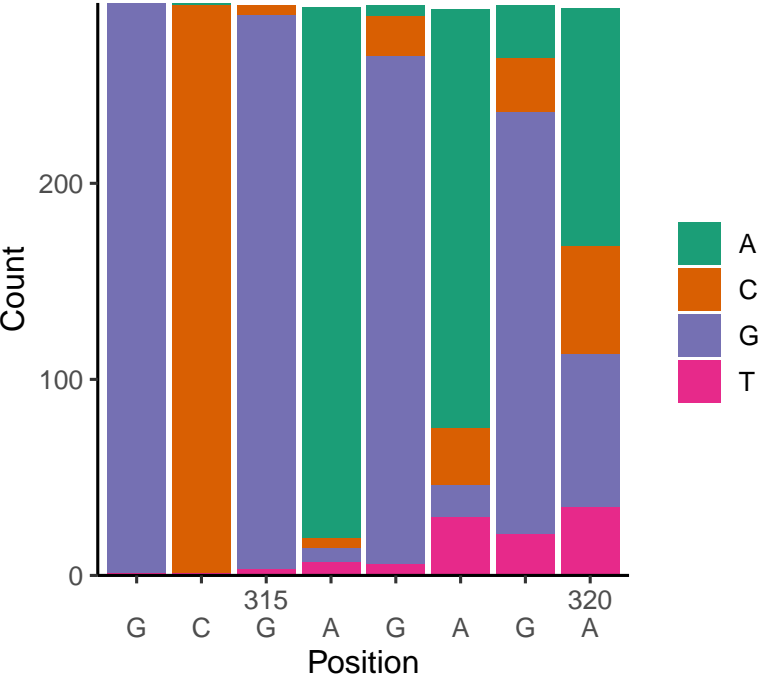
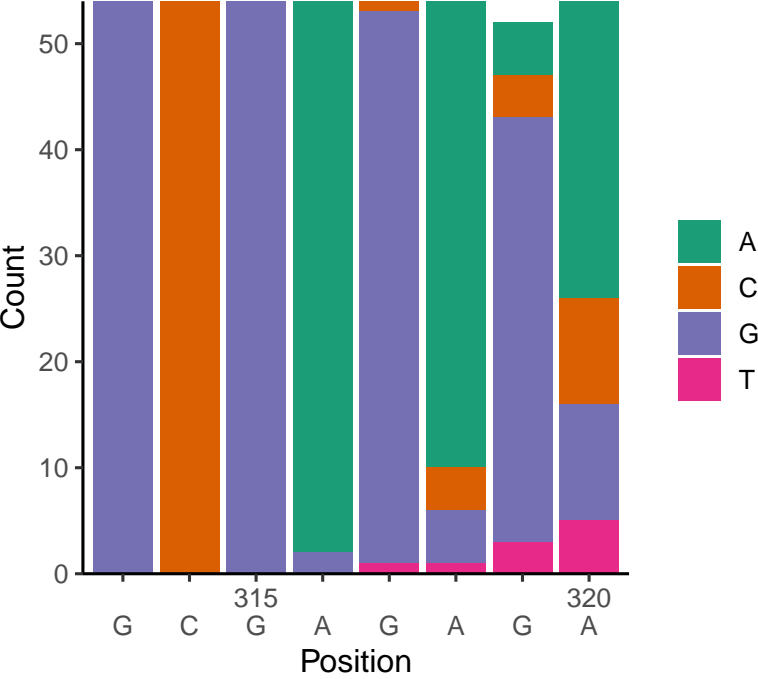


