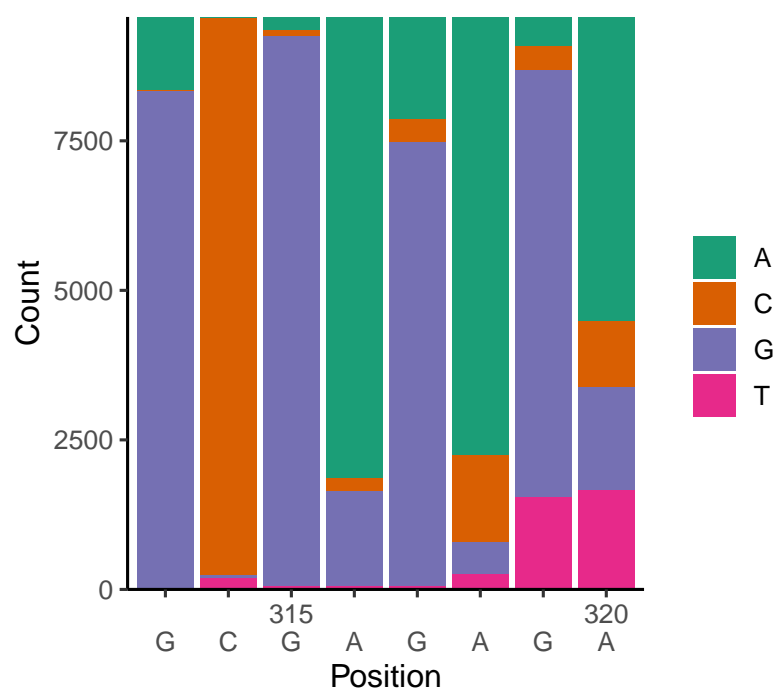
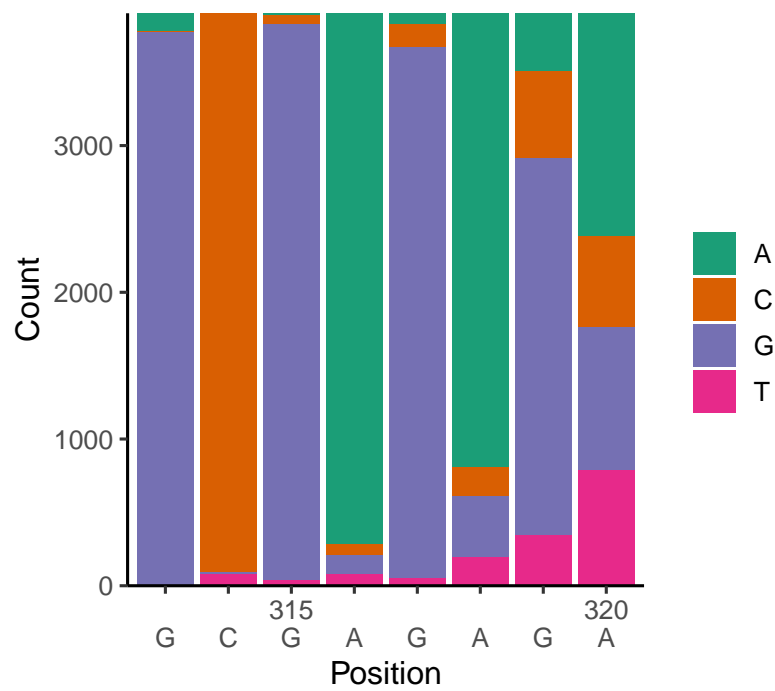


