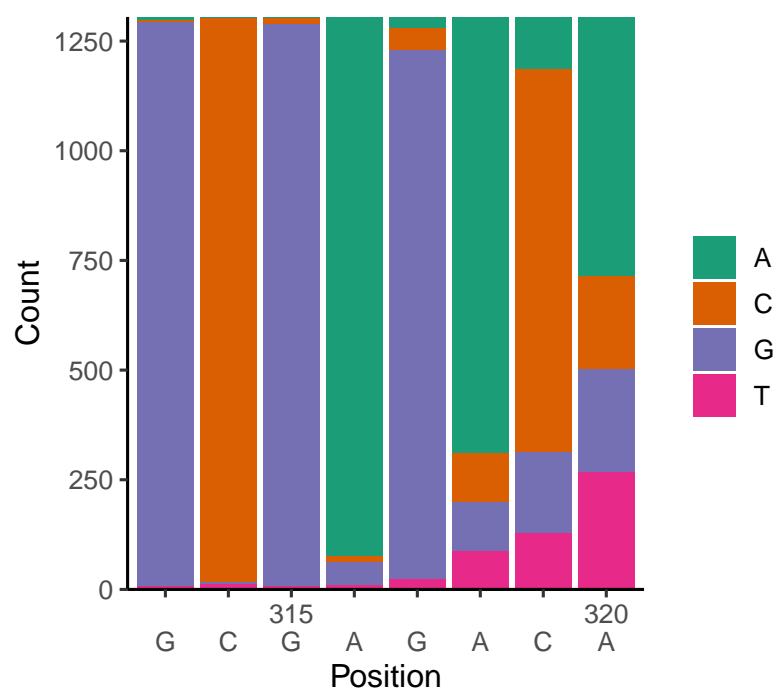
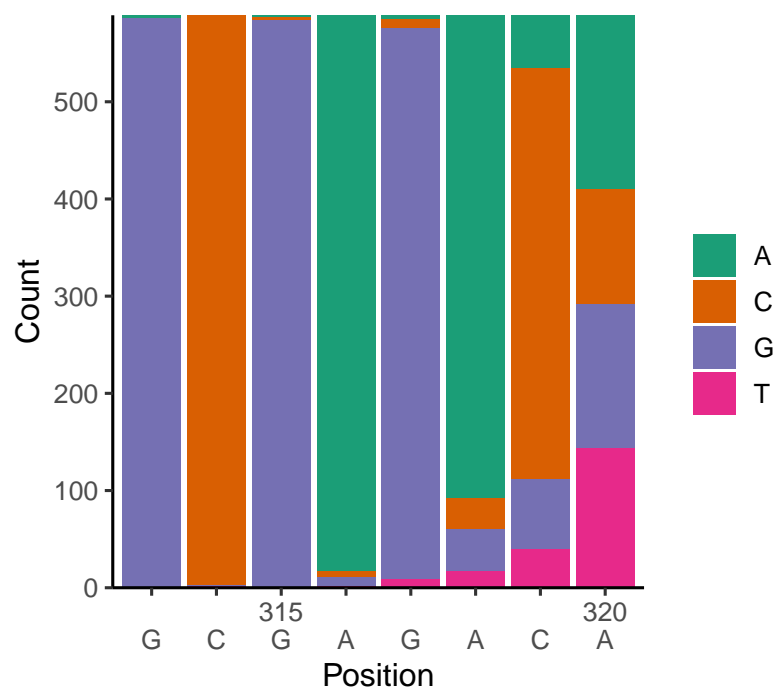


