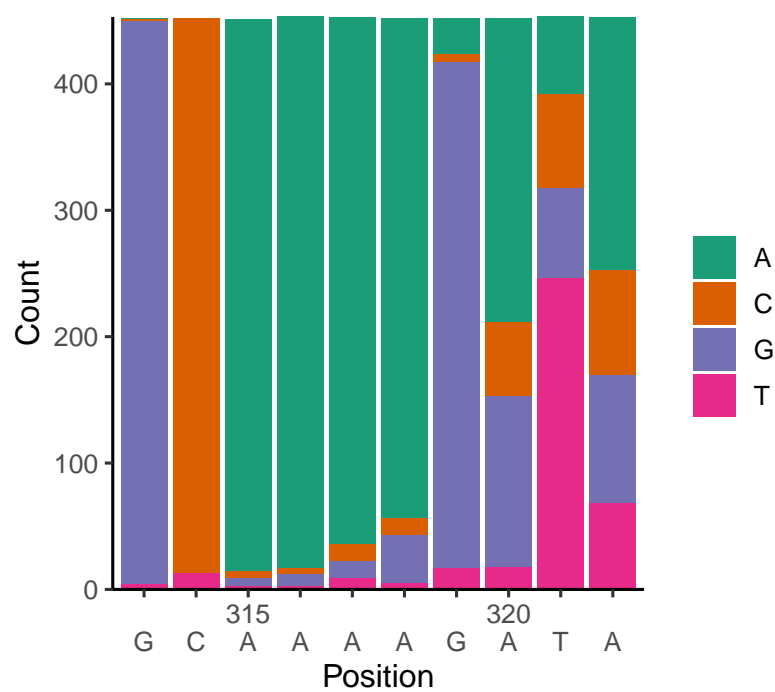
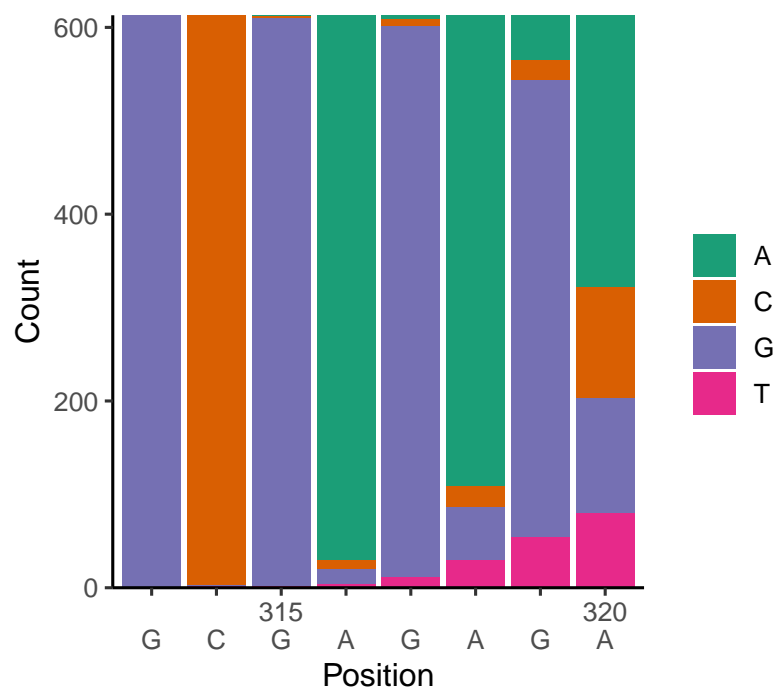


