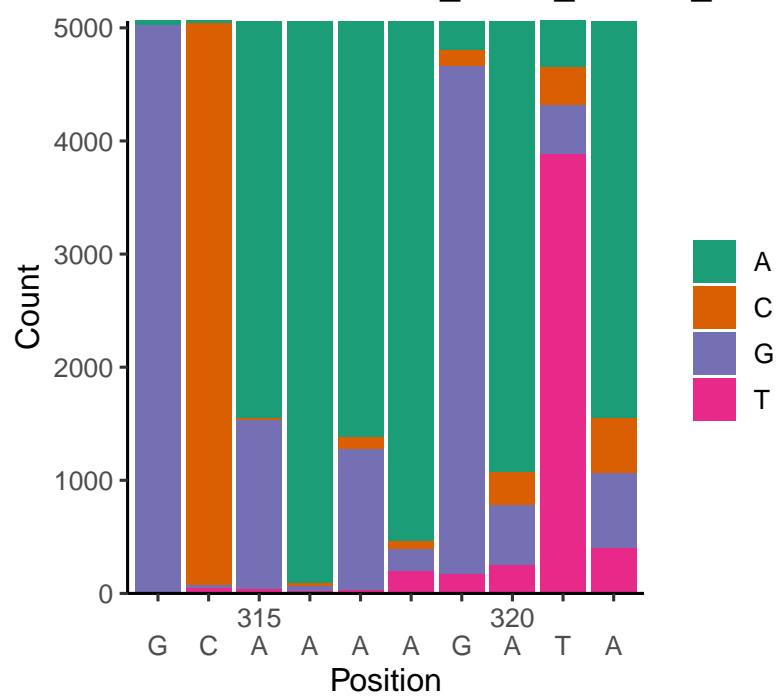
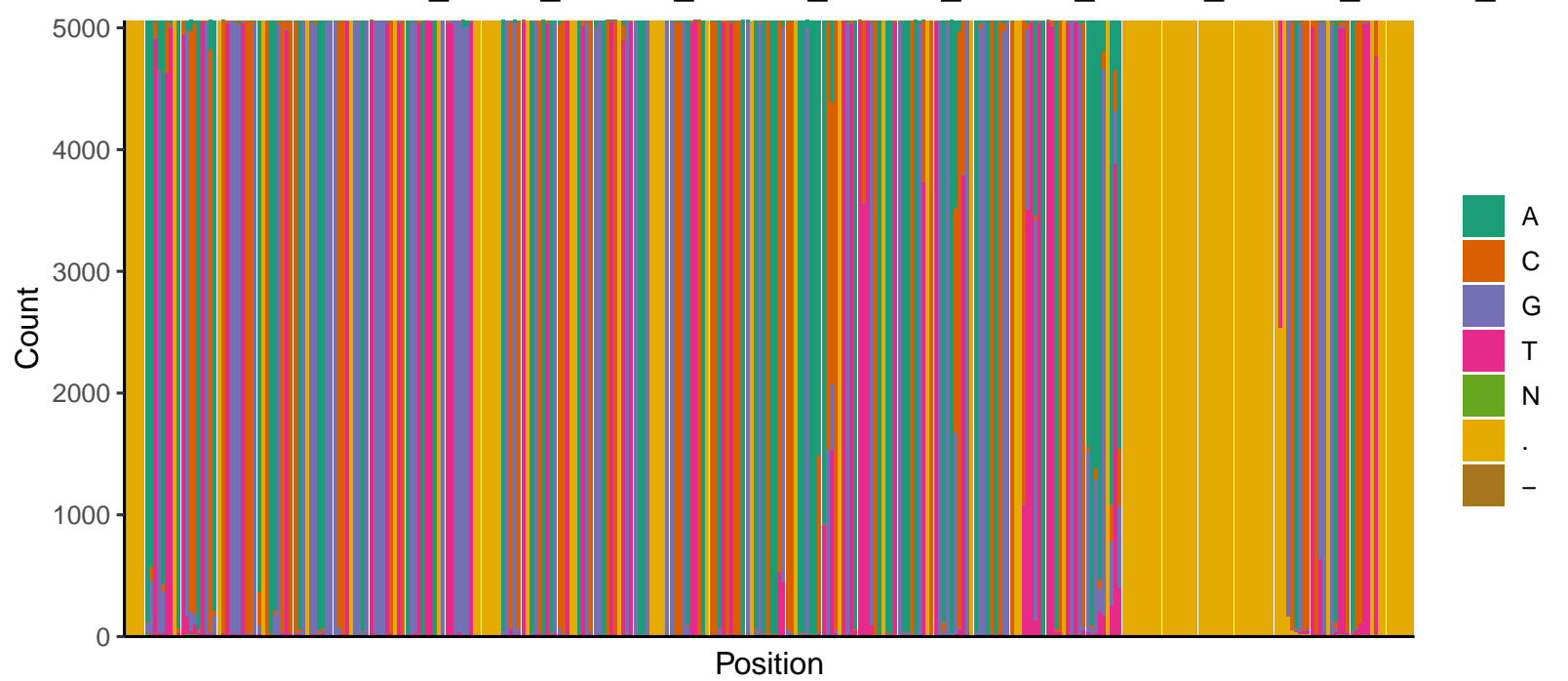
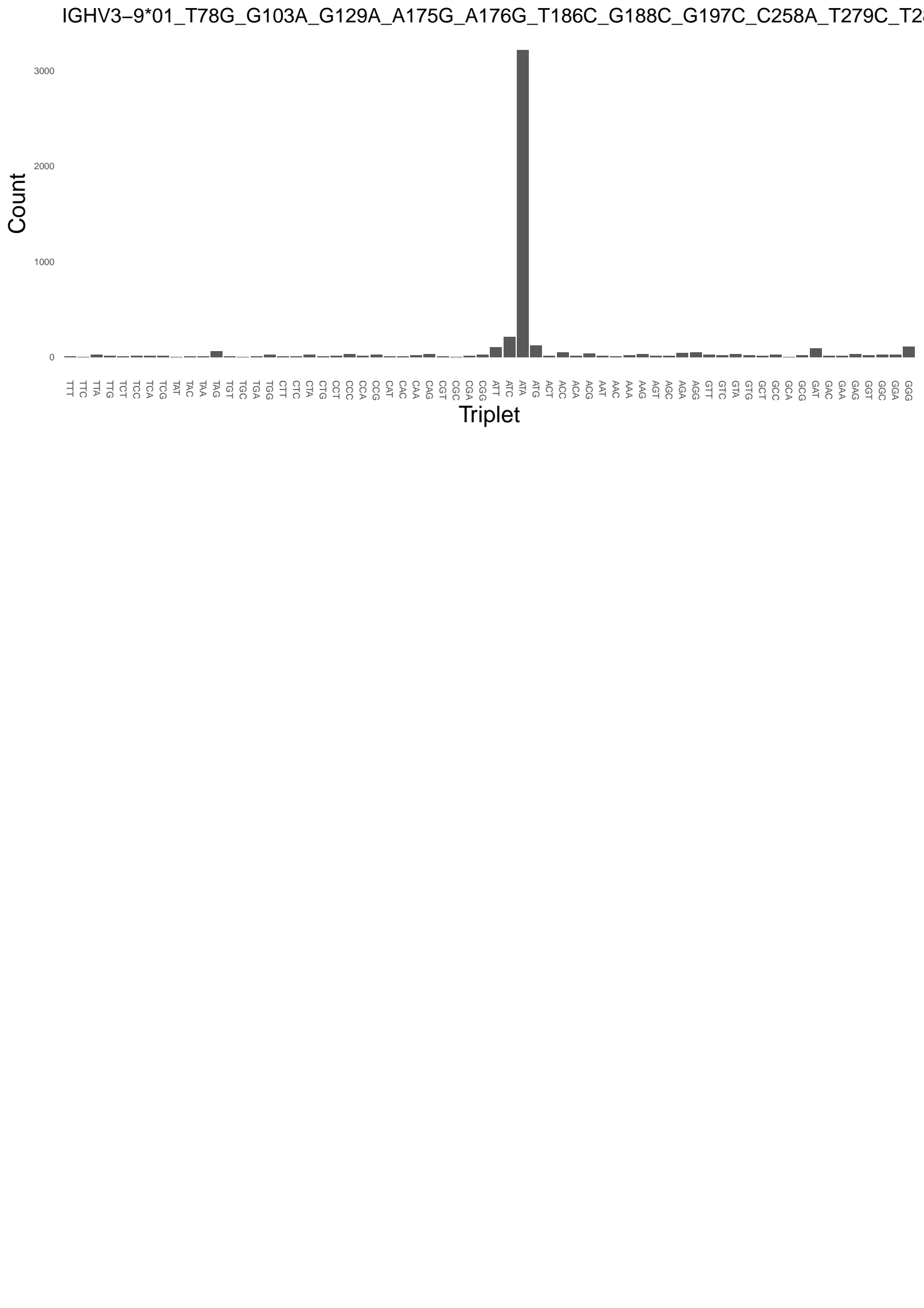


Gene IGHV3-9\*01\_T78G\_G103A\_G129A\_A175G\_A176G\_T186C\_G188C\_G197C\_C258



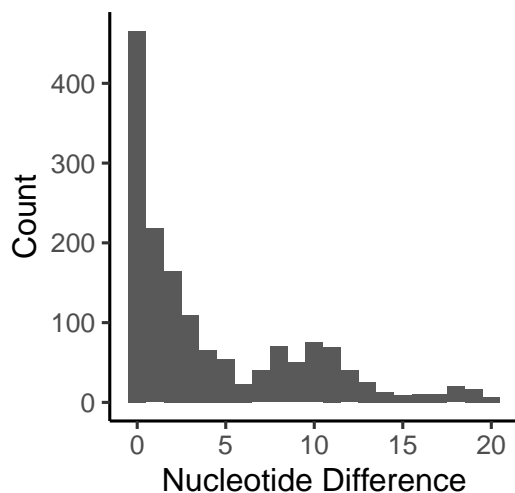
Gene IGHV3-9\*01\_T78G\_G103A\_G129A\_A175G\_A176G\_T186C\_G188C\_G197C\_C258





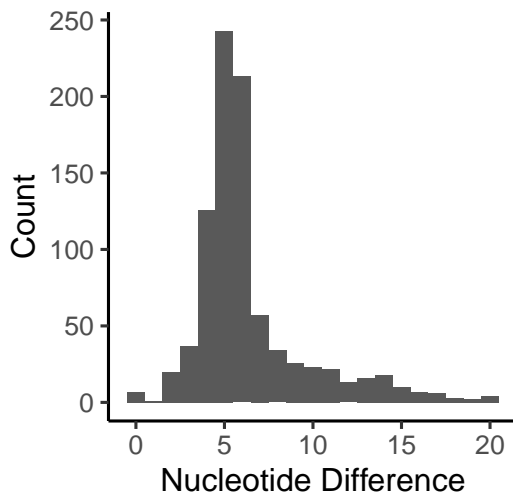
### IGHV1-2\*04

1687 sequences assigned  
466 (27.6%) exact matches, in which:  
434 unique CDR3  
6 unique J



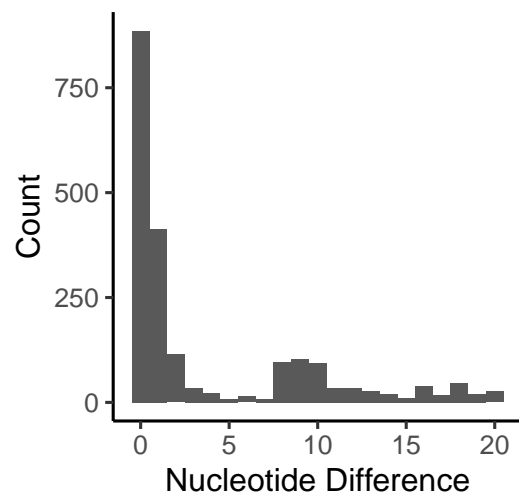
### IGHV1-8\*02

900 sequences assigned  
7 (0.8%) exact matches, in which:  
7 unique CDR3  
3 unique J



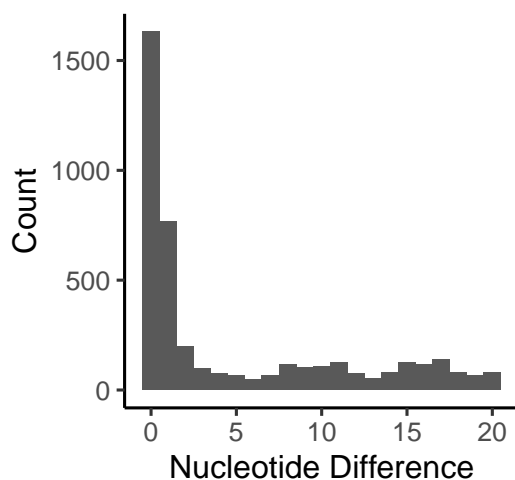
### IGHV1-24\*01

2266 sequences assigned  
886 (39.1%) exact matches, in which:  
821 unique CDR3  
6 unique J



