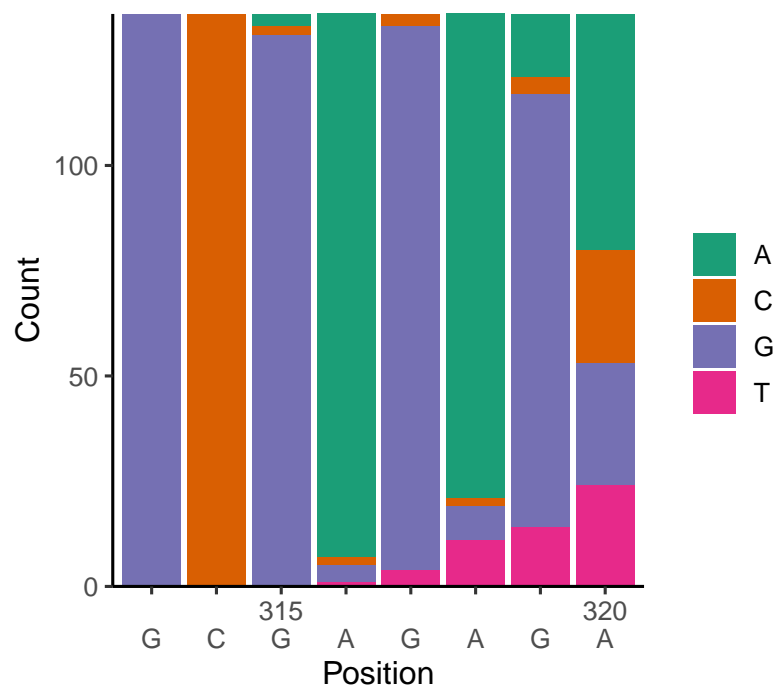
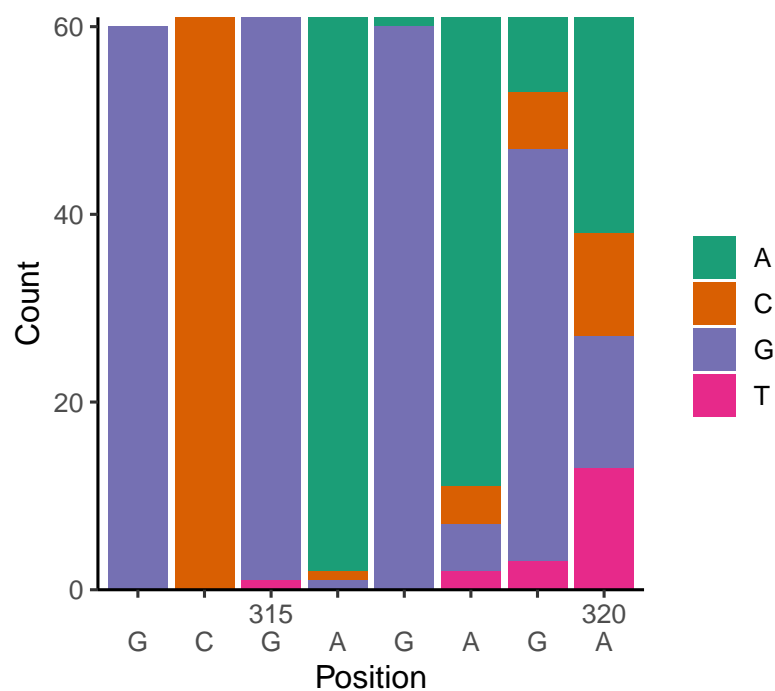