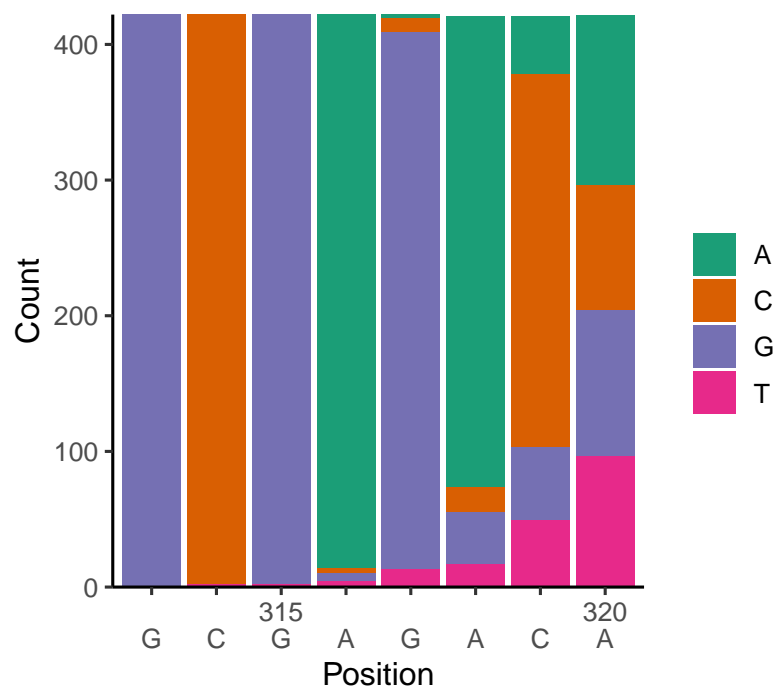
Gene IGHV3-9\*01\_T307C



Gene IGHV4-61\*02\_A234G



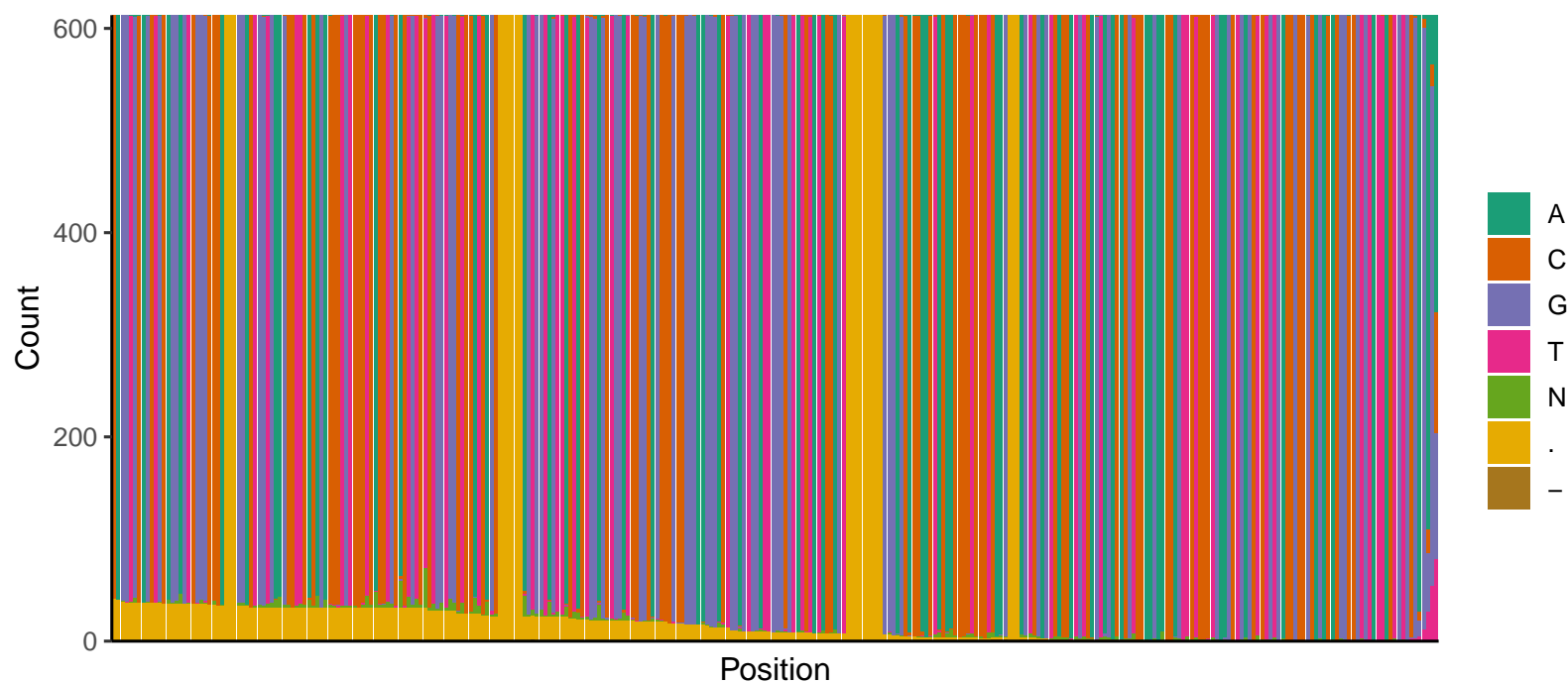
Gene IGHV5-51\*01\_C45G



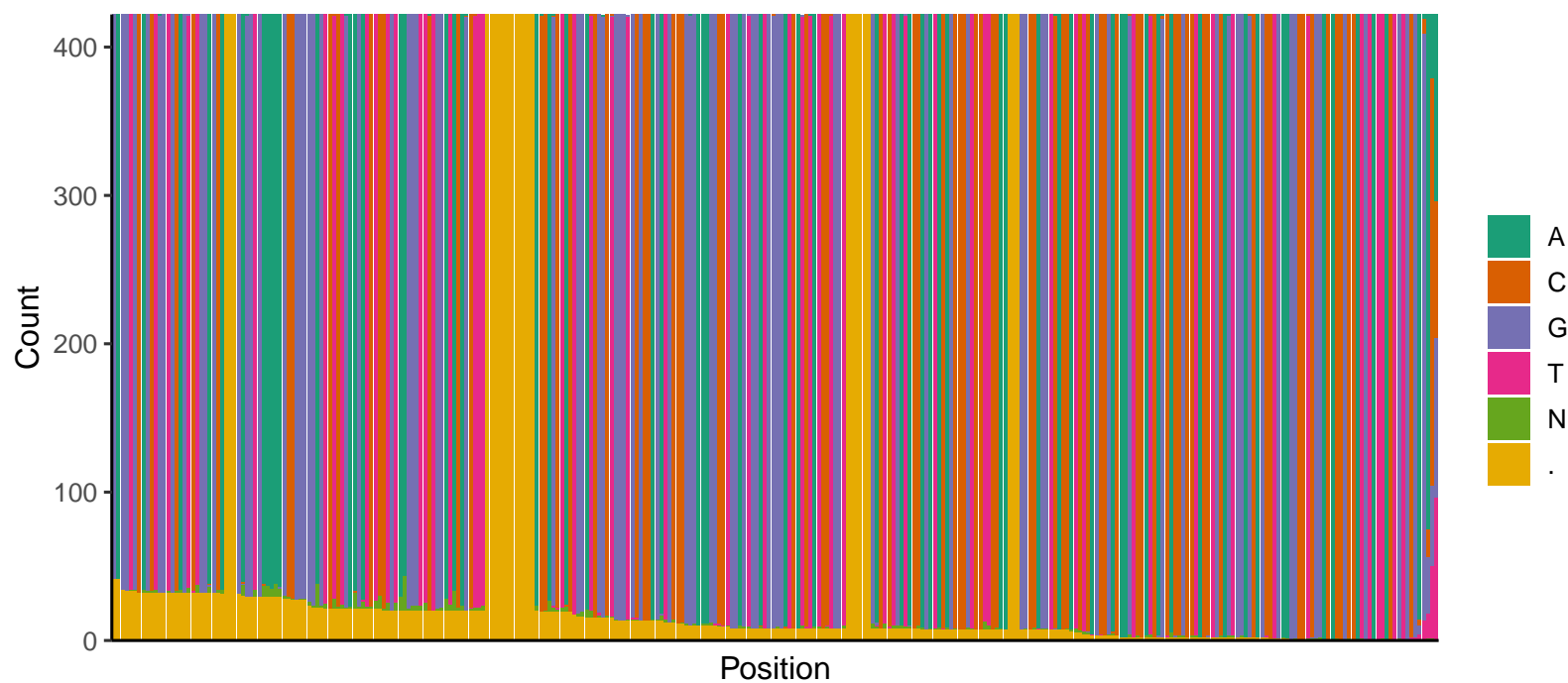
Gene IGHV3-9\*01\_T307C



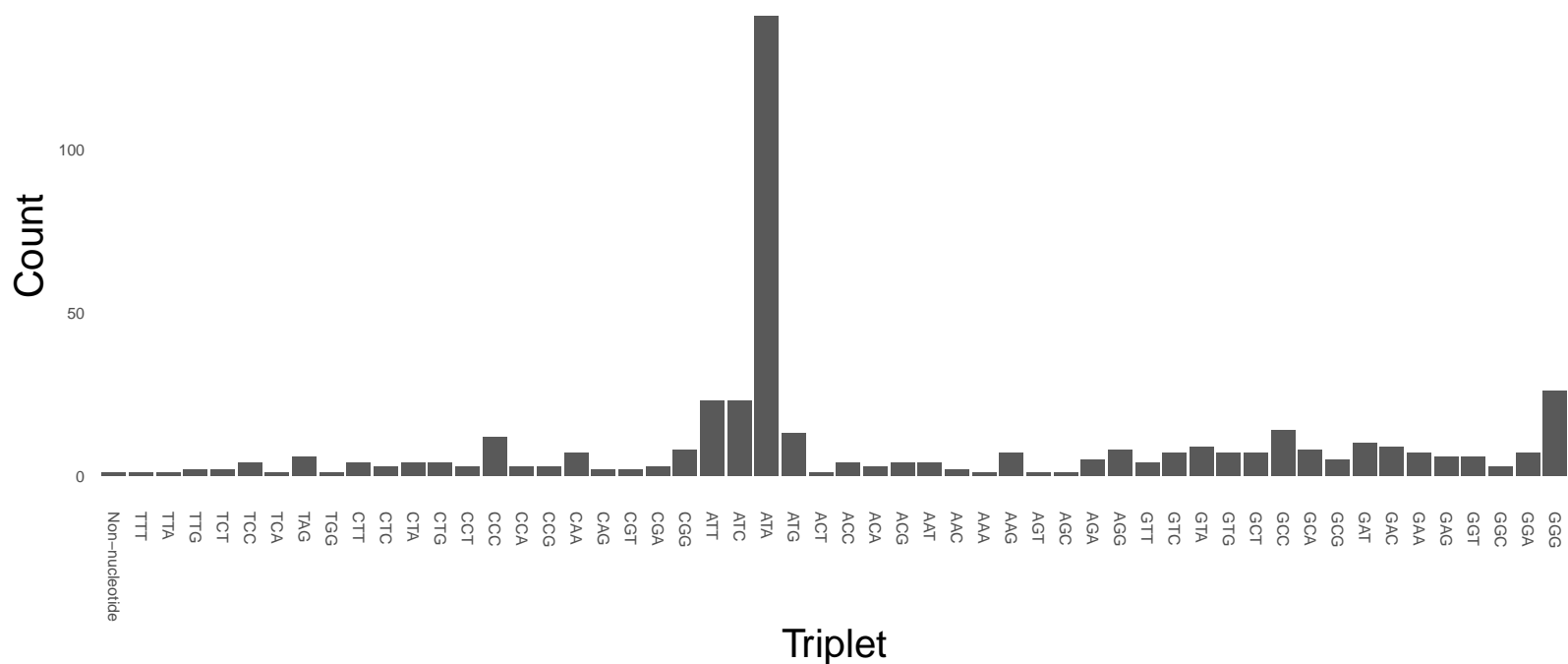
Gene IGHV4-61\*02\_A234G



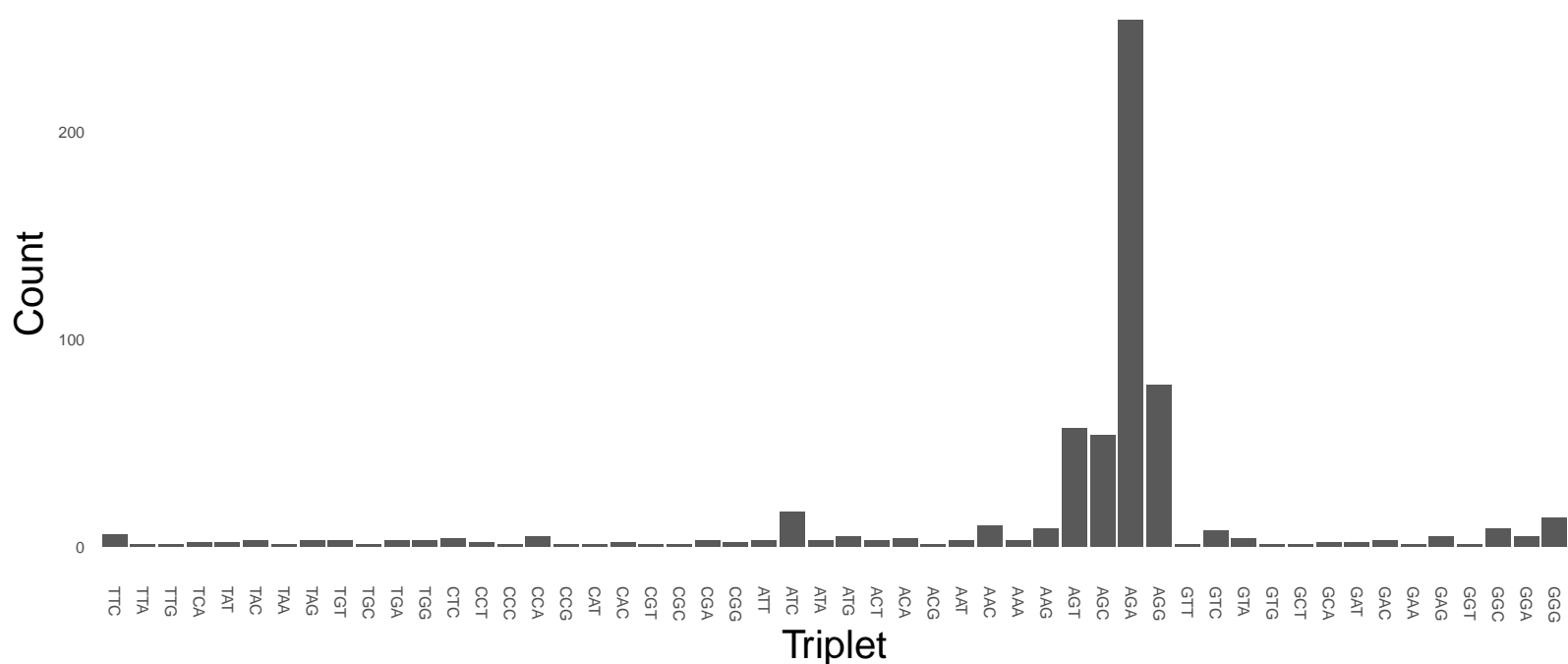
Gene IGHV5-51\*01\_C45G



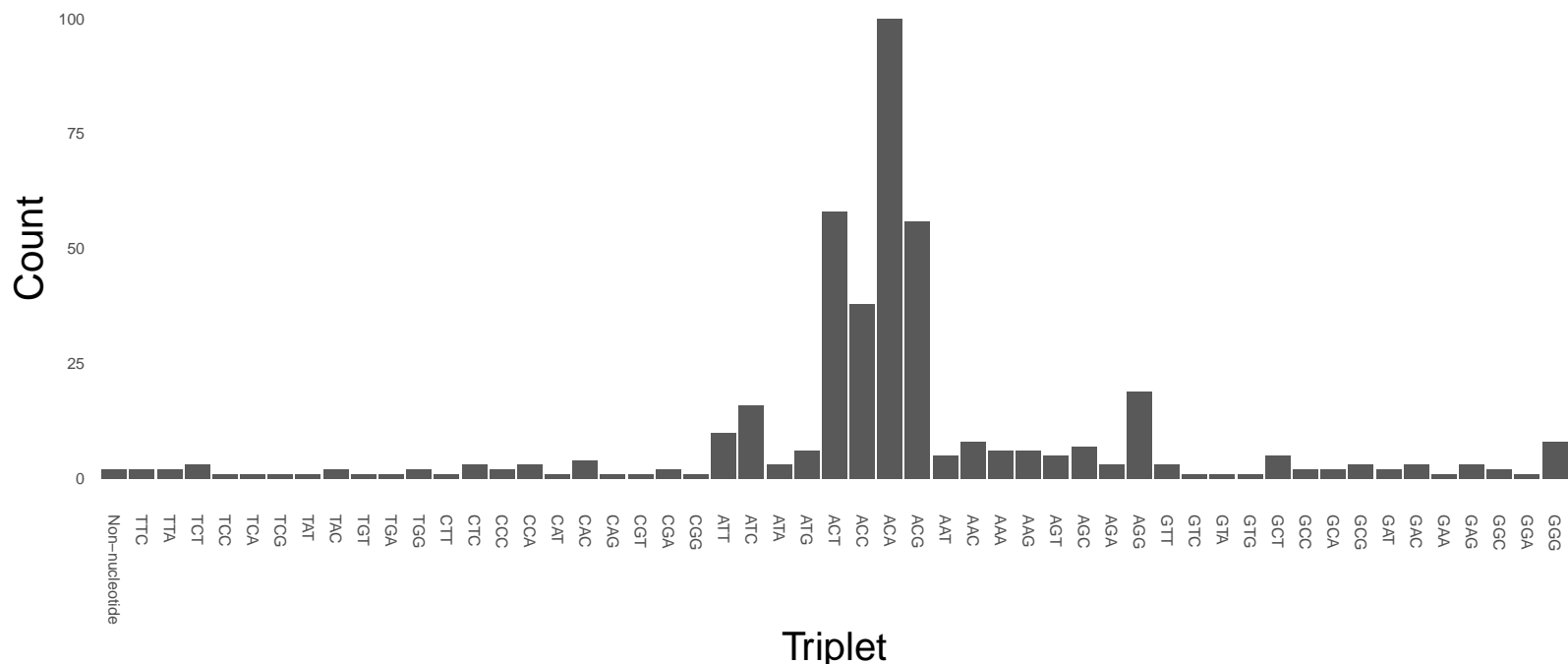
IGHV3-9\*01\_T307C- Final 3 nucleotides as a triplet



IGHV4-61\*02\_A234G- Final 3 nucleotides as a triplet

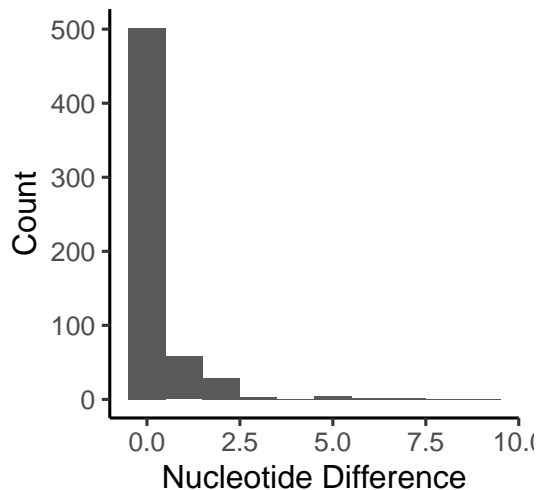


IGHV5-51\*01\_C45G- Final 3 nucleotides as a triplet



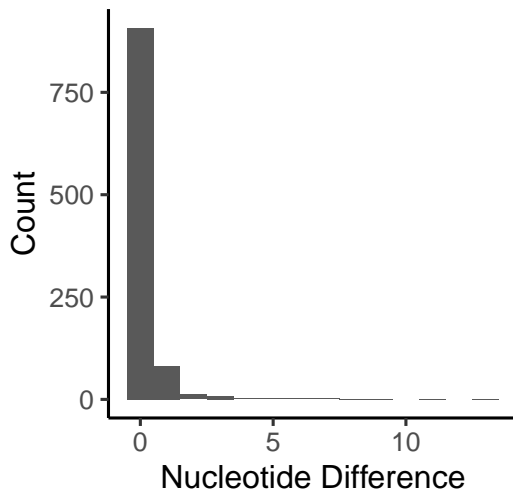
### IGHV1-2\*02

604 sequences assigned  
502 (83.1%) exact matches, in which:  
491 unique CDR3  
7 unique J



