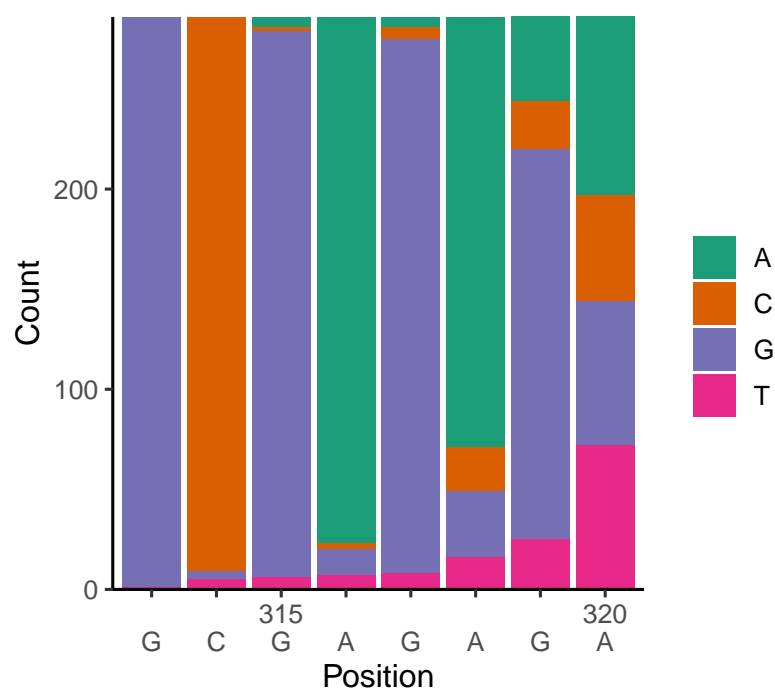
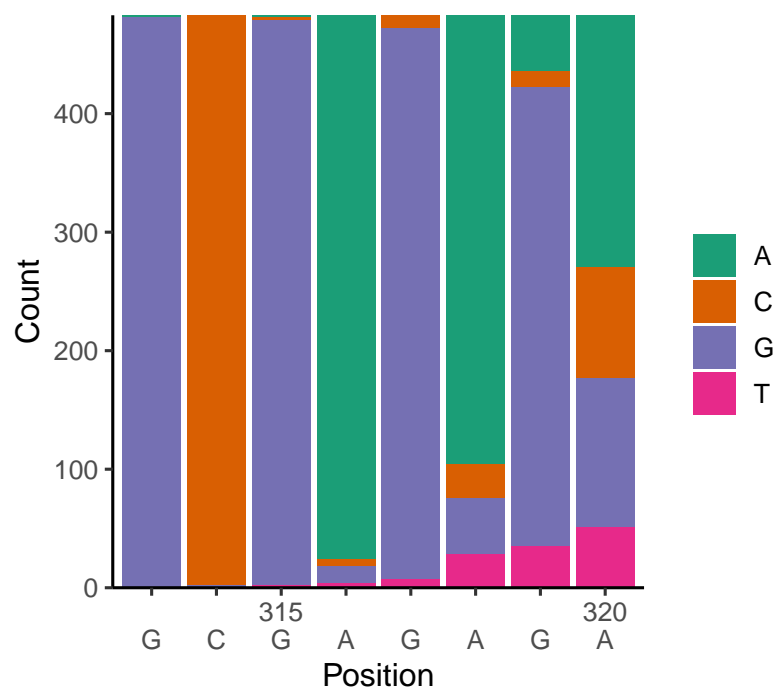


