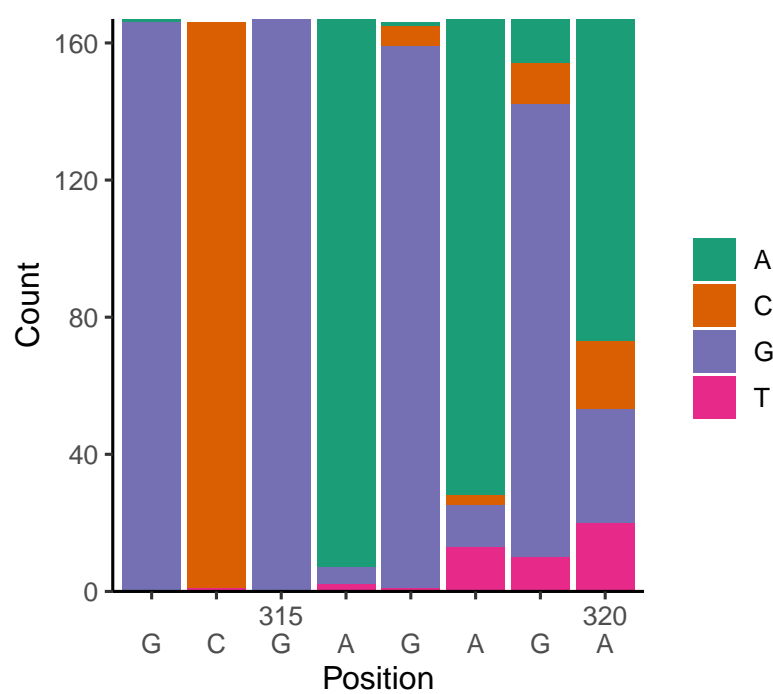
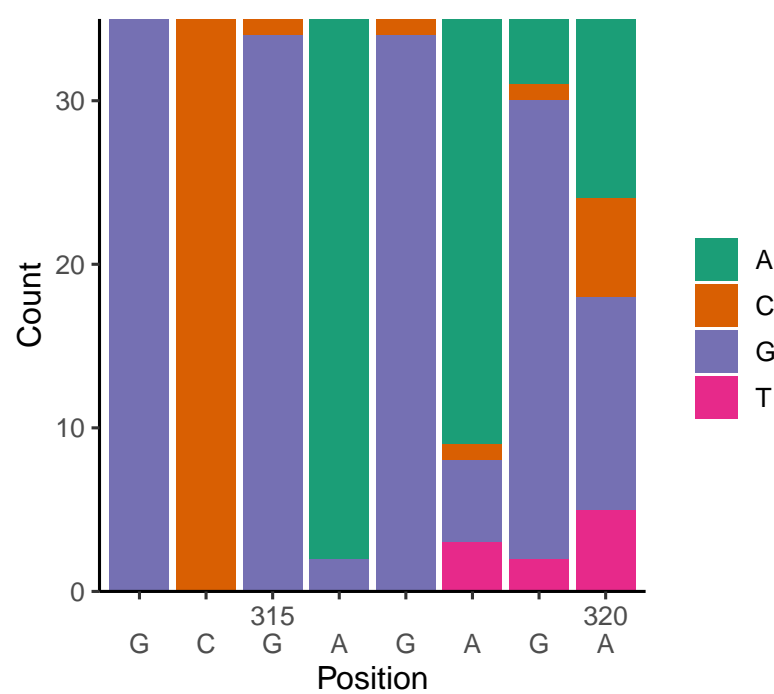