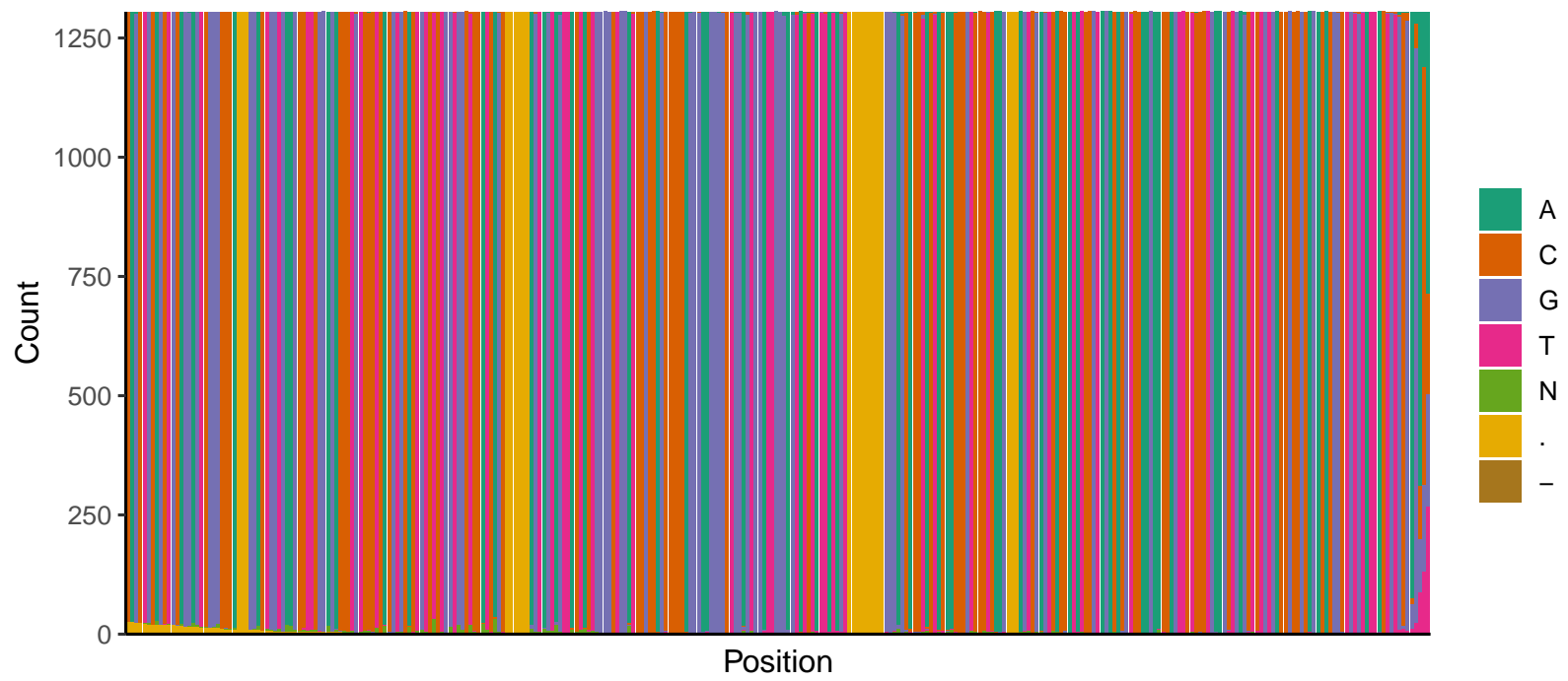
Gene IGHV4-39\*01\_C66G



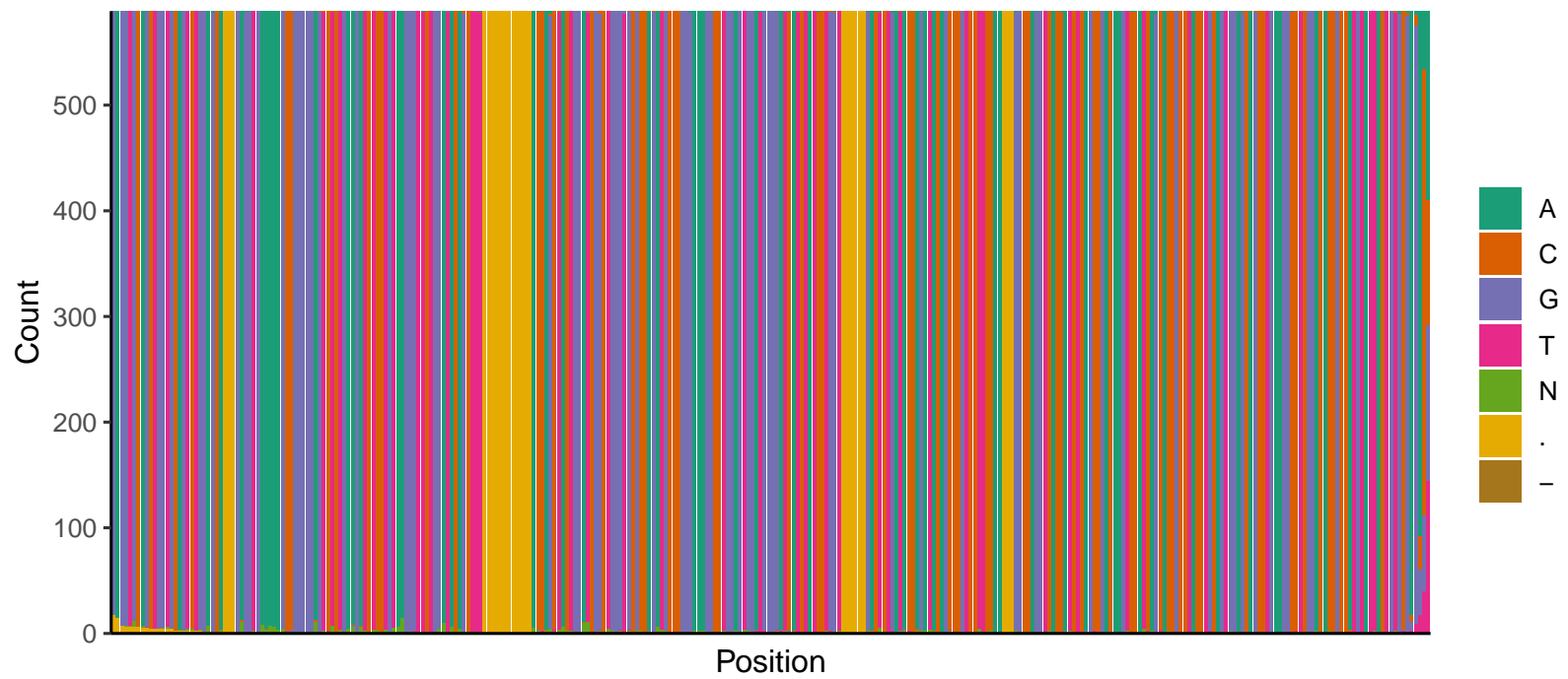
Gene IGHV5-51\*01\_C45G



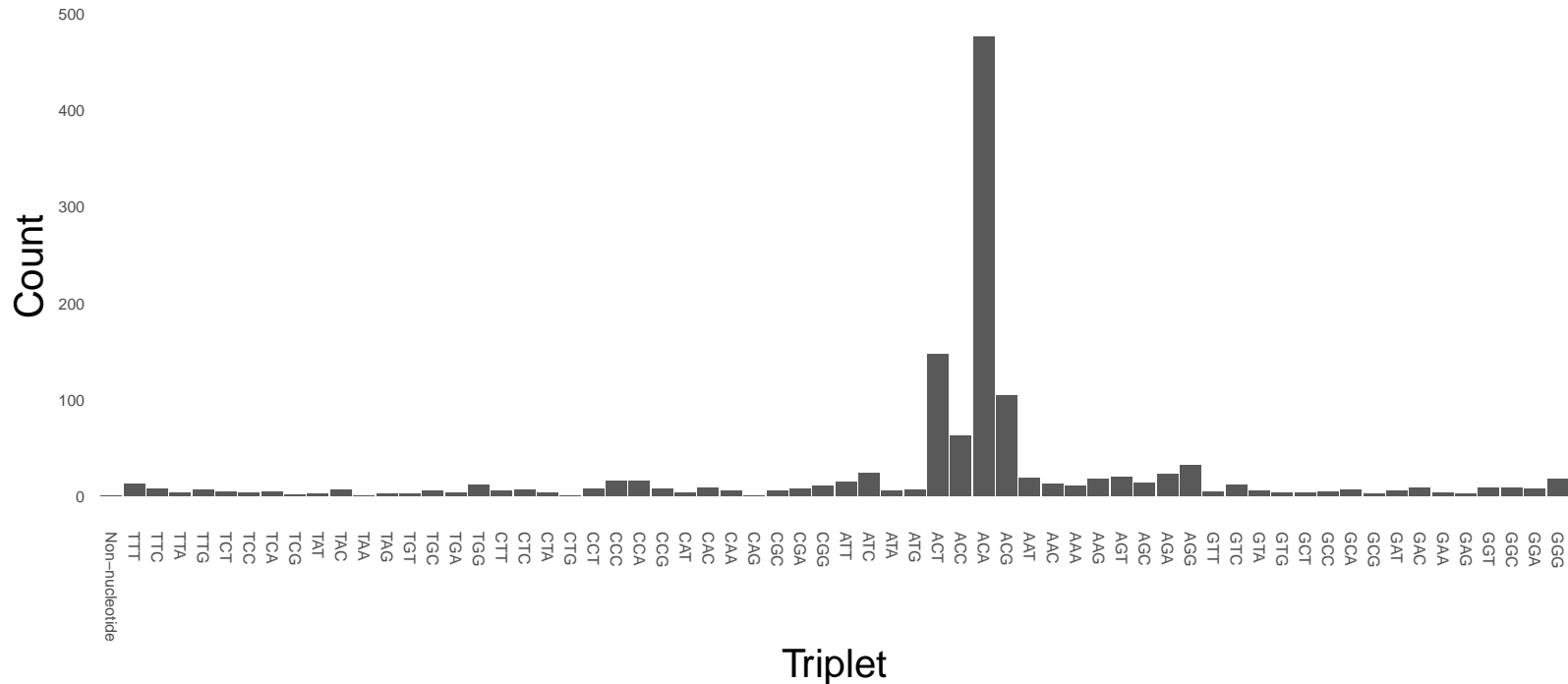
Gene IGHV4-39\*01\_C66G



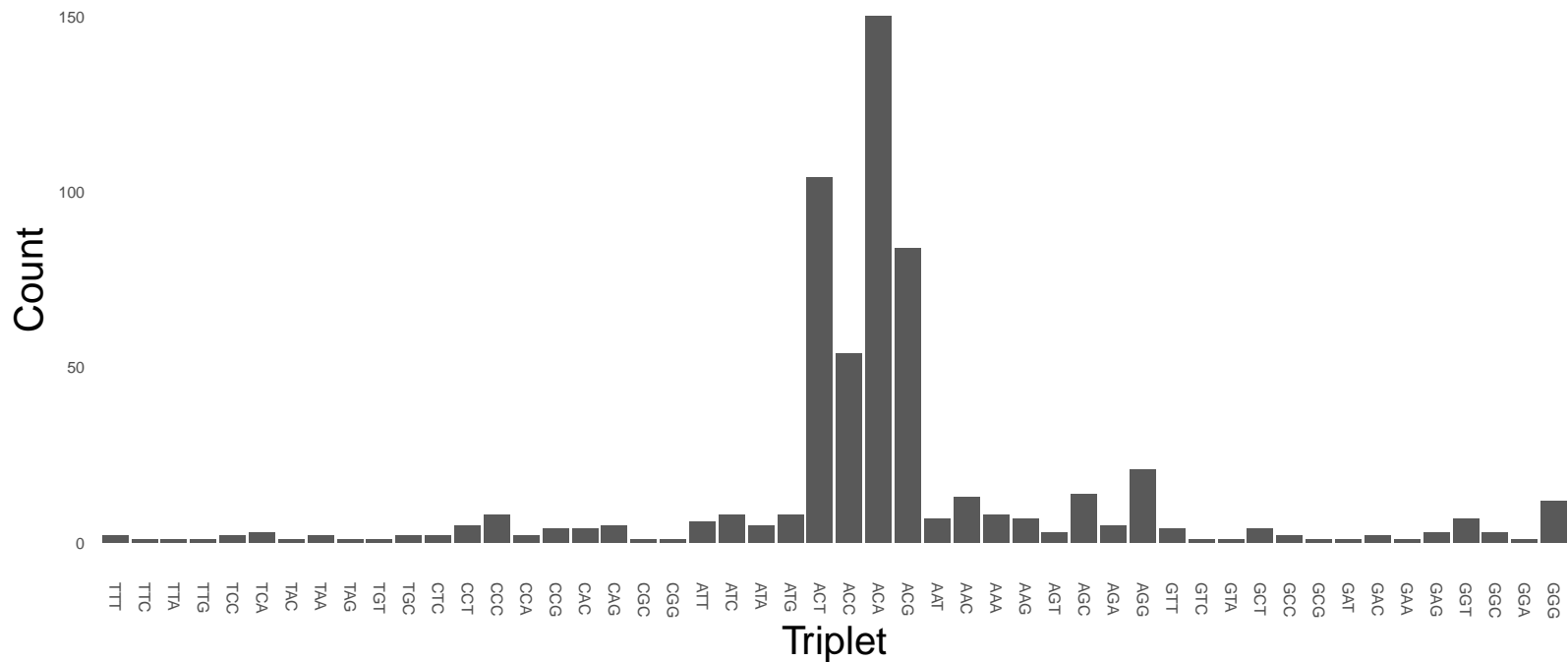
Gene IGHV5-51\*01\_C45G



IGHV4-39\*01\_C66G- Final 3 nucleotides as a triplet

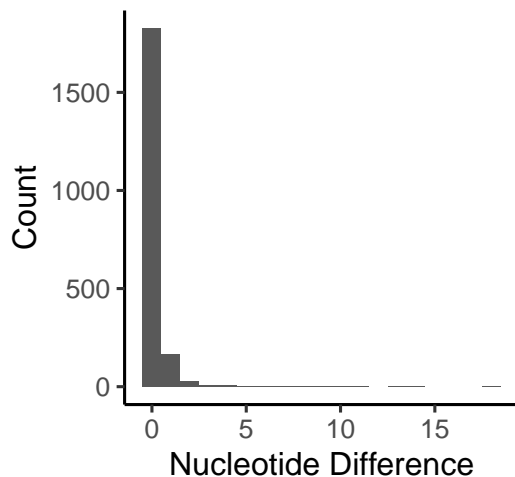


IGHV5-51\*01\_C45G- Final 3 nucleotides as a triplet



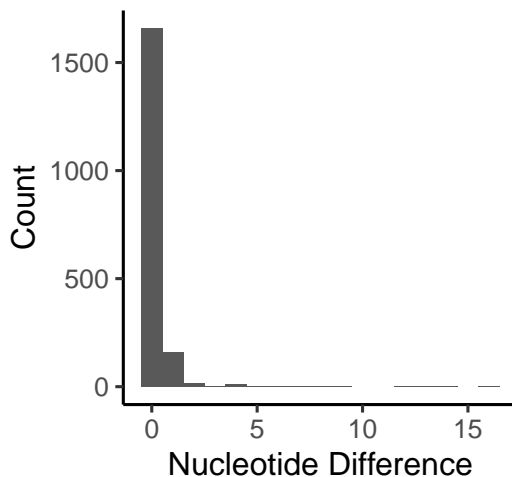
### IGHV1-2\*02

2051 sequences assigned  
1826 (89%) exact matches, in which:  
1793 unique CDR3  
7 unique J



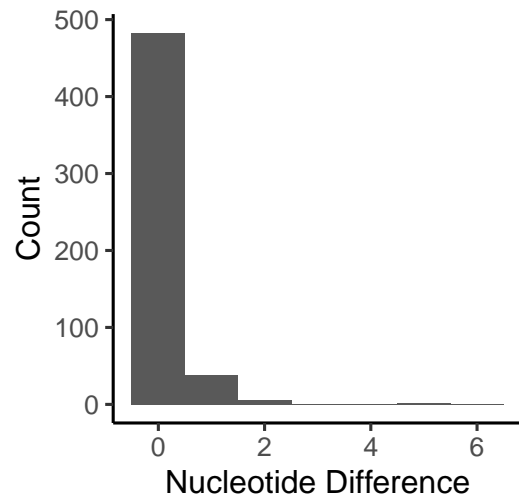
### IGHV1-18\*01

1859 sequences assigned  
1658 (89.2%) exact matches, in which:  
1626 unique CDR3  
7 unique J



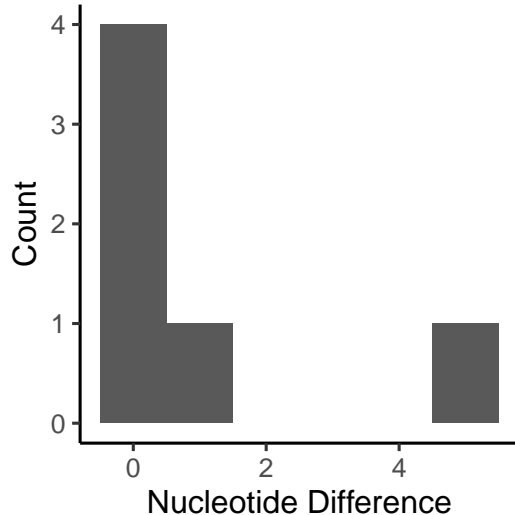
### IGHV1-46\*01

532 sequences assigned  
483 (90.8%) exact matches, in which:  
476 unique CDR3  
7 unique J



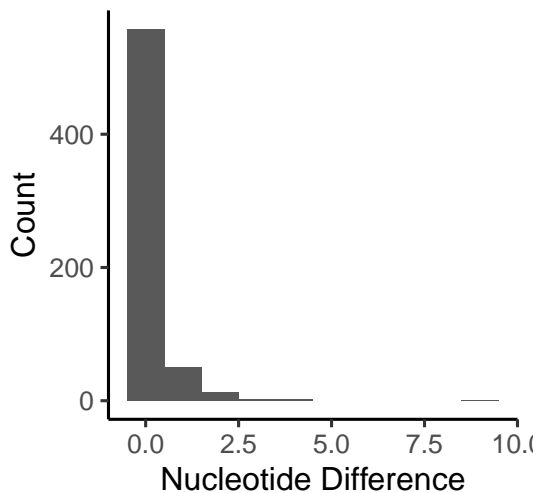
### IGHV1-3\*02

6 sequences assigned  
4 (66.7%) exact matches, in which:  
3 unique CDR3  
3 unique J



