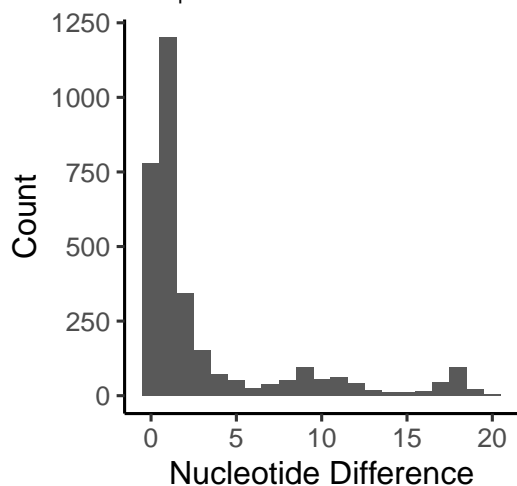


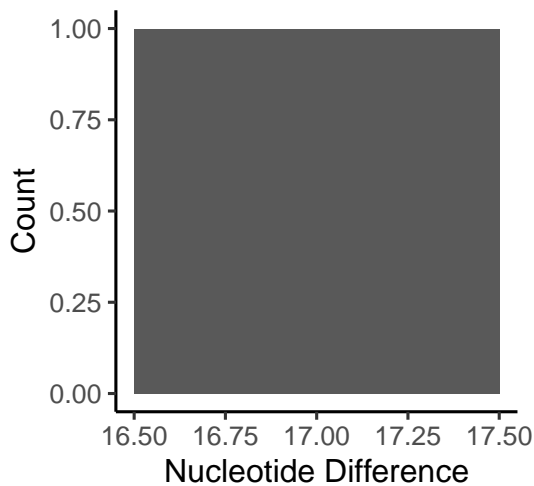
### IGHV1-2\*04

3467 sequences assigned  
778 (22.4%) exact matches, in which:  
612 unique CDR3  
6 unique J



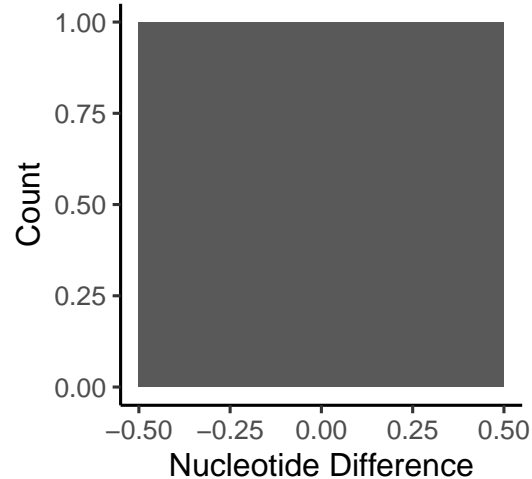
### IGHV1-8\*02

1 sequences assigned  
No exact matches.



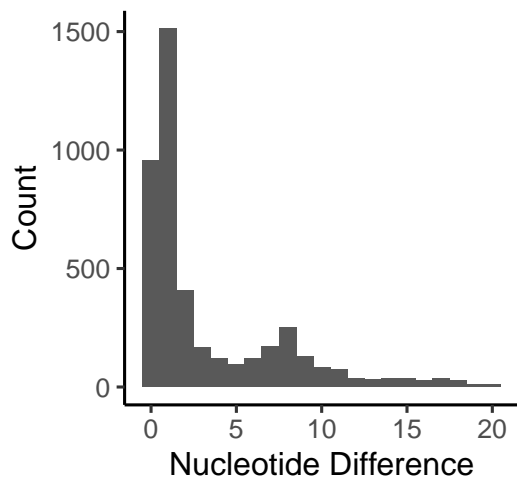
### IGHV1-38-4\*01

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



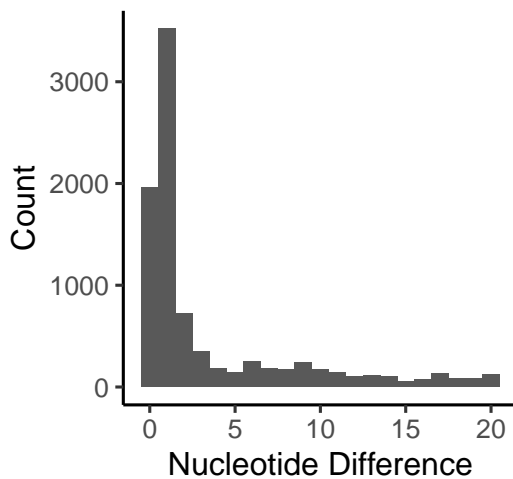
### IGHV1-3\*01\_05

4495 sequences assigned  
954 (21.2%) exact matches, in which:  
704 unique CDR3  
6 unique J



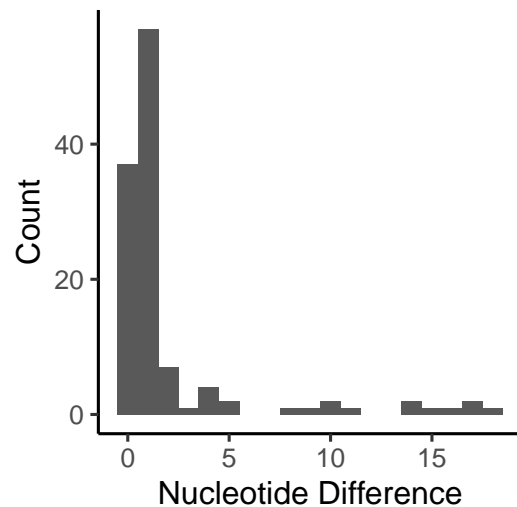
### IGHV1-18\*01

10850 sequences assigned  
1963 (18.1%) exact matches, in which:  
1422 unique CDR3  
6 unique J



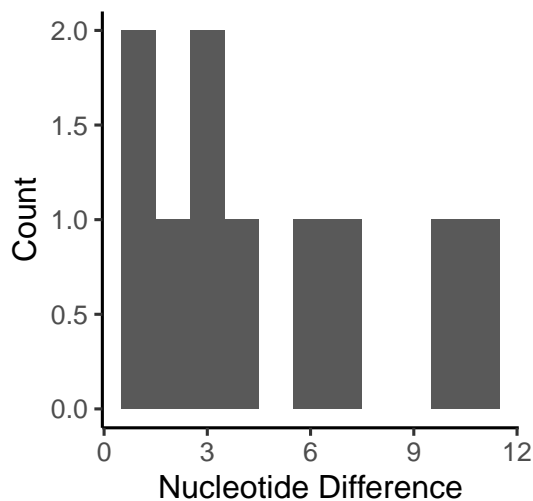
### IGHV1-45\*02

120 sequences assigned  
37 (30.8%) exact matches, in which:  
23 unique CDR3  
4 unique J



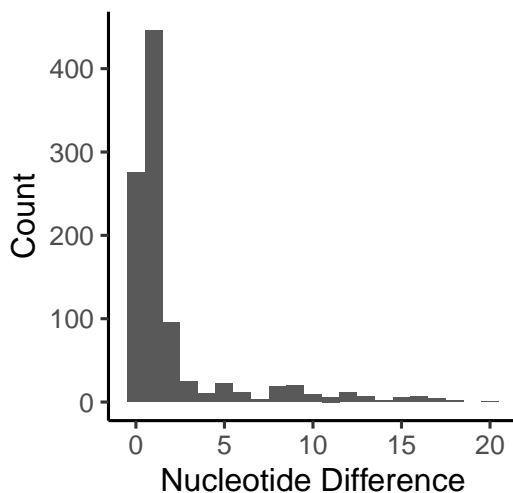
### IGHV1-8\*01

10 sequences assigned  
No exact matches.



