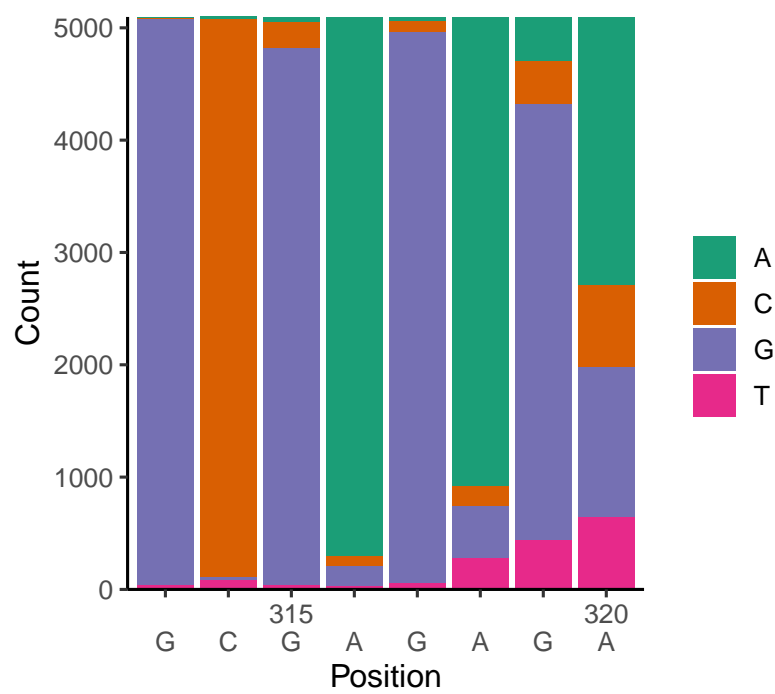
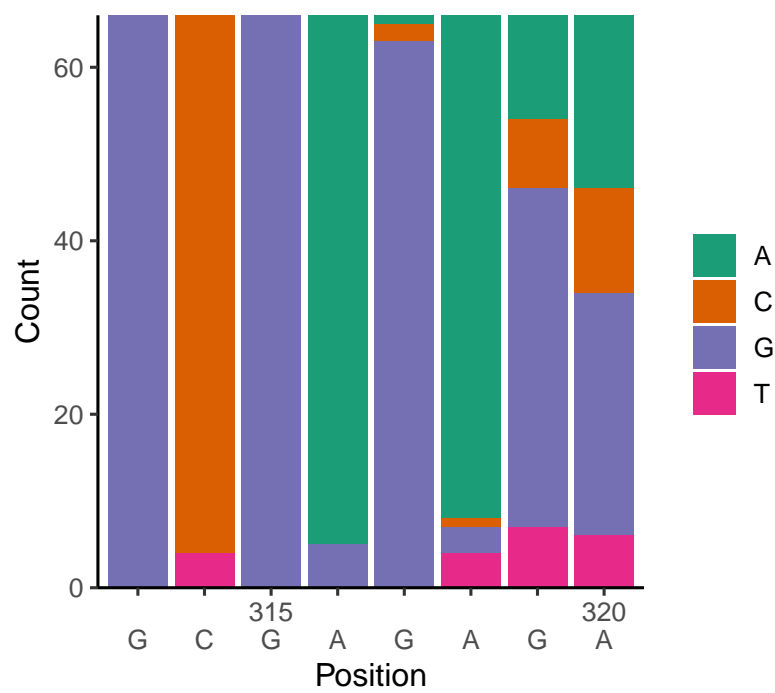