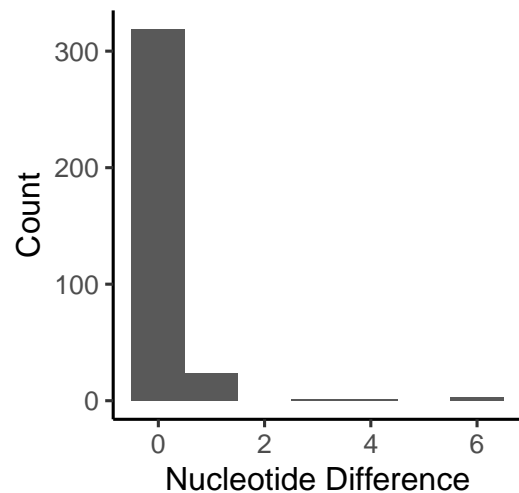
### IGHV1-24\*01

630 sequences assigned  
558 (88.6%) exact matches, in which:  
546 unique CDR3  
7 unique J



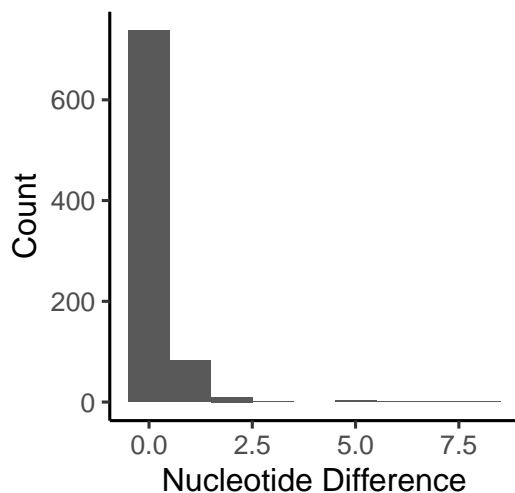
### IGHV1-46\*03

348 sequences assigned  
319 (91.7%) exact matches, in which:  
310 unique CDR3  
7 unique J



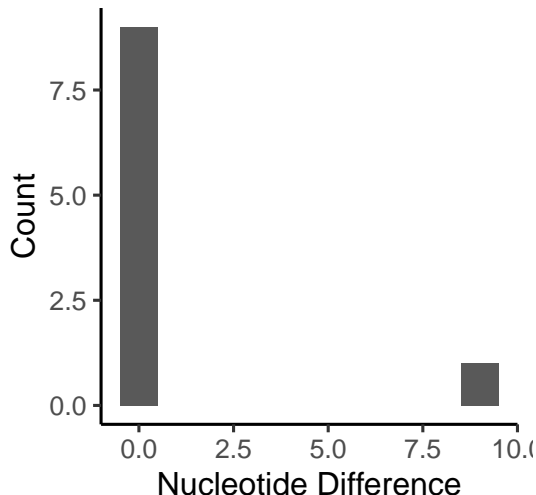
### IGHV1-8\*01

837 sequences assigned  
738 (88.2%) exact matches, in which:  
719 unique CDR3  
7 unique J



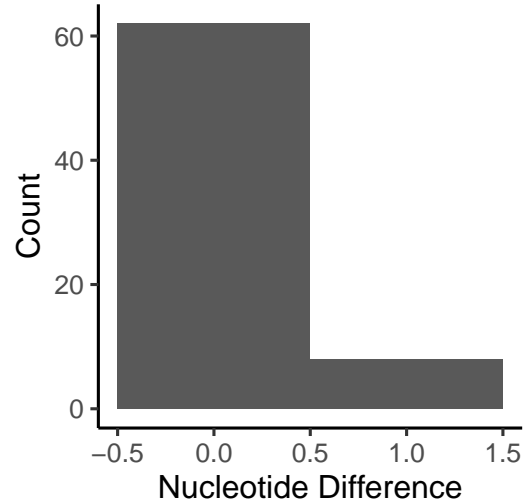
### IGHV1-45\*02

10 sequences assigned  
9 (90%) exact matches, in which:  
9 unique CDR3  
3 unique J



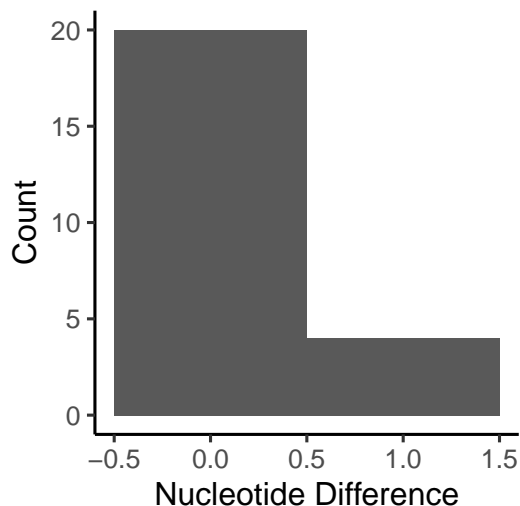
### IGHV1-58\*01

70 sequences assigned  
62 (88.6%) exact matches, in which:  
61 unique CDR3  
5 unique J



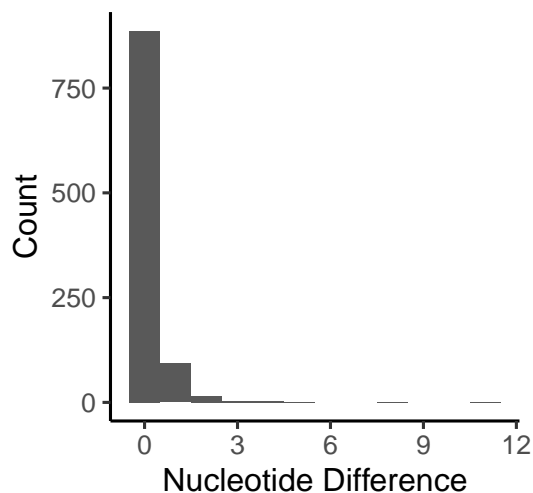
### IGHV1-58\*02

24 sequences assigned  
20 (83.3%) exact matches, in which:  
20 unique CDR3  
3 unique J



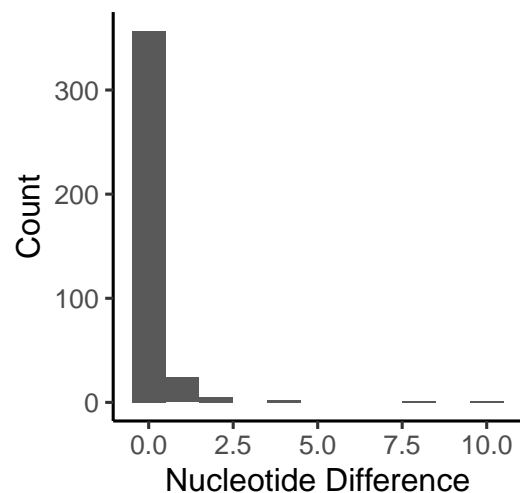
### IGHV1-69\*06

1007 sequences assigned  
887 (88.1%) exact matches, in which:  
868 unique CDR3  
7 unique J



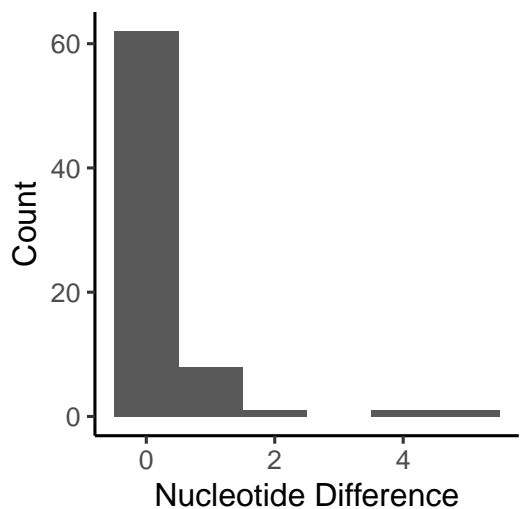
### IGHV2-26\*01

391 sequences assigned  
357 (91.3%) exact matches, in which:  
353 unique CDR3  
7 unique J



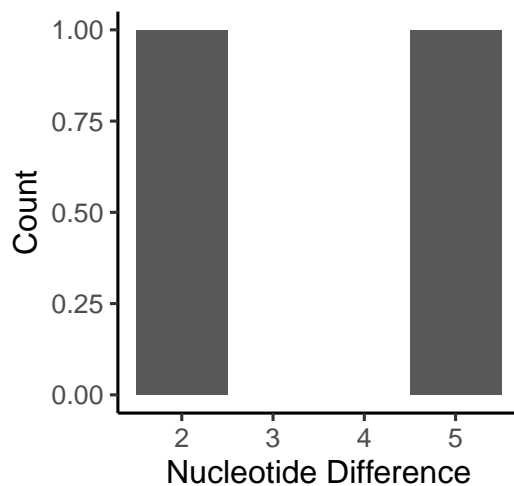
### IGHV1-69-2\*01

73 sequences assigned  
62 (84.9%) exact matches, in which:  
62 unique CDR3  
5 unique J



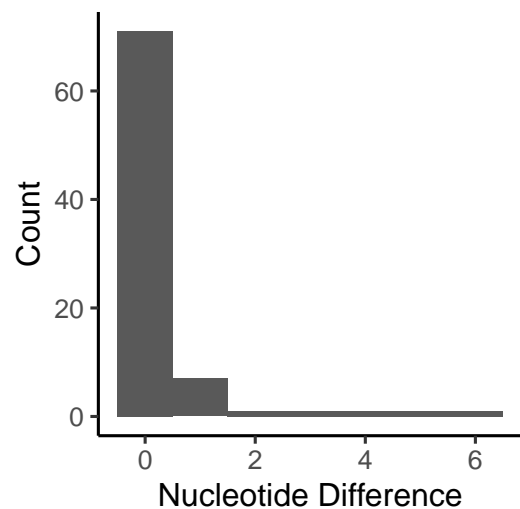
### IGHV1-NL1\*01

2 sequences assigned  
No exact matches.



