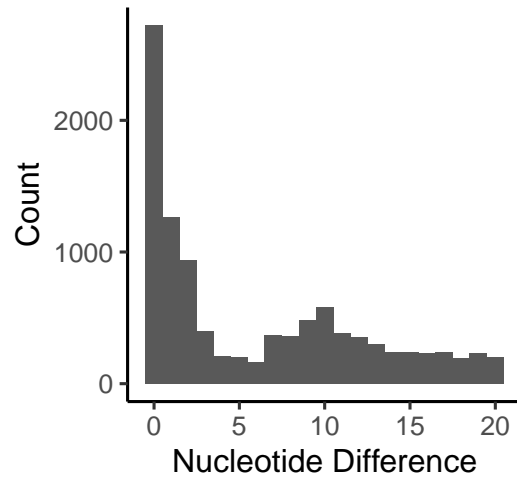


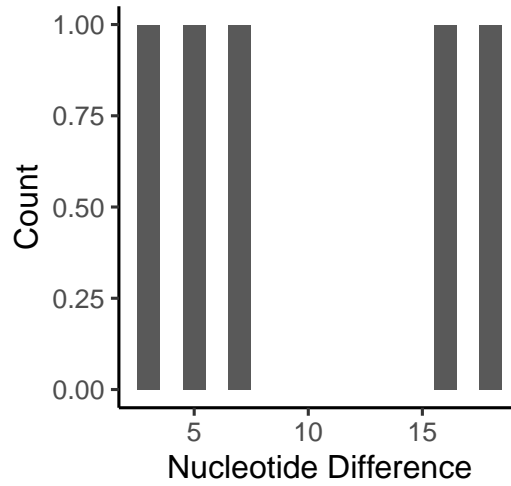
### IGHV1-2\*02

12110 sequences assigned  
2721 (22.5%) exact matches, in which:  
2590 unique CDR3  
6 unique J



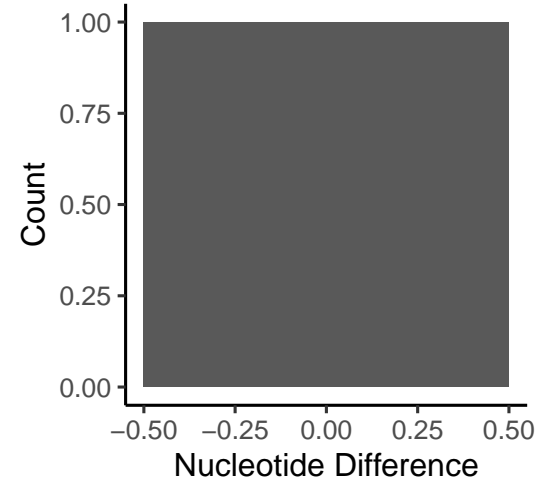
### IGHV1-8\*02

7 sequences assigned  
No exact matches.



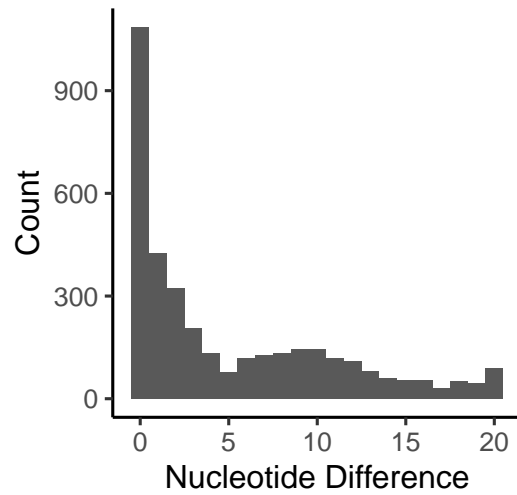
### IGHV1-38-4\*01

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



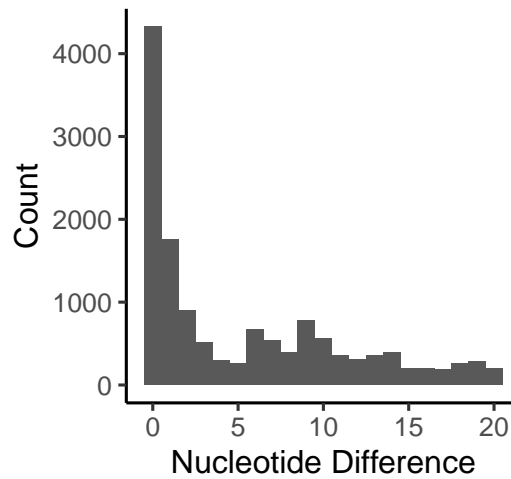
### IGHV1-3\*01\_05

4168 sequences assigned  
1086 (26.1%) exact matches, in which:  
1012 unique CDR3  
6 unique J



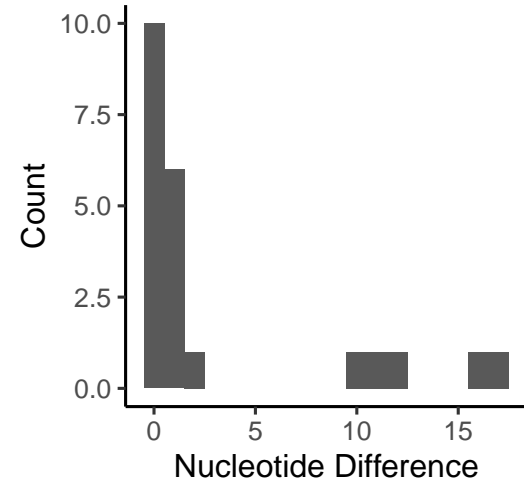
### IGHV1-18\*01

15312 sequences assigned  
4325 (28.2%) exact matches, in which:  
4108 unique CDR3  
6 unique J



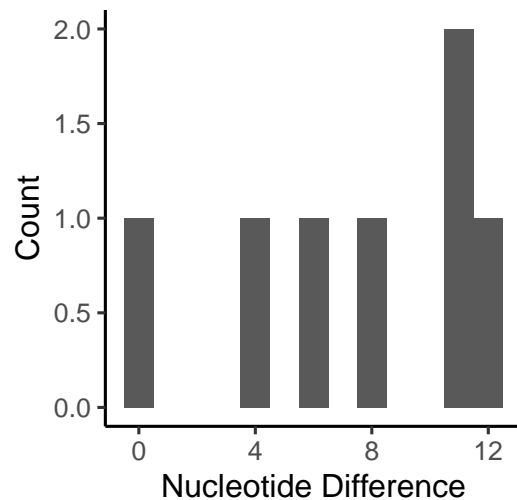
### IGHV1-45\*02

22 sequences assigned  
10 (45.5%) exact matches, in which:  
10 unique CDR3  
4 unique J



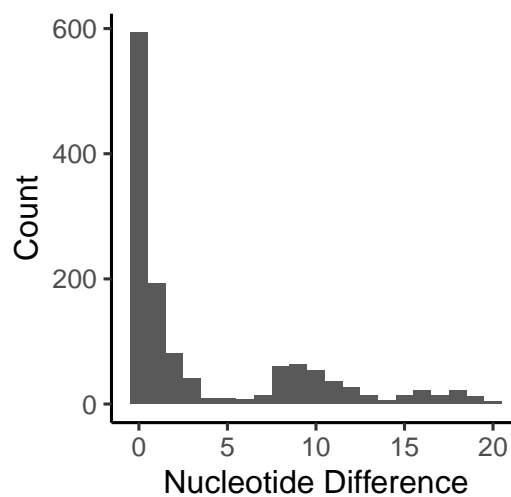
### IGHV1-8\*01

9 sequences assigned  
1 (11.1%) exact matches, in which:  
1 unique CDR3  
1 unique J



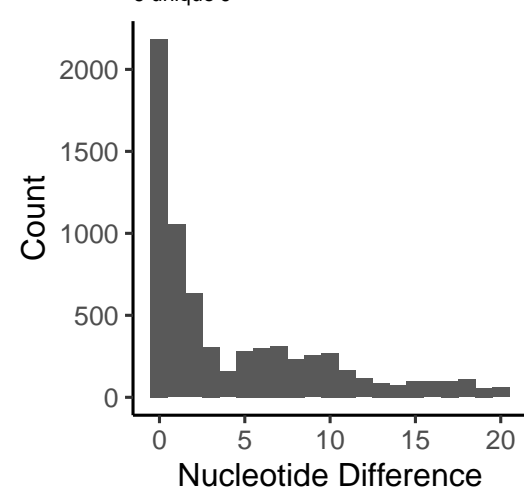
### IGHV1-24\*01

1385 sequences assigned  
594 (42.9%) exact matches, in which:  
576 unique CDR3  
6 unique J



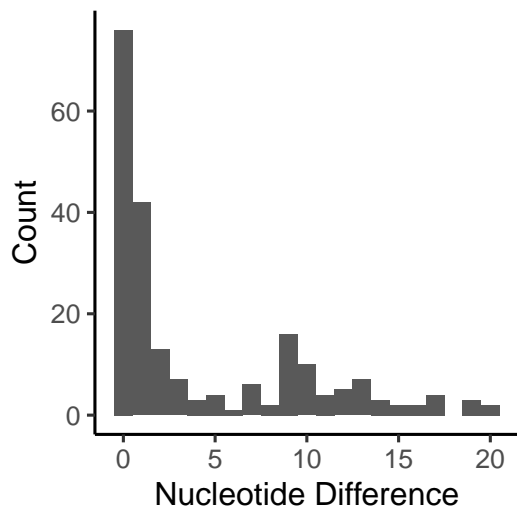
### IGHV1-46\*01

7490 sequences assigned  
2185 (29.2%) exact matches, in which:  
2092 unique CDR3  
6 unique J



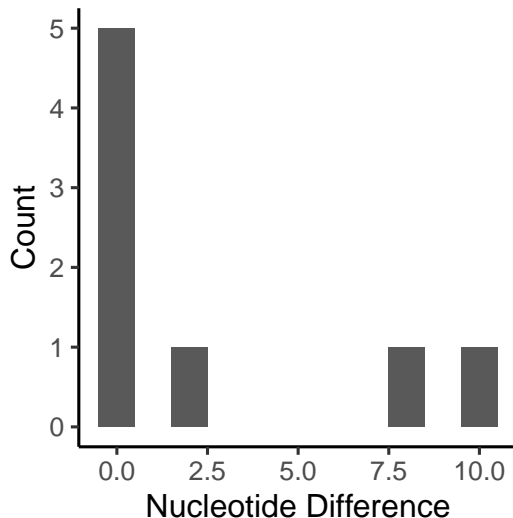
### IGHV1-58\*02

224 sequences assigned  
76 (33.9%) exact matches, in which:  
74 unique CDR3  
5 unique J



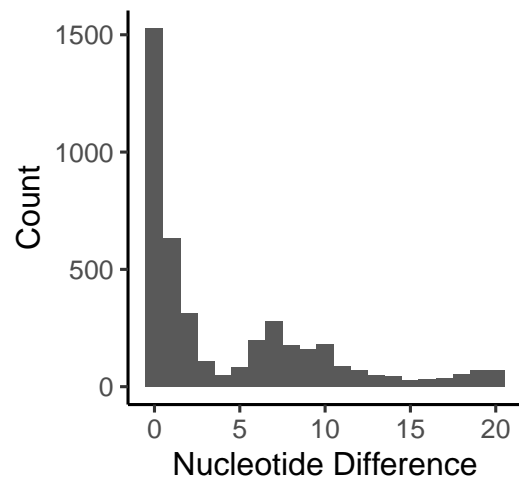
### IGHV1-69-2\*01

12 sequences assigned  
5 (41.7%) exact matches, in which:  
5 unique CDR3  
2 unique J