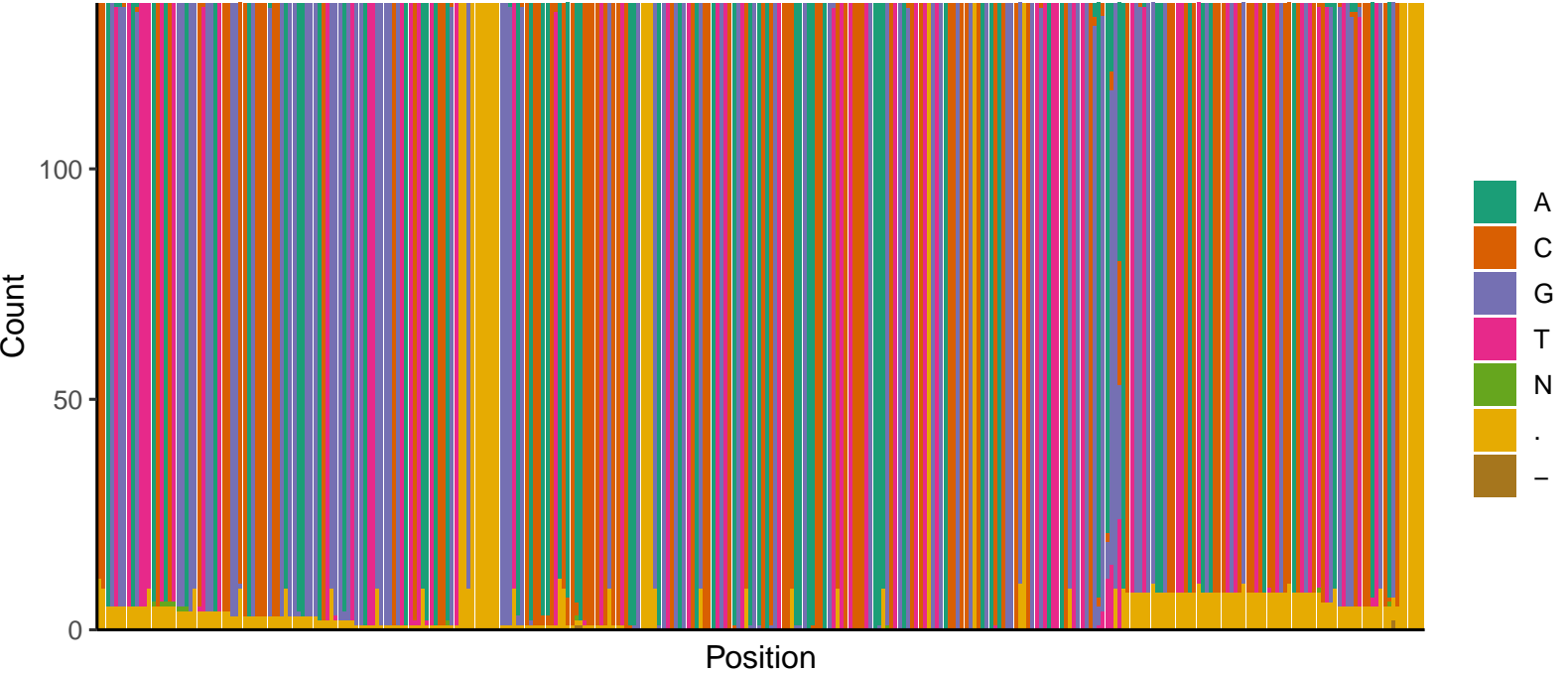
Gene IGHV4-61\*02\_A234G



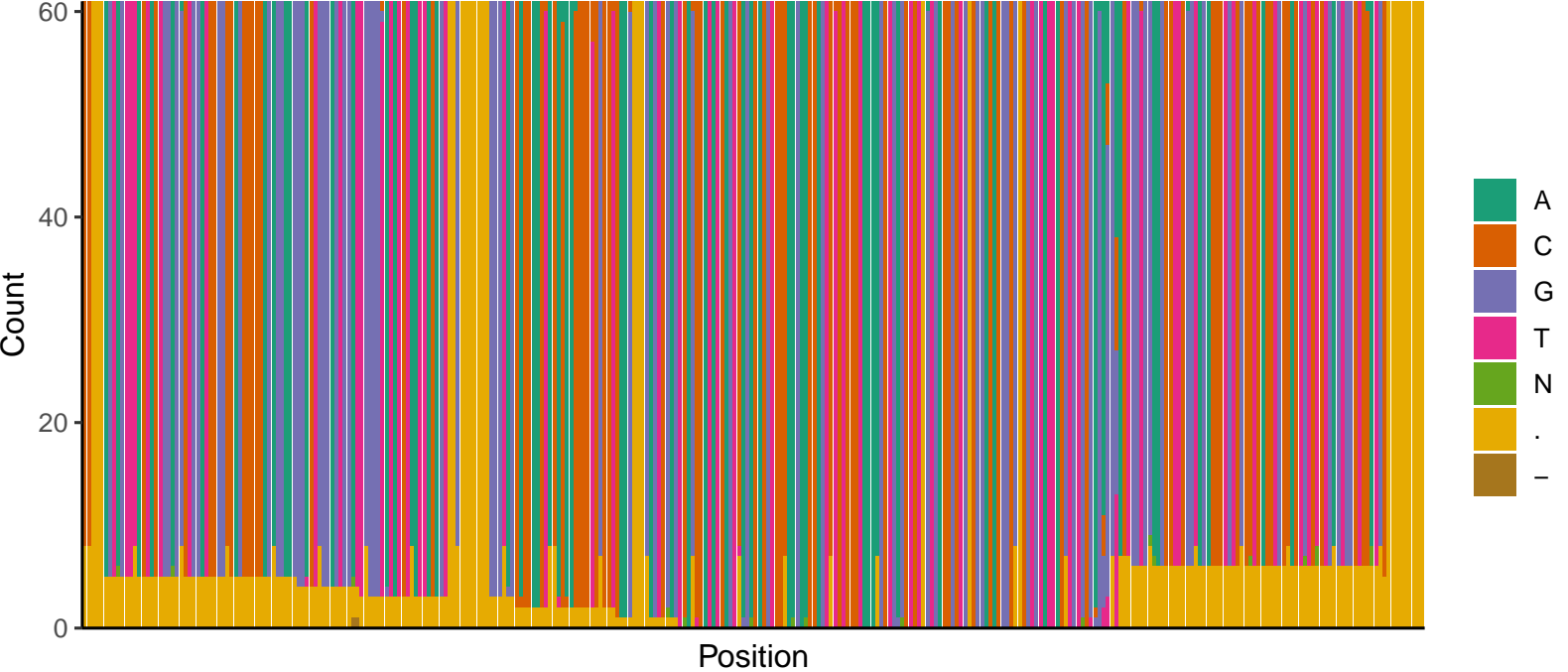
Gene IGHV4-59\*01\_G267A



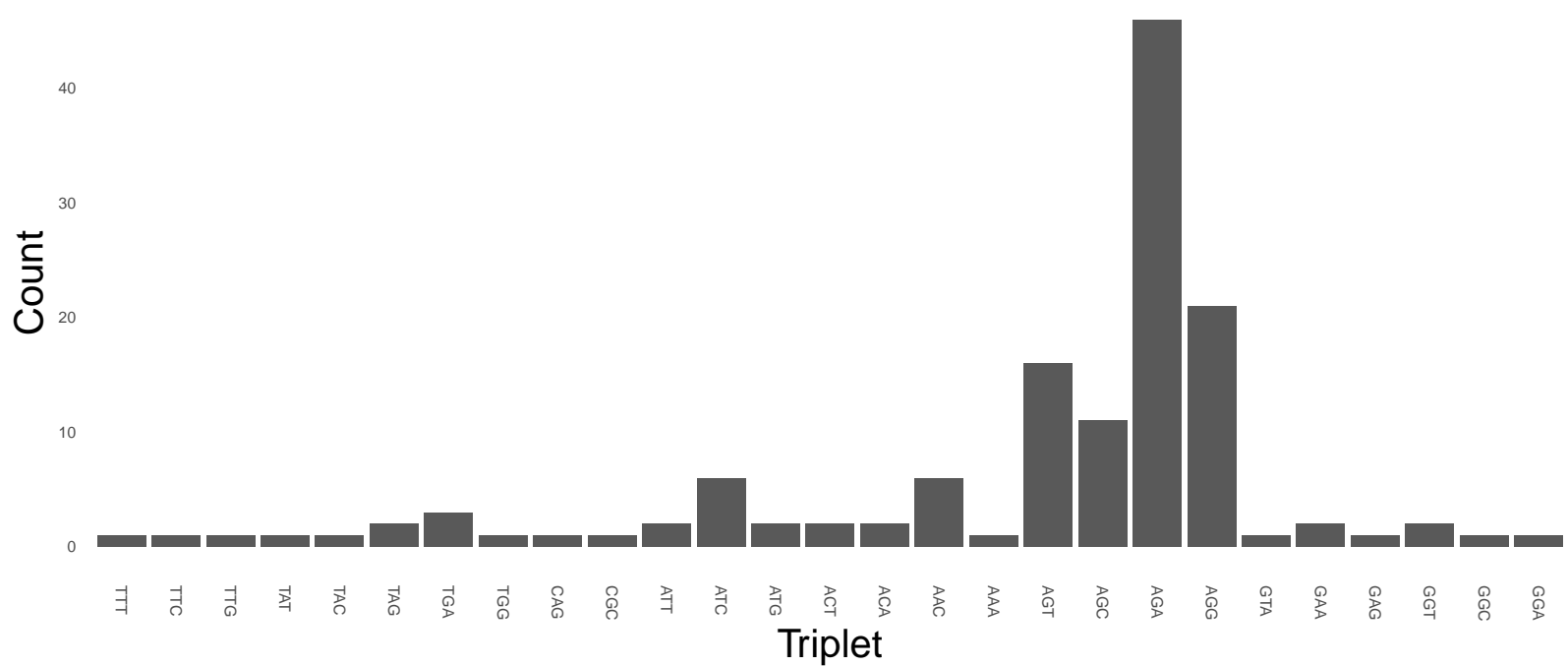
Gene IGHV4-61\*02\_A234G



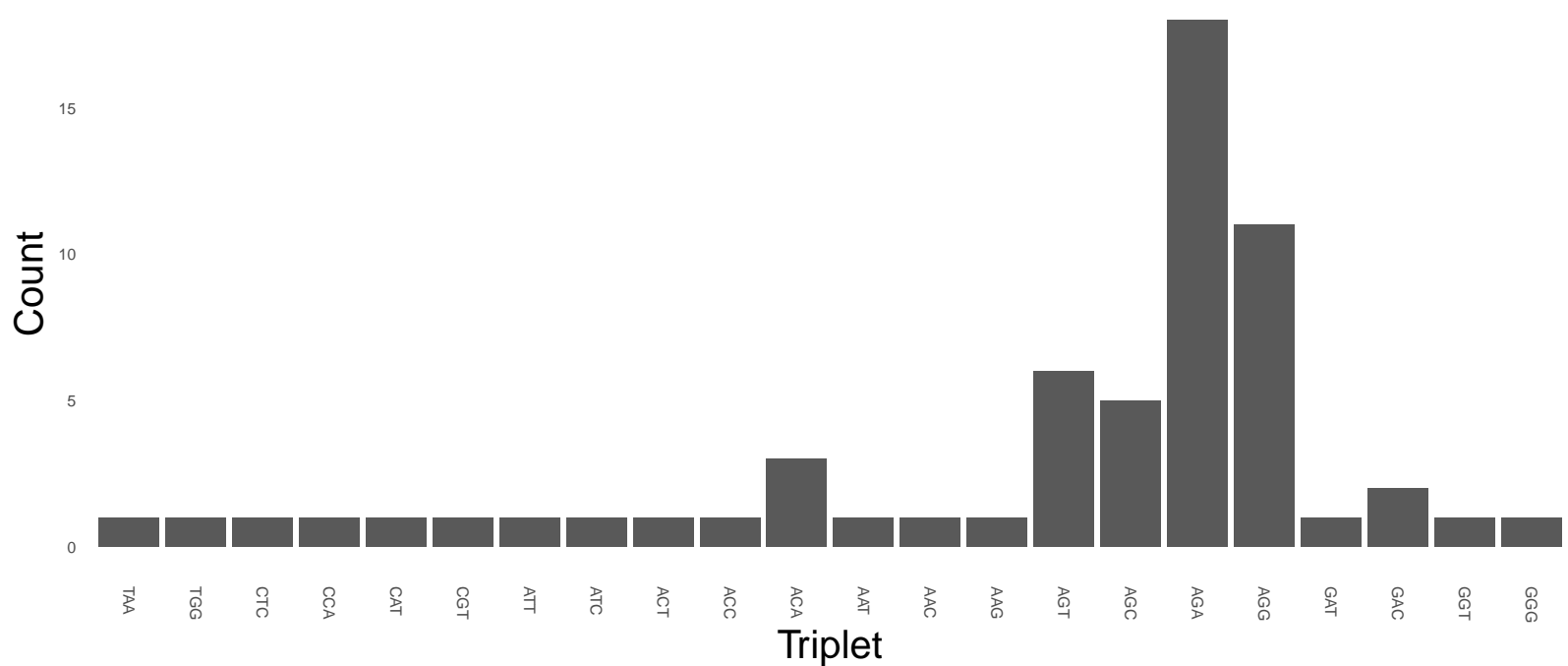
Gene IGHV4-59\*01\_G267A



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

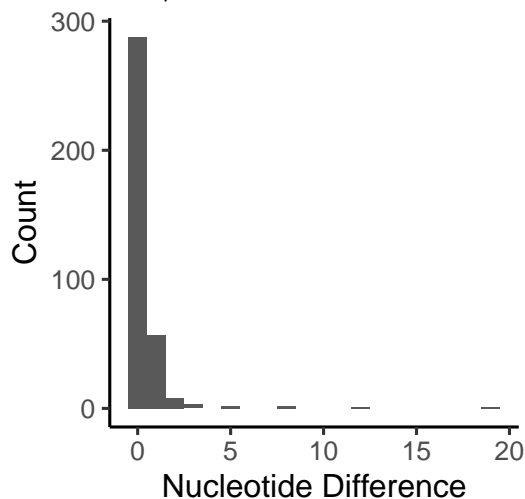


IGHV4–59\*01\_G267A– Final 3 nucleotides as a triplet



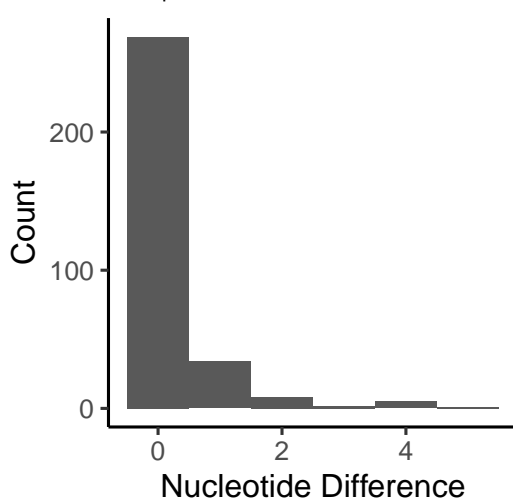
### IGHV1-2\*02

362 sequences assigned  
288 (79.6%) exact matches, in which:  
285 unique CDR3  
7 unique J



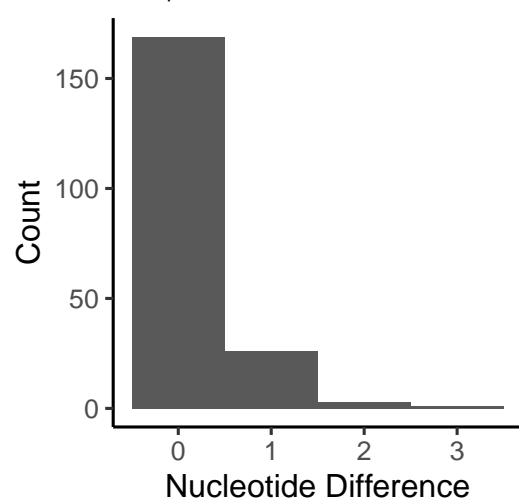
### IGHV1-18\*01

319 sequences assigned  
269 (84.3%) exact matches, in which:  
265 unique CDR3  
