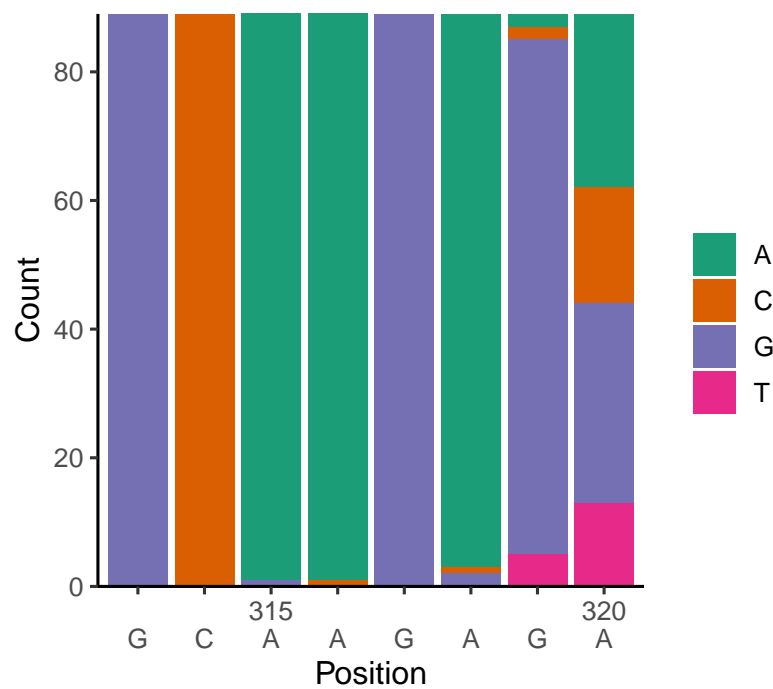
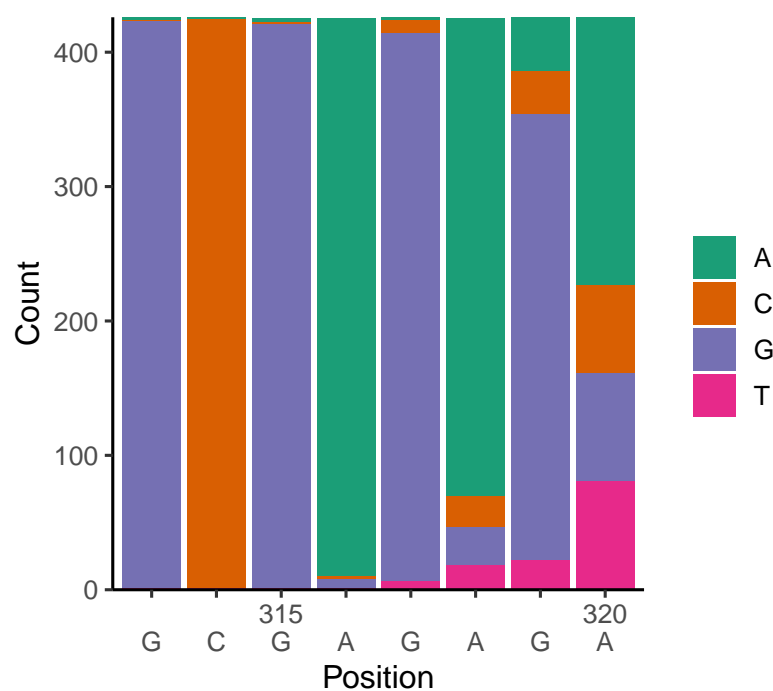


