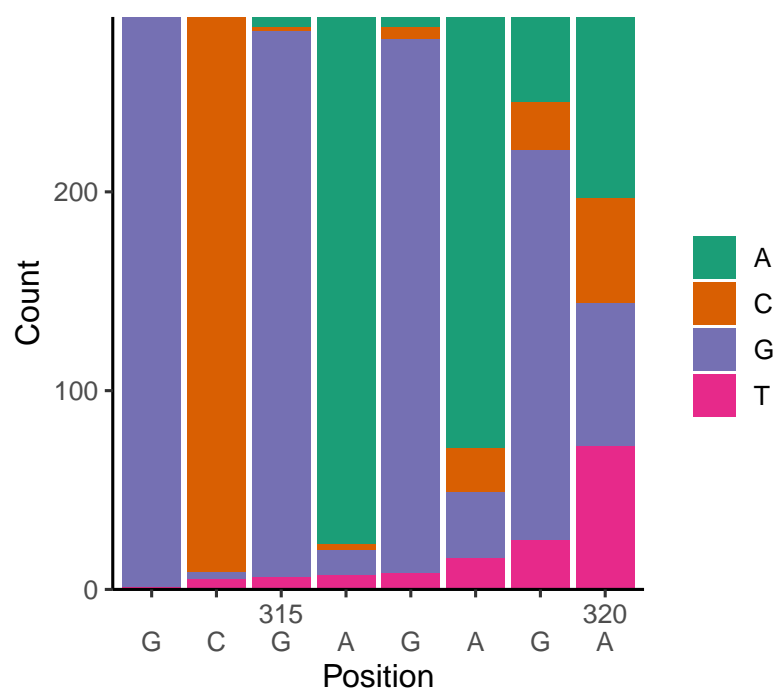
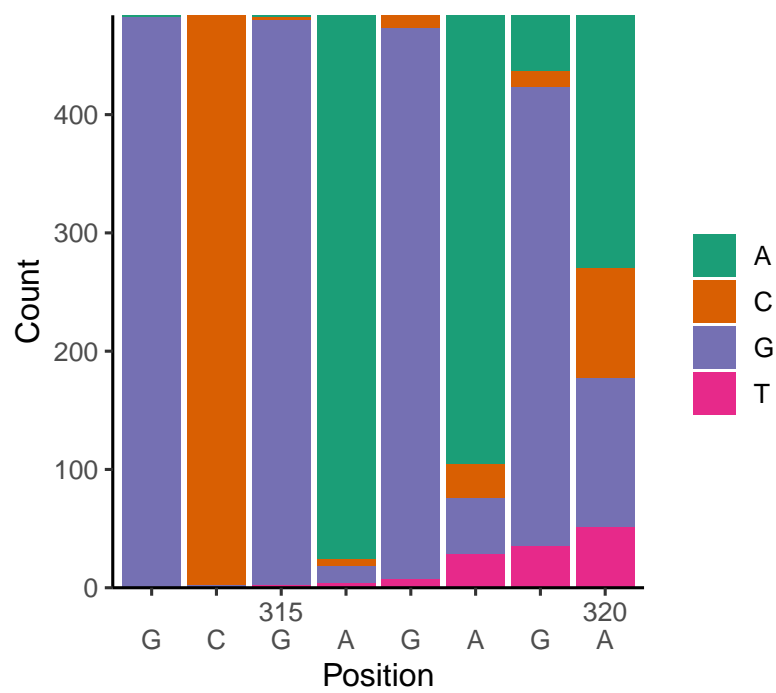