7 unique J



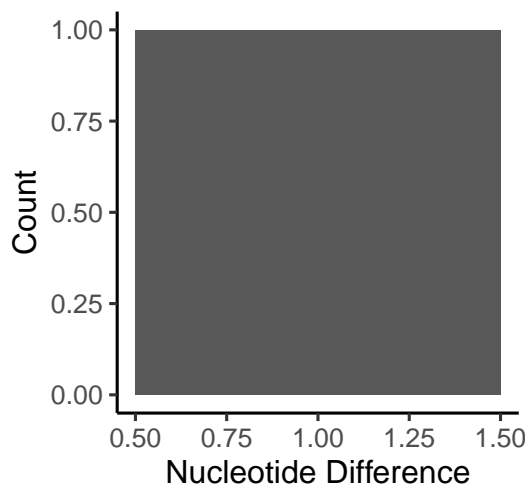
### IGHV1-46\*01

199 sequences assigned  
169 (84.9%) exact matches, in which:  
168 unique CDR3  
7 unique J



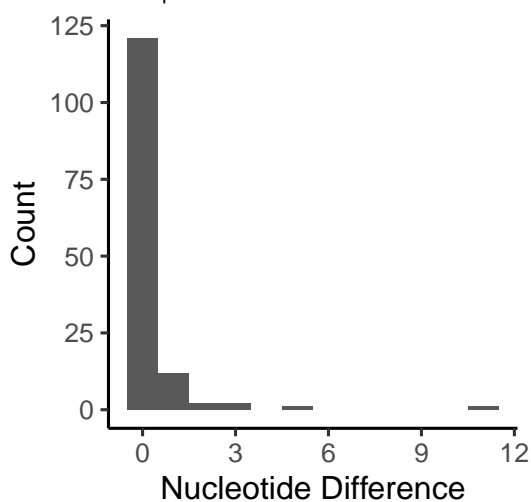
### IGHV1-3\*02

1 sequences assigned  
No exact matches.



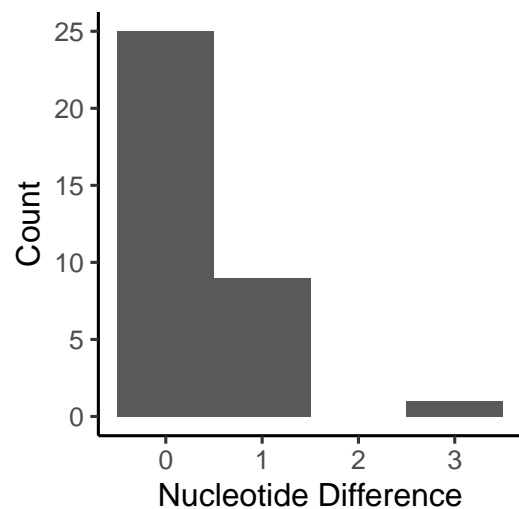
### IGHV1-24\*01

139 sequences assigned  
121 (87.1%) exact matches, in which:  
120 unique CDR3  
6 unique J



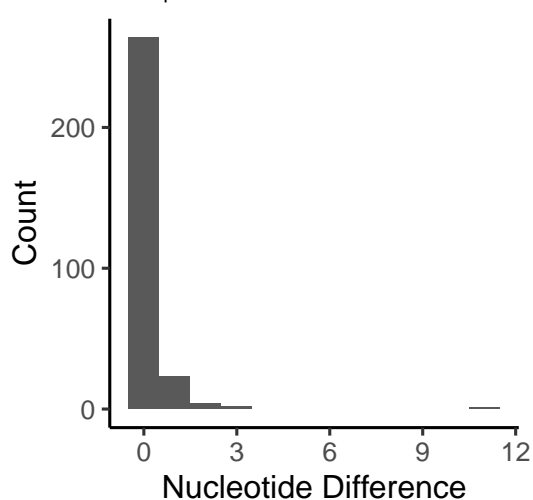
### IGHV1-58\*01

35 sequences assigned  
25 (71.4%) exact matches, in which:  
25 unique CDR3  
7 unique J



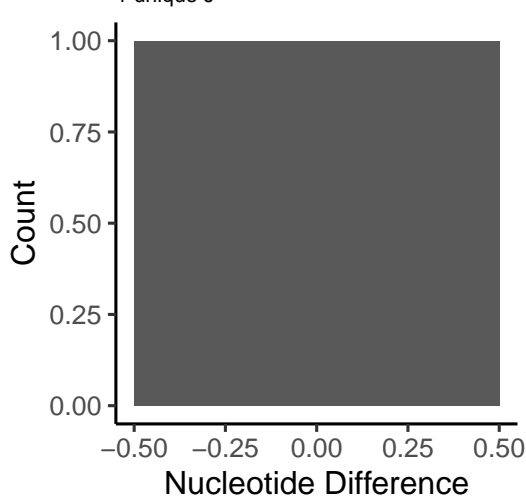
### IGHV1-8\*01

295 sequences assigned  
264 (89.5%) exact matches, in which:  
262 unique CDR3  
7 unique J