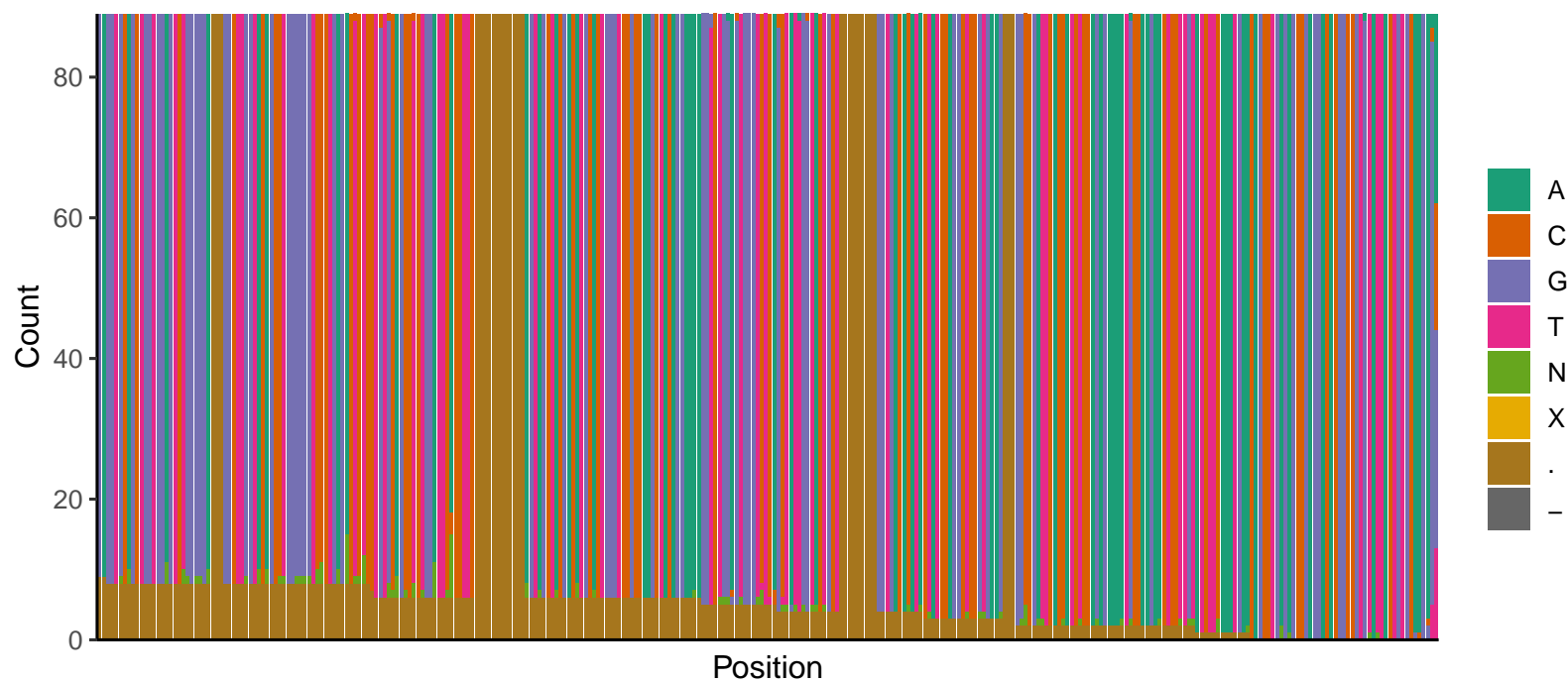
Gene IGHV3-13\*01\_G290A\_T300C



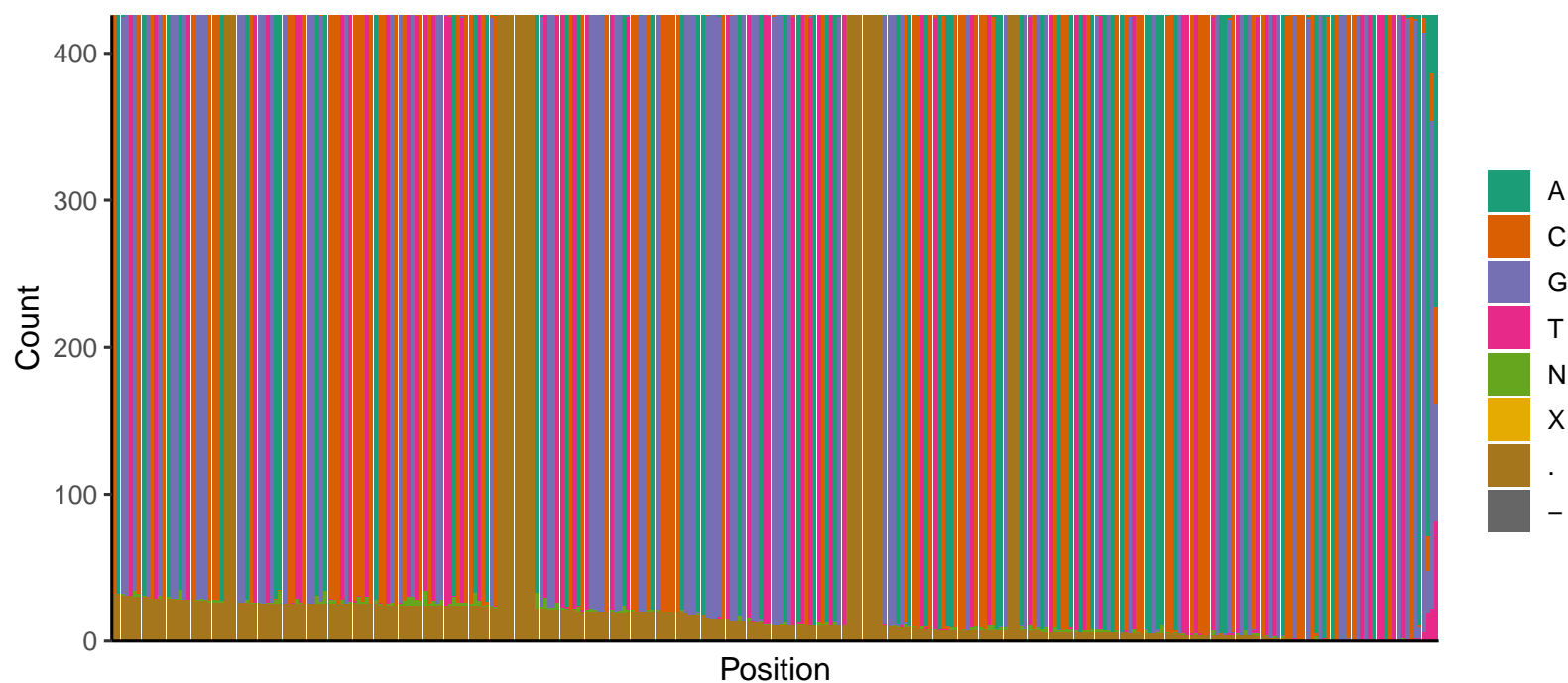
Gene IGHV4-38-2\*02\_A70G



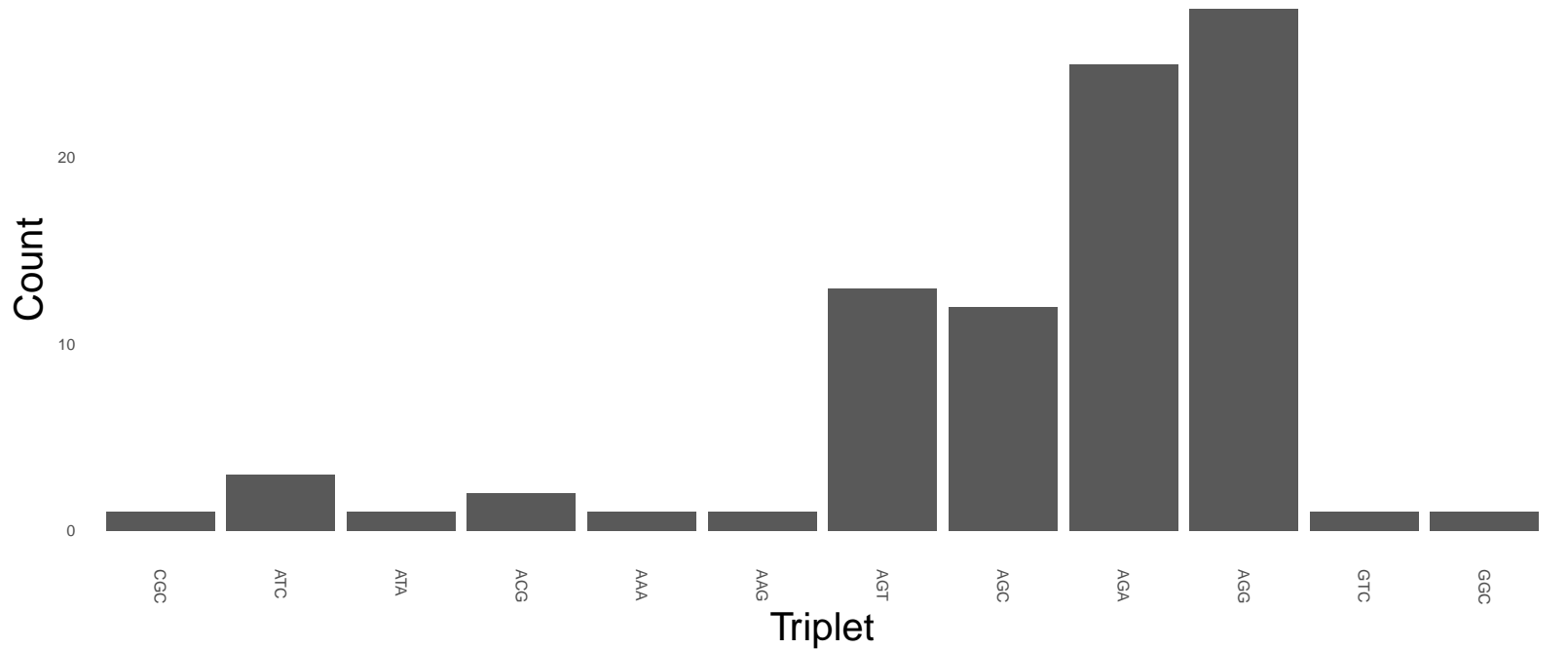
Gene IGHV3-13\*01\_G290A\_T300C



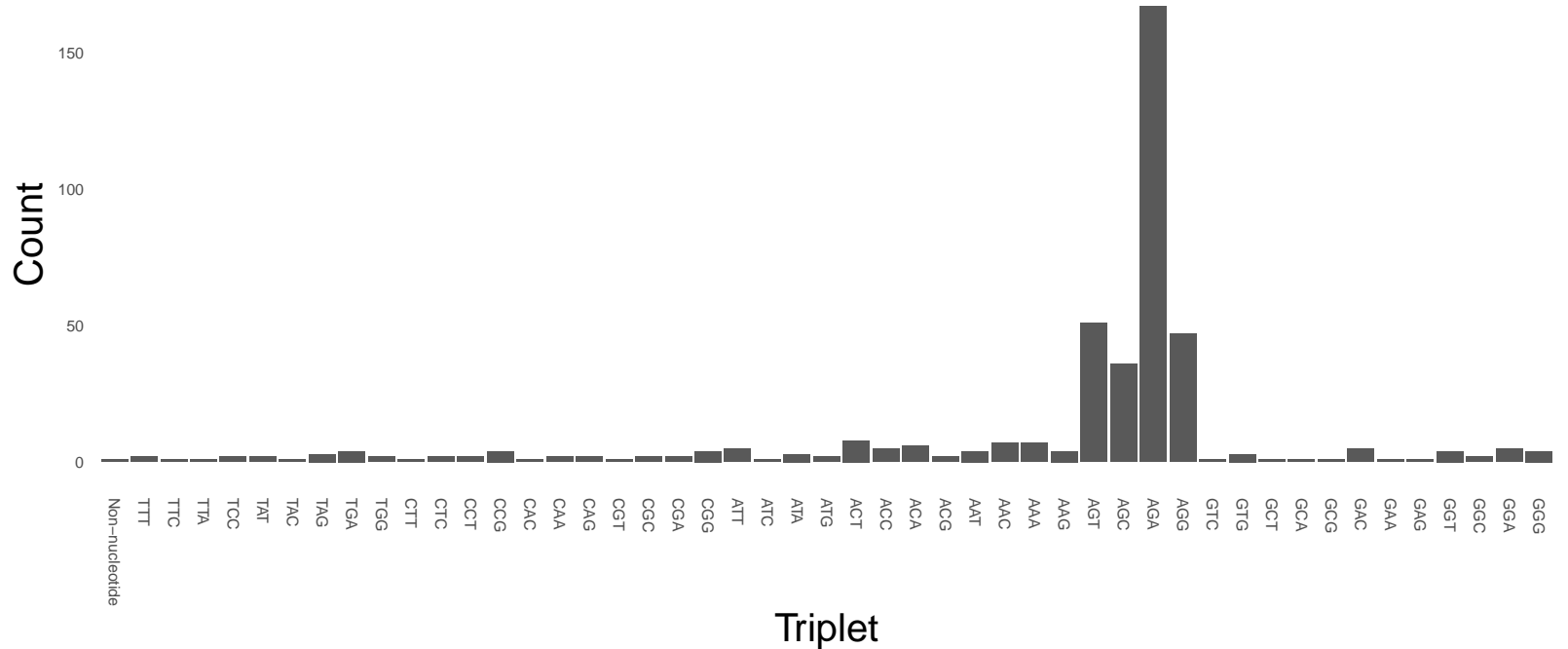
Gene IGHV4-38-2\*02\_A70G



IGHV3-13\*01\_G290A\_T300C- Final 3 nucleotides as a triplet

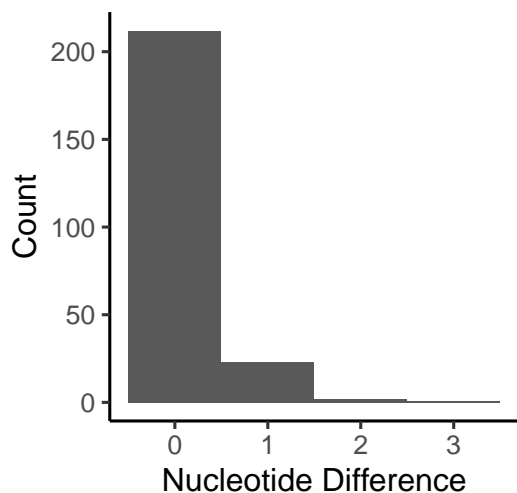


IGHV4-38-2\*02\_A70G- Final 3 nucleotides as a triplet



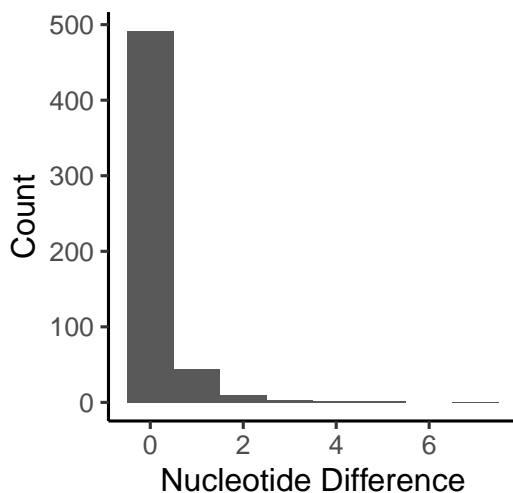
### IGHV1-2\*04

238 sequences assigned  
212 (89.1%) exact matches, in which:  
205 unique CDR3  
6 unique J



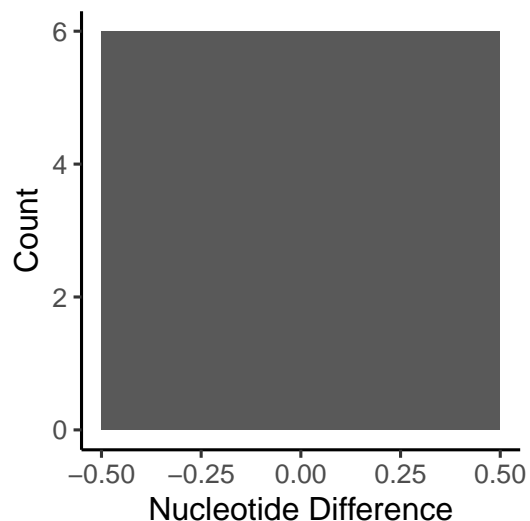
### IGHV1-8\*01

554 sequences assigned  
492 (88.8%) exact matches, in which:  
472 unique CDR3  
6 unique J



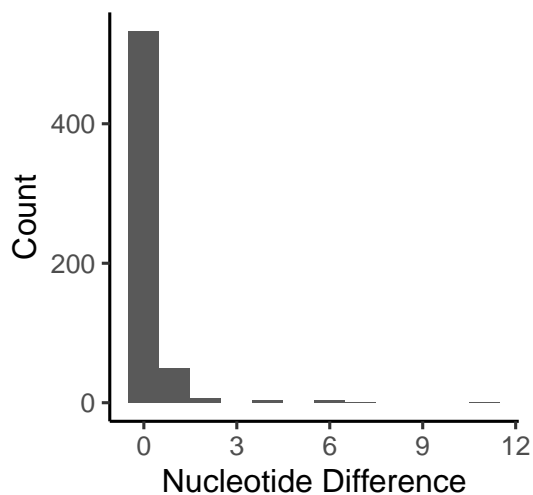
### IGHV1-45\*02

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



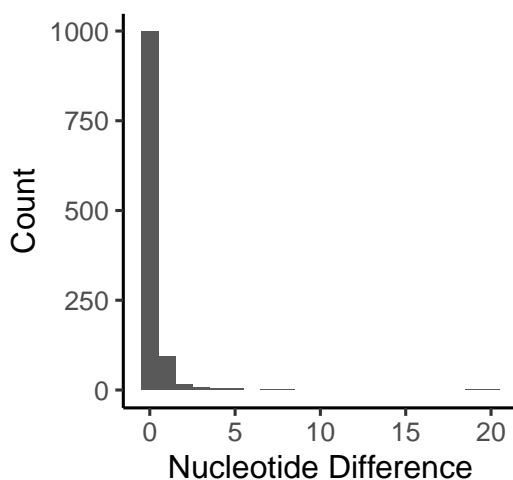
### IGHV1-2\*06

598 sequences assigned  
533 (89.1%) exact matches, in which:  
514 unique CDR3  
6 unique J



