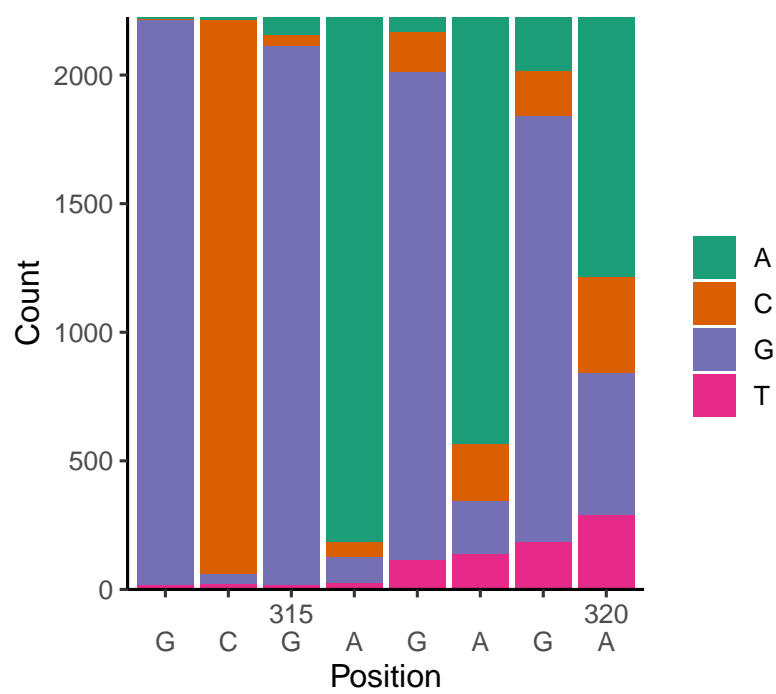
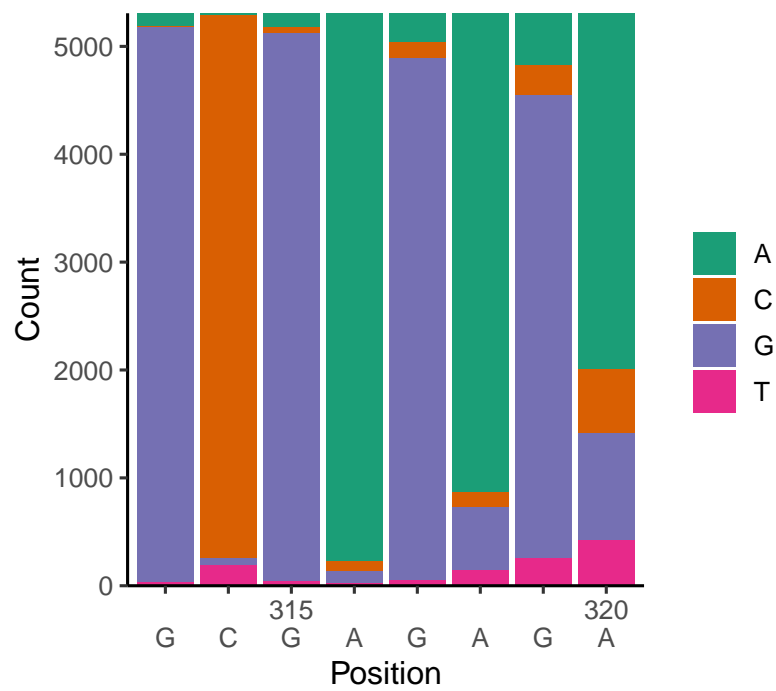