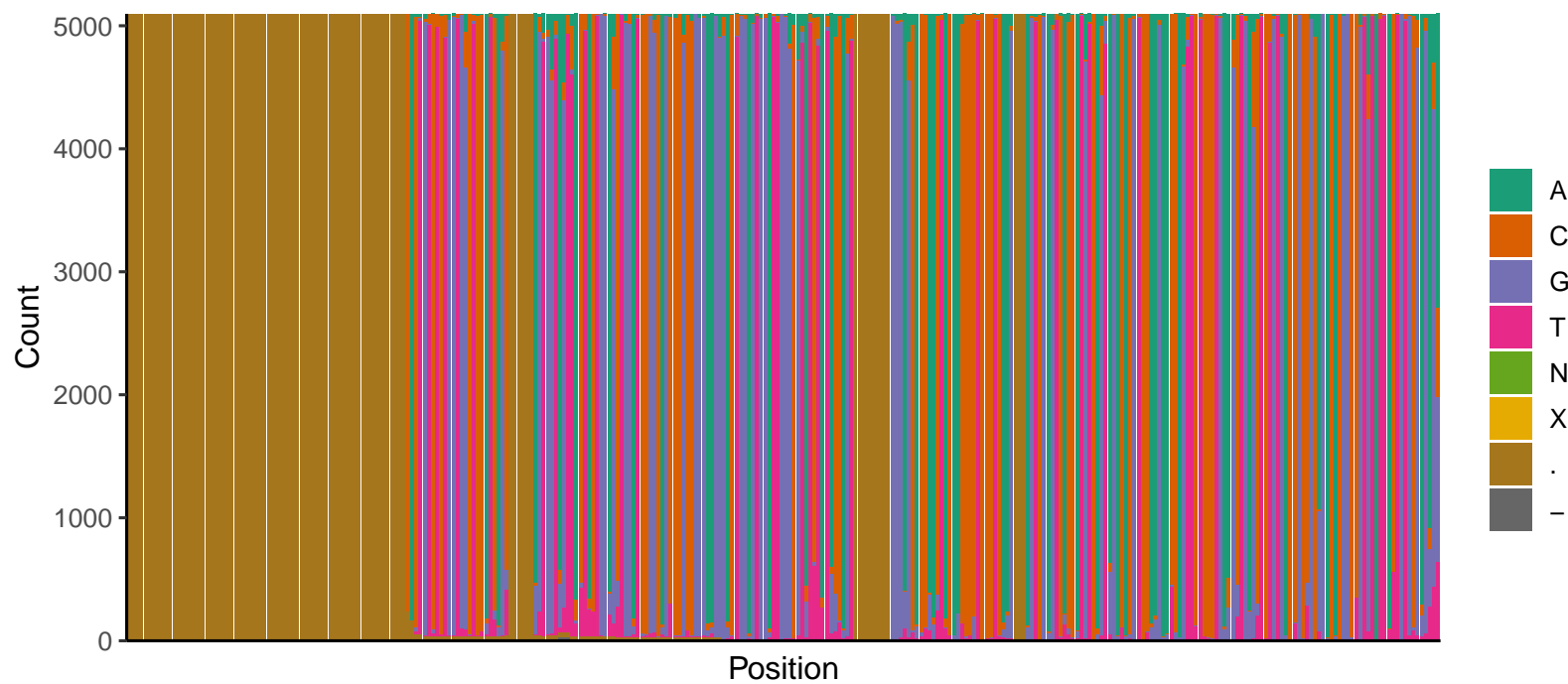
Gene IGHV4-61\*02\_A234G



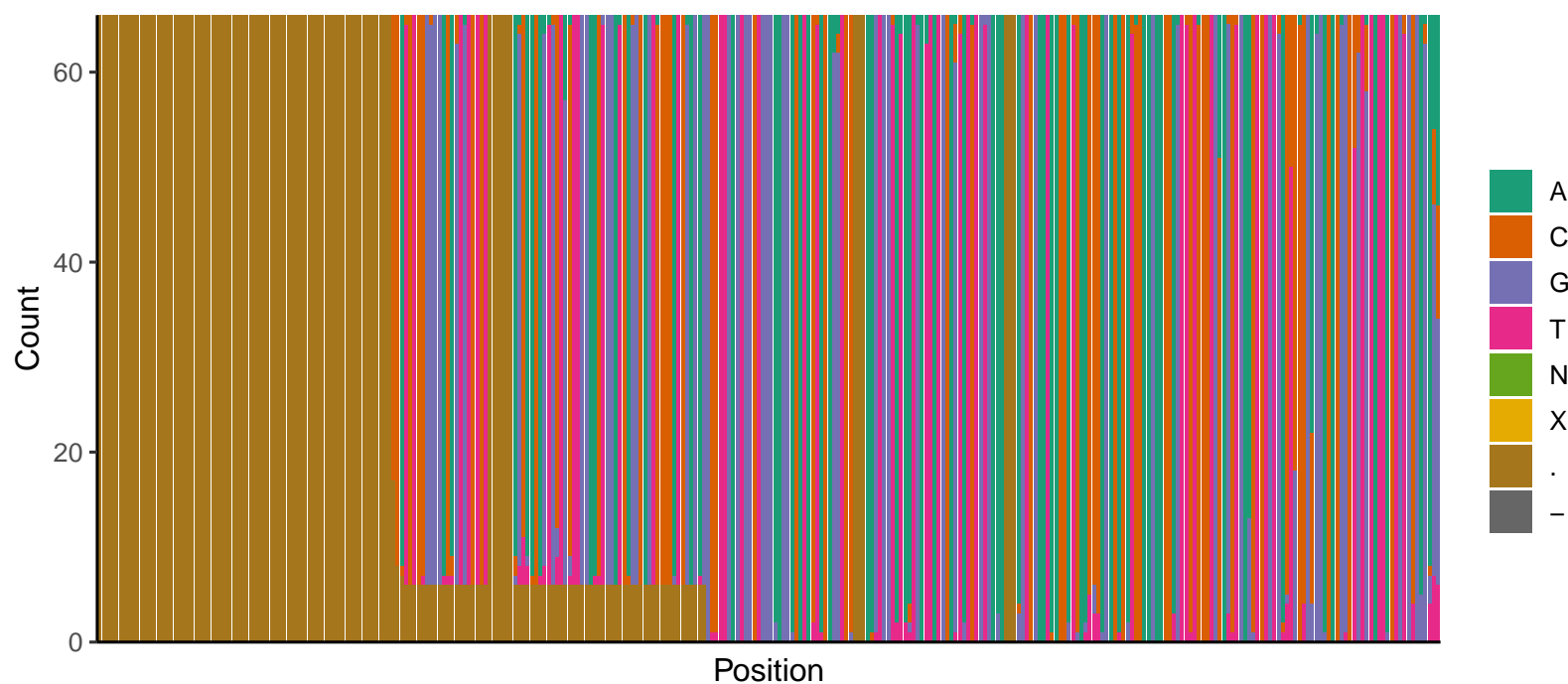
Gene IGHV6-1\*01\_02\_A315G



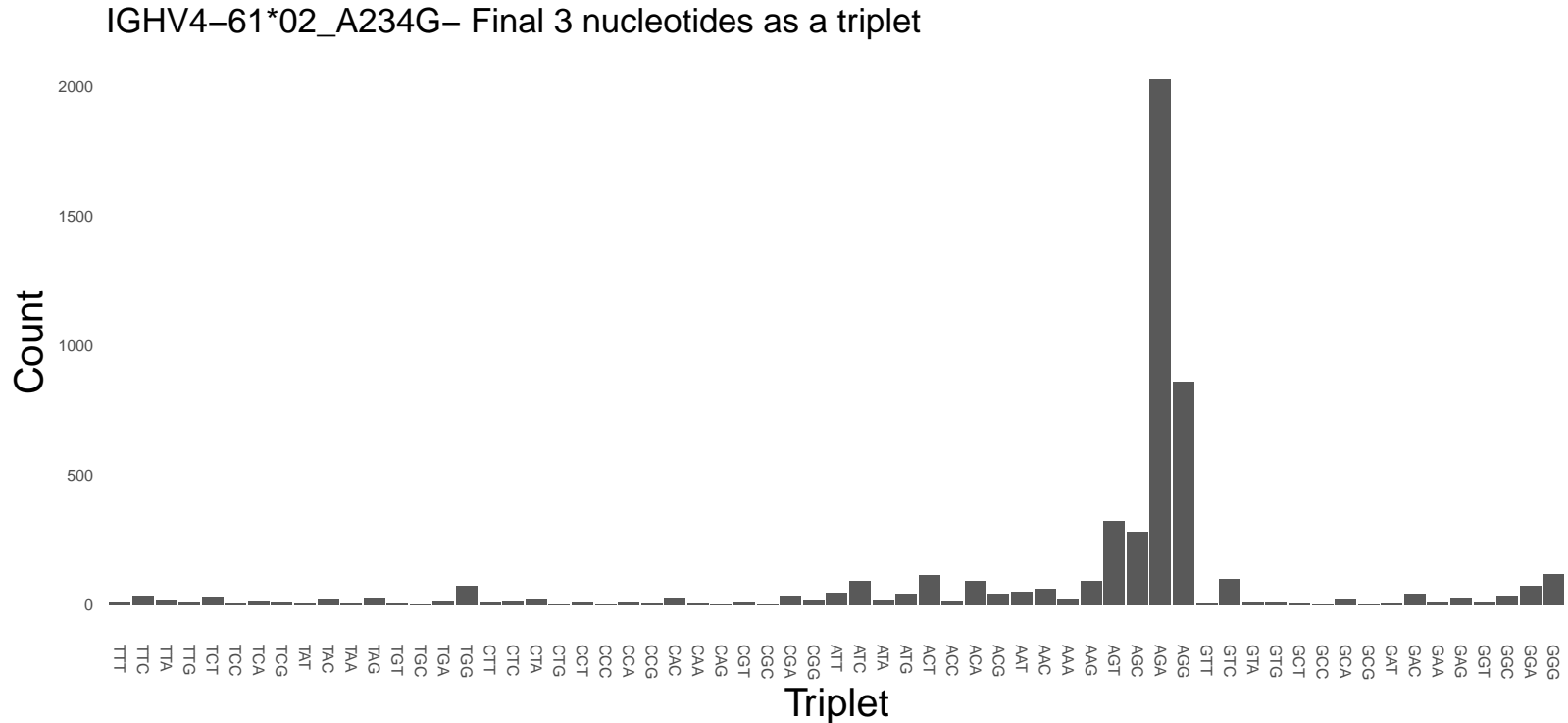
Gene IGHV4-61\*02\_A234G



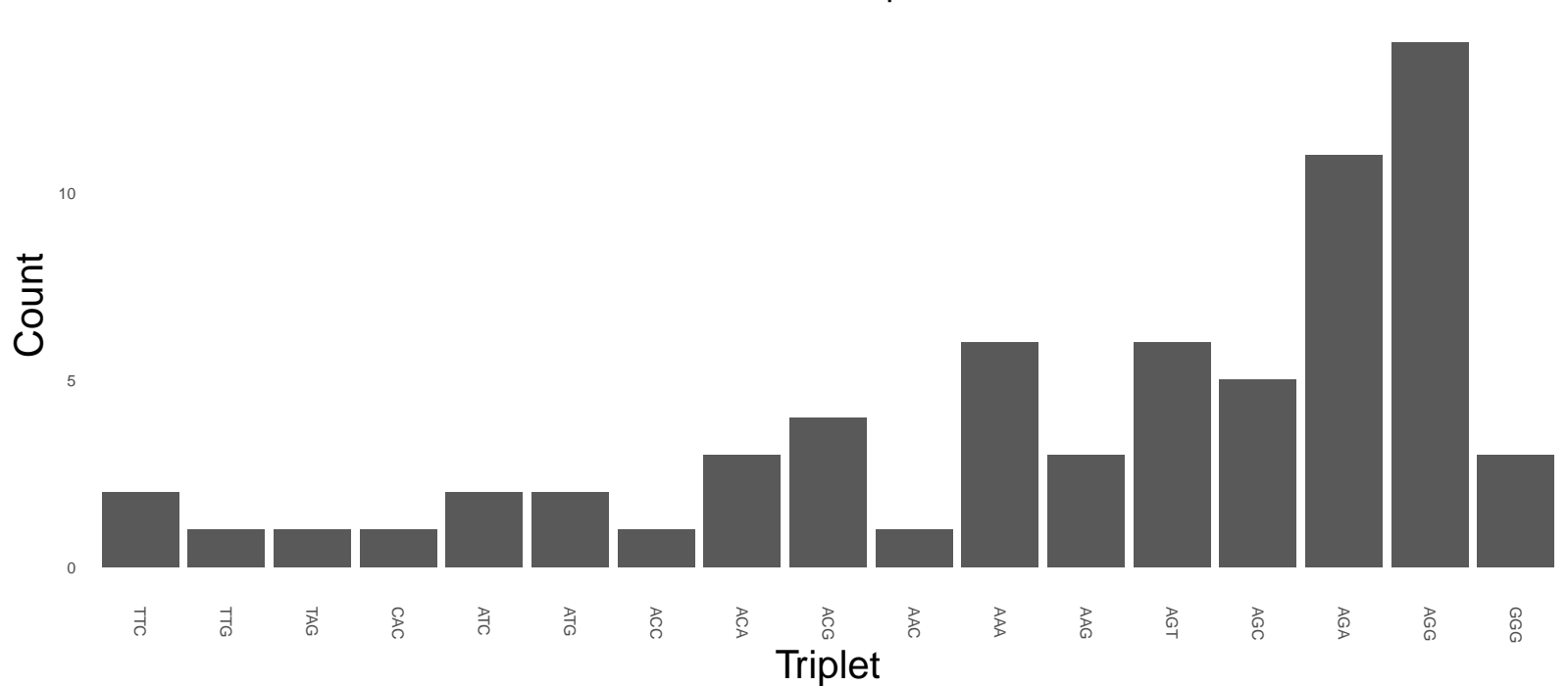
Gene IGHV6-1\*01\_02\_A315G



IGHV4-61\*02\_A234G- Final 3 nucleotides as a triplet

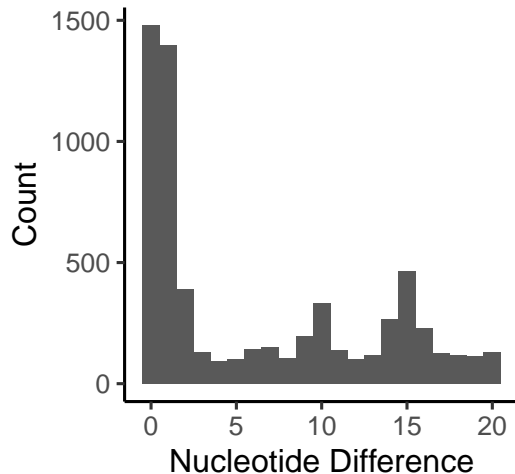


IGHV6-1\*01\_02\_A315G- Final 3 nucleotides as a triplet



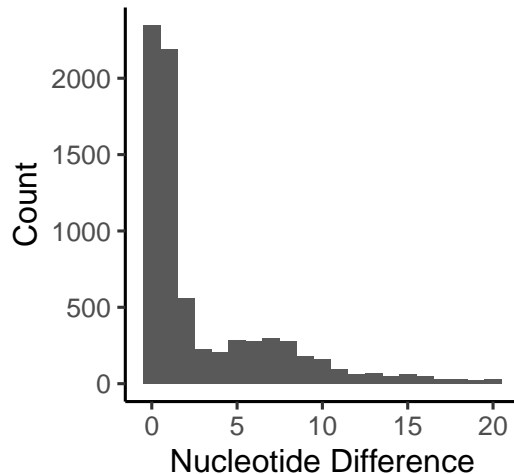
### IGHV1-2\*02

7580 sequences assigned  
1479 (19.5%) exact matches, in which:  
1253 unique CDR3  
6 unique J



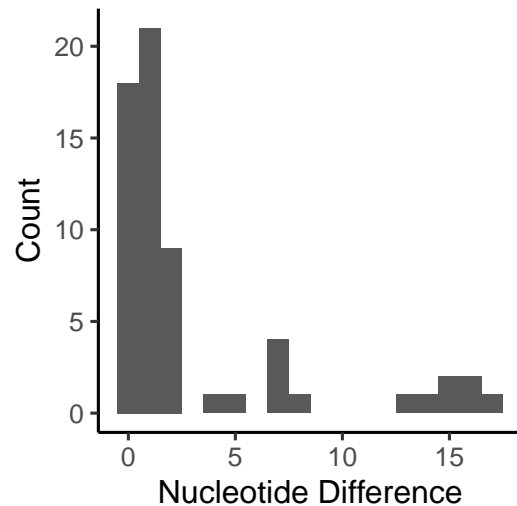
### IGHV1-8\*01

8055 sequences assigned  
2346 (29.1%) exact matches, in which:  
2041 unique CDR3  
6 unique J



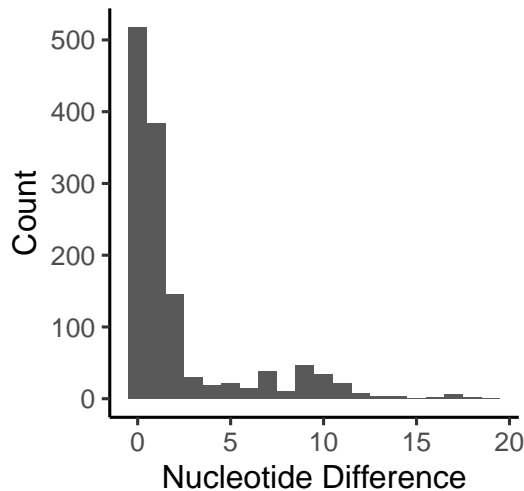
### IGHV1-45\*02

65 sequences assigned  
18 (27.7%) exact matches, in which:  
16 unique CDR3  
3 unique J



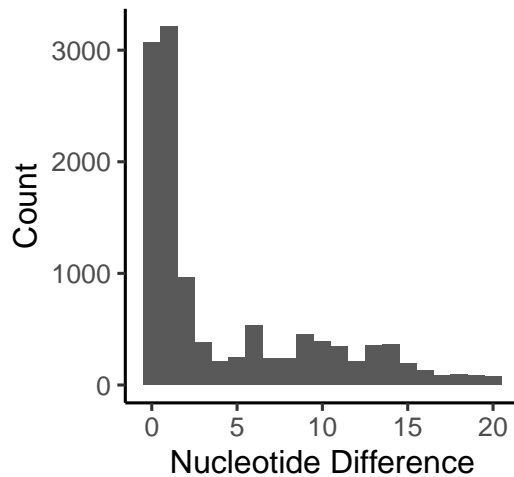
### IGHV1-2\*04

1311 sequences assigned  
518 (39.5%) exact matches, in which:  
461 unique CDR3  
5 unique J



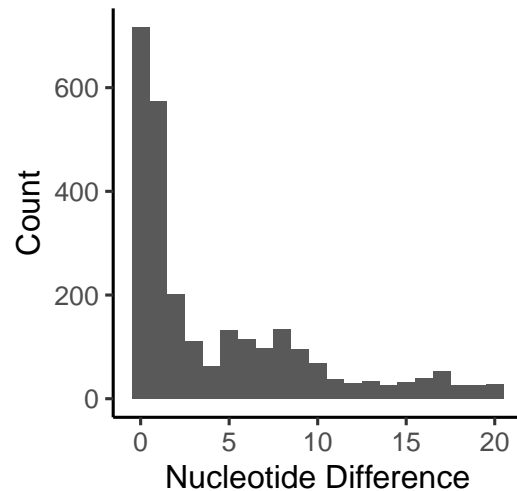
### IGHV1-18\*01

13594 sequences assigned  
3070 (22.6%) exact matches, in which:  
2635 unique CDR3  
6 unique J



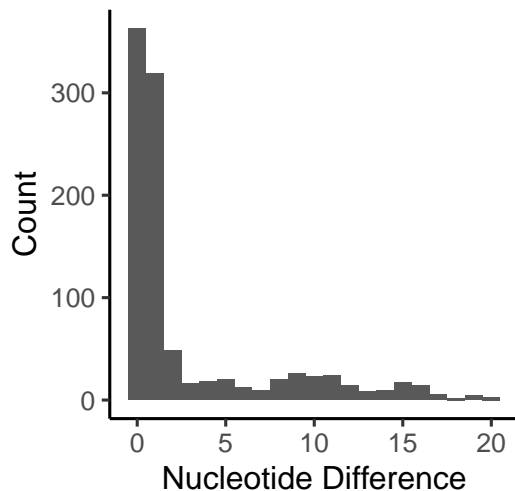
### IGHV1-46\*01

3448 sequences assigned  
717 (20.8%) exact matches, in which:  
624 unique CDR3  
6 unique J



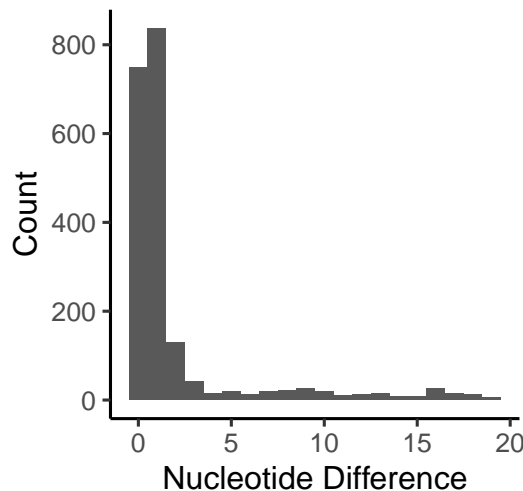
### IGHV1-3\*01\_05

1066 sequences assigned  
363 (34.1%) exact matches, in which:  
313 unique CDR3  
6 unique J



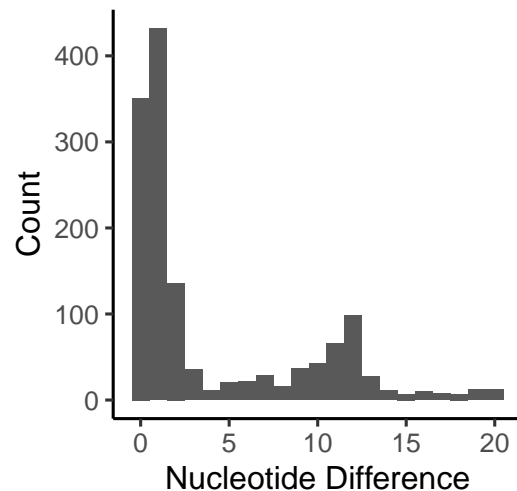
### IGHV1-24\*01

2043 sequences assigned  
748 (36.6%) exact matches, in which:  
605 unique CDR3  
6 unique J



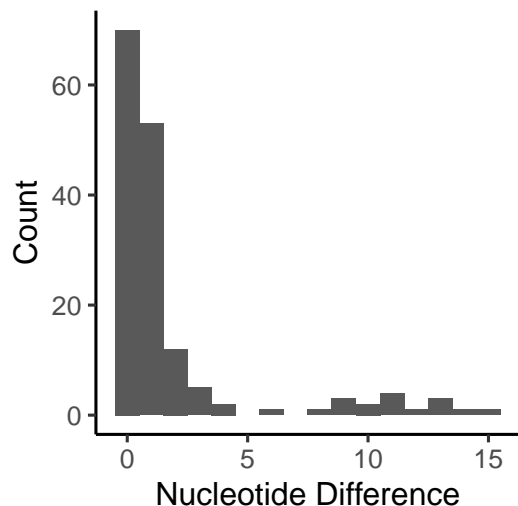
### IGHV1-46\*03

1461 sequences assigned  
351 (24%) exact matches, in which:  
288 unique CDR3  
6 unique J