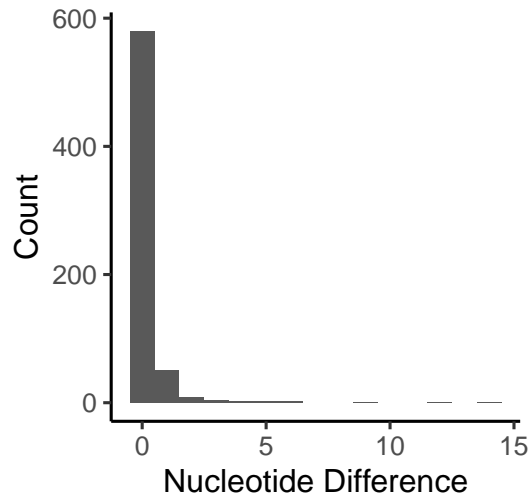
### IGHV1-18\*01

1127 sequences assigned  
998 (88.6%) exact matches, in which:  
954 unique CDR3  
6 unique J



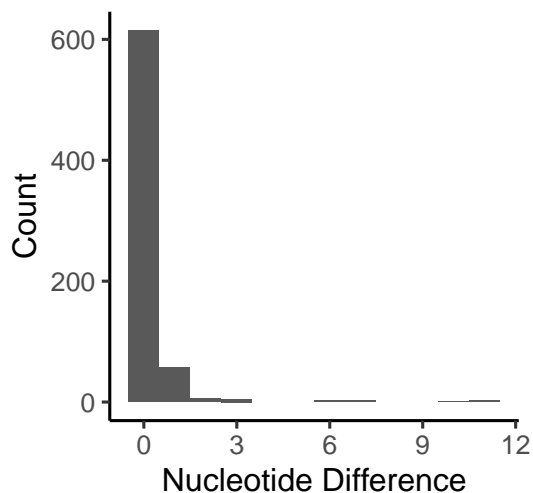
### IGHV1-46\*01

654 sequences assigned  
580 (88.7%) exact matches, in which:  
562 unique CDR3  
6 unique J



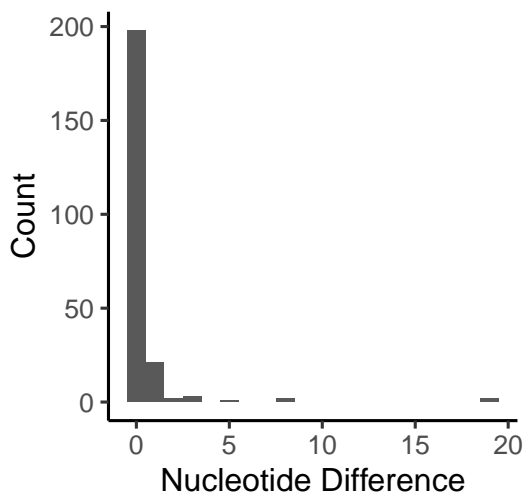
### IGHV1-3\*01

692 sequences assigned  
615 (88.9%) exact matches, in which:  
593 unique CDR3  
6 unique J



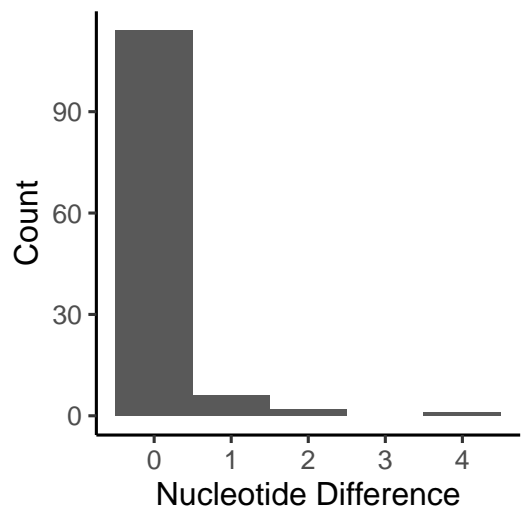
### IGHV1-24\*01

229 sequences assigned  
198 (86.5%) exact matches, in which:  
193 unique CDR3  
6 unique J



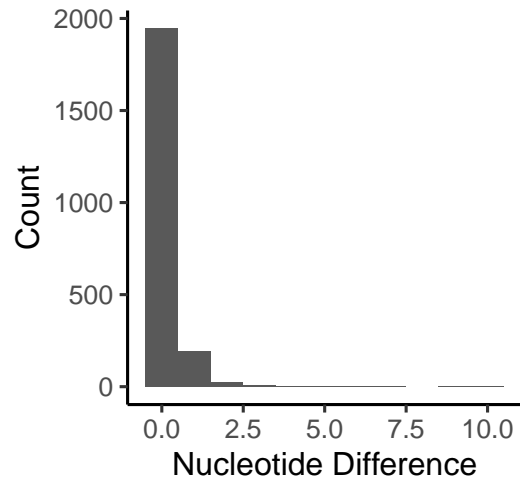
### IGHV1-58\*01

123 sequences assigned  
114 (92.7%) exact matches, in which:  
109 unique CDR3  
5 unique J



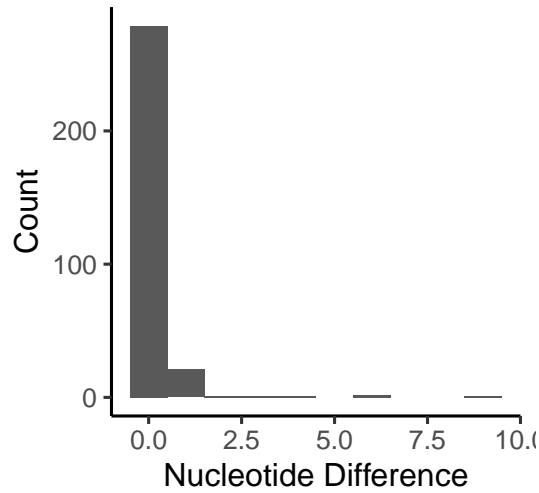
### IGHV1-69\*01

2187 sequences assigned  
1946 (89%) exact matches, in which:  
1856 unique CDR3  
6 unique J



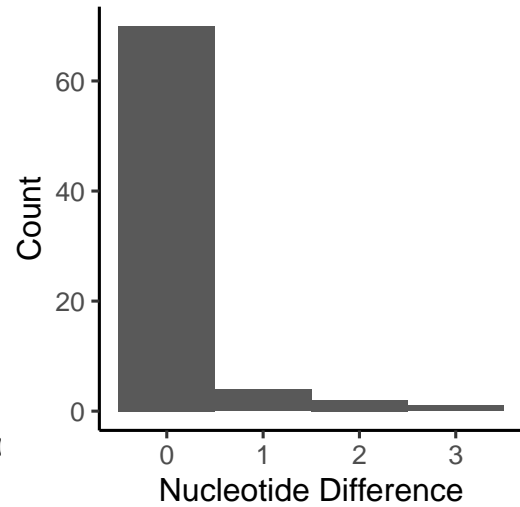
### IGHV2-5\*01

306 sequences assigned  
279 (91.2%) exact matches, in which:  
269 unique CDR3  
6 unique J



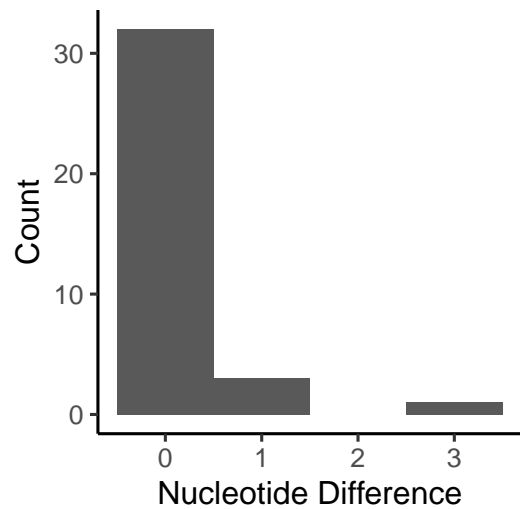
### IGHV2-70\*01

77 sequences assigned  
70 (90.9%) exact matches, in which:  
70 unique CDR3  
5 unique J



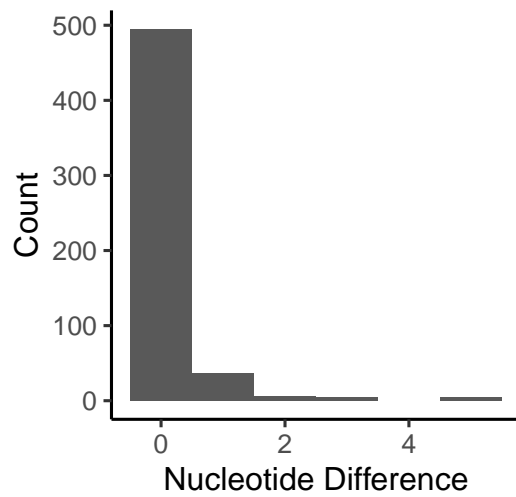
### IGHV1-69-2\*01

37 sequences assigned  
32 (86.5%) exact matches, in which:  
32 unique CDR3  
5 unique J



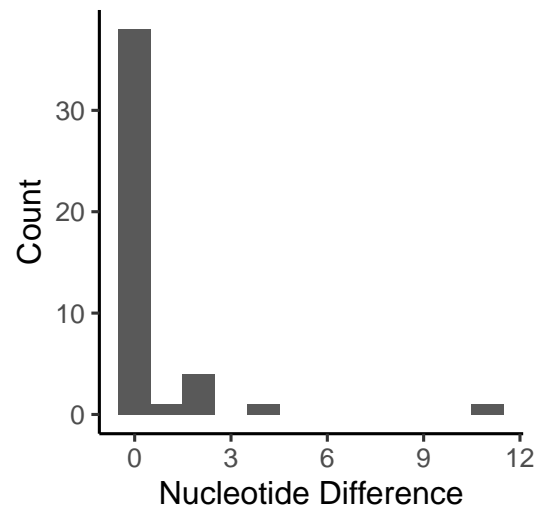
### IGHV2-5\*02

546 sequences assigned  
495 (90.7%) exact matches, in which:  
479 unique CDR3  
6 unique J