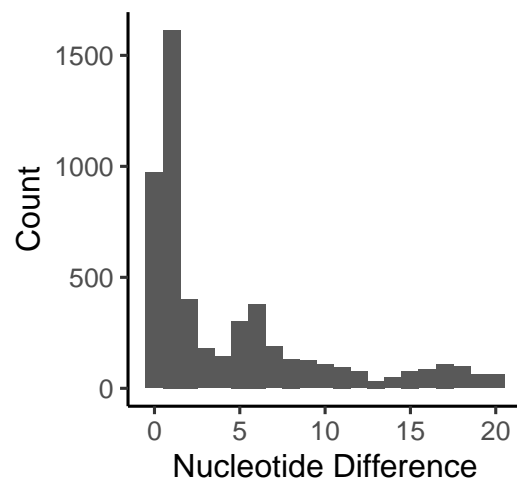
### IGHV1-24\*01

1019 sequences assigned  
275 (27%) exact matches, in which:  
206 unique CDR3  
6 unique J



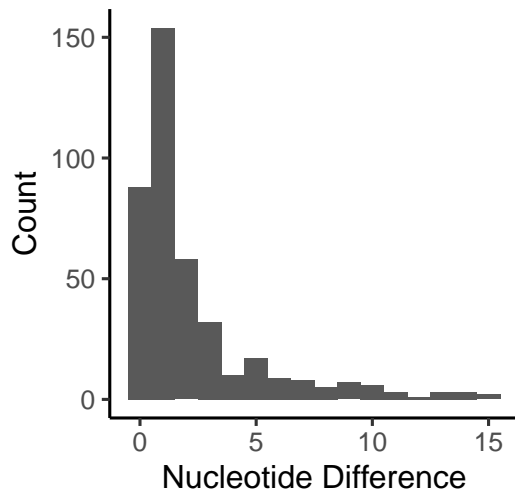
### IGHV1-46\*01

5455 sequences assigned  
972 (17.8%) exact matches, in which:  
743 unique CDR3  
6 unique J



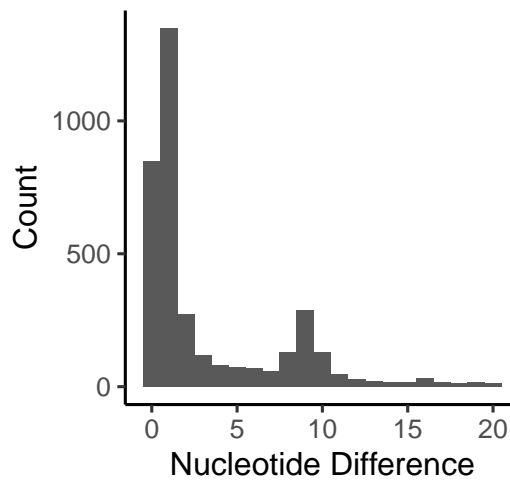
### IGHV1–58\*02

1765 sequences assigned  
88 (5%) exact matches, in which:  
66 unique CDR3  
5 unique J



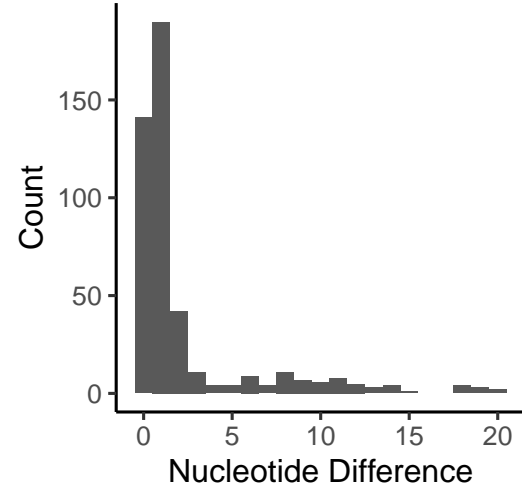
### IGHV1–69\*04\_09

4478 sequences assigned  
849 (19%) exact matches, in which:  
652 unique CDR3  
6 unique J



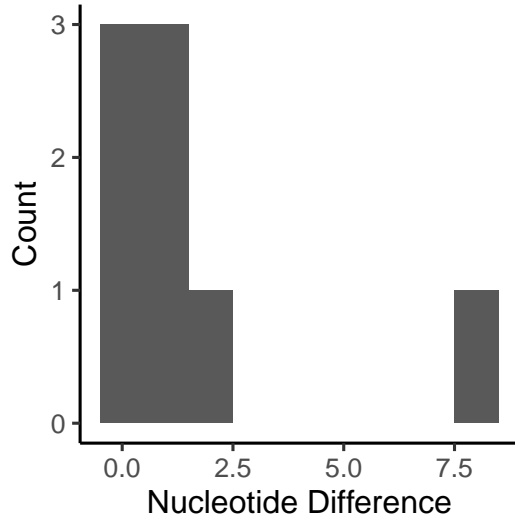
### IGHV2–26\*01

459 sequences assigned  
141 (30.7%) exact matches, in which:  
111 unique CDR3  
5 unique J



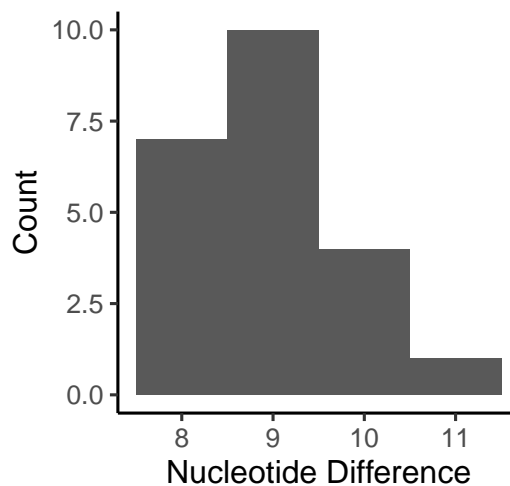
### IGHV1–69–2\*01

8 sequences assigned  
3 (37.5%) exact matches, in which:  
3 unique CDR3  
2 unique J



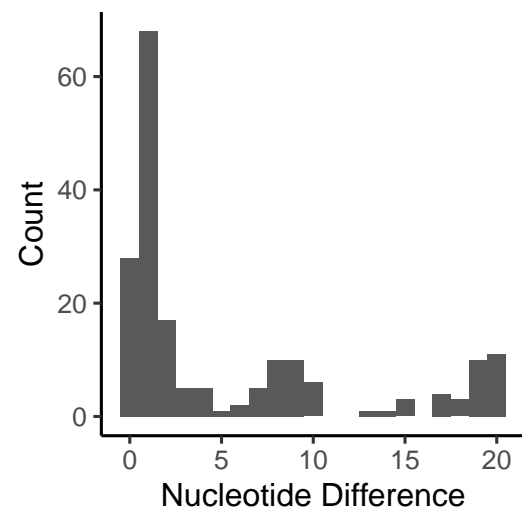
### IGHV1–NL1\*01

22 sequences assigned  
No exact matches.



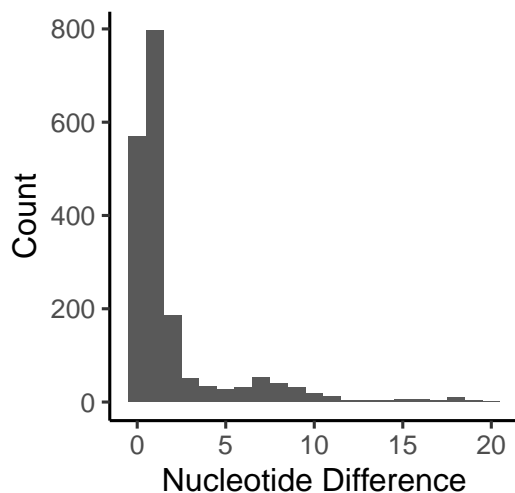
### IGHV2–70\*01

201 sequences assigned  
28 (13.9%) exact matches, in which:  
21 unique CDR3  
4 unique J



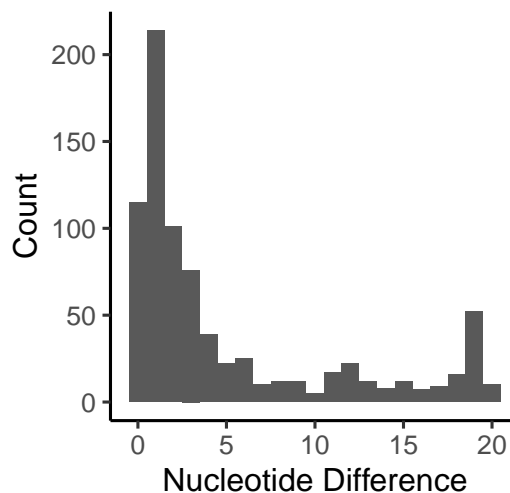
### IGHV1–69\*17

2037 sequences assigned  
570 (28%) exact matches, in which:  
474 unique CDR3  
6 unique J



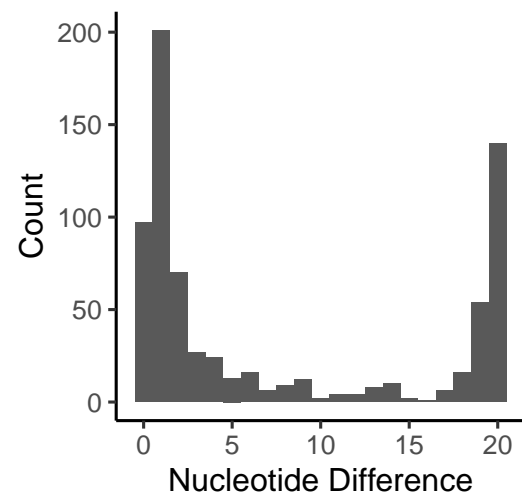
### IGHV2–5\*02

875 sequences assigned  
115 (13.1%) exact matches, in which:  
91 unique CDR3  
4 unique J