Gene IGHV1-69\*04\_A163G



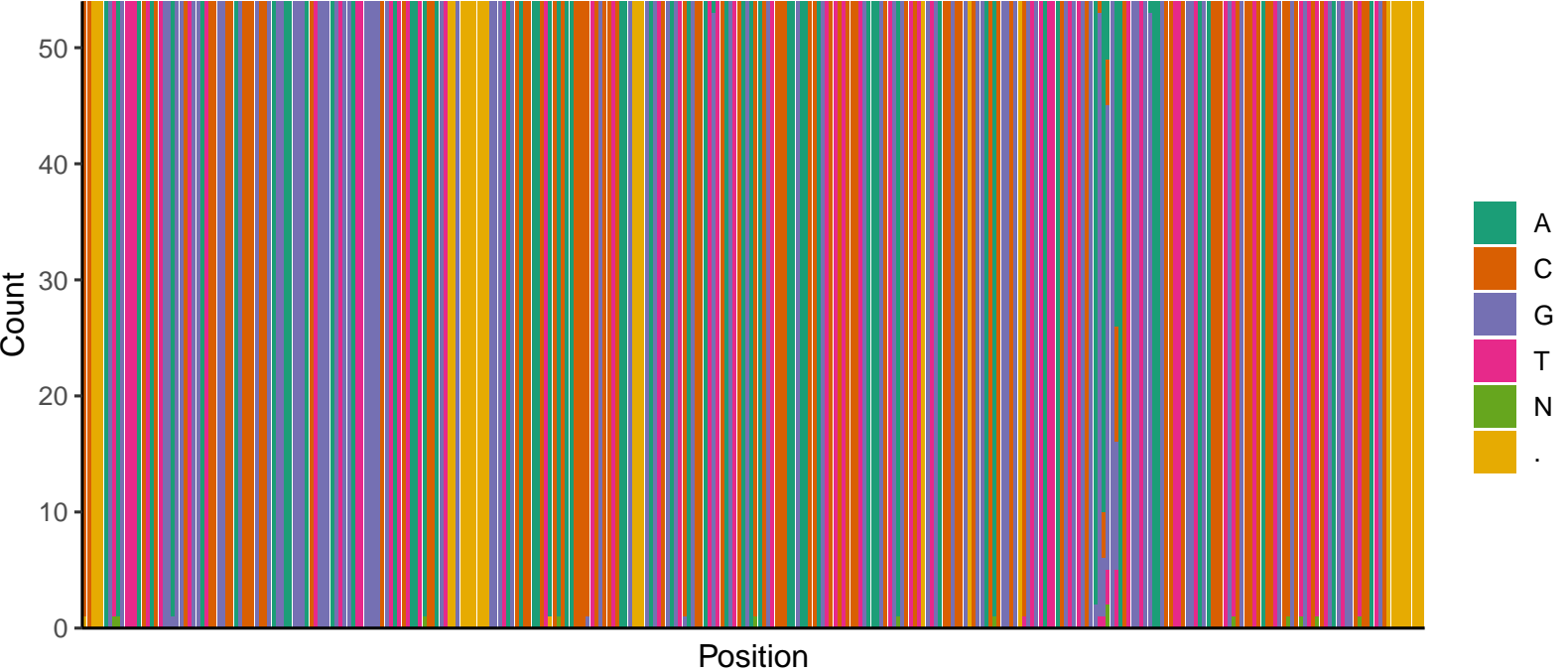
Gene IGHV4-4\*07\_A70G



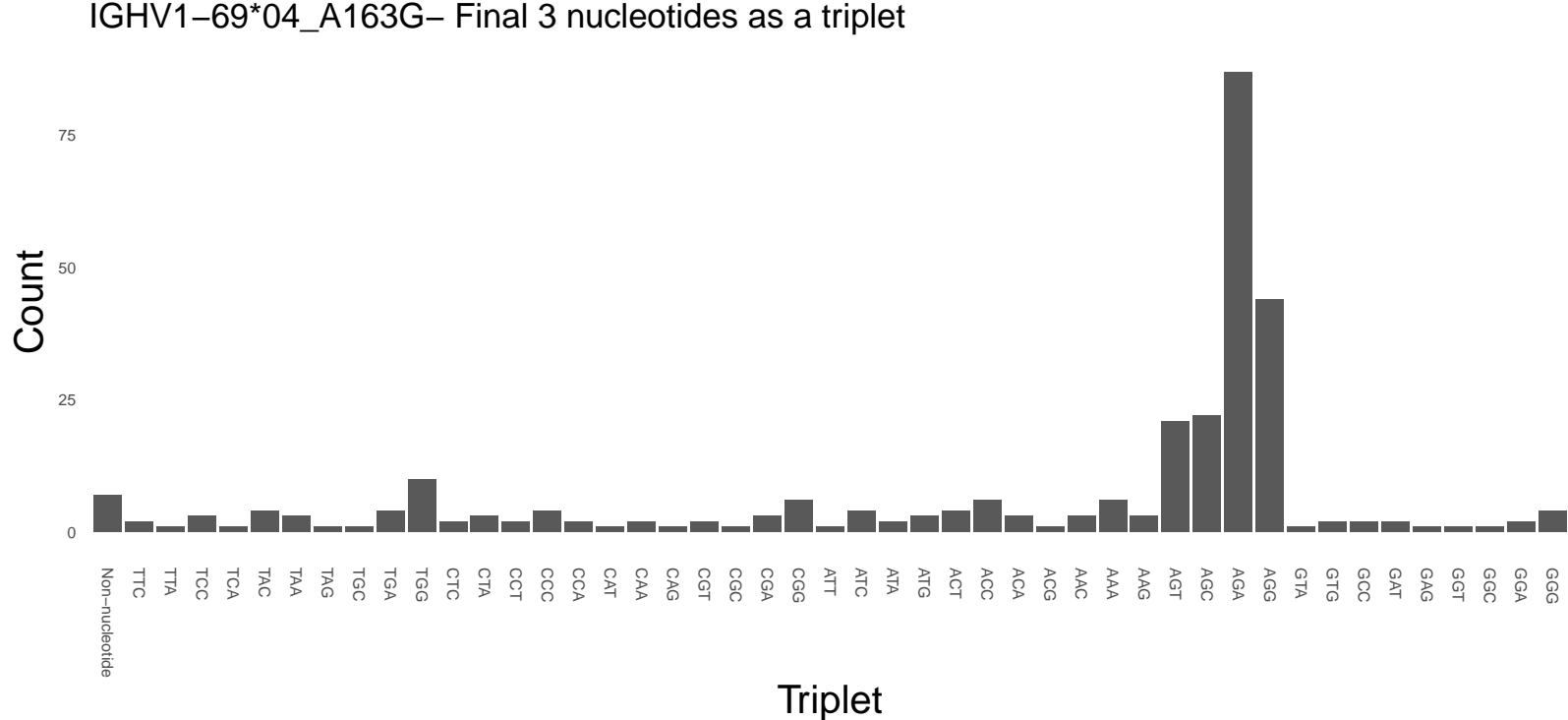
Gene IGHV1-69\*04\_A163G



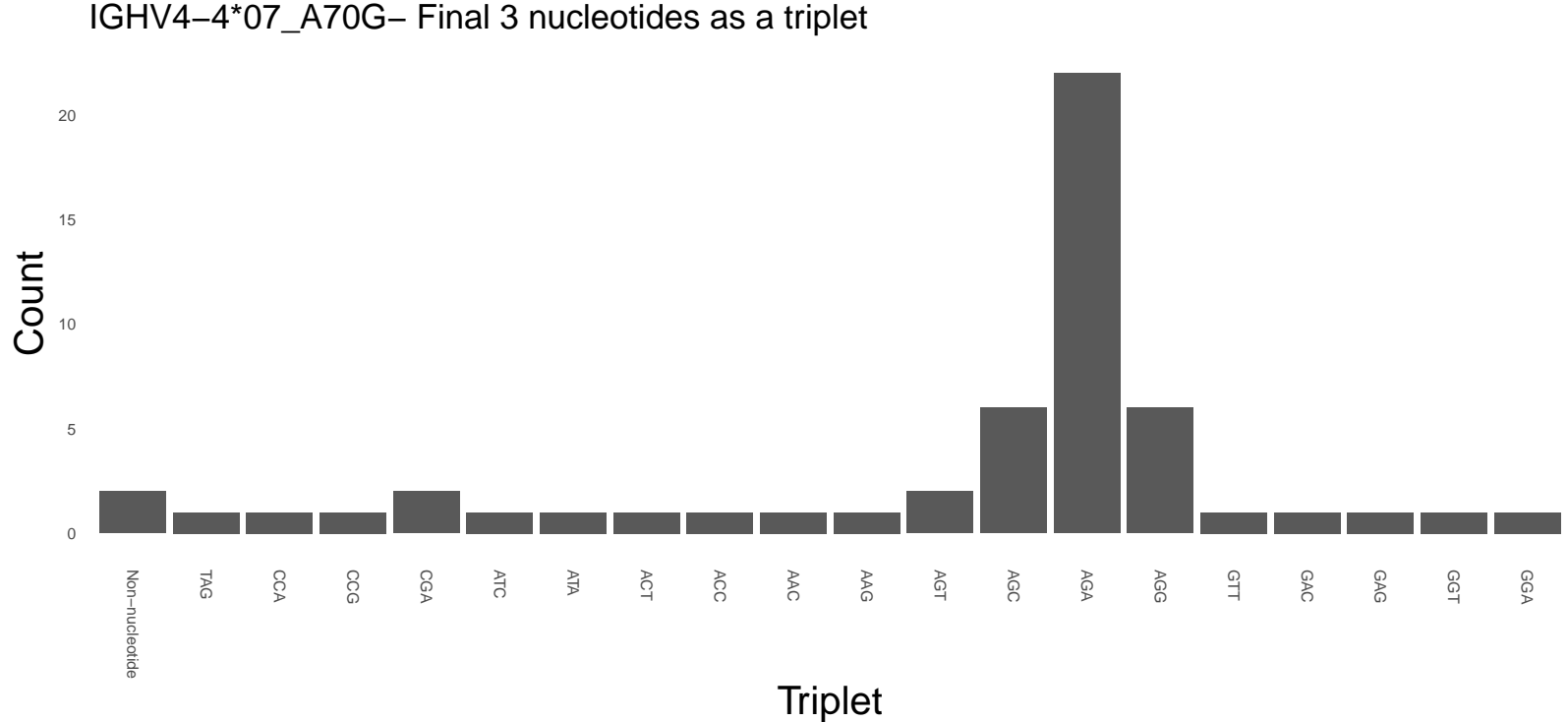
Gene IGHV4-4\*07\_A70G



IGHV1–69\*04\_A163G– Final 3 nucleotides as a triplet

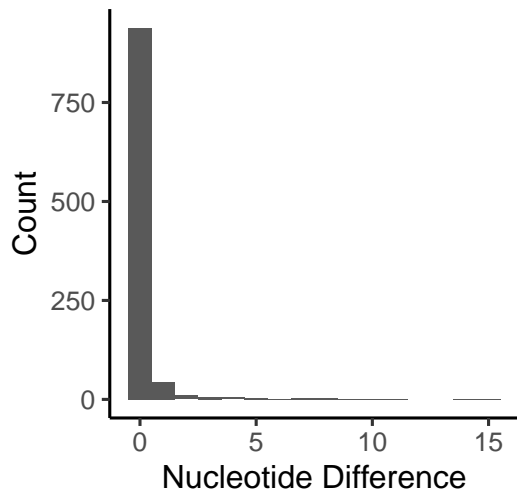


IGHV4–4\*07\_A70G– Final 3 nucleotides as a triplet



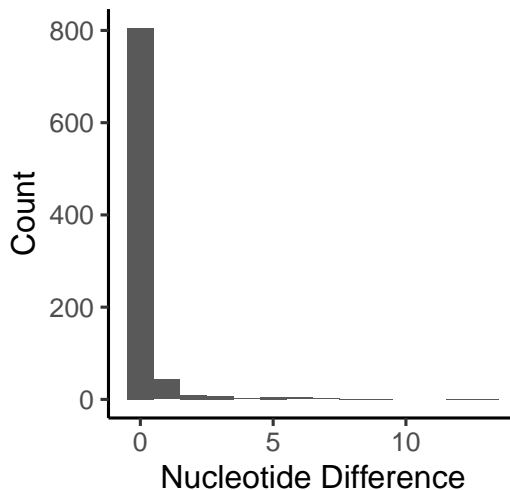
### IGHV1–2\*02

1023 sequences assigned  
939 (91.8%) exact matches, in which:  
939 unique CDR3  
6 unique J



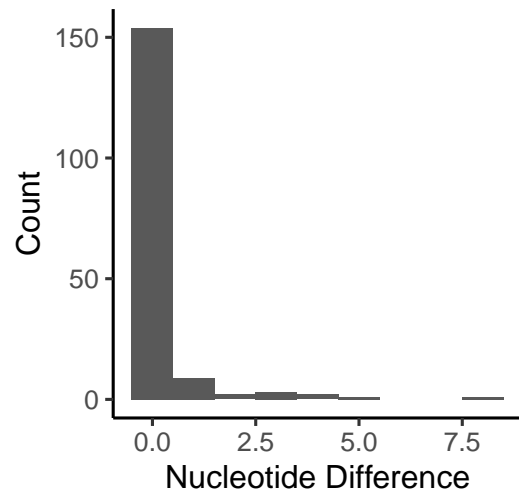
### IGHV1–18\*01

883 sequences assigned  
806 (91.3%) exact matches, in which:  
804 unique CDR3  
6 unique J



