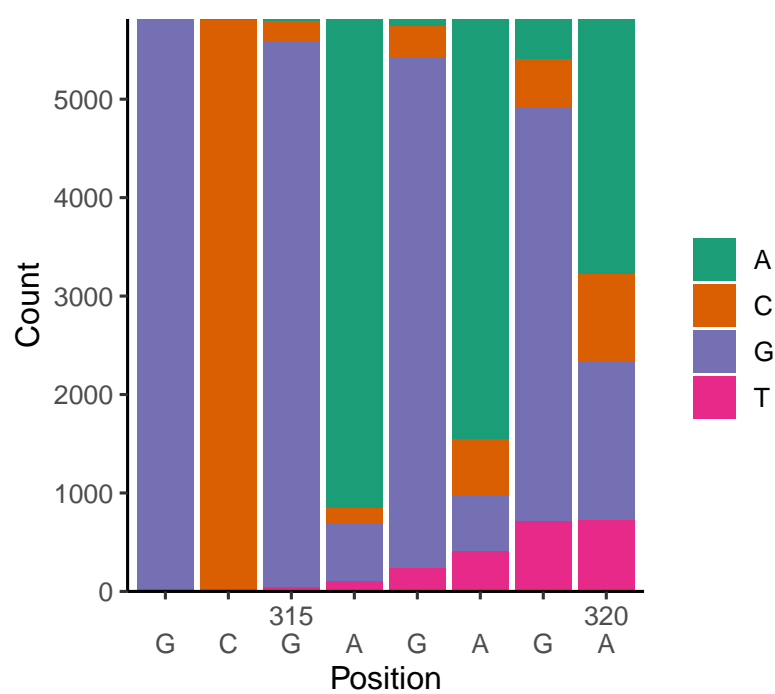
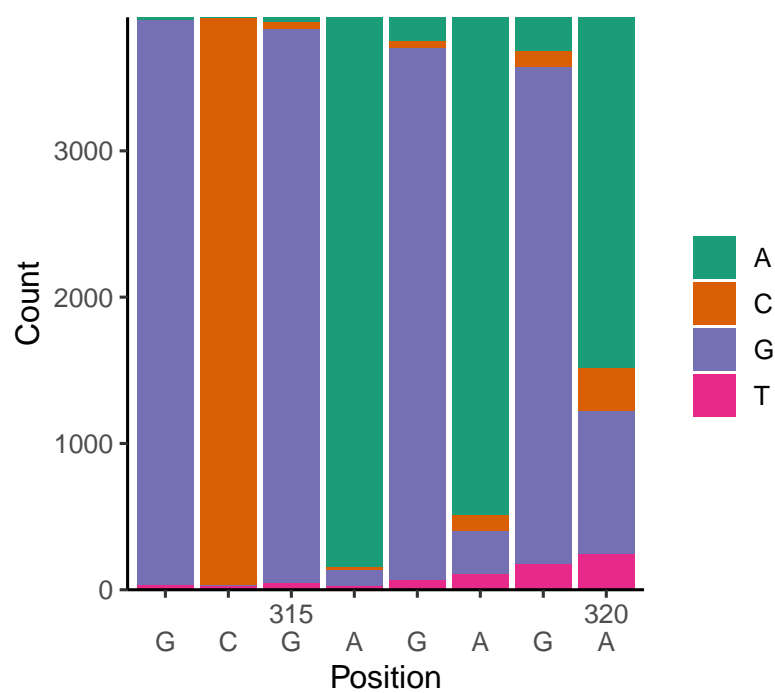