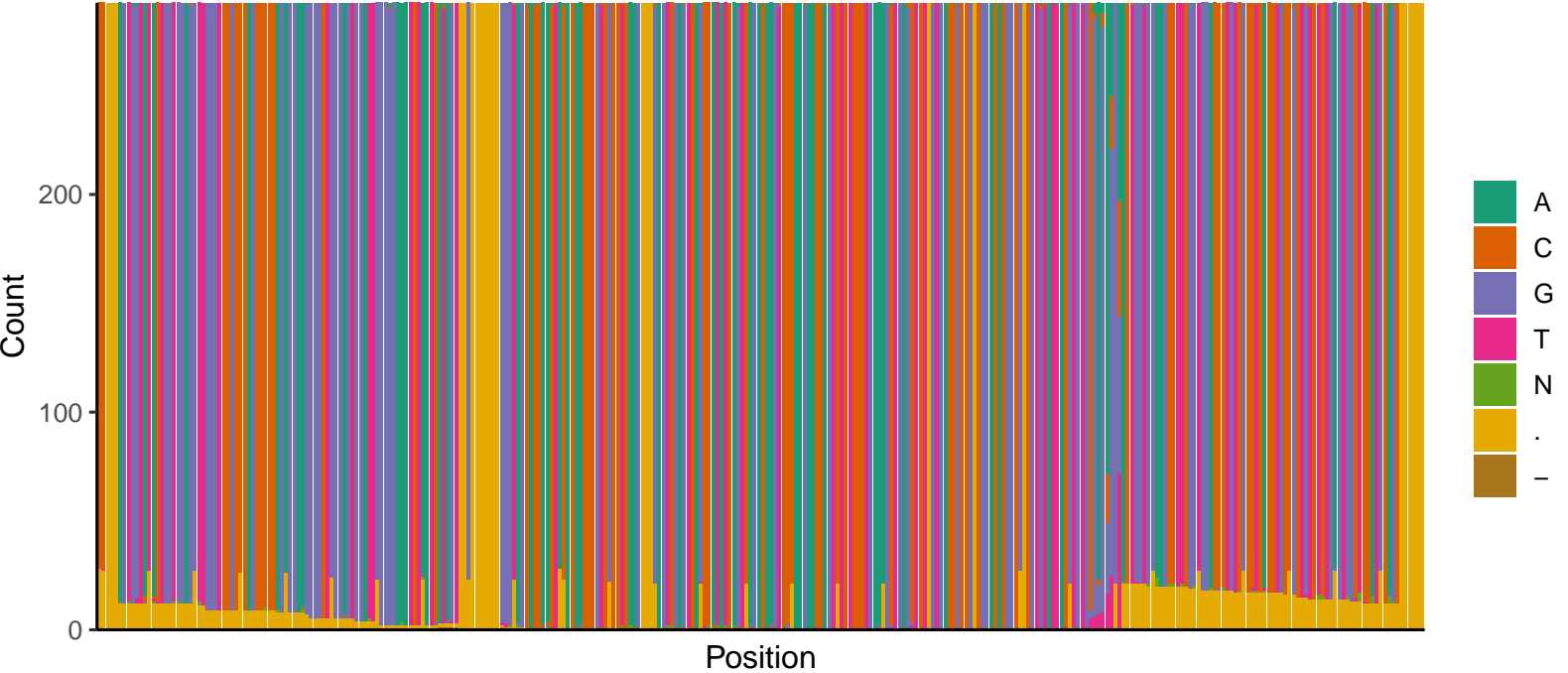
Gene IGHV4-4\*02\_A106G



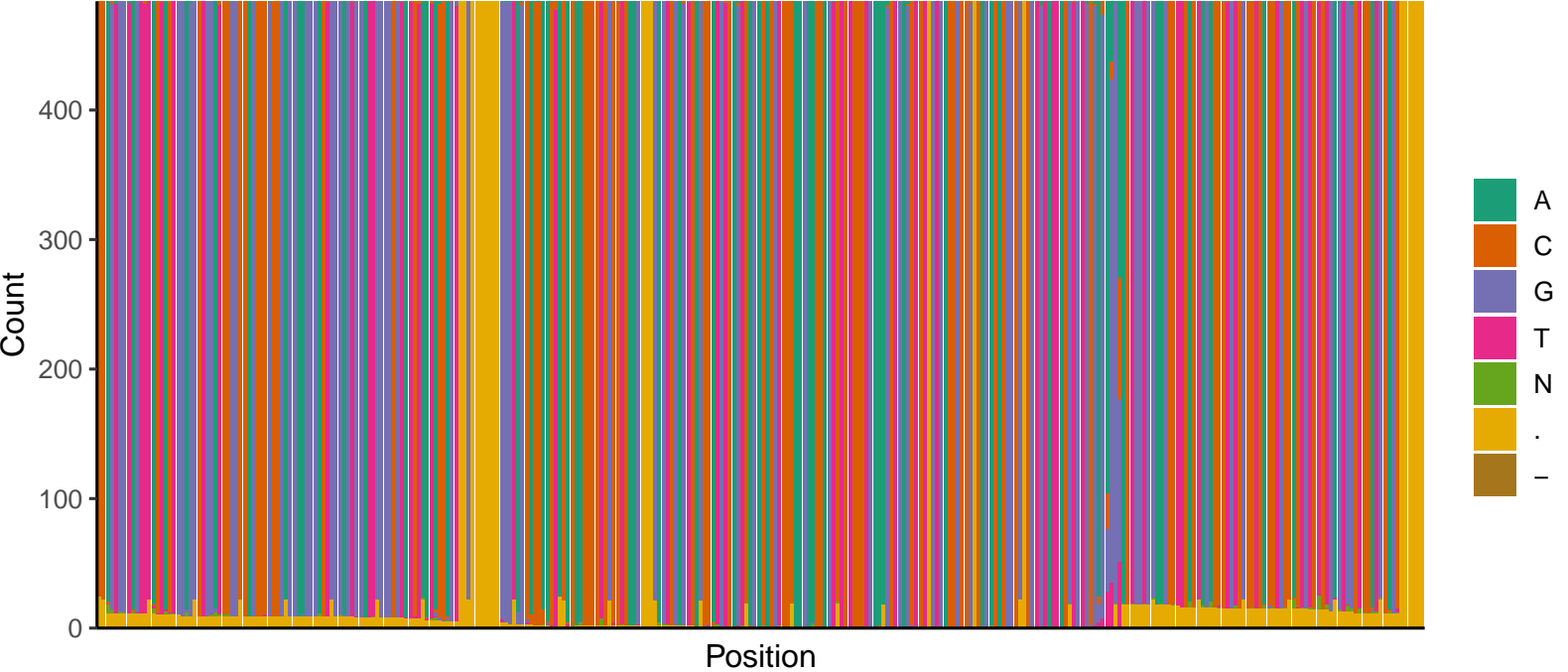
Gene IGHV4-61\*02\_A234G



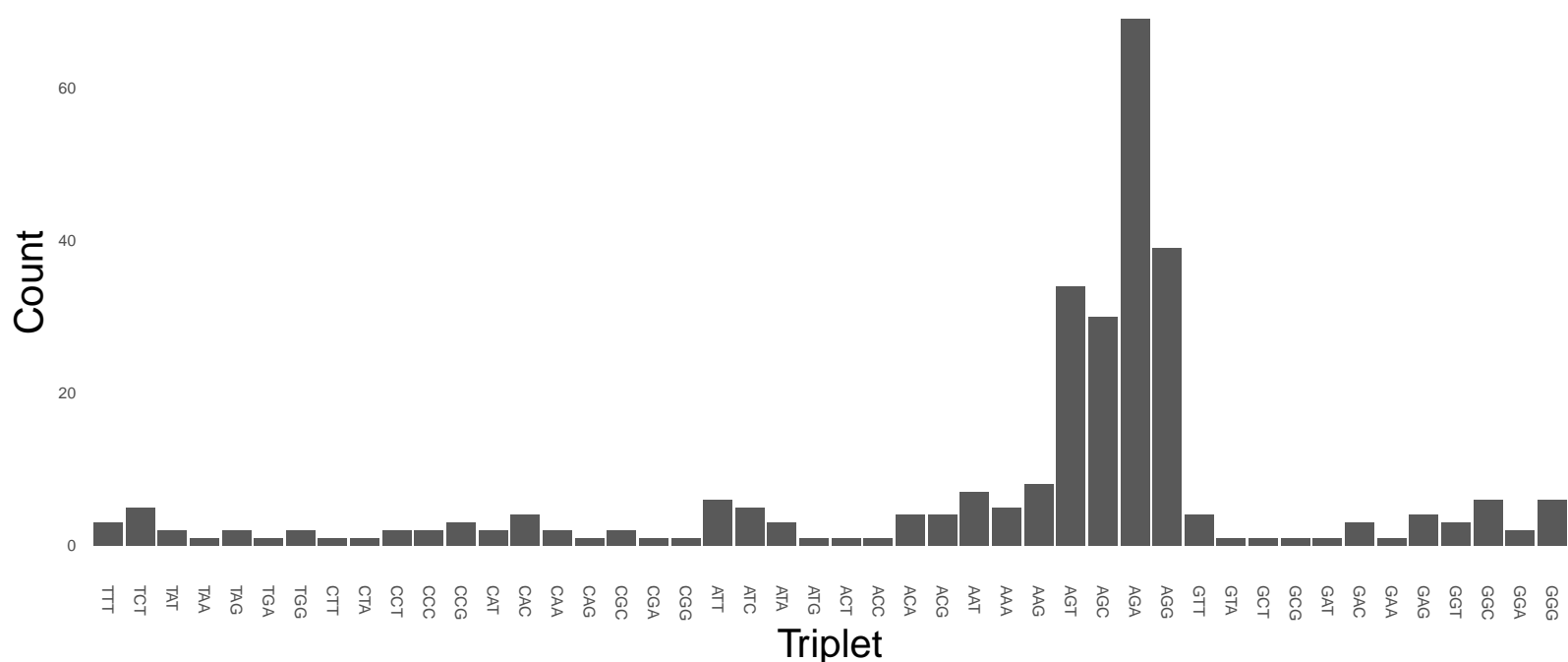
Gene IGHV4-4\*02\_A106G



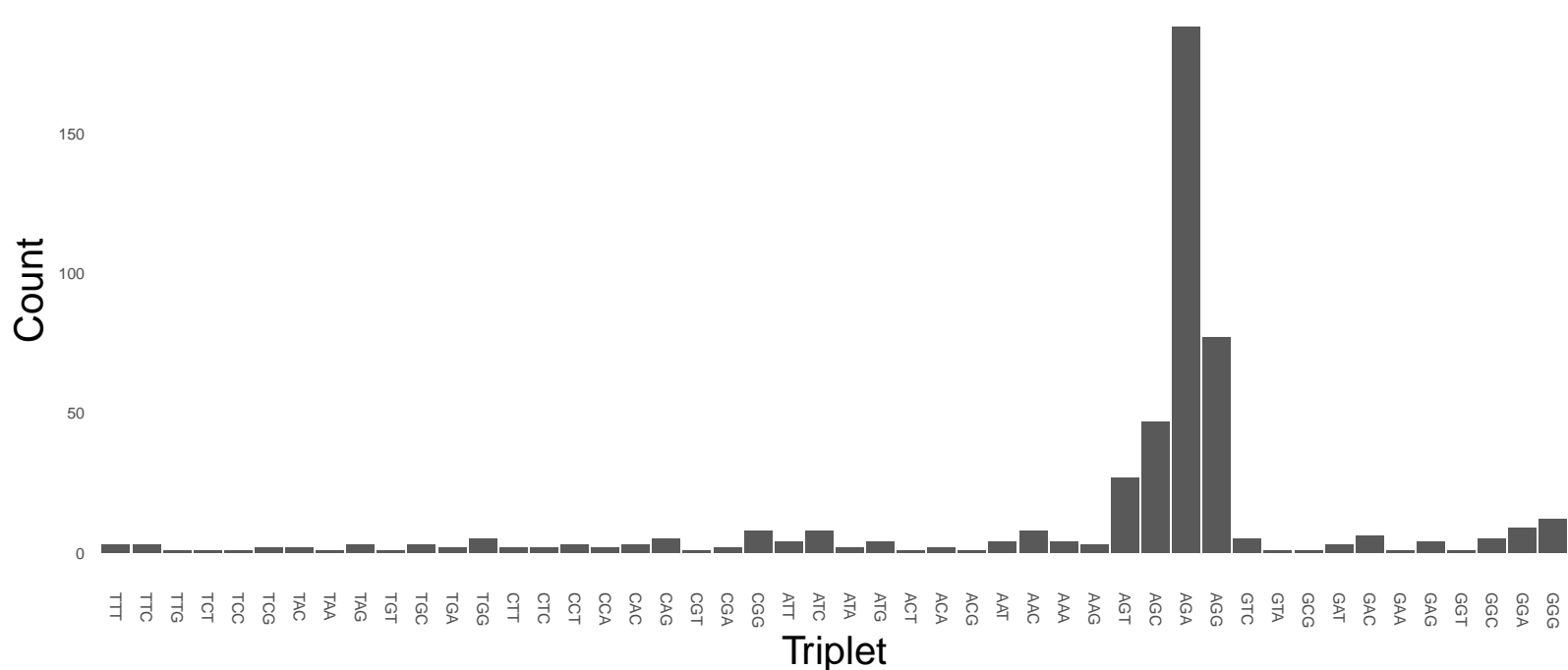
Gene IGHV4-61\*02\_A234G



IGHV4-4\*02\_A106G- Final 3 nucleotides as a triplet

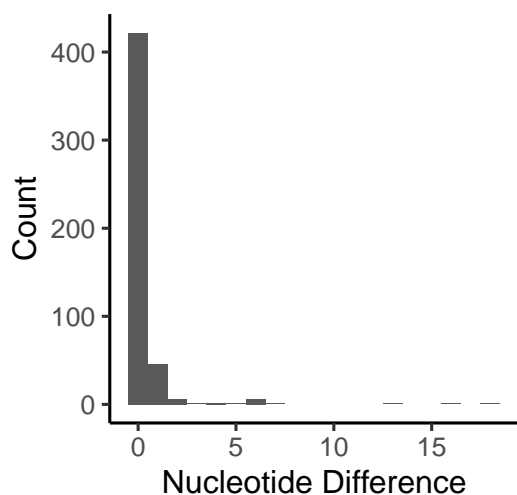


IGHV4-61\*02\_A234G- Final 3 nucleotides as a triplet



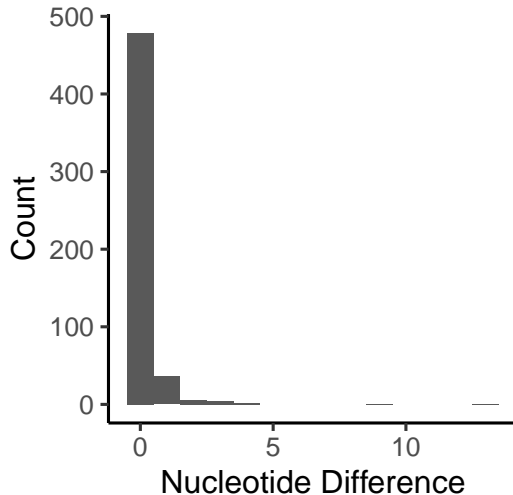
### IGHV1-2\*02

491 sequences assigned  
422 (85.9%) exact matches, in which:  
402 unique CDR3  
6 unique J



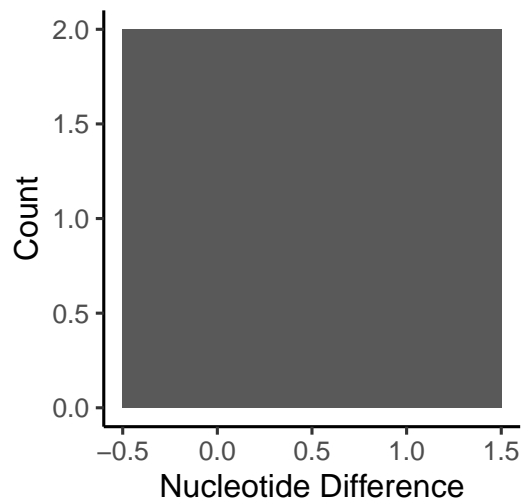
### IGHV1-8\*01

529 sequences assigned  
479 (90.5%) exact matches, in which:  
456 unique CDR3  
6 unique J



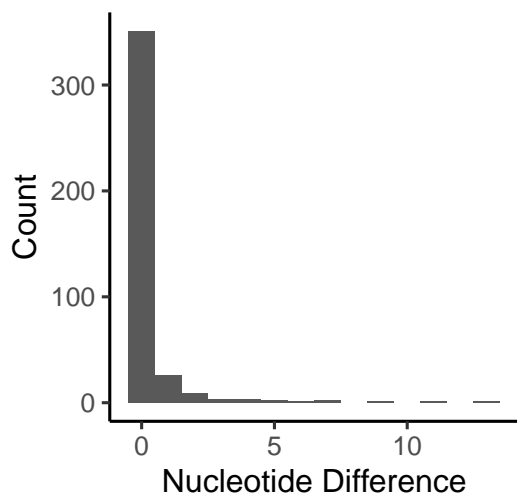