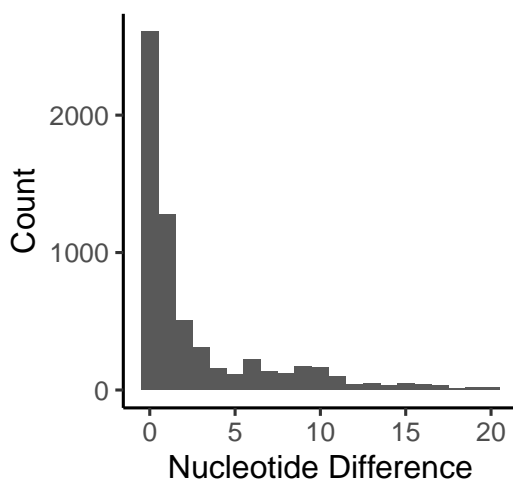
### IGHV1-3\*01\_05

4624 sequences assigned  
1631 (35.3%) exact matches, in which:  
1493 unique CDR3  
6 unique J



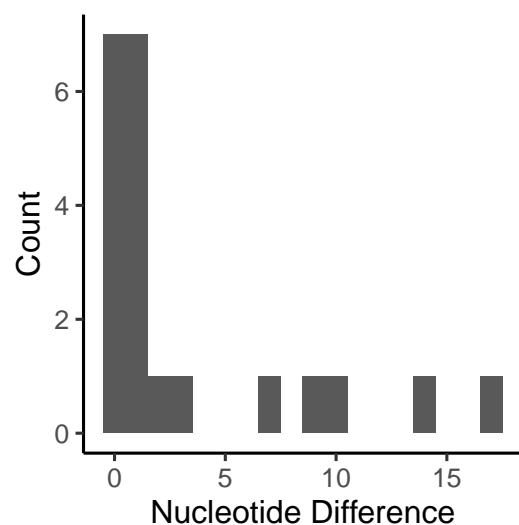
### IGHV1-18\*01

7587 sequences assigned  
2607 (34.4%) exact matches, in which:  
2416 unique CDR3  
6 unique J



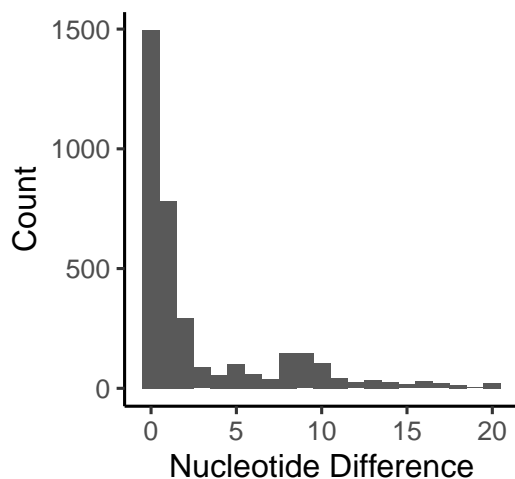
### IGHV1-45\*02

21 sequences assigned  
7 (33.3%) exact matches, in which:  
7 unique CDR3  
3 unique J



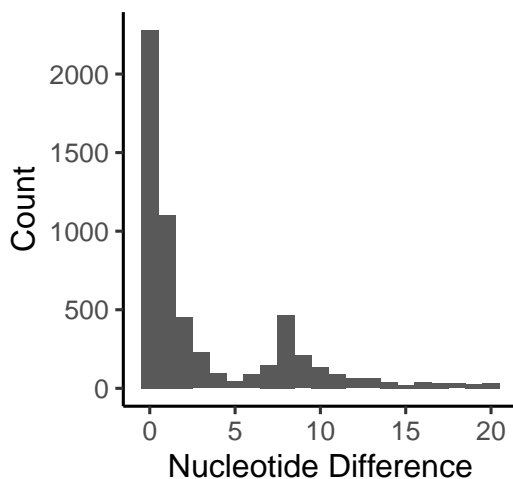
### IGHV1-8\*01

3730 sequences assigned  
1496 (40.1%) exact matches, in which:  
1387 unique CDR3  
6 unique J



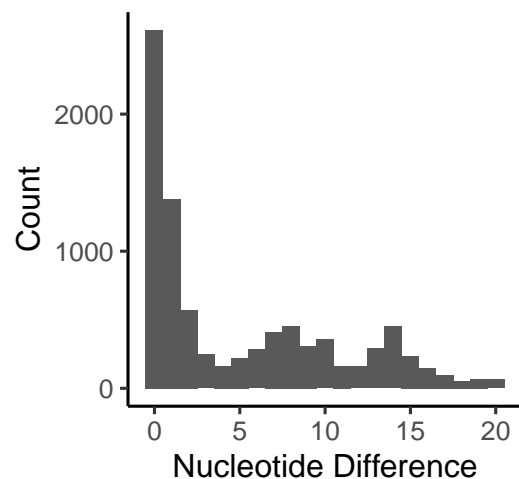
### IGHV1-18\*04

6790 sequences assigned  
2280 (33.6%) exact matches, in which:  
2131 unique CDR3  
6 unique J



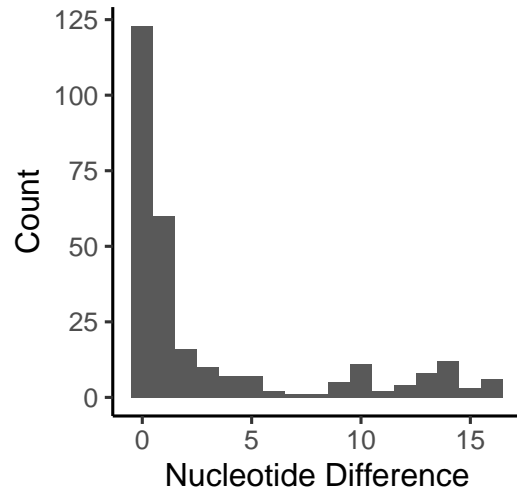
### IGHV1-46\*01

9220 sequences assigned  
2613 (28.3%) exact matches, in which:  
2397 unique CDR3  
6 unique J



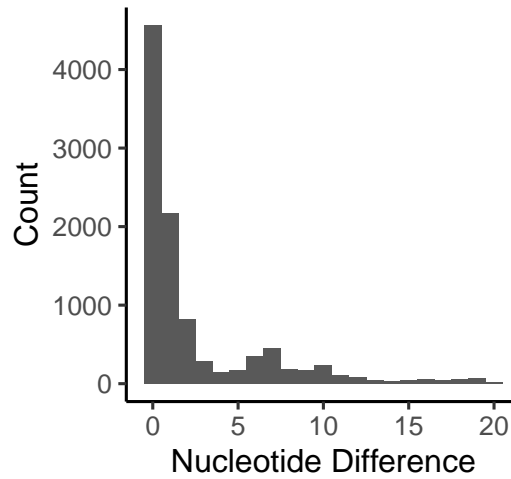
### IGHV1-58\*02

319 sequences assigned  
123 (38.6%) exact matches, in which:  
115 unique CDR3  
5 unique J



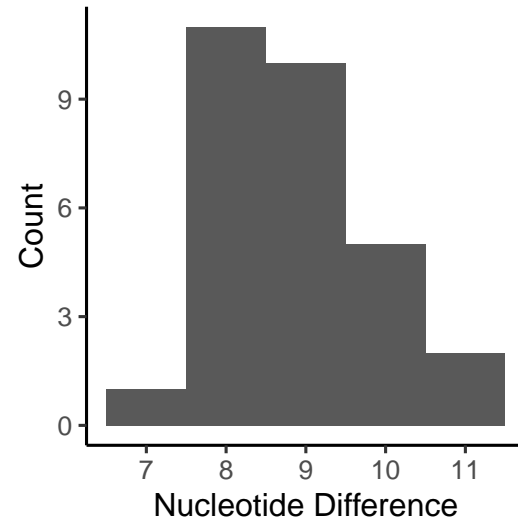
### IGHV1-69\*01\_12\_13

10549 sequences assigned  
4562 (43.2%) exact matches, in which:  
4259 unique CDR3  
6 unique J



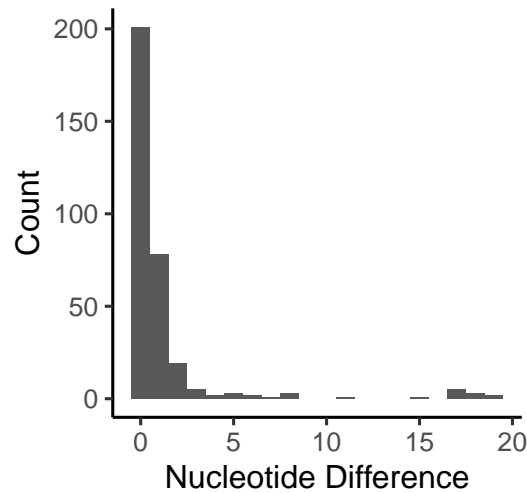
### IGHV1-NL1\*01

29 sequences assigned  
No exact matches.



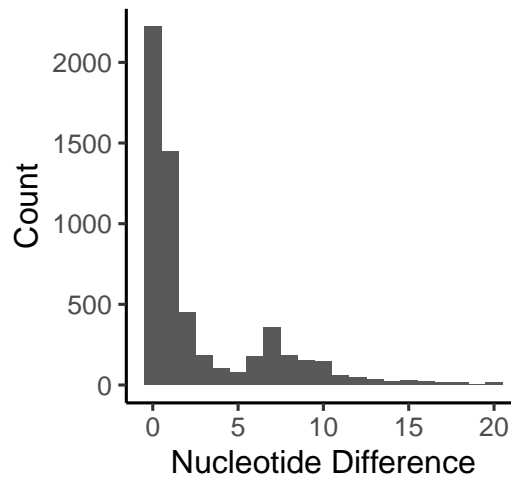
### IGHV1-58\*01\_03

336 sequences assigned  
201 (59.8%) exact matches, in which:  
179 unique CDR3  
6 unique J



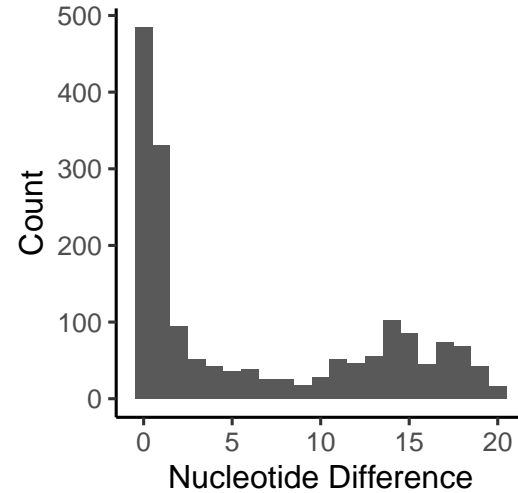
### IGHV1-69\*04\_09

6334 sequences assigned  
2221 (35.1%) exact matches, in which:  
2093 unique CDR3  
6 unique J



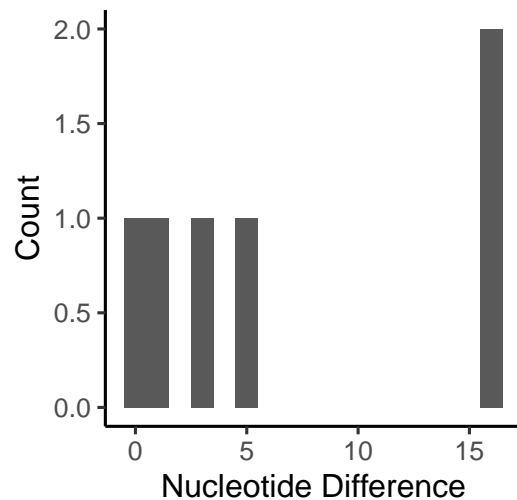
### IGHV2-5\*02

1999 sequences assigned  
485 (24.3%) exact matches, in which:  
445 unique CDR3  
6 unique J