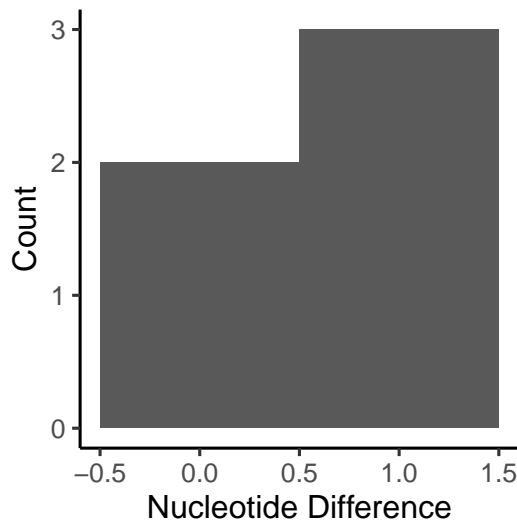
### IGHV1–46\*01

172 sequences assigned  
154 (89.5%) exact matches, in which:  
154 unique CDR3  
6 unique J



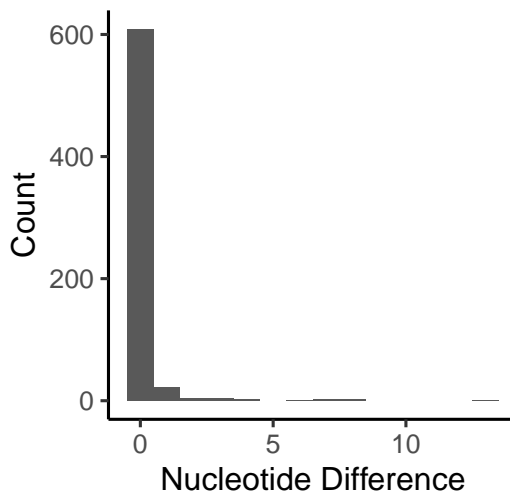
### IGHV1–3\*02

5 sequences assigned  
2 (40%) exact matches, in which:  
2 unique CDR3  
2 unique J



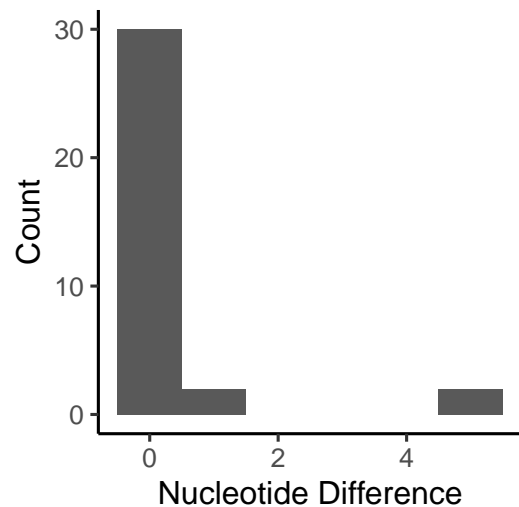
### IGHV1–24\*01

649 sequences assigned  
609 (93.8%) exact matches, in which:  
608 unique CDR3  
6 unique J



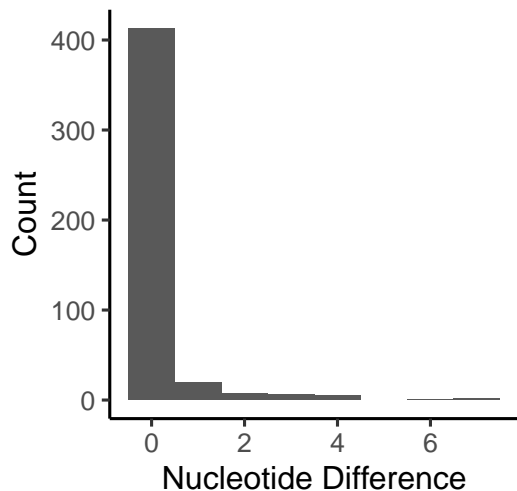
### IGHV1–58\*02

34 sequences assigned  
30 (88.2%) exact matches, in which:  
30 unique CDR3  
5 unique J



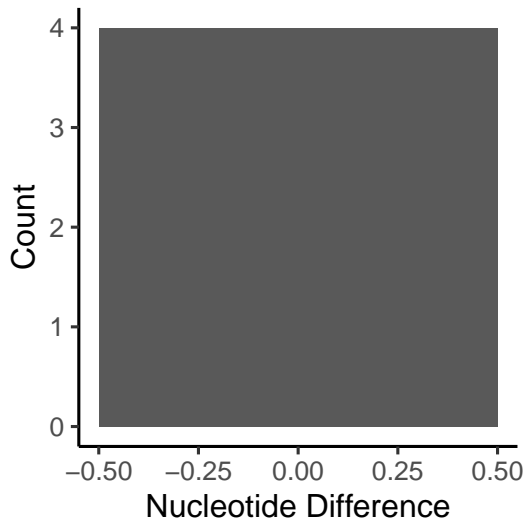
### IGHV1–8\*01

453 sequences assigned  
413 (91.2%) exact matches, in which:  
413 unique CDR3  
6 unique J



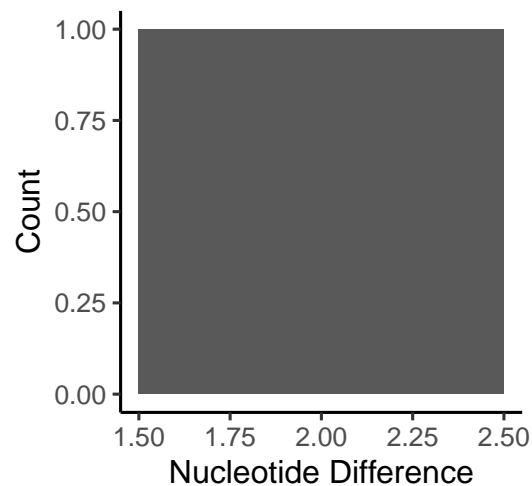
### IGHV1–45\*02

4 sequences assigned  
4 (100%) exact matches, in which:  
4 unique CDR3  
2 unique J



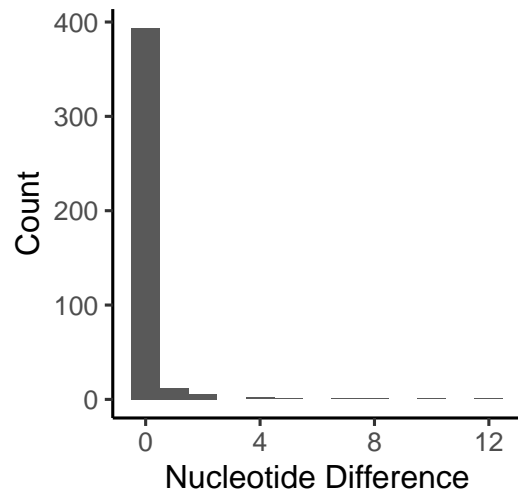
### IGHV1–68\*02

1 sequences assigned  
No exact matches.



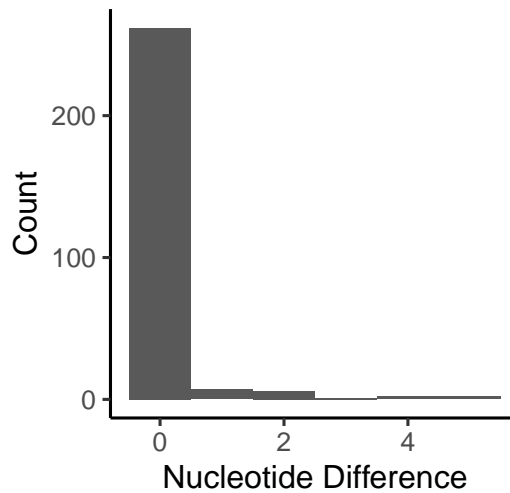
### IGHV1–69\*04

419 sequences assigned  
394 (94%) exact matches, in which:  
393 unique CDR3  
6 unique J



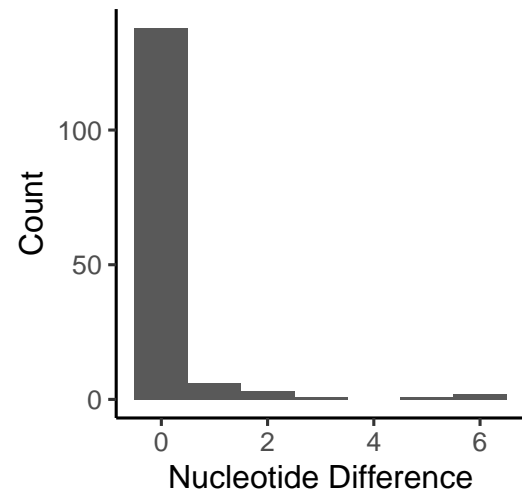
### IGHV2–5\*02

280 sequences assigned  
262 (93.6%) exact matches, in which:  
262 unique CDR3  
6 unique J



