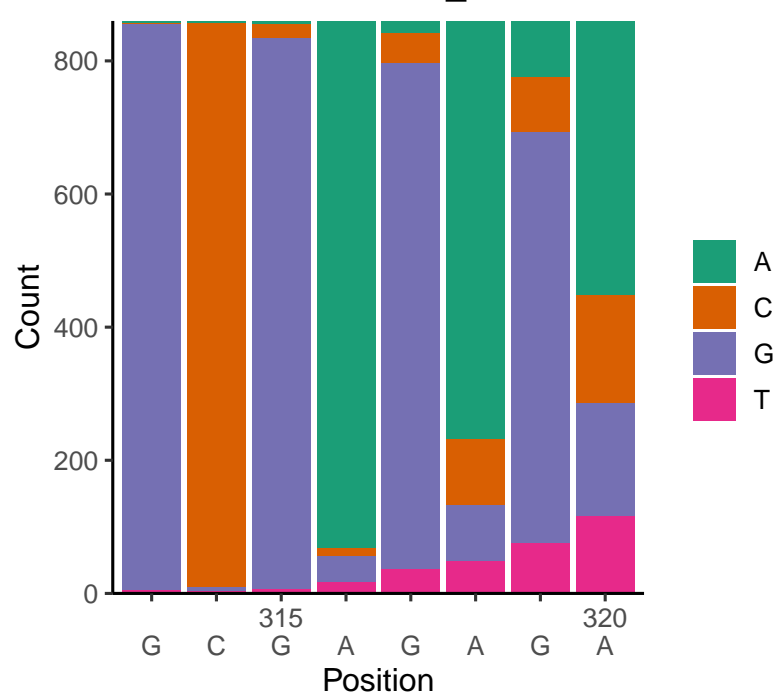
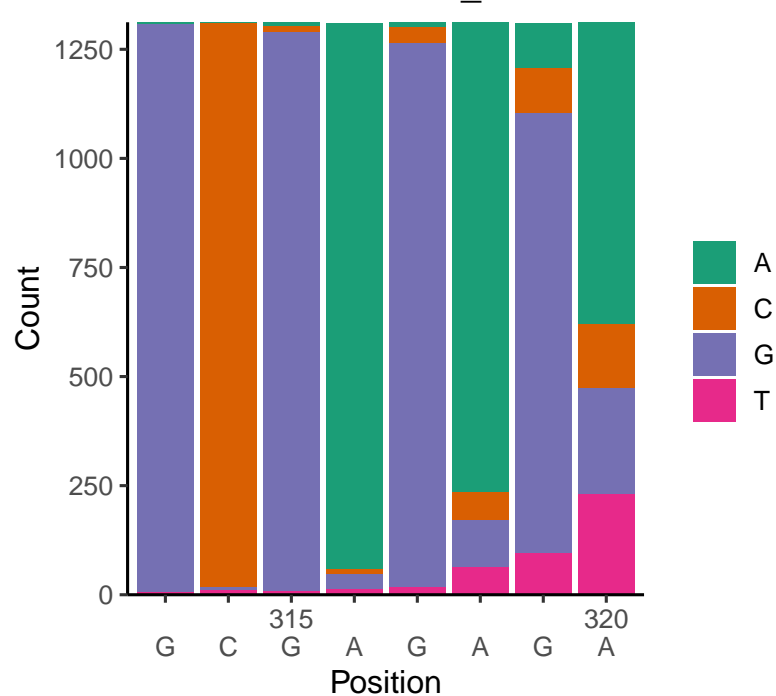


