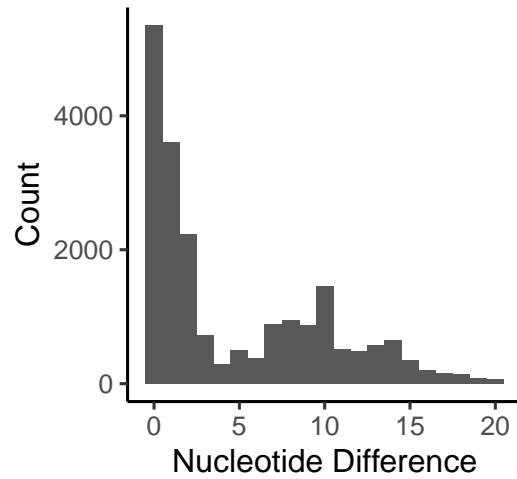


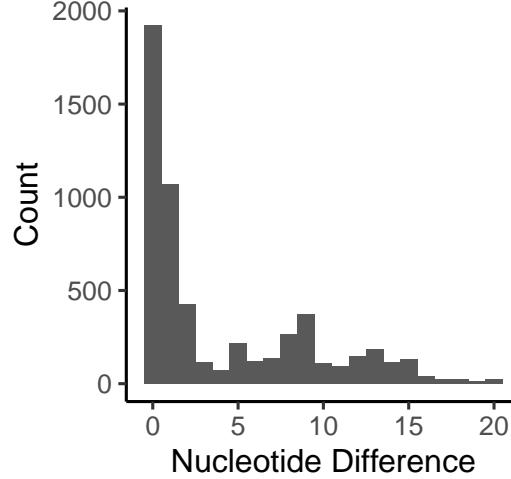
### IGHV1-2\*02

21558 sequences assigned  
5350 (24.8%) exact matches, in which:  
4844 unique CDR3  
6 unique J



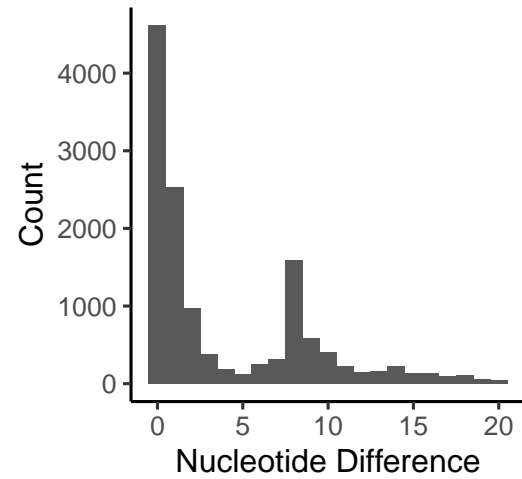
### IGHV1-8\*01

5992 sequences assigned  
1922 (32.1%) exact matches, in which:  
1804 unique CDR3  
6 unique J



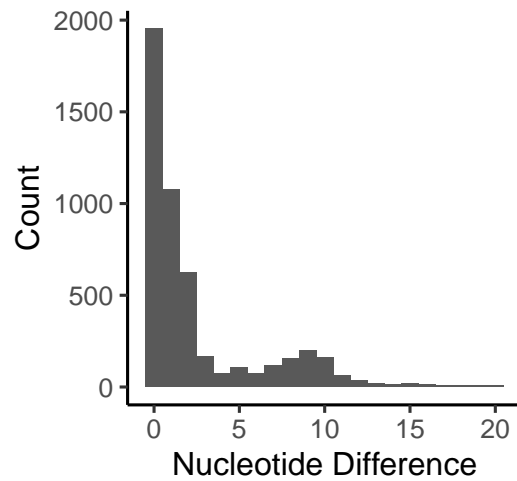
### IGHV1-18\*04

14292 sequences assigned  
4615 (32.3%) exact matches, in which:  
4250 unique CDR3  
6 unique J



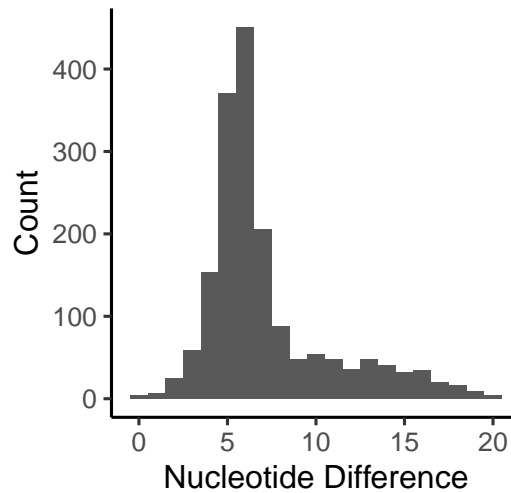
### IGHV1-2\*04

4965 sequences assigned  
1953 (39.3%) exact matches, in which:  
1800 unique CDR3  
6 unique J



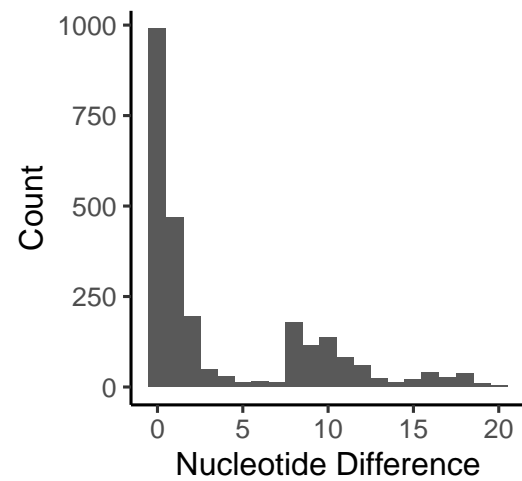
### IGHV1-8\*02

1776 sequences assigned  
4 (0.2%) exact matches, in which:  
4 unique CDR3  
2 unique J



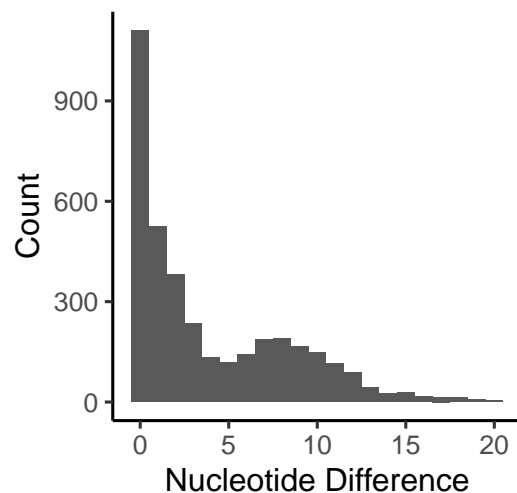
### IGHV1-24\*01

2588 sequences assigned  
990 (38.3%) exact matches, in which:  
923 unique CDR3  
6 unique J



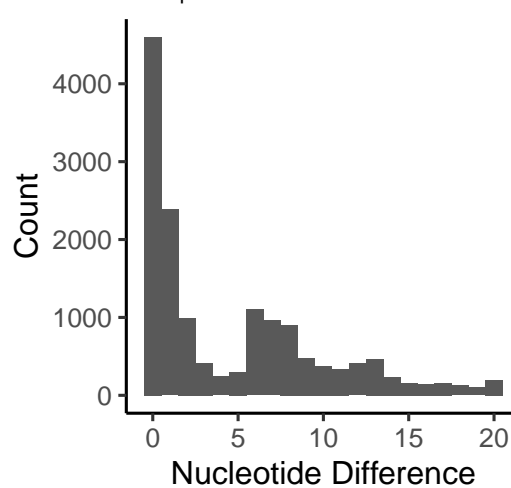
### IGHV1-3\*01\_05

3826 sequences assigned  
1111 (29%) exact matches, in which:  
996 unique CDR3  
6 unique J



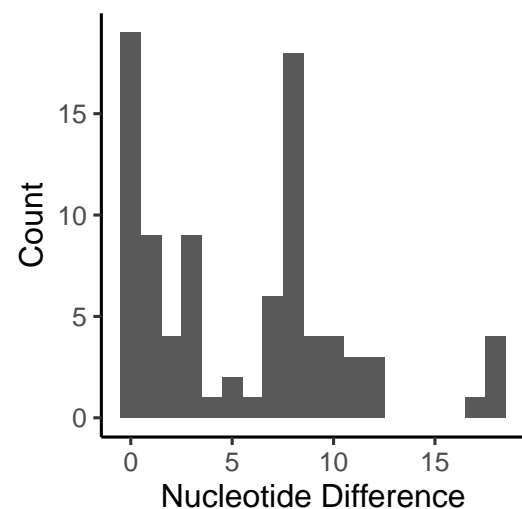
### IGHV1-18\*01

16340 sequences assigned  
4600 (28.2%) exact matches, in which:  
4257 unique CDR3  
6 unique J



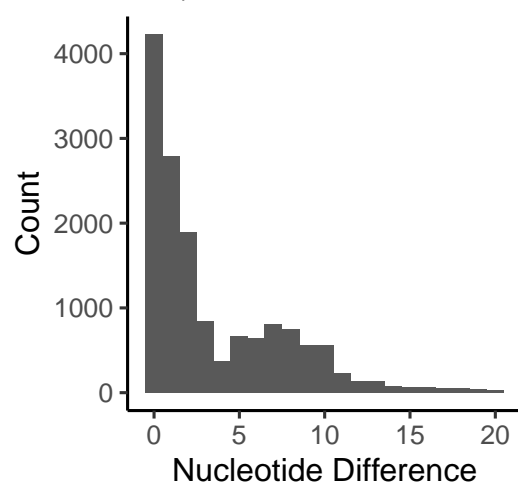
### IGHV1-45\*02

88 sequences assigned  
19 (21.6%) exact matches, in which:  
18 unique CDR3  
4 unique J



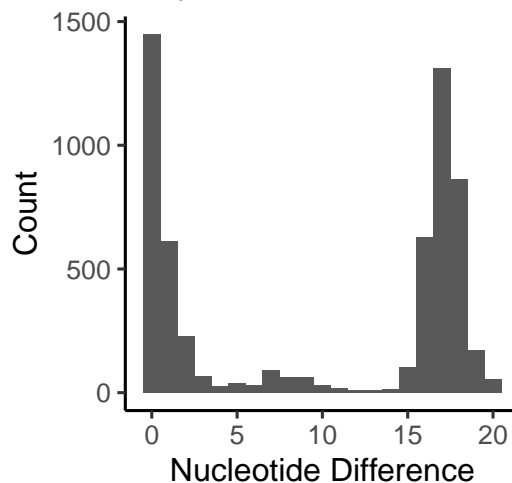
### IGHV1-46\*01

15582 sequences assigned  
4227 (27.1%) exact matches, in which:  
3907 unique CDR3  
6 unique J