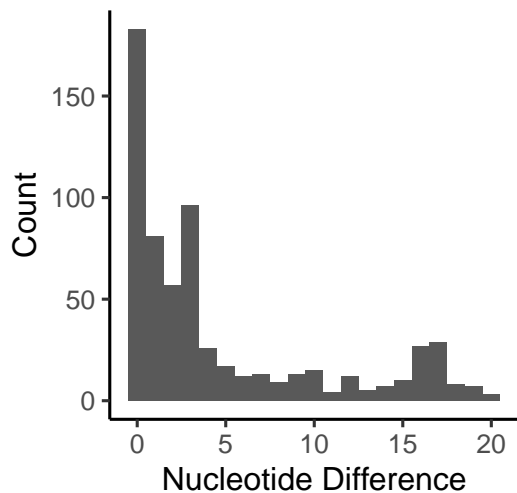
### IGHV1-69\*06\_14

4582 sequences assigned  
1527 (33.3%) exact matches, in which:  
1480 unique CDR3  
6 unique J



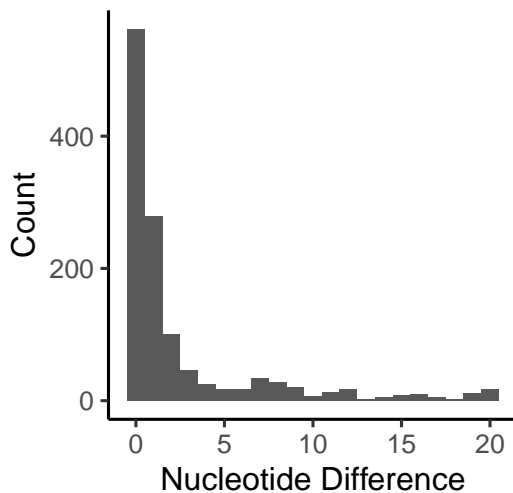
### IGHV1-58\*01\_03

674 sequences assigned  
183 (27.2%) exact matches, in which:  
171 unique CDR3  
5 unique J



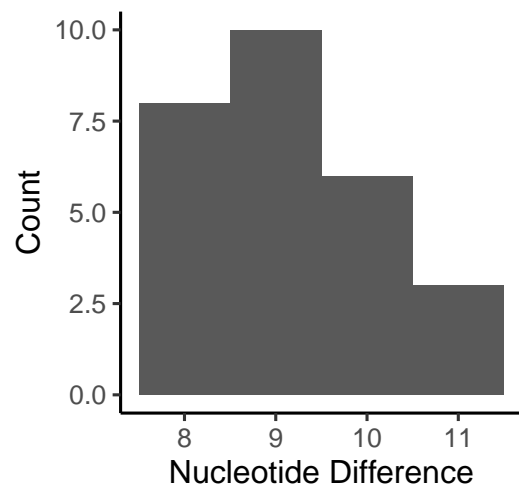
### IGHV1-69\*02

1354 sequences assigned  
562 (41.5%) exact matches, in which:  
548 unique CDR3  
6 unique J



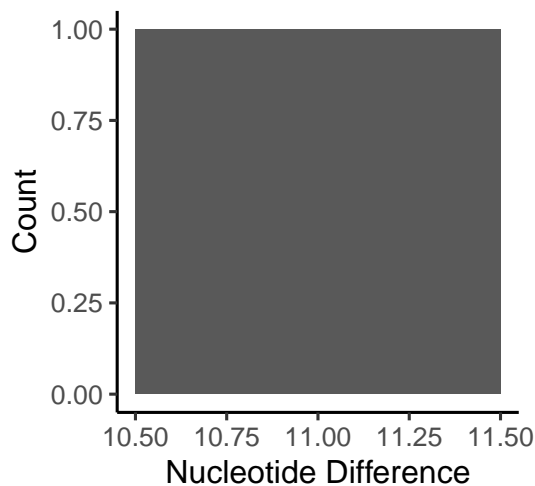
### IGHV1-NL1\*01

27 sequences assigned  
No exact matches.



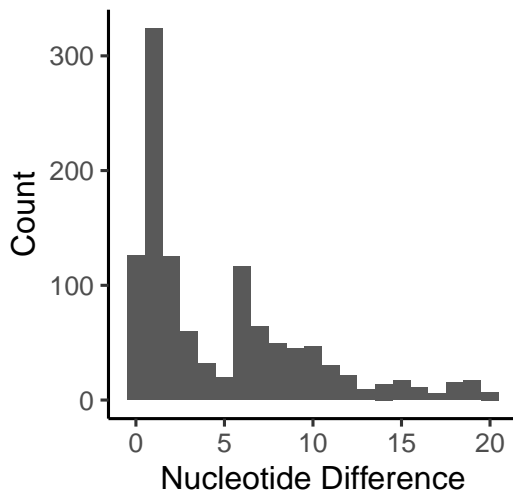
### IGHV1-68\*01

1 sequences assigned  
No exact matches.



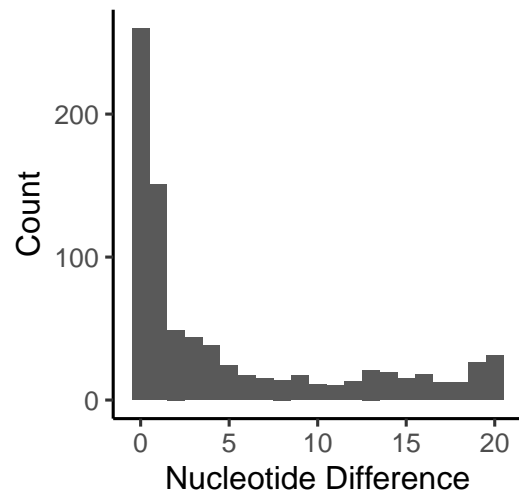
### IGHV1-69\*04\_09

1224 sequences assigned  
126 (10.3%) exact matches, in which:  
124 unique CDR3  
6 unique J



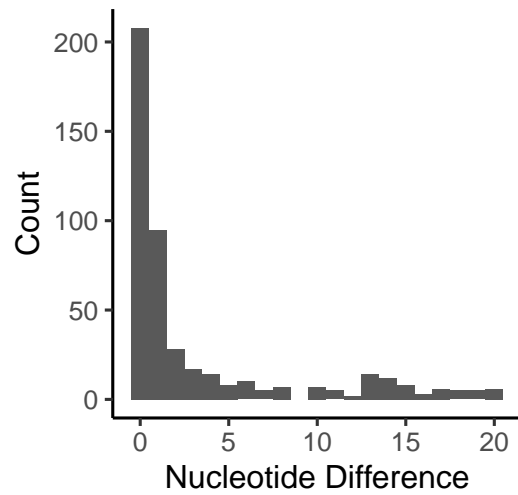
### IGHV2-5\*02

899 sequences assigned  
260 (28.9%) exact matches, in which:  
247 unique CDR3  
6 unique J



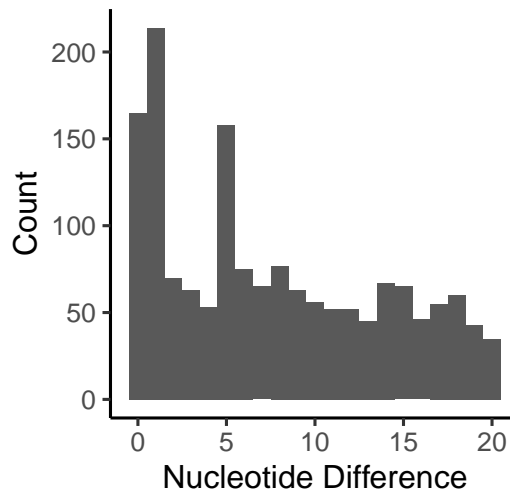
### IGHV2-26\*01

485 sequences assigned  
208 (42.9%) exact matches, in which:  
189 unique CDR3  
6 unique J



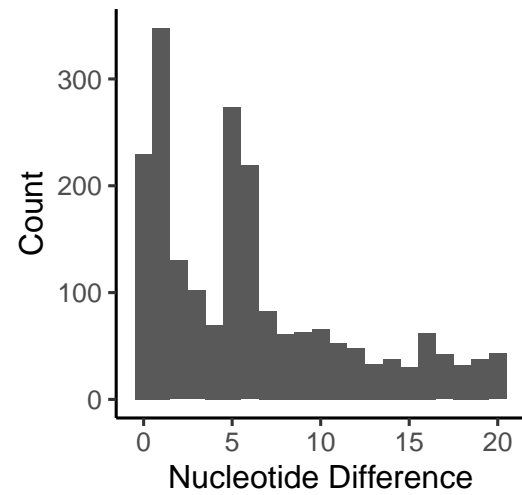
### IGHV3-7\*01

1775 sequences assigned  
165 (9.3%) exact matches, in which:  
164 unique CDR3  
6 unique J



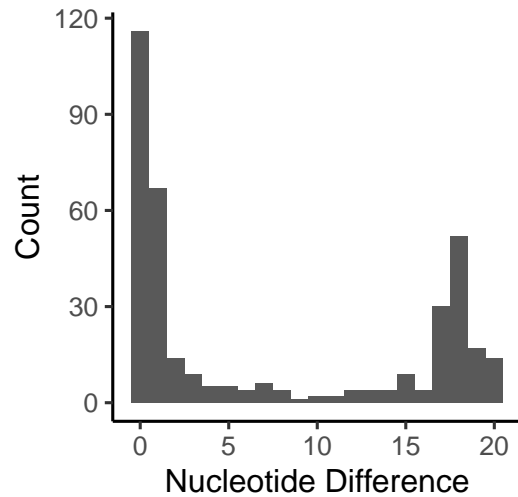
### IGHV3-11\*06

2313 sequences assigned  
230 (9.9%) exact matches, in which:  
225 unique CDR3  
5 unique J



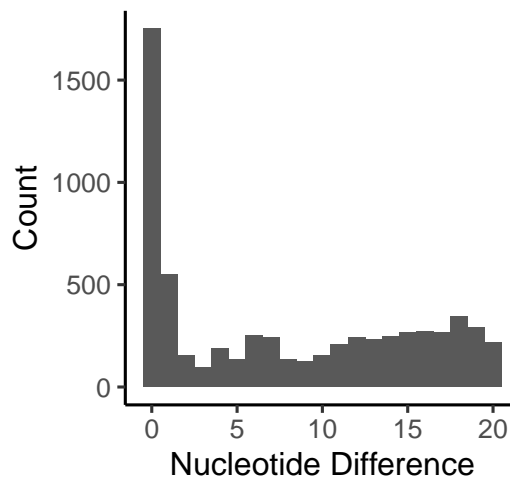
### IGHV2-70\*01

411 sequences assigned  
116 (28.2%) exact matches, in which:  
111 unique CDR3  
5 unique J



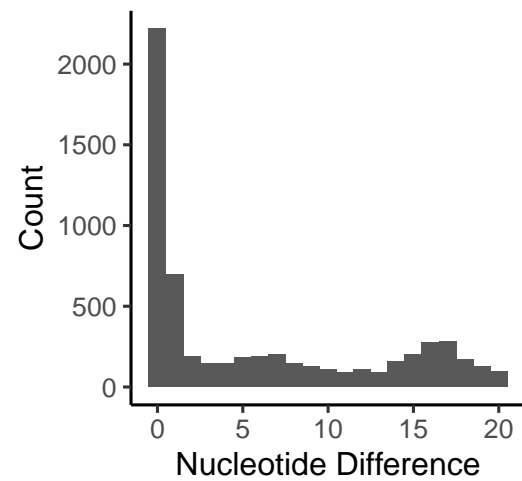
### IGHV3-7\*03

7873 sequences assigned  
1751 (22.2%) exact matches, in which:  
1519 unique CDR3  
6 unique J