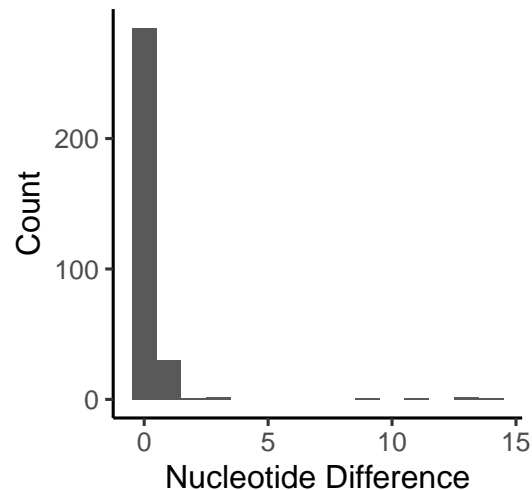
### IGHV1-18\*01

1023 sequences assigned  
908 (88.8%) exact matches, in which:  
903 unique CDR3  
7 unique J



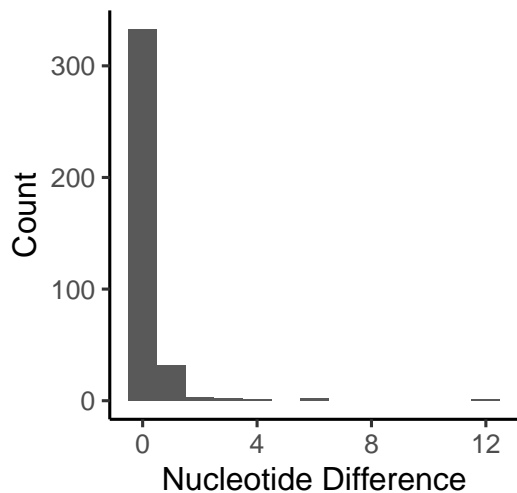
### IGHV1-46\*03

324 sequences assigned  
285 (88%) exact matches, in which:  
283 unique CDR3  
7 unique J



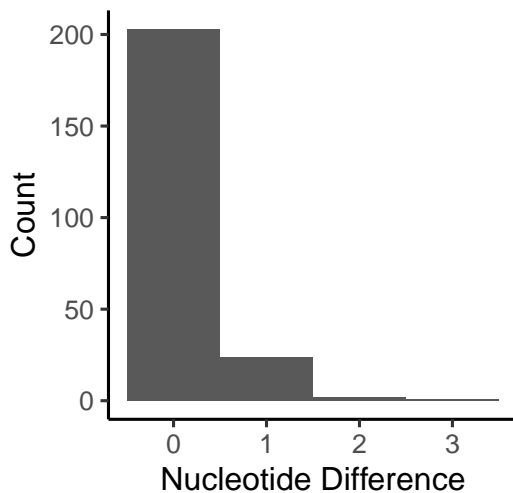
### IGHV1-3\*01

374 sequences assigned  
333 (89%) exact matches, in which:  
327 unique CDR3  
6 unique J



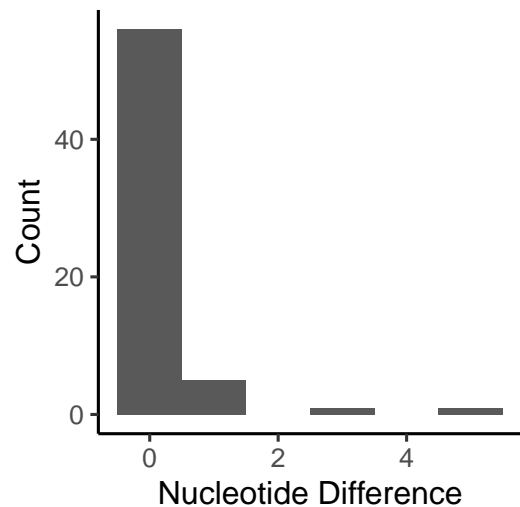
### IGHV1-24\*01

230 sequences assigned  
203 (88.3%) exact matches, in which:  
197 unique CDR3  
7 unique J



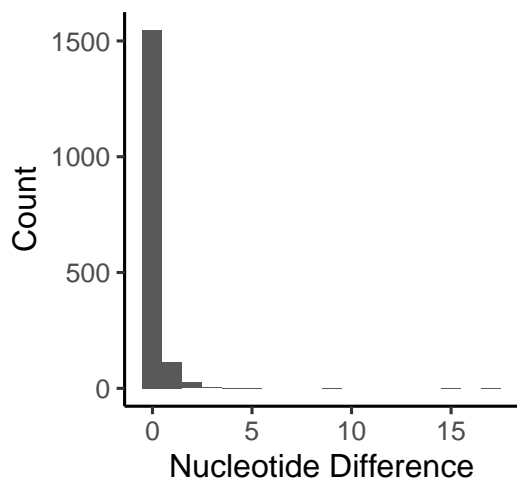
### IGHV1-58\*01

63 sequences assigned  
56 (88.9%) exact matches, in which:  
56 unique CDR3  
5 unique J



