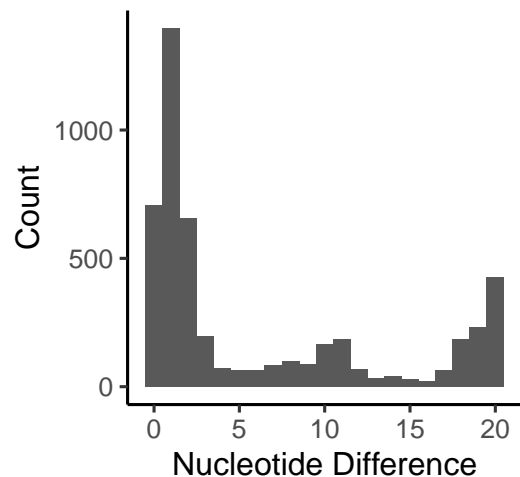


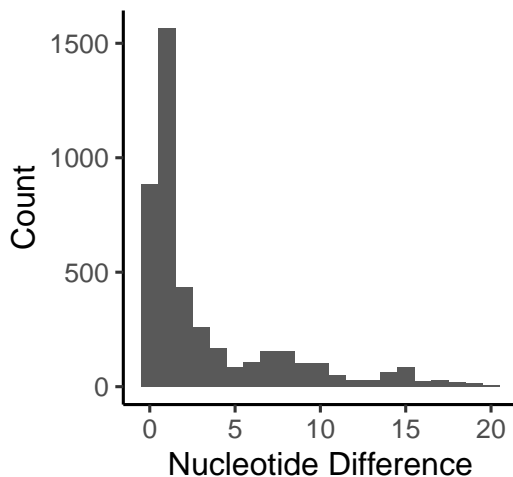
### IGHV1-2\*02

5462 sequences assigned  
707 (12.9%) exact matches, in which:  
523 unique CDR3  
5 unique J



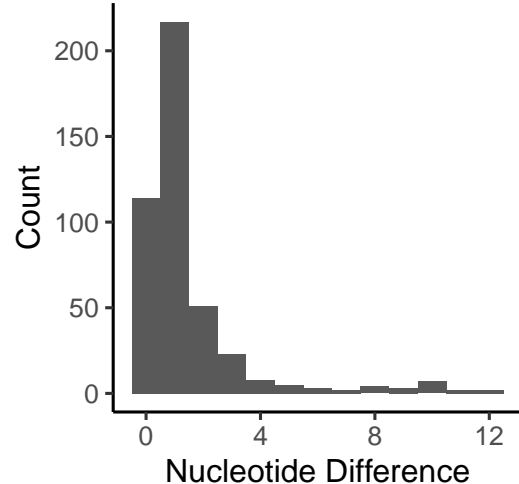
### IGHV1-18\*04

5403 sequences assigned  
884 (16.4%) exact matches, in which:  
647 unique CDR3  
6 unique J



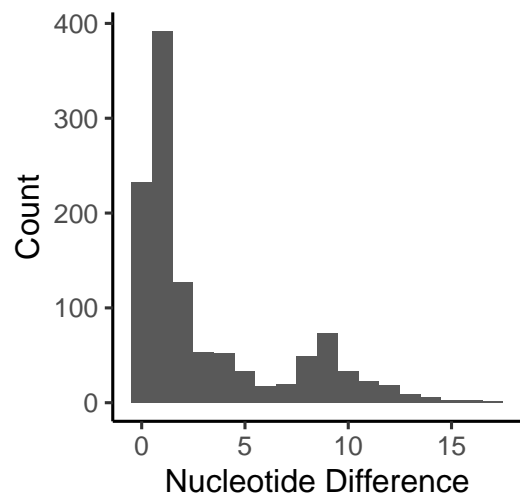
### IGHV1-46\*03

441 sequences assigned  
114 (25.9%) exact matches, in which:  
74 unique CDR3  
5 unique J



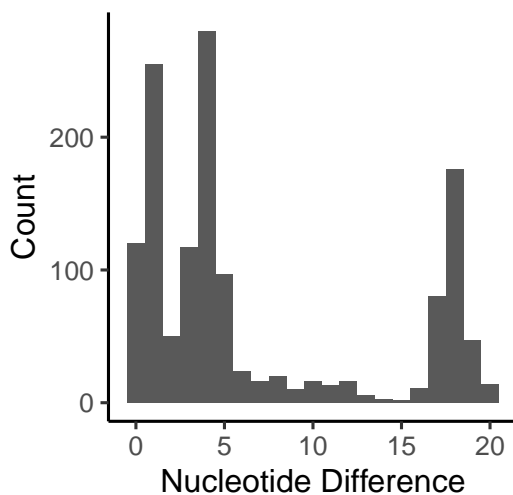
### IGHV1-3\*01\_05

1148 sequences assigned  
233 (20.3%) exact matches, in which:  
179 unique CDR3  
5 unique J



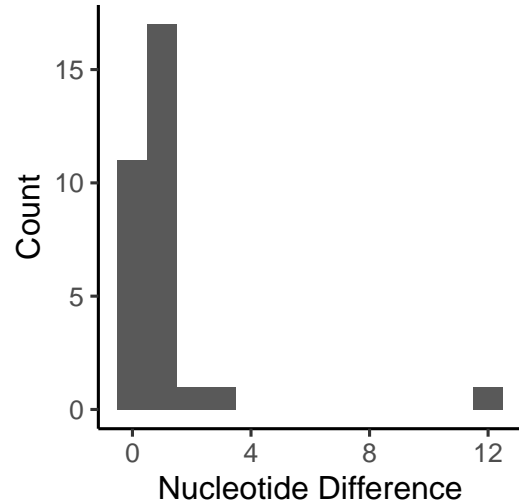
### IGHV1-24\*01

1397 sequences assigned  
120 (8.6%) exact matches, in which:  
80 unique CDR3  
6 unique J



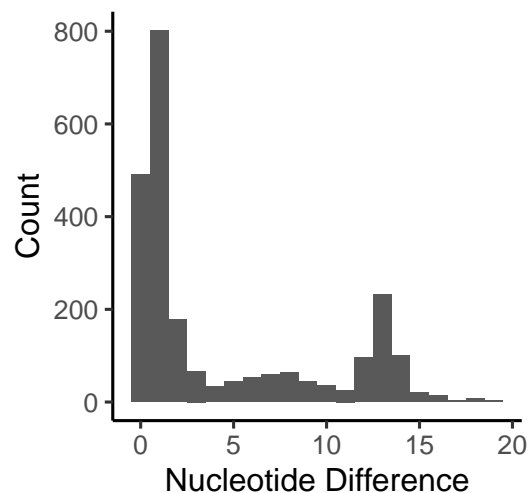
### IGHV1-58\*02

31 sequences assigned  
11 (35.5%) exact matches, in which:  
7 unique CDR3  
4 unique J



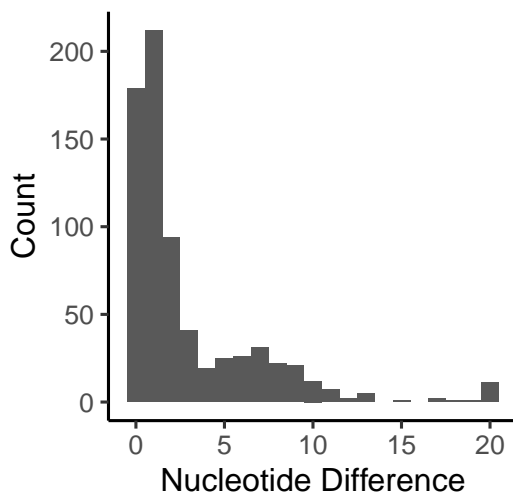
### IGHV1-8\*01

2383 sequences assigned  
490 (20.6%) exact matches, in which:  
376 unique CDR3  
6 unique J



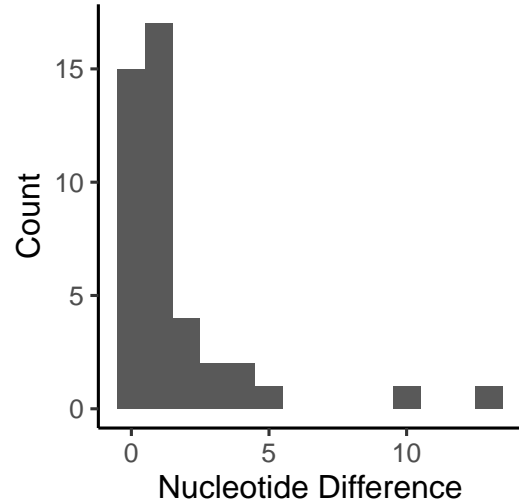
### IGHV1-46\*01

739 sequences assigned  
179 (24.2%) exact matches, in which:  
159 unique CDR3  
4 unique J



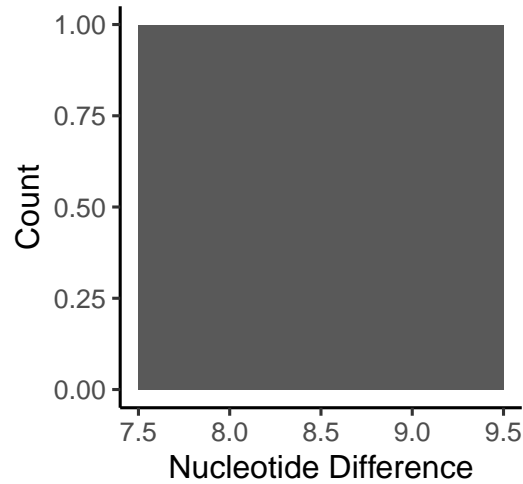
### IGHV1-58\*01\_03

43 sequences assigned  
15 (34.9%) exact matches, in which:  
11 unique CDR3  
4 unique J



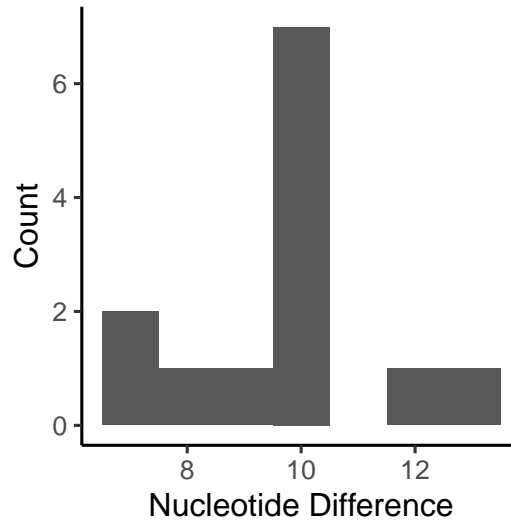
### IGHV1-69-2\*01

2 sequences assigned  
No exact matches.