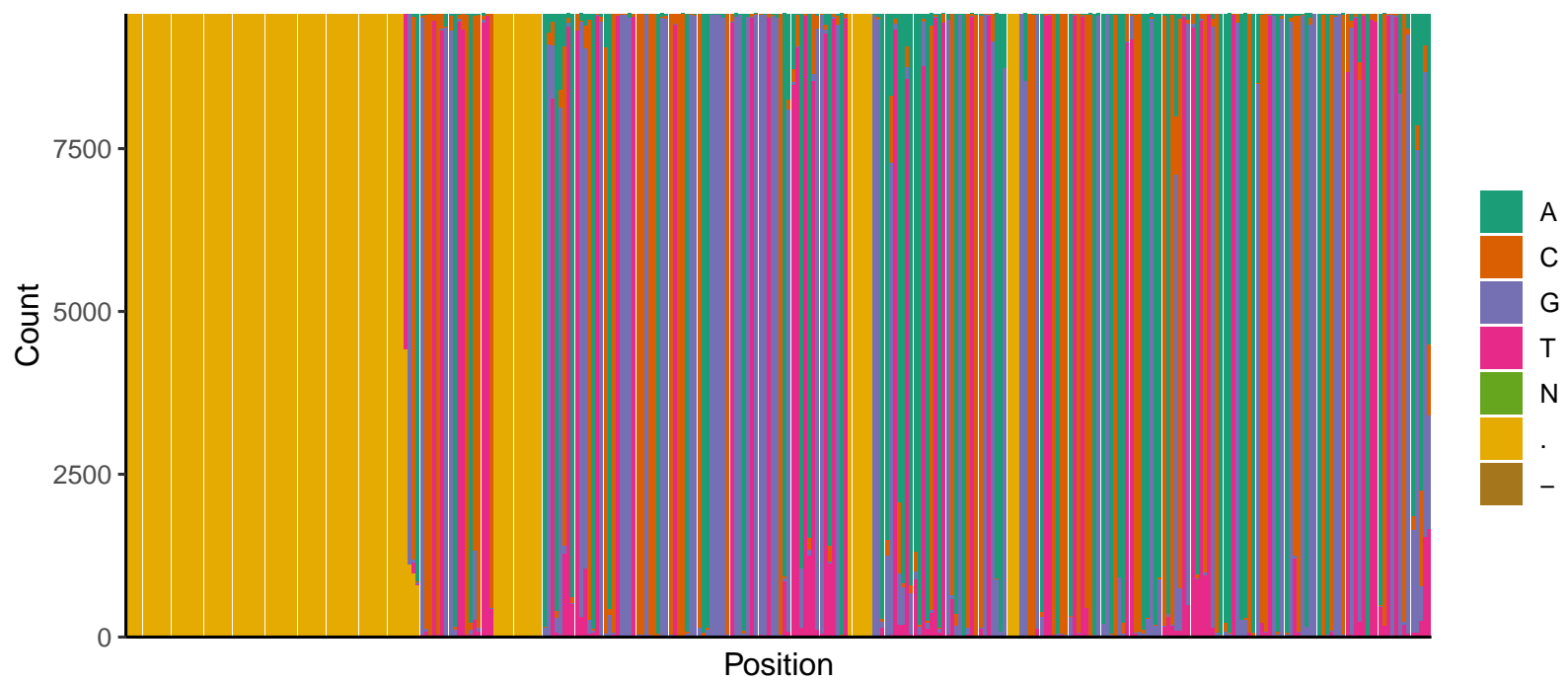
Gene IGHV3-33\*01\_G75C



Gene IGHV4-38-2\*02\_A70G



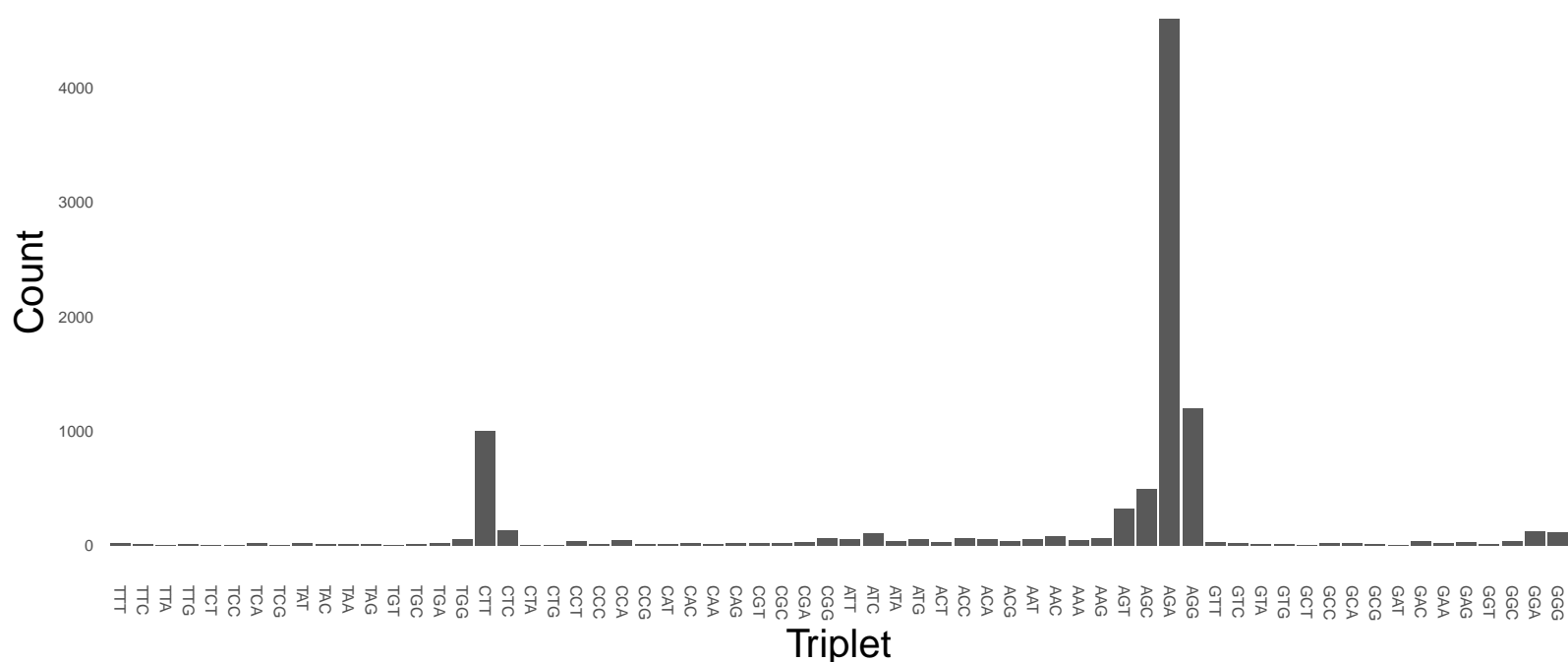
Gene IGHV3-33\*01\_G75C



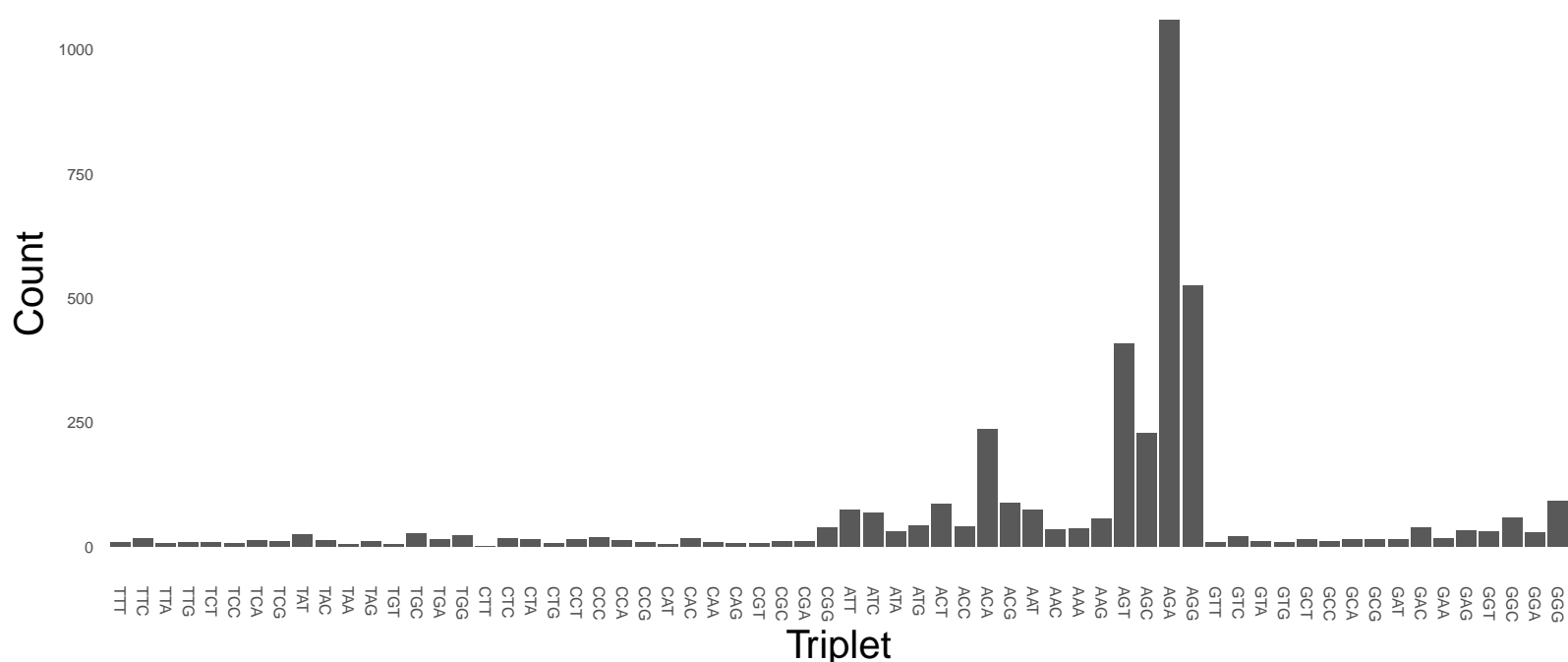
Gene IGHV4-38-2\*02\_A70G



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

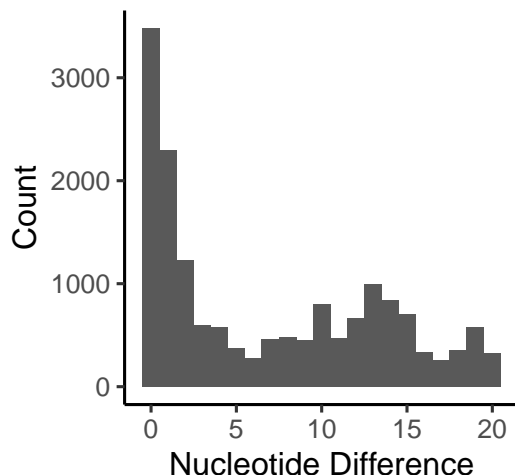


IGHV4-38-2\*02\_A70G- Final 3 nucleotides as a triplet



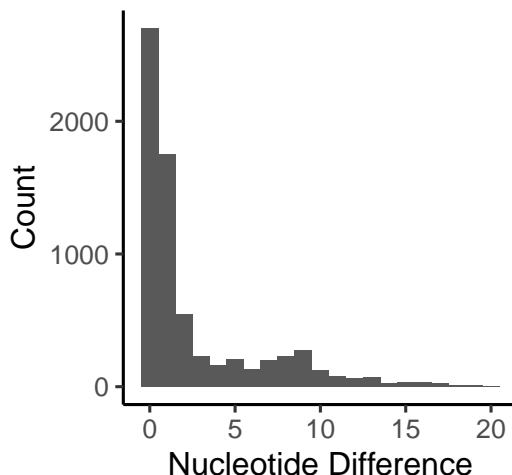
### IGHV1-2\*02

18196 sequences assigned  
3479 (19.1%) exact matches, in which:  
3124 unique CDR3  
7 unique J



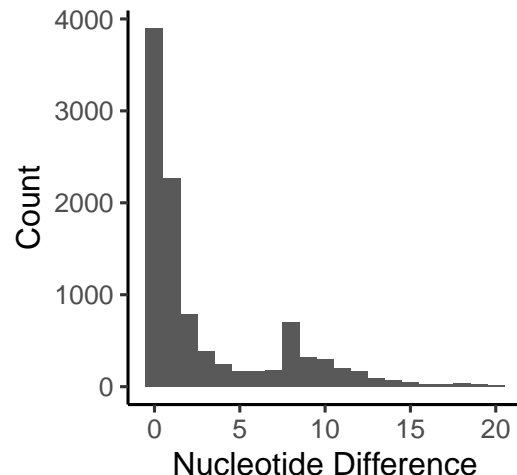
### IGHV1-8\*01

6955 sequences assigned  
2700 (38.8%) exact matches, in which:  
2458 unique CDR3  
7 unique J



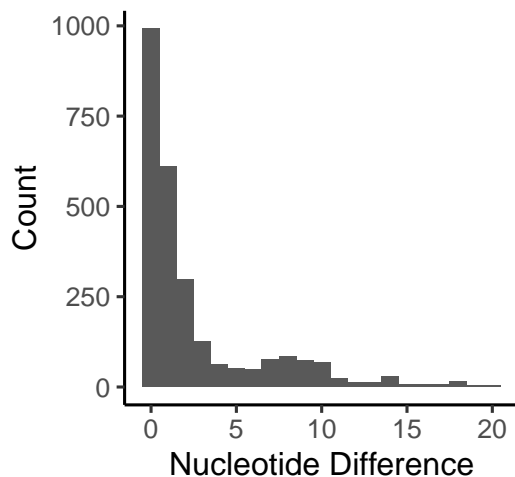
### IGHV1-18\*04

10259 sequences assigned  
3897 (38%) exact matches, in which:  
3547 unique CDR3  
7 unique J



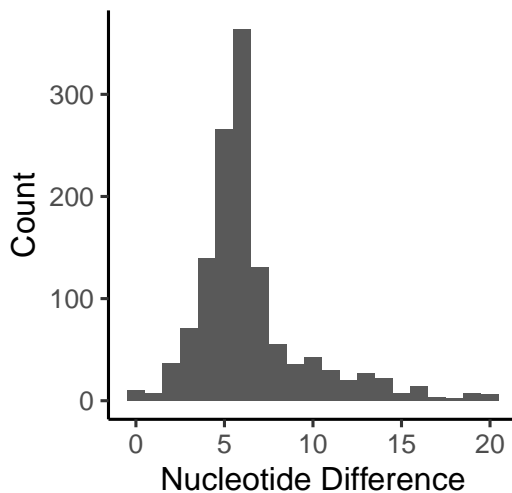
### IGHV1-2\*04

2622 sequences assigned  
992 (37.8%) exact matches, in which:  
911 unique CDR3  
7 unique J



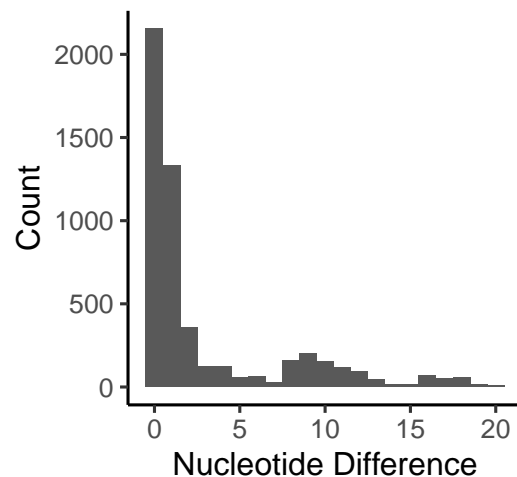
### IGHV1-8\*02

1316 sequences assigned  
10 (0.8%) exact matches, in which:  
10 unique CDR3  
4 unique J



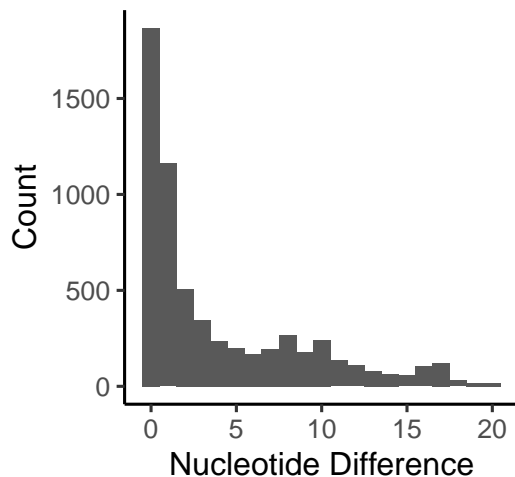
### IGHV1-24\*01

5309 sequences assigned  
2154 (40.6%) exact matches, in which:  
1971 unique CDR3  
7 unique J



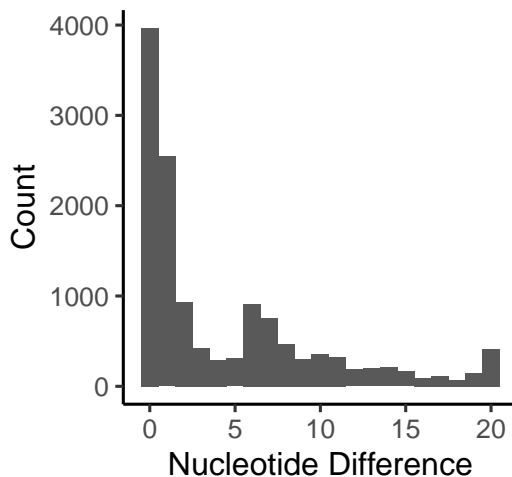
### IGHV1-3\*01\_05

6233 sequences assigned  
1867 (30%) exact matches, in which:  
1628 unique CDR3  
7 unique J



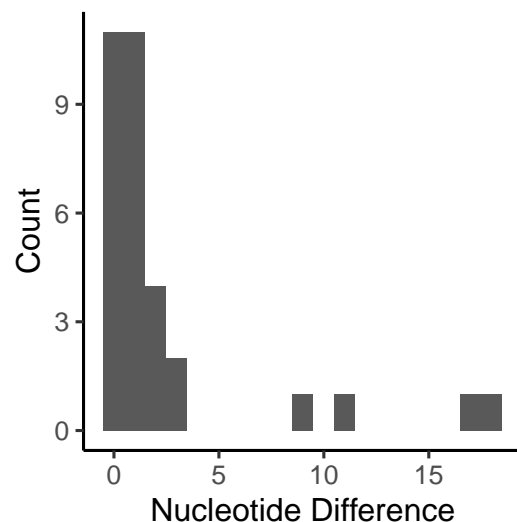
### IGHV1-18\*01

14476 sequences assigned  
3967 (27.4%) exact matches, in which:  
3627 unique CDR3  
7 unique J



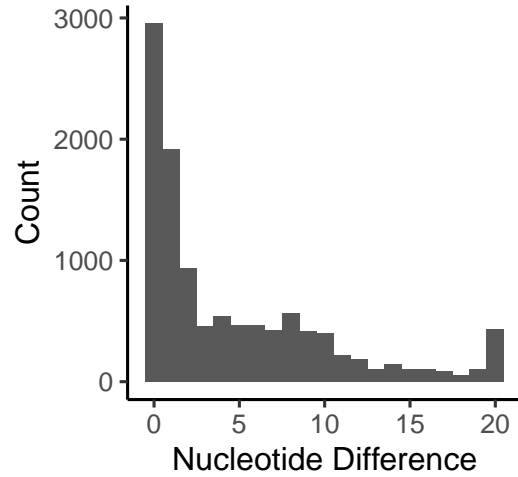
### IGHV1-45\*02

32 sequences assigned  
11 (34.4%) exact matches, in which:  
10 unique CDR3  
4 unique J



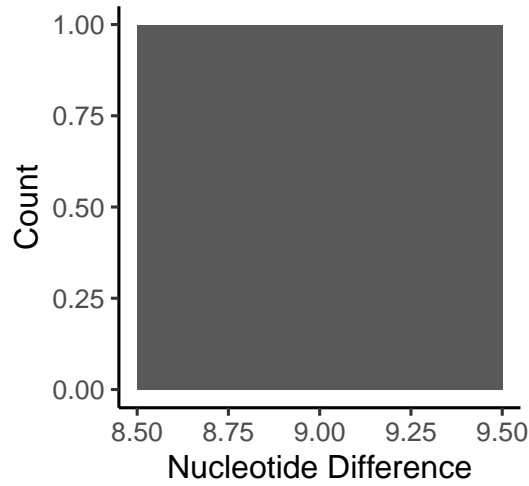
### IGHV1-46\*01

12819 sequences assigned  
2955 (23.1%) exact matches, in which:  
2694 unique CDR3  
7 unique J



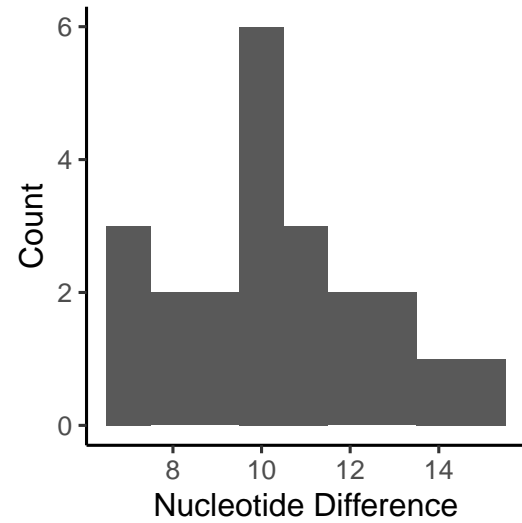
### IGHV1-68\*01

1 sequences assigned  
No exact matches.



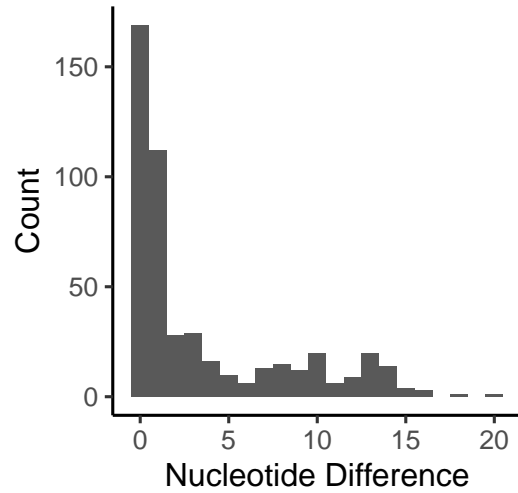
### IGHV1-NL1\*01

22 sequences assigned  
No exact matches.