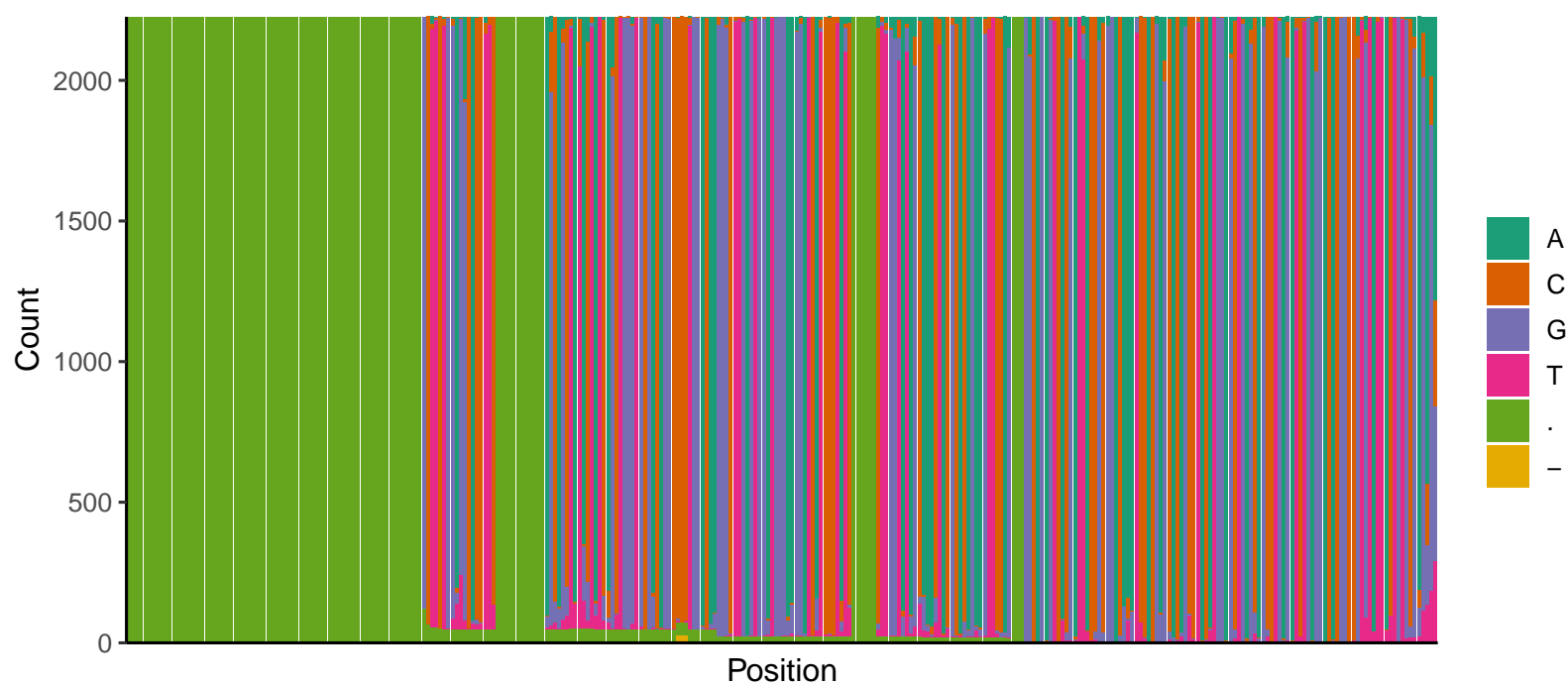
Gene IGHV1-69\*04\_09\_G112A



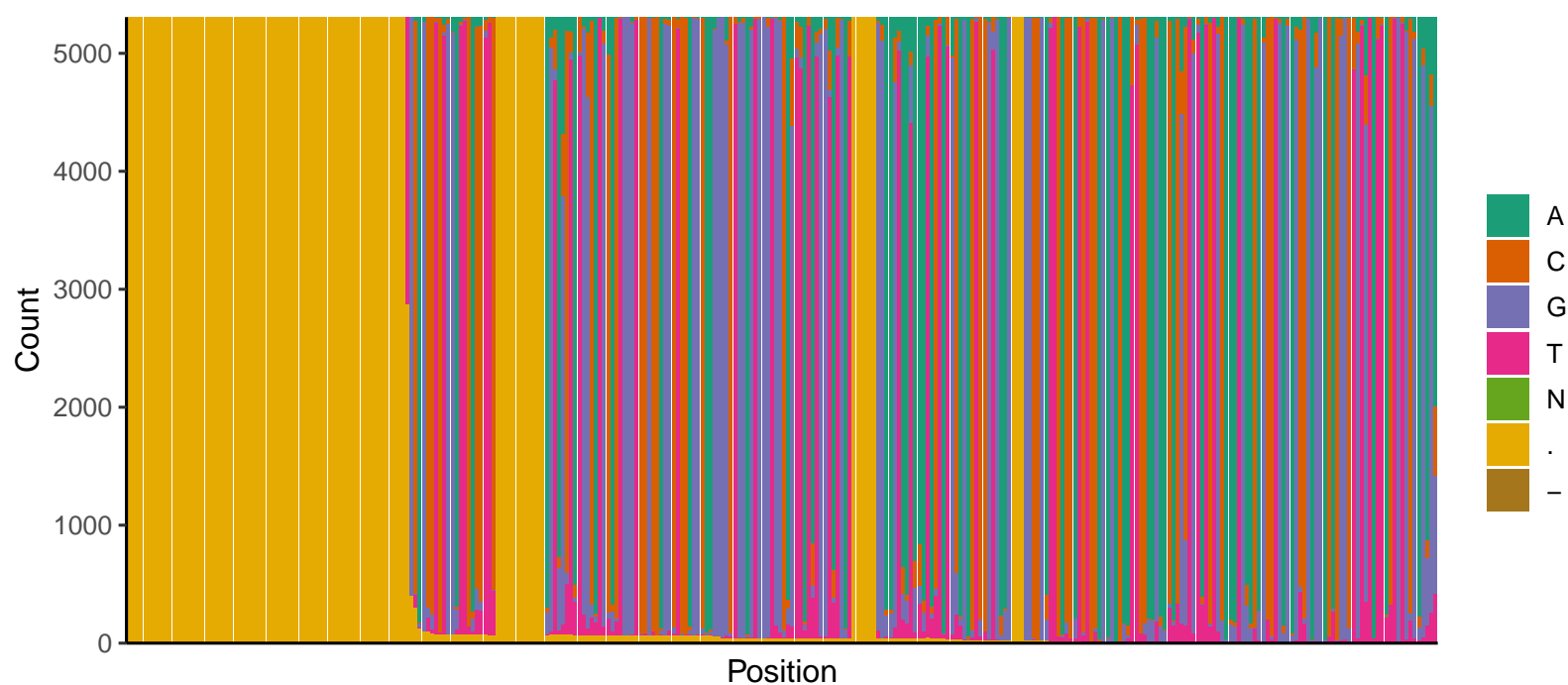
Gene IGHV3-33\*01\_G75C



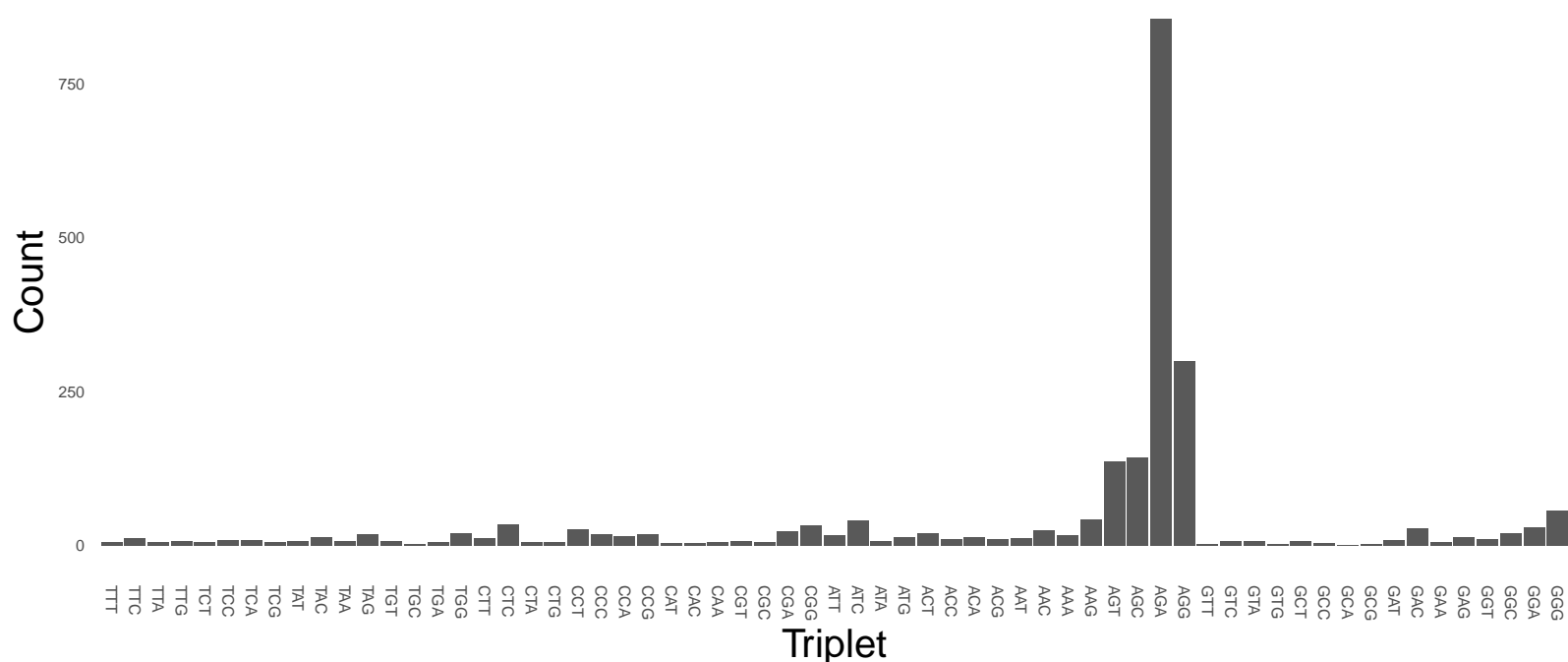
Gene IGHV1-69\*04\_09\_G112A



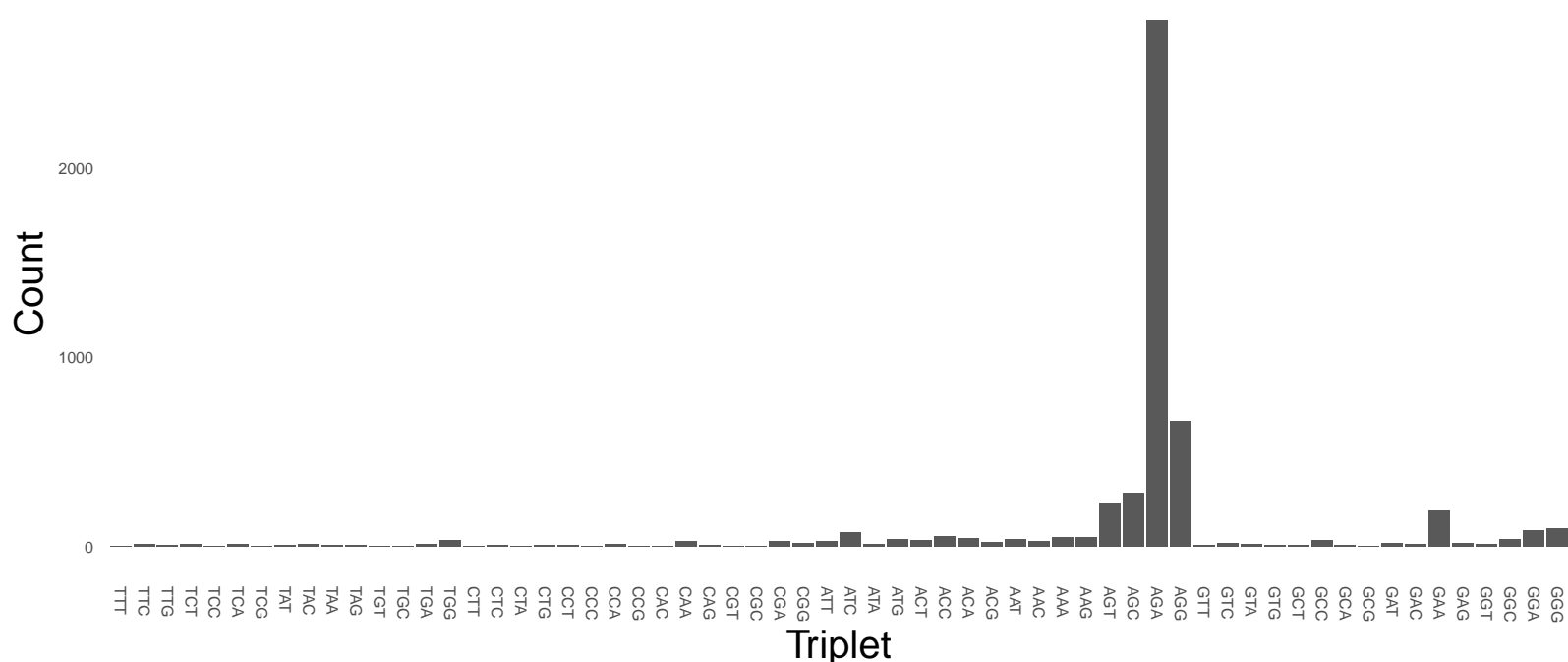
Gene IGHV3-33\*01\_G75C



IGHV1-69\*04\_09\_G112A- Final 3 nucleotides as a triplet

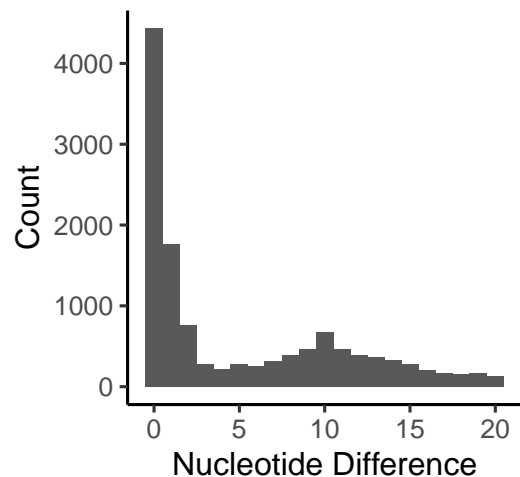


IGHV3-33\*01\_G75C- Final 3 nucleotides as a triplet



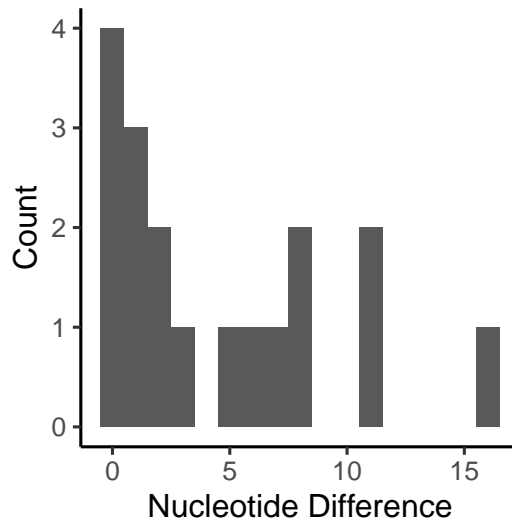
### IGHV1-2\*02

13725 sequences assigned  
4433 (32.3%) exact matches, in which:  
4207 unique CDR3  
7 unique J



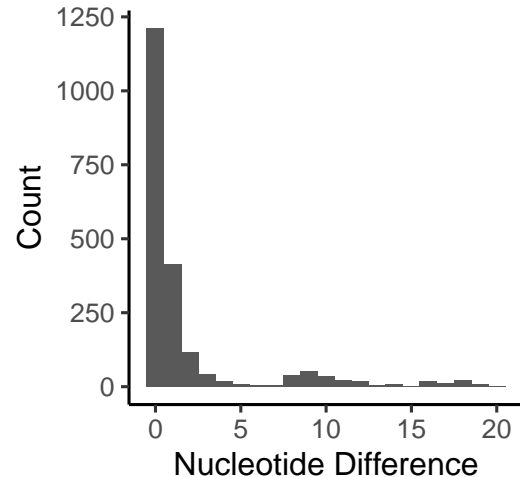
### IGHV1-8\*01

20 sequences assigned  
4 (20%) exact matches, in which:  
4 unique CDR3  
2 unique J



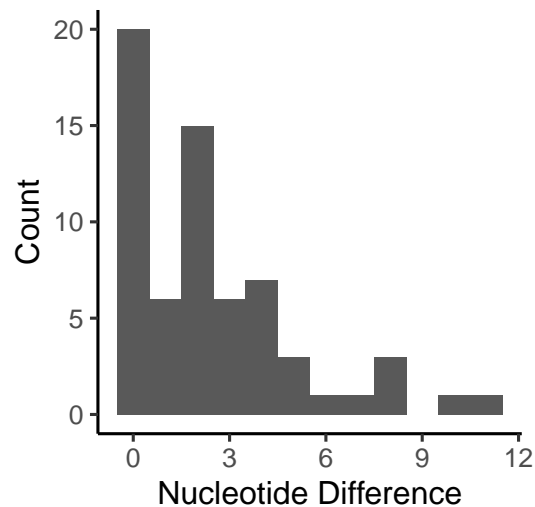
### IGHV1-24\*01

2512 sequences assigned  
1211 (48.2%) exact matches, in which:  
1177 unique CDR3  
7 unique J



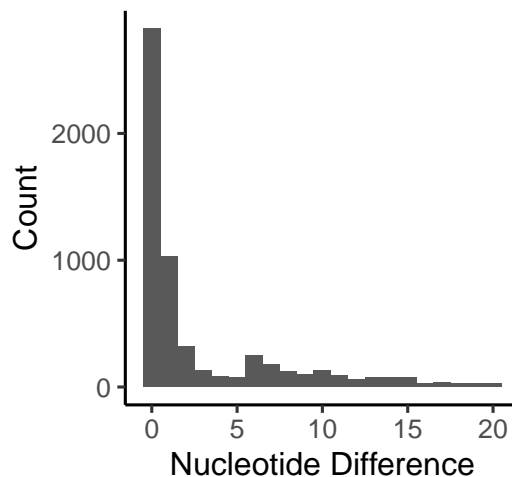
### IGHV1-3\*02

64 sequences assigned  
20 (31.2%) exact matches, in which:  
19 unique CDR3  
4 unique J



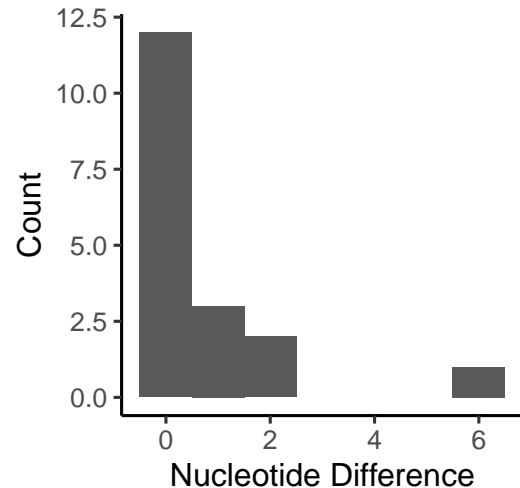
### IGHV1-18\*01

6409 sequences assigned  
2826 (44.1%) exact matches, in which:  
2710 unique CDR3  
7 unique J



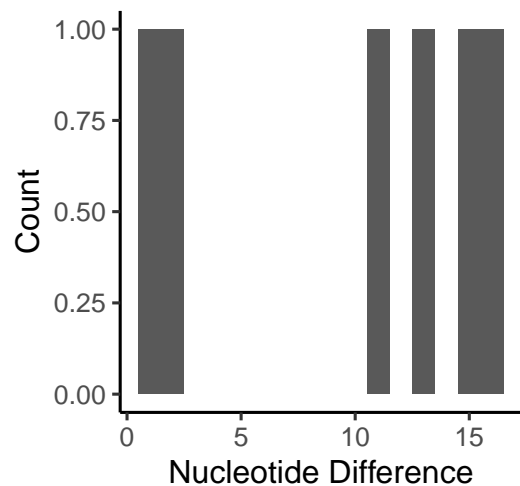
### IGHV1-45\*02

18 sequences assigned  
12 (66.7%) exact matches, in which:  
12 unique CDR3  
3 unique J



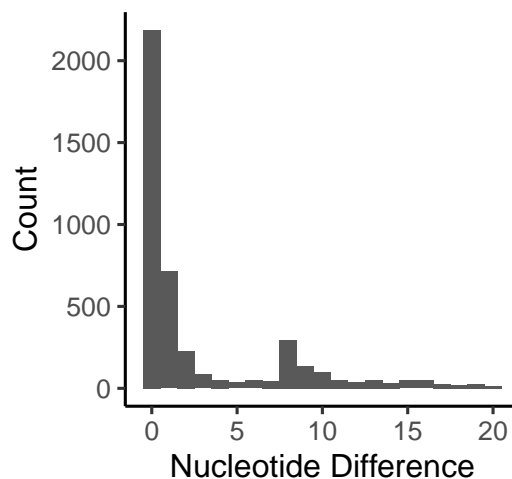
### IGHV1-3\*01\_05

9 sequences assigned  
No exact matches.



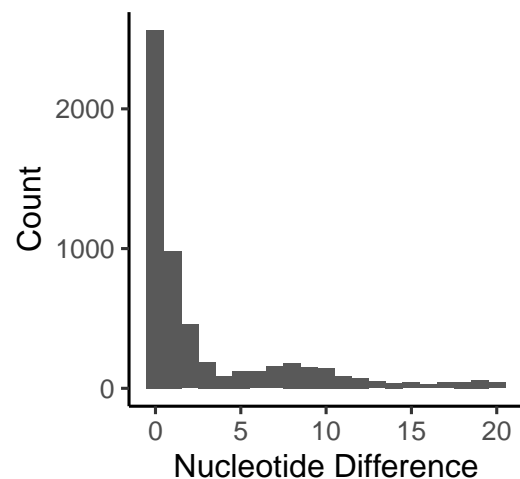
### IGHV1-18\*04

4746 sequences assigned  
2187 (46.1%) exact matches, in which:  
2097 unique CDR3  
7 unique J



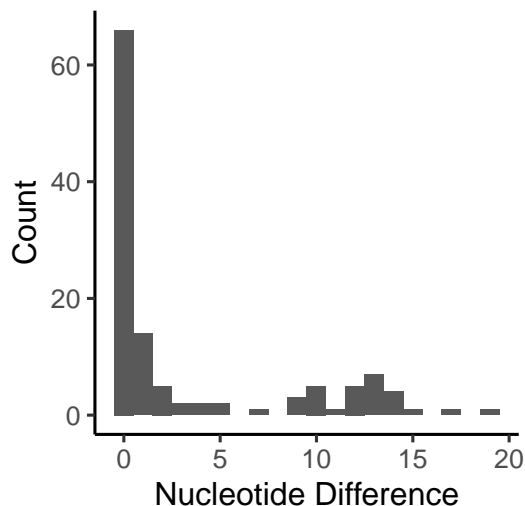
### IGHV1-46\*01

6129 sequences assigned  
2564 (41.8%) exact matches, in which:  
2458 unique CDR3  
7 unique J