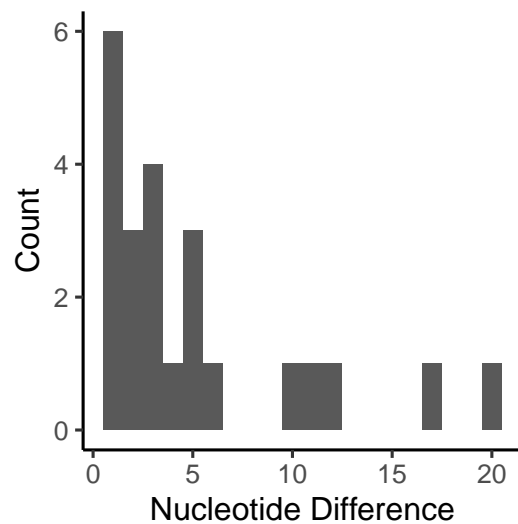
### IGHV3-11\*03\_05

7229 sequences assigned  
2219 (30.7%) exact matches, in which:  
1949 unique CDR3  
6 unique J



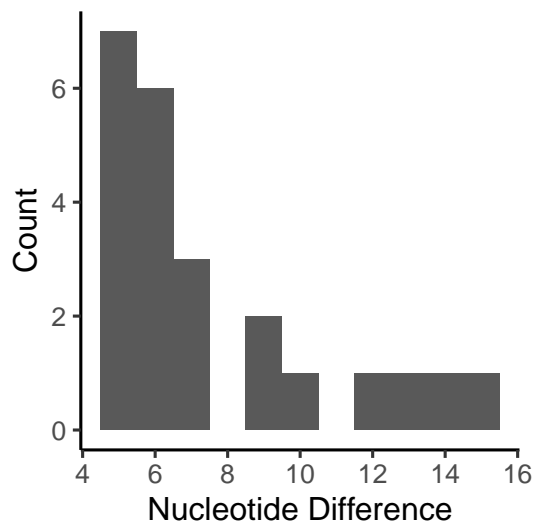
### IGHV2-70\*12

26 sequences assigned  
No exact matches.



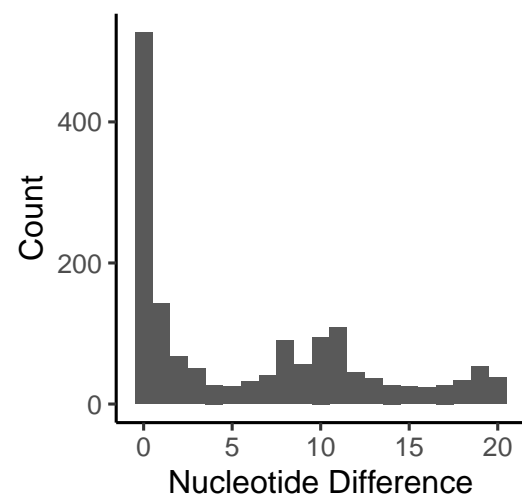
### IGHV3-9\*01

25 sequences assigned  
No exact matches.



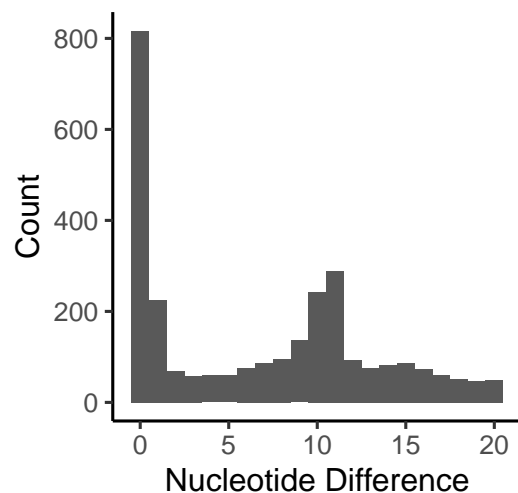
### IGHV3-13\*04

1698 sequences assigned  
527 (31%) exact matches, in which:  
448 unique CDR3  
6 unique J



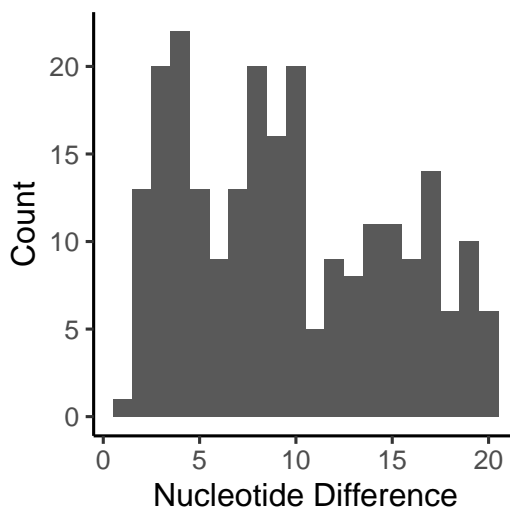
### IGHV3-15\*01\_02

3879 sequences assigned  
817 (21.1%) exact matches, in which:  
715 unique CDR3  
6 unique J



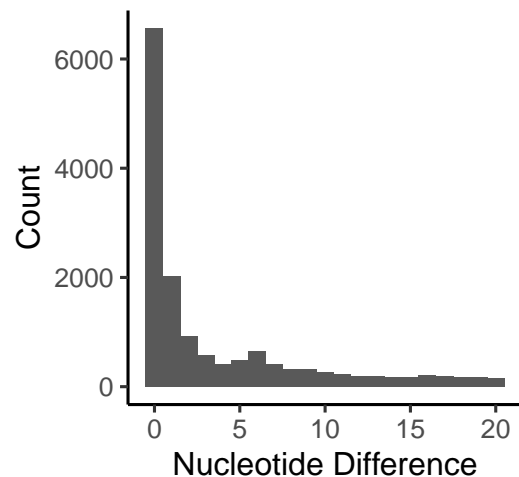
### IGHV3-20\*03\_04

328 sequences assigned  
No exact matches.



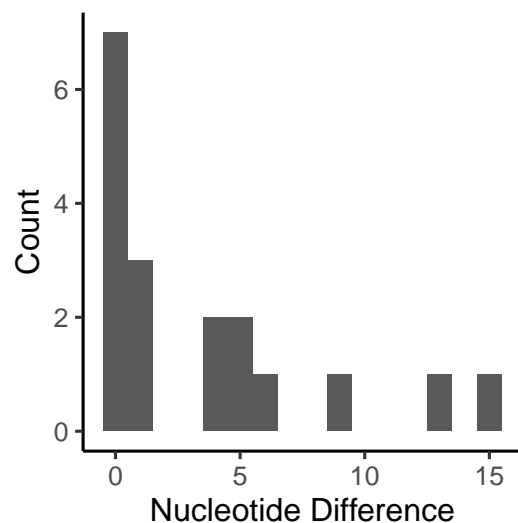
### IGHV3-30-3\*01

16697 sequences assigned  
6560 (39.3%) exact matches, in which:  
5553 unique CDR3  
6 unique J



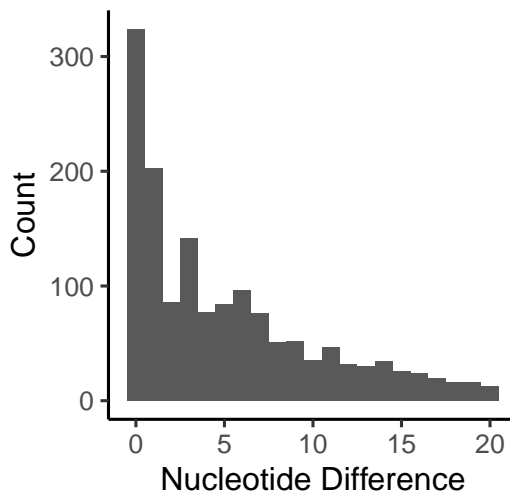
### IGHV3-19\*01

18 sequences assigned  
7 (38.9%) exact matches, in which:  
6 unique CDR3  
2 unique J



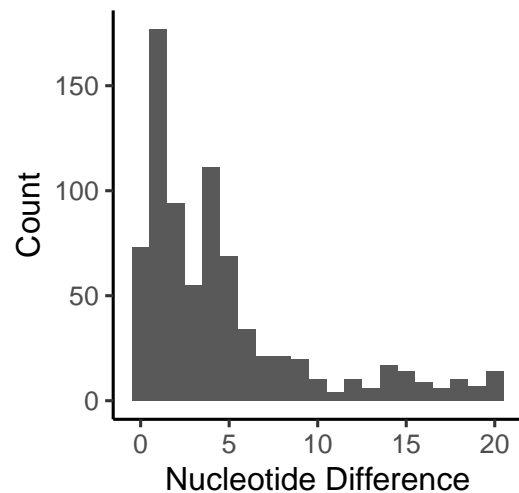
### IGHV3-21\*04

1726 sequences assigned  
324 (18.8%) exact matches, in which:  
320 unique CDR3  
6 unique J



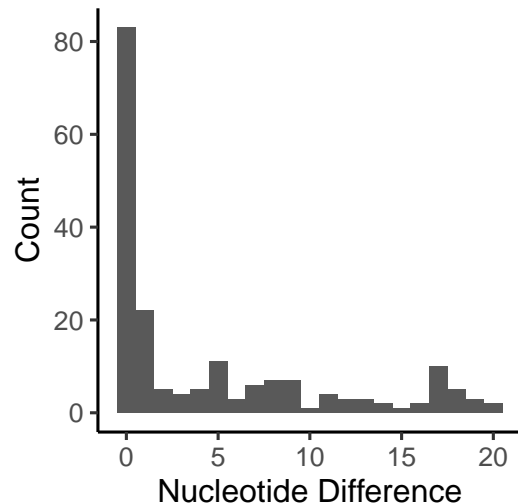
### IGHV3-30-3\*02

876 sequences assigned  
73 (8.3%) exact matches, in which:  
69 unique CDR3  
5 unique J



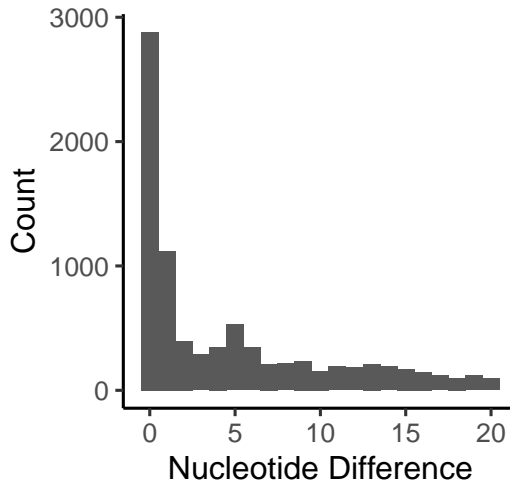
### IGHV3-20\*01\_02

203 sequences assigned  
83 (40.9%) exact matches, in which:  
73 unique CDR3  
5 unique J