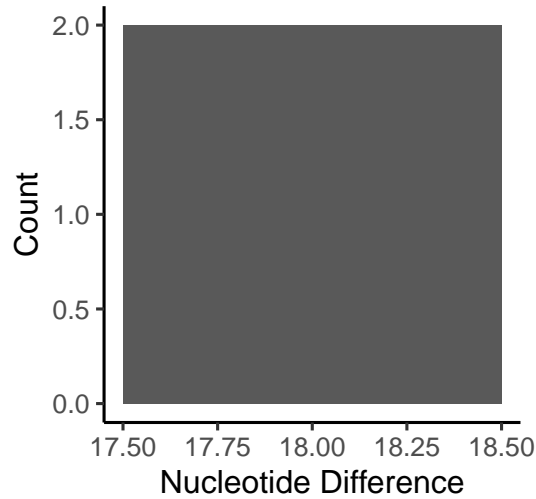
### IGHV1-58\*02

620 sequences assigned  
169 (27.3%) exact matches, in which:  
153 unique CDR3  
7 unique J



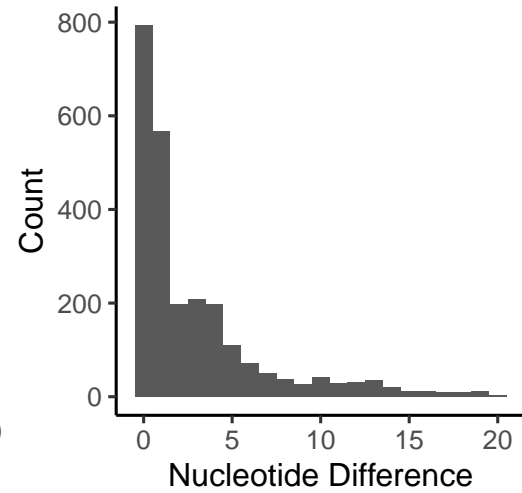
### IGHV1-69-2\*01

2 sequences assigned  
No exact matches.



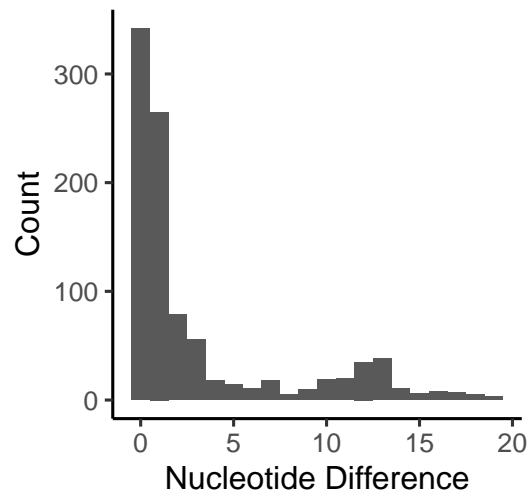
### IGHV2-5\*02

2509 sequences assigned  
794 (31.6%) exact matches, in which:  
712 unique CDR3  
7 unique J



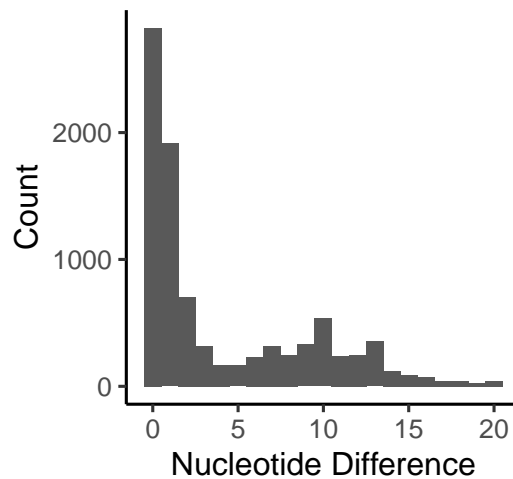
### IGHV1-58\*01\_03

975 sequences assigned  
342 (35.1%) exact matches, in which:  
310 unique CDR3  
7 unique J



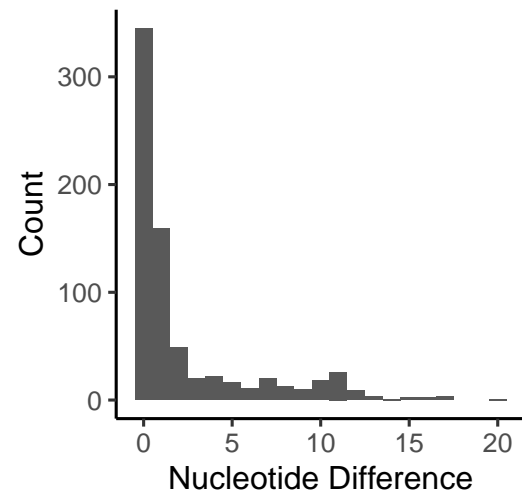
### IGHV1-69\*04\_09

9208 sequences assigned  
2824 (30.7%) exact matches, in which:  
2628 unique CDR3  
7 unique J



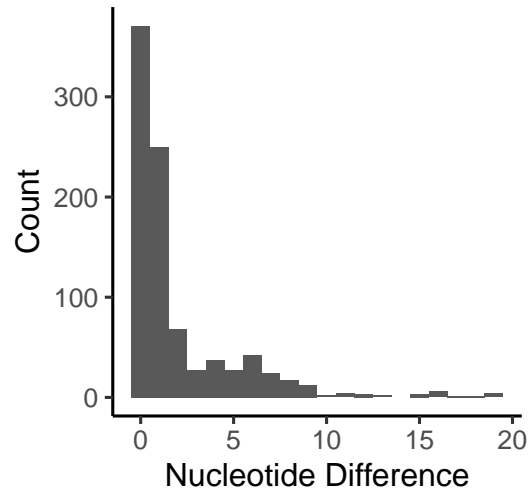
### IGHV2-26\*01

731 sequences assigned  
345 (47.2%) exact matches, in which:  
323 unique CDR3  
6 unique J



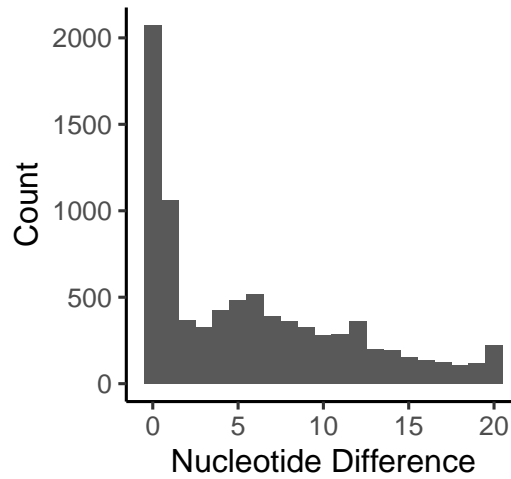
### IGHV2-70\*01

902 sequences assigned  
371 (41.1%) exact matches, in which:  
336 unique CDR3  
6 unique J



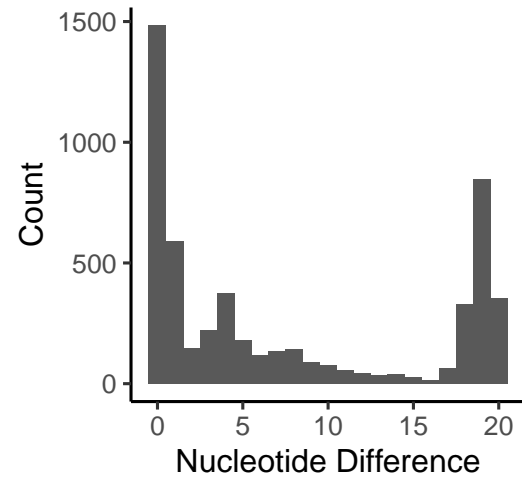
### IGHV3-7\*01

9179 sequences assigned  
2072 (22.6%) exact matches, in which:  
1505 unique CDR3  
7 unique J



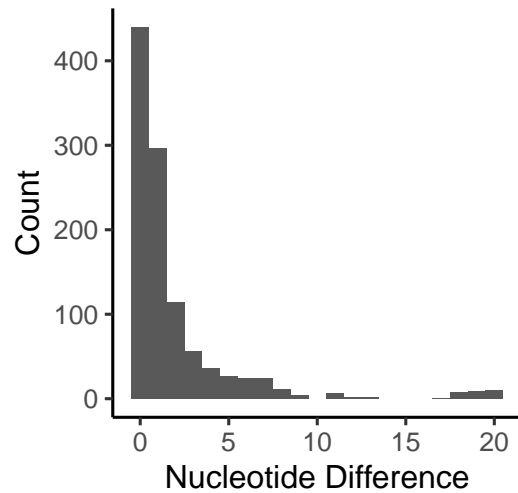
### IGHV3-11\*01

5695 sequences assigned  
1484 (26.1%) exact matches, in which:  
1050 unique CDR3  
7 unique J



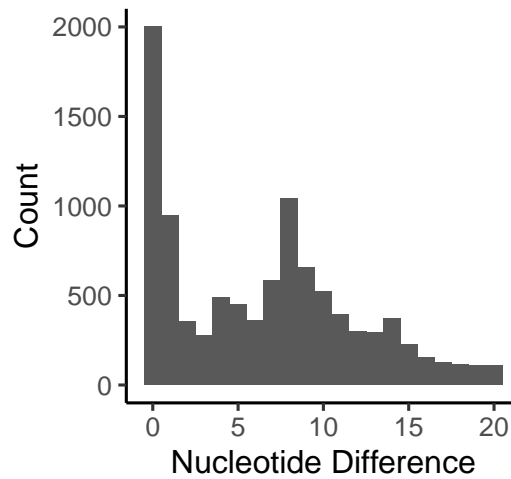
### IGHV2-70\*11\_15

1081 sequences assigned  
440 (40.7%) exact matches, in which:  
403 unique CDR3  
7 unique J



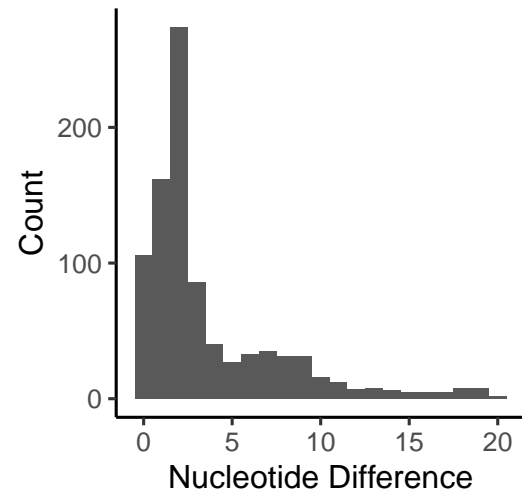
### IGHV3-7\*03

10243 sequences assigned  
2001 (19.5%) exact matches, in which:  
1389 unique CDR3  
7 unique J



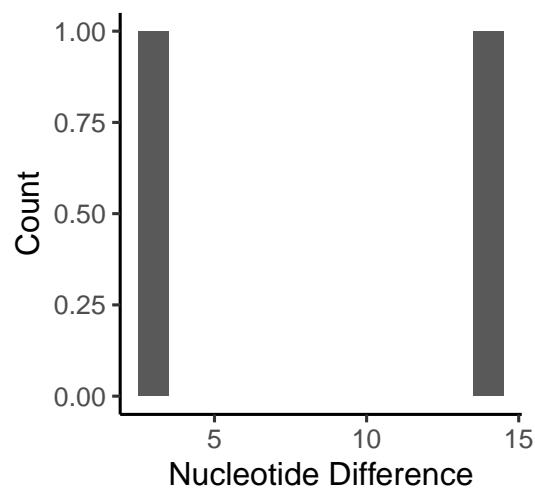
### IGHV3-11\*04

932 sequences assigned  
106 (11.4%) exact matches, in which:  
106 unique CDR3  
6 unique J



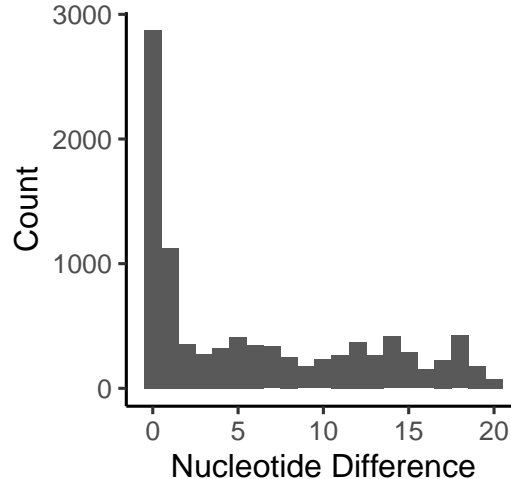
### IGHV2-70D\*04

3 sequences assigned  
No exact matches.