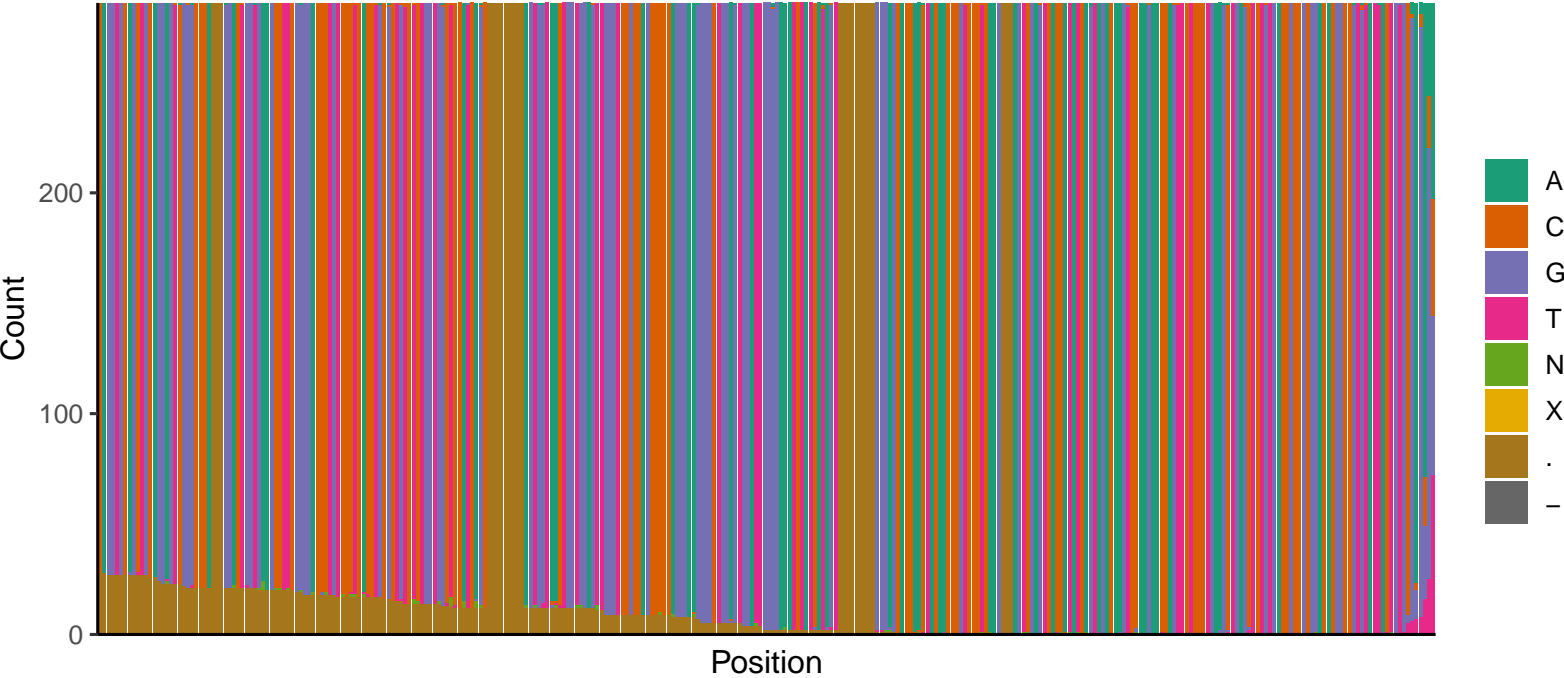
Gene IGHV4-4\*02\_A106G



Gene IGHV4-61\*02\_A234G



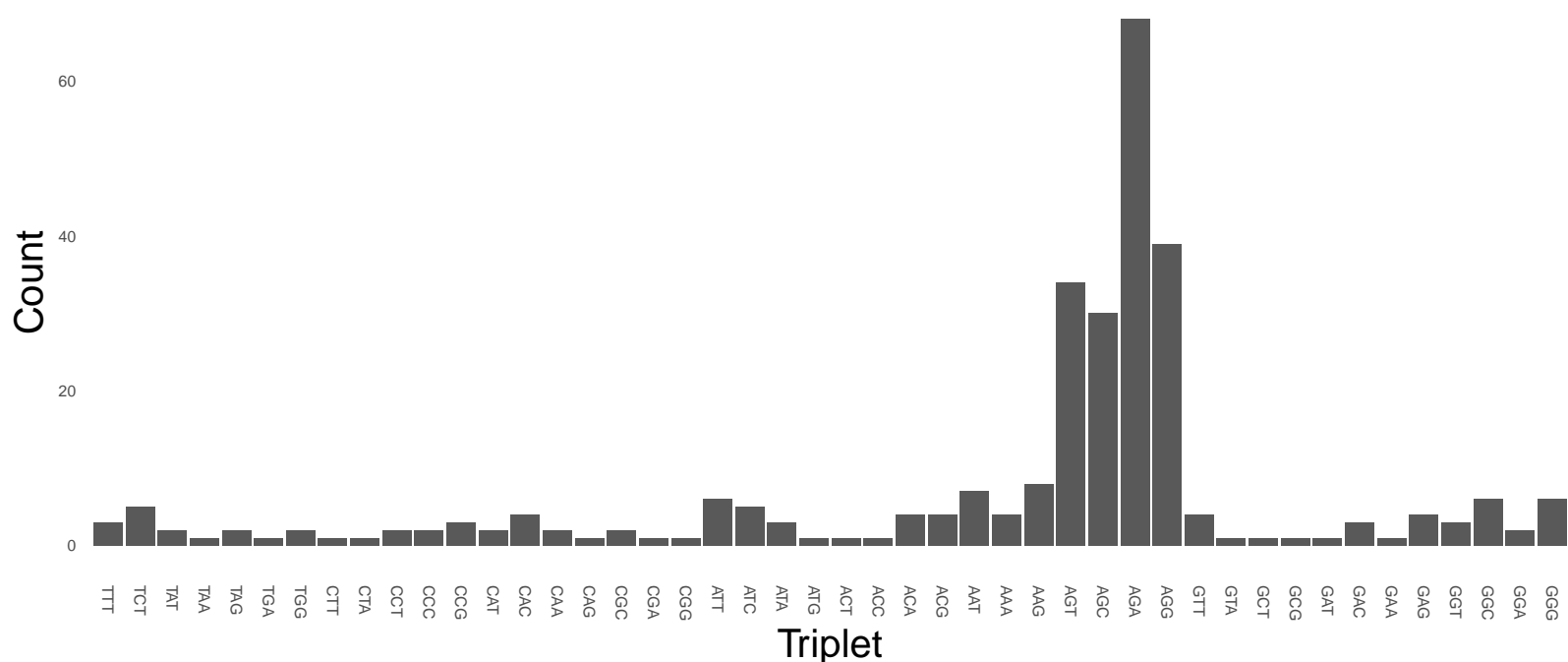
Gene IGHV4-4\*02\_A106G



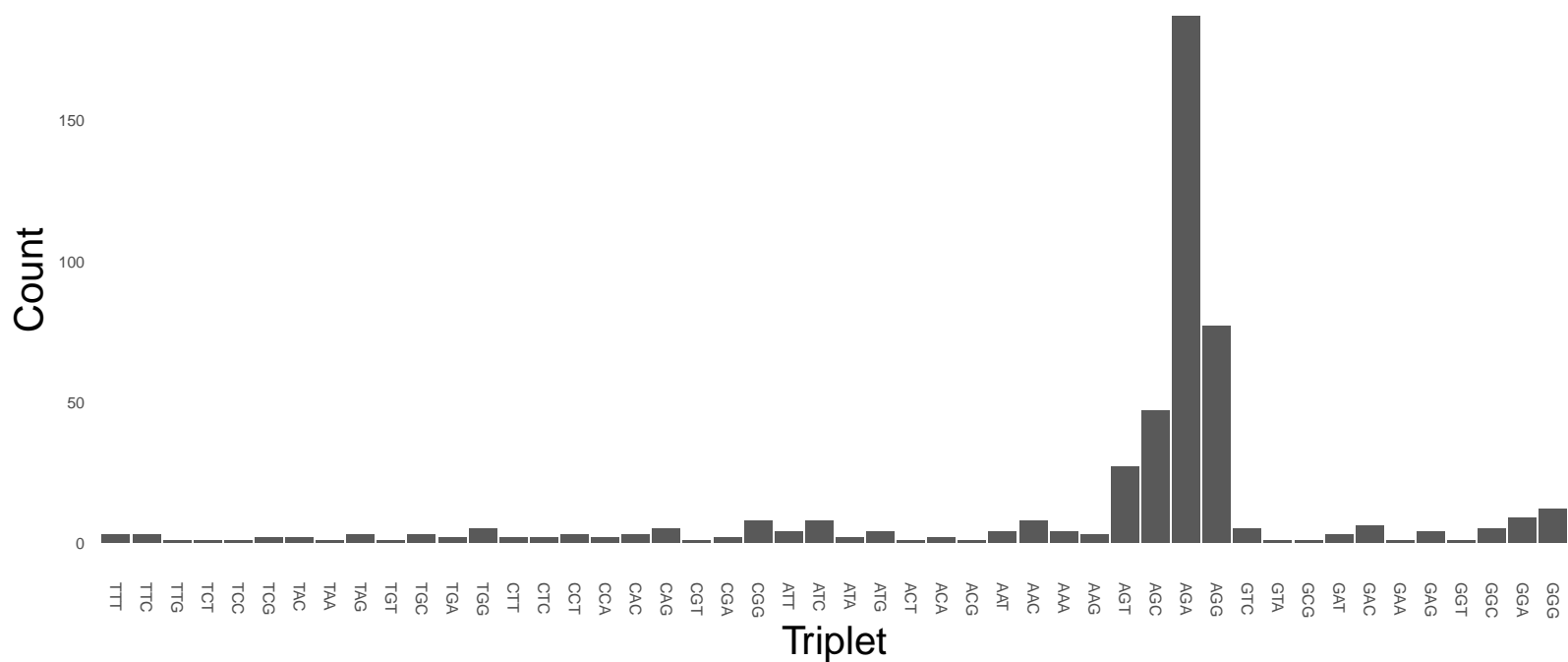
Gene IGHV4-61\*02\_A234G



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

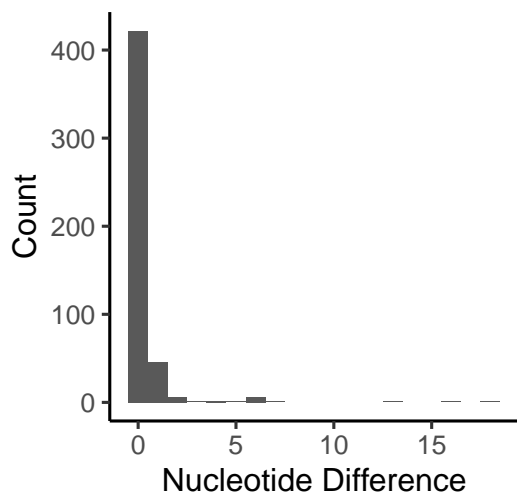


IGHV4-61\*02\_A234G- Final 3 nucleotides as a triplet



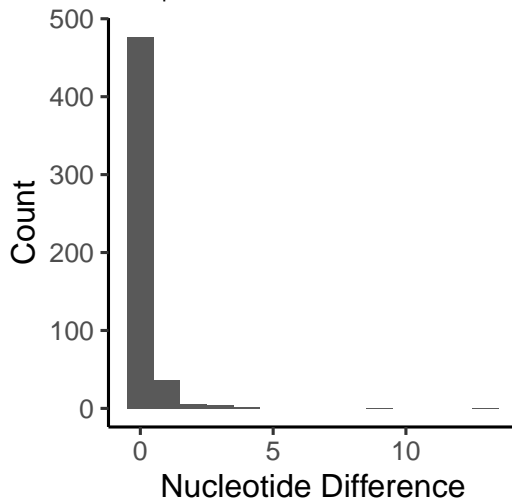
### IGHV1-2\*02

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



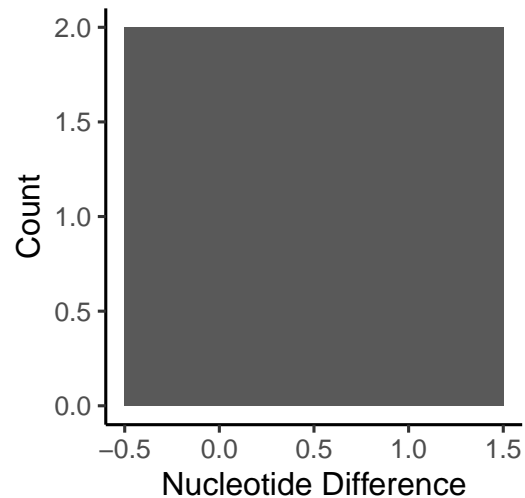
### IGHV1-8\*01

527 sequences assigned  
477 (90.5%) exact matches, in which:  
454 unique CDR3  
6 unique J