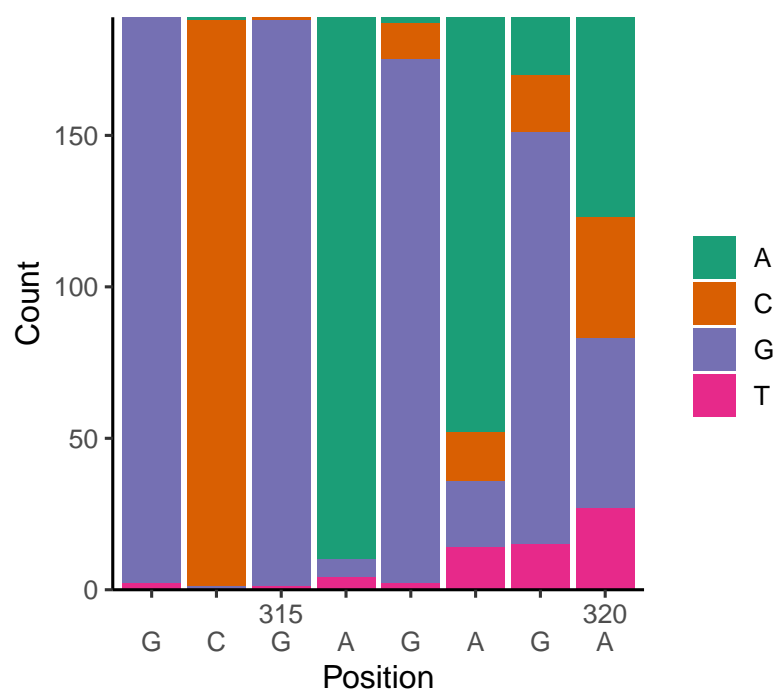
Gene IGHV3-48*01_A39C



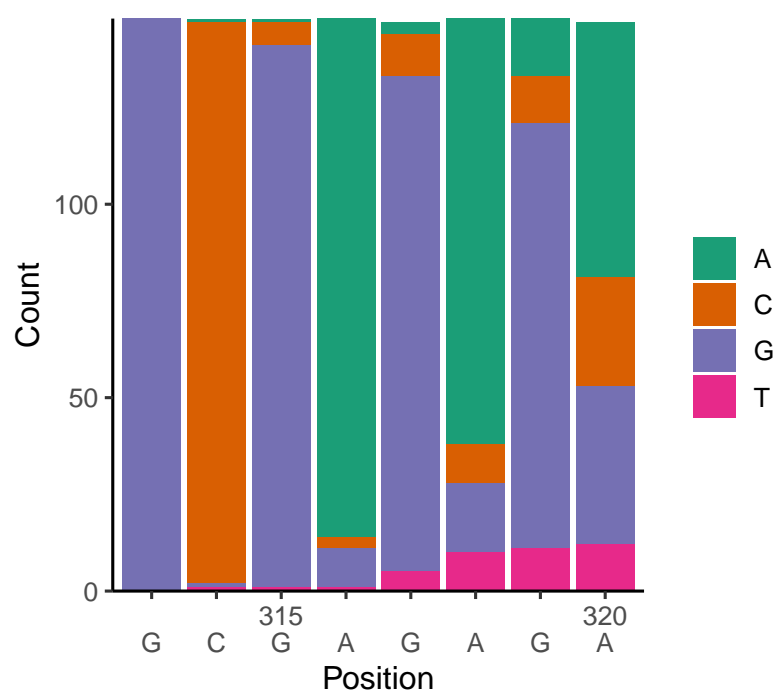
Gene IGHV3-53*04_C241G_G273A_C300



Gene IGHV1-69*12_G48A



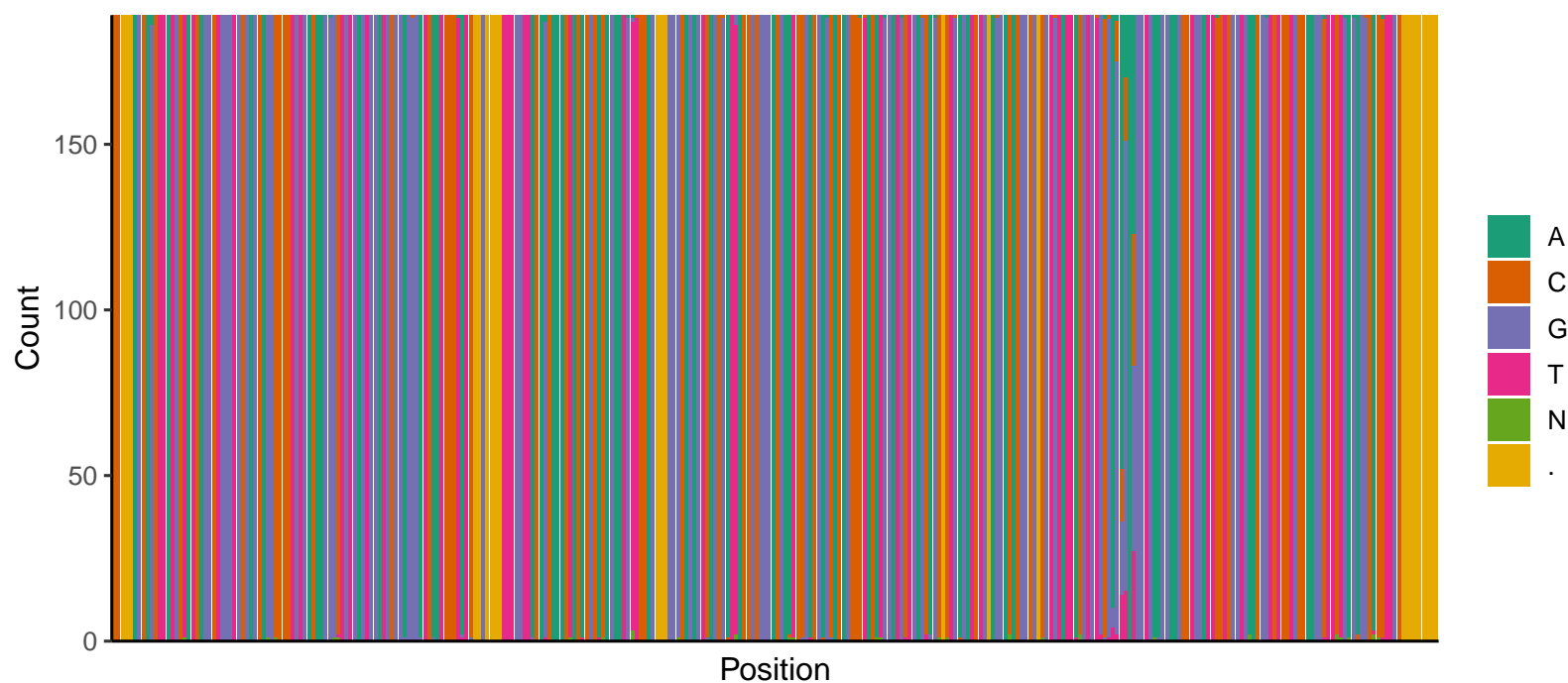
Gene IGHV1-69*08_C191T



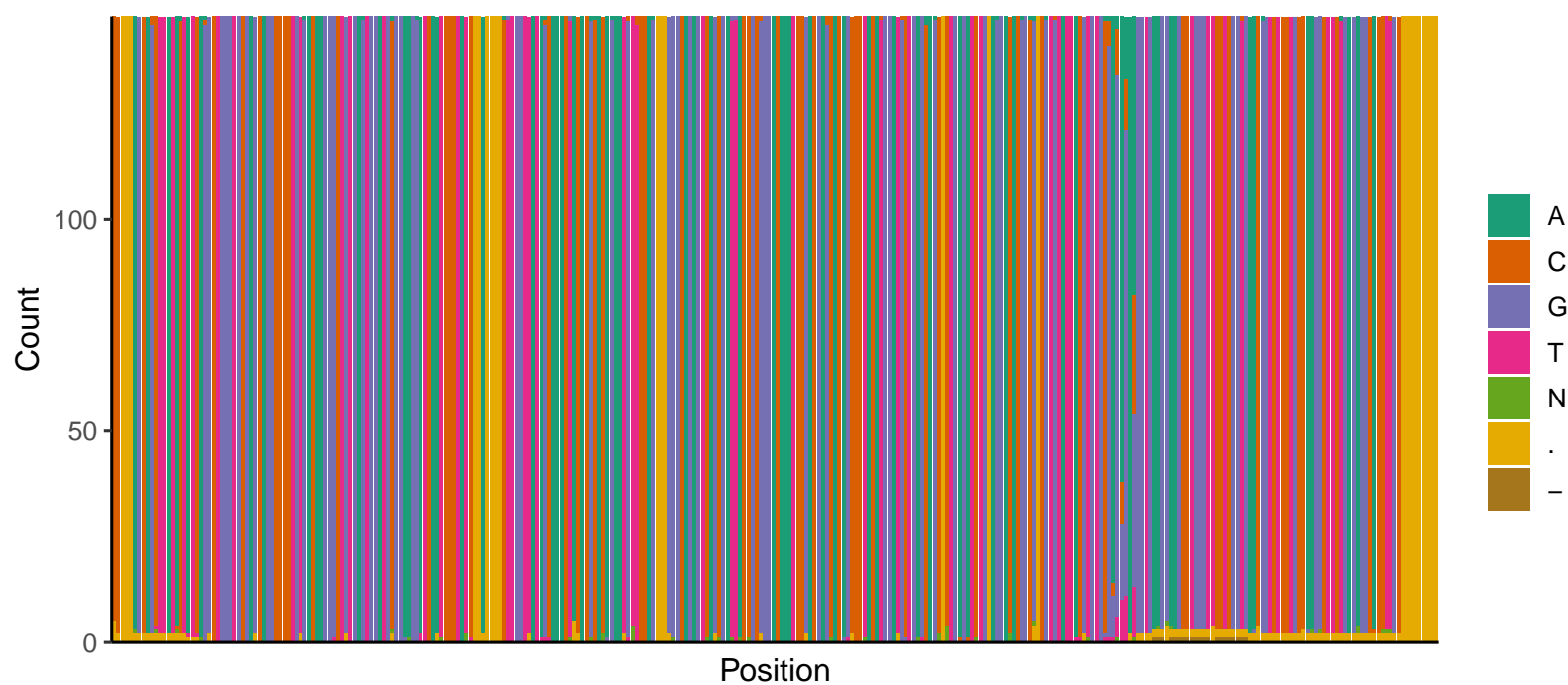
Gene IGHV3-48*01_A39C



Gene IGHV1-69*12_G48A



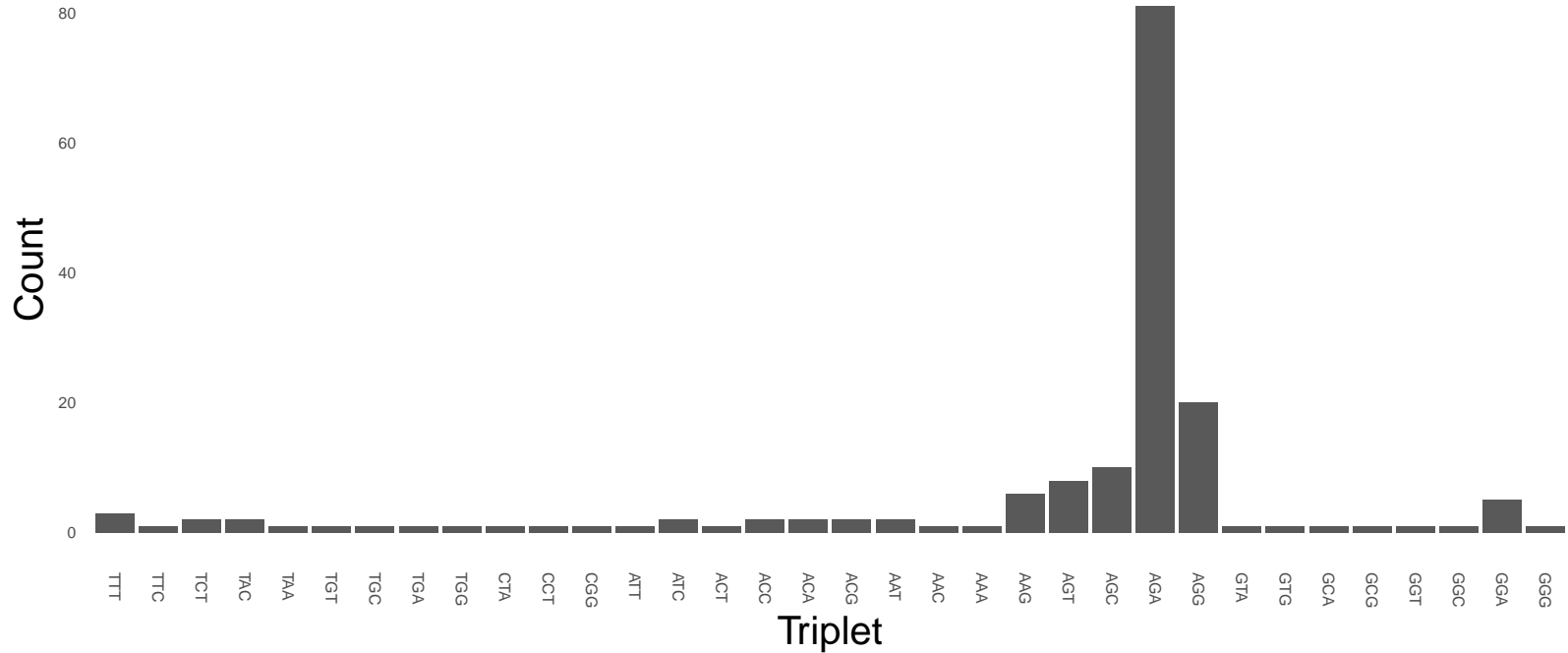
Gene IGHV1-69*08_C191T



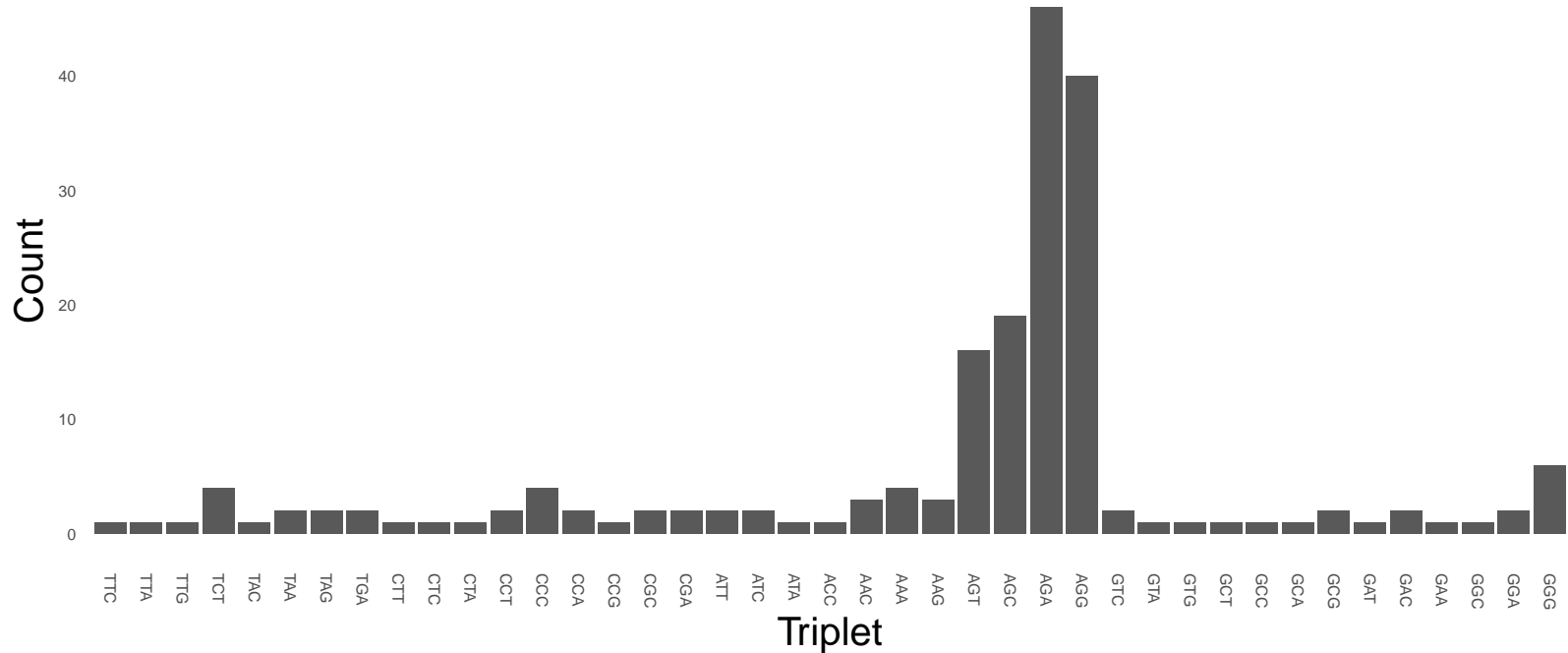
Gene IGHV3-53*04_C241G_G273A_C300T



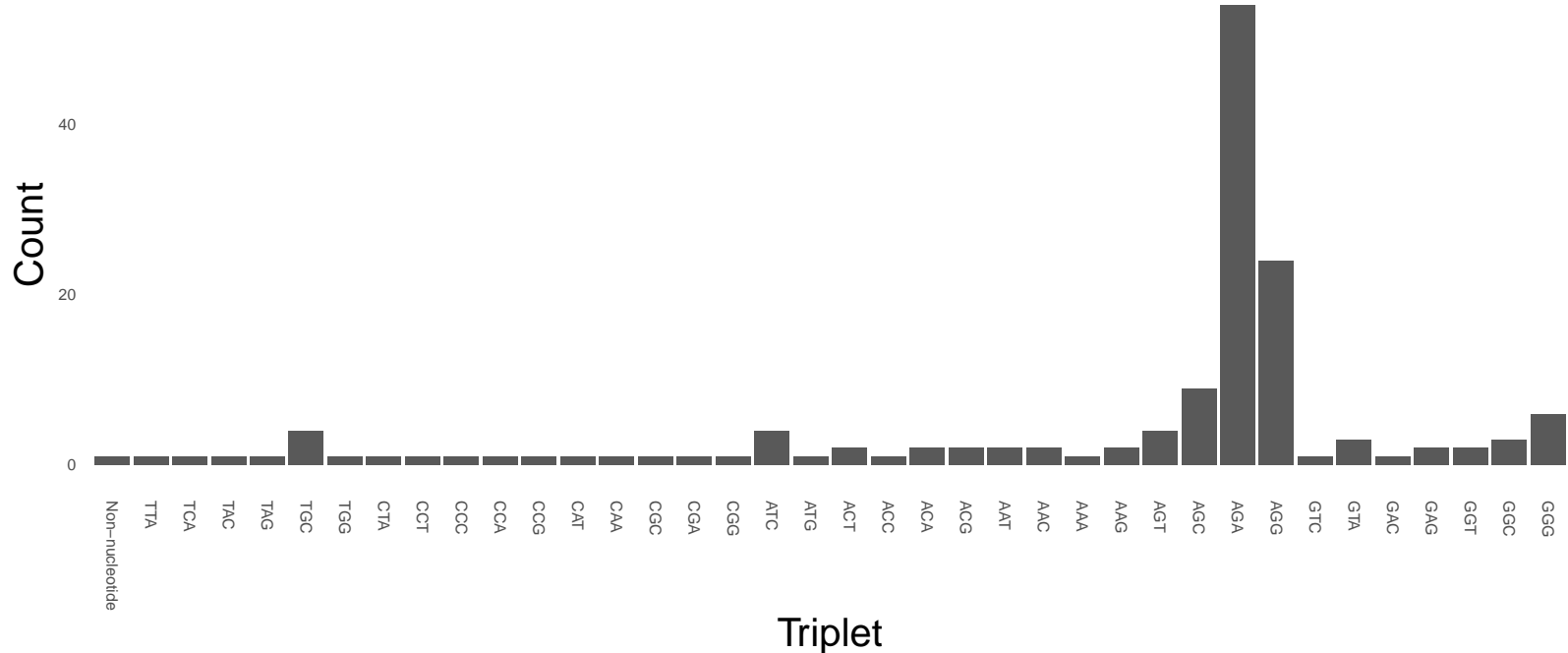
IGHV3–48*01_A39C– Final 3 nucleotides as a triplet