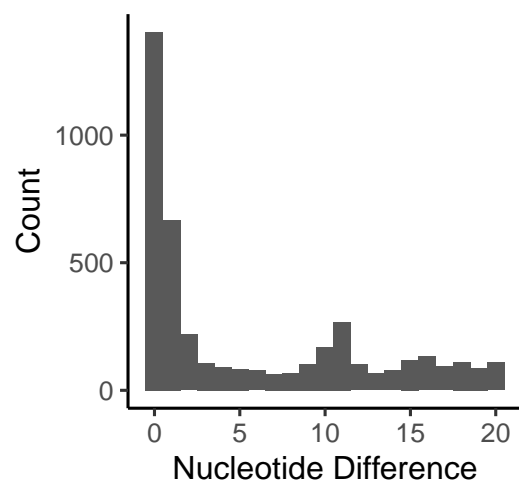
### IGHV3-21\*01\_02

9508 sequences assigned  
2881 (30.3%) exact matches, in which:  
2461 unique CDR3  
6 unique J



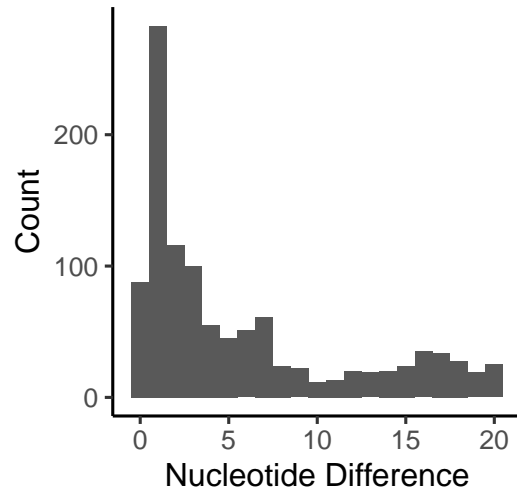
### IGHV3-30\*03

4990 sequences assigned  
1404 (28.1%) exact matches, in which:  
1352 unique CDR3  
6 unique J



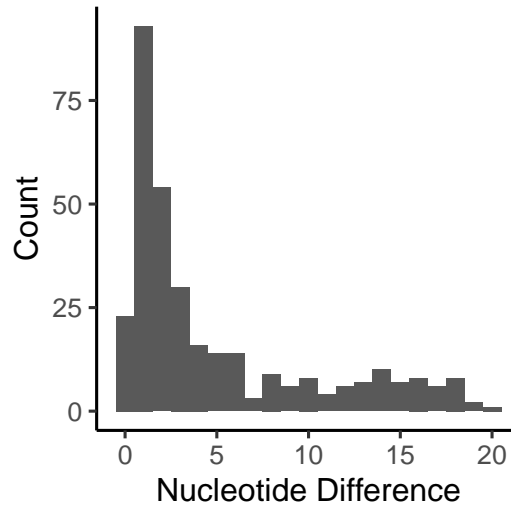
### IGHV3-30-3\*03

1372 sequences assigned  
88 (6.4%) exact matches, in which:  
85 unique CDR3  
4 unique J



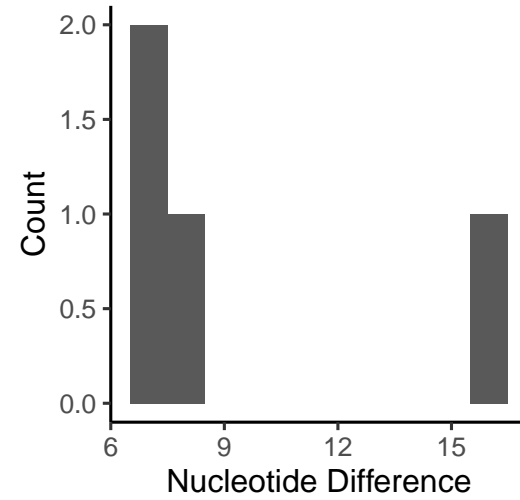
### IGHV3-33\*06

358 sequences assigned  
23 (6.4%) exact matches, in which:  
22 unique CDR3  
3 unique J



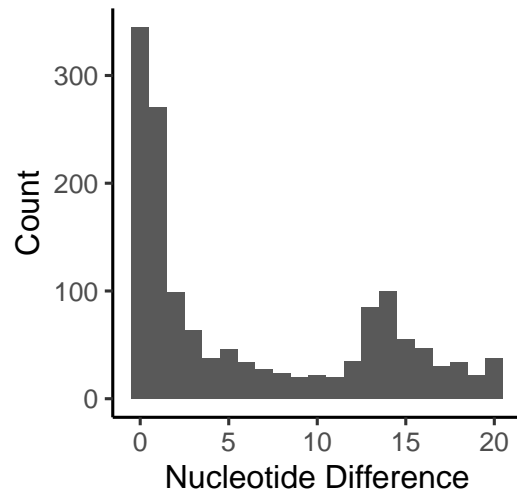
### IGHV3-38\*03

4 sequences assigned  
No exact matches.



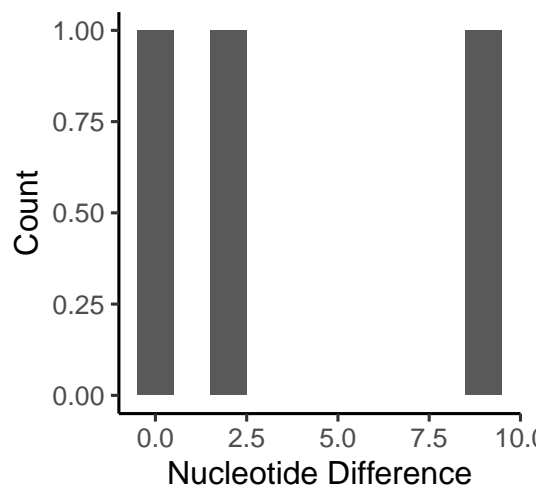
### IGHV3-33\*01

1592 sequences assigned  
345 (21.7%) exact matches, in which:  
317 unique CDR3  
6 unique J



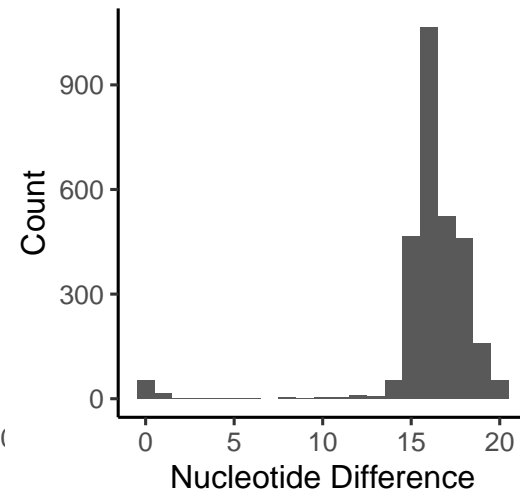
### IGHV3-35\*01

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



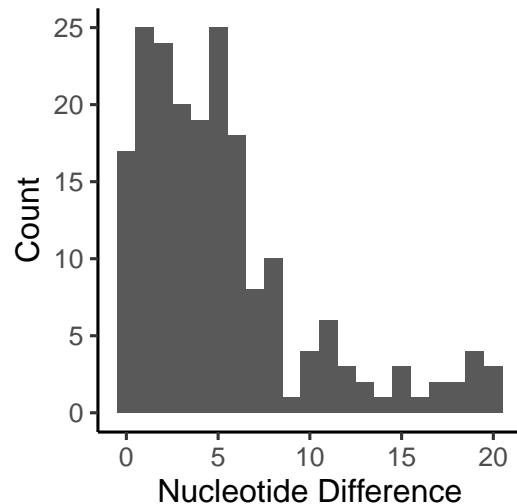
### IGHV3-43\*01

3136 sequences assigned  
54 (1.7%) exact matches, in which:  
49 unique CDR3  
5 unique J



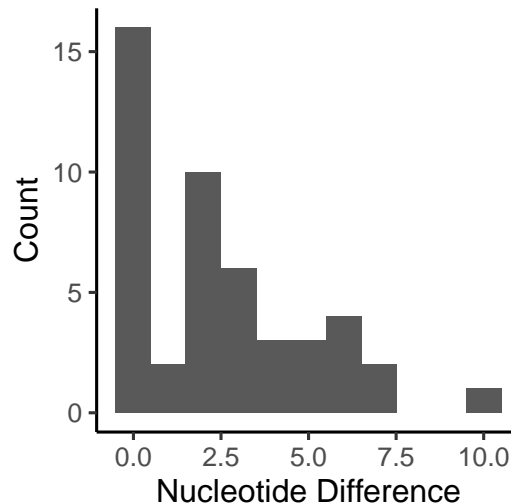
### IGHV3-33\*05

240 sequences assigned  
17 (7.1%) exact matches, in which:  
17 unique CDR3  
3 unique J



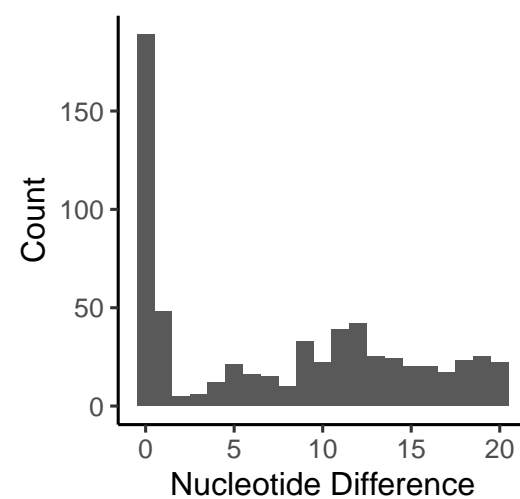
### IGHV3-38-3\*01

47 sequences assigned  
16 (34%) exact matches, in which:  
16 unique CDR3  
3 unique J



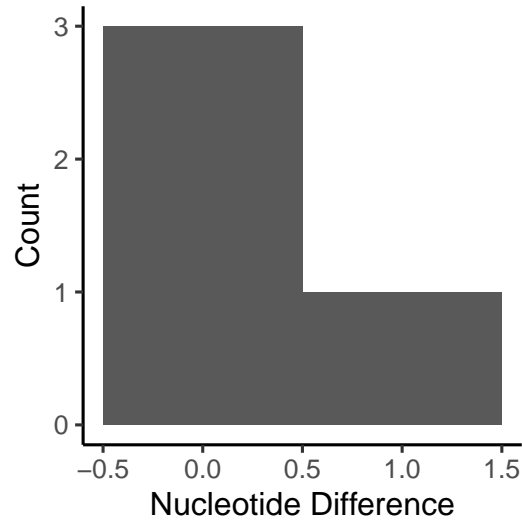
### IGHV3-43\*02

764 sequences assigned  
189 (24.7%) exact matches, in which:  
170 unique CDR3  
6 unique J



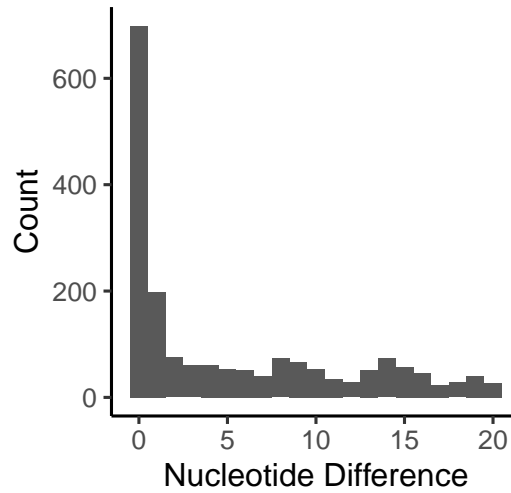
### IGHV3-47\*01

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



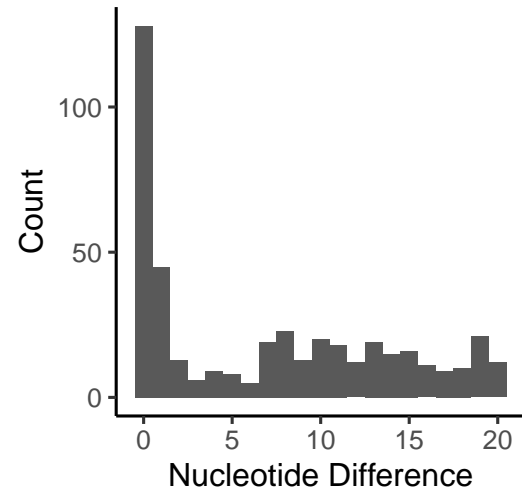
### IGHV3-48\*02

2431 sequences assigned  
699 (28.8%) exact matches, in which:  
596 unique CDR3  
6 unique J