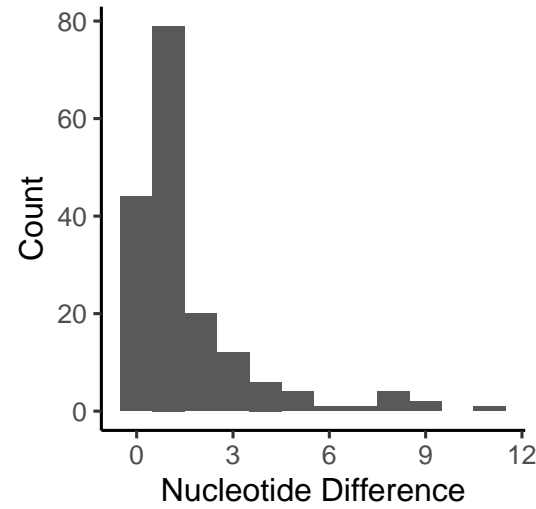
### IGHV1-NL1\*01

13 sequences assigned  
No exact matches.



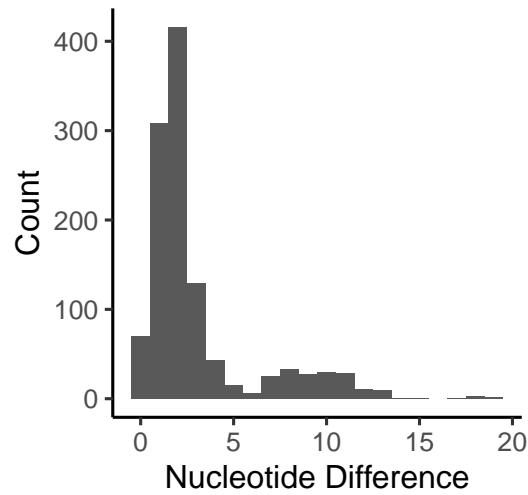
### IGHV2-26\*01

174 sequences assigned  
44 (25.3%) exact matches, in which:  
33 unique CDR3  
5 unique J



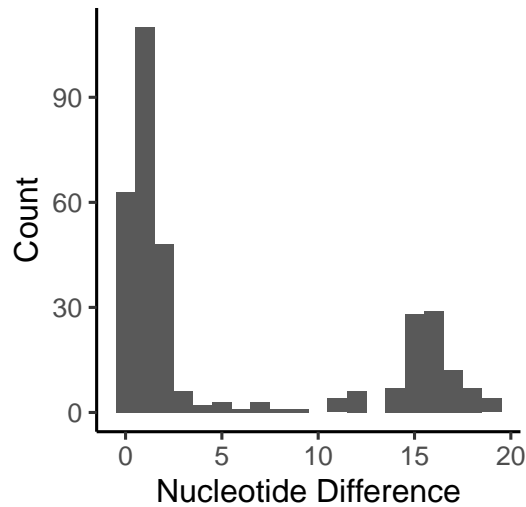
### IGHV1-69\*04\_09

1164 sequences assigned  
70 (6%) exact matches, in which:  
65 unique CDR3  
6 unique J



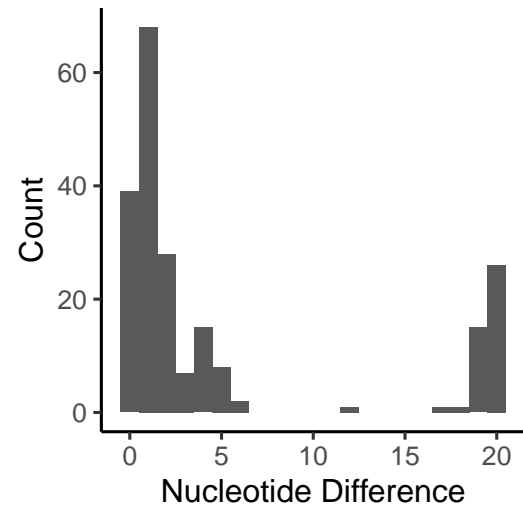
### IGHV2-5\*01

1030 sequences assigned  
63 (6.1%) exact matches, in which:  
46 unique CDR3  
4 unique J



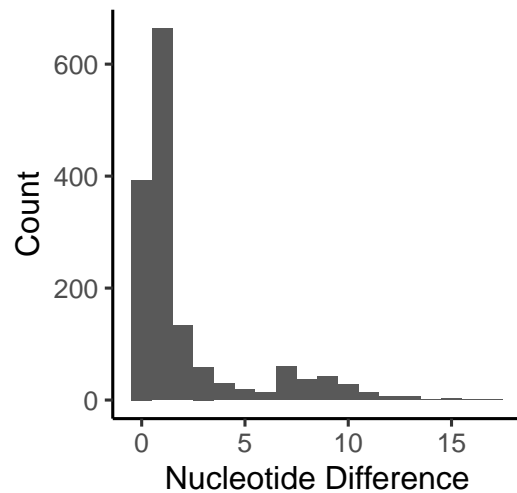
### IGHV2-70\*01

223 sequences assigned  
39 (17.5%) exact matches, in which:  
31 unique CDR3  
4 unique J



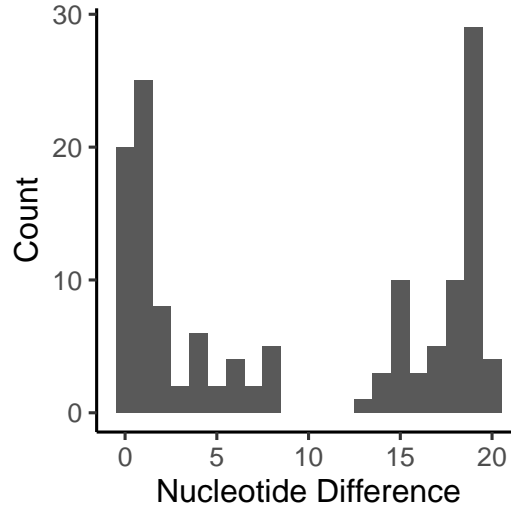
### IGHV1-69\*06\_14

1583 sequences assigned  
393 (24.8%) exact matches, in which:  
326 unique CDR3  
5 unique J



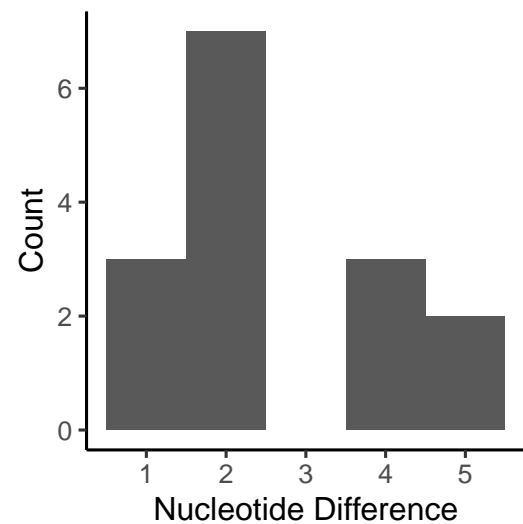
### IGHV2-5\*02

1138 sequences assigned  
20 (1.8%) exact matches, in which:  
15 unique CDR3  
4 unique J



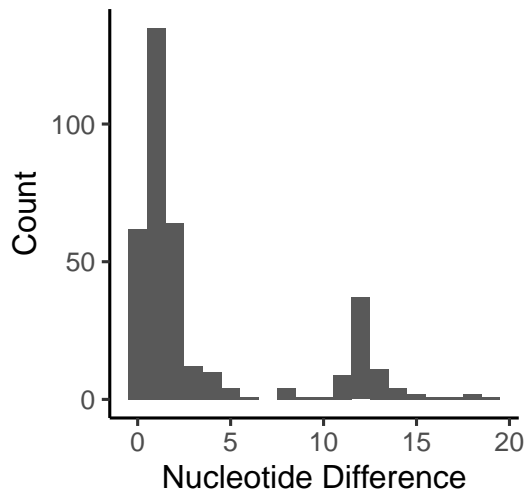
### IGHV2-70\*12

15 sequences assigned  
No exact matches.



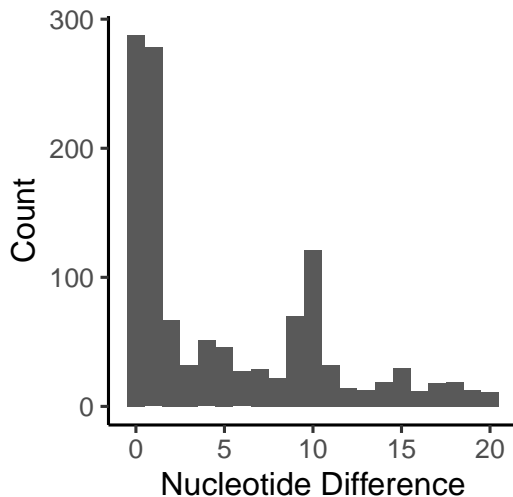
### IGHV2-70\*11\_15

362 sequences assigned  
62 (17.1%) exact matches, in which:  
44 unique CDR3  
4 unique J



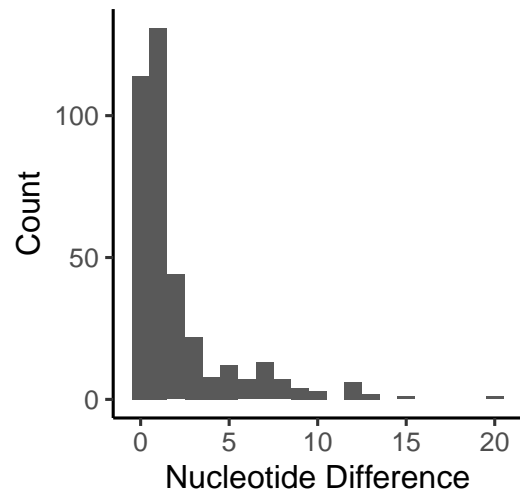
### IGHV3-9\*01

1251 sequences assigned  
288 (23%) exact matches, in which:  
168 unique CDR3  
6 unique J



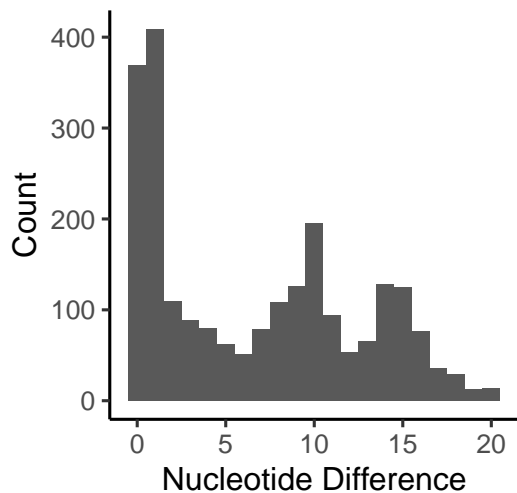
### IGHV3-11\*06

674 sequences assigned  
114 (16.9%) exact matches, in which:  
73 unique CDR3  
6 unique J