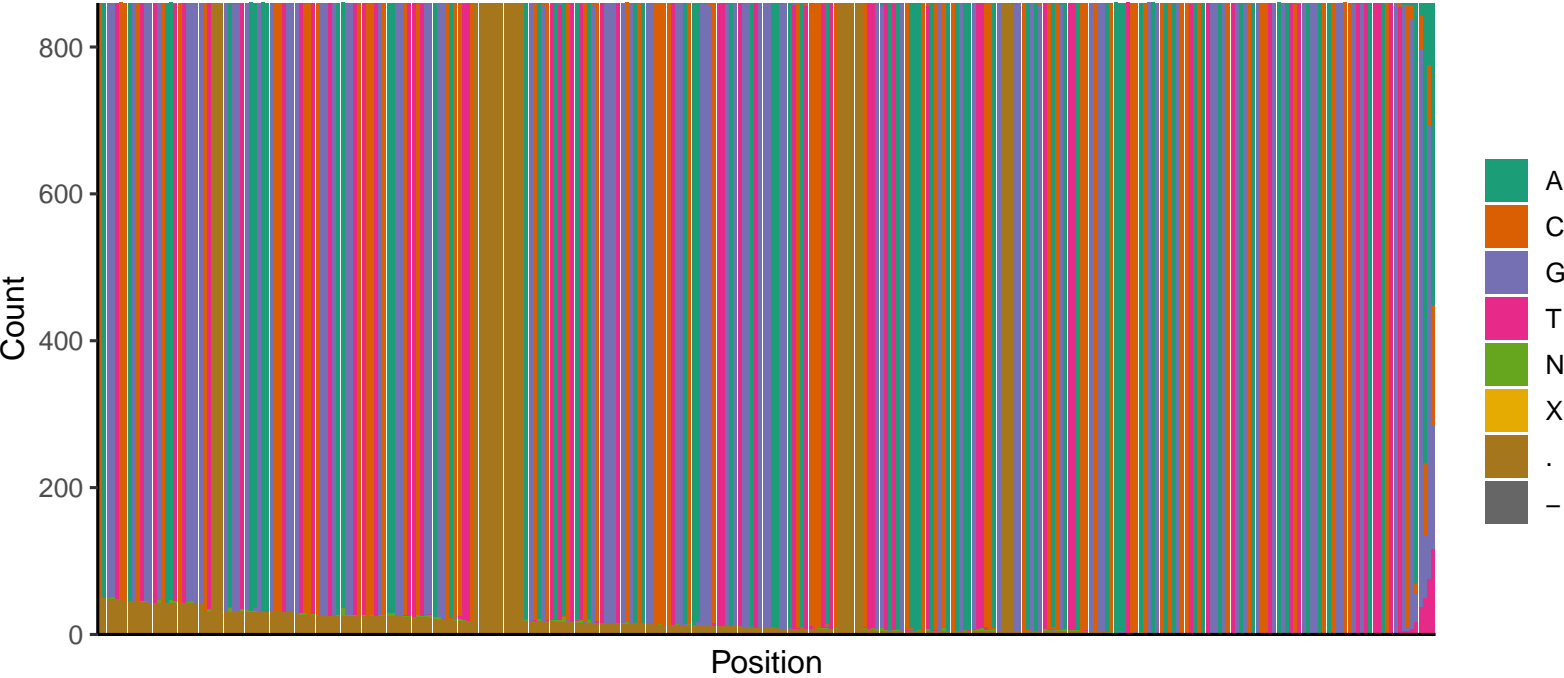
Gene IGHV1-69\*08\_C191T



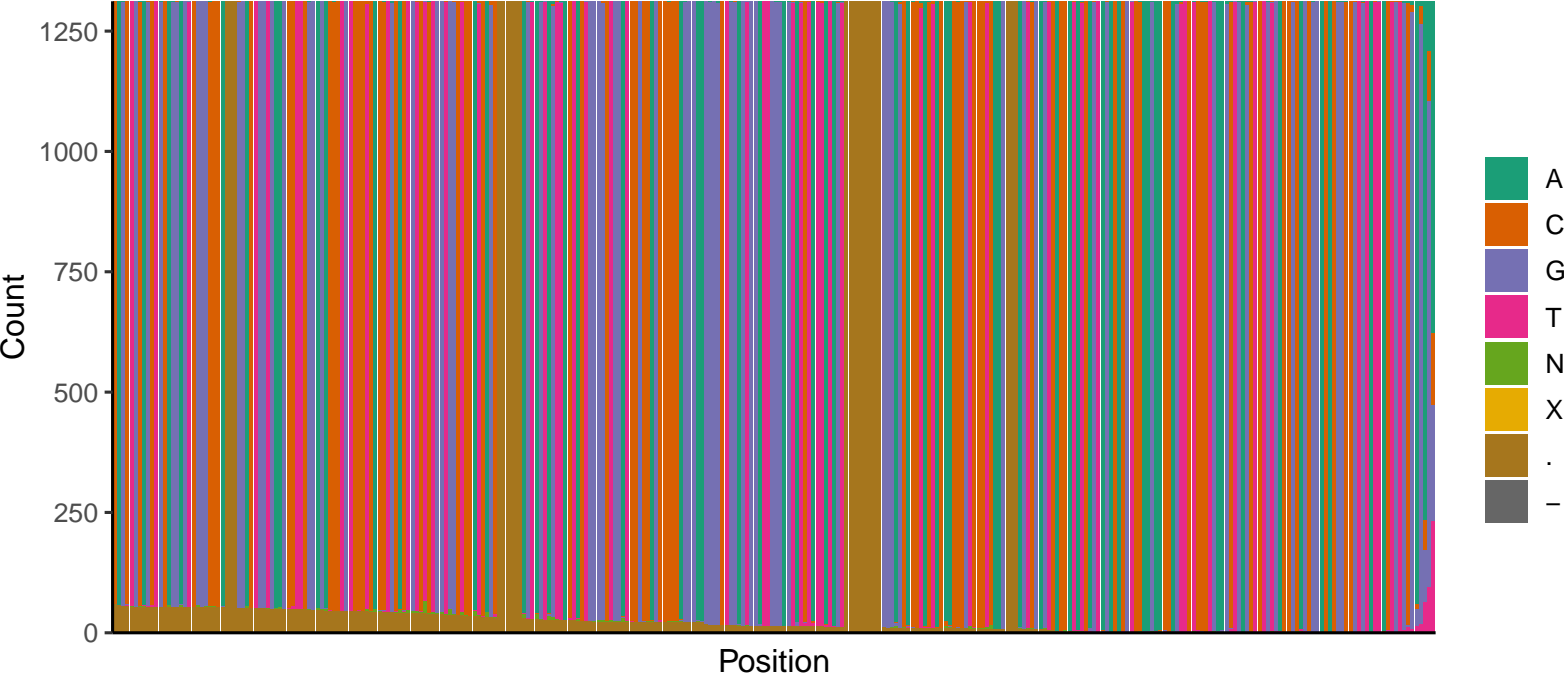
Gene IGHV4-39\*07\_C288A



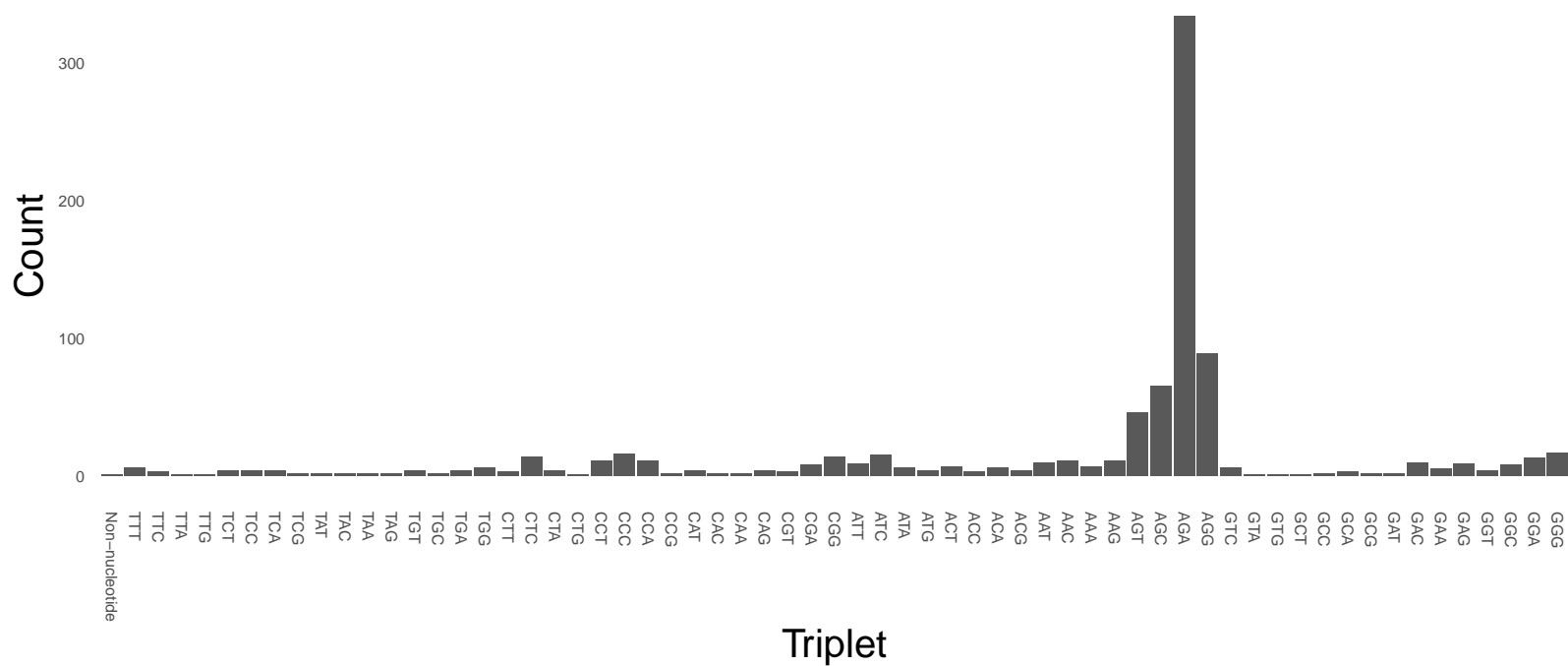
Gene IGHV1-69\*08\_C191T



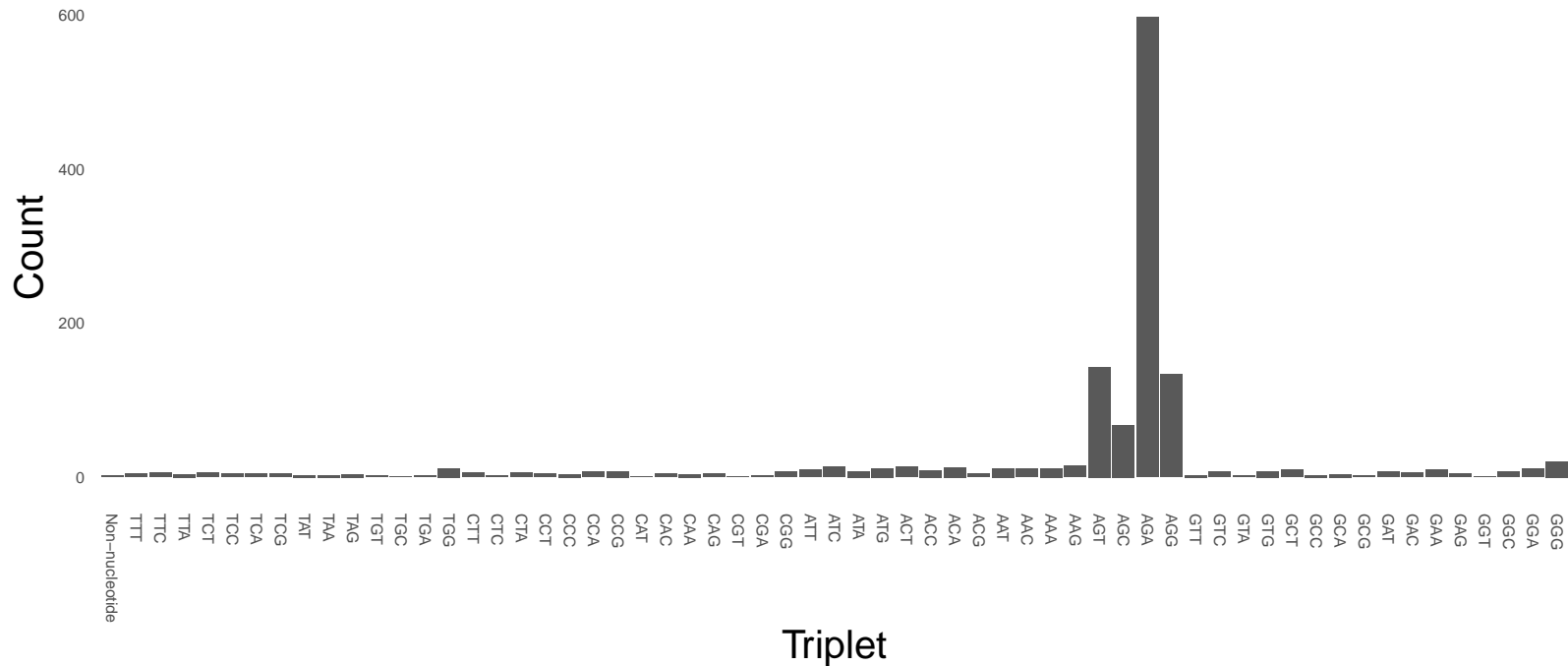
Gene IGHV4-39\*07\_C288A



IGHV1-69\*08\_C191T- Final 3 nucleotides as a triplet

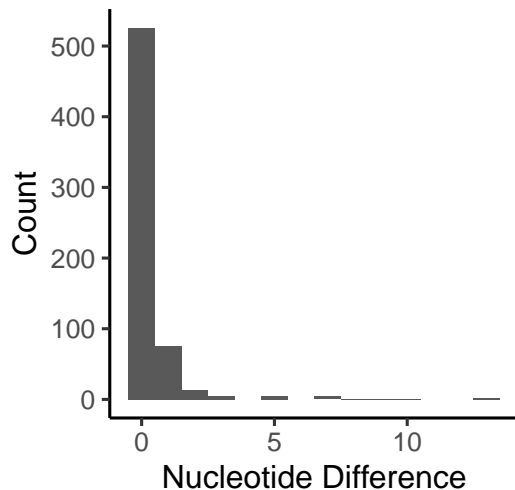


IGHV4-39\*07\_C288A- Final 3 nucleotides as a triplet



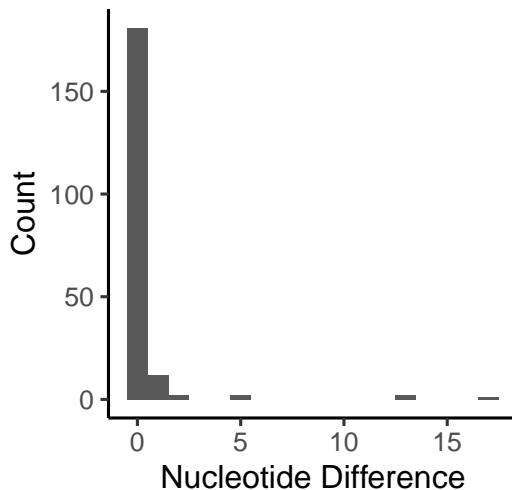
### IGHV1-2\*06

636 sequences assigned  
526 (82.7%) exact matches, in which:  
505 unique CDR3  
6 unique J