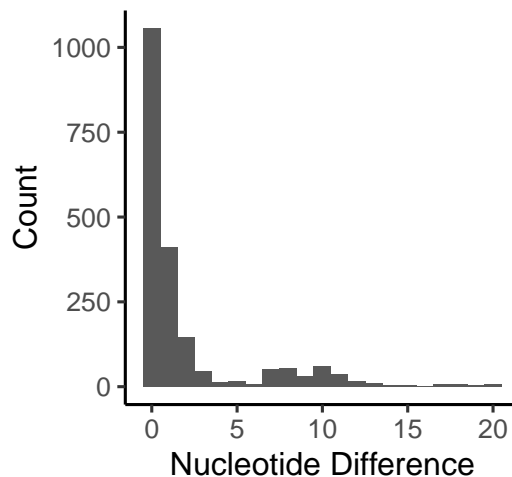
### IGHV1-58\*02

127 sequences assigned  
66 (52%) exact matches, in which:  
66 unique CDR3  
7 unique J



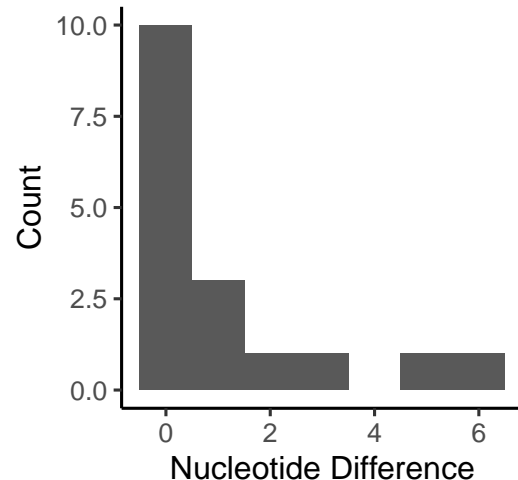
### IGHV1-69\*04\_09\_G112

2226 sequences assigned  
1056 (47.4%) exact matches, in which:  
1020 unique CDR3  
7 unique J



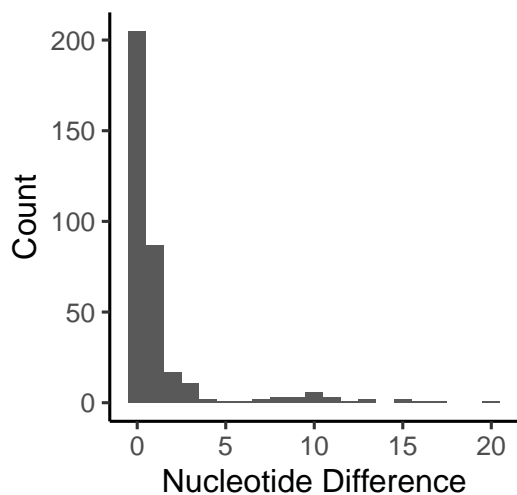
### IGHV2-26\*02

19 sequences assigned  
10 (52.6%) exact matches, in which:  
10 unique CDR3  
5 unique J



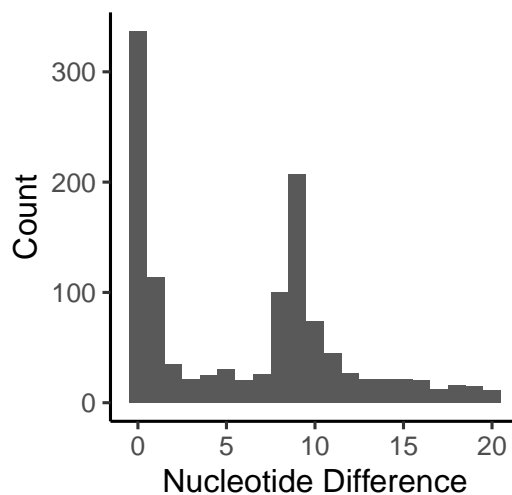
### IGHV1-58\*01\_03

356 sequences assigned  
205 (57.6%) exact matches, in which:  
199 unique CDR3  
7 unique J



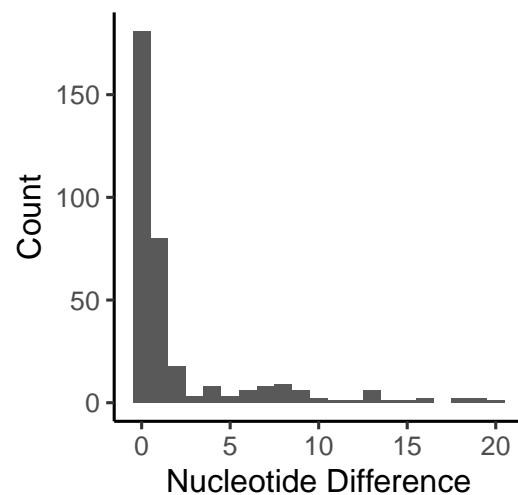
### IGHV2-5\*02

1311 sequences assigned  
337 (25.7%) exact matches, in which:  
331 unique CDR3  
7 unique J



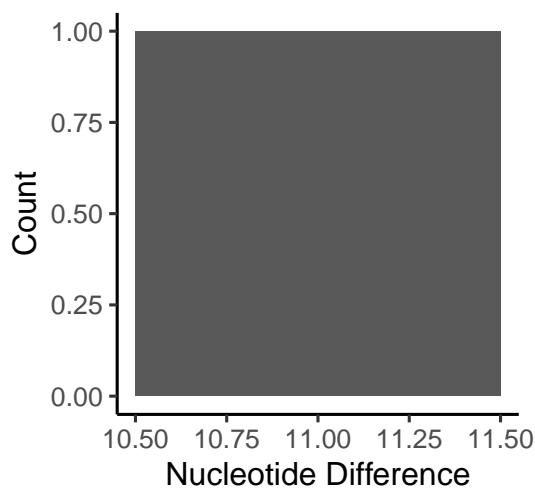
### IGHV2-70\*01

385 sequences assigned  
181 (47%) exact matches, in which:  
176 unique CDR3  
6 unique J



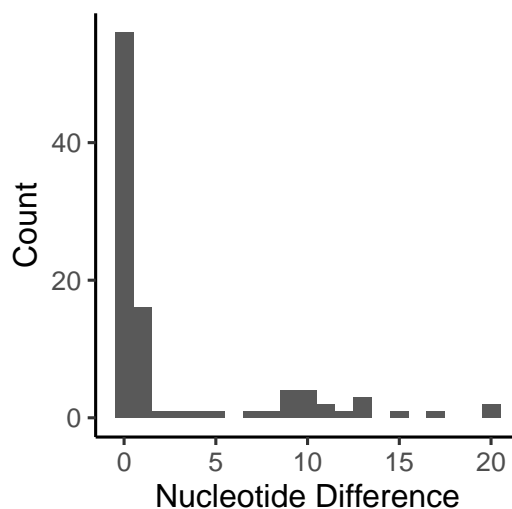
### IGHV1-69-2\*01

6 sequences assigned  
No exact matches.



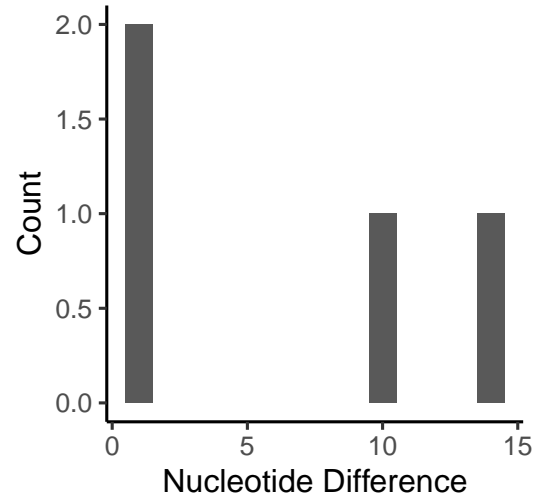
### IGHV2-26\*01

97 sequences assigned  
56 (57.7%) exact matches, in which:  
54 unique CDR3  
5 unique J



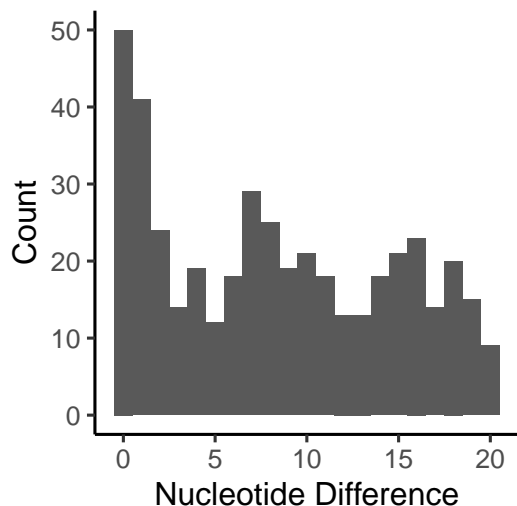
### IGHV2-70D\*04

4 sequences assigned  
No exact matches.



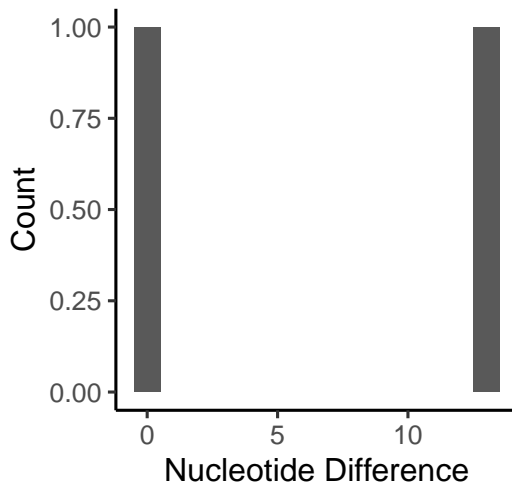
### IGHV3-7\*01

522 sequences assigned  
50 (9.6%) exact matches, in which:  
50 unique CDR3  
5 unique J



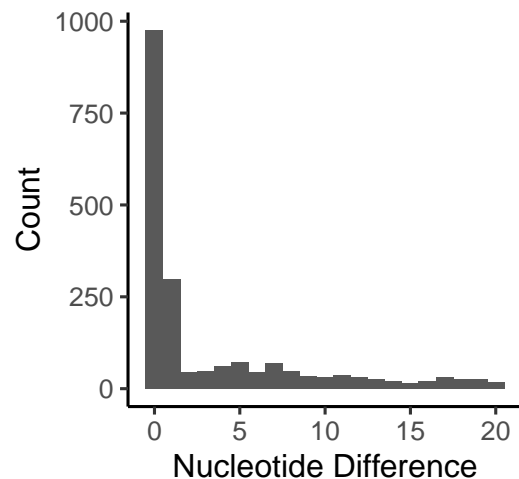
### IGHV3-9\*01

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



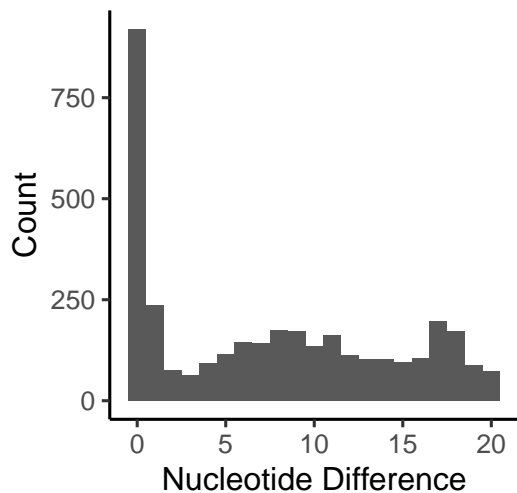
### IGHV3-11\*03\_05

2861 sequences assigned  
975 (34.1%) exact matches, in which:  
805 unique CDR3  
7 unique J



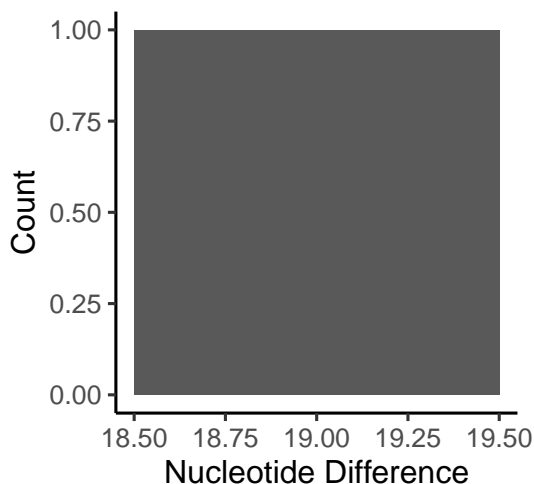
### IGHV3-7\*03

4342 sequences assigned  
920 (21.2%) exact matches, in which:  
750 unique CDR3  
7 unique J



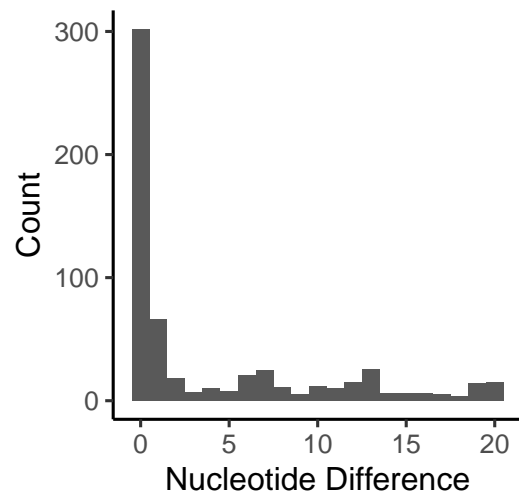
### IGHV3-9\*02

1 sequences assigned  
No exact matches.