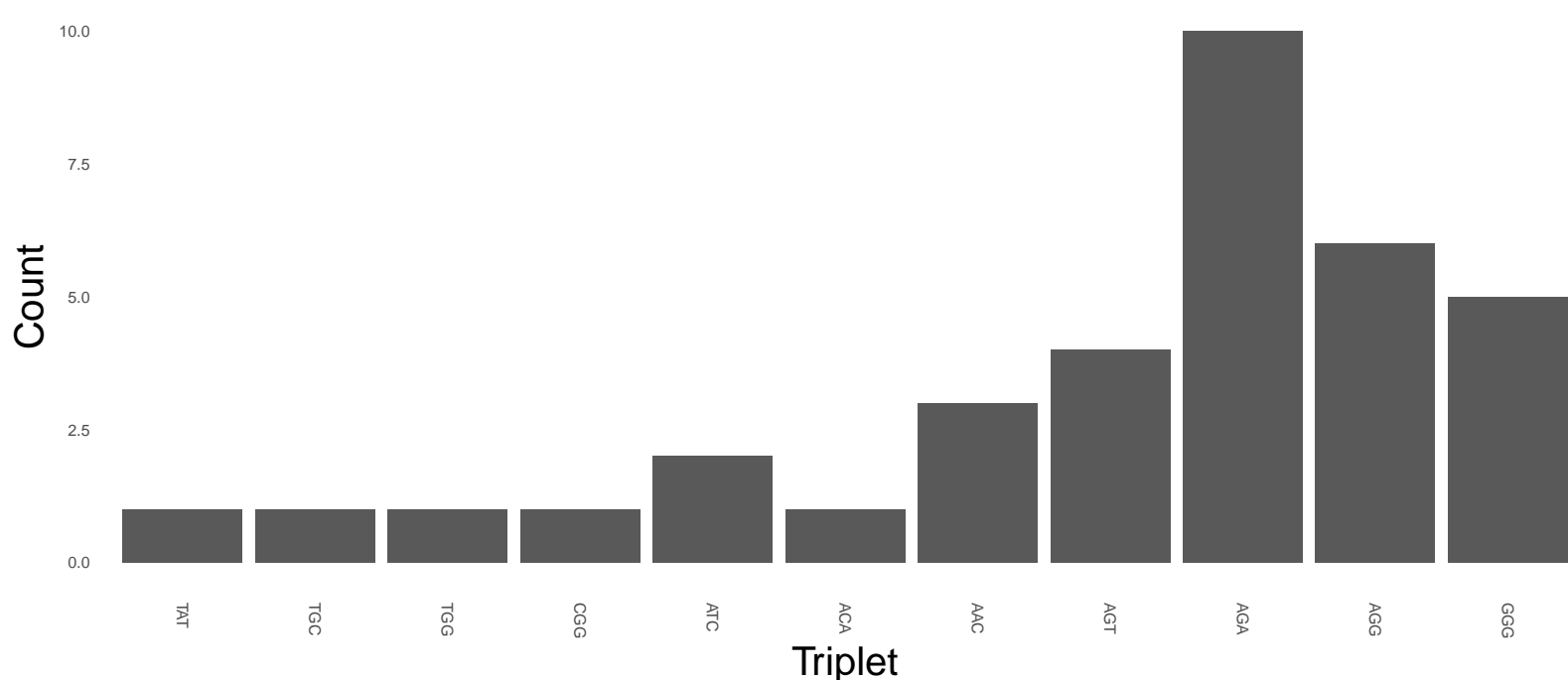
IGHV1–69*12_G48A– Final 3 nucleotides as a triplet



IGHV1–69*08_C191T– Final 3 nucleotides as a triplet

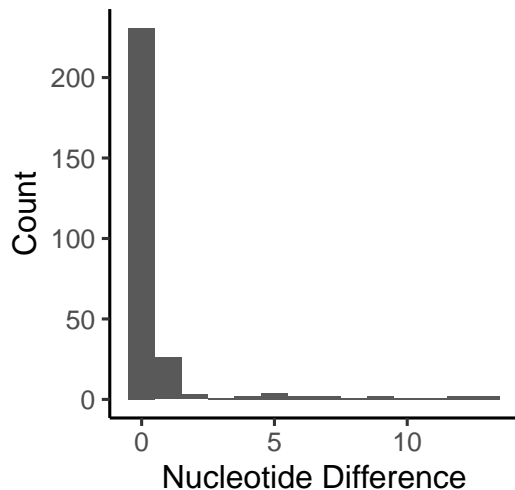


IGHV3-53*04_C241G_G273A_C300T- Final 3 nucleotides as a triplet



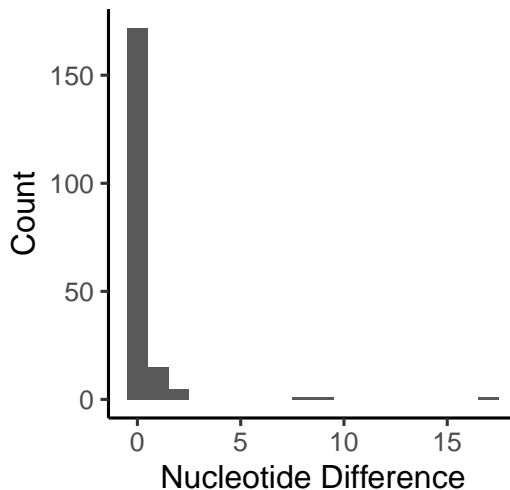
IGHV1-2*02

280 sequences assigned
231 (82.5%) exact matches, in which:
230 unique CDR3
6 unique J



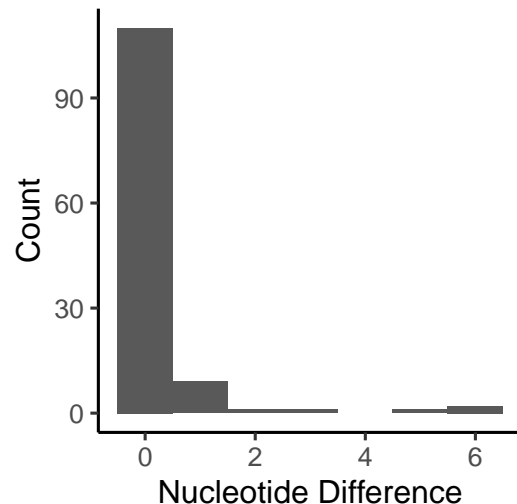
IGHV1-8*03

196 sequences assigned
172 (87.8%) exact matches, in which:
171 unique CDR3
5 unique J



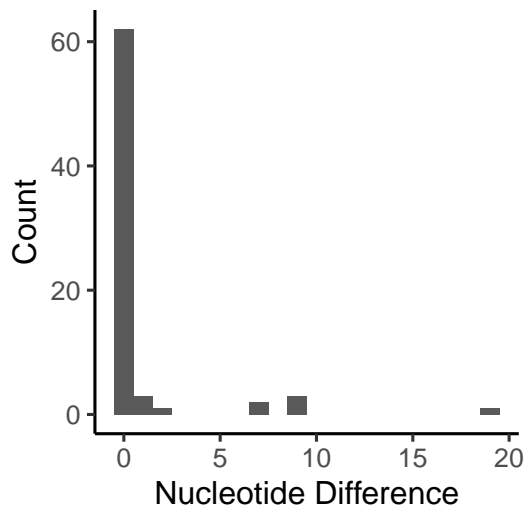
IGHV1-46*03

124 sequences assigned
110 (88.7%) exact matches, in which:
109 unique CDR3
5 unique J



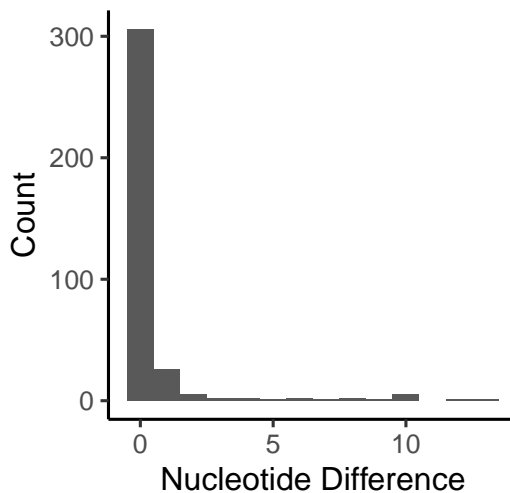
IGHV1-2*04

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



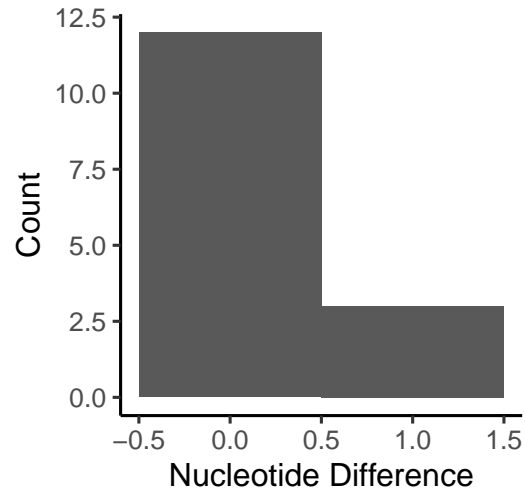
IGHV1-18*01

355 sequences assigned
306 (86.2%) exact matches, in which:
305 unique CDR3
6 unique J