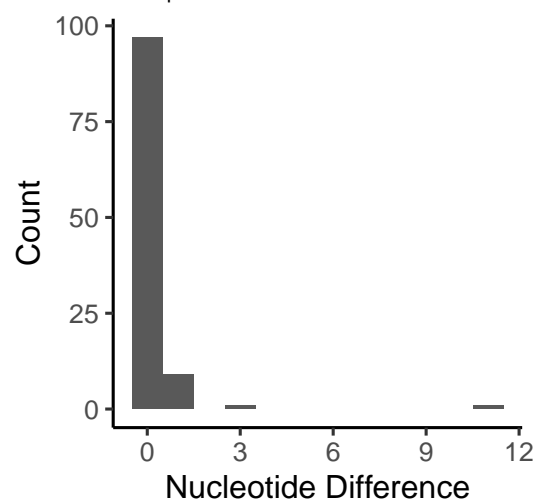
### IGHV1-45\*02

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



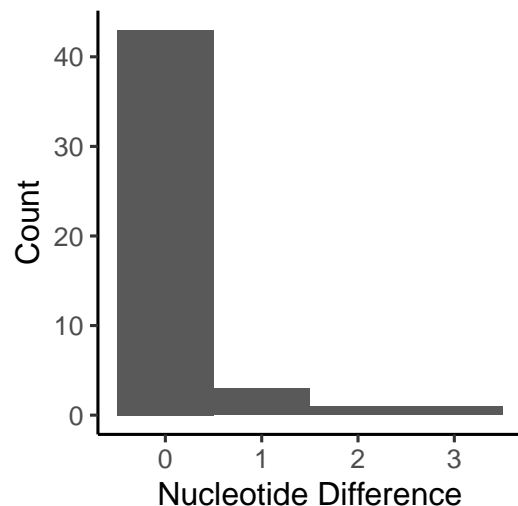
### IGHV2-5\*01

108 sequences assigned  
97 (89.8%) exact matches, in which:  
97 unique CDR3  
6 unique J



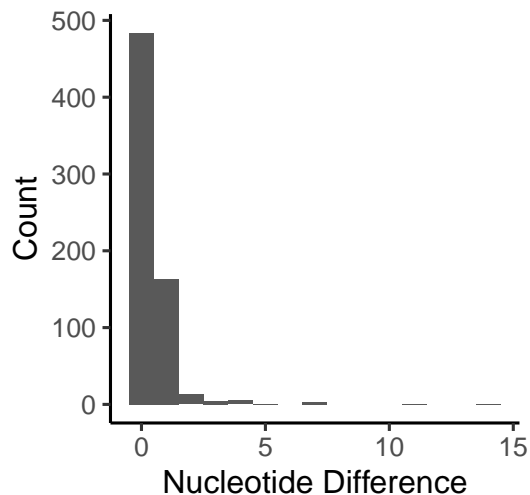
### IGHV2-26\*01

48 sequences assigned  
43 (89.6%) exact matches, in which:  
42 unique CDR3  
6 unique J



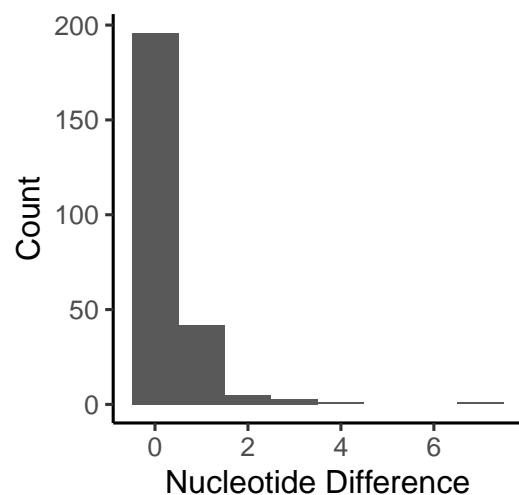
### IGHV3-9\*01

676 sequences assigned  
484 (71.6%) exact matches, in which:  
476 unique CDR3  
7 unique J



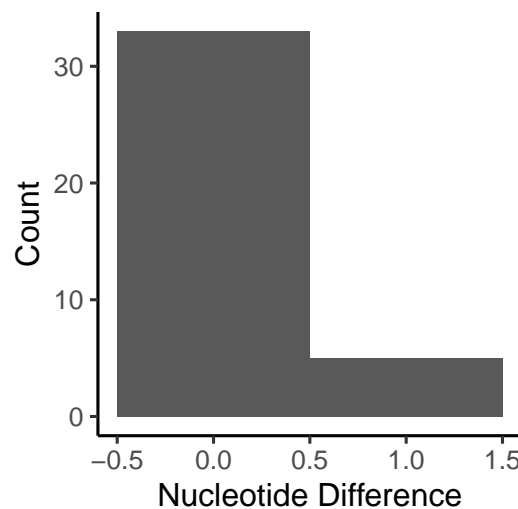
### IGHV3-15\*01

249 sequences assigned  
196 (78.7%) exact matches, in which:  
194 unique CDR3  
7 unique J



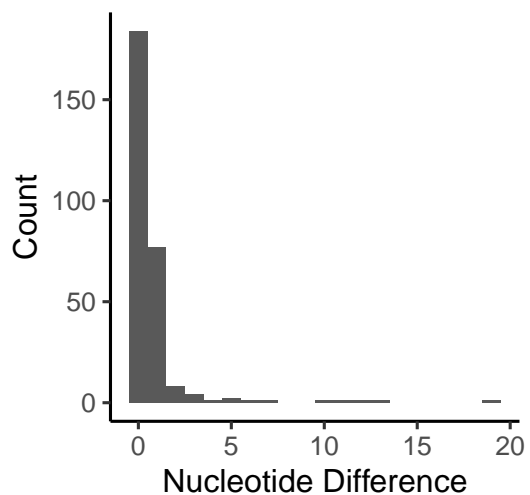
### IGHV2-70\*01

38 sequences assigned  
33 (86.8%) exact matches, in which:  
33 unique CDR3  
5 unique J



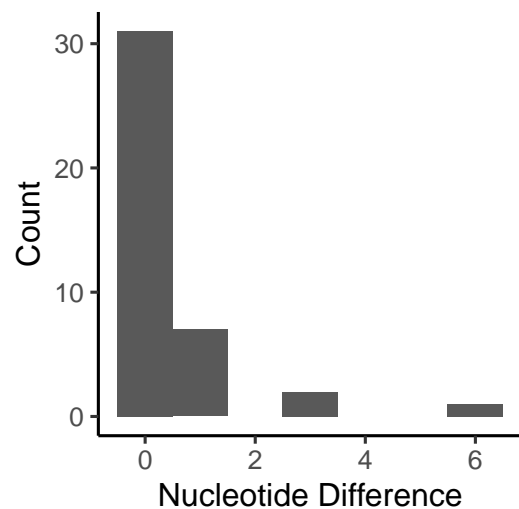
### IGHV3-11\*01

283 sequences assigned  
184 (65%) exact matches, in which:  
181 unique CDR3  
6 unique J



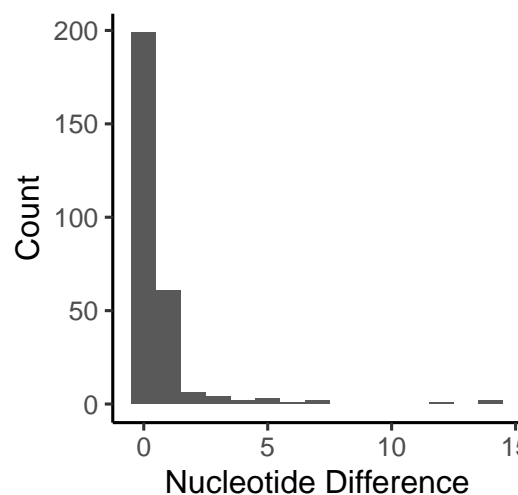
### IGHV3-20\*01

41 sequences assigned  
31 (75.6%) exact matches, in which:  
29 unique CDR3  
6 unique J