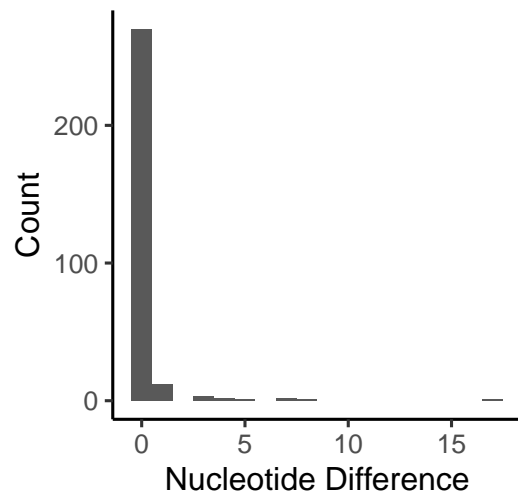
### IGHV2–70\*15

151 sequences assigned  
138 (91.4%) exact matches, in which:  
138 unique CDR3  
4 unique J



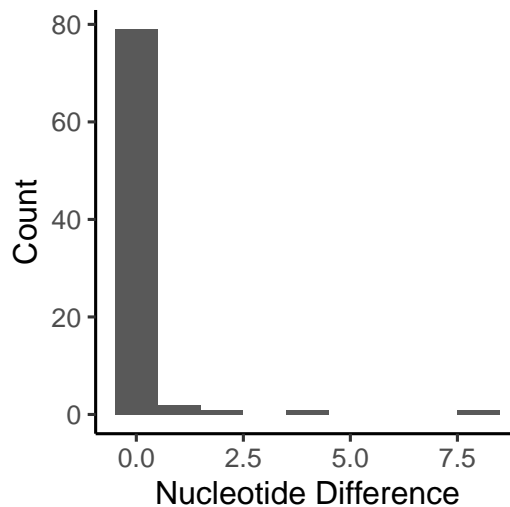
### IGHV1–69\*04\_A163G

292 sequences assigned  
270 (92.5%) exact matches, in which:  
270 unique CDR3  
6 unique J



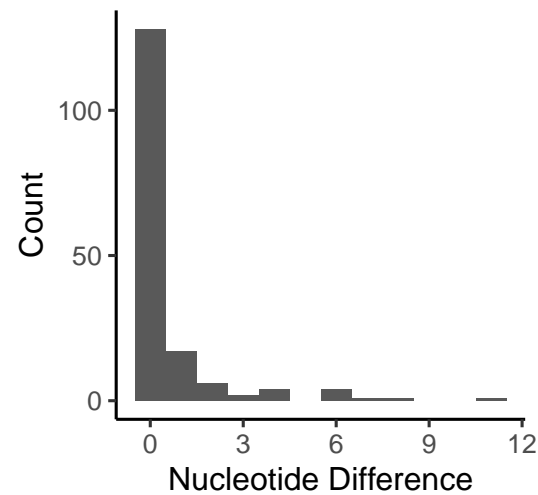
### IGHV2–26\*01

84 sequences assigned  
79 (94%) exact matches, in which:  
79 unique CDR3  
5 unique J



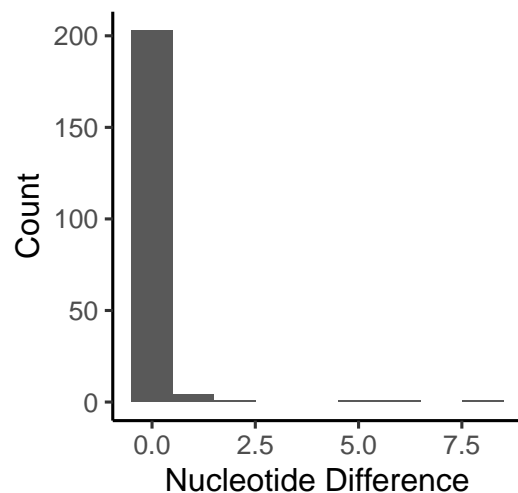
### IGHV3–7\*01

164 sequences assigned  
128 (78%) exact matches, in which:  
128 unique CDR3  
6 unique J



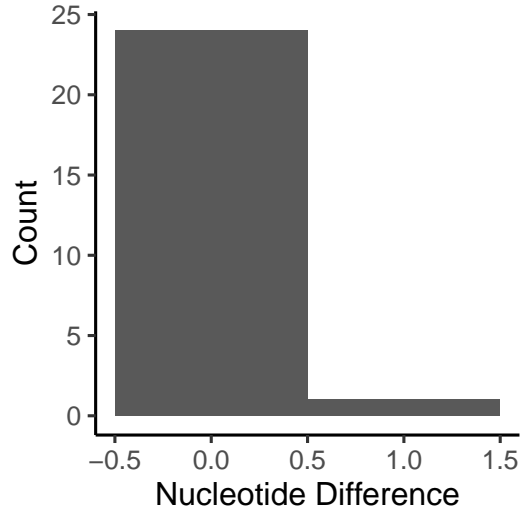
### IGHV2–5\*01

211 sequences assigned  
203 (96.2%) exact matches, in which:  
203 unique CDR3  
6 unique J



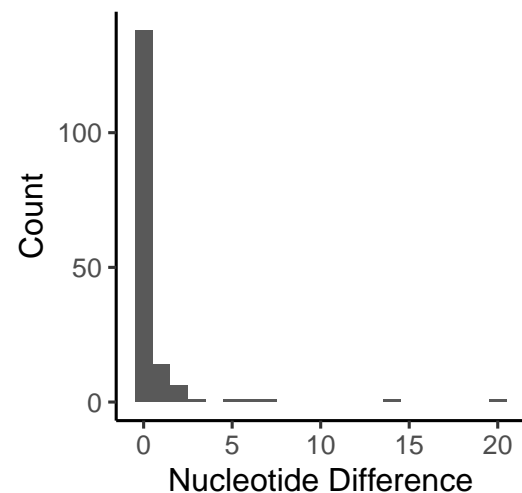
### IGHV2–26\*02

25 sequences assigned  
24 (96%) exact matches, in which:  
24 unique CDR3  
6 unique J



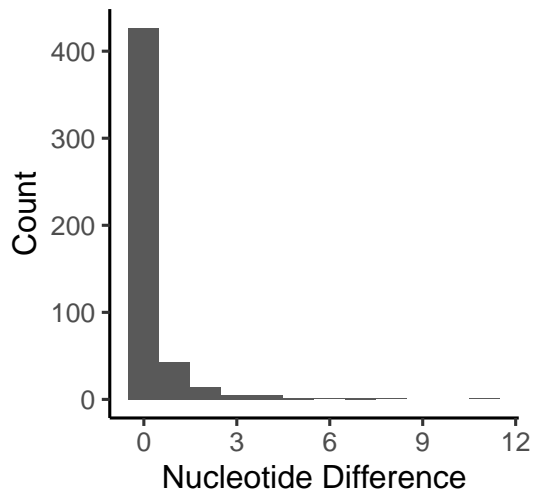
### IGHV3–7\*03

164 sequences assigned  
138 (84.1%) exact matches, in which:  
138 unique CDR3  
6 unique J



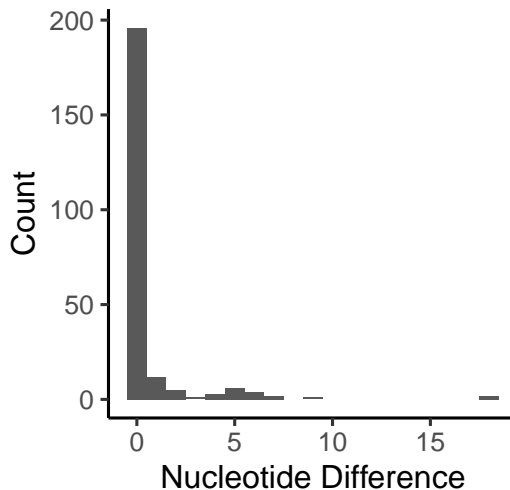
### IGHV3-9\*01

501 sequences assigned  
427 (85.2%) exact matches, in which:  
427 unique CDR3  
6 unique J