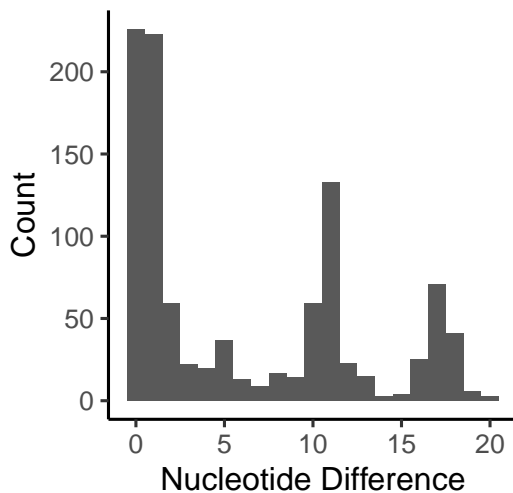
### IGHV3-7\*01

2435 sequences assigned  
369 (15.2%) exact matches, in which:  
231 unique CDR3  
6 unique J



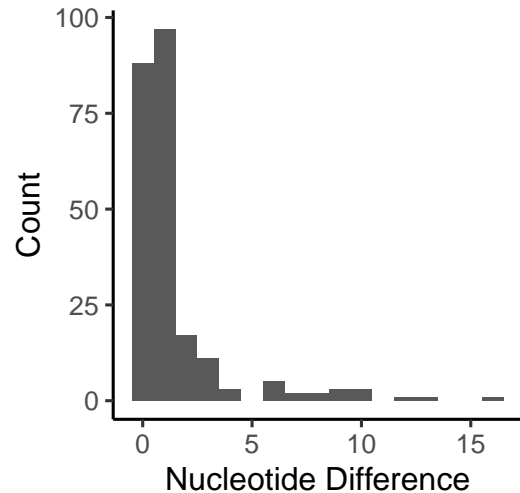
### IGHV3-11\*01

1044 sequences assigned  
226 (21.6%) exact matches, in which:  
147 unique CDR3  
5 unique J



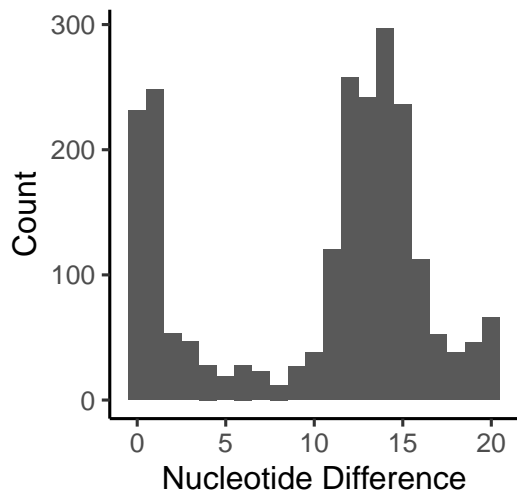
### IGHV3-13\*01

234 sequences assigned  
88 (37.6%) exact matches, in which:  
51 unique CDR3  
6 unique J



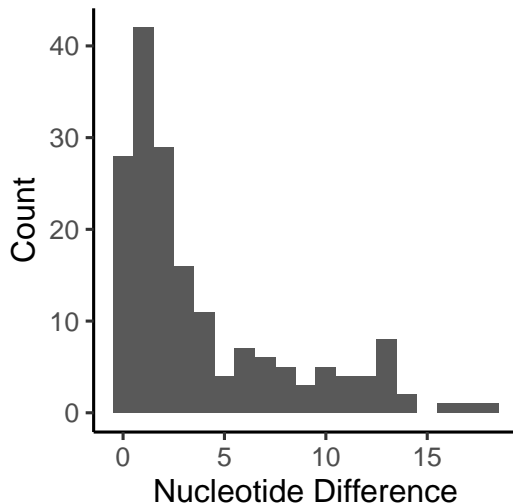
### IGHV3-7\*03

2466 sequences assigned  
231 (9.4%) exact matches, in which:  
148 unique CDR3  
6 unique J



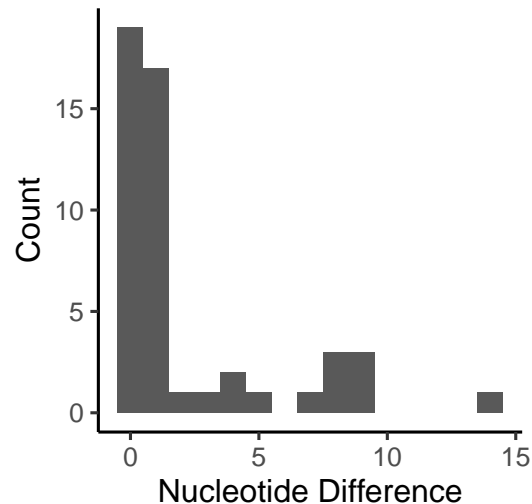
### IGHV3-11\*04

178 sequences assigned  
28 (15.7%) exact matches, in which:  
26 unique CDR3  
4 unique J



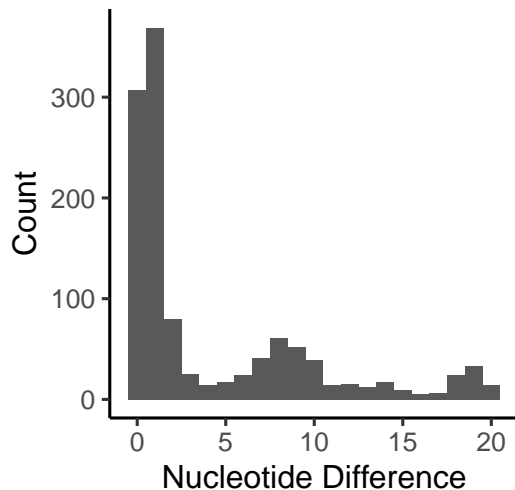
### IGHV3-13\*05

50 sequences assigned  
19 (38%) exact matches, in which:  
10 unique CDR3  
4 unique J



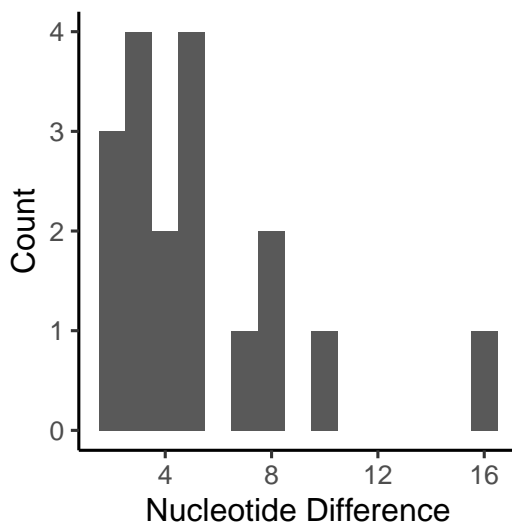
### IGHV3-15\*01\_02

1364 sequences assigned  
307 (22.5%) exact matches, in which:  
169 unique CDR3  
4 unique J



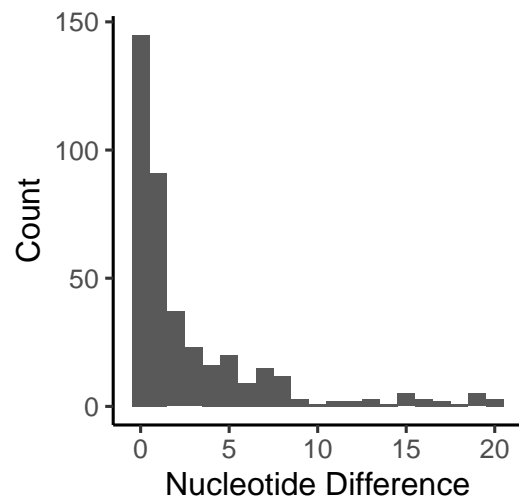
### IGHV3-20\*03\_04

18 sequences assigned  
No exact matches.



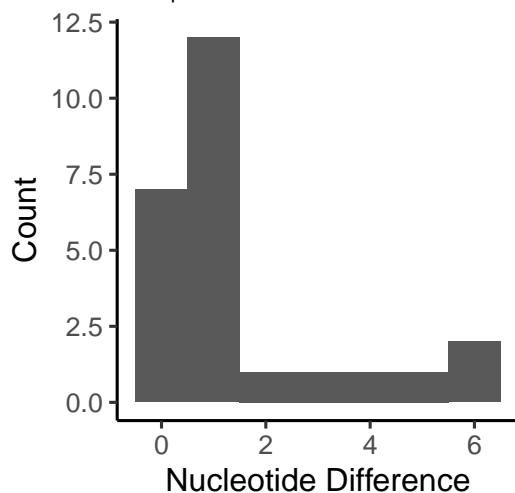
### IGHV3-30\*03

419 sequences assigned  
145 (34.6%) exact matches, in which:  
127 unique CDR3  
6 unique J



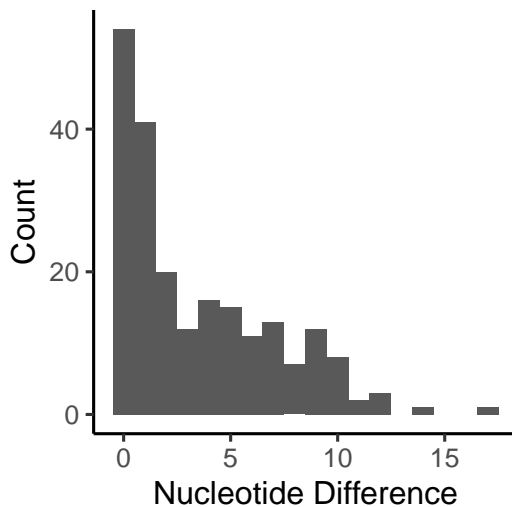
### IGHV3-19\*01

25 sequences assigned  
7 (28%) exact matches, in which:  
5 unique CDR3  
1 unique J