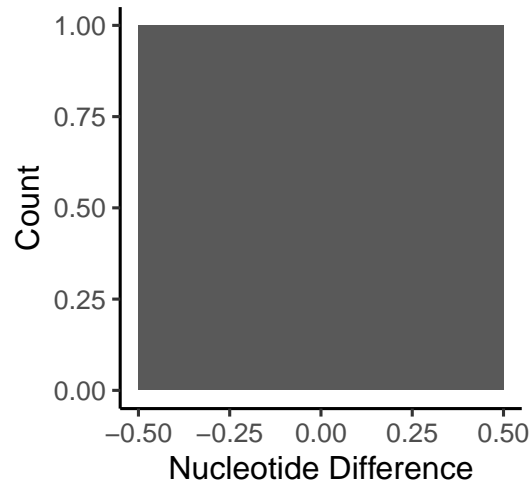
### IGHV3-49\*04

497 sequences assigned  
128 (25.8%) exact matches, in which:  
116 unique CDR3  
6 unique J



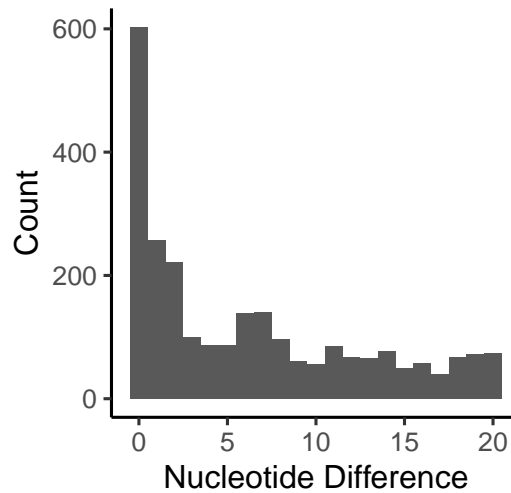
### IGHV3-47\*02

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



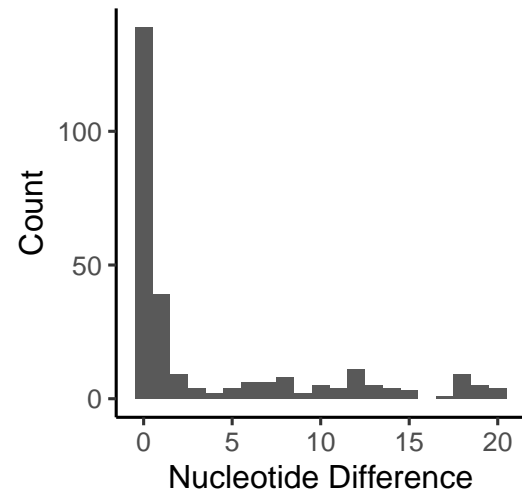
### IGHV3-48\*03

3264 sequences assigned  
603 (18.5%) exact matches, in which:  
524 unique CDR3  
6 unique J



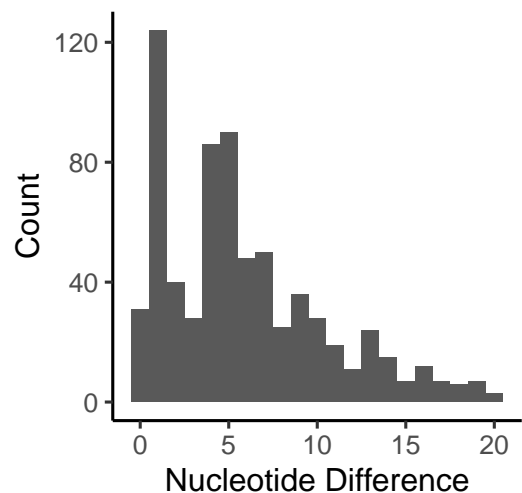
### IGHV3-49\*03\_05

313 sequences assigned  
139 (44.4%) exact matches, in which:  
122 unique CDR3  
5 unique J



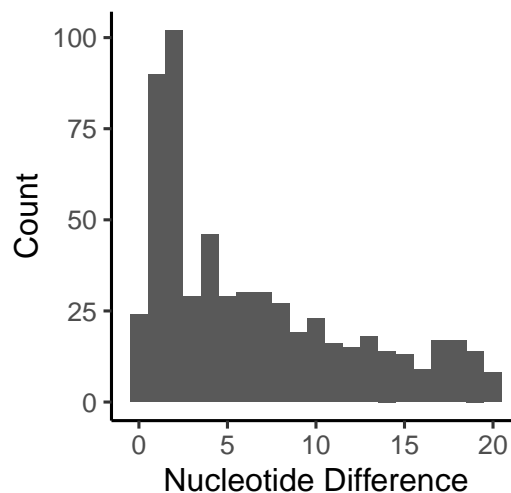
### IGHV3-48\*01

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



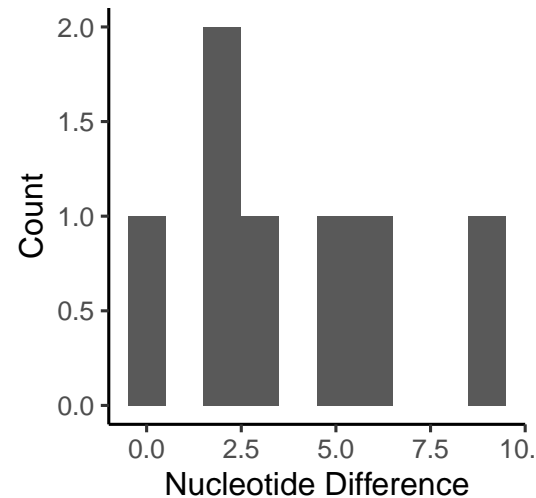
### IGHV3-48\*04

682 sequences assigned  
24 (3.5%) exact matches, in which:  
24 unique CDR3  
4 unique J



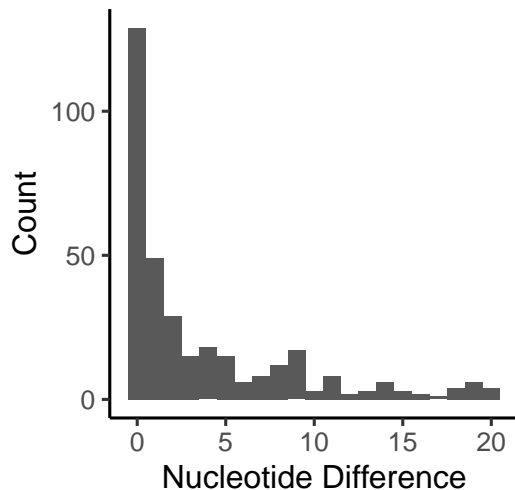
### IGHV3-52\*01\_03

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



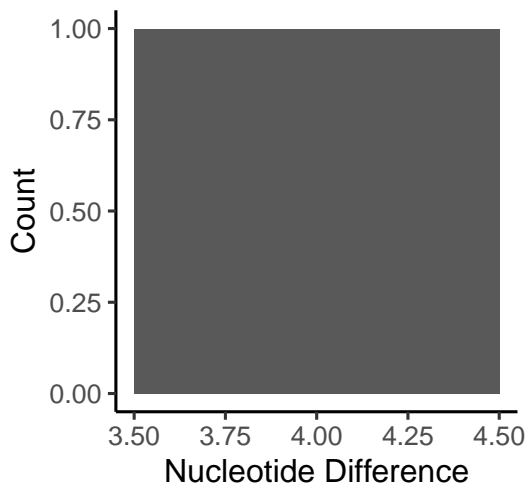
### IGHV3–53\*04

489 sequences assigned  
129 (26.4%) exact matches, in which:  
115 unique CDR3  
5 unique J



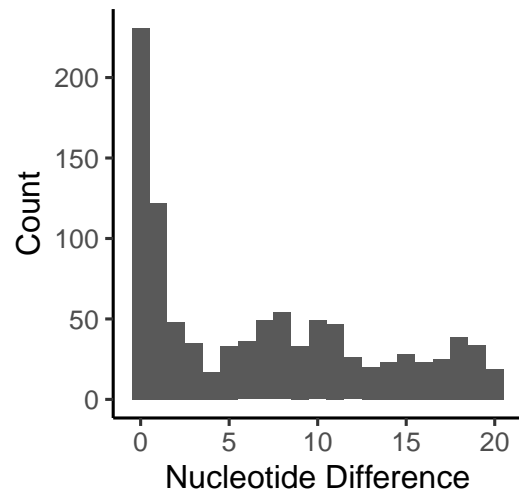
### IGHV3–62\*04

1 sequences assigned  
No exact matches.



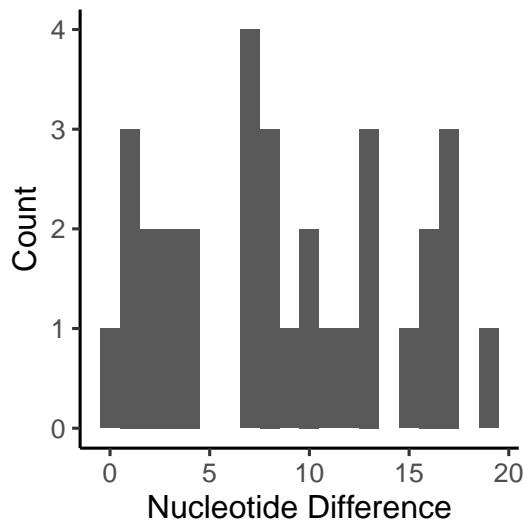
### IGHV3–66\*02

1240 sequences assigned  
231 (18.6%) exact matches, in which:  
197 unique CDR3  
6 unique J



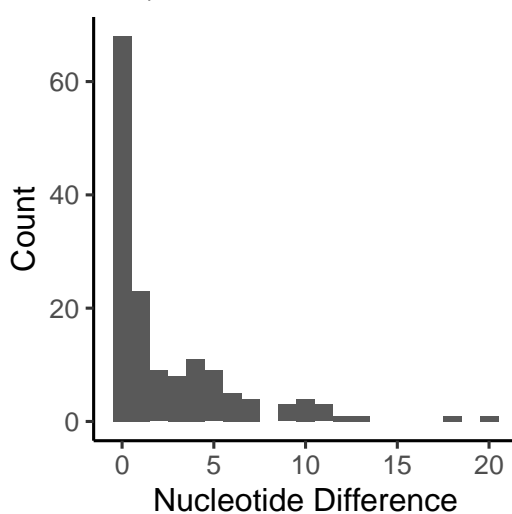
### IGHV3–53\*05

54 sequences assigned  
1 (1.9%) exact matches, in which:  
1 unique CDR3  
1 unique J



