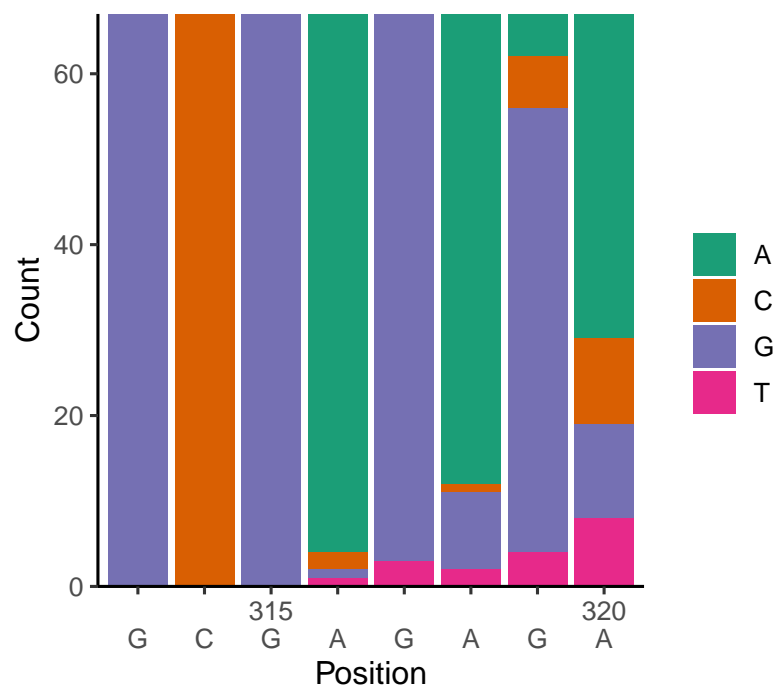
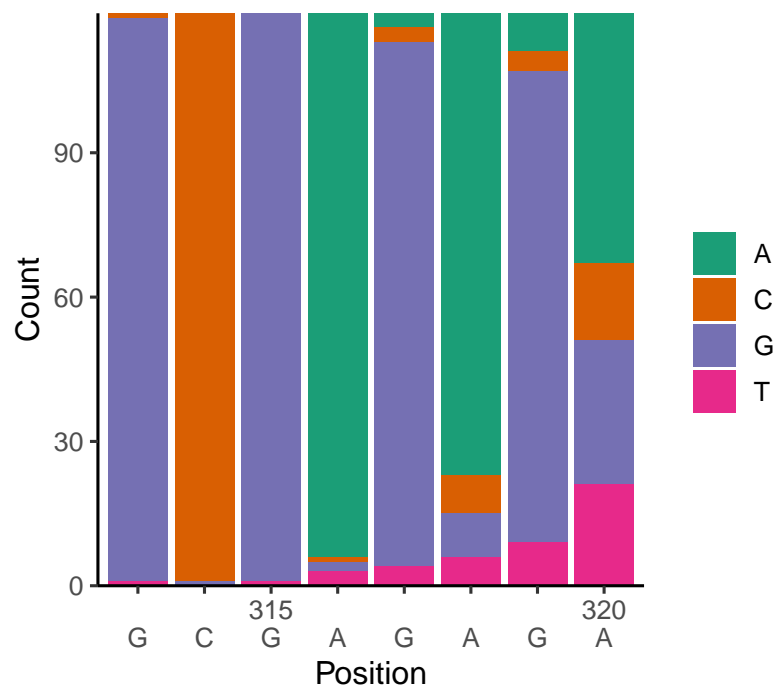


