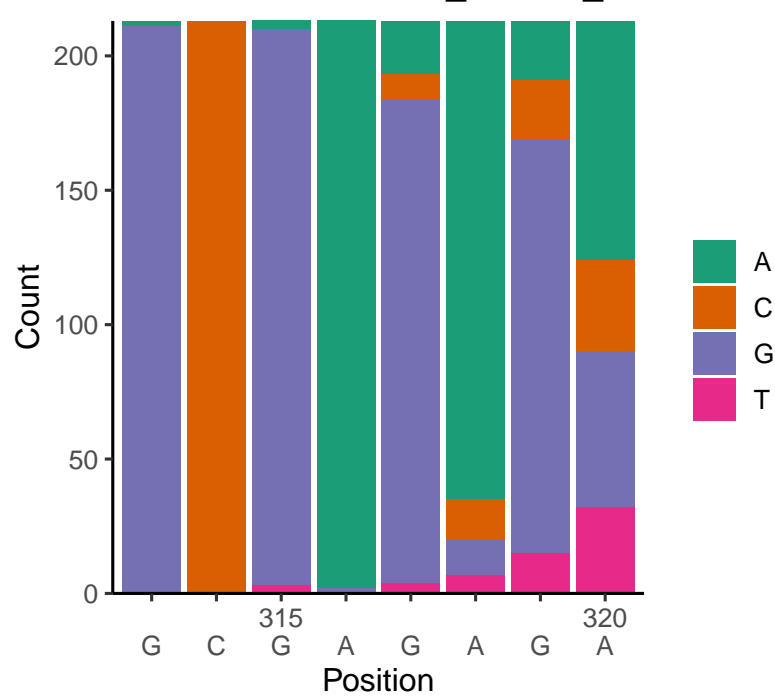
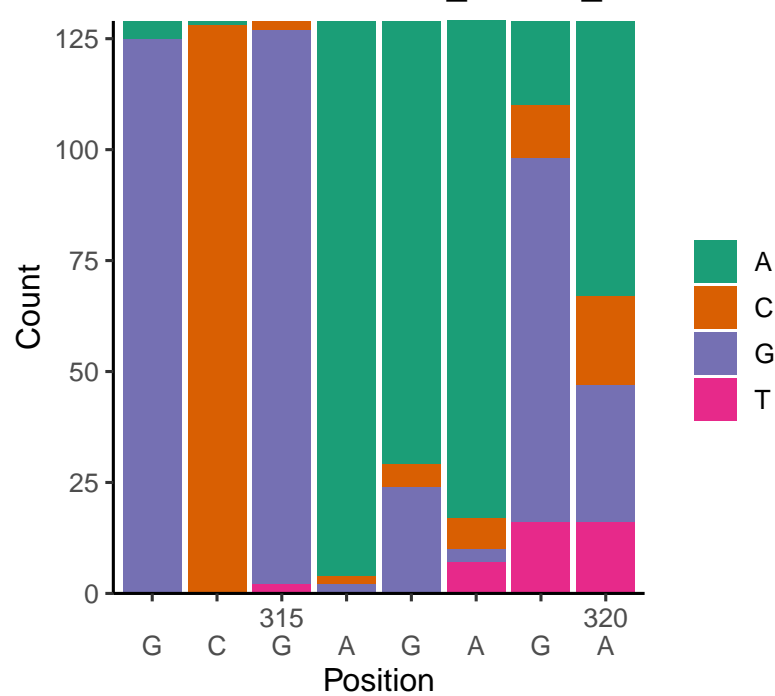