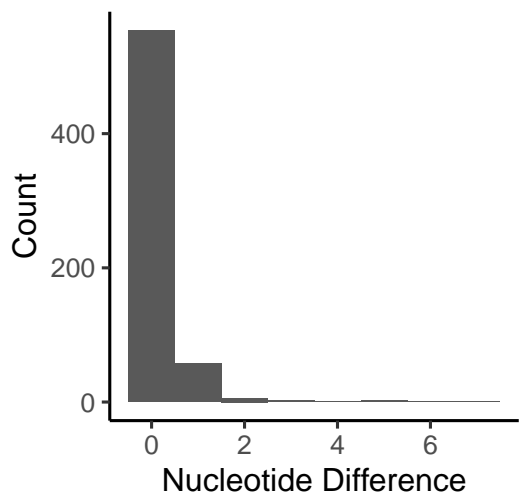
### IGHV2-70\*01

83 sequences assigned  
71 (85.5%) exact matches, in which:  
69 unique CDR3  
5 unique J



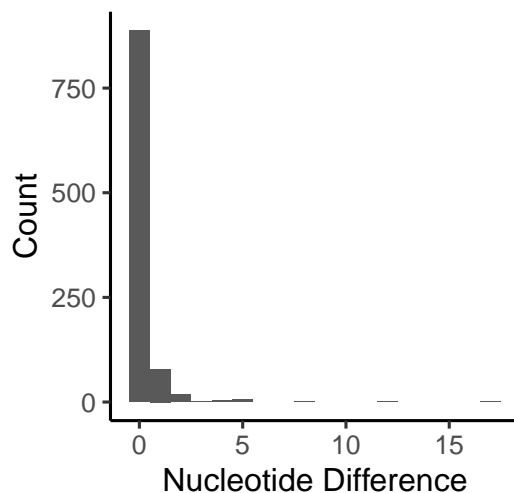
### IGHV1-69\*02

625 sequences assigned  
554 (88.6%) exact matches, in which:  
538 unique CDR3  
6 unique J



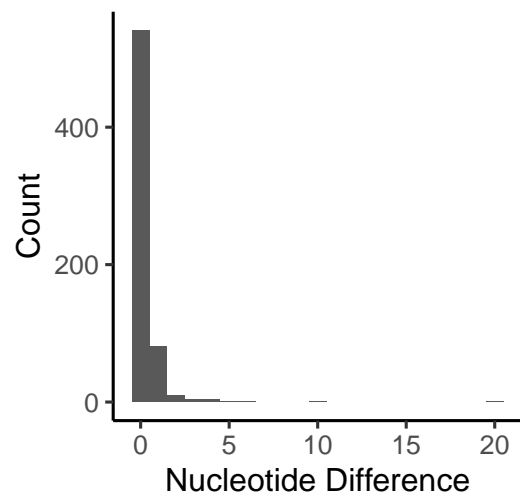
### IGHV2-5\*02

999 sequences assigned  
888 (88.9%) exact matches, in which:  
876 unique CDR3  
7 unique J



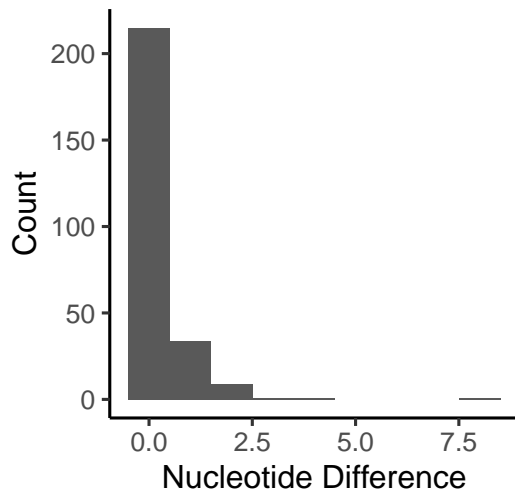
### IGHV3-7\*01

644 sequences assigned  
541 (84%) exact matches, in which:  
531 unique CDR3  
7 unique J



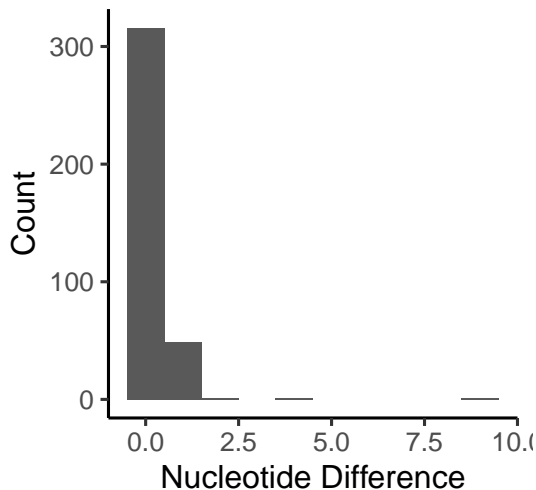
### IGHV3-7\*04

261 sequences assigned  
215 (82.4%) exact matches, in which:  
209 unique CDR3  
7 unique J



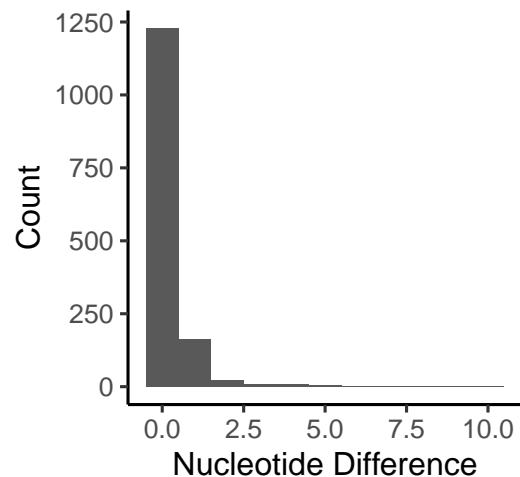
### IGHV3-11\*06

370 sequences assigned  
316 (85.4%) exact matches, in which:  
312 unique CDR3  
6 unique J



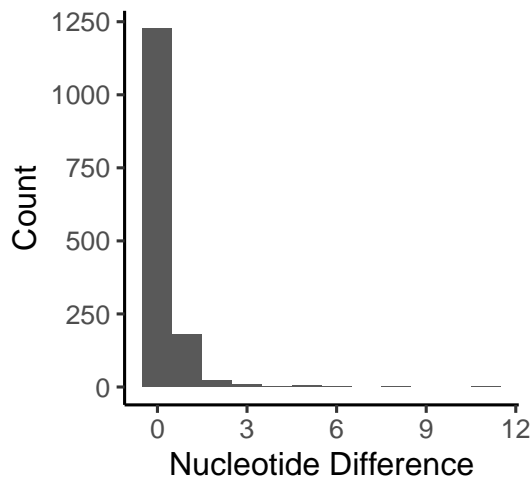
### IGHV3-15\*01

1439 sequences assigned  
1228 (85.3%) exact matches, in which:  
1211 unique CDR3  
7 unique J



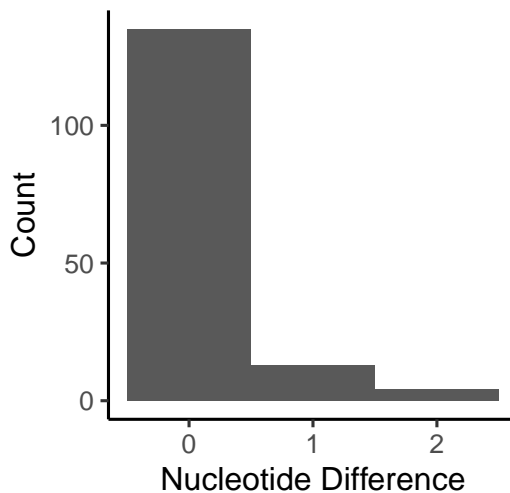
### IGHV3-9\*01

1449 sequences assigned  
1226 (84.6%) exact matches, in which:  
1190 unique CDR3  
6 unique J



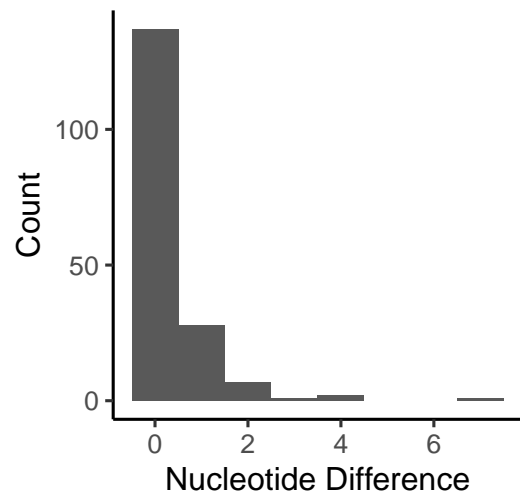
### IGHV3-13\*01

152 sequences assigned  
135 (88.8%) exact matches, in which:  
134 unique CDR3  
5 unique J



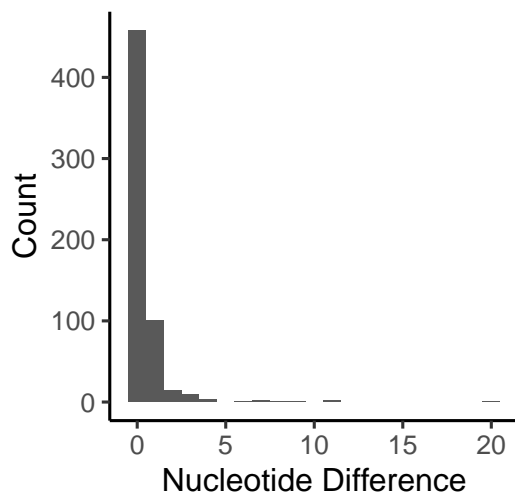
### IGHV3-20\*01

177 sequences assigned  
137 (77.4%) exact matches, in which:  
134 unique CDR3  
6 unique J



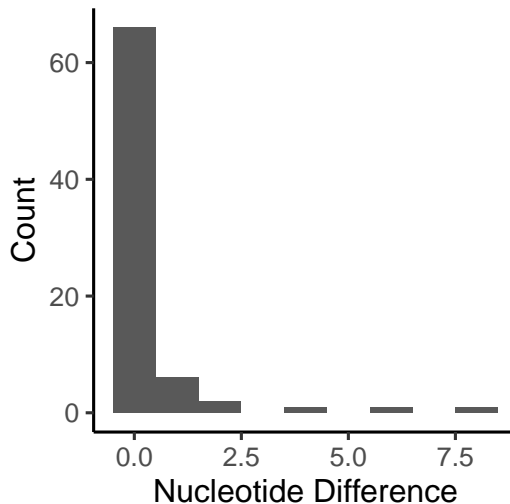
### IGHV3-11\*01

594 sequences assigned  
458 (77.1%) exact matches, in which:  
445 unique CDR3  
6 unique J



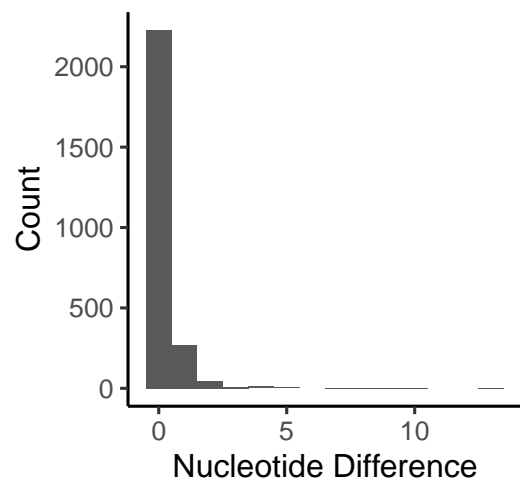
### IGHV3-13\*05

77 sequences assigned  
66 (85.7%) exact matches, in which:  
66 unique CDR3  
5 unique J