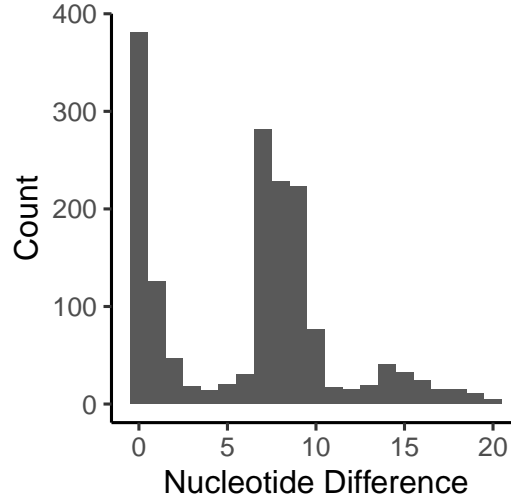
### IGHV1-68\*01

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



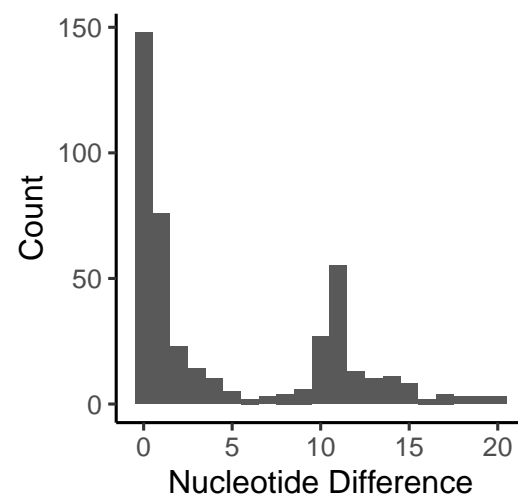
### IGHV1-69\*06\_14

1673 sequences assigned  
381 (22.8%) exact matches, in which:  
374 unique CDR3  
6 unique J



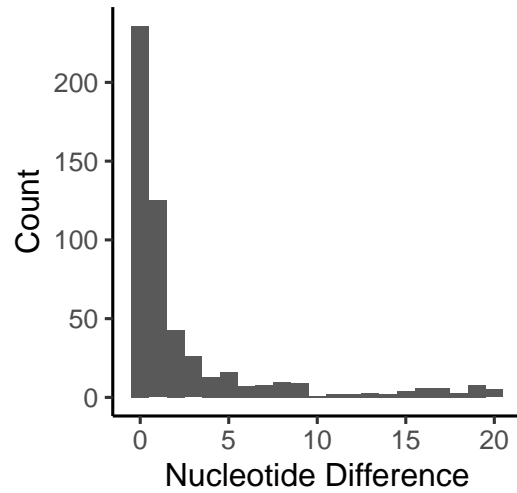
### IGHV2-26\*01

437 sequences assigned  
148 (33.9%) exact matches, in which:  
138 unique CDR3  
5 unique J



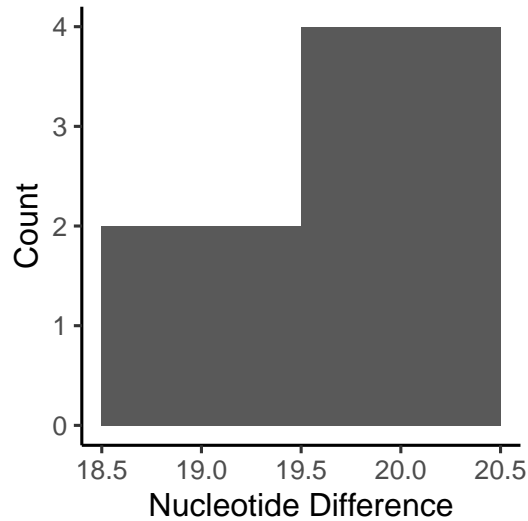
### IGHV2-70\*01

587 sequences assigned  
236 (40.2%) exact matches, in which:  
218 unique CDR3  
6 unique J



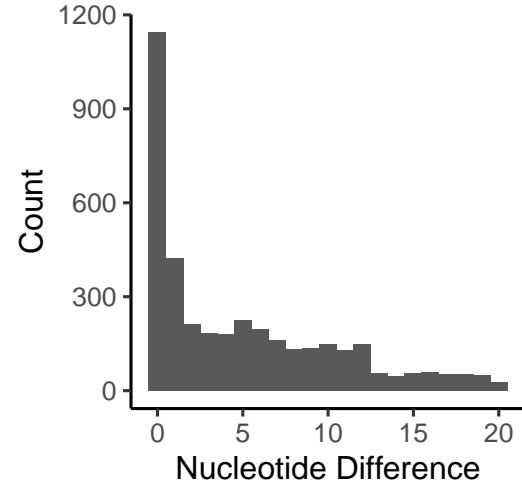
### IGHV2-70D\*04

58 sequences assigned  
No exact matches.



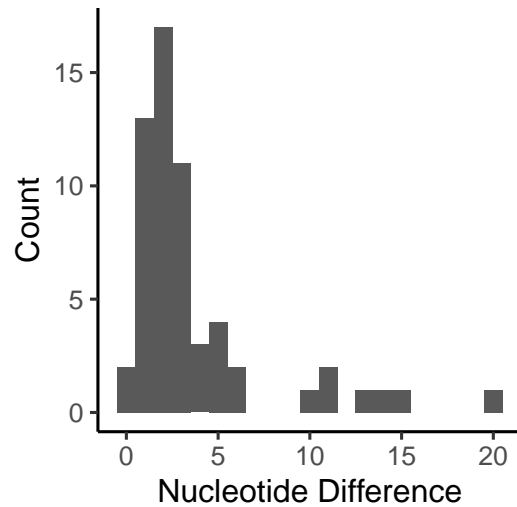
### IGHV3-9\*01

4551 sequences assigned  
1144 (25.1%) exact matches, in which:  
878 unique CDR3  
6 unique J



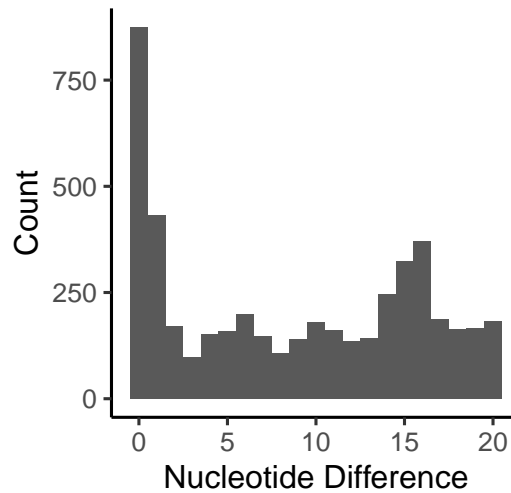
### IGHV2-70\*12

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



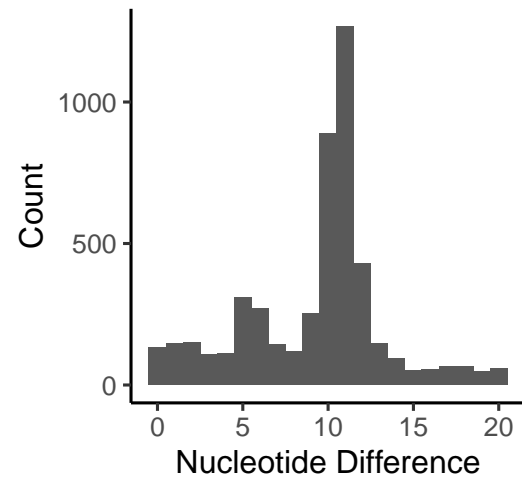
### IGHV3-7\*01

5488 sequences assigned  
875 (15.9%) exact matches, in which:  
697 unique CDR3  
6 unique J



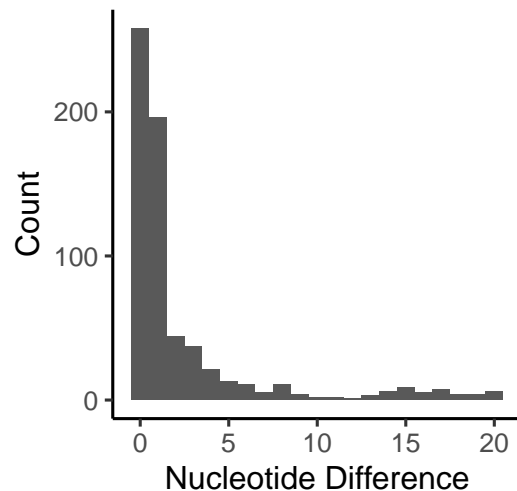
### IGHV3-9\*01\_T78G\_G10

5061 sequences assigned  
133 (2.6%) exact matches, in which:  
130 unique CDR3  
5 unique J



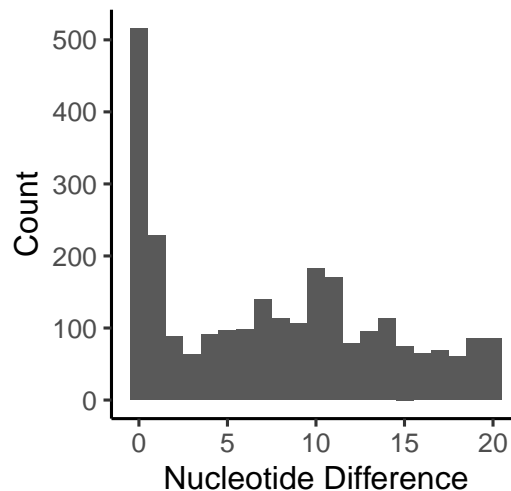
### IGHV2-70\*11\_15

701 sequences assigned  
258 (36.8%) exact matches, in which:  
238 unique CDR3  
6 unique J



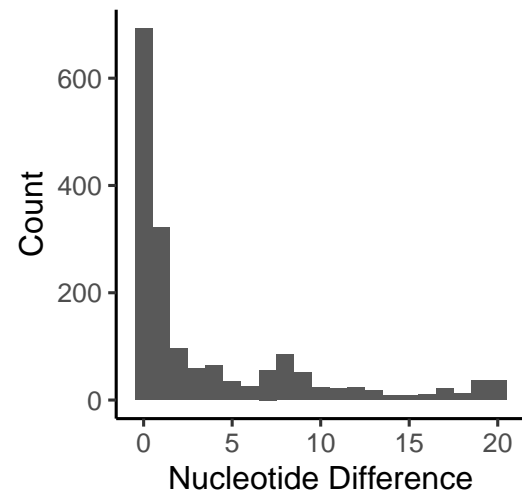
### IGHV3-7\*03

3304 sequences assigned  
516 (15.6%) exact matches, in which:  
415 unique CDR3  
6 unique J



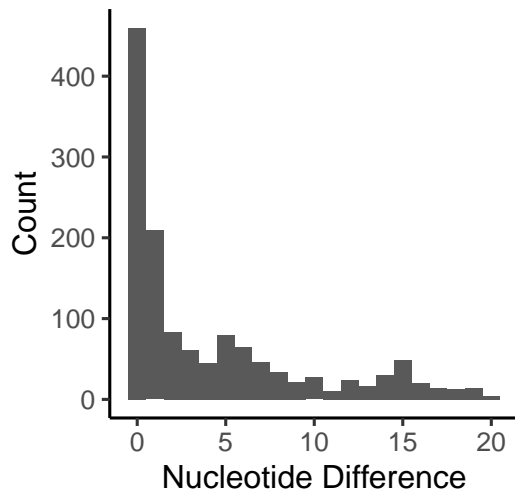
### IGHV3-11\*01

2205 sequences assigned  
693 (31.4%) exact matches, in which:  
533 unique CDR3  
6 unique J



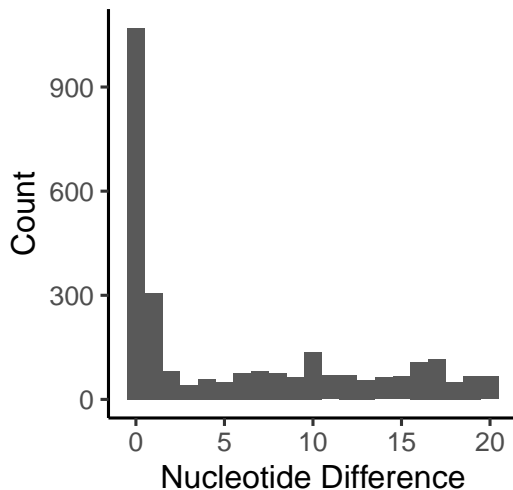
### IGHV3-11\*06

1636 sequences assigned  
460 (28.1%) exact matches, in which:  
372 unique CDR3  
6 unique J