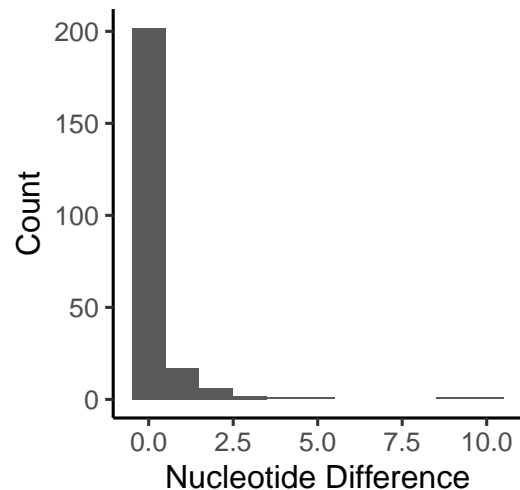
### IGHV1-24\*01

200 sequences assigned  
181 (90.5%) exact matches, in which:  
176 unique CDR3  
7 unique J



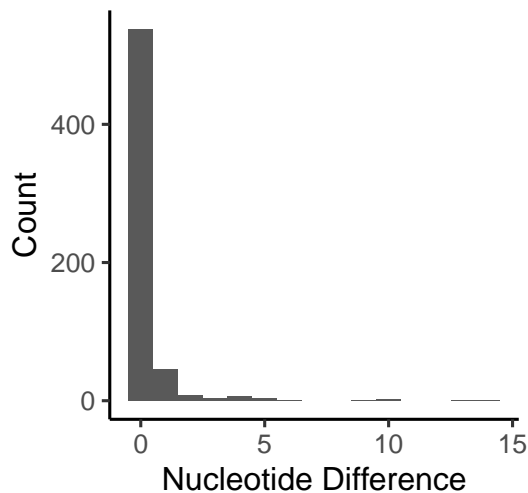
### IGHV1-46\*03

231 sequences assigned  
202 (87.4%) exact matches, in which:  
193 unique CDR3  
6 unique J



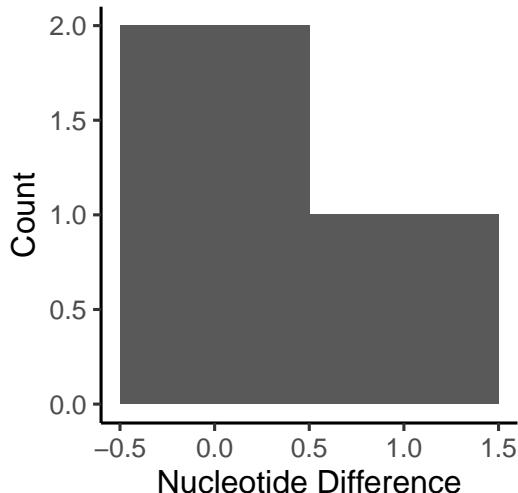
### IGHV1-3\*01

609 sequences assigned  
538 (88.3%) exact matches, in which:  
523 unique CDR3  
7 unique J



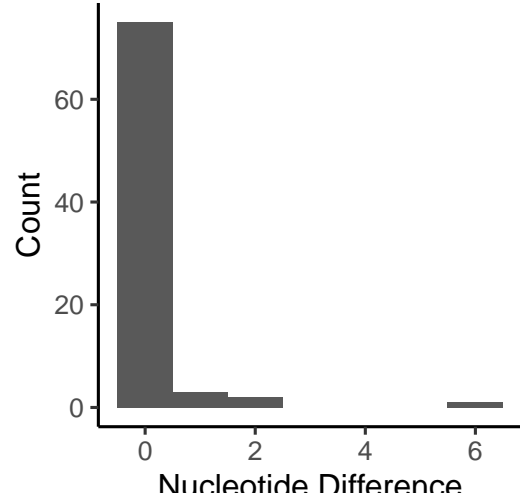
### IGHV1-45\*02

3 sequences assigned  
2 (66.7%) exact matches, in which:  
2 unique CDR3  
2 unique J



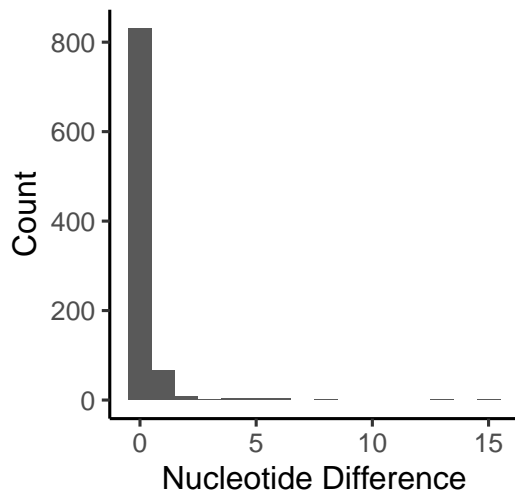
### IGHV1-58\*02

81 sequences assigned  
75 (92.6%) exact matches, in which:  
72 unique CDR3  
5 unique J



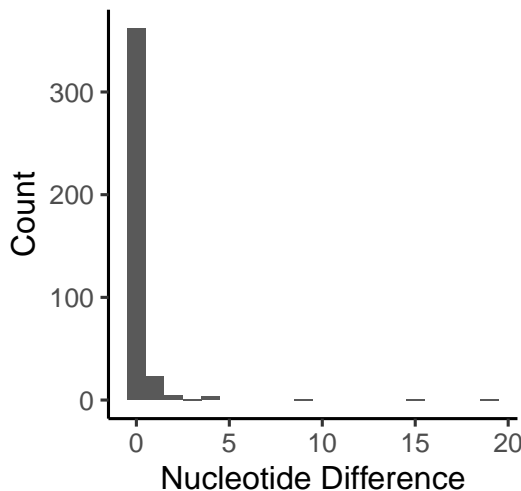
### IGHV1-18\*01

926 sequences assigned  
831 (89.7%) exact matches, in which:  
815 unique CDR3  
7 unique J



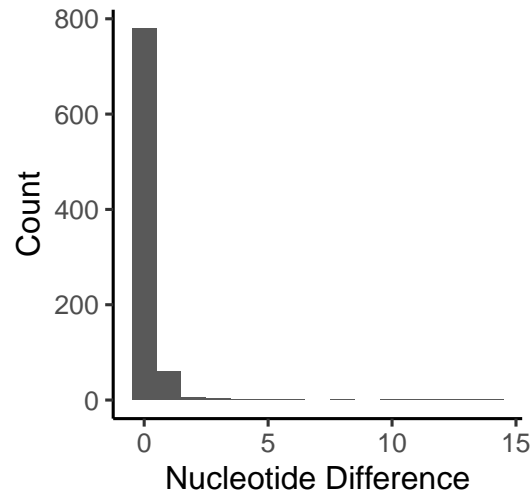
### IGHV1-46\*01

397 sequences assigned  
362 (91.2%) exact matches, in which:  
354 unique CDR3  
6 unique J



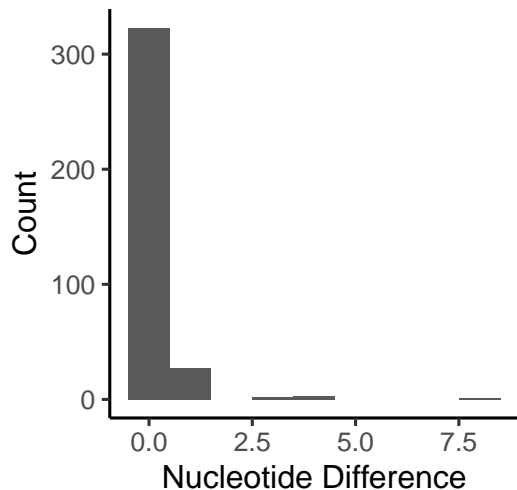
### IGHV1-69\*08\_C191T

860 sequences assigned  
780 (90.7%) exact matches, in which:  
754 unique CDR3  
7 unique J



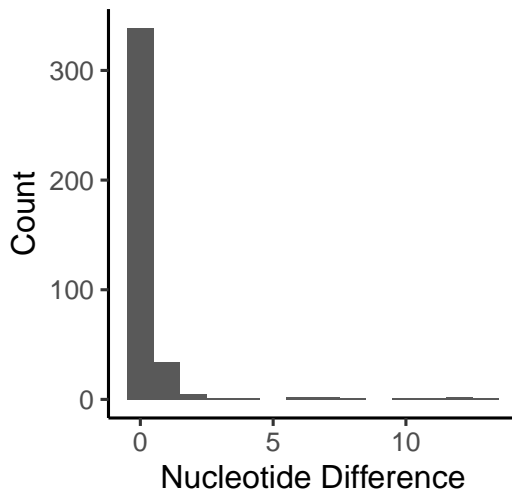
### IGHV2-5\*02

357 sequences assigned  
323 (90.5%) exact matches, in which:  
317 unique CDR3  
7 unique J