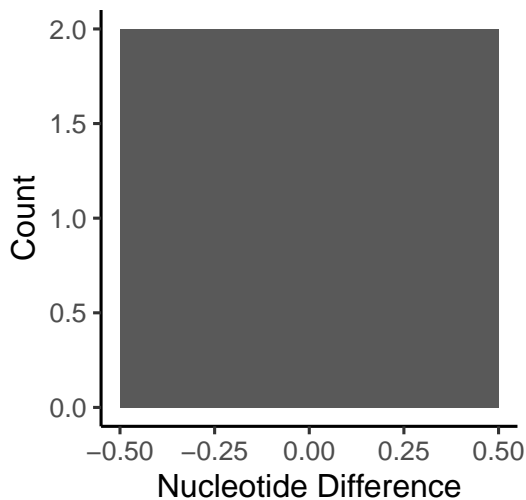
### IGHV1-8\*01

1696 sequences assigned  
1547 (91.2%) exact matches, in which:  
1515 unique CDR3  
7 unique J



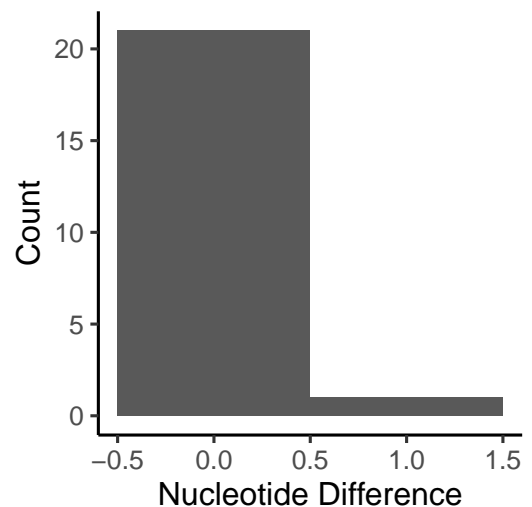
### IGHV1-45\*02

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



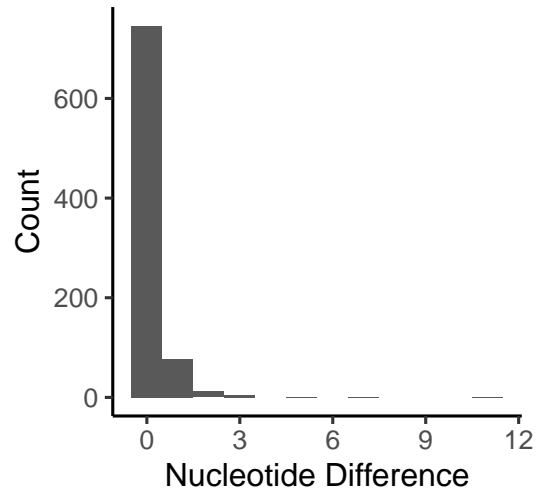
### IGHV1-58\*02

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



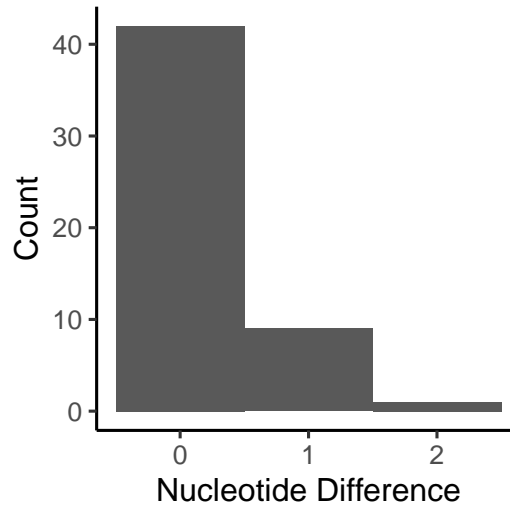
### IGHV1–69\*04

844 sequences assigned  
746 (88.4%) exact matches, in which:  
729 unique CDR3  
7 unique J



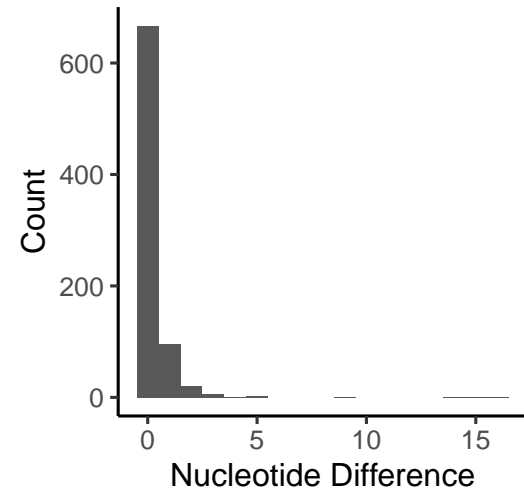
### IGHV2–70\*01

52 sequences assigned  
42 (80.8%) exact matches, in which:  
41 unique CDR3  
5 unique J



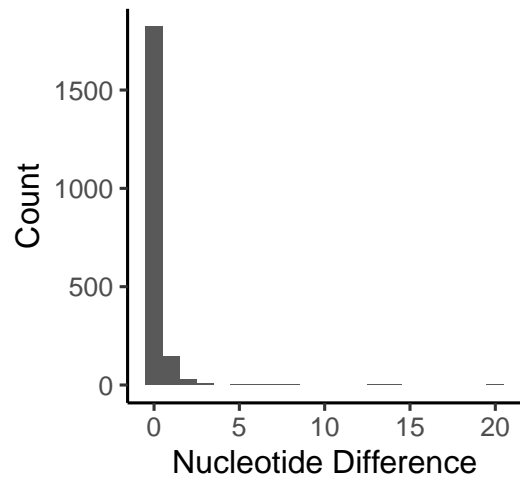
### IGHV3–9\*01

797 sequences assigned  
667 (83.7%) exact matches, in which:  
654 unique CDR3  
7 unique J



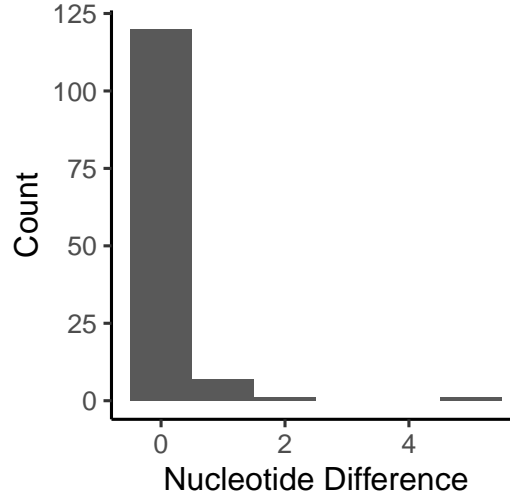
### IGHV2–5\*01

2019 sequences assigned  
1822 (90.2%) exact matches, in which:  
1795 unique CDR3  
7 unique J



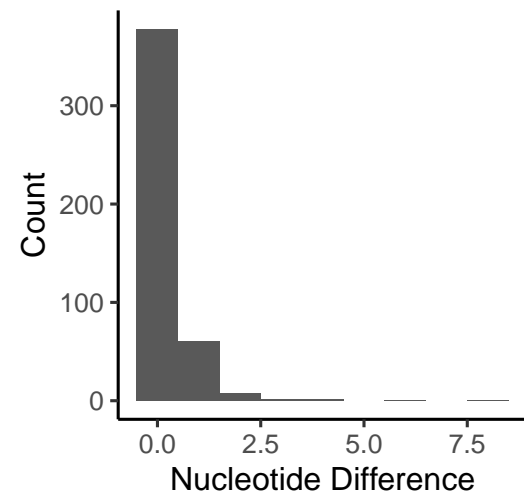
### IGHV2–70\*15

129 sequences assigned  
120 (93%) exact matches, in which:  
120 unique CDR3  
5 unique J



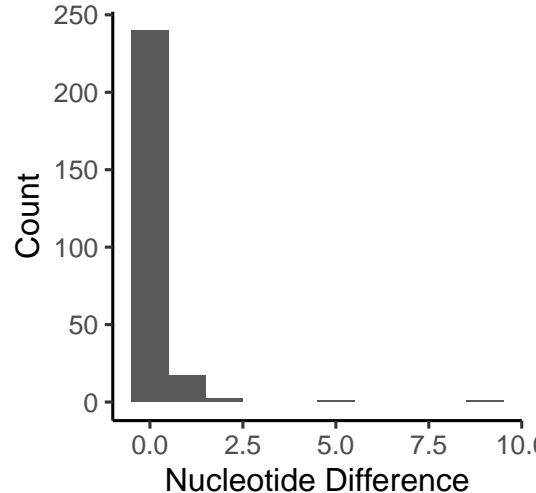
### IGHV3–9\*01\_T307C

453 sequences assigned  
378 (83.4%) exact matches, in which:  
373 unique CDR3  
6 unique J



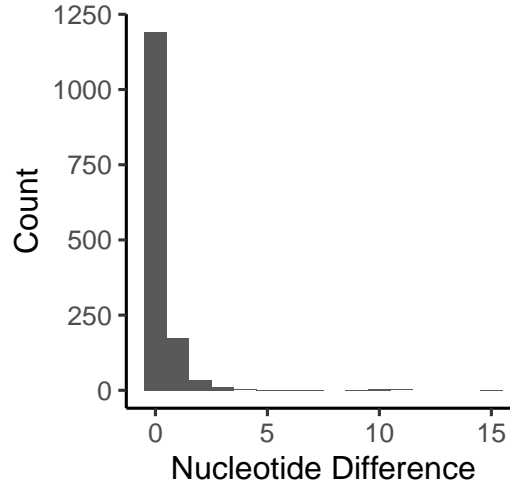
### IGHV2–26\*01

261 sequences assigned  
240 (92%) exact matches, in which:  
239 unique CDR3  
7 unique J