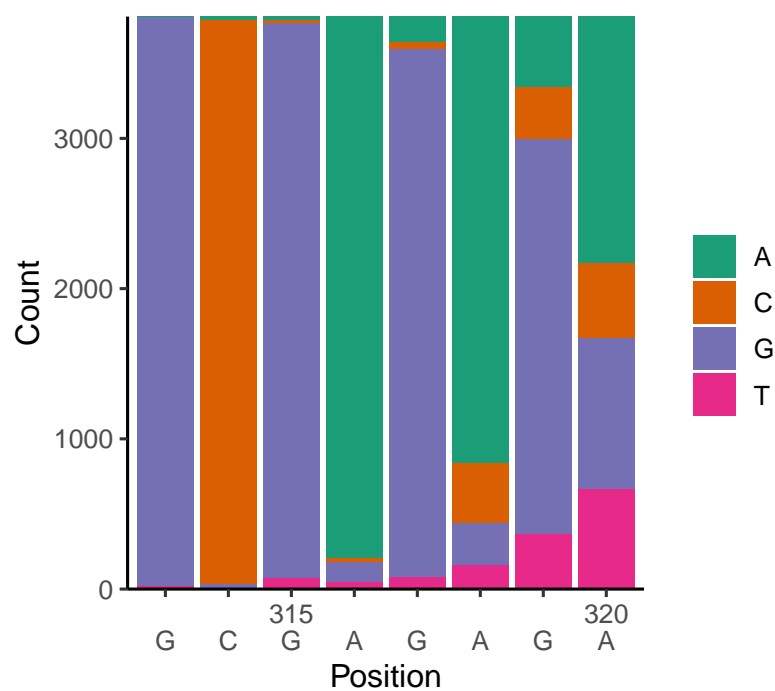
Gene IGHV1-69\*08\_C191T



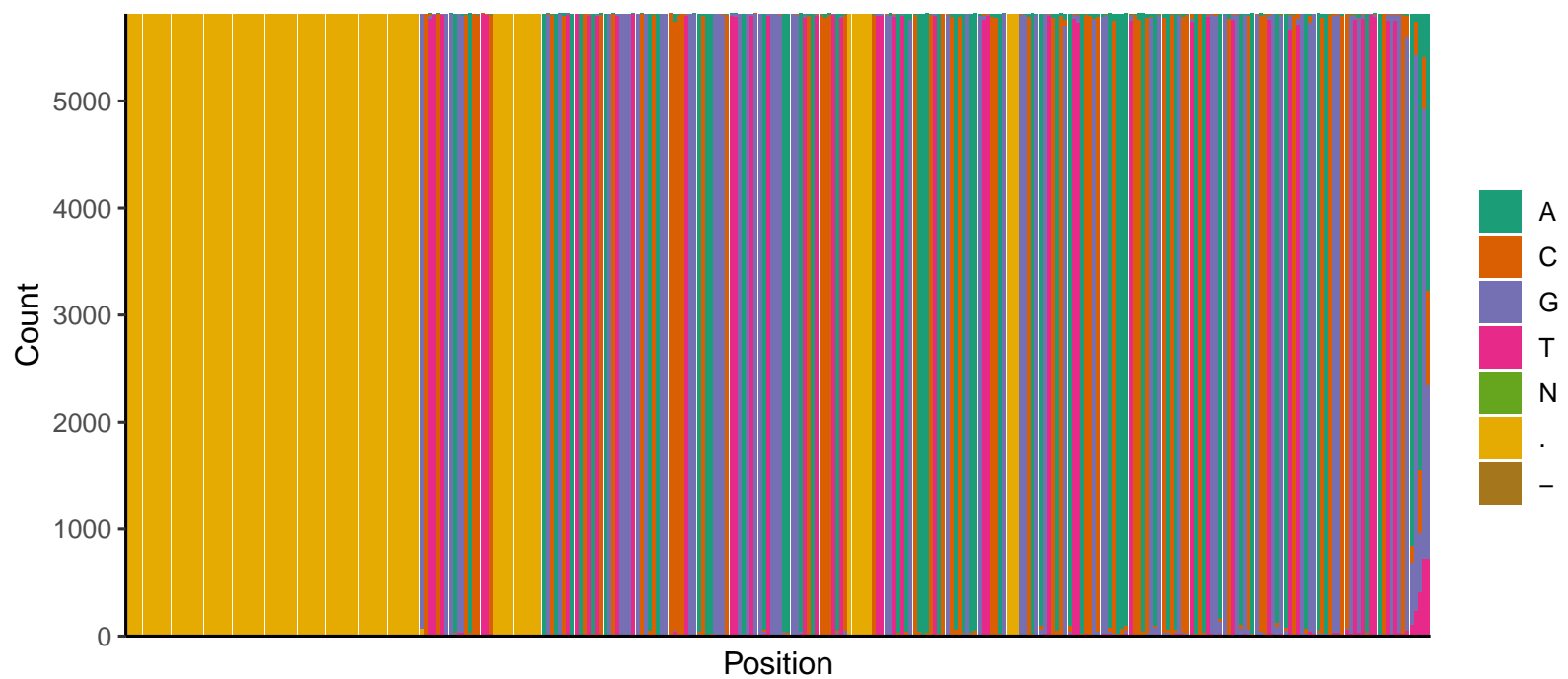
Gene IGHV3-33\*01\_G75C



Gene IGHV4-38-2\*02\_A70G



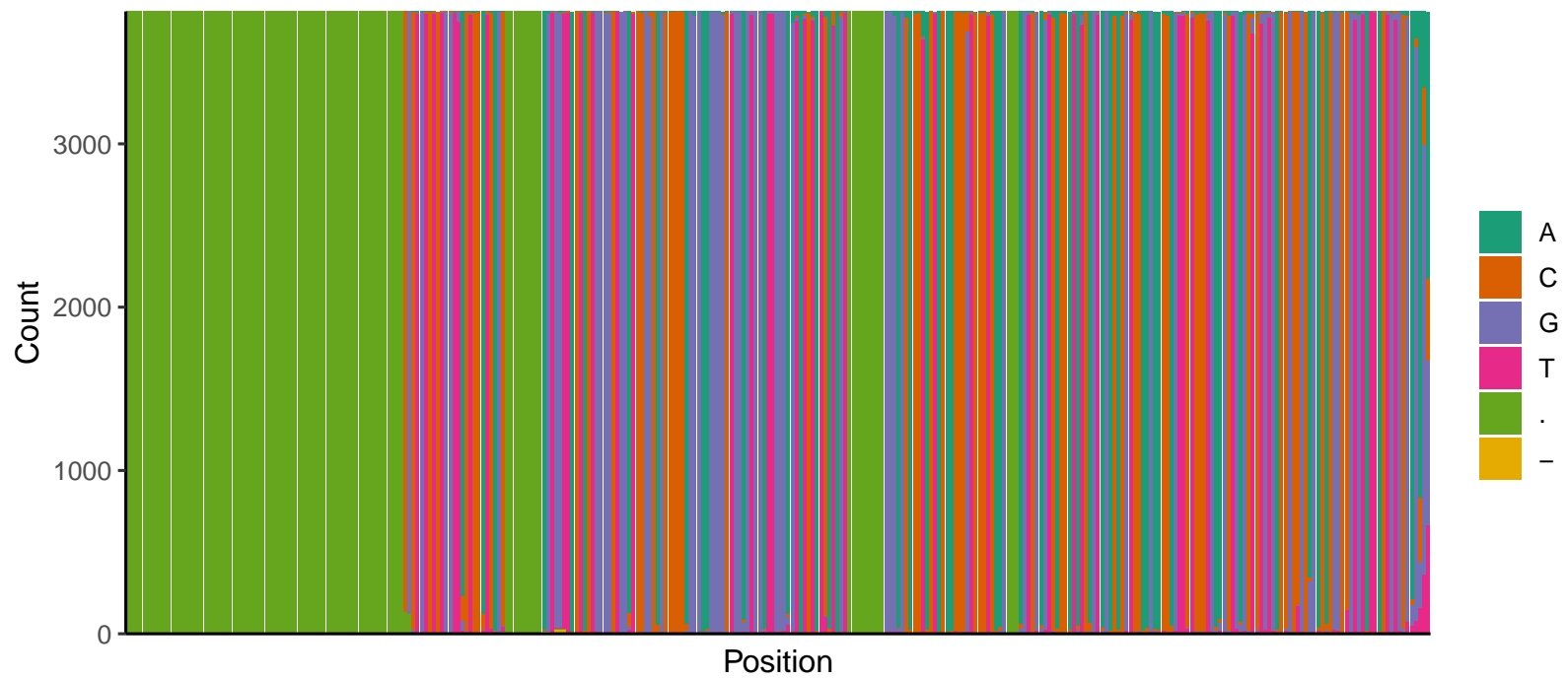
Gene IGHV1-69\*08\_C191T



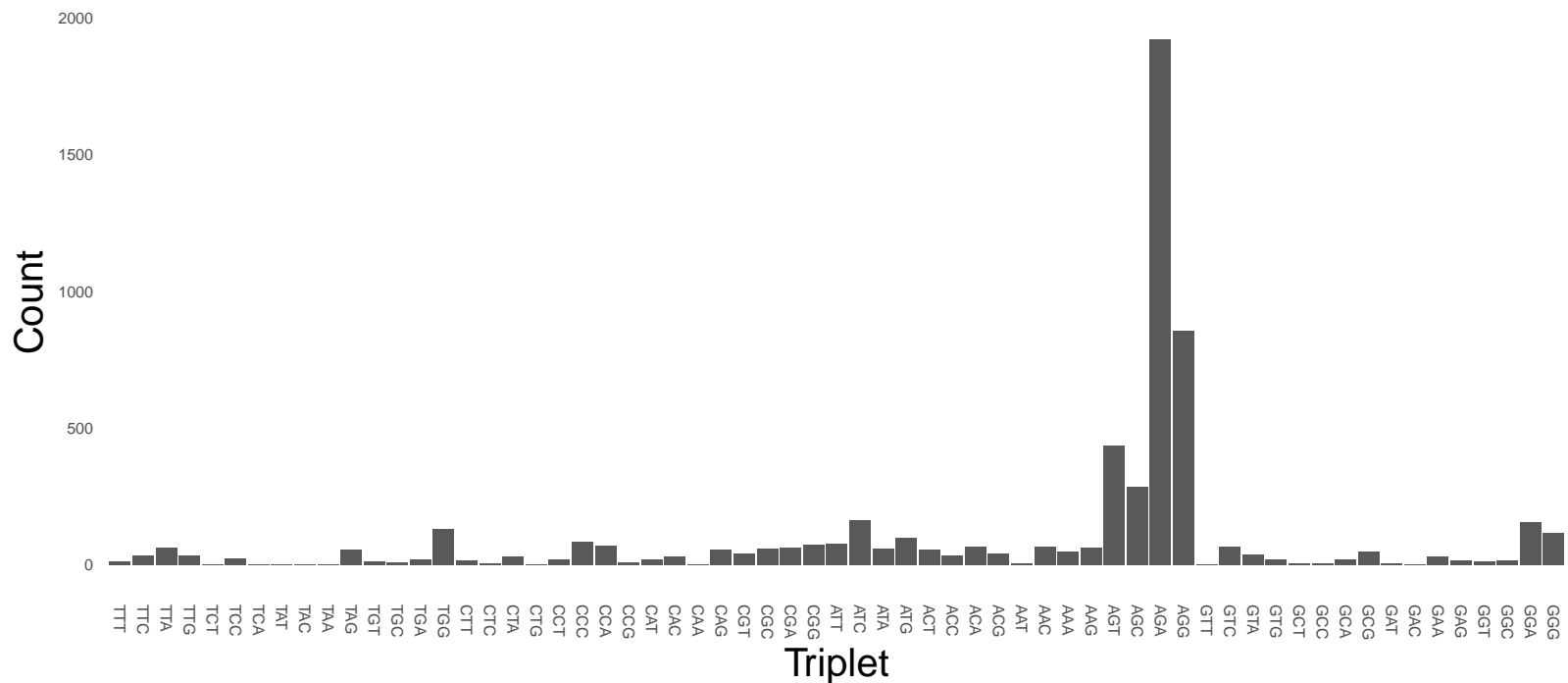
Gene IGHV3-33\*01\_G75C



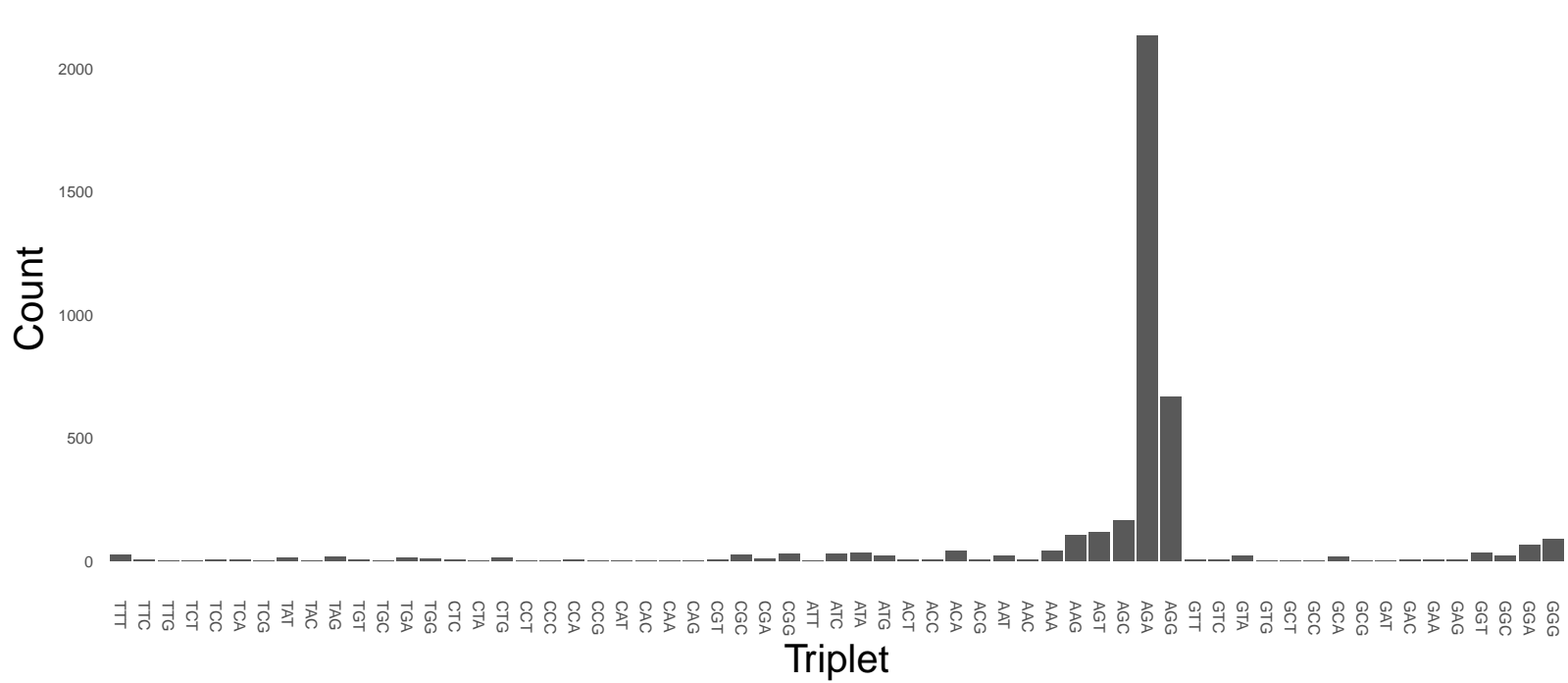
Gene IGHV4-38-2\*02\_A70G



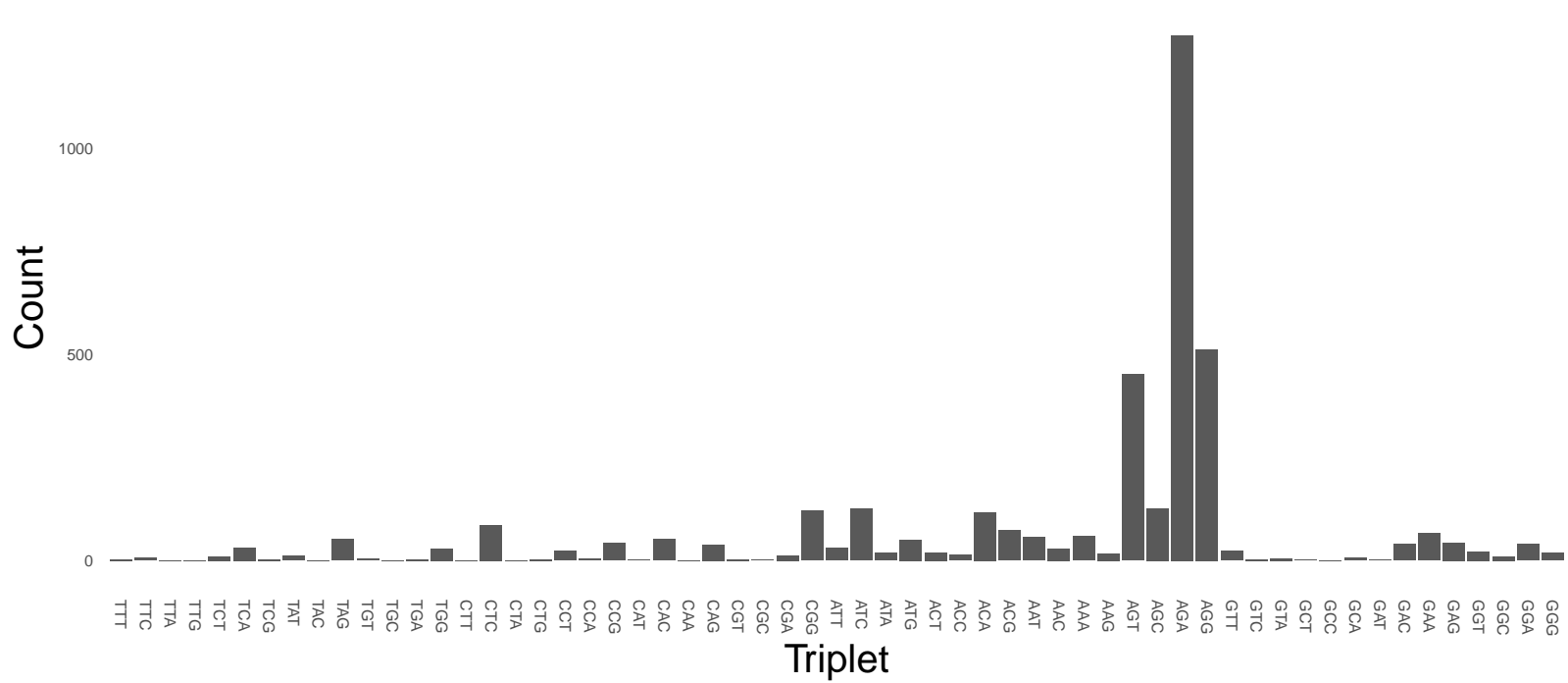
IGHV1-69\*08\_C191T- Final 3 nucleotides as a triplet



IGHV3-33\*01\_G75C- Final 3 nucleotides as a triplet

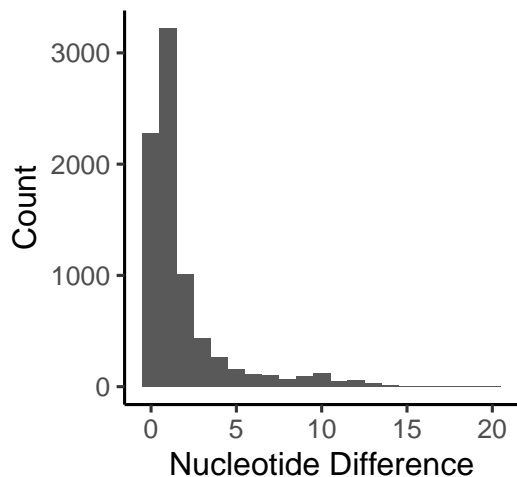


IGHV4-38-2\*02\_A70G- Final 3 nucleotides as a triplet



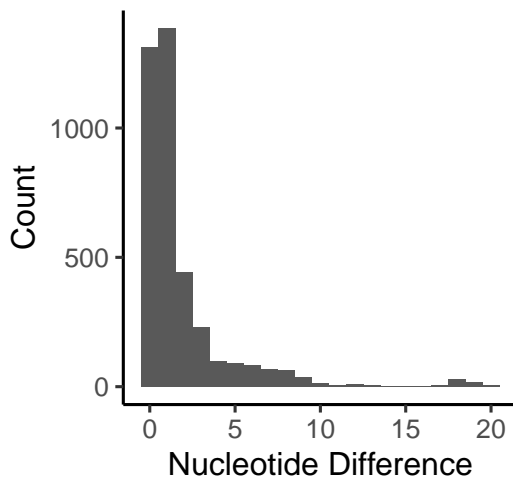
### IGHV1-2\*02

8055 sequences assigned  
2277 (28.3%) exact matches, in which:  
1848 unique CDR3  
7 unique J