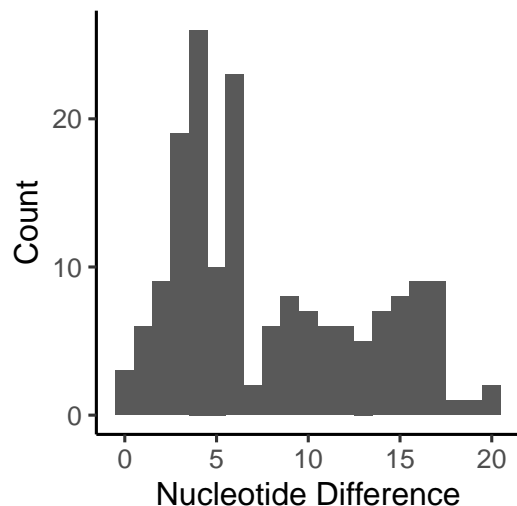
### IGHV3-15\*01\_02

3547 sequences assigned  
1071 (30.2%) exact matches, in which:  
836 unique CDR3  
6 unique J



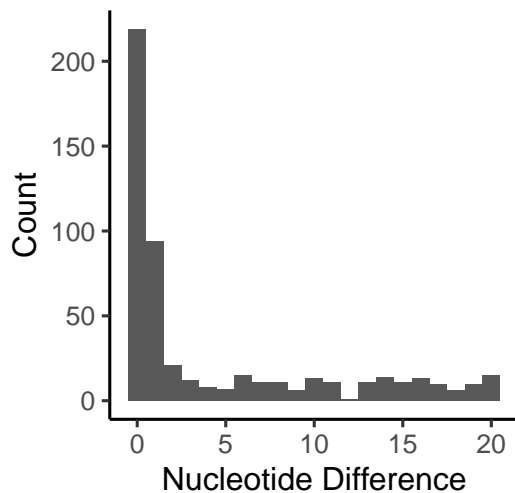
### IGHV3-20\*03\_04

228 sequences assigned  
3 (1.3%) exact matches, in which:  
3 unique CDR3  
1 unique J



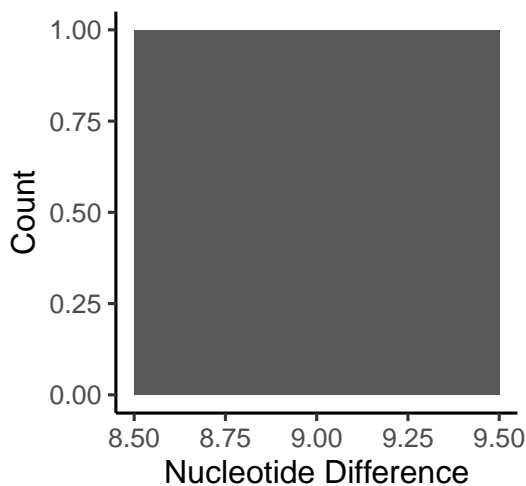
### IGHV3-13\*01

732 sequences assigned  
219 (29.9%) exact matches, in which:  
171 unique CDR3  
5 unique J



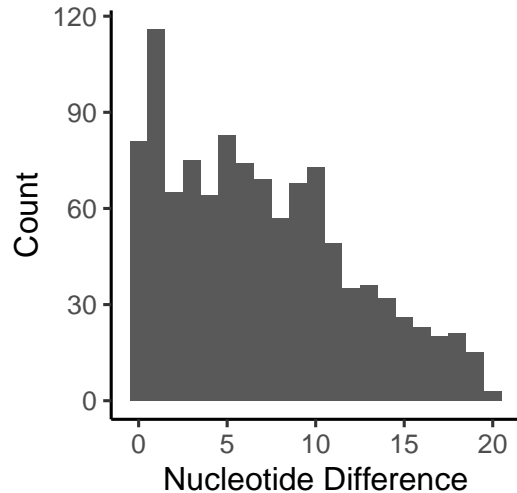
### IGHV3-19\*01

1 sequences assigned  
No exact matches.



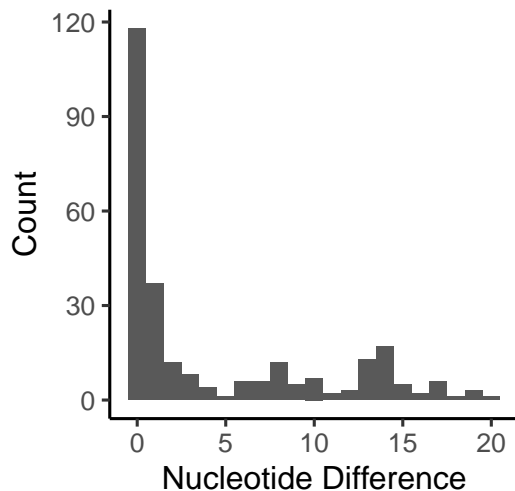
### IGHV3-21\*04

1236 sequences assigned  
81 (6.6%) exact matches, in which:  
80 unique CDR3  
6 unique J



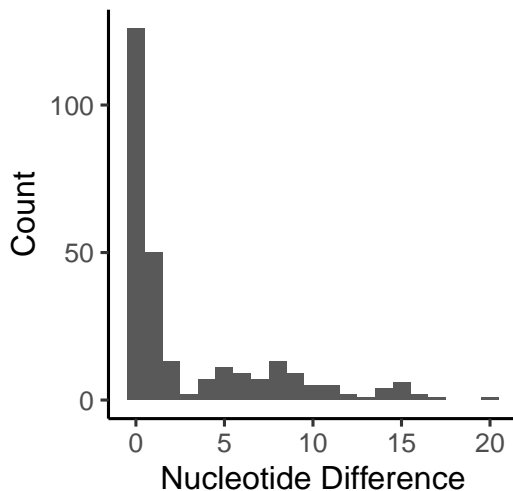
### IGHV3-13\*05

292 sequences assigned  
118 (40.4%) exact matches, in which:  
90 unique CDR3  
5 unique J



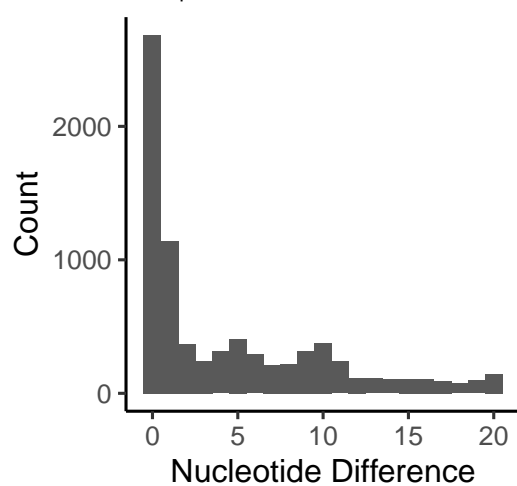
### IGHV3-20\*01\_02

337 sequences assigned  
126 (37.4%) exact matches, in which:  
88 unique CDR3  
6 unique J



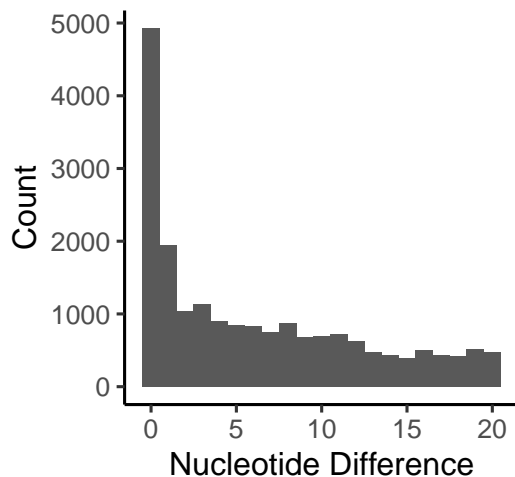
### IGHV3-21\*01\_02

8794 sequences assigned  
2684 (30.5%) exact matches, in which:  
2035 unique CDR3  
6 unique J



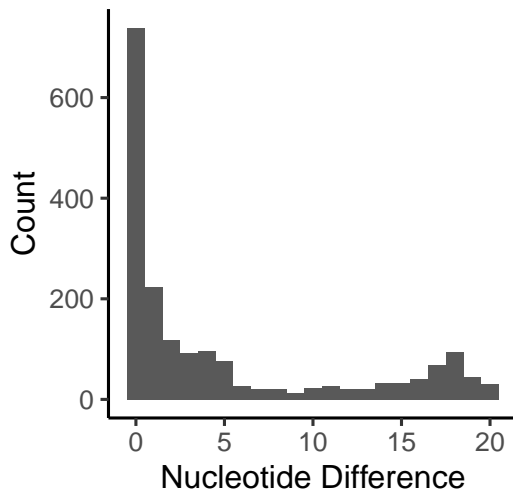
### IGHV3-23\*01\_04

24815 sequences assigned  
4926 (19.9%) exact matches, in which:  
3533 unique CDR3  
6 unique J



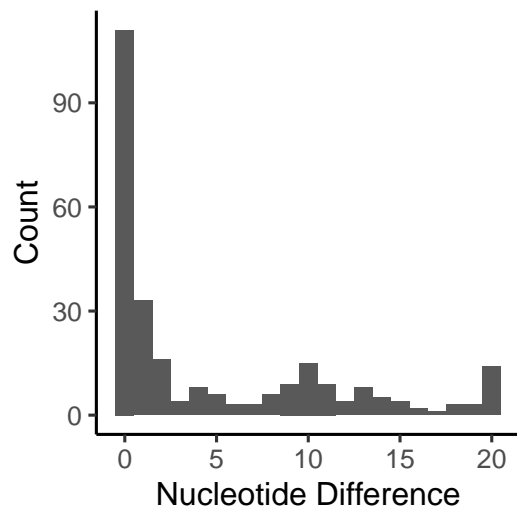
### IGHV3-33\*06

2073 sequences assigned  
739 (35.6%) exact matches, in which:  
575 unique CDR3  
6 unique J



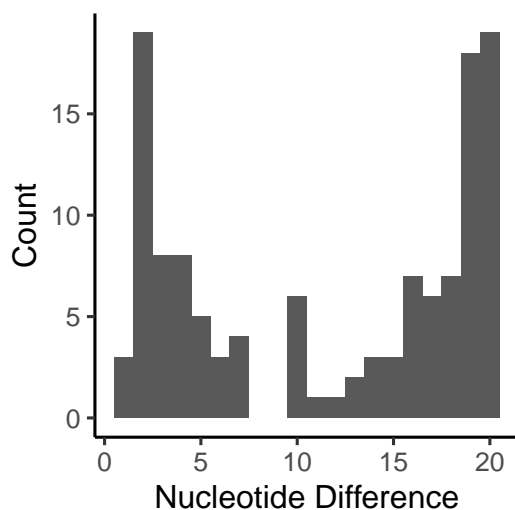
### IGHV3-43\*01

406 sequences assigned  
111 (27.3%) exact matches, in which:  
94 unique CDR3  
6 unique J



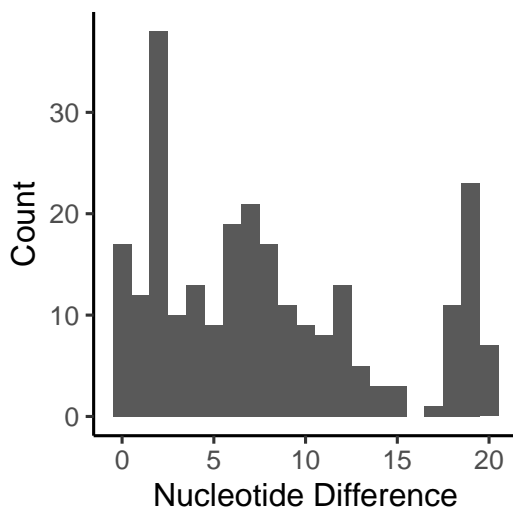
### IGHV3-30-5\*01

241 sequences assigned  
No exact matches.