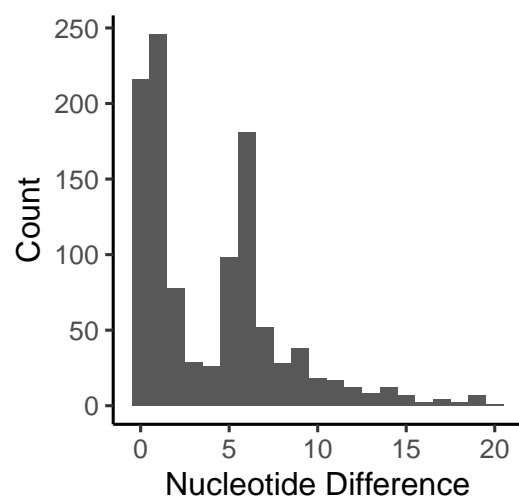
### IGHV3-21\*04

216 sequences assigned  
54 (25%) exact matches, in which:  
51 unique CDR3  
4 unique J



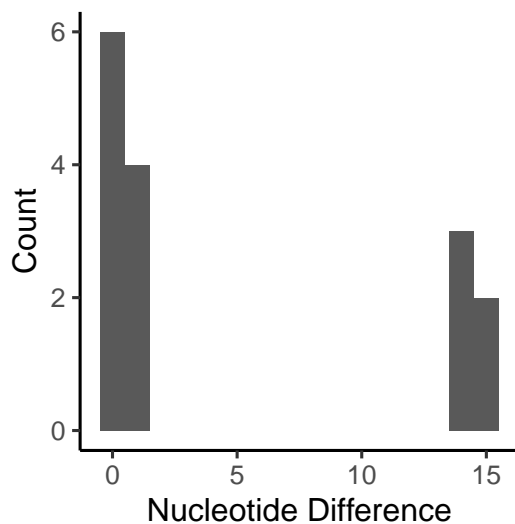
### IGHV3-33\*01

1147 sequences assigned  
216 (18.8%) exact matches, in which:  
140 unique CDR3  
4 unique J



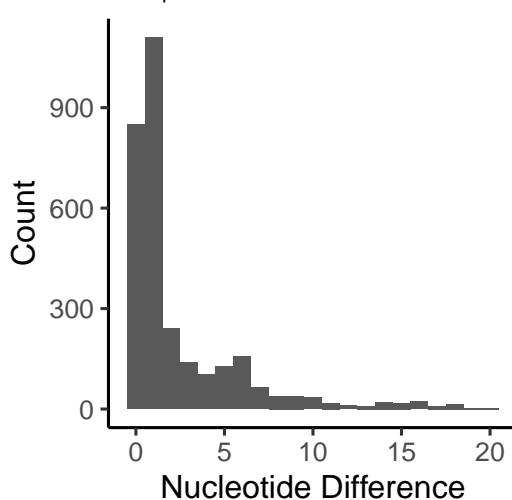
### IGHV3-20\*01\_02

15 sequences assigned  
6 (40%) exact matches, in which:  
5 unique CDR3  
2 unique J



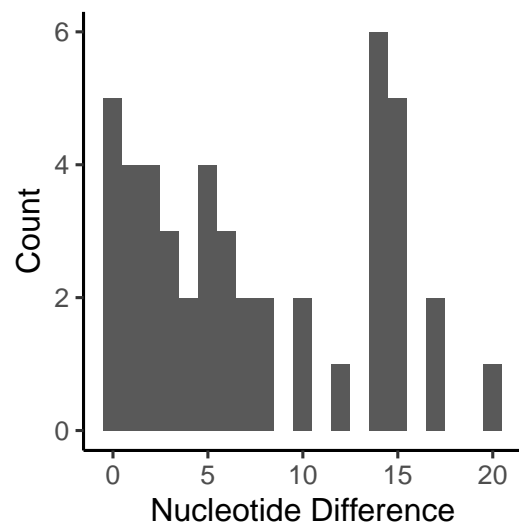
### IGHV3-21\*01\_02

3053 sequences assigned  
851 (27.9%) exact matches, in which:  
488 unique CDR3  
6 unique J



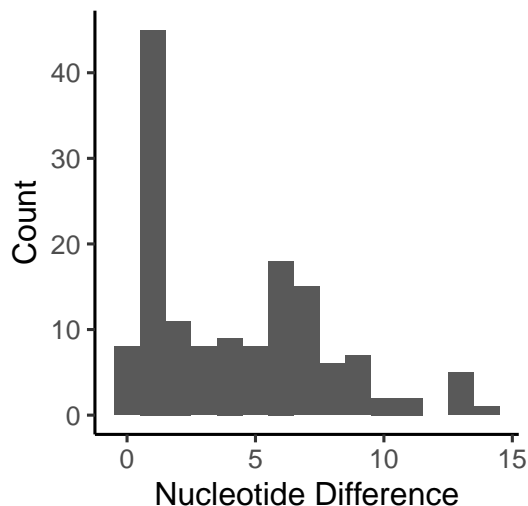
### IGHV3-33\*05

62 sequences assigned  
5 (8.1%) exact matches, in which:  
5 unique CDR3  
1 unique J



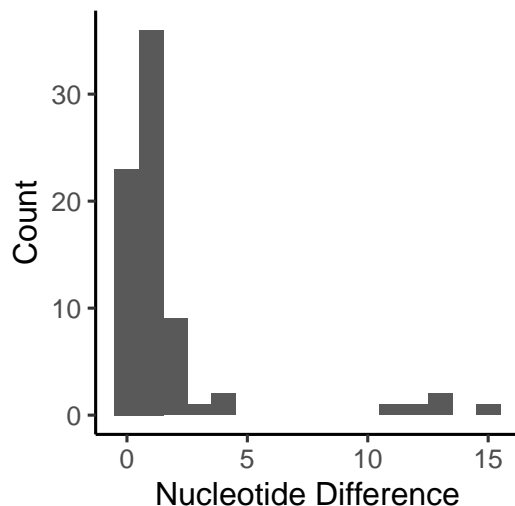
### IGHV3-33\*06

145 sequences assigned  
8 (5.5%) exact matches, in which:  
7 unique CDR3  
2 unique J



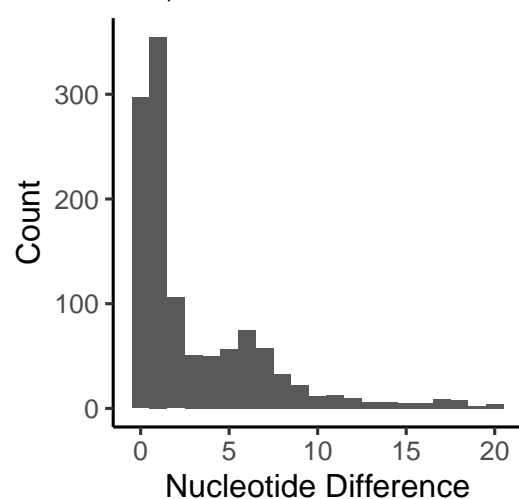
### IGHV3-43\*01

108 sequences assigned  
23 (21.3%) exact matches, in which:  
12 unique CDR3  
3 unique J



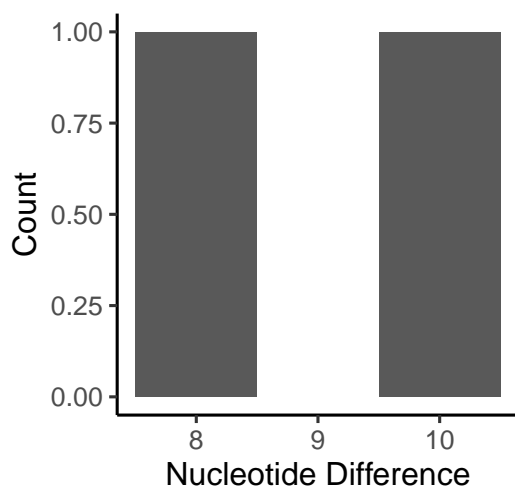
### IGHV3-48\*03

1195 sequences assigned  
297 (24.9%) exact matches, in which:  
175 unique CDR3  
5 unique J



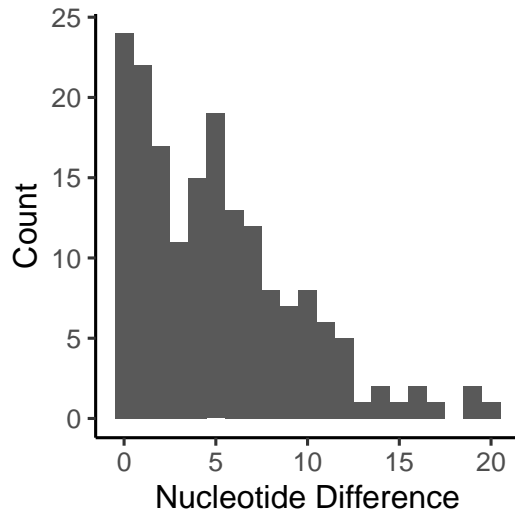
### IGHV3-35\*01

2 sequences assigned  
No exact matches.



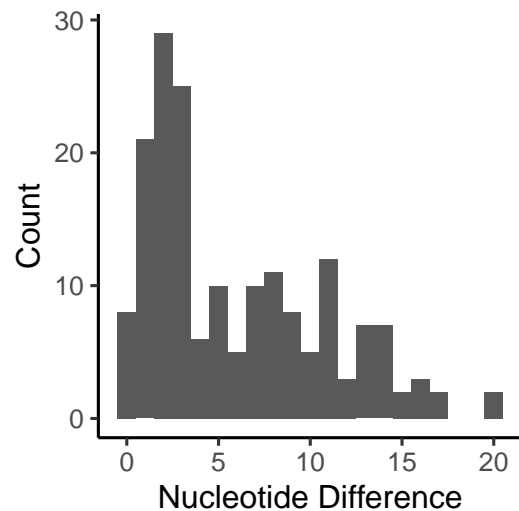
### IGHV3-48\*01

184 sequences assigned  
24 (13%) exact matches, in which:  
24 unique CDR3  
5 unique J



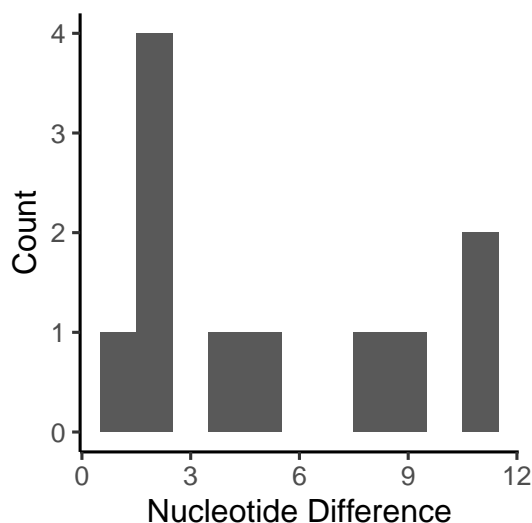
### IGHV3-48\*04

178 sequences assigned  
8 (4.5%) exact matches, in which:  
8 unique CDR3  
4 unique J



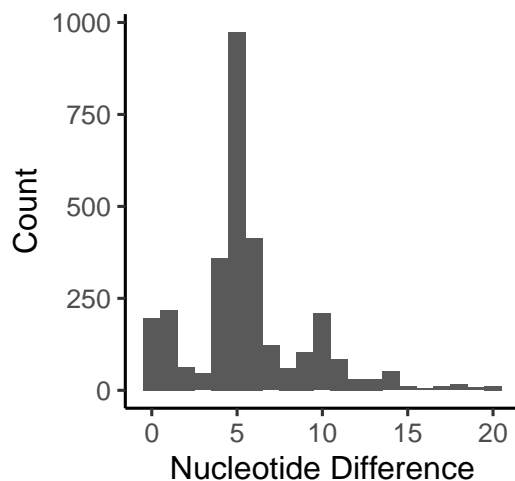
### IGHV3-38-3\*01

11 sequences assigned  
No exact matches.