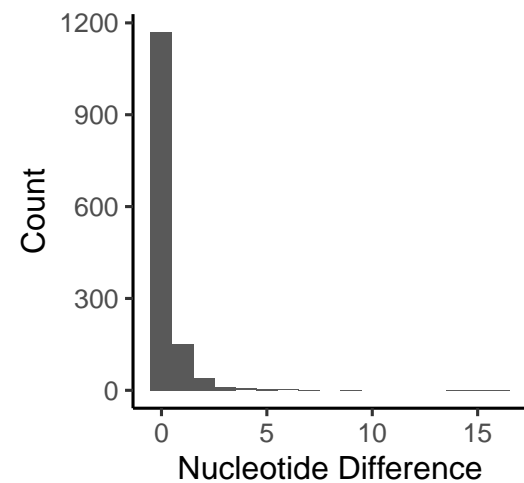
### IGHV3–7\*01

1427 sequences assigned  
1191 (83.5%) exact matches, in which:  
1173 unique CDR3  
7 unique J



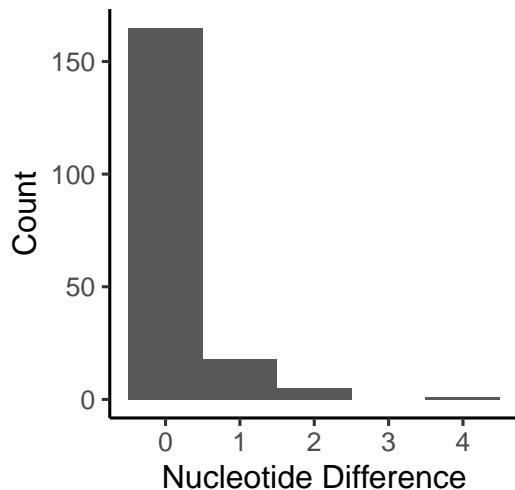
### IGHV3–11\*01

1392 sequences assigned  
1170 (84.1%) exact matches, in which:  
1151 unique CDR3  
7 unique J



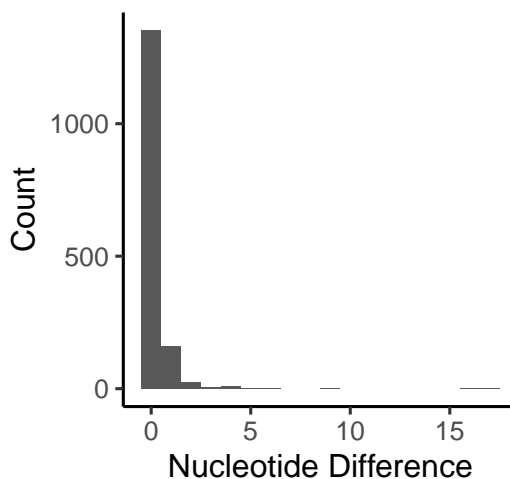
### IGHV3-13\*01

189 sequences assigned  
165 (87.3%) exact matches, in which:  
164 unique CDR3  
6 unique J



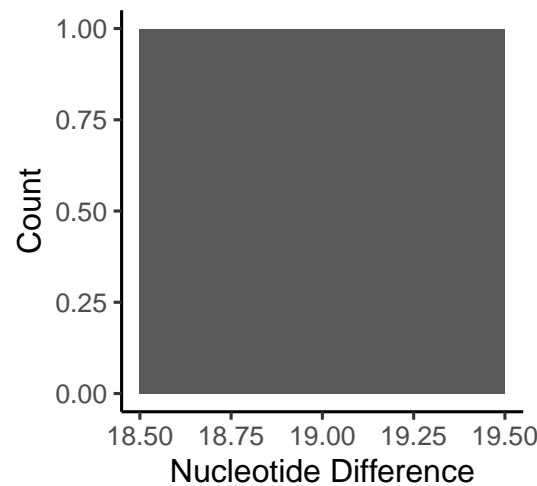
### IGHV3-21\*01

1564 sequences assigned  
1352 (86.4%) exact matches, in which:  
1332 unique CDR3  
7 unique J



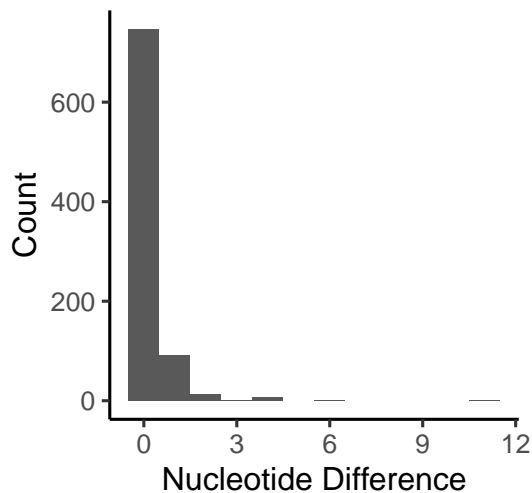
### IGHV3-41\*02

1 sequences assigned  
No exact matches.



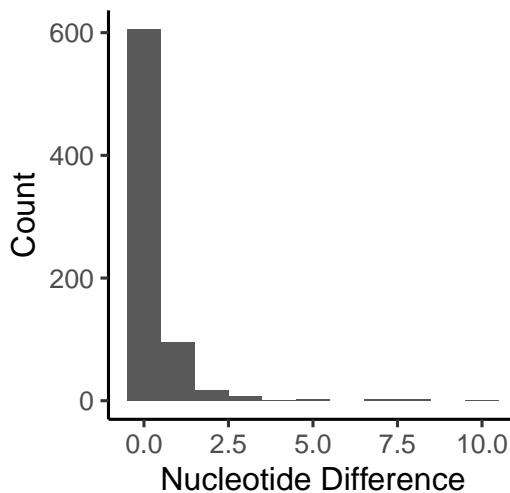
### IGHV3-15\*01

865 sequences assigned  
747 (86.4%) exact matches, in which:  
738 unique CDR3  
7 unique J



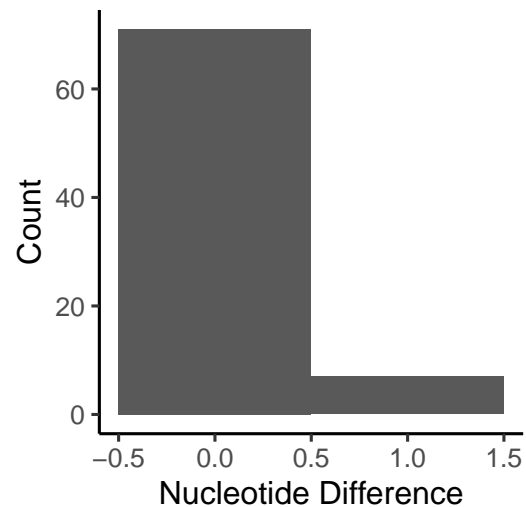
### IGHV3-30-3\*01

735 sequences assigned  
606 (82.4%) exact matches, in which:  
592 unique CDR3  
6 unique J



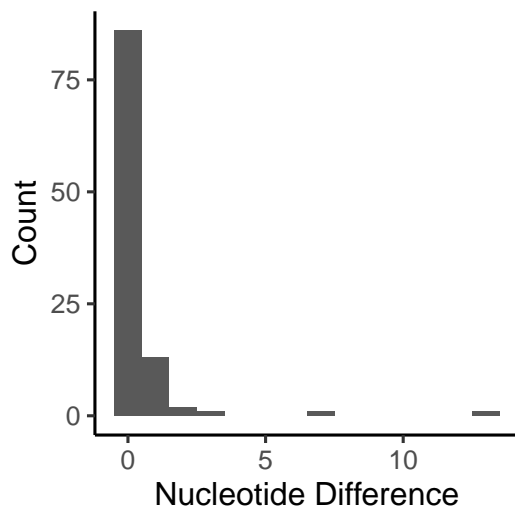
### IGHV3-43\*01

78 sequences assigned  
71 (91%) exact matches, in which:  
71 unique CDR3  
6 unique J



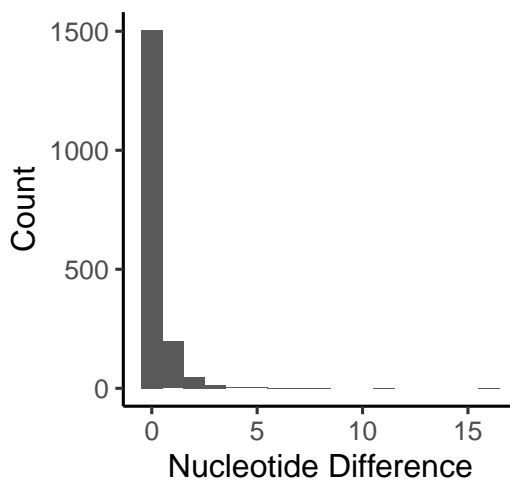
### IGHV3-20\*01

104 sequences assigned  
86 (82.7%) exact matches, in which:  
83 unique CDR3  
6 unique J