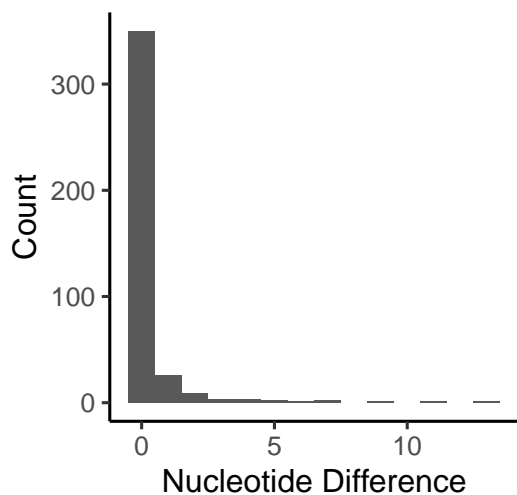
### IGHV1-45\*02

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



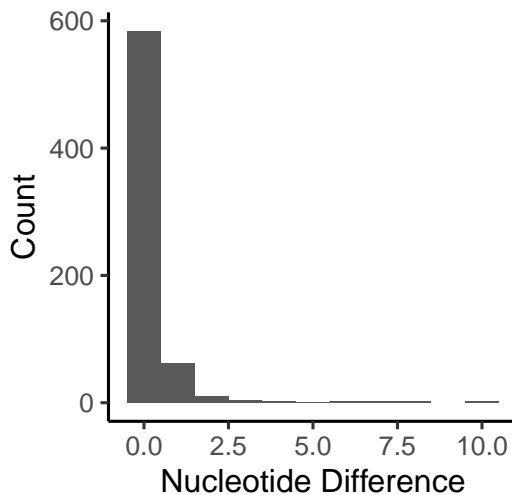
### IGHV1-2\*06

399 sequences assigned  
350 (87.7%) exact matches, in which:  
336 unique CDR3  
6 unique J



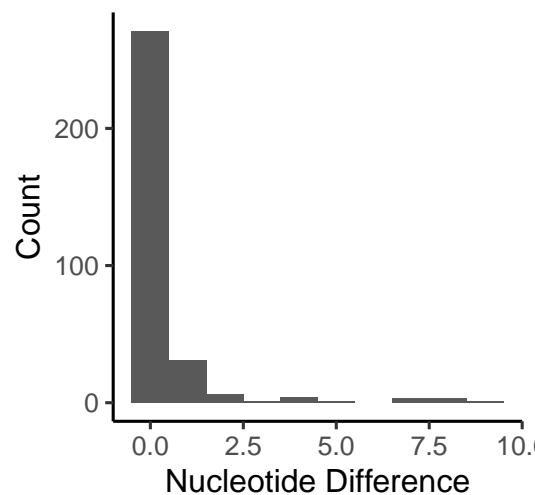
### IGHV1-18\*01

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



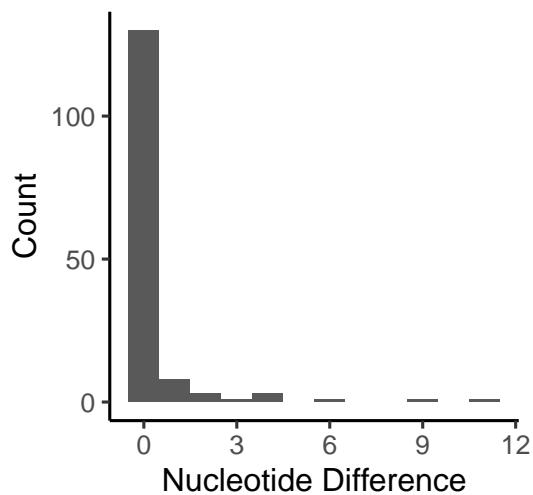
### IGHV1-46\*03

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



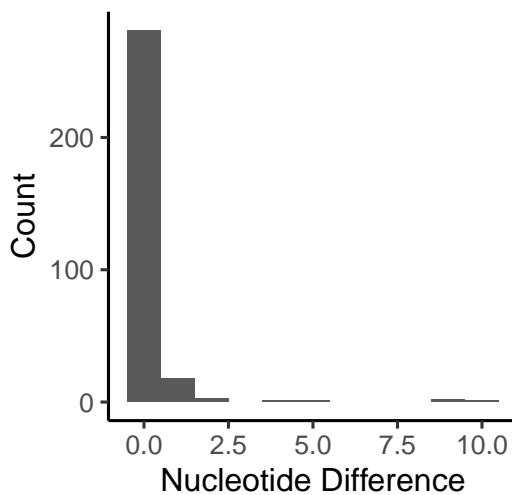
### IGHV1-3\*01

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



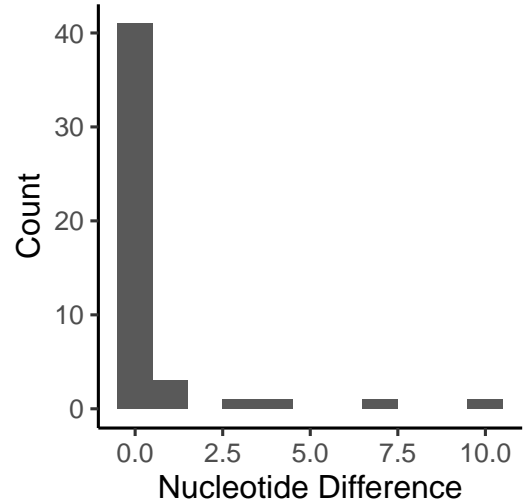
### IGHV1-24\*01

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



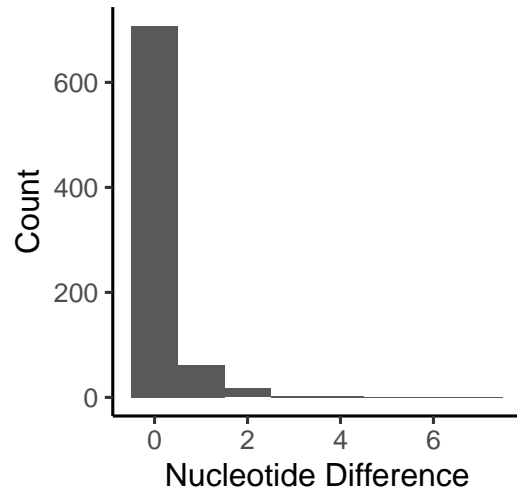
### IGHV1-58\*02

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



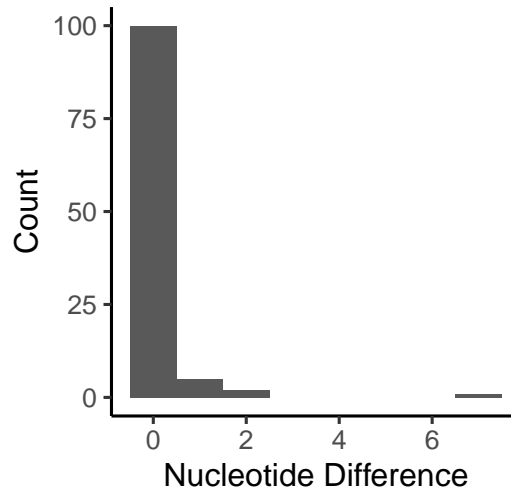
### IGHV1–69\*01

793 sequences assigned  
708 (89.3%) exact matches, in which:  
676 unique CDR3  
6 unique J



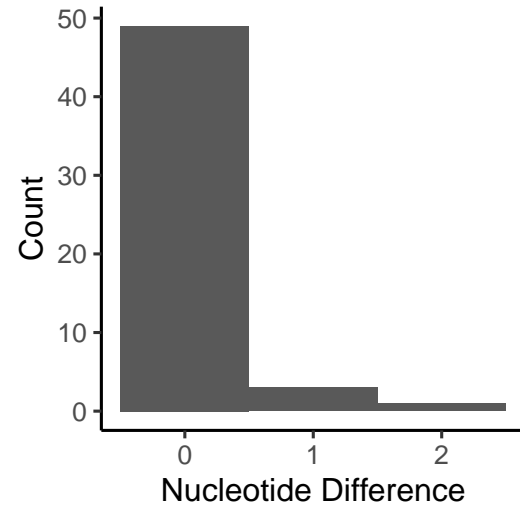
### IGHV2–5\*01

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



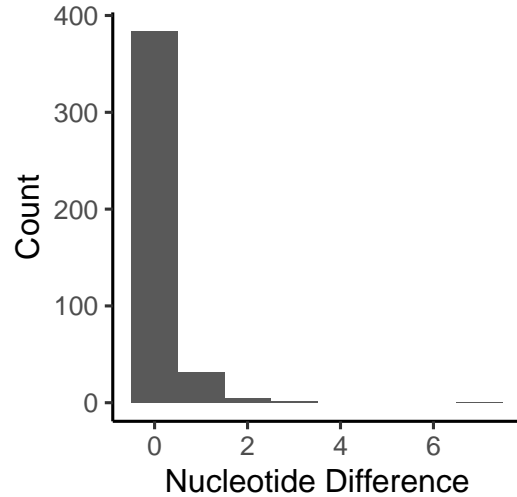
### IGHV2–70\*01

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



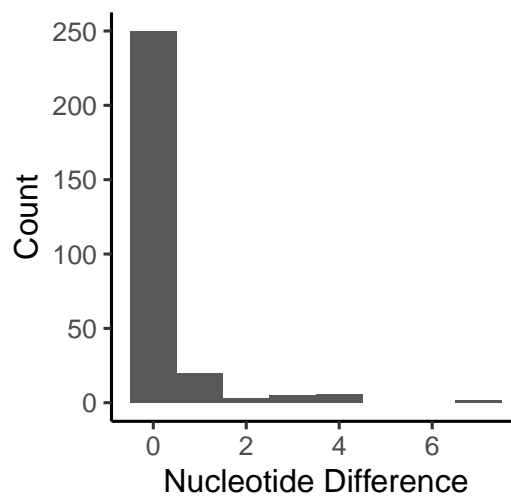
### IGHV1–69\*04

424 sequences assigned  
384 (90.6%) exact matches, in which:  
363 unique CDR3  
6 unique J