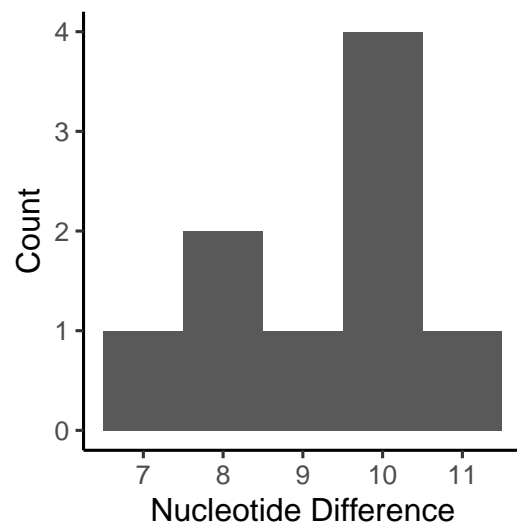
### IGHV1-69\*02

6241 sequences assigned  
1448 (23.2%) exact matches, in which:  
1382 unique CDR3  
6 unique J



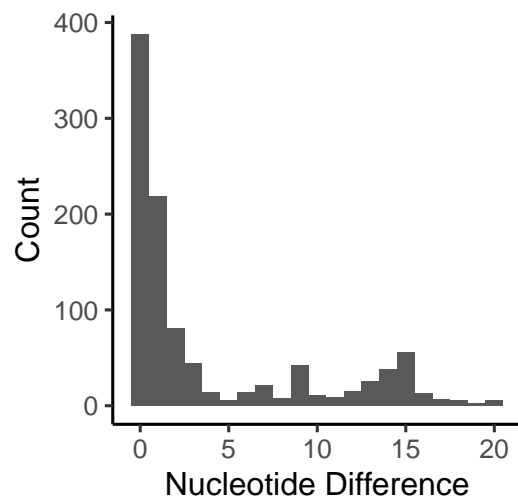
### IGHV1-NL1\*01

9 sequences assigned  
No exact matches.



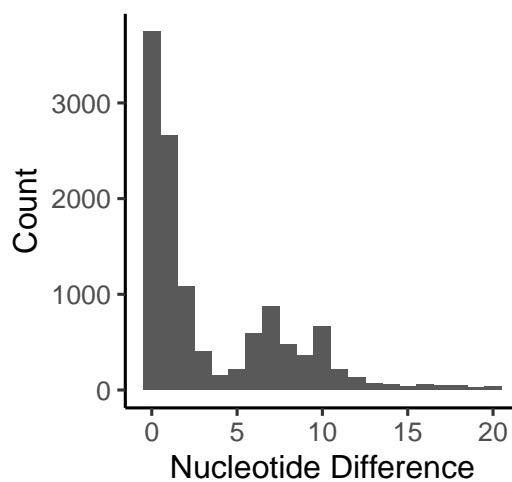
### IGHV1-58\*02

1044 sequences assigned  
388 (37.2%) exact matches, in which:  
350 unique CDR3  
6 unique J



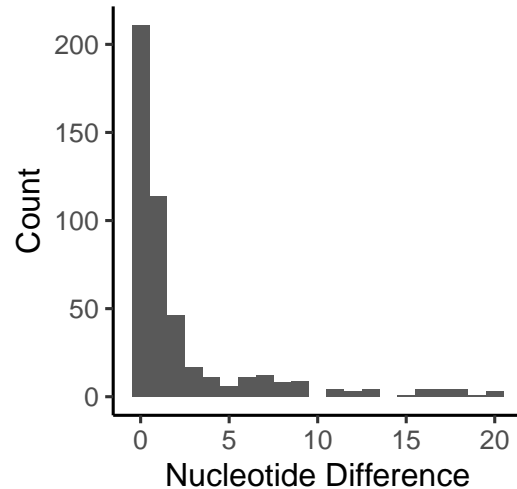
### IGHV1-69\*04\_09

12568 sequences assigned  
3744 (29.8%) exact matches, in which:  
3514 unique CDR3  
6 unique J



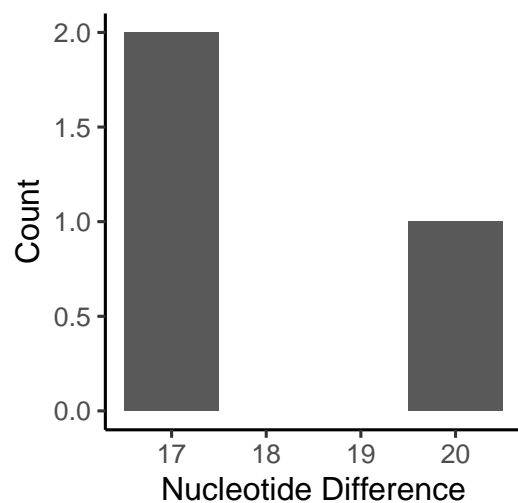
### IGHV2-5\*01

532 sequences assigned  
211 (39.7%) exact matches, in which:  
190 unique CDR3  
6 unique J



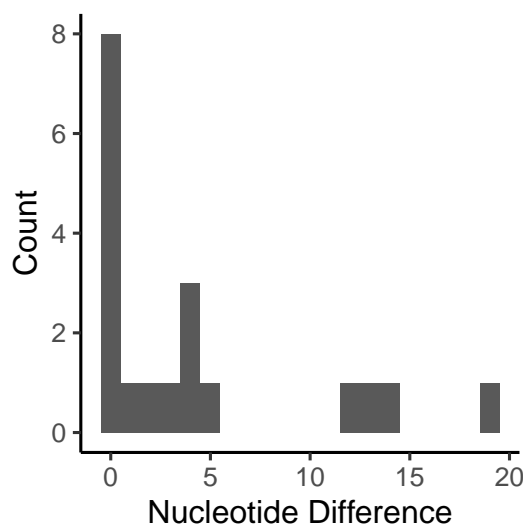
### IGHV1-69-2\*01

4 sequences assigned  
No exact matches.



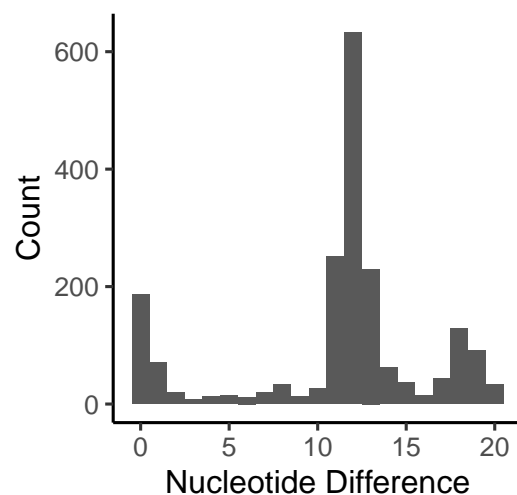
### IGHV1-69D\*01

21 sequences assigned  
8 (38.1%) exact matches, in which:  
8 unique CDR3  
3 unique J



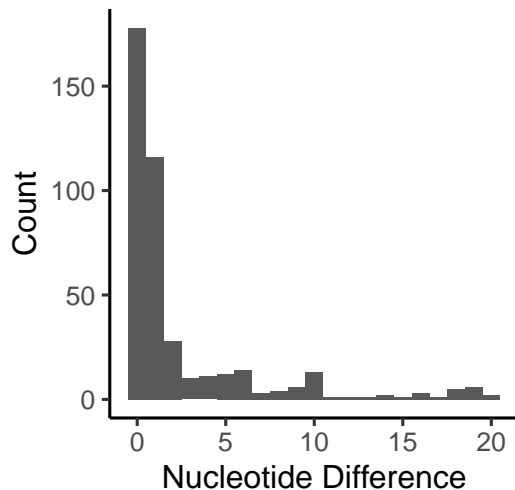
### IGHV2-26\*01

1994 sequences assigned  
187 (9.4%) exact matches, in which:  
172 unique CDR3  
5 unique J



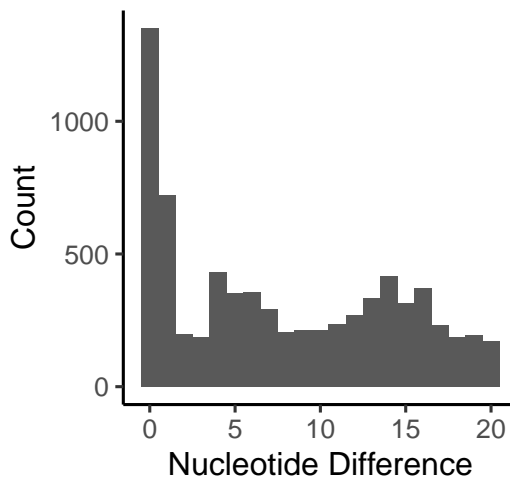
### IGHV2-70\*11\_15

462 sequences assigned  
178 (38.5%) exact matches, in which:  
152 unique CDR3  
5 unique J



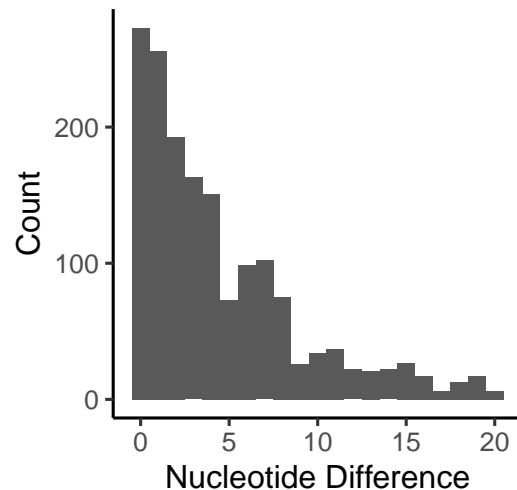
### IGHV3-7\*03

8287 sequences assigned  
1350 (16.3%) exact matches, in which:  
1031 unique CDR3  
6 unique J



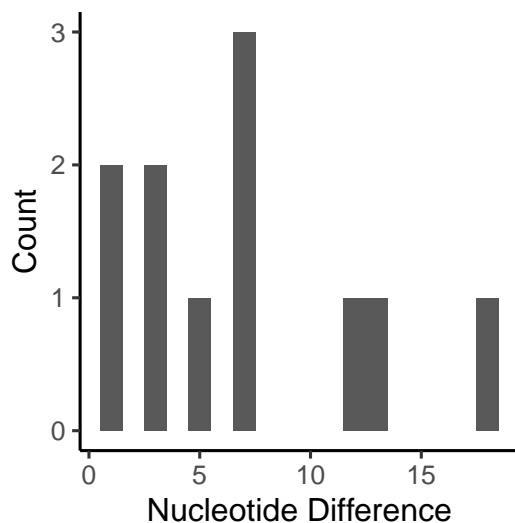
### IGHV3-11\*04

1763 sequences assigned  
273 (15.5%) exact matches, in which:  
268 unique CDR3  
5 unique J



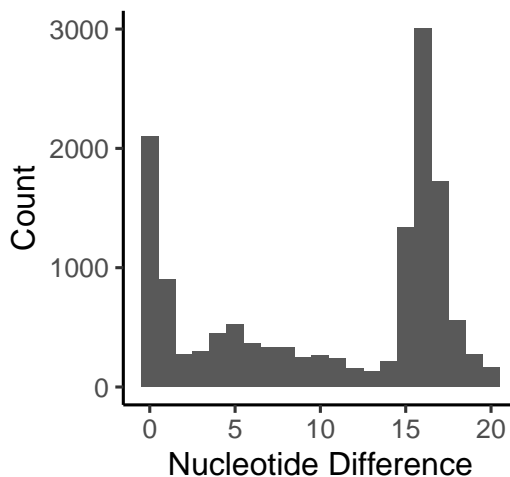
### IGHV2-70D\*04

11 sequences assigned  
No exact matches.