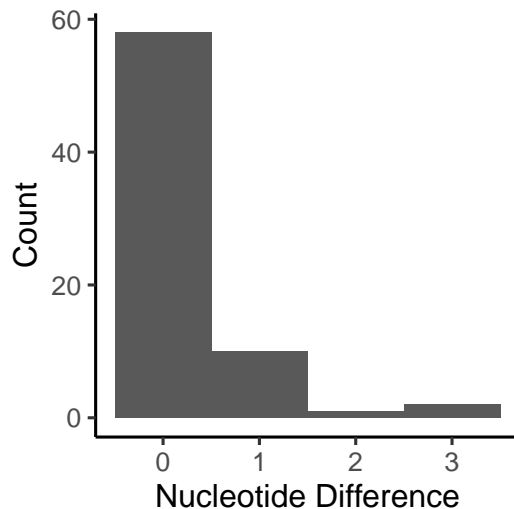
### IGHV3-7\*01

282 sequences assigned  
199 (70.6%) exact matches, in which:  
196 unique CDR3  
7 unique J



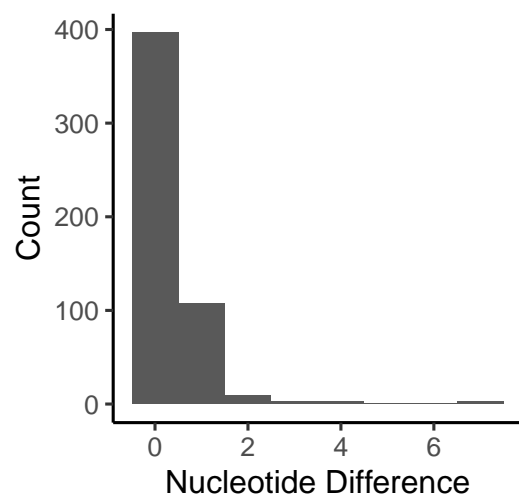
### IGHV3-13\*01

71 sequences assigned  
58 (81.7%) exact matches, in which:  
58 unique CDR3  
6 unique J



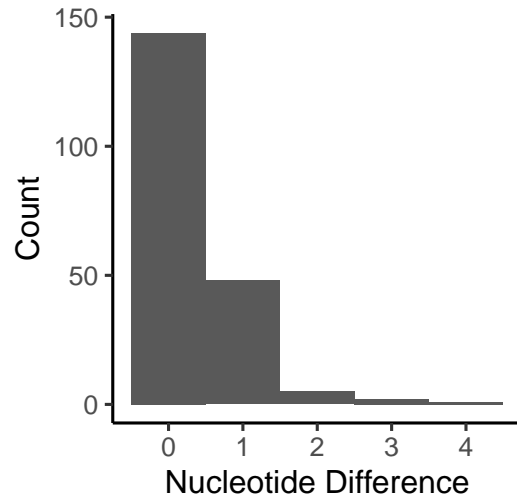
### IGHV3-21\*01

524 sequences assigned  
397 (75.8%) exact matches, in which:  
389 unique CDR3  
7 unique J



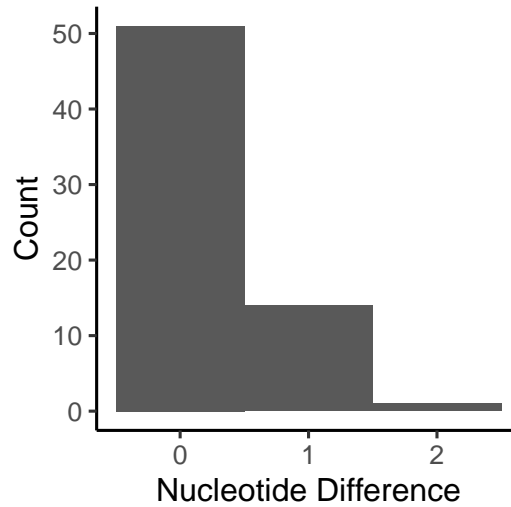
### IGHV3-30-3\*01

200 sequences assigned  
144 (72%) exact matches, in which:  
139 unique CDR3  
6 unique J



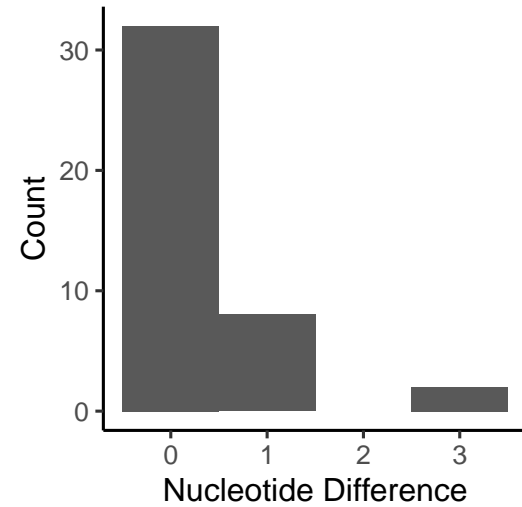
### IGHV3-48\*01

66 sequences assigned  
51 (77.3%) exact matches, in which:  
51 unique CDR3  
5 unique J



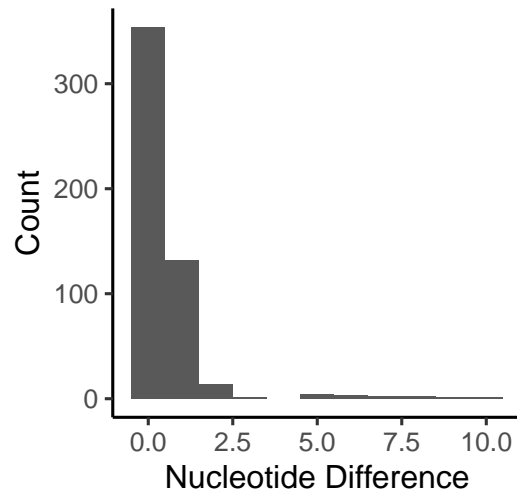
### IGHV3-49\*05

42 sequences assigned  
32 (76.2%) exact matches, in which:  
32 unique CDR3  
5 unique J



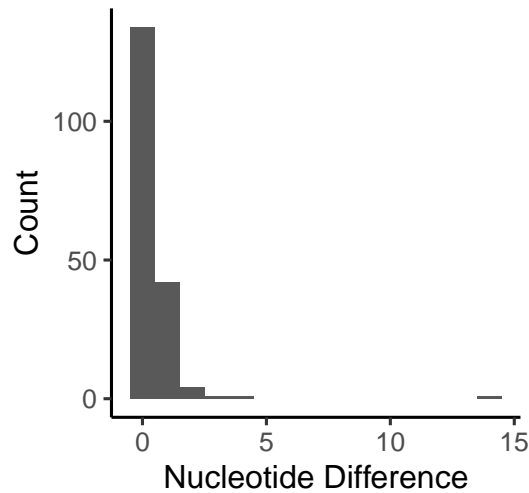
### IGHV3-33\*01

514 sequences assigned  
354 (68.9%) exact matches, in which:  
348 unique CDR3  
7 unique J



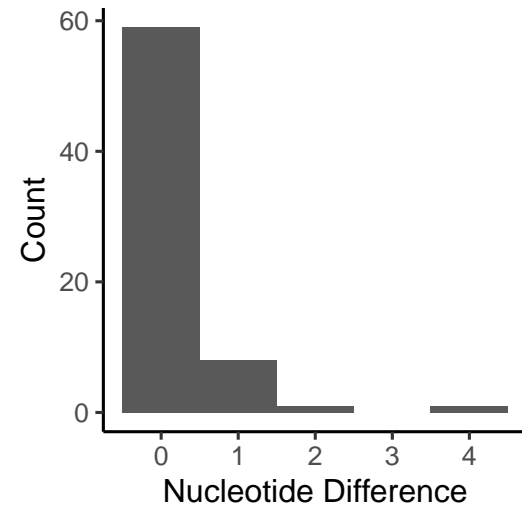
### IGHV3-48\*02

183 sequences assigned  
134 (73.2%) exact matches, in which:  
131 unique CDR3  
6 unique J