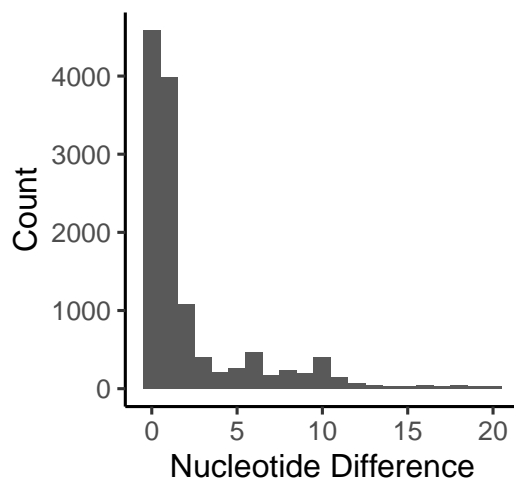
### IGHV1-58\*02

161 sequences assigned  
70 (43.5%) exact matches, in which:  
62 unique CDR3  
5 unique J



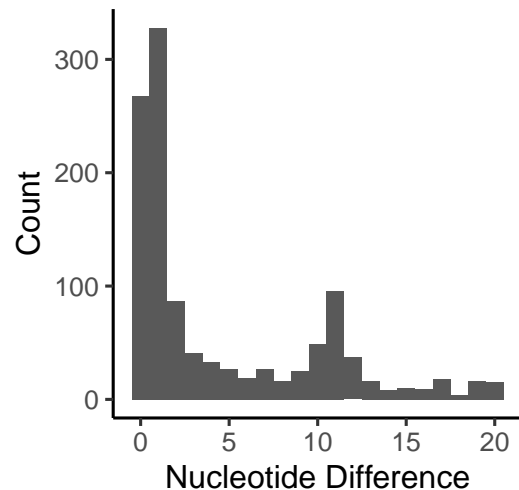
### IGHV1-69\*01\_12\_13

13328 sequences assigned  
4584 (34.4%) exact matches, in which:  
4039 unique CDR3  
6 unique J



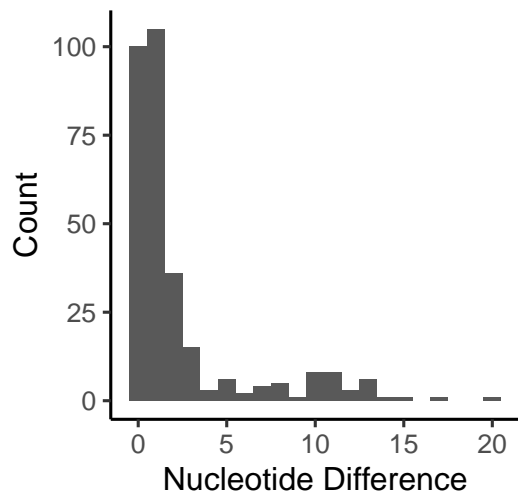
### IGHV2-5\*02

1207 sequences assigned  
268 (22.2%) exact matches, in which:  
226 unique CDR3  
5 unique J



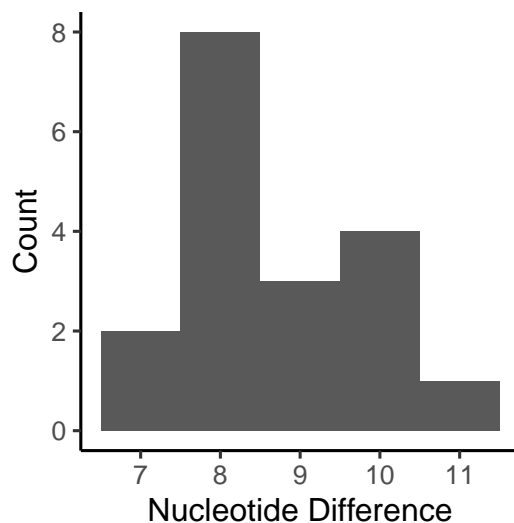
### IGHV1-58\*01\_03

312 sequences assigned  
100 (32.1%) exact matches, in which:  
88 unique CDR3  
5 unique J



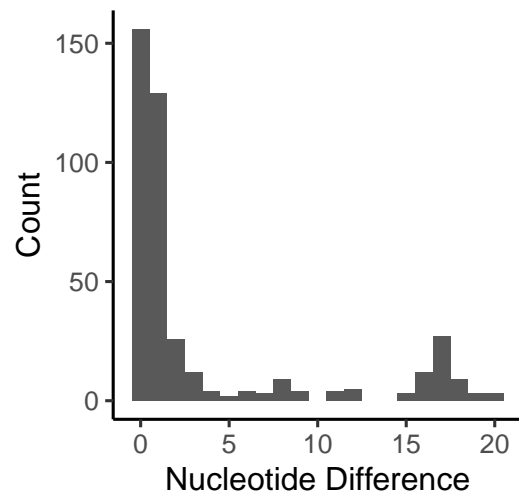
### IGHV1-NL1\*01

18 sequences assigned  
No exact matches.



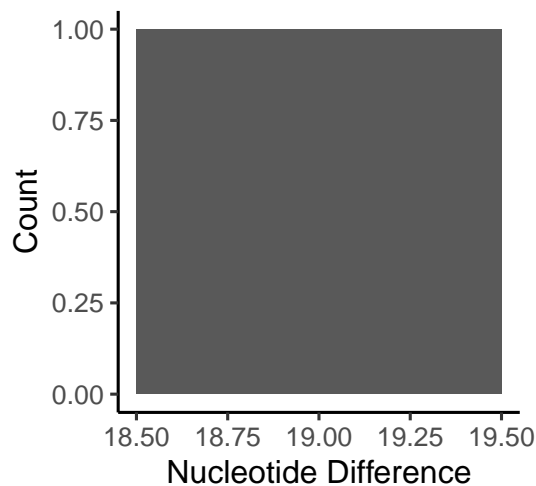
### IGHV2-26\*01

418 sequences assigned  
156 (37.3%) exact matches, in which:  
133 unique CDR3  
5 unique J



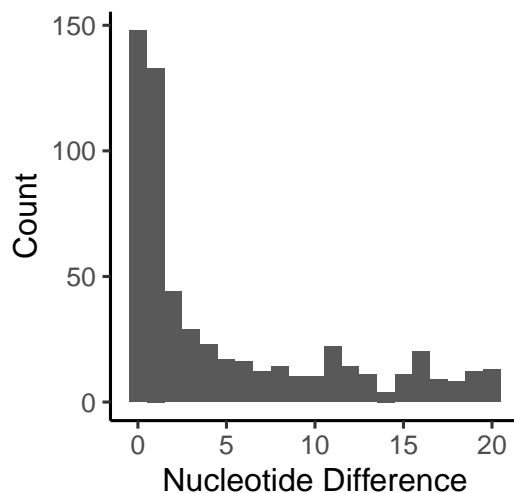
### IGHV1-69-2\*01

1 sequences assigned  
No exact matches.



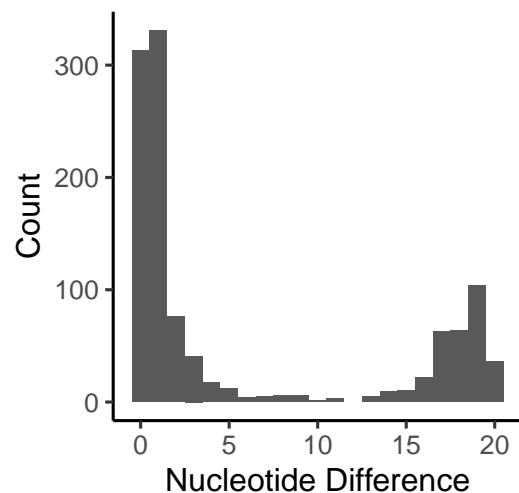
### IGHV2-5\*01

625 sequences assigned  
148 (23.7%) exact matches, in which:  
122 unique CDR3  
5 unique J



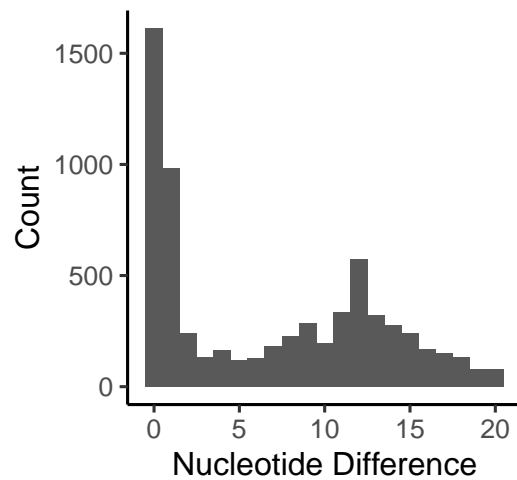
### IGHV2-70\*01

1384 sequences assigned  
313 (22.6%) exact matches, in which:  
255 unique CDR3  
5 unique J



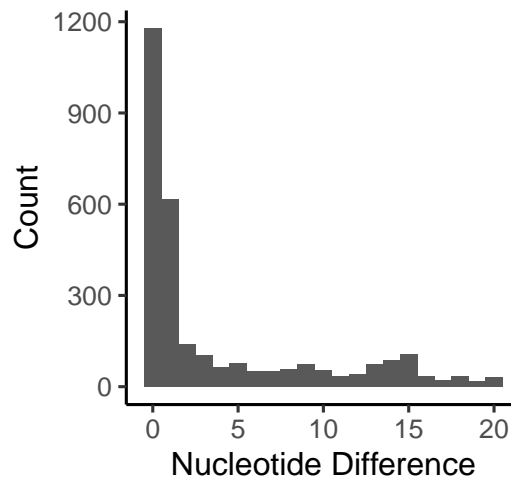
### IGHV3-7\*01

8411 sequences assigned  
1612 (19.2%) exact matches, in which:  
1059 unique CDR3  
6 unique J



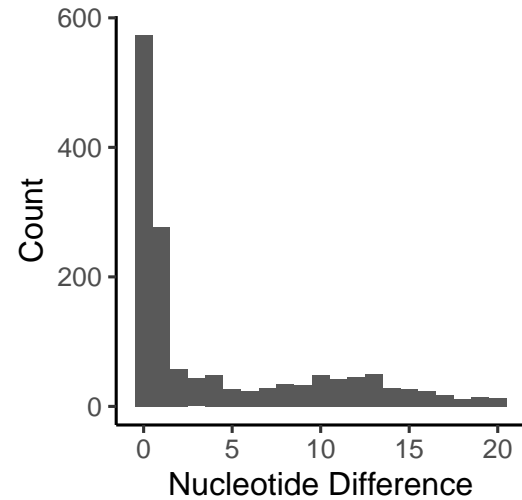
### IGHV3-11\*01

3506 sequences assigned  
1178 (33.6%) exact matches, in which:  
756 unique CDR3  
6 unique J



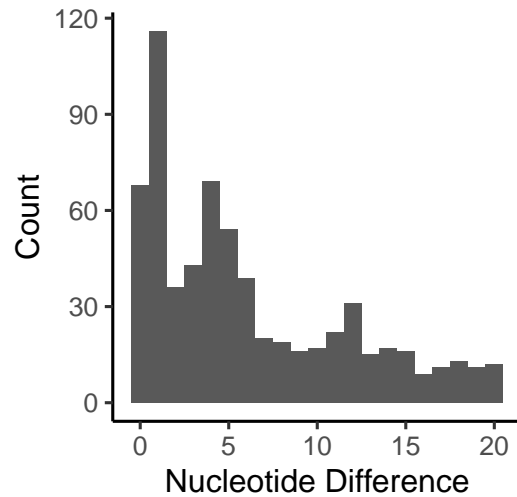
### IGHV3-15\*07

2316 sequences assigned  
574 (24.8%) exact matches, in which:  
383 unique CDR3  
5 unique J



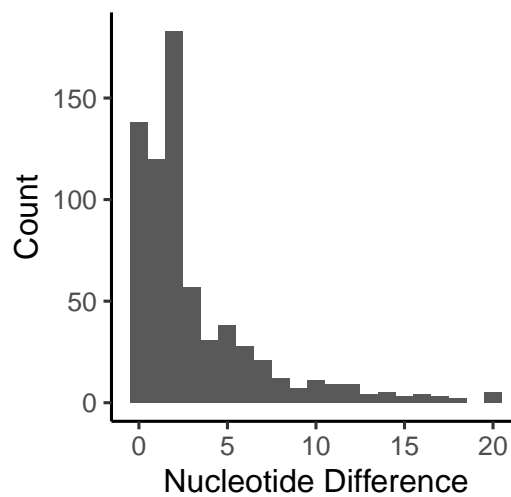
### IGHV3-7\*03

709 sequences assigned  
68 (9.6%) exact matches, in which:  
60 unique CDR3  
4 unique J



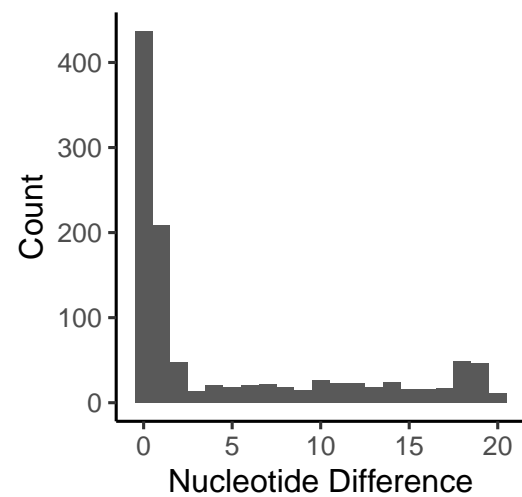
### IGHV3-11\*04

708 sequences assigned  
138 (19.5%) exact matches, in which:  
133 unique CDR3  
6 unique J