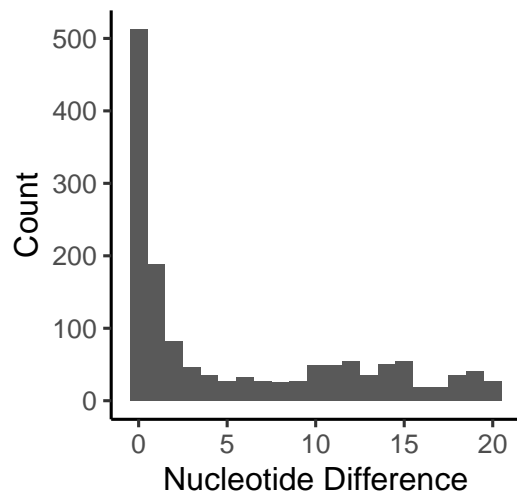
### IGHV3-33\*08

310 sequences assigned  
17 (5.5%) exact matches, in which:  
17 unique CDR3  
5 unique J



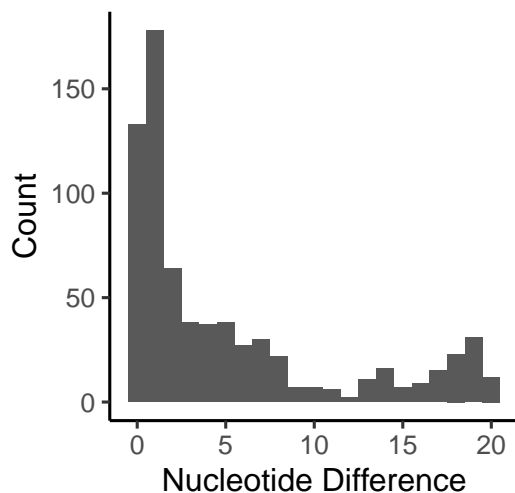
### IGHV3-43\*02

1693 sequences assigned  
513 (30.3%) exact matches, in which:  
380 unique CDR3  
6 unique J



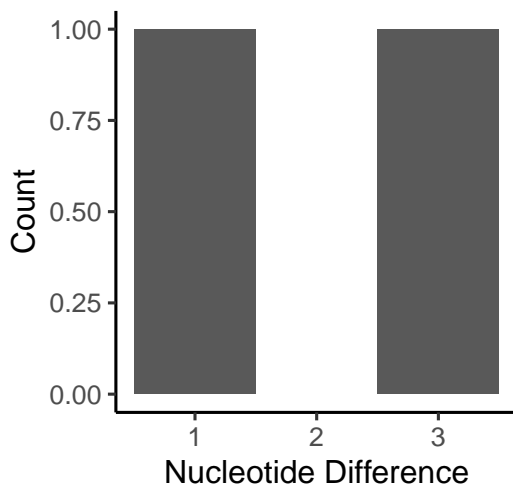
### IGHV3-33\*01

827 sequences assigned  
133 (16.1%) exact matches, in which:  
128 unique CDR3  
6 unique J



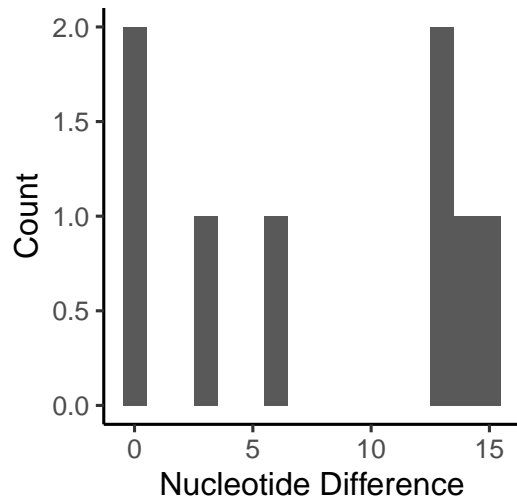
### IGHV3-35\*01

2 sequences assigned  
No exact matches.



### IGHV3-47\*02

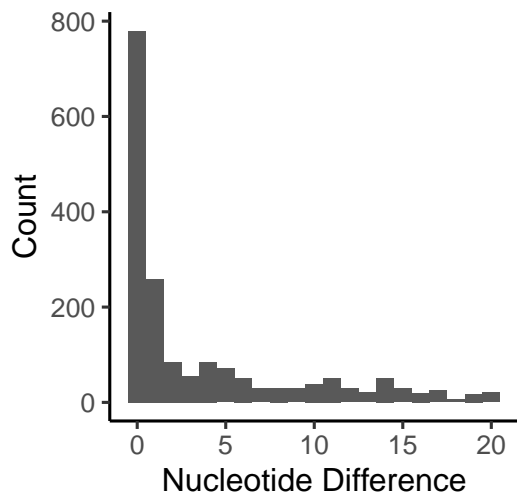
9 sequences assigned  
2 (22.2%) exact matches, in which:  
2 unique CDR3  
1 unique J





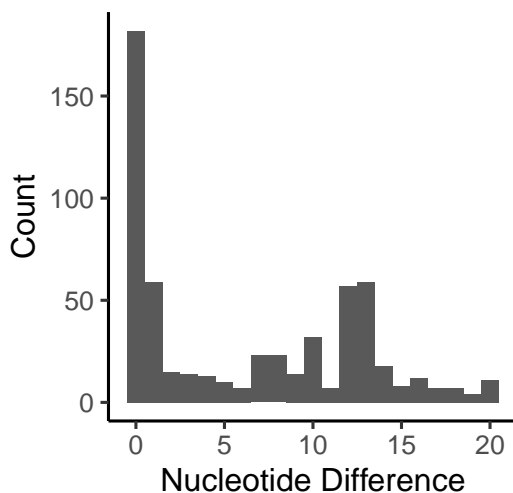
### IGHV3-48\*02

2169 sequences assigned  
780 (36%) exact matches, in which:  
587 unique CDR3  
6 unique J



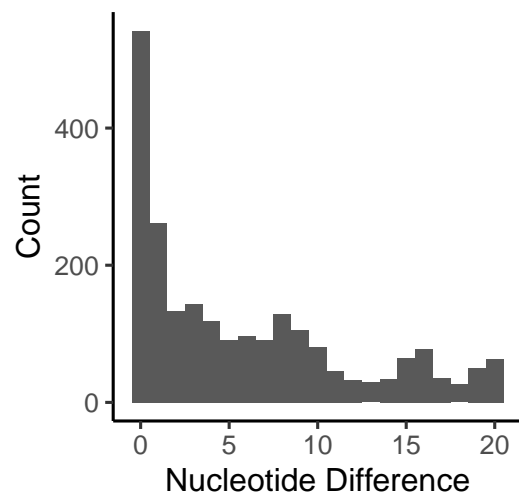
### IGHV3-49\*04

895 sequences assigned  
182 (20.3%) exact matches, in which:  
146 unique CDR3  
6 unique J



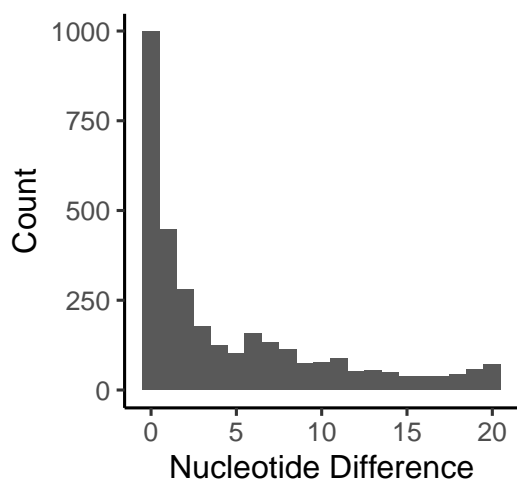
### IGHV3-53\*01\_02

2859 sequences assigned  
542 (19%) exact matches, in which:  
431 unique CDR3  
6 unique J



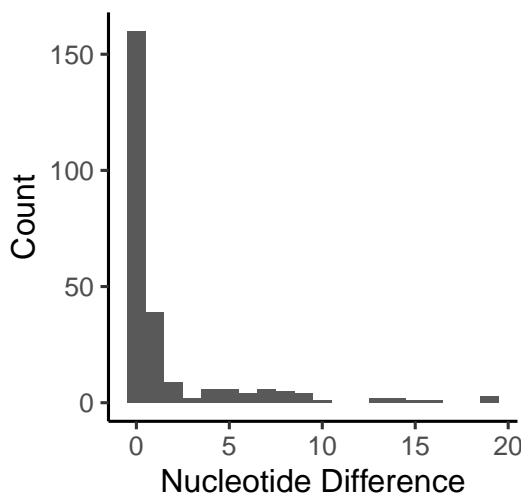
### IGHV3-48\*03

3581 sequences assigned  
998 (27.9%) exact matches, in which:  
779 unique CDR3  
6 unique J



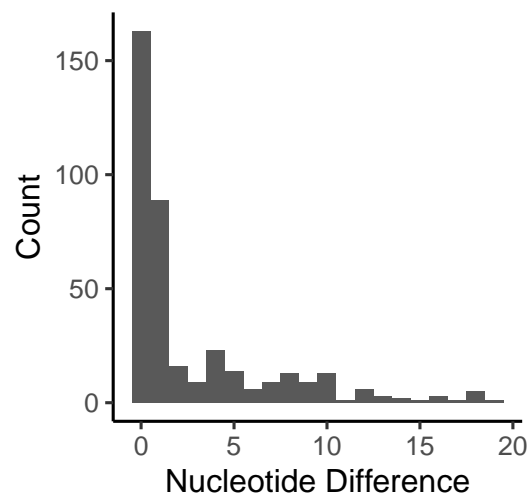
### IGHV3-49\*03\_05

324 sequences assigned  
160 (49.4%) exact matches, in which:  
128 unique CDR3  
6 unique J



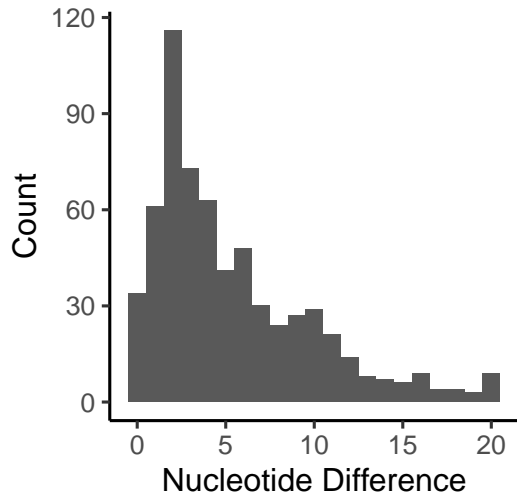
### IGHV3-64\*01

412 sequences assigned  
163 (39.6%) exact matches, in which:  
123 unique CDR3  
6 unique J



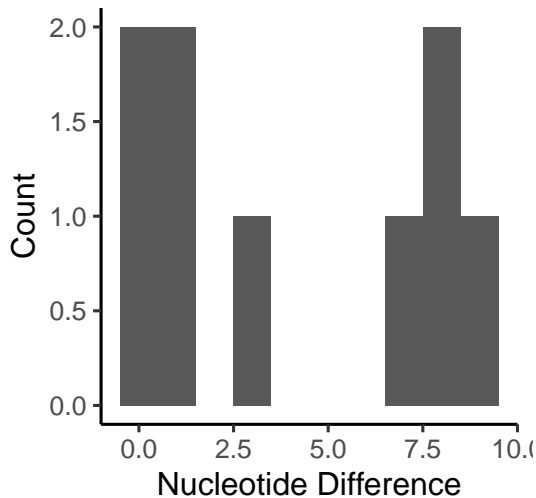
### IGHV3-48\*04

701 sequences assigned  
34 (4.9%) exact matches, in which:  
34 unique CDR3  
5 unique J



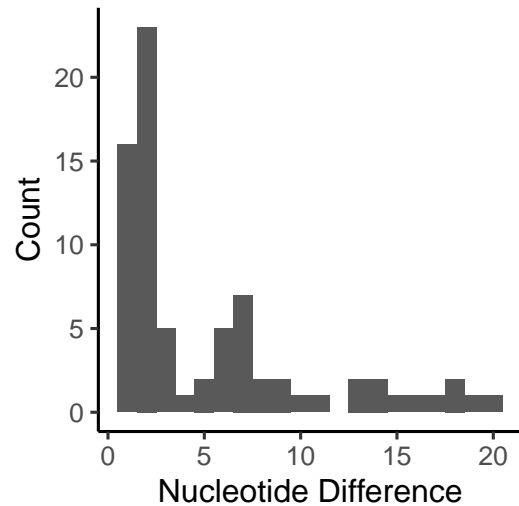
### IGHV3-52\*01\_03

9 sequences assigned  
2 (22.2%) exact matches, in which:  
1 unique CDR3  
1 unique J



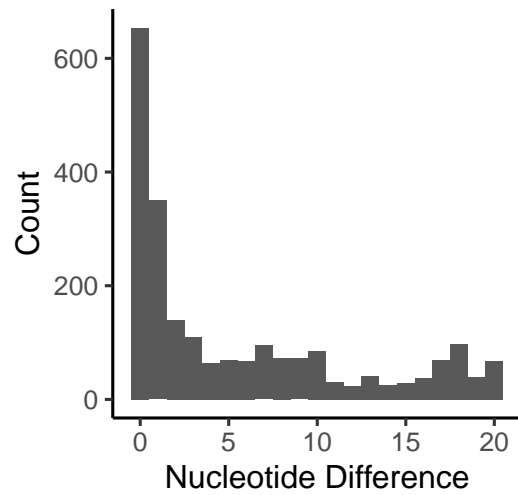
### IGHV3-64\*04

77 sequences assigned  
No exact matches.