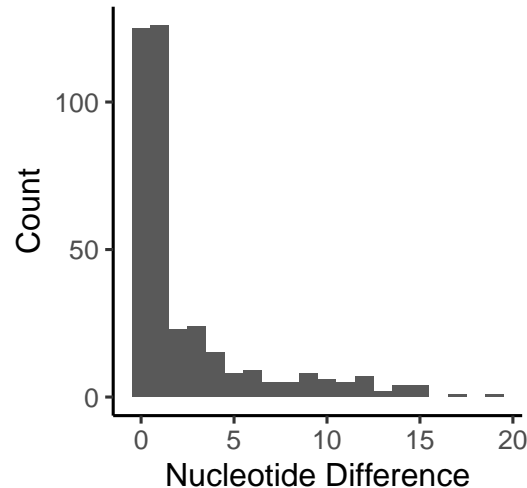
### IGHV3-48\*02

3271 sequences assigned  
197 (6%) exact matches, in which:  
126 unique CDR3  
6 unique J



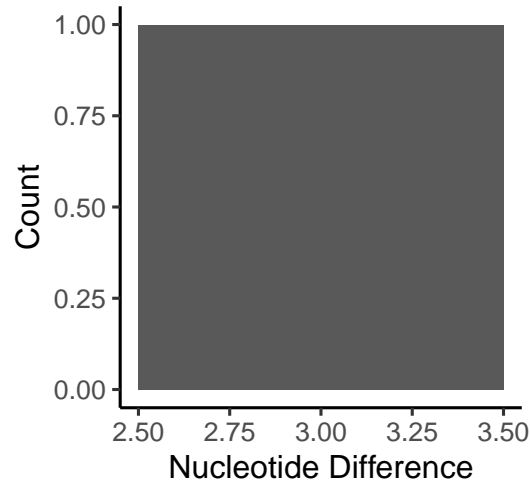
### IGHV3-49\*04

385 sequences assigned  
125 (32.5%) exact matches, in which:  
74 unique CDR3  
4 unique J



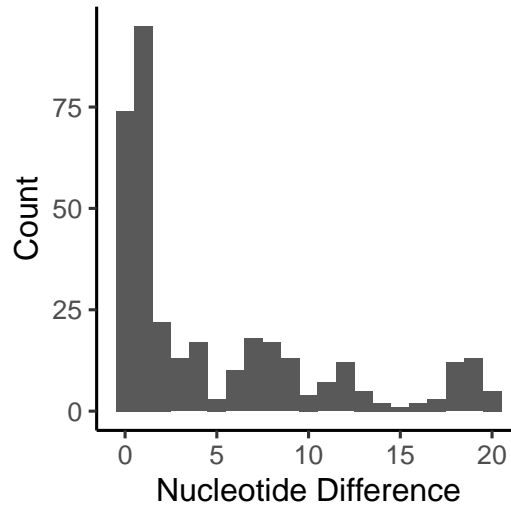
### IGHV3-52\*01\_03

1 sequences assigned  
No exact matches.



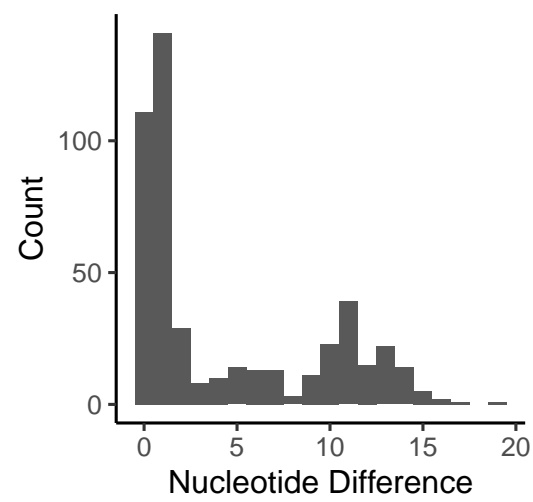
### IGHV3-53\*01\_02

418 sequences assigned  
74 (17.7%) exact matches, in which:  
49 unique CDR3  
5 unique J



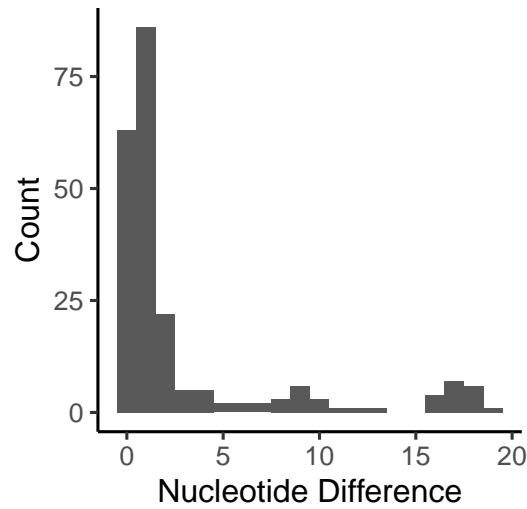
### IGHV3-66\*01

477 sequences assigned  
111 (23.3%) exact matches, in which:  
69 unique CDR3  
4 unique J



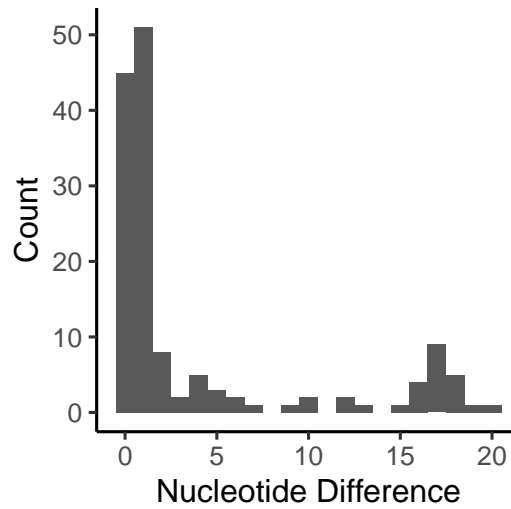
### IGHV3-53\*04

440 sequences assigned  
63 (14.3%) exact matches, in which:  
42 unique CDR3  
5 unique J



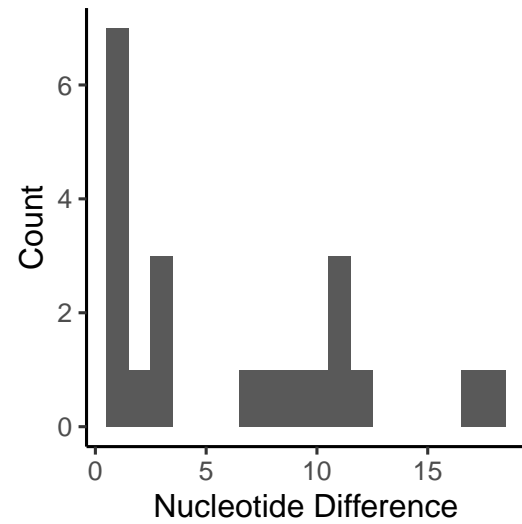
### IGHV3-64\*01

149 sequences assigned  
45 (30.2%) exact matches, in which:  
30 unique CDR3  
4 unique J



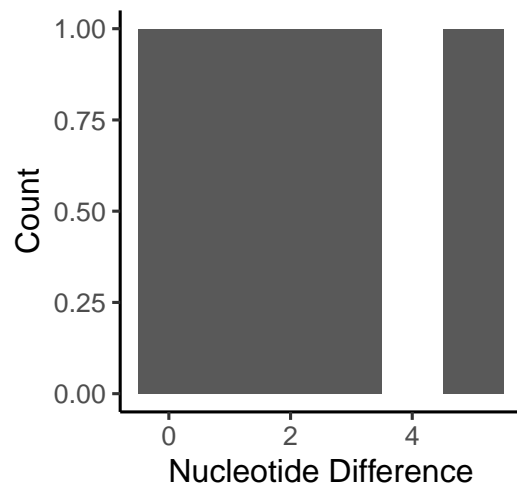
### IGHV3-66\*02

22 sequences assigned  
No exact matches.



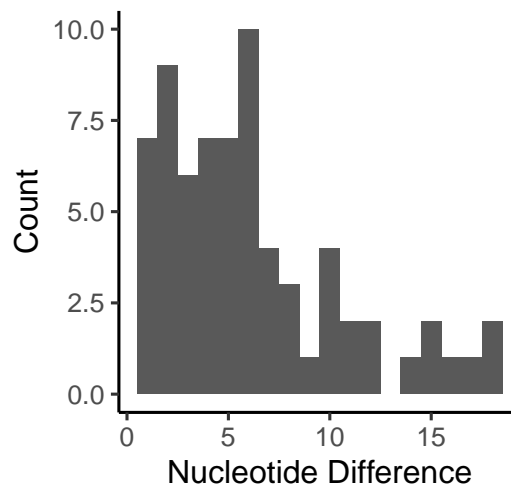
### IGHV3-53\*05

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



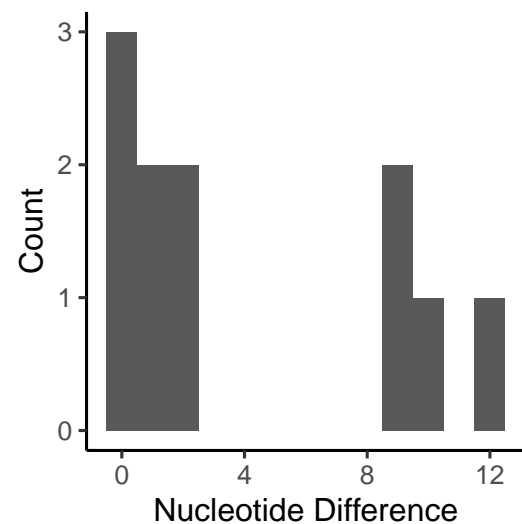
### IGHV3-64\*04

71 sequences assigned  
No exact matches.