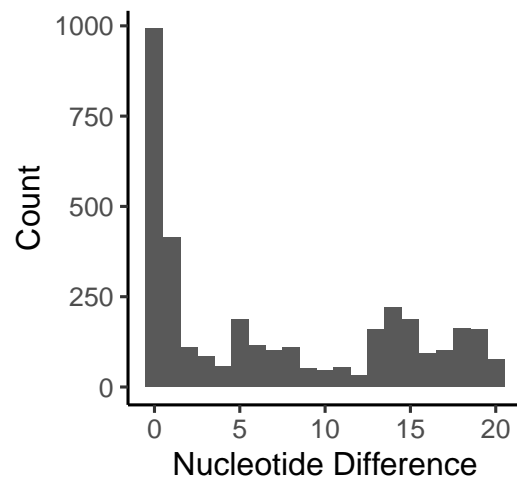
### IGHV3-9\*01

15575 sequences assigned  
2103 (13.5%) exact matches, in which:  
1490 unique CDR3  
6 unique J



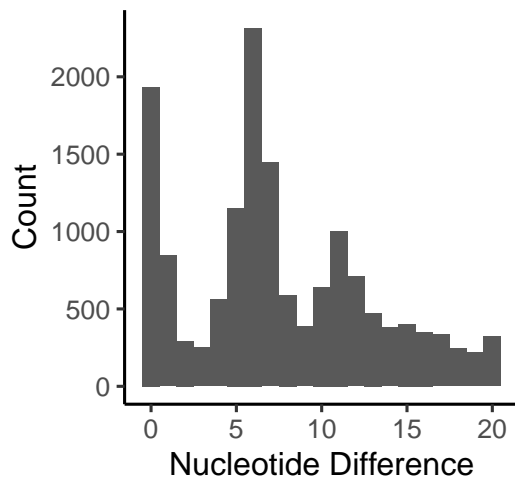
### IGHV3-11\*06

4953 sequences assigned  
992 (20%) exact matches, in which:  
784 unique CDR3  
6 unique J



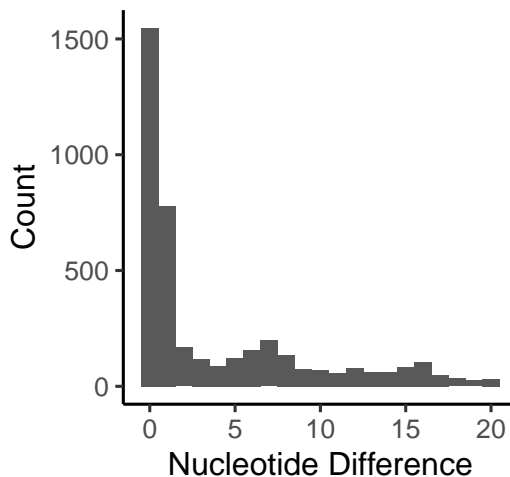
### IGHV3-7\*01

17202 sequences assigned  
1934 (11.2%) exact matches, in which:  
1576 unique CDR3  
6 unique J



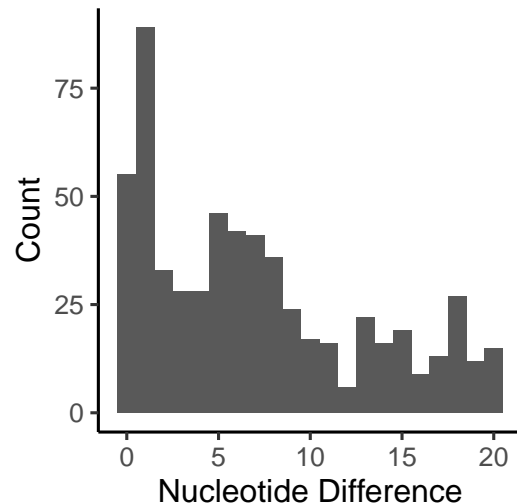
### IGHV3-11\*01

4850 sequences assigned  
1547 (31.9%) exact matches, in which:  
1165 unique CDR3  
6 unique J



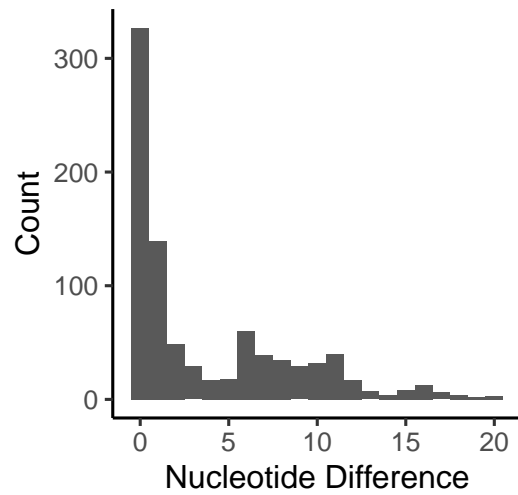
### IGHV3-11\*03\_05

1009 sequences assigned  
55 (5.5%) exact matches, in which:  
55 unique CDR3  
5 unique J



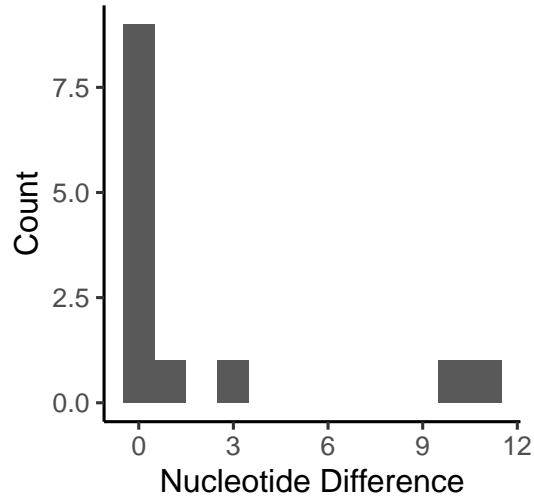
### IGHV3-13\*01

903 sequences assigned  
327 (36.2%) exact matches, in which:  
239 unique CDR3  
6 unique J



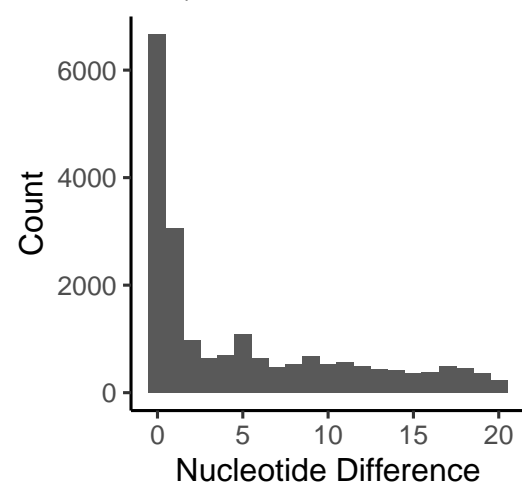
### IGHV3-19\*01

13 sequences assigned  
9 (69.2%) exact matches, in which:  
9 unique CDR3  
2 unique J



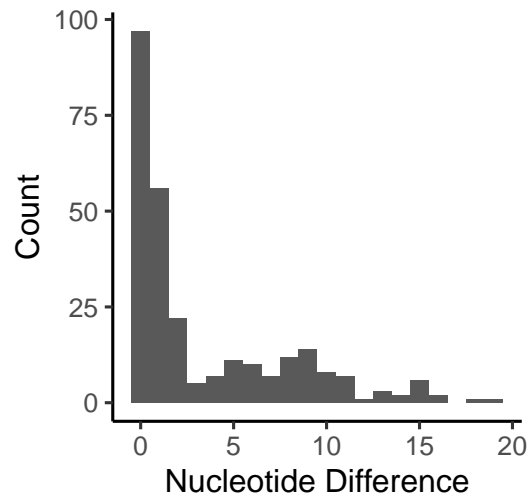
### IGHV3-21\*01\_02

25833 sequences assigned  
6664 (25.8%) exact matches, in which:  
4839 unique CDR3  
6 unique J



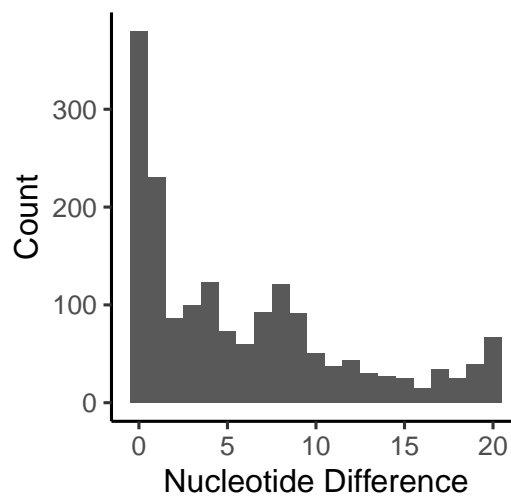
### IGHV3-13\*05

278 sequences assigned  
97 (34.9%) exact matches, in which:  
65 unique CDR3  
5 unique J



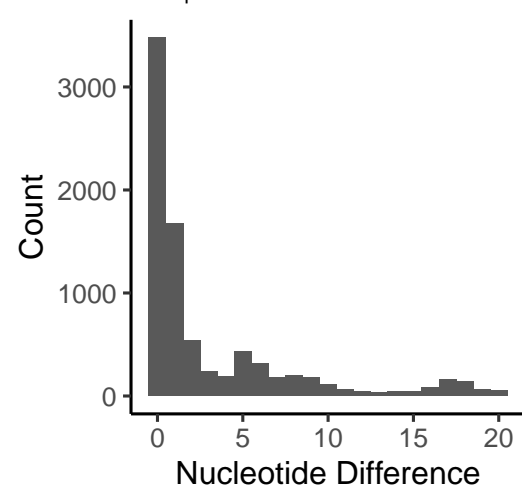
### IGHV3-20\*03\_04

2417 sequences assigned  
380 (15.7%) exact matches, in which:  
282 unique CDR3  
6 unique J



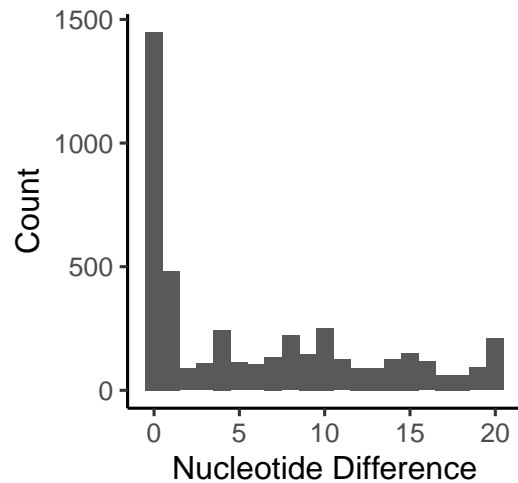
### IGHV3-30-3\*01

9392 sequences assigned  
3478 (37%) exact matches, in which:  
2690 unique CDR3  
6 unique J