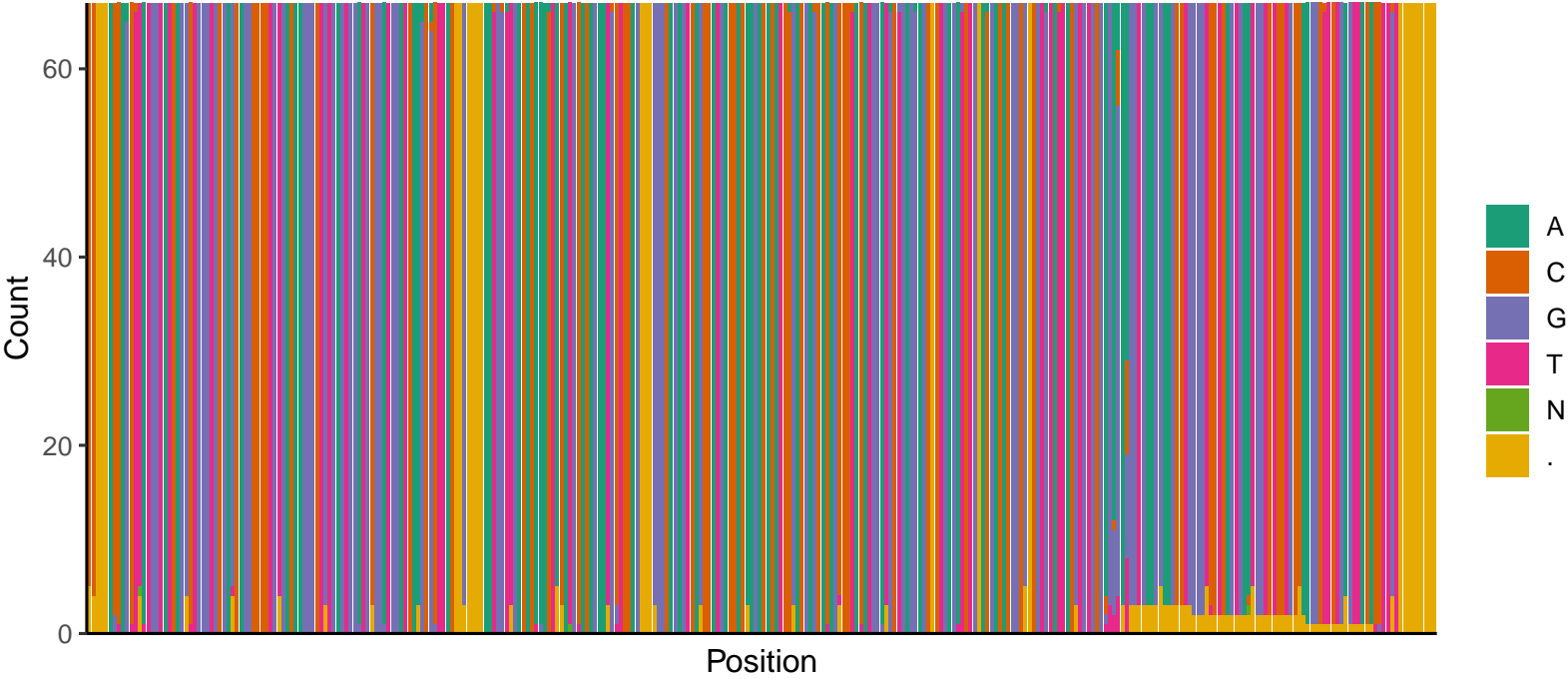
Gene IGHV1-18\*01\_A190G



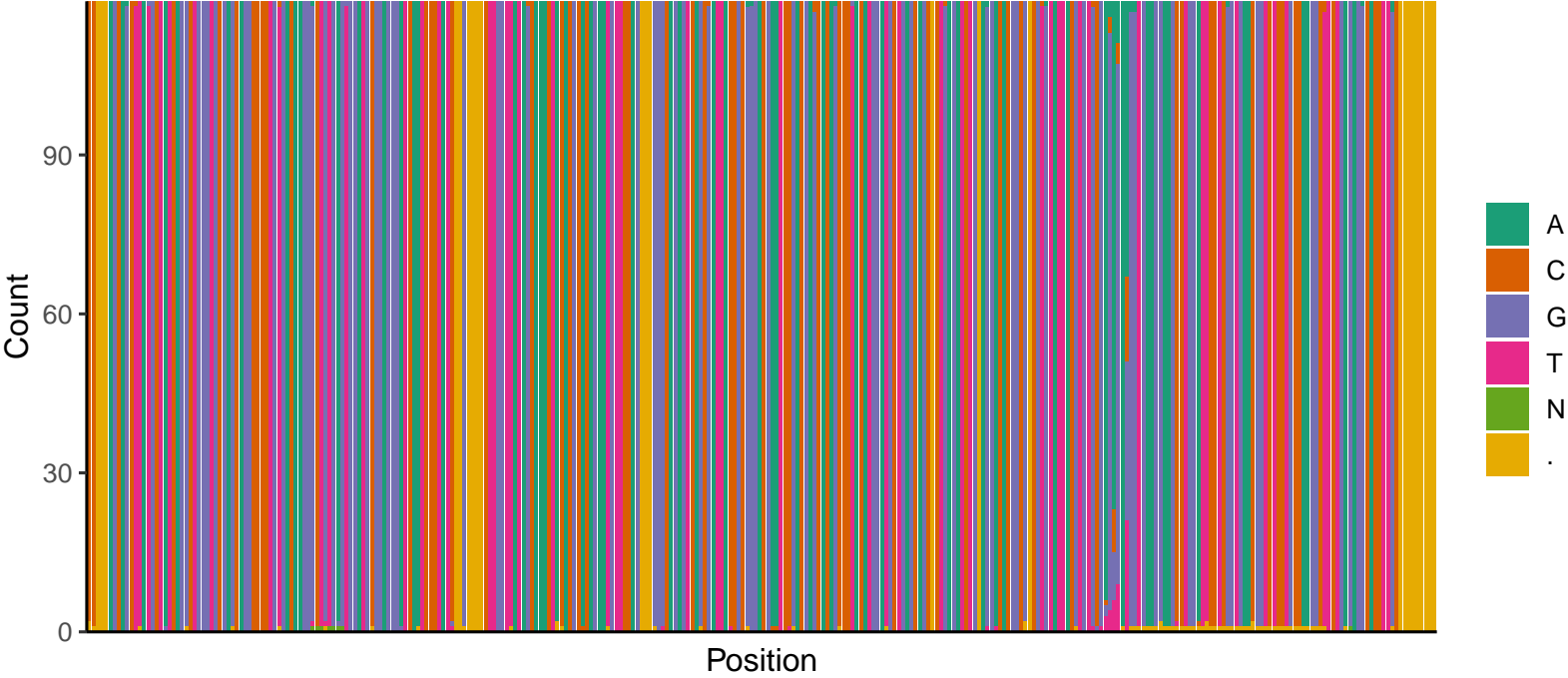
Gene IGHV1-69\*04\_G48A\_A163G\_A244G



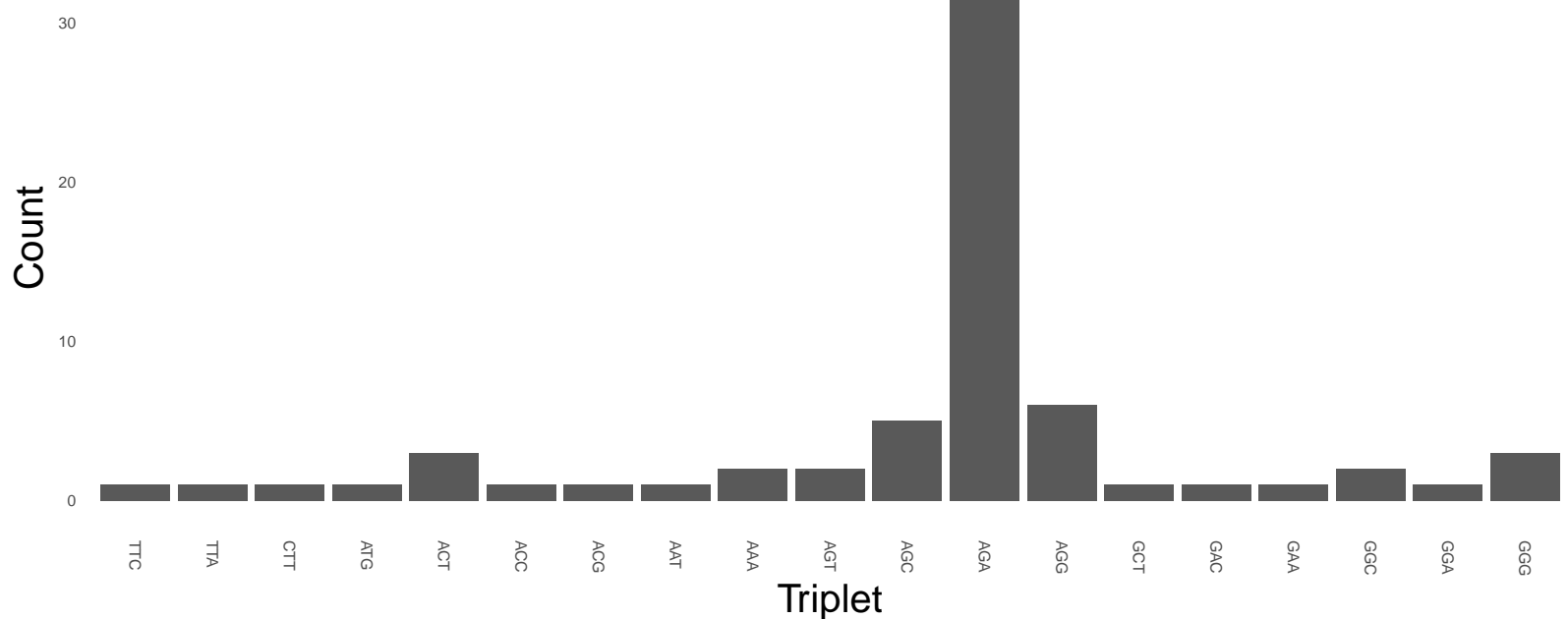
Gene IGHV1-18\*01\_A190G



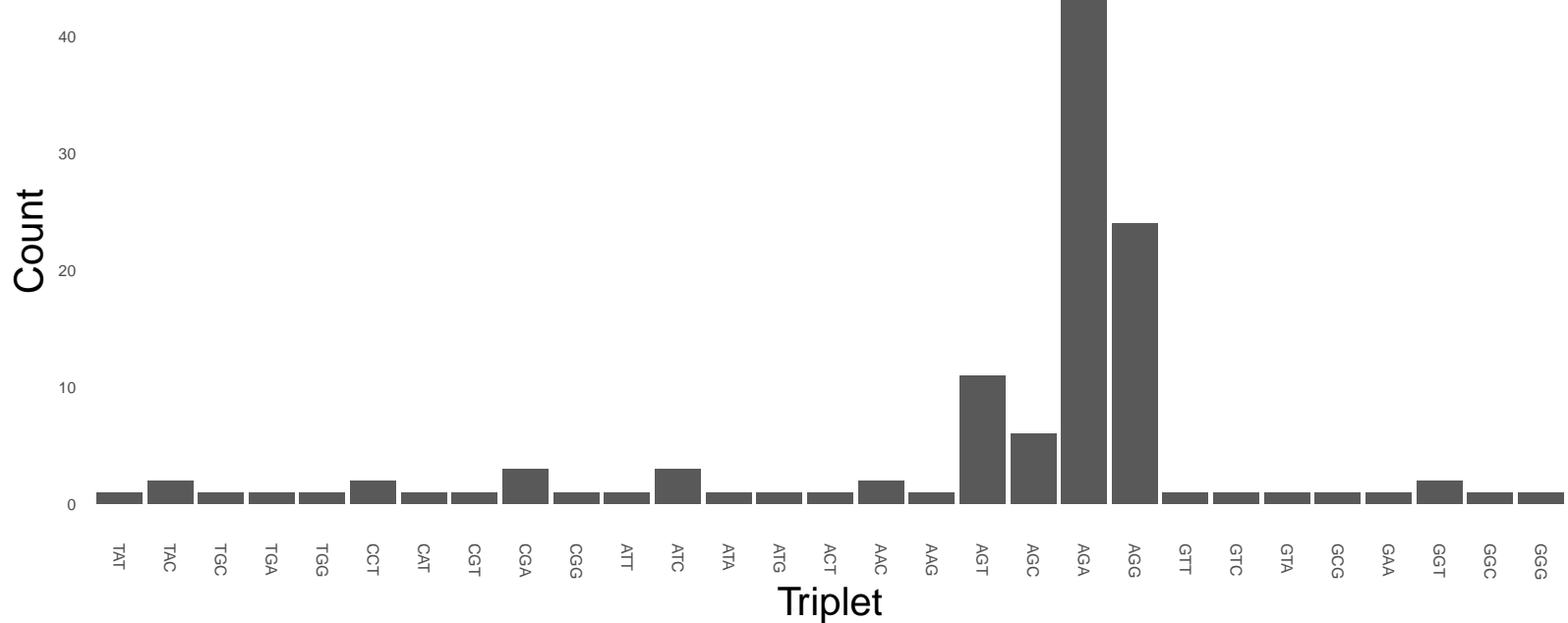
Gene IGHV1-69\*04\_G48A\_A163G\_A244G



IGHV1-18\*01\_A190G- Final 3 nucleotides as a triplet

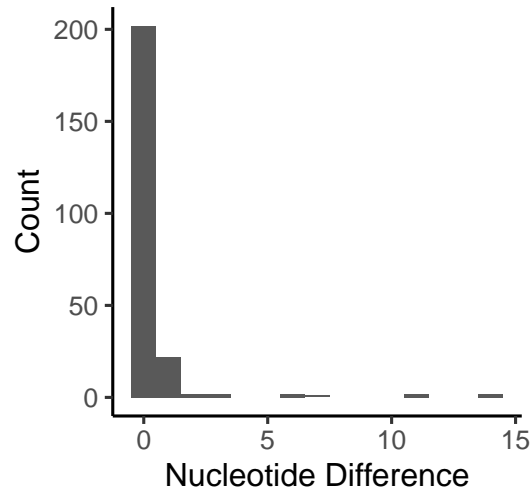


IGHV1-69\*04\_G48A\_A163G\_A244G- Final 3 nucleotides as a triplet



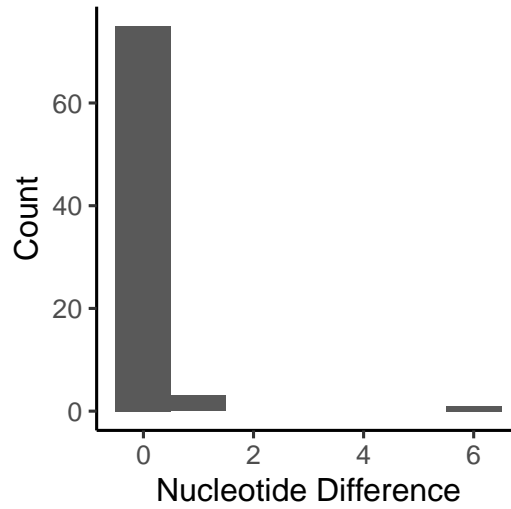
### IGHV1-2\*02

235 sequences assigned  
202 (86%) exact matches, in which:  
202 unique CDR3  
6 unique J