### IGHV1-45\*02

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



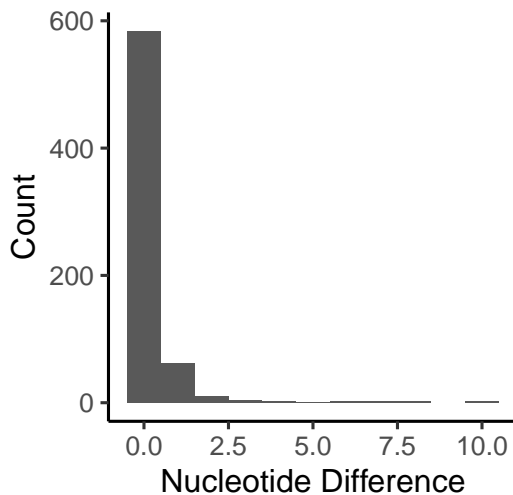
### IGHV1-2\*06

400 sequences assigned  
351 (87.8%) exact matches, in which:  
337 unique CDR3  
6 unique J



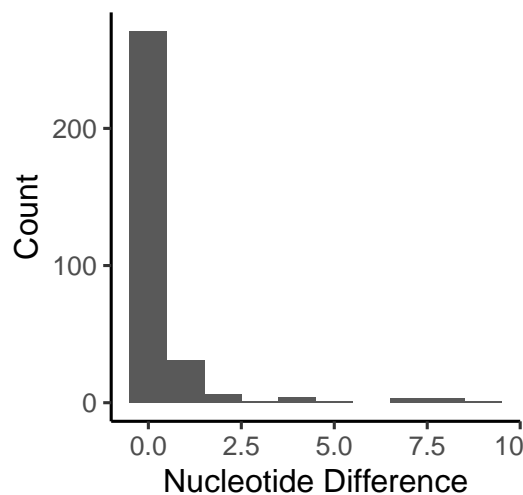
### IGHV1-18\*01

673 sequences assigned  
584 (86.8%) exact matches, in which:  
567 unique CDR3  
6 unique J



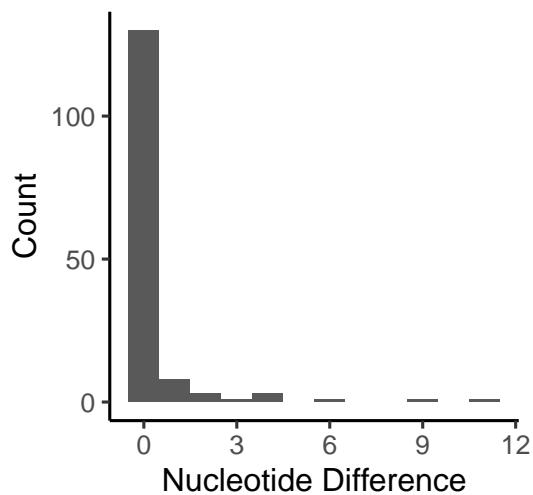
### IGHV1-46\*03

321 sequences assigned  
271 (84.4%) exact matches, in which:  
259 unique CDR3  
6 unique J



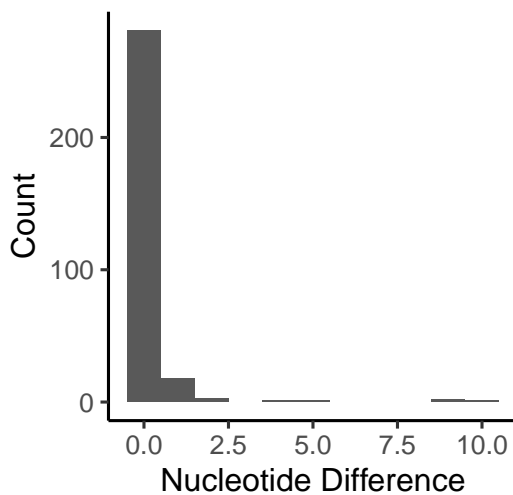
### IGHV1-3\*01

148 sequences assigned  
130 (87.8%) exact matches, in which:  
127 unique CDR3  
6 unique J



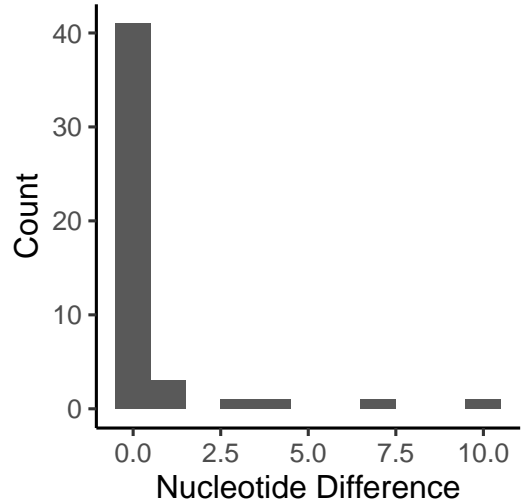
### IGHV1-24\*01

307 sequences assigned  
281 (91.5%) exact matches, in which:  
270 unique CDR3  
6 unique J