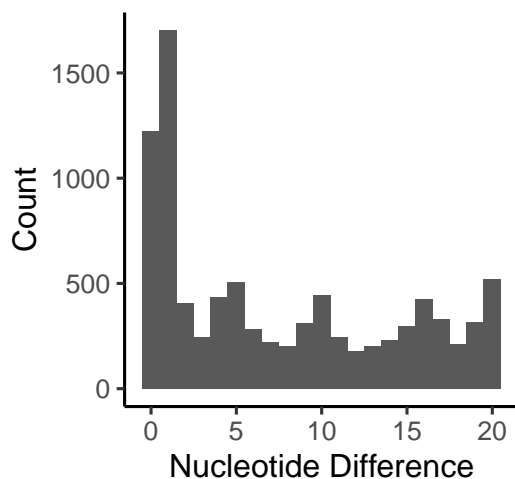
### IGHV2–70\*11\_15

861 sequences assigned  
97 (11.3%) exact matches, in which:  
64 unique CDR3  
5 unique J



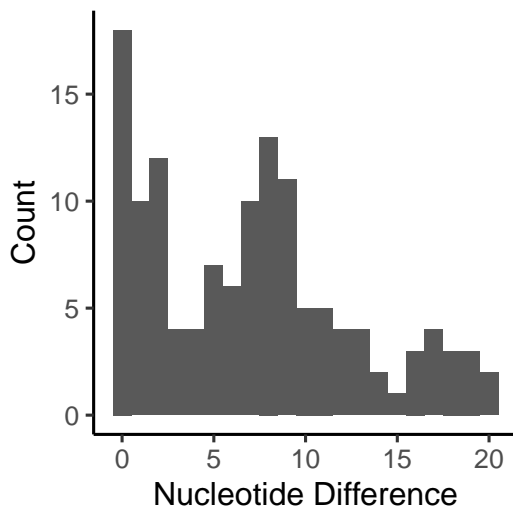
### IGHV3-7\*03

10377 sequences assigned  
1221 (11.8%) exact matches, in which:  
728 unique CDR3  
6 unique J



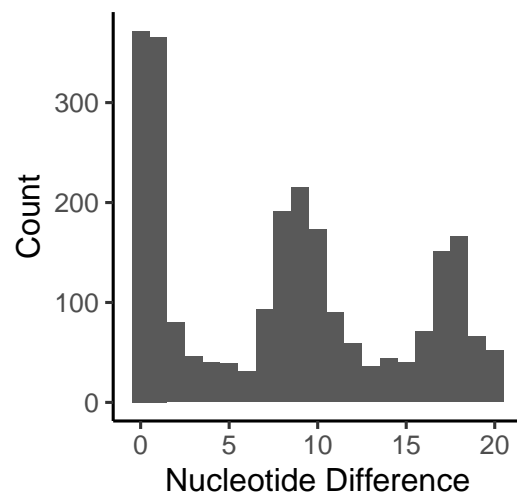
### IGHV3-11\*03\_05

1271 sequences assigned  
18 (1.4%) exact matches, in which:  
17 unique CDR3  
4 unique J



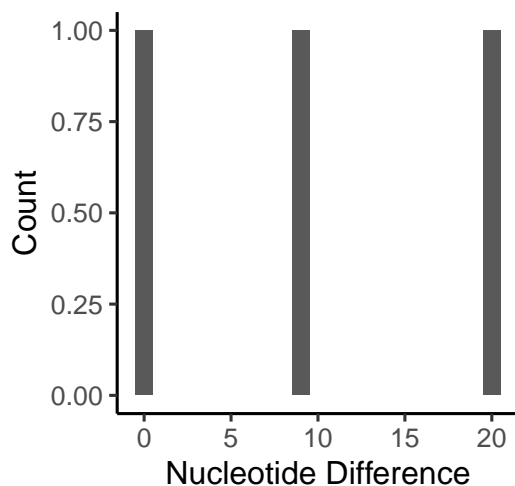
### IGHV3-15\*07

2733 sequences assigned  
372 (13.6%) exact matches, in which:  
212 unique CDR3  
6 unique J



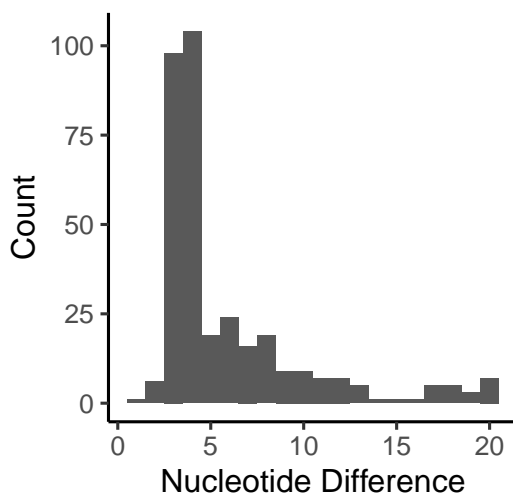
### IGHV3-9\*01

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



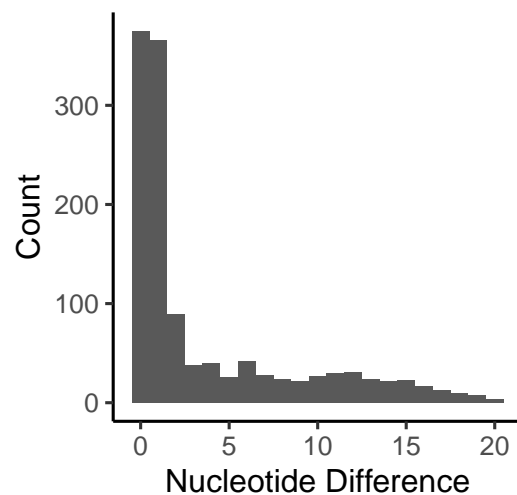
### IGHV3-13\*01

375 sequences assigned  
No exact matches.



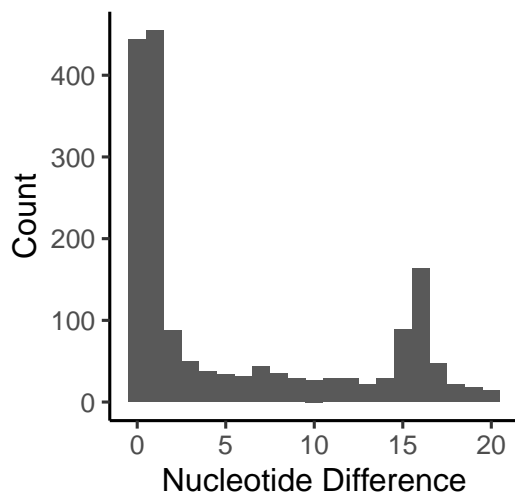
### IGHV3-15\*01\_02

1381 sequences assigned  
375 (27.2%) exact matches, in which:  
208 unique CDR3  
6 unique J



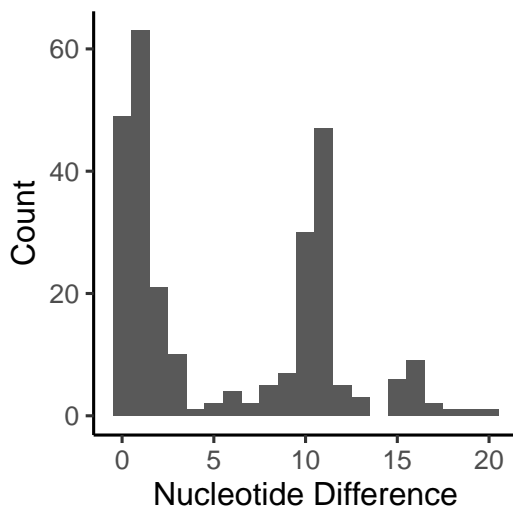
### IGHV3-11\*06

1899 sequences assigned  
444 (23.4%) exact matches, in which:  
279 unique CDR3  
6 unique J