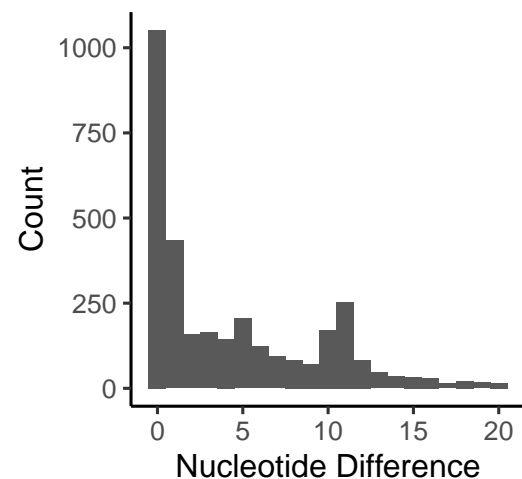
### IGHV3-9\*01

9564 sequences assigned  
2874 (30.1%) exact matches, in which:  
1947 unique CDR3  
7 unique J



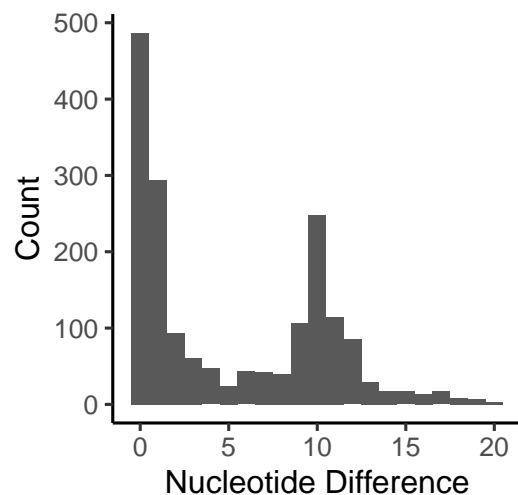
### IGHV3-11\*06

3304 sequences assigned  
1052 (31.8%) exact matches, in which:  
738 unique CDR3  
7 unique J



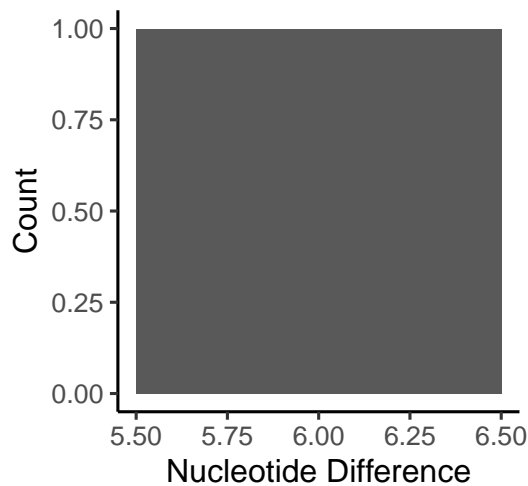
### IGHV3-13\*01

1811 sequences assigned  
487 (26.9%) exact matches, in which:  
321 unique CDR3  
7 unique J



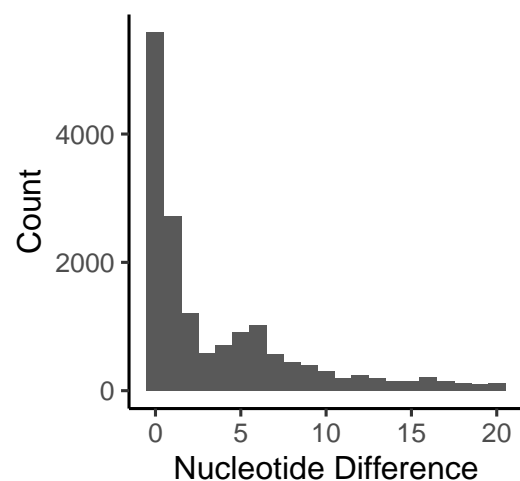
### IGHV3-19\*01

1 sequences assigned  
No exact matches.



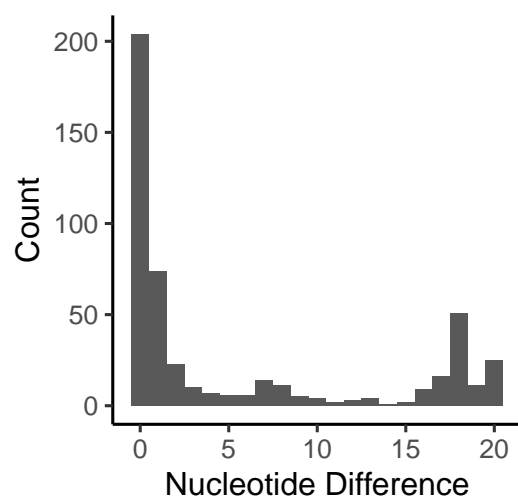
### IGHV3-21\*01\_02

16703 sequences assigned  
5584 (33.4%) exact matches, in which:  
3792 unique CDR3  
7 unique J



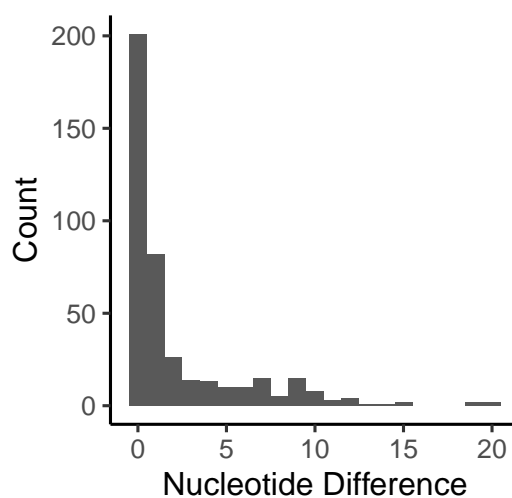
### IGHV3-13\*05

564 sequences assigned  
204 (36.2%) exact matches, in which:  
138 unique CDR3  
6 unique J



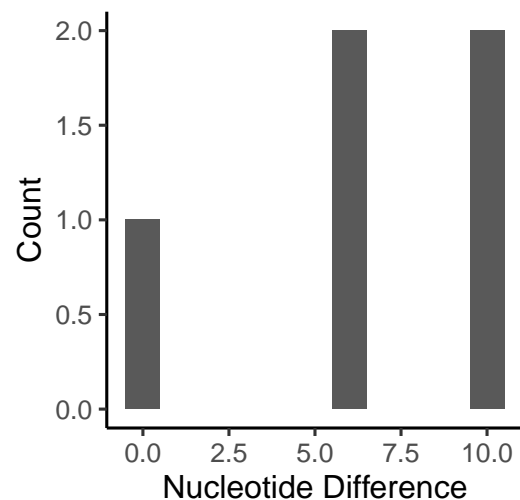
### IGHV3-20\*01\_02

429 sequences assigned  
201 (46.9%) exact matches, in which:  
127 unique CDR3  
6 unique J



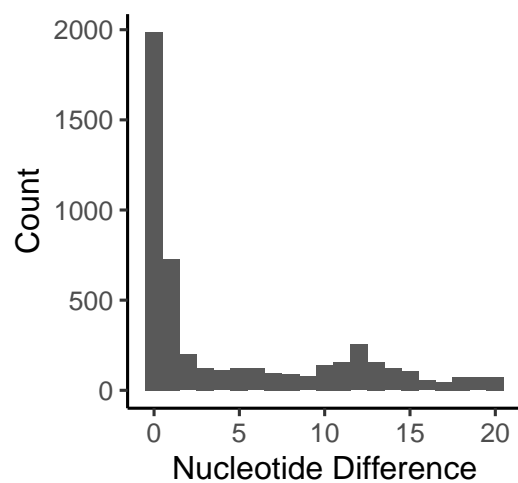
### IGHV3-30-3\*01

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



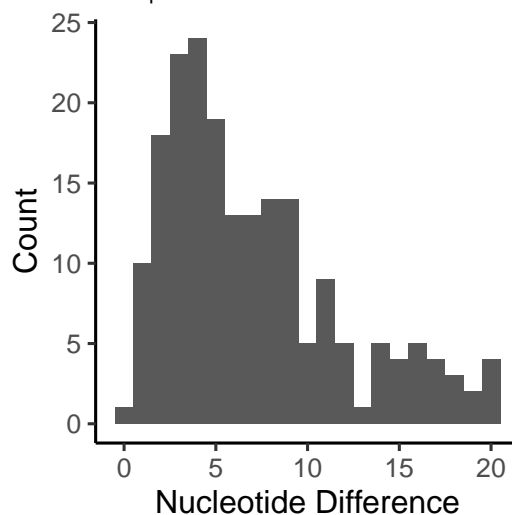
### IGHV3-15\*01\_02

5629 sequences assigned  
1987 (35.3%) exact matches, in which:  
1458 unique CDR3  
7 unique J



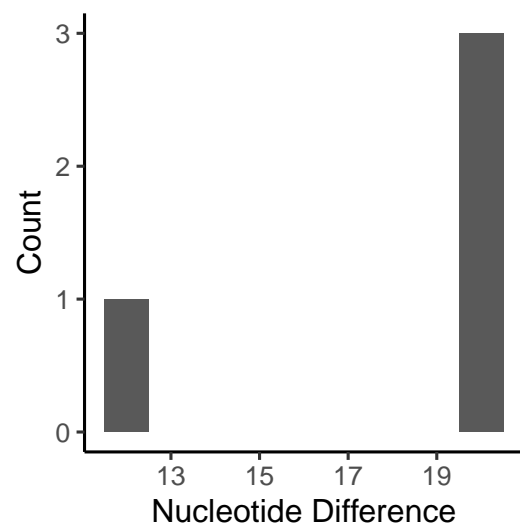
### IGHV3-20\*03\_04

200 sequences assigned  
1 (0.5%) exact matches, in which:  
1 unique CDR3  
1 unique J



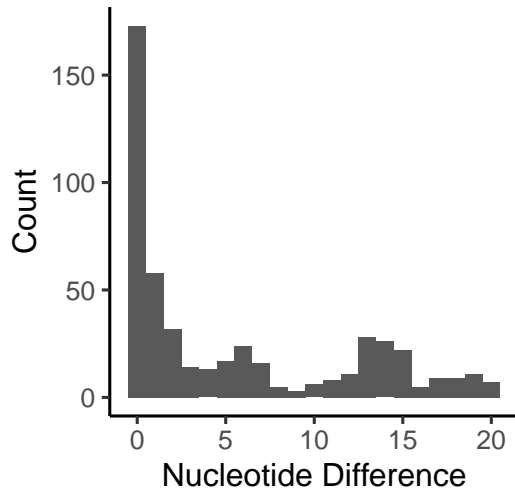
### IGHV3-30-3\*02

14 sequences assigned  
No exact matches.