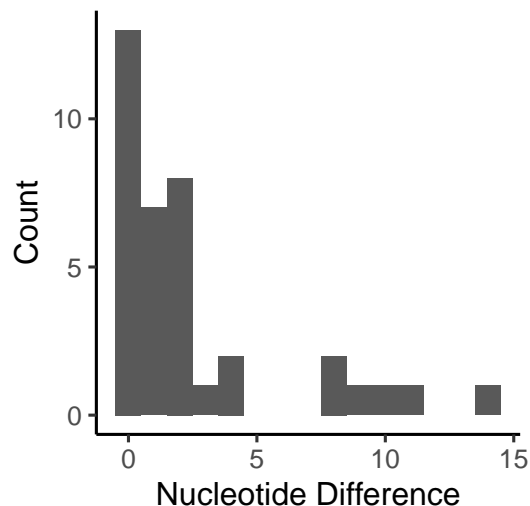
### IGHV1-8\*01

3918 sequences assigned  
1311 (33.5%) exact matches, in which:  
1113 unique CDR3  
7 unique J



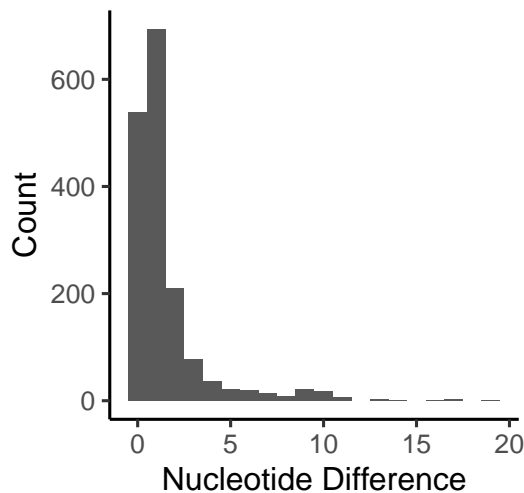
### IGHV1-45\*03

38 sequences assigned  
13 (34.2%) exact matches, in which:  
10 unique CDR3  
4 unique J



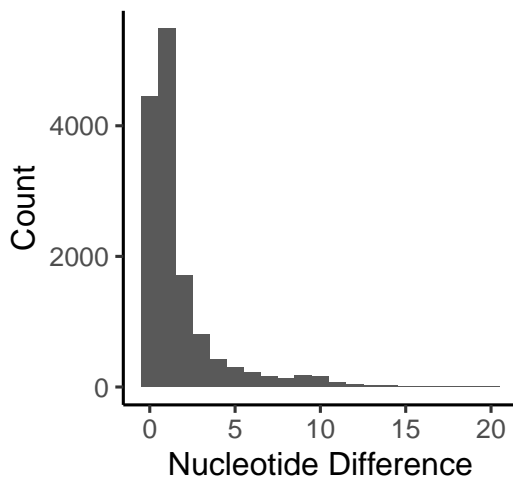
### IGHV1-2\*04

1674 sequences assigned  
538 (32.1%) exact matches, in which:  
454 unique CDR3  
7 unique J



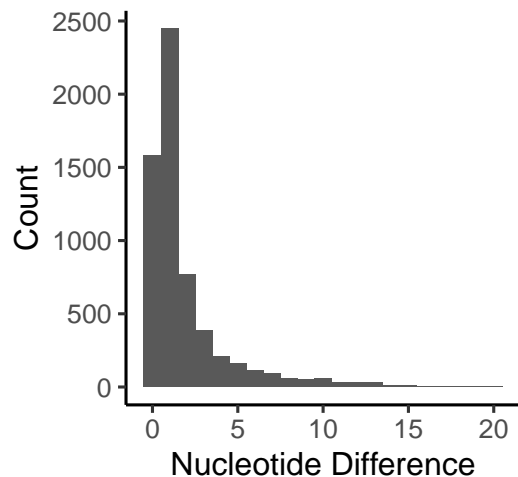
### IGHV1-18\*01

14218 sequences assigned  
4443 (31.2%) exact matches, in which:  
3639 unique CDR3  
7 unique J



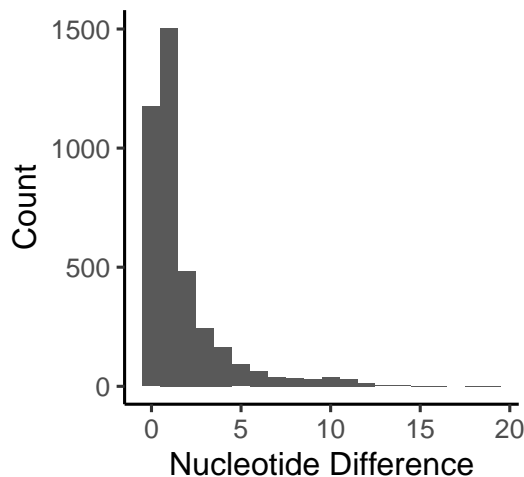
### IGHV1-46\*01

6070 sequences assigned  
1582 (26.1%) exact matches, in which:  
1298 unique CDR3  
7 unique J



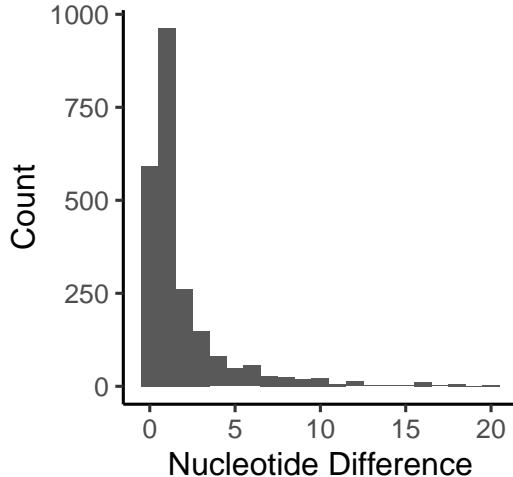
### IGHV1-3\*01\_05

3936 sequences assigned  
1174 (29.8%) exact matches, in which:  
981 unique CDR3  
7 unique J



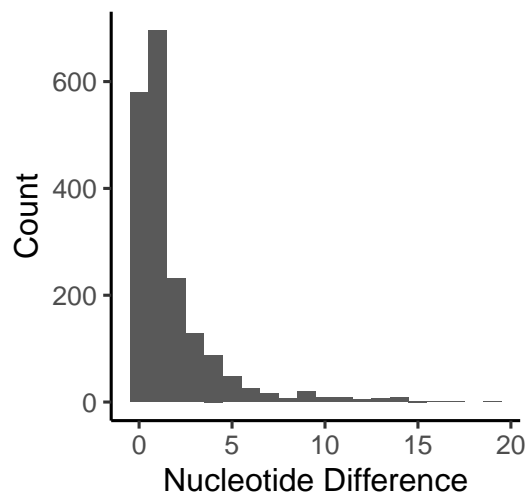
### IGHV1-24\*01

2295 sequences assigned  
592 (25.8%) exact matches, in which:  
464 unique CDR3  
7 unique J



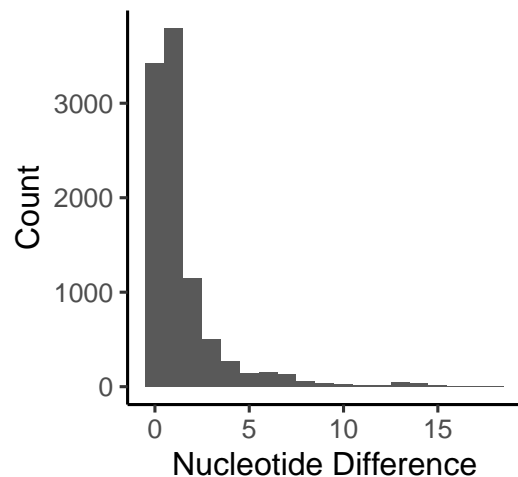
### IGHV1-58\*02

1881 sequences assigned  
580 (30.8%) exact matches, in which:  
472 unique CDR3  
7 unique J



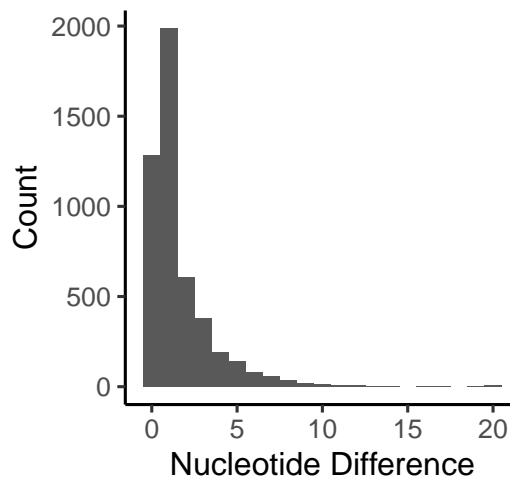
### IGHV1-69\*04\_09

9848 sequences assigned  
3428 (34.8%) exact matches, in which:  
2807 unique CDR3  
7 unique J



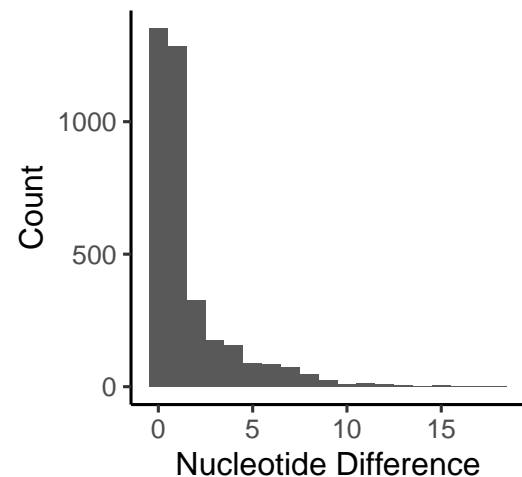
### IGHV2-5\*02

4853 sequences assigned  
1286 (26.5%) exact matches, in which:  
989 unique CDR3  
7 unique J



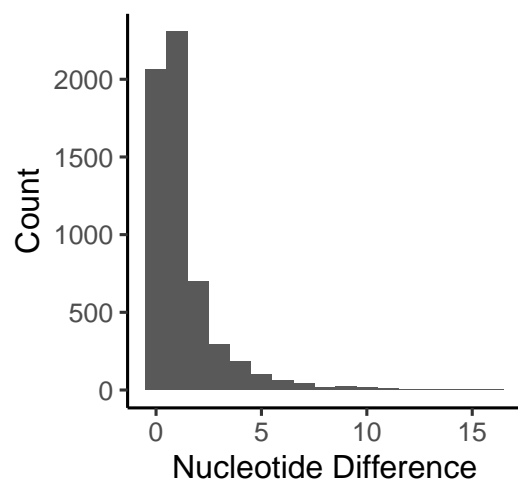
### IGHV3-7\*01

3662 sequences assigned  
1352 (36.9%) exact matches, in which:  
1149 unique CDR3  
7 unique J



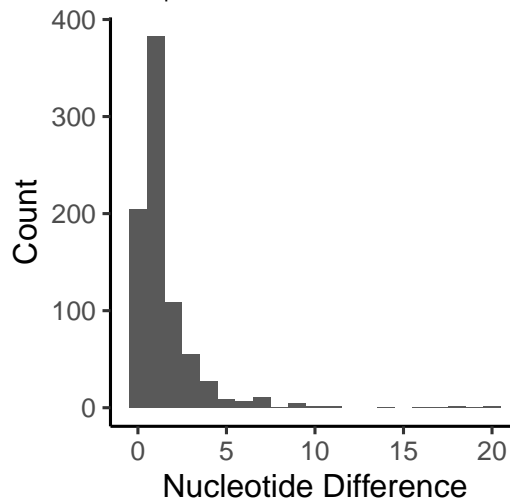
### IGHV1-69\*08\_C191T

5815 sequences assigned  
2060 (35.4%) exact matches, in which:  
1671 unique CDR3  
7 unique J