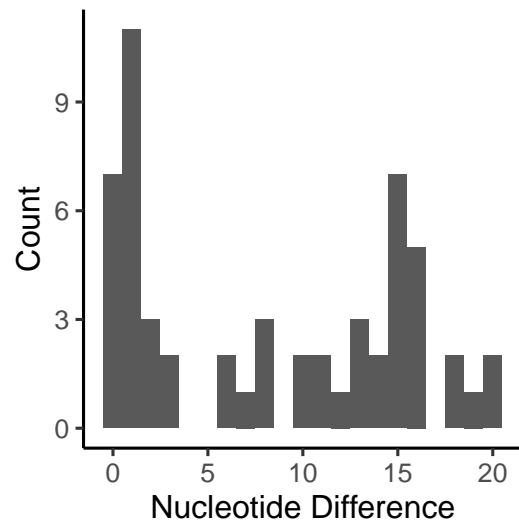
### IGHV3–64\*01

176 sequences assigned  
68 (38.6%) exact matches, in which:  
59 unique CDR3  
5 unique J



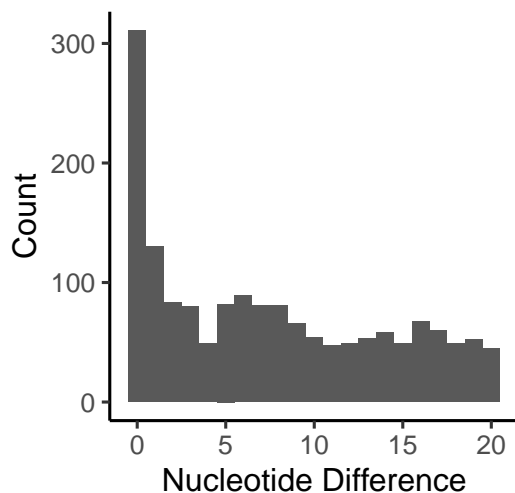
### IGHV3–66\*03

75 sequences assigned  
7 (9.3%) exact matches, in which:  
6 unique CDR3  
3 unique J



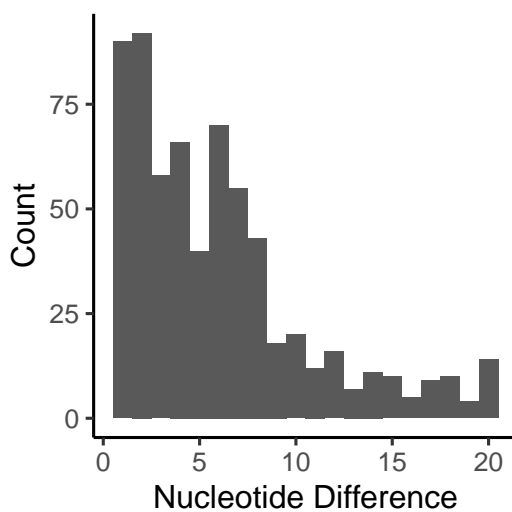
### IGHV3–53\*01\_02

1934 sequences assigned  
311 (16.1%) exact matches, in which:  
278 unique CDR3  
6 unique J



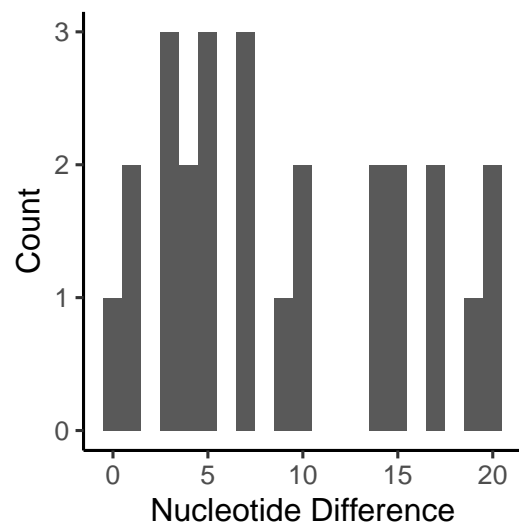
### IGHV3–64\*04

778 sequences assigned  
No exact matches.



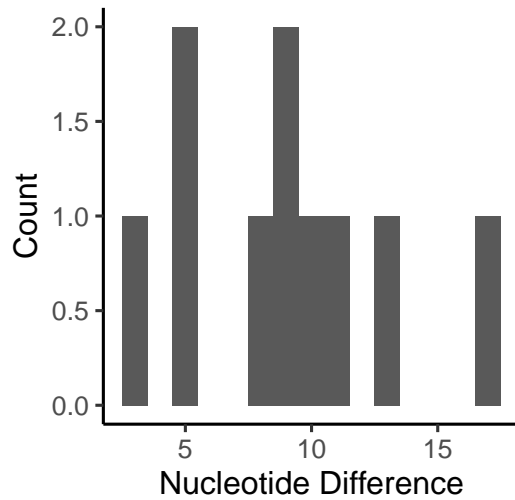
### IGHV3–69–1\*01

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



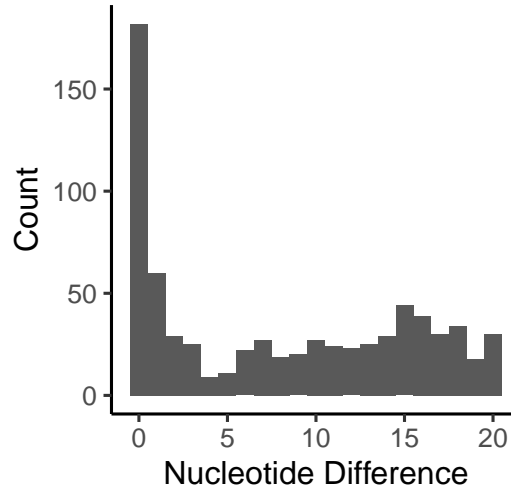
### IGHV3-69-1\*02

24 sequences assigned  
No exact matches.



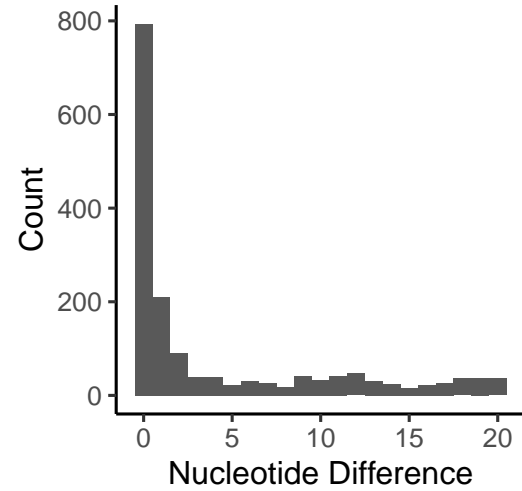
### IGHV3-73\*01\_02

951 sequences assigned  
182 (19.1%) exact matches, in which:  
153 unique CDR3  
4 unique J



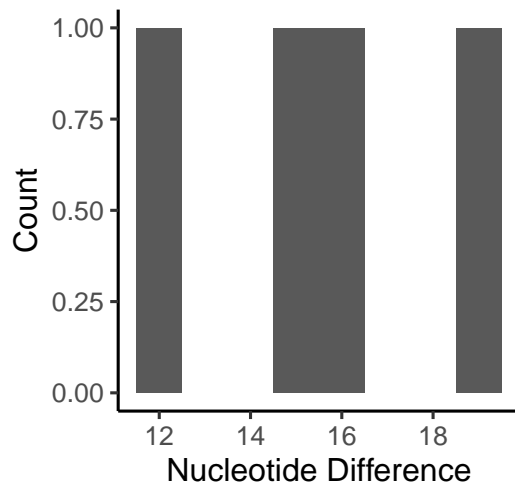
### IGHV3-64D\*06

2515 sequences assigned  
794 (31.6%) exact matches, in which:  
655 unique CDR3  
6 unique J



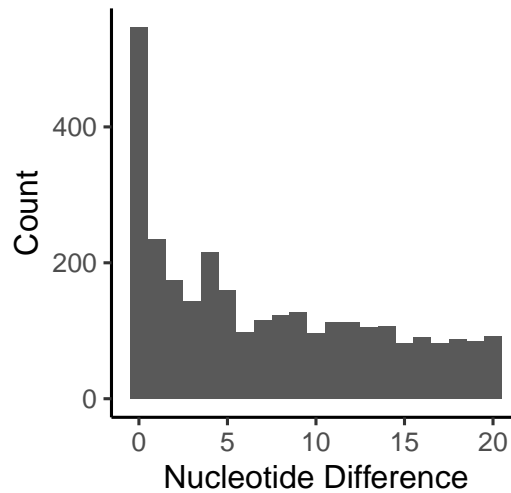
### IGHV3-71\*01\_04

6 sequences assigned  
No exact matches.



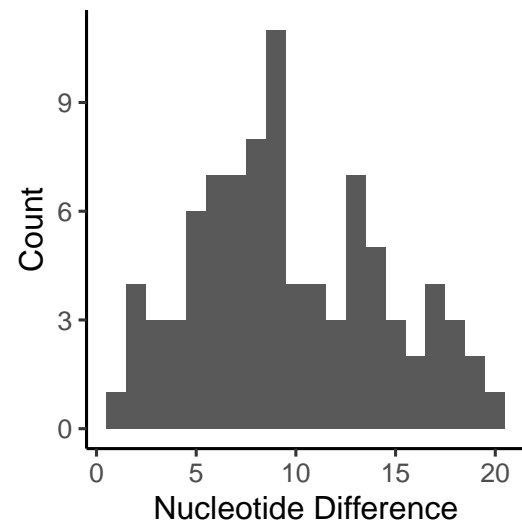
### IGHV3-74\*01\_02

4457 sequences assigned  
547 (12.3%) exact matches, in which:  
464 unique CDR3  
6 unique J



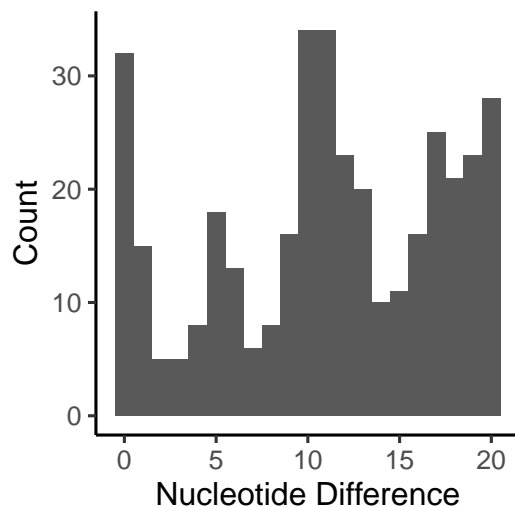
### IGHV3-NL1\*01

126 sequences assigned  
No exact matches.