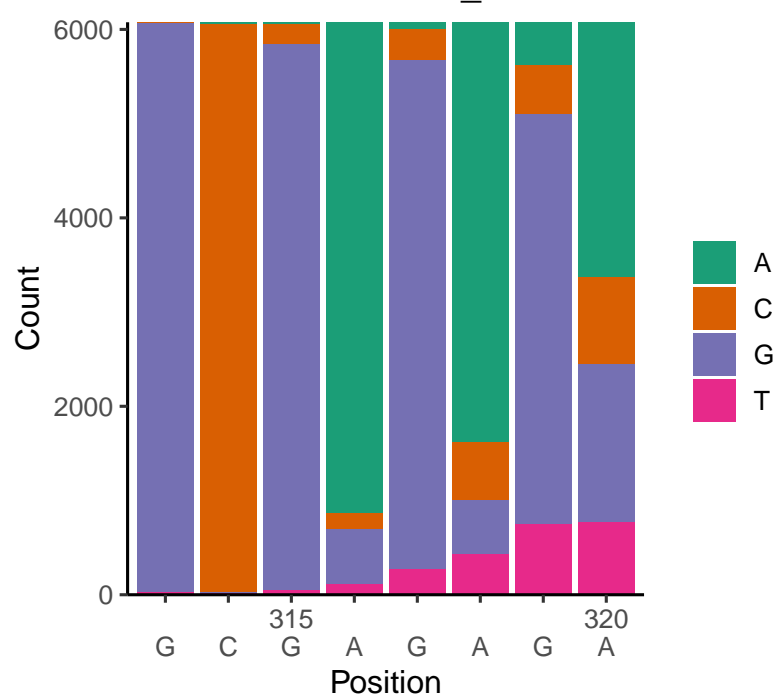
Gene IGHV1-58\*02\_G316A\_C317G



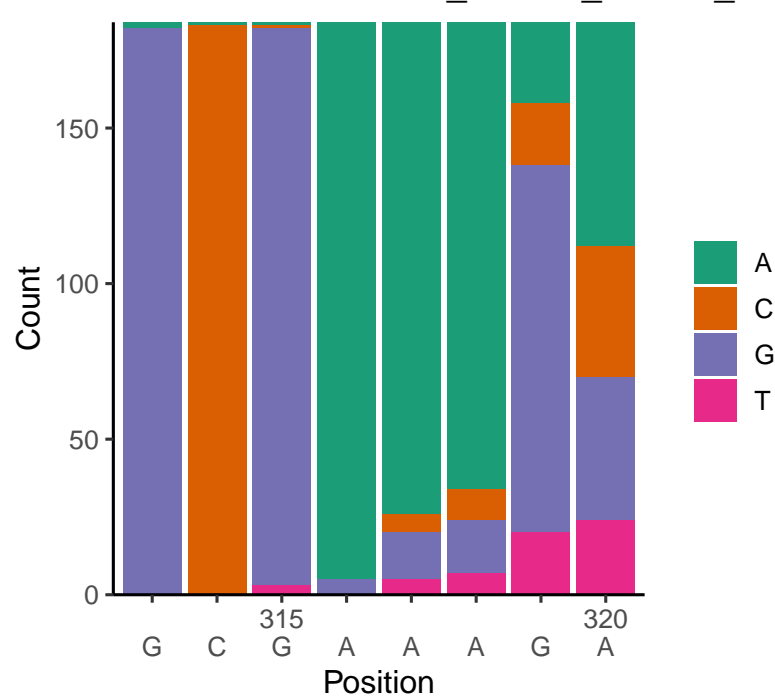
Gene IGHV3-53\*02\_T267G\_G303A



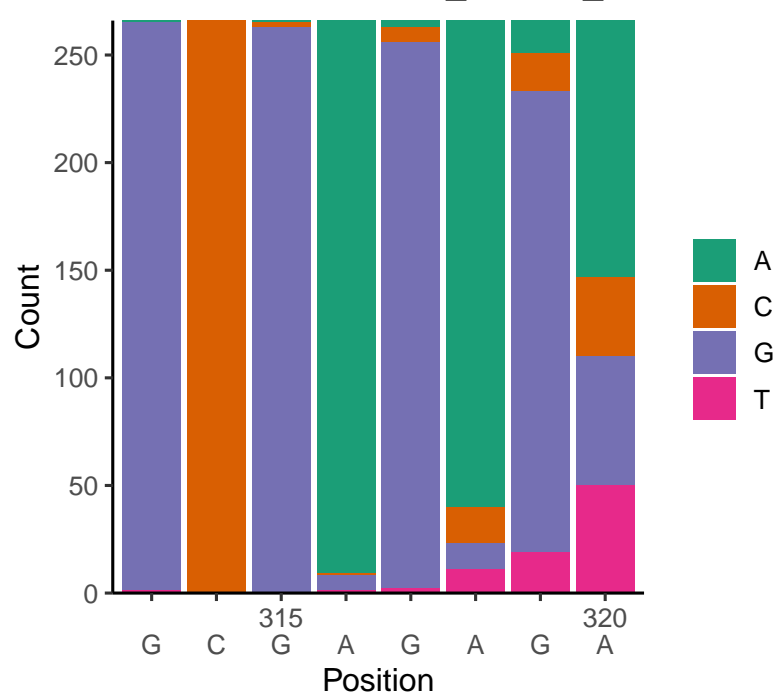
Gene IGHV1-69\*08\_C191T



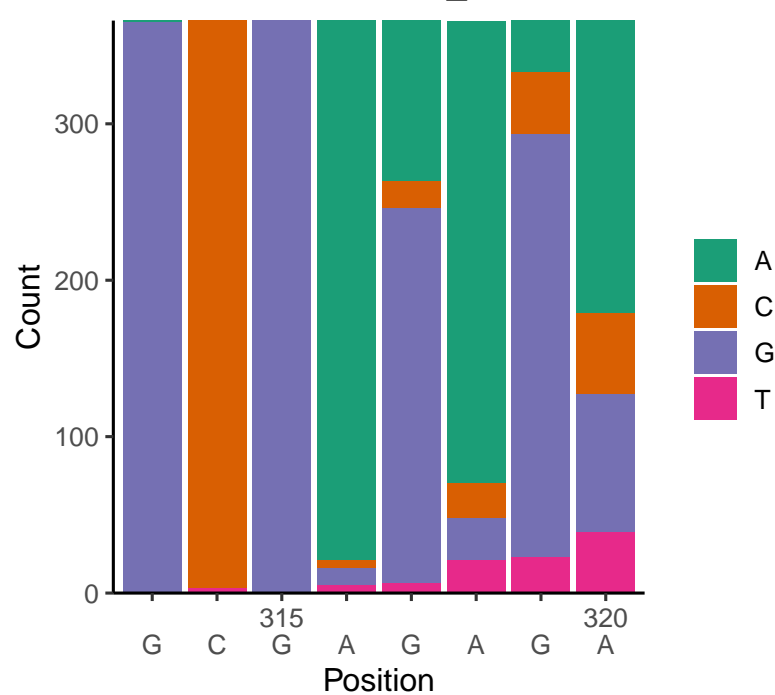
Gene IGHV3-53\*04\_T267G\_T288C\_G303A



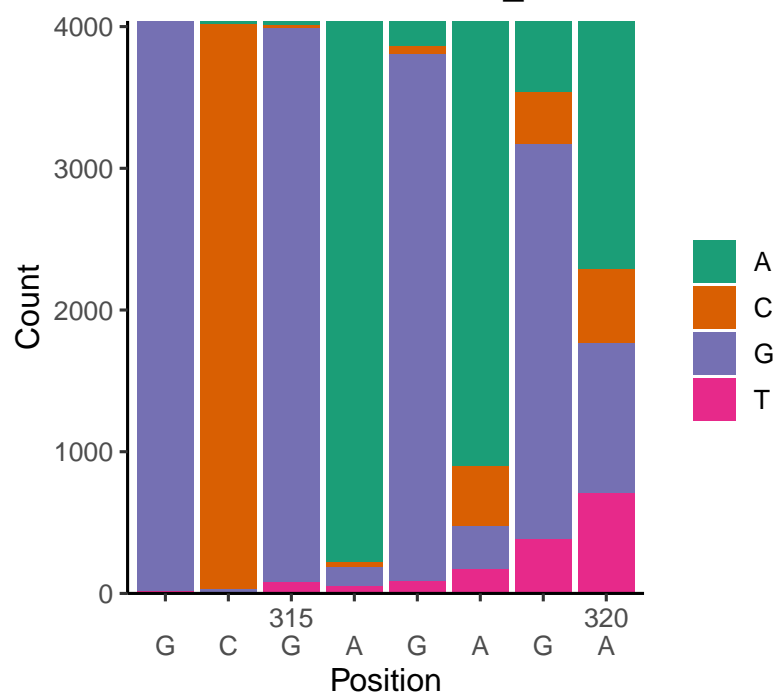
Gene IGHV3-11\*04\_G240A\_G303T



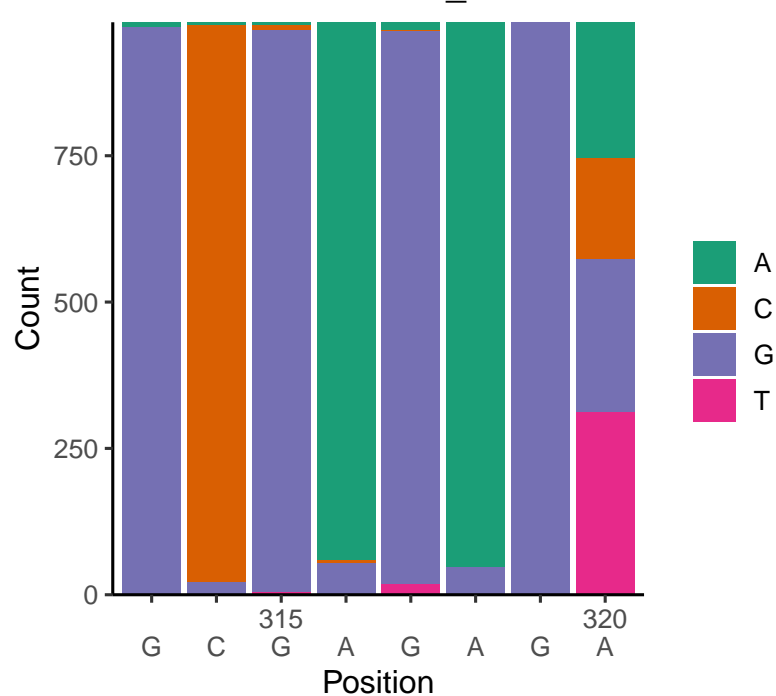
Gene IGHV3-74\*01\_A315G



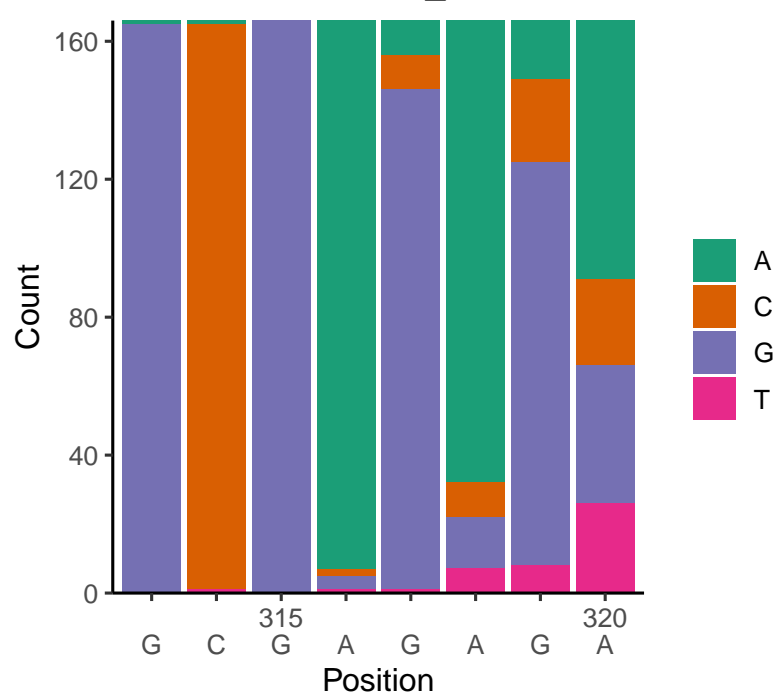
Gene IGHV4-38-2\*02\_A70G



Gene IGHV4-39\*02\_C258G



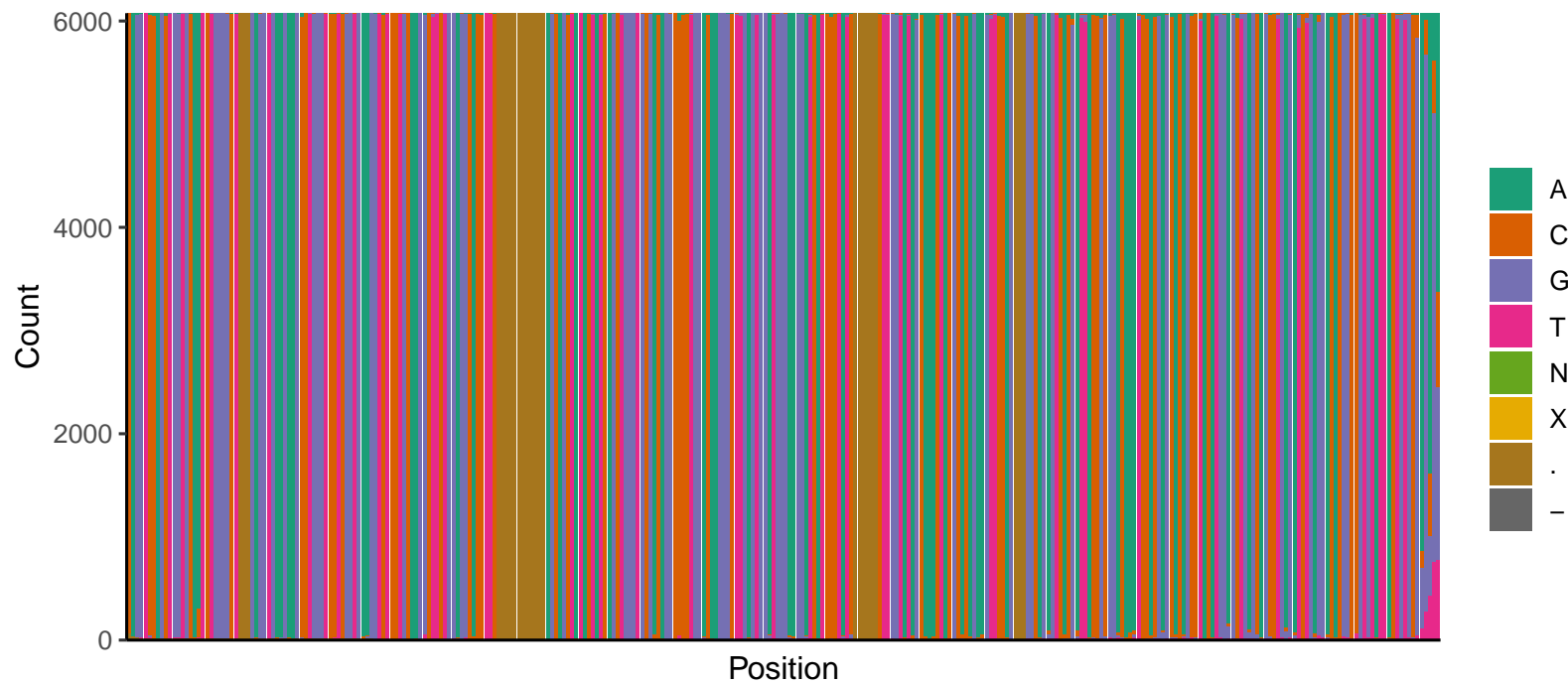
Gene IGHV6-1\*01\_A315G



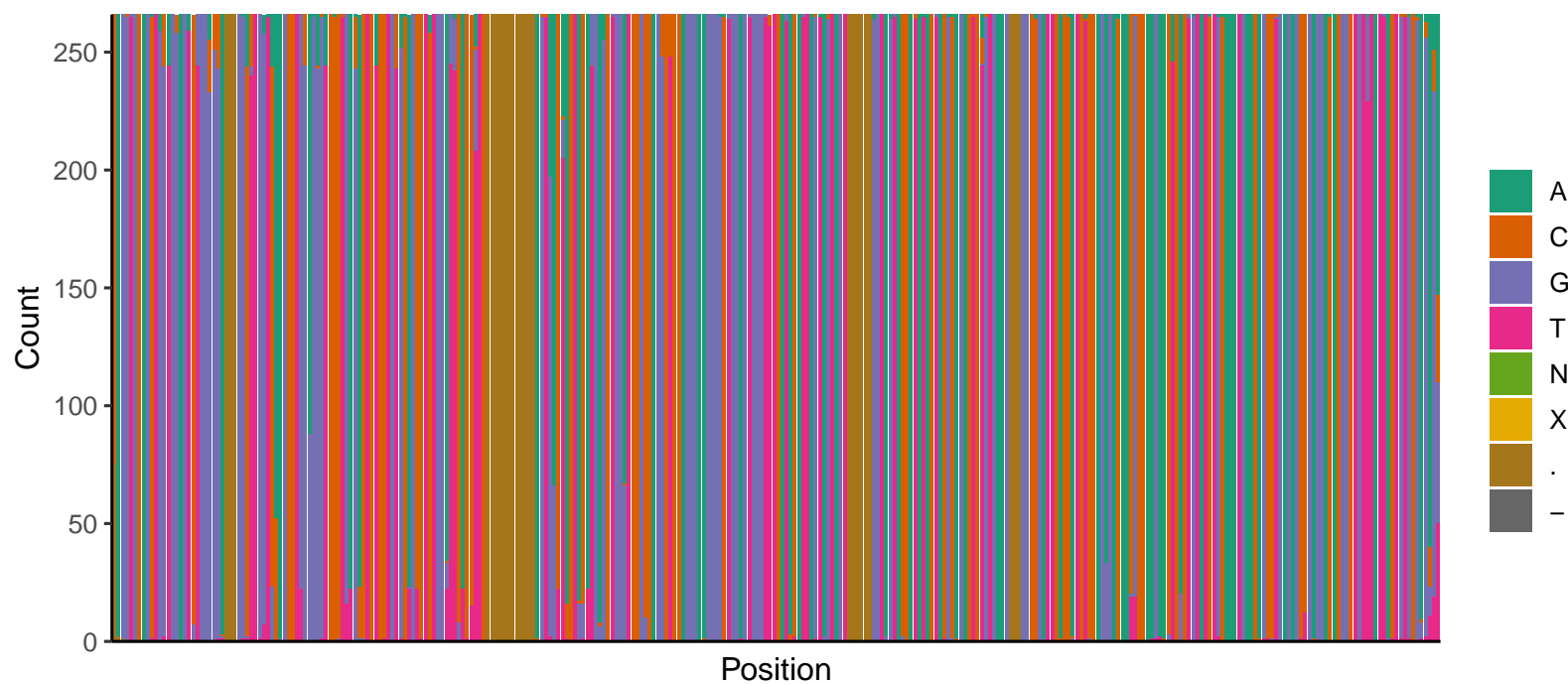
Gene IGHV1-58\*02\_G316A\_C317G



Gene IGHV1-69\*08\_C191T



Gene IGHV3-11\*04\_G240A\_G303T



Gene IGHV3-53\*02\_T267G\_G303A



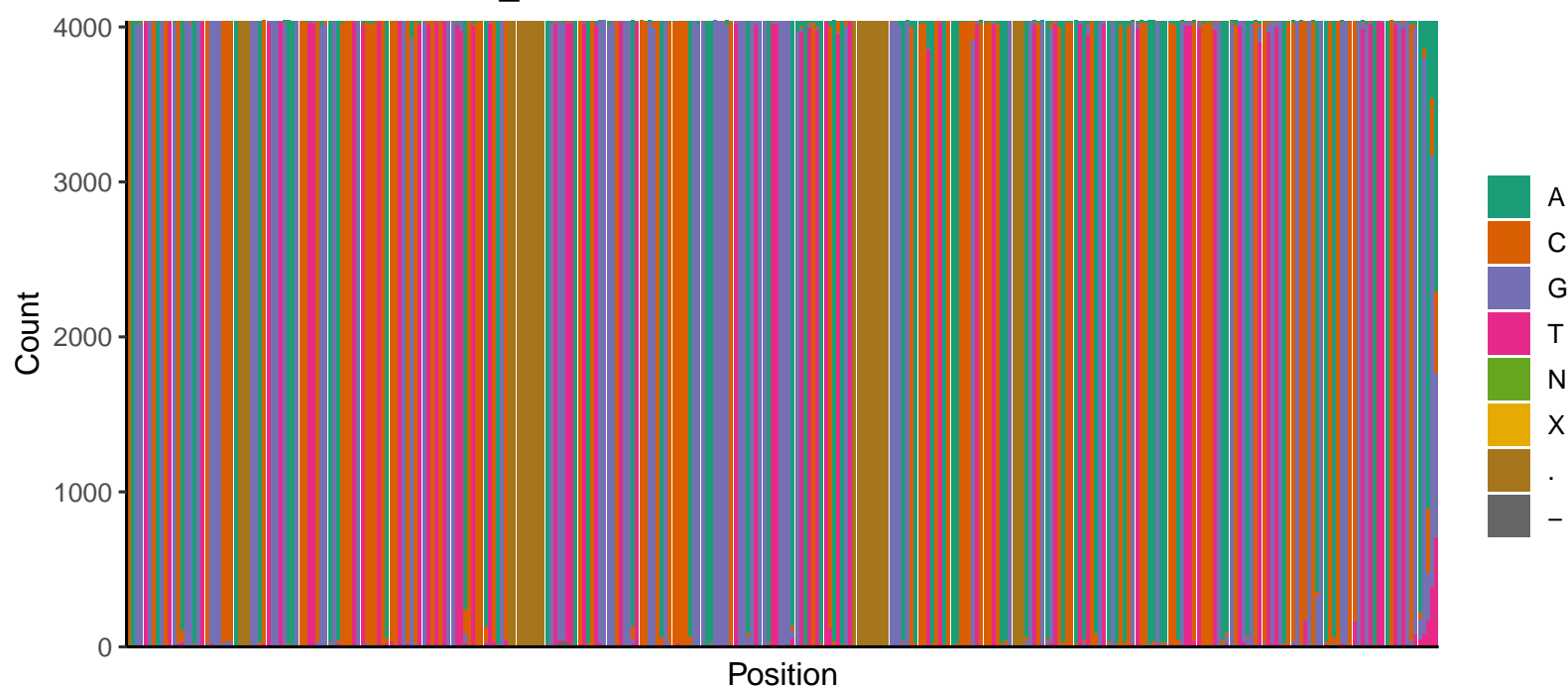
Gene IGHV3-53\*04\_T267G\_T288C\_G303A\_G317A