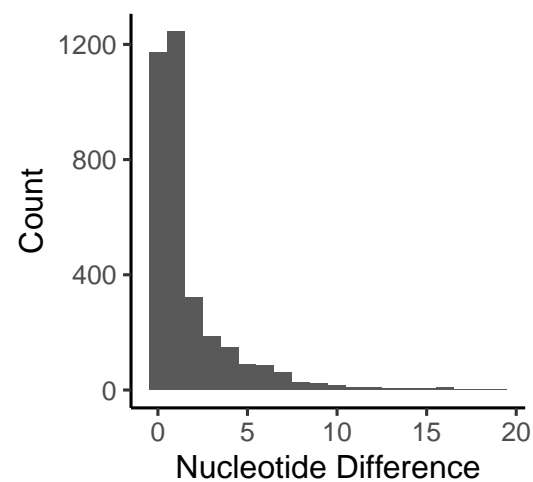
### IGHV2-26\*01

832 sequences assigned  
205 (24.6%) exact matches, in which:  
160 unique CDR3  
6 unique J



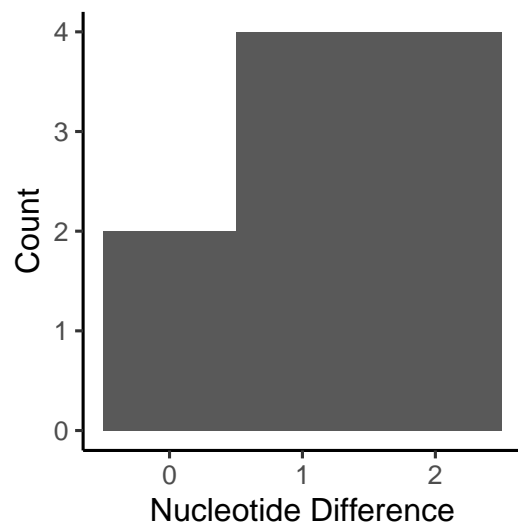
### IGHV3-7\*03

3421 sequences assigned  
1173 (34.3%) exact matches, in which:  
993 unique CDR3  
7 unique J



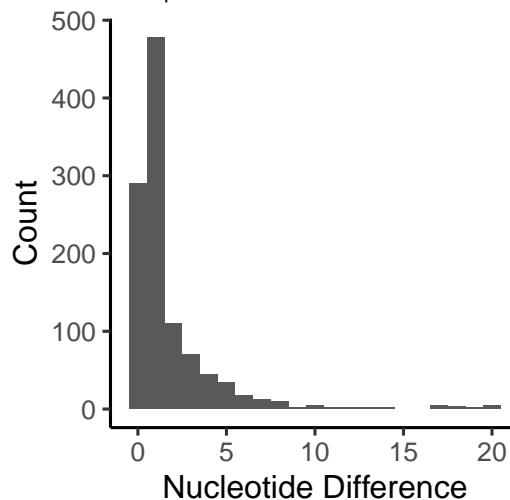
### IGHV1-69D\*01

10 sequences assigned  
2 (20%) exact matches, in which:  
2 unique CDR3  
1 unique J



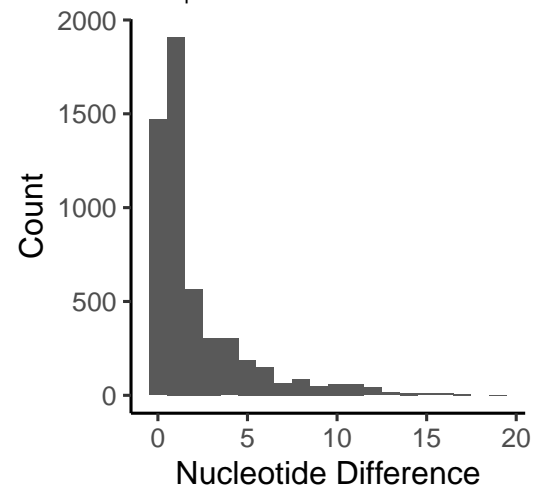
### IGHV2-70\*11\_15

1101 sequences assigned  
290 (26.3%) exact matches, in which:  
234 unique CDR3  
7 unique J



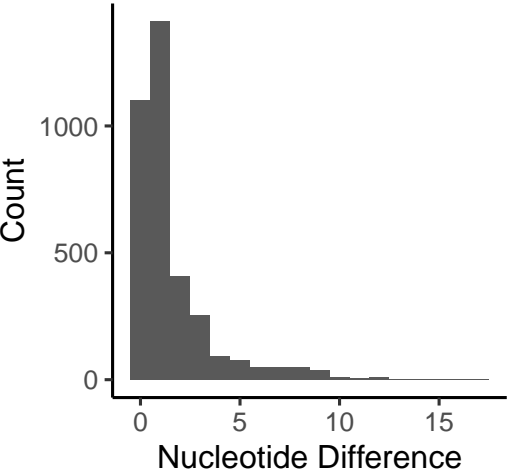
### IGHV3-9\*01

5320 sequences assigned  
1470 (27.6%) exact matches, in which:  
1148 unique CDR3  
7 unique J



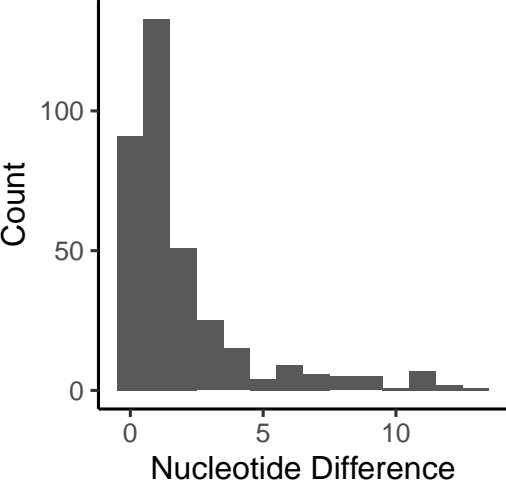
IGHV3-11\*01

3568 sequences assigned  
1102 (30.9%) exact matches, in which:  
901 unique CDR3  
7 unique J



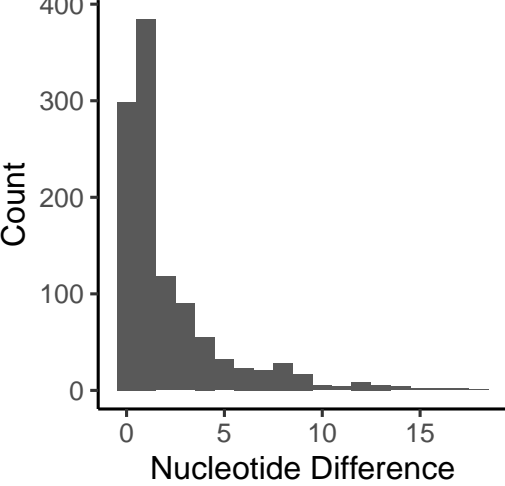
IGHV3-13\*05

355 sequences assigned  
91 (25.6%) exact matches, in which:  
72 unique CDR3  
5 unique J



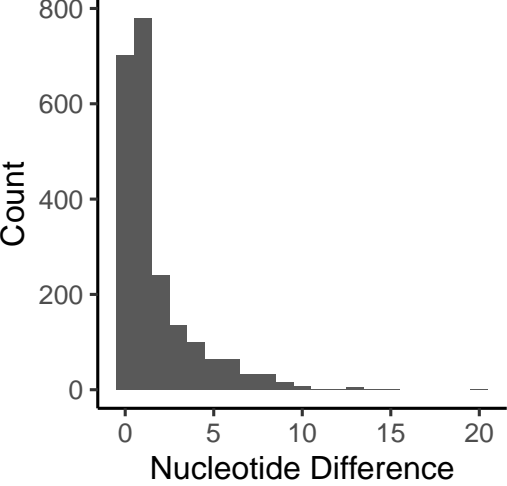
IGHV3-20\*03\_04

1104 sequences assigned  
299 (27.1%) exact matches, in which:  
250 unique CDR3  
7 unique J



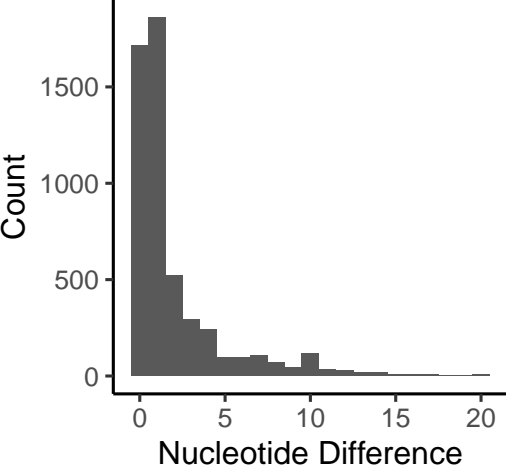
IGHV3-11\*06

2184 sequences assigned  
701 (32.1%) exact matches, in which:  
560 unique CDR3  
7 unique J



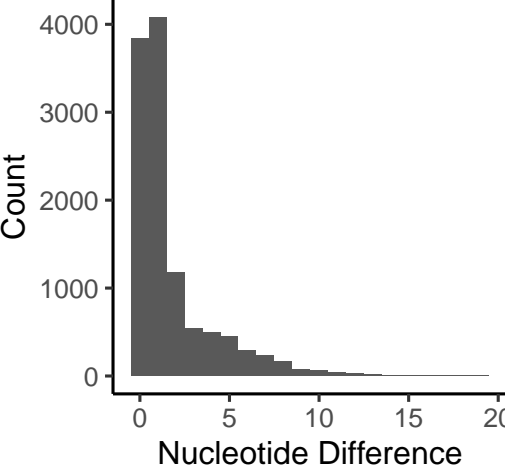
IGHV3-15\*01\_02

5302 sequences assigned  
1716 (32.4%) exact matches, in which:  
1354 unique CDR3  
7 unique J



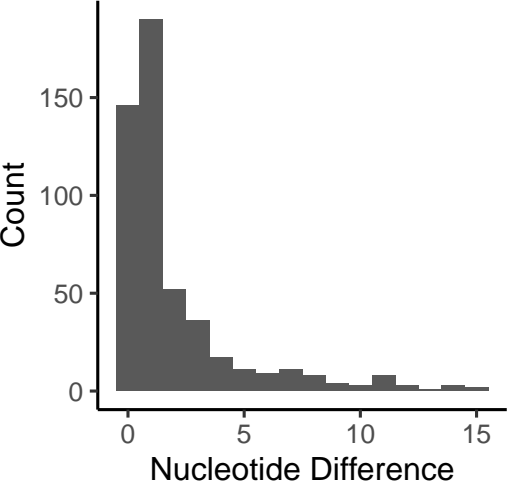
IGHV3-21\*01\_02

11522 sequences assigned  
3836 (33.3%) exact matches, in which:  
3072 unique CDR3  
7 unique J



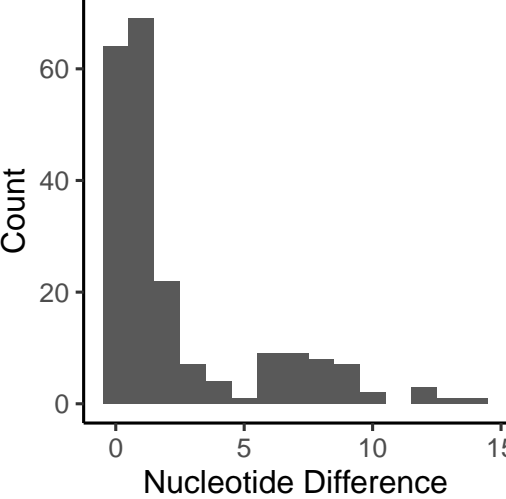
IGHV3-13\*01

504 sequences assigned  
146 (29%) exact matches, in which:  
109 unique CDR3  
6 unique J



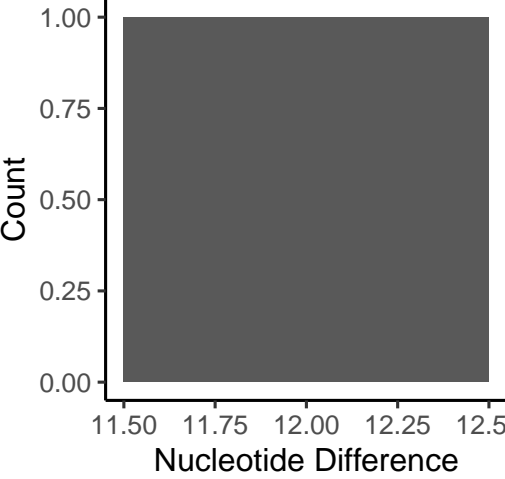
IGHV3-20\*01\_02

207 sequences assigned  
64 (30.9%) exact matches, in which:  
60 unique CDR3  
6 unique J



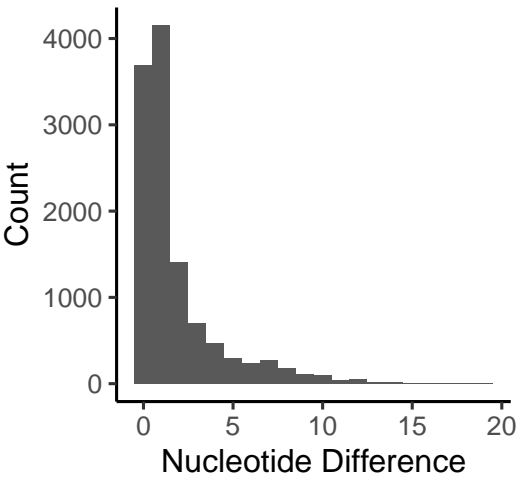
IGHV3-22\*01\_02

1 sequences assigned  
No exact matches.