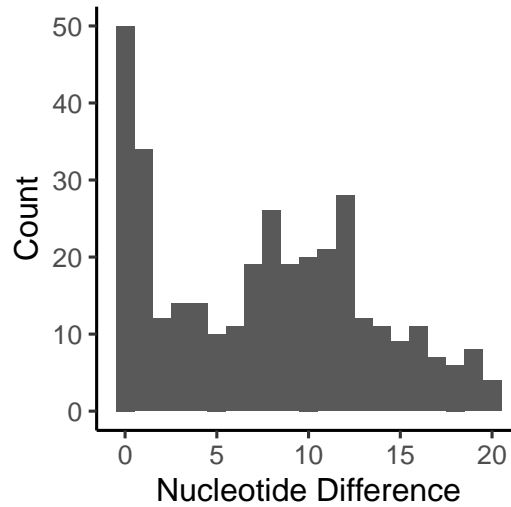
### IGHV3-66\*01

3040 sequences assigned  
654 (21.5%) exact matches, in which:  
512 unique CDR3  
6 unique J



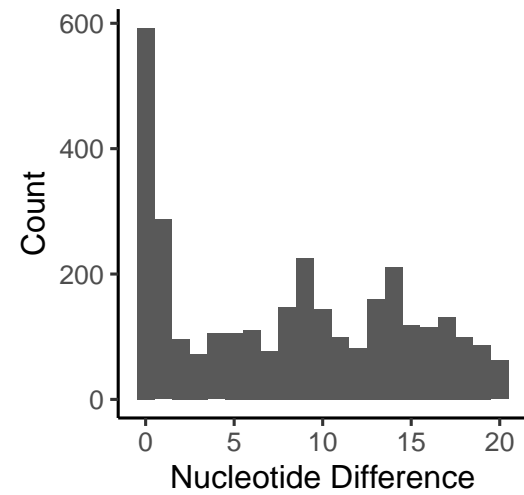
### IGHV3-72\*01

540 sequences assigned  
50 (9.3%) exact matches, in which:  
39 unique CDR3  
4 unique J



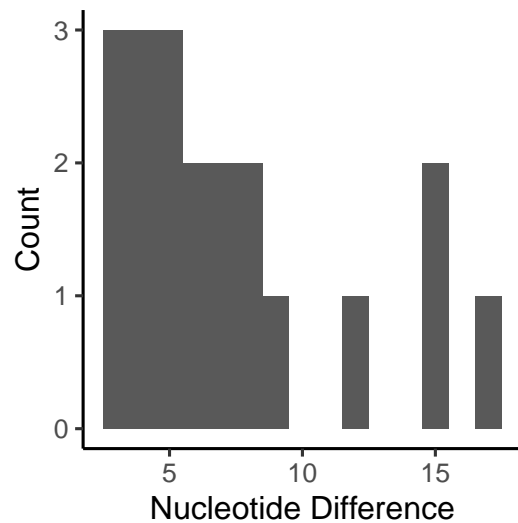
### IGHV3-74\*01\_02

3616 sequences assigned  
593 (16.4%) exact matches, in which:  
452 unique CDR3  
6 unique J



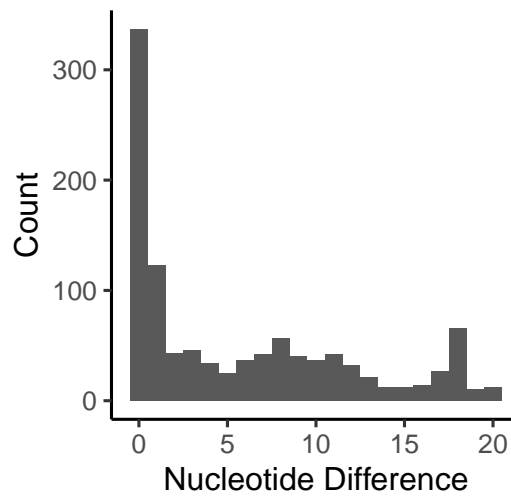
### IGHV3-69-1\*01

25 sequences assigned  
No exact matches.



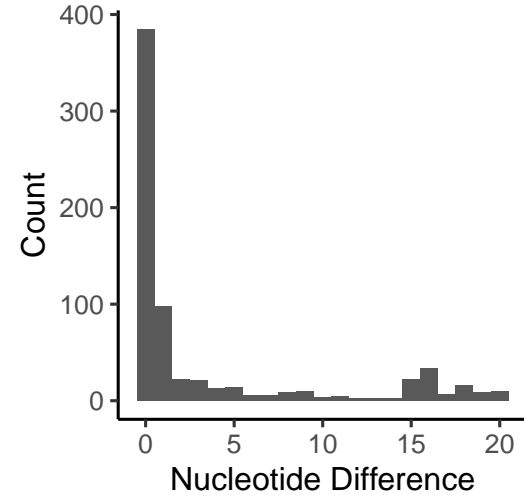
### IGHV3-73\*01\_02

1196 sequences assigned  
337 (28.2%) exact matches, in which:  
268 unique CDR3  
6 unique J



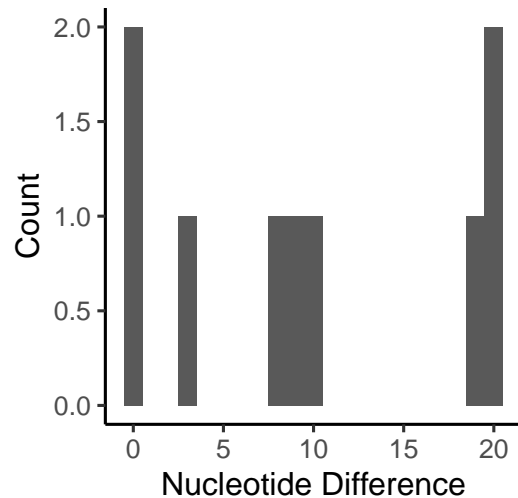
### IGHV3-64D\*06

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



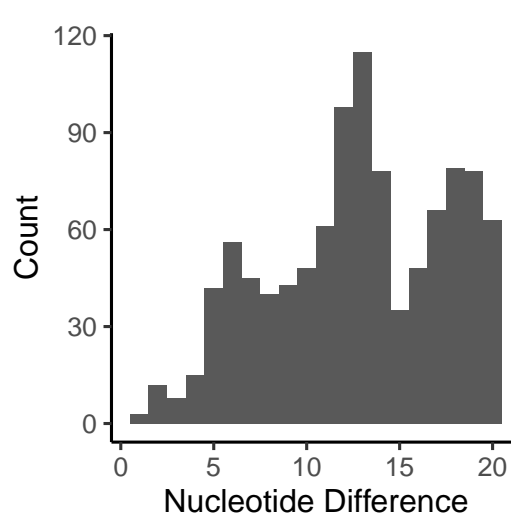
### IGHV3-69-1\*02

19 sequences assigned  
2 (10.5%) exact matches, in which:  
1 unique CDR3  
1 unique J



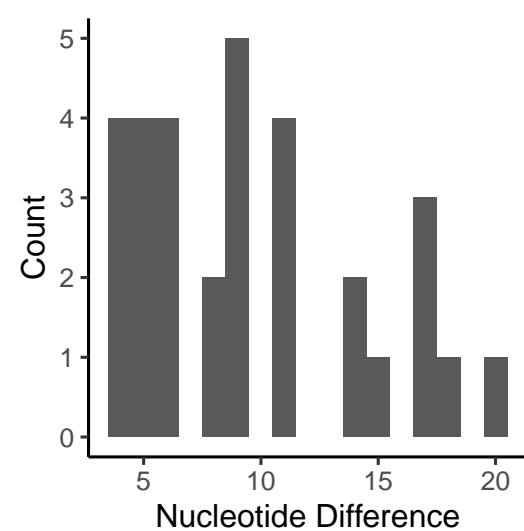
### IGHV3-74\*03

2030 sequences assigned  
No exact matches.



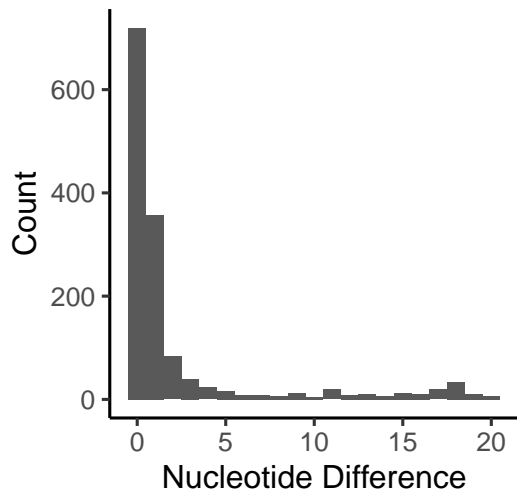
### IGHV3-NL1\*01

37 sequences assigned  
No exact matches.



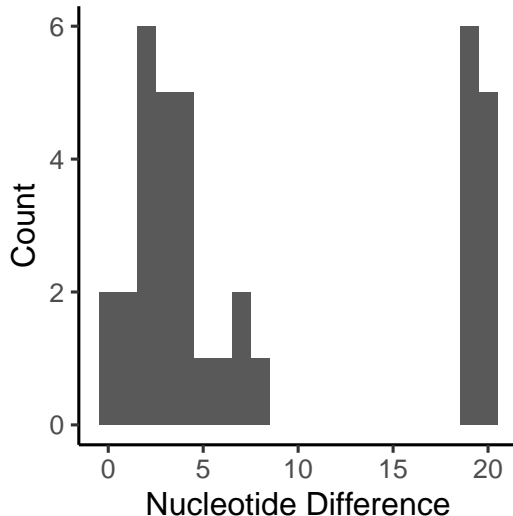
### IGHV4-4\*02\_03

1617 sequences assigned  
720 (44.5%) exact matches, in which:  
659 unique CDR3  
6 unique J



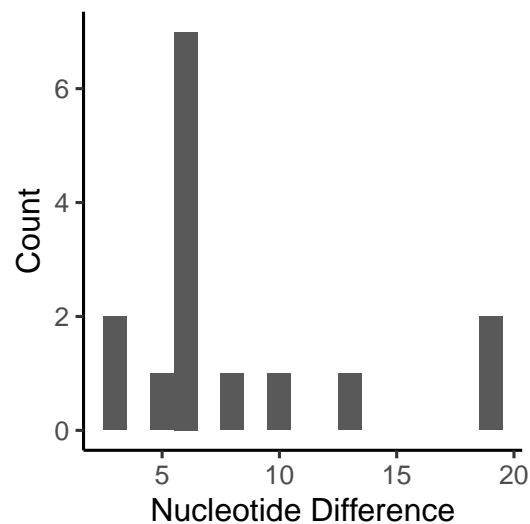
### IGHV4-28\*02\_05

38 sequences assigned  
2 (5.3%) exact matches, in which:  
2 unique CDR3  
1 unique J



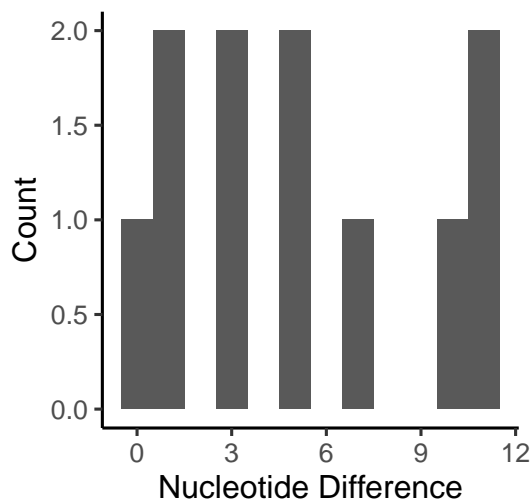
### IGHV4-30-4\*08

18 sequences assigned  
No exact matches.



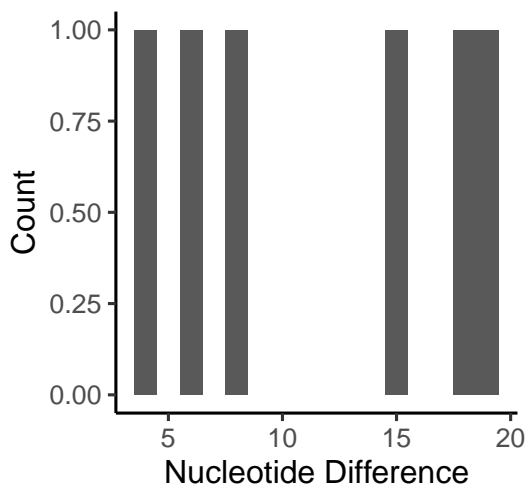
### IGHV4-28\*03

13 sequences assigned  
1 (7.7%) exact matches, in which:  
1 unique CDR3  
1 unique J



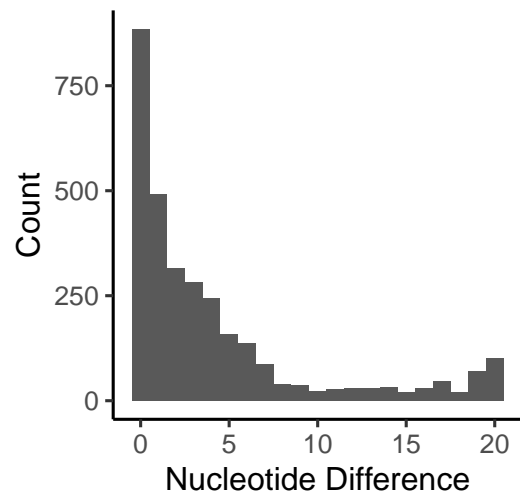
### IGHV4-30-4\*01

10 sequences assigned  
No exact matches.