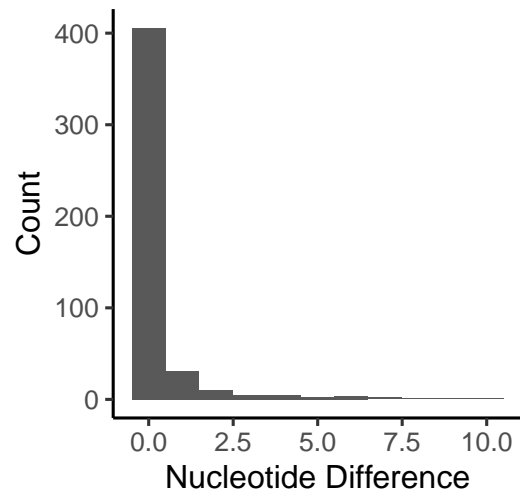
### IGHV3-15\*01

232 sequences assigned  
196 (84.5%) exact matches, in which:  
195 unique CDR3  
6 unique J



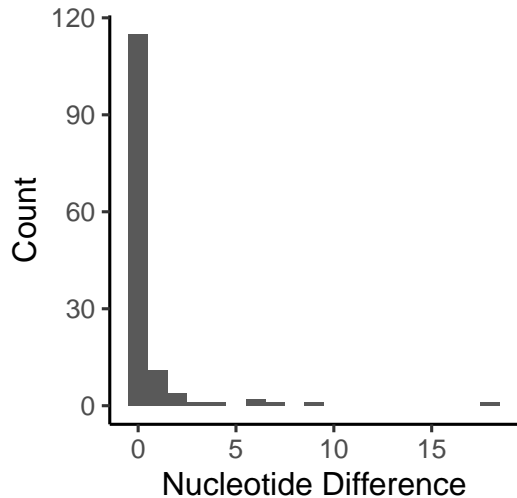
### IGHV3-21\*01

470 sequences assigned  
406 (86.4%) exact matches, in which:  
406 unique CDR3  
6 unique J



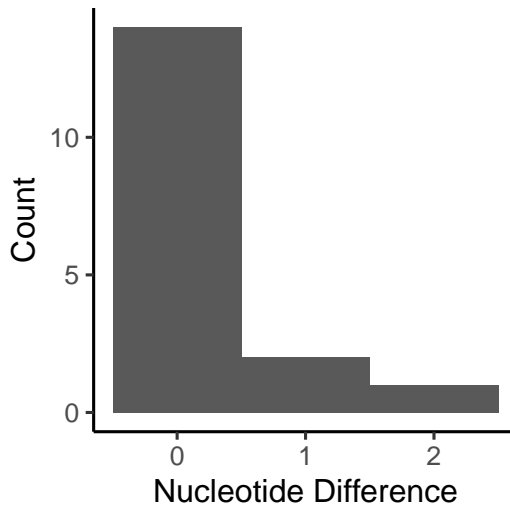
### IGHV3-11\*01

137 sequences assigned  
115 (83.9%) exact matches, in which:  
115 unique CDR3  
5 unique J



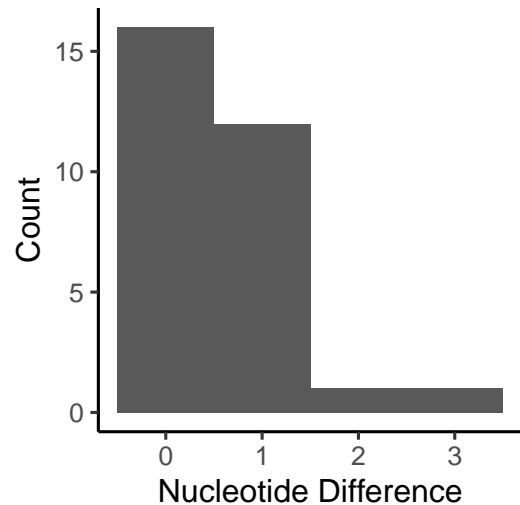
### IGHV3-20\*01

17 sequences assigned  
14 (82.4%) exact matches, in which:  
14 unique CDR3  
5 unique J



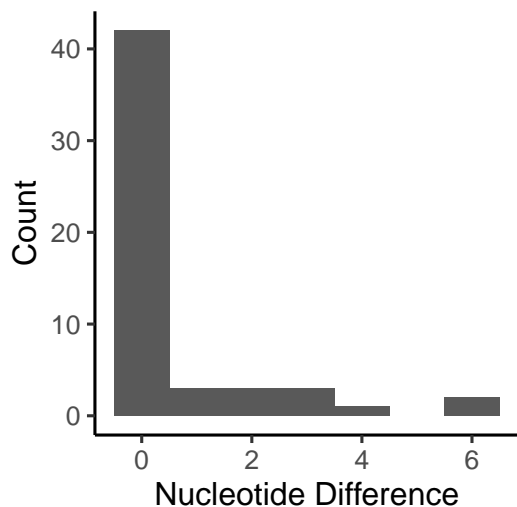
### IGHV3-43\*01

30 sequences assigned  
16 (53.3%) exact matches, in which:  
16 unique CDR3  
5 unique J



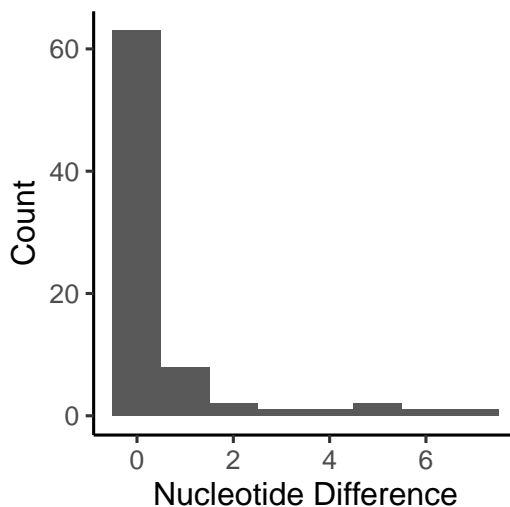
### IGHV3-13\*01

54 sequences assigned  
42 (77.8%) exact matches, in which:  
42 unique CDR3  
5 unique J



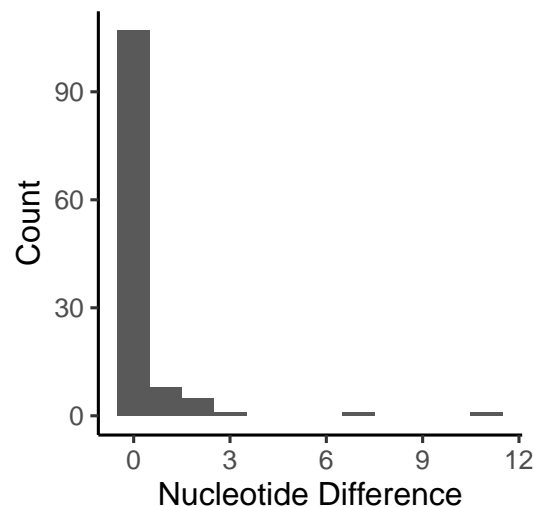
### IGHV3-20\*04

79 sequences assigned  
63 (79.7%) exact matches, in which:  
63 unique CDR3  
6 unique J



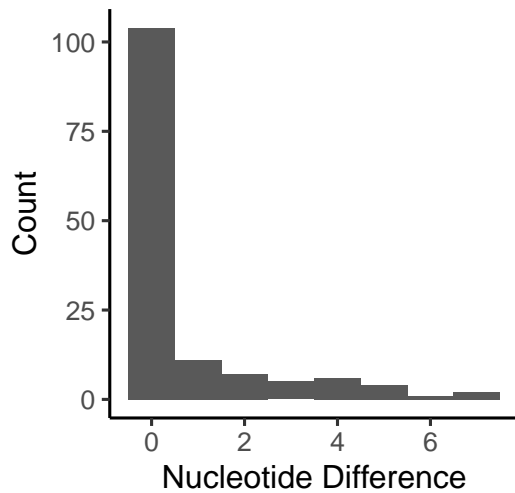
### IGHV3-48\*01

123 sequences assigned  
107 (87%) exact matches, in which:  
107 unique CDR3  
6 unique J