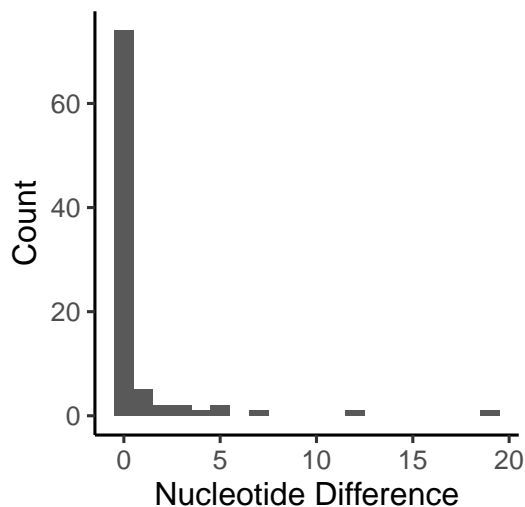
IGHV1-58*02

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



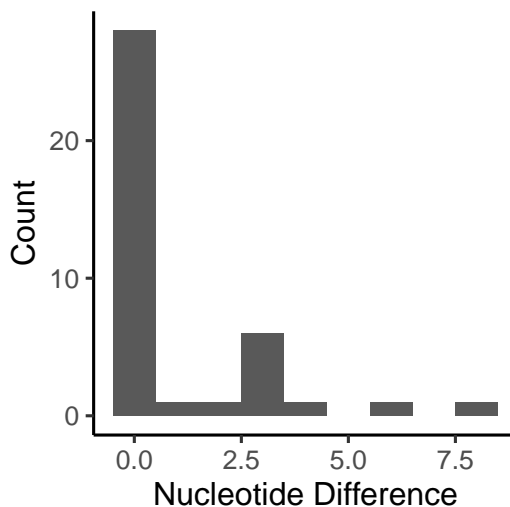
IGHV1-3*01

89 sequences assigned
74 (83.1%) exact matches, in which:
74 unique CDR3
5 unique J



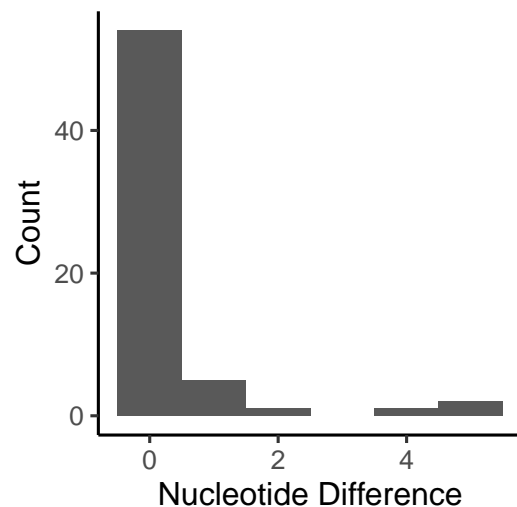
IGHV1-24*01

39 sequences assigned
28 (71.8%) exact matches, in which:
28 unique CDR3
5 unique J



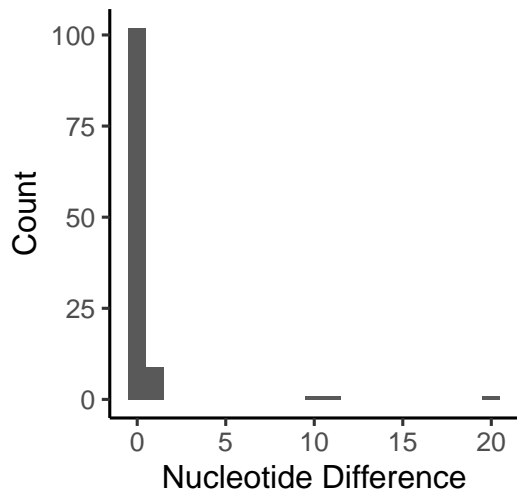
IGHV1-69-2*01

63 sequences assigned
54 (85.7%) exact matches, in which:
54 unique CDR3
4 unique J



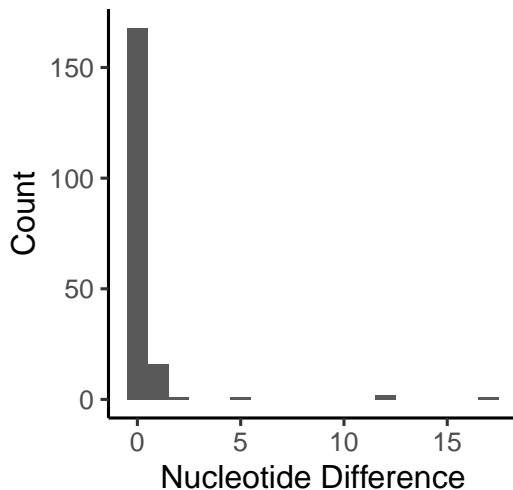
IGHV1–69*10

114 sequences assigned
102 (89.5%) exact matches, in which:
102 unique CDR3
6 unique J



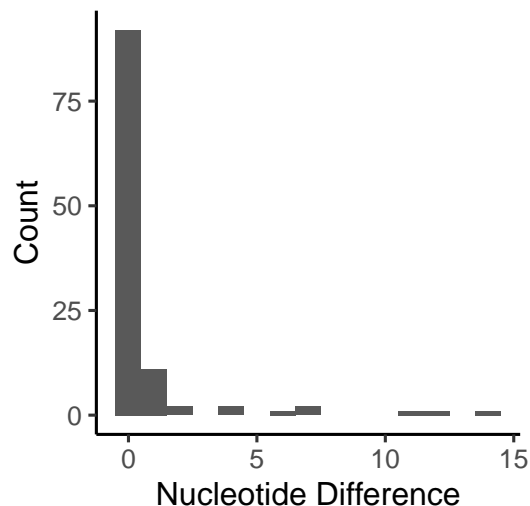
IGHV1–69*12_G48A

189 sequences assigned
168 (88.9%) exact matches, in which:
167 unique CDR3
6 unique J



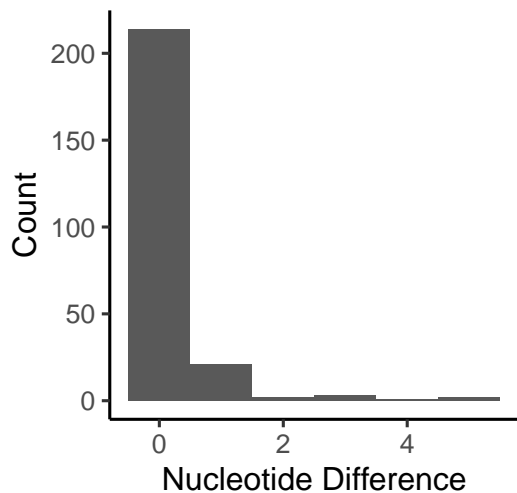
IGHV2–5*02

115 sequences assigned
92 (80%) exact matches, in which:
92 unique CDR3
5 unique J



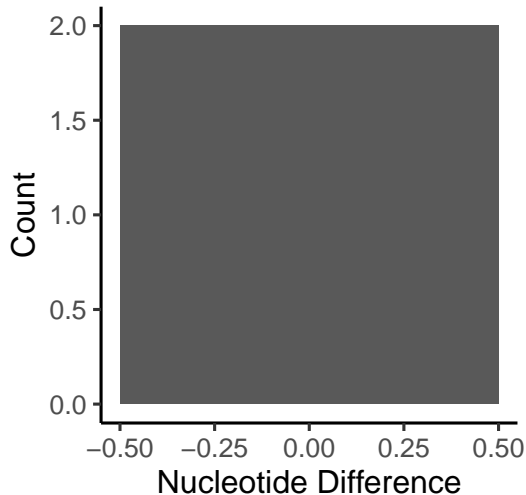
IGHV1–69*12

243 sequences assigned
214 (88.1%) exact matches, in which:
214 unique CDR3
6 unique J



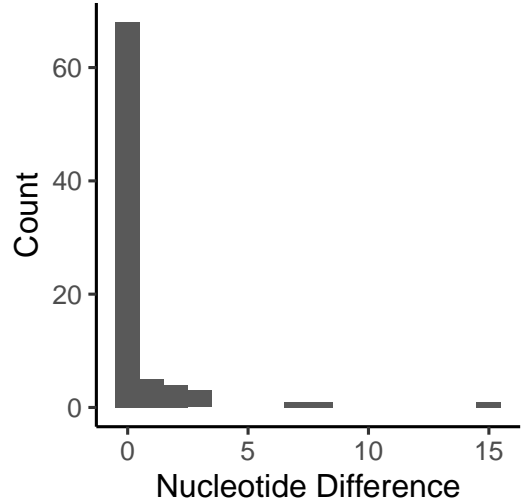
IGHV1–69D*01

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



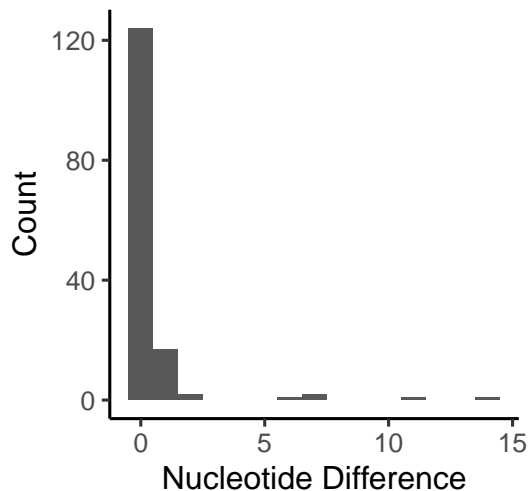
IGHV2–26*01

83 sequences assigned
68 (81.9%) exact matches, in which:
68 unique CDR3
5 unique J



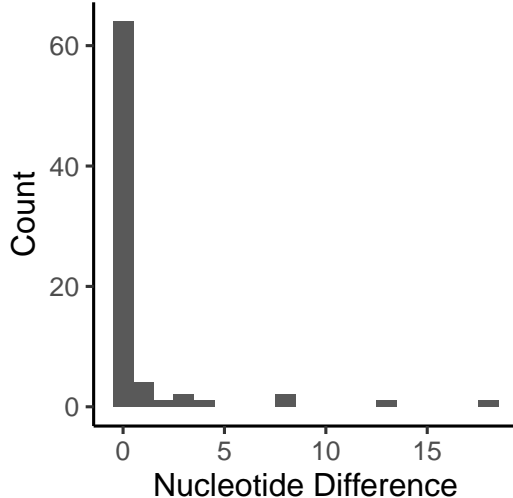
IGHV1–69*08_C191T

148 sequences assigned
124 (83.8%) exact matches, in which:
123 unique CDR3
6 unique J



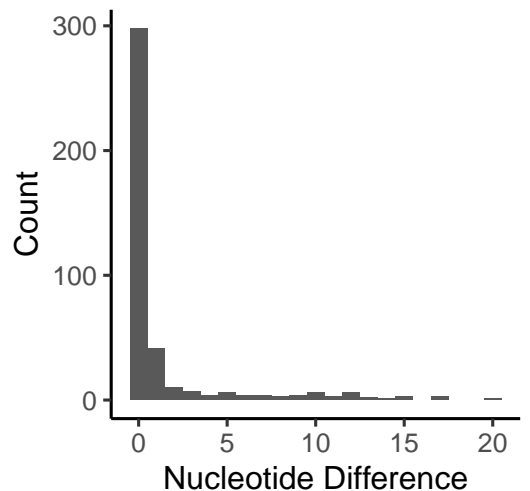
IGHV2–5*01

76 sequences assigned
64 (84.2%) exact matches, in which:
64 unique CDR3
5 unique J