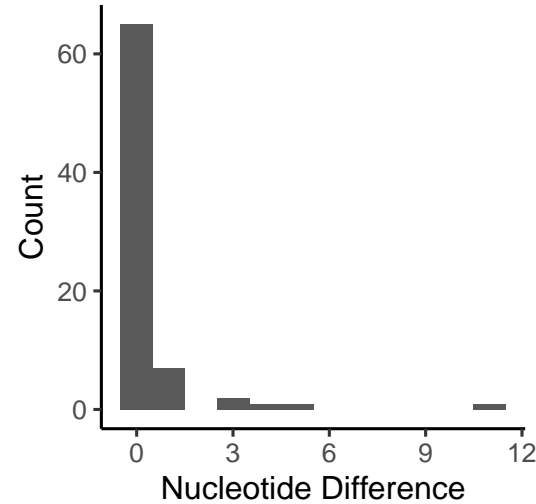
### IGHV2–5\*02

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



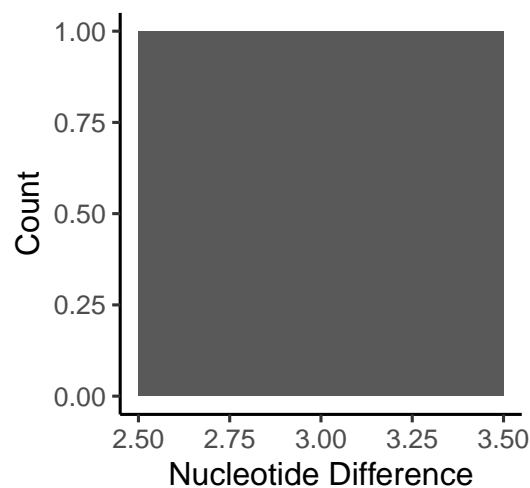
### IGHV2–70\*15

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



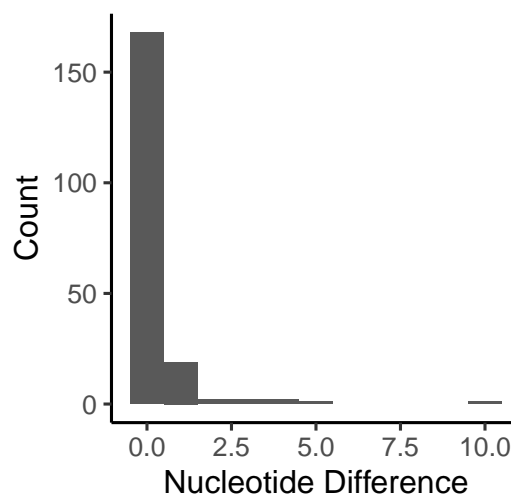
### IGHV1–NL1\*01

1 sequences assigned  
No exact matches.



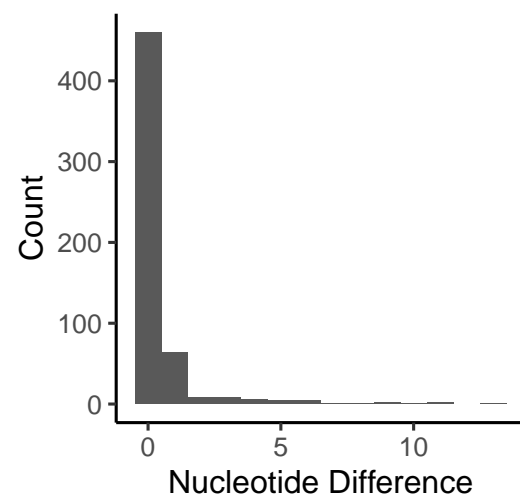
### IGHV2–26\*01

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



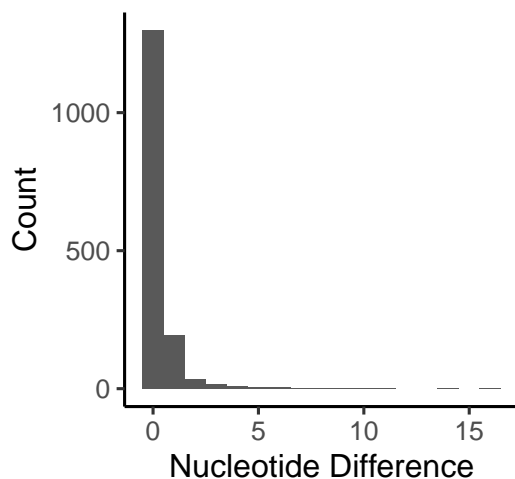
### IGHV3–7\*01

563 sequences assigned  
460 (81.7%) exact matches, in which:  
424 unique CDR3  
5 unique J



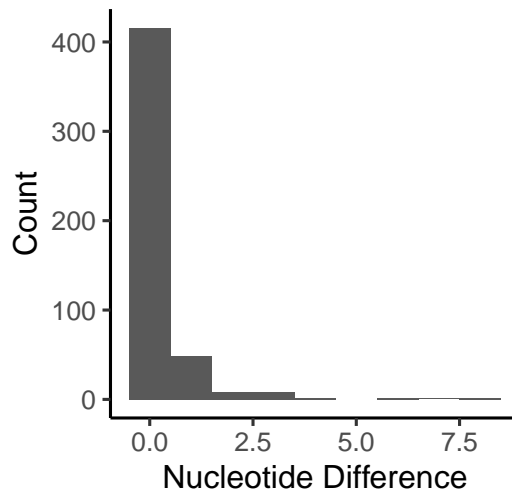
### IGHV3-9\*01

1576 sequences assigned  
1298 (82.4%) exact matches, in which:  
1193 unique CDR3  
6 unique J



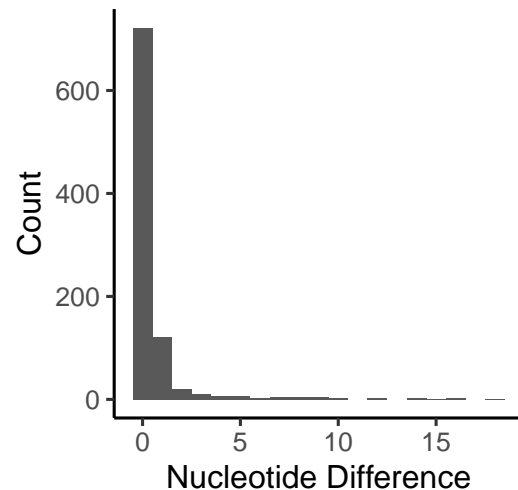
### IGHV3-15\*01

490 sequences assigned  
416 (84.9%) exact matches, in which:  
390 unique CDR3  
5 unique J



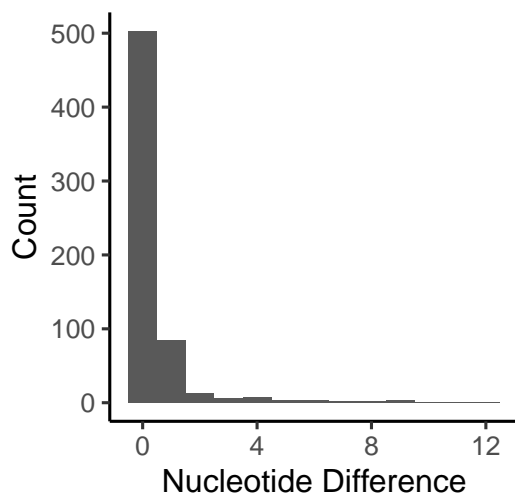
### IGHV3-23\*01

914 sequences assigned  
722 (79%) exact matches, in which:  
683 unique CDR3  
6 unique J