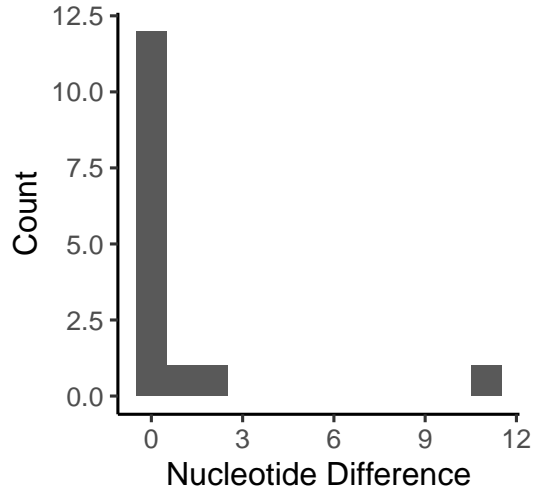
### IGHV3-48\*04

141 sequences assigned  
104 (73.8%) exact matches, in which:  
104 unique CDR3  
5 unique J



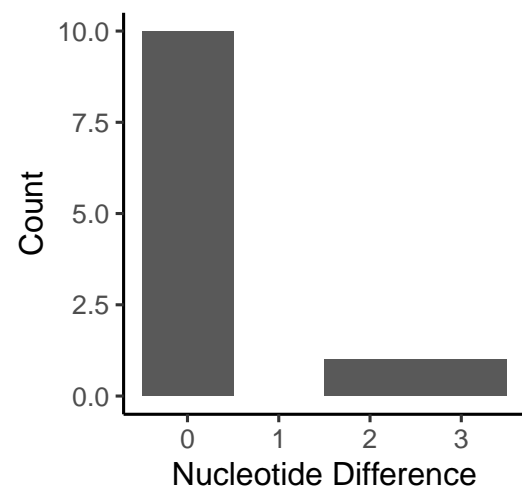
### IGHV3-64\*01

15 sequences assigned  
12 (80%) exact matches, in which:  
12 unique CDR3  
3 unique J



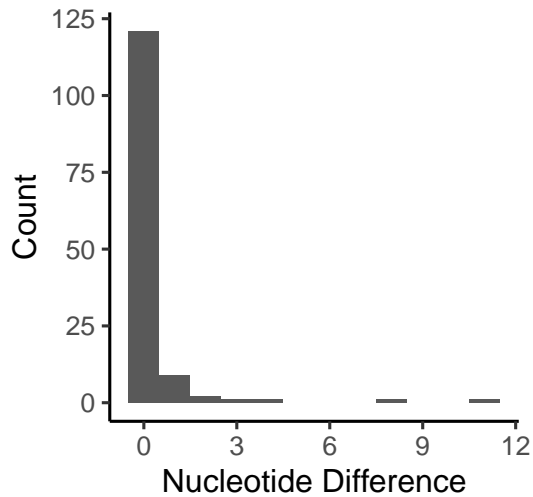
### IGHV3-72\*01

13 sequences assigned  
10 (76.9%) exact matches, in which:  
10 unique CDR3  
3 unique J



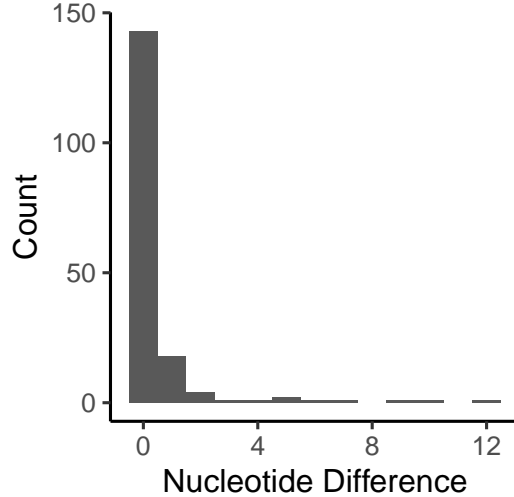
### IGHV3-49\*03

136 sequences assigned  
121 (89%) exact matches, in which:  
121 unique CDR3  
6 unique J



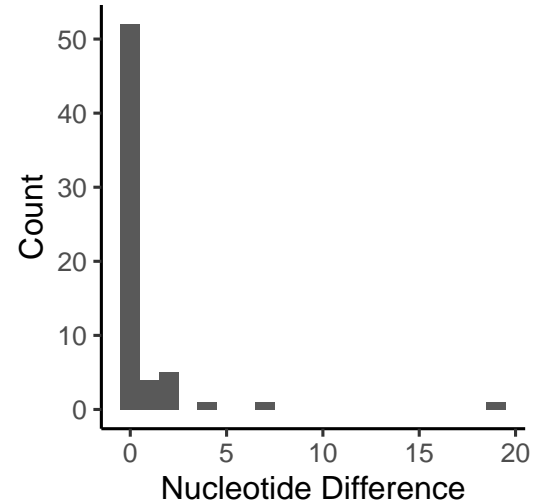
### IGHV3-66\*01

174 sequences assigned  
143 (82.2%) exact matches, in which:  
143 unique CDR3  
6 unique J



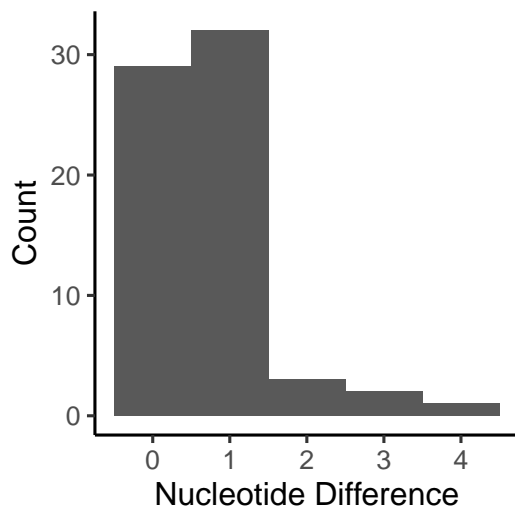
### IGHV3-73\*01

64 sequences assigned  
52 (81.2%) exact matches, in which:  
52 unique CDR3  
5 unique J



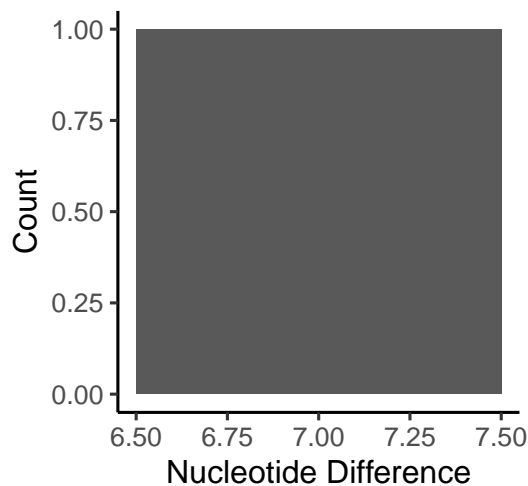
### IGHV3-53\*04

67 sequences assigned  
29 (43.3%) exact matches, in which:  
29 unique CDR3  
4 unique J



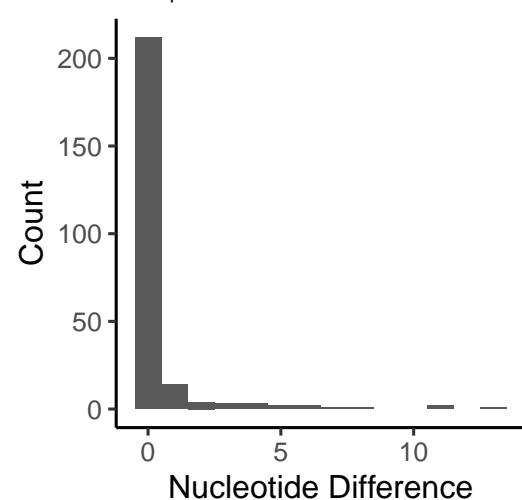
### IGHV3-69-1\*01

1 sequences assigned  
No exact matches.