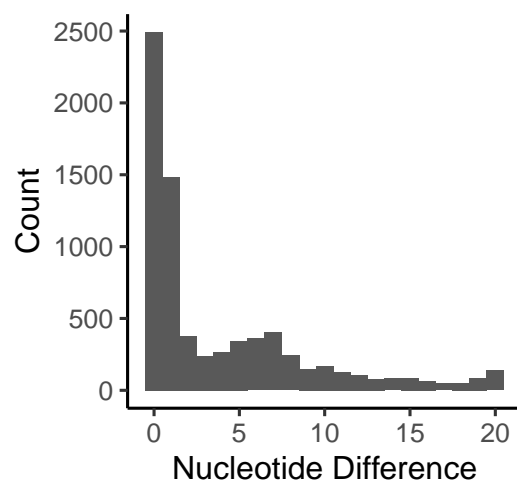
### IGHV3-15\*01\_02

1275 sequences assigned  
437 (34.3%) exact matches, in which:  
286 unique CDR3  
6 unique J



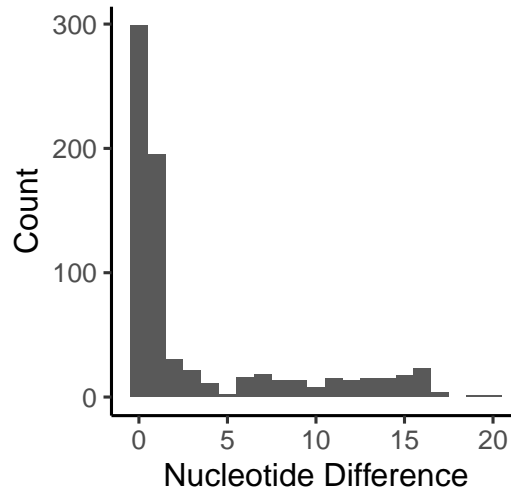
### IGHV3-9\*01

8602 sequences assigned  
2493 (29%) exact matches, in which:  
1451 unique CDR3  
6 unique J



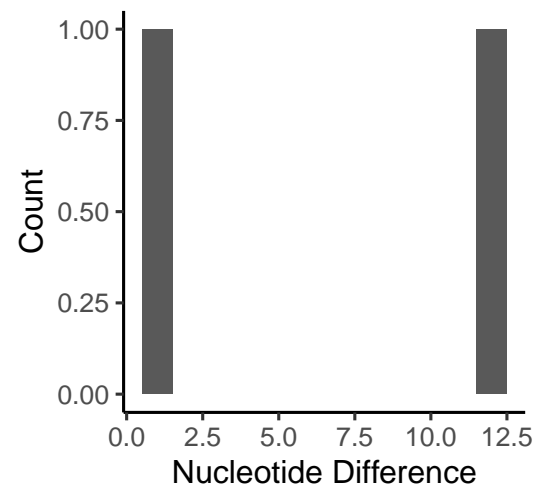
### IGHV3-13\*01

735 sequences assigned  
299 (40.7%) exact matches, in which:  
169 unique CDR3  
5 unique J



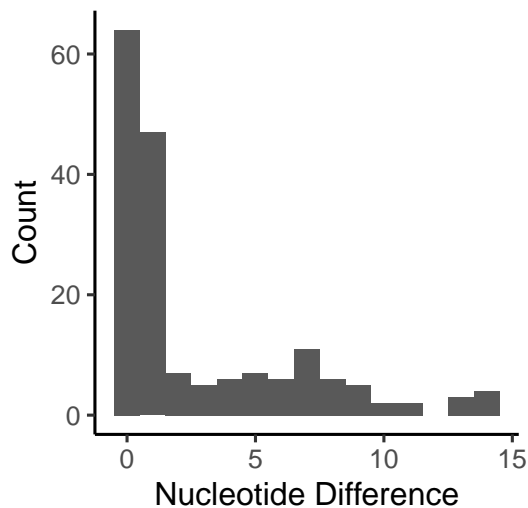
### IGHV3-19\*01

2 sequences assigned  
No exact matches.



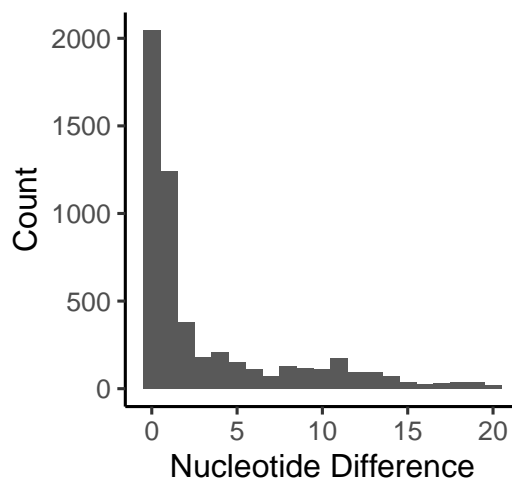
### IGHV3-20\*01\_02

175 sequences assigned  
64 (36.6%) exact matches, in which:  
39 unique CDR3  
5 unique J



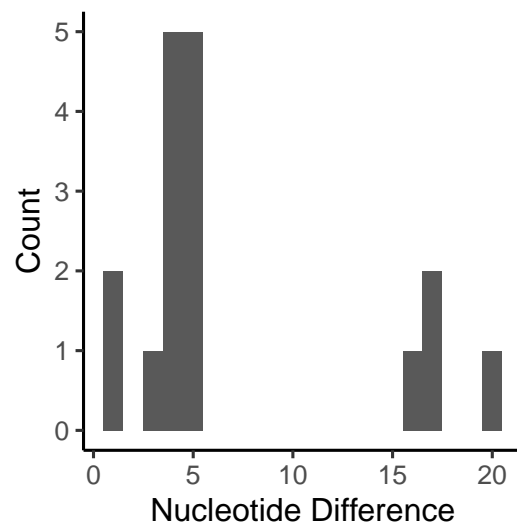
### IGHV3-21\*01\_02

6563 sequences assigned  
2045 (31.2%) exact matches, in which:  
1293 unique CDR3  
6 unique J



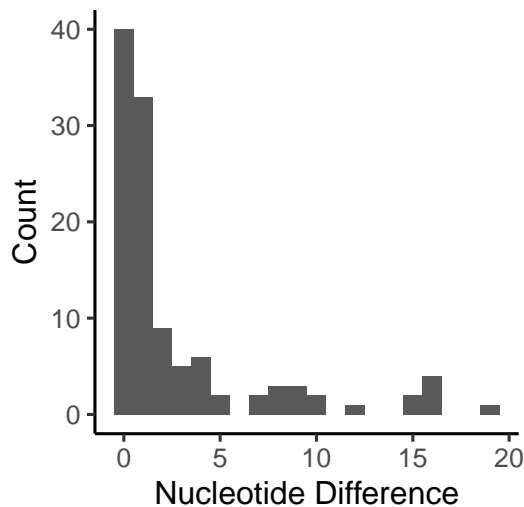
### IGHV3-30-3\*02

20 sequences assigned  
No exact matches.



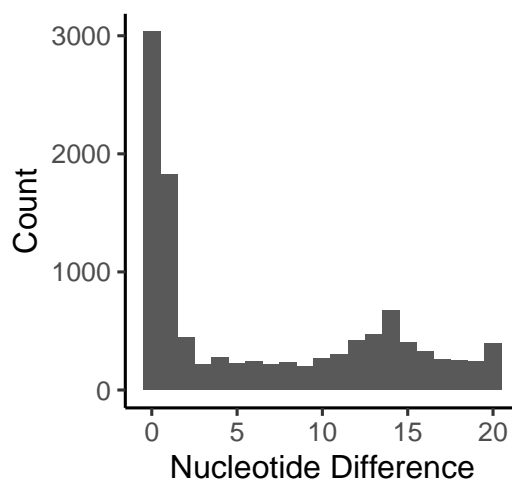
### IGHV3-20\*03\_04

125 sequences assigned  
40 (32%) exact matches, in which:  
25 unique CDR3  
4 unique J



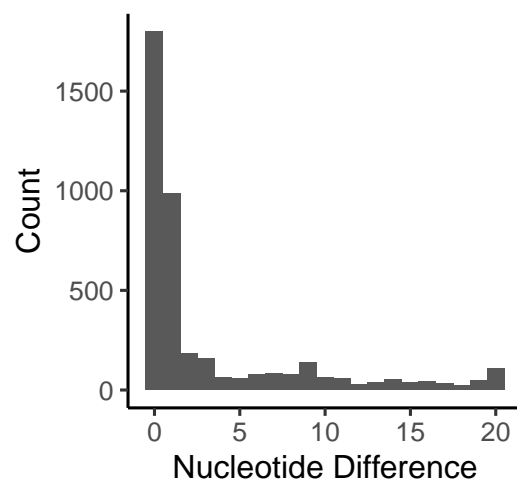
### IGHV3-23\*01\_04

14318 sequences assigned  
3034 (21.2%) exact matches, in which:  
1777 unique CDR3  
6 unique J



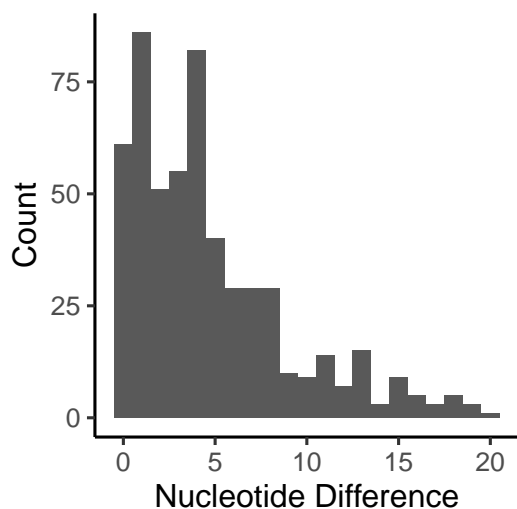
### IGHV3-30\*04

4930 sequences assigned  
1798 (36.5%) exact matches, in which:  
1130 unique CDR3  
6 unique J



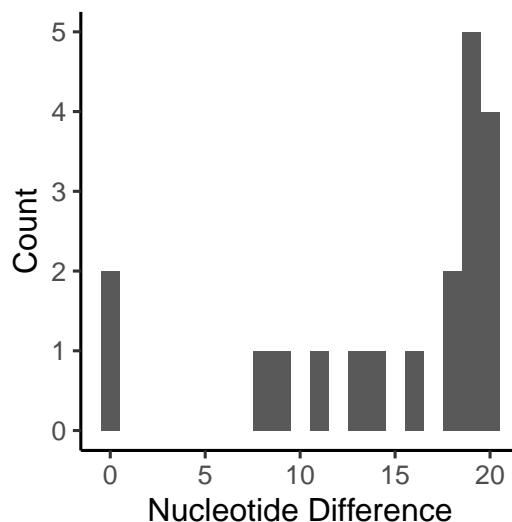
### IGHV3-21\*04

578 sequences assigned  
61 (10.6%) exact matches, in which:  
61 unique CDR3  
6 unique J



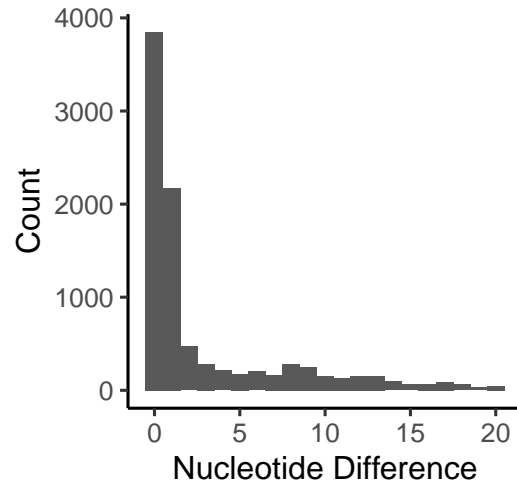
### IGHV3-30-3\*01

57 sequences assigned  
2 (3.5%) exact matches, in which:  
2 unique CDR3  
2 unique J



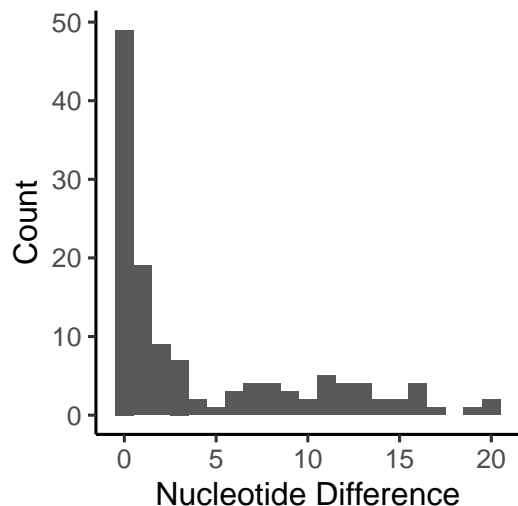
### IGHV3-33\*01

9538 sequences assigned  
3848 (40.3%) exact matches, in which:  
2447 unique CDR3  
6 unique J