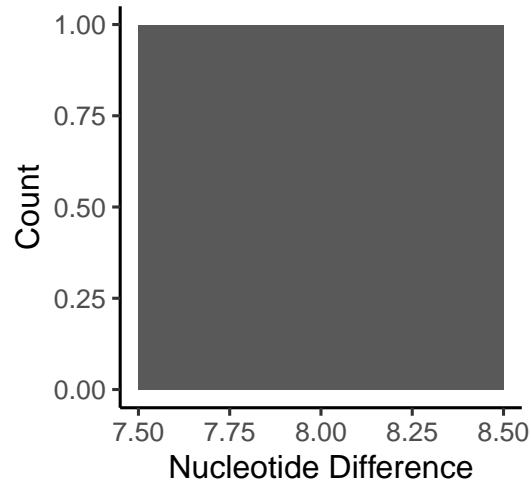
### IGHV3-21\*01

2581 sequences assigned  
2228 (86.3%) exact matches, in which:  
2187 unique CDR3  
7 unique J



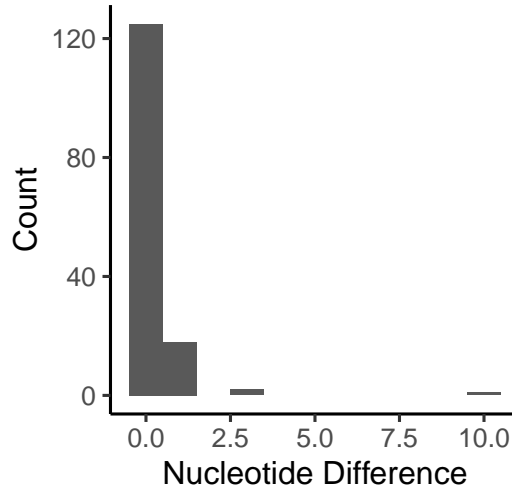
### IGHV3-25\*04

1 sequences assigned  
No exact matches.



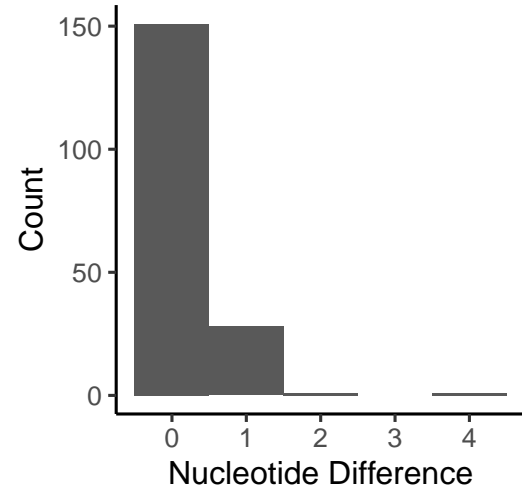
### IGHV3-43\*01

146 sequences assigned  
125 (85.6%) exact matches, in which:  
122 unique CDR3  
7 unique J



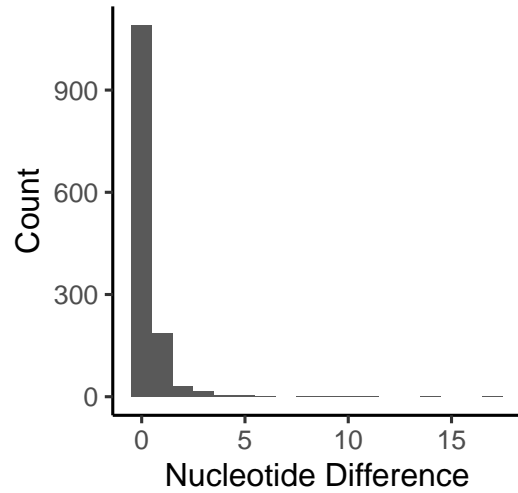
### IGHV3-49\*03

181 sequences assigned  
151 (83.4%) exact matches, in which:  
151 unique CDR3  
5 unique J



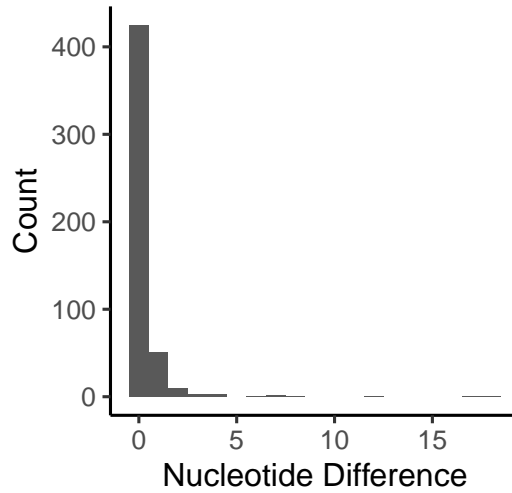
### IGHV3-30-3\*01

1338 sequences assigned  
1091 (81.5%) exact matches, in which:  
1066 unique CDR3  
7 unique J



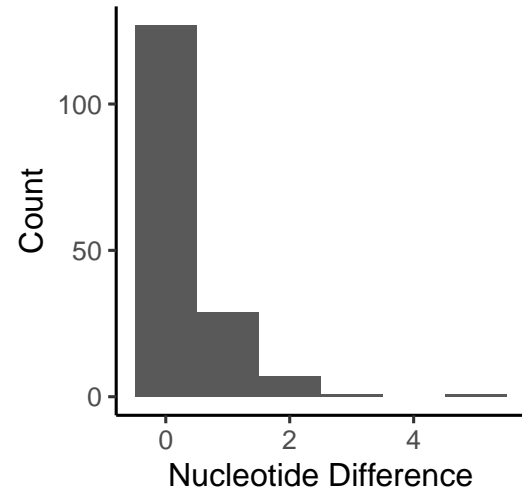
### IGHV3-48\*01

499 sequences assigned  
425 (85.2%) exact matches, in which:  
417 unique CDR3  
6 unique J



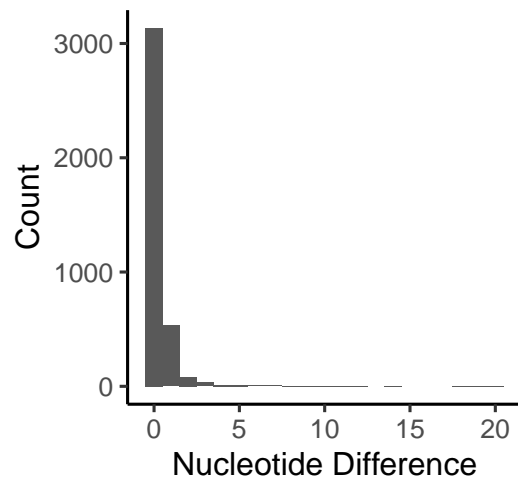
### IGHV3-49\*05

165 sequences assigned  
127 (77%) exact matches, in which:  
124 unique CDR3  
6 unique J



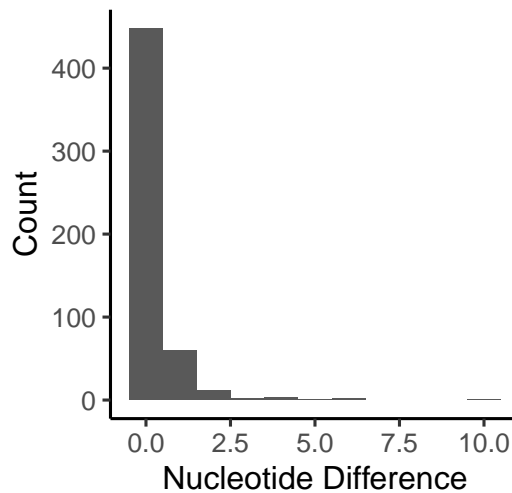
### IGHV3-33\*01

3838 sequences assigned  
3135 (81.7%) exact matches, in which:  
3062 unique CDR3  
7 unique J



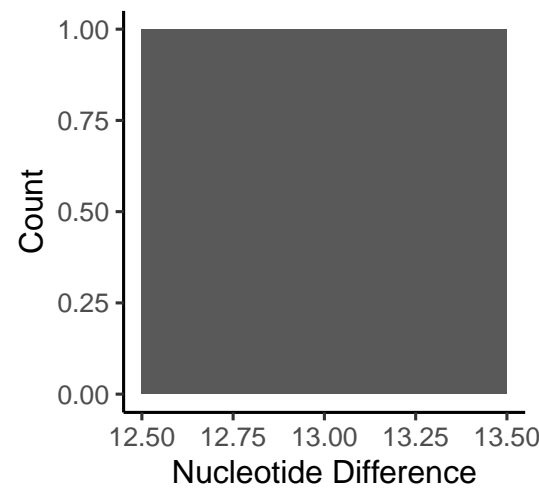
### IGHV3-48\*02

529 sequences assigned  
448 (84.7%) exact matches, in which:  
445 unique CDR3  
7 unique J



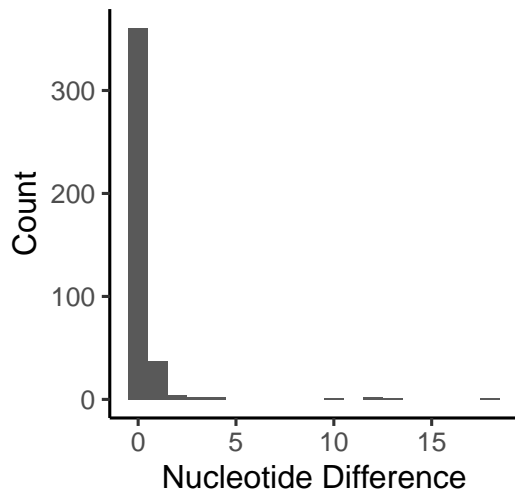
### IGHV3-52\*01

2 sequences assigned  
No exact matches.



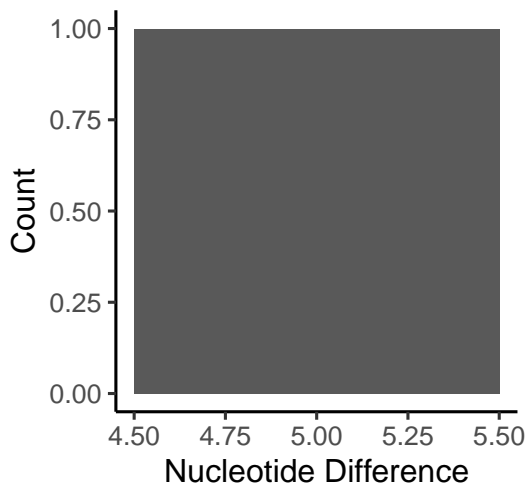
### IGHV3-53\*02

411 sequences assigned  
361 (87.8%) exact matches, in which:  
357 unique CDR3  
7 unique J



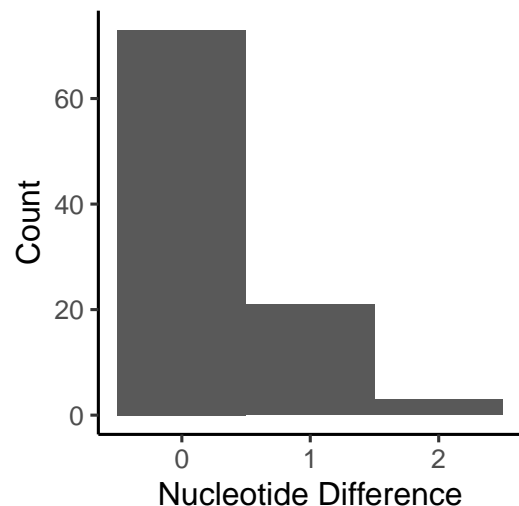
### IGHV3-71\*03

1 sequences assigned  
No exact matches.