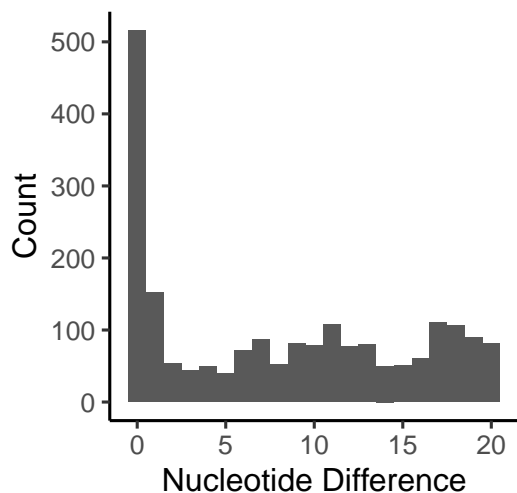
### IGHV3-13\*04

622 sequences assigned  
302 (48.6%) exact matches, in which:  
228 unique CDR3  
6 unique J



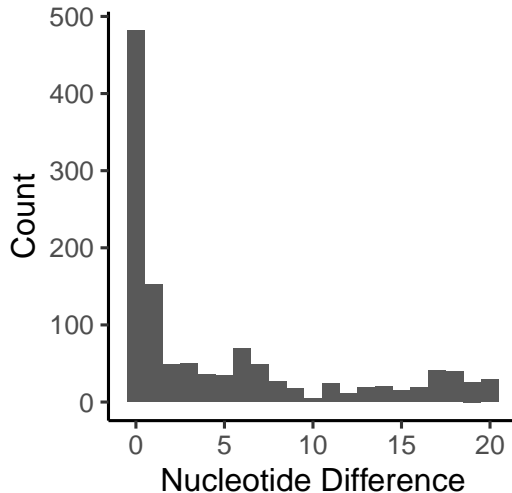
### IGHV3-7\*05

2623 sequences assigned  
516 (19.7%) exact matches, in which:  
425 unique CDR3  
7 unique J



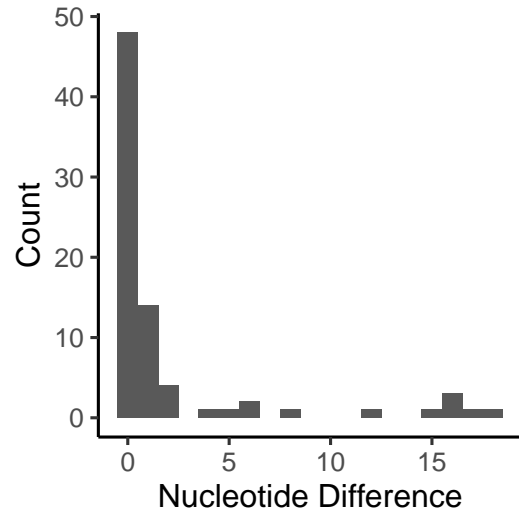
### IGHV3-11\*06

2004 sequences assigned  
482 (24.1%) exact matches, in which:  
411 unique CDR3  
7 unique J



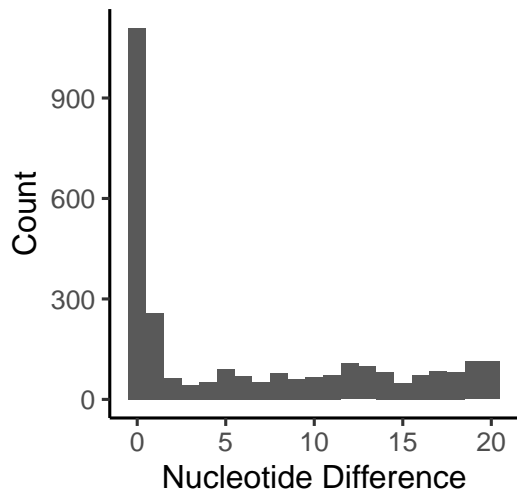
### IGHV3-13\*05

99 sequences assigned  
48 (48.5%) exact matches, in which:  
36 unique CDR3  
4 unique J



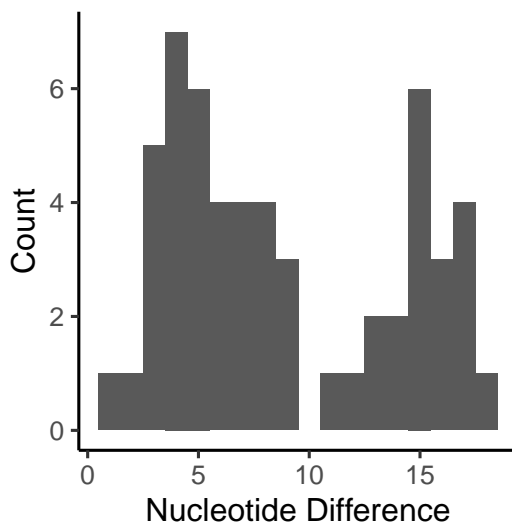
### IGHV3-15\*01\_02

3799 sequences assigned  
1110 (29.2%) exact matches, in which:  
958 unique CDR3  
7 unique J



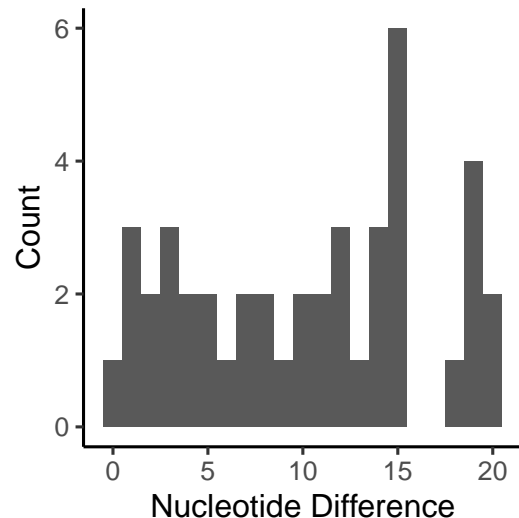
### IGHV3-20\*03\_04

106 sequences assigned  
No exact matches.



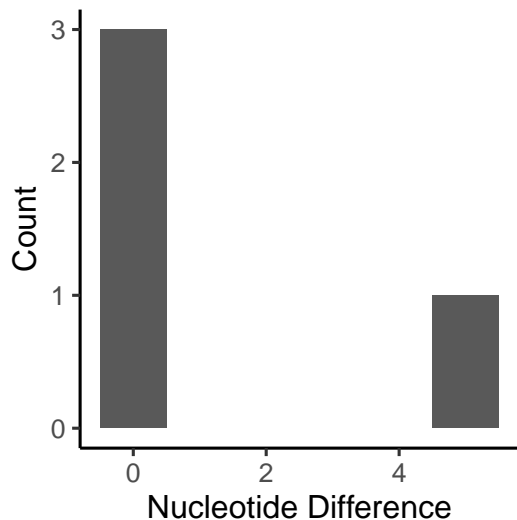
### IGHV3-30-5\*01

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



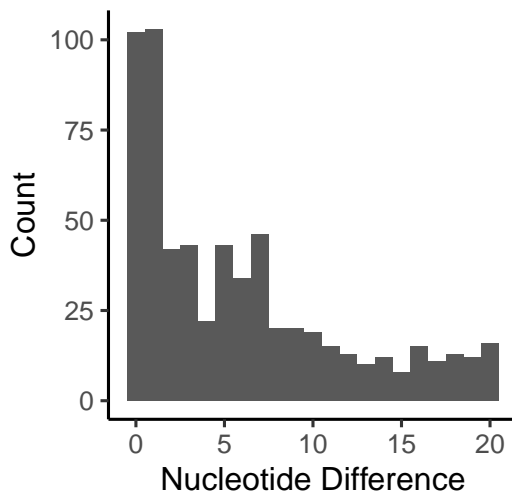
### IGHV3-19\*01

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



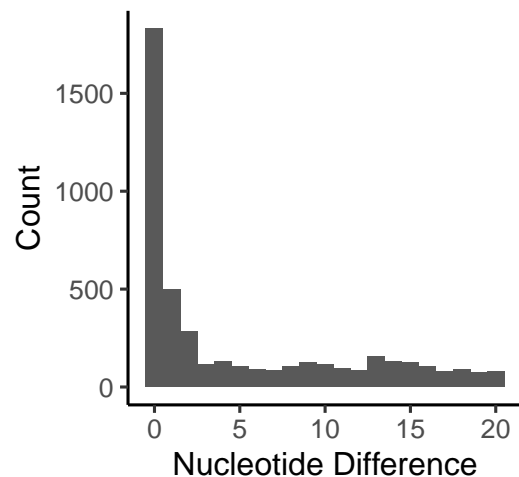
### IGHV3-21\*04

911 sequences assigned  
102 (11.2%) exact matches, in which:  
102 unique CDR3  
7 unique J



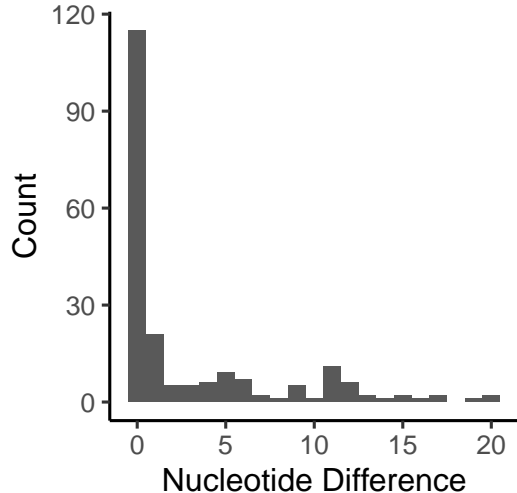
### IGHV3-33\*01\_G75C

5307 sequences assigned  
1830 (34.5%) exact matches, in which:  
1546 unique CDR3  
7 unique J



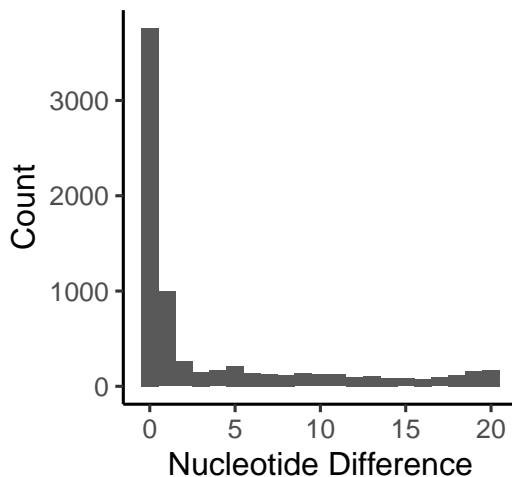
### IGHV3-20\*01\_02

205 sequences assigned  
115 (56.1%) exact matches, in which:  
89 unique CDR3  
7 unique J



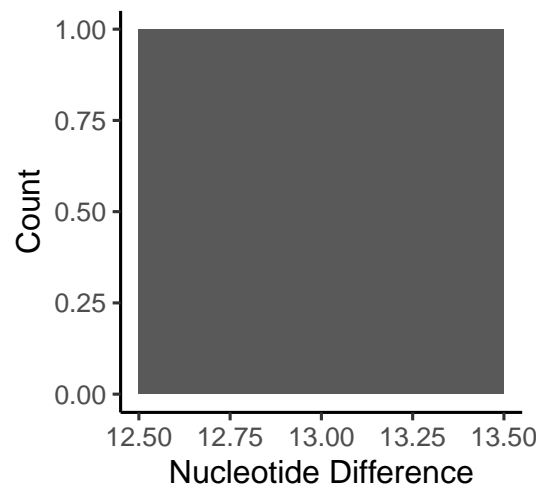
### IGHV3-21\*01\_02

10697 sequences assigned  
3760 (35.2%) exact matches, in which:  
2981 unique CDR3  
7 unique J



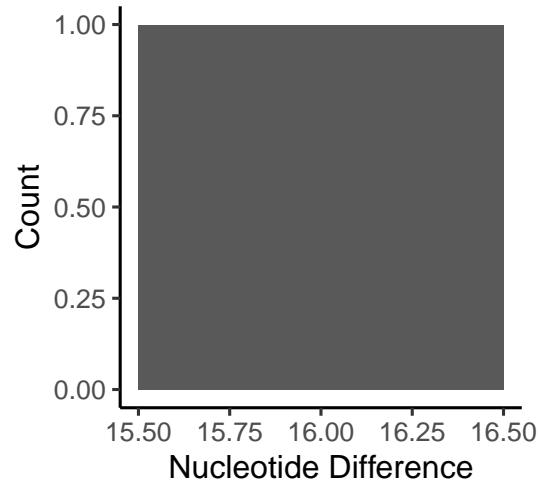
### IGHV3-35\*01

1 sequences assigned  
No exact matches.



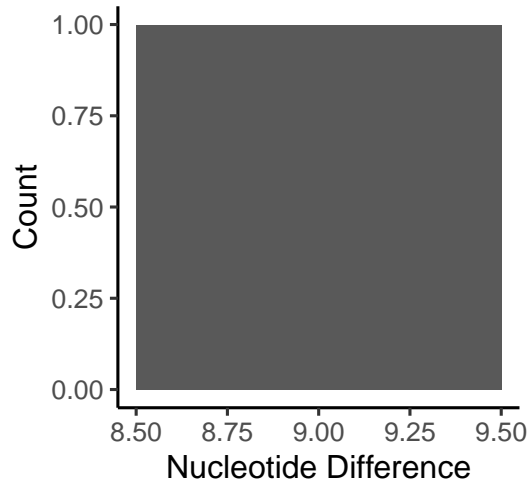
### IGHV3-38\*03

2 sequences assigned  
No exact matches.



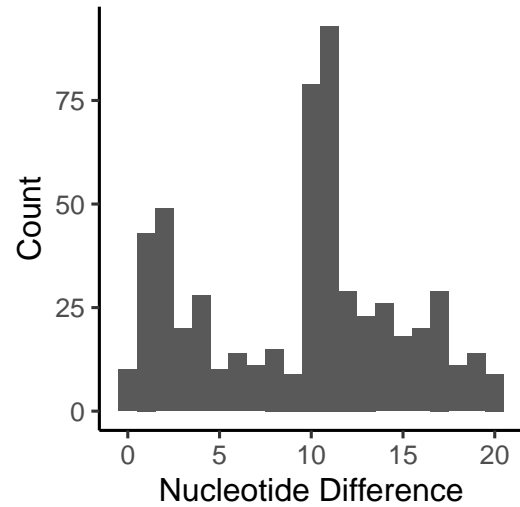
### IGHV3-47\*02

1 sequences assigned  
No exact matches.