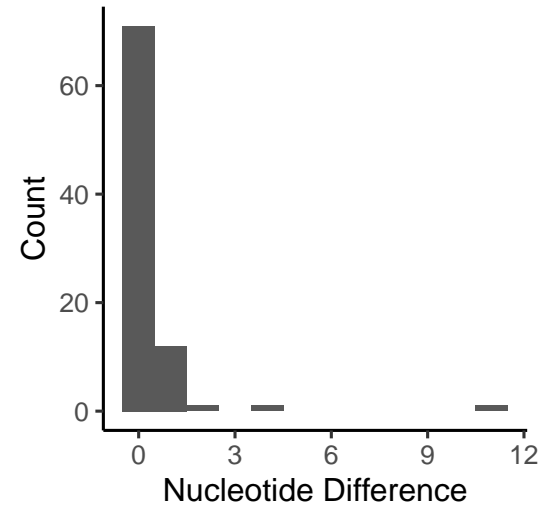
### IGHV1-18\*01

79 sequences assigned  
75 (94.9%) exact matches, in which:  
74 unique CDR3  
5 unique J



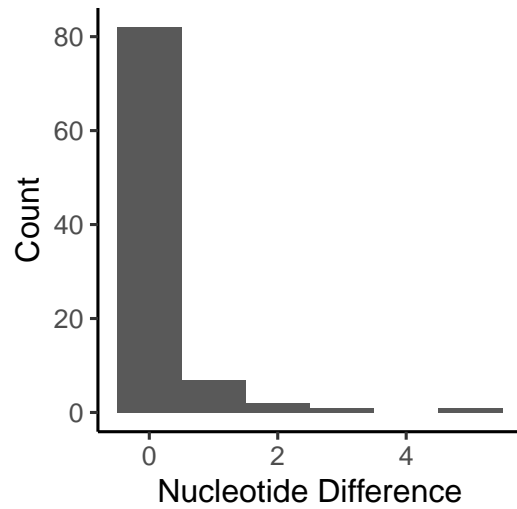
### IGHV1-46\*01

86 sequences assigned  
71 (82.6%) exact matches, in which:  
71 unique CDR3  
7 unique J



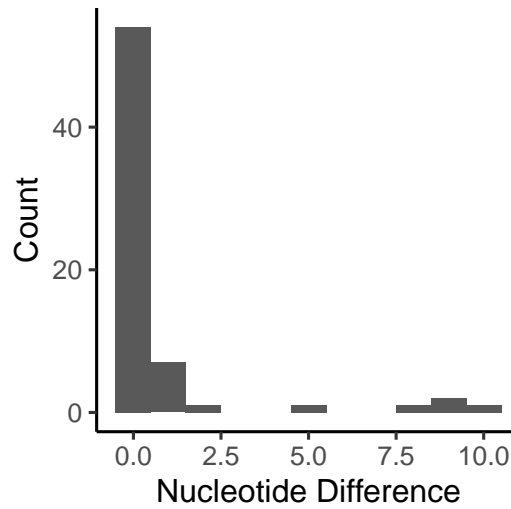
### IGHV1-8\*01

93 sequences assigned  
82 (88.2%) exact matches, in which:  
80 unique CDR3  
7 unique J



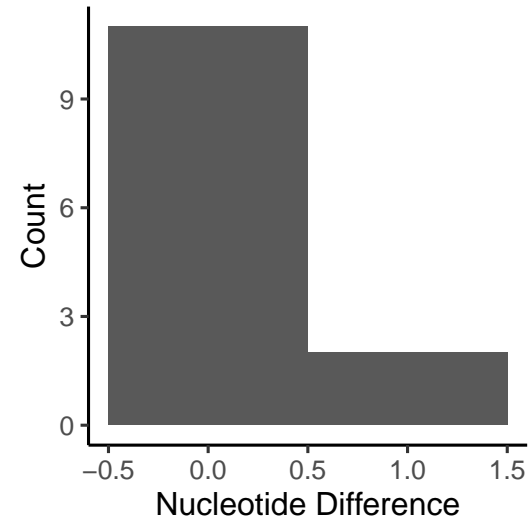
### IGHV1-18\*01\_A190G

67 sequences assigned  
54 (80.6%) exact matches, in which:  
54 unique CDR3  
5 unique J



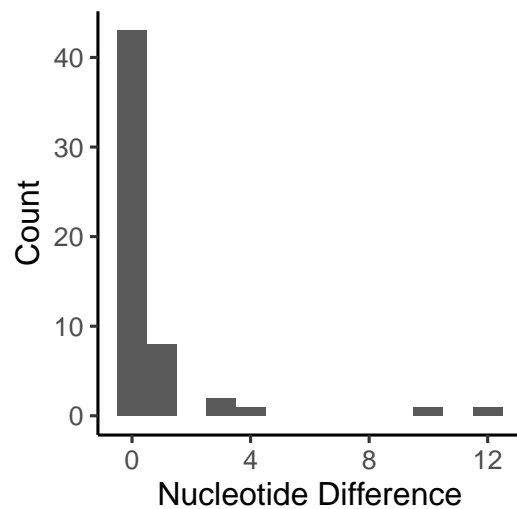
### IGHV1-58\*02

13 sequences assigned  
11 (84.6%) exact matches, in which:  
11 unique CDR3  
5 unique J



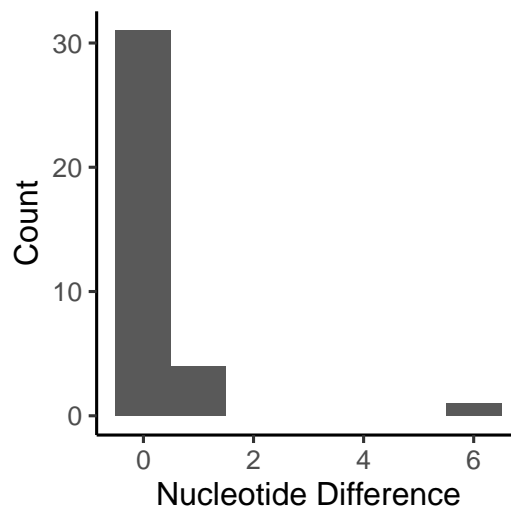
### IGHV1-8\*02

56 sequences assigned  
43 (76.8%) exact matches, in which:  
43 unique CDR3  
6 unique J



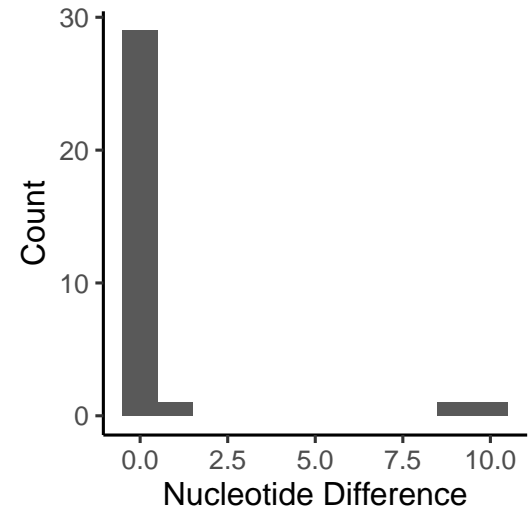
### IGHV1-24\*01

36 sequences assigned  
31 (86.1%) exact matches, in which:  
31 unique CDR3  
6 unique J



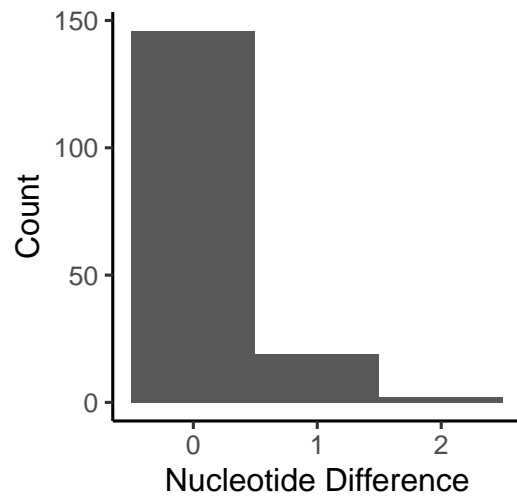
### IGHV1-69-2\*01

32 sequences assigned  
29 (90.6%) exact matches, in which:  
29 unique CDR3  
5 unique J



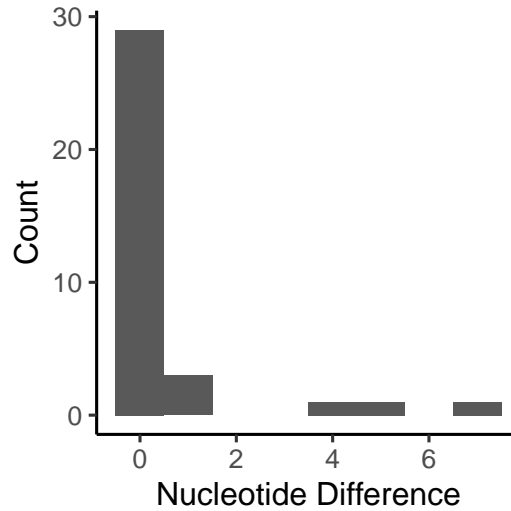
### IGHV1–69\*04

167 sequences assigned  
146 (87.4%) exact matches, in which:  
144 unique CDR3  
6 unique J