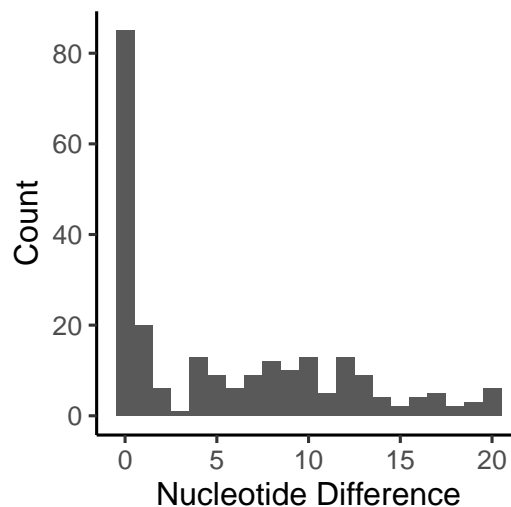
### IGHV3-72\*01

502 sequences assigned  
32 (6.4%) exact matches, in which:  
29 unique CDR3  
3 unique J



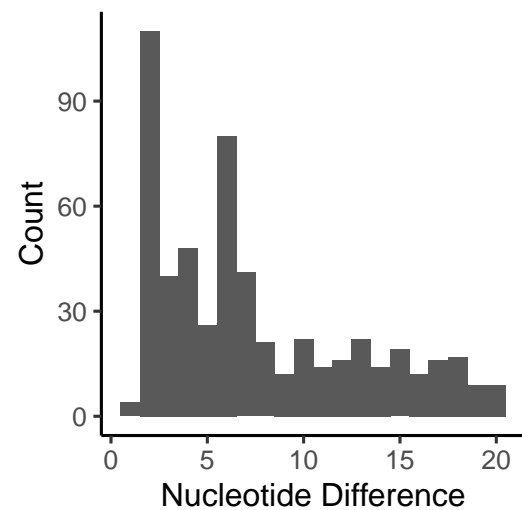
### IGHV3-43D\*03

265 sequences assigned  
85 (32.1%) exact matches, in which:  
74 unique CDR3  
4 unique J



### IGHV4-4\*07

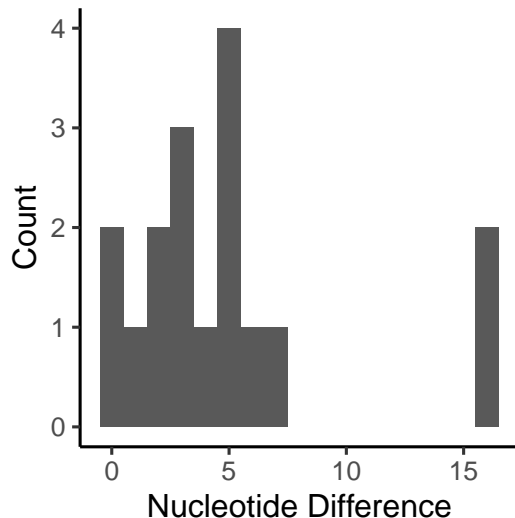
635 sequences assigned  
No exact matches.





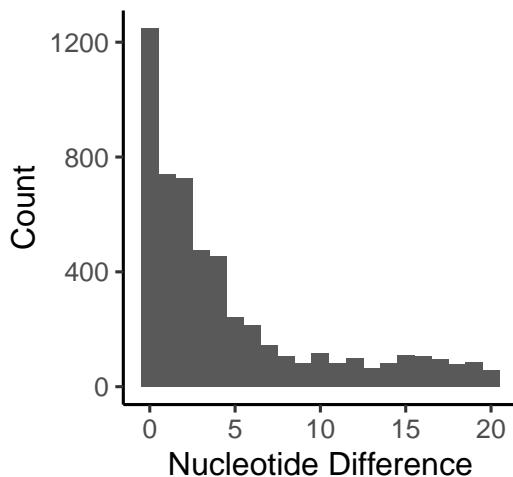
### IGHV4-28\*03

29 sequences assigned  
2 (6.9%) exact matches, in which:  
2 unique CDR3  
2 unique J



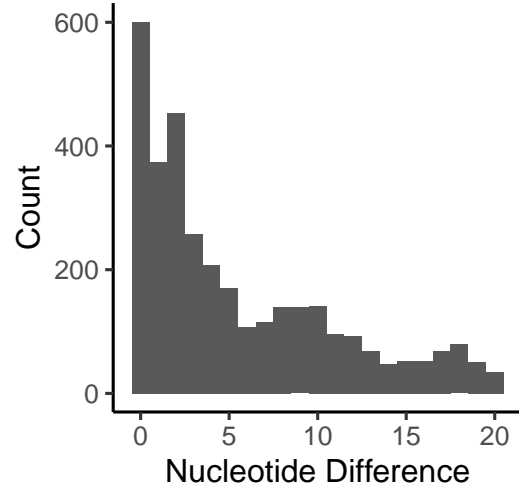
### IGHV4-30-2\*01

6201 sequences assigned  
1248 (20.1%) exact matches, in which:  
1128 unique CDR3  
6 unique J



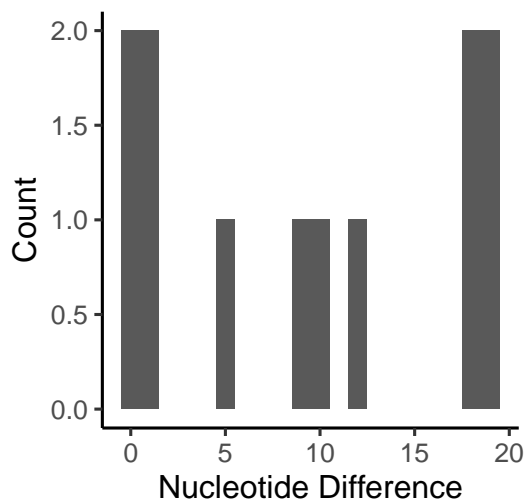
### IGHV4-38-2\*02

4180 sequences assigned  
601 (14.4%) exact matches, in which:  
571 unique CDR3  
6 unique J



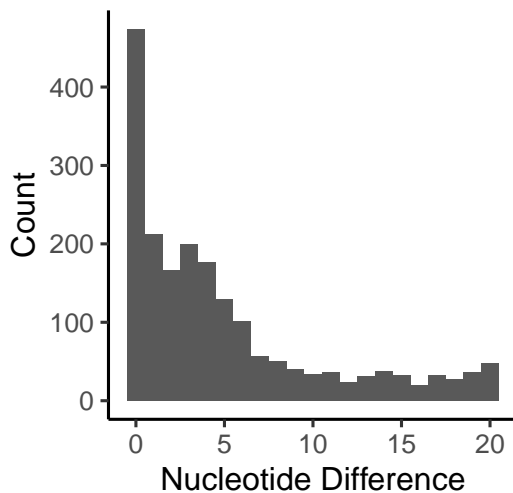
### IGHV4-28\*01\_07

21 sequences assigned  
2 (9.5%) exact matches, in which:  
2 unique CDR3  
1 unique J



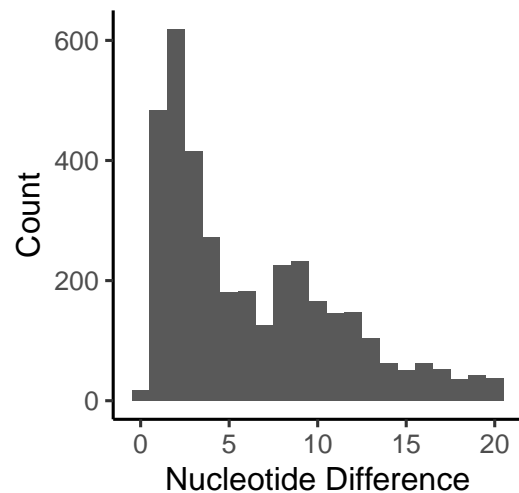
### IGHV4-31\*03\_04

2452 sequences assigned  
474 (19.3%) exact matches, in which:  
431 unique CDR3  
6 unique J



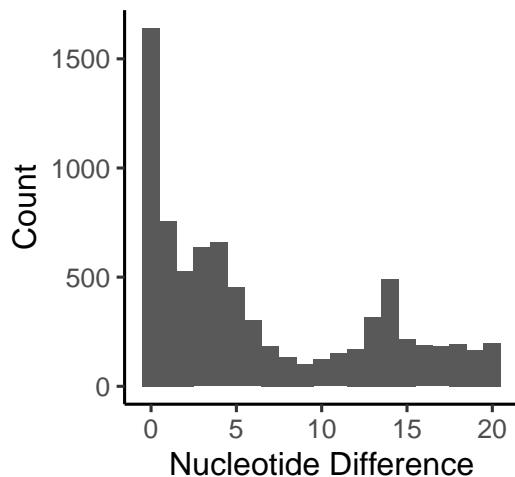
### IGHV4-39\*07

3909 sequences assigned  
17 (0.4%) exact matches, in which:  
17 unique CDR3  
4 unique J



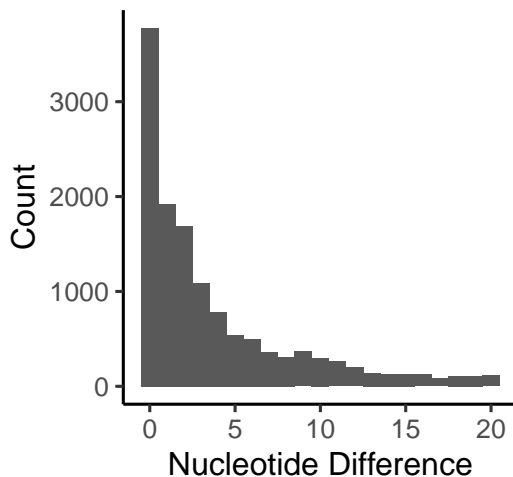
### IGHV4-30-4\*01

9763 sequences assigned  
1641 (16.8%) exact matches, in which:  
1557 unique CDR3  
6 unique J



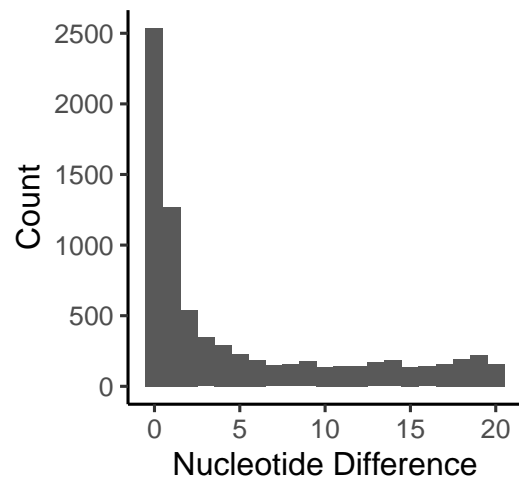
### IGHV4-34\*01\_02

14181 sequences assigned  
3776 (26.6%) exact matches, in which:  
3549 unique CDR3  
6 unique J



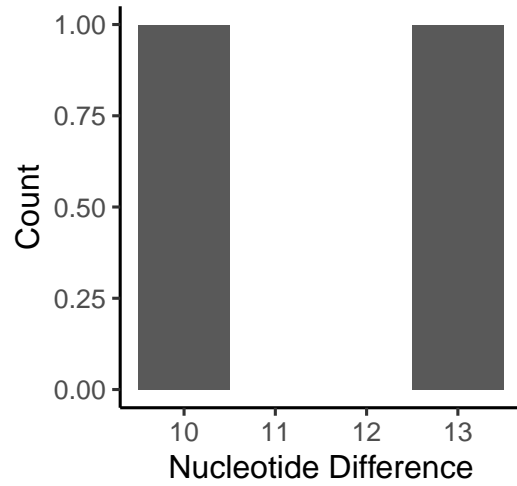
### IGHV4-39\*01\_05

8961 sequences assigned  
2537 (28.3%) exact matches, in which:  
2379 unique CDR3  
6 unique J



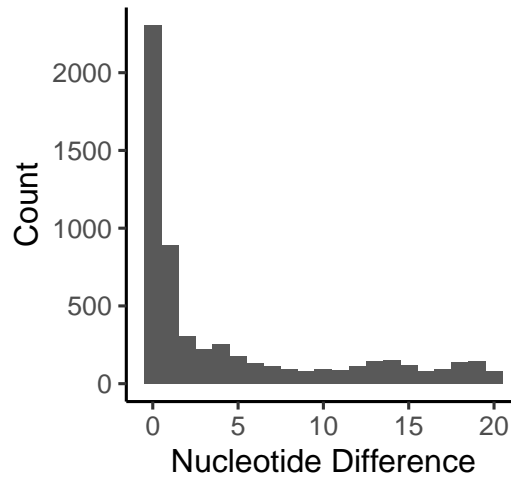
### IGHV4-55\*09

2 sequences assigned  
No exact matches.