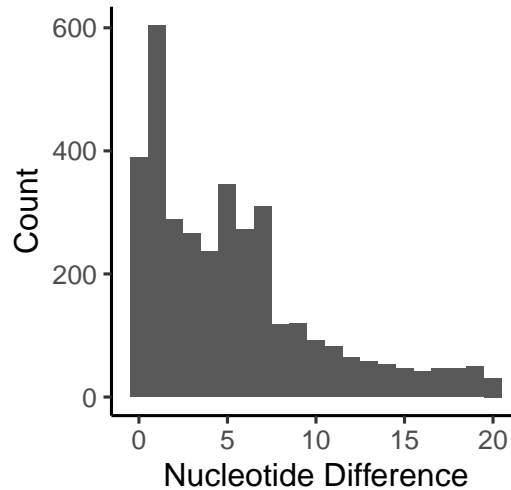
### IGHV3-15\*01\_02

6001 sequences assigned  
1449 (24.1%) exact matches, in which:  
1063 unique CDR3  
6 unique J



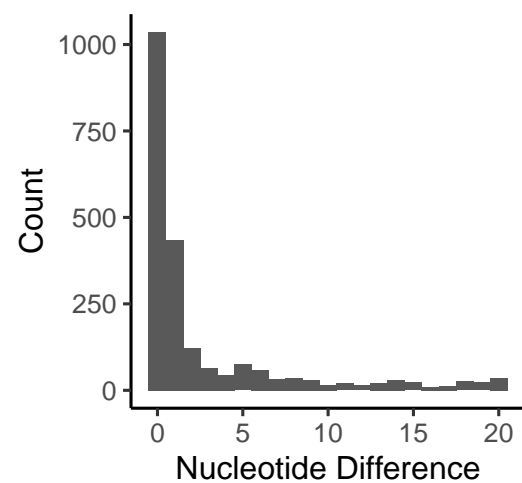
### IGHV3-21\*04

3953 sequences assigned  
389 (9.8%) exact matches, in which:  
374 unique CDR3  
6 unique J



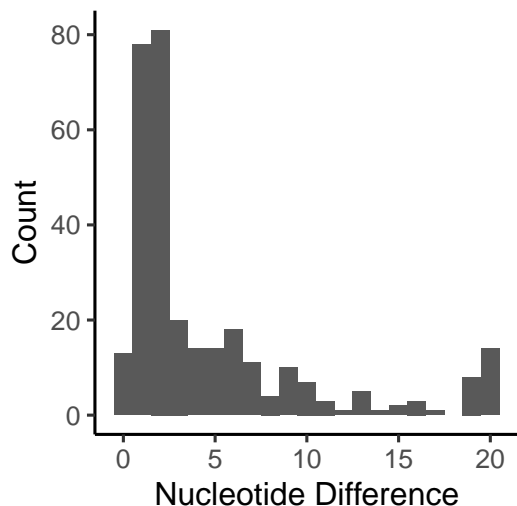
### IGHV3-30\*03

2859 sequences assigned  
1036 (36.2%) exact matches, in which:  
968 unique CDR3  
6 unique J



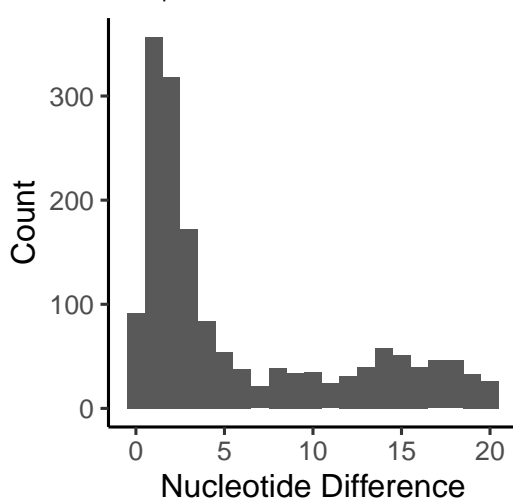
### IGHV3-30\*04

405 sequences assigned  
13 (3.2%) exact matches, in which:  
12 unique CDR3  
2 unique J



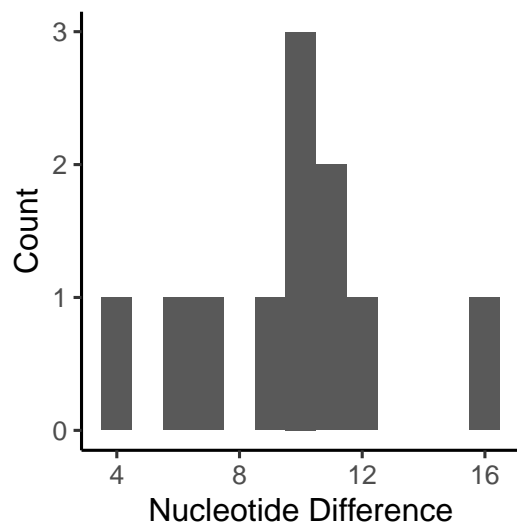
### IGHV3-33\*06

1729 sequences assigned  
92 (5.3%) exact matches, in which:  
89 unique CDR3  
6 unique J



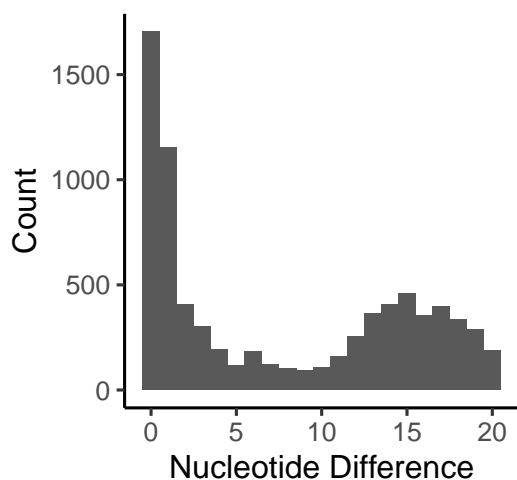
### IGHV3-38\*03

11 sequences assigned  
No exact matches.



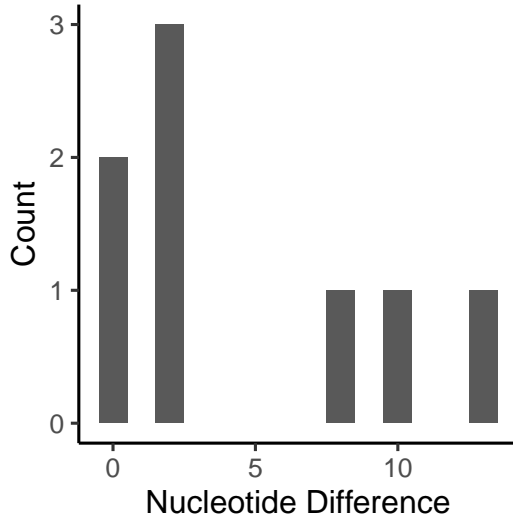
### IGHV3-33\*01

8316 sequences assigned  
1704 (20.5%) exact matches, in which:  
1336 unique CDR3  
6 unique J



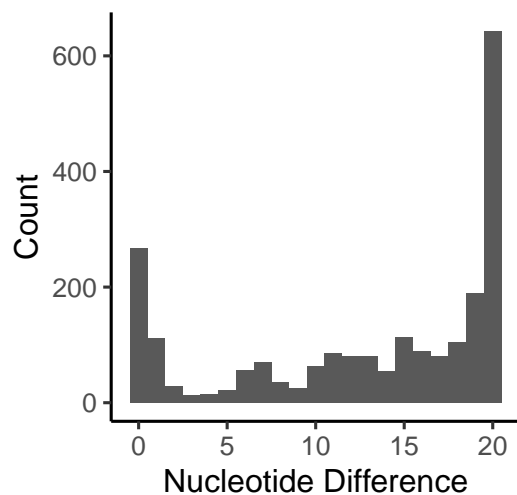
### IGHV3-35\*01

8 sequences assigned  
2 (25%) exact matches, in which:  
2 unique CDR3  
2 unique J



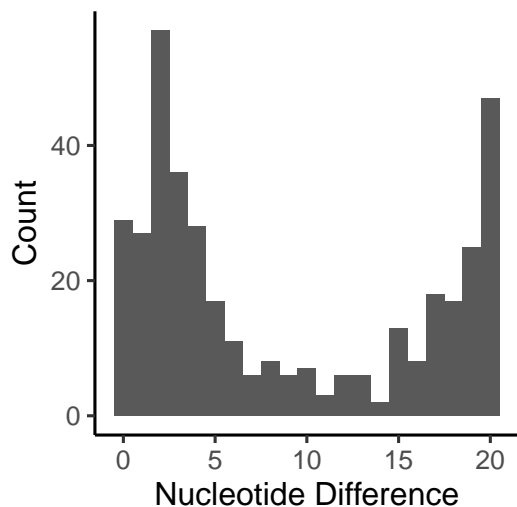
### IGHV3-43\*01

14676 sequences assigned  
268 (1.8%) exact matches, in which:  
205 unique CDR3  
6 unique J



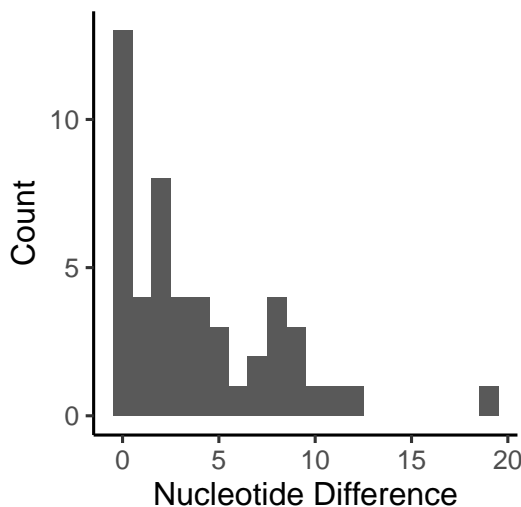
### IGHV3-33\*05

440 sequences assigned  
29 (6.6%) exact matches, in which:  
29 unique CDR3  
4 unique J



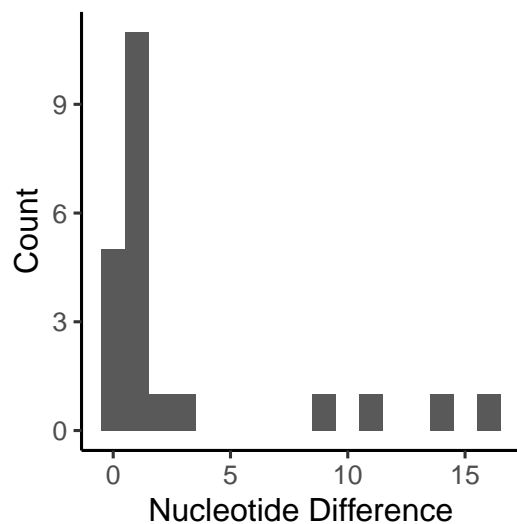
### IGHV3-38-3\*01

51 sequences assigned  
13 (25.5%) exact matches, in which:  
11 unique CDR3  
4 unique J