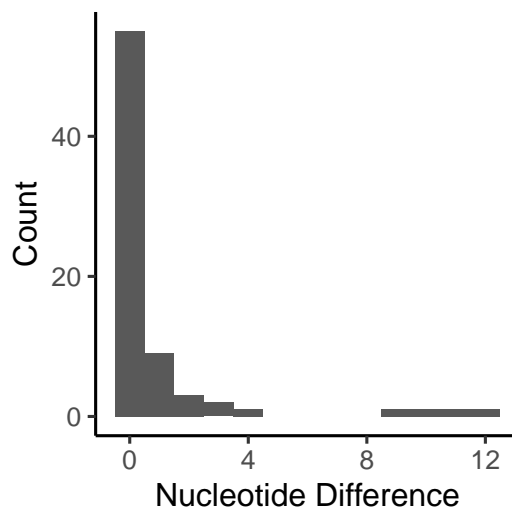
### IGHV3-11\*01

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



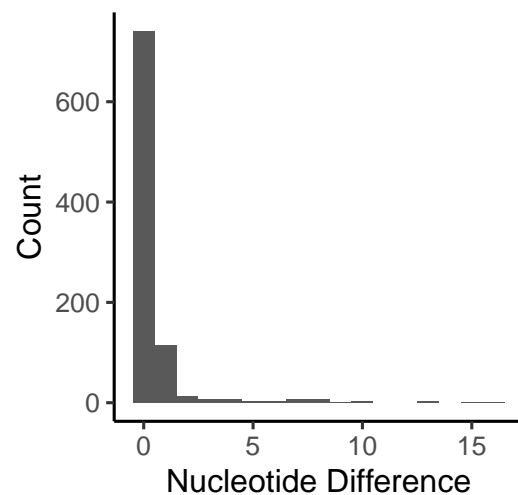
### IGHV3-20\*01

88 sequences assigned  
55 (62.5%) exact matches, in which:  
50 unique CDR3  
5 unique J



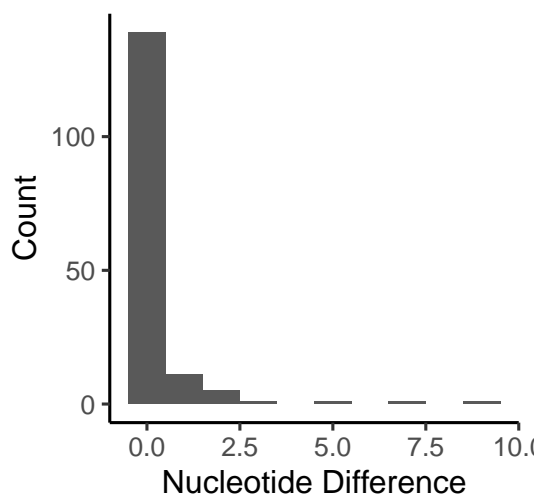
### IGHV3-23\*04

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



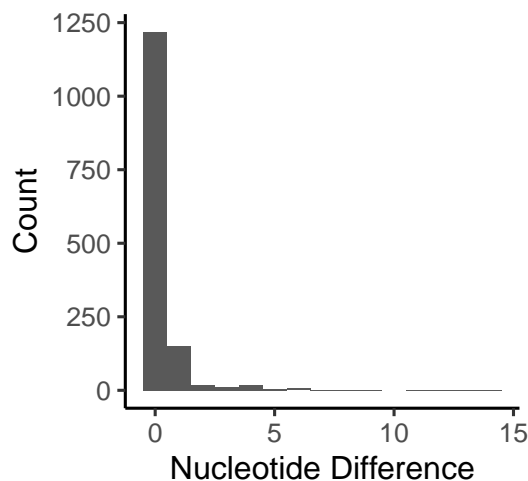
### IGHV3-13\*01

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



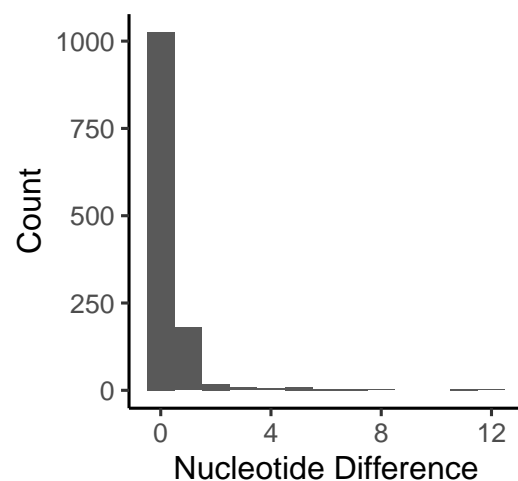
### IGHV3-21\*01

1435 sequences assigned  
1218 (84.9%) exact matches, in which:  
1134 unique CDR3  
6 unique J



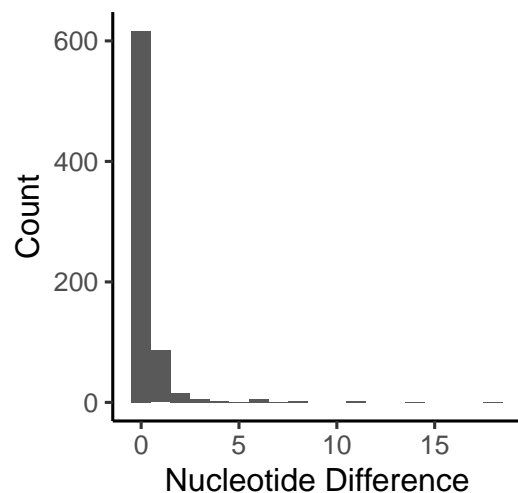
### IGHV3-30-3\*01

1260 sequences assigned  
1026 (81.4%) exact matches, in which:  
948 unique CDR3  
6 unique J



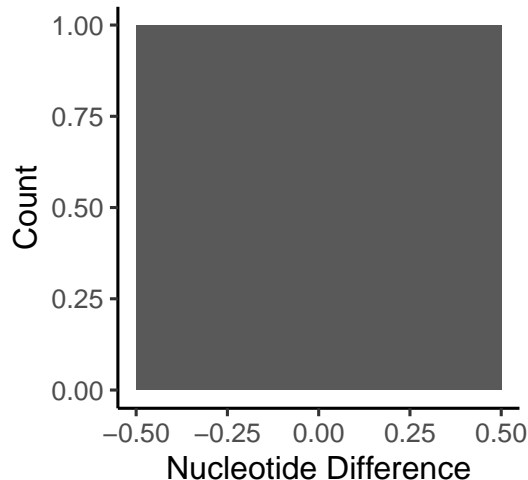
### IGHV3–30\*04

743 sequences assigned  
617 (83%) exact matches, in which:  
581 unique CDR3  
6 unique J



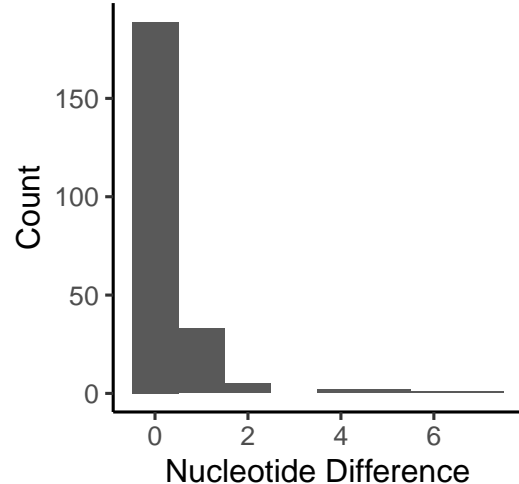
### IGHV3–35\*01

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



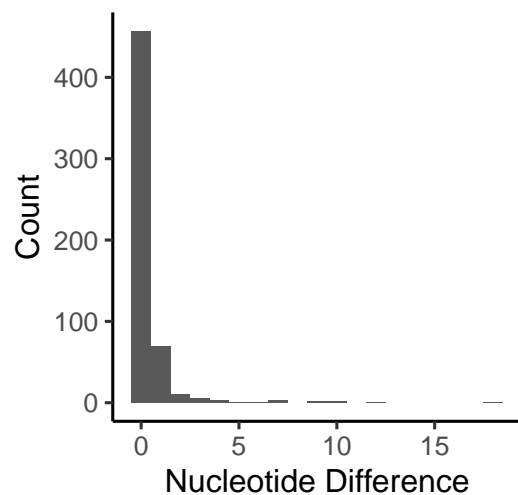
### IGHV3–49\*03

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



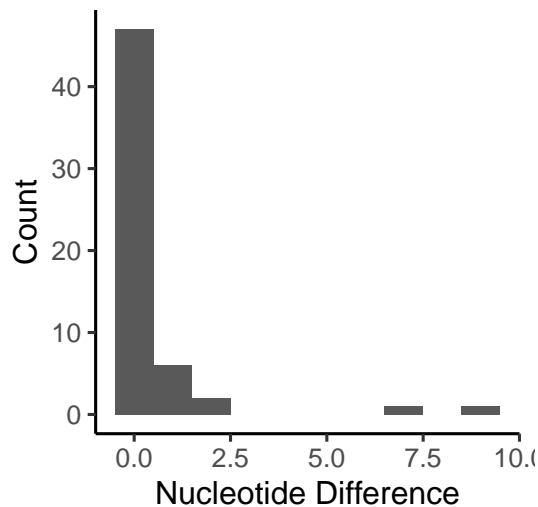
### IGHV3–30\*18

555 sequences assigned  
457 (82.3%) exact matches, in which:  
431 unique CDR3  
6 unique J