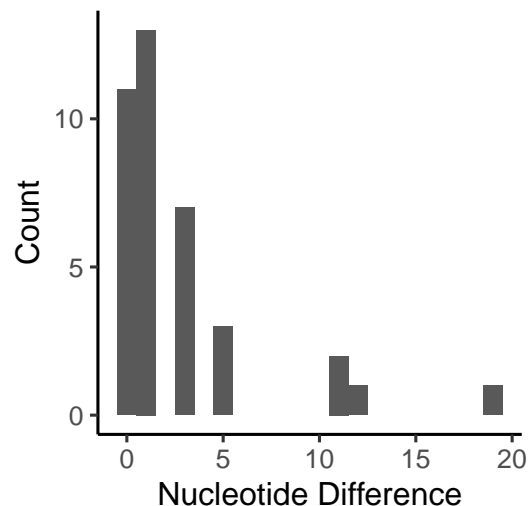
### IGHV3-66\*03

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



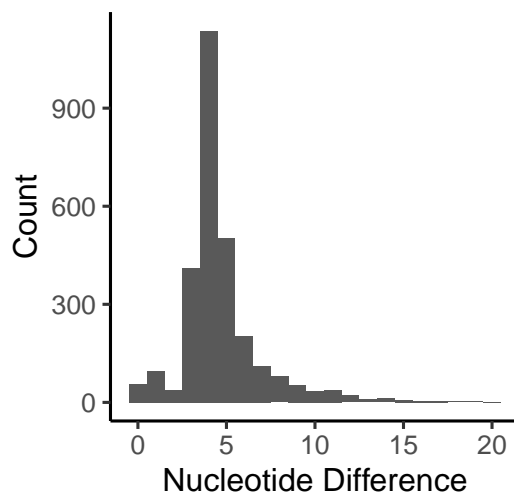
### IGHV3-69-1\*01

39 sequences assigned  
11 (28.2%) exact matches, in which:  
9 unique CDR3  
3 unique J



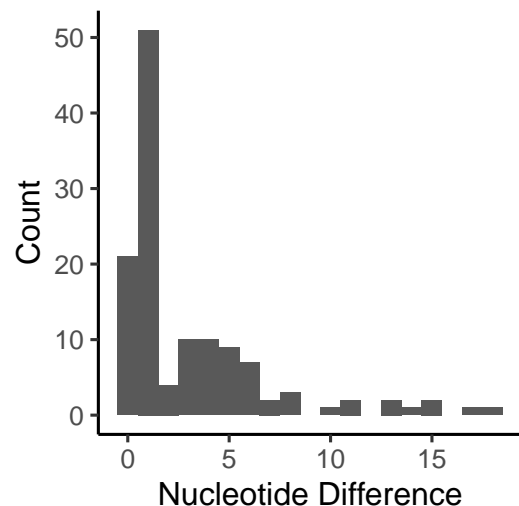
### IGHV3-73\*01\_02

2870 sequences assigned  
56 (2%) exact matches, in which:  
32 unique CDR3  
5 unique J



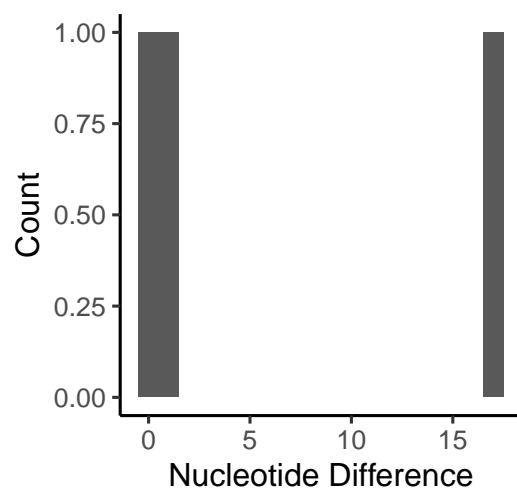
### IGHV3-43D\*04

127 sequences assigned  
21 (16.5%) exact matches, in which:  
11 unique CDR3  
2 unique J



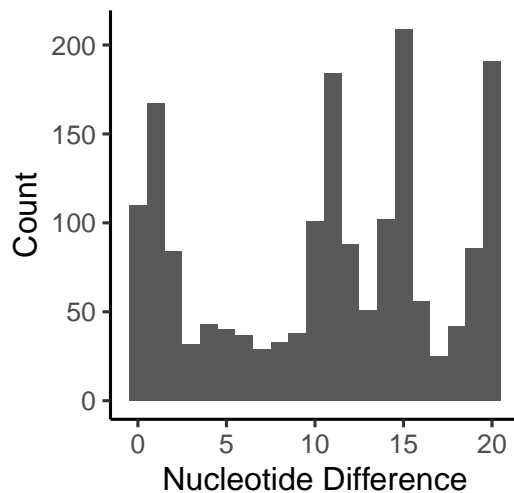
### IGHV3-69-1\*02

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



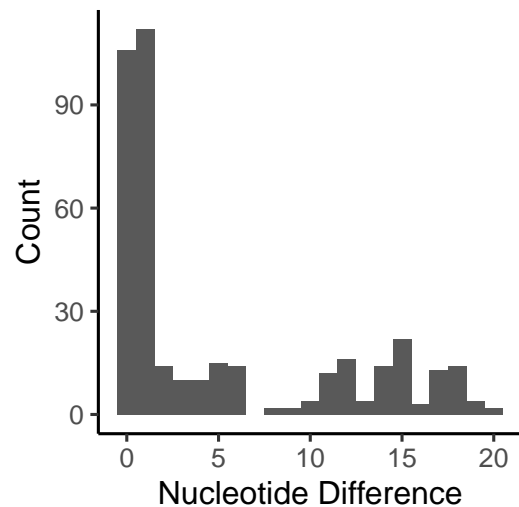
### IGHV3-74\*01\_02

2031 sequences assigned  
110 (5.4%) exact matches, in which:  
66 unique CDR3  
5 unique J



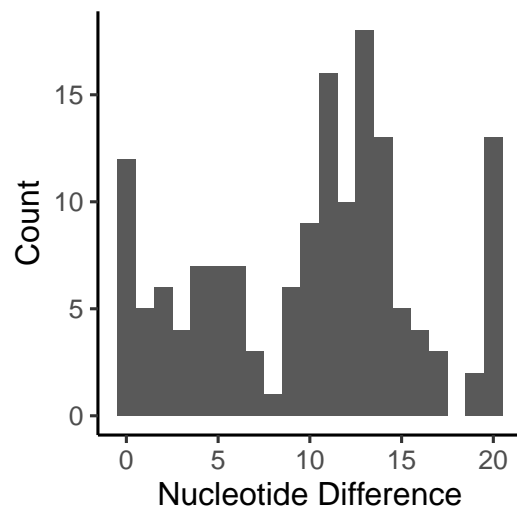
### IGHV3-64D\*06

501 sequences assigned  
106 (21.2%) exact matches, in which:  
65 unique CDR3  
6 unique J



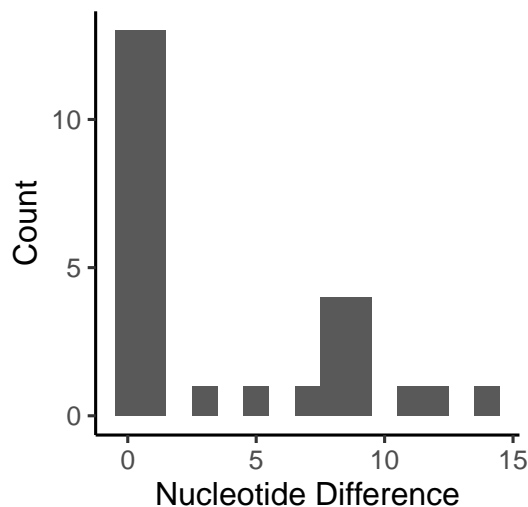
### IGHV3-72\*01

187 sequences assigned  
12 (6.4%) exact matches, in which:  
10 unique CDR3  
3 unique J



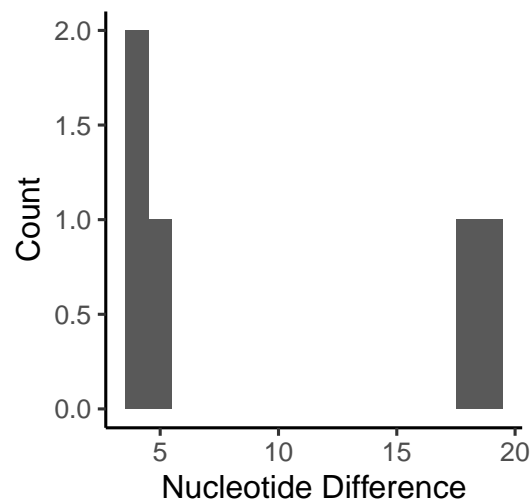
### IGHV3-43D\*03

40 sequences assigned  
13 (32.5%) exact matches, in which:  
5 unique CDR3  
3 unique J



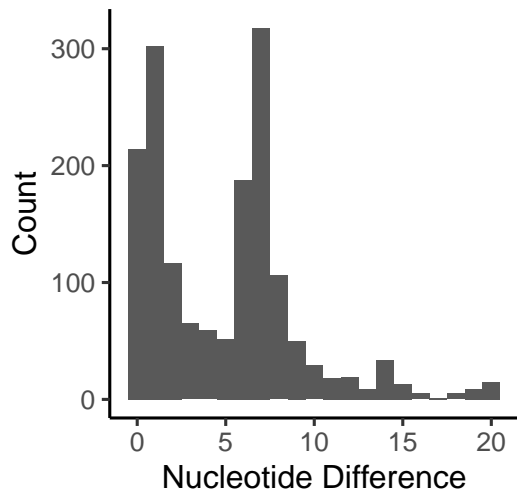
### IGHV3-NL1\*01

6 sequences assigned  
No exact matches.