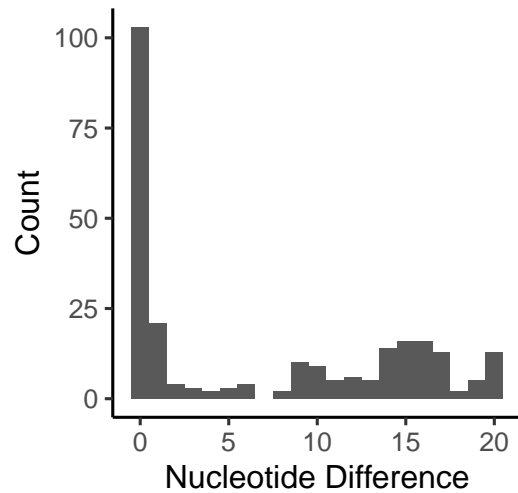
### IGHV3-48\*04

688 sequences assigned  
10 (1.5%) exact matches, in which:  
10 unique CDR3  
3 unique J



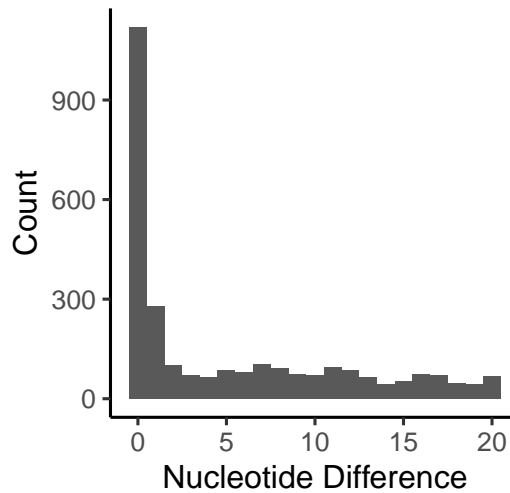
### IGHV3-43\*01

298 sequences assigned  
103 (34.6%) exact matches, in which:  
89 unique CDR3  
7 unique J



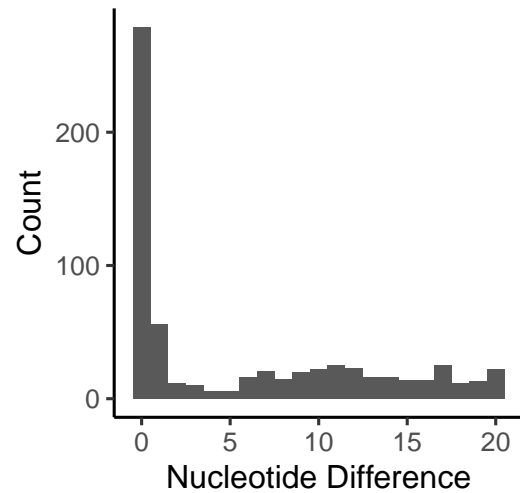
### IGHV3-48\*02

3590 sequences assigned  
1120 (31.2%) exact matches, in which:  
906 unique CDR3  
7 unique J



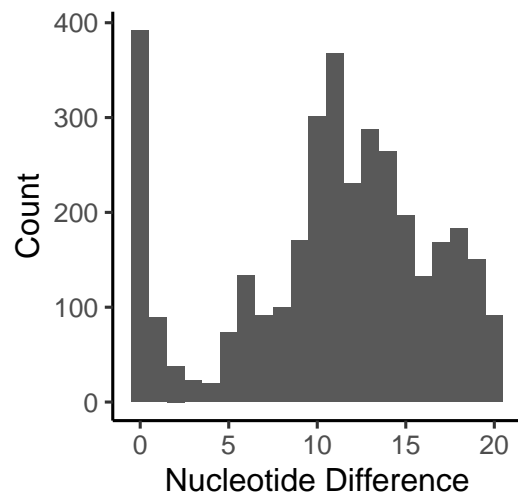
### IGHV3-49\*04

3709 sequences assigned  
279 (7.5%) exact matches, in which:  
240 unique CDR3  
6 unique J



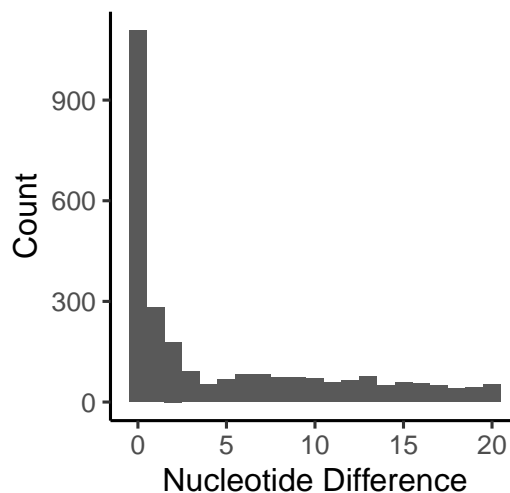
### IGHV3-43\*02

4092 sequences assigned  
392 (9.6%) exact matches, in which:  
316 unique CDR3  
7 unique J



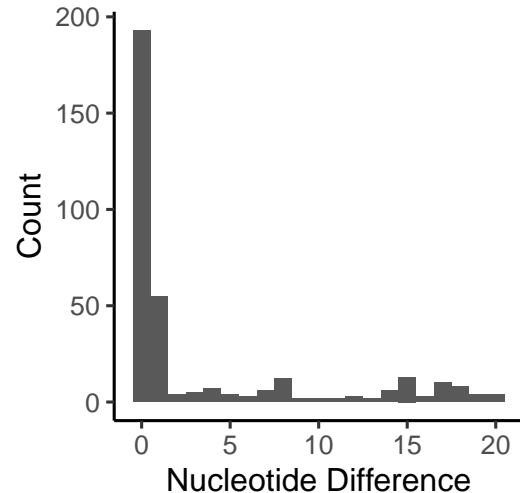
### IGHV3-48\*03

3168 sequences assigned  
1108 (35%) exact matches, in which:  
926 unique CDR3  
7 unique J



### IGHV3-49\*03\_05

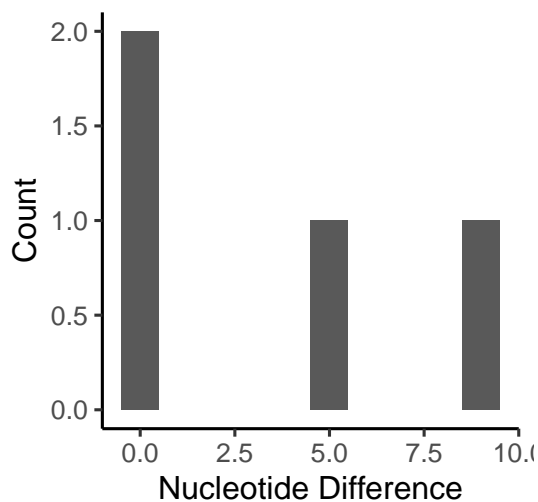
432 sequences assigned  
193 (44.7%) exact matches, in which:  
168 unique CDR3  
6 unique J





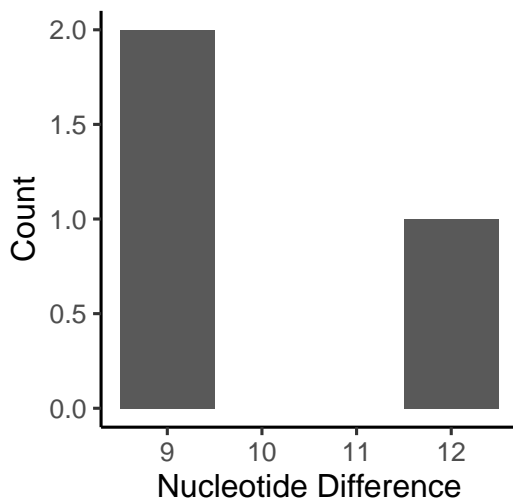
### IGHV3-52\*01\_03

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



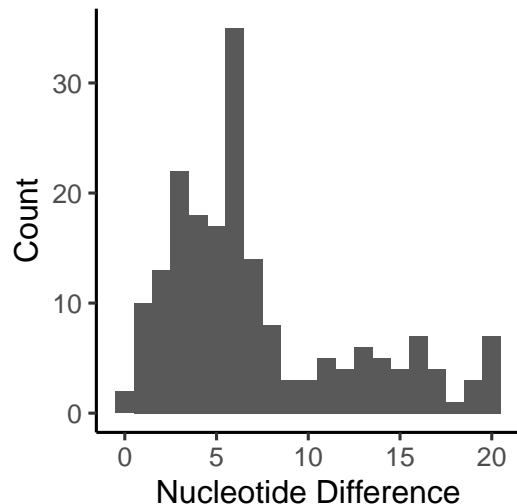
### IGHV3-62\*03

3 sequences assigned  
No exact matches.



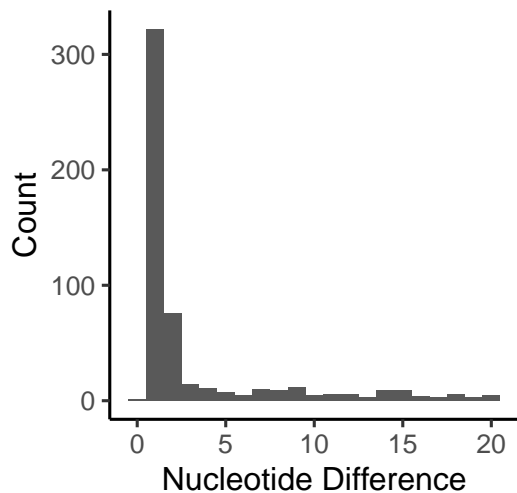
### IGHV3-64\*04

223 sequences assigned  
2 (0.9%) exact matches, in which:  
2 unique CDR3  
1 unique J



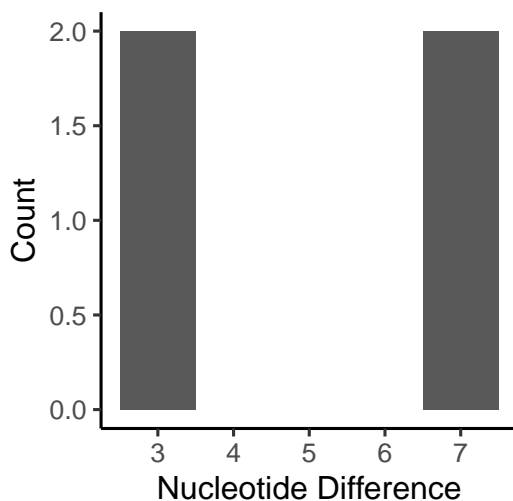
### IGHV3-53\*05

602 sequences assigned  
1 (0.2%) exact matches, in which:  
1 unique CDR3  
1 unique J



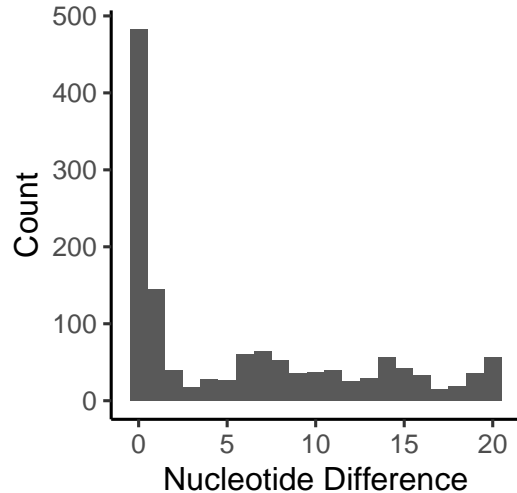
### IGHV3-62\*04

4 sequences assigned  
No exact matches.