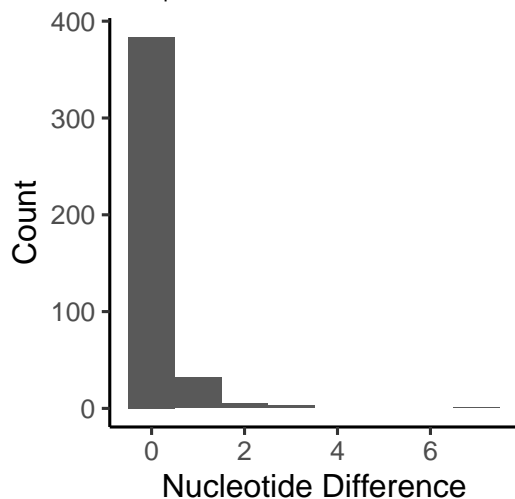
### IGHV1-58\*02

48 sequences assigned  
41 (85.4%) exact matches, in which:  
39 unique CDR3  
5 unique J



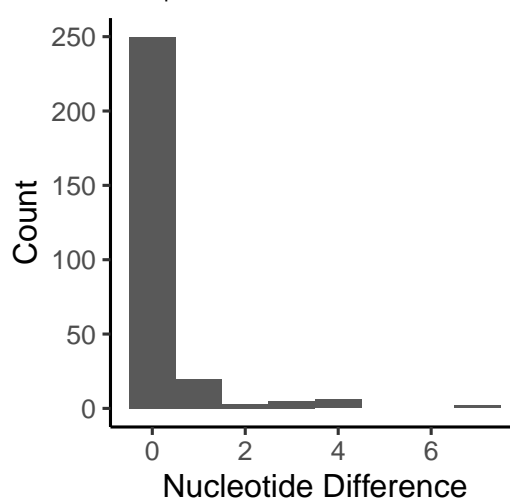
### IGHV1–69\*04

425 sequences assigned  
384 (90.4%) exact matches, in which:  
363 unique CDR3  
6 unique J



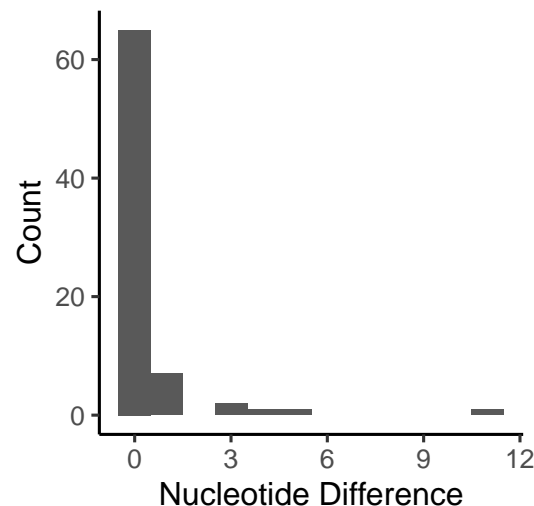
### IGHV2–5\*02

286 sequences assigned  
250 (87.4%) exact matches, in which:  
245 unique CDR3  
6 unique J



### IGHV2–70\*15

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



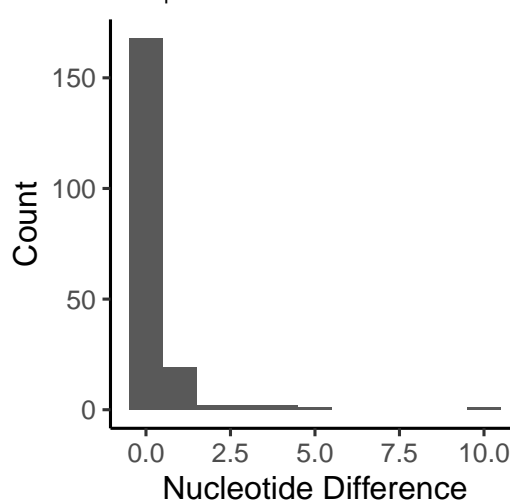
### IGHV1–NL1\*01

1 sequences assigned  
No exact matches.



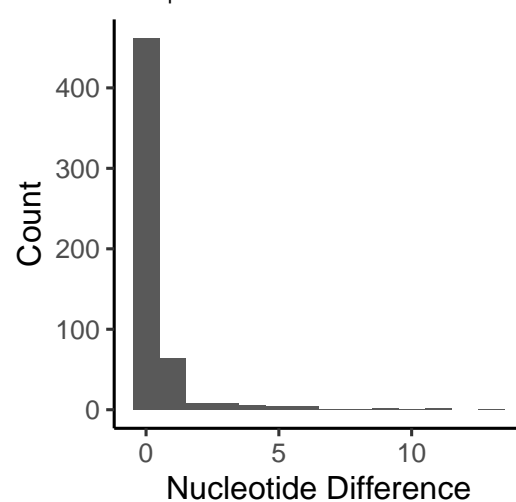
### IGHV2–26\*01

195 sequences assigned  
168 (86.2%) exact matches, in which:  
163 unique CDR3  
6 unique J



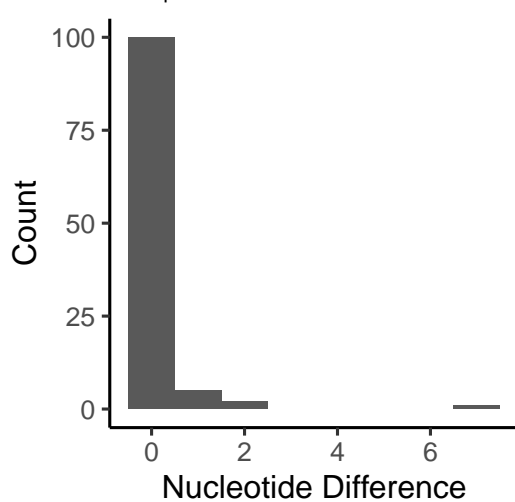
### IGHV3–7\*01

565 sequences assigned  
462 (81.8%) exact matches, in which:  
425 unique CDR3  
5 unique J



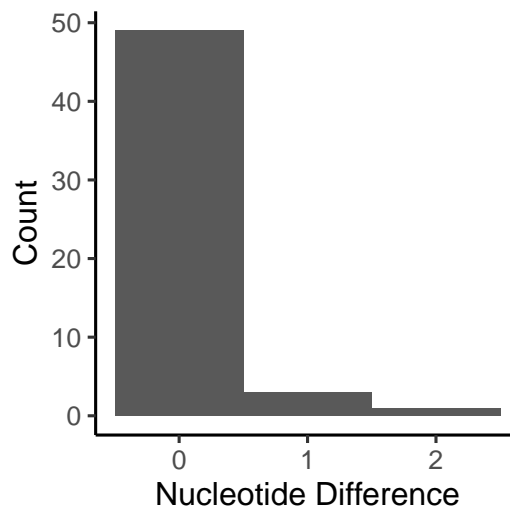
### IGHV2–5\*01

108 sequences assigned  
100 (92.6%) exact matches, in which:  
98 unique CDR3  
5 unique J



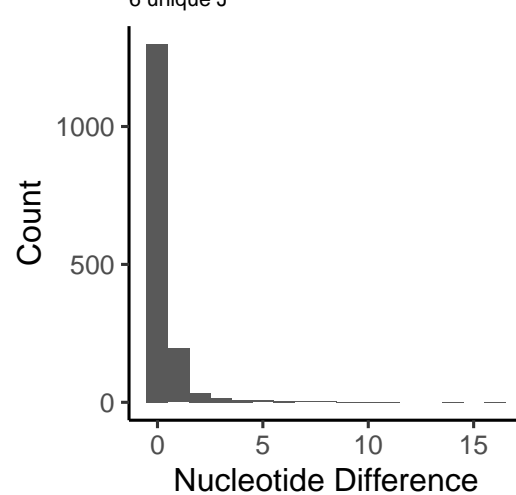
### IGHV2–70\*01

53 sequences assigned  
49 (92.5%) exact matches, in which:  
49 unique CDR3  
5 unique J



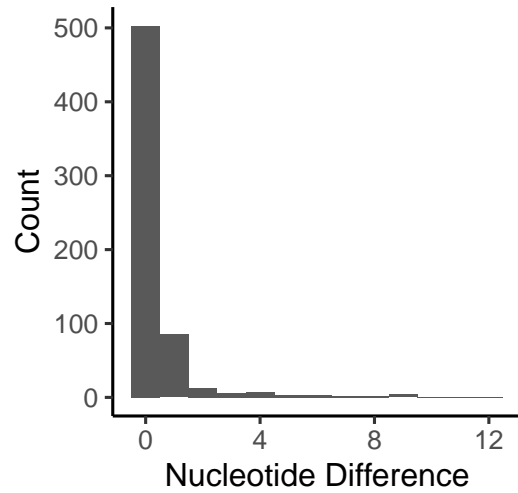
### IGHV3–9\*01

1578 sequences assigned  
1299 (82.3%) exact matches, in which:  
1194 unique CDR3  
6 unique J