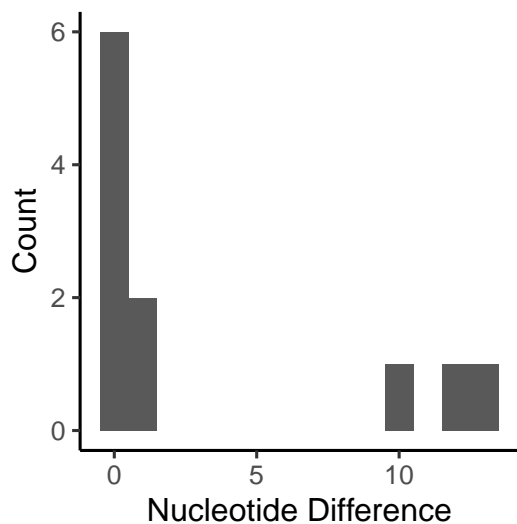
### IGHV4-31\*02

3845 sequences assigned  
885 (23%) exact matches, in which:  
835 unique CDR3  
6 unique J



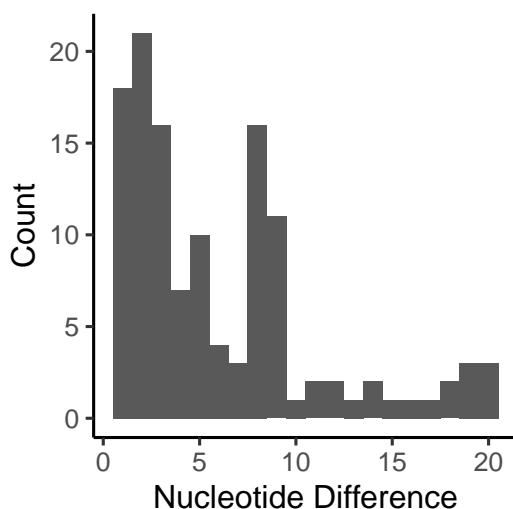
### IGHV4-28\*01\_07

17 sequences assigned  
6 (35.3%) exact matches, in which:  
5 unique CDR3  
4 unique J



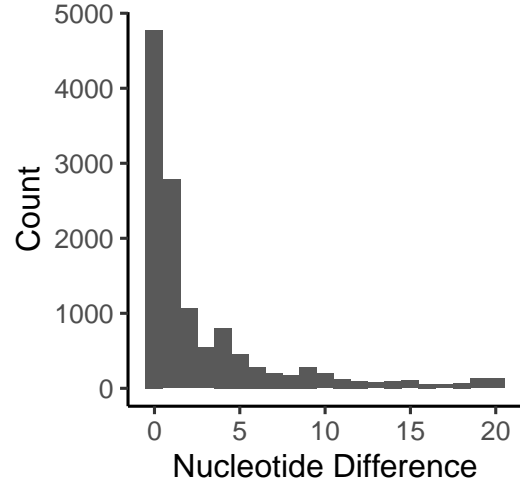
### IGHV4-30-2\*03

151 sequences assigned  
No exact matches.



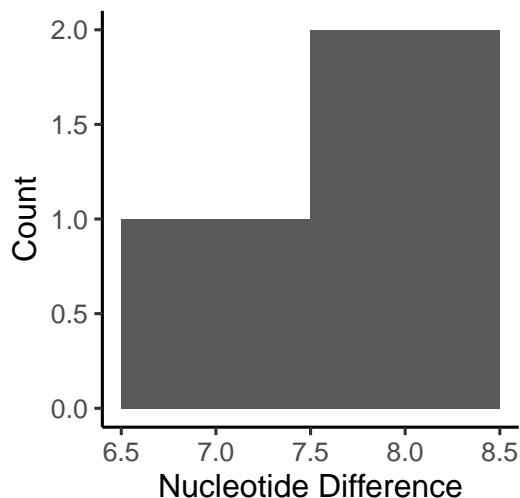
### IGHV4-34\*01\_02

13700 sequences assigned  
4776 (34.9%) exact matches, in which:  
4199 unique CDR3  
6 unique J



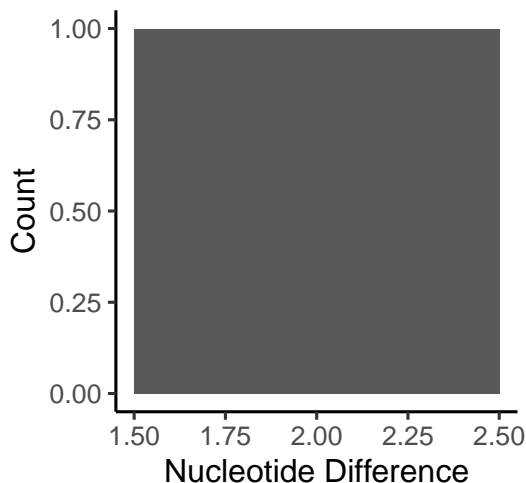
### IGHV4-38-2\*01

7 sequences assigned  
No exact matches.



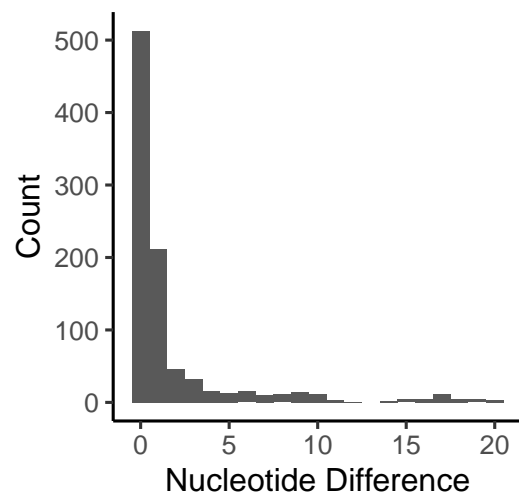
### IGHV4-55\*02\_04\_08

1 sequences assigned  
No exact matches.



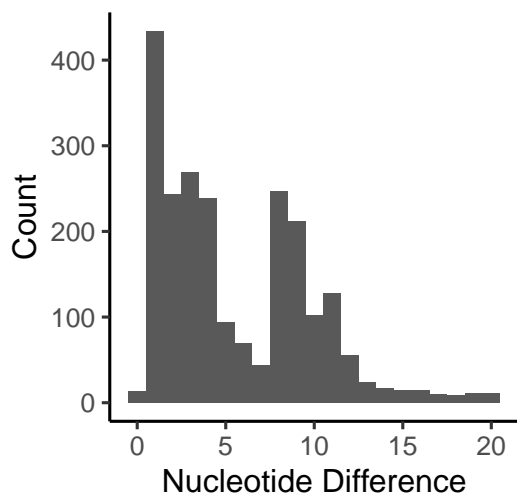
### IGHV4-61\*01

1020 sequences assigned  
513 (50.3%) exact matches, in which:  
495 unique CDR3  
6 unique J



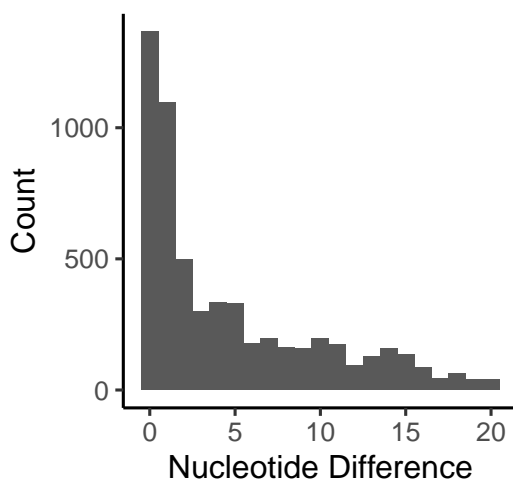
### IGHV4-39\*07

2593 sequences assigned  
13 (0.5%) exact matches, in which:  
13 unique CDR3  
3 unique J



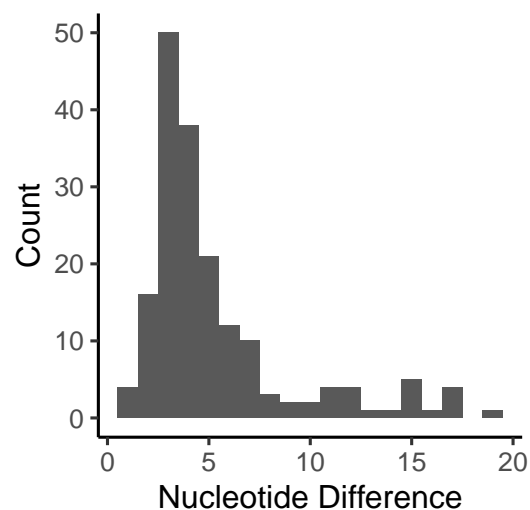
### IGHV4-59\*08

6474 sequences assigned  
1366 (21.1%) exact matches, in which:  
1234 unique CDR3  
6 unique J



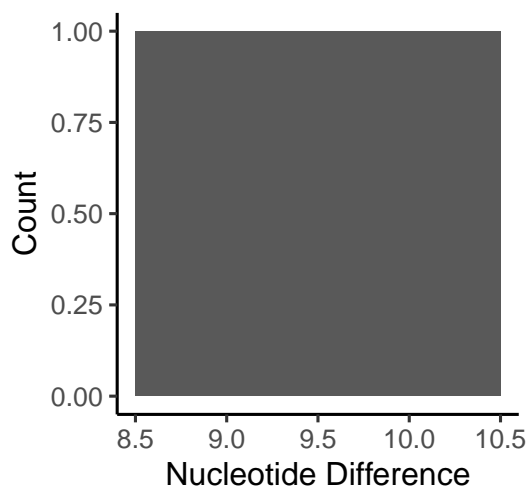
### IGHV4-61\*05

188 sequences assigned  
No exact matches.



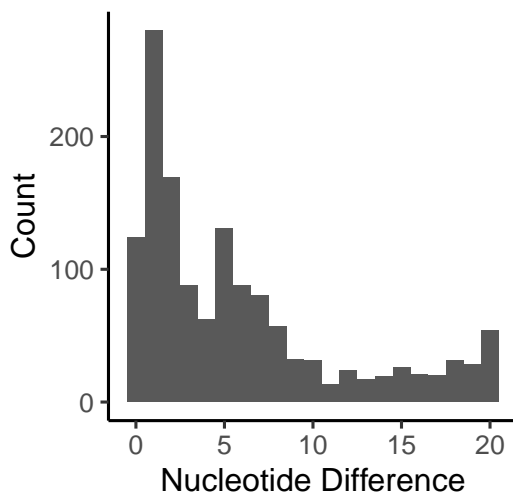
### IGHV4-55\*09

2 sequences assigned  
No exact matches.



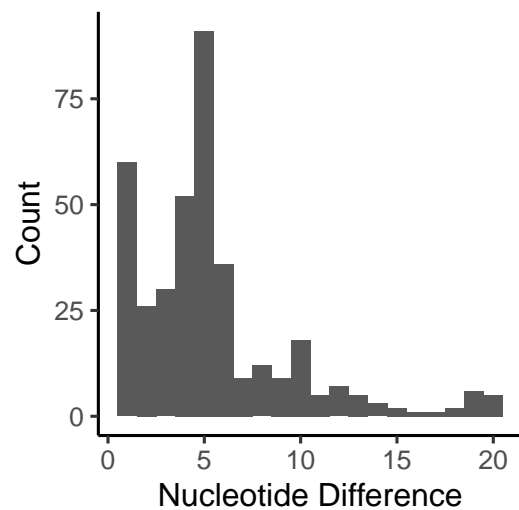
### IGHV4-59\*12

2031 sequences assigned  
124 (6.1%) exact matches, in which:  
121 unique CDR3  
5 unique J



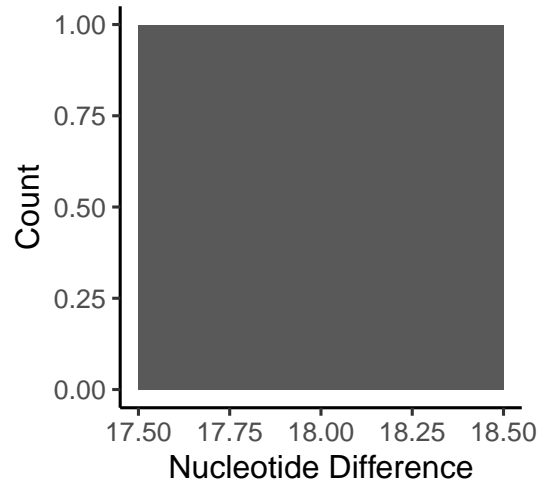
### IGHV4-61\*08

449 sequences assigned  
No exact matches.