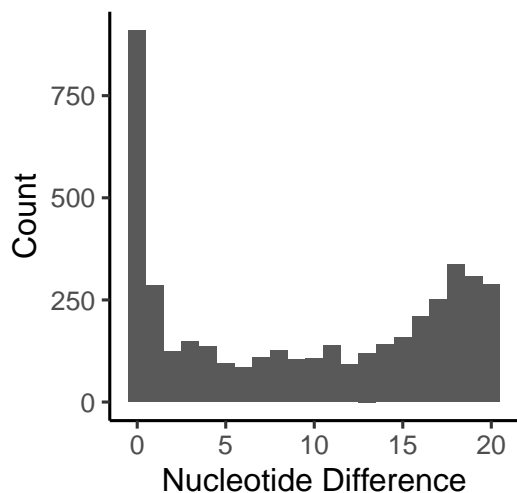
### IGHV3-66\*02

2331 sequences assigned  
483 (20.7%) exact matches, in which:  
402 unique CDR3  
7 unique J



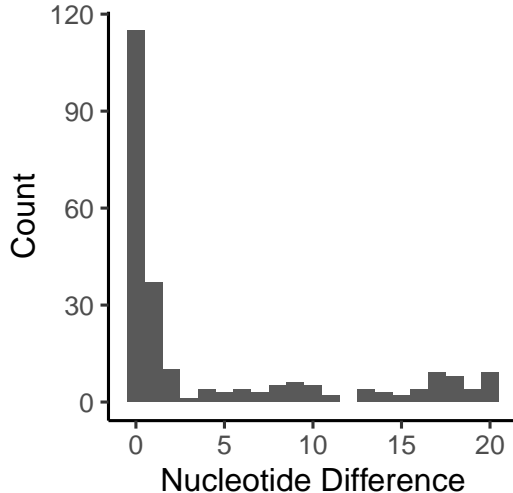
### IGHV3-53\*01\_02

9909 sequences assigned  
910 (9.2%) exact matches, in which:  
755 unique CDR3  
7 unique J



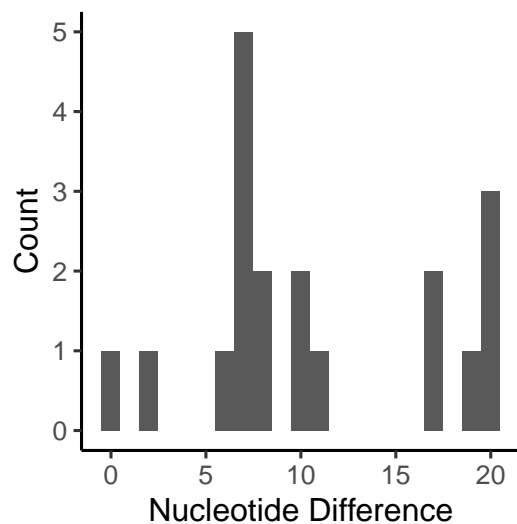
### IGHV3-64\*01

288 sequences assigned  
115 (39.9%) exact matches, in which:  
87 unique CDR3  
6 unique J



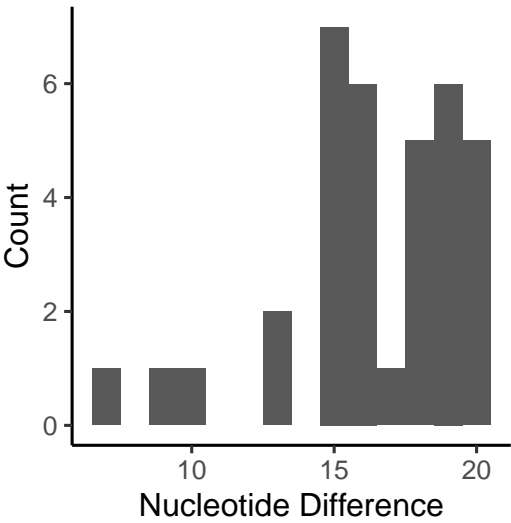
### IGHV3-66\*03

55 sequences assigned  
1 (1.8%) exact matches, in which:  
1 unique CDR3  
1 unique J



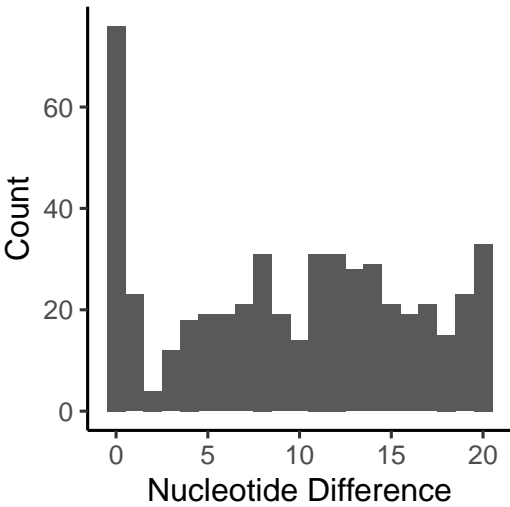
IGHV3-69-1\*01

166 sequences assigned  
No exact matches.



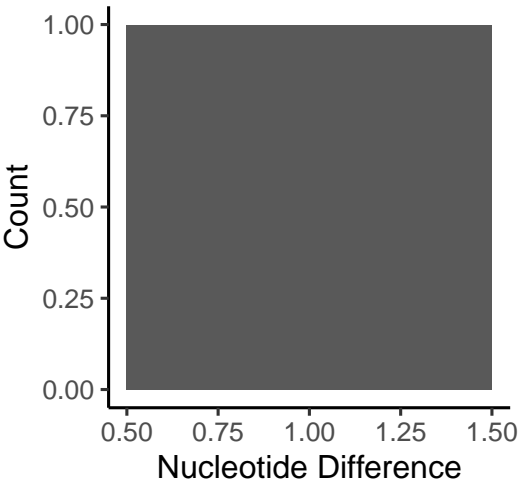
IGHV3-72\*01

731 sequences assigned  
76 (10.4%) exact matches, in which:  
67 unique CDR3  
5 unique J



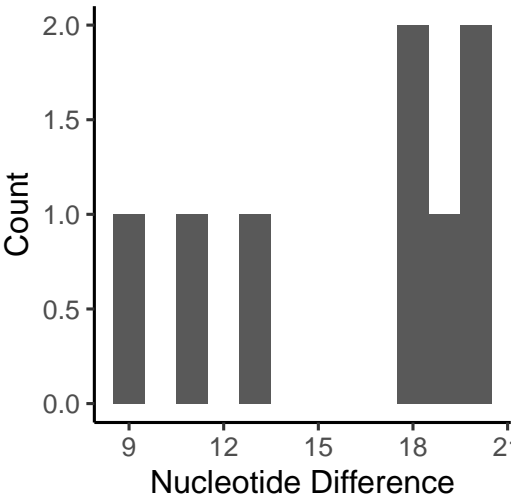
IGHV3-43D\*03

1 sequences assigned  
No exact matches.



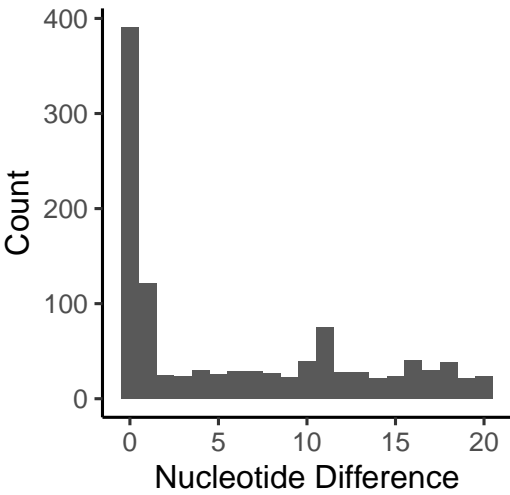
IGHV3-69-1\*02

51 sequences assigned  
No exact matches.



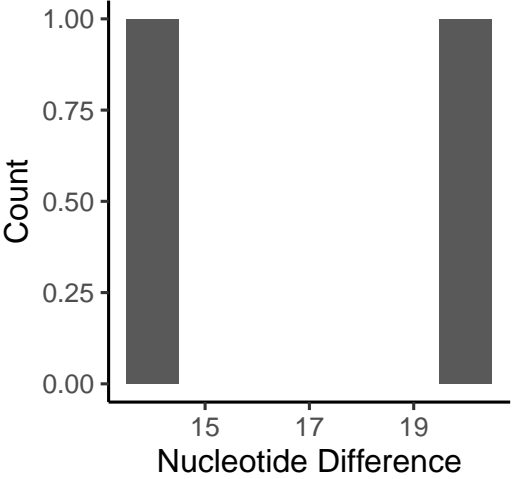
IGHV3-73\*01\_02

1316 sequences assigned  
391 (29.7%) exact matches, in which:  
323 unique CDR3  
7 unique J



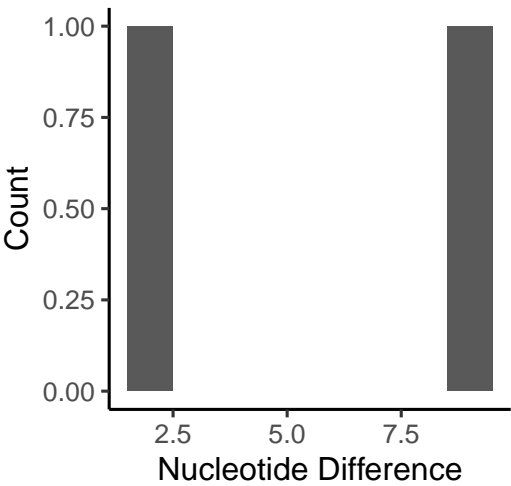
IGHV3-43D\*04

3 sequences assigned  
No exact matches.



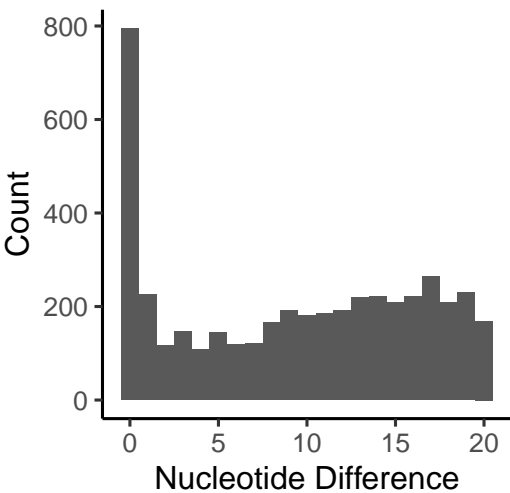
IGHV3-71\*01\_04

6 sequences assigned  
No exact matches.



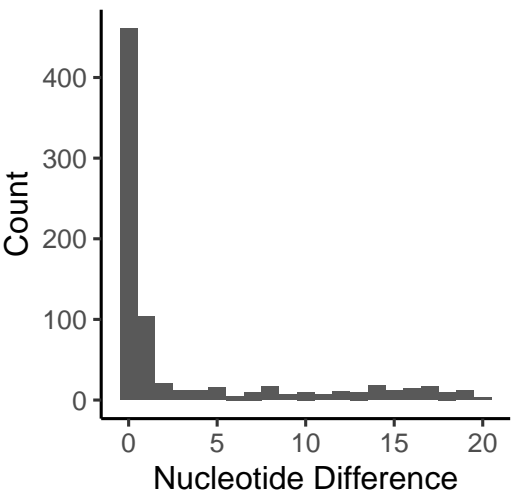
IGHV3-74\*01\_02

6513 sequences assigned  
795 (12.2%) exact matches, in which:  
634 unique CDR3  
7 unique J



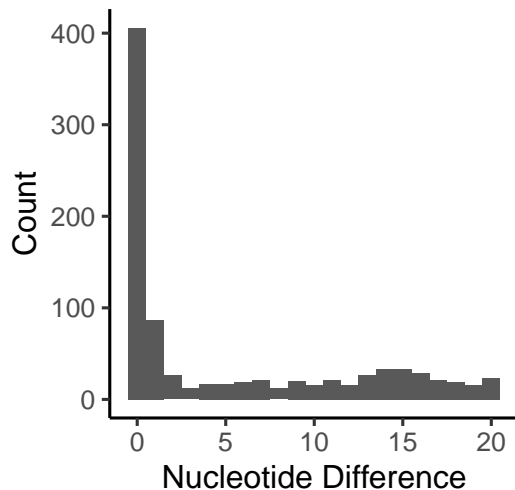
IGHV3-64D\*06

908 sequences assigned  
461 (50.8%) exact matches, in which:  
358 unique CDR3  
7 unique J



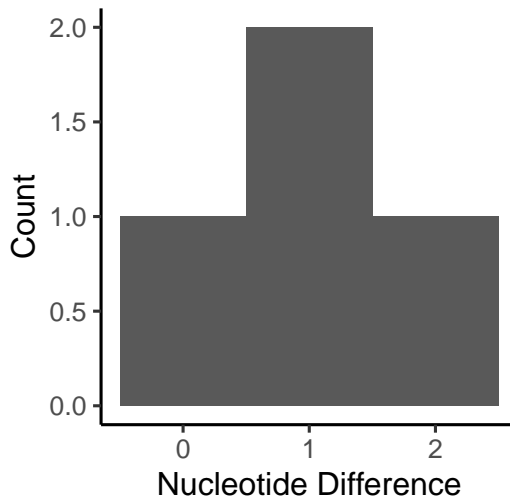
### IGHV3-64D\*09

1017 sequences assigned  
406 (39.9%) exact matches, in which:  
322 unique CDR3  
7 unique J



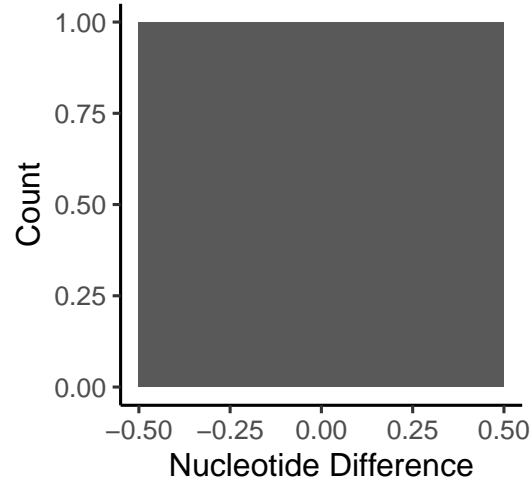
### IGHV4-28\*03

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



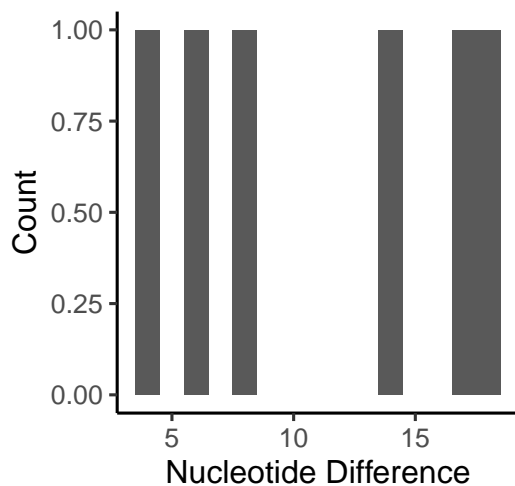
### IGHV4-30-4\*01

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



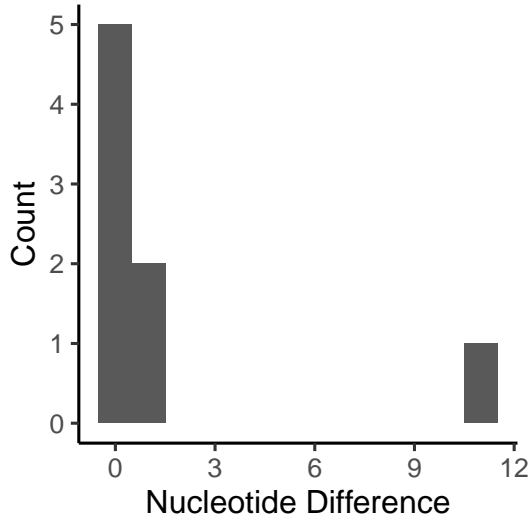
### IGHV3-NL1\*01

22 sequences assigned  
No exact matches.