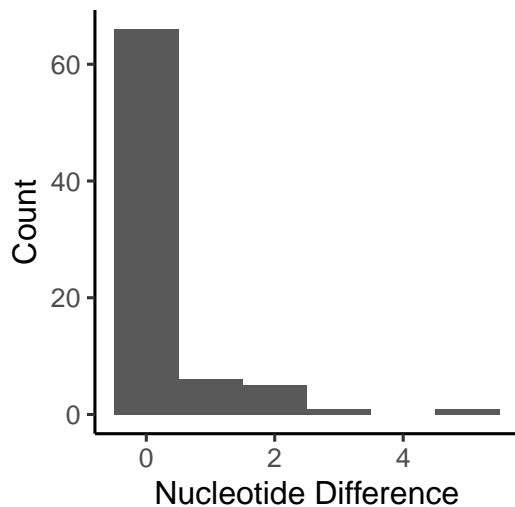
### IGHV3-73\*02

98 sequences assigned  
73 (74.5%) exact matches, in which:  
73 unique CDR3  
6 unique J



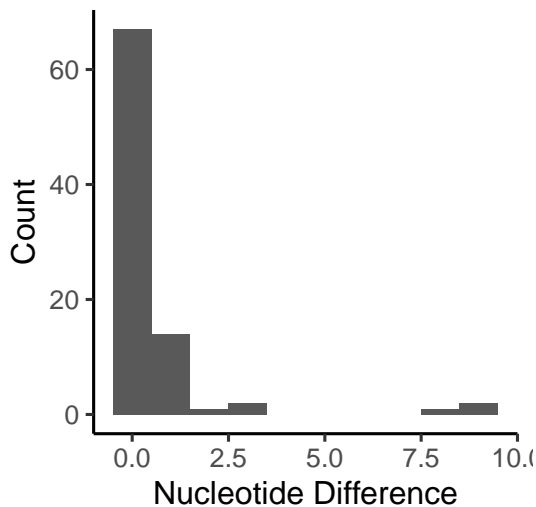
### IGHV3-64\*01

79 sequences assigned  
66 (83.5%) exact matches, in which:  
64 unique CDR3  
5 unique J



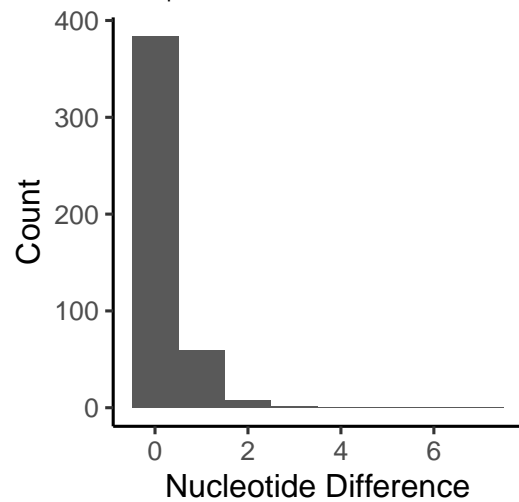
### IGHV3-72\*01

87 sequences assigned  
67 (77%) exact matches, in which:  
67 unique CDR3  
6 unique J



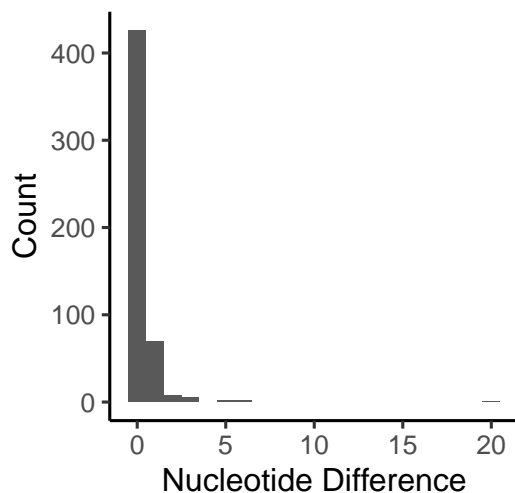
### IGHV3-74\*01

457 sequences assigned  
384 (84%) exact matches, in which:  
382 unique CDR3  
7 unique J



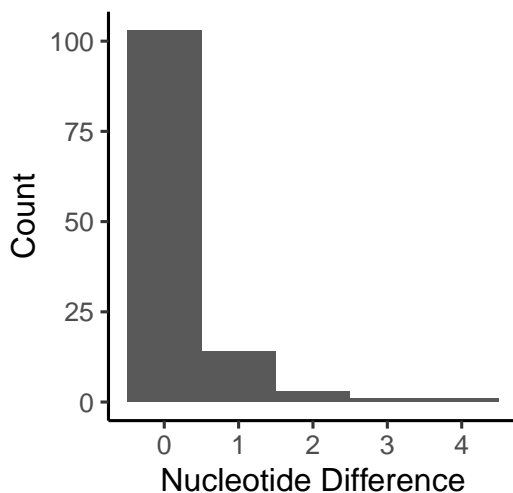
### IGHV3-66\*02

513 sequences assigned  
426 (83%) exact matches, in which:  
421 unique CDR3  
7 unique J



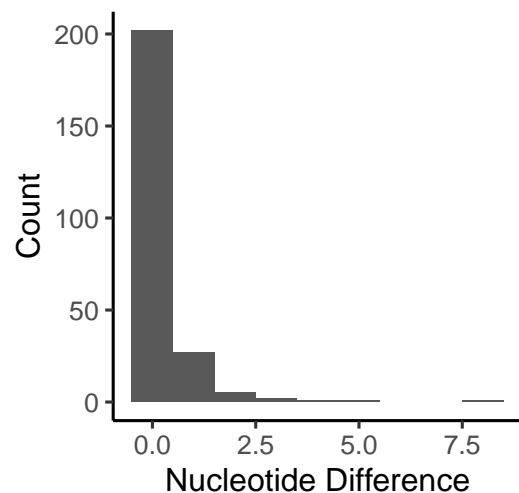
### IGHV3-73\*01

122 sequences assigned  
103 (84.4%) exact matches, in which:  
103 unique CDR3  
6 unique J



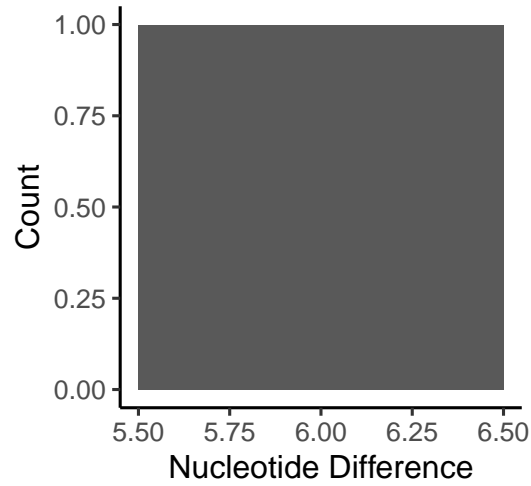
### IGHV3-64D\*06

240 sequences assigned  
202 (84.2%) exact matches, in which:  
198 unique CDR3  
6 unique J



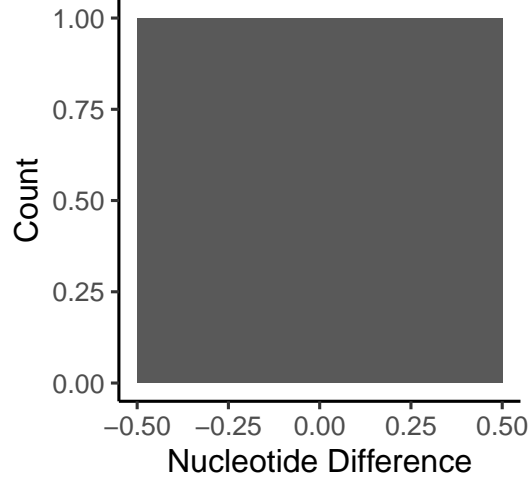
### IGHV3–NL1\*01

1 sequences assigned  
No exact matches.



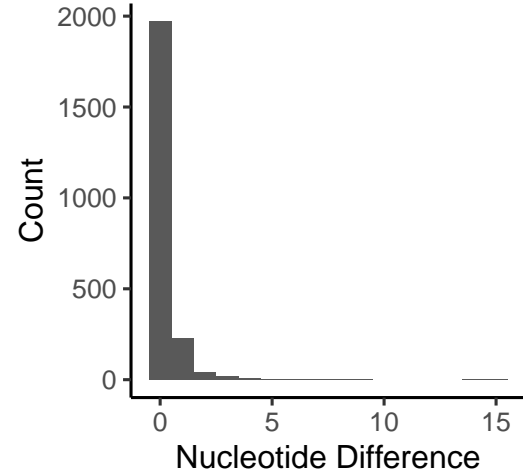
### IGHV4–28\*03

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



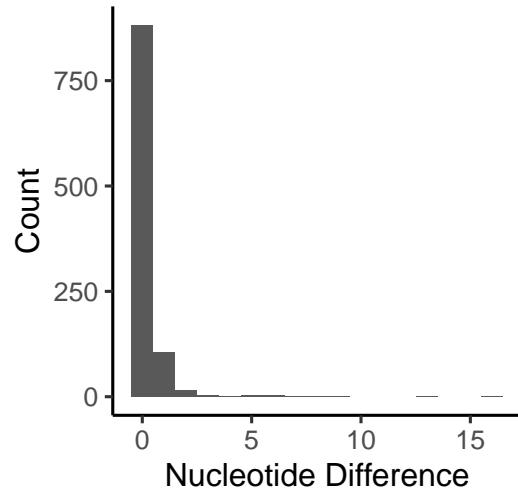
### IGHV4–31\*03

2284 sequences assigned  
1971 (86.3%) exact matches, in which:  
1927 unique CDR3  
7 unique J