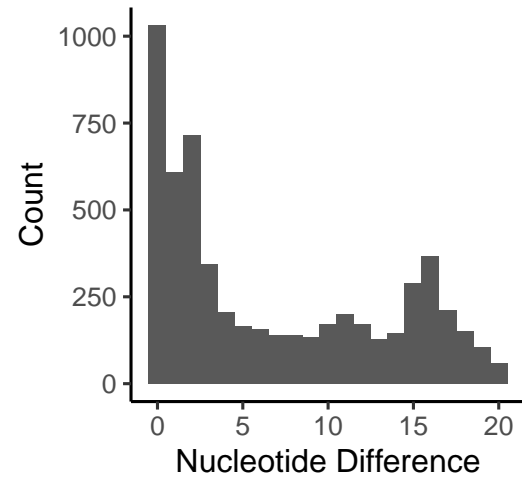
### IGHV4-59\*01\_07

7281 sequences assigned  
2304 (31.6%) exact matches, in which:  
2200 unique CDR3  
6 unique J



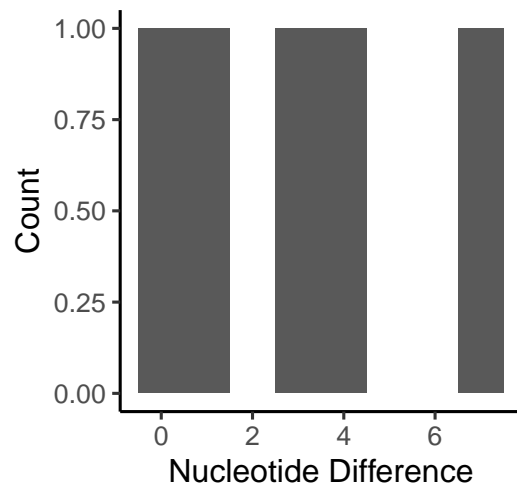
### IGHV4-61\*02

6563 sequences assigned  
1031 (15.7%) exact matches, in which:  
996 unique CDR3  
6 unique J



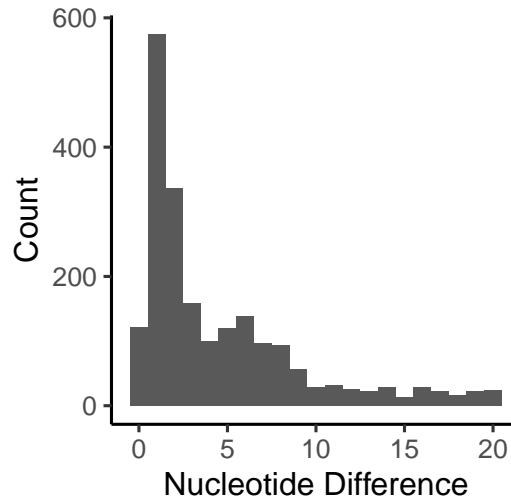
### IGHV4-55\*02\_04\_08

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



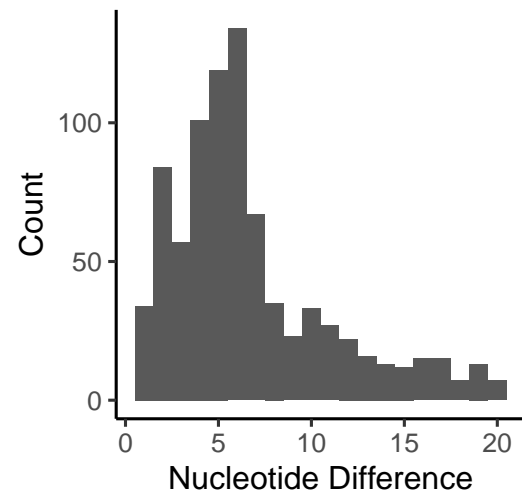
### IGHV4-59\*12

2190 sequences assigned  
122 (5.6%) exact matches, in which:  
120 unique CDR3  
6 unique J



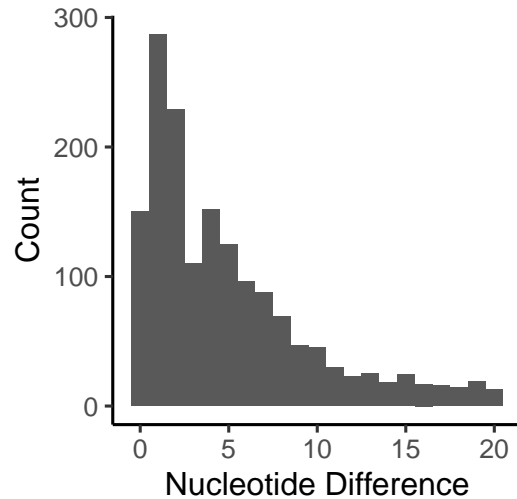
### IGHV4-61\*08

1065 sequences assigned  
No exact matches.



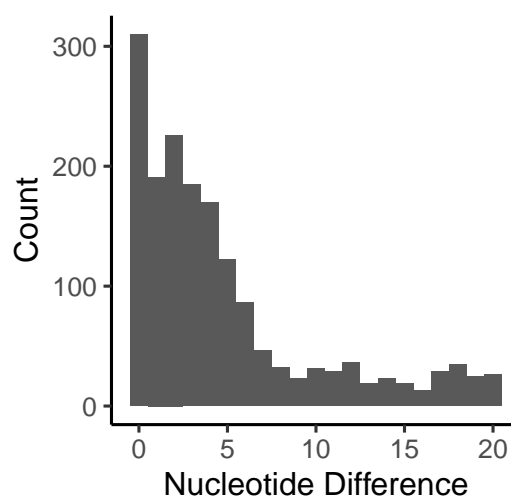
### IGHV4-59\*08

1755 sequences assigned  
150 (8.5%) exact matches, in which:  
148 unique CDR3  
6 unique J



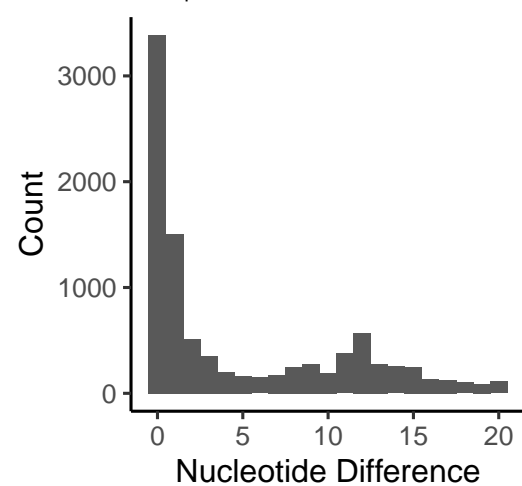
### IGHV4-61\*01

1872 sequences assigned  
310 (16.6%) exact matches, in which:  
304 unique CDR3  
6 unique J



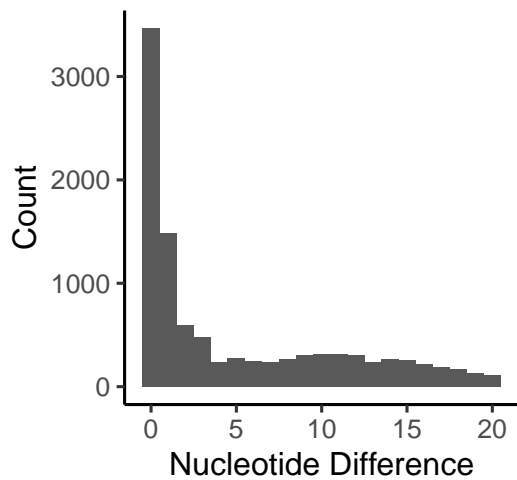
### IGHV5-10-1\*01\_03

10058 sequences assigned  
3386 (33.7%) exact matches, in which:  
2810 unique CDR3  
6 unique J



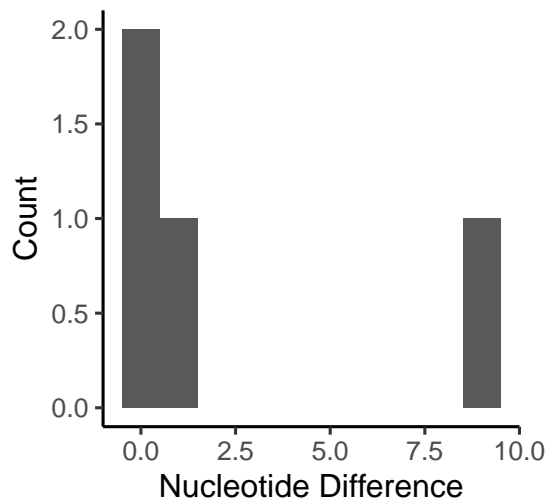
### IGHV5-51\*01\_03

10933 sequences assigned  
3465 (31.7%) exact matches, in which:  
2818 unique CDR3  
6 unique J



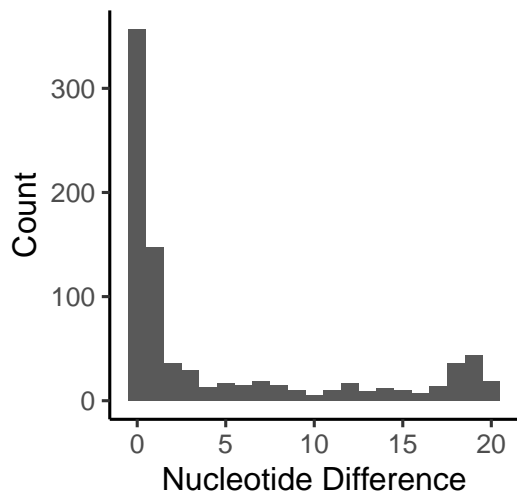
### IGHV7-81\*01

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



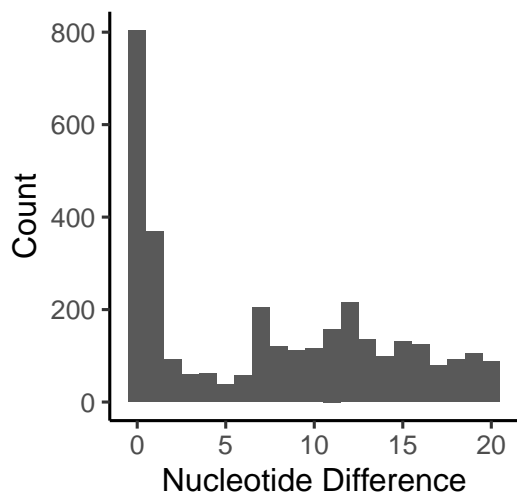
### IGHV6-1\*01\_02

913 sequences assigned  
357 (39.1%) exact matches, in which:  
340 unique CDR3  
6 unique J



### IGHV7-4-1\*02

3892 sequences assigned  
804 (20.7%) exact matches, in which:  
762 unique CDR3  
6 unique J





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.

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.

Novel sequence(s)IGHV4-59\*02\_G88AIGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

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

Novel sequence(s)IGHV4-4\*02\_03\_C300TIGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

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

Warning – no inferred sequences found.

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

Novel sequence(s)IGHV1-69\*08\_C191TIGHV3-11\*06\_T300CIGHV3-30\*03\_T288CIGHV4-59\*02\_G88AIGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s)IGHV4-59\*02\_G88AIGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

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

Warning – no inferred sequences found.

Warning – no inferred sequences found.

Novel sequence(s)IGHV3-30\*03\_T288CIGHV3-30-3\*01\_T288CIGHV4-59\*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)IGHV3-48\*04\_A193T\_C198T\_A200C\_C201T\_T210A are not listed in the genotype and will be ignored.

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

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