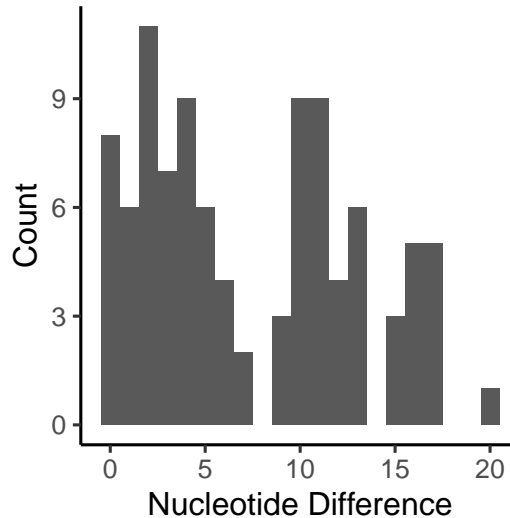
### IGHV3-30\*03

522 sequences assigned  
173 (33.1%) exact matches, in which:  
161 unique CDR3  
6 unique J



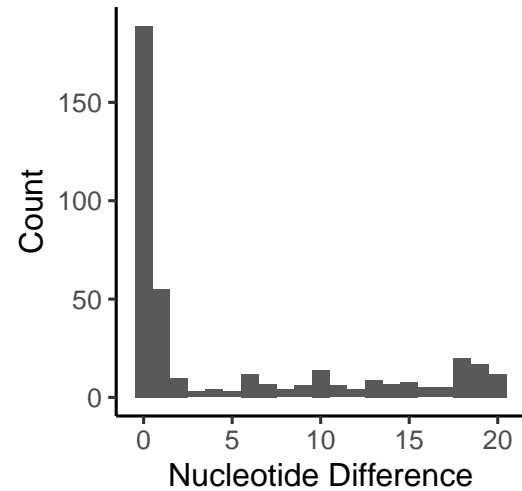
### IGHV3-33\*05

103 sequences assigned  
8 (7.8%) exact matches, in which:  
7 unique CDR3  
3 unique J



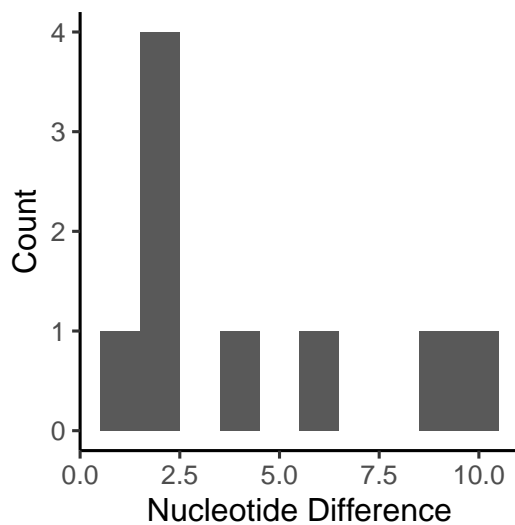
### IGHV3-43\*01

421 sequences assigned  
189 (44.9%) exact matches, in which:  
127 unique CDR3  
7 unique J



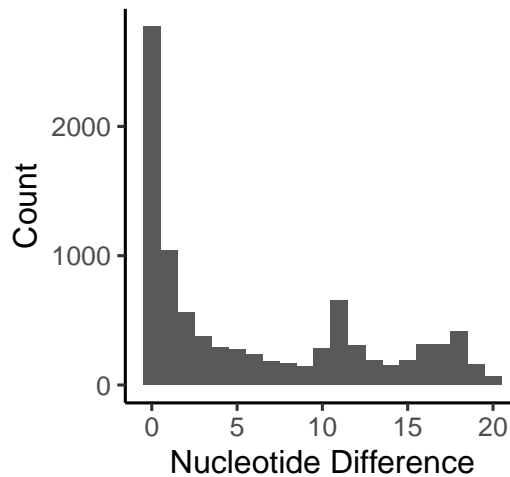
### IGHV3-30-3\*03

10 sequences assigned  
No exact matches.



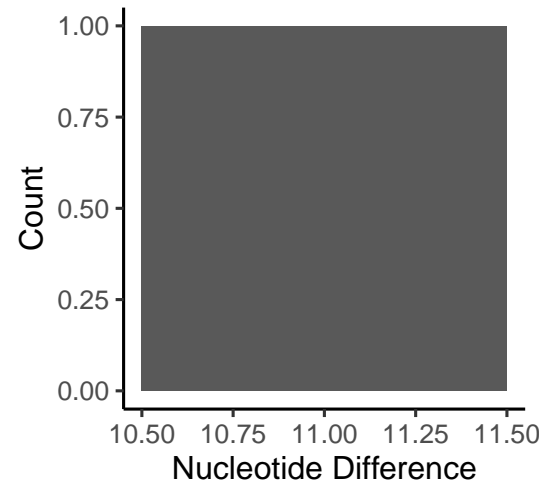
### IGHV3-33\*01\_G75C

9571 sequences assigned  
2771 (29%) exact matches, in which:  
2010 unique CDR3  
7 unique J



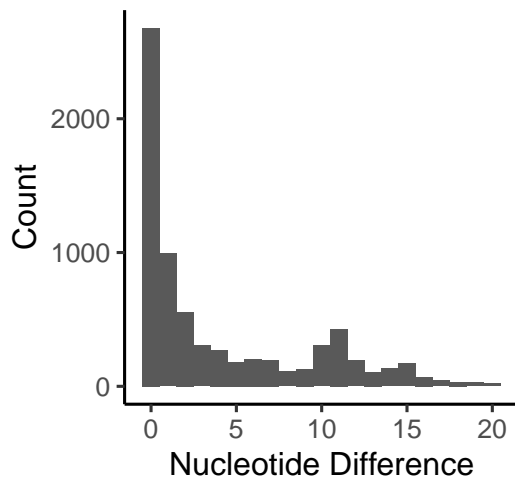
### IGHV3-47\*01

1 sequences assigned  
No exact matches.



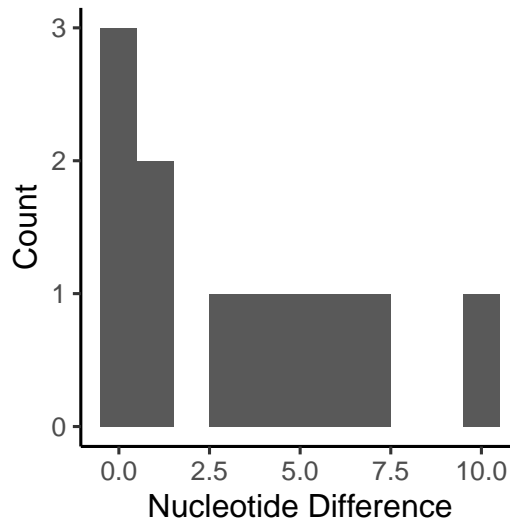
### IGHV3-33\*01

8311 sequences assigned  
2678 (32.2%) exact matches, in which:  
1965 unique CDR3  
7 unique J



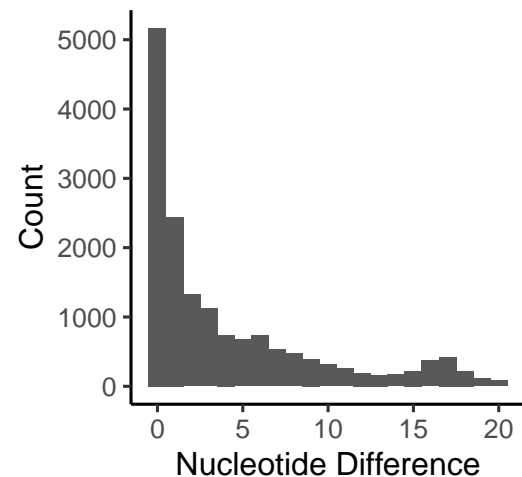
### IGHV3-35\*01

11 sequences assigned  
3 (27.3%) exact matches, in which:  
3 unique CDR3  
2 unique J



### IGHV3-48\*03

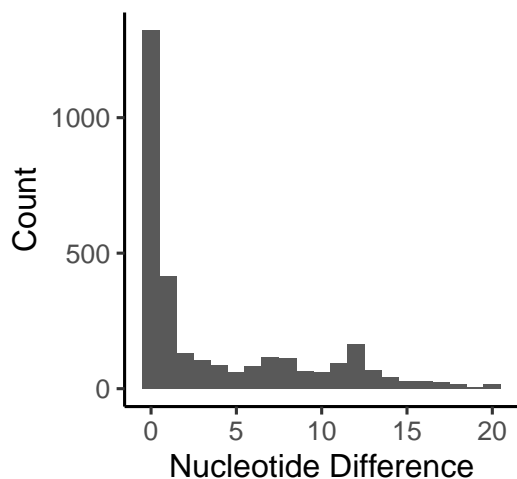
17406 sequences assigned  
5168 (29.7%) exact matches, in which:  
3493 unique CDR3  
7 unique J





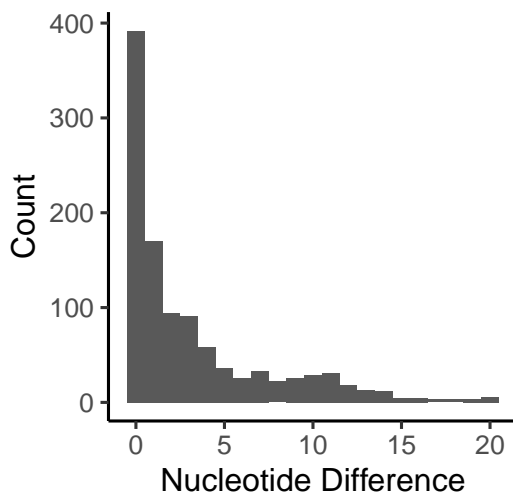
### IGHV3-49\*04

3131 sequences assigned  
1322 (42.2%) exact matches, in which:  
942 unique CDR3  
7 unique J



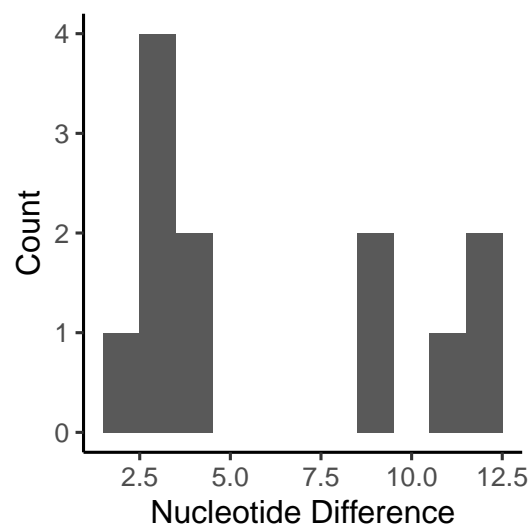
### IGHV3-64\*01

1135 sequences assigned  
392 (34.5%) exact matches, in which:  
259 unique CDR3  
7 unique J



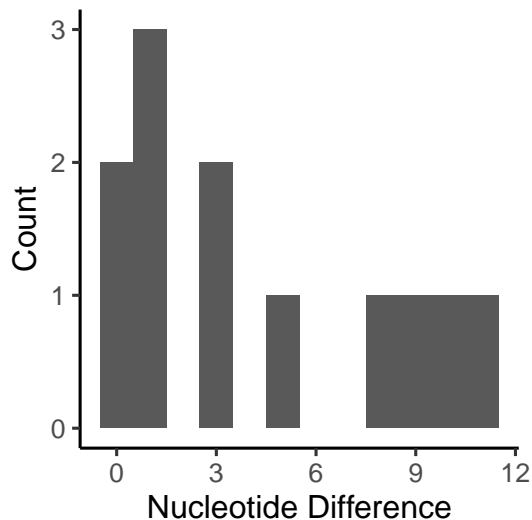
### IGHV3-69-1\*01

13 sequences assigned  
No exact matches.



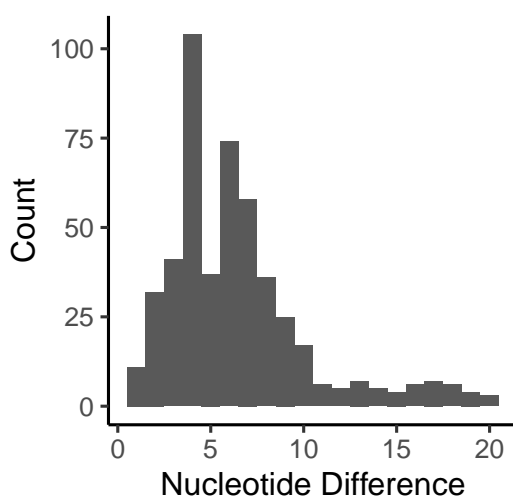
### IGHV3-52\*01\_03

12 sequences assigned  
2 (16.7%) exact matches, in which:  
2 unique CDR3  
1 unique J



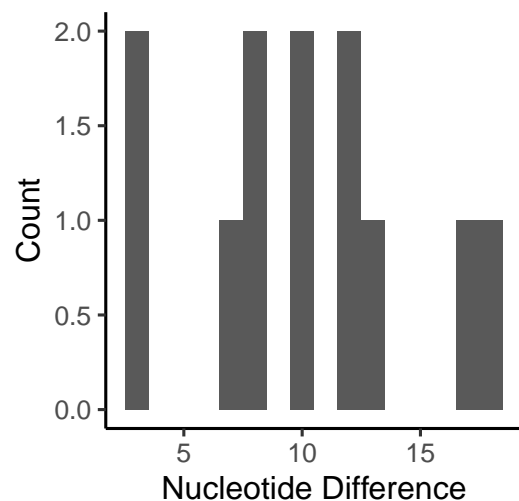
### IGHV3-64\*04

509 sequences assigned  
No exact matches.



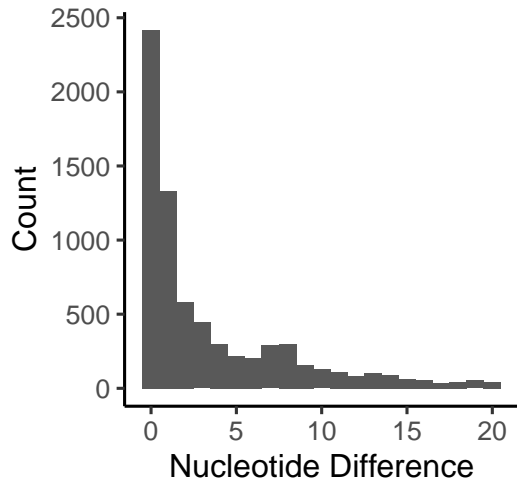
### IGHV3-69-1\*02

19 sequences assigned  
No exact matches.