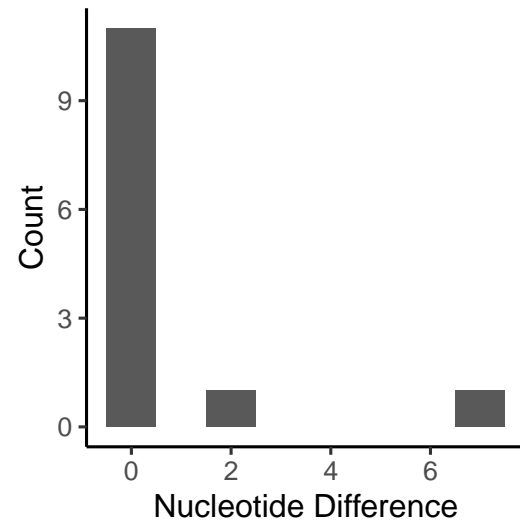
### IGHV2–5\*02

35 sequences assigned  
29 (82.9%) exact matches, in which:  
29 unique CDR3  
4 unique J



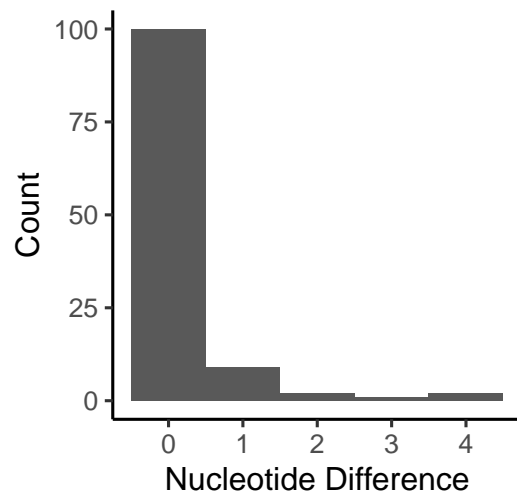
### IGHV2–70\*15

13 sequences assigned  
11 (84.6%) exact matches, in which:  
11 unique CDR3  
4 unique J



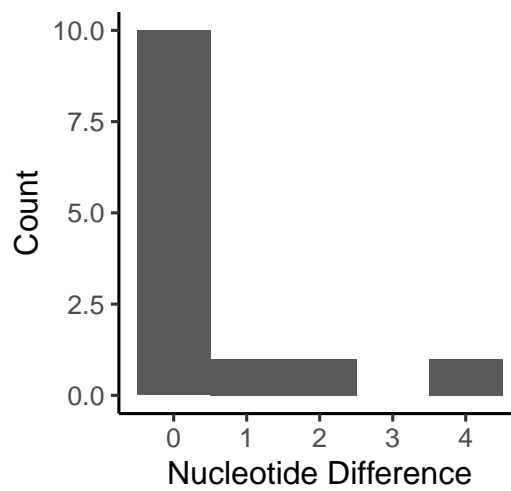
### IGHV1–69\*10

114 sequences assigned  
100 (87.7%) exact matches, in which:  
96 unique CDR3  
6 unique J



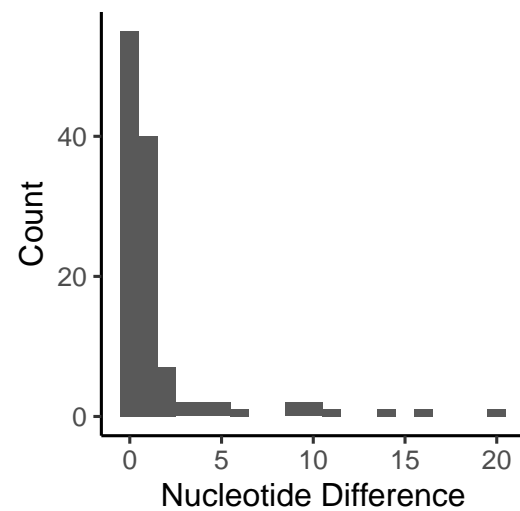
### IGHV2–5\*05

14 sequences assigned  
10 (71.4%) exact matches, in which:  
10 unique CDR3  
4 unique J



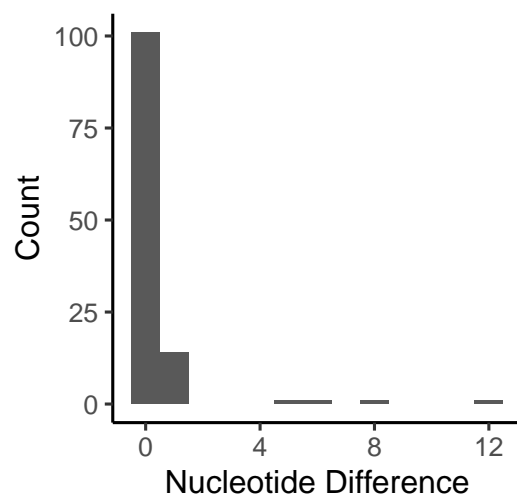
### IGHV3–7\*01

118 sequences assigned  
55 (46.6%) exact matches, in which:  
55 unique CDR3  
6 unique J



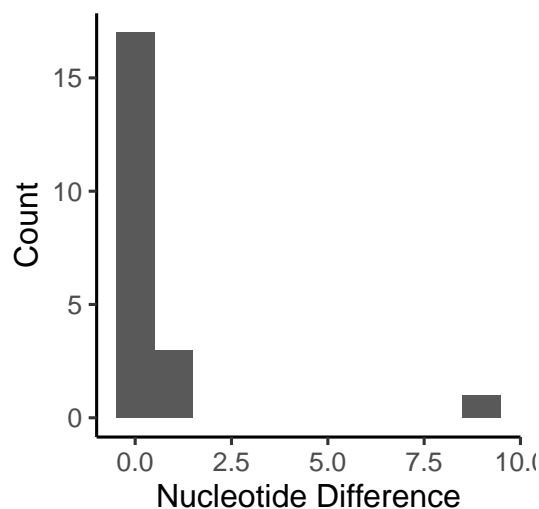
### IGHV1–69\*04\_G48A\_A16

119 sequences assigned  
101 (84.9%) exact matches, in which:  
101 unique CDR3  
5 unique J



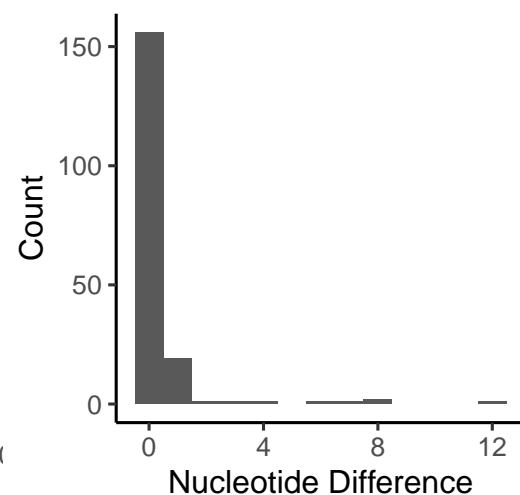
### IGHV2–26\*01

21 sequences assigned  
17 (81%) exact matches, in which:  
17 unique CDR3  
6 unique J



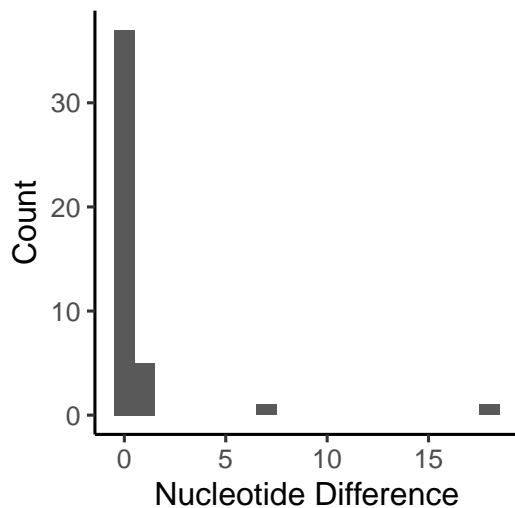
### IGHV3–9\*01

185 sequences assigned  
156 (84.3%) exact matches, in which:  
154 unique CDR3  
7 unique J



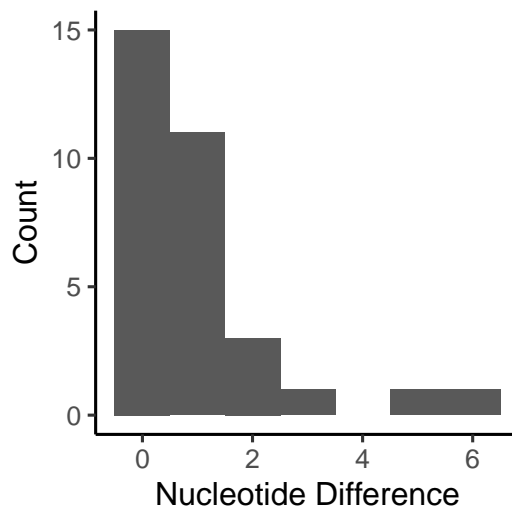
### IGHV3-11\*01

44 sequences assigned  
37 (84.1%) exact matches, in which:  
37 unique CDR3  
5 unique J