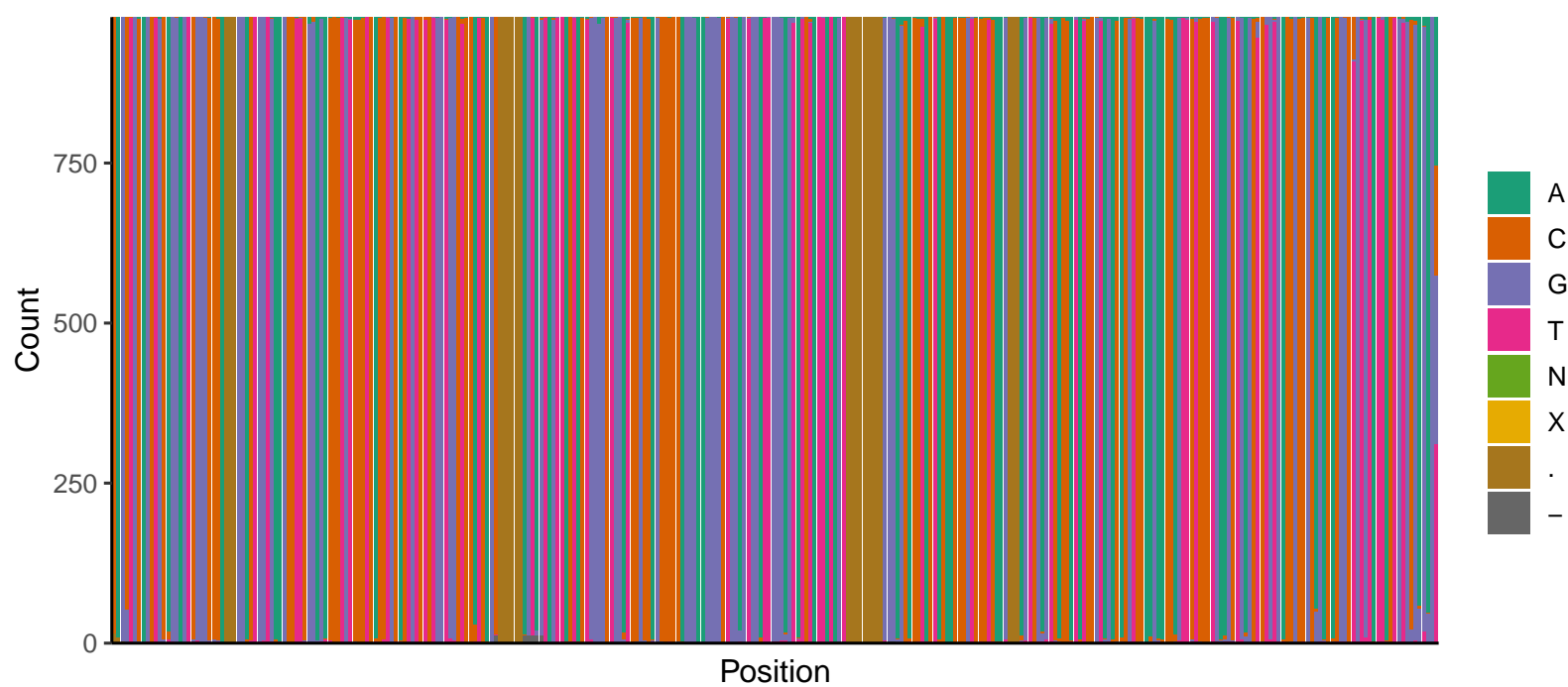
Gene IGHV3-74\*01\_A315G



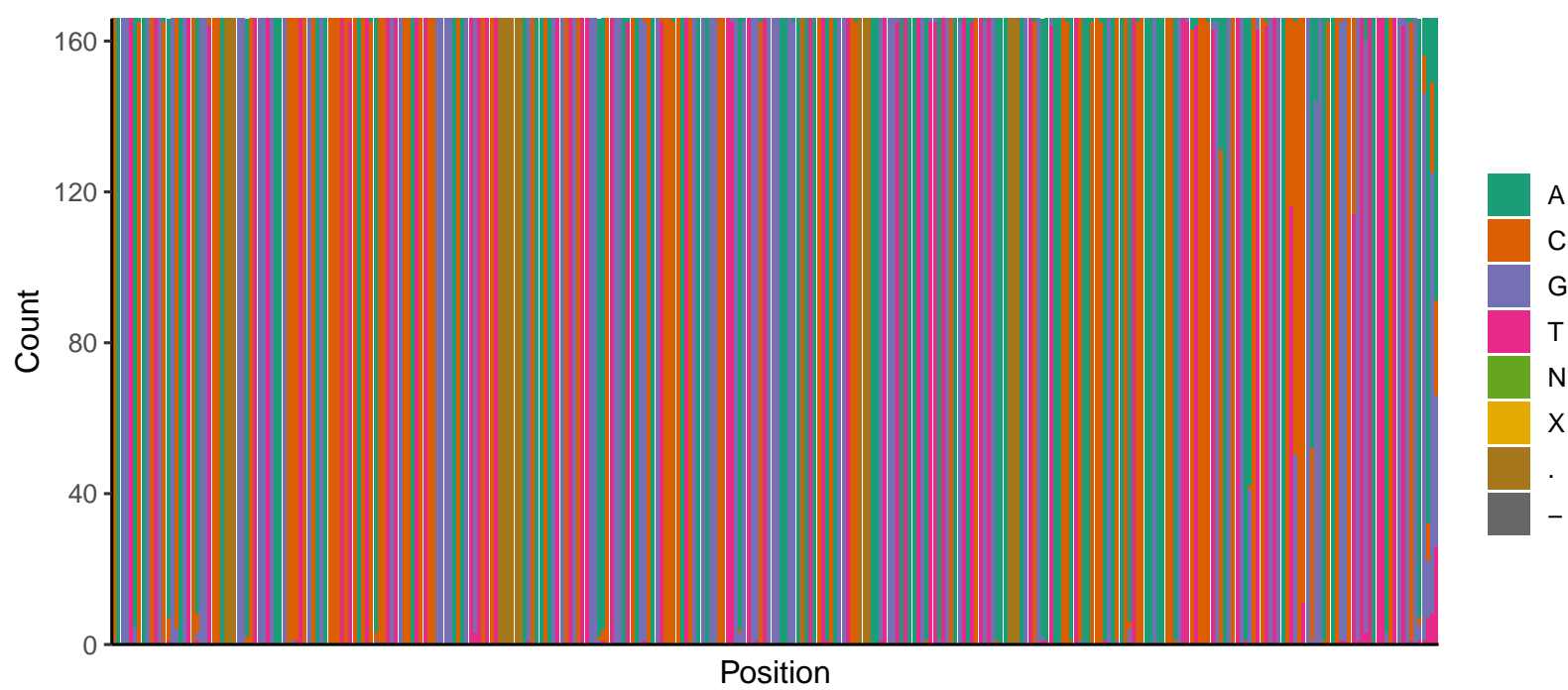
Gene IGHV4-38-2\*02\_A70G



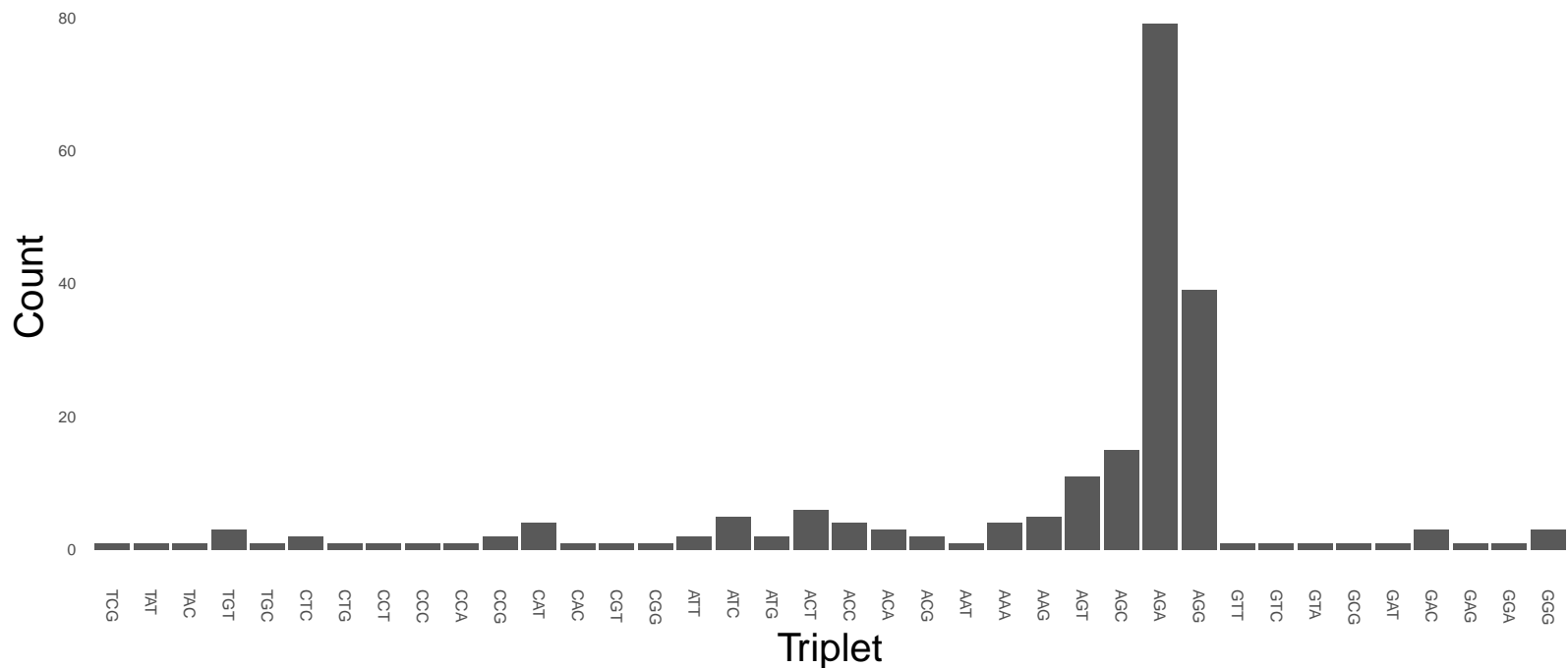
Gene IGHV4-39\*02\_C258G



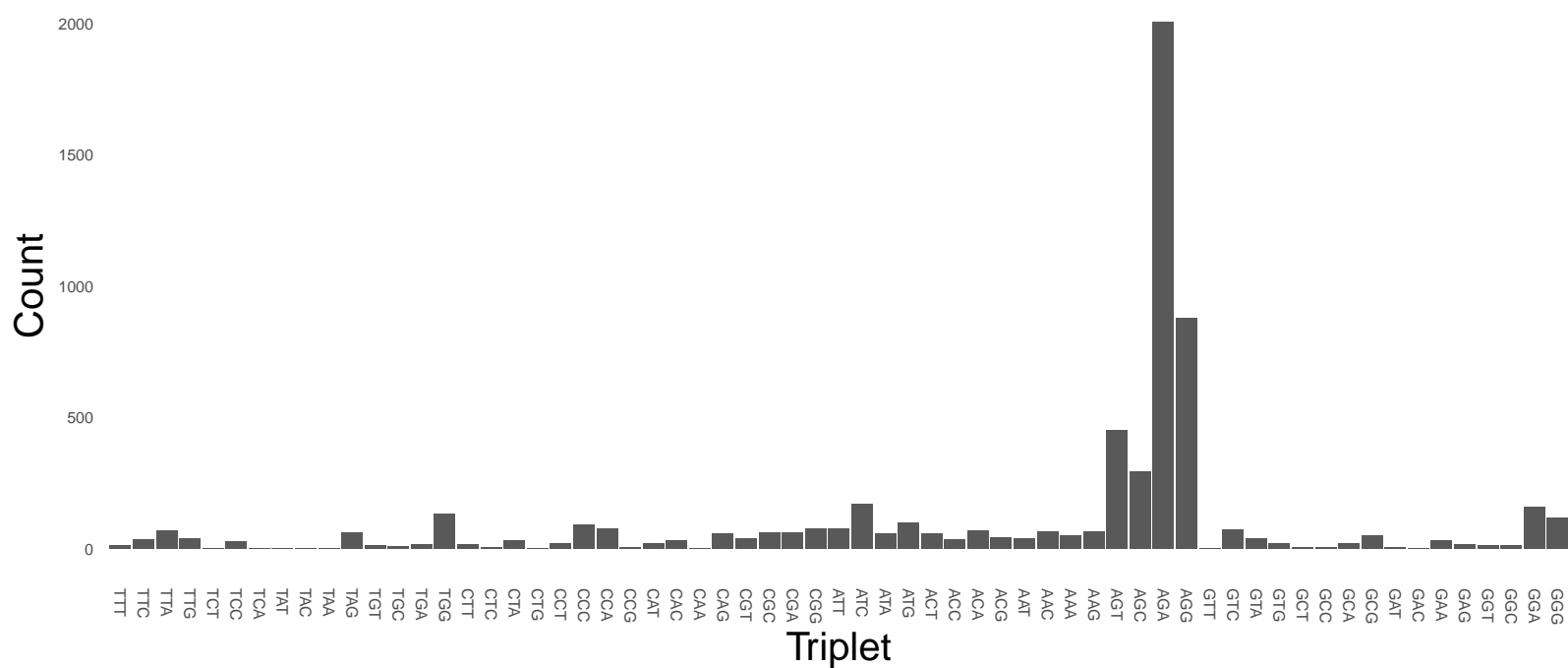
Gene IGHV6-1\*01\_A315G



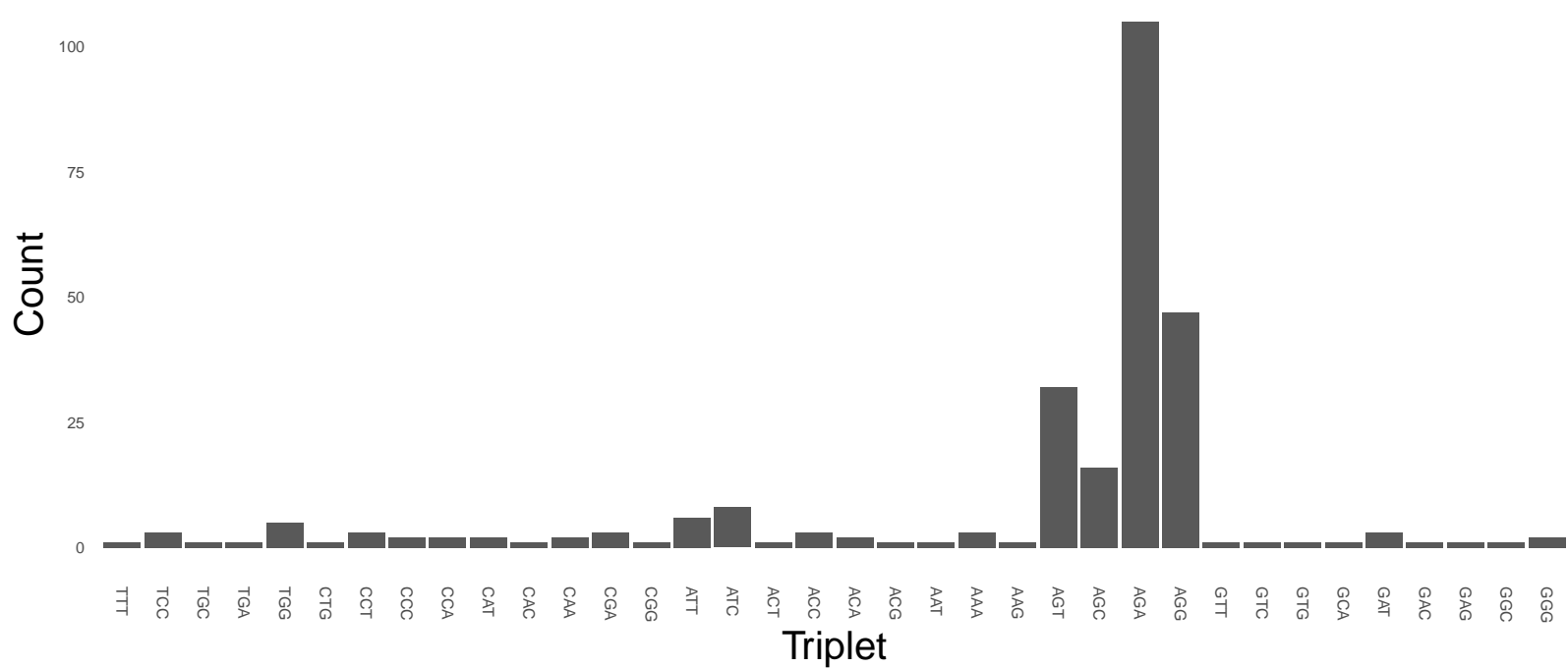
IGHV1-58\*02\_G316A\_C317G- Final 3 nucleotides as a triplet



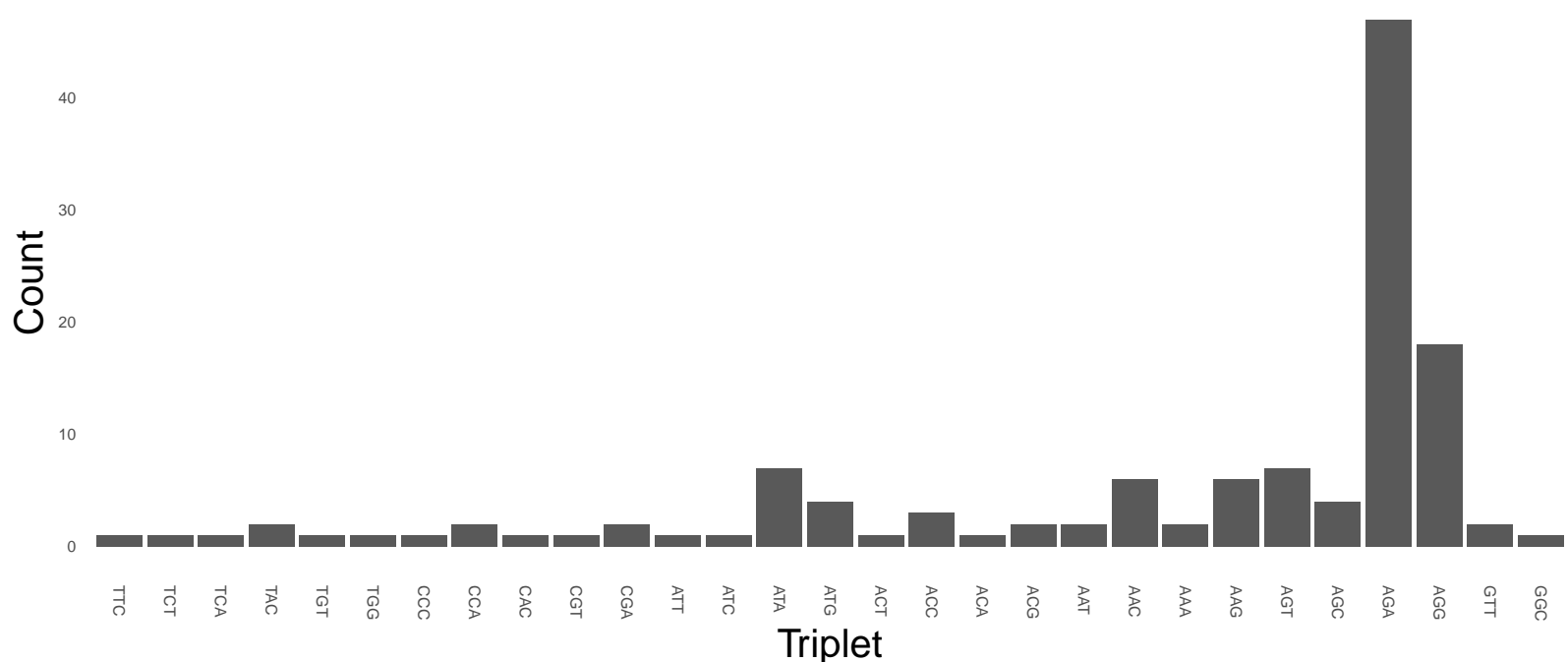
IGHV1-69\*08\_C191T- Final 3 nucleotides as a triplet



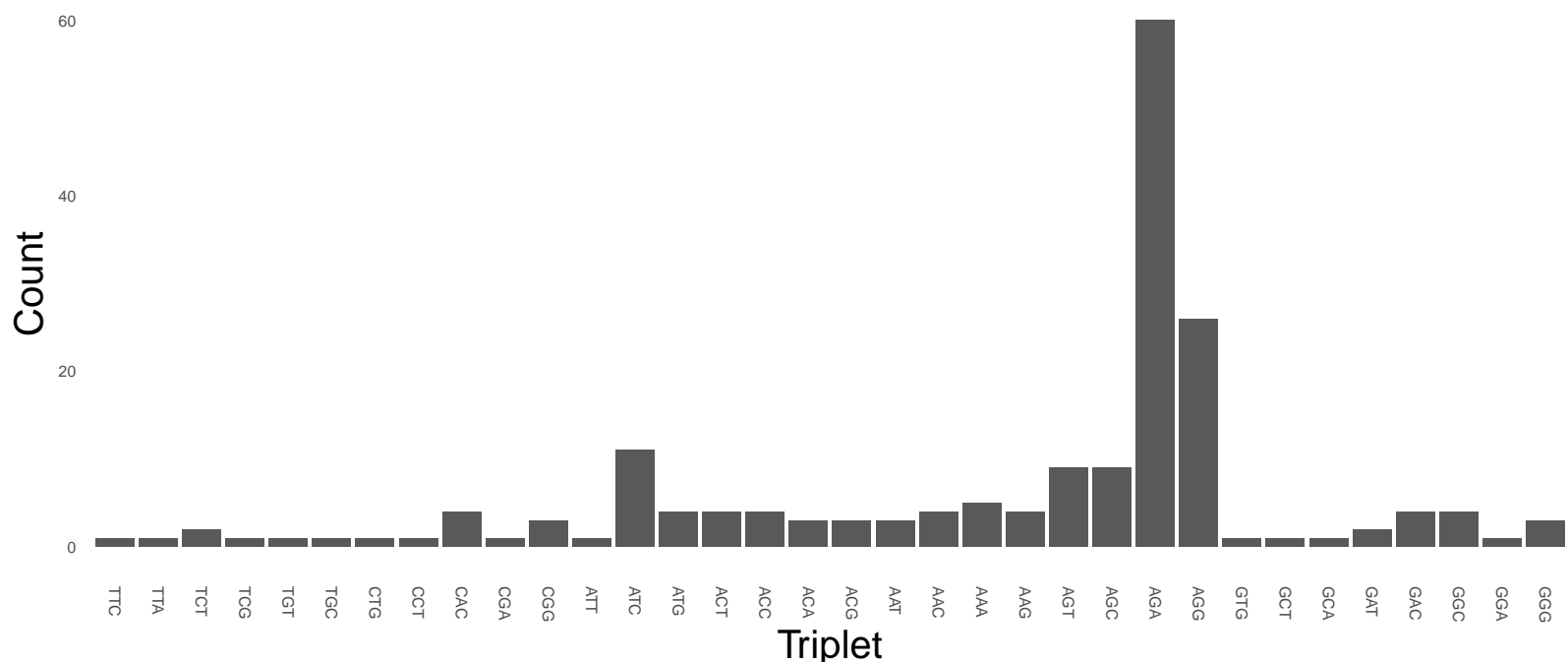
IGHV3-11\*04\_G240A\_G303T- Final 3 nucleotides as a triplet



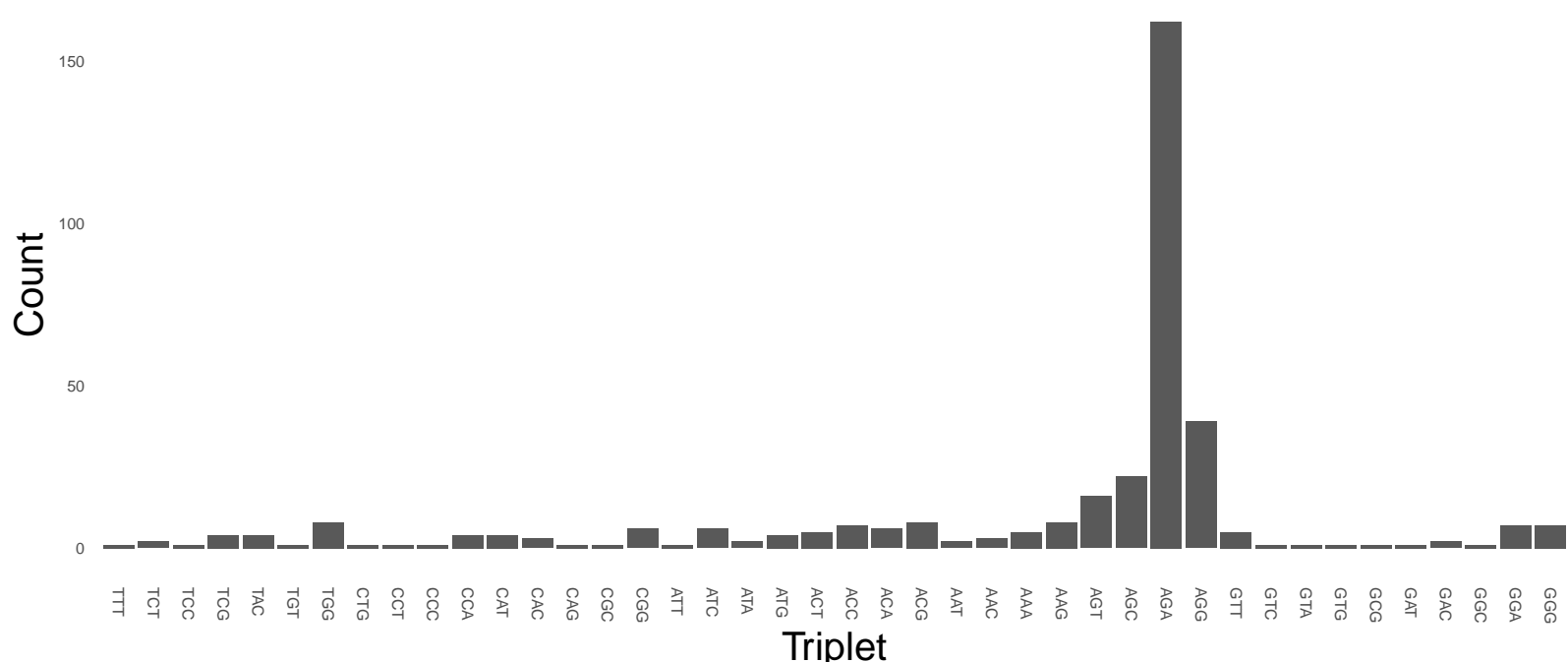
IGHV3-53\*02\_T267G\_G303A- Final 3 nucleotides as a triplet



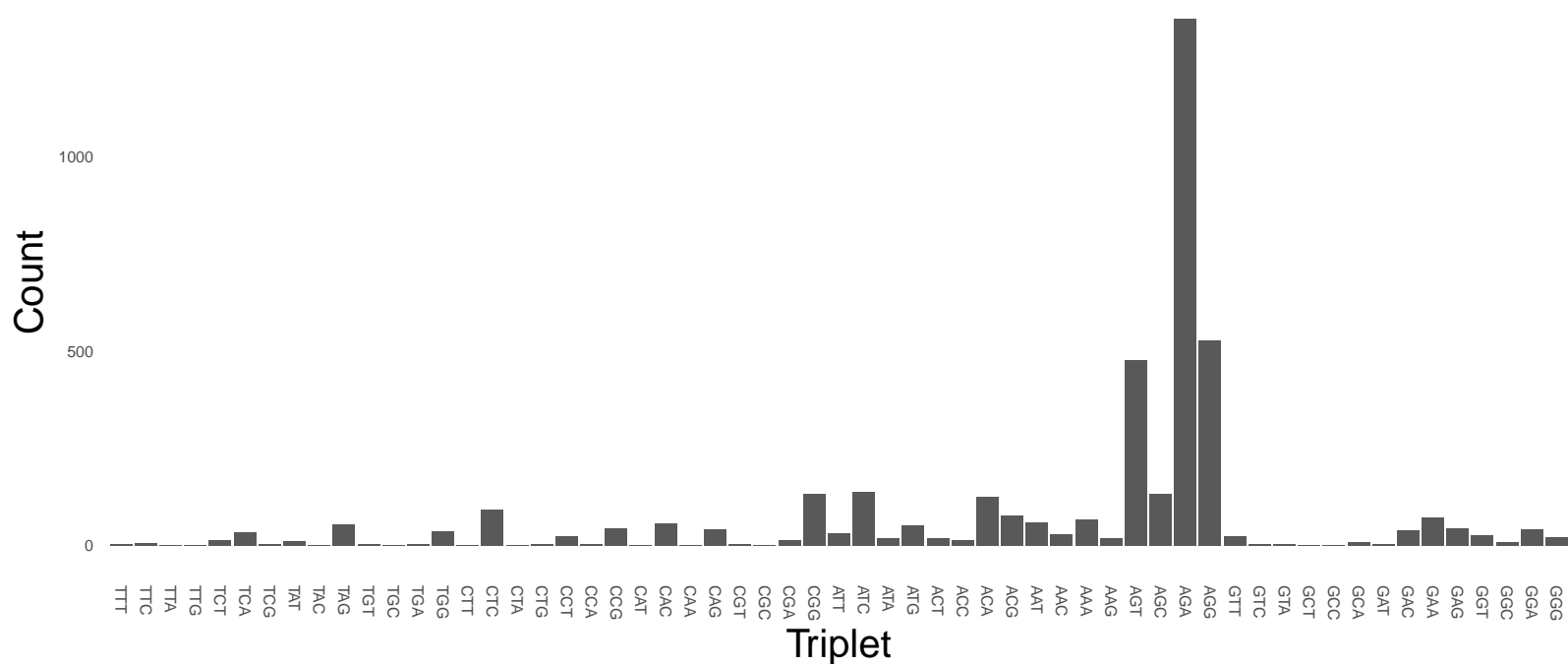
IGHV3-53\*04\_T267G\_T288C\_G303A\_G317A- Final 3 nucleotides as a triplet



