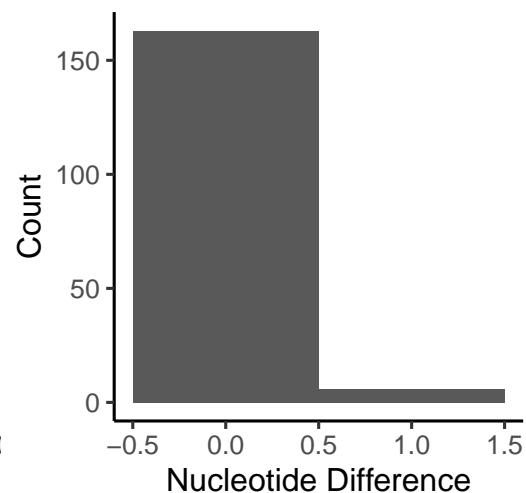
### IGHV4-31\*03

216 sequences assigned  
203 (94%) exact matches, in which:  
203 unique CDR3  
7 unique J



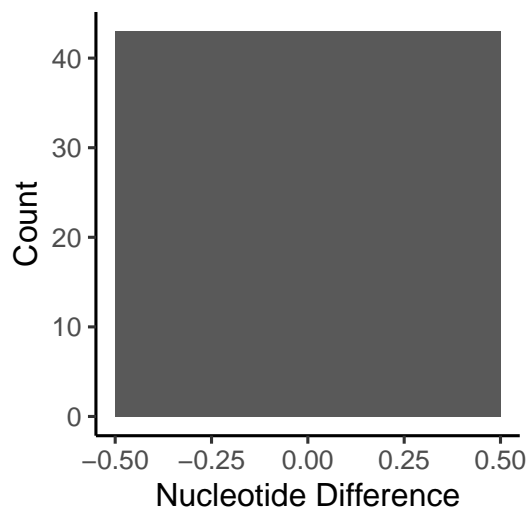
### IGHV4-59\*01

170 sequences assigned  
163 (95.9%) exact matches, in which:  
163 unique CDR3  
6 unique J



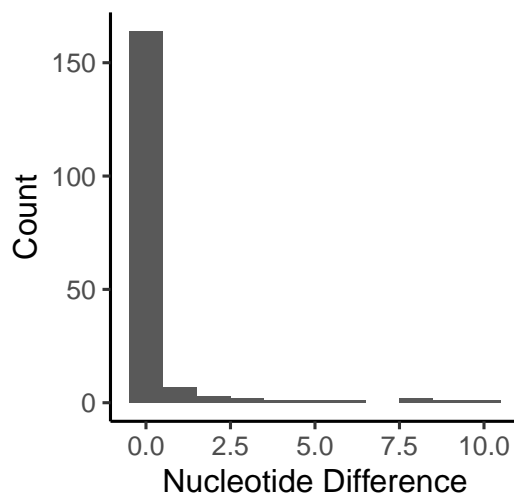
### IGHV4-30-4\*01

43 sequences assigned  
43 (100%) exact matches, in which:  
43 unique CDR3  
6 unique J



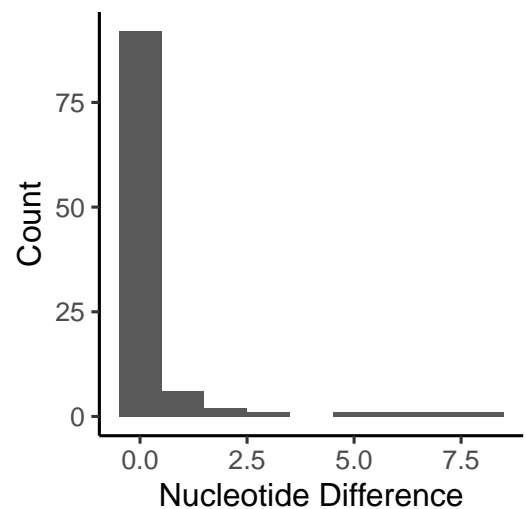
### IGHV4-34\*01

183 sequences assigned  
164 (89.6%) exact matches, in which:  
164 unique CDR3  
7 unique J