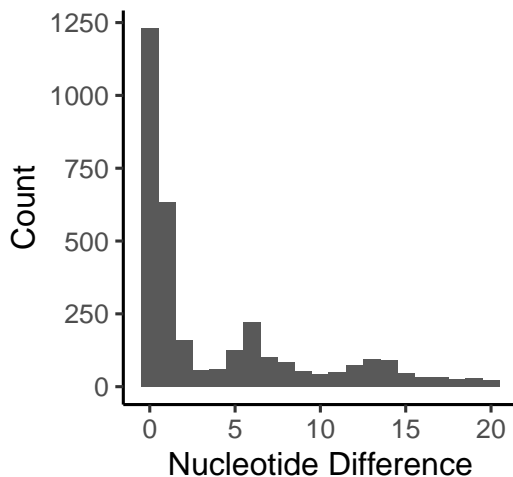
### IGHV3-43\*01

156 sequences assigned  
49 (31.4%) exact matches, in which:  
31 unique CDR3  
4 unique J



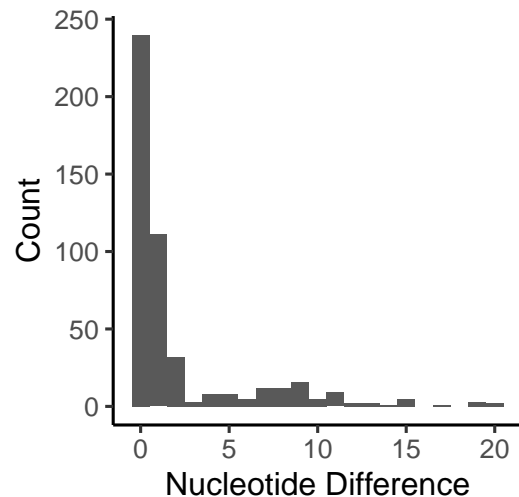
### IGHV3-48\*03

3453 sequences assigned  
1230 (35.6%) exact matches, in which:  
753 unique CDR3  
6 unique J



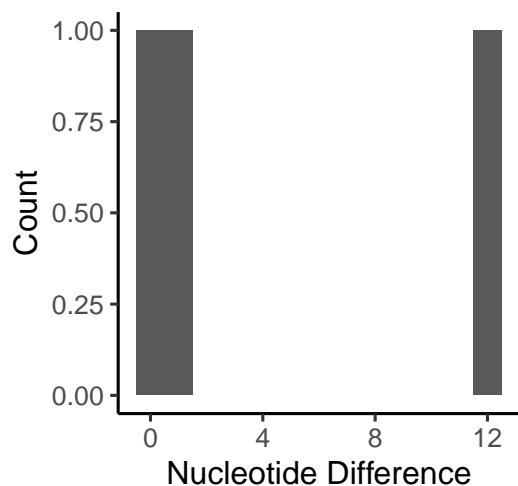
### IGHV3-49\*03\_05

517 sequences assigned  
240 (46.4%) exact matches, in which:  
152 unique CDR3  
6 unique J



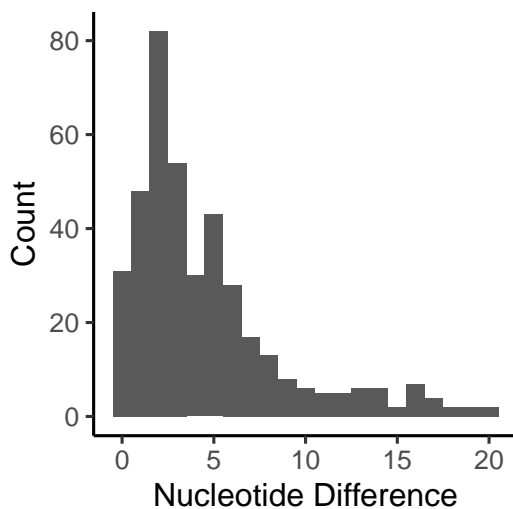
### IGHV3-47\*02

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



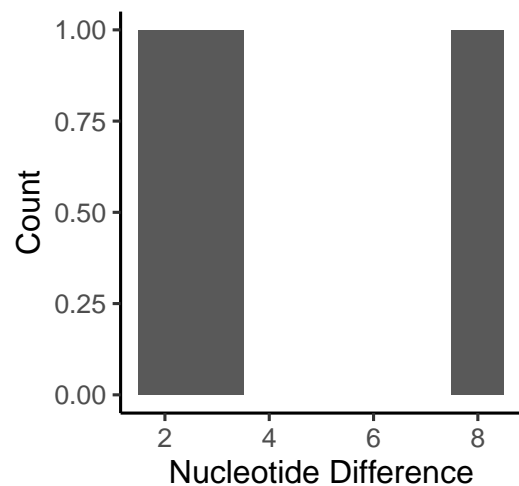
### IGHV3-48\*04

505 sequences assigned  
31 (6.1%) exact matches, in which:  
31 unique CDR3  
4 unique J



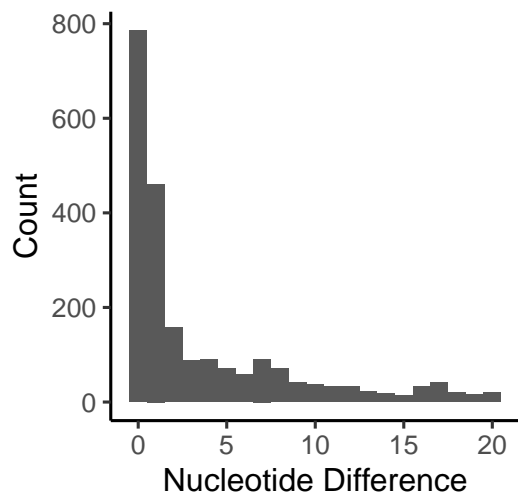
### IGHV3-52\*02

3 sequences assigned  
No exact matches.



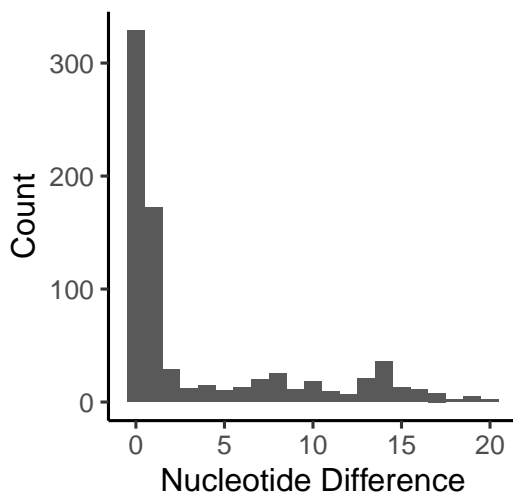
### IGHV3-48\*01

2322 sequences assigned  
786 (33.9%) exact matches, in which:  
525 unique CDR3  
6 unique J



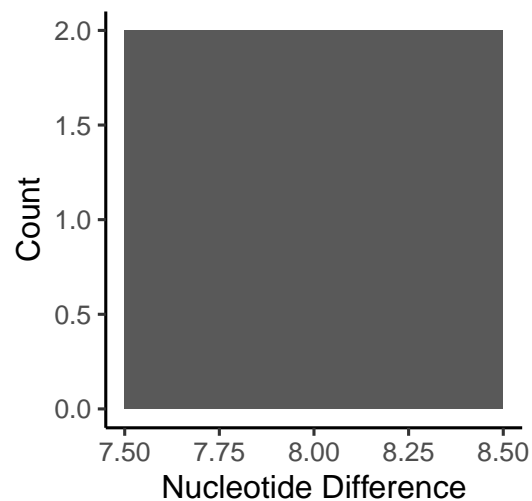
### IGHV3-49\*04

823 sequences assigned  
329 (40%) exact matches, in which:  
204 unique CDR3  
6 unique J



### IGHV3-52\*01\_03

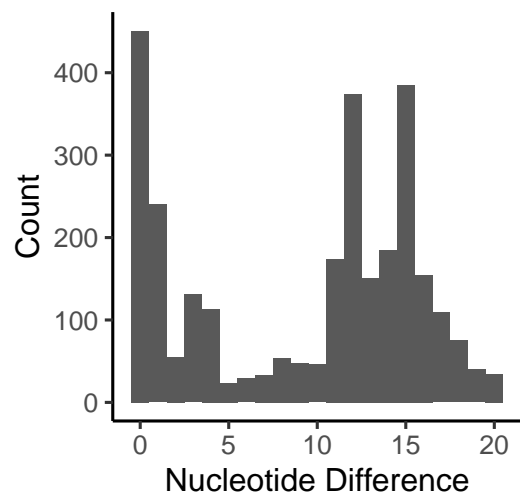
2 sequences assigned  
No exact matches.





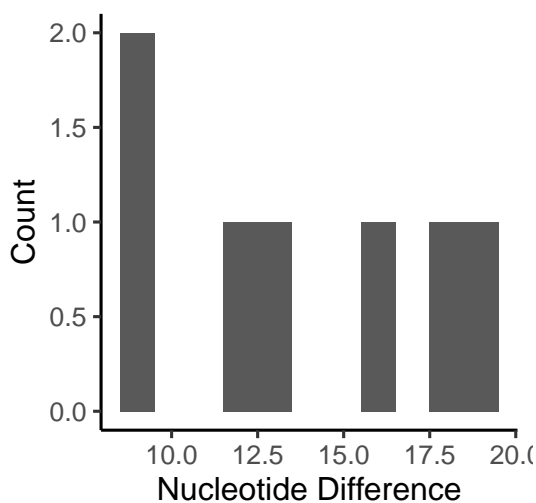
### IGHV3–53\*01\_02

3069 sequences assigned  
451 (14.7%) exact matches, in which:  
272 unique CDR3  
6 unique J



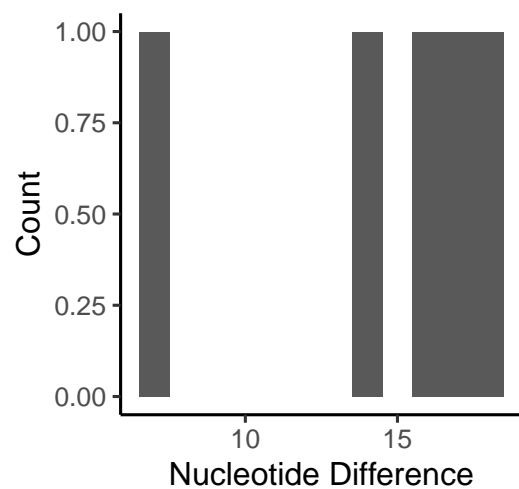
### IGHV3–66\*01

10 sequences assigned  
No exact matches.



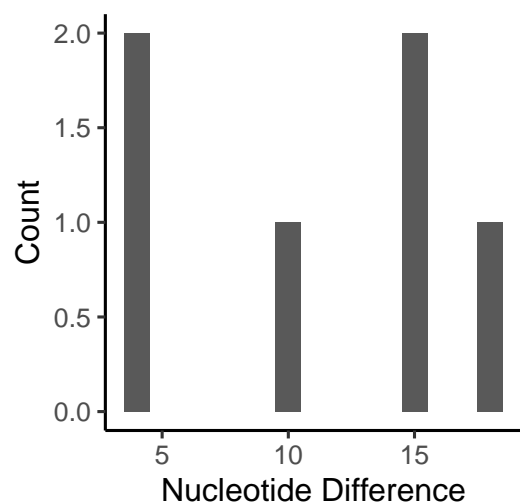
### IGHV3–66\*04

8 sequences assigned  
No exact matches.



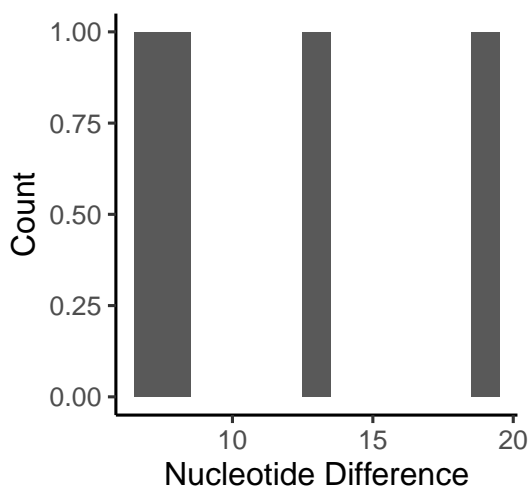
### IGHV3–64\*04

8 sequences assigned  
No exact matches.



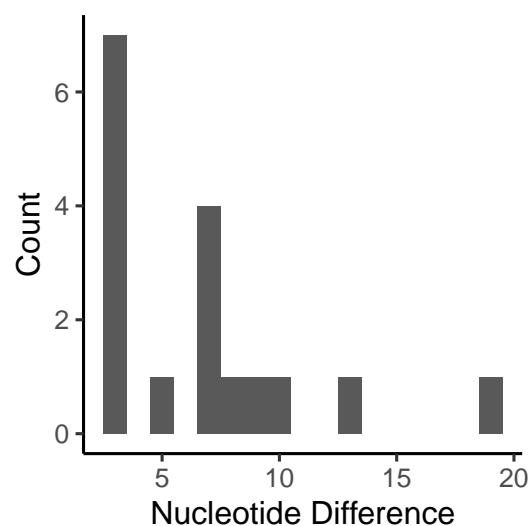
### IGHV3–66\*02

5 sequences assigned  
No exact matches.