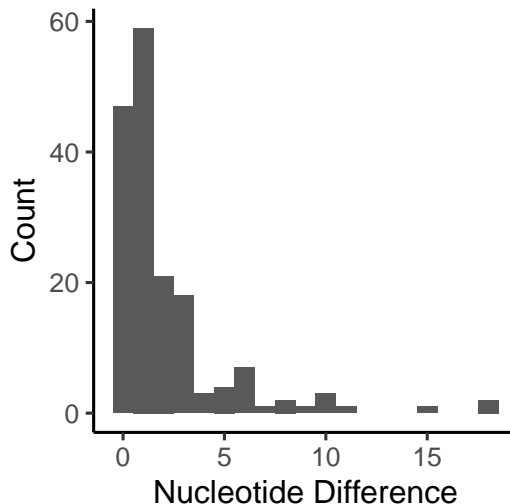
### IGHV4-4\*07

1862 sequences assigned  
214 (11.5%) exact matches, in which:  
165 unique CDR3  
6 unique J



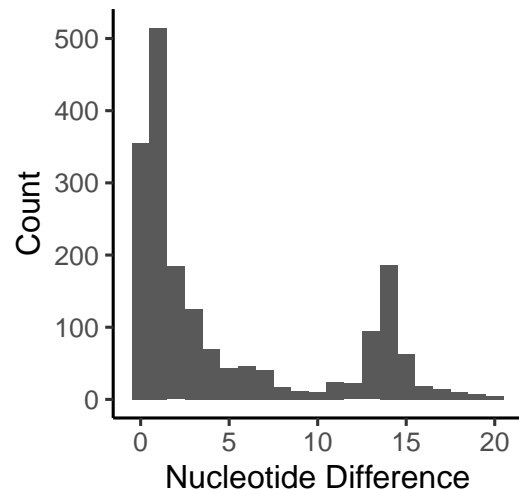
### IGHV4-30-2\*01

170 sequences assigned  
47 (27.6%) exact matches, in which:  
31 unique CDR3  
4 unique J



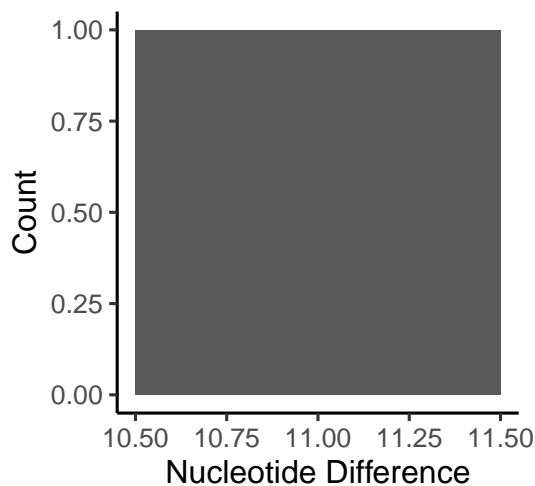
### IGHV4-31\*03\_04

1942 sequences assigned  
355 (18.3%) exact matches, in which:  
281 unique CDR3  
6 unique J



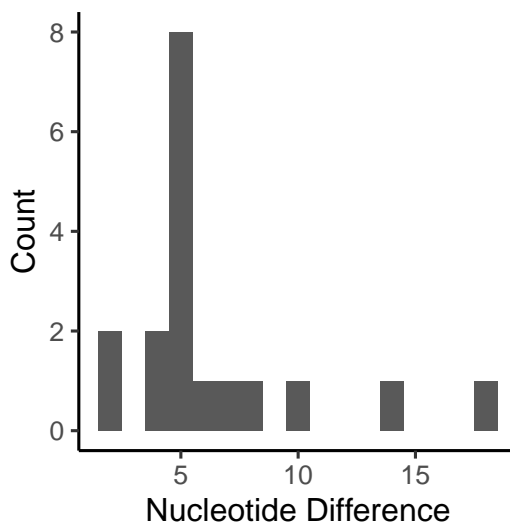
### IGHV4-28\*03

1 sequences assigned  
No exact matches.



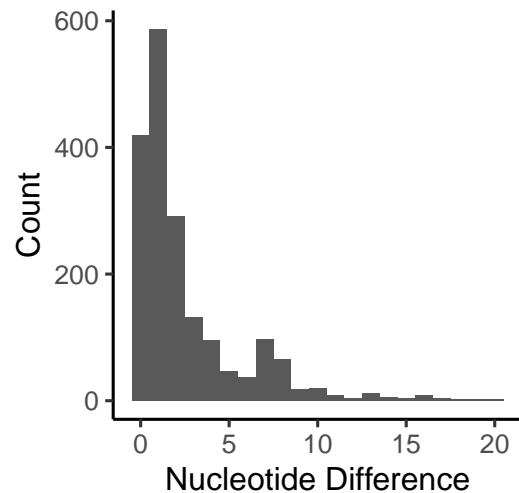
### IGHV4-30-2\*03

20 sequences assigned  
No exact matches.



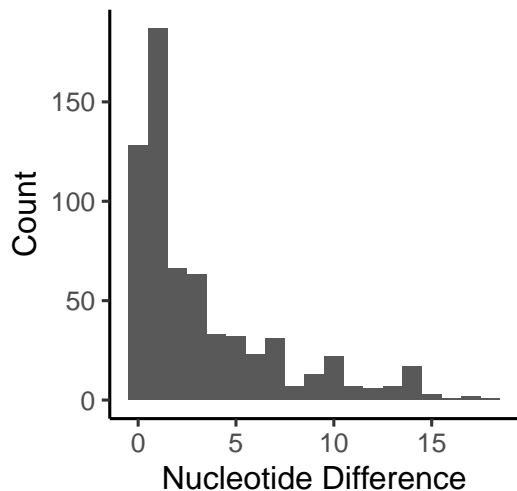
### IGHV4-34\*01\_02

1994 sequences assigned  
419 (21%) exact matches, in which:  
267 unique CDR3  
6 unique J



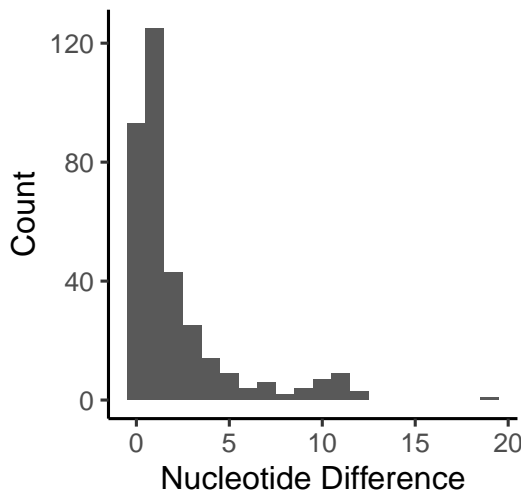
### IGHV4-30-4\*01

652 sequences assigned  
128 (19.6%) exact matches, in which:  
107 unique CDR3  
5 unique J



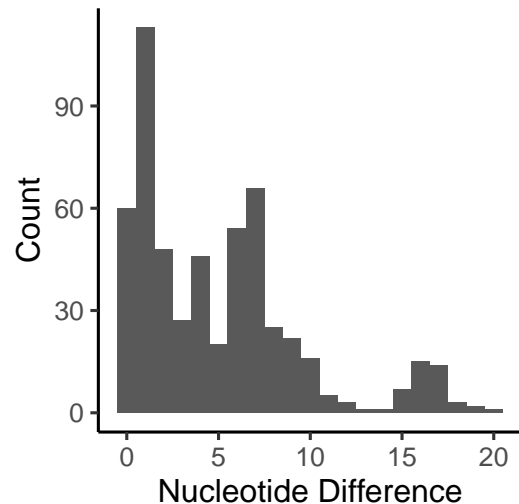
### IGHV4-30-4\*07

360 sequences assigned  
93 (25.8%) exact matches, in which:  
66 unique CDR3  
6 unique J



### IGHV4-38-2\*01

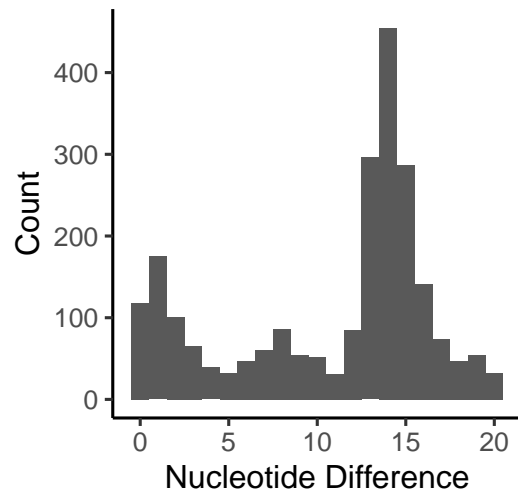
556 sequences assigned  
60 (10.8%) exact matches, in which:  
44 unique CDR3  
6 unique J





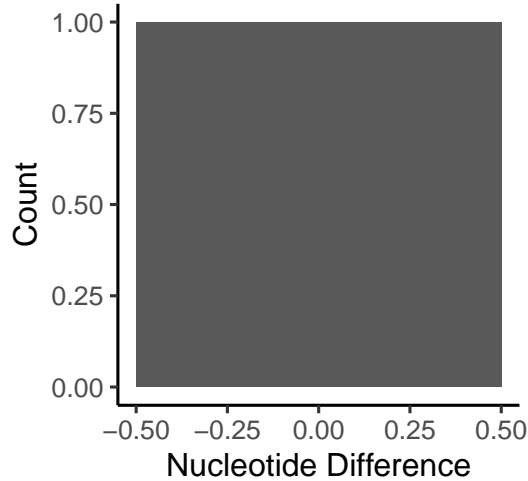
### IGHV4-38-2\*02

2377 sequences assigned  
118 (5%) exact matches, in which:  
94 unique CDR3  
6 unique J



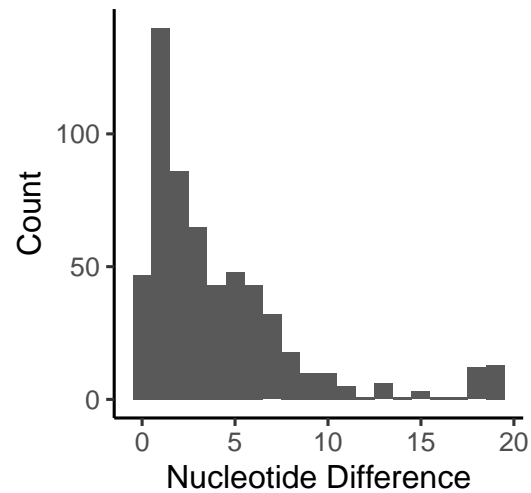
### IGHV4-55\*02\_04\_08

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



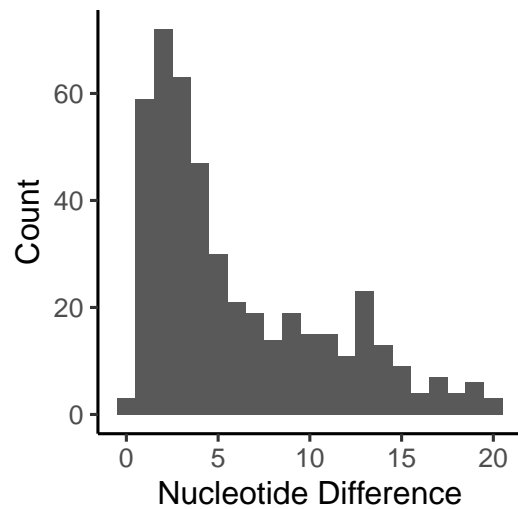
### IGHV4-59\*12

595 sequences assigned  
47 (7.9%) exact matches, in which:  
47 unique CDR3  
6 unique J