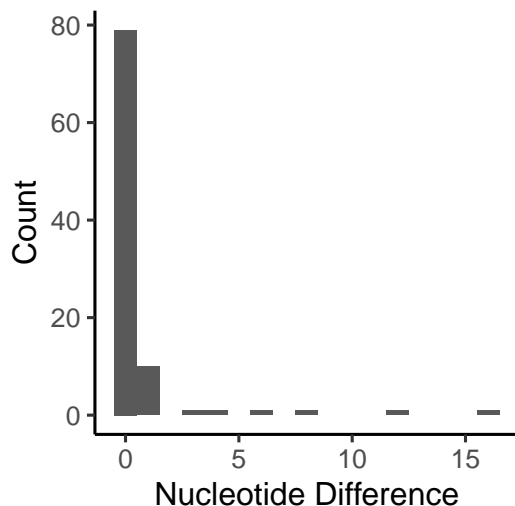
IGHV3–7*01

411 sequences assigned
298 (72.5%) exact matches, in which:
298 unique CDR3
6 unique J



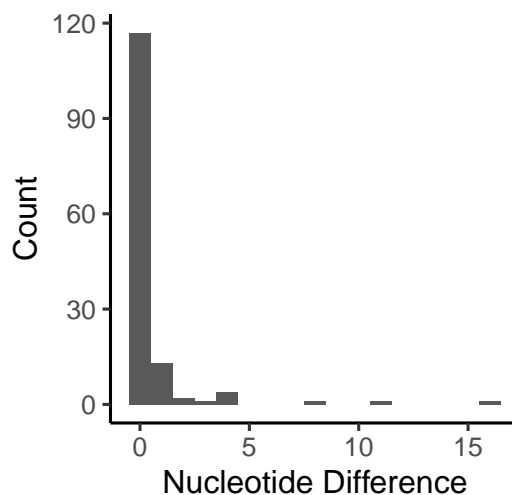
IGHV3-9*03

95 sequences assigned
79 (83.2%) exact matches, in which:
78 unique CDR3
4 unique J



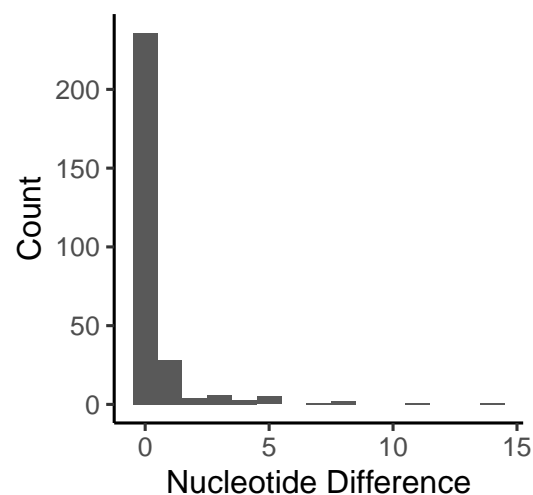
IGHV3-15*01

141 sequences assigned
117 (83%) exact matches, in which:
117 unique CDR3
6 unique J



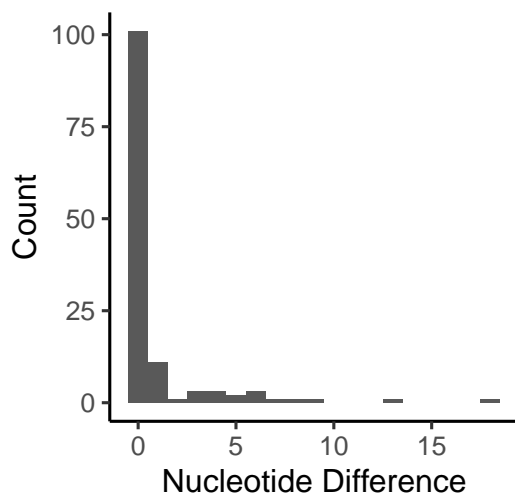
IGHV3-21*03

288 sequences assigned
236 (81.9%) exact matches, in which:
236 unique CDR3
6 unique J



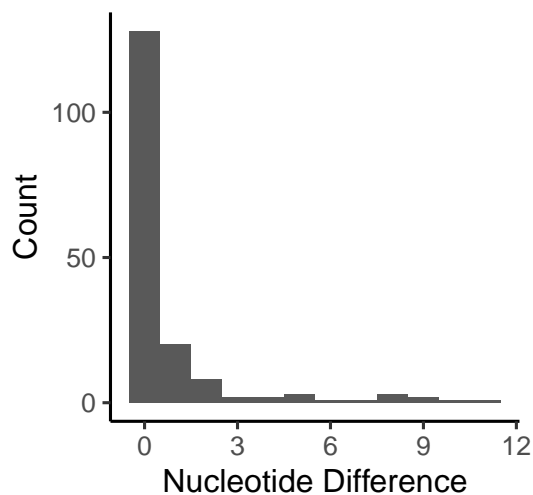
IGHV3-11*04

130 sequences assigned
101 (77.7%) exact matches, in which:
101 unique CDR3
6 unique J



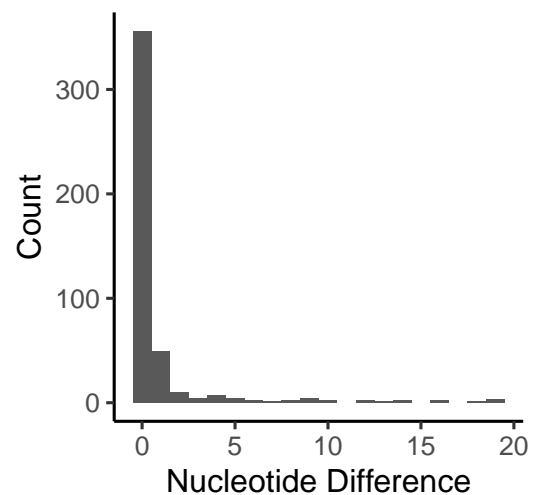
IGHV3-20*04

173 sequences assigned
128 (74%) exact matches, in which:
127 unique CDR3
6 unique J



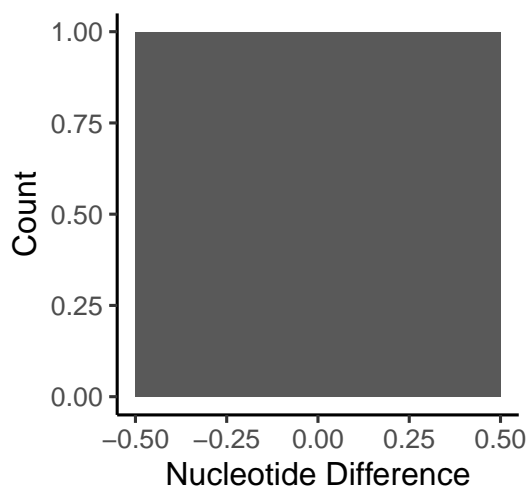
IGHV3-23*04

455 sequences assigned
356 (78.2%) exact matches, in which:
354 unique CDR3
6 unique J



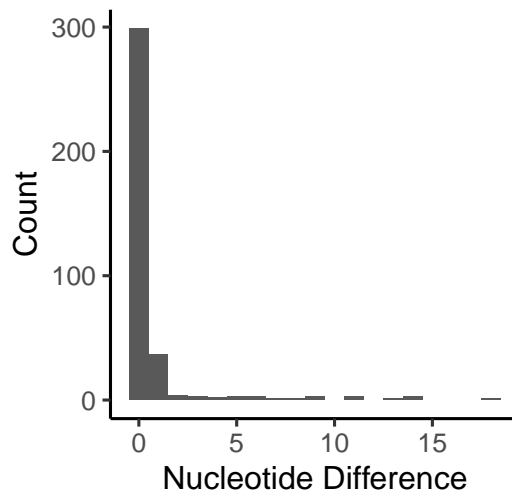
IGHV3-13*03

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



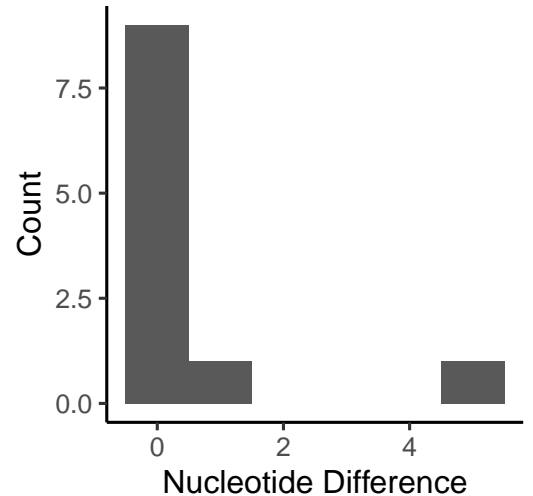
IGHV3-21*01

365 sequences assigned
299 (81.9%) exact matches, in which:
297 unique CDR3
6 unique J



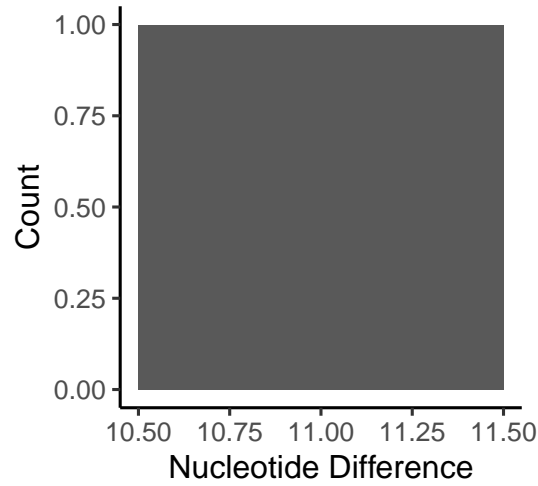
IGHV3-30-3*01

11 sequences assigned
9 (81.8%) exact matches, in which:
9 unique CDR3
4 unique J



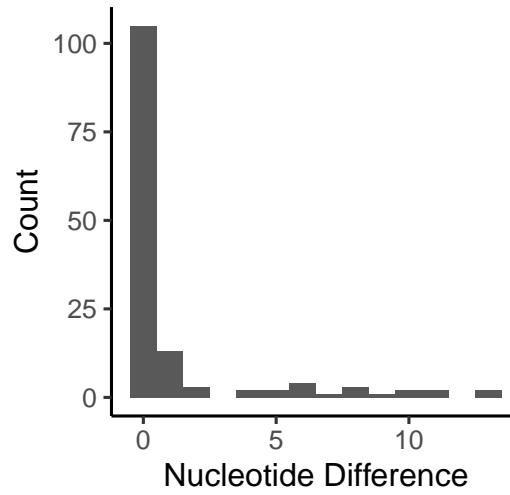
IGHV3–33*05

1 sequences assigned
No exact matches.