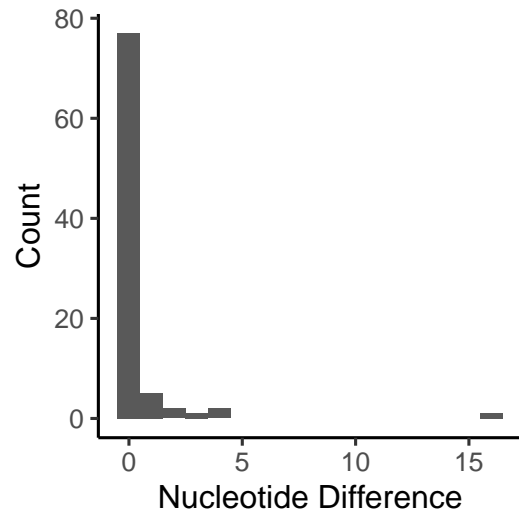
### IGHV3–43\*01

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



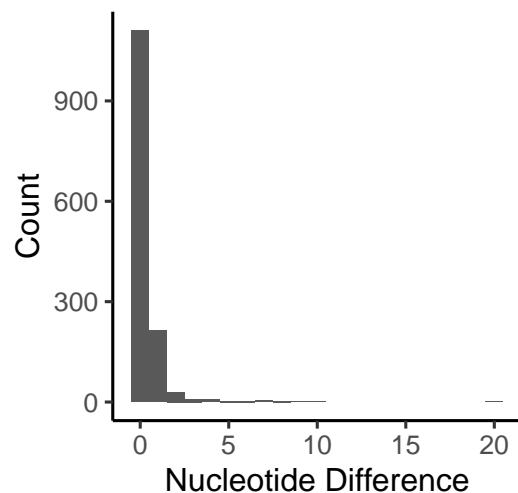
### IGHV3–53\*02

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



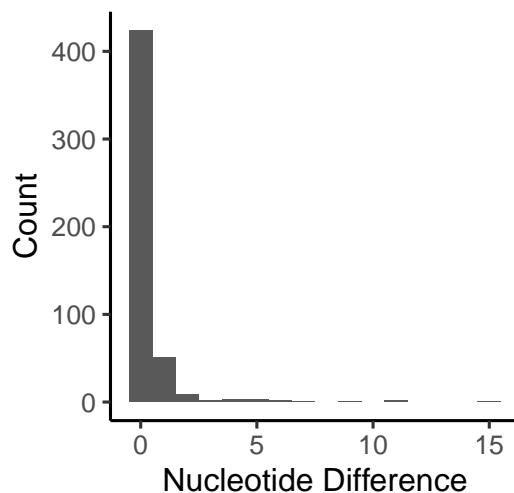
### IGHV3–33\*01

1391 sequences assigned  
1111 (79.9%) exact matches, in which:  
1014 unique CDR3  
6 unique J



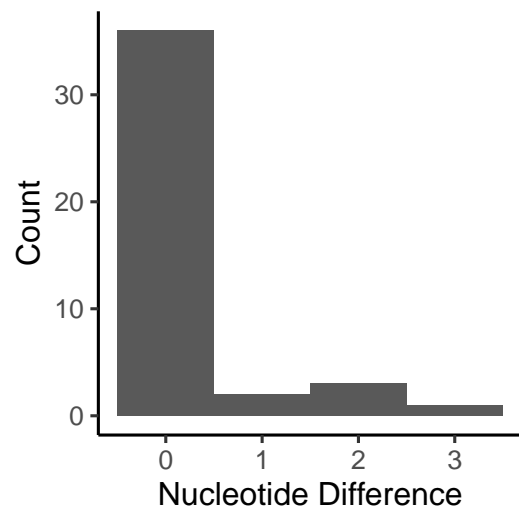
### IGHV3–48\*01

500 sequences assigned  
424 (84.8%) exact matches, in which:  
393 unique CDR3  
6 unique J



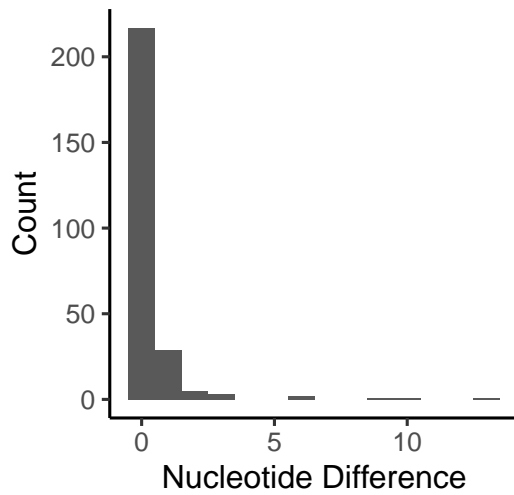
### IGHV3–64\*01

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



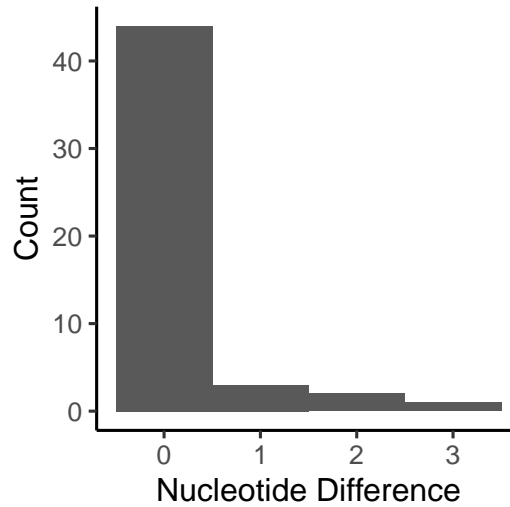
### IGHV3-66\*01

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



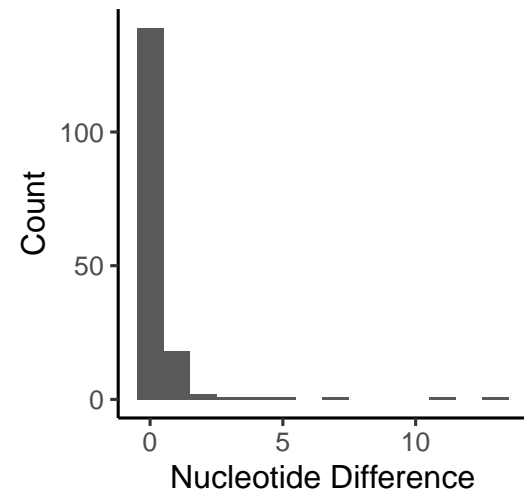
### IGHV3-73\*02

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



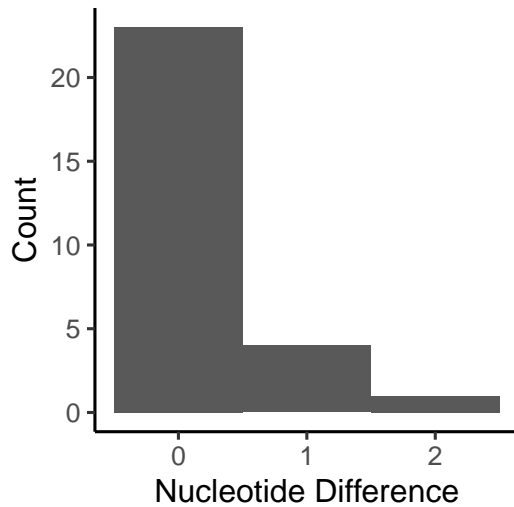
### IGHV4-4\*07

165 sequences assigned  
139 (84.2%) exact matches, in which:  
134 unique CDR3  
6 unique J