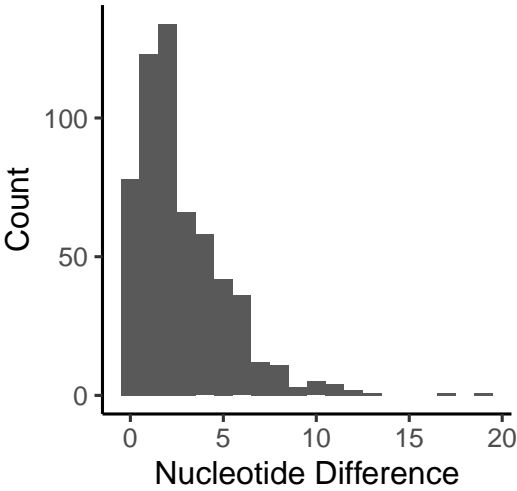
IGHV3-23\*03

11766 sequences assigned  
3692 (31.4%) exact matches, in which:  
3045 unique CDR3  
7 unique J



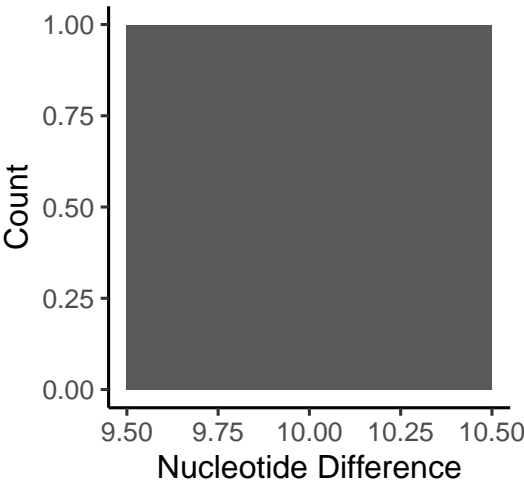
IGHV3-30\*07

579 sequences assigned  
78 (13.5%) exact matches, in which:  
78 unique CDR3  
6 unique J



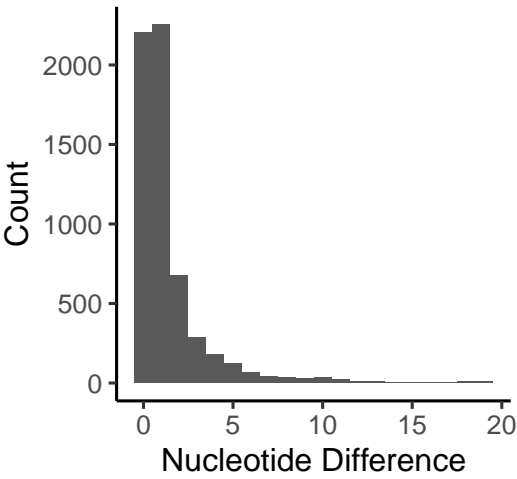
IGHV3-35\*01

1 sequences assigned  
No exact matches.



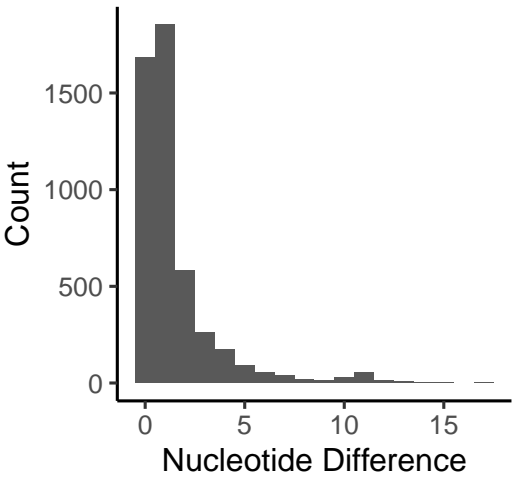
IGHV3-30\*01

5985 sequences assigned  
2202 (36.8%) exact matches, in which:  
1819 unique CDR3  
7 unique J



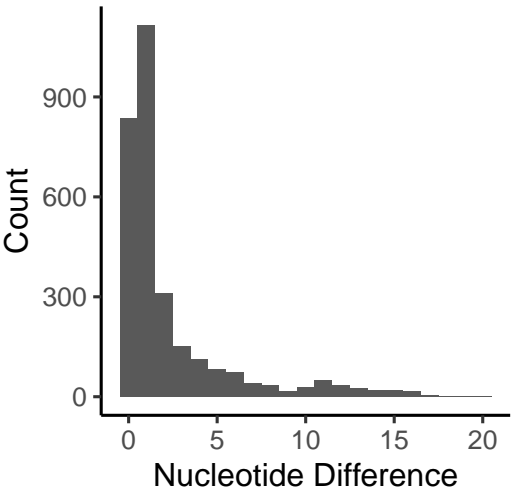
IGHV3-33\*01

4874 sequences assigned  
1685 (34.6%) exact matches, in which:  
1415 unique CDR3  
7 unique J



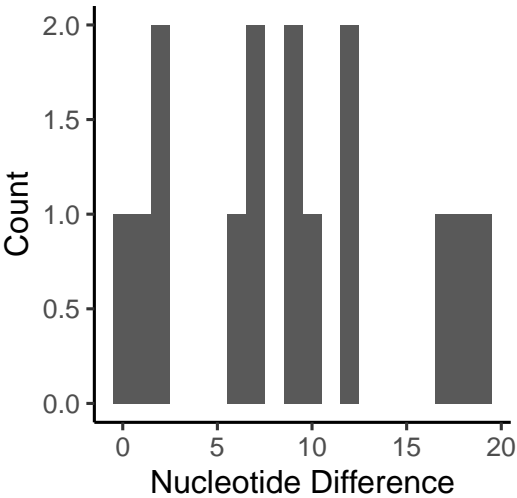
IGHV3-43\*02

2990 sequences assigned  
836 (28%) exact matches, in which:  
688 unique CDR3  
7 unique J



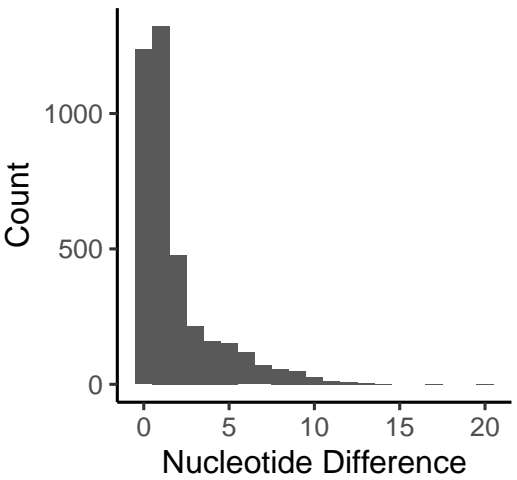
IGHV3-30-5\*01

15 sequences assigned  
1 (6.7%) exact matches, in which:  
1 unique CDR3  
1 unique J



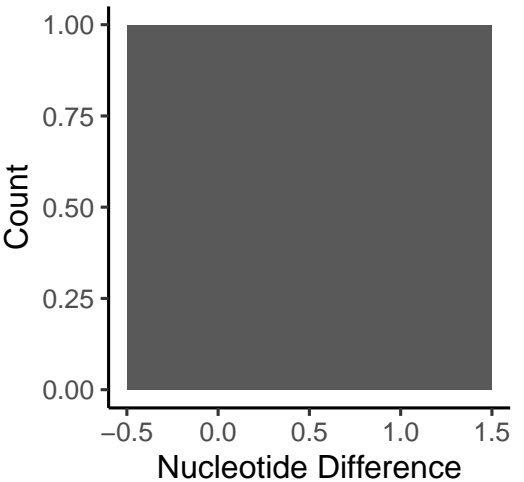
IGHV3-33\*01\_G75C

3913 sequences assigned  
1237 (31.6%) exact matches, in which:  
1026 unique CDR3  
7 unique J



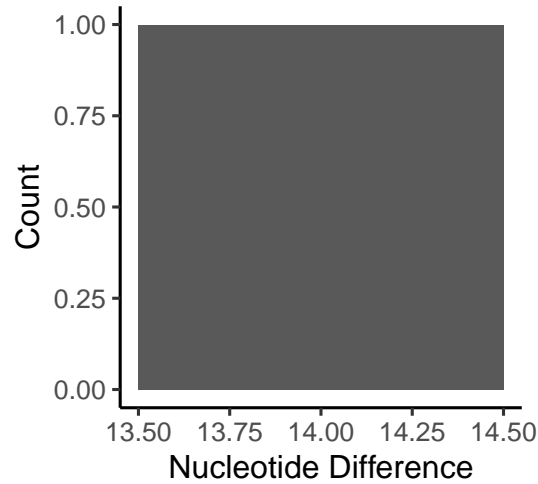
IGHV3-47\*01

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



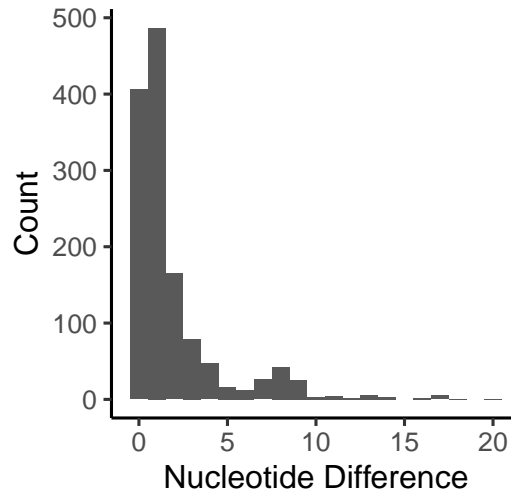
### IGHV3-47\*02

1 sequences assigned  
No exact matches.



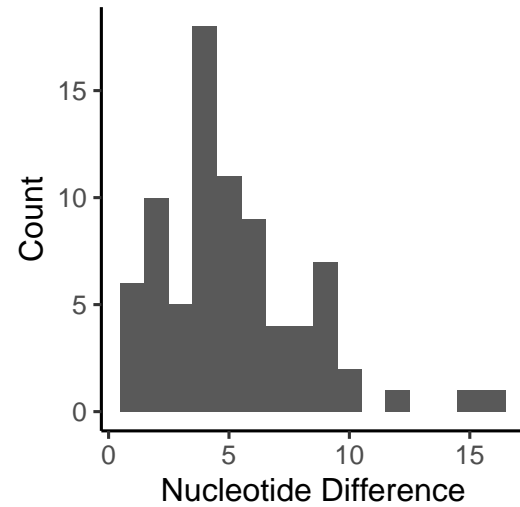
### IGHV3-53\*04

1332 sequences assigned  
406 (30.5%) exact matches, in which:  
319 unique CDR3  
7 unique J



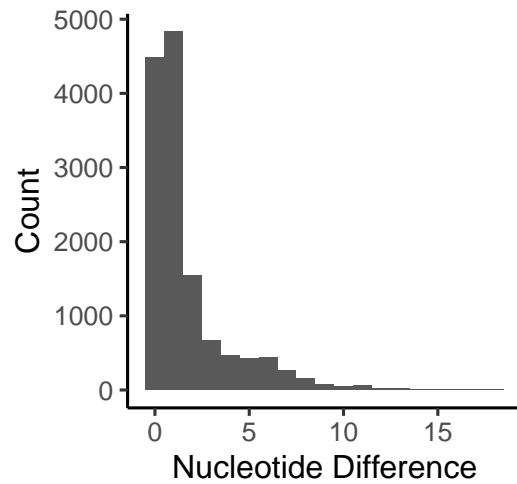
### IGHV3-64\*04

79 sequences assigned  
No exact matches.