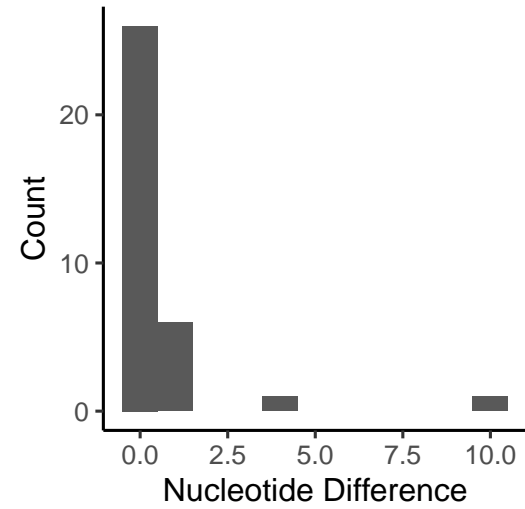
IGHV3–48*01

141 sequences assigned
105 (74.5%) exact matches, in which:
103 unique CDR3
5 unique J



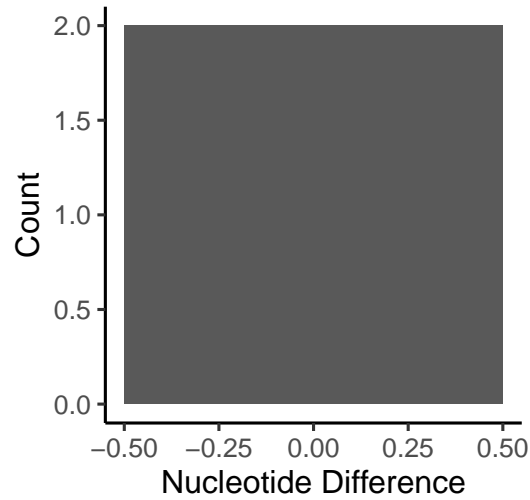
IGHV3–53*04_C241G_G2

35 sequences assigned
26 (74.3%) exact matches, in which:
26 unique CDR3
5 unique J



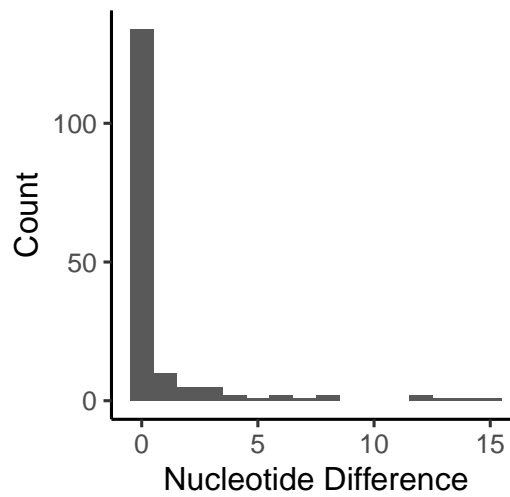
IGHV3–38–3*01

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



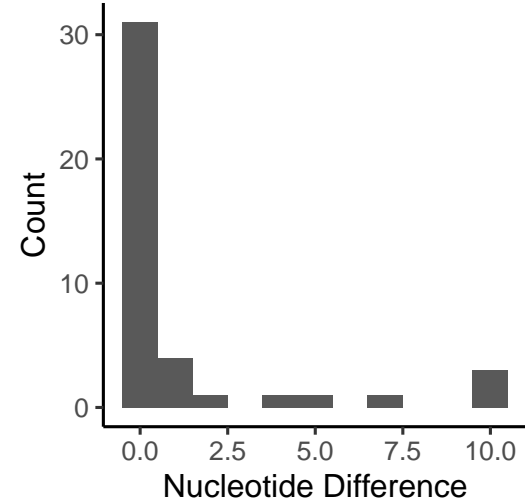
IGHV3–48*01_A39C

167 sequences assigned
134 (80.2%) exact matches, in which:
134 unique CDR3
6 unique J



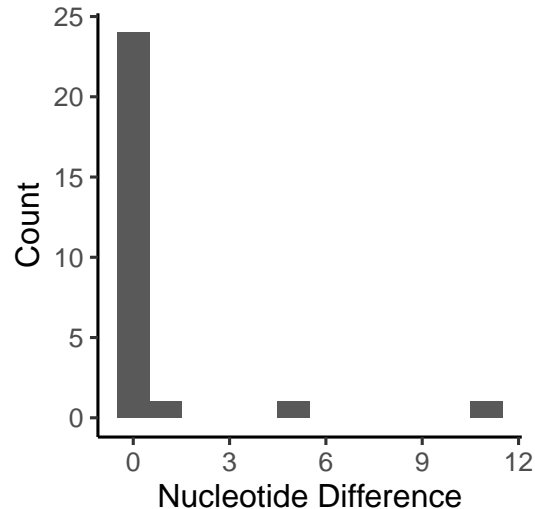
IGHV3–64*01

43 sequences assigned
31 (72.1%) exact matches, in which:
31 unique CDR3
5 unique J



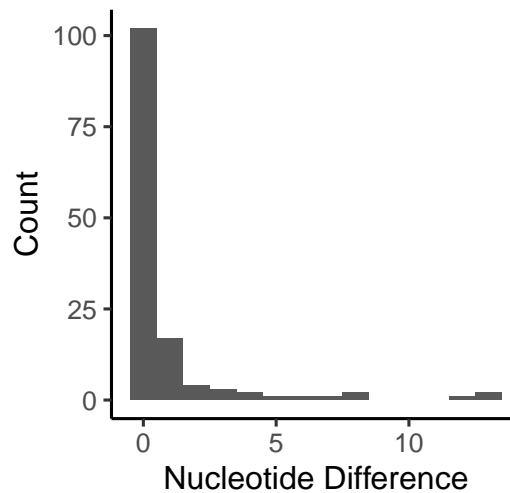
IGHV3–43*01

27 sequences assigned
24 (88.9%) exact matches, in which:
24 unique CDR3
5 unique J



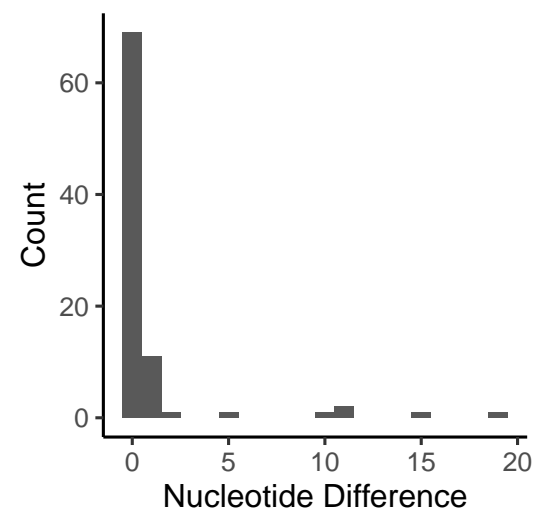
IGHV3–49*04

137 sequences assigned
102 (74.5%) exact matches, in which:
102 unique CDR3
5 unique J



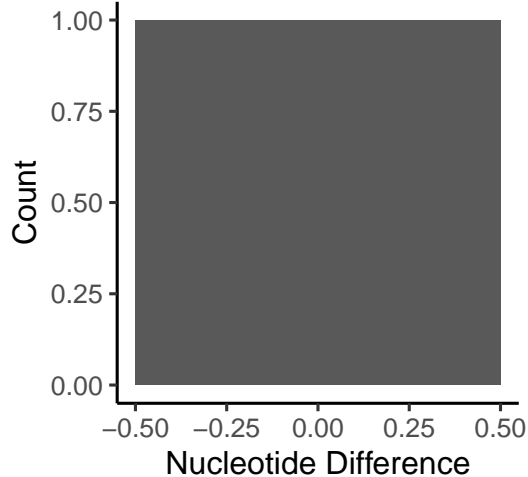
IGHV3–66*02

88 sequences assigned
69 (78.4%) exact matches, in which:
69 unique CDR3
5 unique J



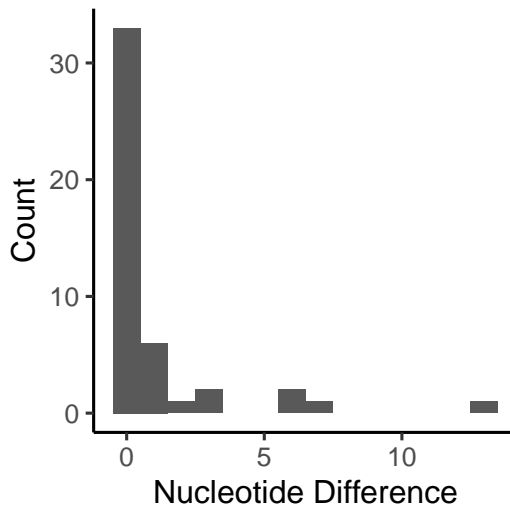
IGHV3-69-1*02

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



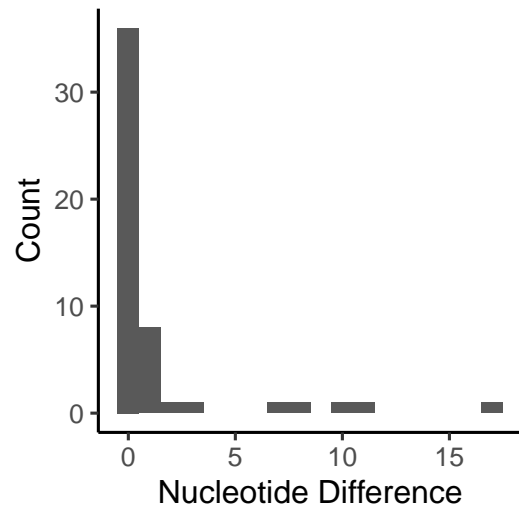
IGHV3-73*02

46 sequences assigned
33 (71.7%) exact matches, in which:
33 unique CDR3
4 unique J



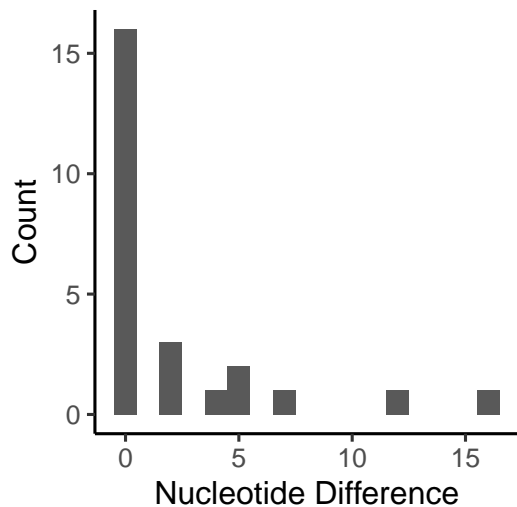
IGHV3-43D*04

51 sequences assigned
36 (70.6%) exact matches, in which:
36 unique CDR3
6 unique J



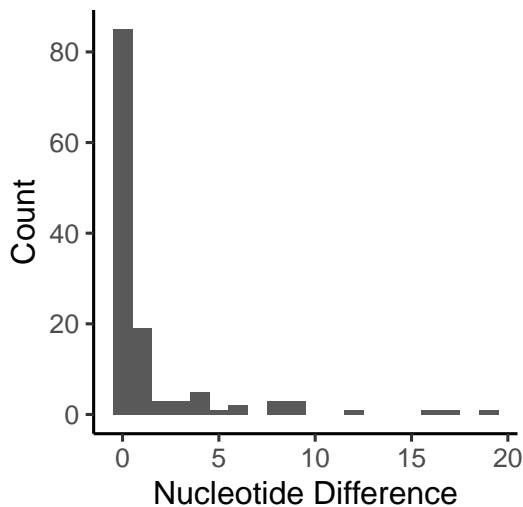
IGHV3-72*01

25 sequences assigned
16 (64%) exact matches, in which:
16 unique CDR3
3 unique J