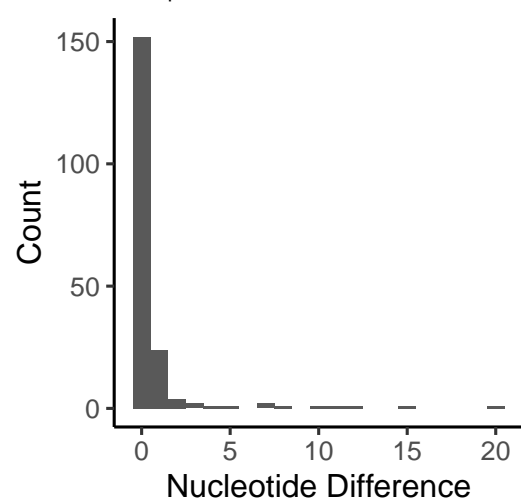
### IGHV3-15\*01

32 sequences assigned  
15 (46.9%) exact matches, in which:  
15 unique CDR3  
3 unique J



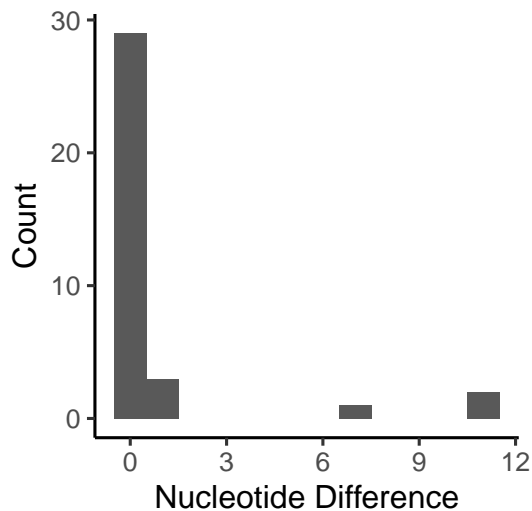
### IGHV3-21\*01

192 sequences assigned  
152 (79.2%) exact matches, in which:  
152 unique CDR3  
7 unique J



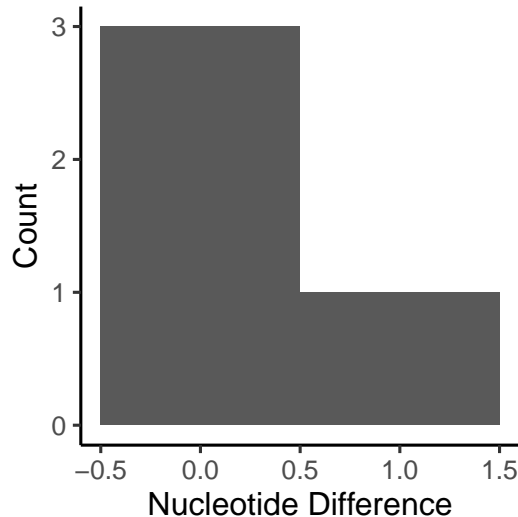
### IGHV3-11\*04

36 sequences assigned  
29 (80.6%) exact matches, in which:  
29 unique CDR3  
5 unique J



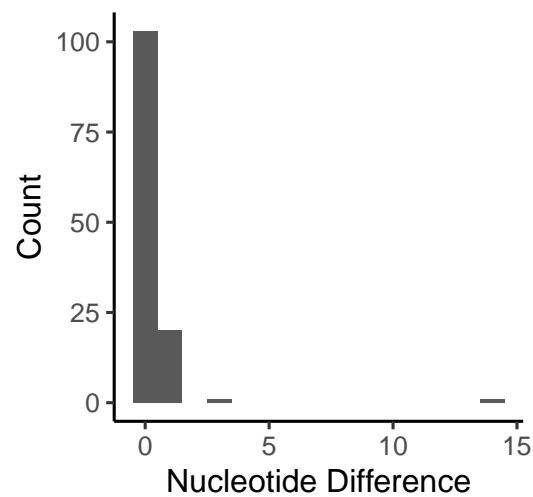
### IGHV3-20\*01

4 sequences assigned  
3 (75%) exact matches, in which:  
3 unique CDR3  
2 unique J



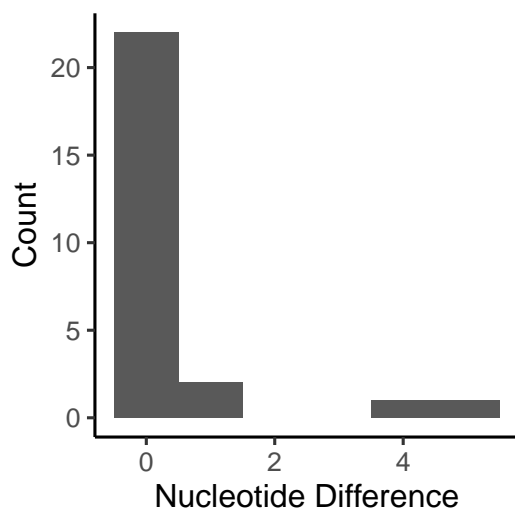
### IGHV3-33\*06

126 sequences assigned  
103 (81.7%) exact matches, in which:  
103 unique CDR3  
7 unique J



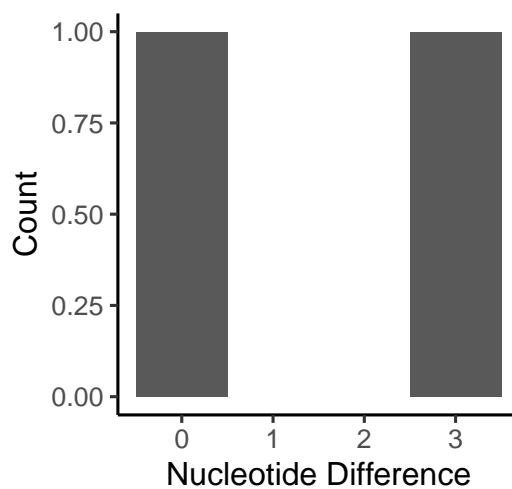
### IGHV3-13\*01

26 sequences assigned  
22 (84.6%) exact matches, in which:  
22 unique CDR3  
6 unique J



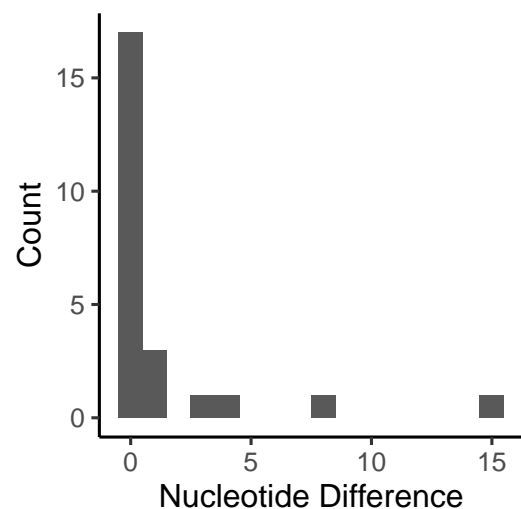
### IGHV3-20\*04

2 sequences assigned  
1 (50%) exact matches, in which:  
1 unique CDR3  
1 unique J



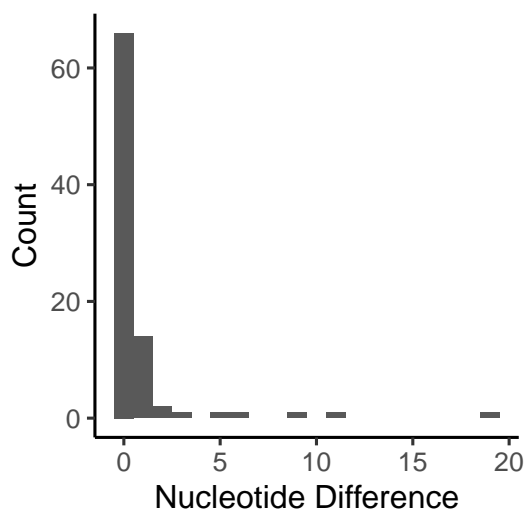
### IGHV3-43\*01

26 sequences assigned  
17 (65.4%) exact matches, in which:  
17 unique CDR3  
5 unique J



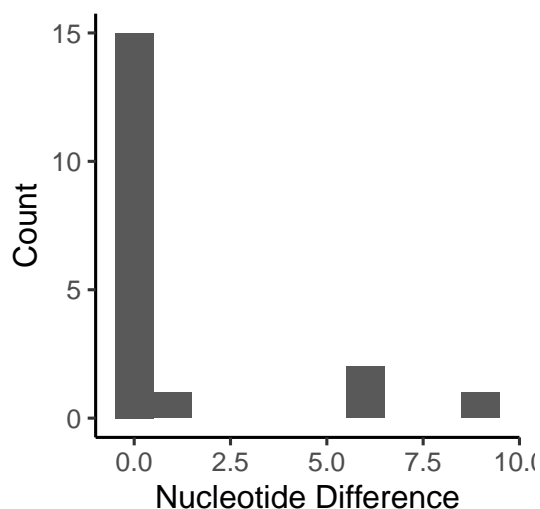
### IGHV3-48\*03

88 sequences assigned  
66 (75%) exact matches, in which:  
65 unique CDR3  
5 unique J