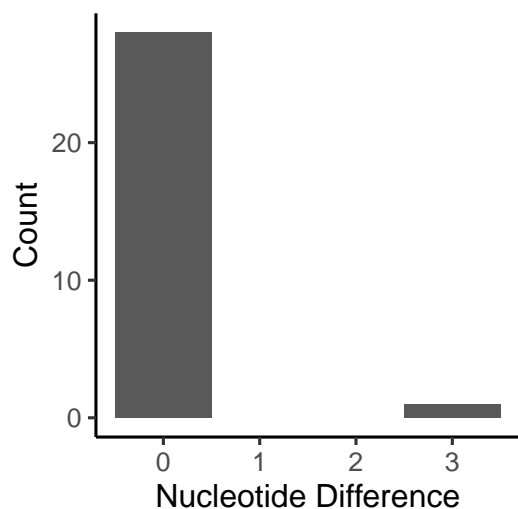
### IGHV4-59\*08

105 sequences assigned  
92 (87.6%) exact matches, in which:  
92 unique CDR3  
7 unique J



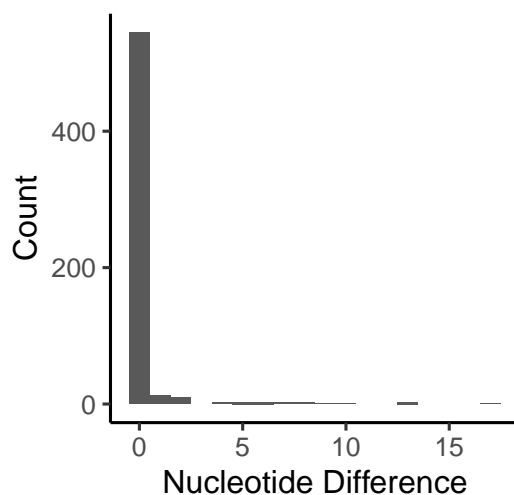
### IGHV4-30-2\*01

29 sequences assigned  
28 (96.6%) exact matches, in which:  
28 unique CDR3  
4 unique J



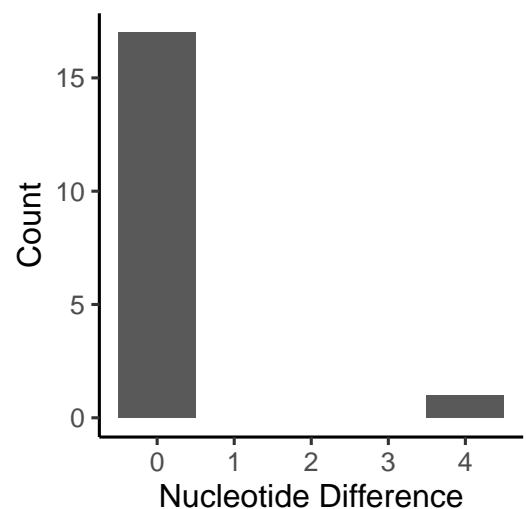
### IGHV4-39\*01

584 sequences assigned  
545 (93.3%) exact matches, in which:  
545 unique CDR3  
7 unique J



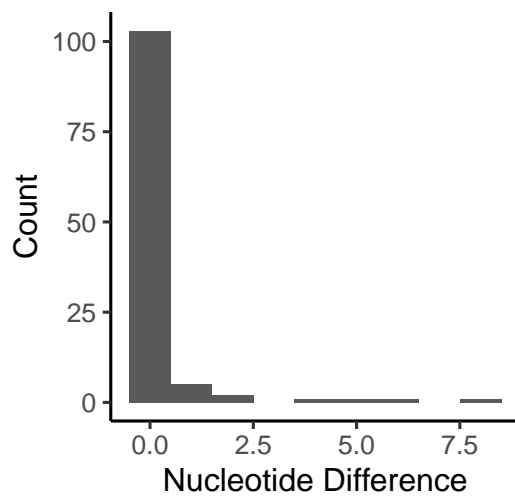
### IGHV4-61\*01

18 sequences assigned  
17 (94.4%) exact matches, in which:  
17 unique CDR3  
4 unique J



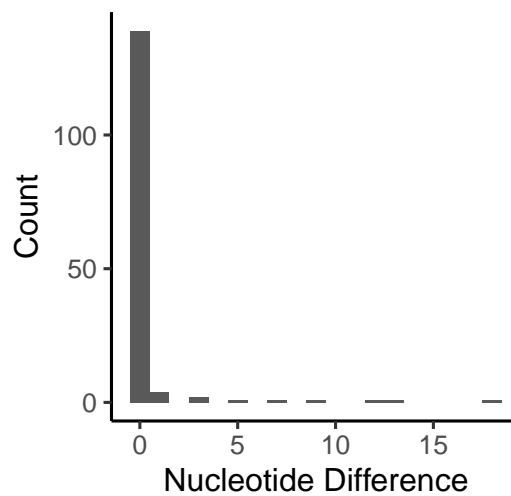
### IGHV5-10-1\*03

114 sequences assigned  
103 (90.4%) exact matches, in which:  
103 unique CDR3  
6 unique J