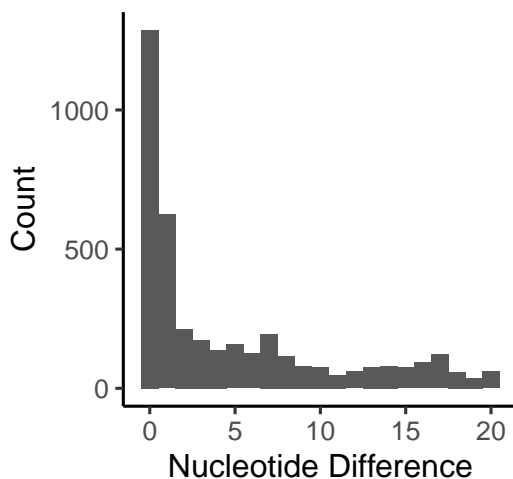
### IGHV3-53\*01\_02

7385 sequences assigned  
2417 (32.7%) exact matches, in which:  
1647 unique CDR3  
7 unique J



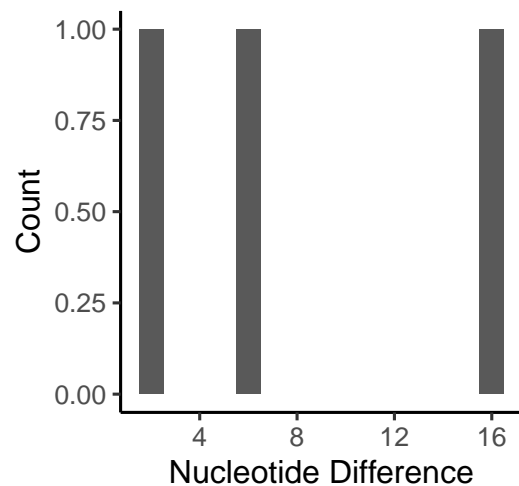
### IGHV3-66\*01

4636 sequences assigned  
1287 (27.8%) exact matches, in which:  
891 unique CDR3  
7 unique J



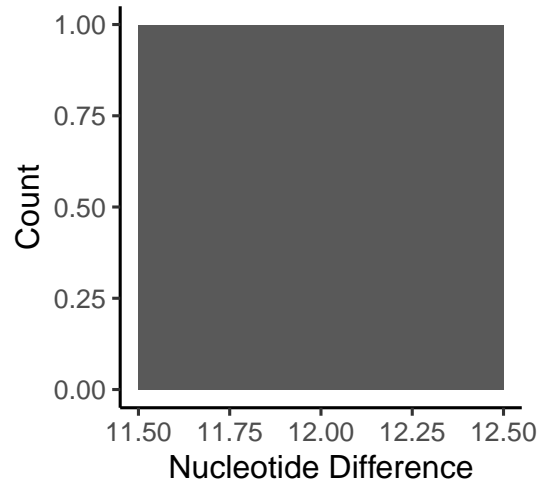
### IGHV3-71\*03

3 sequences assigned  
No exact matches.



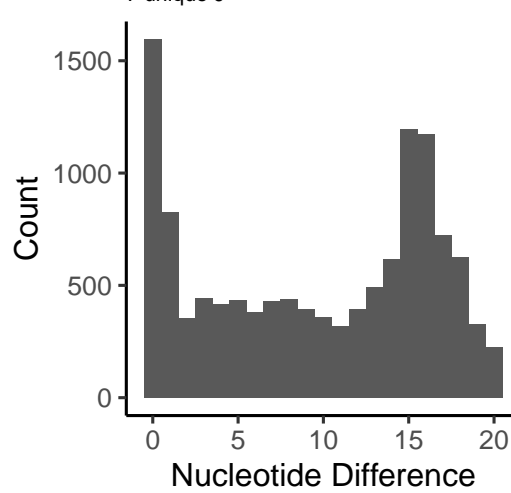
### IGHV3-71\*01\_04

2 sequences assigned  
No exact matches.



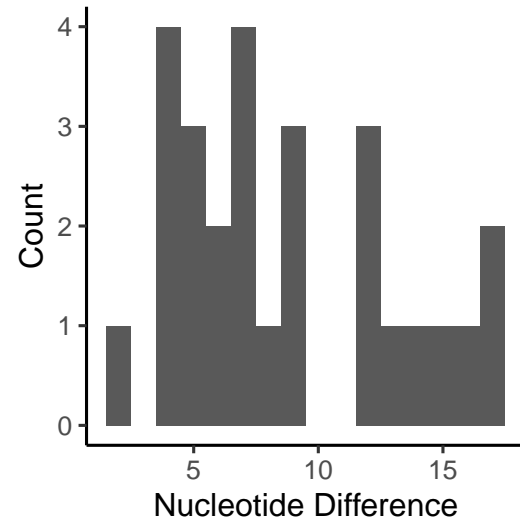
### IGHV3-74\*01\_02

12700 sequences assigned  
1595 (12.6%) exact matches, in which:  
1052 unique CDR3  
7 unique J



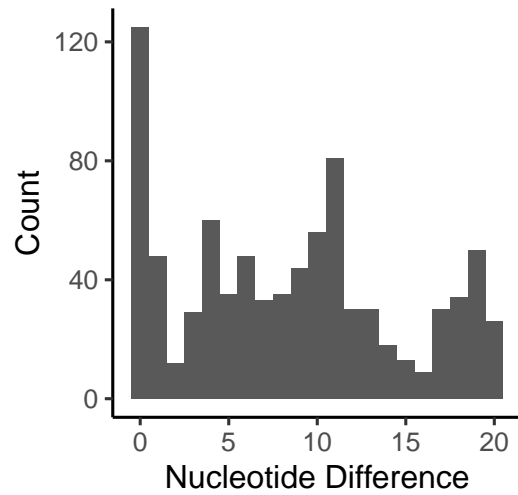
### IGHV3-NL1\*01

36 sequences assigned  
No exact matches.



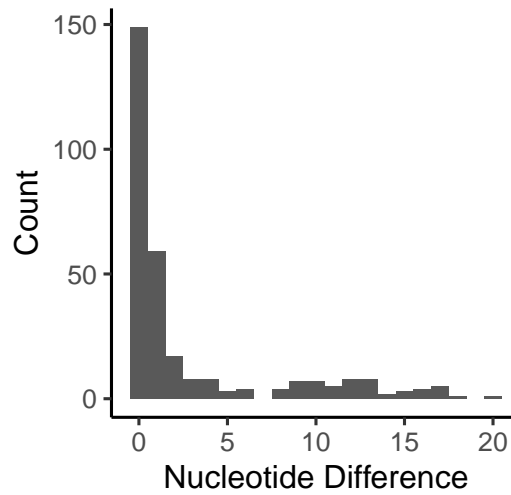
### IGHV3-72\*01

905 sequences assigned  
125 (13.8%) exact matches, in which:  
90 unique CDR3  
7 unique J



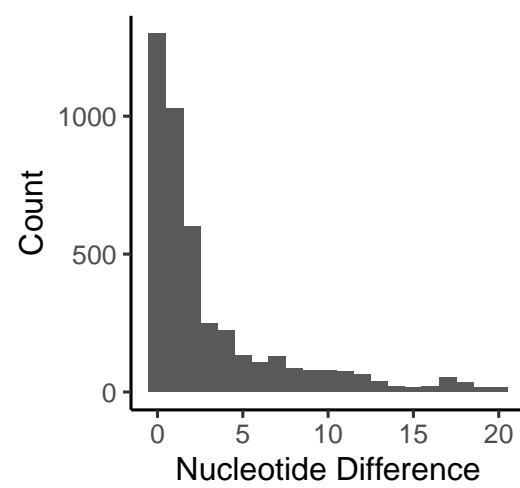
### IGHV3-43D\*04

327 sequences assigned  
149 (45.6%) exact matches, in which:  
110 unique CDR3  
6 unique J



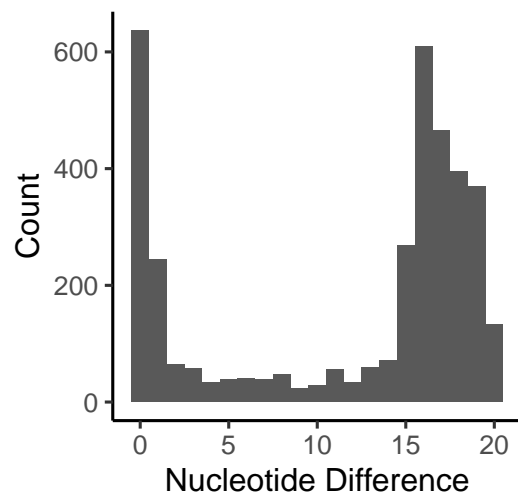
### IGHV4-4\*07

4459 sequences assigned  
1299 (29.1%) exact matches, in which:  
1164 unique CDR3  
7 unique J



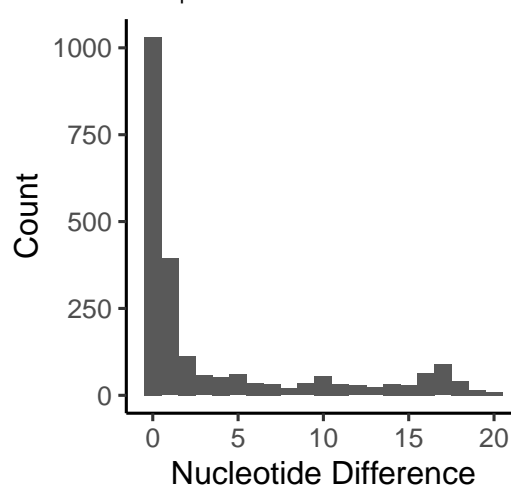
### IGHV3-73\*01\_02

4042 sequences assigned  
637 (15.8%) exact matches, in which:  
434 unique CDR3  
7 unique J



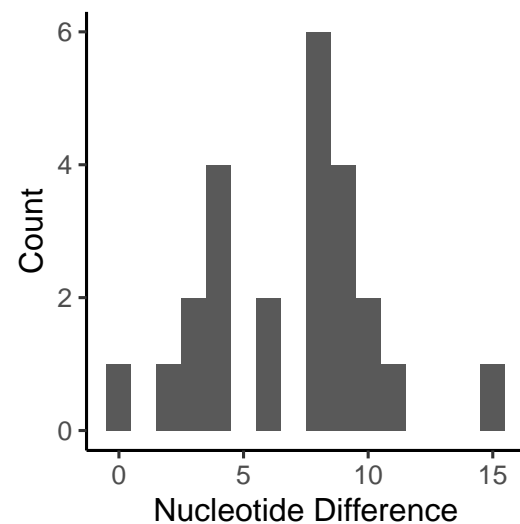
### IGHV3-64D\*06

2498 sequences assigned  
1031 (41.3%) exact matches, in which:  
652 unique CDR3  
7 unique J



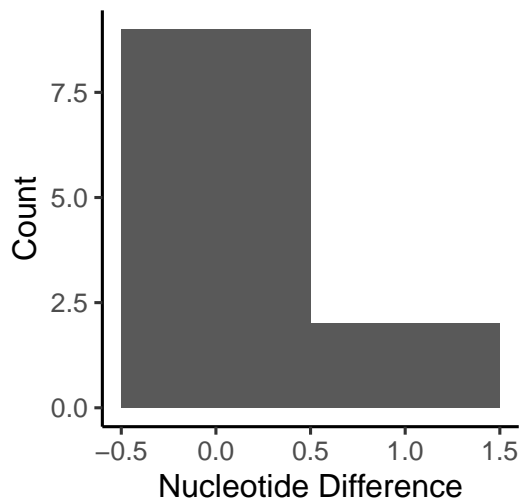
### IGHV4-28\*03

24 sequences assigned  
1 (4.2%) exact matches, in which:  
1 unique CDR3  
1 unique J



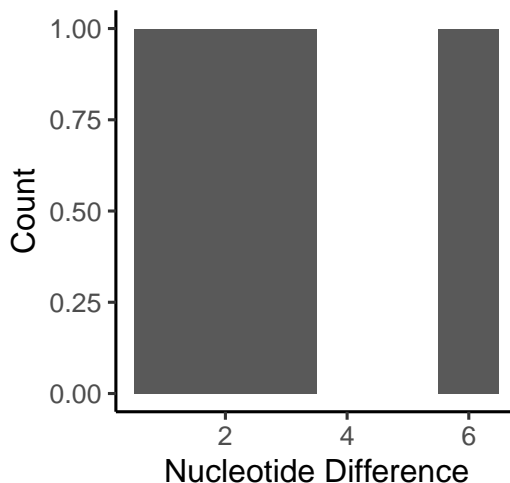
### IGHV4-28\*01\_07

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



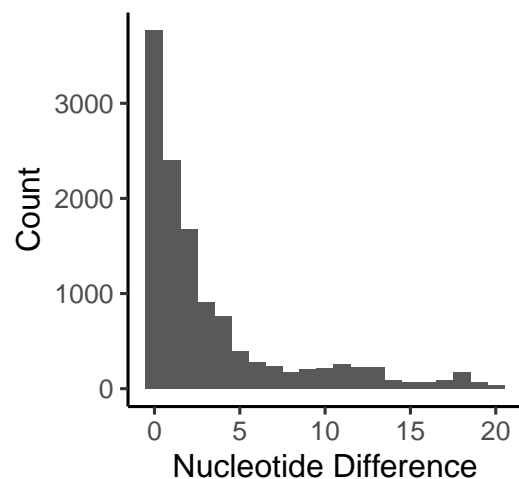
### IGHV4-30-2\*04

4 sequences assigned  
No exact matches.