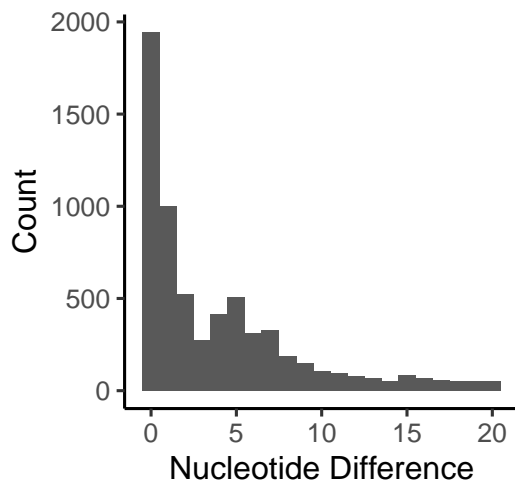
### IGHV3-47\*02

22 sequences assigned  
5 (22.7%) exact matches, in which:  
3 unique CDR3  
2 unique J



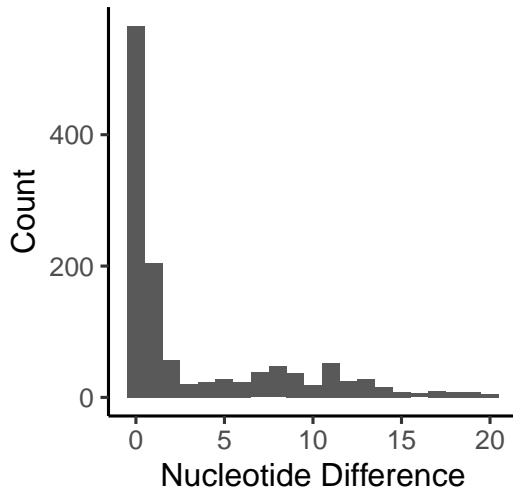
### IGHV3-48\*01

6943 sequences assigned  
1943 (28%) exact matches, in which:  
1511 unique CDR3  
6 unique J



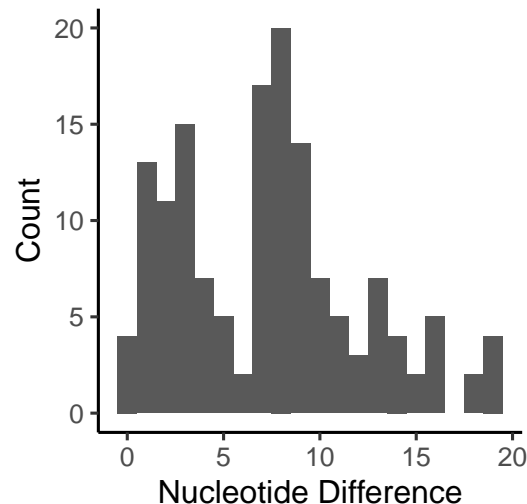
### IGHV3-49\*03\_05

1525 sequences assigned  
566 (37.1%) exact matches, in which:  
422 unique CDR3  
6 unique J



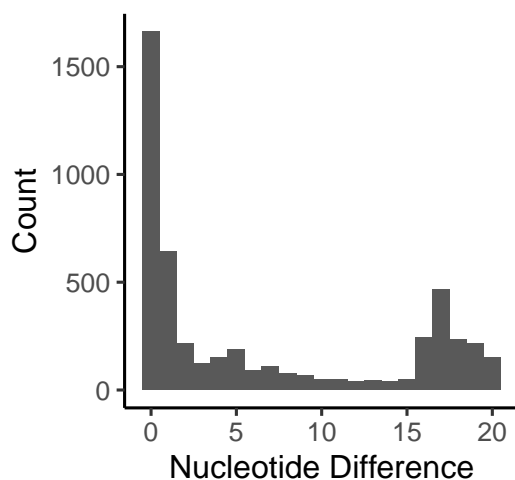
### IGHV3-53\*05

161 sequences assigned  
4 (2.5%) exact matches, in which:  
4 unique CDR3  
2 unique J



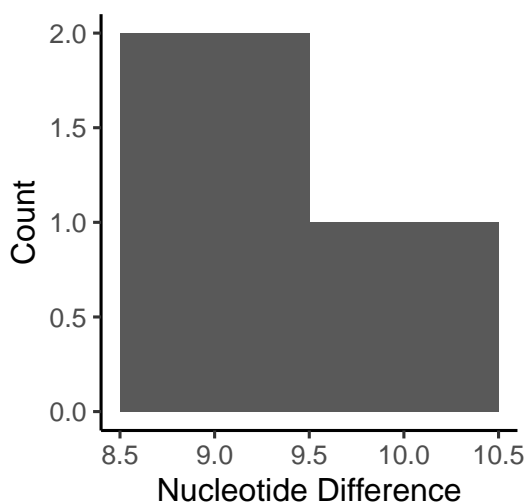
### IGHV3-48\*02

5630 sequences assigned  
1662 (29.5%) exact matches, in which:  
1214 unique CDR3  
6 unique J



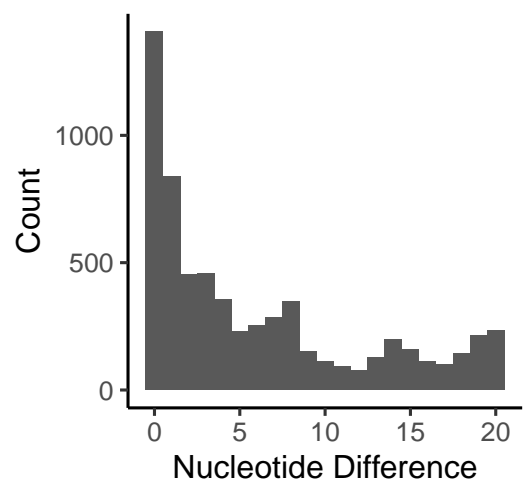
### IGHV3-52\*02

3 sequences assigned  
No exact matches.



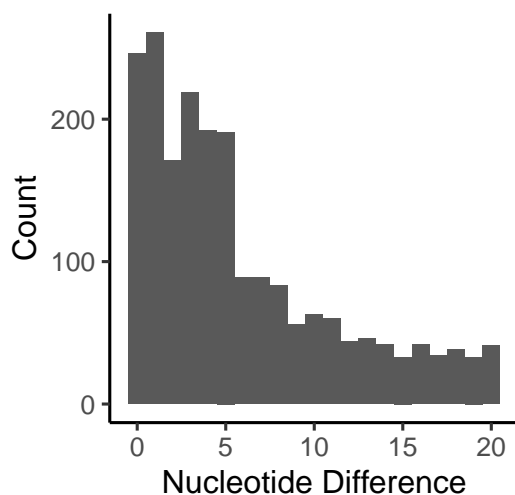
### IGHV3-53\*01\_02

7630 sequences assigned  
1407 (18.4%) exact matches, in which:  
1084 unique CDR3  
6 unique J



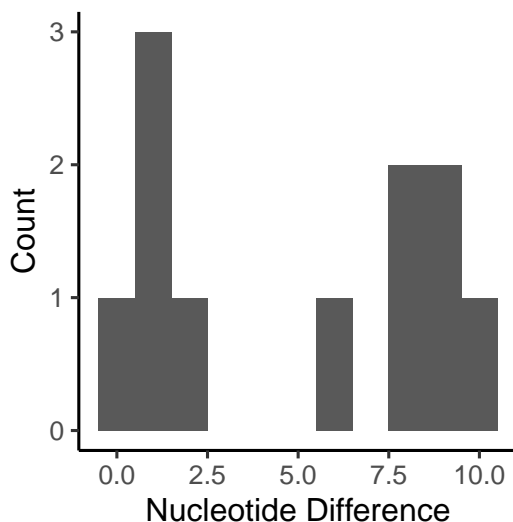
### IGHV3-48\*04

2349 sequences assigned  
246 (10.5%) exact matches, in which:  
240 unique CDR3  
6 unique J



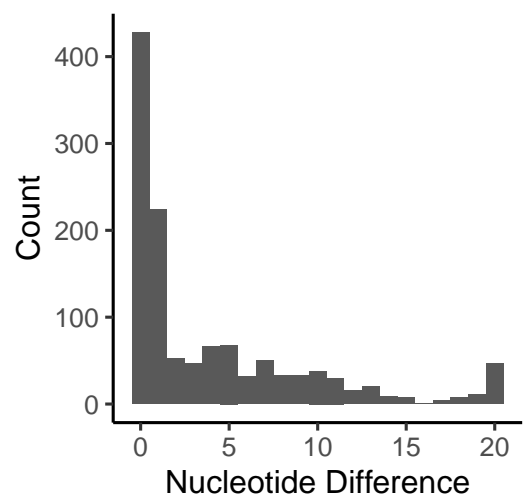
### IGHV3-52\*01\_03

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



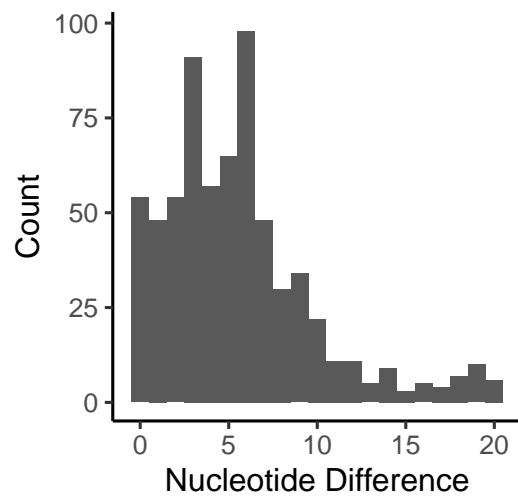
### IGHV3-64\*01

1430 sequences assigned  
428 (29.9%) exact matches, in which:  
307 unique CDR3  
6 unique J



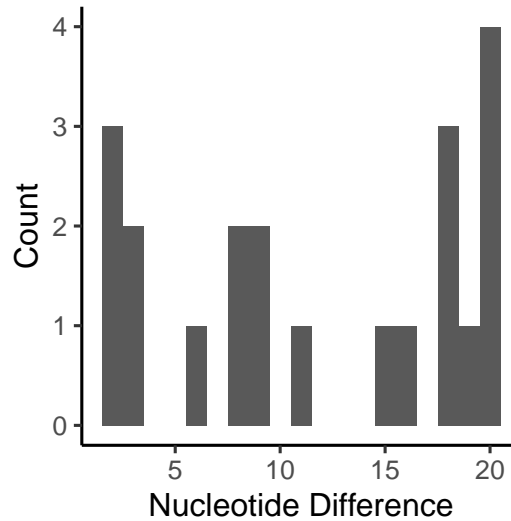
### IGHV3-64\*04

736 sequences assigned  
54 (7.3%) exact matches, in which:  
54 unique CDR3  
6 unique J



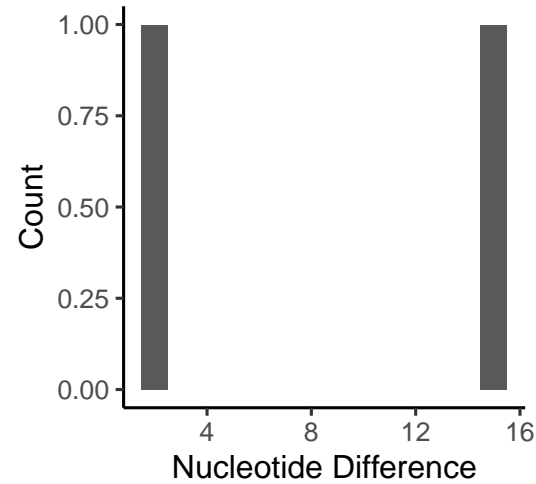
### IGHV3-66\*03

59 sequences assigned  
No exact matches.