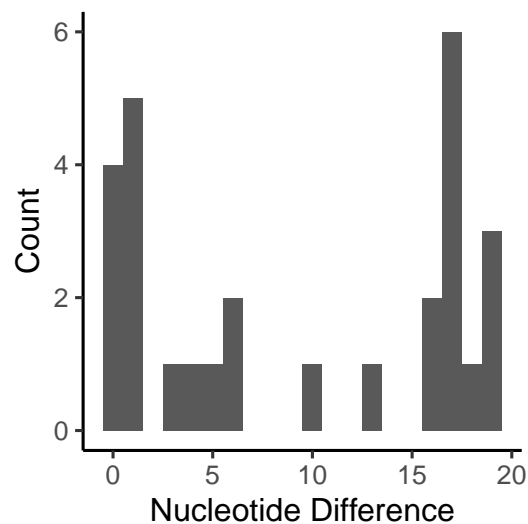
### IGHV3–69–1\*01

28 sequences assigned  
No exact matches.



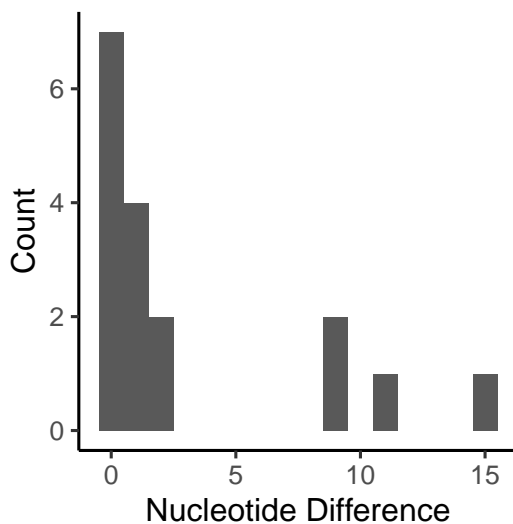
### IGHV3–64\*02\_07

28 sequences assigned  
4 (14.3%) exact matches, in which:  
2 unique CDR3  
1 unique J



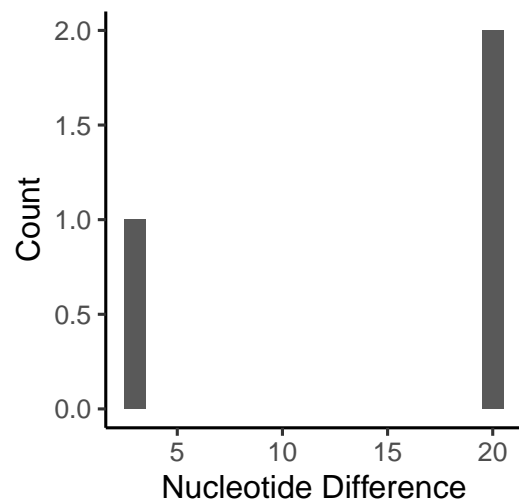
### IGHV3–66\*03

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



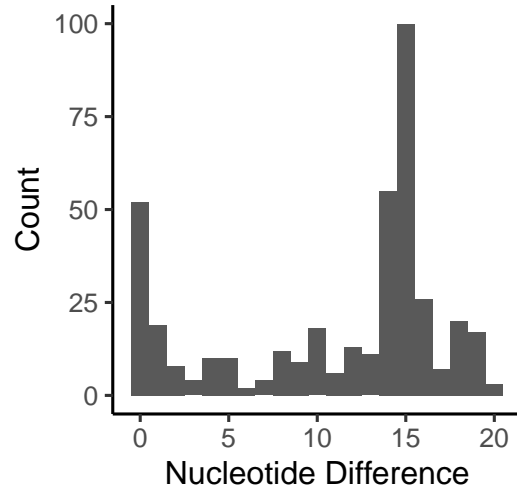
### IGHV3–69–1\*02

27 sequences assigned  
No exact matches.



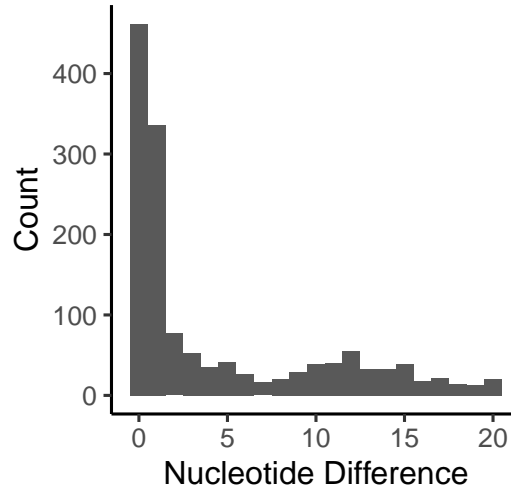
### IGHV3-72\*01

443 sequences assigned  
52 (11.7%) exact matches, in which:  
36 unique CDR3  
3 unique J



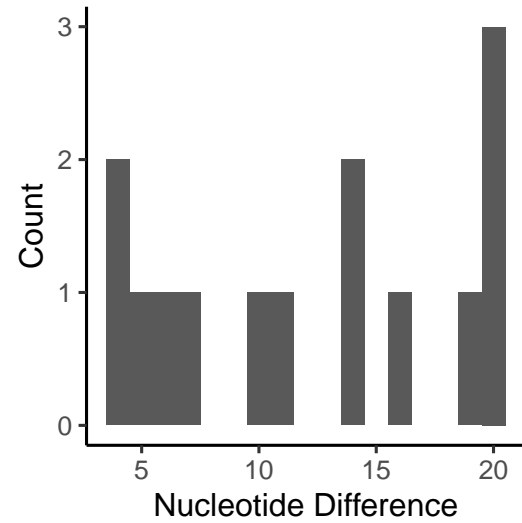
### IGHV3-74\*01\_02

1545 sequences assigned  
462 (29.9%) exact matches, in which:  
262 unique CDR3  
5 unique J



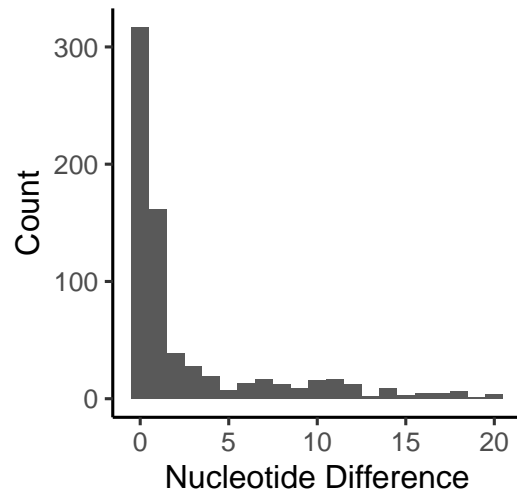
### IGHV3-NL1\*01

20 sequences assigned  
No exact matches.



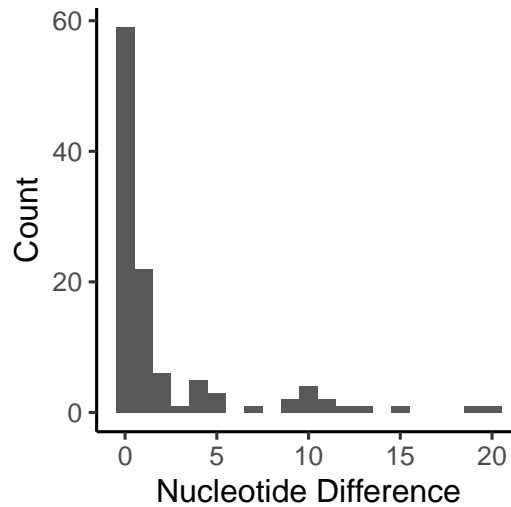
### IGHV3-73\*01\_02

745 sequences assigned  
317 (42.6%) exact matches, in which:  
201 unique CDR3  
6 unique J



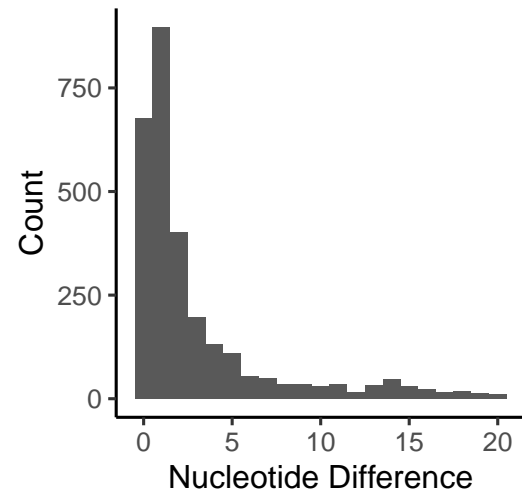
### IGHV3-43D\*04

112 sequences assigned  
59 (52.7%) exact matches, in which:  
35 unique CDR3  
2 unique J



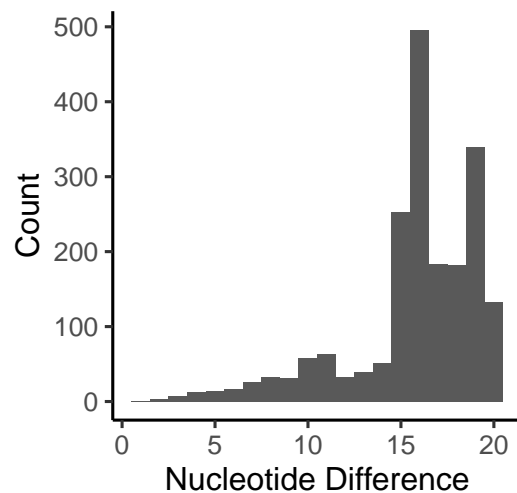
### IGHV4-4\*07

3225 sequences assigned  
676 (21%) exact matches, in which:  
590 unique CDR3  
6 unique J



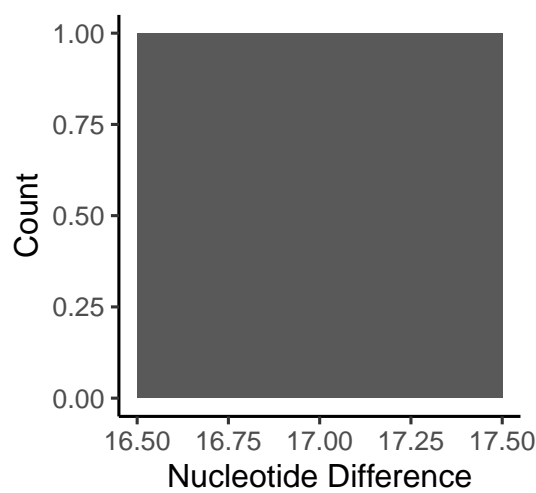
### IGHV3-74\*03

2343 sequences assigned  
No exact matches.



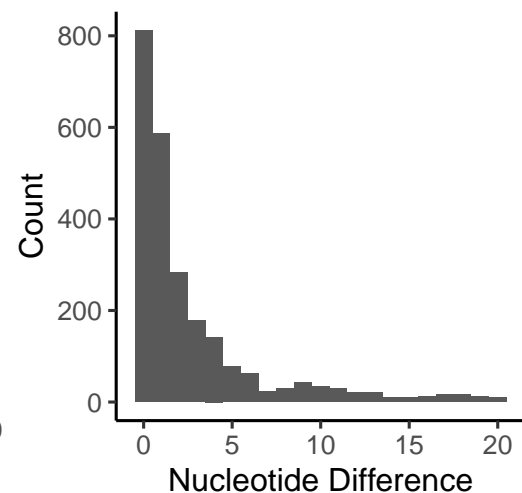
### IGHV3-64D\*06

84 sequences assigned  
No exact matches.



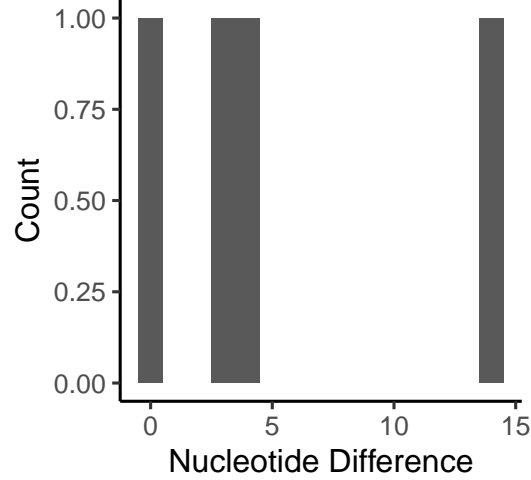
### IGHV4-4\*02\_03

3966 sequences assigned  
812 (20.5%) exact matches, in which:  
679 unique CDR3  
6 unique J



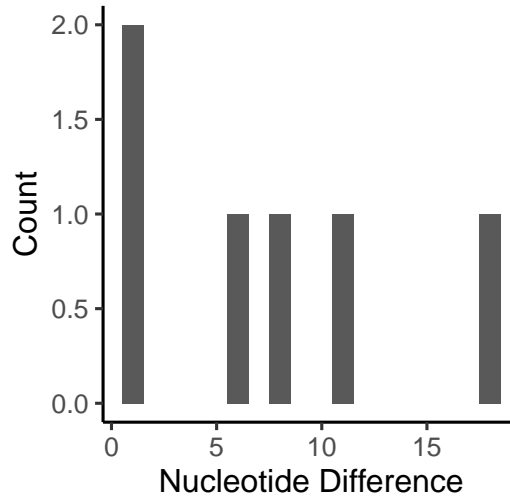
### IGHV4-28\*03

8 sequences assigned  
1 (12.5%) exact matches, in which:  
1 unique CDR3  
1 unique J



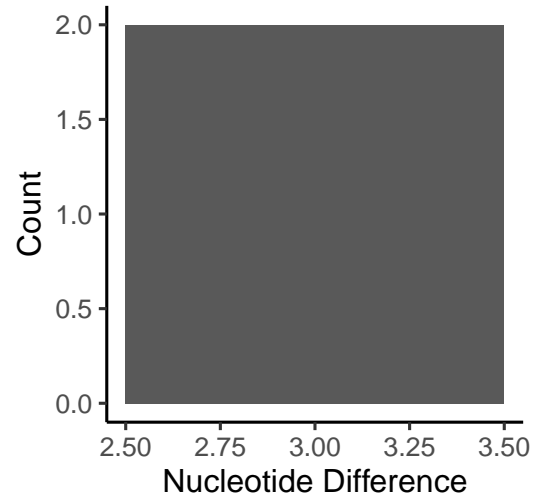
### IGHV4-30-4\*01

14 sequences assigned  
No exact matches.