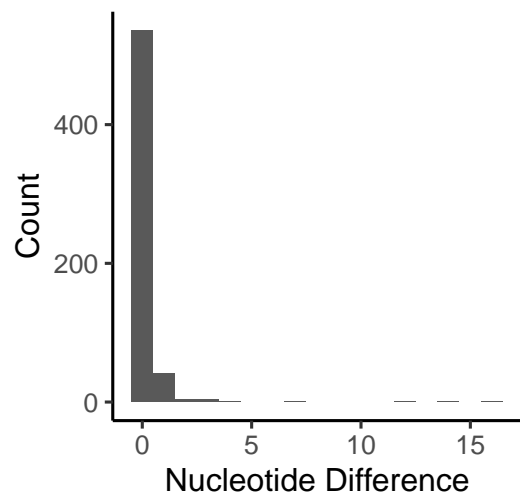
### IGHV2-70\*04

45 sequences assigned  
38 (84.4%) exact matches, in which:  
38 unique CDR3  
5 unique J



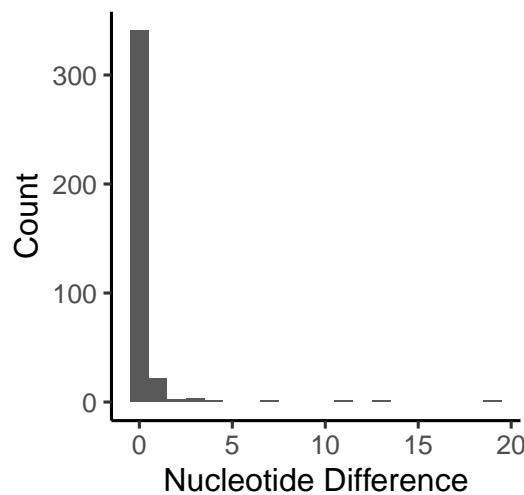
### IGHV1-69\*06

589 sequences assigned  
536 (91%) exact matches, in which:  
507 unique CDR3  
6 unique J



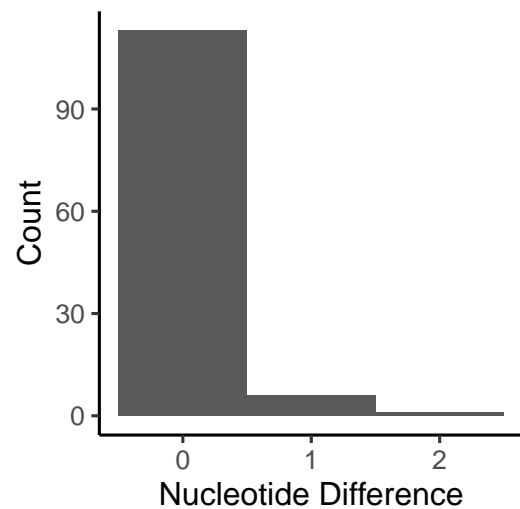
### IGHV2-26\*01

373 sequences assigned  
341 (91.4%) exact matches, in which:  
321 unique CDR3  
6 unique J



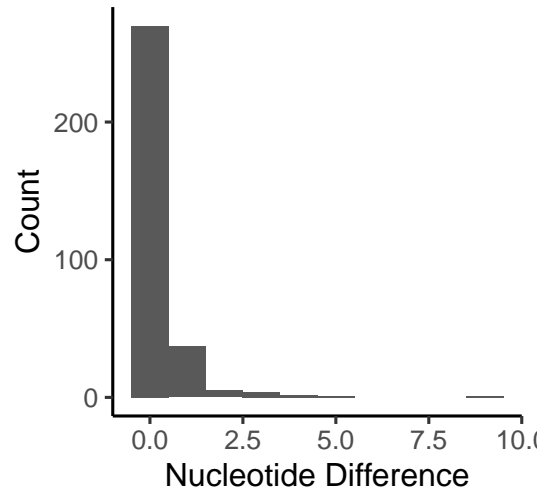
### IGHV2-70\*15

120 sequences assigned  
113 (94.2%) exact matches, in which:  
110 unique CDR3  
6 unique J



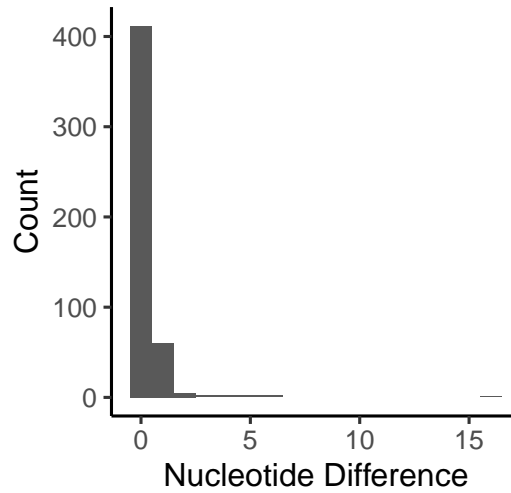
### IGHV3-7\*01

320 sequences assigned  
270 (84.4%) exact matches, in which:  
258 unique CDR3  
6 unique J



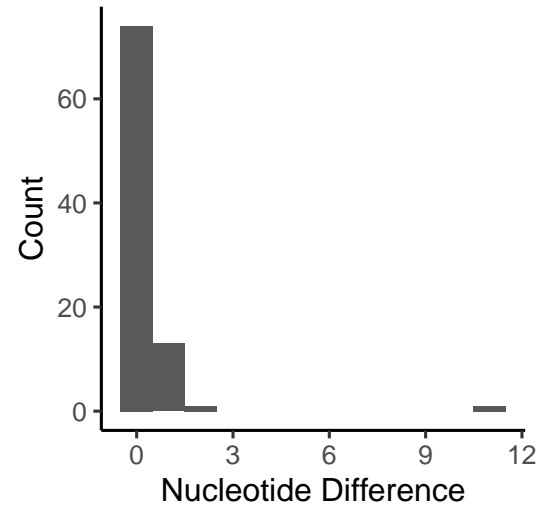
### IGHV3-11\*01

486 sequences assigned  
412 (84.8%) exact matches, in which:  
401 unique CDR3  
6 unique J



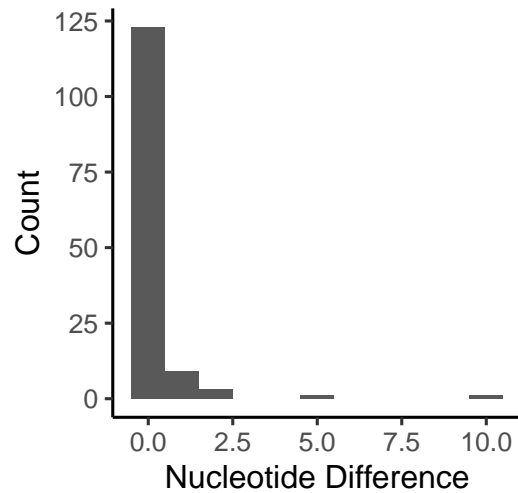
### IGHV3-13\*01\_G290A\_T300A

89 sequences assigned  
74 (83.1%) exact matches, in which:  
70 unique CDR3  
5 unique J



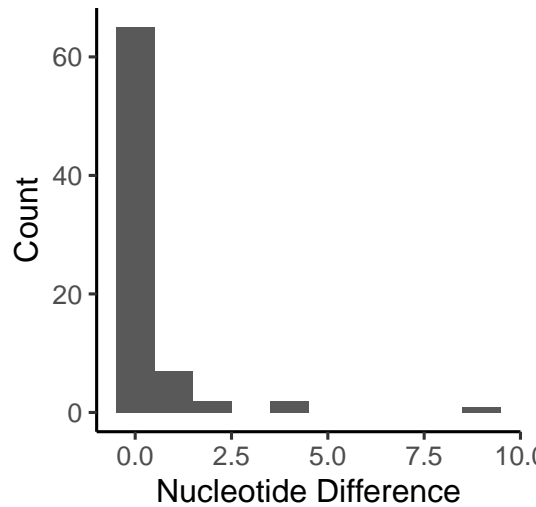
### IGHV3-7\*05

137 sequences assigned  
123 (89.8%) exact matches, in which:  
118 unique CDR3  
6 unique J



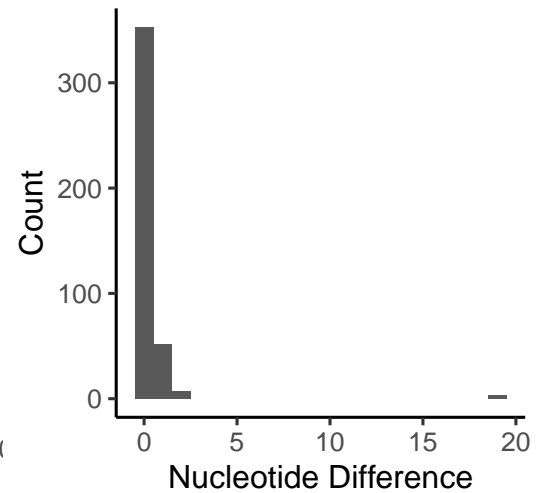
### IGHV3-11\*06

77 sequences assigned  
65 (84.4%) exact matches, in which:  
62 unique CDR3  
5 unique J



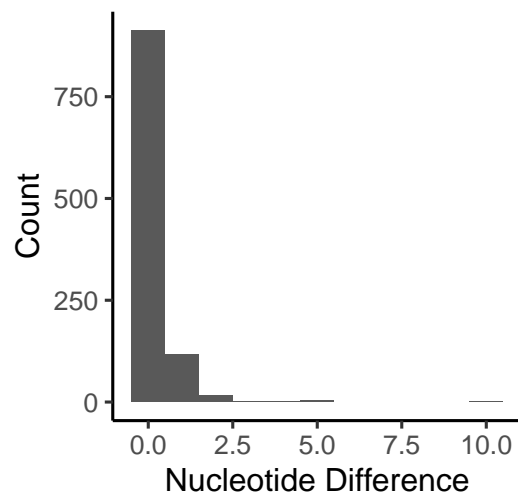
### IGHV3-15\*01

424 sequences assigned  
353 (83.3%) exact matches, in which:  
342 unique CDR3  
6 unique J



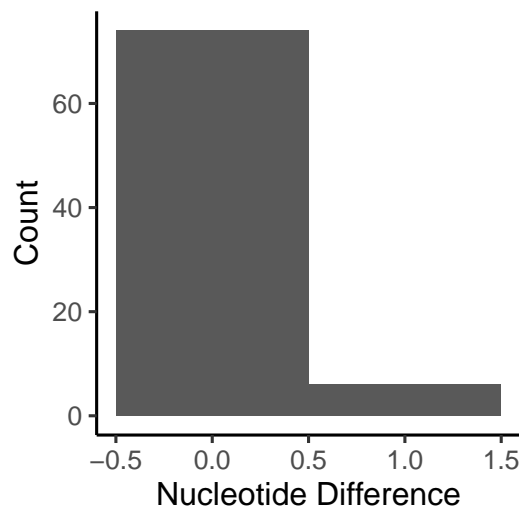
### IGHV3-9\*01

1054 sequences assigned  
913 (86.6%) exact matches, in which:  
860 unique CDR3  
6 unique J