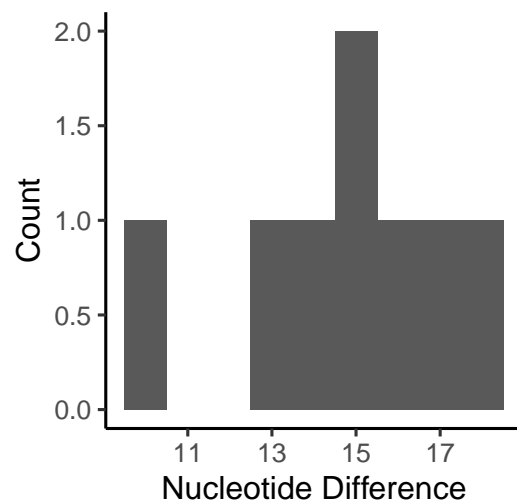
### IGHV4-28\*01\_07

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



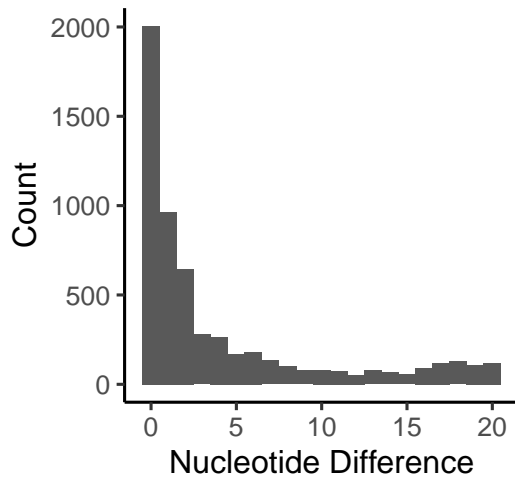
### IGHV4-30-2\*03

14 sequences assigned  
No exact matches.



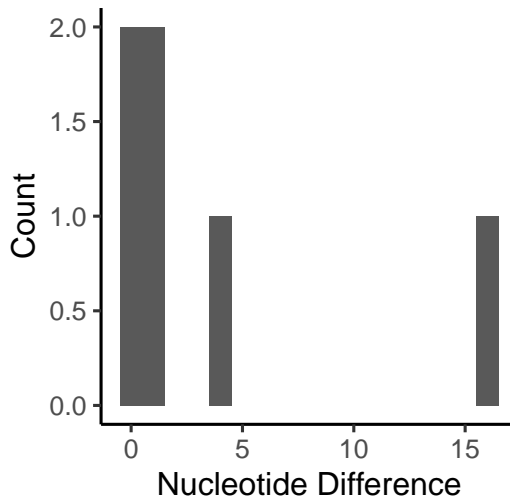
### IGHV4-4\*07

7480 sequences assigned  
2005 (26.8%) exact matches, in which:  
1931 unique CDR3  
7 unique J



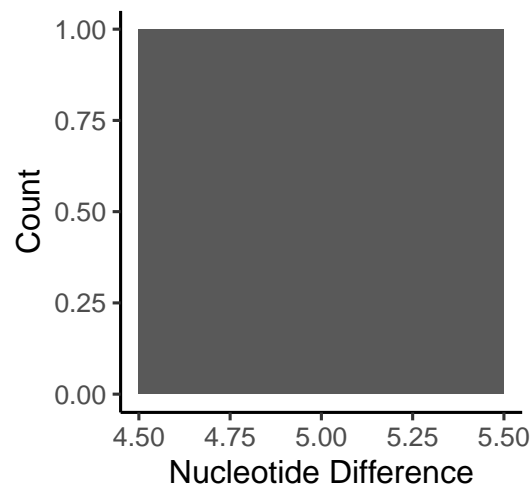
### IGHV4-28\*02\_05

6 sequences assigned  
2 (33.3%) exact matches, in which:  
2 unique CDR3  
2 unique J



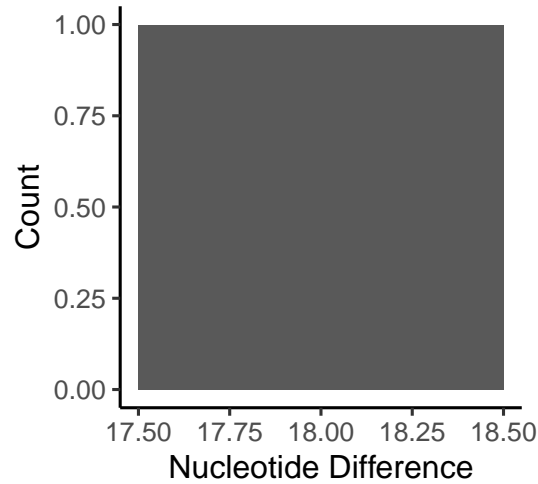
### IGHV4-30-2\*04

1 sequences assigned  
No exact matches.



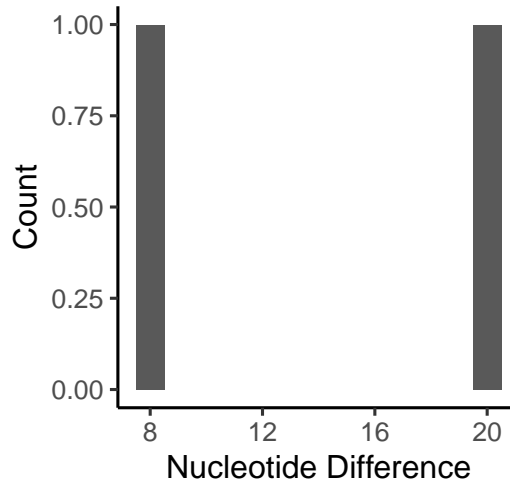
### IGHV4-30-4\*07

1 sequences assigned  
No exact matches.



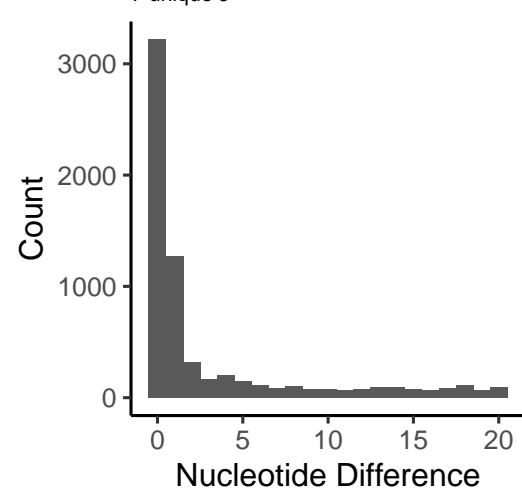
### IGHV4-38-2\*01

2 sequences assigned  
No exact matches.



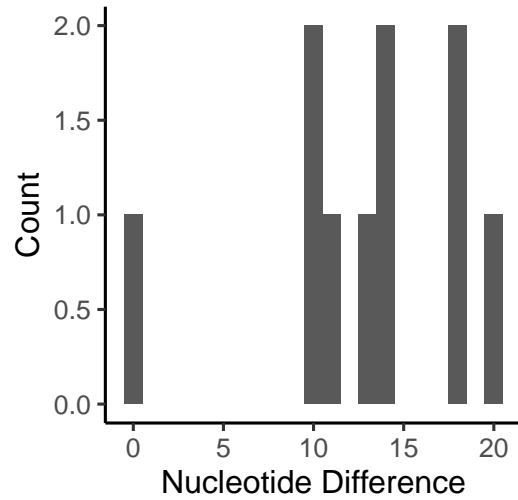
### IGHV4-39\*01\_05

8584 sequences assigned  
3219 (37.5%) exact matches, in which:  
3094 unique CDR3  
7 unique J



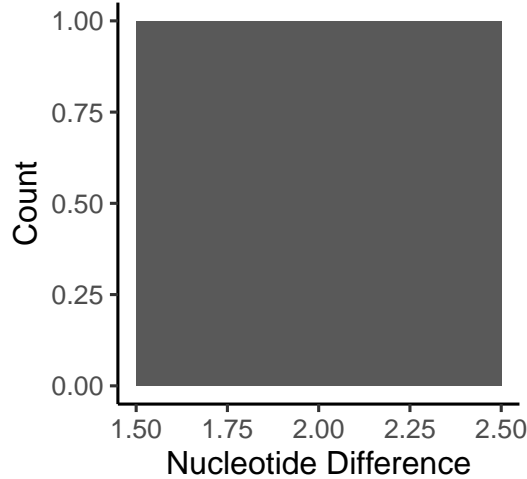
### IGHV4-31\*03\_04

19 sequences assigned  
1 (5.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



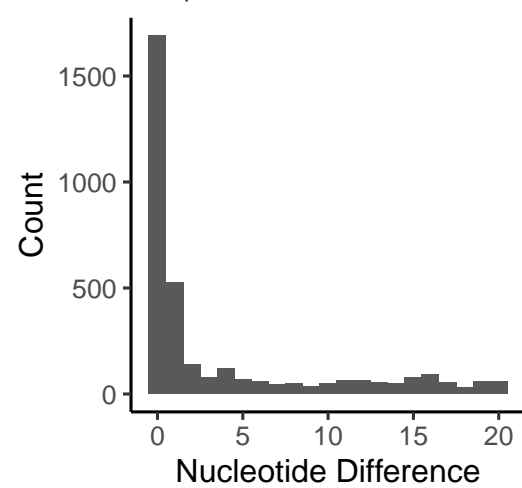
### IGHV4-38-2\*02

2 sequences assigned  
No exact matches.



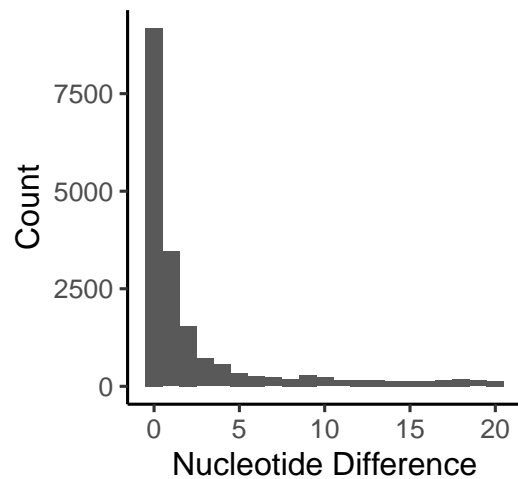
### IGHV4-59\*01\_07

4196 sequences assigned  
1690 (40.3%) exact matches, in which:  
1630 unique CDR3  
7 unique J



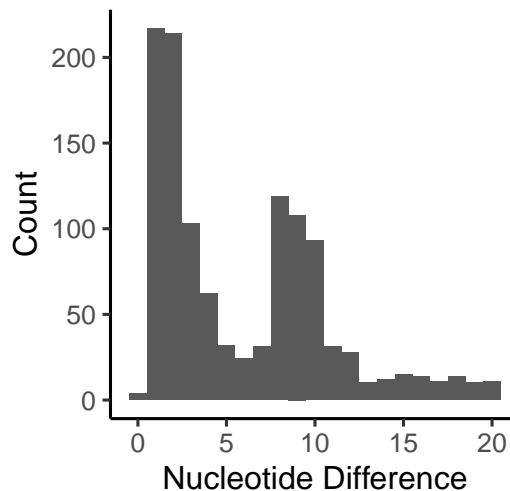
### IGHV4-34\*01\_02

20676 sequences assigned  
9181 (44.4%) exact matches, in which:  
8719 unique CDR3  
7 unique J



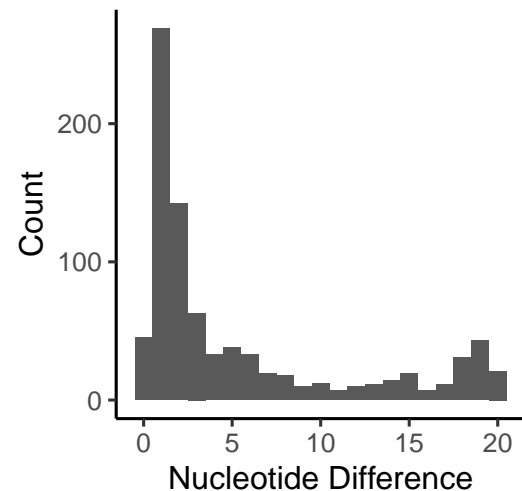
### IGHV4-39\*07

1296 sequences assigned  
4 (0.3%) exact matches, in which:  
4 unique CDR3  
3 unique J



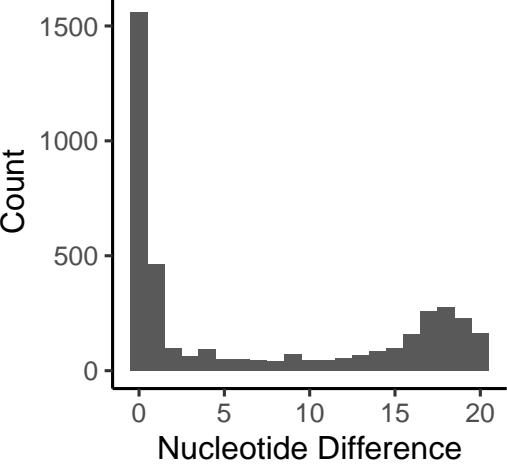
### IGHV4-59\*12

1060 sequences assigned  
45 (4.2%) exact matches, in which:  
45 unique CDR3  
6 unique J