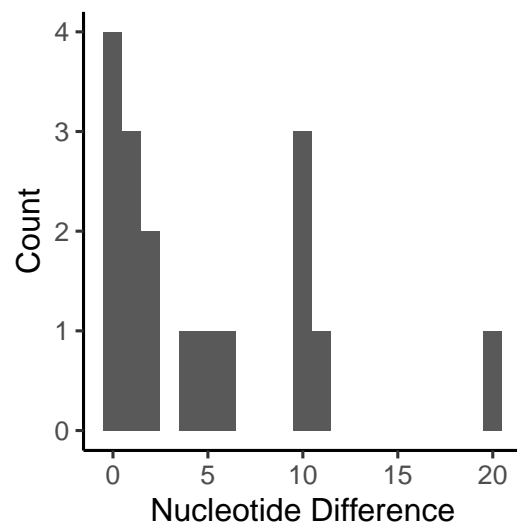
### IGHV3-13\*05

270 sequences assigned  
49 (18.1%) exact matches, in which:  
27 unique CDR3  
4 unique J



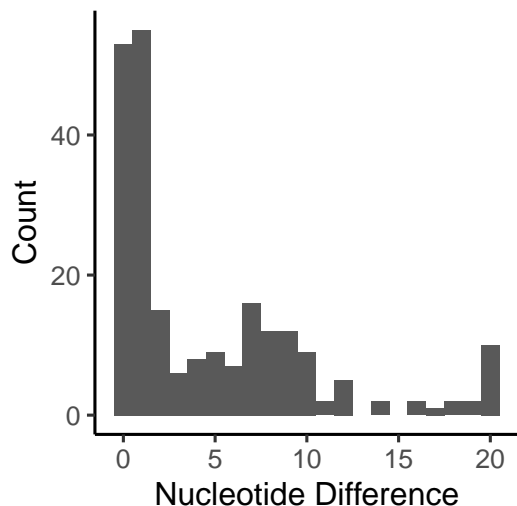
### IGHV3-19\*01

17 sequences assigned  
4 (23.5%) exact matches, in which:  
3 unique CDR3  
2 unique J



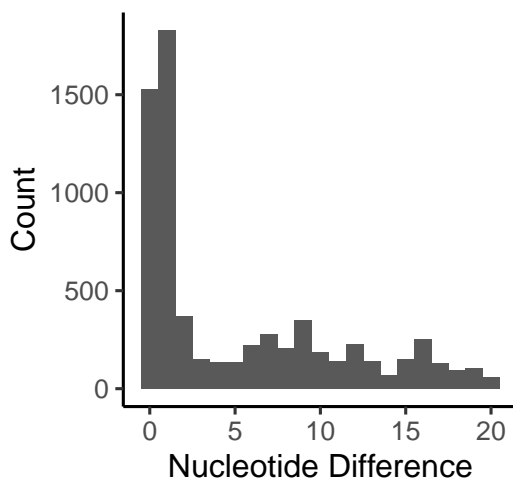
### IGHV3-20\*01\_02

404 sequences assigned  
53 (13.1%) exact matches, in which:  
30 unique CDR3  
5 unique J



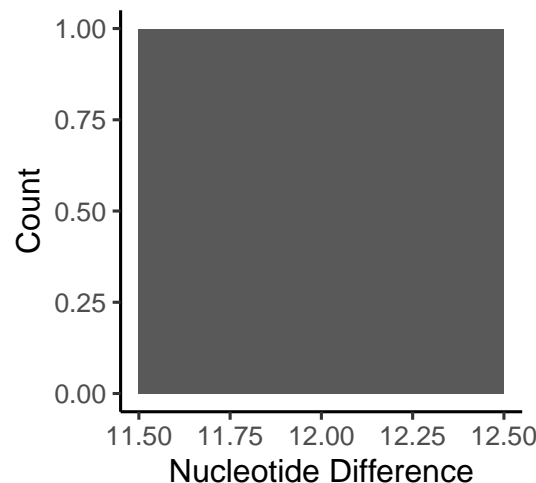
### IGHV3-21\*01\_02

8687 sequences assigned  
1526 (17.6%) exact matches, in which:  
881 unique CDR3  
6 unique J



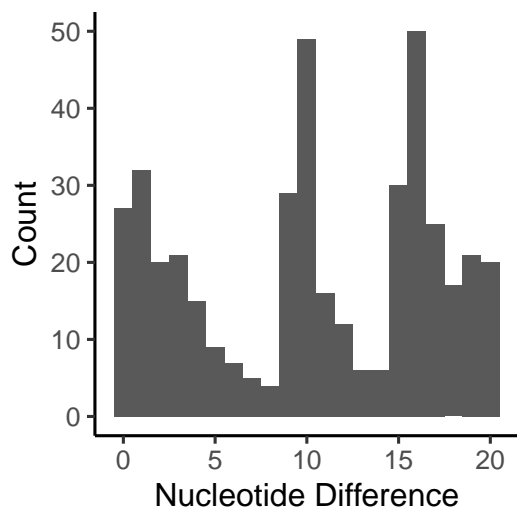
### IGHV3-30-3\*02

1 sequences assigned  
No exact matches.



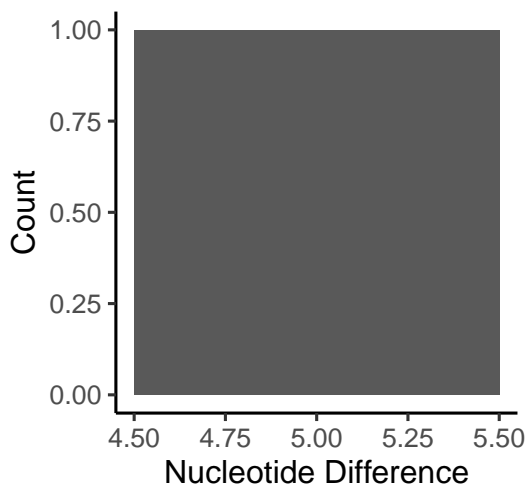
### IGHV3-20\*03\_04

468 sequences assigned  
27 (5.8%) exact matches, in which:  
19 unique CDR3  
4 unique J



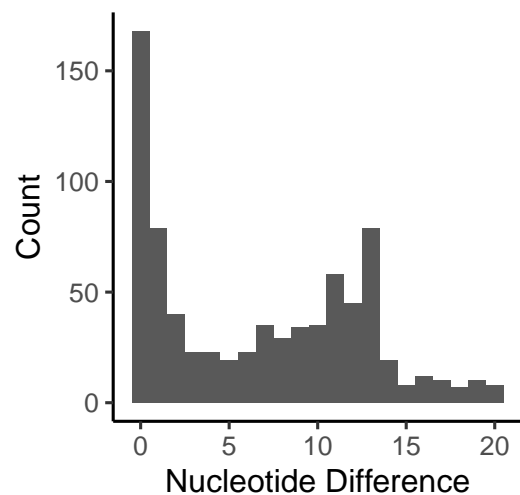
### IGHV3-22\*01\_02

1 sequences assigned  
No exact matches.



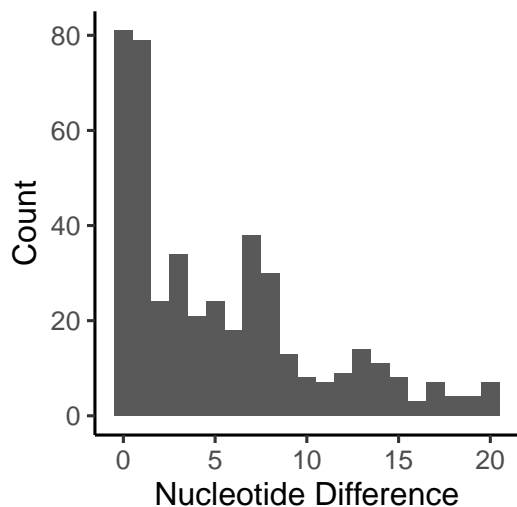
### IGHV3-30\*03

830 sequences assigned  
168 (20.2%) exact matches, in which:  
131 unique CDR3  
6 unique J



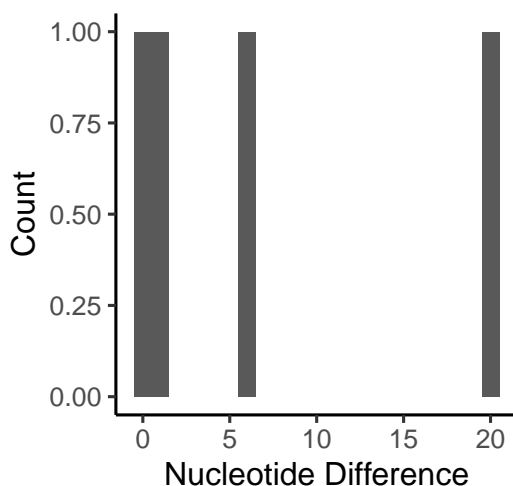
### IGHV3-21\*04

752 sequences assigned  
81 (10.8%) exact matches, in which:  
75 unique CDR3  
5 unique J