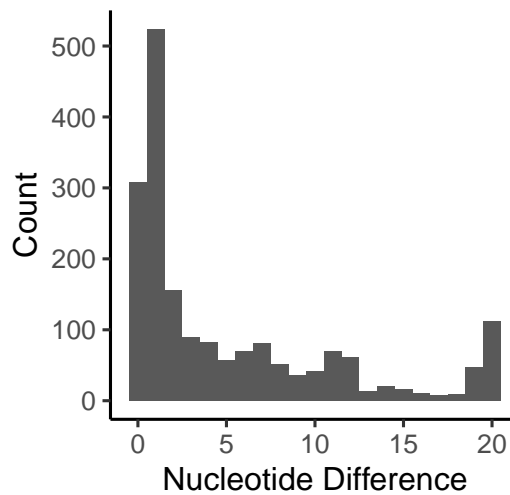
### IGHV4-39\*07

467 sequences assigned  
3 (0.6%) exact matches, in which:  
3 unique CDR3  
2 unique J



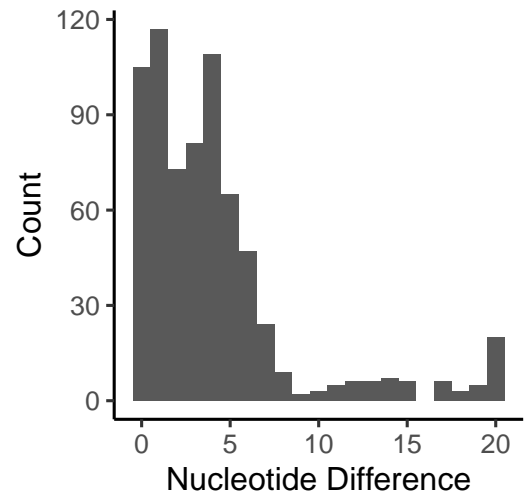
### IGHV4-59\*08

2260 sequences assigned  
308 (13.6%) exact matches, in which:  
224 unique CDR3  
6 unique J



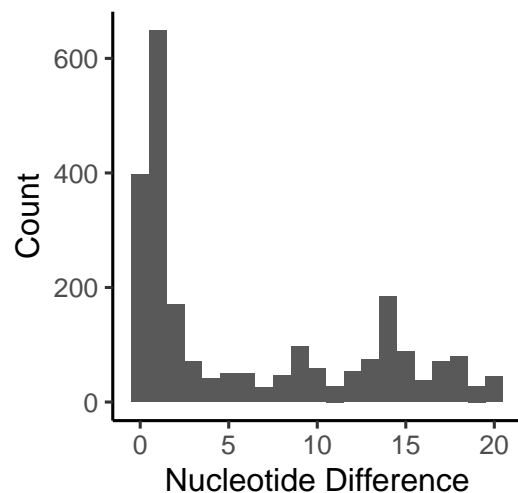
### IGHV4-61\*01

748 sequences assigned  
105 (14%) exact matches, in which:  
93 unique CDR3  
4 unique J



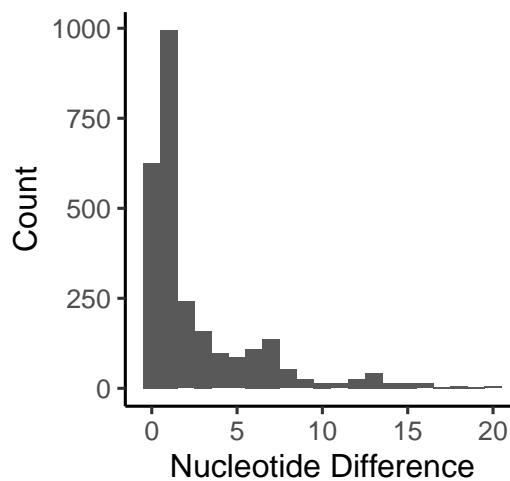
### IGHV4-39\*01\_05

3392 sequences assigned  
398 (11.7%) exact matches, in which:  
276 unique CDR3  
6 unique J



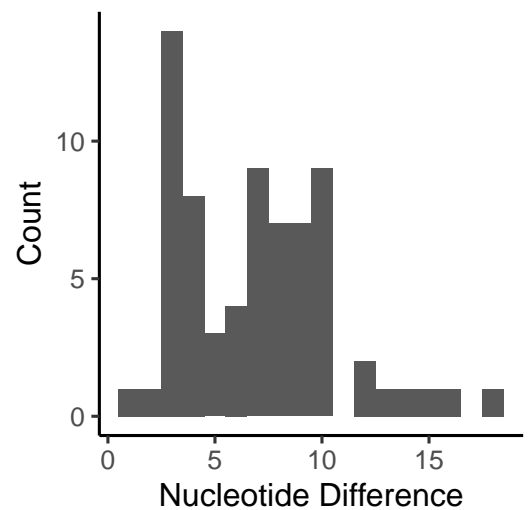
### IGHV4-59\*01\_07

2947 sequences assigned  
626 (21.2%) exact matches, in which:  
464 unique CDR3  
6 unique J



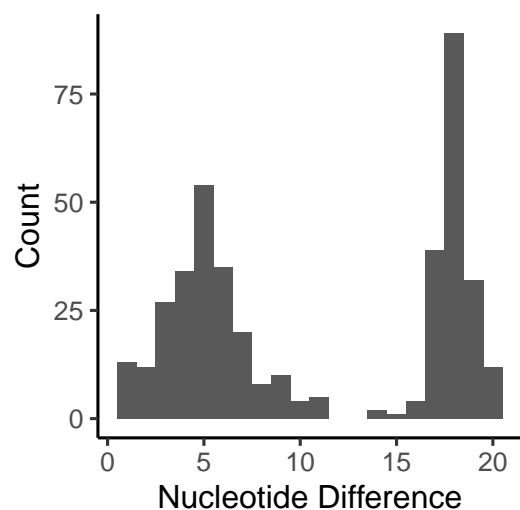
### IGHV4-61\*02

75 sequences assigned  
No exact matches.



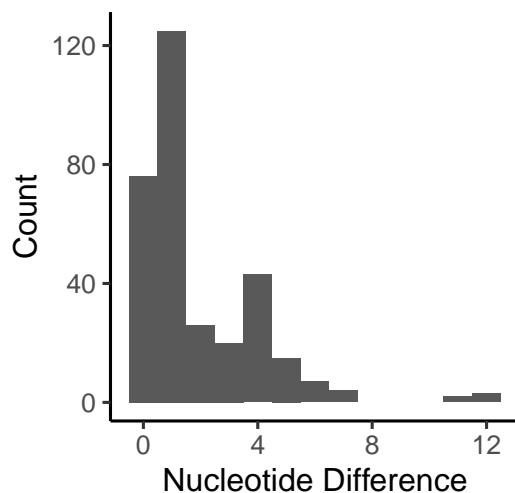
### IGHV4-61\*08

433 sequences assigned  
No exact matches.



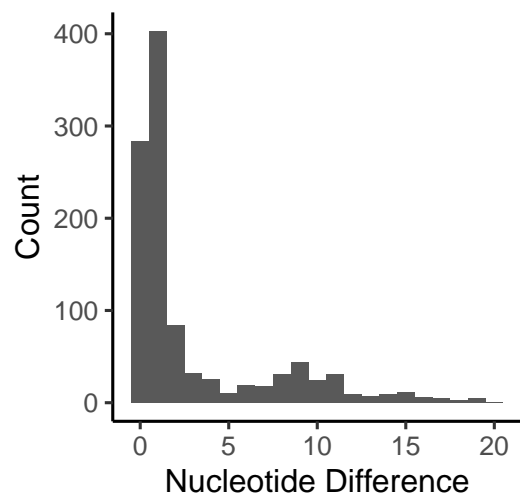
### IGHV6-1\*01\_02

321 sequences assigned  
76 (23.7%) exact matches, in which:  
62 unique CDR3  
4 unique J



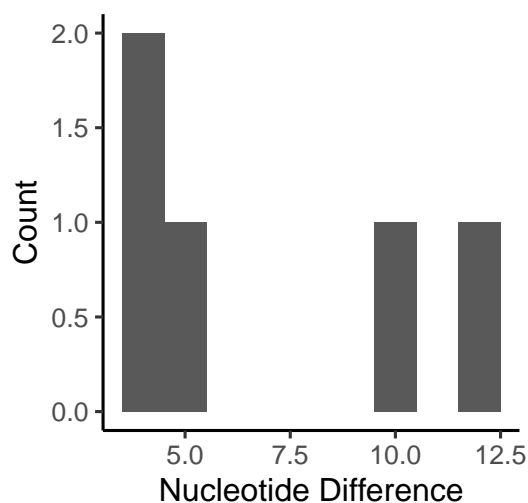
### IGHV5-10-1\*01\_03

1104 sequences assigned  
284 (25.7%) exact matches, in which:  
174 unique CDR3  
5 unique J



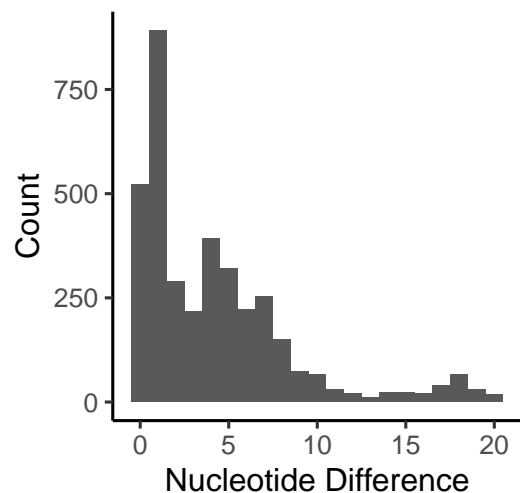
### IGHV7-4-1\*02

5 sequences assigned  
No exact matches.



### IGHV5-51\*01\_03

3799 sequences assigned  
522 (13.7%) exact matches, in which:  
300 unique CDR3  
6 unique J





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.

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.