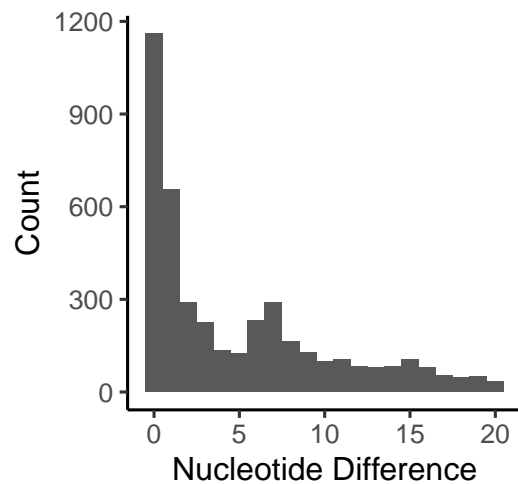
### IGHV3-71\*03

2 sequences assigned  
No exact matches.



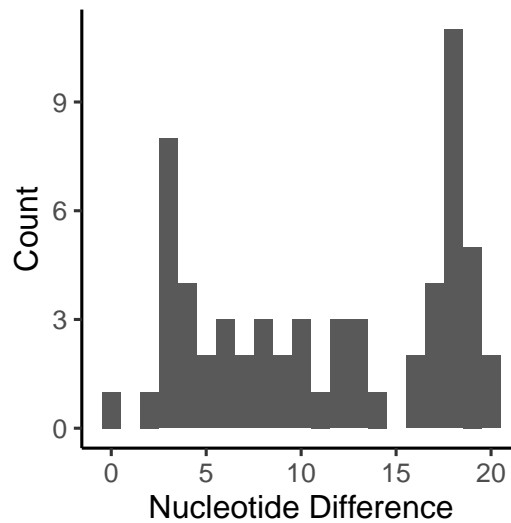
### IGHV3-66\*01

5123 sequences assigned  
1160 (22.6%) exact matches, in which:  
887 unique CDR3  
6 unique J



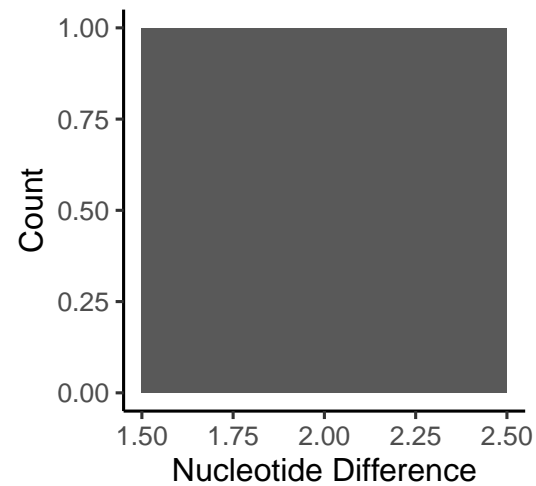
### IGHV3-69-1\*01

83 sequences assigned  
1 (1.2%) exact matches, in which:  
1 unique CDR3  
1 unique J



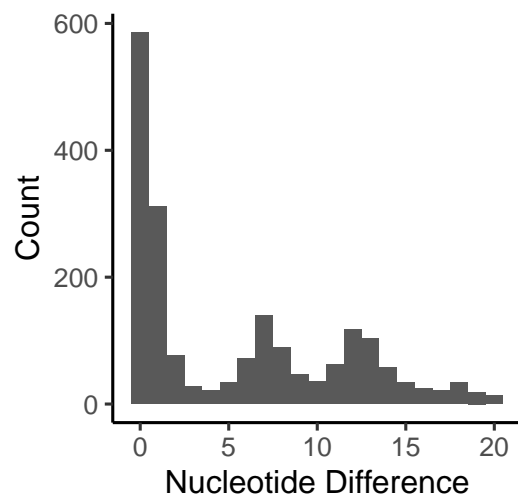
### IGHV3-71\*01\_04

1 sequences assigned  
No exact matches.



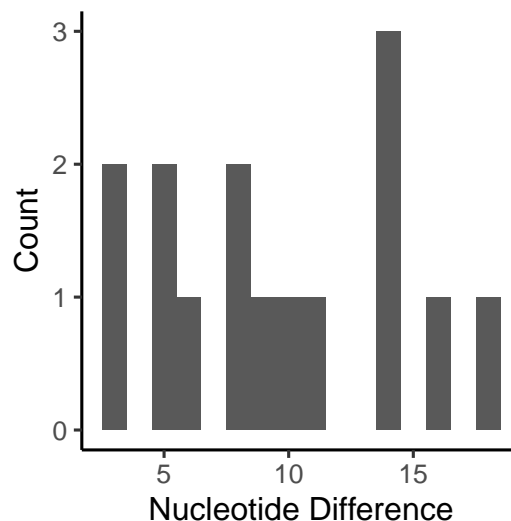
### IGHV3-66\*02

2394 sequences assigned  
586 (24.5%) exact matches, in which:  
459 unique CDR3  
6 unique J



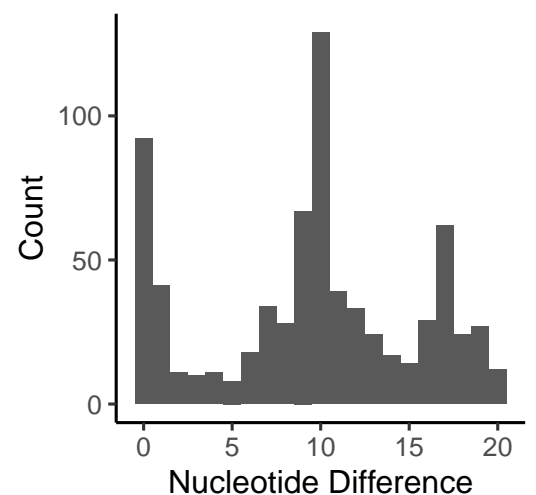
### IGHV3-69-1\*02

39 sequences assigned  
No exact matches.



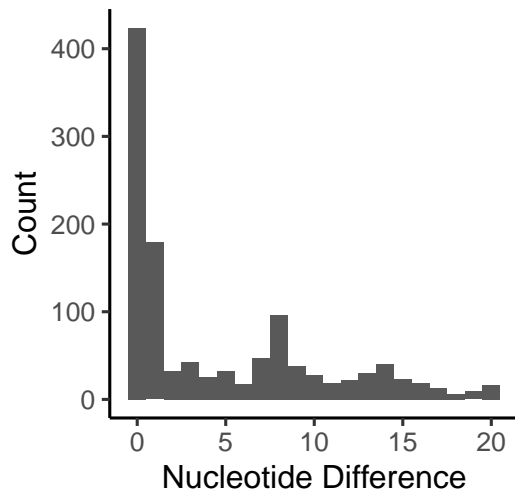
### IGHV3-72\*01

941 sequences assigned  
92 (9.8%) exact matches, in which:  
68 unique CDR3  
5 unique J



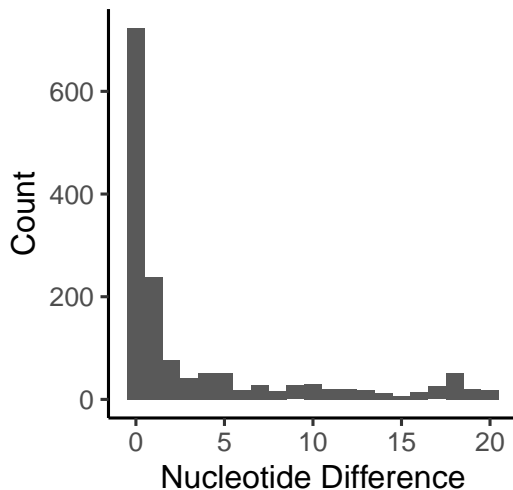
### IGHV3-73\*01\_02

1245 sequences assigned  
424 (34.1%) exact matches, in which:  
321 unique CDR3  
5 unique J



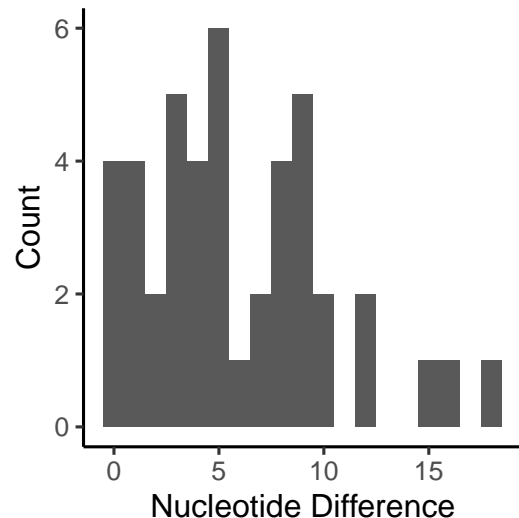
### IGHV3-64D\*09

1906 sequences assigned  
724 (38%) exact matches, in which:  
497 unique CDR3  
6 unique J



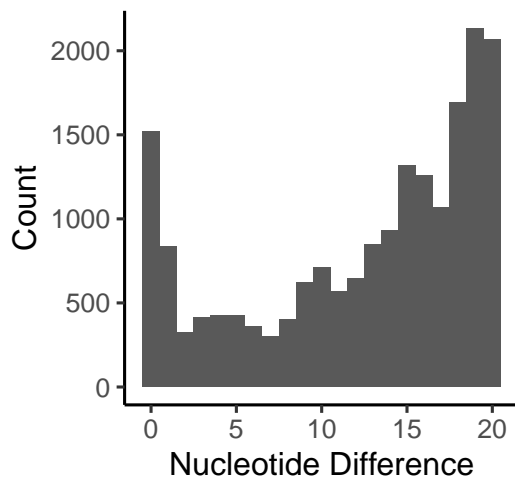
### IGHV4-28\*03

46 sequences assigned  
4 (8.7%) exact matches, in which:  
4 unique CDR3  
2 unique J