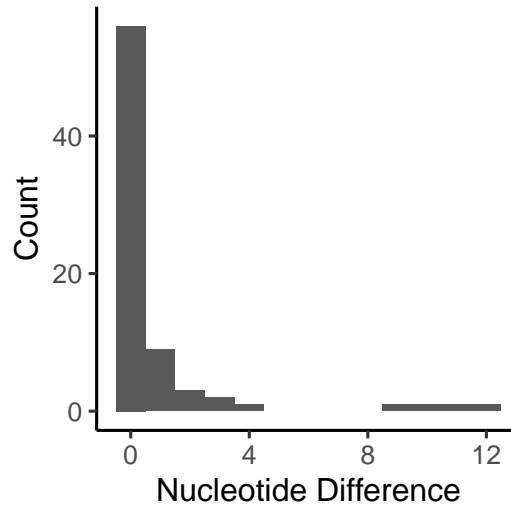
### IGHV3-11\*01

631 sequences assigned  
503 (79.7%) exact matches, in which:  
475 unique CDR3  
6 unique J



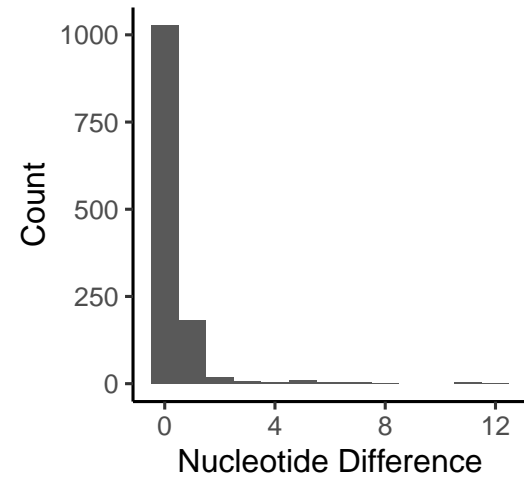
### IGHV3-20\*01

89 sequences assigned  
56 (62.9%) exact matches, in which:  
51 unique CDR3  
5 unique J



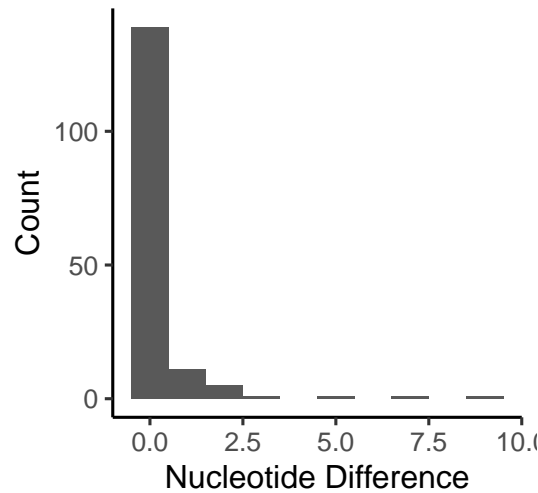
### IGHV3-30-3\*01

1262 sequences assigned  
1027 (81.4%) exact matches, in which:  
949 unique CDR3  
6 unique J



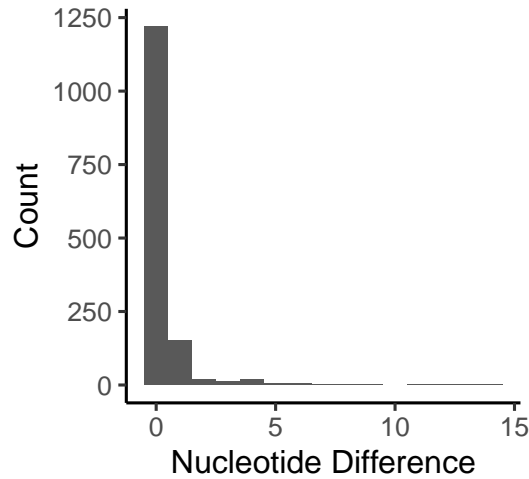
### IGHV3-13\*01

160 sequences assigned  
139 (86.9%) exact matches, in which:  
127 unique CDR3  
5 unique J



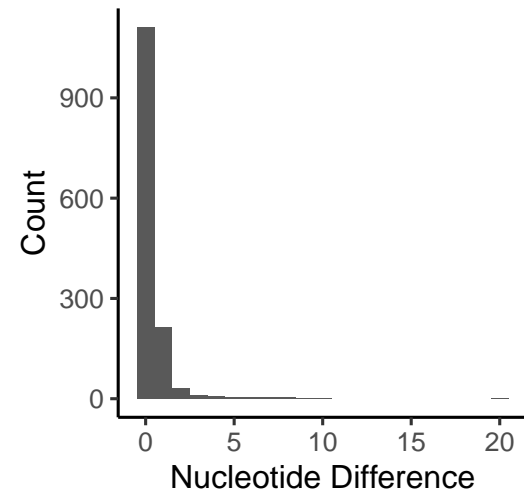
### IGHV3-21\*01

1436 sequences assigned  
1219 (84.9%) exact matches, in which:  
1135 unique CDR3  
6 unique J



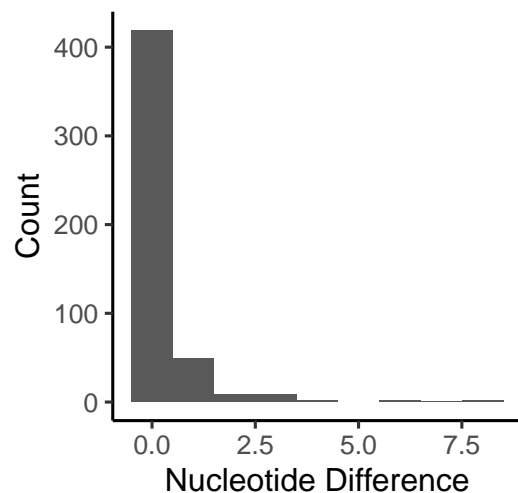
### IGHV3-33\*01

1393 sequences assigned  
1112 (79.8%) exact matches, in which:  
1015 unique CDR3  
6 unique J



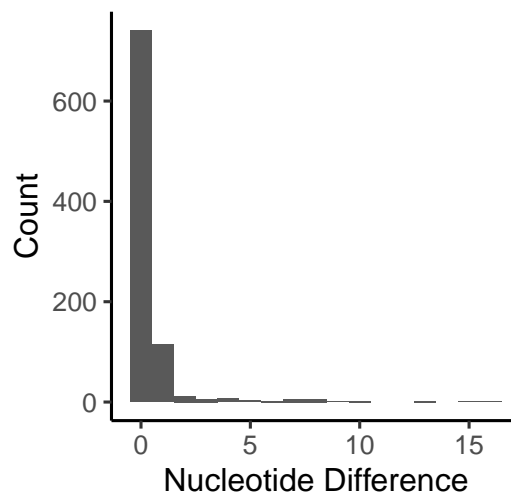
### IGHV3-15\*01

494 sequences assigned  
419 (84.8%) exact matches, in which:  
393 unique CDR3  
5 unique J



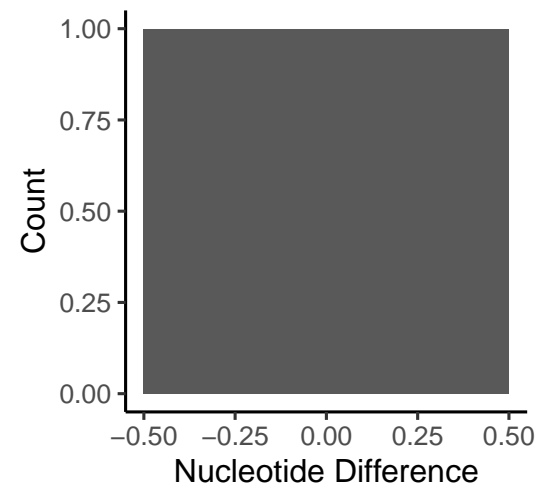
### IGHV3-23\*04

906 sequences assigned  
741 (81.8%) exact matches, in which:  
683 unique CDR3  
6 unique J