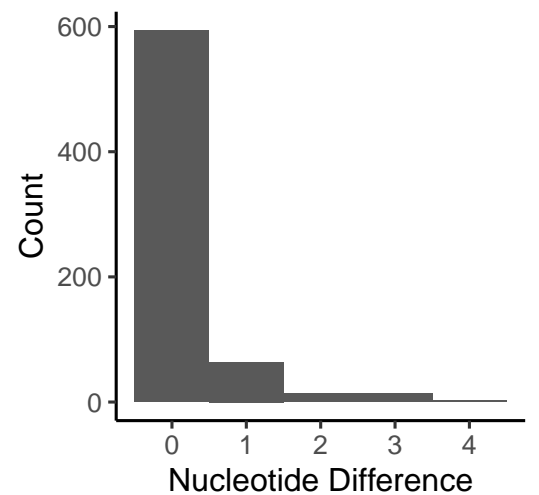
### IGHV3-13\*01

80 sequences assigned  
74 (92.5%) exact matches, in which:  
72 unique CDR3  
5 unique J



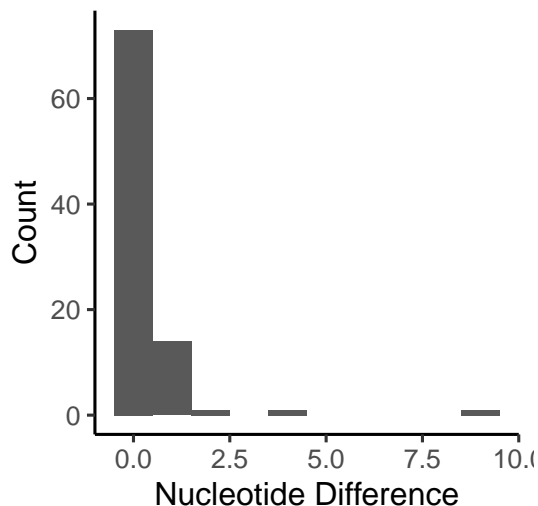
### IGHV3-15\*07

688 sequences assigned  
594 (86.3%) exact matches, in which:  
578 unique CDR3  
6 unique J



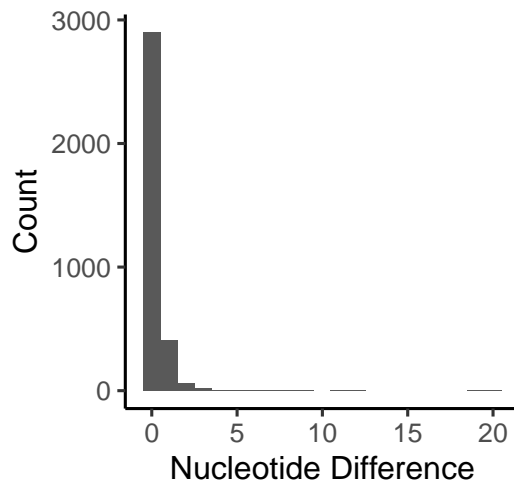
### IGHV3-20\*01

90 sequences assigned  
73 (81.1%) exact matches, in which:  
68 unique CDR3  
5 unique J



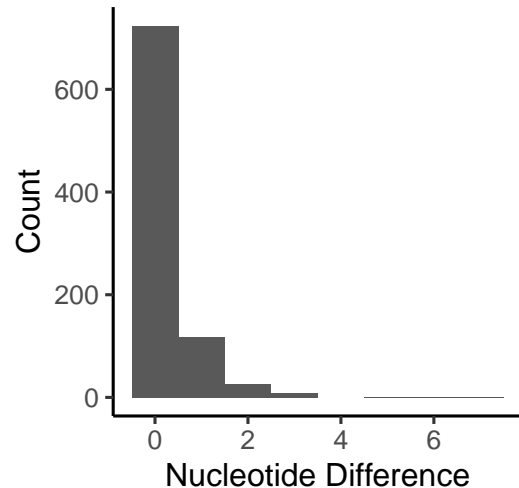
### IGHV3-23\*01

3432 sequences assigned  
2899 (84.5%) exact matches, in which:  
2748 unique CDR3  
6 unique J



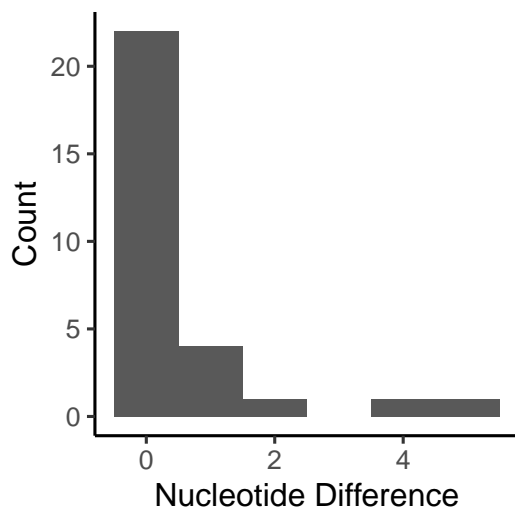
### IGHV3-33\*01

878 sequences assigned  
724 (82.5%) exact matches, in which:  
692 unique CDR3  
6 unique J



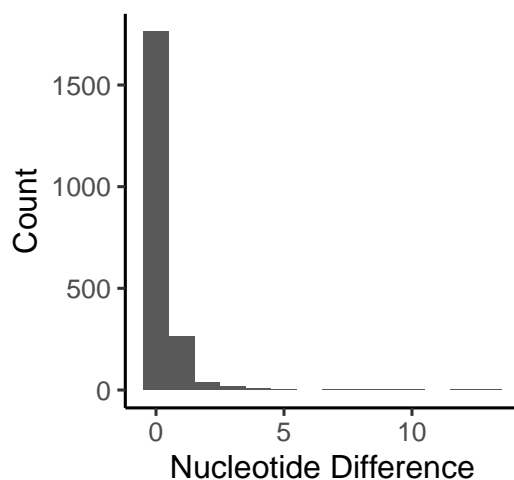
### IGHV3-20\*04

29 sequences assigned  
22 (75.9%) exact matches, in which:  
22 unique CDR3  
6 unique J



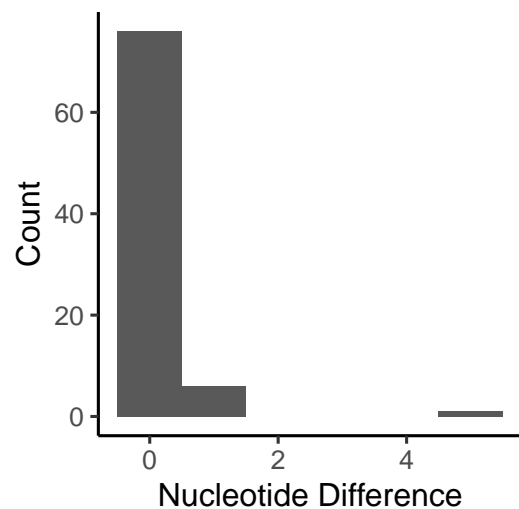
### IGHV3-30-3\*01

2101 sequences assigned  
1762 (83.9%) exact matches, in which:  
1697 unique CDR3  
6 unique J



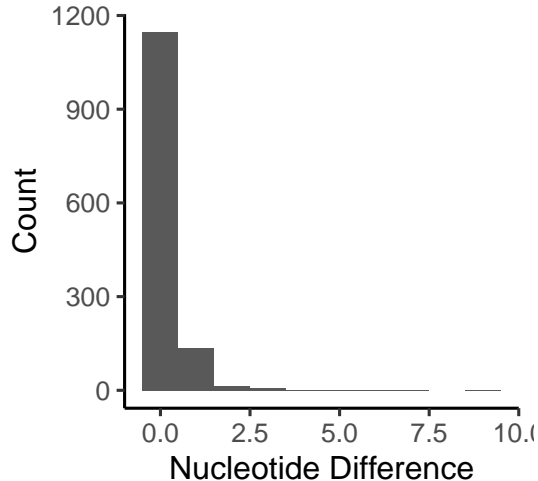
### IGHV3-43\*01

83 sequences assigned  
76 (91.6%) exact matches, in which:  
74 unique CDR3  
5 unique J



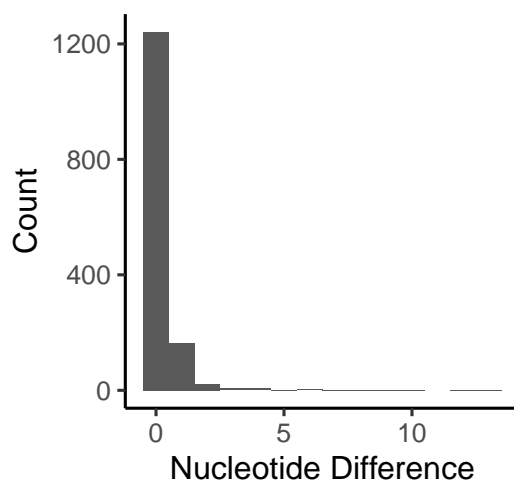
### IGHV3-21\*01

1318 sequences assigned  
1147 (87%) exact matches, in which:  
1090 unique CDR3  
6 unique J



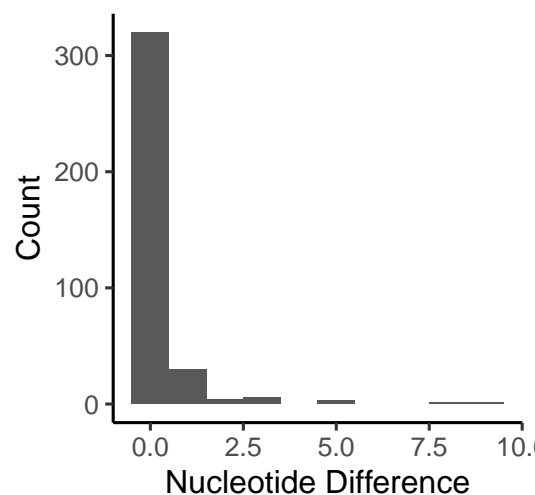
### IGHV3-30\*18

1450 sequences assigned  
1241 (85.6%) exact matches, in which:  
1204 unique CDR3  
6 unique J