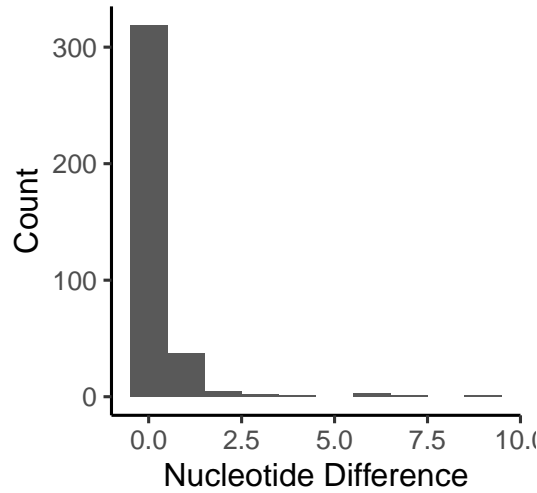
### IGHV4–4\*07

1026 sequences assigned  
882 (86%) exact matches, in which:  
868 unique CDR3  
7 unique J



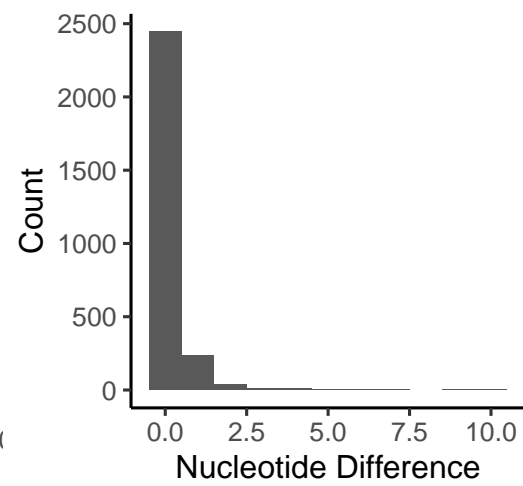
### IGHV4–30–4\*01

369 sequences assigned  
319 (86.4%) exact matches, in which:  
316 unique CDR3  
6 unique J



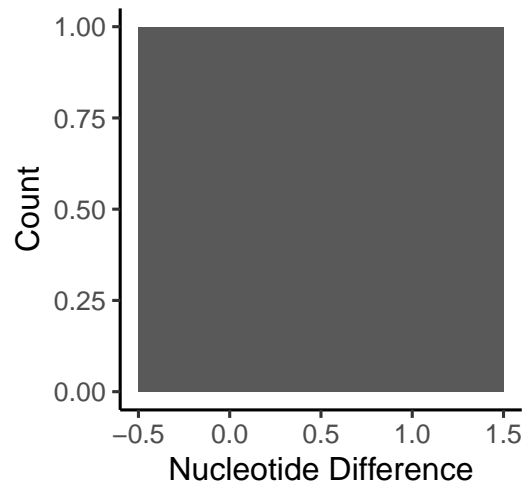
### IGHV4–34\*01

2757 sequences assigned  
2445 (88.7%) exact matches, in which:  
2408 unique CDR3  
7 unique J



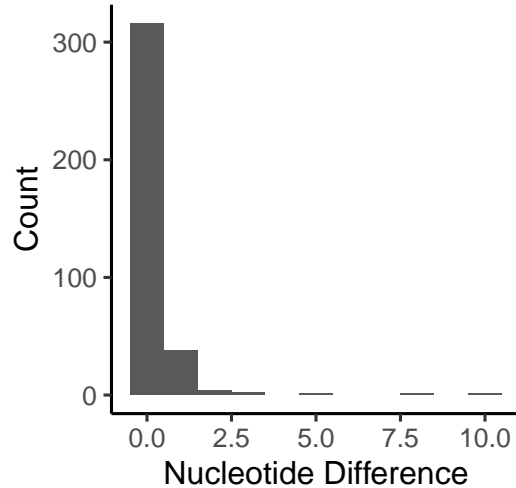
### IGHV4–28\*01

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



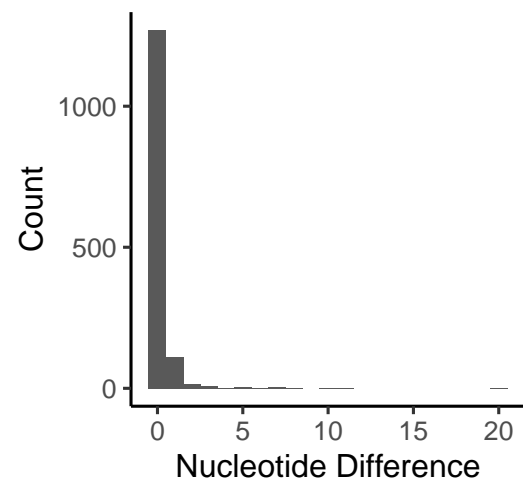
### IGHV4–30–2\*01

363 sequences assigned  
316 (87.1%) exact matches, in which:  
309 unique CDR3  
6 unique J



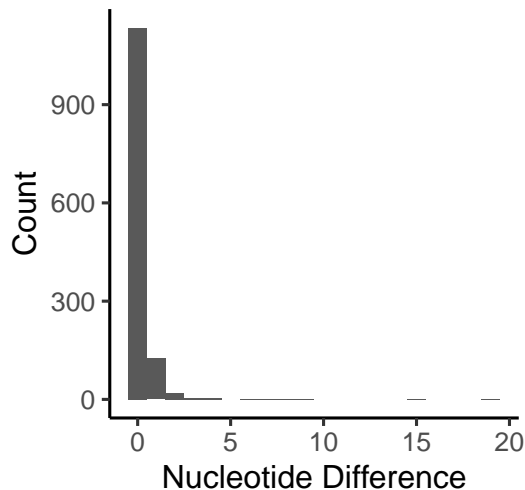
### IGHV4–39\*01

1428 sequences assigned  
1270 (88.9%) exact matches, in which:  
1260 unique CDR3  
6 unique J



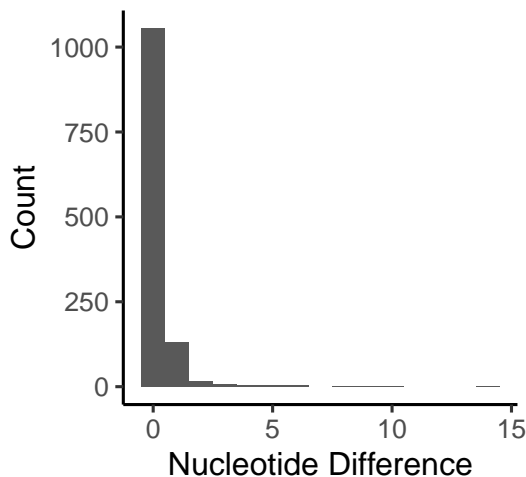
### IGHV4–39\*01\_C66G

1305 sequences assigned  
1135 (87%) exact matches, in which:  
1131 unique CDR3  
7 unique J



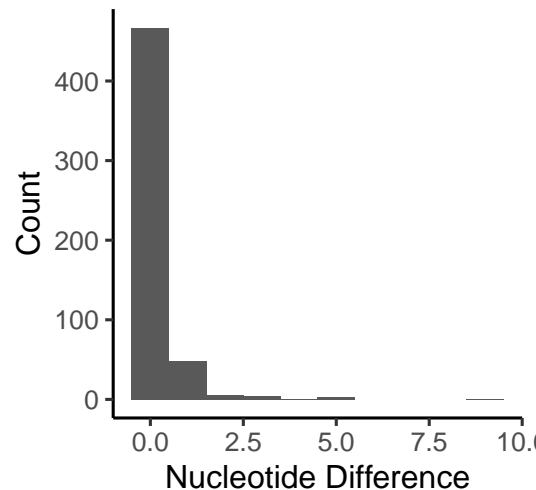
### IGHV4–59\*01

1228 sequences assigned  
1055 (85.9%) exact matches, in which:  
1050 unique CDR3  
7 unique J



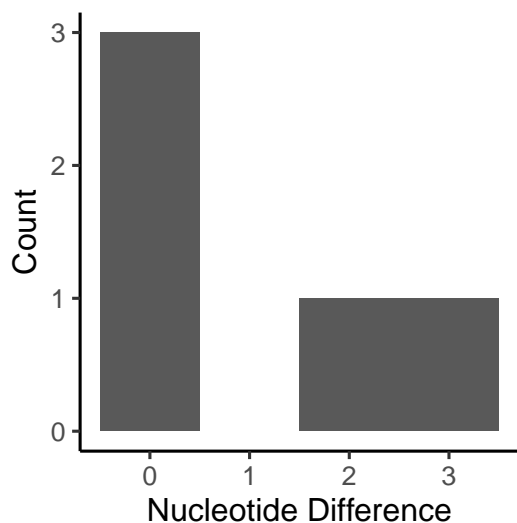
### IGHV5–10–1\*03

533 sequences assigned  
467 (87.6%) exact matches, in which:  
460 unique CDR3  
6 unique J



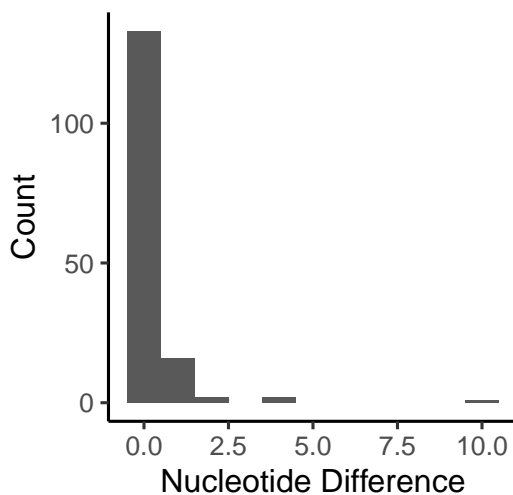
### IGHV4–55\*01

5 sequences assigned  
3 (60%) exact matches, in which:  
3 unique CDR3  
3 unique J



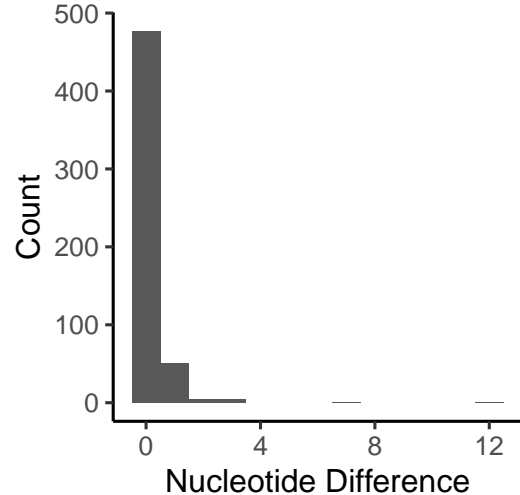
### IGHV4–61\*01

155 sequences assigned  
133 (85.8%) exact matches, in which:  
133 unique CDR3  
6 unique J



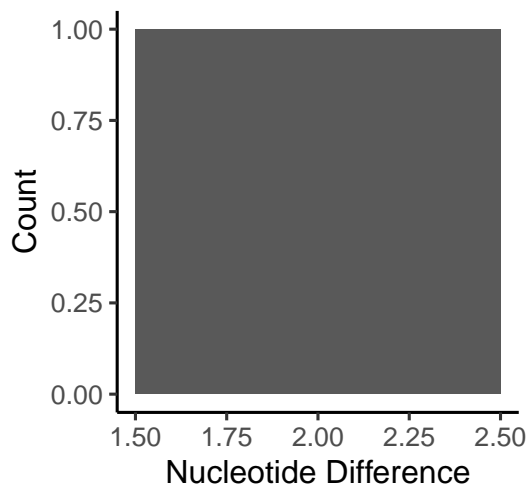
### IGHV5–51\*01

539 sequences assigned  
477 (88.5%) exact matches, in which:  
472 unique CDR3  
6 unique J



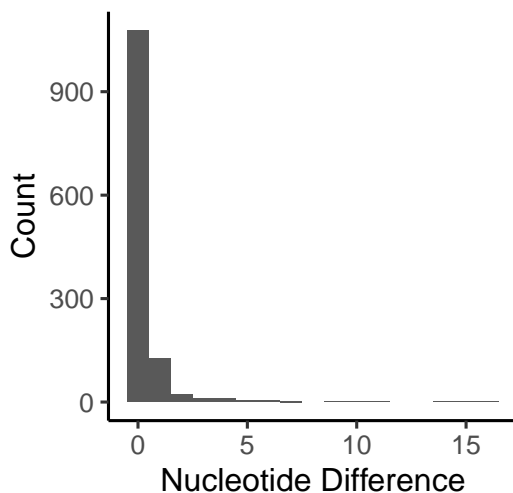
### IGHV4–55\*08

1 sequences assigned  
No exact matches.