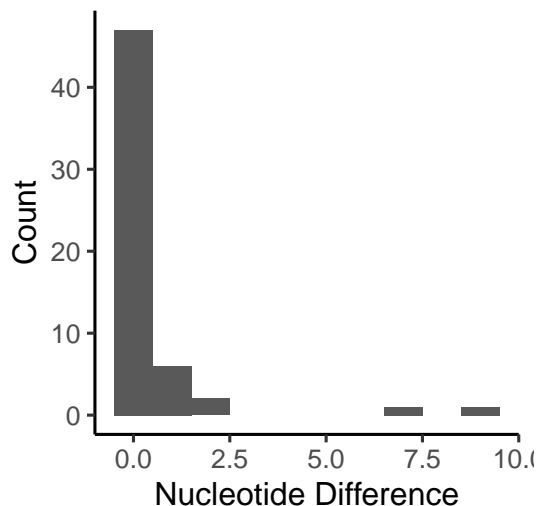
### IGHV3-35\*01

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



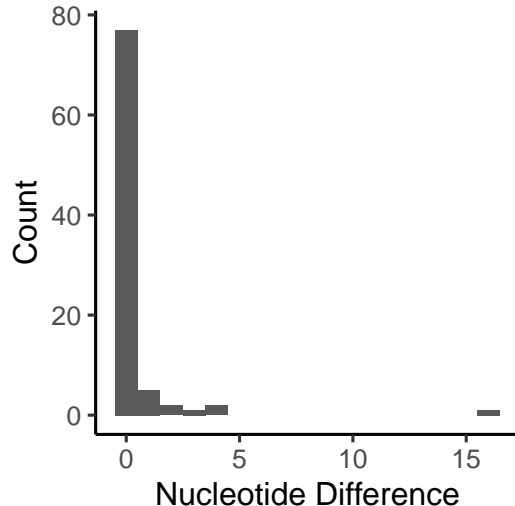
### IGHV3-43\*01

57 sequences assigned  
47 (82.5%) exact matches, in which:  
45 unique CDR3  
4 unique J



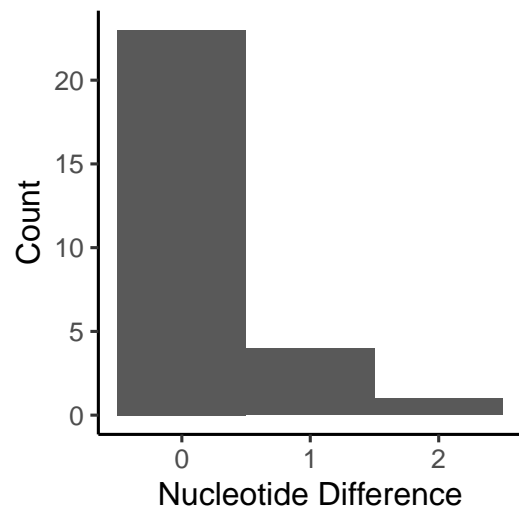
### IGHV3-53\*02

88 sequences assigned  
77 (87.5%) exact matches, in which:  
74 unique CDR3  
5 unique J



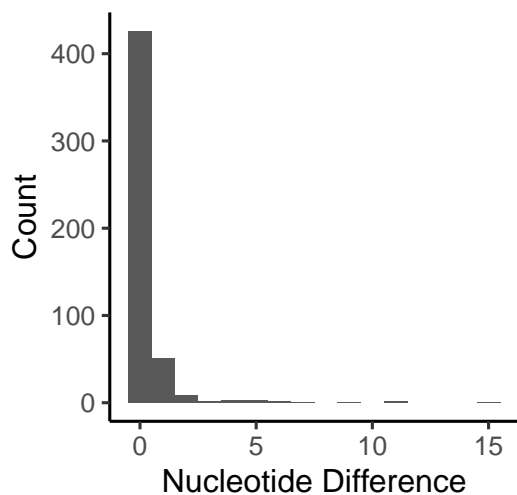
### IGHV3-72\*01

28 sequences assigned  
23 (82.1%) exact matches, in which:  
23 unique CDR3  
4 unique J



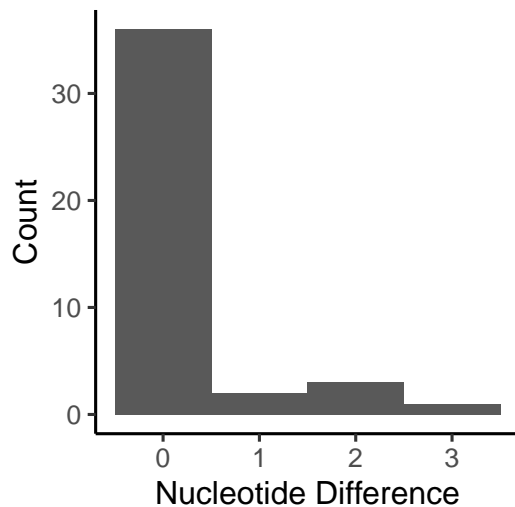
### IGHV3-48\*01

502 sequences assigned  
426 (84.9%) exact matches, in which:  
394 unique CDR3  
6 unique J



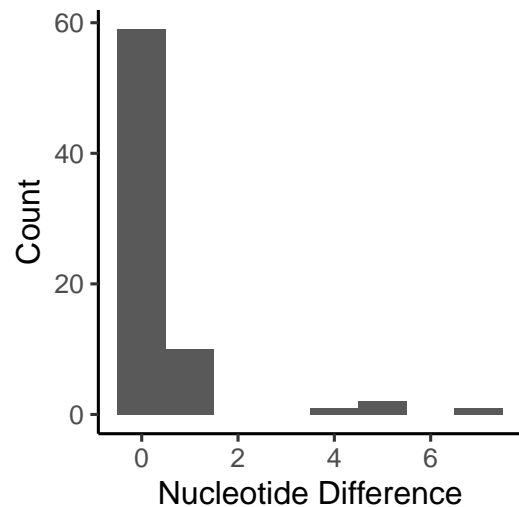
### IGHV3-64\*01

42 sequences assigned  
36 (85.7%) exact matches, in which:  
34 unique CDR3  
6 unique J



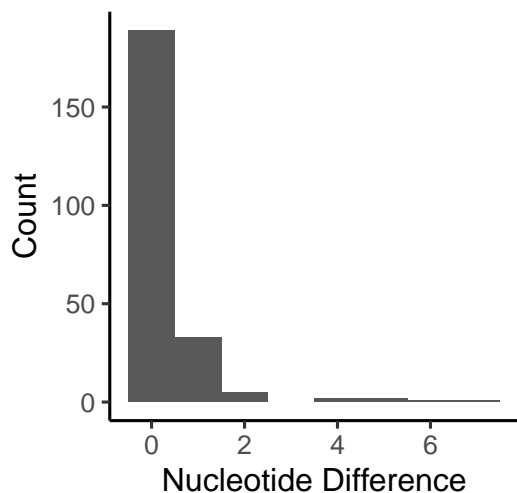
### IGHV3-73\*01

73 sequences assigned  
59 (80.8%) exact matches, in which:  
55 unique CDR3  
6 unique J



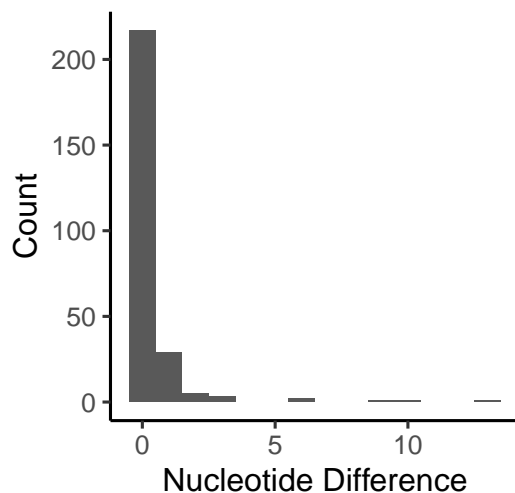
### IGHV3-49\*03

233 sequences assigned  
189 (81.1%) exact matches, in which:  
176 unique CDR3  
6 unique J



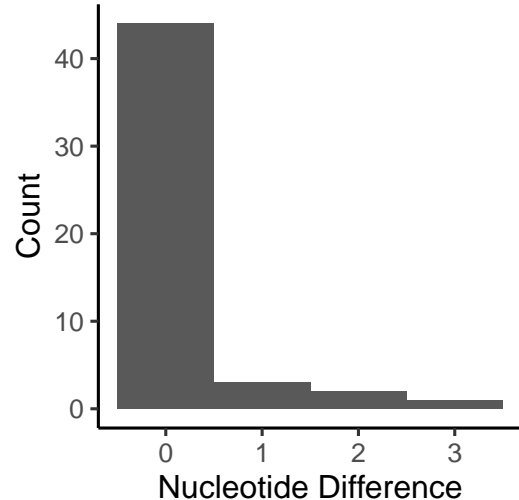
### IGHV3-66\*01

259 sequences assigned  
217 (83.8%) exact matches, in which:  
201 unique CDR3  
6 unique J