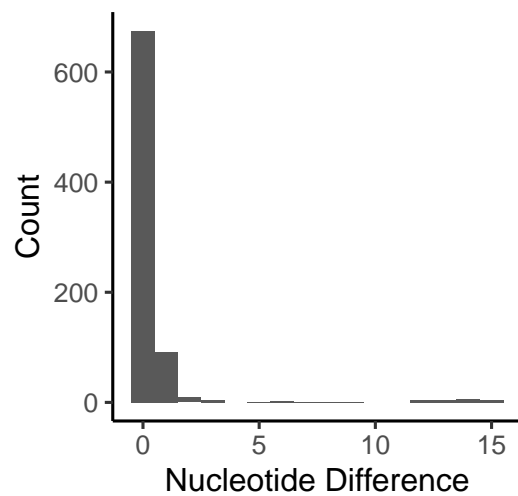
### IGHV3-48\*01

365 sequences assigned  
320 (87.7%) exact matches, in which:  
305 unique CDR3  
6 unique J



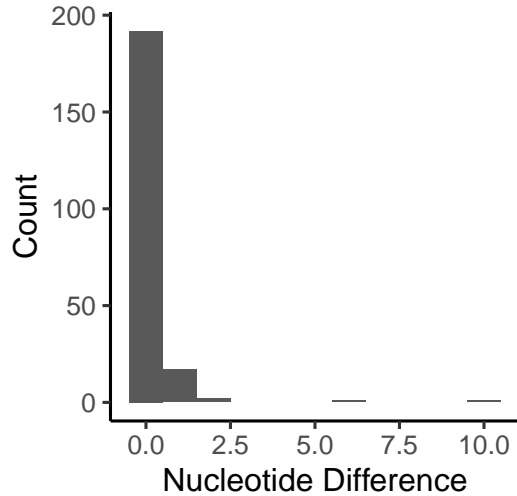
### IGHV3–48\*03

810 sequences assigned  
675 (83.3%) exact matches, in which:  
645 unique CDR3  
6 unique J



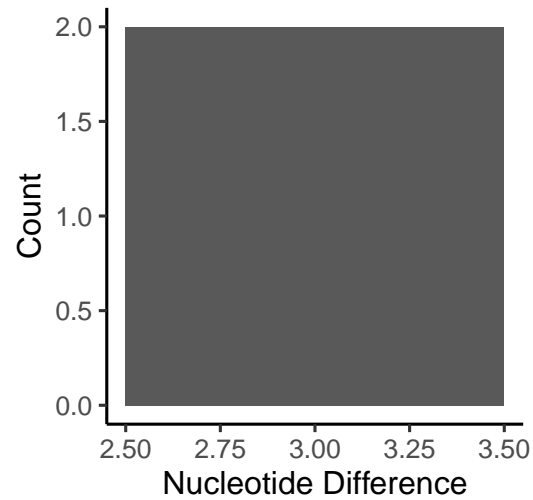
### IGHV3–53\*01

213 sequences assigned  
192 (90.1%) exact matches, in which:  
181 unique CDR3  
6 unique J



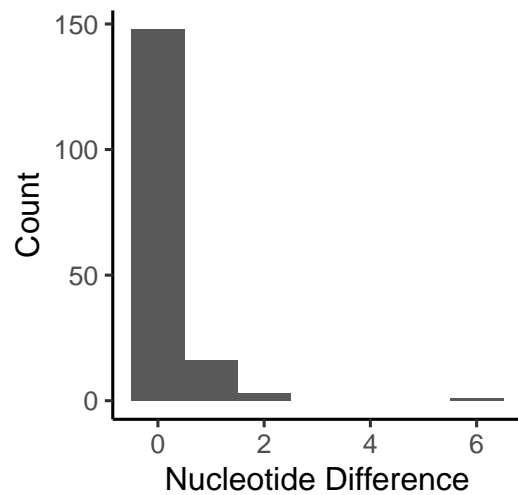
### IGHV3–64\*04

2 sequences assigned  
No exact matches.



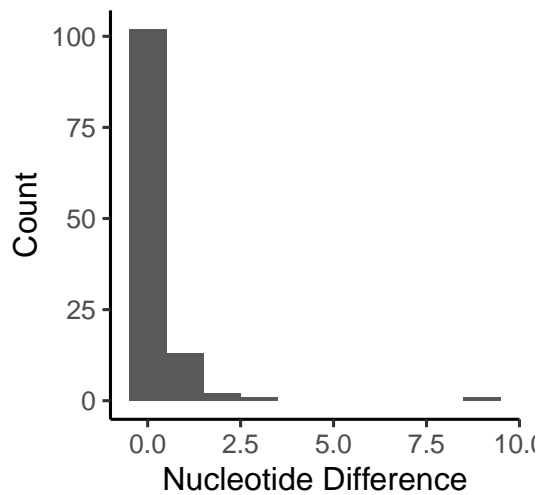
### IGHV3–49\*03

168 sequences assigned  
148 (88.1%) exact matches, in which:  
141 unique CDR3  
6 unique J



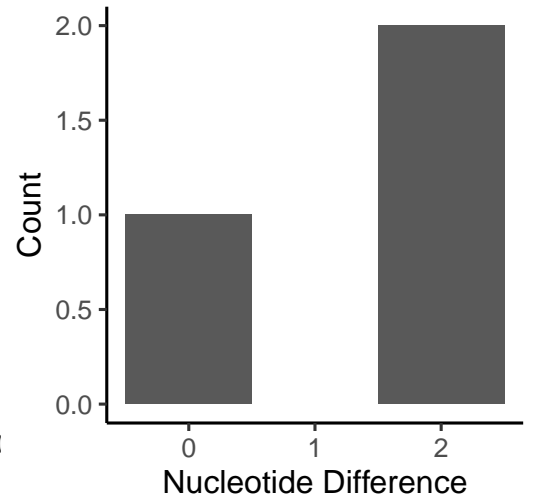
### IGHV3–53\*02

119 sequences assigned  
102 (85.7%) exact matches, in which:  
99 unique CDR3  
5 unique J



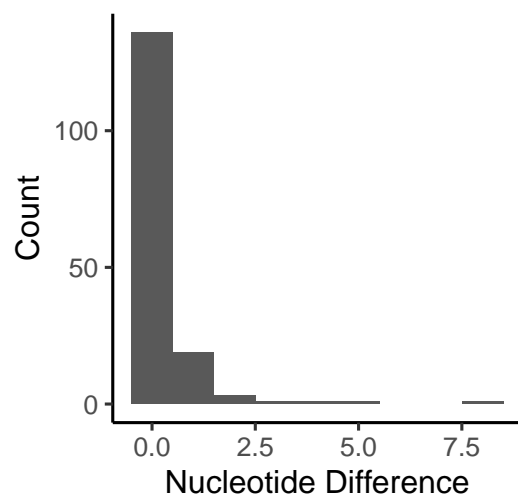
### IGHV3–71\*03

3 sequences assigned  
1 (33.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



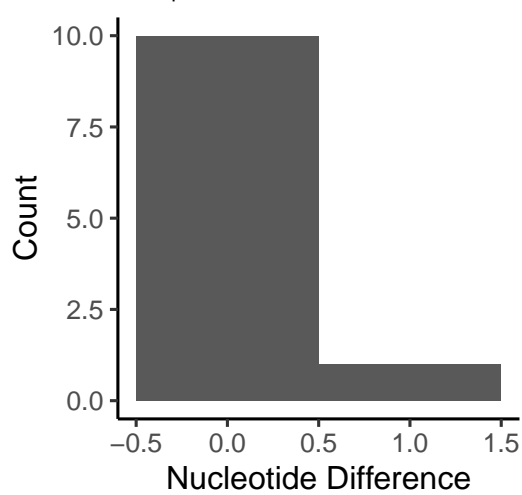
### IGHV3–49\*04

162 sequences assigned  
136 (84%) exact matches, in which:  
134 unique CDR3  
6 unique J



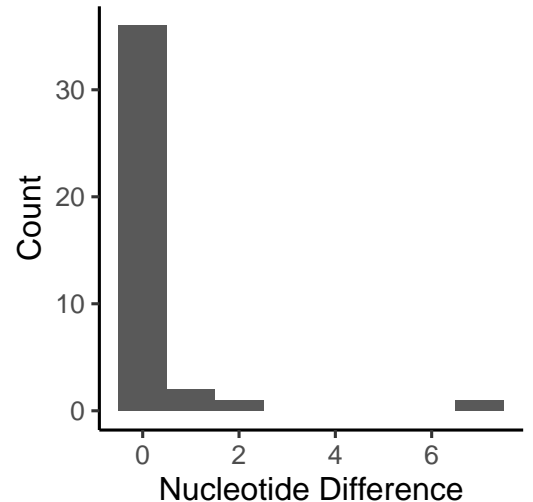
### IGHV3–64\*02

11 sequences assigned  
10 (90.9%) exact matches, in which:  
10 unique CDR3  
4 unique J



### IGHV3–72\*01

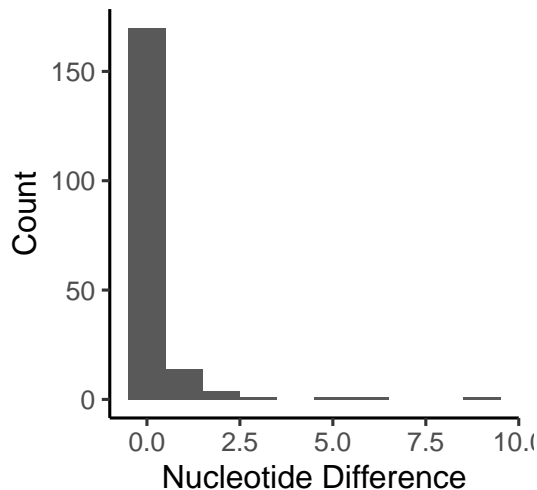
40 sequences assigned  
36 (90%) exact matches, in which:  
34 unique CDR3  
4 unique J





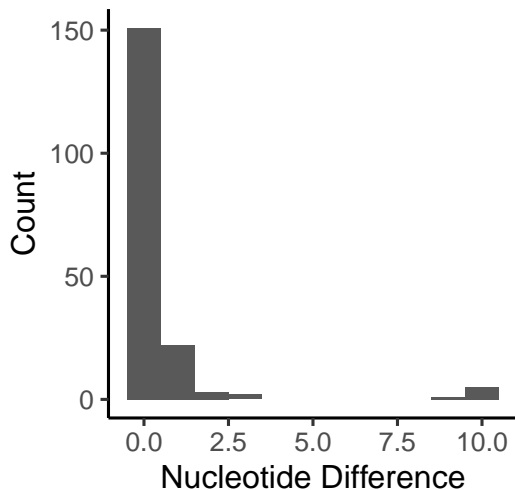
### IGHV3–73\*02

192 sequences assigned  
170 (88.5%) exact matches, in which:  
165 unique CDR3  
6 unique J