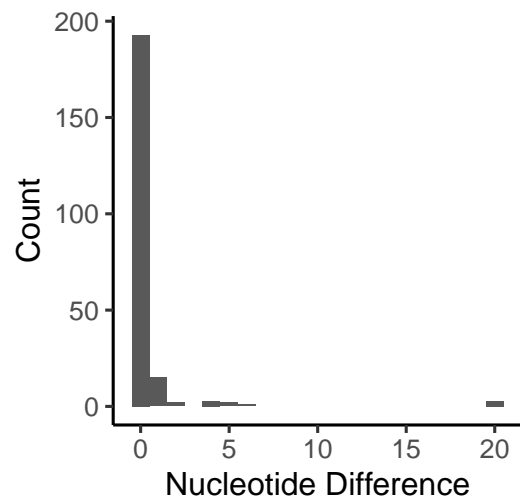
### IGHV3-7\*03

390 sequences assigned  
339 (86.9%) exact matches, in which:  
325 unique CDR3  
6 unique J



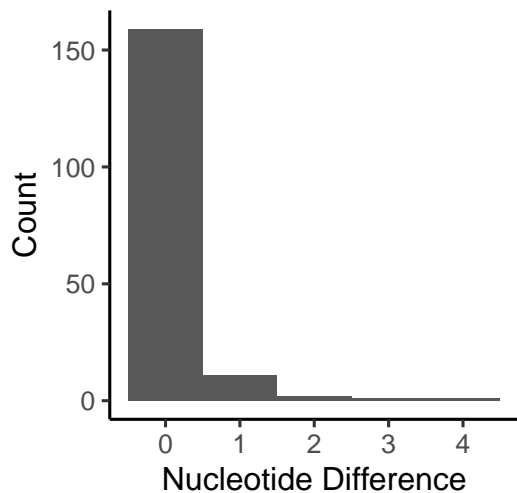
### IGHV3-13\*04

222 sequences assigned  
193 (86.9%) exact matches, in which:  
183 unique CDR3  
6 unique J



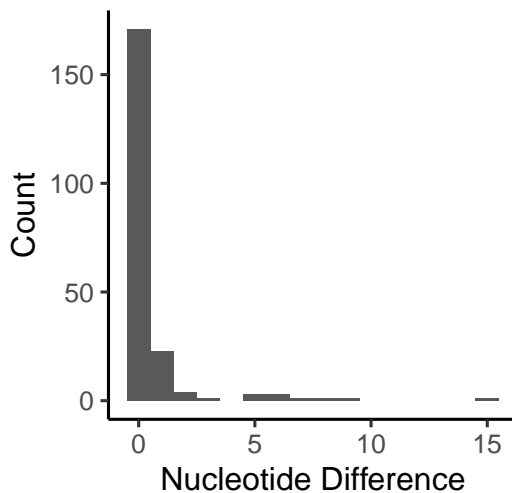
### IGHV2-26\*01

174 sequences assigned  
159 (91.4%) exact matches, in which:  
154 unique CDR3  
7 unique J



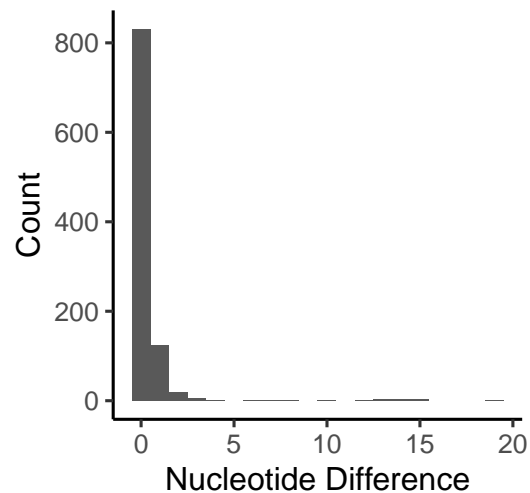
### IGHV3-7\*04

210 sequences assigned  
171 (81.4%) exact matches, in which:  
161 unique CDR3  
6 unique J



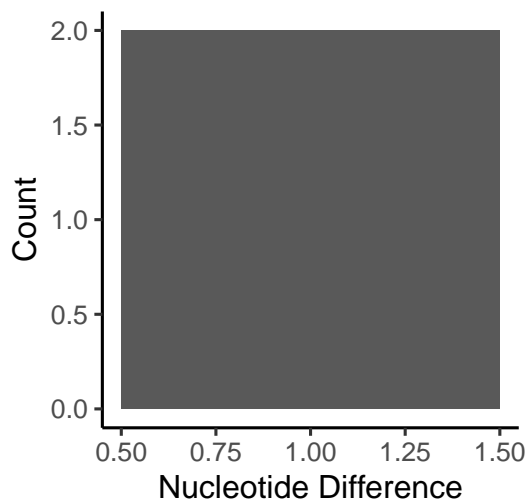
### IGHV3-15\*01

1000 sequences assigned  
831 (83.1%) exact matches, in which:  
801 unique CDR3  
7 unique J



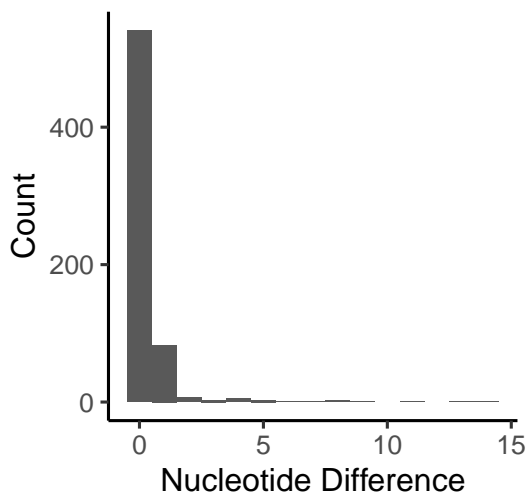
### IGHV2-70\*04

2 sequences assigned  
No exact matches.



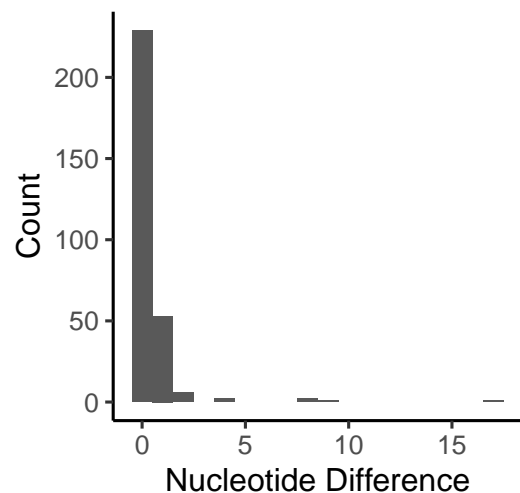
### IGHV3-11\*05

650 sequences assigned  
541 (83.2%) exact matches, in which:  
528 unique CDR3  
7 unique J



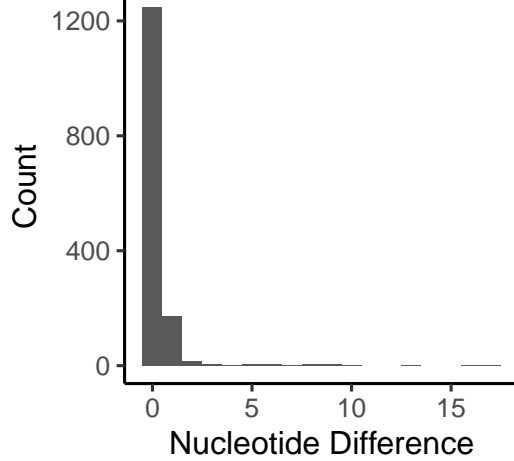
### IGHV3-20\*04

294 sequences assigned  
229 (77.9%) exact matches, in which:  
217 unique CDR3  
7 unique J



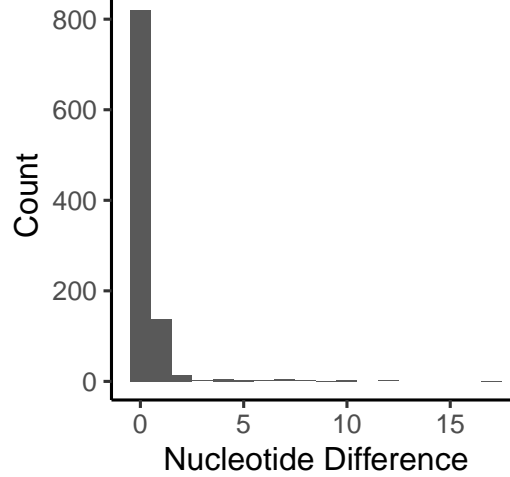
### IGHV3-21\*01

1470 sequences assigned  
1247 (84.8%) exact matches, in which:  
1193 unique CDR3  
7 unique J



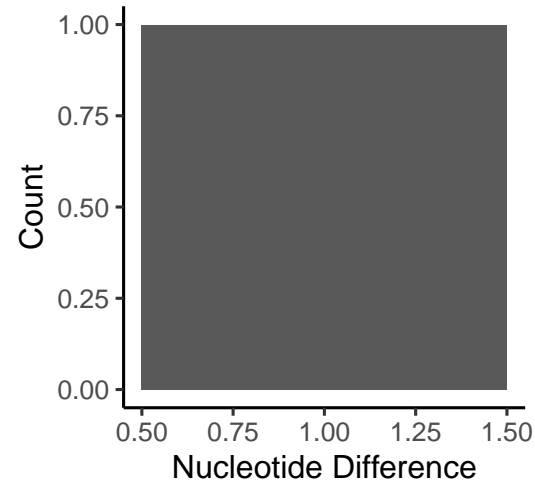
### IGHV3-30\*02

1004 sequences assigned  
821 (81.8%) exact matches, in which:  
776 unique CDR3  
6 unique J



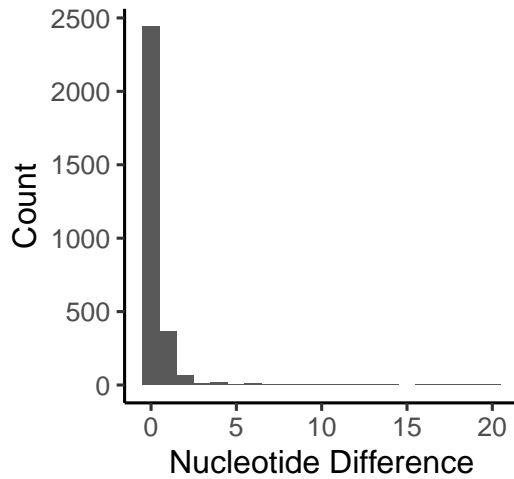
### IGHV3-33\*02

1 sequences assigned  
No exact matches.