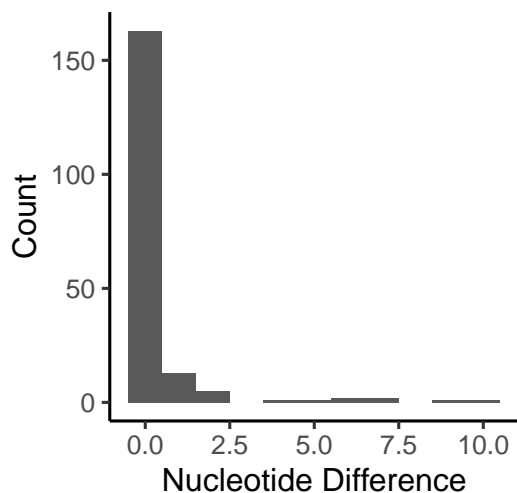
### IGHV3-73\*02

50 sequences assigned  
44 (88%) exact matches, in which:  
41 unique CDR3  
4 unique J



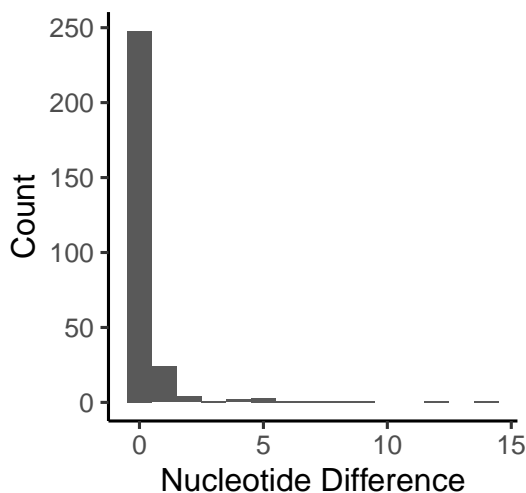
### IGHV3-74\*01

189 sequences assigned  
163 (86.2%) exact matches, in which:  
155 unique CDR3  
6 unique J



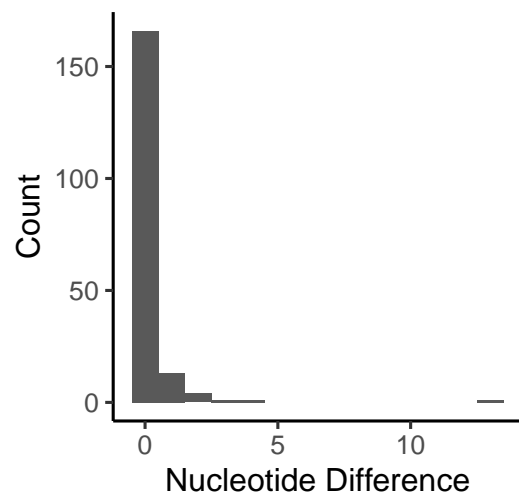
### IGHV4-4\*02\_A106G

288 sequences assigned  
248 (86.1%) exact matches, in which:  
239 unique CDR3  
6 unique J



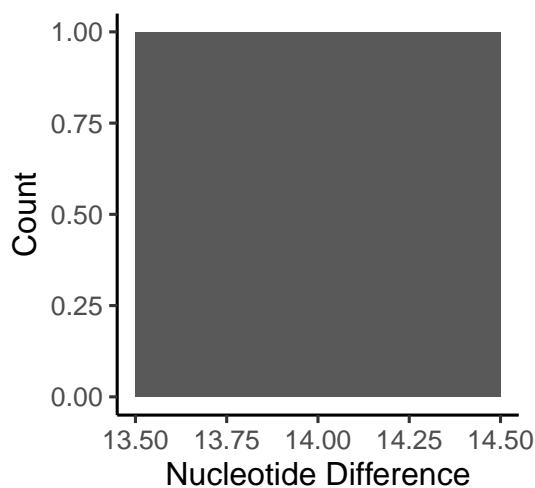
### IGHV4-30-2\*01

186 sequences assigned  
166 (89.2%) exact matches, in which:  
159 unique CDR3  
6 unique J



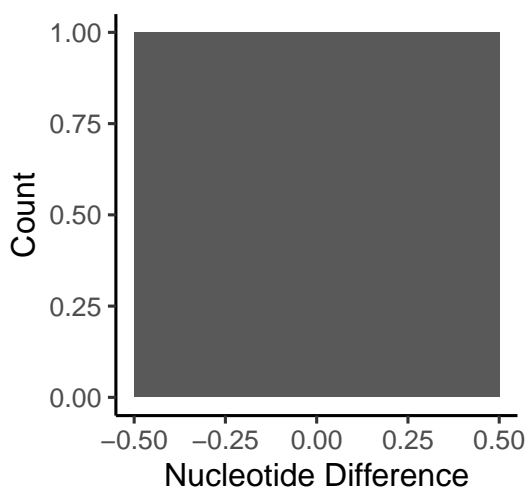
### IGHV3-NL1\*01

1 sequences assigned  
No exact matches.



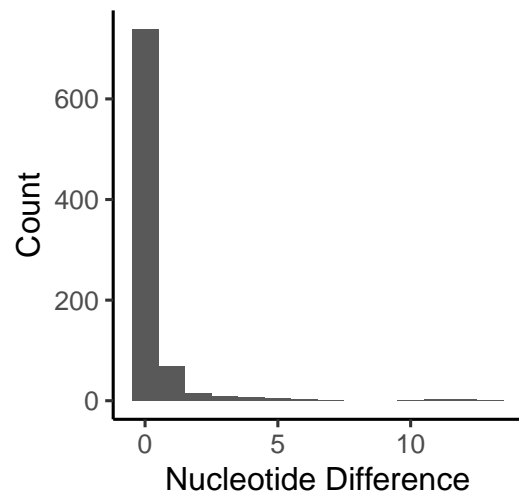
### IGHV4-28\*01

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



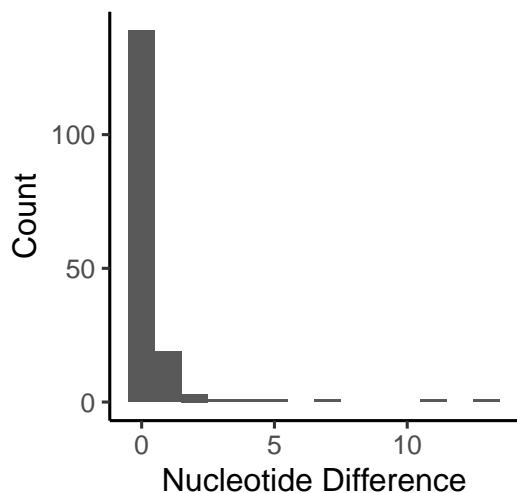
### IGHV4-31\*03

858 sequences assigned  
739 (86.1%) exact matches, in which:  
701 unique CDR3  
6 unique J



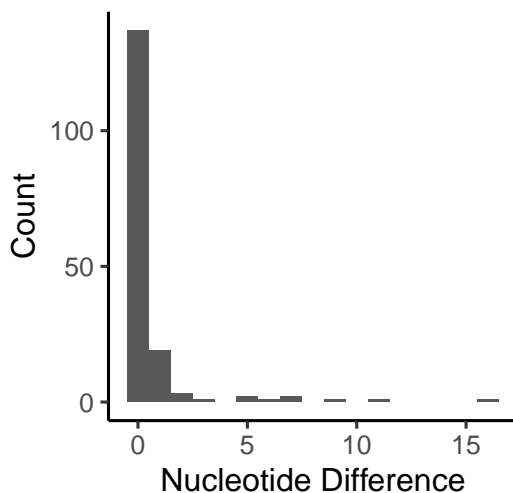
### IGHV4-4\*07

167 sequences assigned  
139 (83.2%) exact matches, in which:  
134 unique CDR3  
6 unique J



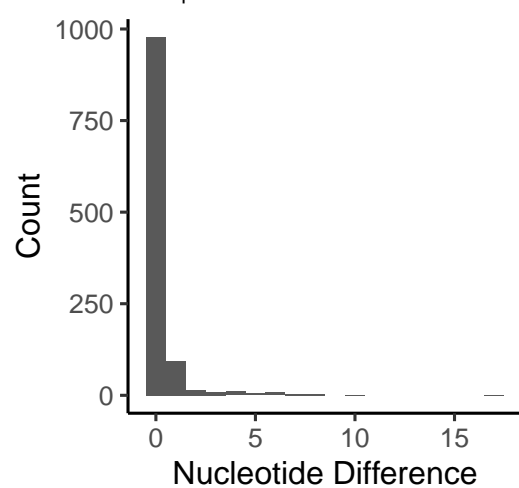
### IGHV4-30-4\*01

169 sequences assigned  
137 (81.1%) exact matches, in which:  
129 unique CDR3  
5 unique J