### IGHV3–64D\*08

184 sequences assigned  
151 (82.1%) exact matches, in which:  
143 unique CDR3  
6 unique J



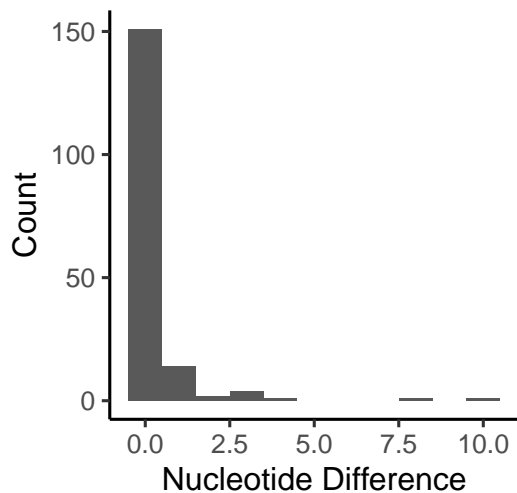
### IGHV4–28\*03

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



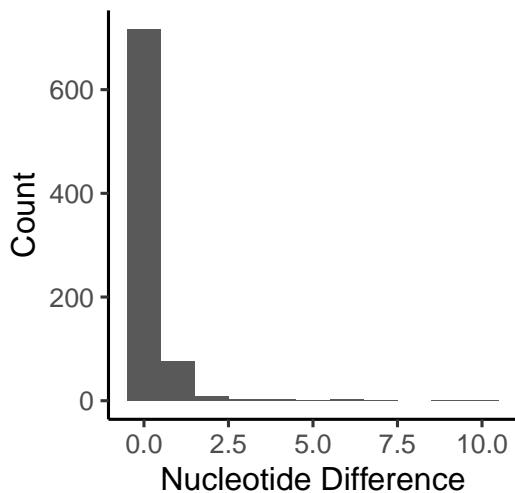
### IGHV3–74\*01

174 sequences assigned  
151 (86.8%) exact matches, in which:  
146 unique CDR3  
6 unique J



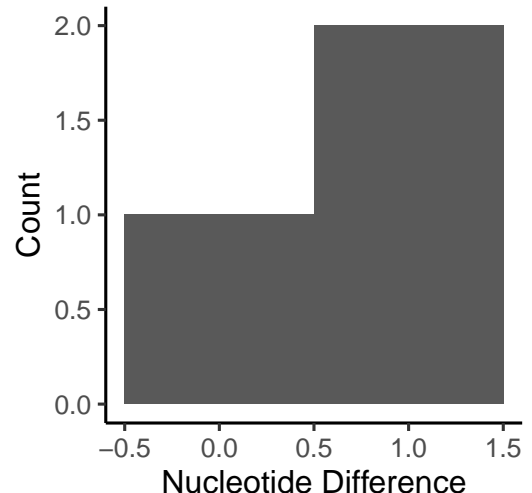
### IGHV4–4\*02

814 sequences assigned  
717 (88.1%) exact matches, in which:  
700 unique CDR3  
6 unique J



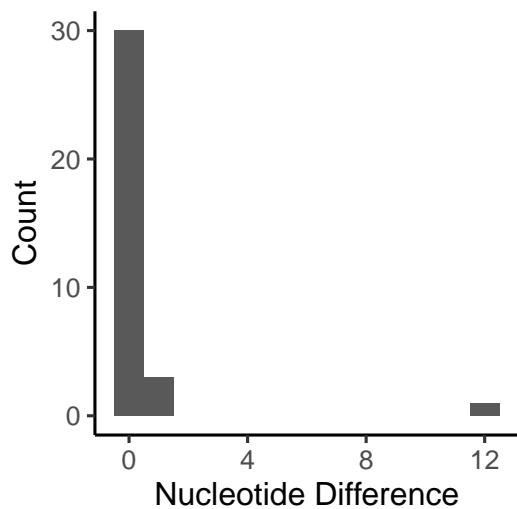
### IGHV4–28\*04

3 sequences assigned  
1 (33.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



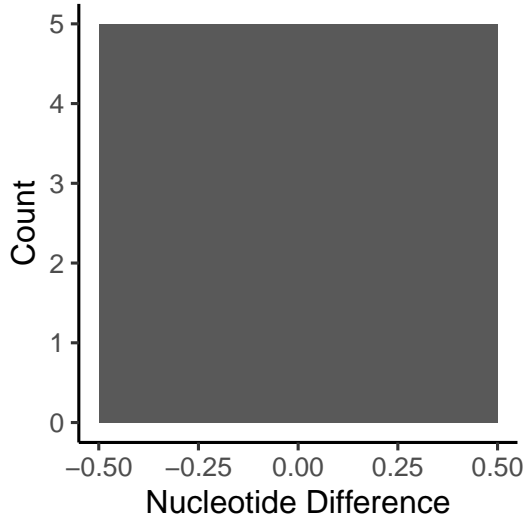
### IGHV3–43D\*04

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



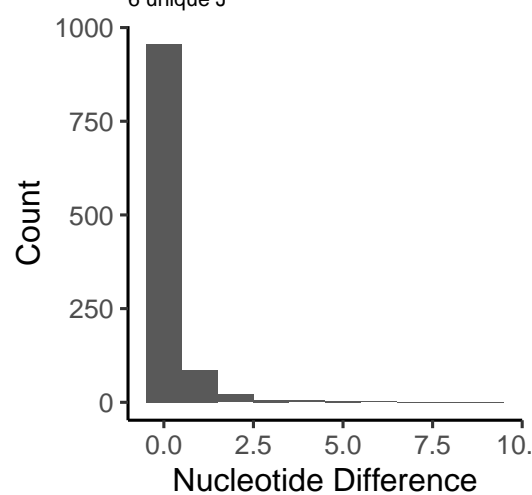
### IGHV4–28\*01

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



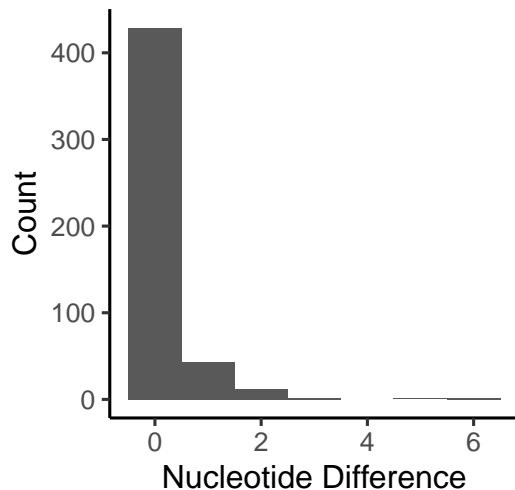
### IGHV4–30–4\*01

1082 sequences assigned  
956 (88.4%) exact matches, in which:  
925 unique CDR3  
6 unique J



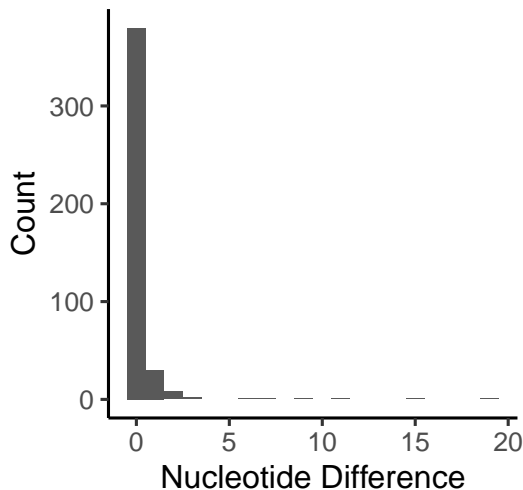
### IGHV4-30-2\*01

489 sequences assigned  
429 (87.7%) exact matches, in which:  
416 unique CDR3  
6 unique J



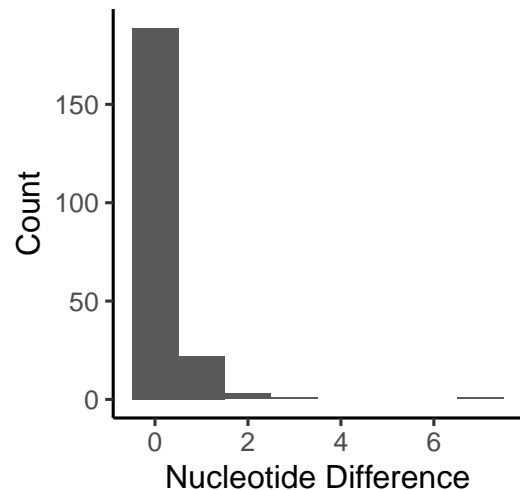
### IGHV4-38-2\*02\_A70G

426 sequences assigned  
380 (89.2%) exact matches, in which:  
359 unique CDR3  
6 unique J



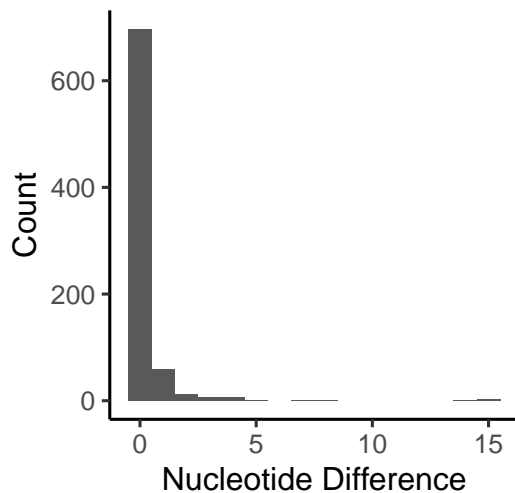
### IGHV4-61\*01

218 sequences assigned  
189 (86.7%) exact matches, in which:  
188 unique CDR3  
5 unique J



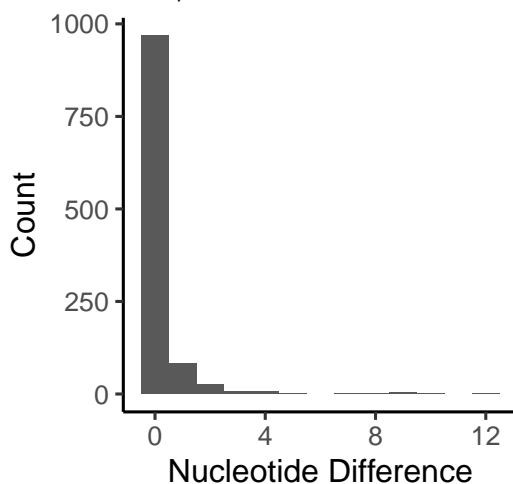
### IGHV4-31\*03

787 sequences assigned  
697 (88.6%) exact matches, in which:  
669 unique CDR3  
6 unique J