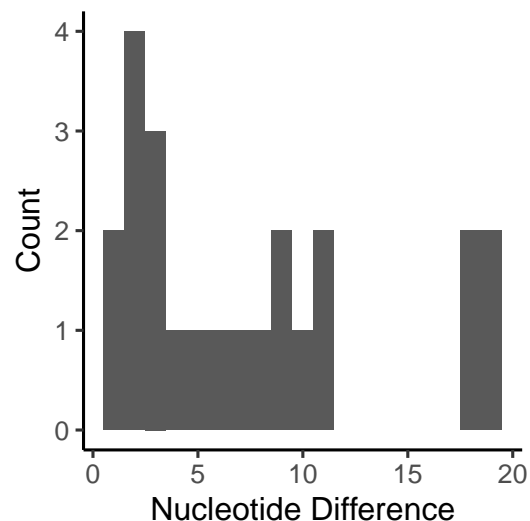
### IGHV3-30-3\*01

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



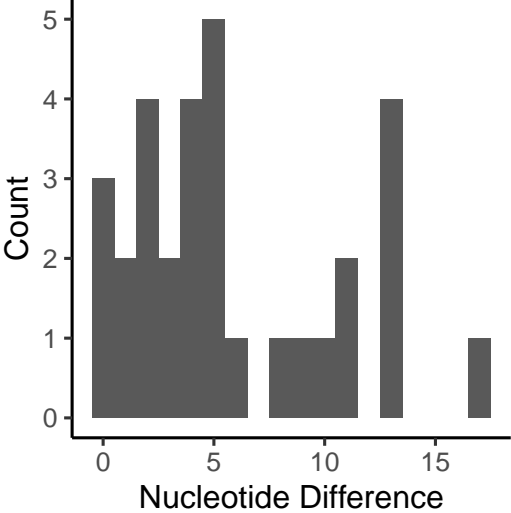
### IGHV3-33\*01

29 sequences assigned  
No exact matches.



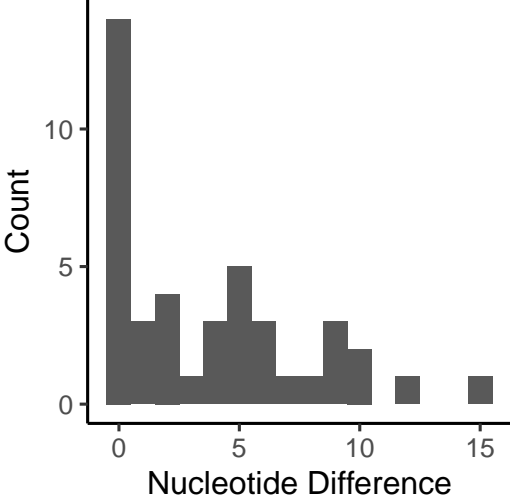
IGHV3-33\*05

32 sequences assigned  
3 (9.4%) exact matches, in which:  
3 unique CDR3  
1 unique J



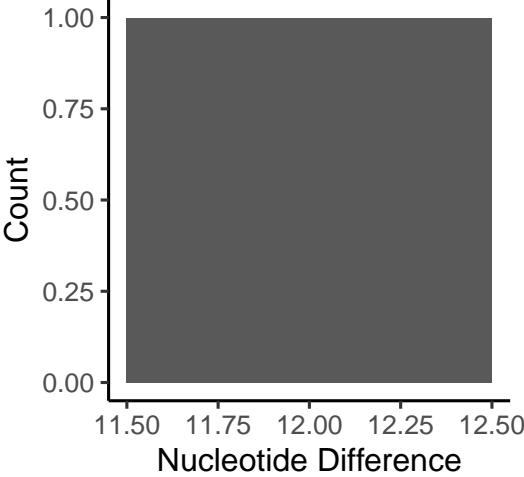
IGHV3-38-3\*01

42 sequences assigned  
14 (33.3%) exact matches, in which:  
12 unique CDR3  
3 unique J



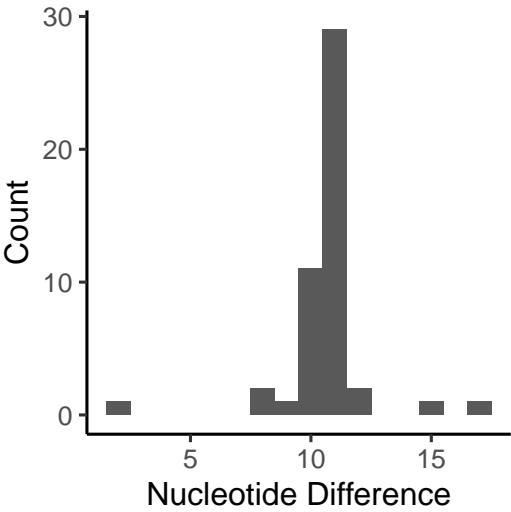
IGHV3-47\*02

1 sequences assigned  
No exact matches.



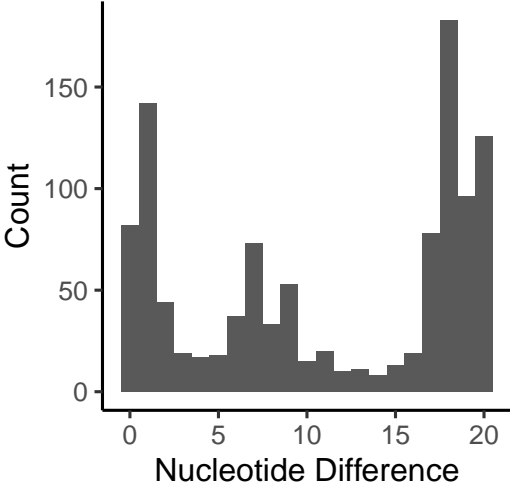
IGHV3-33\*06

48 sequences assigned  
No exact matches.



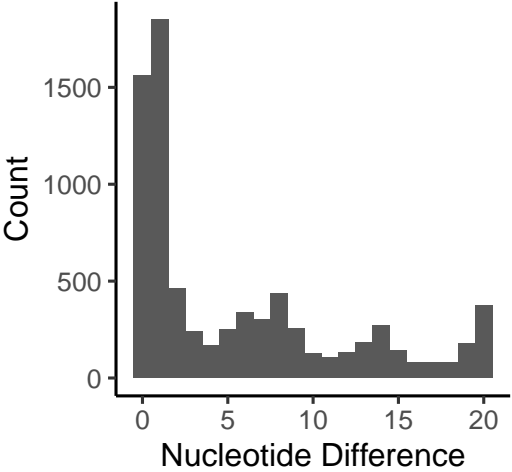
IGHV3-43\*01

1250 sequences assigned  
82 (6.6%) exact matches, in which:  
45 unique CDR3  
5 unique J



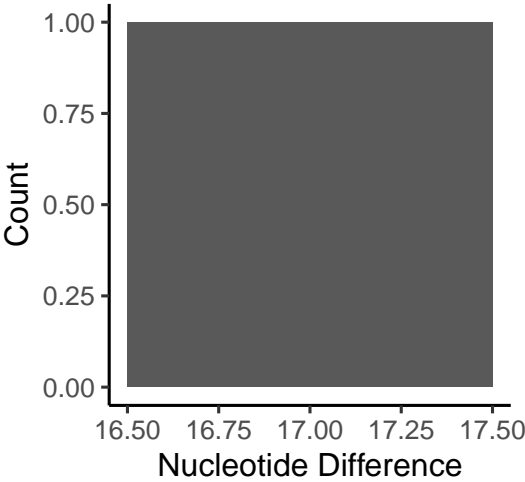
IGHV3-48\*04

9200 sequences assigned  
1560 (17%) exact matches, in which:  
853 unique CDR3  
6 unique J



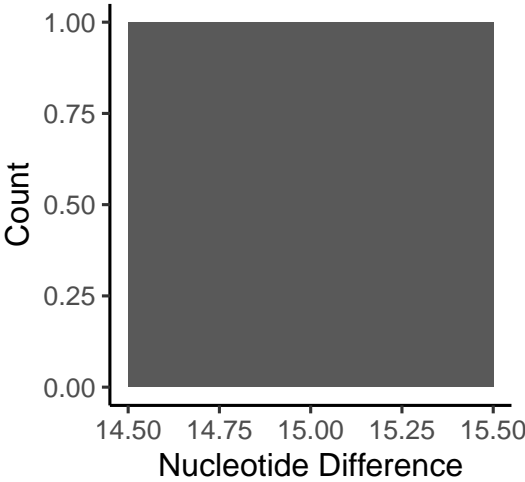
IGHV3-35\*01

1 sequences assigned  
No exact matches.