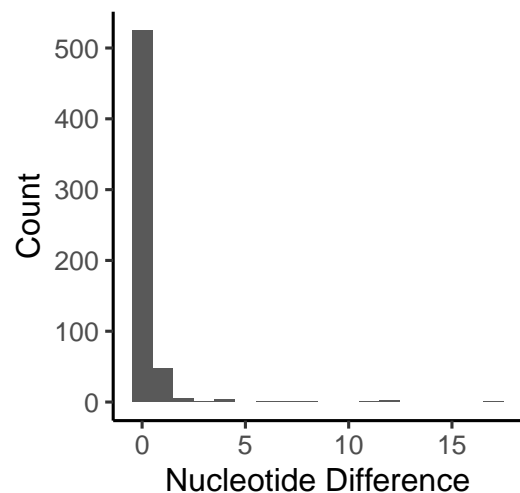
### IGHV4–61\*02

1265 sequences assigned  
1078 (85.2%) exact matches, in which:  
1063 unique CDR3  
6 unique J



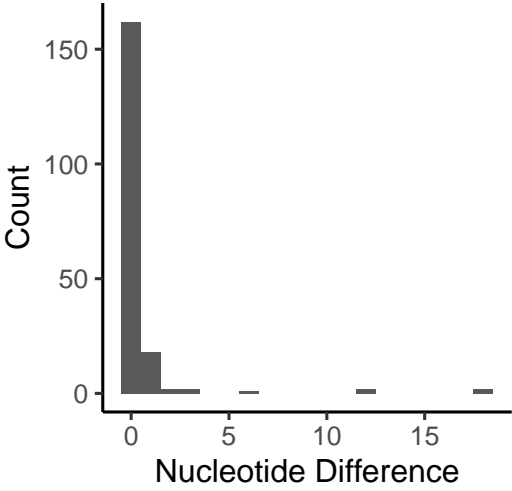
### IGHV5–51\*01\_C45G

589 sequences assigned  
525 (89.1%) exact matches, in which:  
523 unique CDR3  
6 unique J



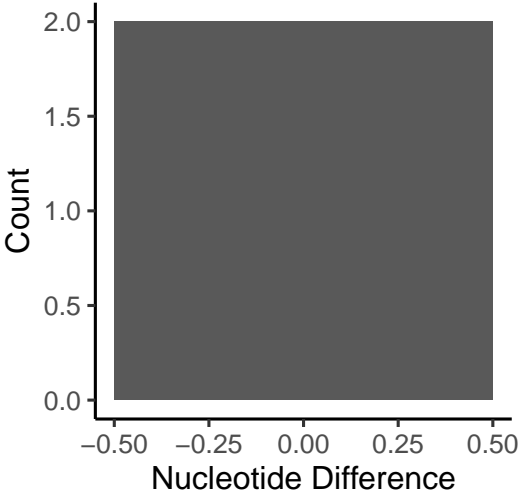
IGHV6–1\*01

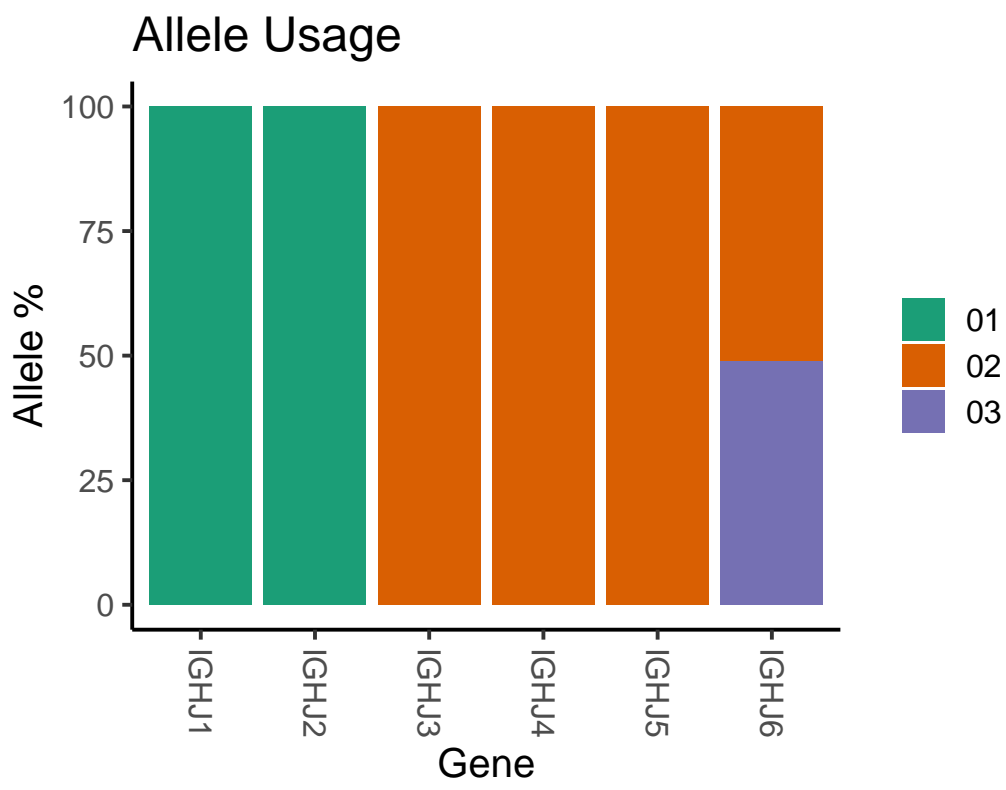
189 sequences assigned  
162 (85.7%) exact matches, in which:  
156 unique CDR3  
7 unique J



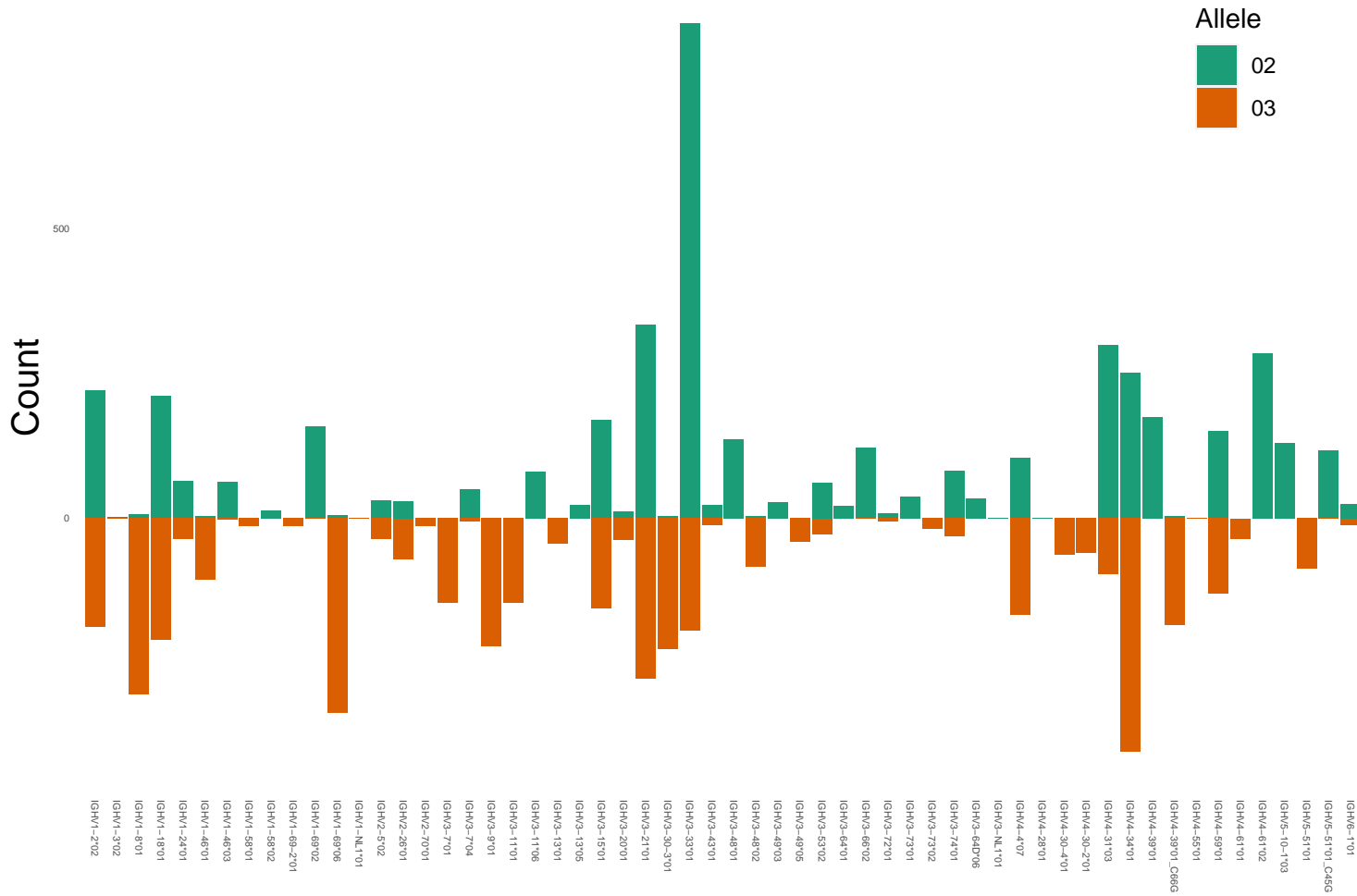
IGHV7–81\*01

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





Sequence Count by IGHJ6 allele usage



[illegible]