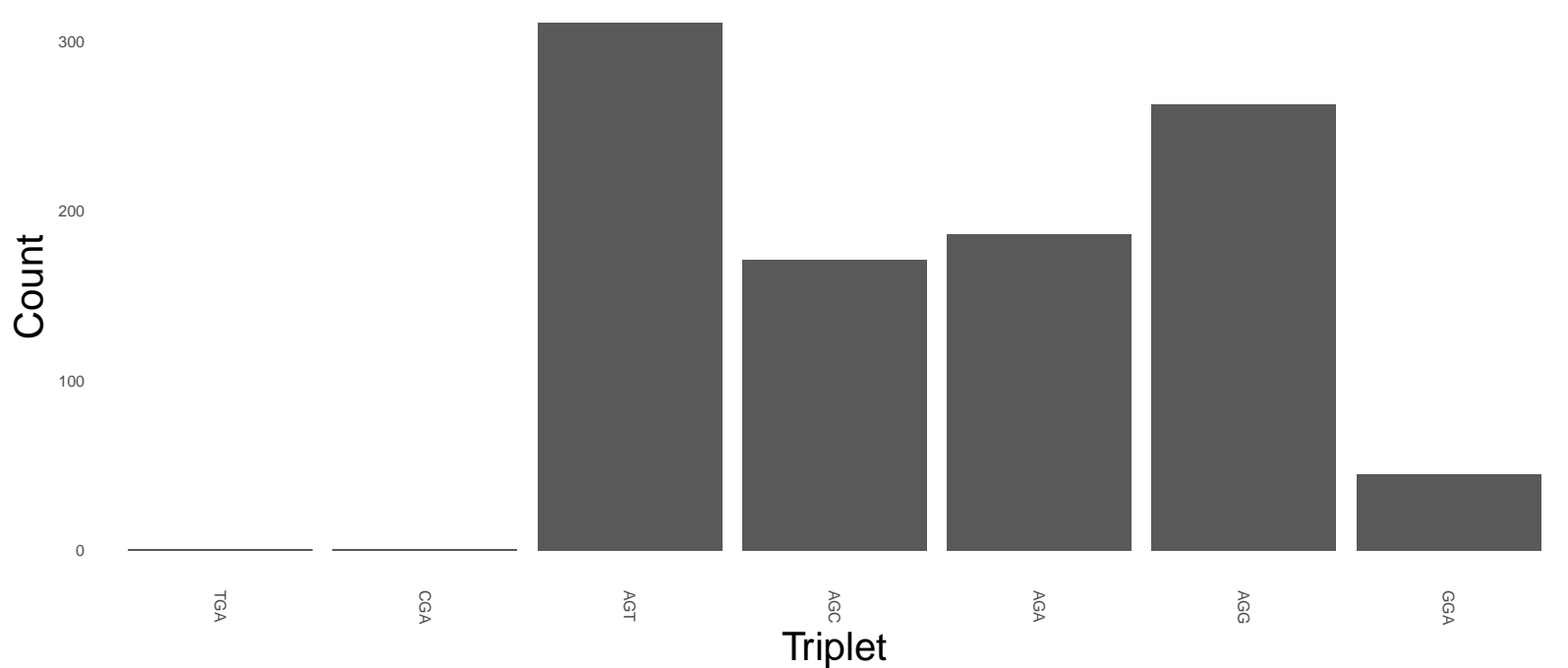
IGHV3-74\*01\_A315G- Final 3 nucleotides as a triplet



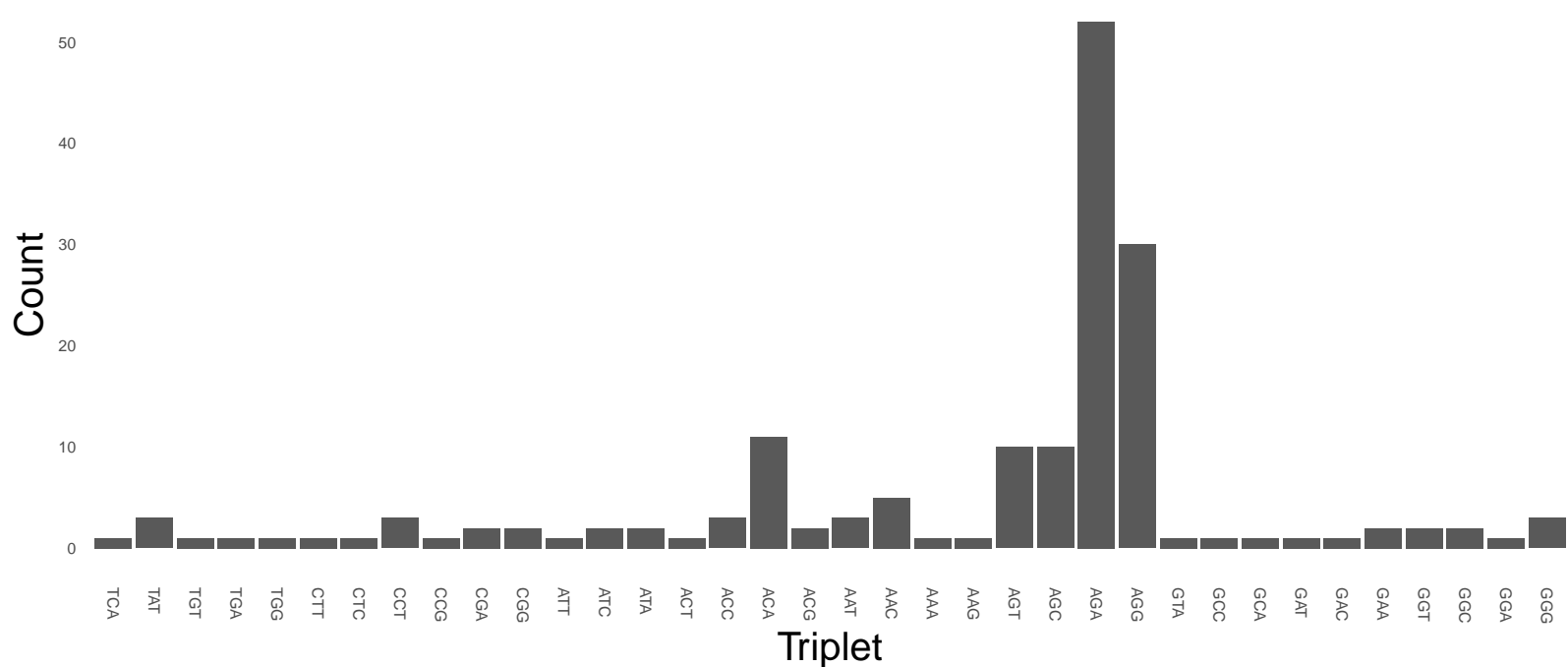
IGHV4-38-2\*02\_A70G- Final 3 nucleotides as a triplet



IGHV4-39\*02\_C258G- Final 3 nucleotides as a triplet



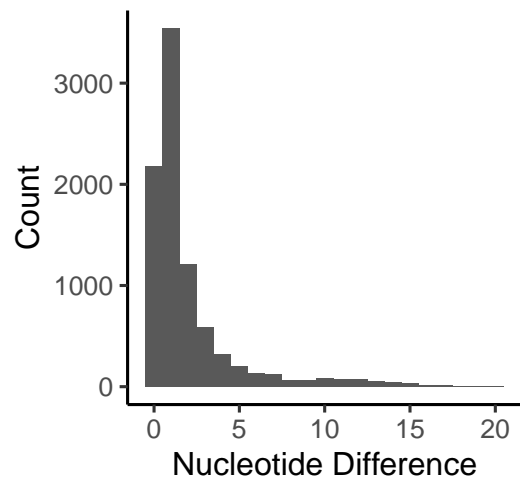
IGHV6-1\*01\_A315G- Final 3 nucleotides as a triplet





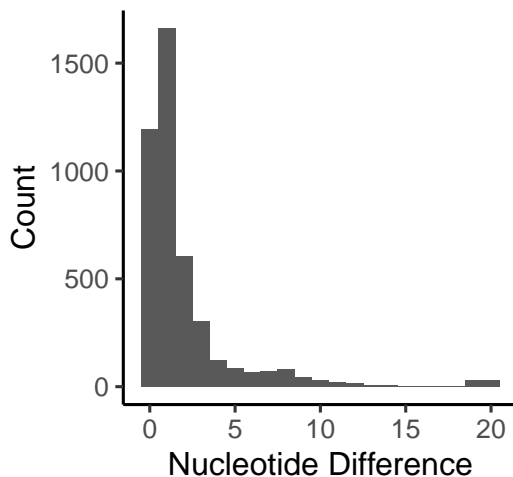
### IGHV1-2\*02

8858 sequences assigned  
2183 (24.6%) exact matches, in which:  
1740 unique CDR3  
7 unique J



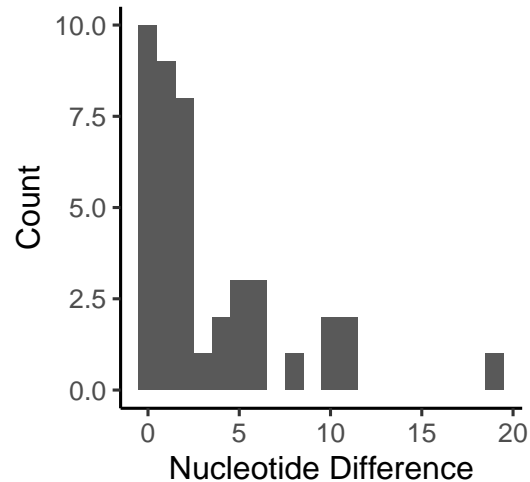
### IGHV1-8\*01

4427 sequences assigned  
1195 (27%) exact matches, in which:  
1004 unique CDR3  
7 unique J



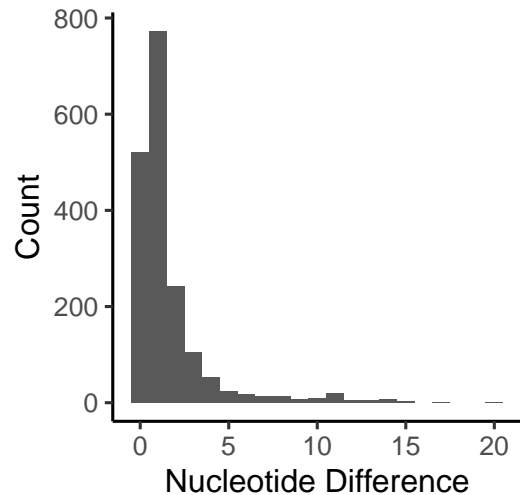
### IGHV1-45\*03

43 sequences assigned  
10 (23.3%) exact matches, in which:  
7 unique CDR3  
4 unique J



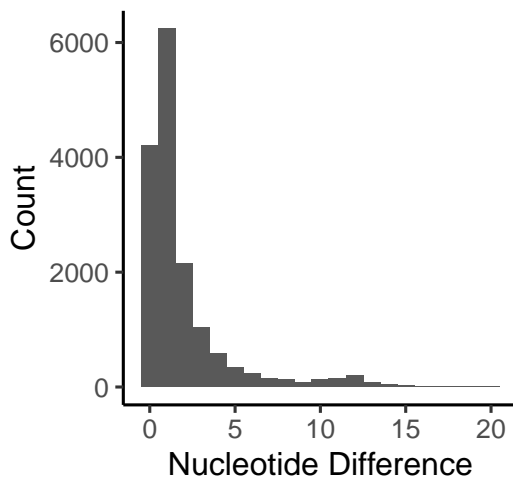
### IGHV1-2\*04

1832 sequences assigned  
520 (28.4%) exact matches, in which:  
431 unique CDR3  
7 unique J



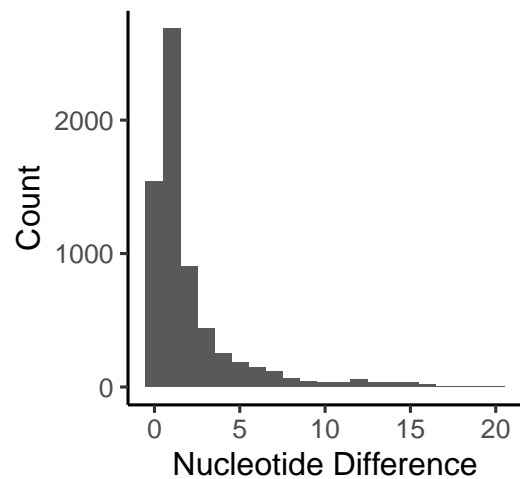
### IGHV1-18\*01

15909 sequences assigned  
4207 (26.4%) exact matches, in which:  
3428 unique CDR3  
7 unique J



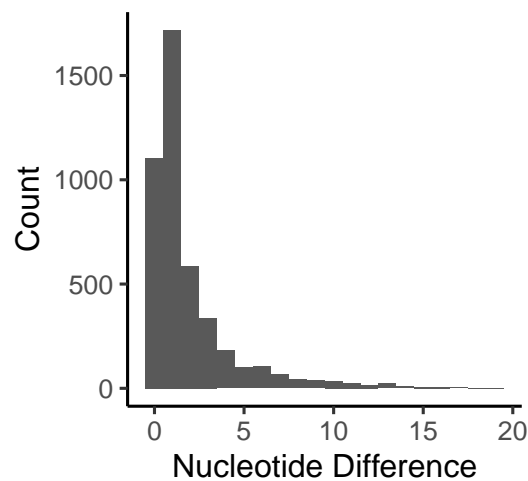
### IGHV1-46\*01

6660 sequences assigned  
1542 (23.2%) exact matches, in which:  
1242 unique CDR3  
7 unique J



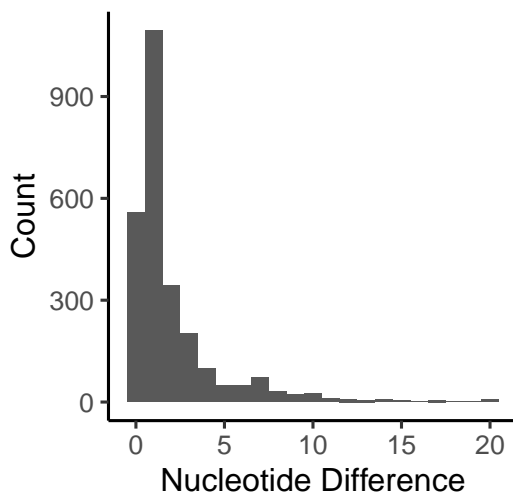
### IGHV1-3\*01

4419 sequences assigned  
1105 (25%) exact matches, in which:  
920 unique CDR3  
7 unique J



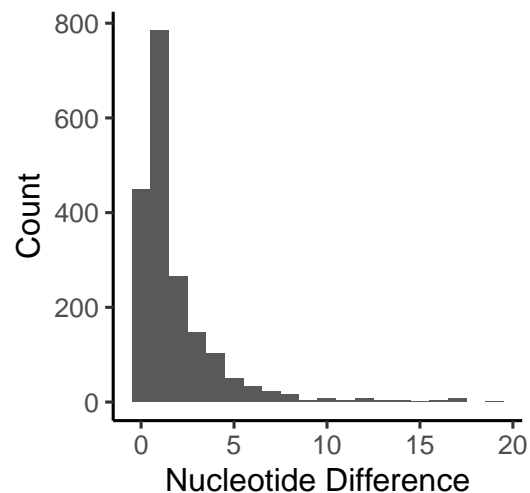
### IGHV1-24\*01

2622 sequences assigned  
559 (21.3%) exact matches, in which:  
428 unique CDR3  
7 unique J



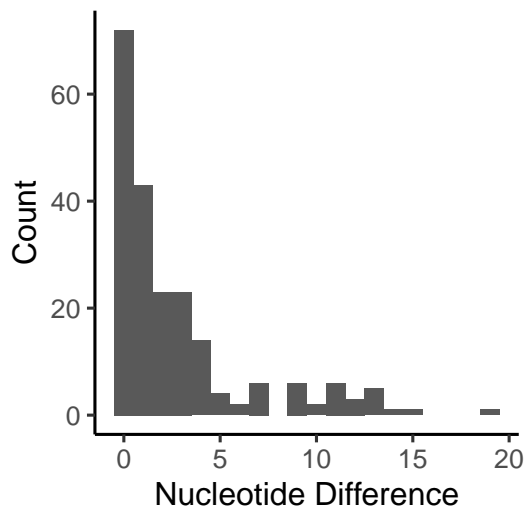
### IGHV1-58\*02

1911 sequences assigned  
448 (23.4%) exact matches, in which:  
340 unique CDR3  
7 unique J



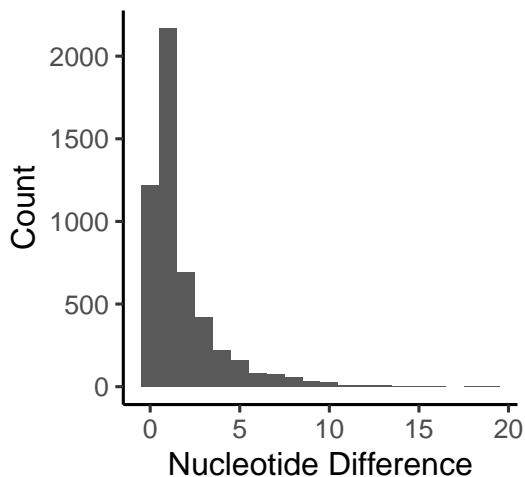
### IGHV1-58\*02\_G316A\_C3

213 sequences assigned  
72 (33.8%) exact matches, in which:  
71 unique CDR3  
7 unique J



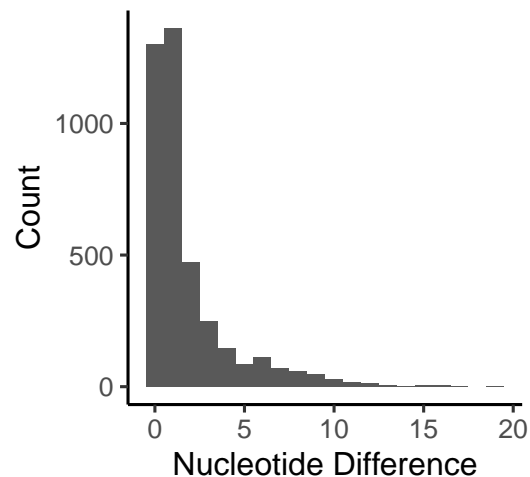
### IGHV2-5\*02

5225 sequences assigned  
1218 (23.3%) exact matches, in which:  
956 unique CDR3  
7 unique J