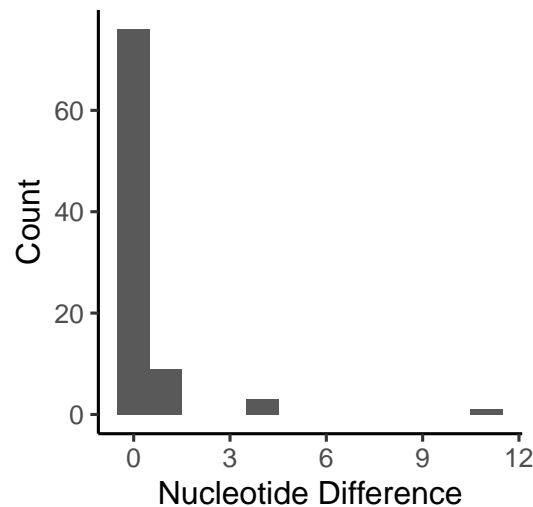
IGHV3-74*01

129 sequences assigned
85 (65.9%) exact matches, in which:
85 unique CDR3
6 unique J



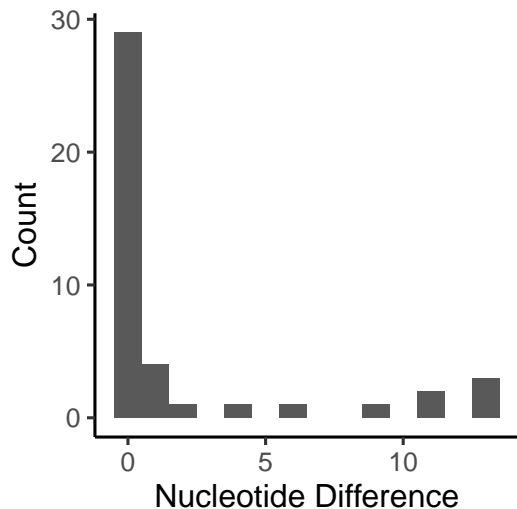
IGHV4-4*02

89 sequences assigned
76 (85.4%) exact matches, in which:
76 unique CDR3
5 unique J



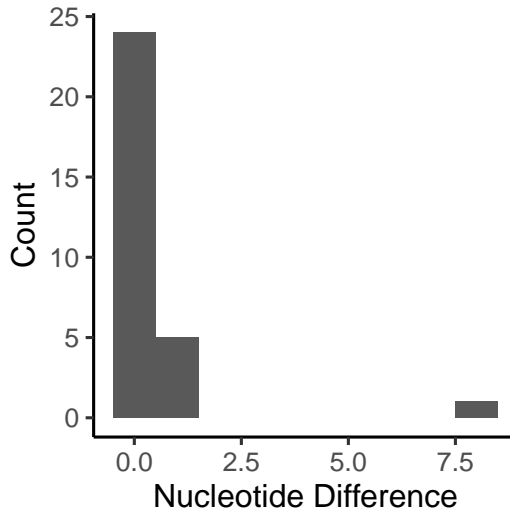
IGHV3-73*01

42 sequences assigned
29 (69%) exact matches, in which:
29 unique CDR3
5 unique J



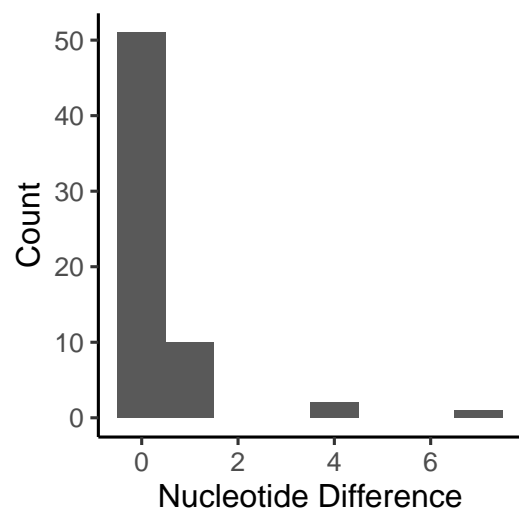
IGHV3-43D*03

30 sequences assigned
24 (80%) exact matches, in which:
24 unique CDR3
5 unique J



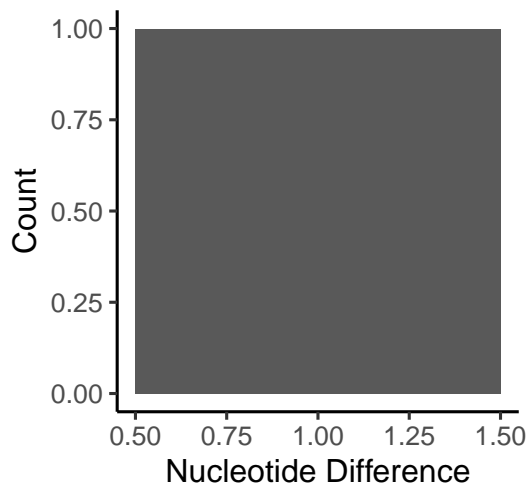
IGHV4-4*07

64 sequences assigned
51 (79.7%) exact matches, in which:
51 unique CDR3
5 unique J



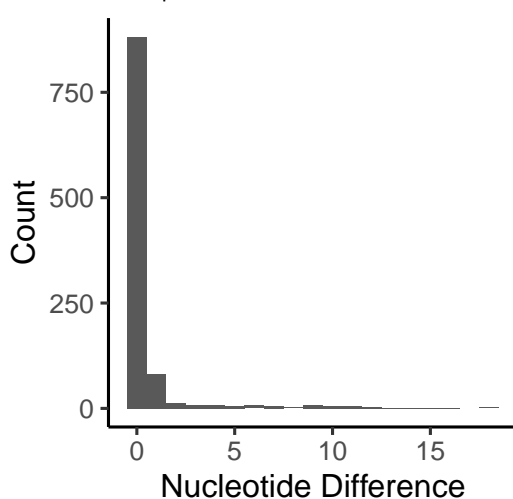
IGHV4-30-2*05

1 sequences assigned
No exact matches.



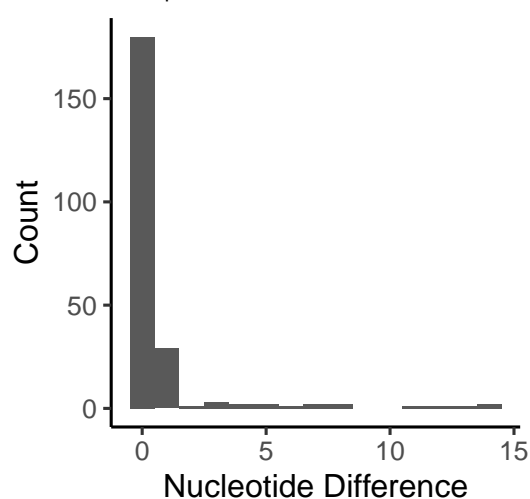
IGHV4-38-2*01

1044 sequences assigned
882 (84.5%) exact matches, in which:
881 unique CDR3
6 unique J



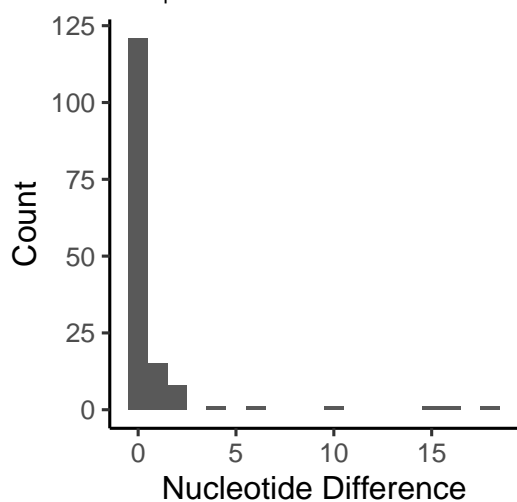
IGHV4-59*01

227 sequences assigned
180 (79.3%) exact matches, in which:
178 unique CDR3
6 unique J



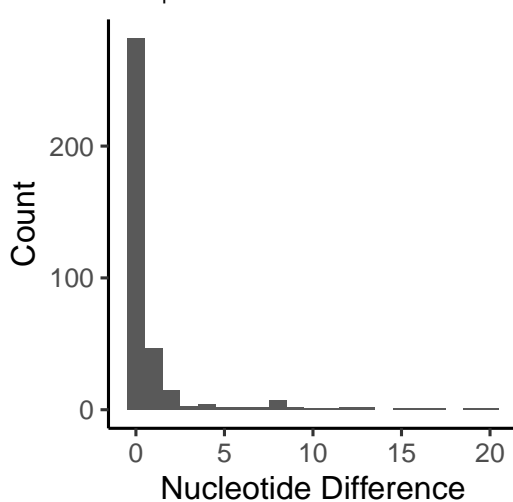
IGHV4-30-4*08

150 sequences assigned
121 (80.7%) exact matches, in which:
121 unique CDR3
6 unique J



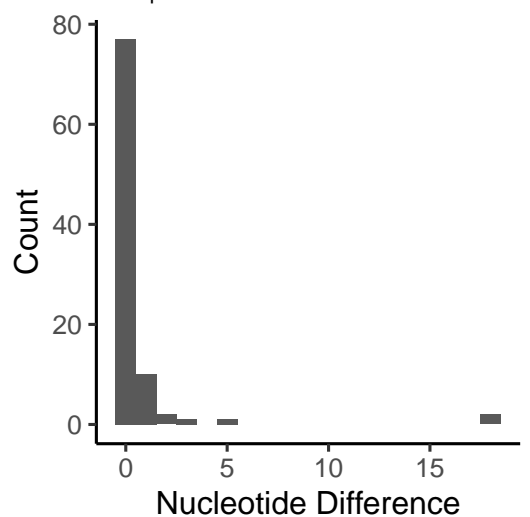
IGHV4-38-2*02

377 sequences assigned
282 (74.8%) exact matches, in which:
280 unique CDR3
6 unique J



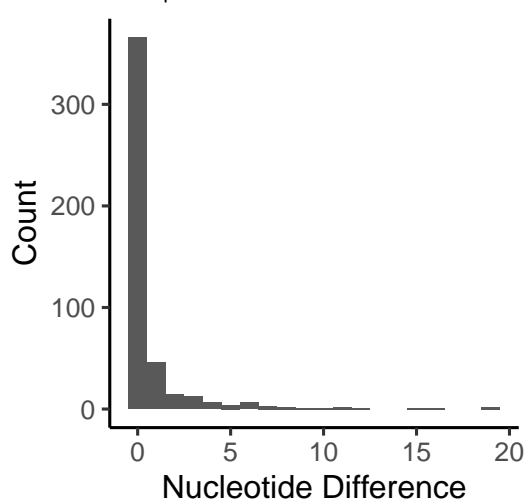
IGHV4-59*08

94 sequences assigned
77 (81.9%) exact matches, in which:
77 unique CDR3
6 unique J