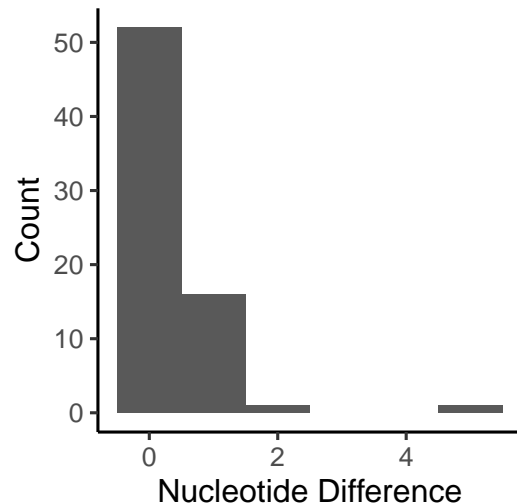
### IGHV3-53\*02

69 sequences assigned  
59 (85.5%) exact matches, in which:  
58 unique CDR3  
6 unique J



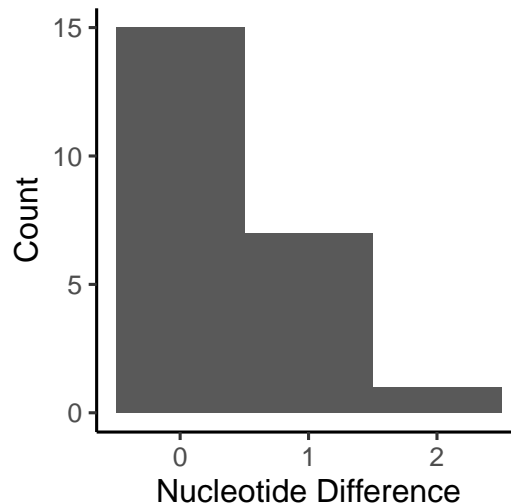
### IGHV3-43\*01

70 sequences assigned  
52 (74.3%) exact matches, in which:  
52 unique CDR3  
5 unique J



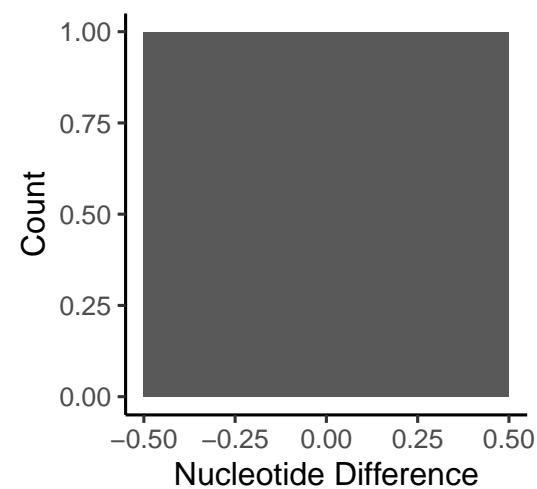
### IGHV3-49\*03

23 sequences assigned  
15 (65.2%) exact matches, in which:  
14 unique CDR3  
5 unique J



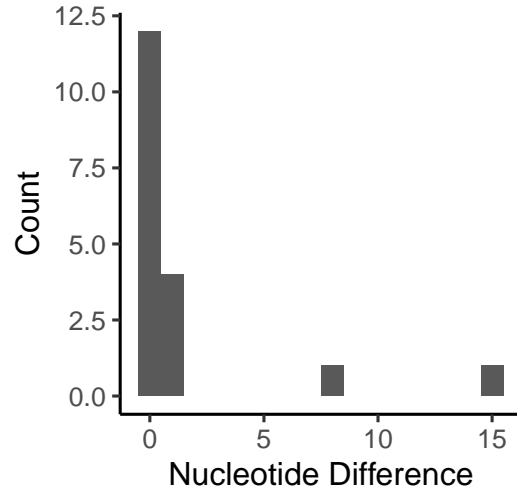
### IGHV3-64\*02

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



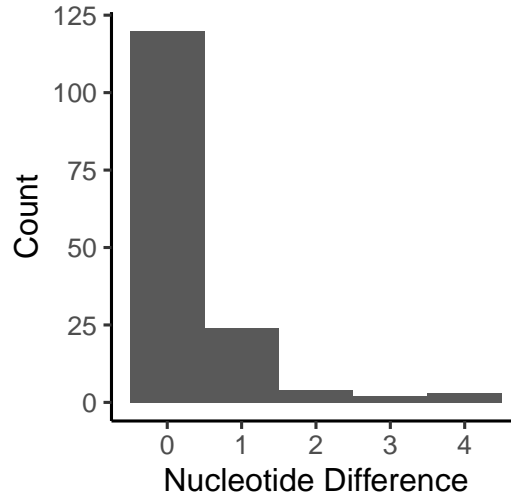
### IGHV3-72\*01

18 sequences assigned  
12 (66.7%) exact matches, in which:  
11 unique CDR3  
3 unique J



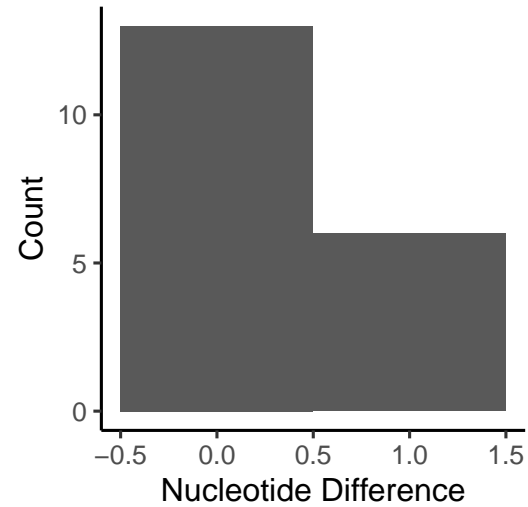
### IGHV4-4\*07

154 sequences assigned  
120 (77.9%) exact matches, in which:  
118 unique CDR3  
7 unique J



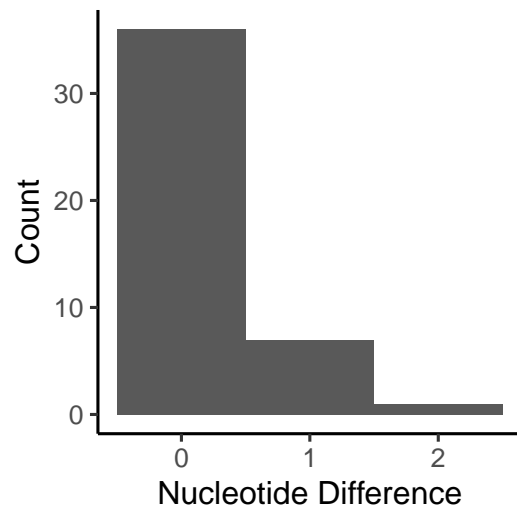
### IGHV4-30-2\*01

19 sequences assigned  
13 (68.4%) exact matches, in which:  
13 unique CDR3  
4 unique J



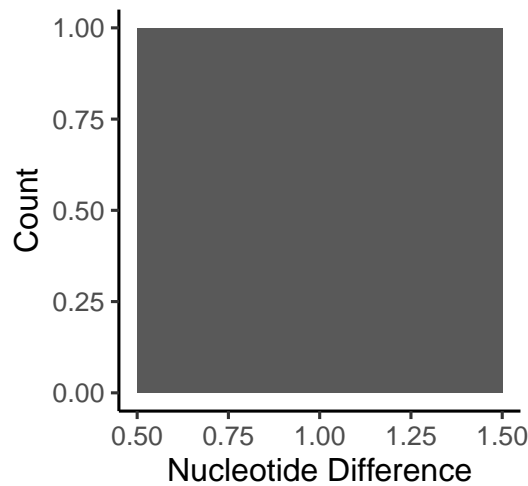
### IGHV3-73\*02

44 sequences assigned  
36 (81.8%) exact matches, in which:  
35 unique CDR3  
5 unique J



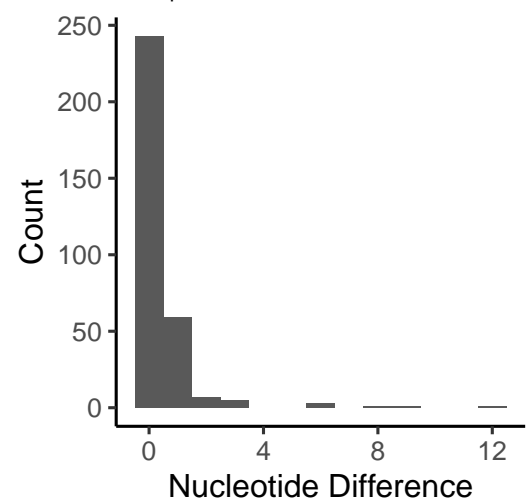
### IGHV4-28\*04

1 sequences assigned  
No exact matches.