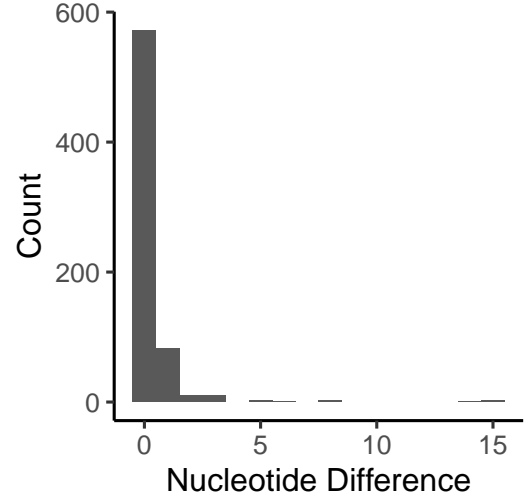
### IGHV3-33\*01

1779 sequences assigned  
1505 (84.6%) exact matches, in which:  
1475 unique CDR3  
7 unique J



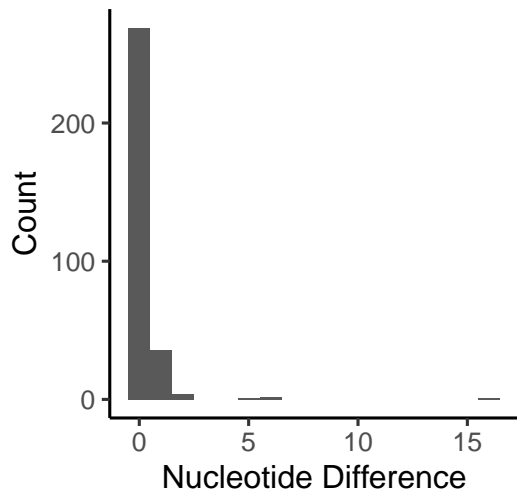
### IGHV3-48\*01

684 sequences assigned  
572 (83.6%) exact matches, in which:  
563 unique CDR3  
7 unique J



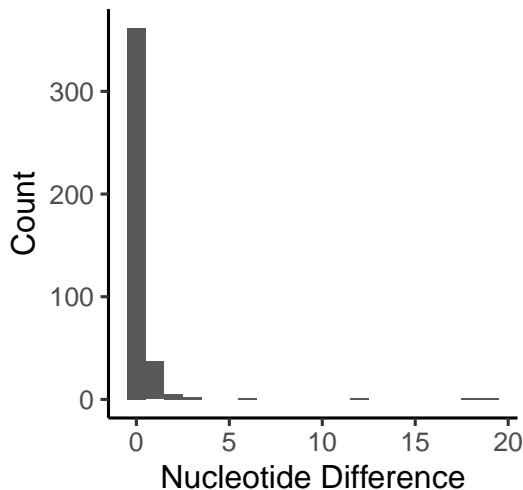
### IGHV3-49\*03

314 sequences assigned  
269 (85.7%) exact matches, in which:  
264 unique CDR3  
7 unique J



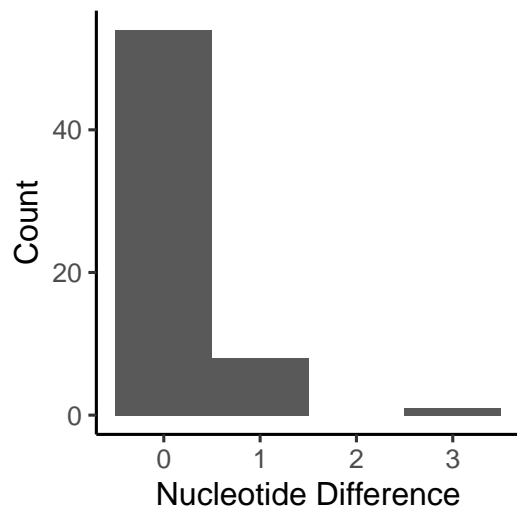
### IGHV3-66\*01

410 sequences assigned  
362 (88.3%) exact matches, in which:  
356 unique CDR3  
6 unique J



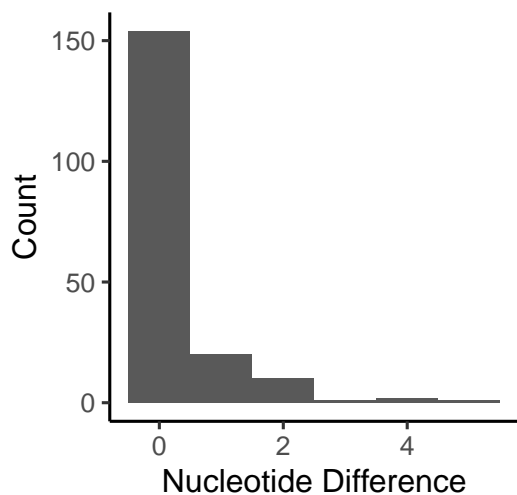
### IGHV3-73\*02

63 sequences assigned  
54 (85.7%) exact matches, in which:  
54 unique CDR3  
5 unique J



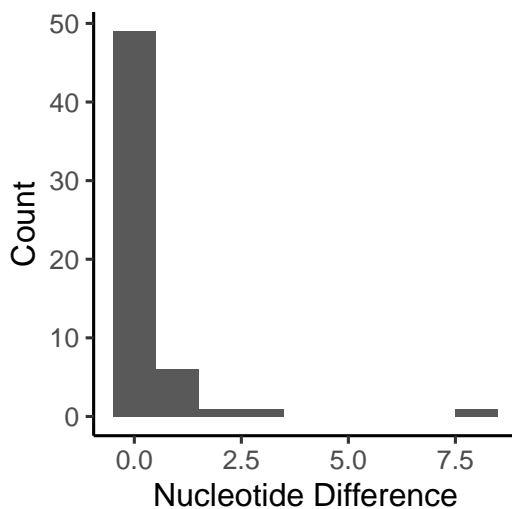
### IGHV3-53\*02

188 sequences assigned  
154 (81.9%) exact matches, in which:  
153 unique CDR3  
7 unique J



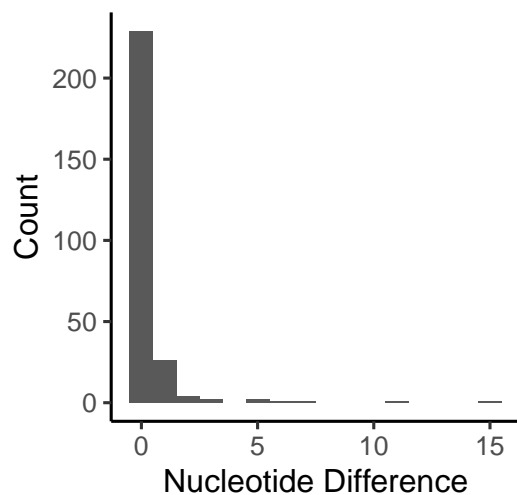
### IGHV3-72\*01

59 sequences assigned  
49 (83.1%) exact matches, in which:  
47 unique CDR3  
6 unique J



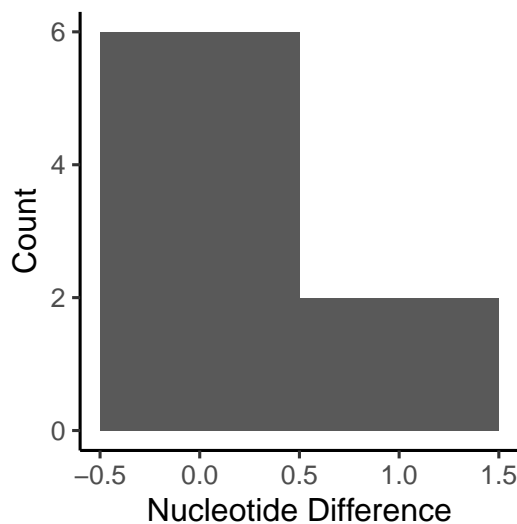
### IGHV3-74\*01

267 sequences assigned  
229 (85.8%) exact matches, in which:  
226 unique CDR3  
7 unique J



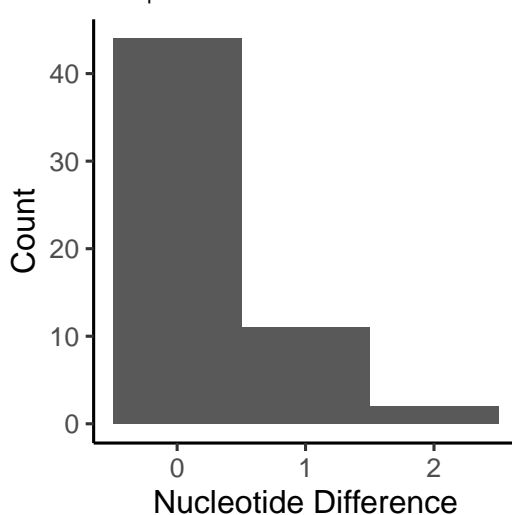
### IGHV3-64\*02

8 sequences assigned  
6 (75%) exact matches, in which:  
6 unique CDR3  
2 unique J



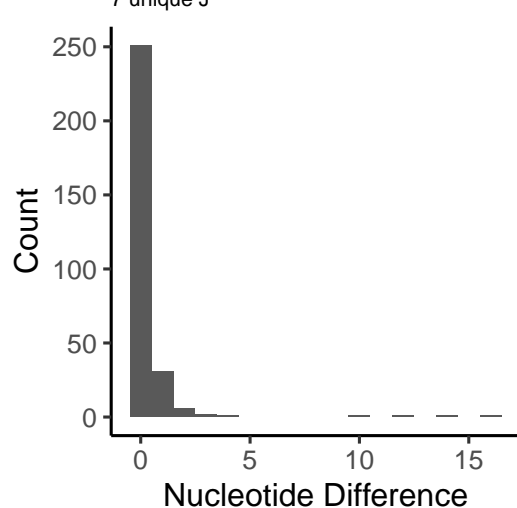
### IGHV3-73\*01

57 sequences assigned  
44 (77.2%) exact matches, in which:  
44 unique CDR3  
5 unique J