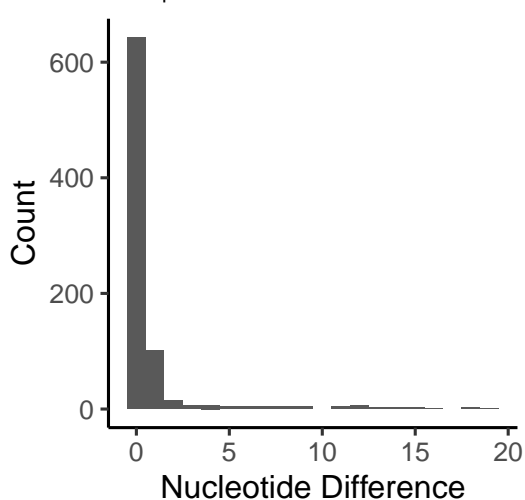
IGHV4-34*01

470 sequences assigned
366 (77.9%) exact matches, in which:
362 unique CDR3
6 unique J



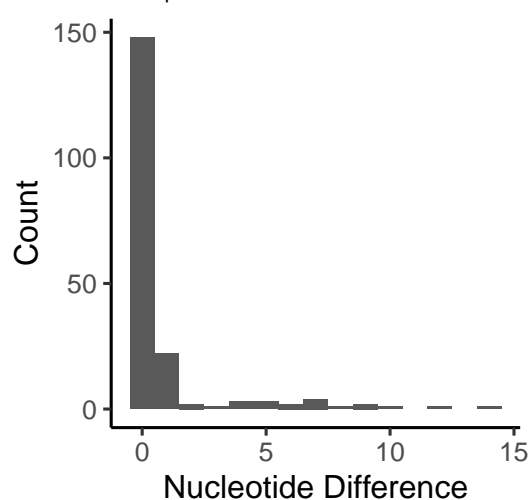
IGHV4-39*01

817 sequences assigned
643 (78.7%) exact matches, in which:
641 unique CDR3
6 unique J



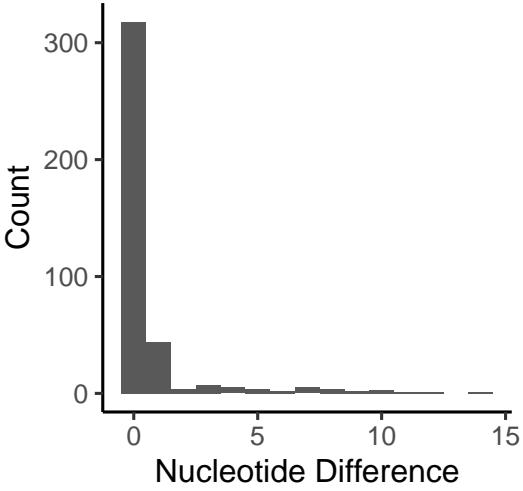
IGHV4-61*02

194 sequences assigned
148 (76.3%) exact matches, in which:
147 unique CDR3
6 unique J



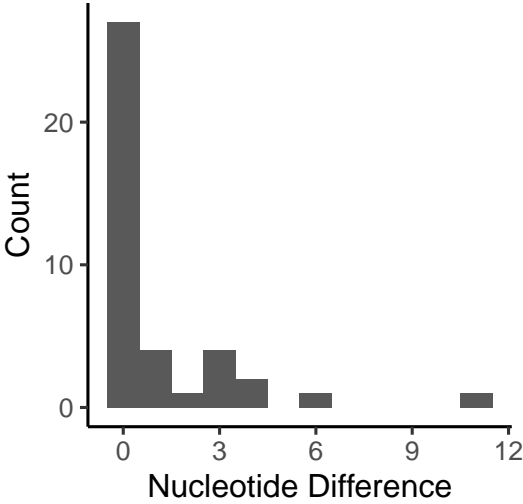
IGHV5-51*01

405 sequences assigned
318 (78.5%) exact matches, in which:
318 unique CDR3
6 unique J



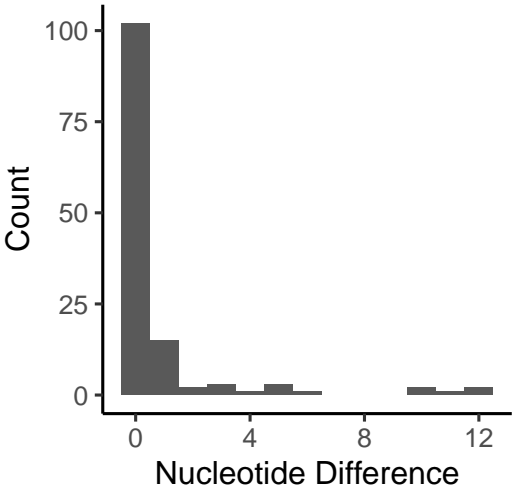
IGHV6-1*01

41 sequences assigned
27 (65.9%) exact matches, in which:
27 unique CDR3
4 unique J

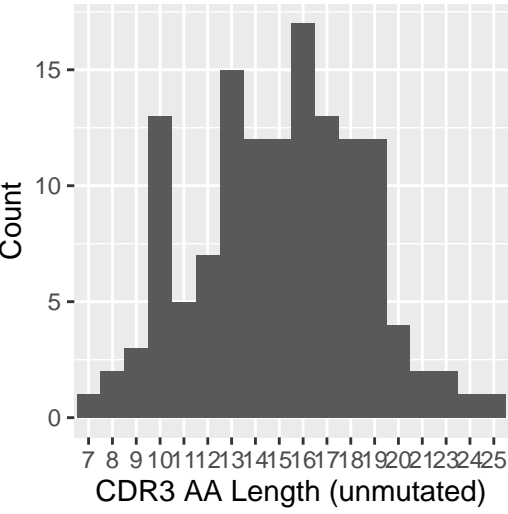


IGHV7-4-1*02

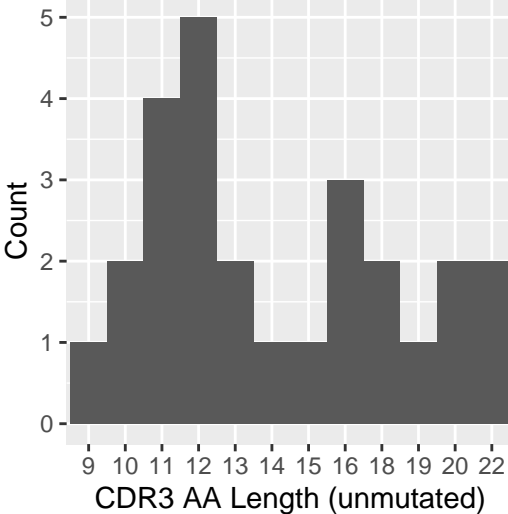
132 sequences assigned
102 (77.3%) exact matches, in which:
102 unique CDR3
6 unique J



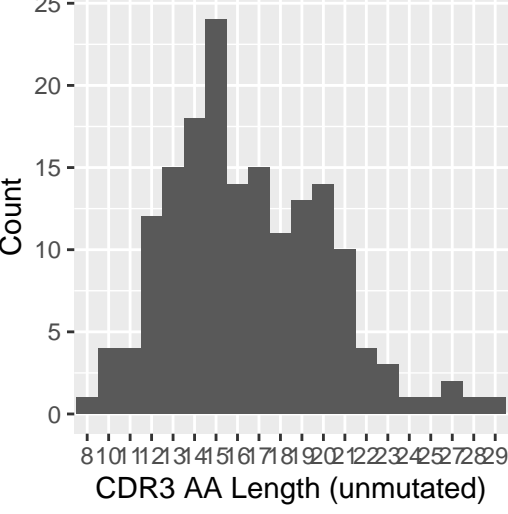
IGHV3-48*01_A39C



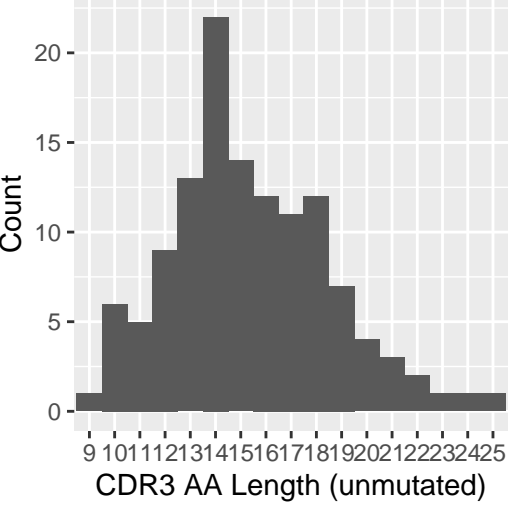
IGHV3-53*04_C241G_G273A_C300T



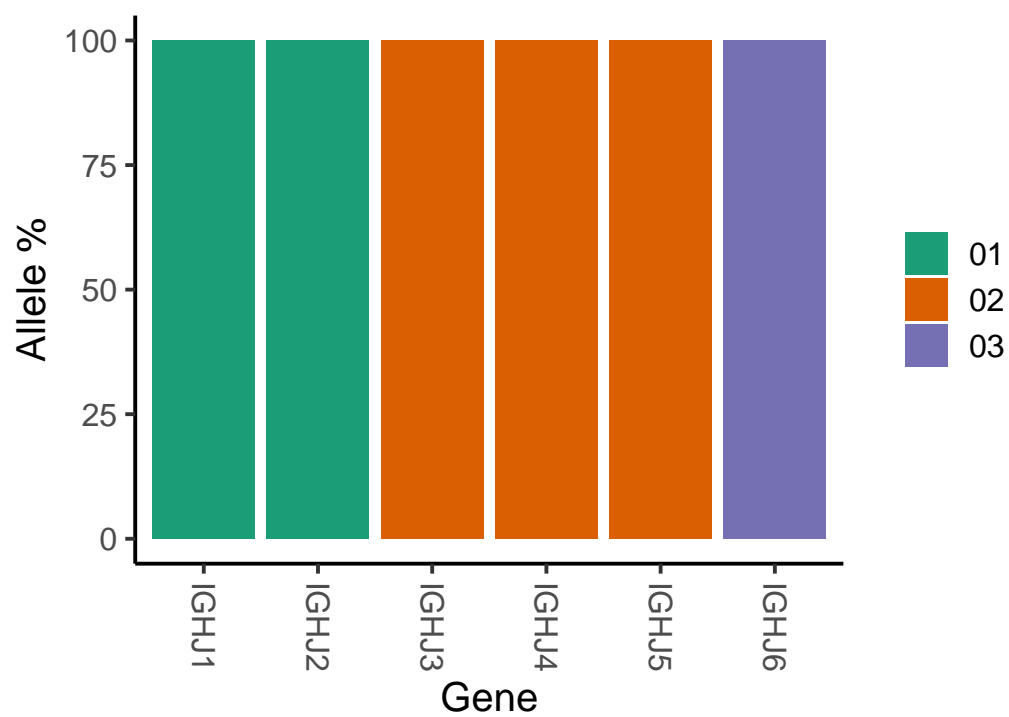
IGHV1-69*12_G48A



IGHV1-69*08_C191T



Allele Usage



[illegible]