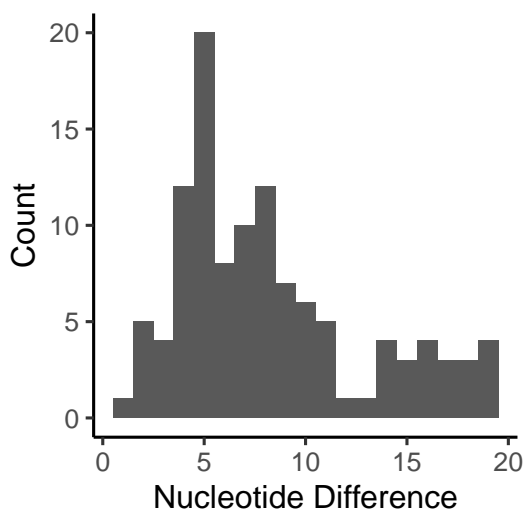
### IGHV3-74\*01\_02

36817 sequences assigned  
1517 (4.1%) exact matches, in which:  
1117 unique CDR3  
6 unique J



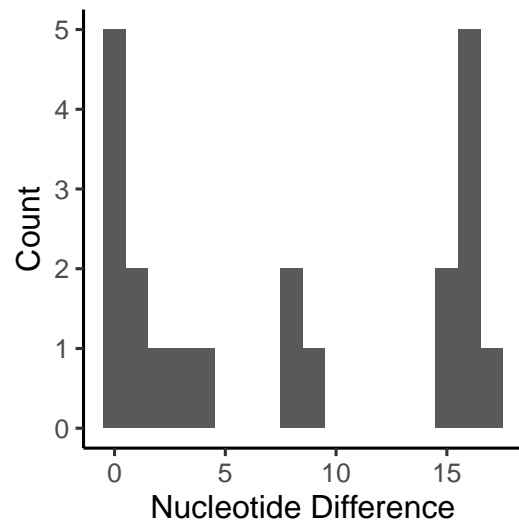
### IGHV3-NL1\*01

164 sequences assigned  
No exact matches.



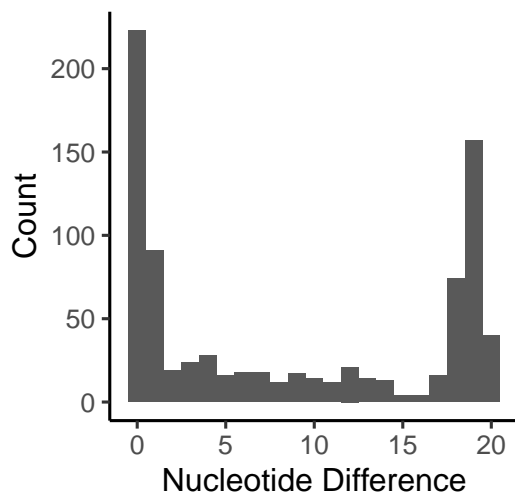
### IGHV4-28\*01\_07

21 sequences assigned  
5 (23.8%) exact matches, in which:  
5 unique CDR3  
2 unique J



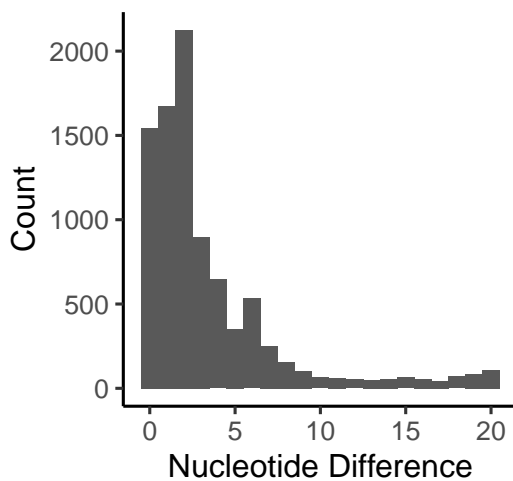
### IGHV3-43D\*03

1009 sequences assigned  
223 (22.1%) exact matches, in which:  
163 unique CDR3  
5 unique J



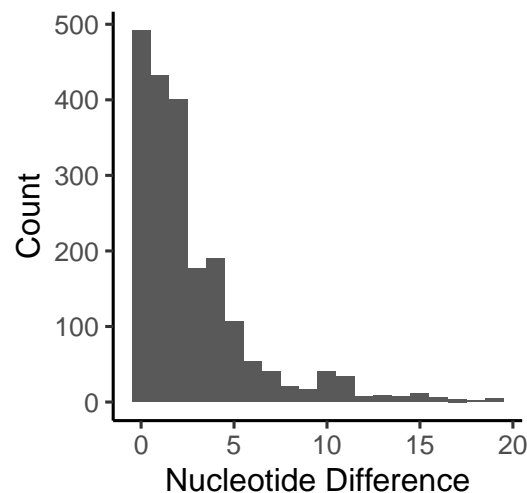
### IGHV4-4\*07

9741 sequences assigned  
1544 (15.9%) exact matches, in which:  
1444 unique CDR3  
6 unique J



### IGHV4-30-2\*01

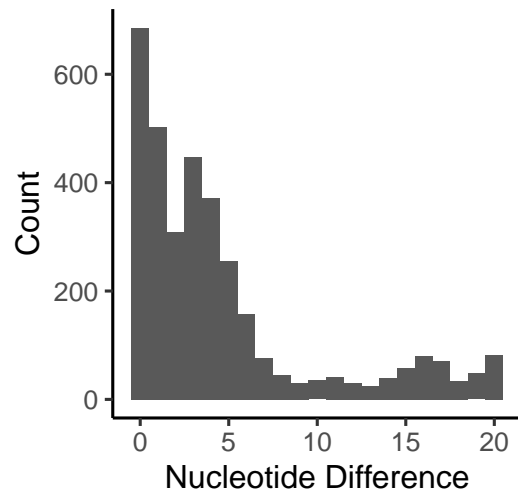
2091 sequences assigned  
492 (23.5%) exact matches, in which:  
411 unique CDR3  
6 unique J





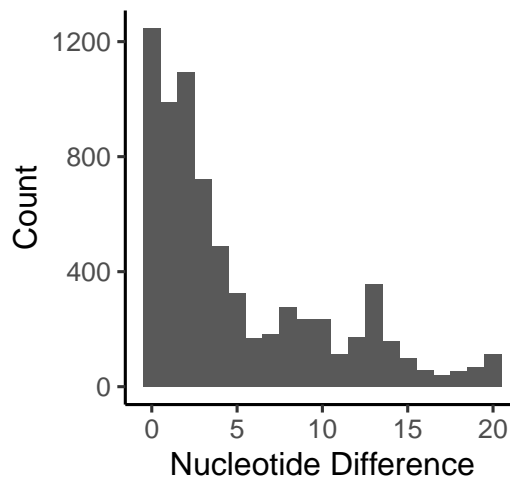
### IGHV4-30-4\*01

3973 sequences assigned  
686 (17.3%) exact matches, in which:  
634 unique CDR3  
6 unique J



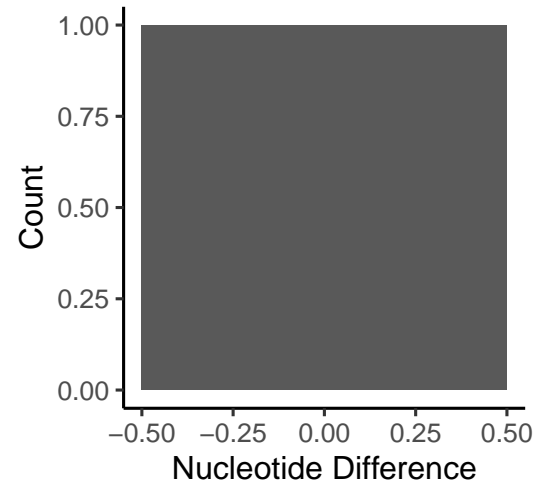
### IGHV4-38-2\*02

7666 sequences assigned  
1246 (16.3%) exact matches, in which:  
1173 unique CDR3  
6 unique J



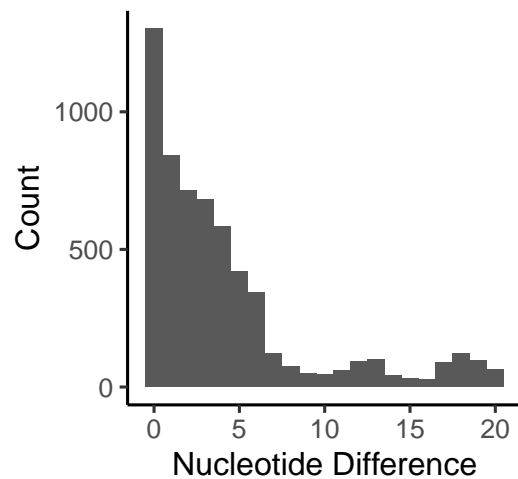
### IGHV4-55\*01\_05

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



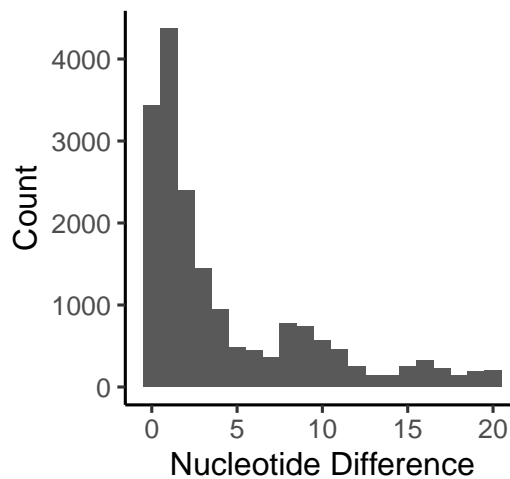
### IGHV4-31\*03\_04

8277 sequences assigned  
1302 (15.7%) exact matches, in which:  
1191 unique CDR3  
6 unique J



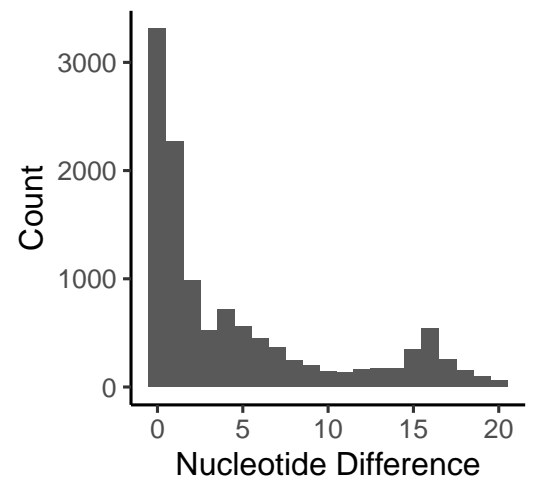
### IGHV4-39\*07

20264 sequences assigned  
3439 (17%) exact matches, in which:  
3040 unique CDR3  
6 unique J