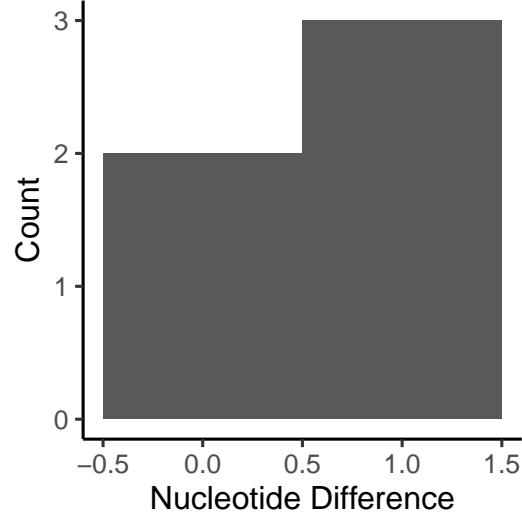
### IGHV4-30-2\*04

2 sequences assigned  
No exact matches.



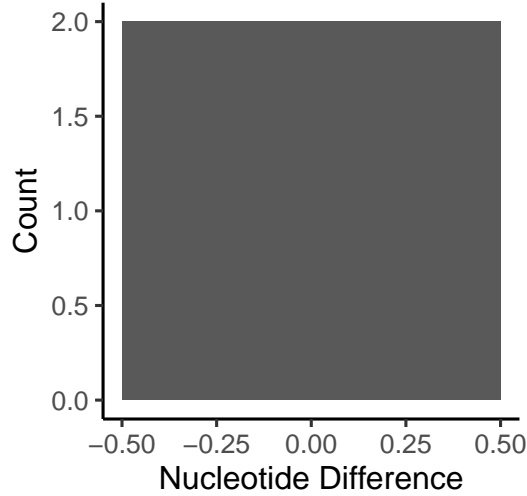
### IGHV4-28\*01\_07

5 sequences assigned  
2 (40%) exact matches, in which:  
2 unique CDR3  
1 unique J



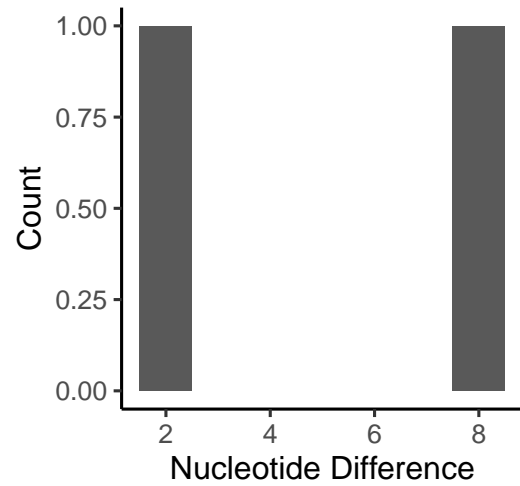
### IGHV4-30-2\*01

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



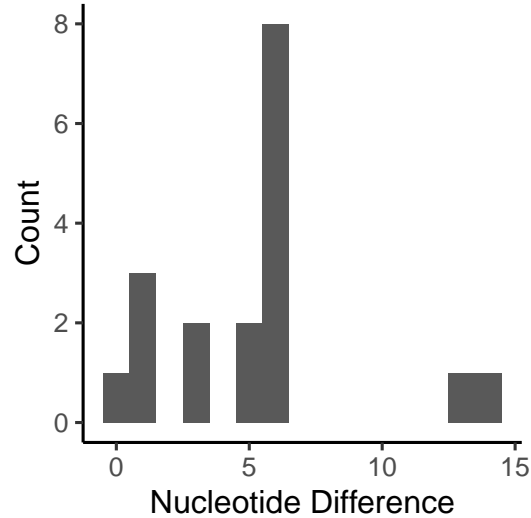
### IGHV4-30-4\*07

2 sequences assigned  
No exact matches.



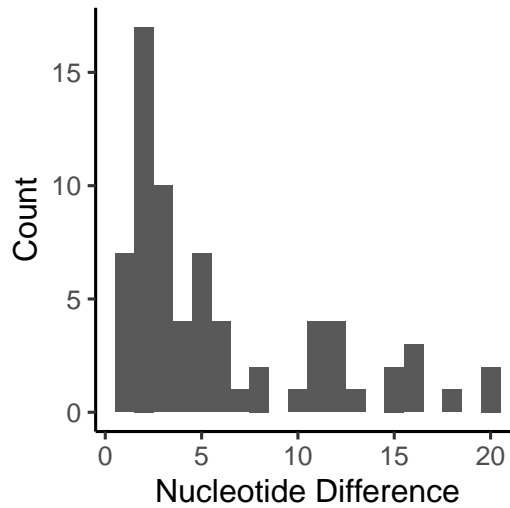
### IGHV4-28\*02\_05

18 sequences assigned  
1 (5.6%) exact matches, in which:  
1 unique CDR3  
1 unique J



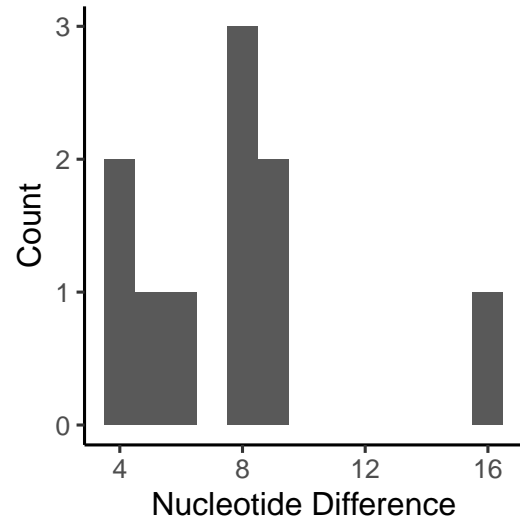
### IGHV4-30-2\*03

76 sequences assigned  
No exact matches.



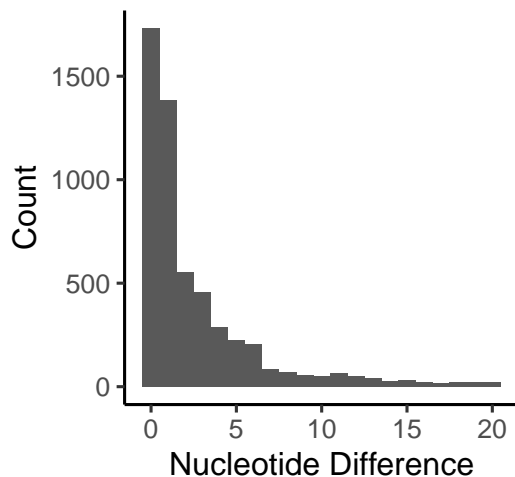
### IGHV4-30-4\*08

30 sequences assigned  
No exact matches.



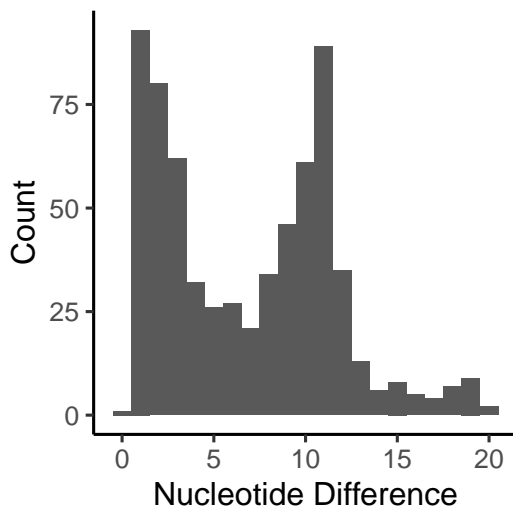
### IGHV4-31\*02

5651 sequences assigned  
1731 (30.6%) exact matches, in which:  
1525 unique CDR3  
6 unique J



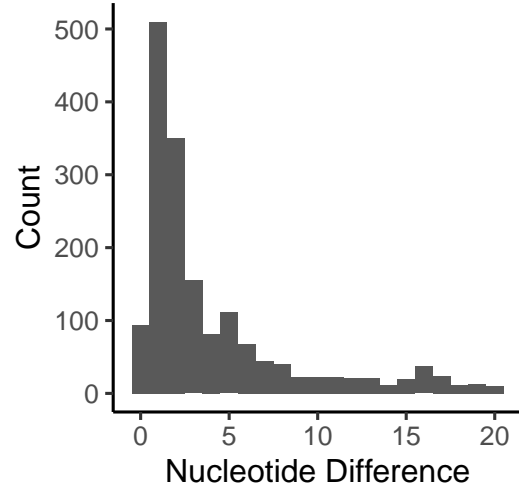
### IGHV4-39\*07

770 sequences assigned  
1 (0.1%) exact matches, in which:  
1 unique CDR3  
1 unique J



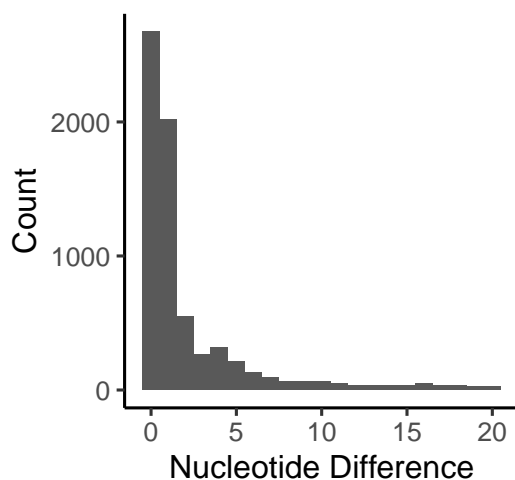
### IGHV4-59\*12

1838 sequences assigned  
94 (5.1%) exact matches, in which:  
93 unique CDR3  
6 unique J



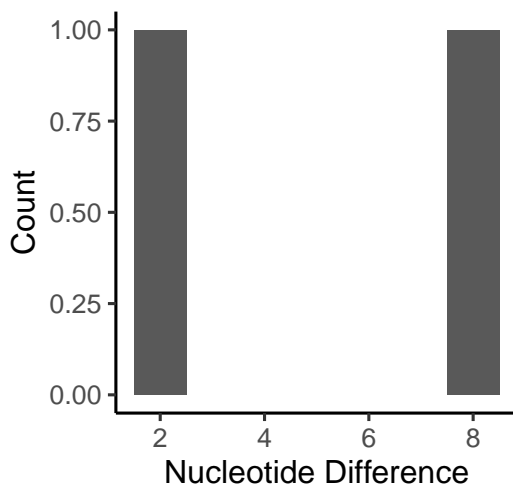
### IGHV4-34\*01\_02

8680 sequences assigned  
2673 (30.8%) exact matches, in which:  
2181 unique CDR3  
6 unique J



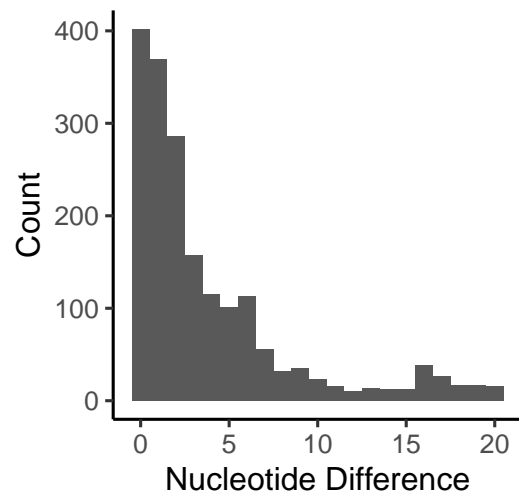
### IGHV4-55\*09

2 sequences assigned  
No exact matches.