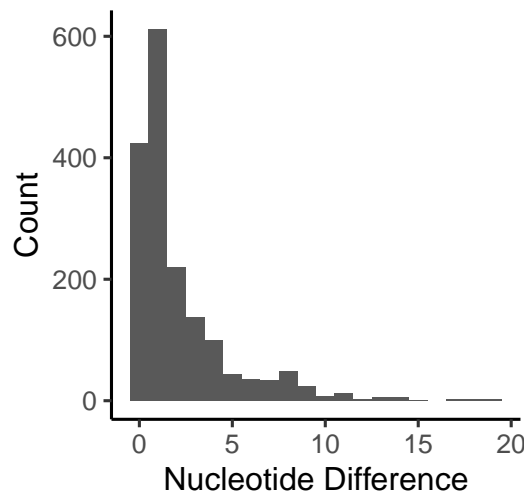
### IGHV3-48\*03

13544 sequences assigned  
4481 (33.1%) exact matches, in which:  
3695 unique CDR3  
7 unique J



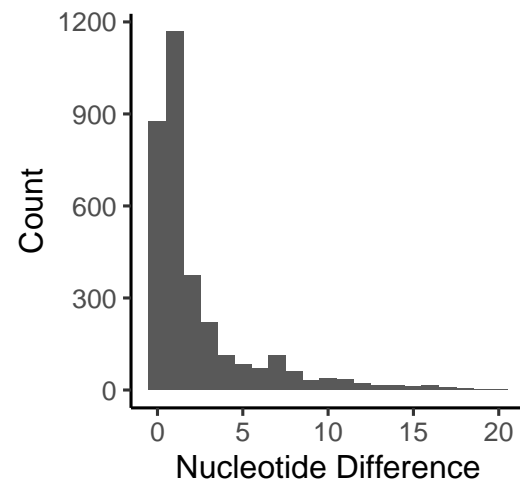
### IGHV3-53\*01\_02

1722 sequences assigned  
424 (24.6%) exact matches, in which:  
338 unique CDR3  
6 unique J



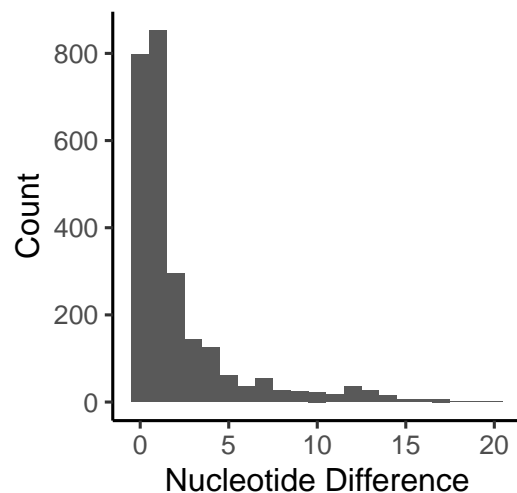
### IGHV3-66\*01

3275 sequences assigned  
876 (26.7%) exact matches, in which:  
695 unique CDR3  
7 unique J



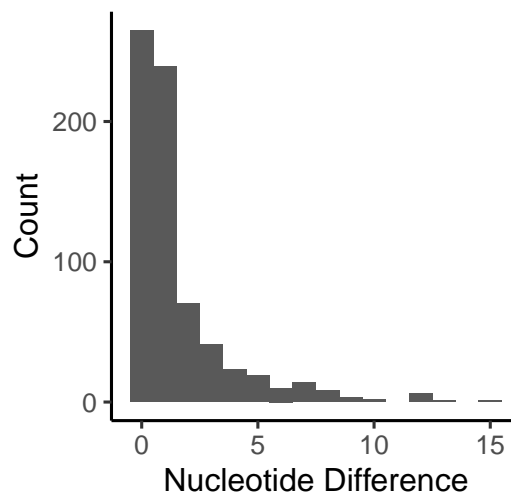
### IGHV3-49\*04

2557 sequences assigned  
797 (31.2%) exact matches, in which:  
621 unique CDR3  
7 unique J



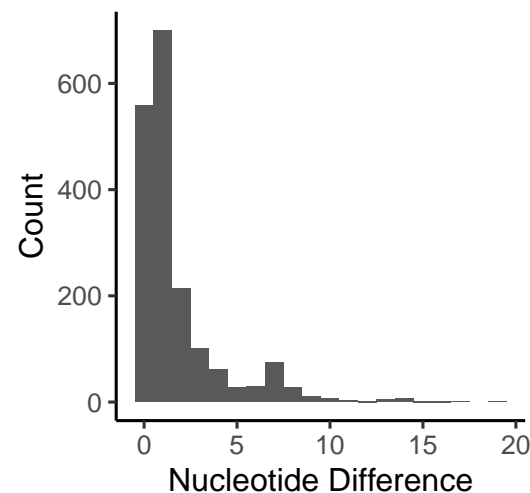
### IGHV3-64\*01

702 sequences assigned  
265 (37.7%) exact matches, in which:  
221 unique CDR3  
7 unique J



### IGHV3-66\*02

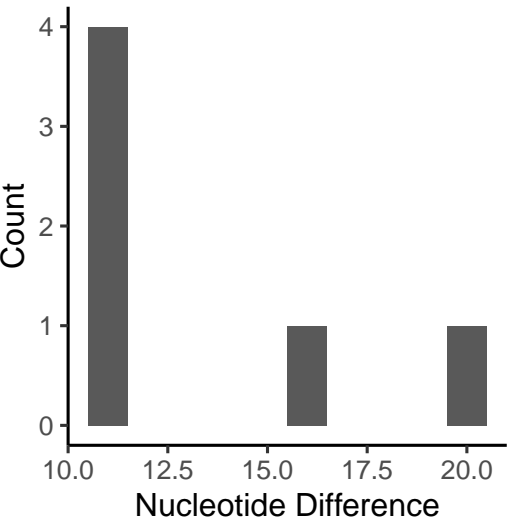
1830 sequences assigned  
558 (30.5%) exact matches, in which:  
443 unique CDR3  
7 unique J





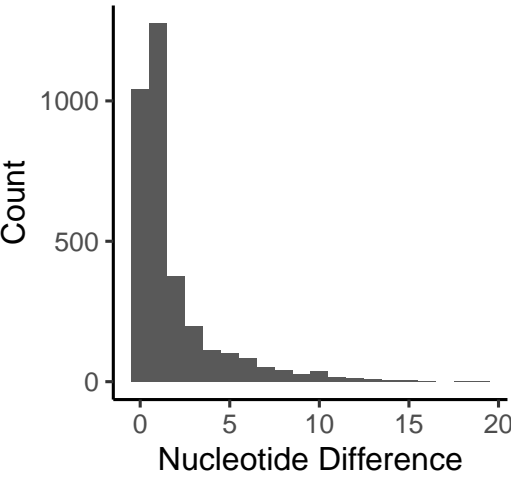
IGHV3-69-1\*02

6 sequences assigned  
No exact matches.



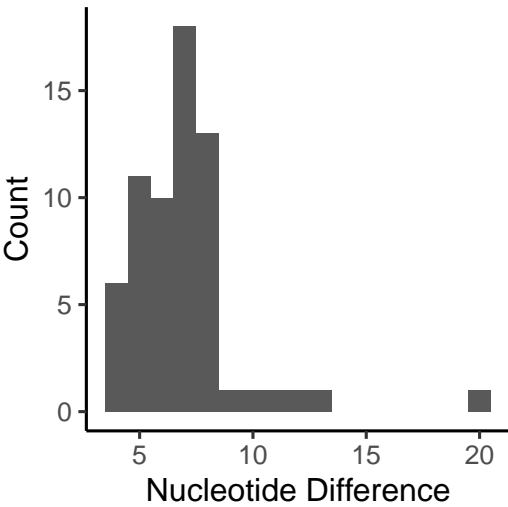
IGHV3-74\*01\_02

3404 sequences assigned  
1043 (30.6%) exact matches, in which:  
864 unique CDR3  
7 unique J



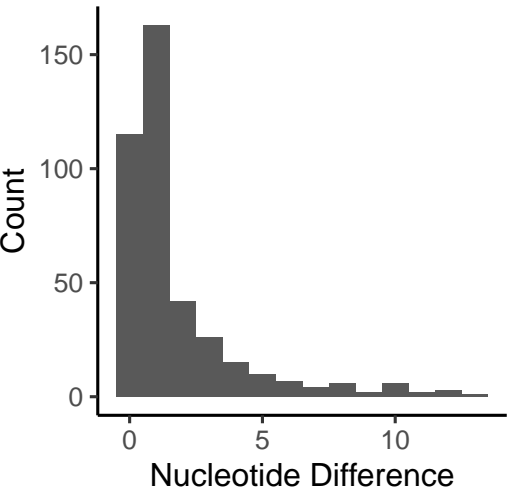
IGHV3-NL1\*01

64 sequences assigned  
No exact matches.



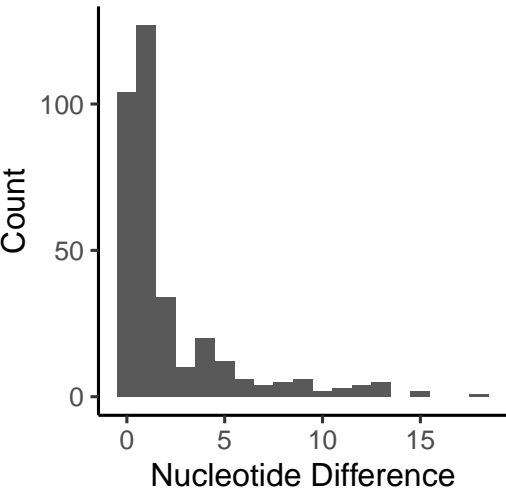
IGHV3-72\*01

402 sequences assigned  
115 (28.6%) exact matches, in which:  
87 unique CDR3  
6 unique J



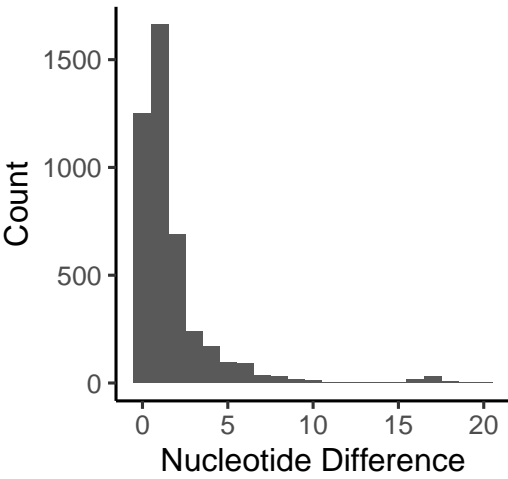
IGHV3-43D\*04

345 sequences assigned  
104 (30.1%) exact matches, in which:  
90 unique CDR3  
6 unique J



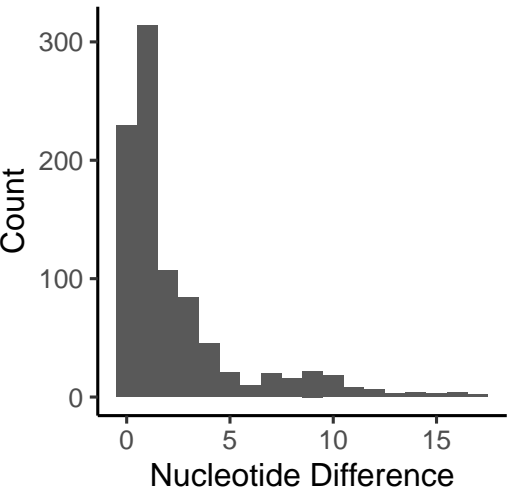
IGHV4-4\*07

4366 sequences assigned  
1251 (28.7%) exact matches, in which:  
1013 unique CDR3  
7 unique J