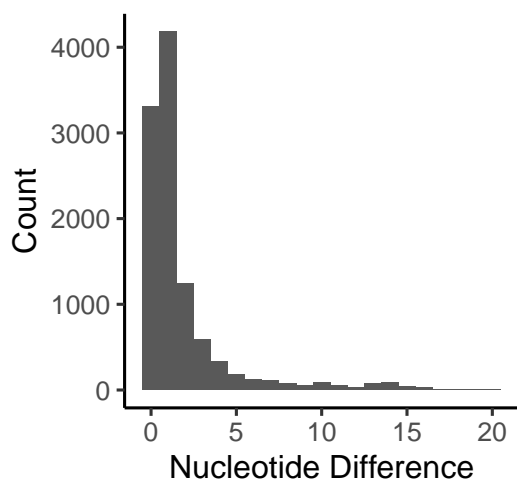
### IGHV3-7\*01

3998 sequences assigned  
1303 (32.6%) exact matches, in which:  
1105 unique CDR3  
7 unique J



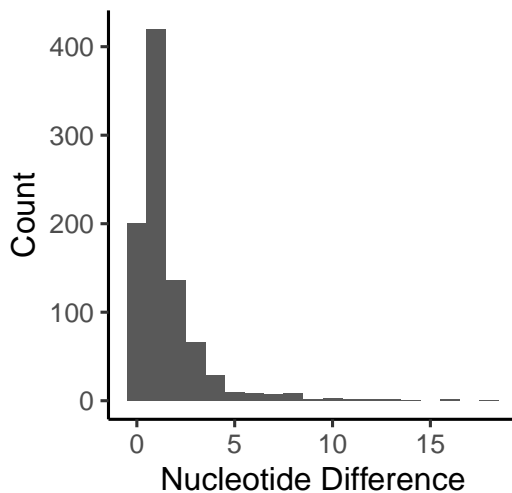
### IGHV1-69\*04

10633 sequences assigned  
3314 (31.2%) exact matches, in which:  
2698 unique CDR3  
7 unique J



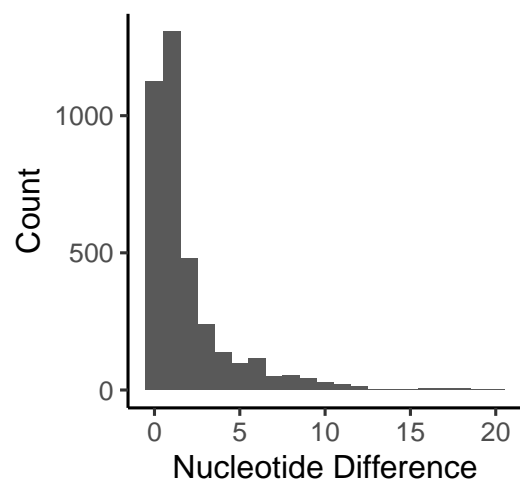
### IGHV2-26\*01

915 sequences assigned  
201 (22%) exact matches, in which:  
153 unique CDR3  
6 unique J



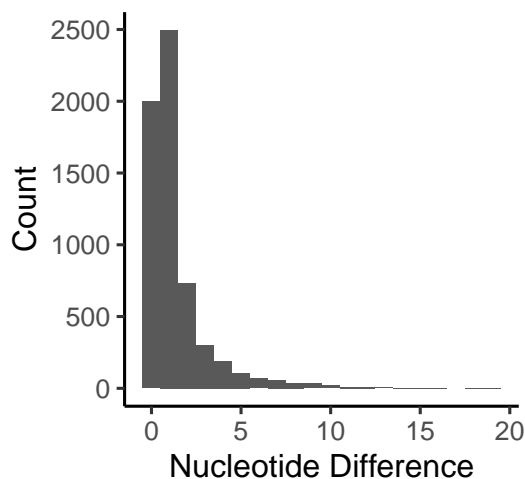
### IGHV3-7\*03

3738 sequences assigned  
1125 (30.1%) exact matches, in which:  
950 unique CDR3  
7 unique J



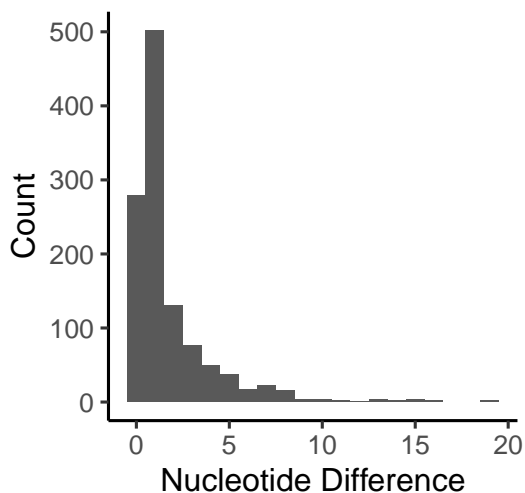
### IGHV1-69\*08\_C191T

6076 sequences assigned  
1997 (32.9%) exact matches, in which:  
1603 unique CDR3  
7 unique J



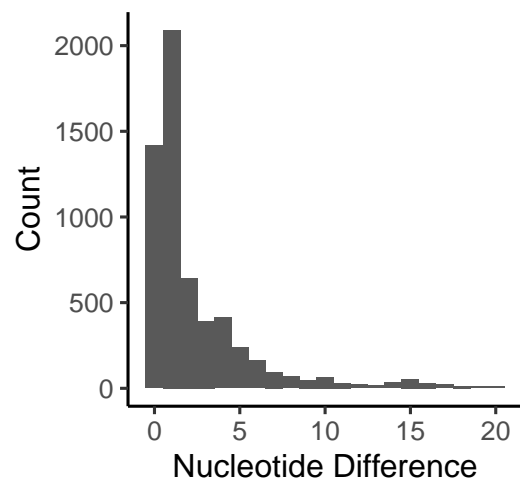
### IGHV2-70\*15

1170 sequences assigned  
279 (23.8%) exact matches, in which:  
227 unique CDR3  
7 unique J



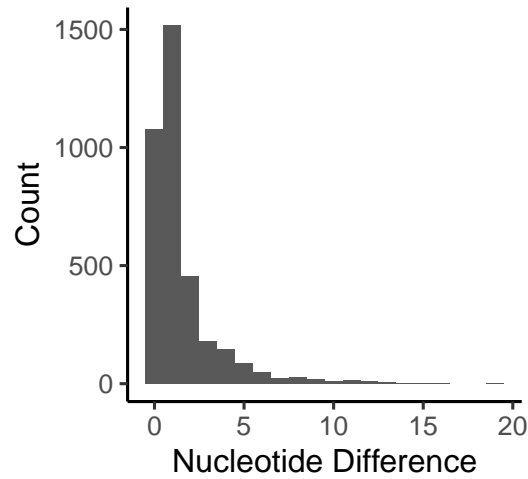
### IGHV3-9\*01

5904 sequences assigned  
1417 (24%) exact matches, in which:  
1099 unique CDR3  
7 unique J



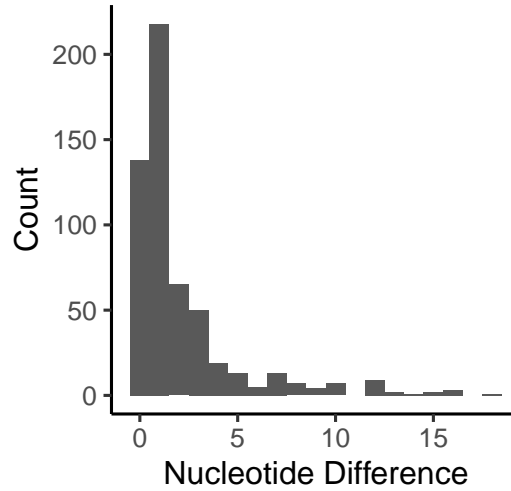
### IGHV3-11\*01

3638 sequences assigned  
1078 (29.6%) exact matches, in which:  
864 unique CDR3  
7 unique J



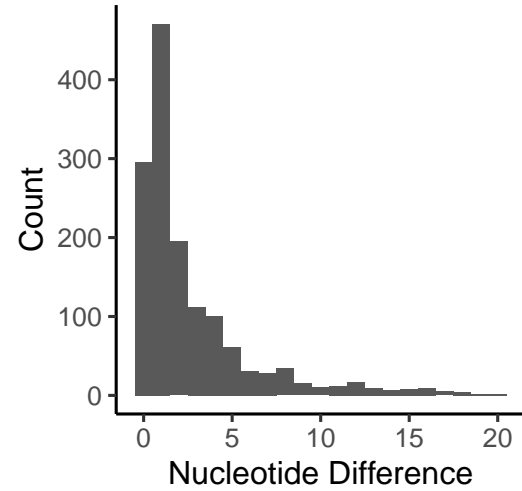
### IGHV3-13\*01

560 sequences assigned  
138 (24.6%) exact matches, in which:  
103 unique CDR3  
6 unique J



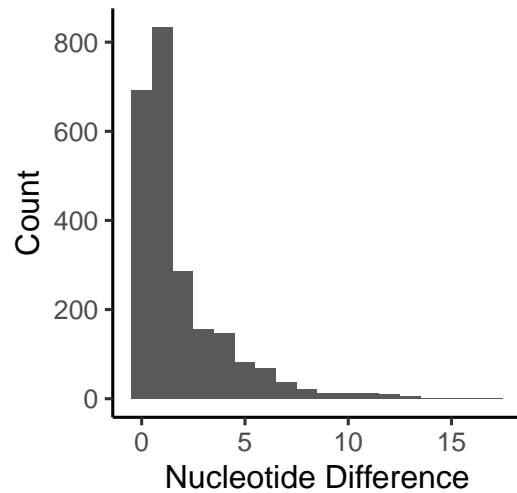
### IGHV3-20\*04

1434 sequences assigned  
296 (20.6%) exact matches, in which:  
245 unique CDR3  
7 unique J



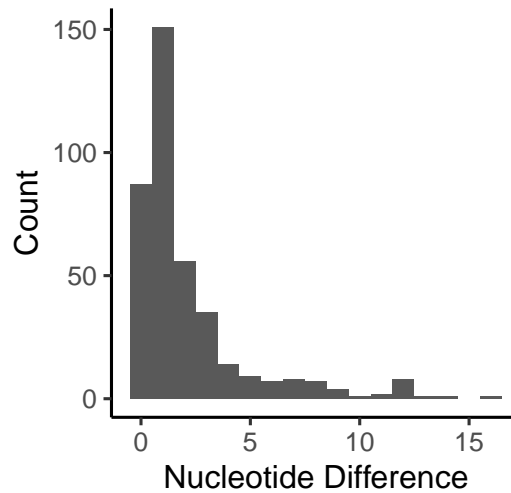
### IGHV3-11\*06

2397 sequences assigned  
693 (28.9%) exact matches, in which:  
539 unique CDR3  
7 unique J



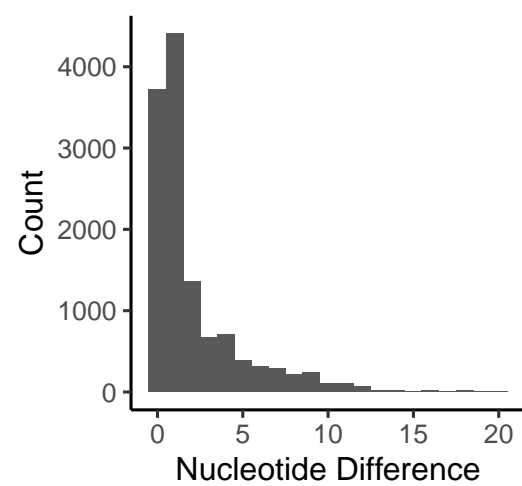
### IGHV3-13\*05

392 sequences assigned  
87 (22.2%) exact matches, in which:  
67 unique CDR3  
5 unique J



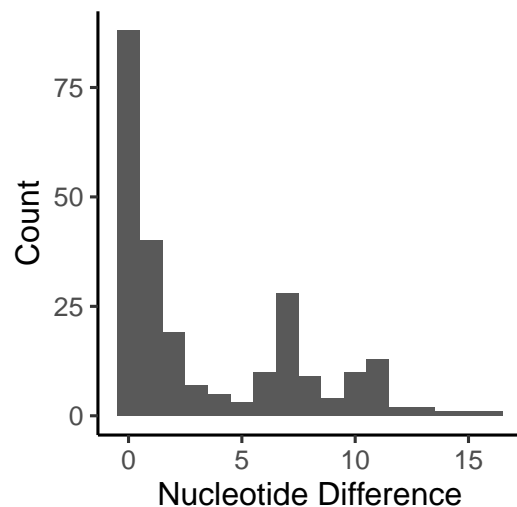
### IGHV3-21\*01

12719 sequences assigned  
3720 (29.2%) exact matches, in which:  
2965 unique CDR3  
7 unique J



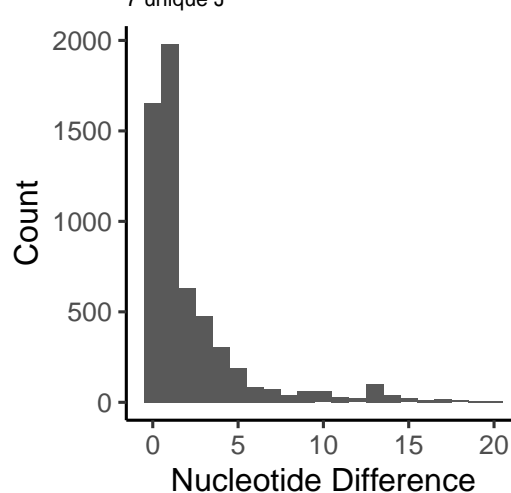
### IGHV3-11\*04\_G240A\_G3

266 sequences assigned  
88 (33.1%) exact matches, in which:  
87 unique CDR3  
6 unique J



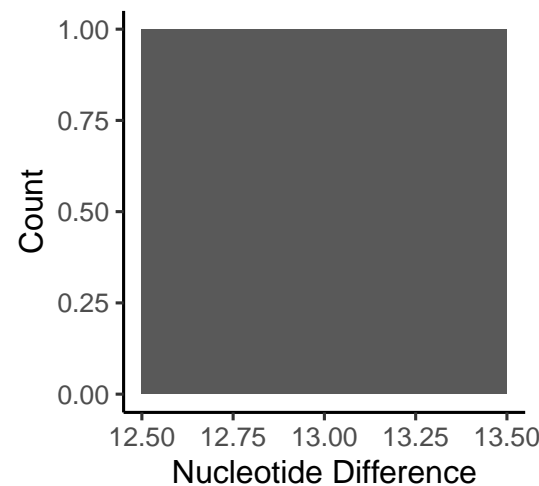
### IGHV3-15\*01

5888 sequences assigned  
1655 (28.1%) exact matches, in which:  
1305 unique CDR3  
7 unique J



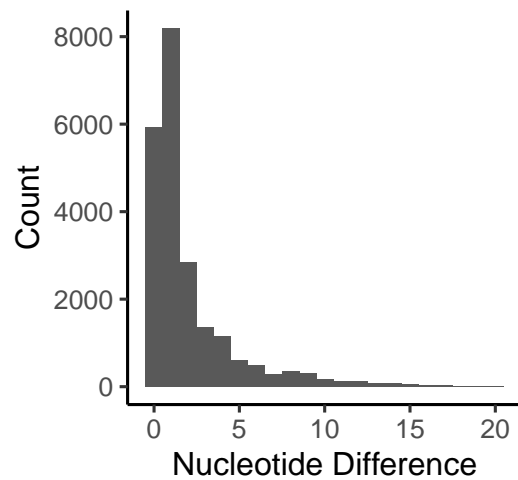
### IGHV3-22\*02

1 sequences assigned  
No exact matches.



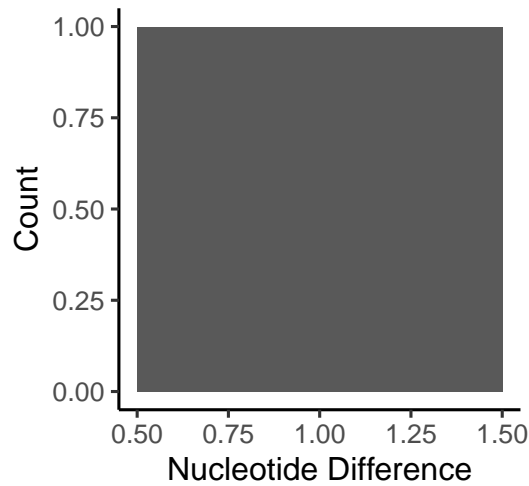
### IGHV3-23\*01

22401 sequences assigned  
5929 (26.5%) exact matches, in which:  
4868 unique CDR3  
7 unique J



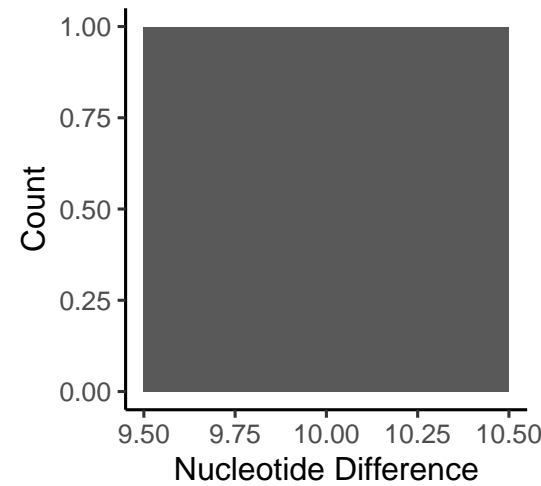
### IGHV3-30-3\*01

1 sequences assigned  
No exact matches.



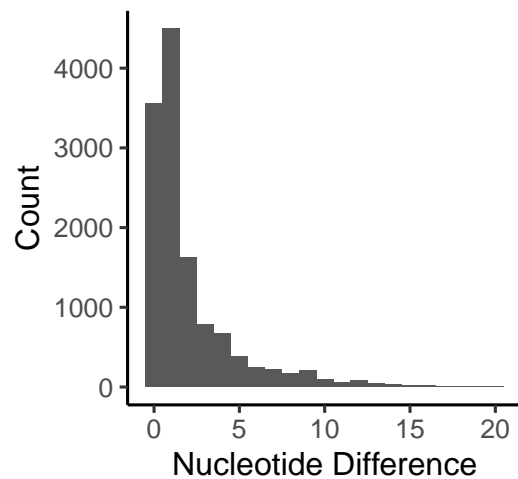
### IGHV3-35\*01

1 sequences assigned  
No exact matches.