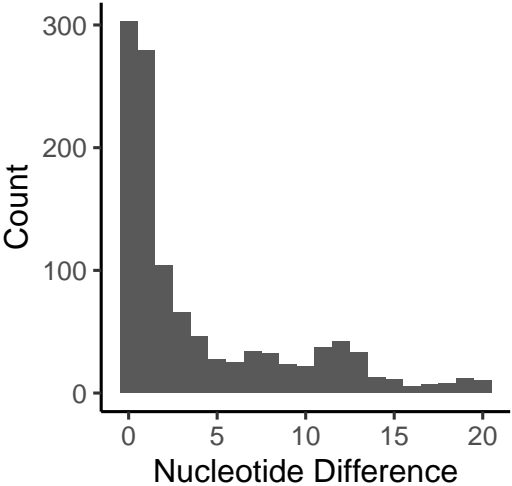
IGHV3-47\*01

1 sequences assigned  
No exact matches.



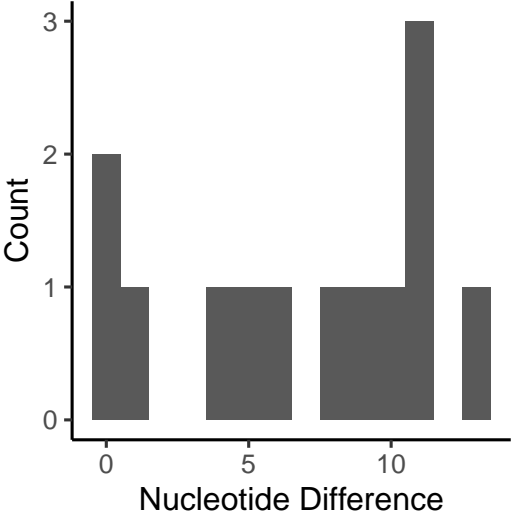
IGHV3-49\*03\_05

1326 sequences assigned  
303 (22.9%) exact matches, in which:  
175 unique CDR3  
6 unique J



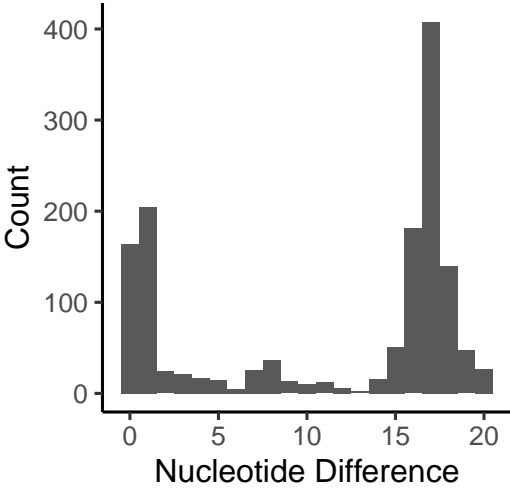
IGHV3-52\*01\_03

13 sequences assigned  
2 (15.4%) exact matches, in which:  
2 unique CDR3  
2 unique J



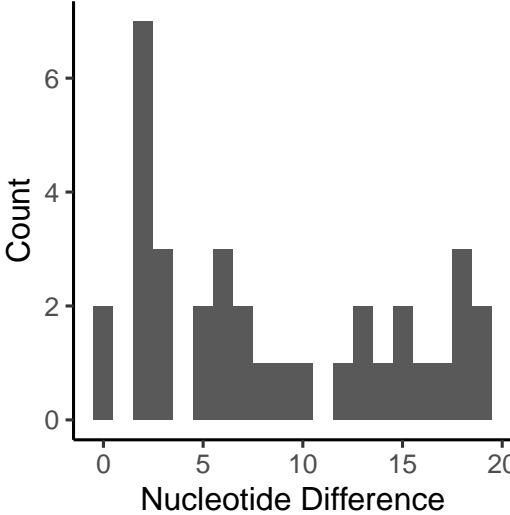
IGHV3-64\*01

1891 sequences assigned  
164 (8.7%) exact matches, in which:  
92 unique CDR3  
6 unique J



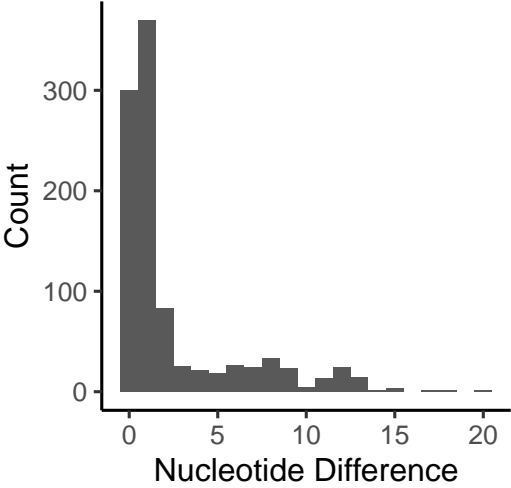
IGHV3-69-1\*01

42 sequences assigned  
2 (4.8%) exact matches, in which:  
2 unique CDR3  
2 unique J



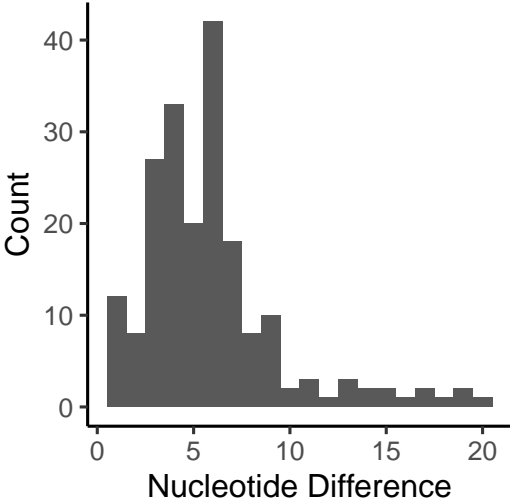
IGHV3-53\*04

1326 sequences assigned  
300 (22.6%) exact matches, in which:  
185 unique CDR3  
6 unique J



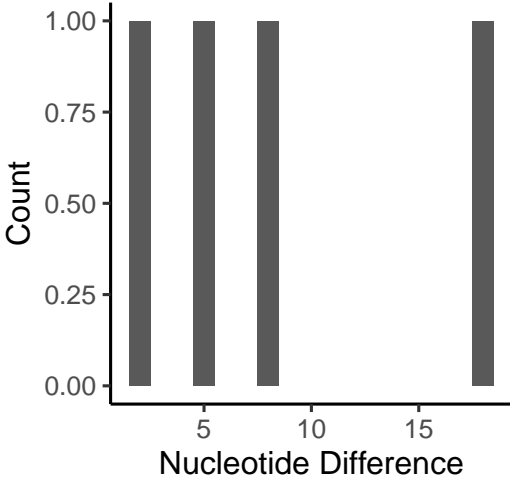
IGHV3-64\*04

239 sequences assigned  
No exact matches.



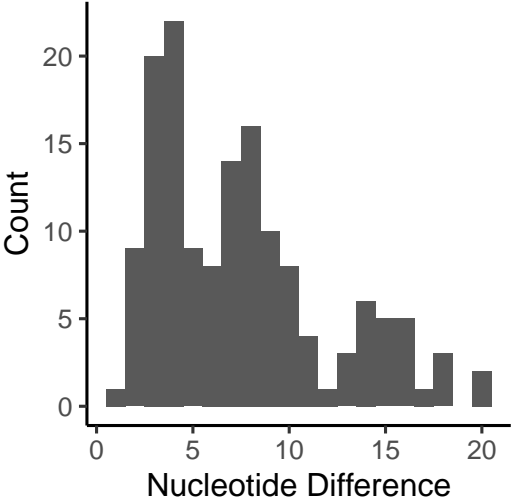
IGHV3-69-1\*02

9 sequences assigned  
No exact matches.



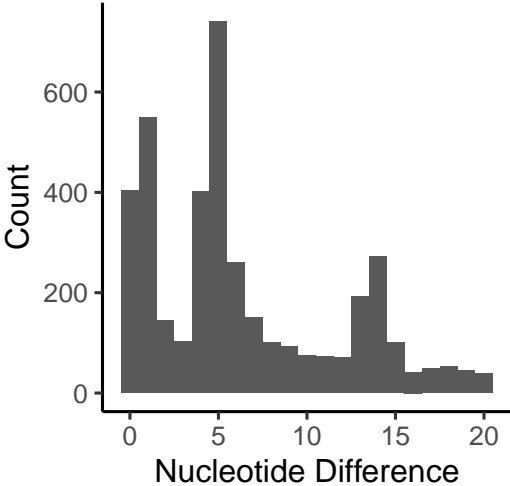
IGHV3-53\*01\_02

198 sequences assigned  
No exact matches.