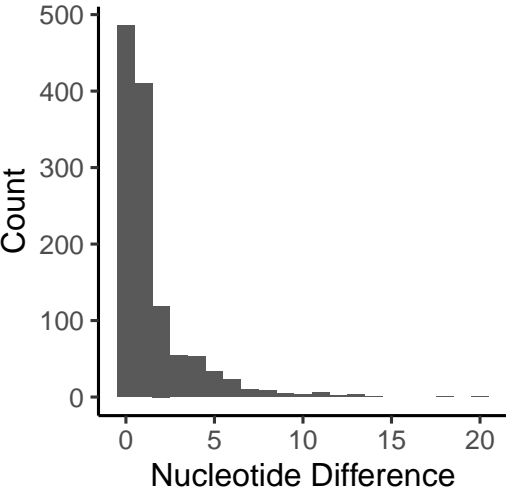
IGHV3-73\*01\_02

916 sequences assigned  
229 (25%) exact matches, in which:  
192 unique CDR3  
6 unique J



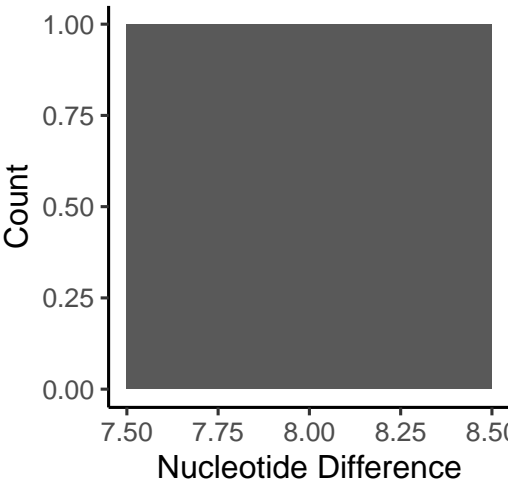
IGHV3-64D\*06

1220 sequences assigned  
486 (39.8%) exact matches, in which:  
389 unique CDR3  
7 unique J



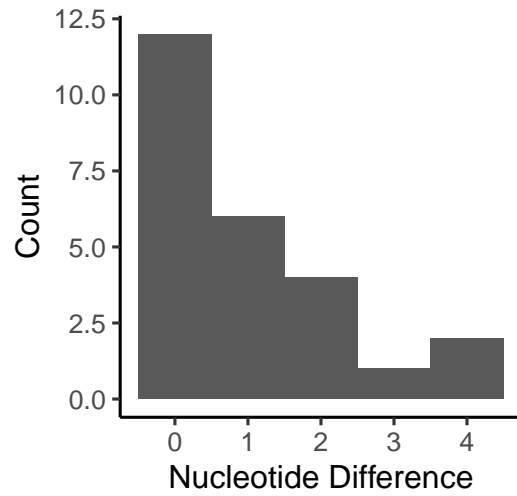
IGHV4-28\*03

1 sequences assigned  
No exact matches.



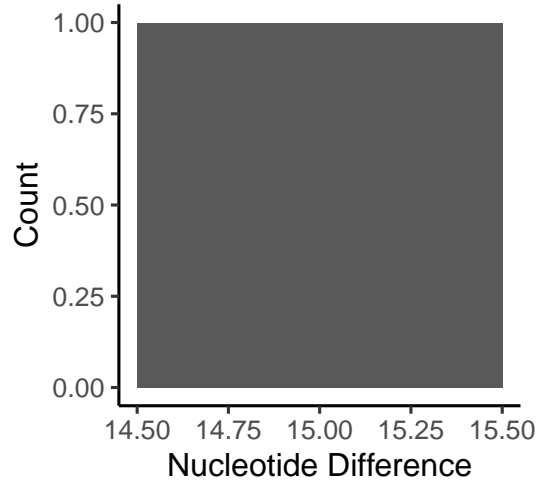
### IGHV4-28\*01\_07

25 sequences assigned  
12 (48%) exact matches, in which:  
7 unique CDR3  
1 unique J



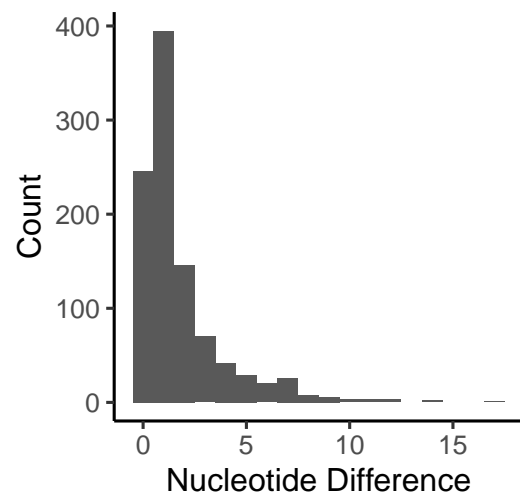
### IGHV4-30-2\*03

1 sequences assigned  
No exact matches.



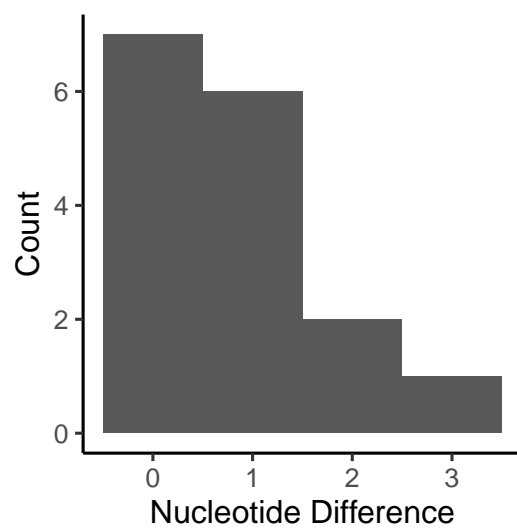
### IGHV4-31\*01

1000 sequences assigned  
246 (24.6%) exact matches, in which:  
201 unique CDR3  
6 unique J



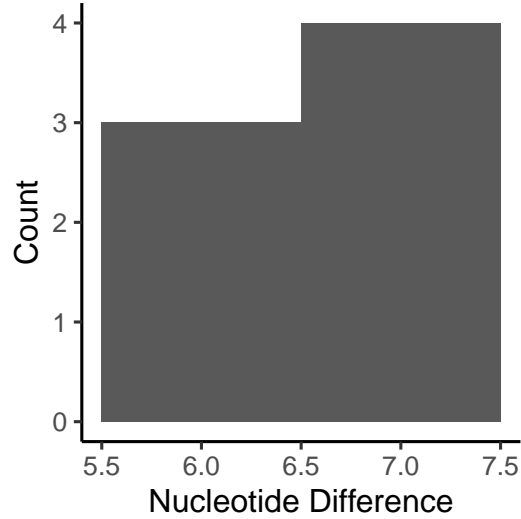
### IGHV4-28\*02\_05

16 sequences assigned  
7 (43.8%) exact matches, in which:  
6 unique CDR3  
1 unique J



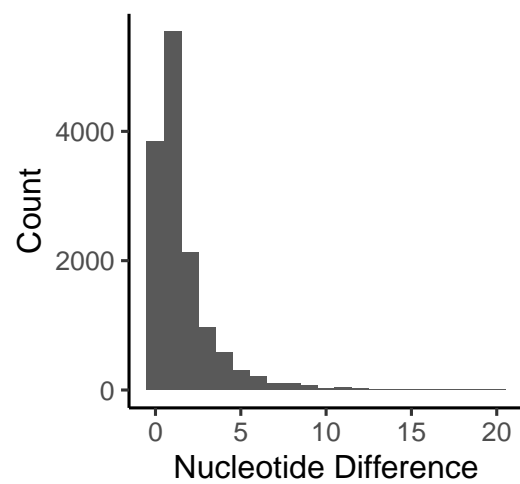
### IGHV4-30-4\*07

7 sequences assigned  
No exact matches.



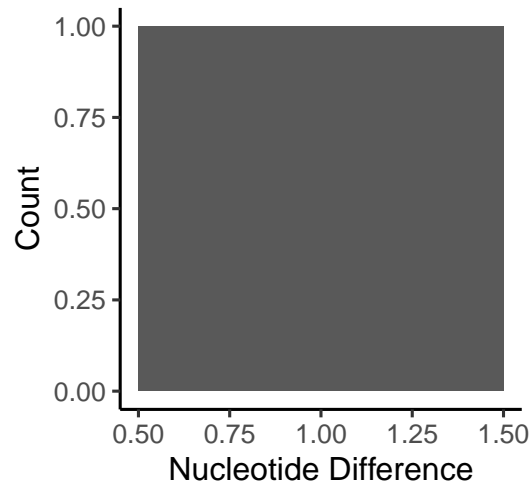
### IGHV4-34\*01\_02

13990 sequences assigned  
3845 (27.5%) exact matches, in which:  
3064 unique CDR3  
7 unique J



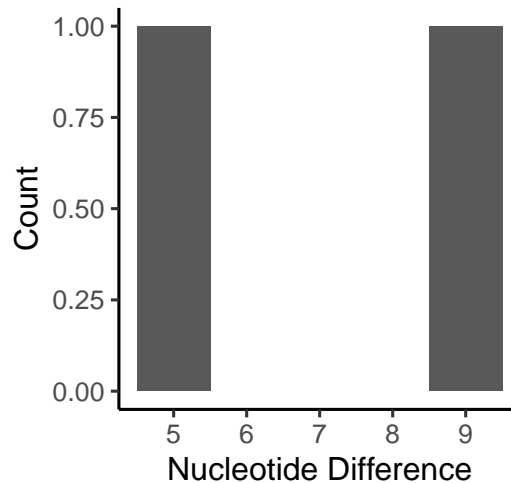
### IGHV4-30-2\*01

1 sequences assigned  
No exact matches.



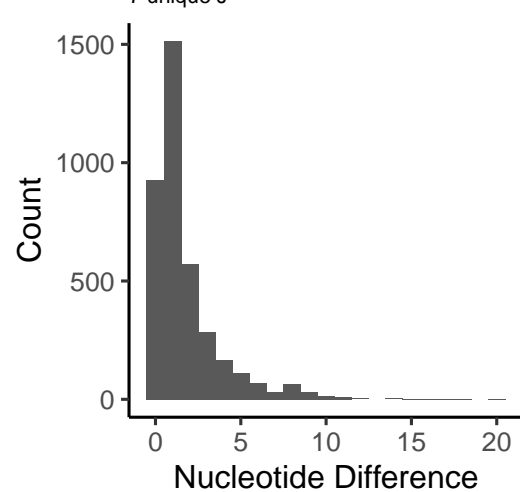
### IGHV4-30-4\*08

2 sequences assigned  
No exact matches.



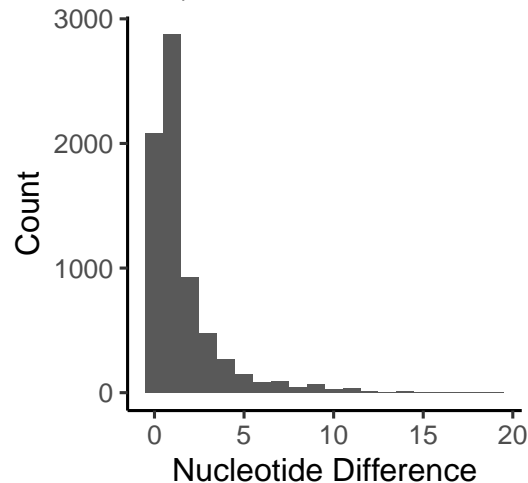
### IGHV4-38-2\*02\_A70G

3811 sequences assigned  
928 (24.4%) exact matches, in which:  
733 unique CDR3  
7 unique J



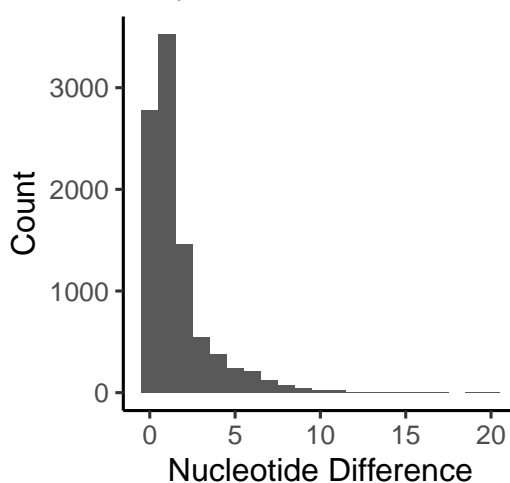
### IGHV4-39\*01\_05

7186 sequences assigned  
2086 (29%) exact matches, in which:  
1650 unique CDR3  
7 unique J