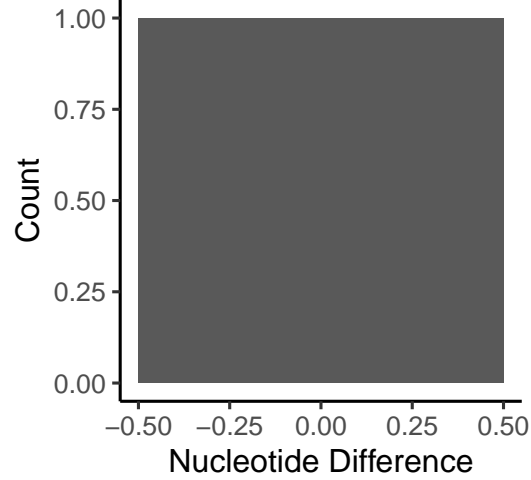
### IGHV4-4\*07

295 sequences assigned  
251 (85.1%) exact matches, in which:  
249 unique CDR3  
7 unique J



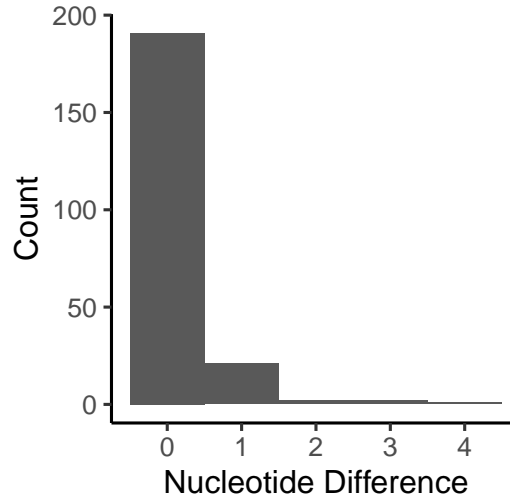
### IGHV4-28\*01

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



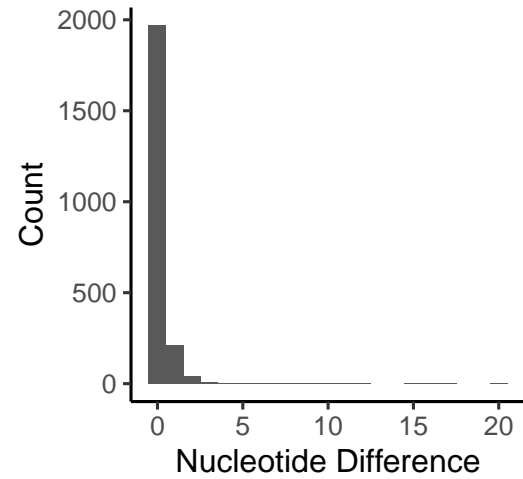
### IGHV4-30-4\*01

218 sequences assigned  
191 (87.6%) exact matches, in which:  
188 unique CDR3  
7 unique J



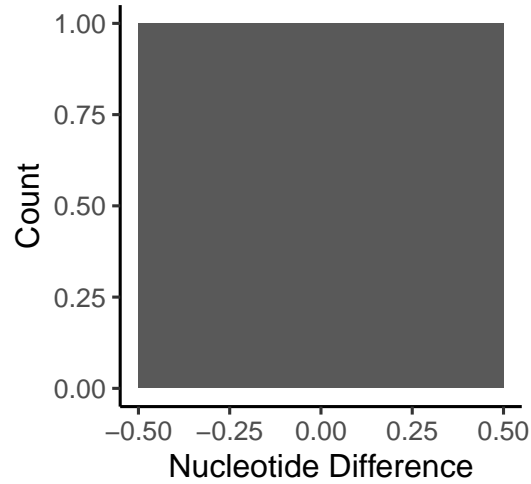
### IGHV4-39\*01

2264 sequences assigned  
1969 (87%) exact matches, in which:  
1920 unique CDR3  
7 unique J



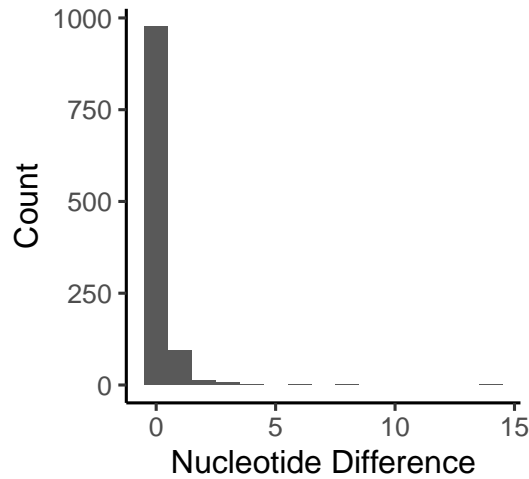
### IGHV4-28\*03

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



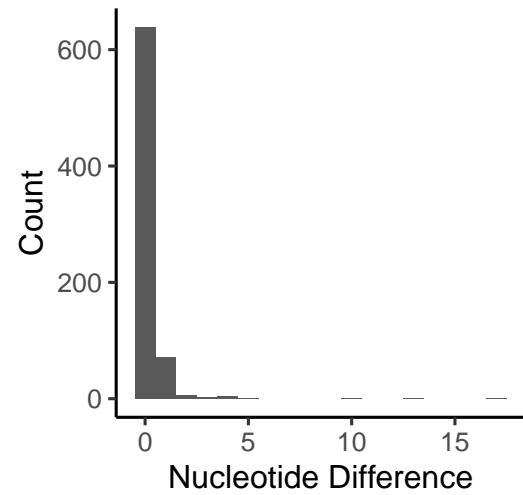
### IGHV4-31\*03

1095 sequences assigned  
976 (89.1%) exact matches, in which:  
962 unique CDR3  
7 unique J



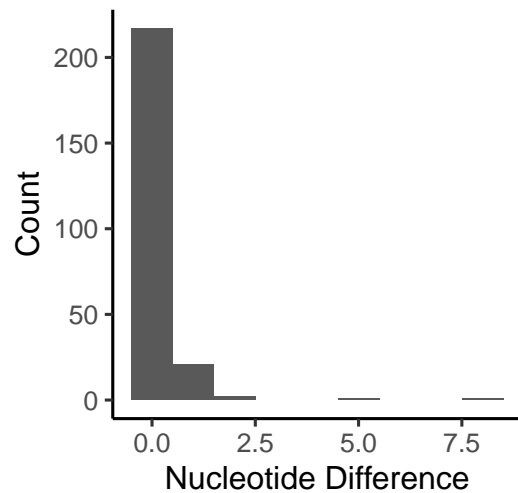
### IGHV4-59\*01

728 sequences assigned  
639 (87.8%) exact matches, in which:  
636 unique CDR3  
7 unique J



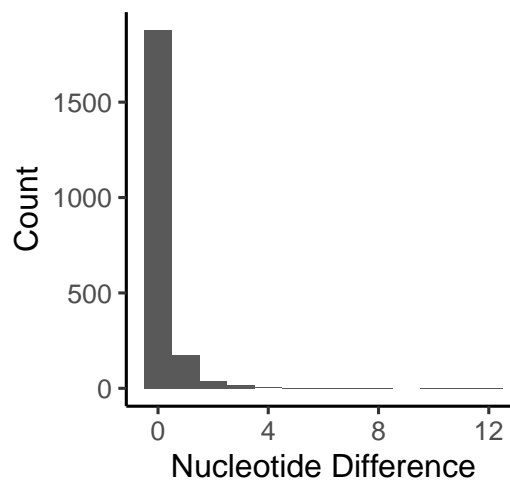
### IGHV4-30-2\*01

242 sequences assigned  
217 (89.7%) exact matches, in which:  
216 unique CDR3  
7 unique J



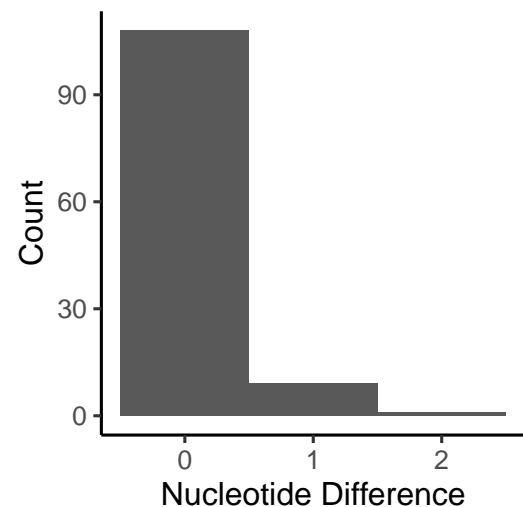
### IGHV4-34\*01

2124 sequences assigned  
1878 (88.4%) exact matches, in which:  
1834 unique CDR3  
7 unique J



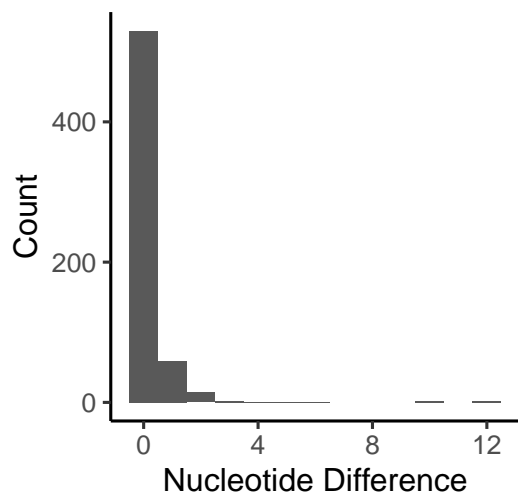
### IGHV4-61\*01

120 sequences assigned  
108 (90%) exact matches, in which:  
107 unique CDR3  
5 unique J