### IGHV4-34\*01

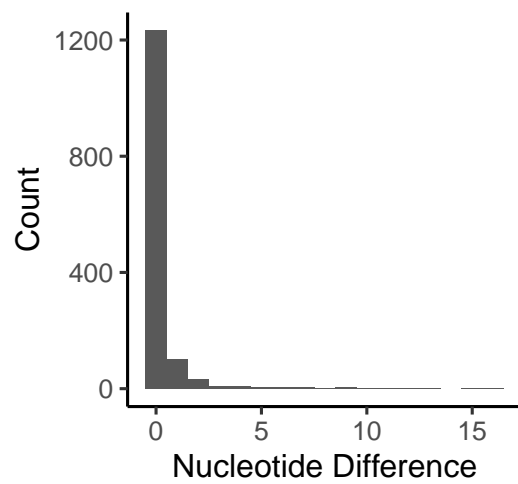
1127 sequences assigned  
978 (86.8%) exact matches, in which:  
932 unique CDR3  
6 unique J





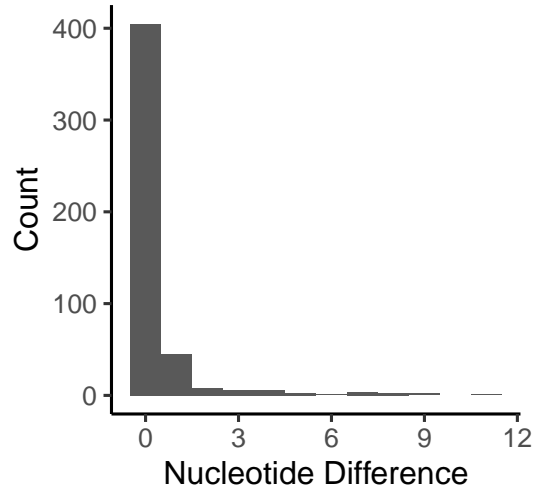
### IGHV4-39\*01

1420 sequences assigned  
1233 (86.8%) exact matches, in which:  
1149 unique CDR3  
6 unique J



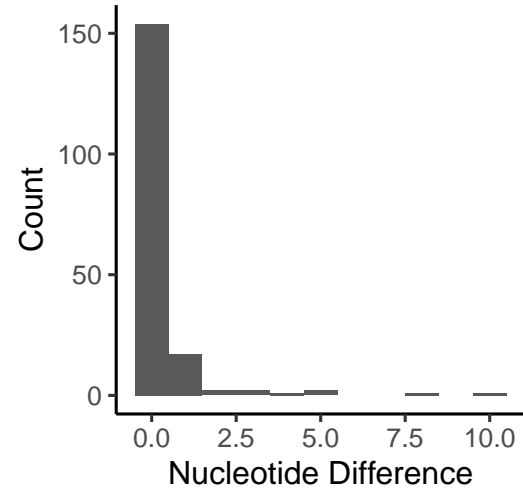
### IGHV4-61\*02\_A234G

484 sequences assigned  
405 (83.7%) exact matches, in which:  
391 unique CDR3  
6 unique J



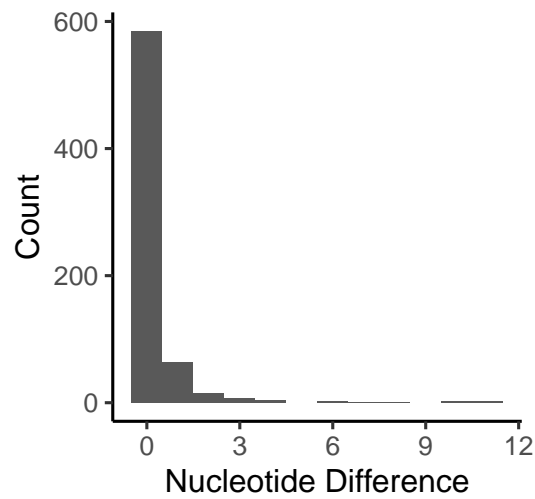
### IGHV6-1\*01

180 sequences assigned  
154 (85.6%) exact matches, in which:  
148 unique CDR3  
6 unique J



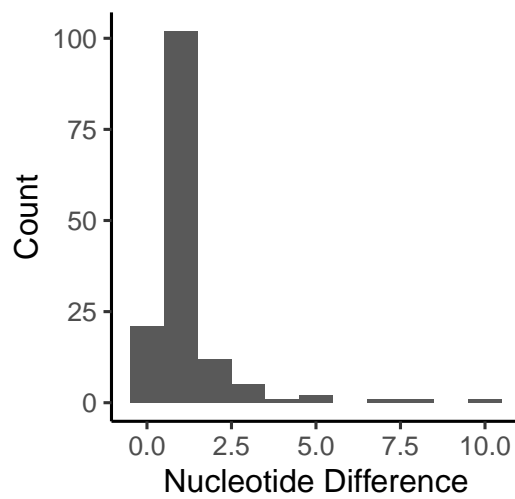
### IGHV4-59\*01

685 sequences assigned  
585 (85.4%) exact matches, in which:  
560 unique CDR3  
6 unique J



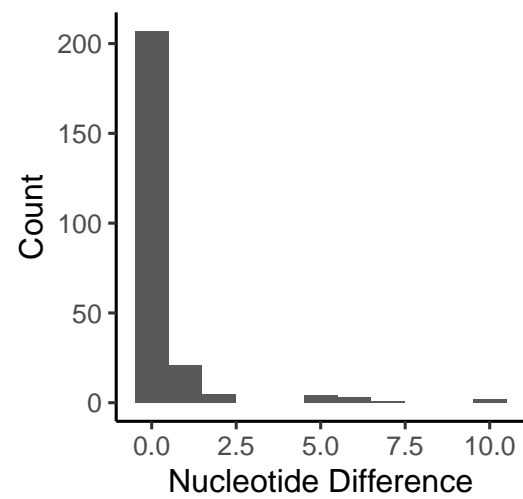
### IGHV5-51\*01

146 sequences assigned  
21 (14.4%) exact matches, in which:  
21 unique CDR3  
5 unique J



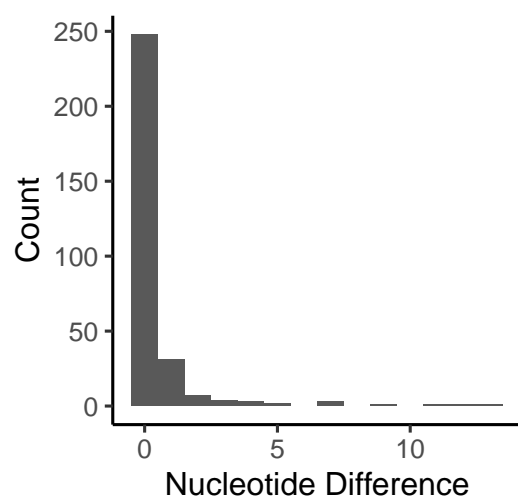
### IGHV7-4-1\*02

243 sequences assigned  
207 (85.2%) exact matches, in which:  
198 unique CDR3  
6 unique J



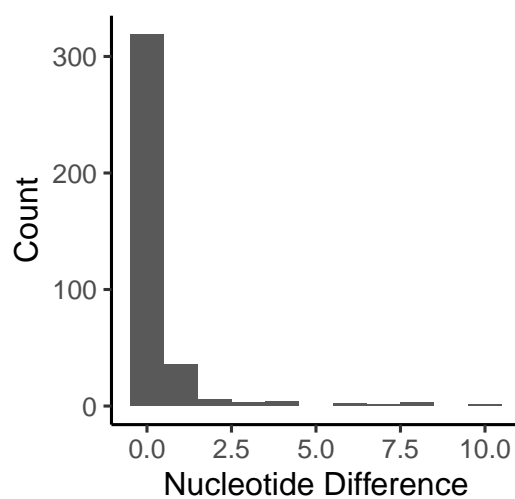
### IGHV4-59\*08

302 sequences assigned  
248 (82.1%) exact matches, in which:  
238 unique CDR3  
6 unique J

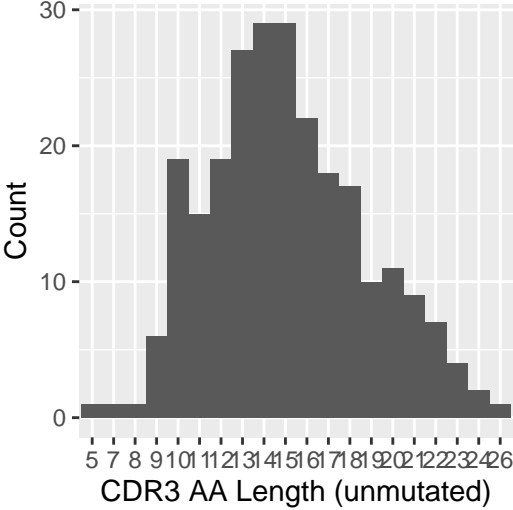


### IGHV5-51\*03

376 sequences assigned  
319 (84.8%) exact matches, in which:  
300 unique CDR3  
6 unique J



IGHV4-4\*02\_A106G



IGHV4-61\*02\_A234G