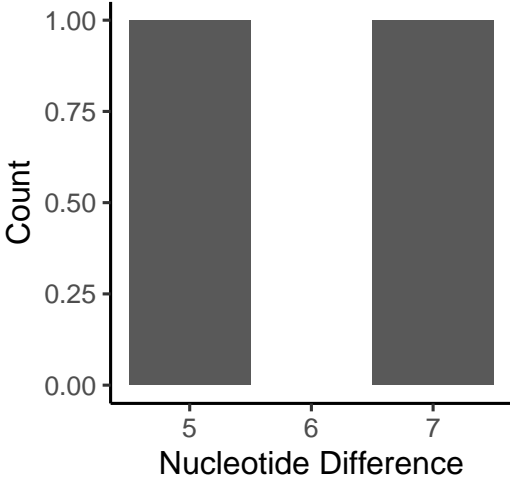
IGHV3-66\*01

5367 sequences assigned  
403 (7.5%) exact matches, in which:  
227 unique CDR3  
5 unique J



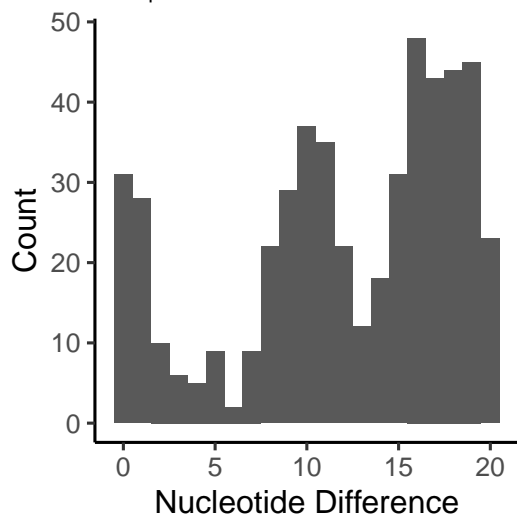
IGHV3-71\*03

2 sequences assigned  
No exact matches.



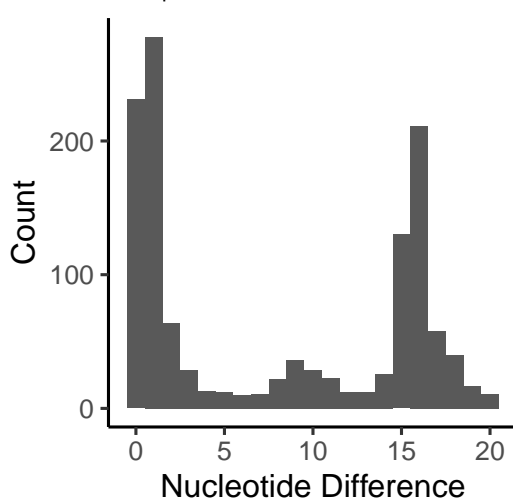
### IGHV3-72\*01

566 sequences assigned  
31 (5.5%) exact matches, in which:  
22 unique CDR3  
4 unique J



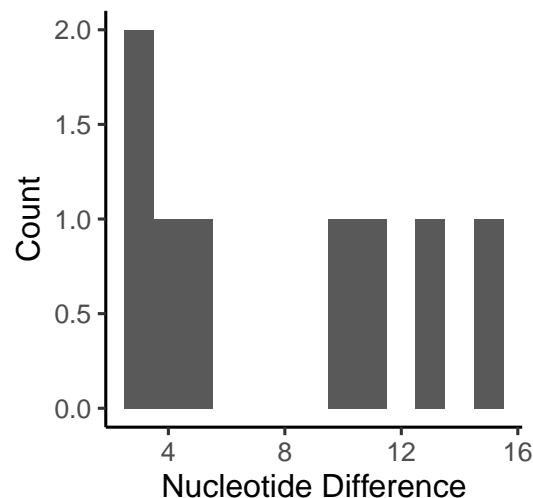
### IGHV3-43D\*03

1651 sequences assigned  
231 (14%) exact matches, in which:  
131 unique CDR3  
6 unique J



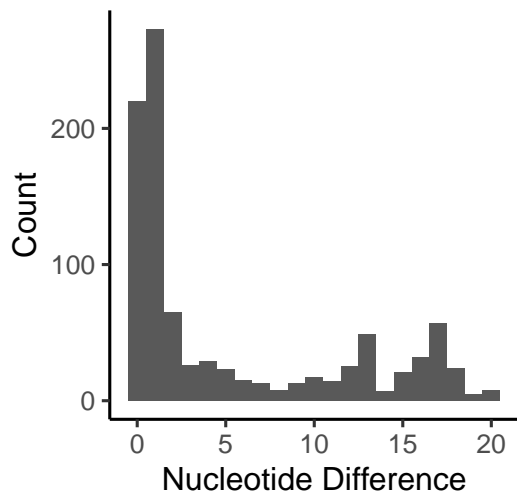
### IGHV4-28\*03

8 sequences assigned  
No exact matches.



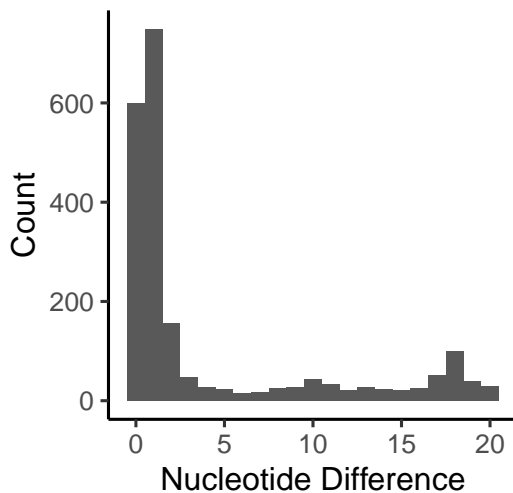
### IGHV3-73\*01\_02

1510 sequences assigned  
220 (14.6%) exact matches, in which:  
121 unique CDR3  
6 unique J



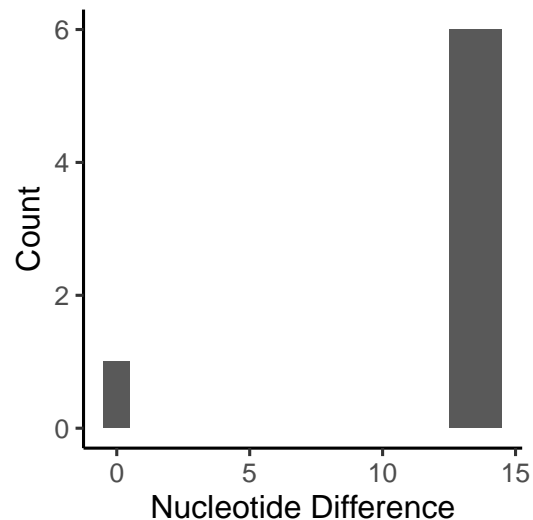
### IGHV3-64D\*06

3110 sequences assigned  
599 (19.3%) exact matches, in which:  
331 unique CDR3  
6 unique J



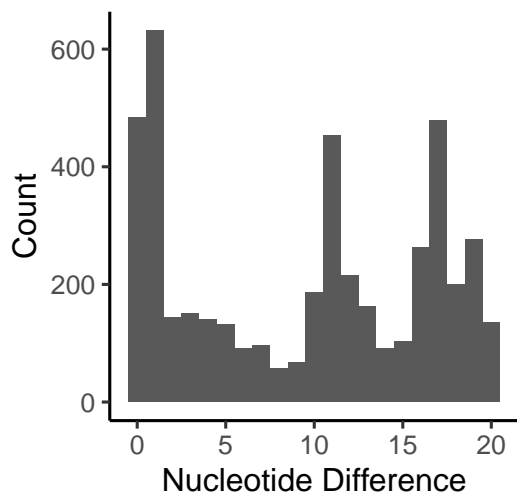
### IGHV4-28\*01\_07

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



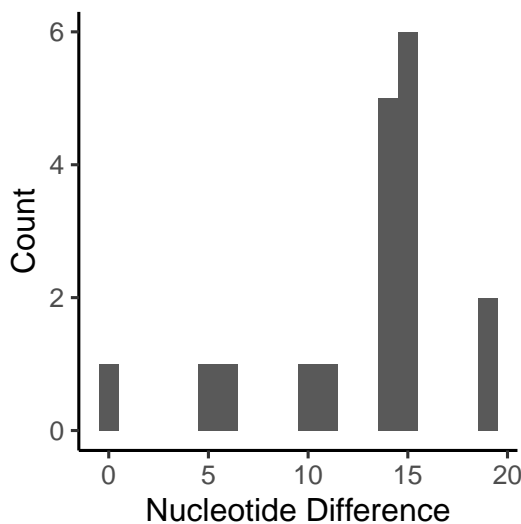
### IGHV3-74\*01\_02

5369 sequences assigned  
484 (9%) exact matches, in which:  
293 unique CDR3  
5 unique J