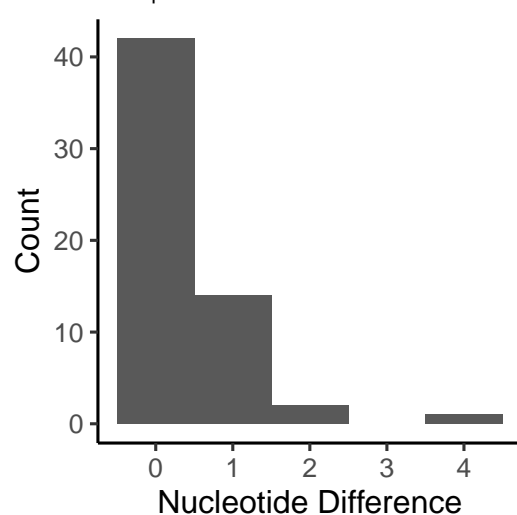
### IGHV4-31\*03

320 sequences assigned  
243 (75.9%) exact matches, in which:  
238 unique CDR3  
7 unique J



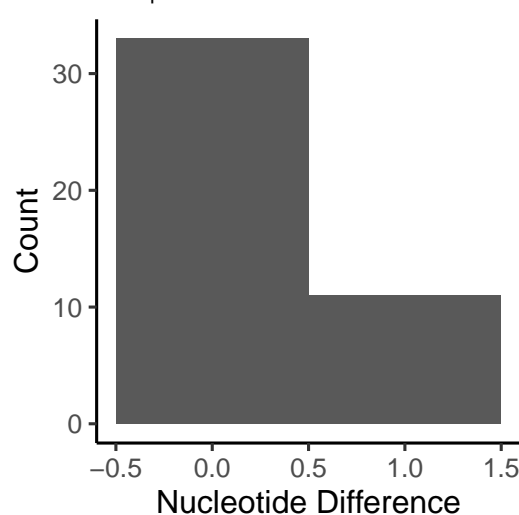
### IGHV3-74\*01

59 sequences assigned  
42 (71.2%) exact matches, in which:  
40 unique CDR3  
5 unique J



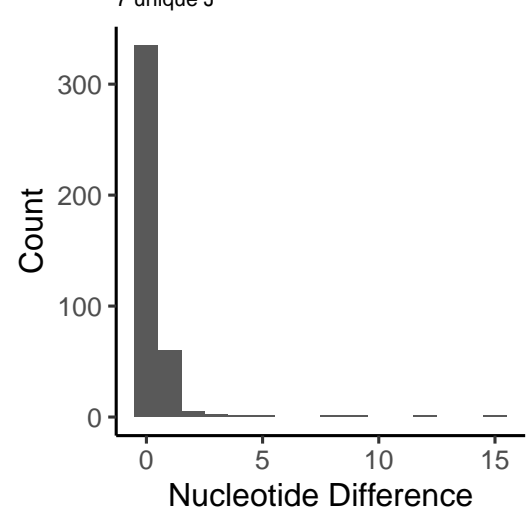
### IGHV4-30-4\*01

45 sequences assigned  
33 (73.3%) exact matches, in which:  
33 unique CDR3  
5 unique J



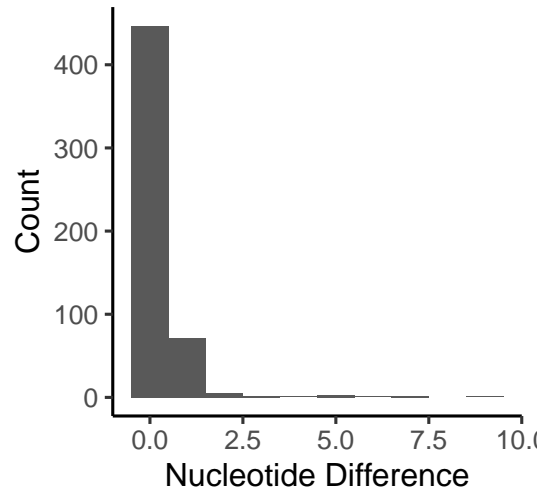
### IGHV4-34\*01

409 sequences assigned  
335 (81.9%) exact matches, in which:  
330 unique CDR3  
7 unique J



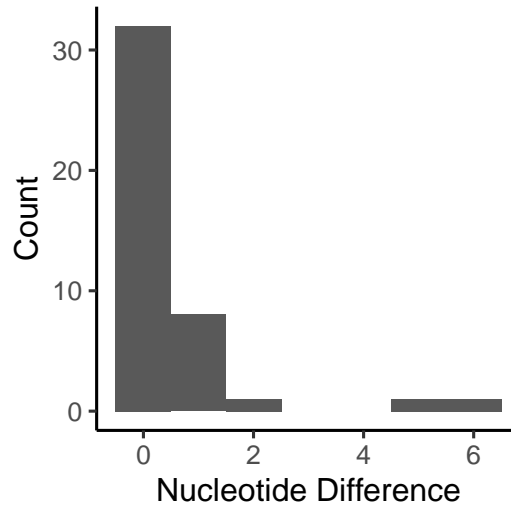
### IGHV4-39\*01

534 sequences assigned  
447 (83.7%) exact matches, in which:  
440 unique CDR3  
7 unique J



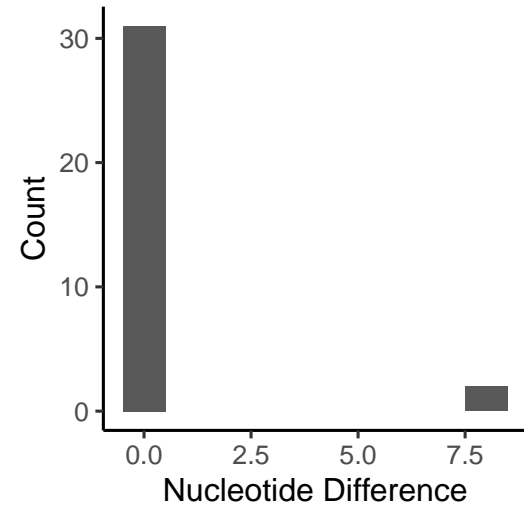
### IGHV4-61\*01

44 sequences assigned  
32 (72.7%) exact matches, in which:  
32 unique CDR3  
5 unique J



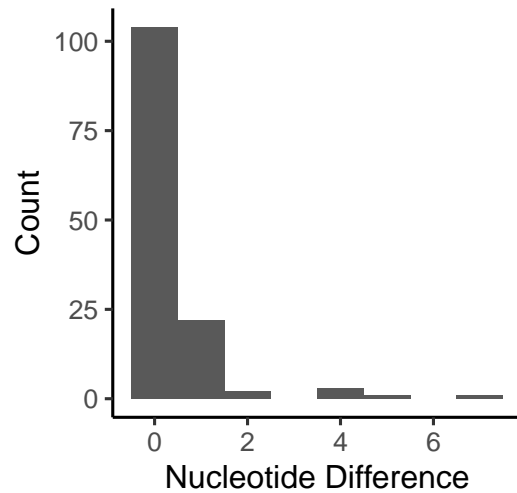
### IGHV5-51\*03

33 sequences assigned  
31 (93.9%) exact matches, in which:  
31 unique CDR3  
6 unique J