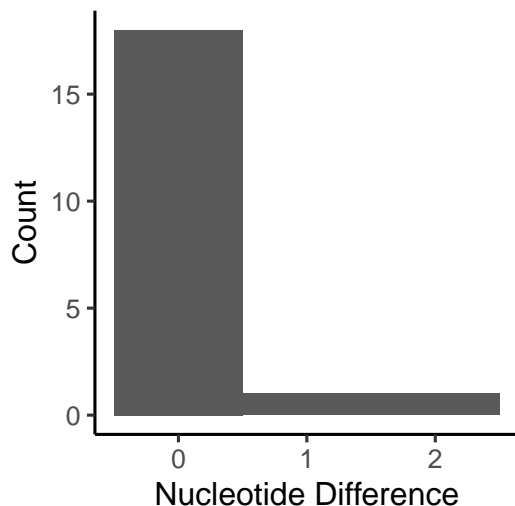
### IGHV3-74\*01

245 sequences assigned  
212 (86.5%) exact matches, in which:  
212 unique CDR3  
6 unique J



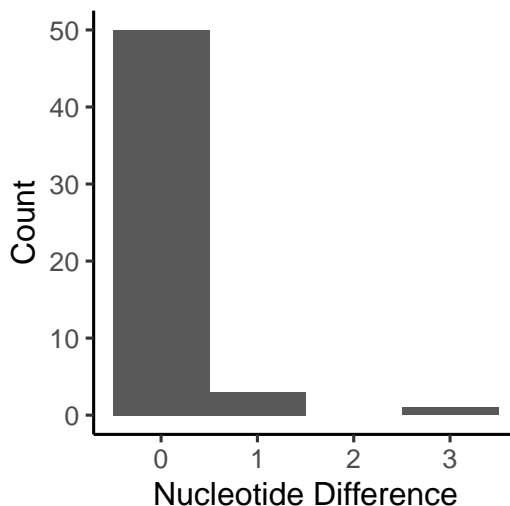
### IGHV3-43D\*03

20 sequences assigned  
18 (90%) exact matches, in which:  
18 unique CDR3  
3 unique J



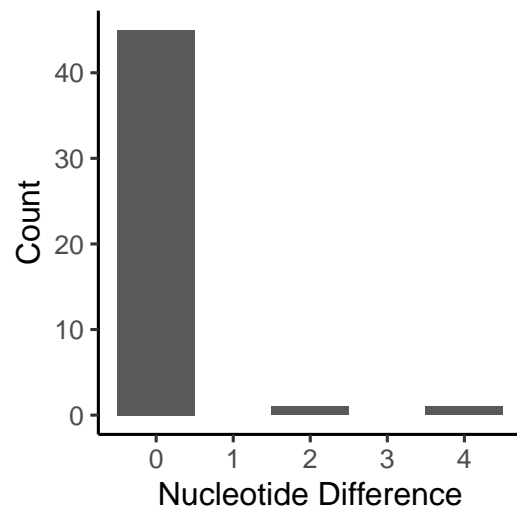
### IGHV4-4\*07\_A70G

54 sequences assigned  
50 (92.6%) exact matches, in which:  
50 unique CDR3  
6 unique J



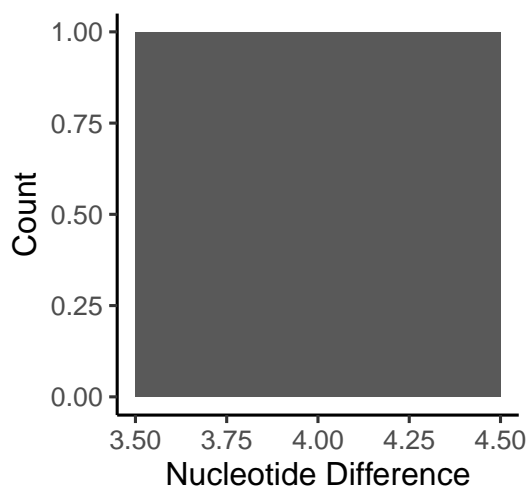
### IGHV4-30-2\*01

47 sequences assigned  
45 (95.7%) exact matches, in which:  
45 unique CDR3  
4 unique J



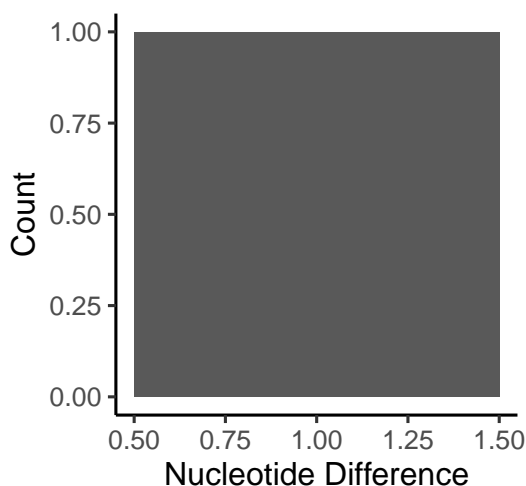
### IGHV3-NL1\*01

1 sequences assigned  
No exact matches.



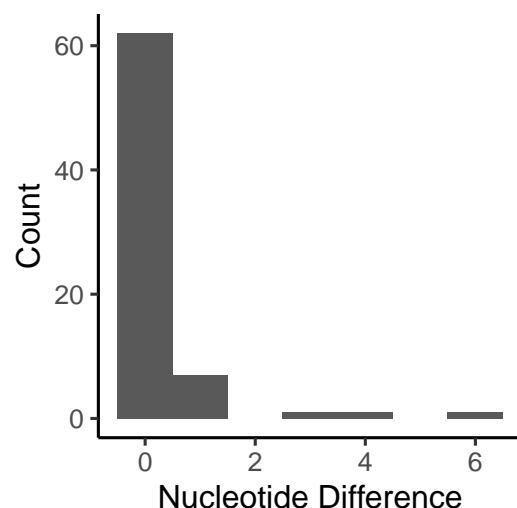
### IGHV4-28\*06

1 sequences assigned  
No exact matches.



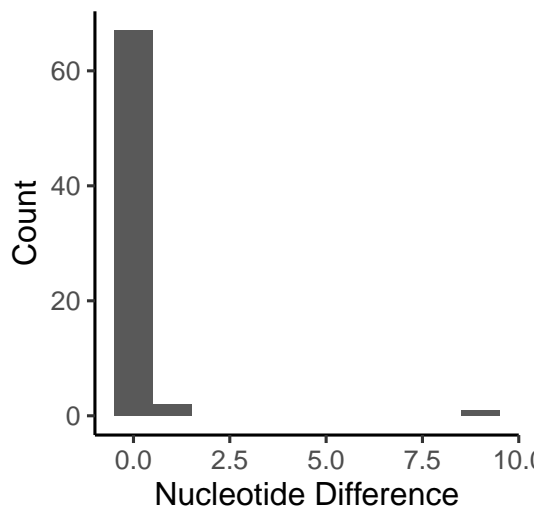
### IGHV4-30-4\*07

72 sequences assigned  
62 (86.1%) exact matches, in which:  
62 unique CDR3  
5 unique J



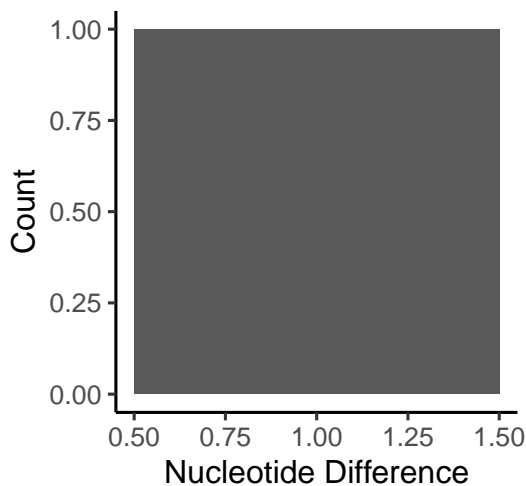
### IGHV4-4\*07

70 sequences assigned  
67 (95.7%) exact matches, in which:  
67 unique CDR3  
6 unique J



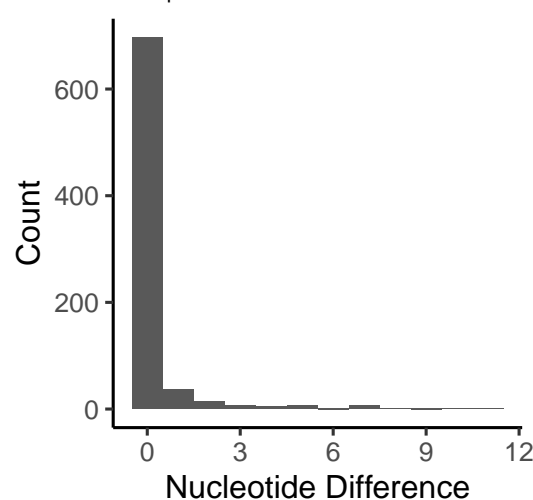
### IGHV4-28\*07

1 sequences assigned  
No exact matches.