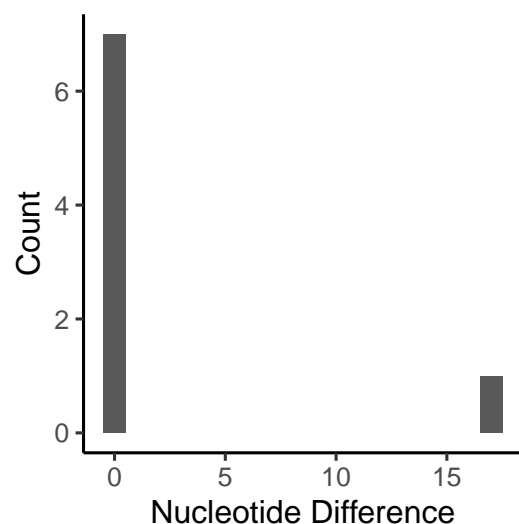
### IGHV3-49\*04

19 sequences assigned  
15 (78.9%) exact matches, in which:  
15 unique CDR3  
4 unique J



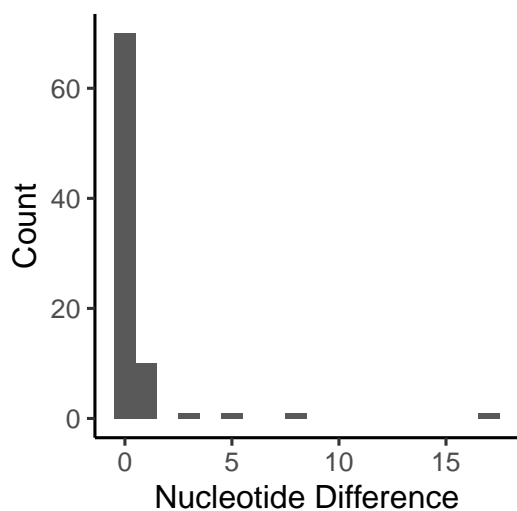
### IGHV3-64\*01

8 sequences assigned  
7 (87.5%) exact matches, in which:  
7 unique CDR3  
5 unique J



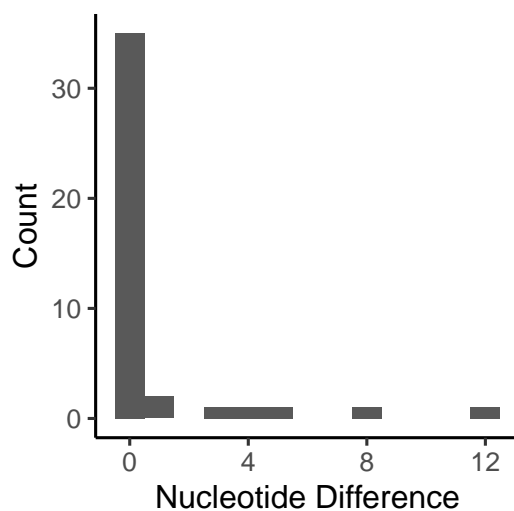
### IGHV3-48\*04

84 sequences assigned  
70 (83.3%) exact matches, in which:  
68 unique CDR3  
6 unique J



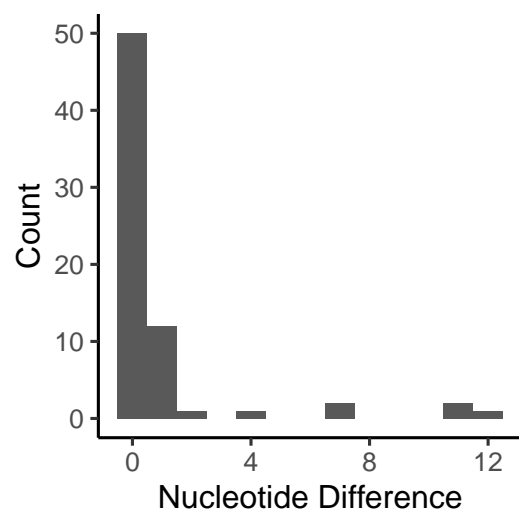
### IGHV3-53\*01

42 sequences assigned  
35 (83.3%) exact matches, in which:  
35 unique CDR3  
5 unique J



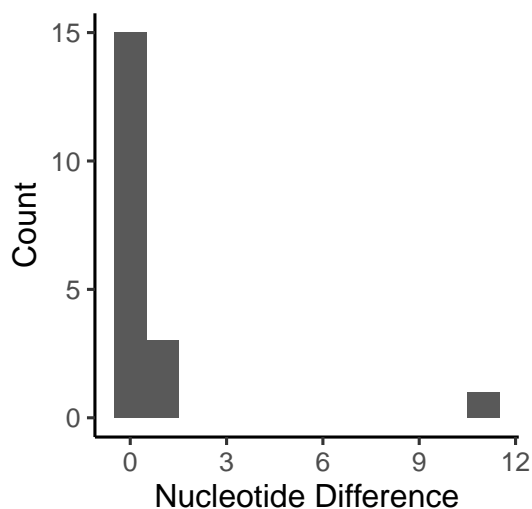
### IGHV3-66\*01

69 sequences assigned  
50 (72.5%) exact matches, in which:  
50 unique CDR3  
4 unique J



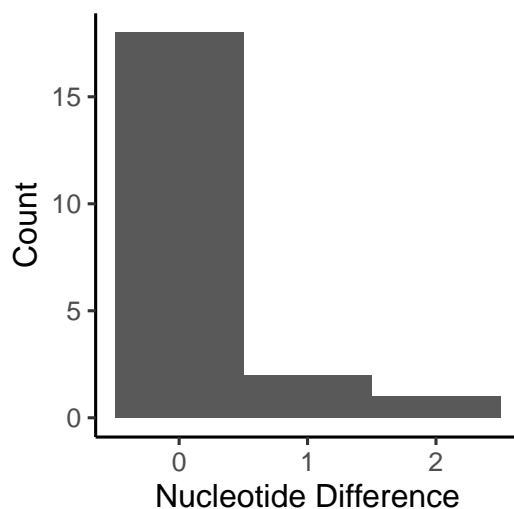
### IGHV3-49\*03

19 sequences assigned  
15 (78.9%) exact matches, in which:  
15 unique CDR3  
3 unique J



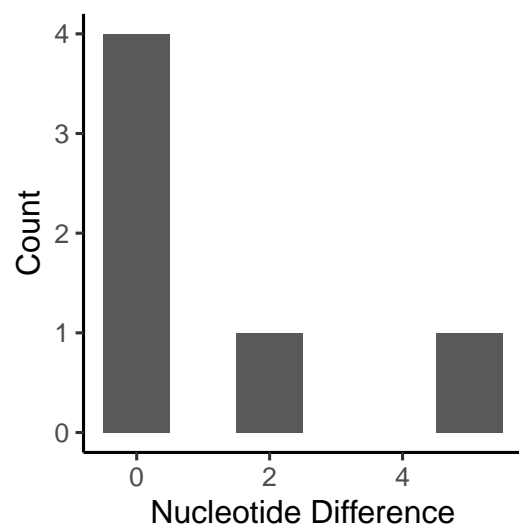
### IGHV3-53\*04

21 sequences assigned  
18 (85.7%) exact matches, in which:  
18 unique CDR3  
5 unique J



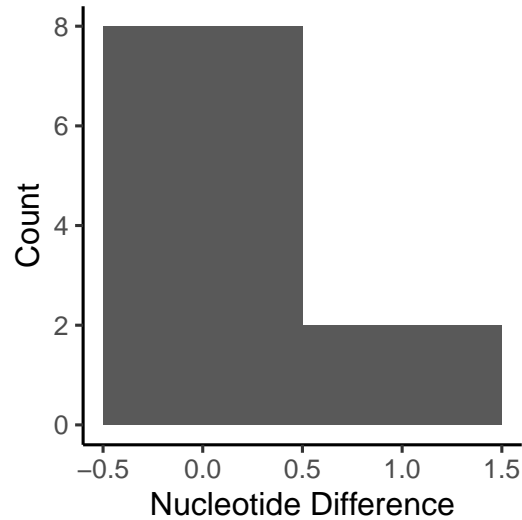
### IGHV3-72\*01

6 sequences assigned  
4 (66.7%) exact matches, in which:  
4 unique CDR3  
3 unique J



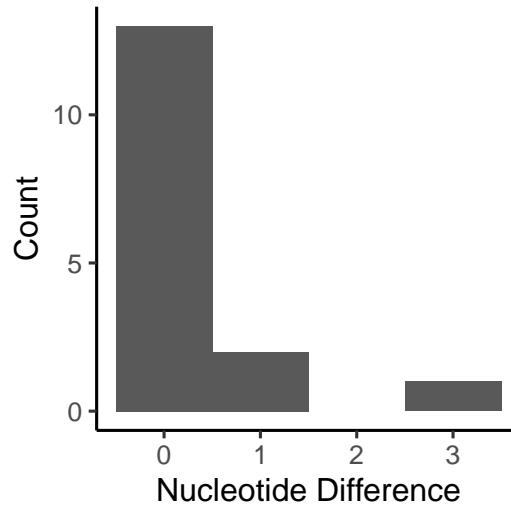
### IGHV3-73\*01

10 sequences assigned  
8 (80%) exact matches, in which:  
8 unique CDR3  
2 unique J