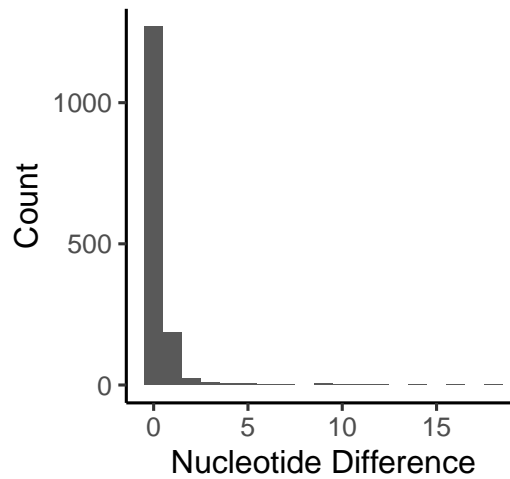
### IGHV3-23\*01

2946 sequences assigned  
2440 (82.8%) exact matches, in which:  
2330 unique CDR3  
6 unique J



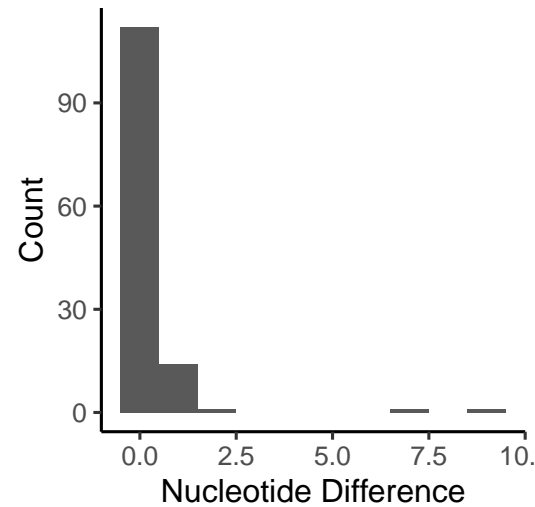
### IGHV3-30\*04

1516 sequences assigned  
1269 (83.7%) exact matches, in which:  
1219 unique CDR3  
7 unique J



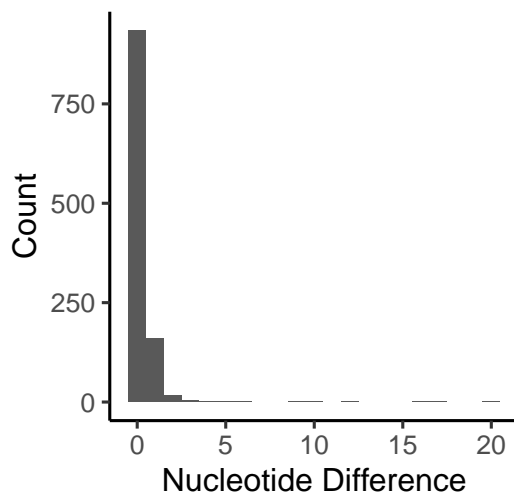
### IGHV3-43\*01

137 sequences assigned  
112 (81.8%) exact matches, in which:  
103 unique CDR3  
6 unique J



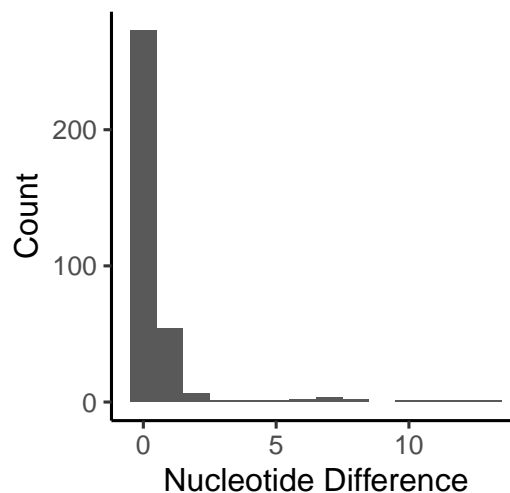
### IGHV3-23\*04

1131 sequences assigned  
935 (82.7%) exact matches, in which:  
889 unique CDR3  
6 unique J



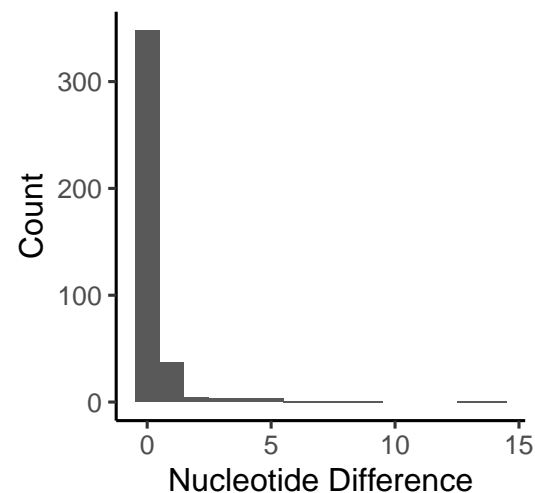
### IGHV3-30\*18

348 sequences assigned  
273 (78.4%) exact matches, in which:  
261 unique CDR3  
6 unique J



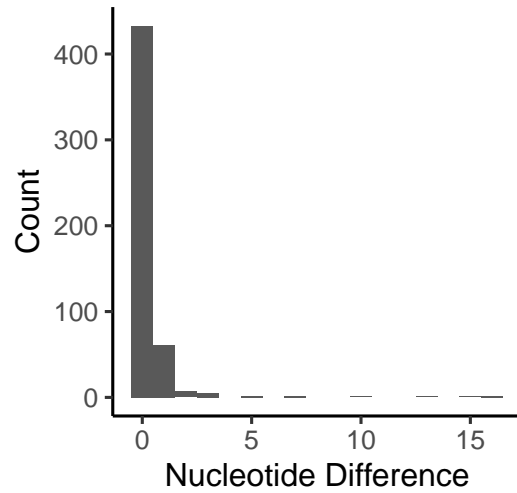
### IGHV3-48\*01

405 sequences assigned  
348 (85.9%) exact matches, in which:  
339 unique CDR3  
6 unique J



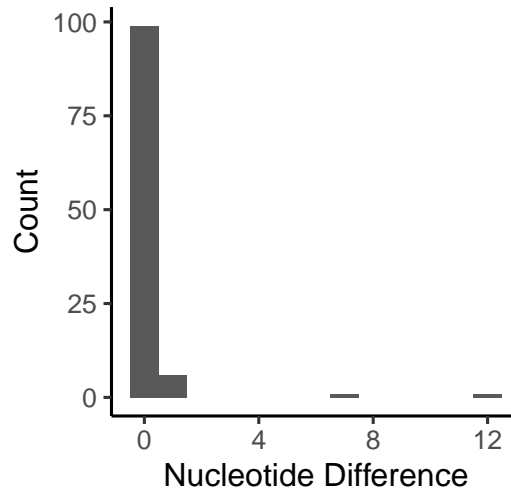
### IGHV3-48\*04

516 sequences assigned  
433 (83.9%) exact matches, in which:  
420 unique CDR3  
6 unique J



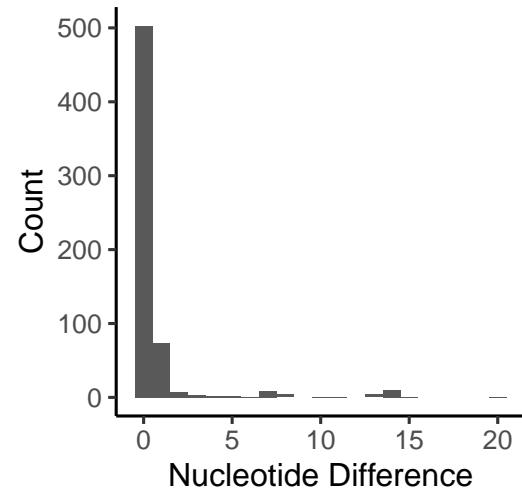
### IGHV3-53\*02

107 sequences assigned  
99 (92.5%) exact matches, in which:  
90 unique CDR3  
6 unique J