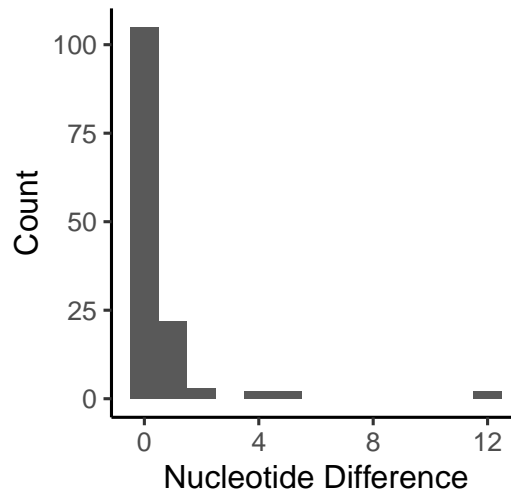
### IGHV4-59\*01

133 sequences assigned  
104 (78.2%) exact matches, in which:  
103 unique CDR3  
5 unique J



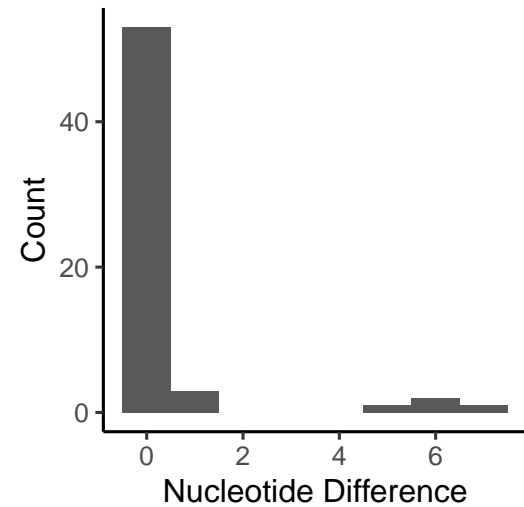
### IGHV4-61\*02\_A234G

136 sequences assigned  
105 (77.2%) exact matches, in which:  
105 unique CDR3  
6 unique J



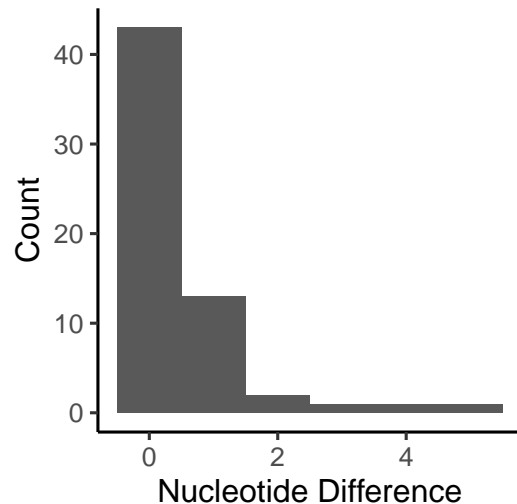
### IGHV6-1\*01

60 sequences assigned  
53 (88.3%) exact matches, in which:  
52 unique CDR3  
6 unique J



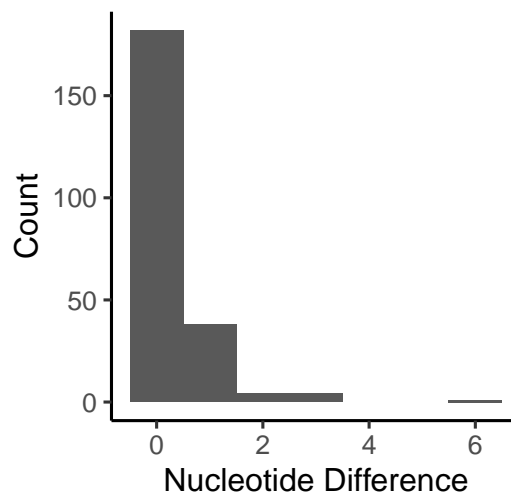
### IGHV4-59\*01\_G267A

61 sequences assigned  
43 (70.5%) exact matches, in which:  
43 unique CDR3  
5 unique J



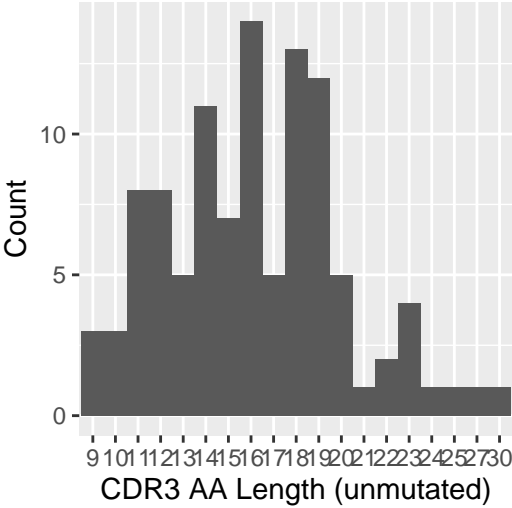
### IGHV5-51\*01

229 sequences assigned  
182 (79.5%) exact matches, in which:  
182 unique CDR3  
6 unique J

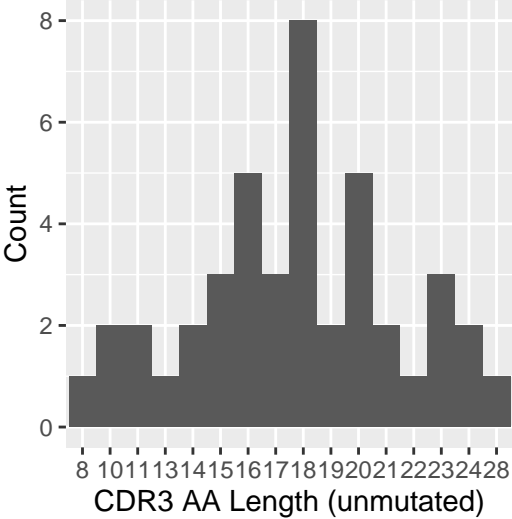




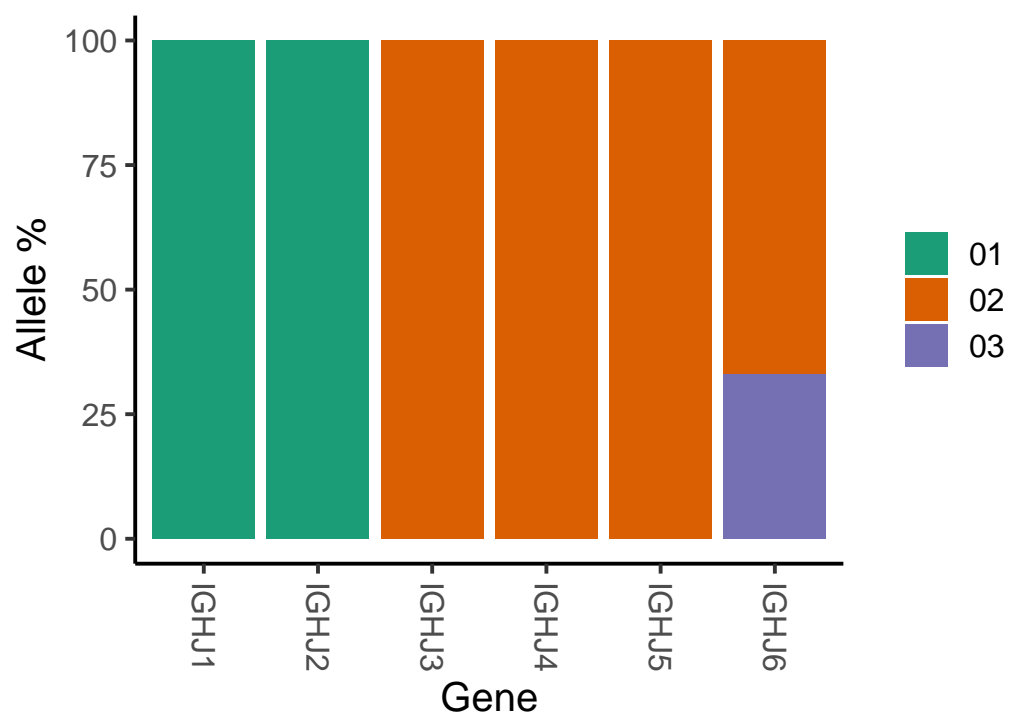
IGHV4-61\*02\_A234G



IGHV4-59\*01\_G267A



Allele Usage



Sequence Count by IGHJ6 allele usage