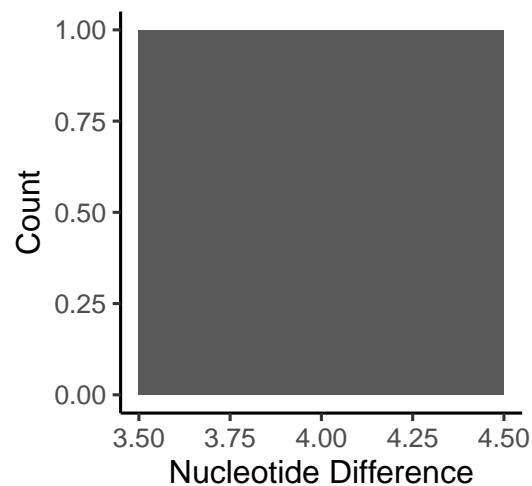
### IGHV4-39\*01

1109 sequences assigned  
968 (87.3%) exact matches, in which:  
916 unique CDR3  
6 unique J



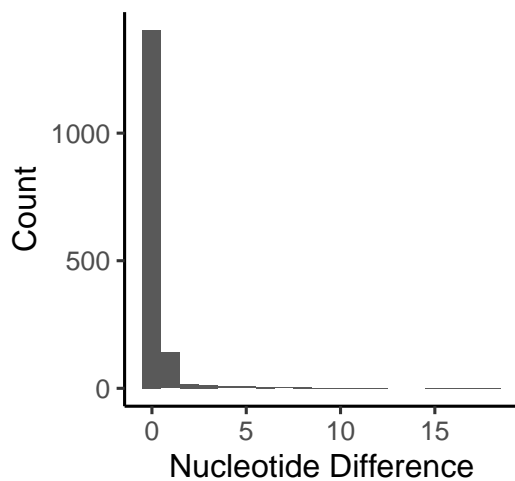
### IGHV1/OR15-4\*01

1 sequences assigned  
No exact matches.



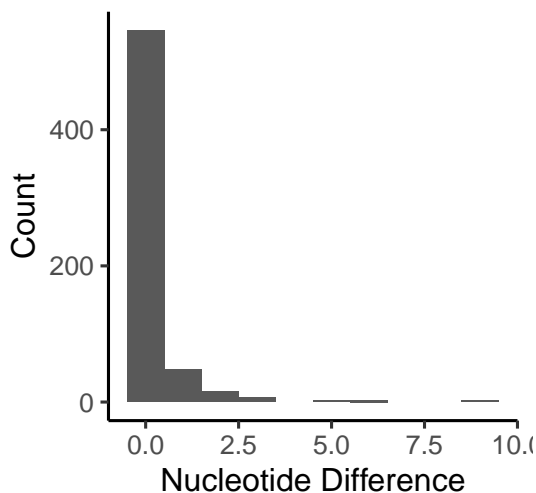
### IGHV4-34\*01

1621 sequences assigned  
1404 (86.6%) exact matches, in which:  
1316 unique CDR3  
6 unique J



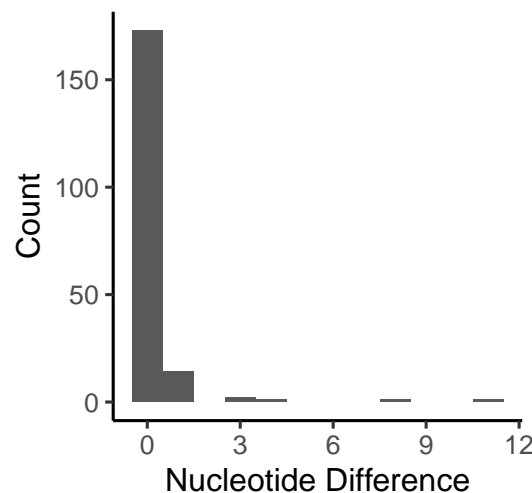
### IGHV4-59\*01

623 sequences assigned  
546 (87.6%) exact matches, in which:  
525 unique CDR3  
6 unique J



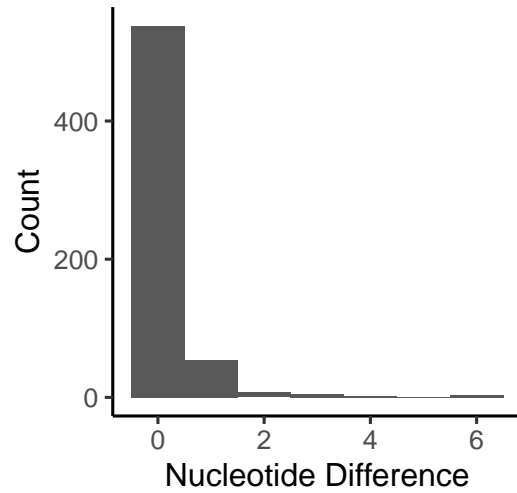
### IGHV5-10-1\*03

192 sequences assigned  
173 (90.1%) exact matches, in which:  
166 unique CDR3  
6 unique J



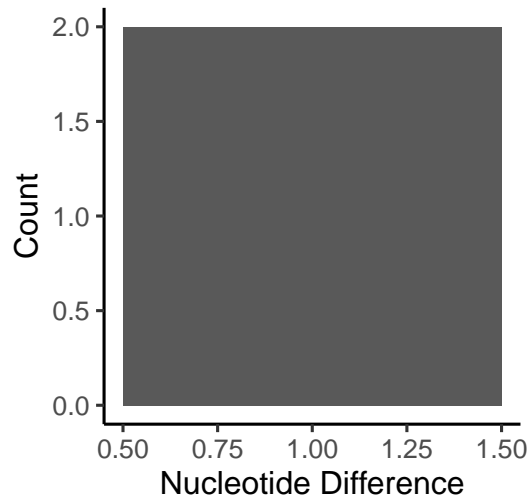
### IGHV5–51\*01

611 sequences assigned  
538 (88.1%) exact matches, in which:  
519 unique CDR3  
6 unique J



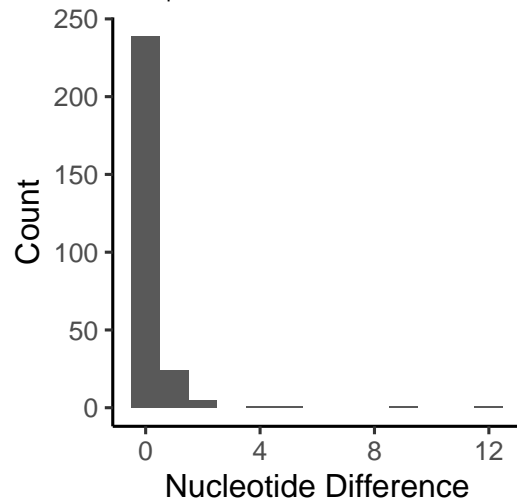
### IGHV3/OR16–12\*01

2 sequences assigned  
No exact matches.



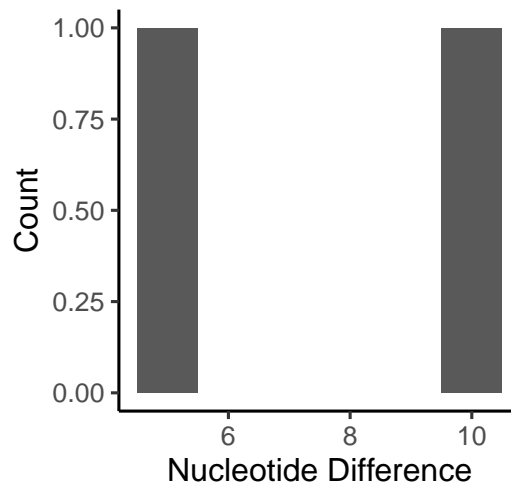
### IGHV6–1\*01

272 sequences assigned  
239 (87.9%) exact matches, in which:  
220 unique CDR3  
6 unique J



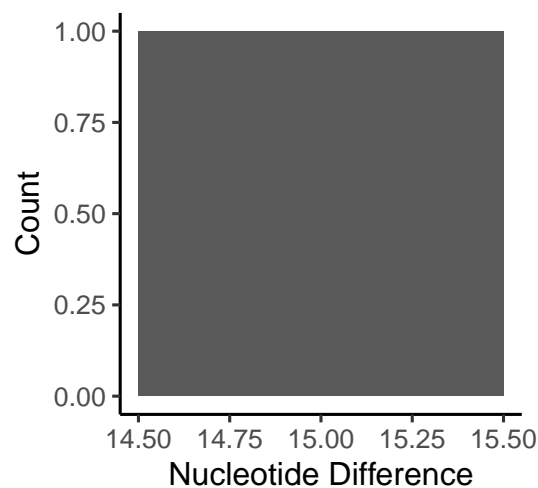
### IGHV3/OR16–15\*02

2 sequences assigned  
No exact matches.



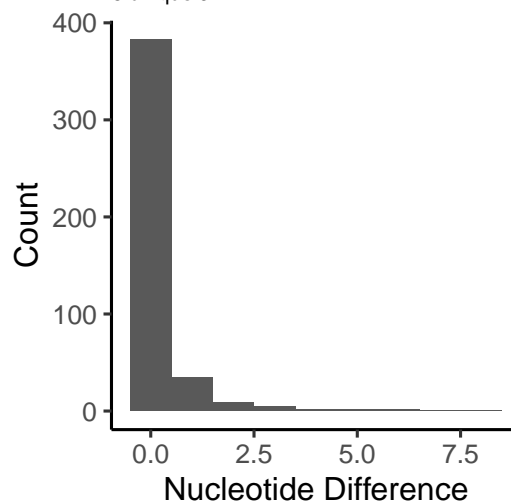
### IGHV3/OR16–9\*01

1 sequences assigned  
No exact matches.

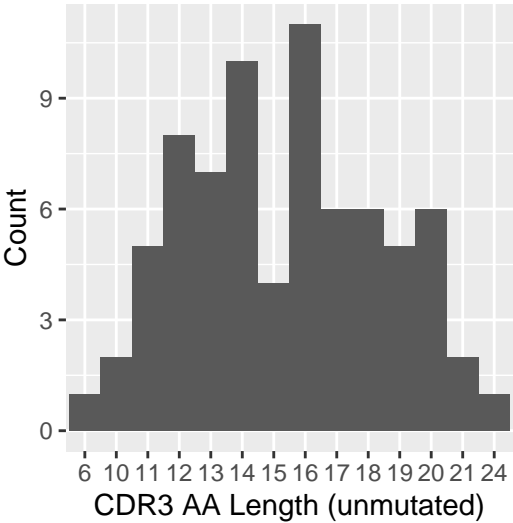


### IGHV7–4–1\*02

440 sequences assigned  
383 (87%) exact matches, in which:  
374 unique CDR3  
6 unique J



IGHV3-13\*01\_G290A\_T300C



IGHV4-38-2\*02\_A70G