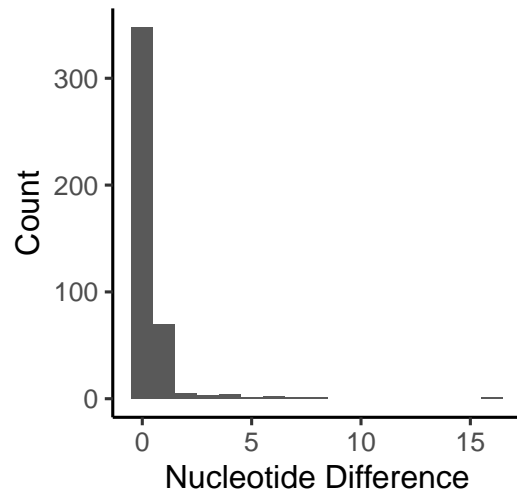
### IGHV3-66\*02

625 sequences assigned  
503 (80.5%) exact matches, in which:  
481 unique CDR3  
7 unique J



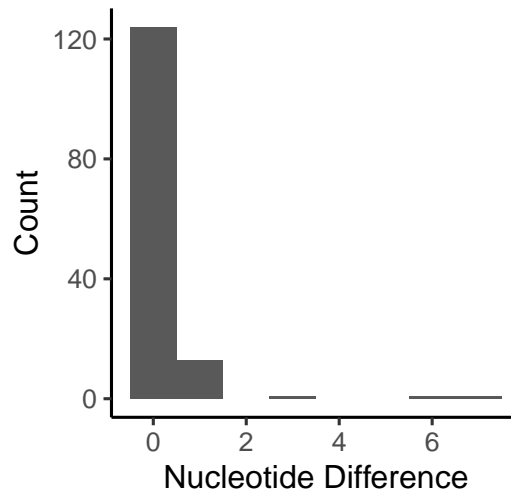
### IGHV3-49\*03

436 sequences assigned  
348 (79.8%) exact matches, in which:  
339 unique CDR3  
7 unique J



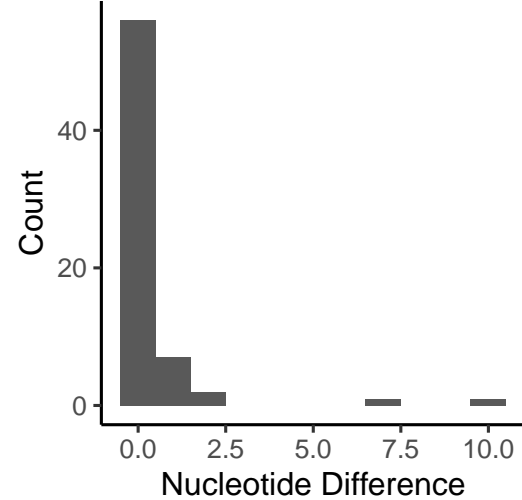
### IGHV3-53\*04

140 sequences assigned  
124 (88.6%) exact matches, in which:  
124 unique CDR3  
6 unique J



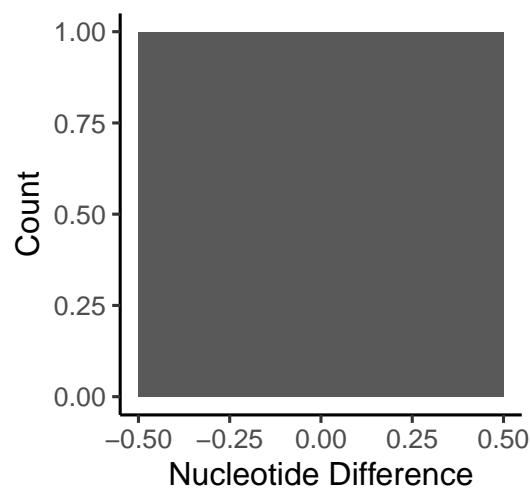
### IGHV3-72\*01

67 sequences assigned  
56 (83.6%) exact matches, in which:  
56 unique CDR3  
6 unique J



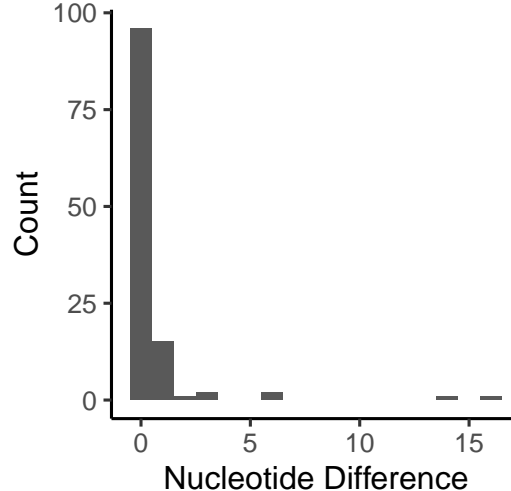
### IGHV3-52\*02

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



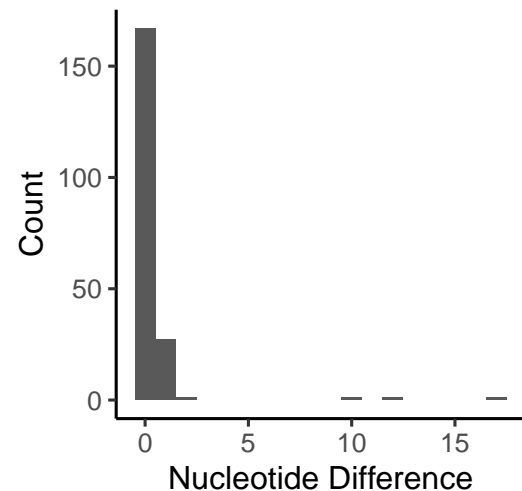
### IGHV3-64\*01

119 sequences assigned  
96 (80.7%) exact matches, in which:  
94 unique CDR3  
6 unique J



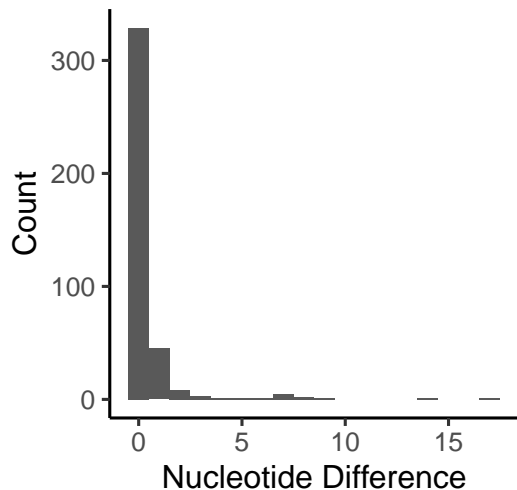
### IGHV3-73\*01

198 sequences assigned  
167 (84.3%) exact matches, in which:  
159 unique CDR3  
5 unique J



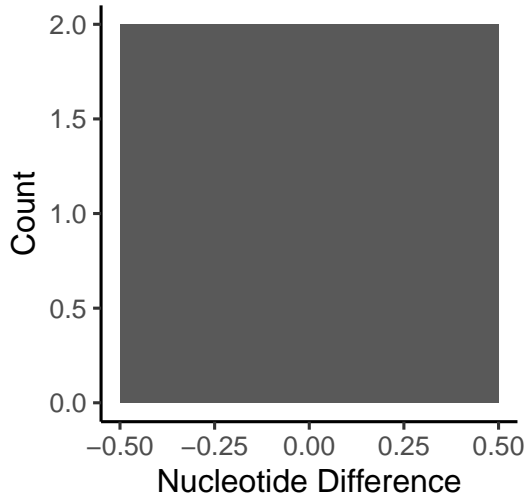
### IGHV3–74\*01

398 sequences assigned  
329 (82.7%) exact matches, in which:  
321 unique CDR3  
7 unique J



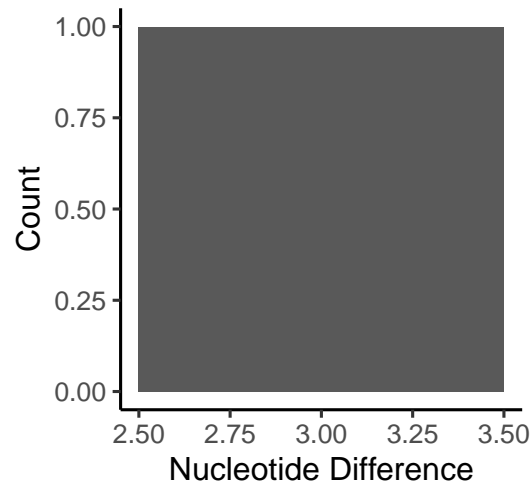
### IGHV4–28\*01

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



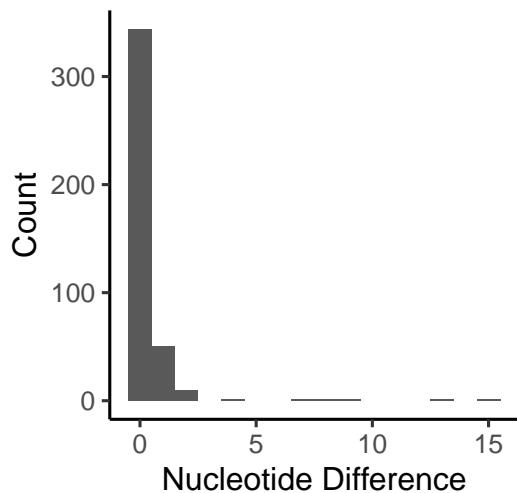
### IGHV4–31\*11

1 sequences assigned  
No exact matches.