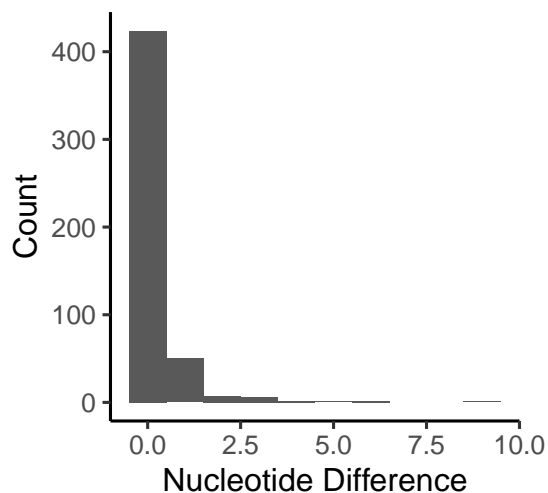
## IGHV4-61\*02\_A234G

613 sequences assigned  
530 (86.5%) exact matches, in which:  
528 unique CDR3  
6 unique J



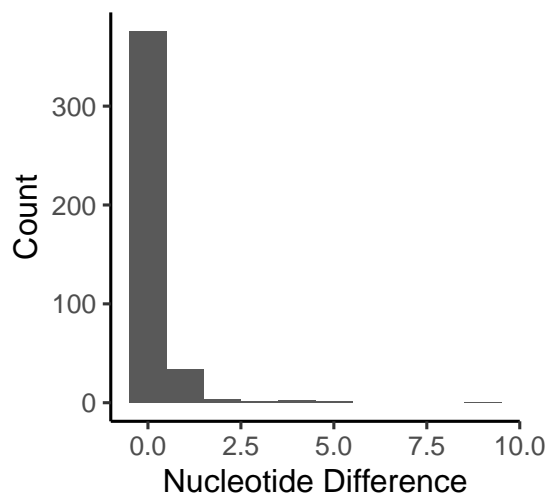
## IGHV7-4-1\*02

493 sequences assigned  
424 (86%) exact matches, in which:  
416 unique CDR3  
7 unique J



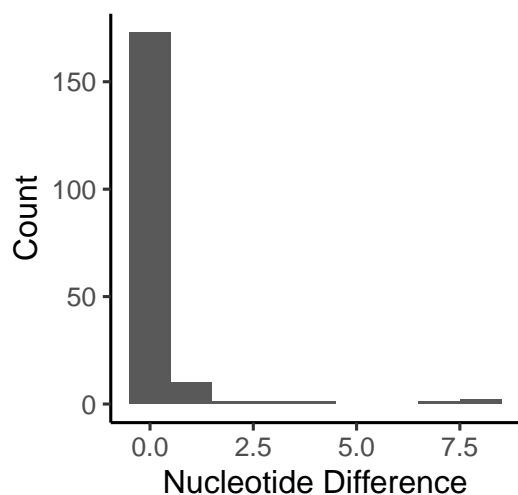
## IGHV5-51\*01\_C45G

422 sequences assigned  
376 (89.1%) exact matches, in which:  
369 unique CDR3  
7 unique J

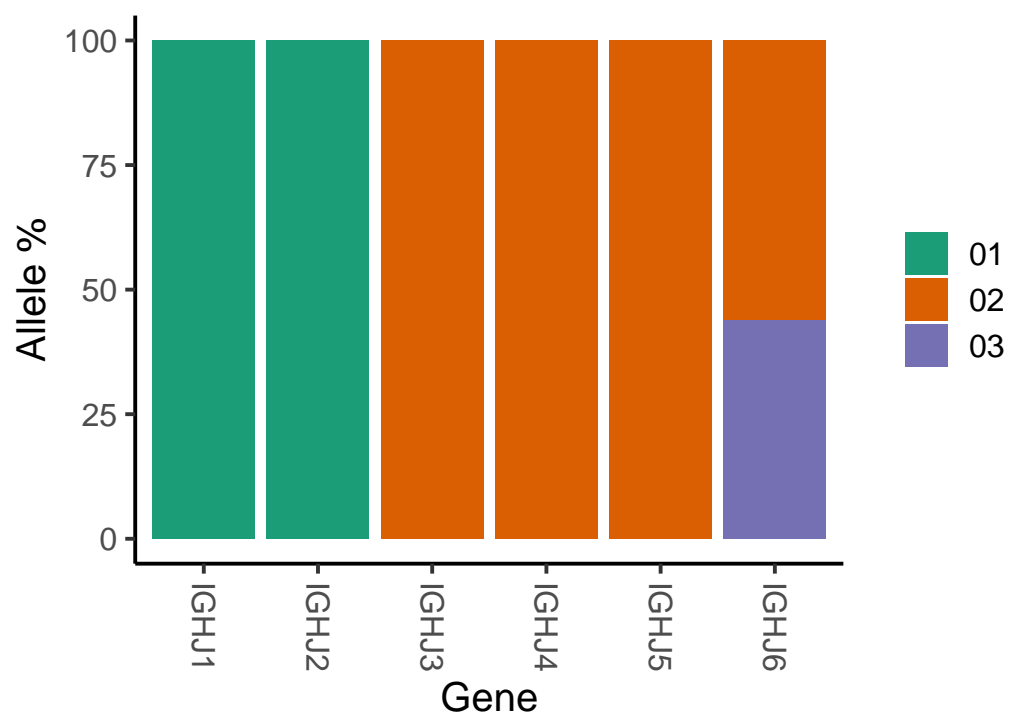


## IGHV6-1\*01

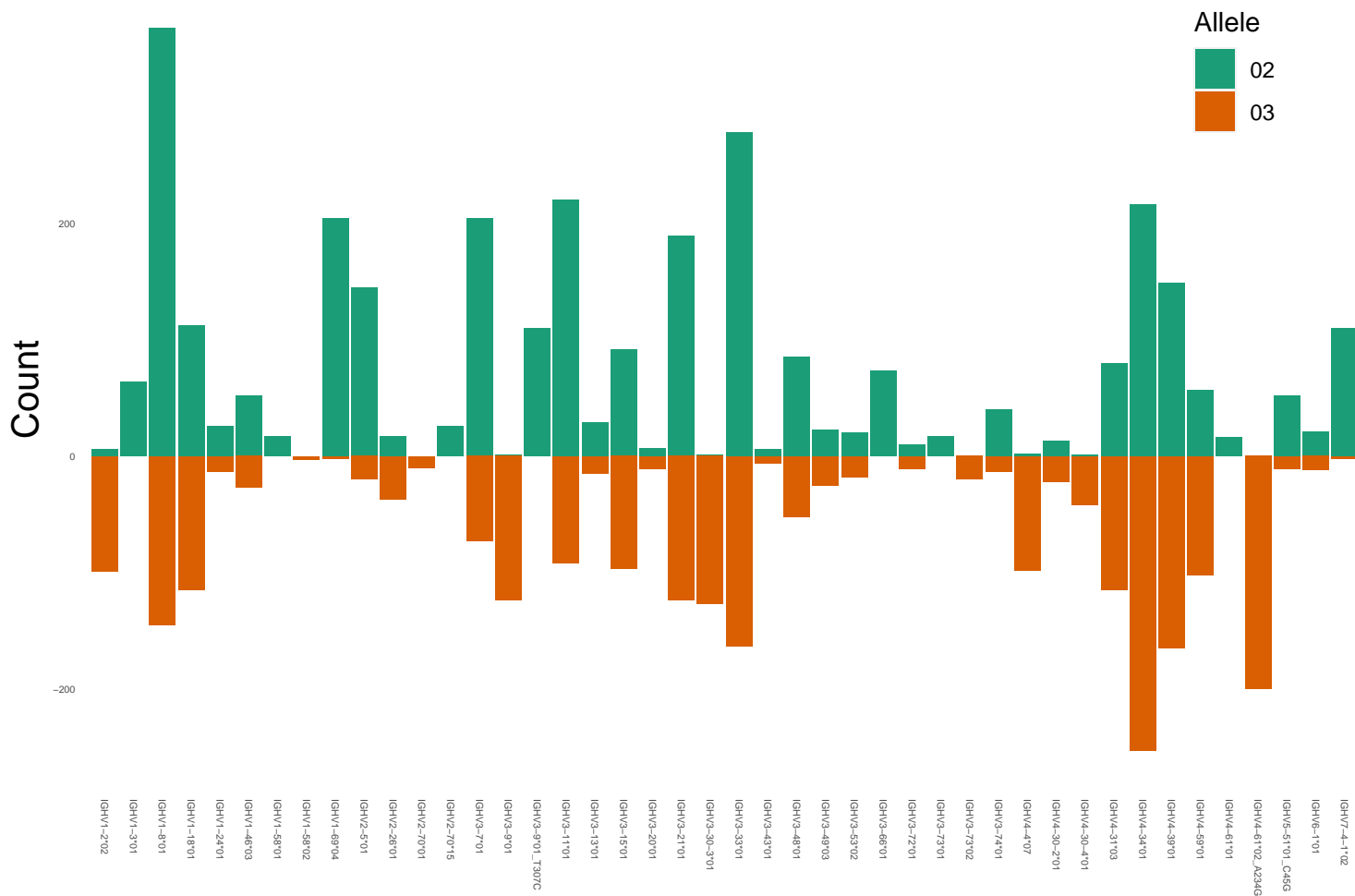
189 sequences assigned  
173 (91.5%) exact matches, in which:  
172 unique CDR3  
7 unique J



Allele Usage



Sequence Count by IGHJ6 allele usage



[illegible]