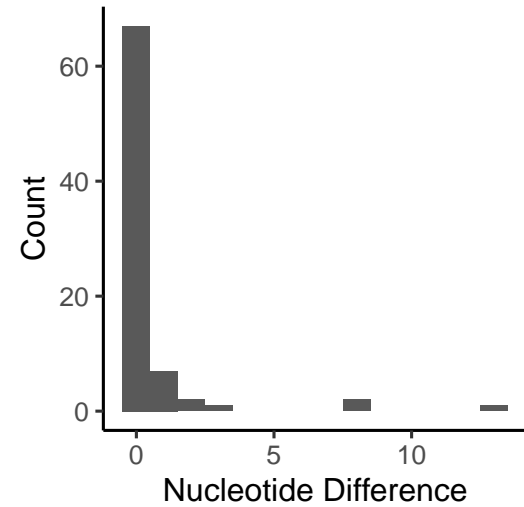
### IGHV3-43D\*03

16 sequences assigned  
13 (81.2%) exact matches, in which:  
13 unique CDR3  
4 unique J



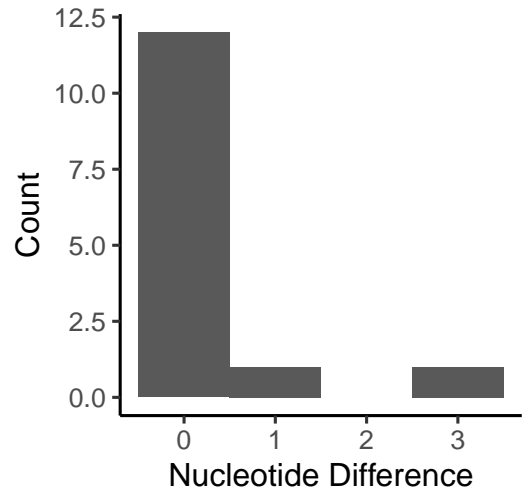
### IGHV4-31\*03

80 sequences assigned  
67 (83.8%) exact matches, in which:  
67 unique CDR3  
6 unique J



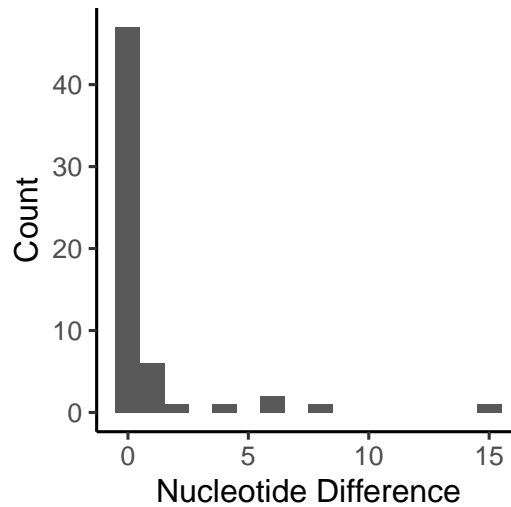
### IGHV3-73\*02

14 sequences assigned  
12 (85.7%) exact matches, in which:  
12 unique CDR3  
3 unique J



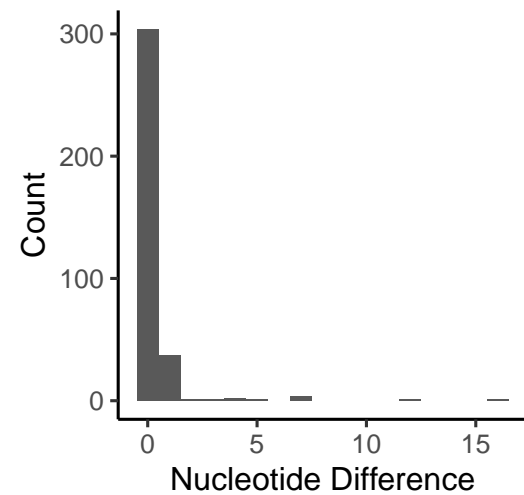
### IGHV4-4\*07

59 sequences assigned  
47 (79.7%) exact matches, in which:  
45 unique CDR3  
6 unique J



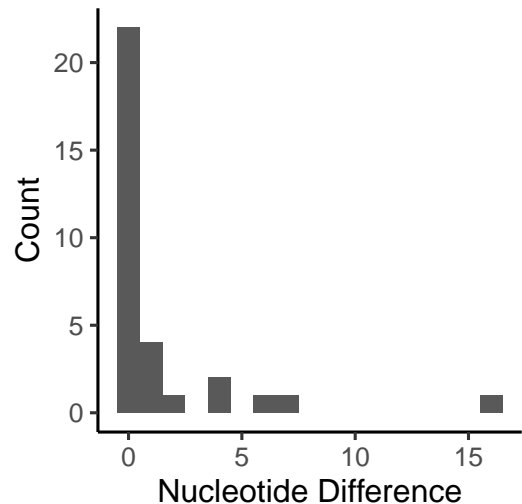
### IGHV4-34\*01

356 sequences assigned  
304 (85.4%) exact matches, in which:  
303 unique CDR3  
7 unique J



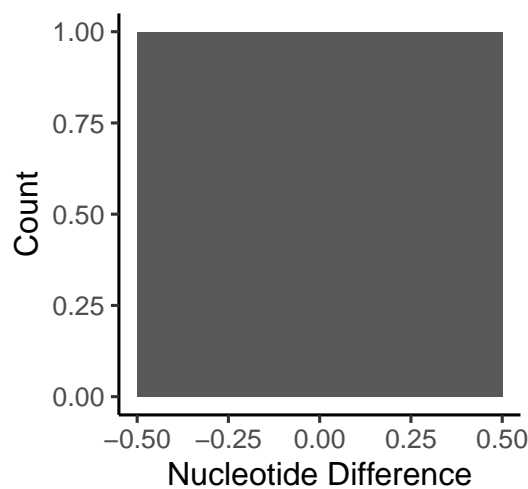
### IGHV3-74\*01

33 sequences assigned  
22 (66.7%) exact matches, in which:  
22 unique CDR3  
4 unique J



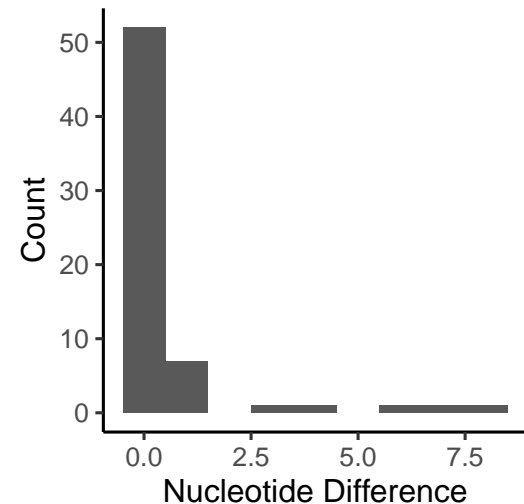
### IGHV4-28\*01

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



### IGHV4-38-2\*02

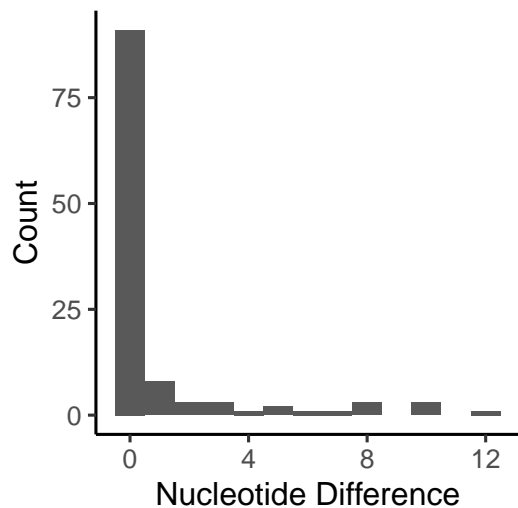
64 sequences assigned  
52 (81.2%) exact matches, in which:  
52 unique CDR3  
6 unique J





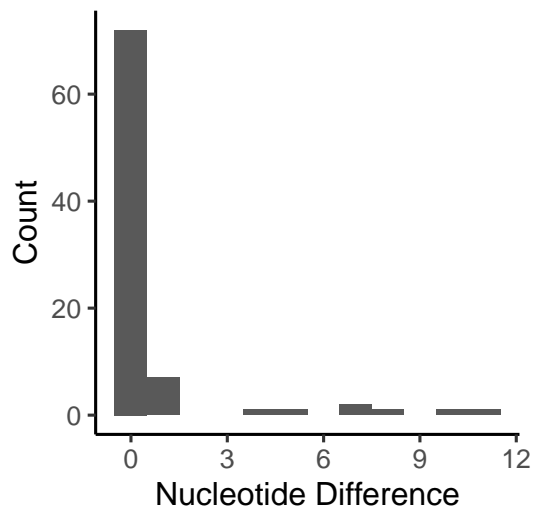
### IGHV4-39\*01

117 sequences assigned  
91 (77.8%) exact matches, in which:  
90 unique CDR3  
6 unique J