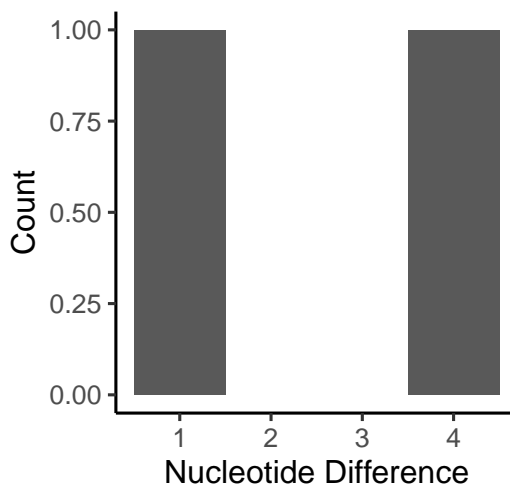
### IGHV3–64D\*06

411 sequences assigned  
344 (83.7%) exact matches, in which:  
325 unique CDR3  
7 unique J



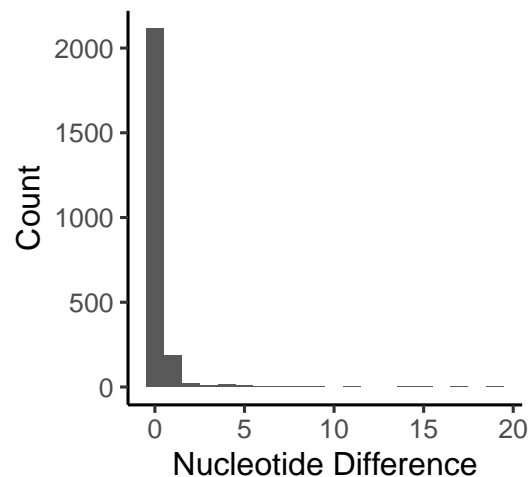
### IGHV4–28\*03

2 sequences assigned  
No exact matches.



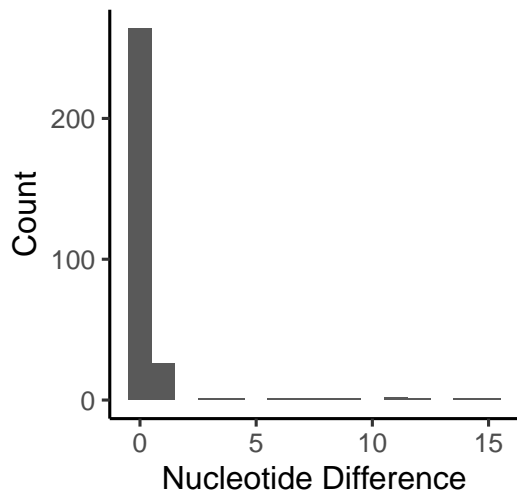
### IGHV4–34\*01

2373 sequences assigned  
2114 (89.1%) exact matches, in which:  
2028 unique CDR3  
7 unique J



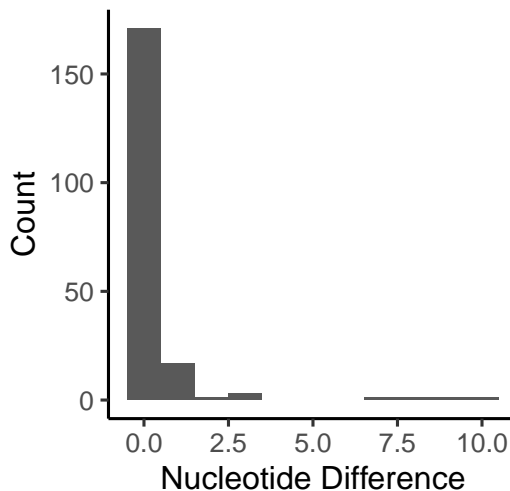
### IGHV4–4\*02

302 sequences assigned  
264 (87.4%) exact matches, in which:  
258 unique CDR3  
7 unique J



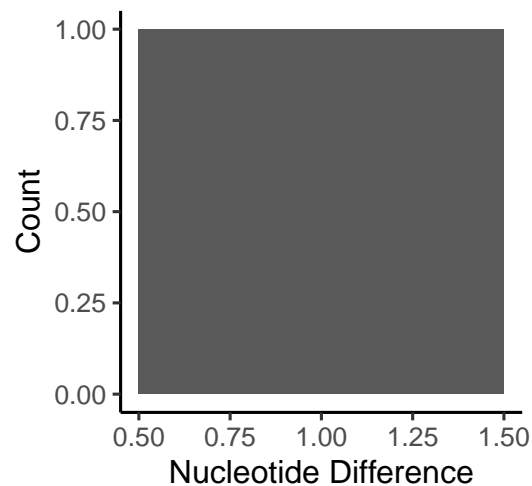
### IGHV4–30–2\*01

198 sequences assigned  
171 (86.4%) exact matches, in which:  
166 unique CDR3  
6 unique J



### IGHV4–38–2\*02

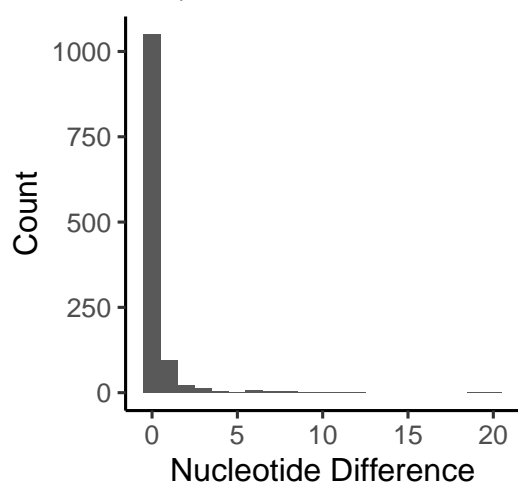
1 sequences assigned  
No exact matches.





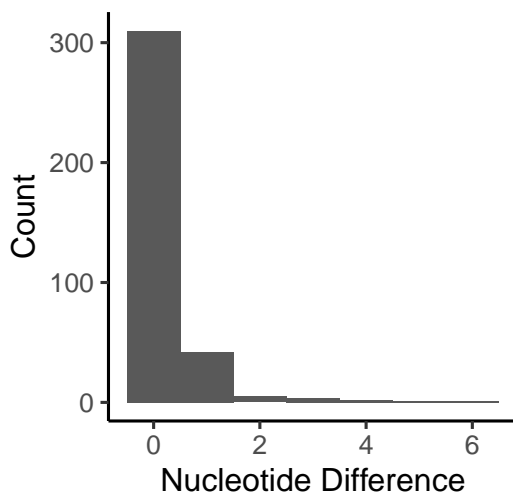
### IGHV4-39\*01

1211 sequences assigned  
1050 (86.7%) exact matches, in which:  
1019 unique CDR3  
6 unique J



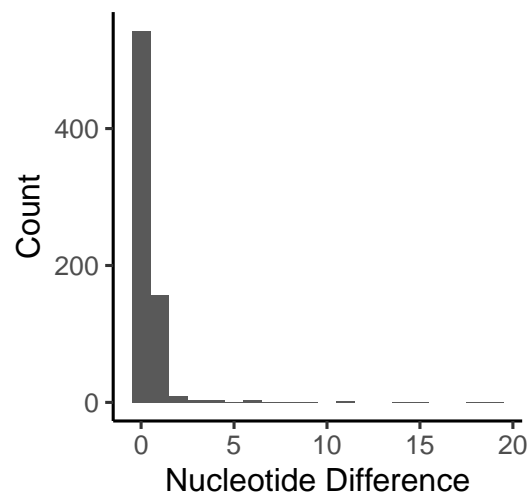
### IGHV4-59\*08

366 sequences assigned  
310 (84.7%) exact matches, in which:  
302 unique CDR3  
6 unique J



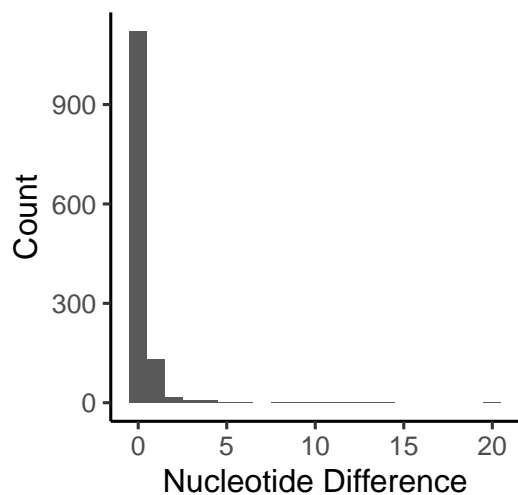
### IGHV5-51\*01

734 sequences assigned  
543 (74%) exact matches, in which:  
526 unique CDR3  
7 unique J



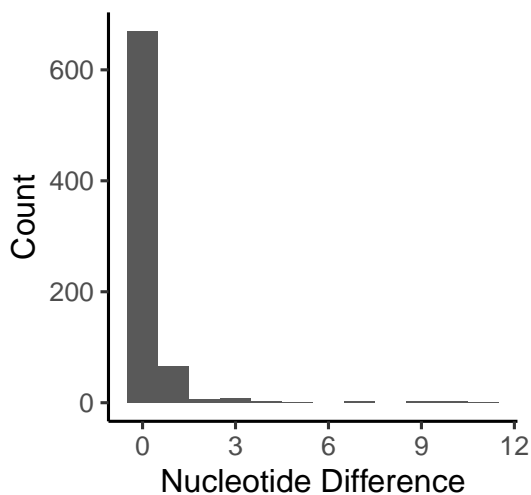
### IGHV4-39\*07\_C288A

1312 sequences assigned  
1122 (85.5%) exact matches, in which:  
1074 unique CDR3  
7 unique J