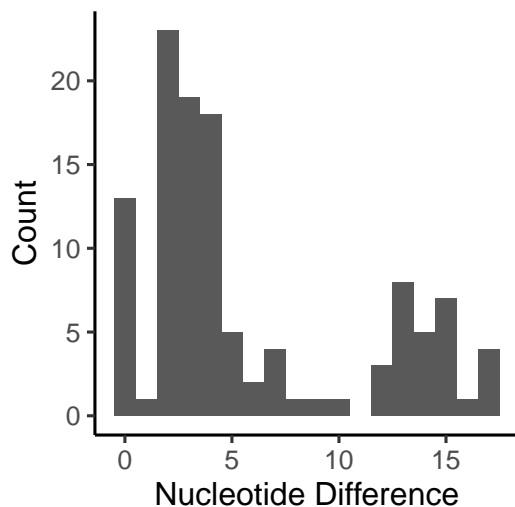
### IGHV4-61\*01

2859 sequences assigned  
402 (14.1%) exact matches, in which:  
365 unique CDR3  
6 unique J



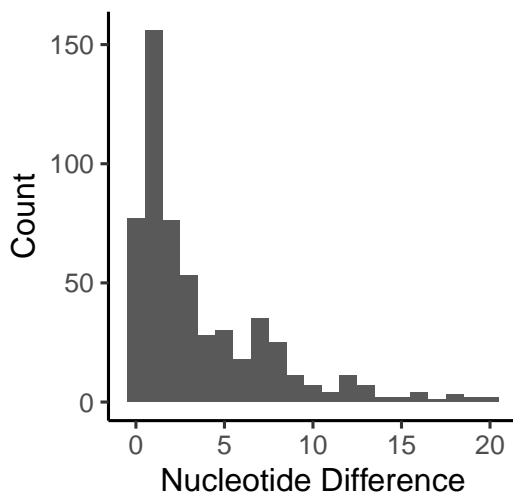
### IGHV4-38-2\*02

1673 sequences assigned  
13 (0.8%) exact matches, in which:  
13 unique CDR3  
4 unique J



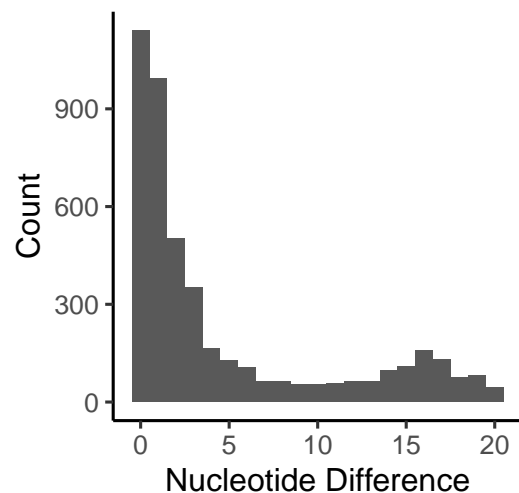
### IGHV4-59\*08

585 sequences assigned  
77 (13.2%) exact matches, in which:  
76 unique CDR3  
5 unique J



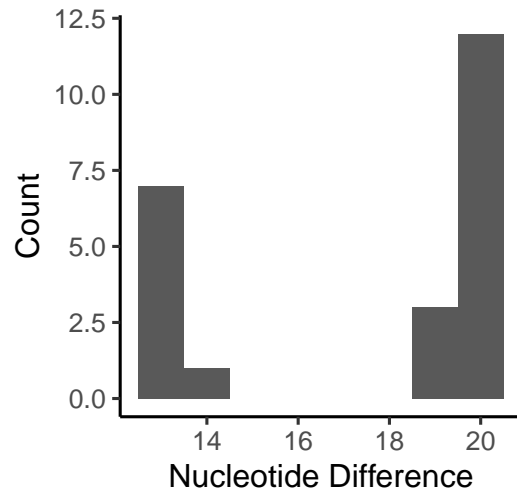
### IGHV4-61\*02\_A234G

5097 sequences assigned  
1141 (22.4%) exact matches, in which:  
1015 unique CDR3  
6 unique J



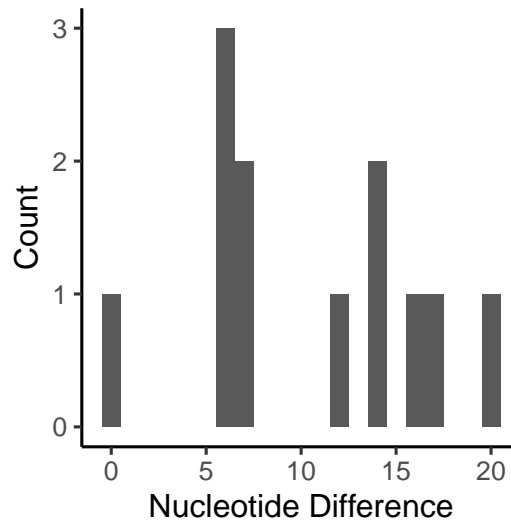
### IGHV1/OR15-1\*04

287 sequences assigned  
No exact matches.



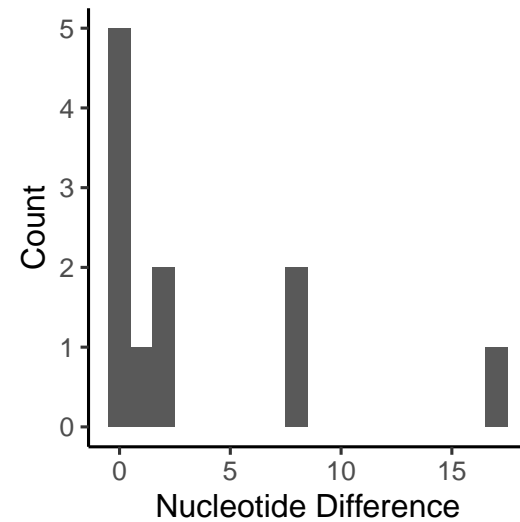
### IGHV5-10-1\*01\_03

12 sequences assigned  
1 (8.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



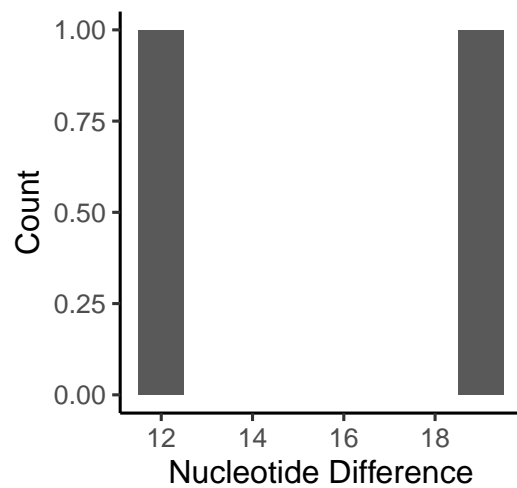
### IGHV5-51\*07

16 sequences assigned  
5 (31.2%) exact matches, in which:  
5 unique CDR3  
3 unique J



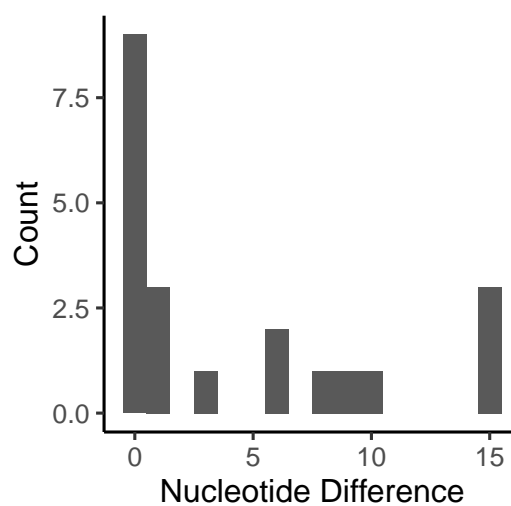
### IGHV4/OR15-8\*01

35 sequences assigned  
No exact matches.



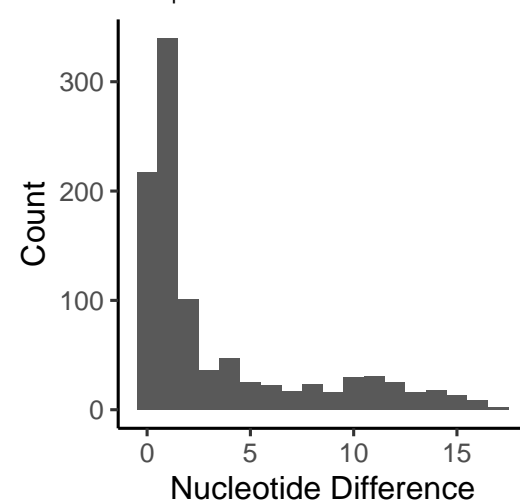
### IGHV5-51\*04

26 sequences assigned  
9 (34.6%) exact matches, in which:  
9 unique CDR3  
3 unique J



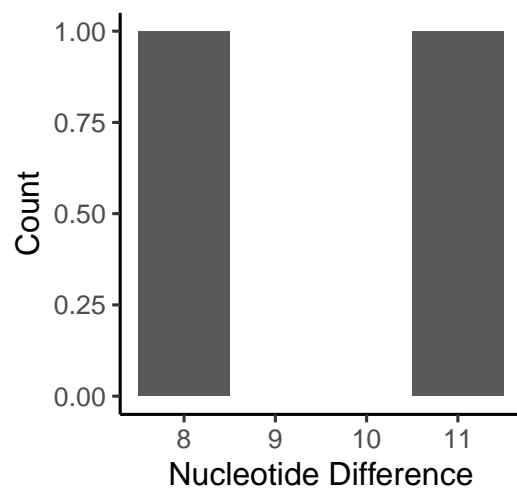
### IGHV6-1\*01\_02

996 sequences assigned  
217 (21.8%) exact matches, in which:  
188 unique CDR3  
5 unique J



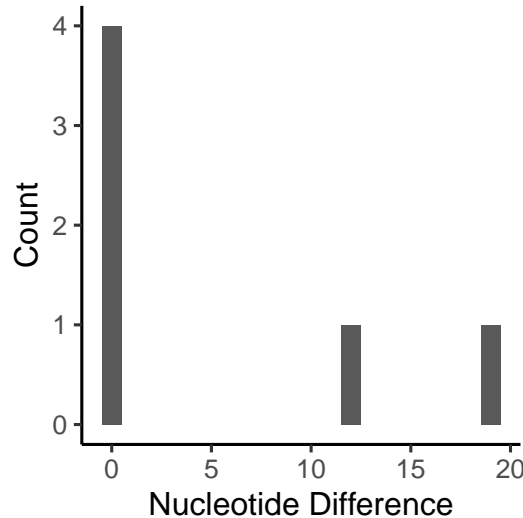
### IGHV4/OR15-8\*02

7 sequences assigned  
No exact matches.



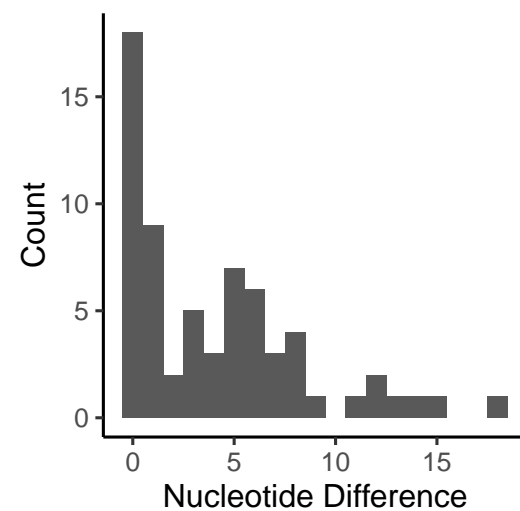
### IGHV5-51\*06

38 sequences assigned  
4 (10.5%) exact matches, in which:  
4 unique CDR3  
3 unique J



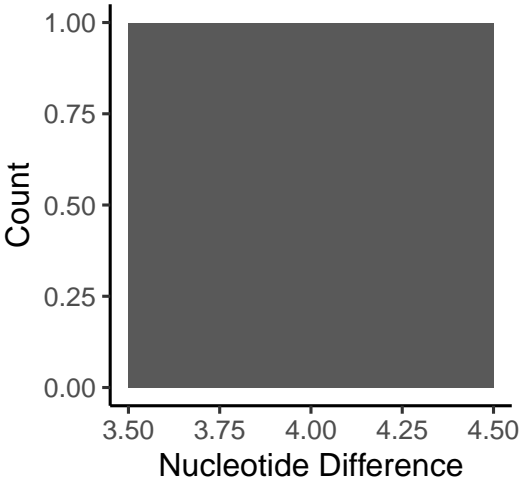
### IGHV6-1\*01\_02\_A315G

66 sequences assigned  
18 (27.3%) exact matches, in which:  
17 unique CDR3  
3 unique J



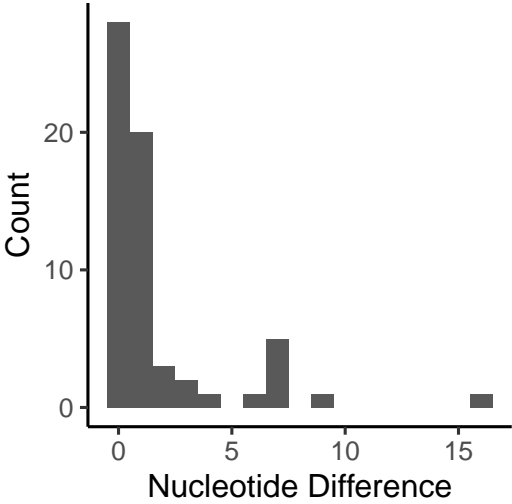
# IGHV3/OR16-10\*01\_03

1 sequences assigned  
No exact matches.

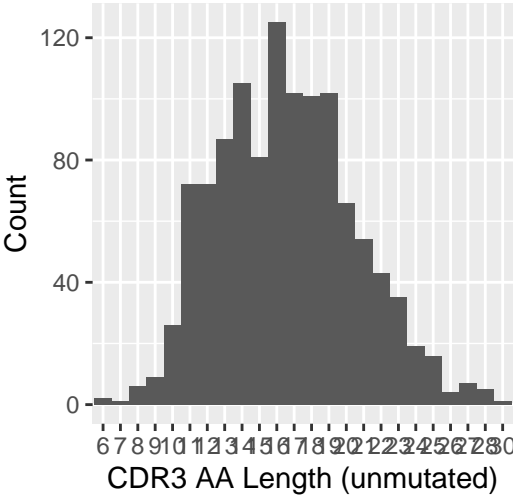


# IGHV7-4-1\*01

62 sequences assigned  
28 (45.2%) exact matches, in which:  
24 unique CDR3  
3 unique J



IGHV4-61\*02\_A234G



IGHV6-1\*01\_02\_A315G