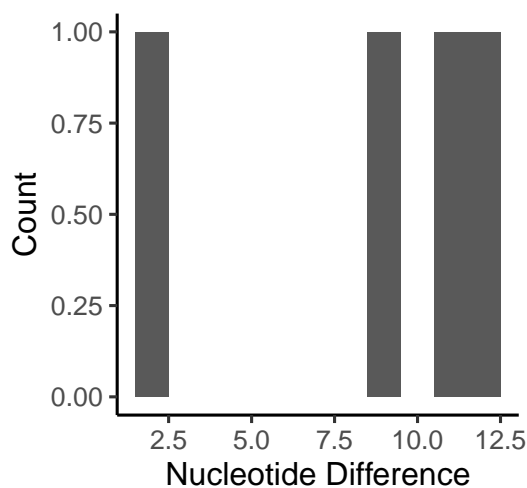
### IGHV4-34\*01\_02

12567 sequences assigned  
3766 (30%) exact matches, in which:  
3317 unique CDR3  
7 unique J



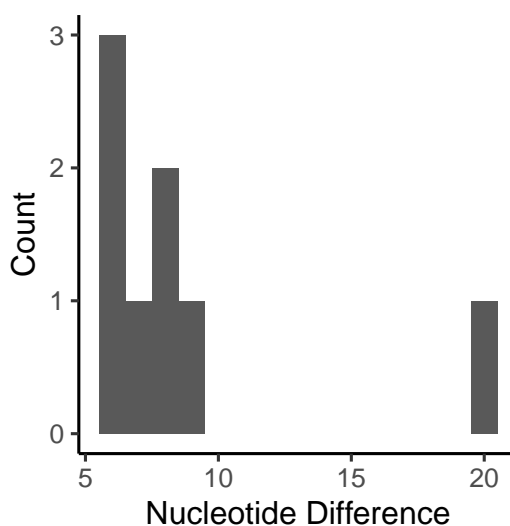
### IGHV4-30-2\*01

4 sequences assigned  
No exact matches.



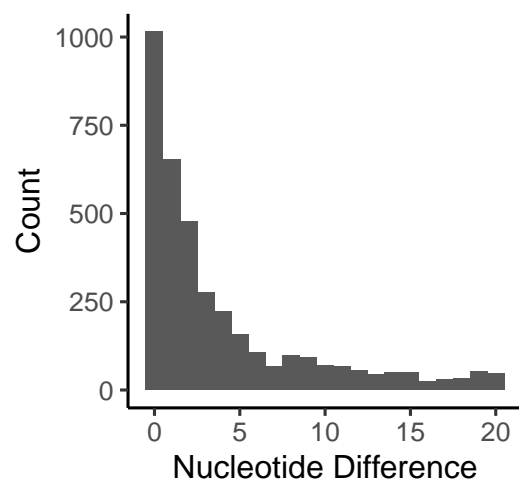
### IGHV4-30-4\*08

10 sequences assigned  
No exact matches.



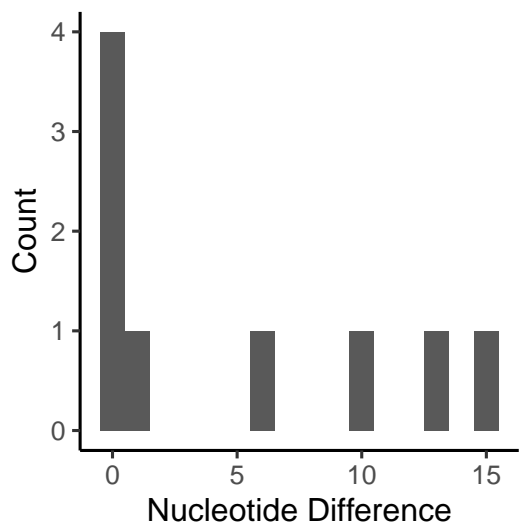
### IGHV4-38-2\*02\_A70G

3902 sequences assigned  
1015 (26%) exact matches, in which:  
909 unique CDR3  
7 unique J



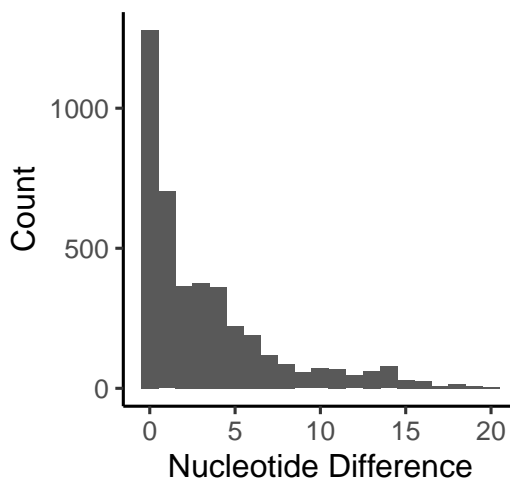
### IGHV4-30-4\*01

10 sequences assigned  
4 (40%) exact matches, in which:  
4 unique CDR3  
3 unique J



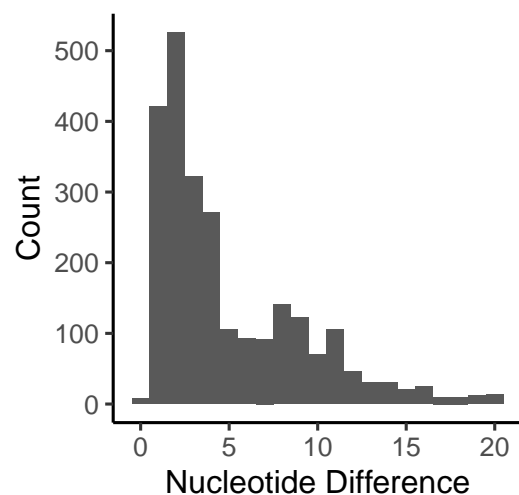
### IGHV4-31\*03\_04

4464 sequences assigned  
1279 (28.7%) exact matches, in which:  
1182 unique CDR3  
7 unique J



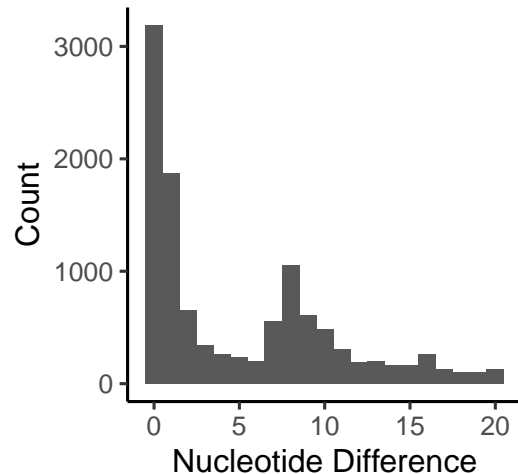
### IGHV4-39\*07

2562 sequences assigned  
8 (0.3%) exact matches, in which:  
8 unique CDR3  
3 unique J



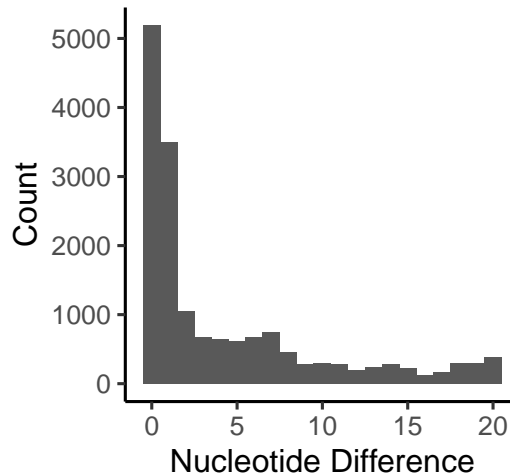
### IGHV4-39\*01\_05

11915 sequences assigned  
3187 (26.7%) exact matches, in which:  
2758 unique CDR3  
7 unique J



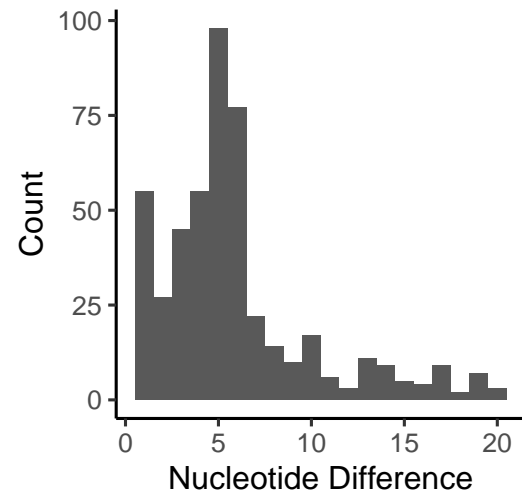
### IGHV4-59\*01\_07

17495 sequences assigned  
5189 (29.7%) exact matches, in which:  
4606 unique CDR3  
7 unique J



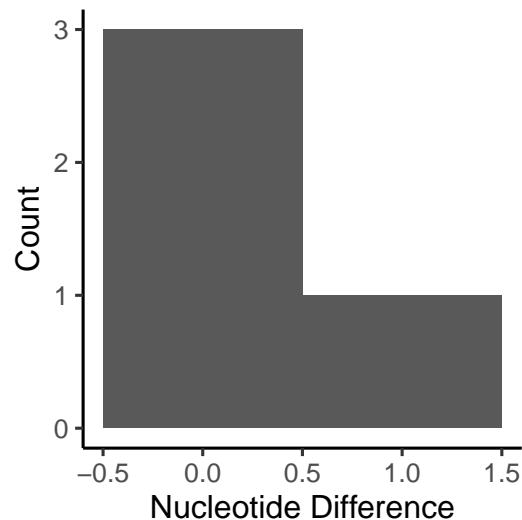
### IGHV4-61\*08

492 sequences assigned  
No exact matches.



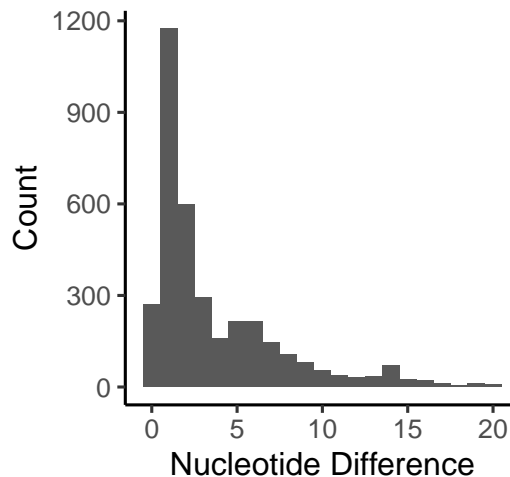
### IGHV4-55\*01\_05

5 sequences assigned  
3 (60%) exact matches, in which:  
3 unique CDR3  
3 unique J



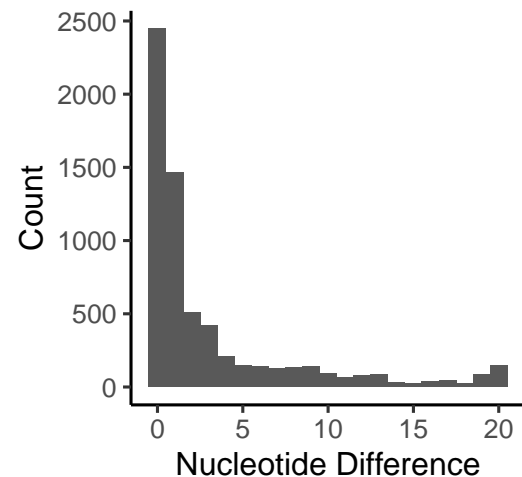
### IGHV4-59\*12

3617 sequences assigned  
270 (7.5%) exact matches, in which:  
268 unique CDR3  
7 unique J



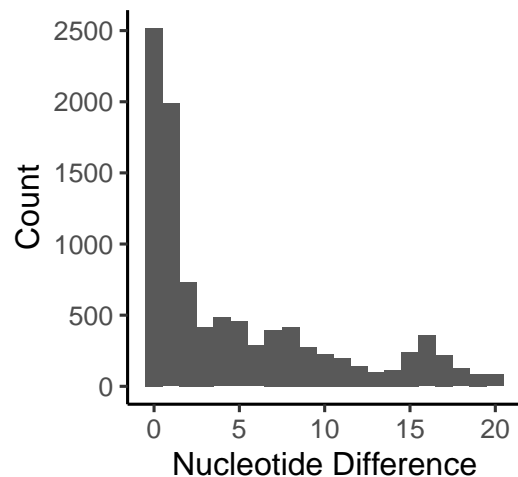
### IGHV5-10-1\*01\_03

6572 sequences assigned  
2447 (37.2%) exact matches, in which:  
1911 unique CDR3  
7 unique J