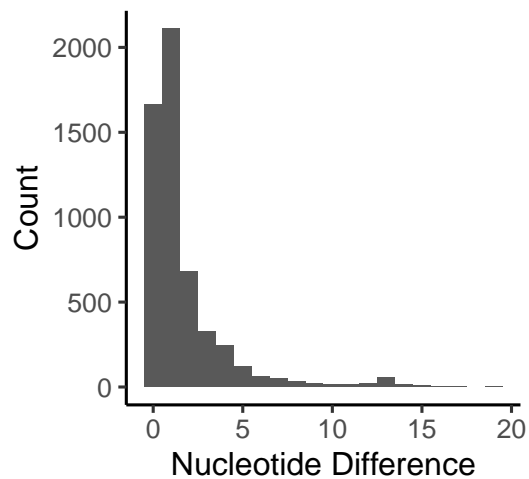
### IGHV3-23\*03

12753 sequences assigned  
3555 (27.9%) exact matches, in which:  
2936 unique CDR3  
7 unique J



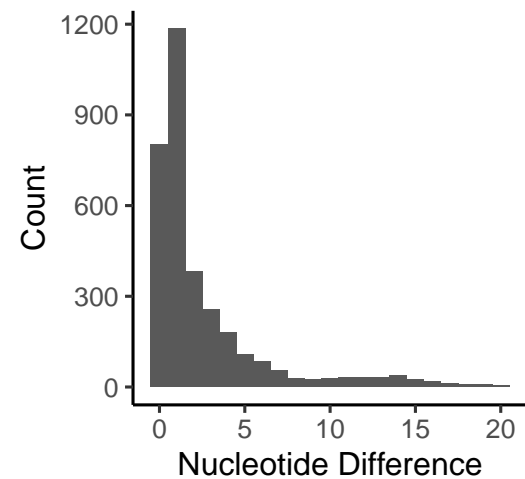
### IGHV3-33\*01

5446 sequences assigned  
1662 (30.5%) exact matches, in which:  
1350 unique CDR3  
7 unique J



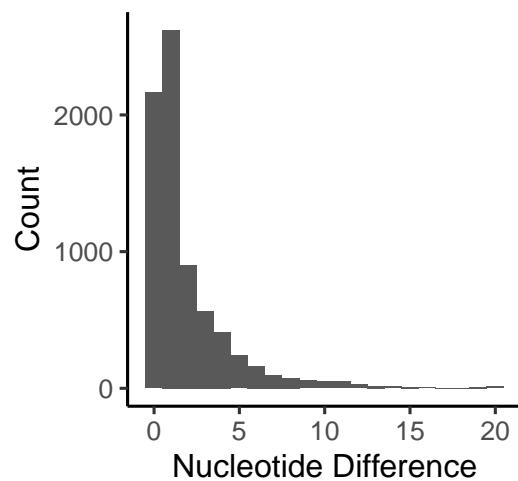
### IGHV3-43\*02

3352 sequences assigned  
803 (24%) exact matches, in which:  
650 unique CDR3  
7 unique J



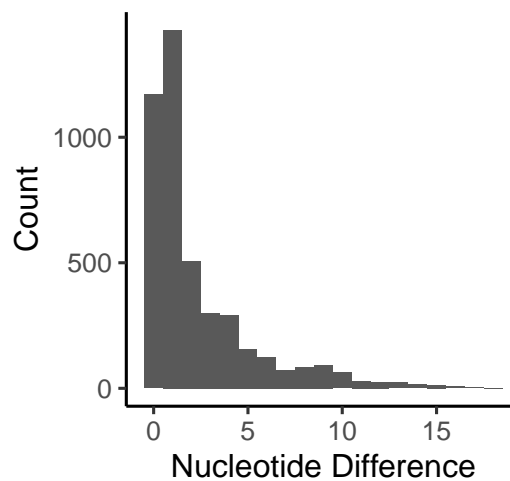
### IGHV3-30\*01

7520 sequences assigned  
2164 (28.8%) exact matches, in which:  
1742 unique CDR3  
7 unique J



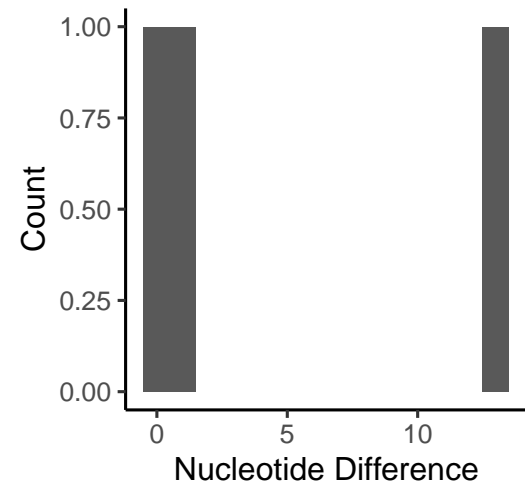
### IGHV3-33\*08

4414 sequences assigned  
1171 (26.5%) exact matches, in which:  
934 unique CDR3  
7 unique J



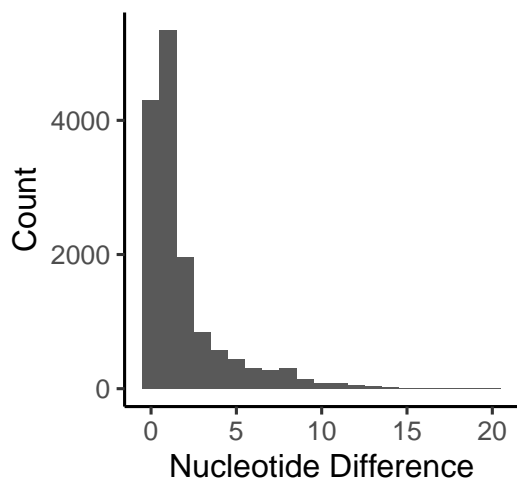
### IGHV3-47\*01

3 sequences assigned  
1 (33.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



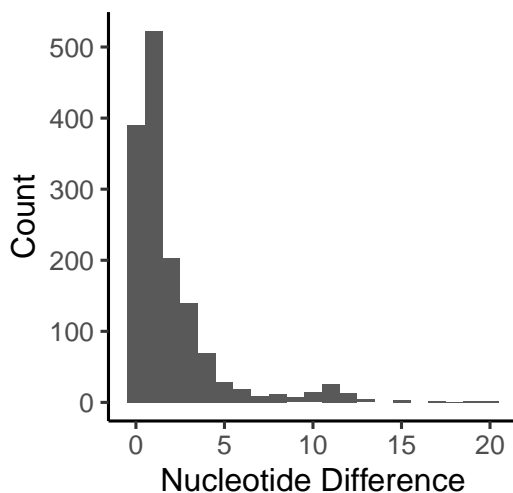
### IGHV3-48\*03

14853 sequences assigned  
4307 (29%) exact matches, in which:  
3539 unique CDR3  
7 unique J



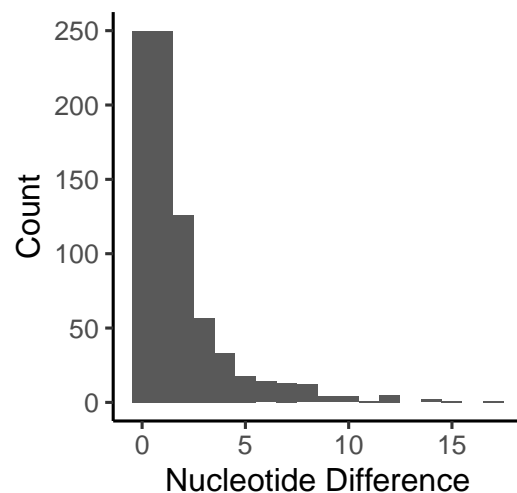
### IGHV3-53\*04

1479 sequences assigned  
390 (26.4%) exact matches, in which:  
305 unique CDR3  
7 unique J



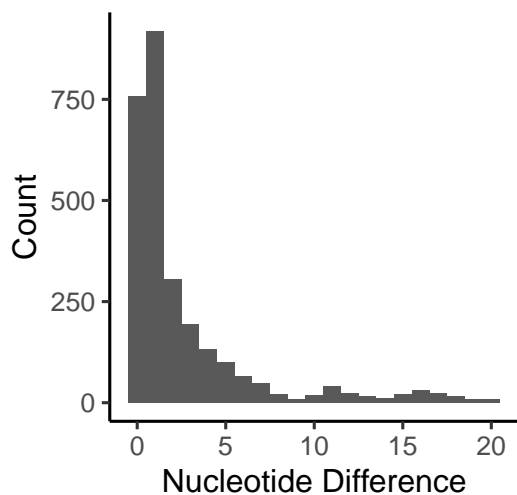
### IGHV3-64\*01

791 sequences assigned  
250 (31.6%) exact matches, in which:  
213 unique CDR3  
7 unique J



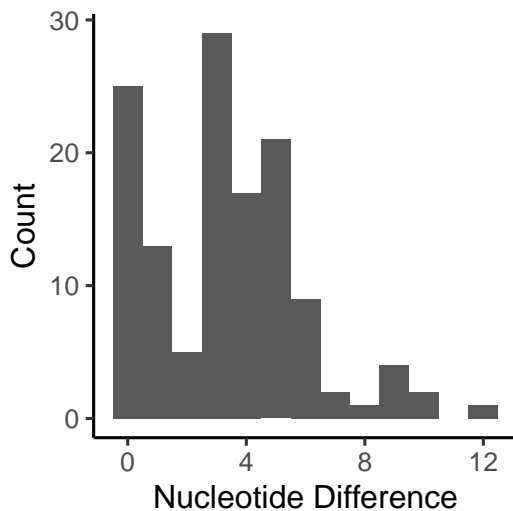
### IGHV3-49\*04

2783 sequences assigned  
757 (27.2%) exact matches, in which:  
596 unique CDR3  
7 unique J



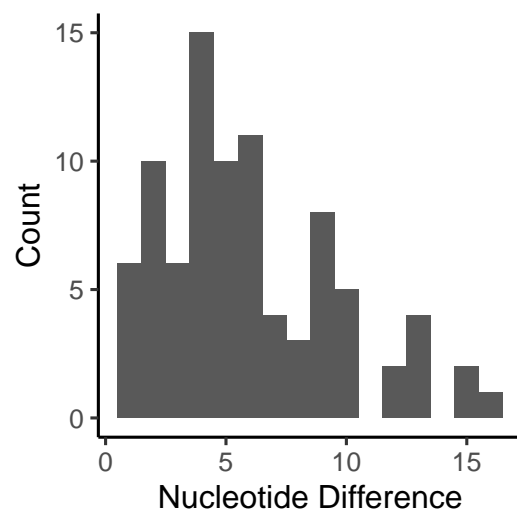
### IGHV3-53\*02\_T267G\_G3

129 sequences assigned  
25 (19.4%) exact matches, in which:  
25 unique CDR3  
6 unique J



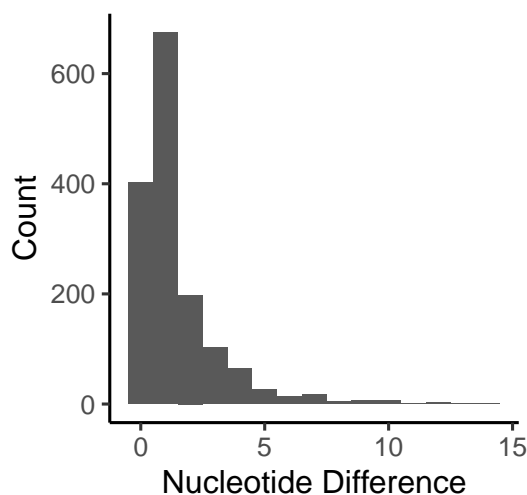
### IGHV3-64\*04

87 sequences assigned  
No exact matches.



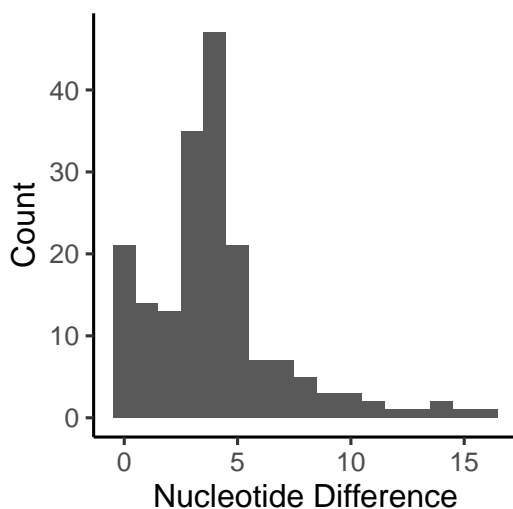
### IGHV3-53\*02

1525 sequences assigned  
402 (26.4%) exact matches, in which:  
316 unique CDR3  
6 unique J



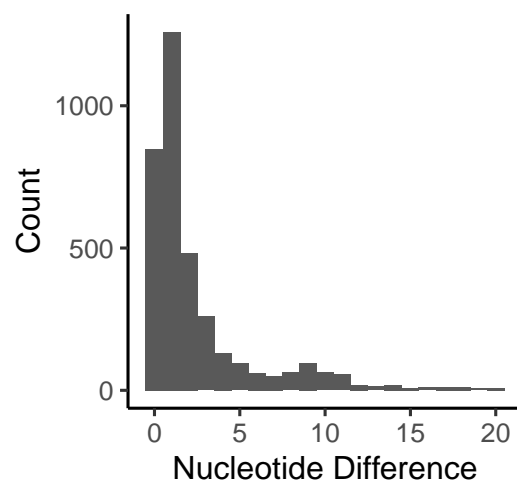
### IGHV3-53\*04\_T267G\_T267G

184 sequences assigned  
21 (11.4%) exact matches, in which:  
21 unique CDR3  
5 unique J



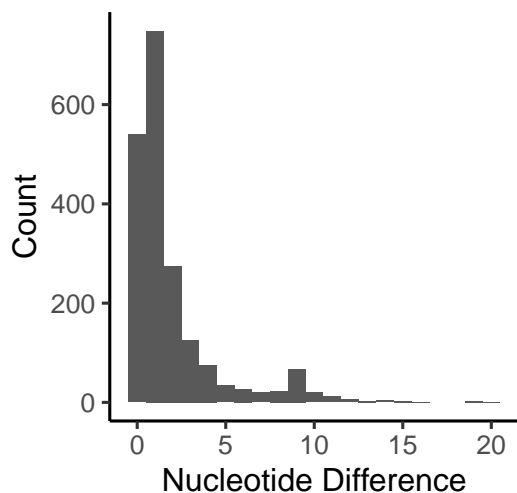
### IGHV3-66\*01

3594 sequences assigned  
848 (23.6%) exact matches, in which:  
672 unique CDR3  
7 unique J



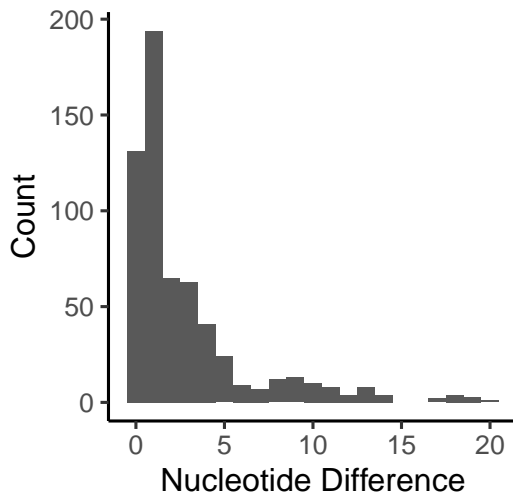
### IGHV3-66\*02

2000 sequences assigned  
540 (27%) exact matches, in which:  
422 unique CDR3  
7 unique J



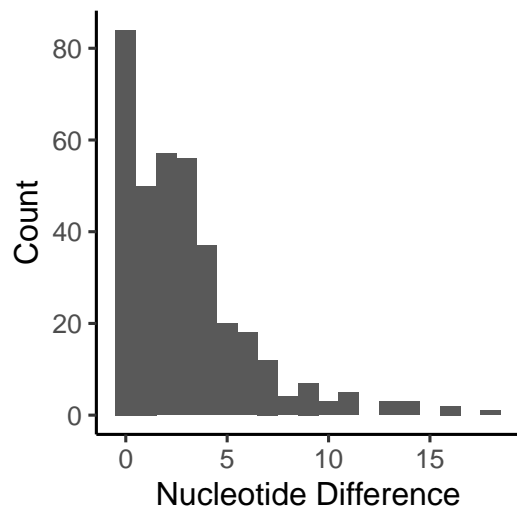
### IGHV3-73\*01

605 sequences assigned  
131 (21.7%) exact matches, in which:  
107 unique CDR3  
6 unique J



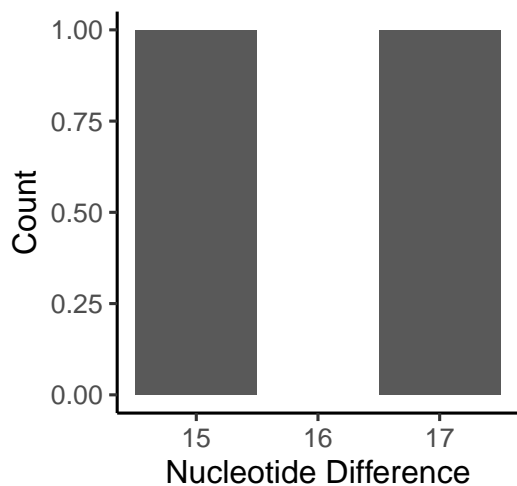
### IGHV3-74\*01\_A315G

366 sequences assigned  
84 (23%) exact matches, in which:  
83 unique CDR3  
7 unique J



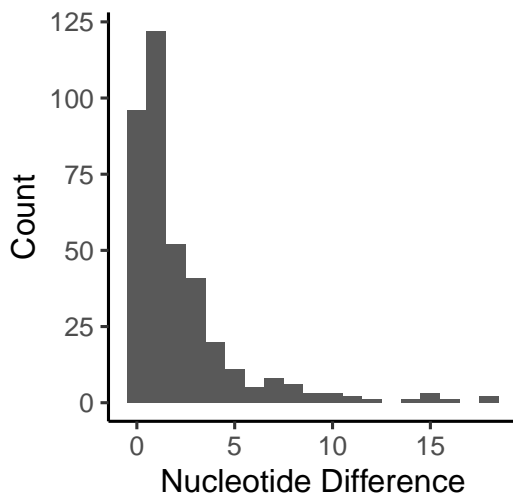
### IGHV3-71\*04

2 sequences assigned  
No exact matches.