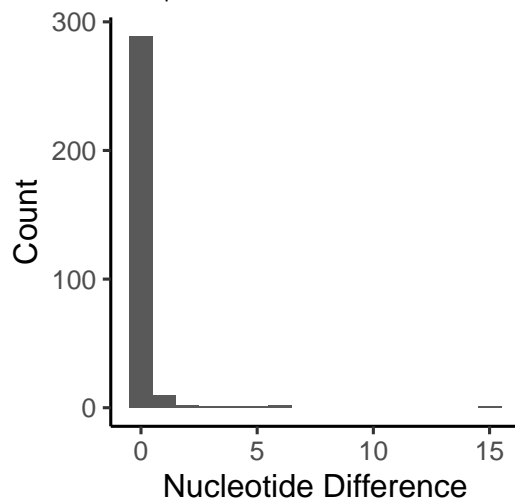
### IGHV7-4-1\*02

151 sequences assigned  
139 (92.1%) exact matches, in which:  
139 unique CDR3  
7 unique J



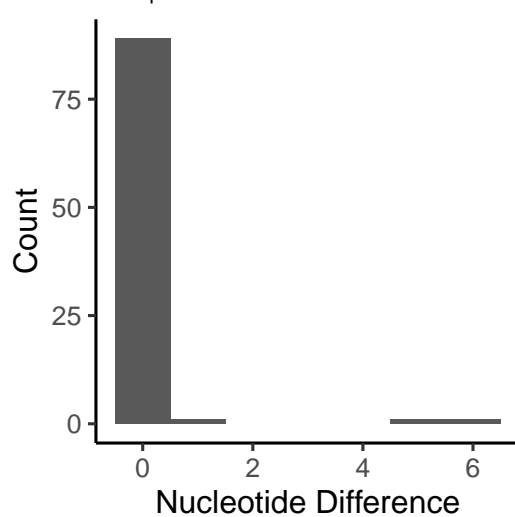
### IGHV5-51\*01

307 sequences assigned  
289 (94.1%) exact matches, in which:  
288 unique CDR3  
6 unique J

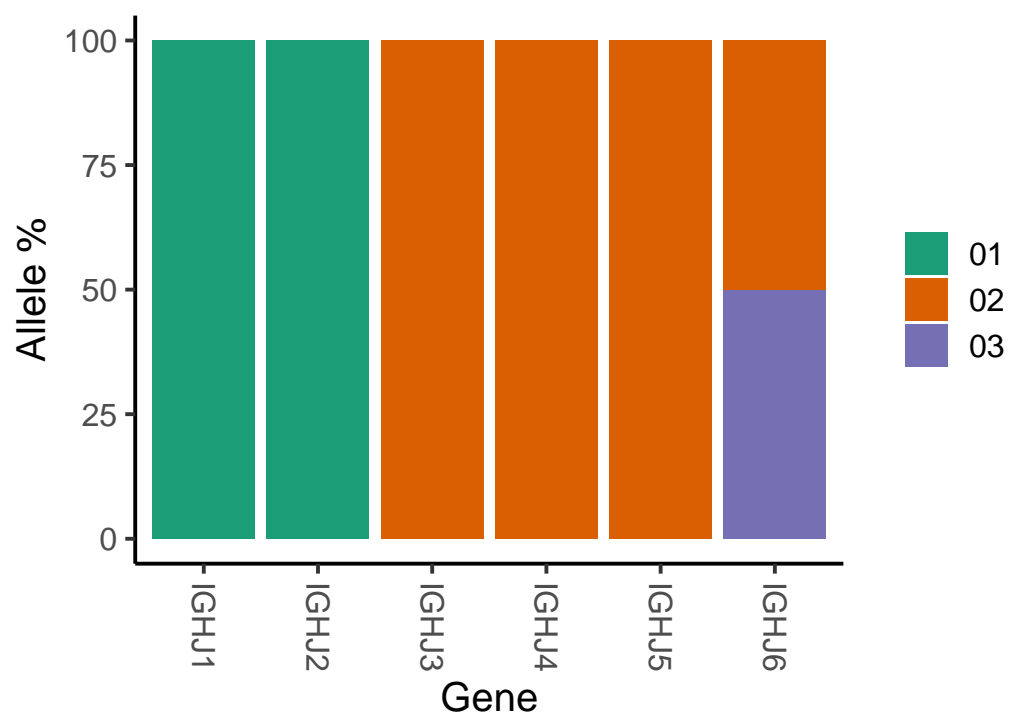


### IGHV6-1\*01

92 sequences assigned  
89 (96.7%) exact matches, in which:  
89 unique CDR3  
6 unique J