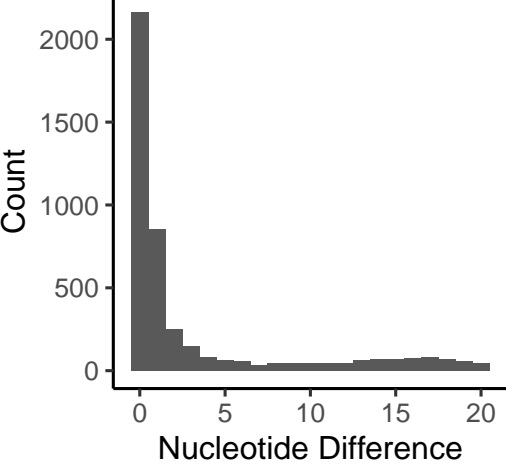
IGHV4-59\*13

5999 sequences assigned  
1559 (26%) exact matches, in which:  
1523 unique CDR3  
7 unique J



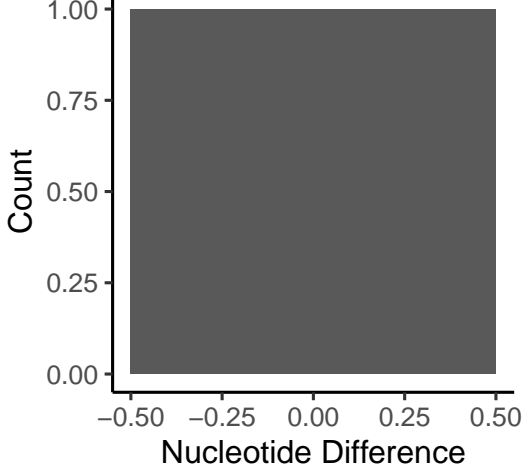
IGHV5-10-1\*01\_03

5002 sequences assigned  
2162 (43.2%) exact matches, in which:  
1968 unique CDR3  
7 unique J



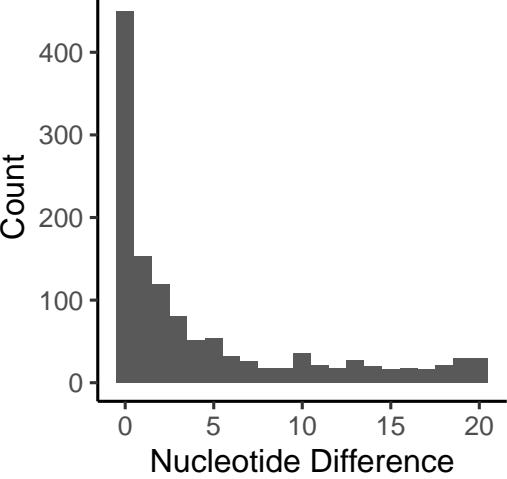
IGHV7-4-1\*02

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



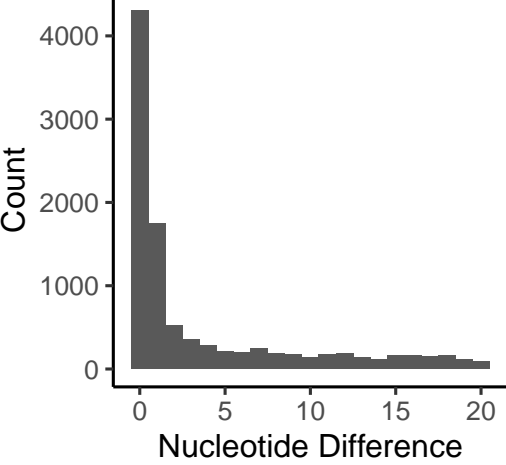
IGHV4-61\*01

1521 sequences assigned  
450 (29.6%) exact matches, in which:  
436 unique CDR3  
7 unique J



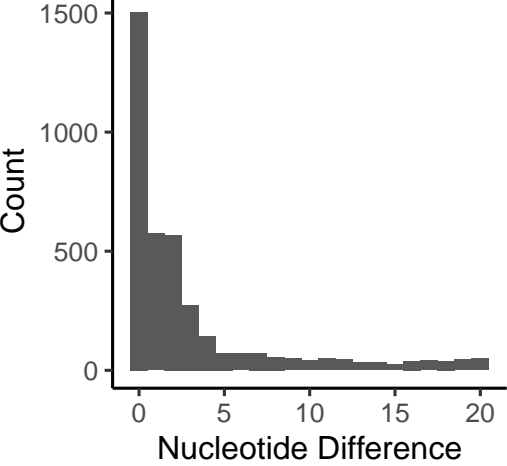
IGHV5-51\*01\_03

10618 sequences assigned  
4302 (40.5%) exact matches, in which:  
3810 unique CDR3  
7 unique J



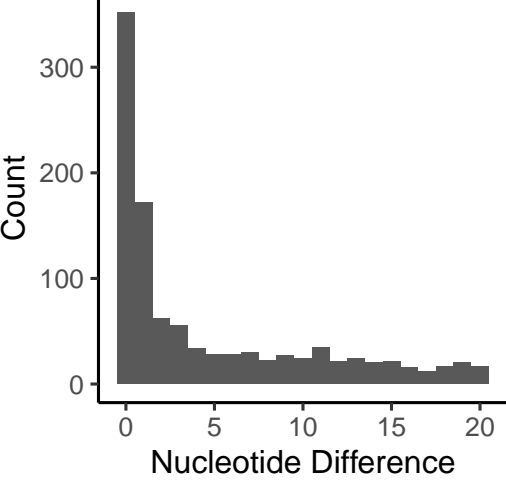
IGHV4-61\*02

4494 sequences assigned  
1504 (33.5%) exact matches, in which:  
1469 unique CDR3  
7 unique J

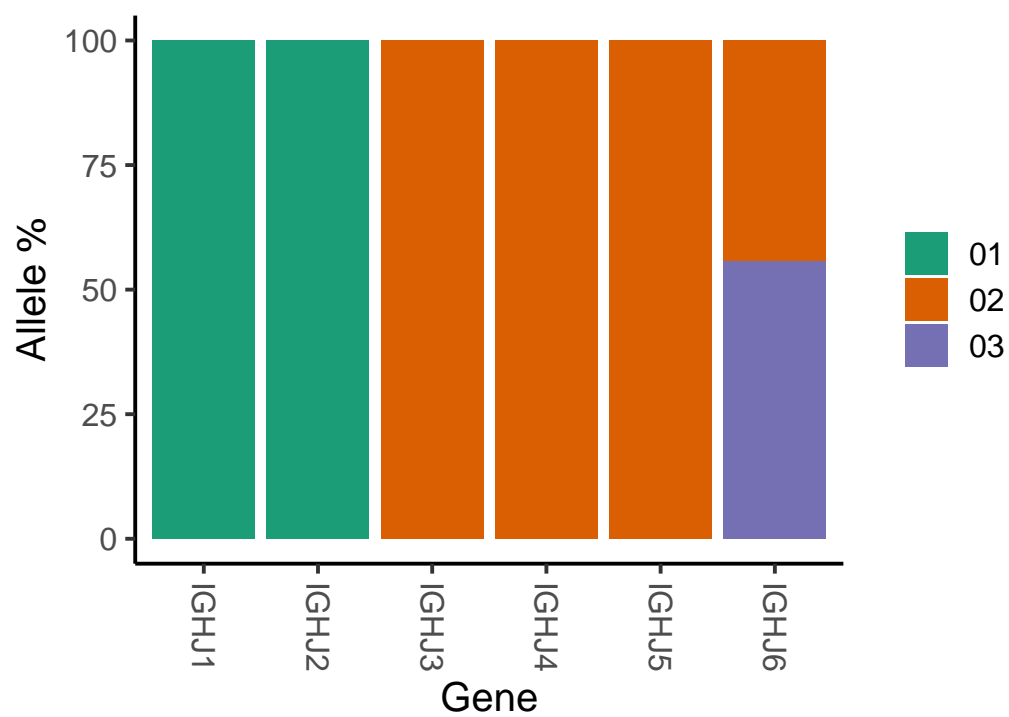


IGHV6-1\*01\_02

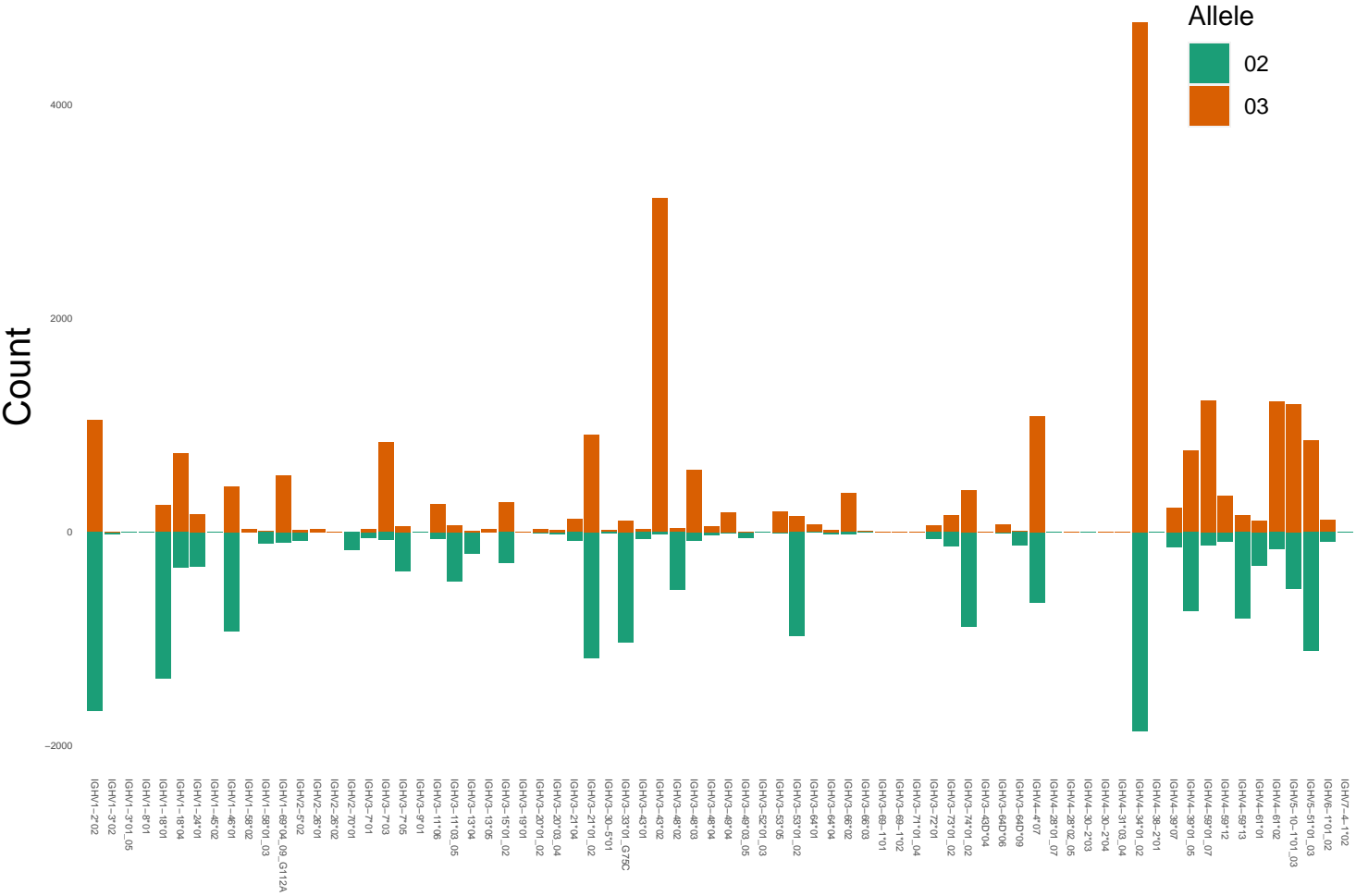
1190 sequences assigned  
352 (29.6%) exact matches, in which:  
339 unique CDR3  
7 unique J



Allele Usage



Sequence Count by IGHJ6 allele usage



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.

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

Novel sequence(s) IGHV1-69\*04\_09\_G112A 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.

Novel sequence(s) IGHV1-69\*08\_C191T IGHV3-30\*03\_T288C IGHV3-30-3\*02\_G75C IGHV4-59\*02\_G88A IGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV4-59\*02\_G88A IGHV5-51\*07\_A128G 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.

Novel sequence(s) IGHV4-4\*02\_03\_C300T IGHV5-51\*07\_A128G 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.

Novel sequence(s) IGHV4-59\*02\_G88A are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV1-69\*08\_C191T IGHV3-11\*06\_T300C IGHV3-30\*03\_T288C IGHV4-59\*02\_G88A IGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV4-59\*02\_G88A IGHV5-51\*07\_A128G 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) IGHV3-30\*03\_T288C IGHV3-30-3\*01\_T288C 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) IGHV3-48\*04\_A193T\_C198T\_A200C\_C201T\_T210A are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV4-59\*02\_G88A 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.

Novel sequence(s) IGHV3-33\*01\_C288T IGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

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

Novel sequence(s) IGHV3-33\*01\_T105C\_A173T\_T192G\_C288T are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV3-30\*04\_T288C IGHV3-33\*01\_G75C IGHV4-30-2\*03\_T288C IGHV4-59\*02\_G88A are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV3-11\*06\_T300C 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.

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

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