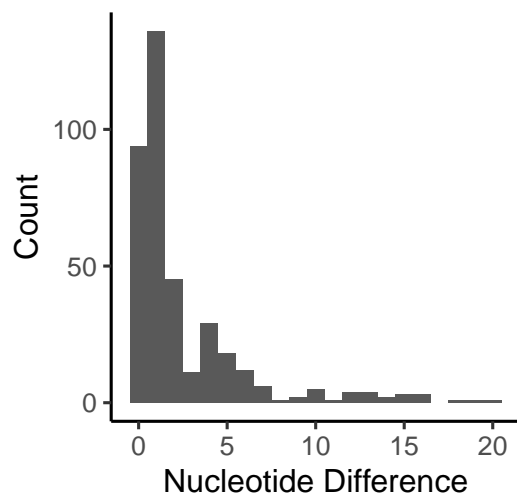
### IGHV3-73\*02

377 sequences assigned  
96 (25.5%) exact matches, in which:  
83 unique CDR3  
6 unique J



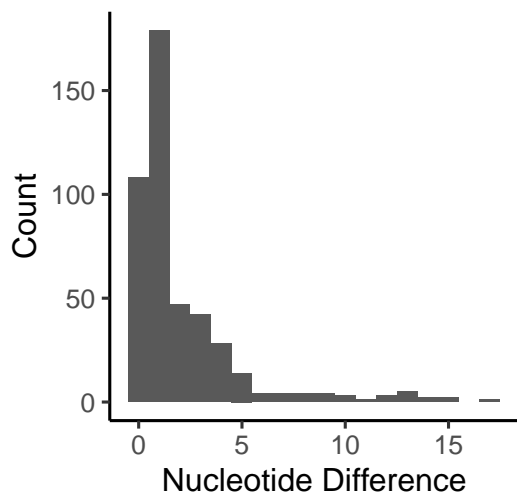
### IGHV3-43D\*04

380 sequences assigned  
94 (24.7%) exact matches, in which:  
81 unique CDR3  
6 unique J



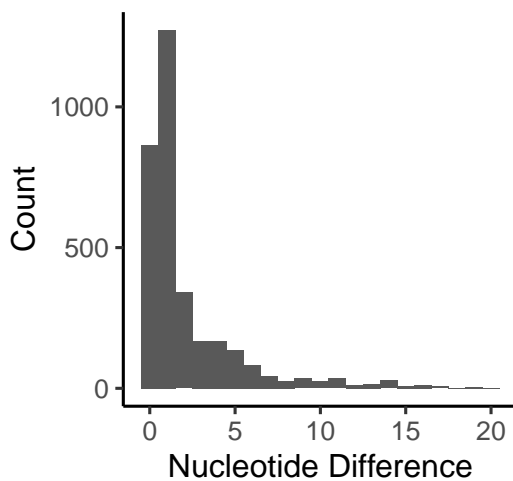
### IGHV3-72\*01

451 sequences assigned  
108 (23.9%) exact matches, in which:  
81 unique CDR3  
6 unique J



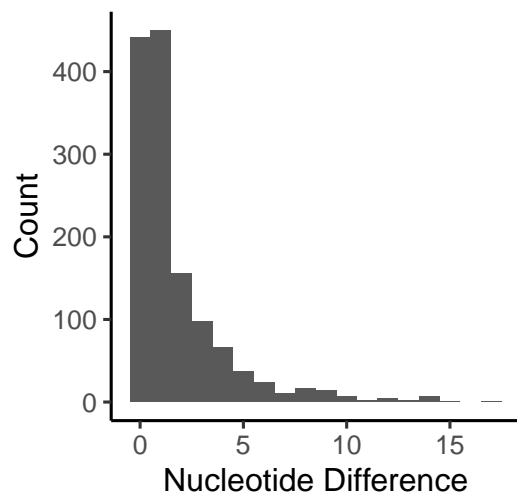
### IGHV3-74\*01

3290 sequences assigned  
865 (26.3%) exact matches, in which:  
697 unique CDR3  
6 unique J



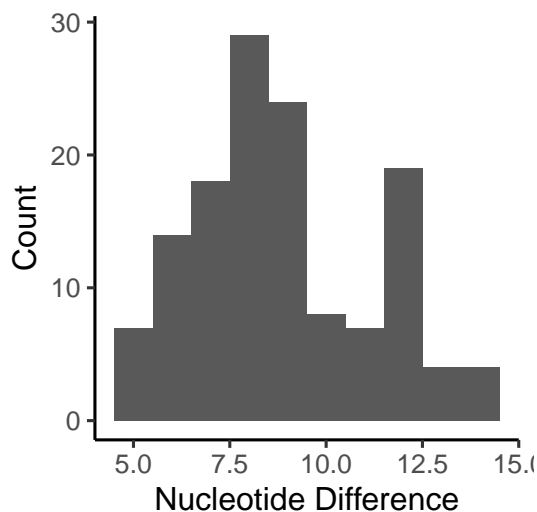
### IGHV3-64D\*06

1340 sequences assigned  
441 (32.9%) exact matches, in which:  
370 unique CDR3  
7 unique J



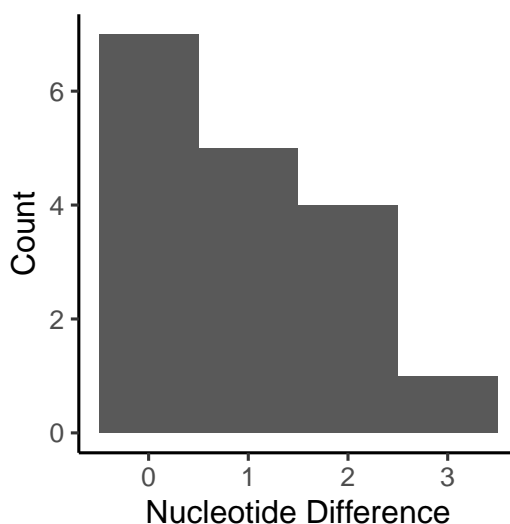
### IGHV3–NL1\*01

135 sequences assigned  
No exact matches.



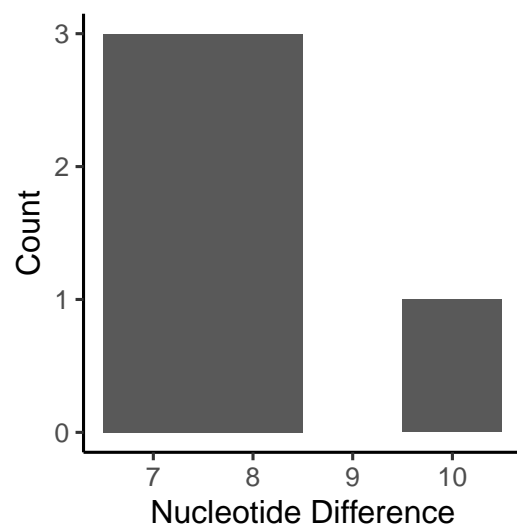
### IGHV4–28\*02

17 sequences assigned  
7 (41.2%) exact matches, in which:  
6 unique CDR3  
1 unique J



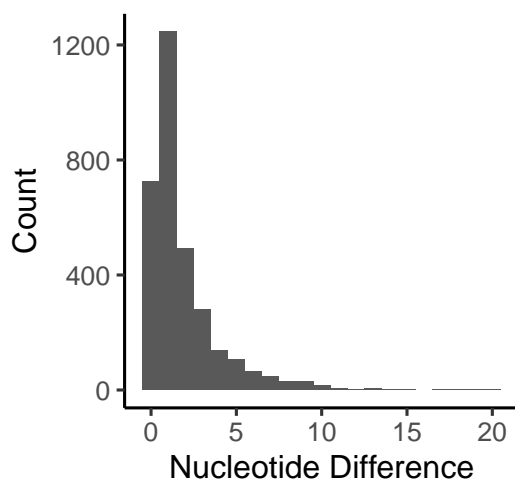
### IGHV4–30–4\*07

9 sequences assigned  
No exact matches.



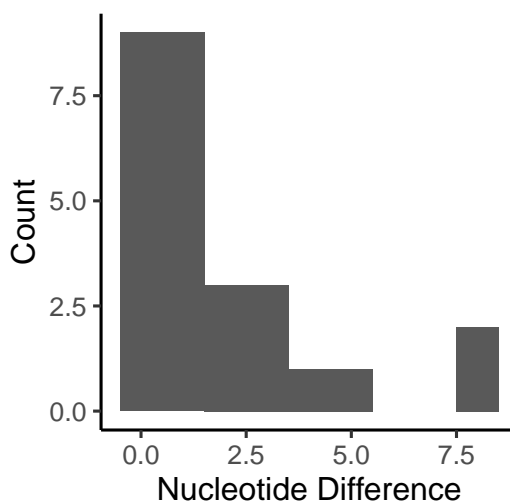
### IGHV4–4\*02

3218 sequences assigned  
725 (22.5%) exact matches, in which:  
582 unique CDR3  
7 unique J



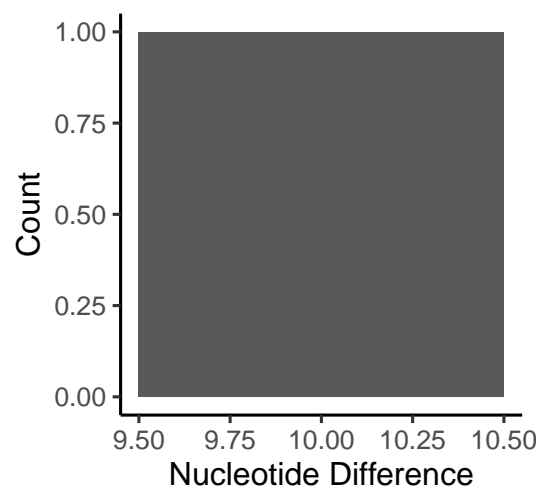
### IGHV4–28\*07

28 sequences assigned  
9 (32.1%) exact matches, in which:  
6 unique CDR3  
1 unique J



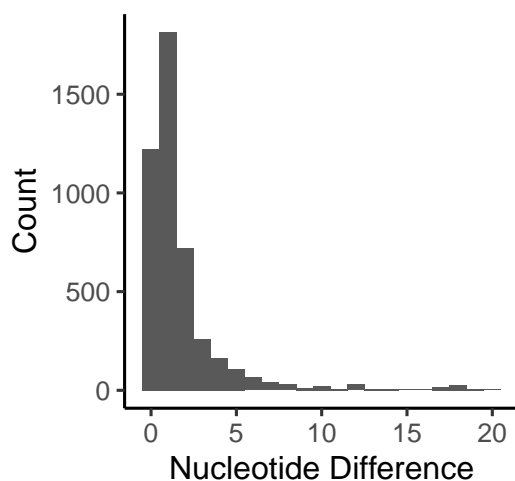
### IGHV4–30–4\*08

1 sequences assigned  
No exact matches.



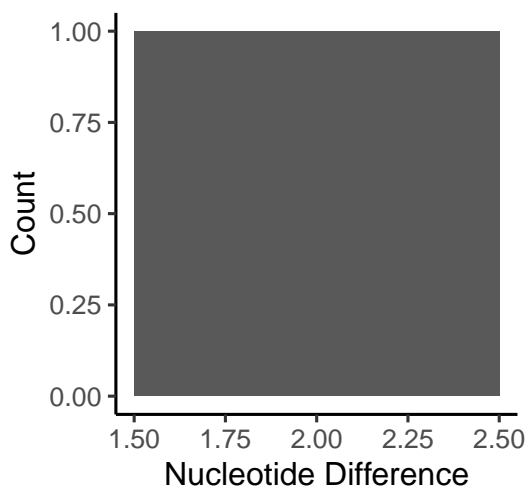
### IGHV4–4\*07

4581 sequences assigned  
1221 (26.7%) exact matches, in which:  
992 unique CDR3  
7 unique J



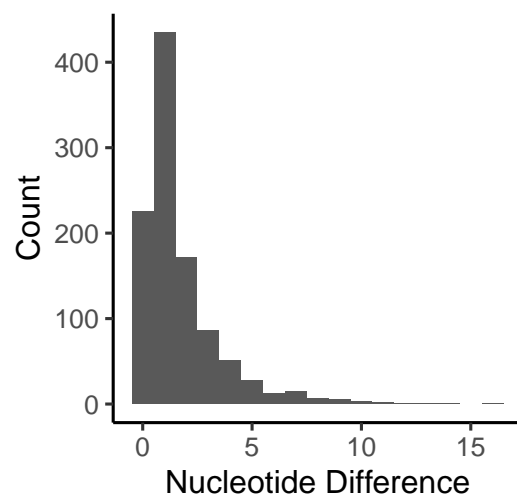
### IGHV4–30–2\*01

1 sequences assigned  
No exact matches.



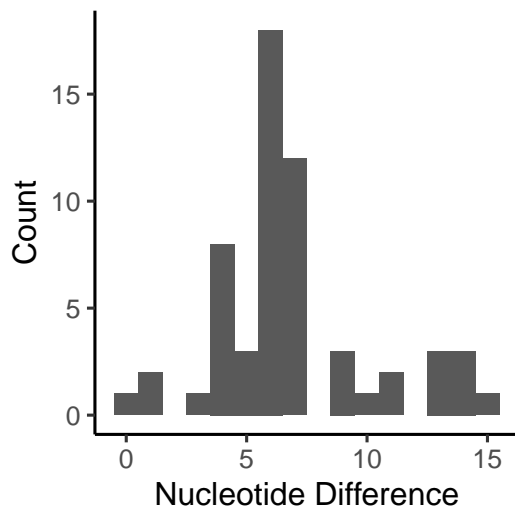
### IGHV4–31\*01

1052 sequences assigned  
225 (21.4%) exact matches, in which:  
183 unique CDR3  
6 unique J



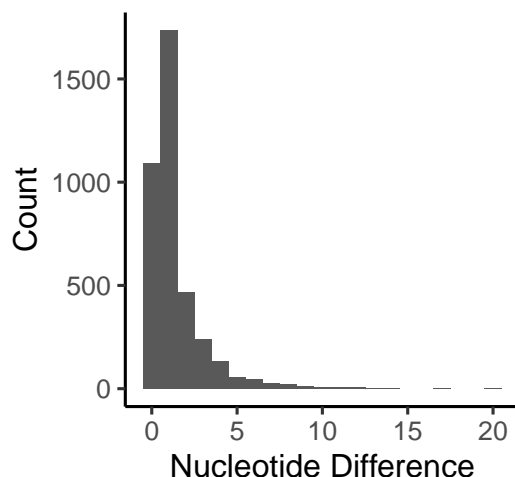
## IGHV4-31\*03

58 sequences assigned  
1 (1.7%) exact matches, in which:  
1 unique CDR3  
1 unique J



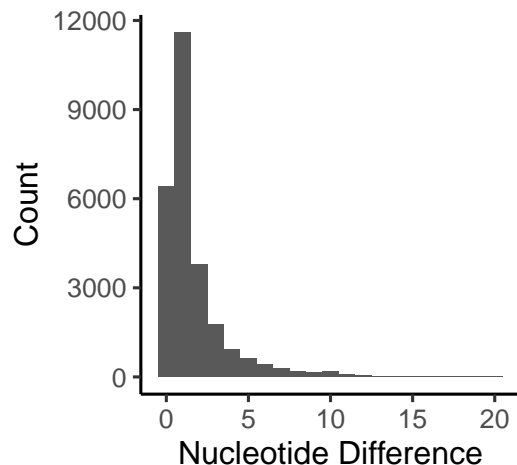
## IGHV4-39\*01

3870 sequences assigned  
1090 (28.2%) exact matches, in which:  
863 unique CDR3  
7 unique J



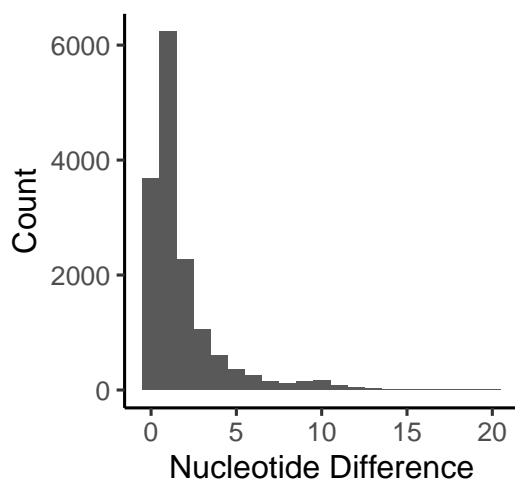
## IGHV4-59\*01

26609 sequences assigned  
6414 (24.1%) exact matches, in which:  
4910 unique CDR3  
7 unique J



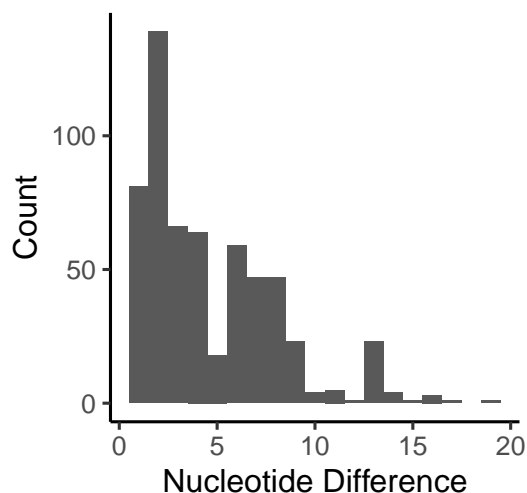
## IGHV4-34\*01

15253 sequences assigned  
3673 (24.1%) exact matches, in which:  
2928 unique CDR3  
7 unique J



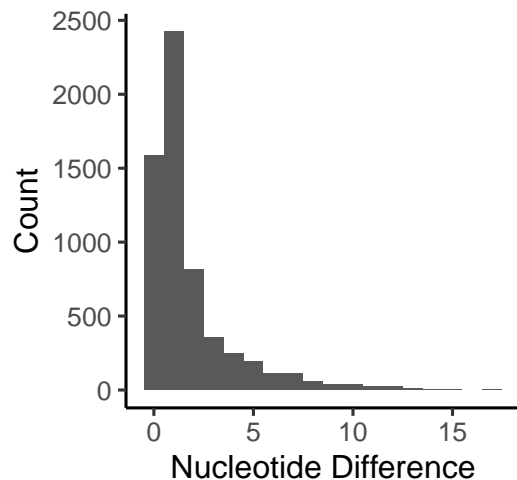
## IGHV4-39\*07

593 sequences assigned  
No exact matches.