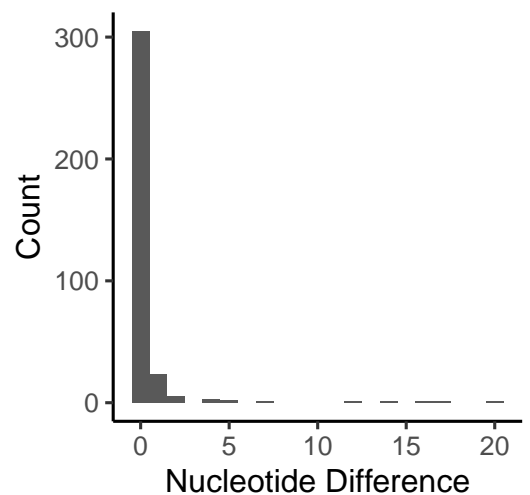
### IGHV4-61\*02

764 sequences assigned  
670 (87.7%) exact matches, in which:  
654 unique CDR3  
6 unique J



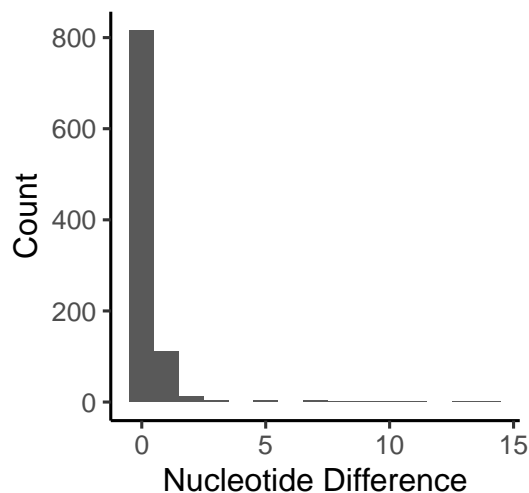
### IGHV5-51\*03

345 sequences assigned  
305 (88.4%) exact matches, in which:  
297 unique CDR3  
6 unique J



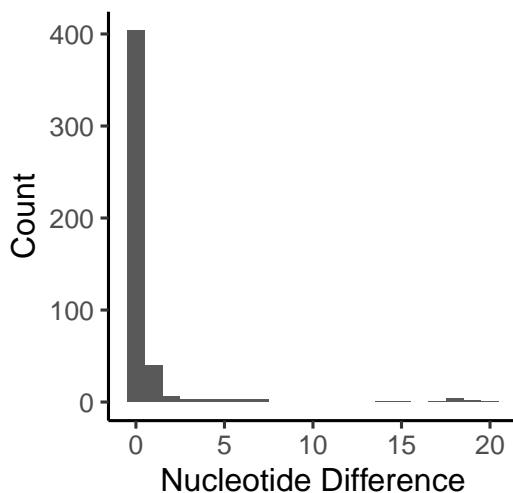
### IGHV4-59\*01

957 sequences assigned  
816 (85.3%) exact matches, in which:  
790 unique CDR3  
7 unique J



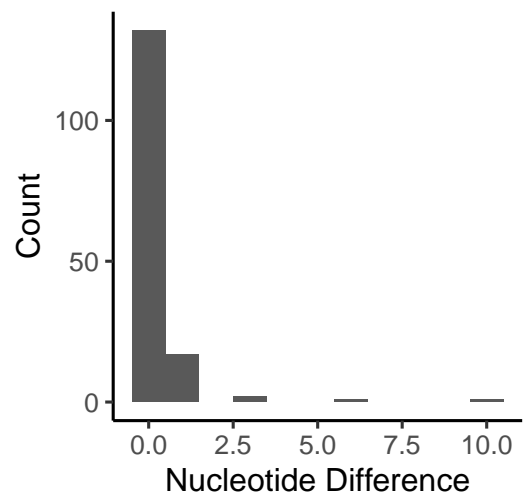
### IGHV5-10-1\*01

476 sequences assigned  
404 (84.9%) exact matches, in which:  
394 unique CDR3  
7 unique J



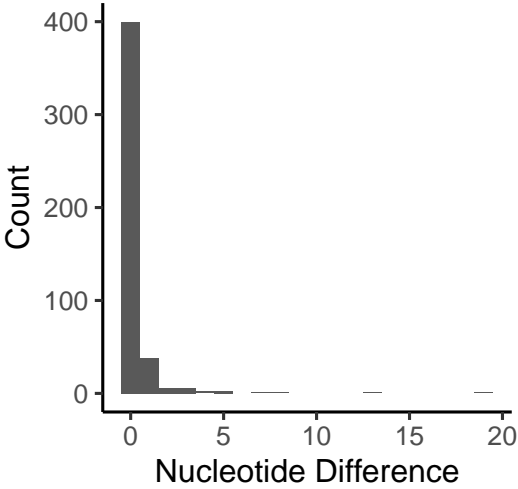
### IGHV6-1\*01

153 sequences assigned  
132 (86.3%) exact matches, in which:  
128 unique CDR3  
6 unique J

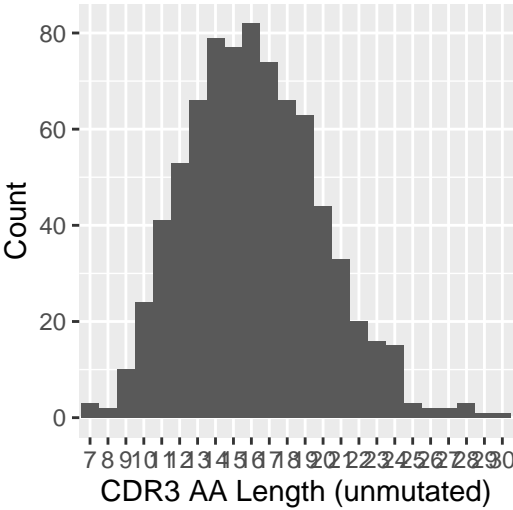


IGHV7-4-1\*02

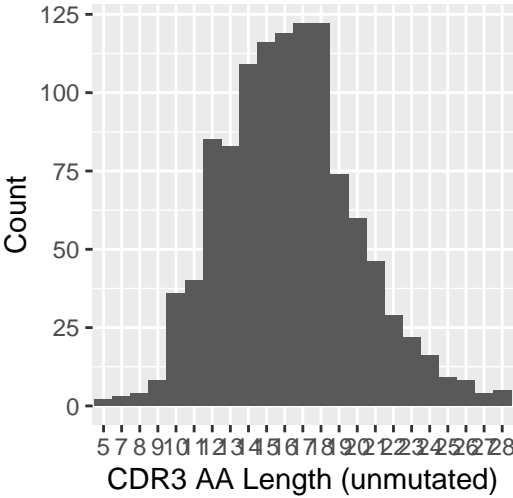
459 sequences assigned  
400 (87.1%) exact matches, in which:  
390 unique CDR3  
7 unique J



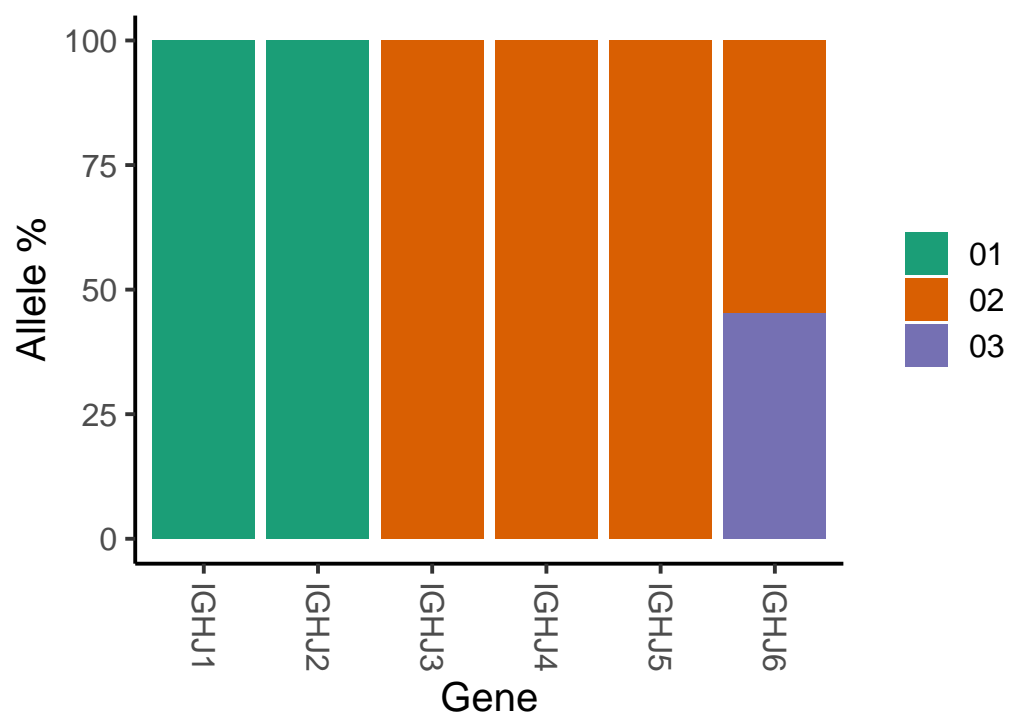
IGHV1-69\*08\_C191T



IGHV4-39\*07\_C288A



Allele Usage



### Sequence Count byIGHJ6 allele usage