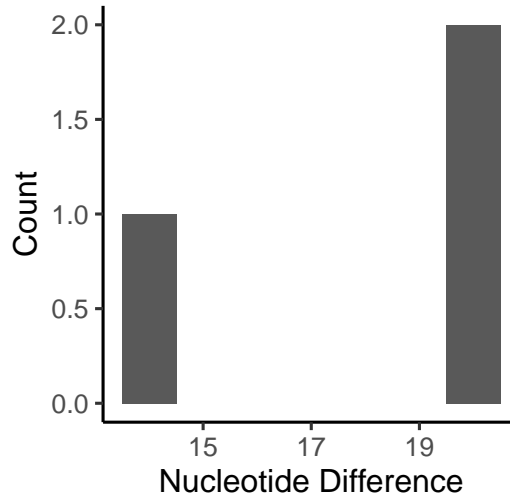
### IGHV1/OR15-2\*02\_03

1 sequences assigned  
No exact matches.



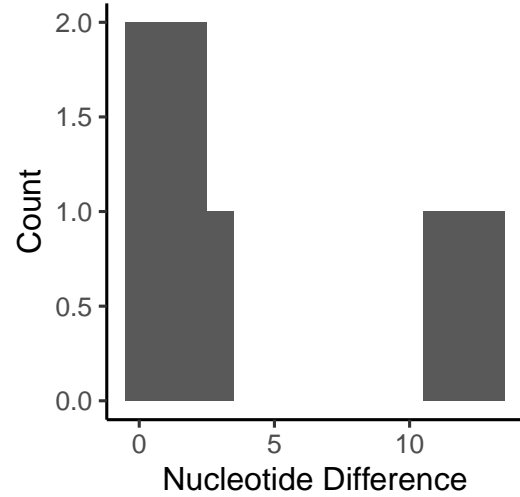
### IGHV4/OR15-8\*02

11 sequences assigned  
No exact matches.



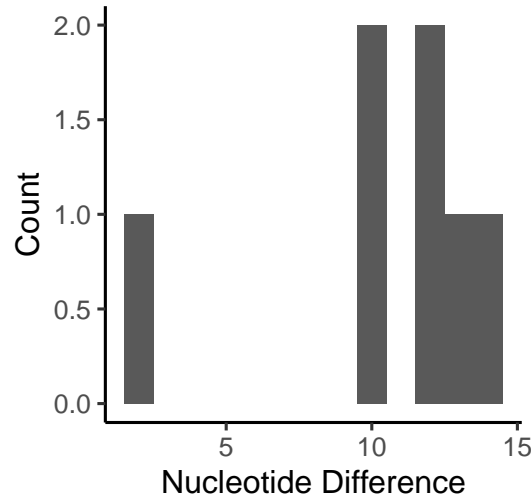
### IGHV5-51\*06

24 sequences assigned  
2 (8.3%) exact matches, in which:  
2 unique CDR3  
2 unique J



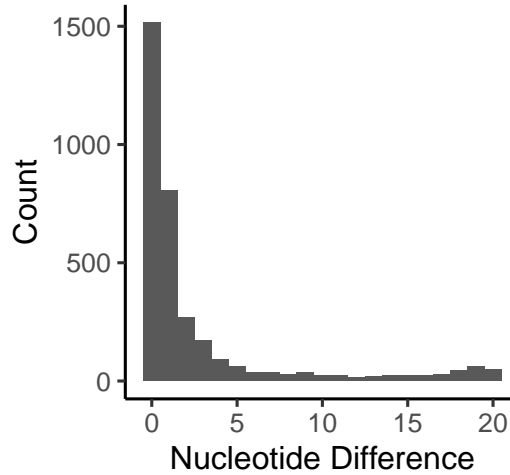
### IGHV1/OR15-3\*02

7 sequences assigned  
No exact matches.



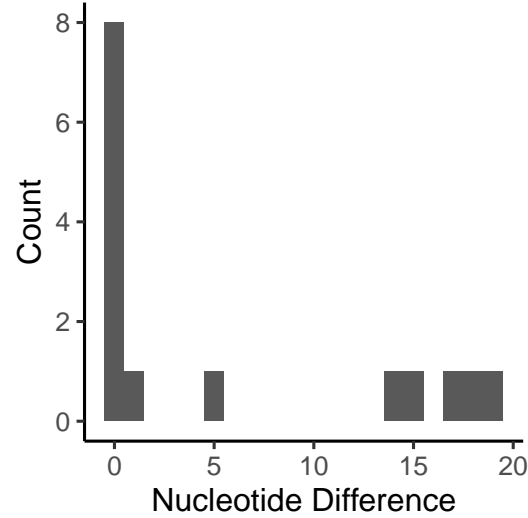
### IGHV5-10-1\*01\_03

3839 sequences assigned  
1515 (39.5%) exact matches, in which:  
1119 unique CDR3  
6 unique J



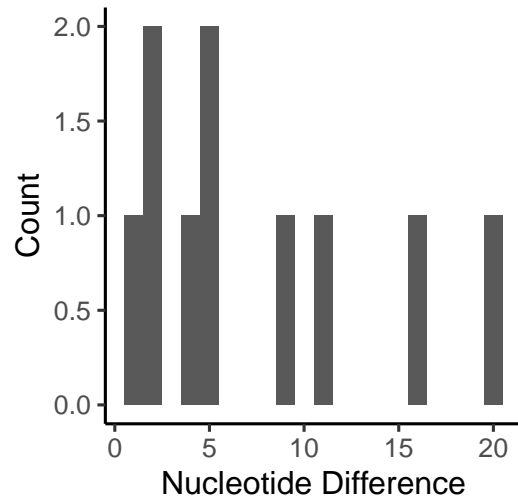
### IGHV5-51\*07

19 sequences assigned  
8 (42.1%) exact matches, in which:  
8 unique CDR3  
5 unique J



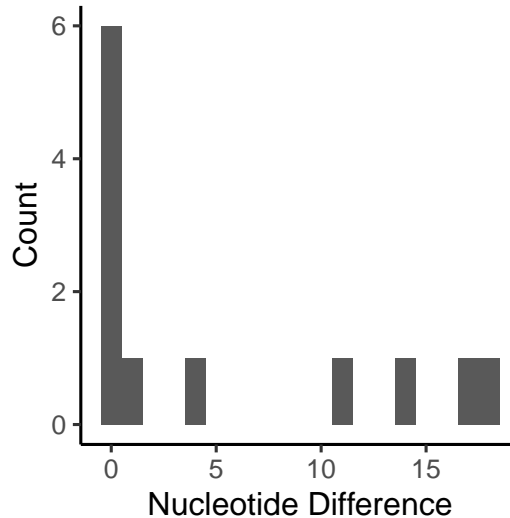
### IGHV4/OR15-8\*01

24 sequences assigned  
No exact matches.



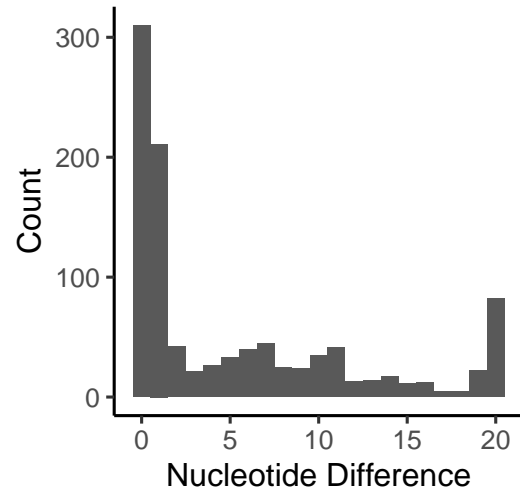
### IGHV5-51\*04

16 sequences assigned  
6 (37.5%) exact matches, in which:  
6 unique CDR3  
2 unique J



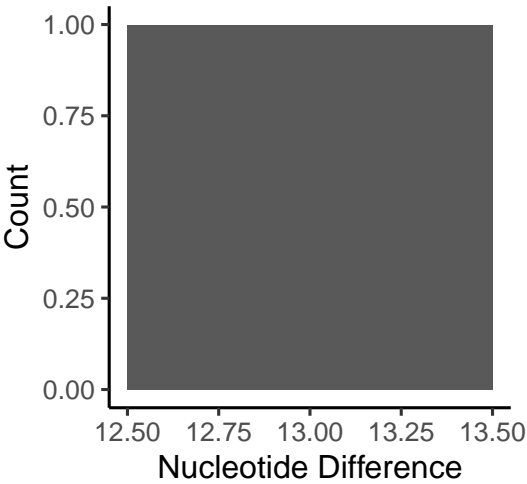
### IGHV6-1\*01\_02

1413 sequences assigned  
310 (21.9%) exact matches, in which:  
286 unique CDR3  
6 unique J



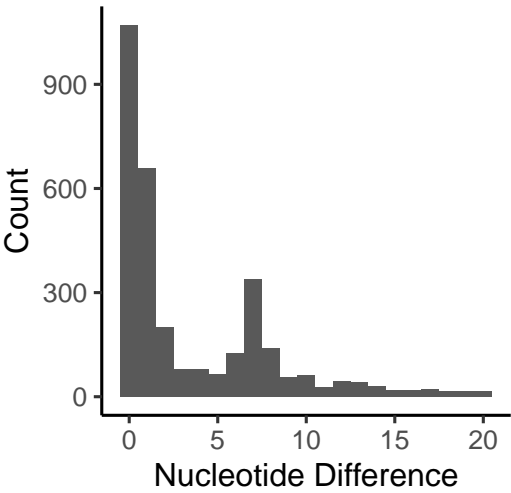
IGHV3/OR16-10\*01\_03

1 sequences assigned  
No exact matches.



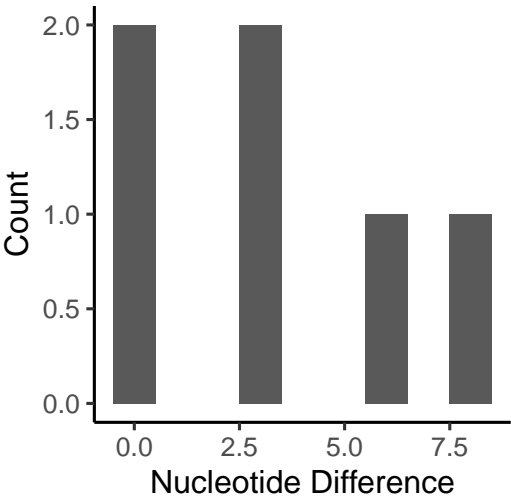
IGHV7-4-1\*02

3407 sequences assigned  
1071 (31.4%) exact matches, in which:  
967 unique CDR3  
6 unique J

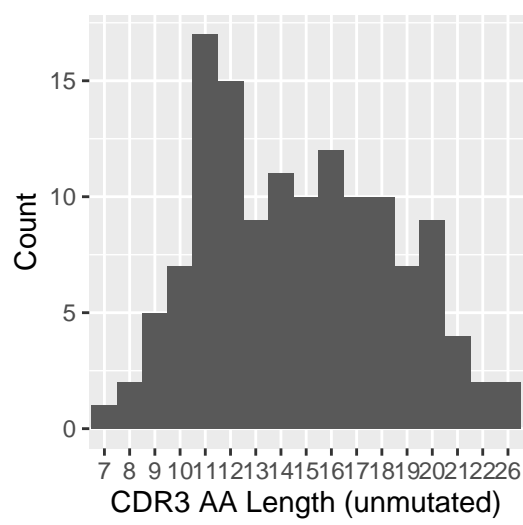


IGHV7-81\*01

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



IGHV3-9\*01\_T78G\_G103A\_G129A\_A175G\_A176G\_T186C\_G188C\_G197C\_C258A\_T279C\_T28







[illegible]