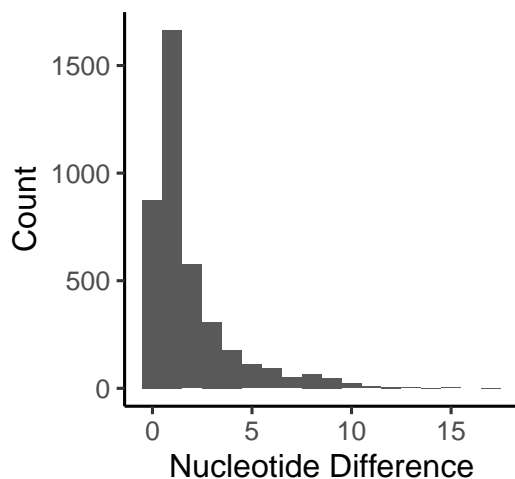
## IGHV4-59\*08

6058 sequences assigned  
1588 (26.2%) exact matches, in which:  
1281 unique CDR3  
7 unique J



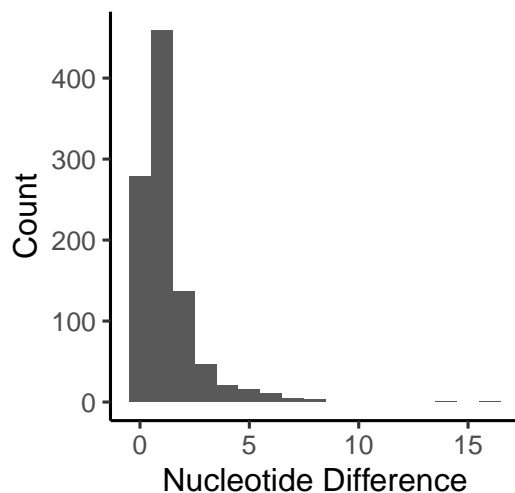
## IGHV4-38-2\*02\_A70G

4040 sequences assigned  
874 (21.6%) exact matches, in which:  
705 unique CDR3  
7 unique J



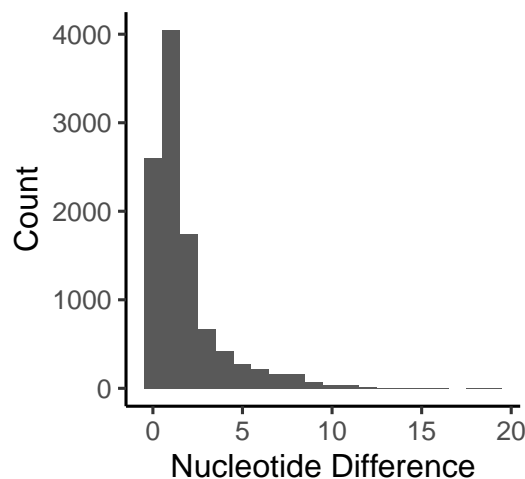
## IGHV4-39\*02\_C258G

978 sequences assigned  
279 (28.5%) exact matches, in which:  
242 unique CDR3  
7 unique J



## IGHV4-61\*02

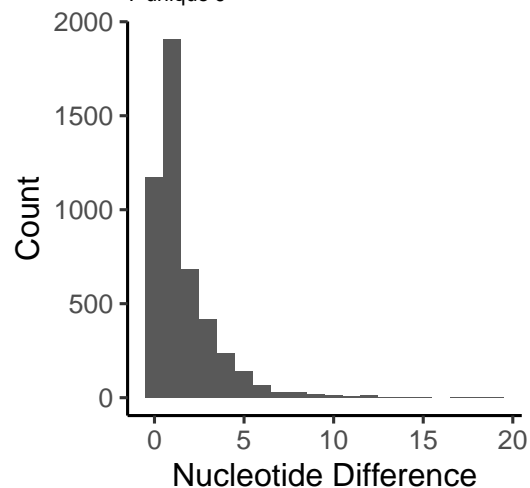
10477 sequences assigned  
2599 (24.8%) exact matches, in which:  
2116 unique CDR3  
7 unique J





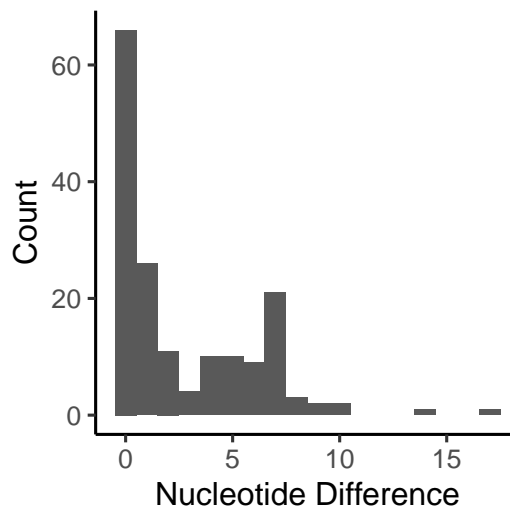
### IGHV5-10-1\*03

4784 sequences assigned  
1173 (24.5%) exact matches, in which:  
950 unique CDR3  
7 unique J



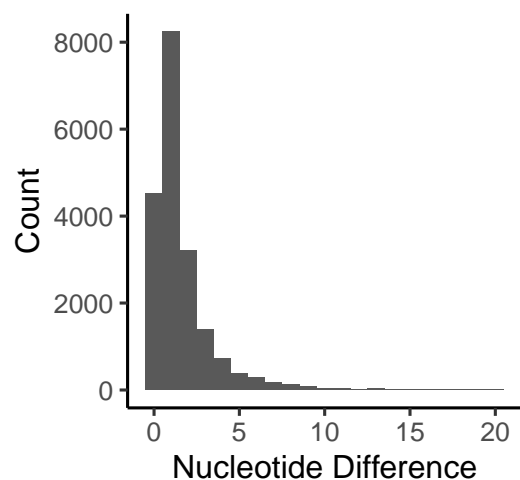
### IGHV6-1\*01\_A315G

166 sequences assigned  
66 (39.8%) exact matches, in which:  
65 unique CDR3  
6 unique J



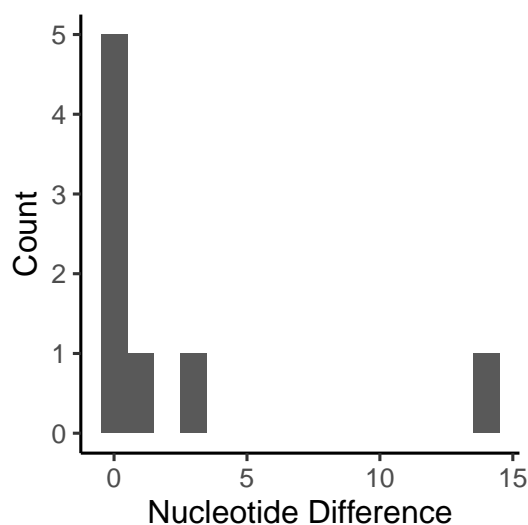
### IGHV5-51\*01

19368 sequences assigned  
4520 (23.3%) exact matches, in which:  
3478 unique CDR3  
7 unique J



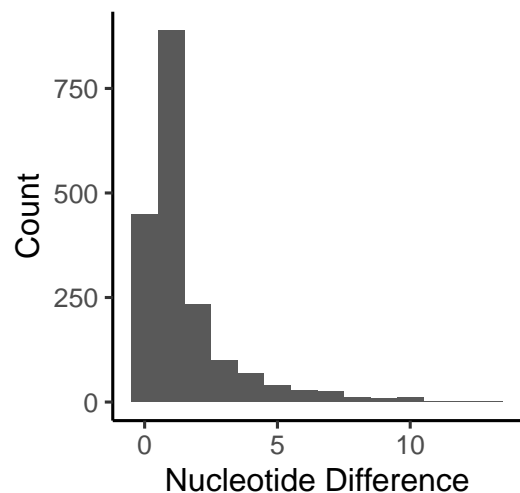
### IGHV7-4-1\*01

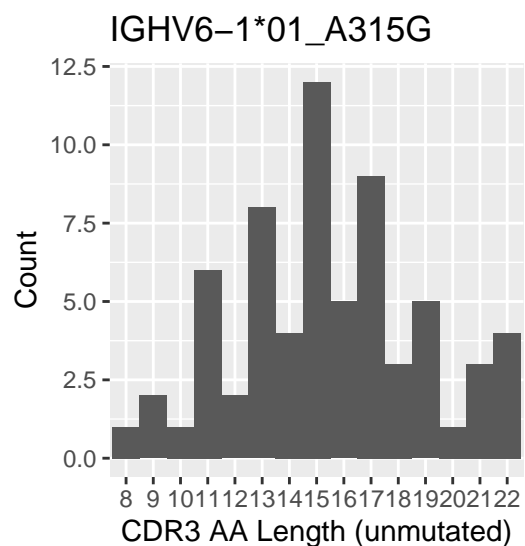
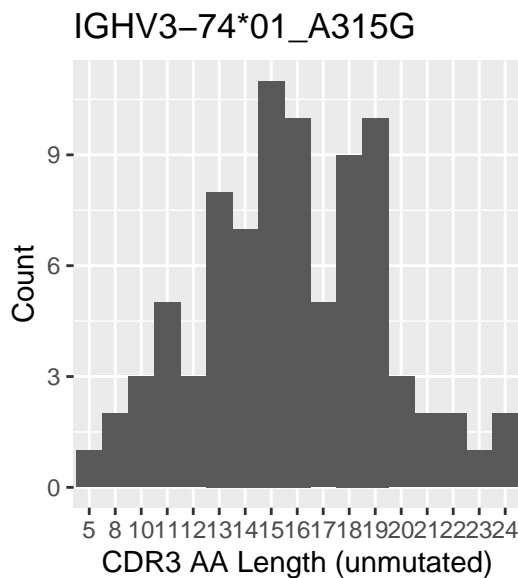
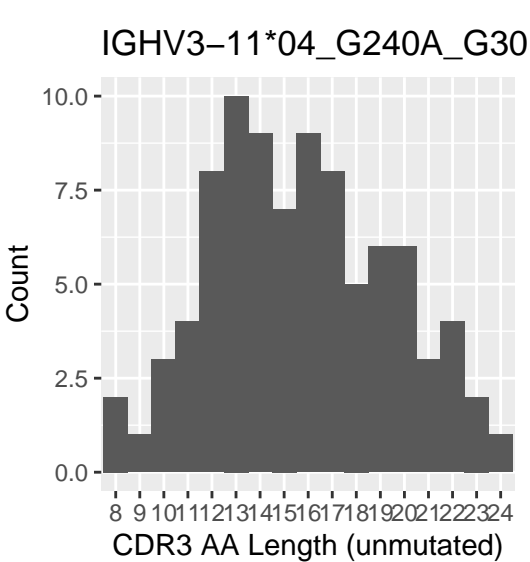
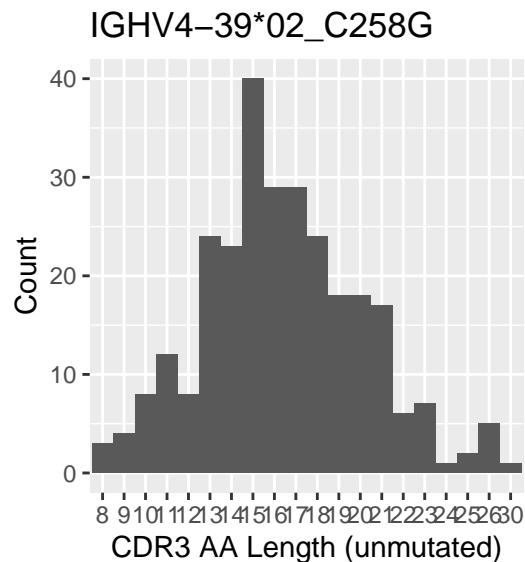
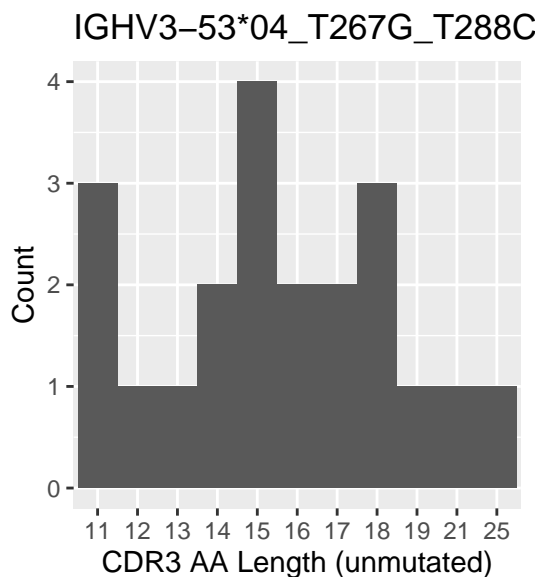
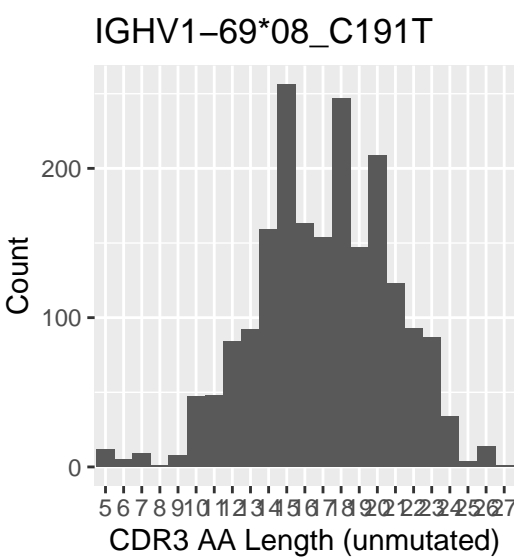
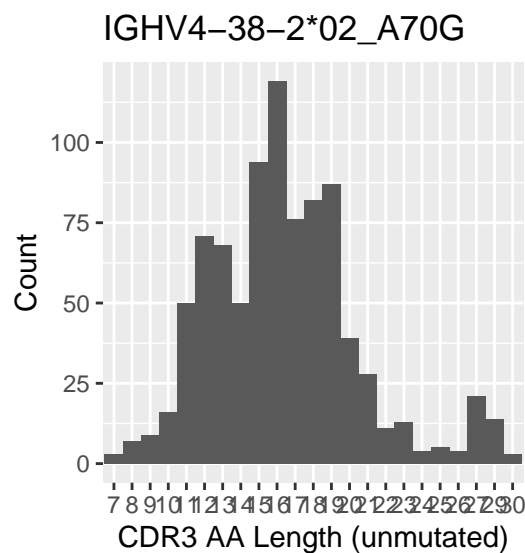
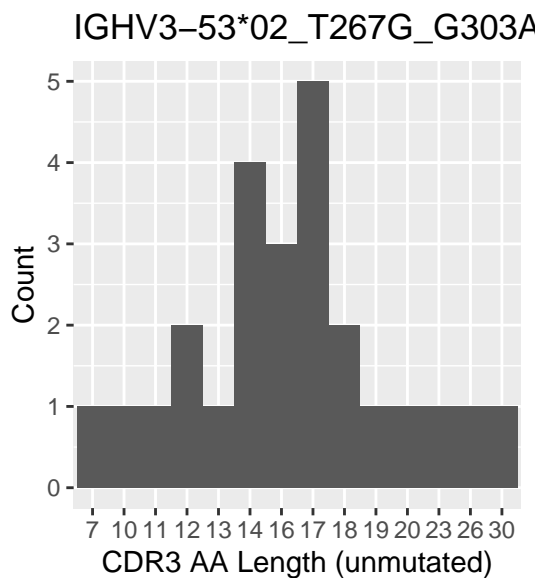
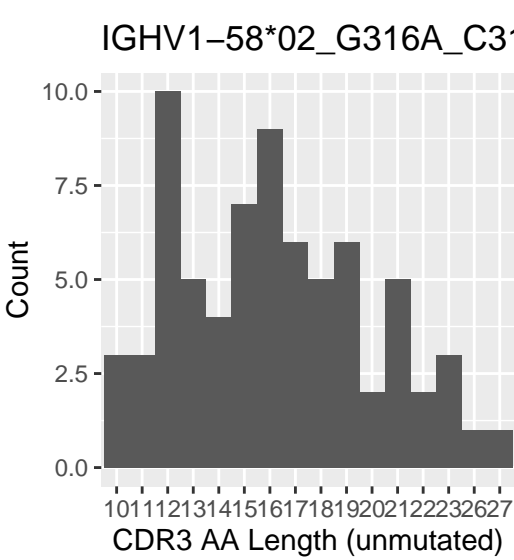
9 sequences assigned  
5 (55.6%) exact matches, in which:  
5 unique CDR3  
1 unique J



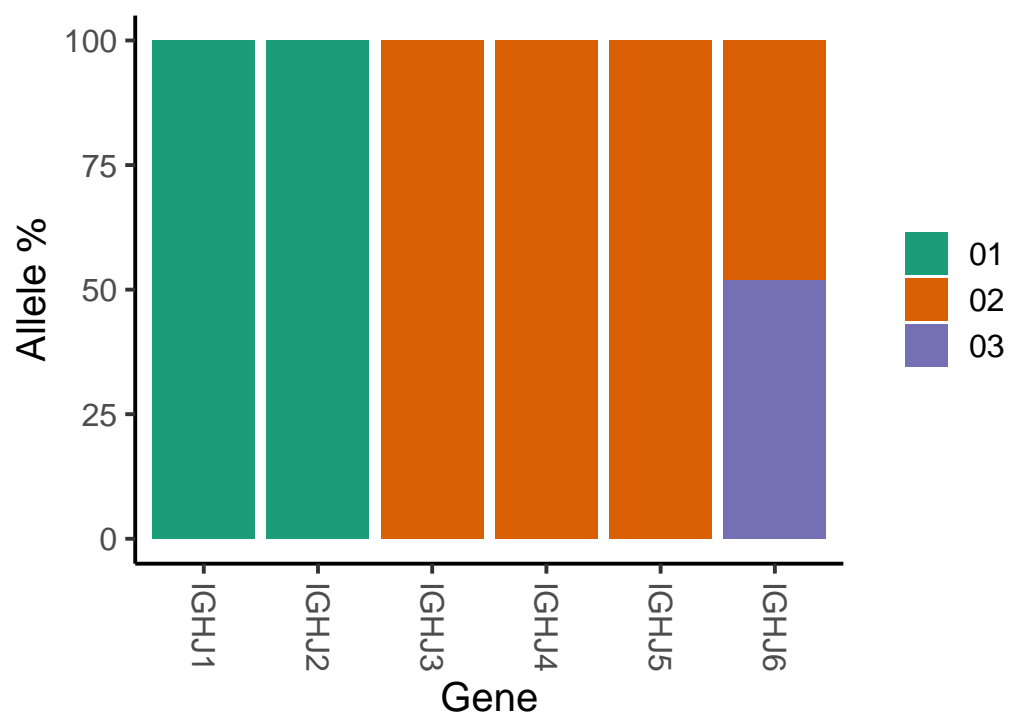
### IGHV6-1\*01

1871 sequences assigned  
449 (24%) exact matches, in which:  
326 unique CDR3  
6 unique J





Allele Usage



# Sequence Count by IGHJ6 allele usage