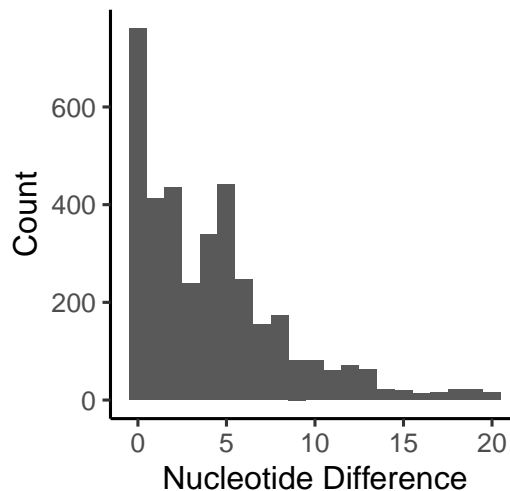
### IGHV4-59\*08

10677 sequences assigned  
2518 (23.6%) exact matches, in which:  
2262 unique CDR3  
7 unique J



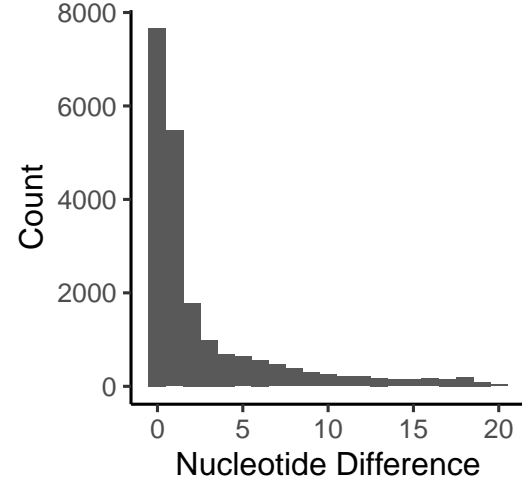
### IGHV4-61\*01

3718 sequences assigned  
761 (20.5%) exact matches, in which:  
716 unique CDR3  
7 unique J



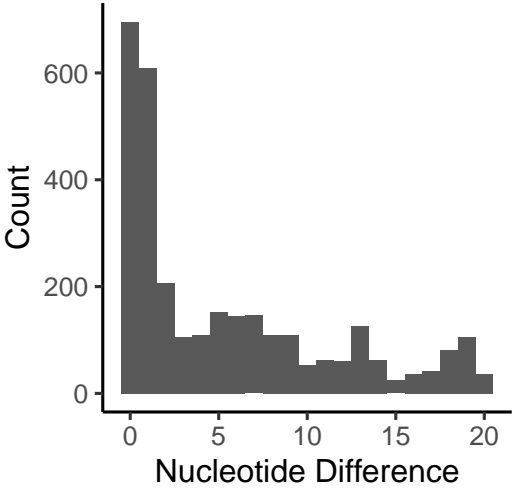
### IGHV5-51\*01\_03

20930 sequences assigned  
7667 (36.6%) exact matches, in which:  
5365 unique CDR3  
7 unique J



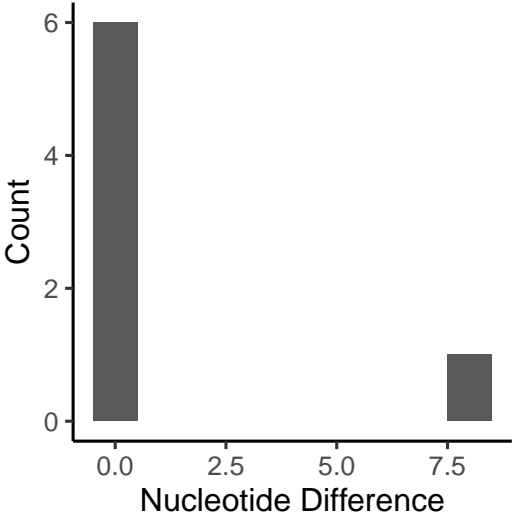
IGHV6-1\*01\_02

3527 sequences assigned  
696 (19.7%) exact matches, in which:  
622 unique CDR3  
7 unique J



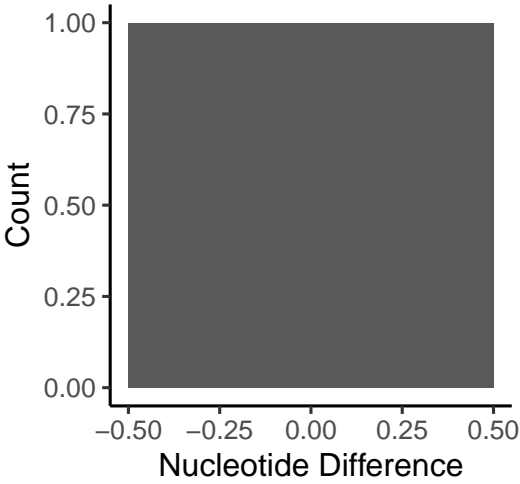
IGHV7-4-1\*01

7 sequences assigned  
6 (85.7%) exact matches, in which:  
6 unique CDR3  
4 unique J

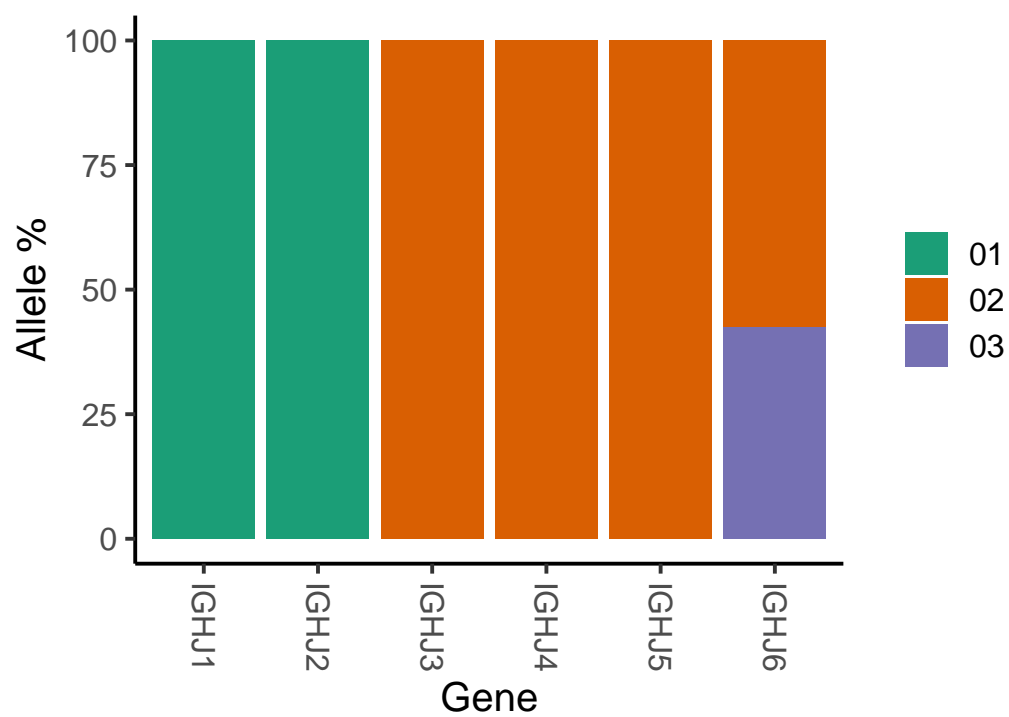


IGHV7-4-1\*02

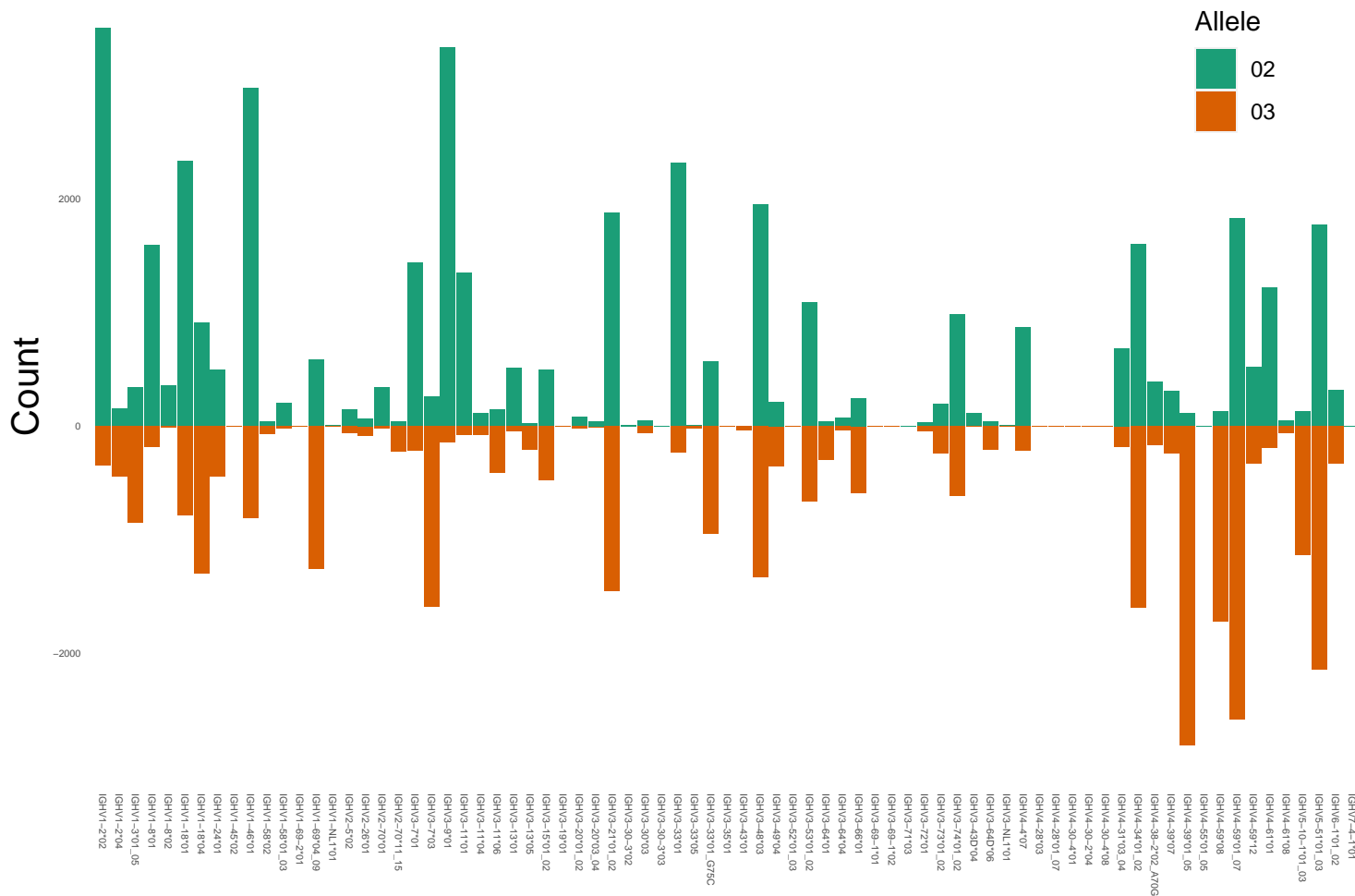
1 sequences assigned  
1 (100%) exact matches, in which:  
1 unique CDR3  
1 unique J



Allele Usage



Sequence Count by IGHJ6 allele usage



Novel sequence(s) IGHV3-30\*03\_T288C are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Warning - no inferred sequences found.

Warning - no inferred sequences found.

Novel sequence(s) IGHV3-33\*01\_G75C IGHV4-59\*02\_G88A IGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV3-33\*01\_G75C IGHV4-59\*02\_G88A IGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV3-30\*03\_T288C IGHV4-59\*02\_G88A IGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Warning - no inferred sequences found.

Warning - no inferred sequences found.

Warning - no inferred sequences found.

Novel sequence(s) IGHV1-69\*04\_09\_G112A IGHV4-59\*02\_G88A IGHV5-10-1\*01\_03\_T258C IGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Warning - no inferred sequences found.

Novel sequence(s) IGHV1-69\*08\_C191T IGHV3-48\*03\_T303G IGHV4-59\*02\_G88A IGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Warning - no inferred sequences found.

Warning - no inferred sequences found.

Novel sequence(s) IGHV3-30\*03\_T288C IGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Warning: IGHV4-31\*02, IGHV4-31\*03\_04 have identical germline sequences.