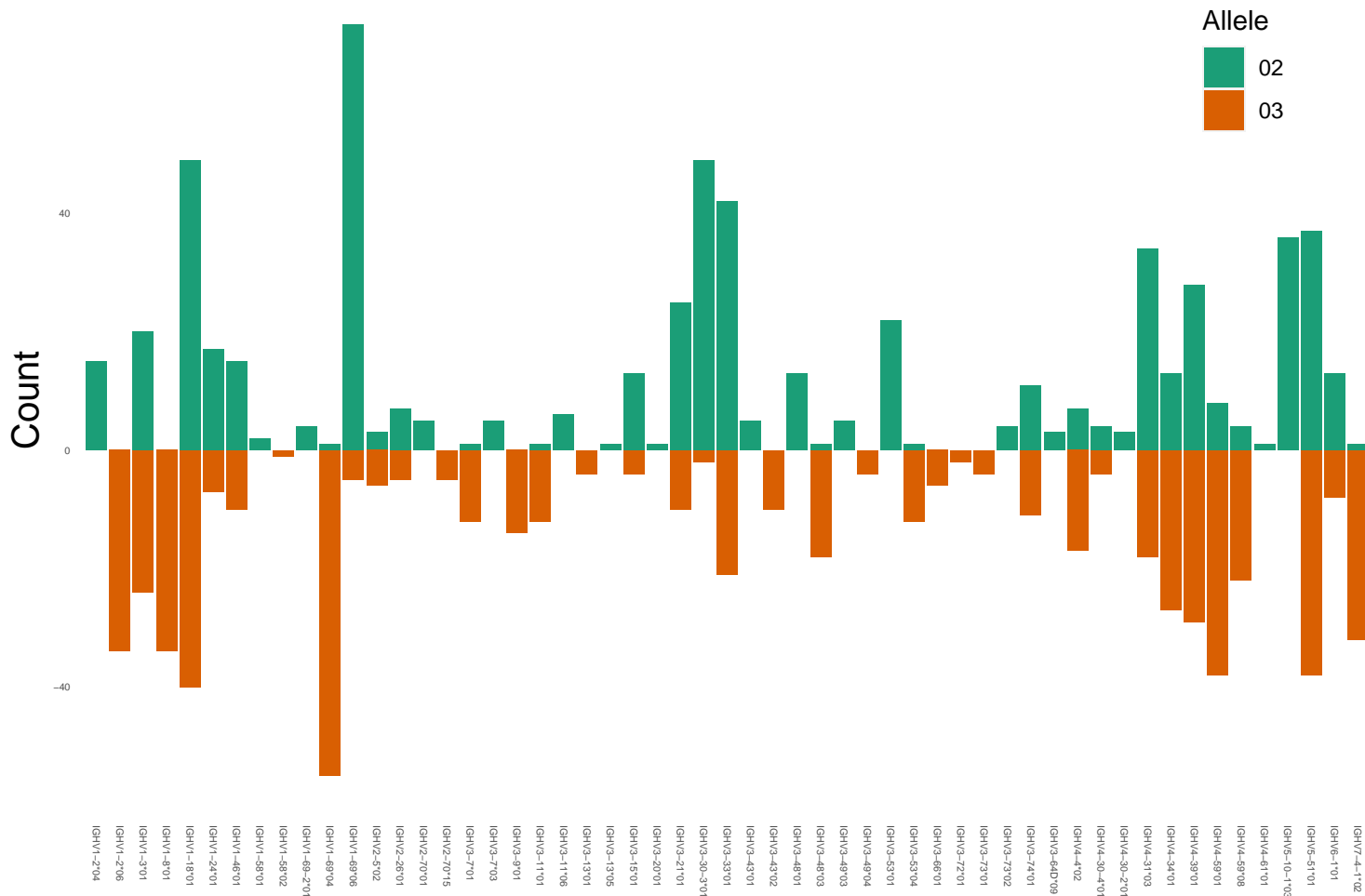


Allele Usage





Sequence Count by IGHJ6 allele usage



[illegible]