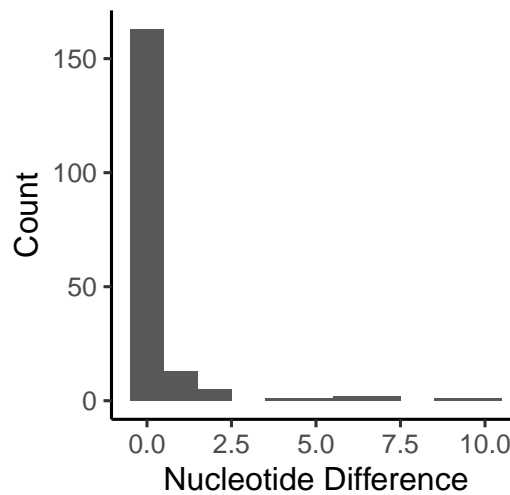
### IGHV3-72\*01

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



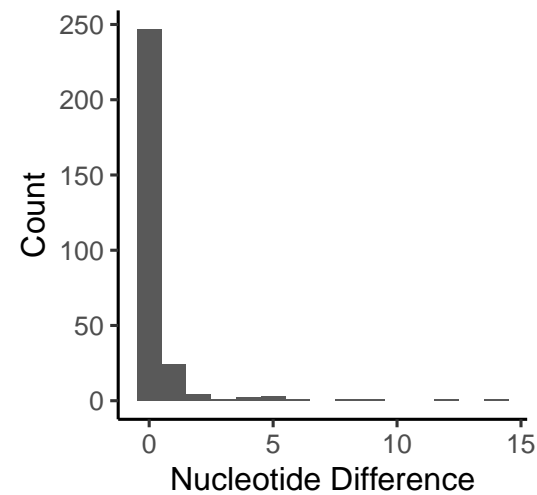
### IGHV3-74\*01

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



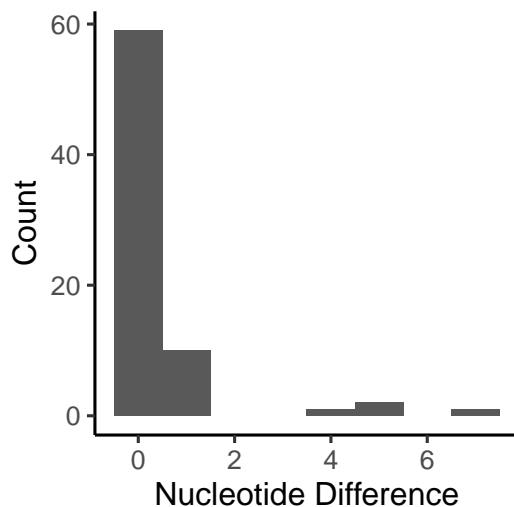
### IGHV4-4\*02\_A106G

286 sequences assigned  
247 (86.4%) exact matches, in which:  
238 unique CDR3  
6 unique J



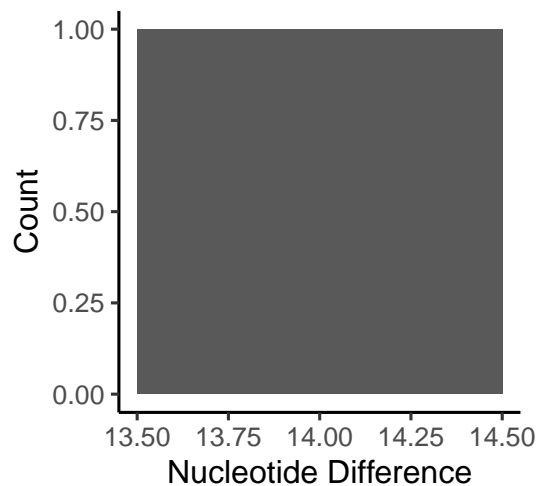
### IGHV3-73\*01

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



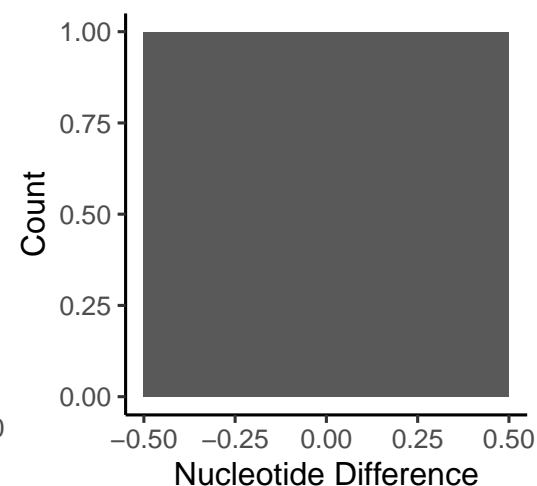
### IGHV3-NL1\*01

1 sequences assigned  
No exact matches.



### IGHV4-28\*01

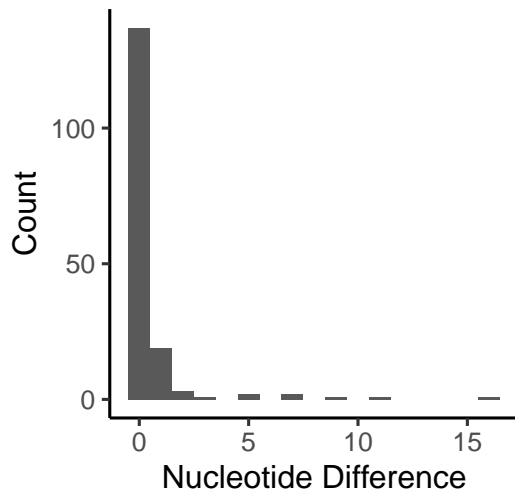
1 sequences assigned  
1 (100%) exact matches, in which:  
1 unique CDR3  
1 unique J





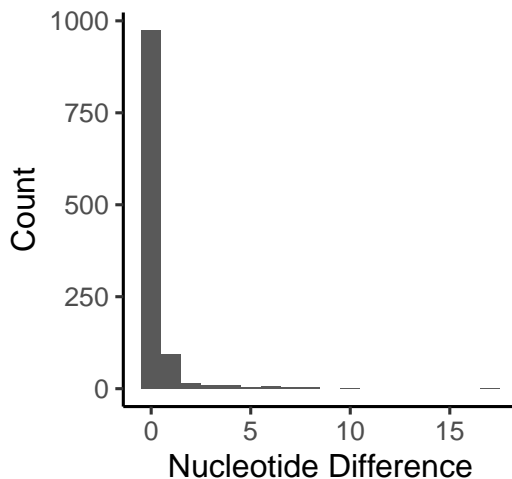
### IGHV4-30-4\*01

168 sequences assigned  
137 (81.5%) exact matches, in which:  
129 unique CDR3  
5 unique J



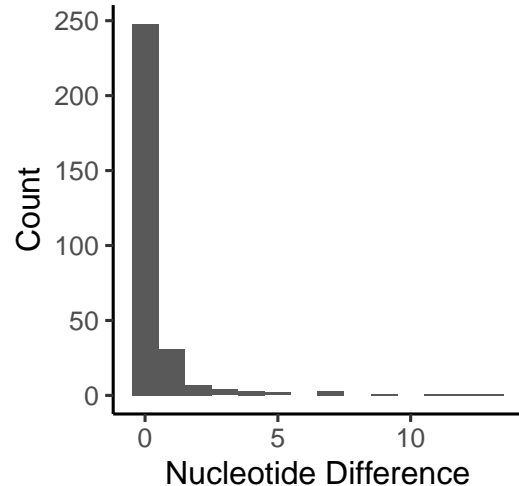
### IGHV4-34\*01

1123 sequences assigned  
974 (86.7%) exact matches, in which:  
931 unique CDR3  
6 unique J