### IGHV4-34\*01

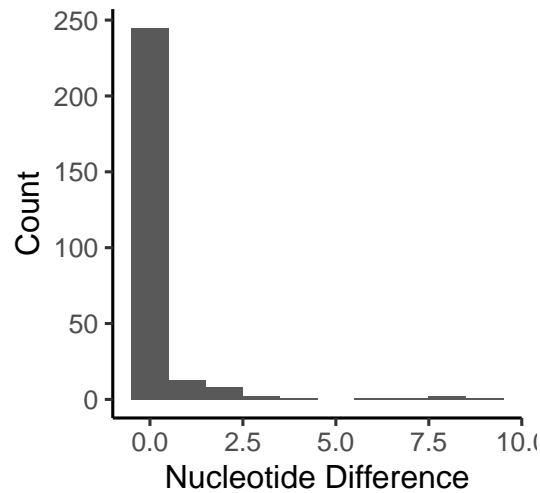
779 sequences assigned  
697 (89.5%) exact matches, in which:  
696 unique CDR3  
6 unique J





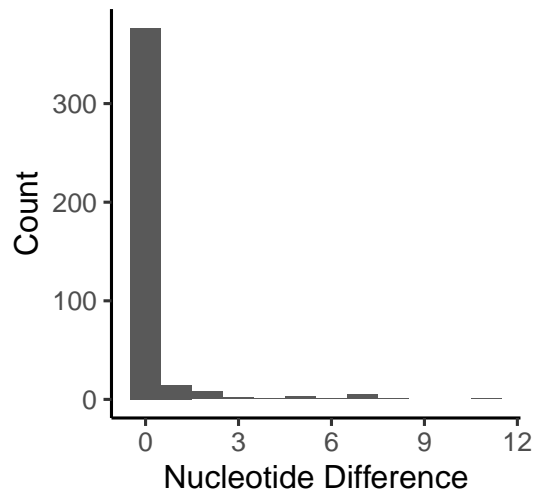
### IGHV4-38-2\*02

274 sequences assigned  
245 (89.4%) exact matches, in which:  
244 unique CDR3  
6 unique J



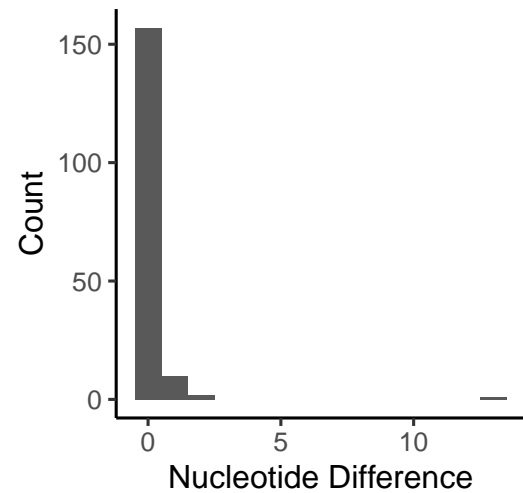
### IGHV4-59\*08

415 sequences assigned  
377 (90.8%) exact matches, in which:  
377 unique CDR3  
6 unique J



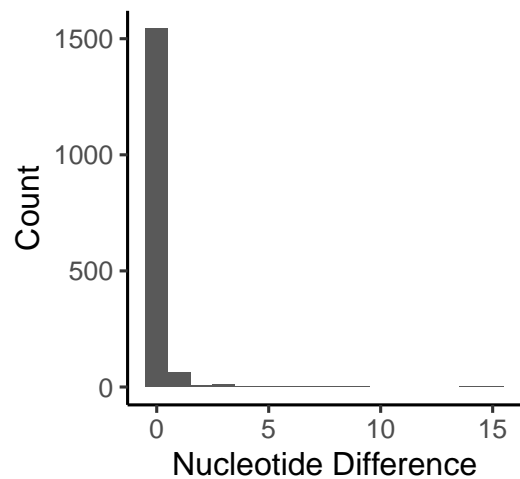
### IGHV6-1\*01

170 sequences assigned  
157 (92.4%) exact matches, in which:  
156 unique CDR3  
6 unique J



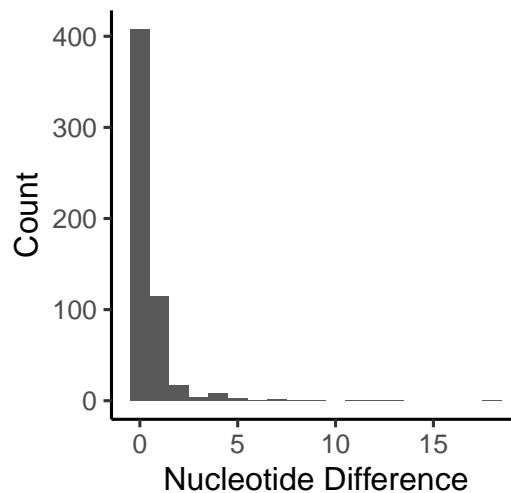
### IGHV4-39\*07

1640 sequences assigned  
1543 (94.1%) exact matches, in which:  
1541 unique CDR3  
6 unique J



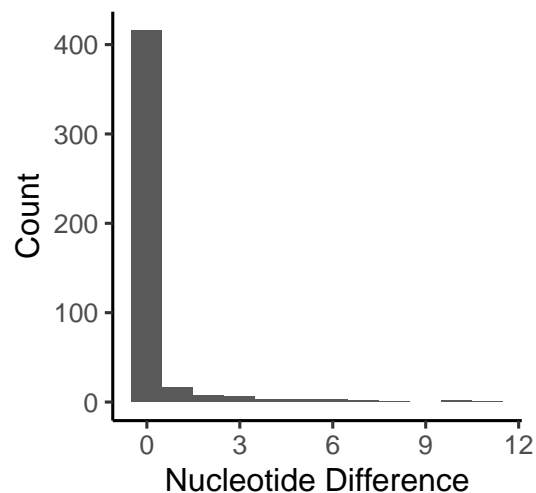
### IGHV5-51\*01

564 sequences assigned  
408 (72.3%) exact matches, in which:  
407 unique CDR3  
6 unique J



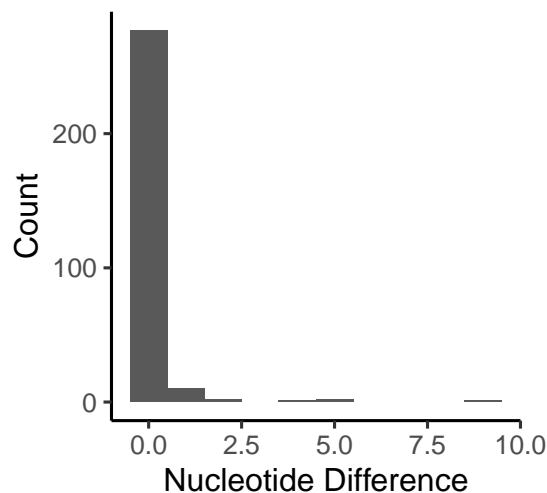
### IGHV4-59\*01

461 sequences assigned  
416 (90.2%) exact matches, in which:  
416 unique CDR3  
6 unique J

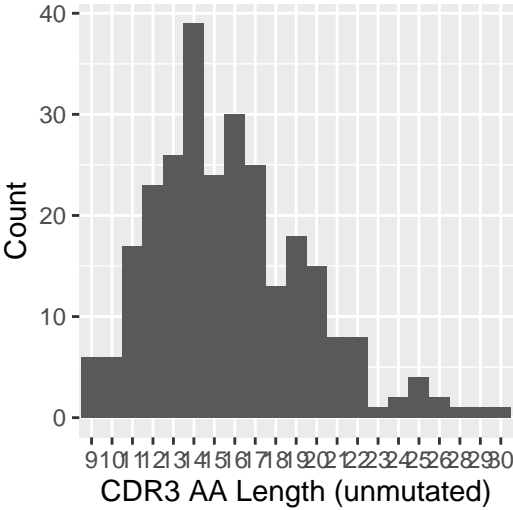


### IGHV5-51\*03

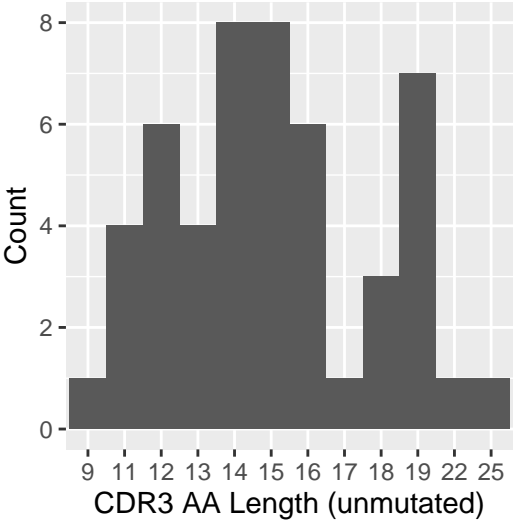
293 sequences assigned  
277 (94.5%) exact matches, in which:  
277 unique CDR3  
6 unique J



IGHV1-69\*04\_A163G



IGHV4-4\*07\_A70G





[illegible]