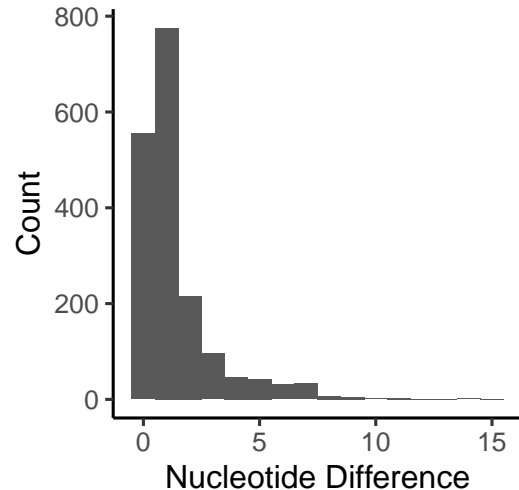
### IGHV4-61\*02

9441 sequences assigned  
2777 (29.4%) exact matches, in which:  
2252 unique CDR3  
7 unique J



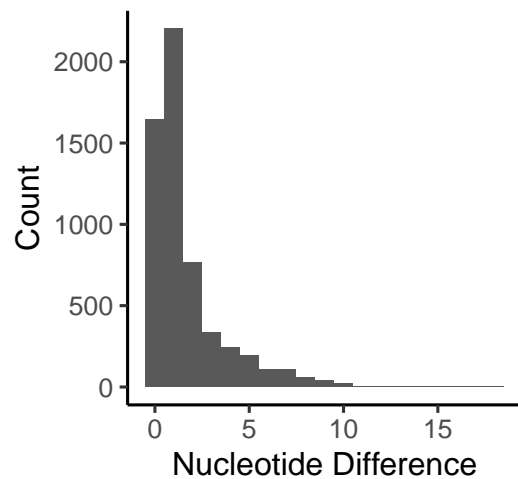
### IGHV6-1\*01\_02

1820 sequences assigned  
555 (30.5%) exact matches, in which:  
424 unique CDR3  
7 unique J



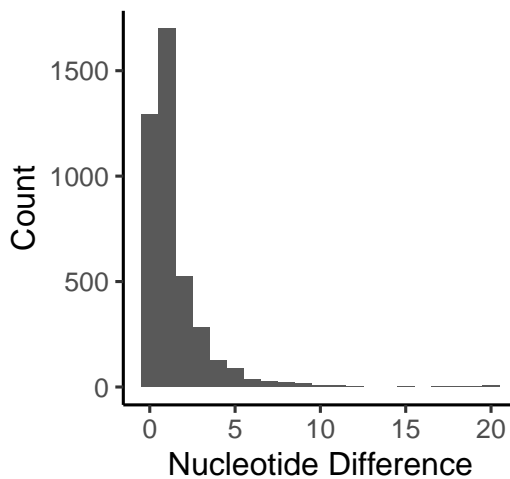
### IGHV4-59\*08

5735 sequences assigned  
1642 (28.6%) exact matches, in which:  
1315 unique CDR3  
7 unique J



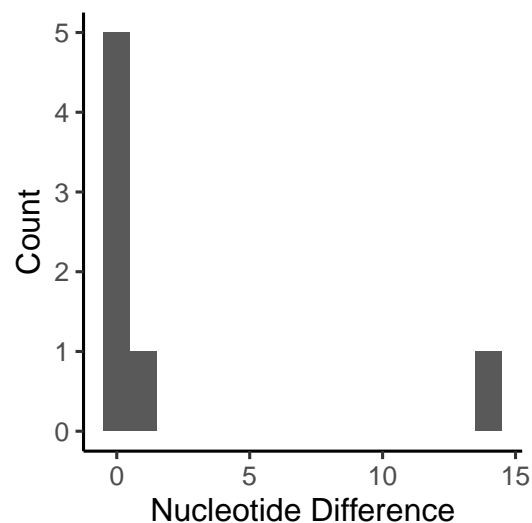
### IGHV5-10-1\*01\_03

4146 sequences assigned  
1291 (31.1%) exact matches, in which:  
1051 unique CDR3  
7 unique J



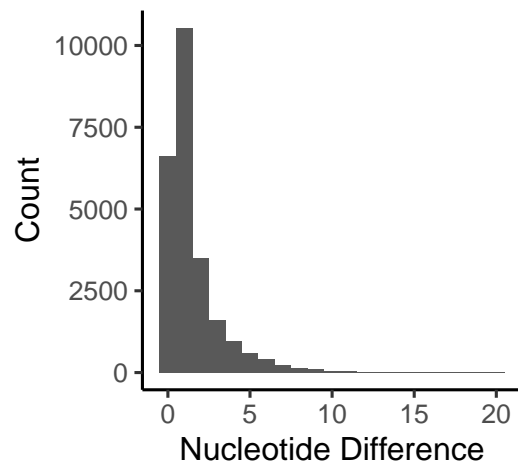
### IGHV7-4-1\*01

8 sequences assigned  
5 (62.5%) exact matches, in which:  
5 unique CDR3  
1 unique J



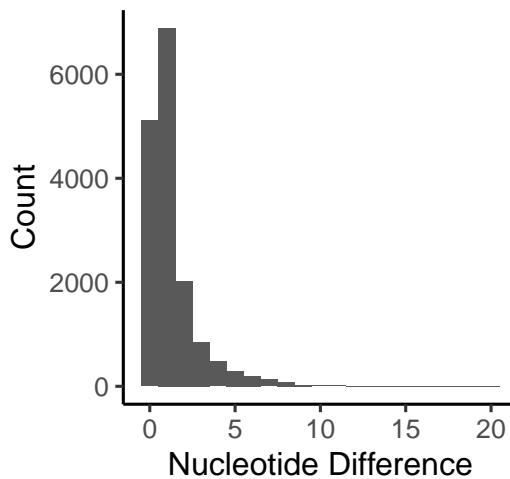
### IGHV4-59\*01\_07

24923 sequences assigned  
6633 (26.6%) exact matches, in which:  
5042 unique CDR3  
7 unique J

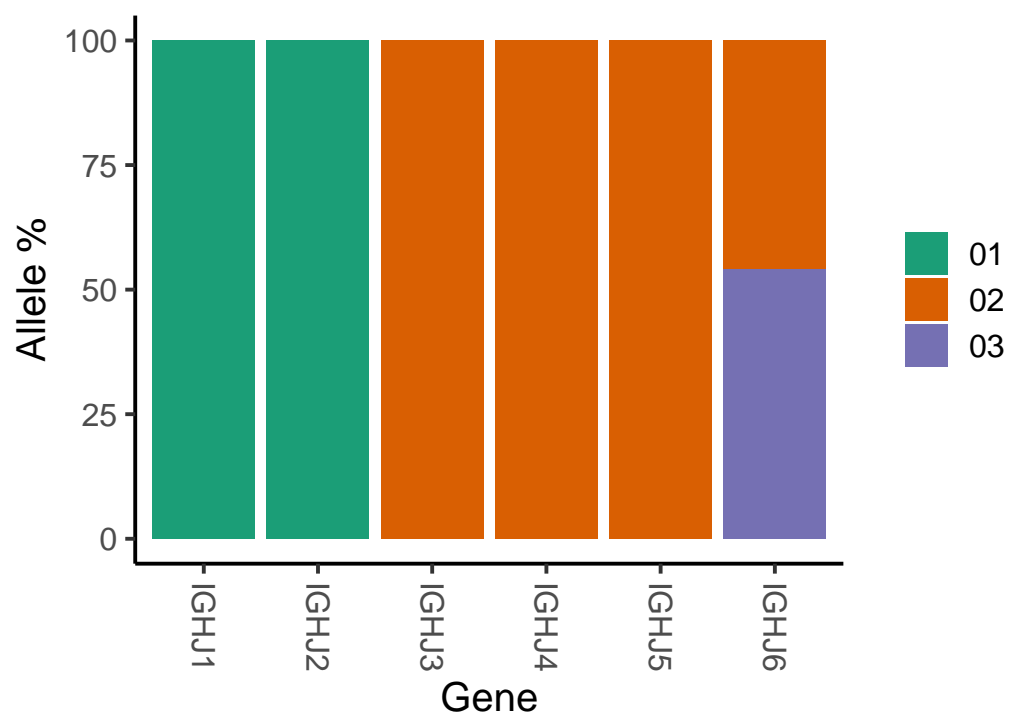


### IGHV5-51\*01\_03

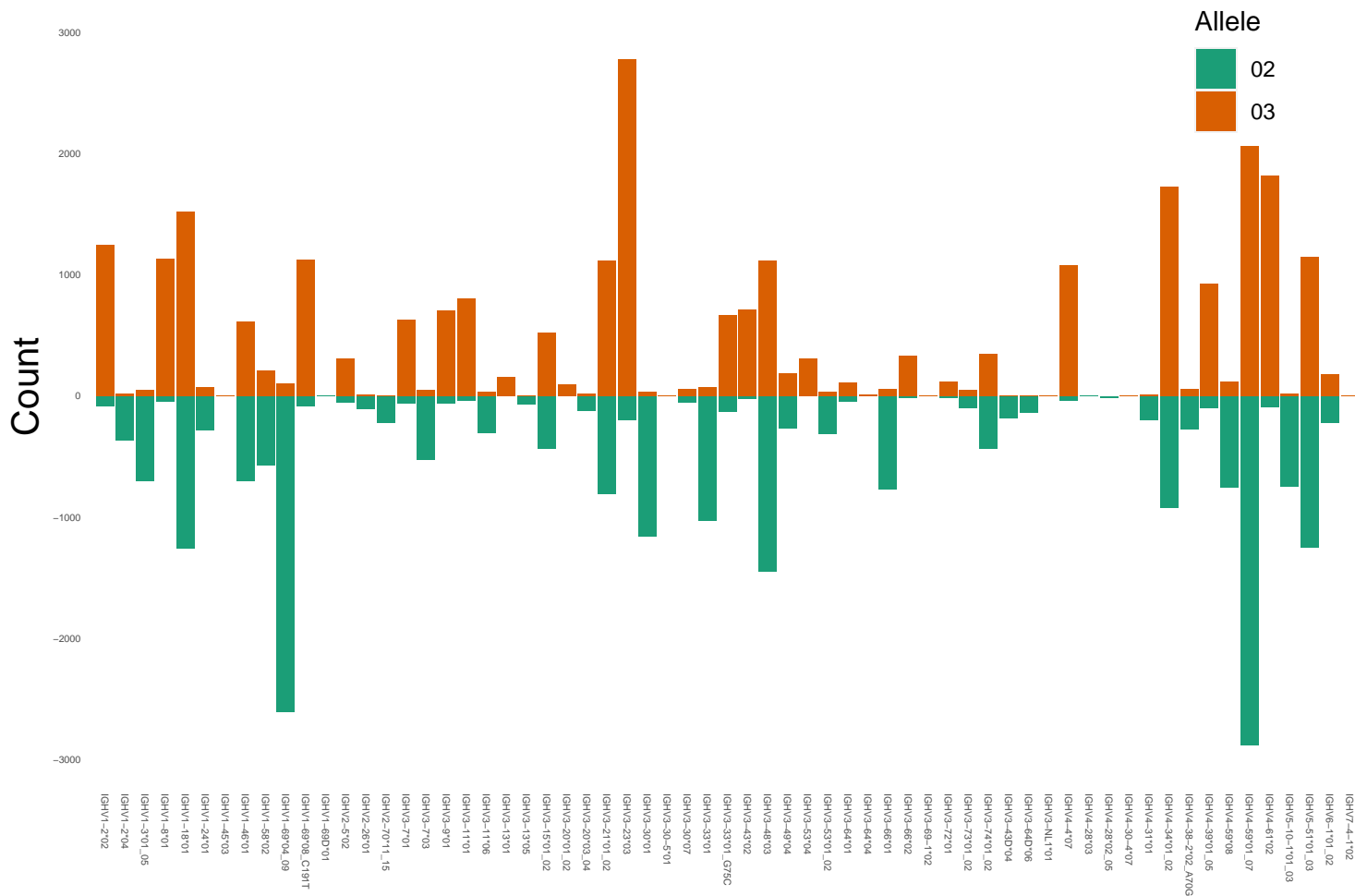
16199 sequences assigned  
5113 (31.6%) exact matches, in which:  
3964 unique CDR3  
7 unique J



Allele Usage



Sequence Count by IGHJ6 allele usage



Novel sequence(s)IGHV1-69\*08\_C191TIGHV3-11\*06\_T300CIGHV4-59\*02\_G88AIGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.