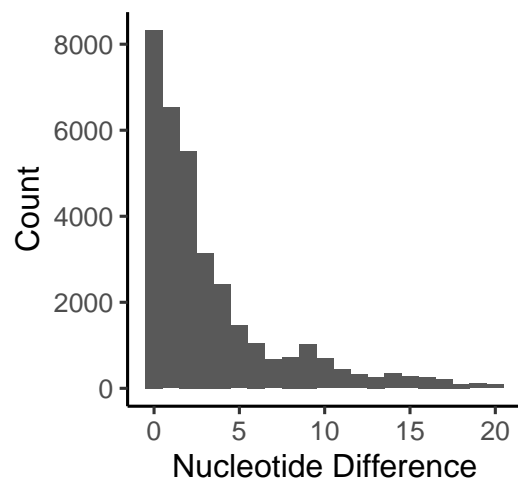
### IGHV4-59\*08

12883 sequences assigned  
3311 (25.7%) exact matches, in which:  
3003 unique CDR3  
6 unique J



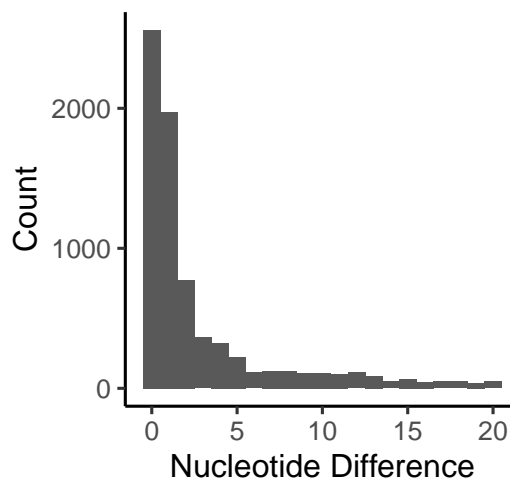
### IGHV4-34\*01\_02

34957 sequences assigned  
8329 (23.8%) exact matches, in which:  
7289 unique CDR3  
6 unique J



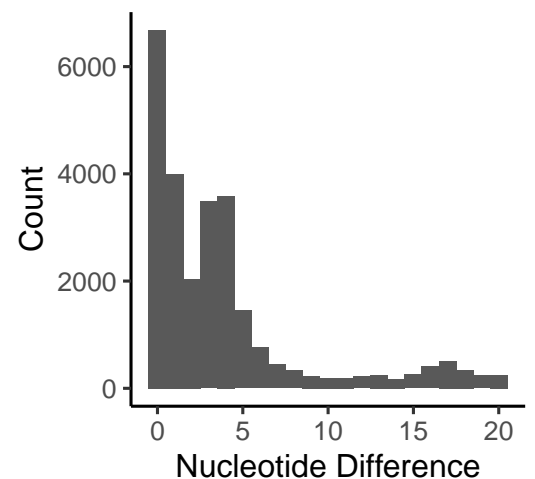
### IGHV4-39\*01\_05

8935 sequences assigned  
2559 (28.6%) exact matches, in which:  
2200 unique CDR3  
6 unique J



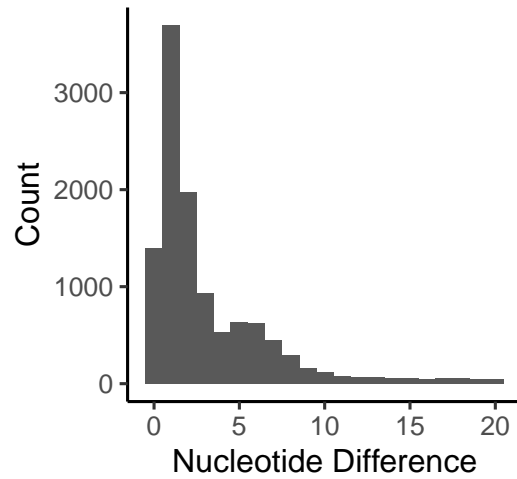
### IGHV4-59\*01\_07

28146 sequences assigned  
6682 (23.7%) exact matches, in which:  
6061 unique CDR3  
6 unique J



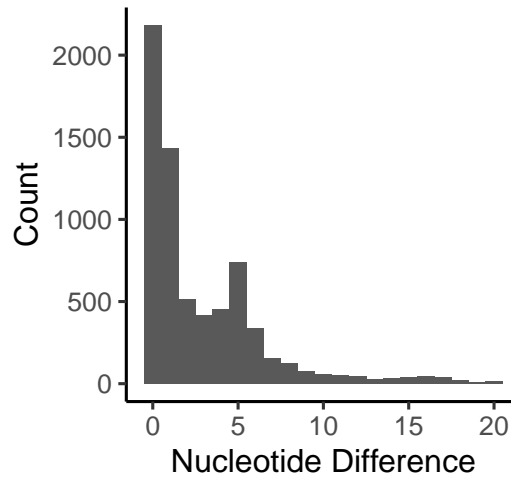
### IGHV4-59\*12

11667 sequences assigned  
1395 (12%) exact matches, in which:  
1367 unique CDR3  
6 unique J



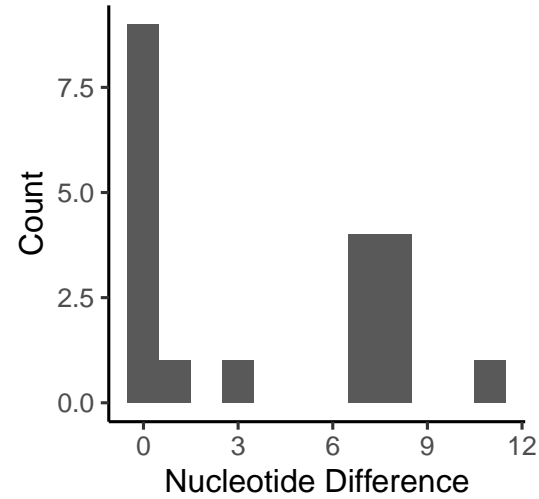
### IGHV5-10-1\*01\_03

6899 sequences assigned  
2181 (31.6%) exact matches, in which:  
1648 unique CDR3  
6 unique J



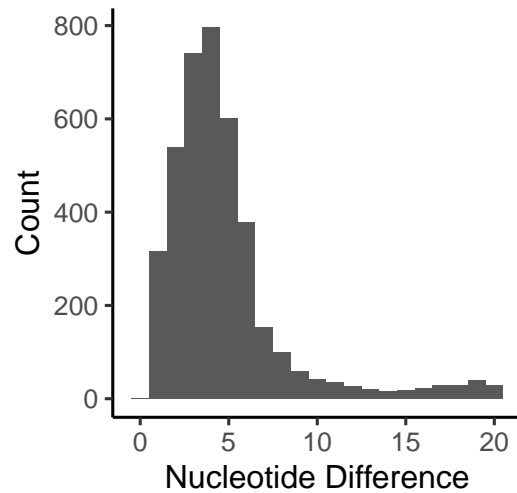
### IGHV7-4-1\*01

20 sequences assigned  
9 (45%) exact matches, in which:  
8 unique CDR3  
3 unique J



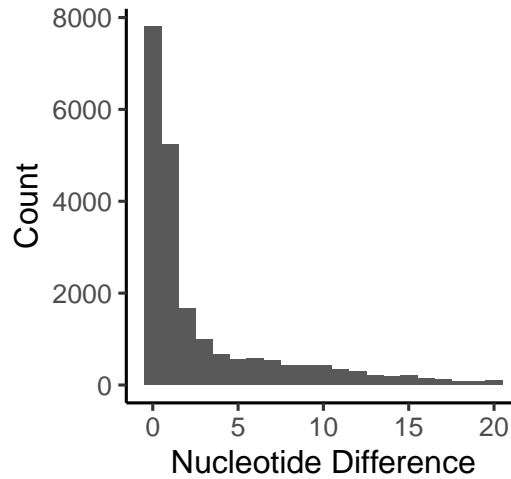
### IGHV4-61\*01

4160 sequences assigned  
2 (0%) exact matches, in which:  
2 unique CDR3  
1 unique J



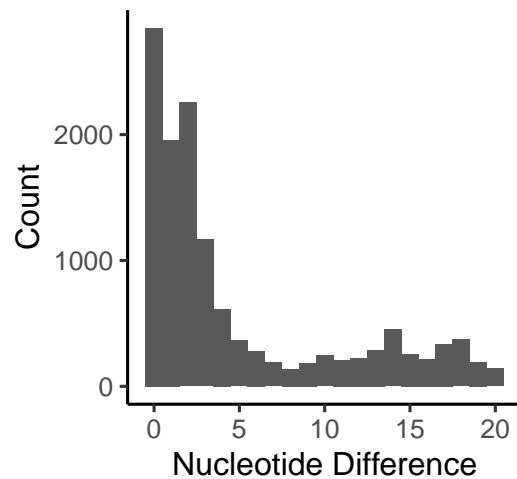
### IGHV5-51\*01\_03

21584 sequences assigned  
7800 (36.1%) exact matches, in which:  
5074 unique CDR3  
6 unique J



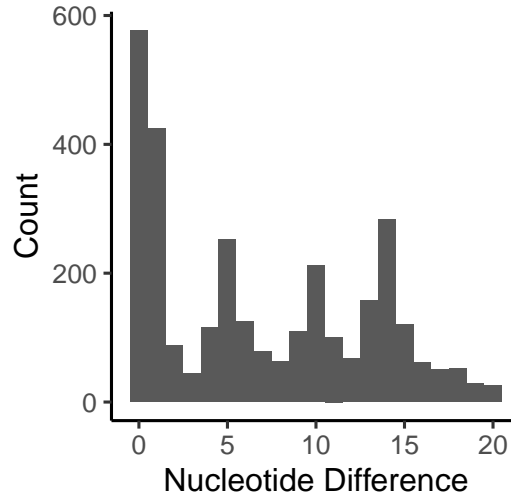
### IGHV4-61\*02

13935 sequences assigned  
2847 (20.4%) exact matches, in which:  
2676 unique CDR3  
6 unique J



### IGHV6-1\*01\_02

3133 sequences assigned  
577 (18.4%) exact matches, in which:  
531 unique CDR3  
6 unique J





Warning - no inferred sequences found.

Novel sequence(s)IGHV3-33\*01\_G75CIGHV4-59\*02\_G88AIGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s)IGHV3-33\*01\_G75CIGHV4-59\*02\_G88AIGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s)IGHV3-30\*03\_T288CIGHV4-59\*02\_G88AIGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Warning - no inferred sequences found.

Warning - no inferred sequences found.

Warning - no inferred sequences found.

Novel sequence(s)IGHV1-69\*04\_09\_G112AIGHV4-59\*02\_G88AIGHV5-10-1\*01\_03\_T258CIGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Warning - no inferred sequences found.

Novel sequence(s)IGHV1-69\*08\_C191TIGHV3-48\*03\_T303GIGHV4-59\*02\_G88AIGHV5-51\*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\_T288CIGHV5-51\*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\_C191TIGHV3-30\*03\_T288CIGHV3-30-3\*02\_G75CIGHV4-59\*02\_G88AIGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.