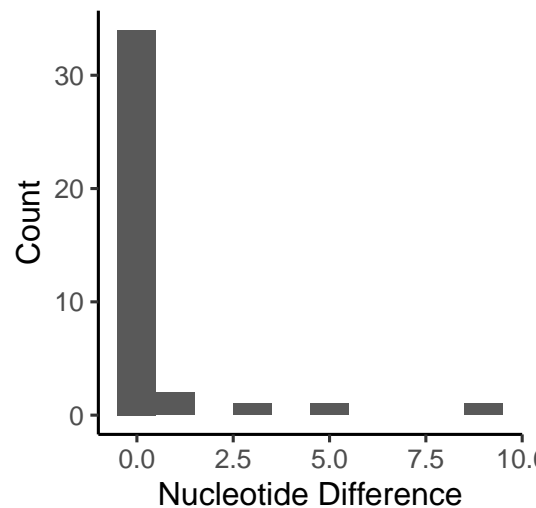
### IGHV4-59\*08

87 sequences assigned  
72 (82.8%) exact matches, in which:  
72 unique CDR3  
6 unique J



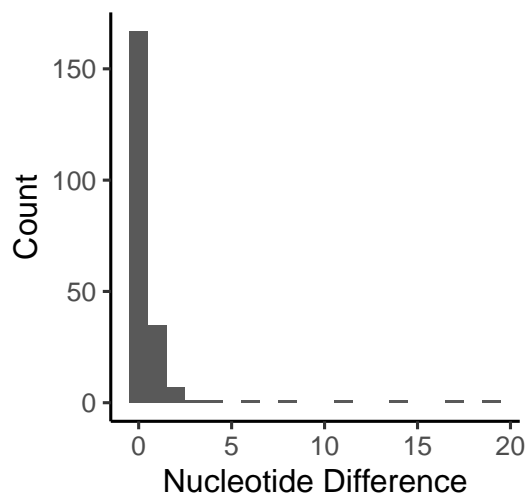
### IGHV6-1\*01

39 sequences assigned  
34 (87.2%) exact matches, in which:  
34 unique CDR3  
6 unique J



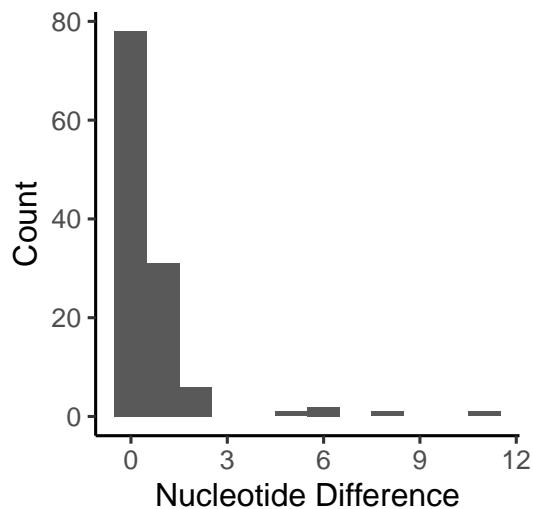
### IGHV4-39\*07

218 sequences assigned  
167 (76.6%) exact matches, in which:  
166 unique CDR3  
6 unique J



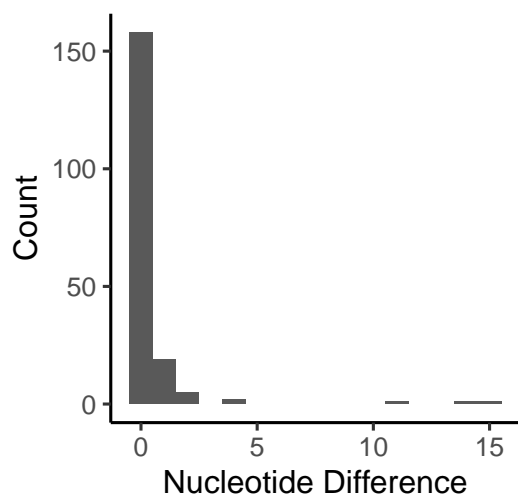
### IGHV5-51\*01

121 sequences assigned  
78 (64.5%) exact matches, in which:  
77 unique CDR3  
6 unique J



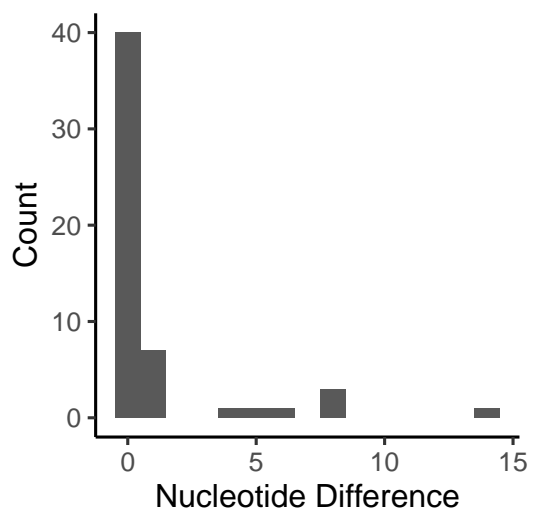
### IGHV4-59\*01

187 sequences assigned  
158 (84.5%) exact matches, in which:  
156 unique CDR3  
7 unique J

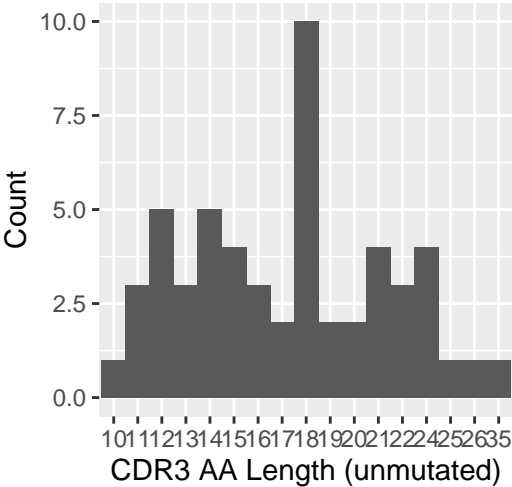


### IGHV5-51\*03

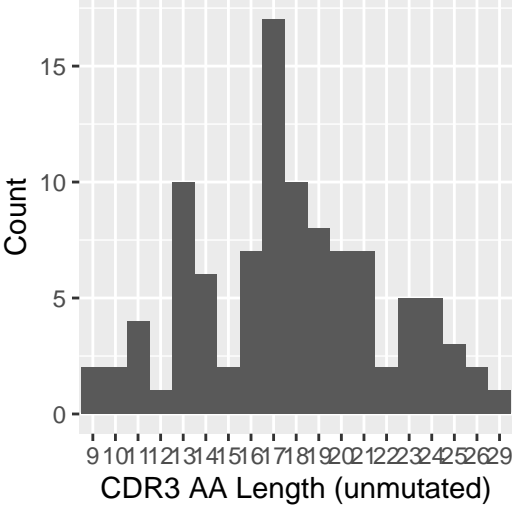
54 sequences assigned  
40 (74.1%) exact matches, in which:  
40 unique CDR3  
5 unique J



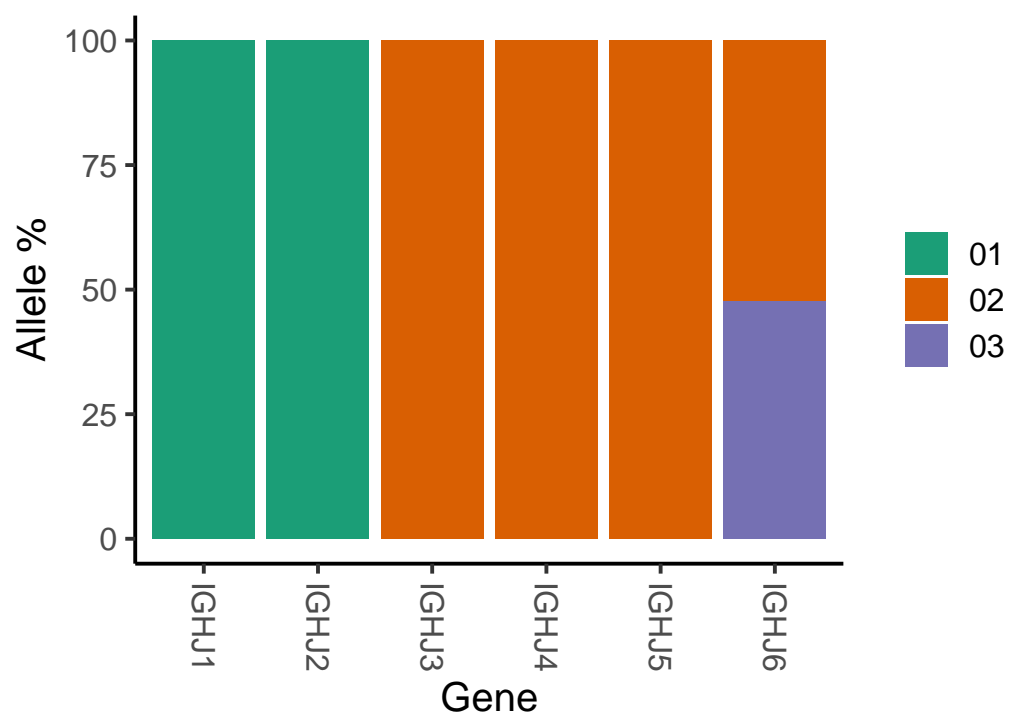
IGHV1-18\*01\_A190G



IGHV1-69\*04\_G48A\_A163G\_A244G



Allele Usage



Sequence Count by IGHJ6 allele usage