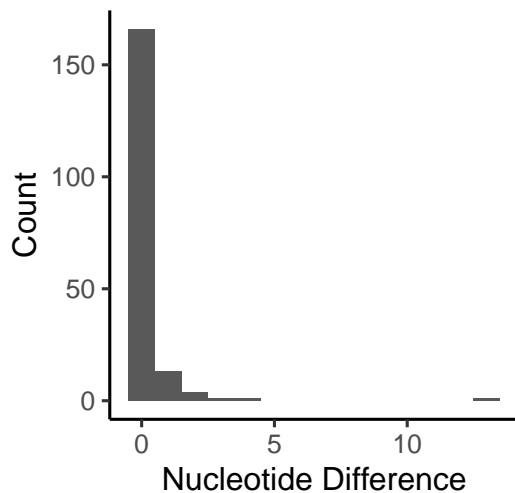
### IGHV4-59\*08

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



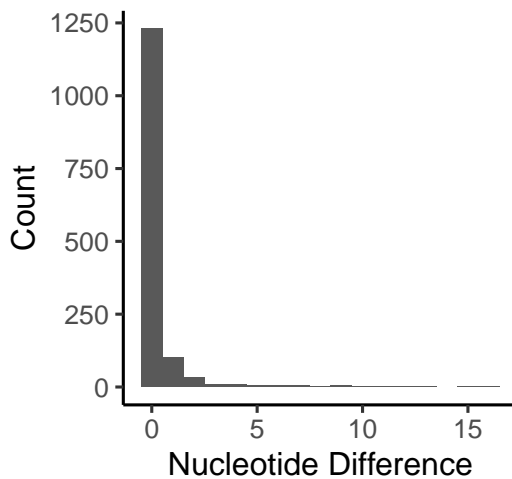
### IGHV4-30-2\*01

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



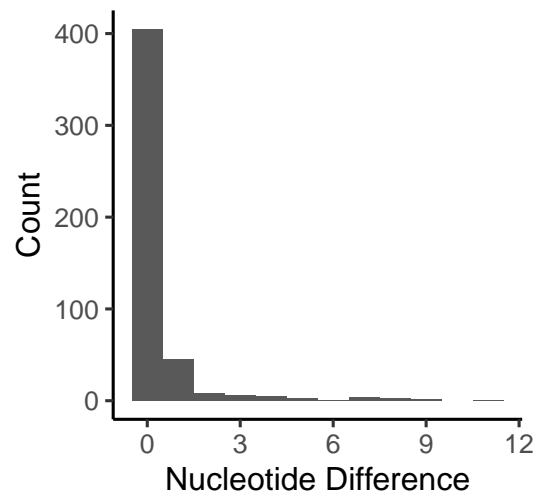
### IGHV4-39\*01

1416 sequences assigned  
1230 (86.9%) exact matches, in which:  
1146 unique CDR3  
6 unique J



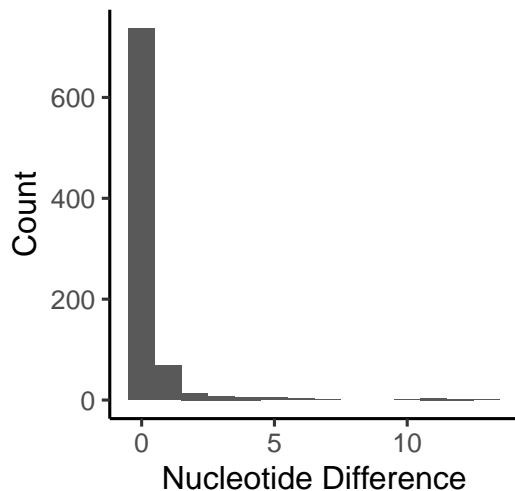
### IGHV4-61\*02\_A234G

483 sequences assigned  
405 (83.9%) exact matches, in which:  
391 unique CDR3  
6 unique J



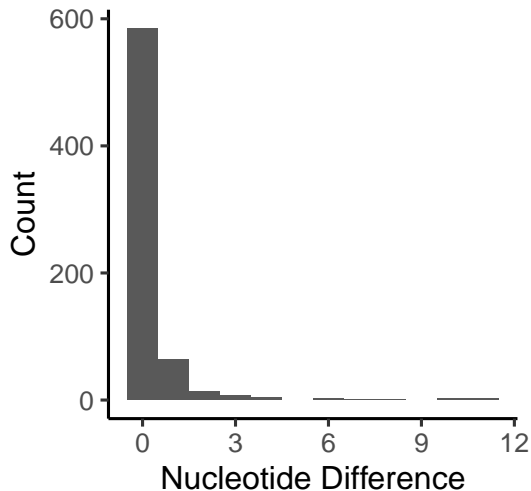
### IGHV4-31\*03

855 sequences assigned  
737 (86.2%) exact matches, in which:  
699 unique CDR3  
6 unique J



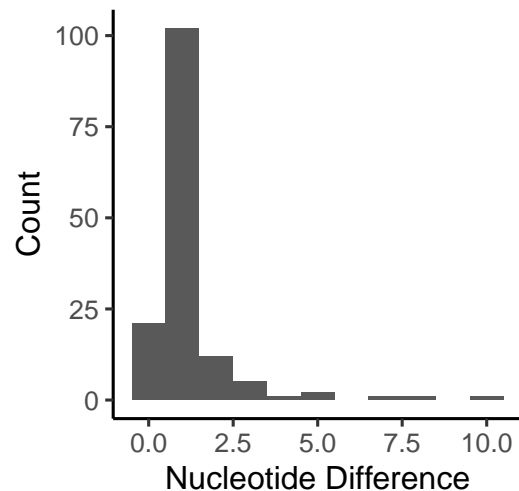
### IGHV4-59\*01

684 sequences assigned  
585 (85.5%) exact matches, in which:  
560 unique CDR3  
6 unique J



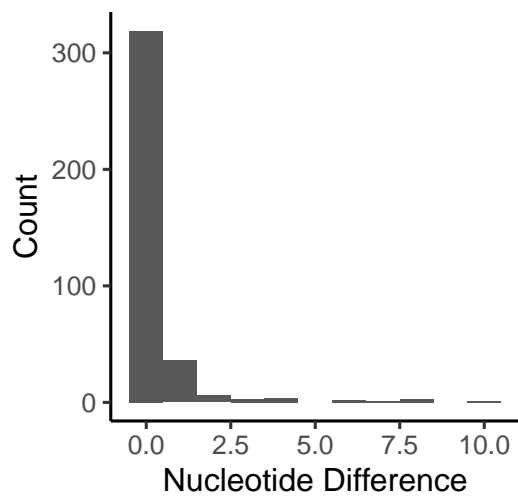
### IGHV5-51\*01

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



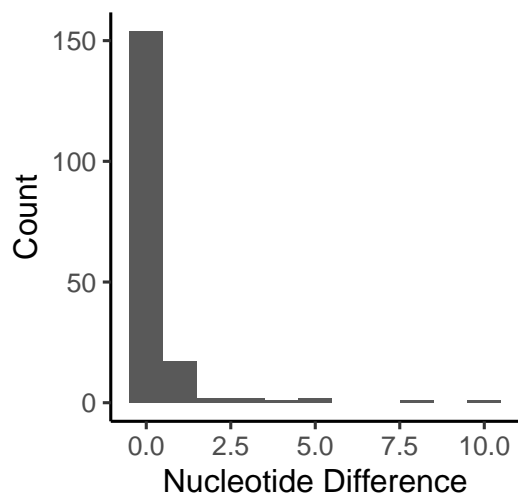
## IGHV5–51\*03

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



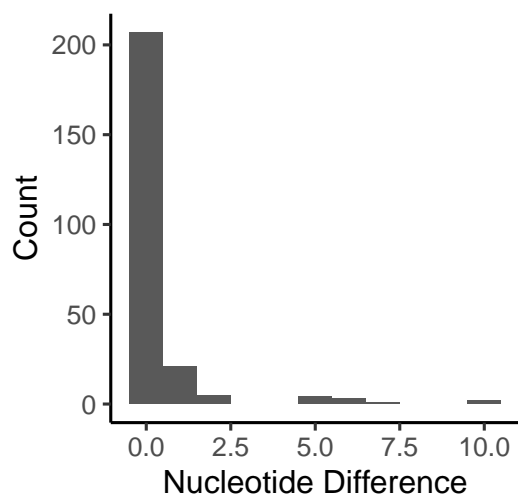
## IGHV6–1\*01

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

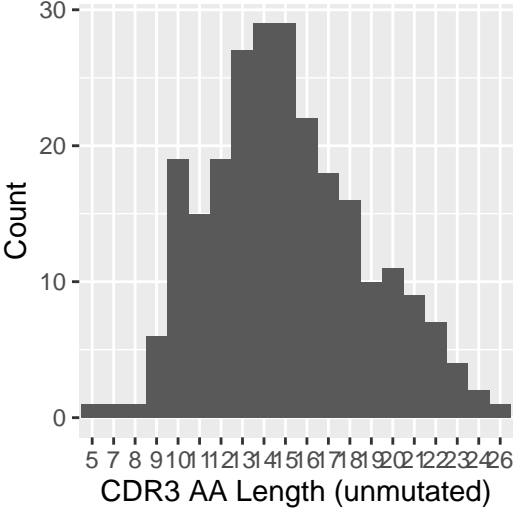


## IGHV7–4–1\*02

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



IGHV4-4\*02\_A106G



IGHV4-61\*02\_A234G