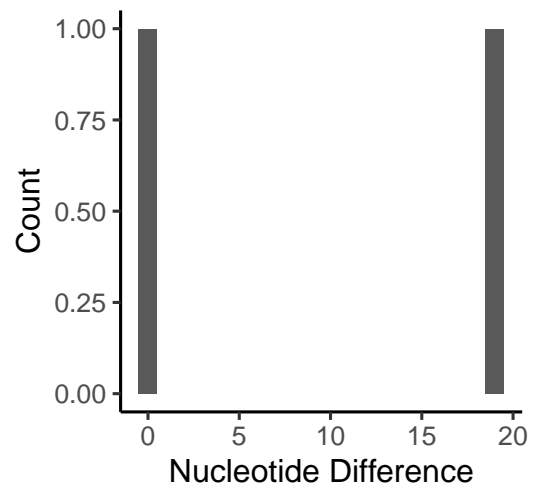
### IGHV3-NL1\*01

24 sequences assigned  
1 (4.2%) exact matches, in which:  
1 unique CDR3  
1 unique J



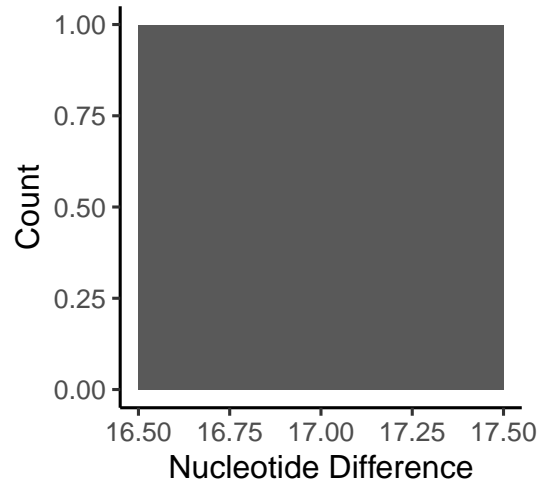
### IGHV4-30-2\*01

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



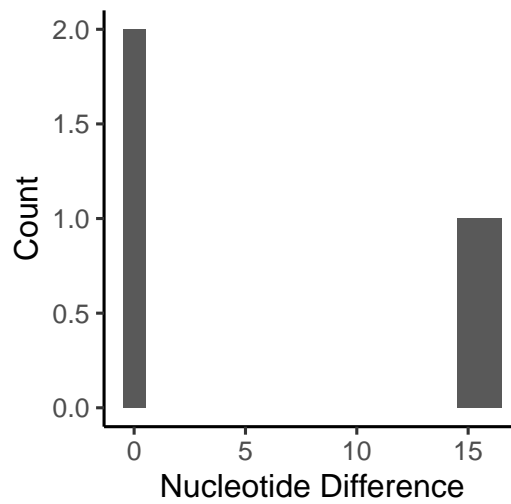
### IGHV4-30-4\*01

1 sequences assigned  
No exact matches.



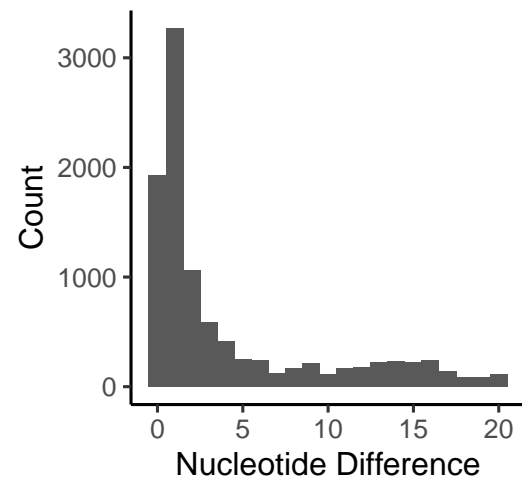
### IGHV4-31\*03\_04

31 sequences assigned  
2 (6.5%) exact matches, in which:  
2 unique CDR3  
2 unique J



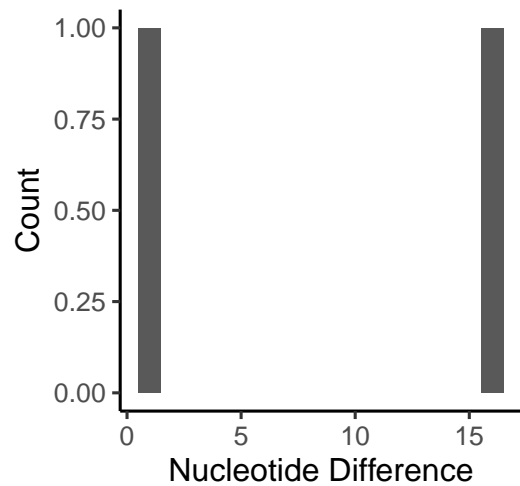
### IGHV4-39\*07

12588 sequences assigned  
1931 (15.3%) exact matches, in which:  
1431 unique CDR3  
6 unique J



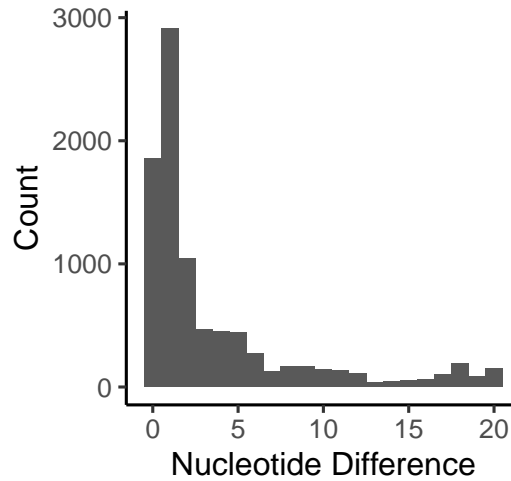
### IGHV4-30-2\*04

2 sequences assigned  
No exact matches.



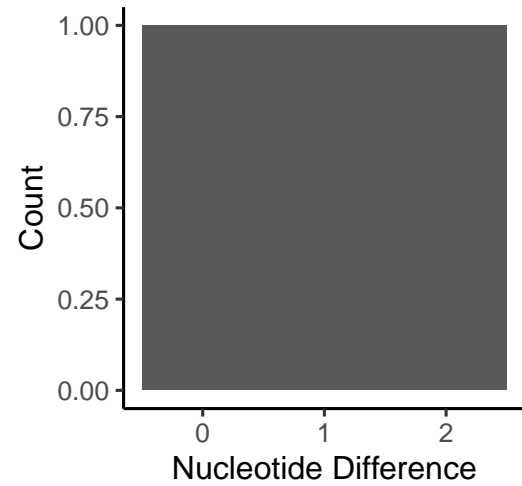
### IGHV4-34\*01\_02

9607 sequences assigned  
1858 (19.3%) exact matches, in which:  
1257 unique CDR3  
6 unique J



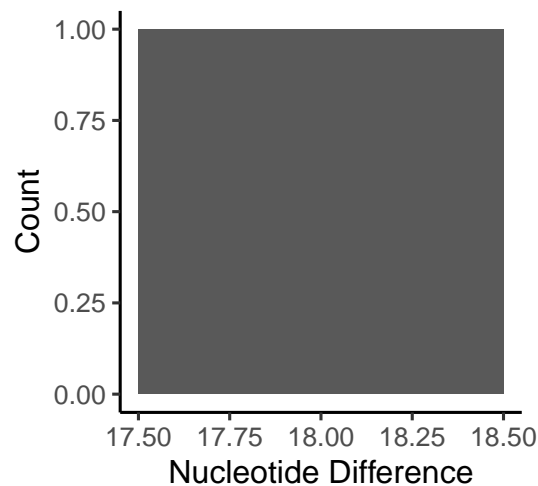
### IGHV4-55\*02\_04\_08

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



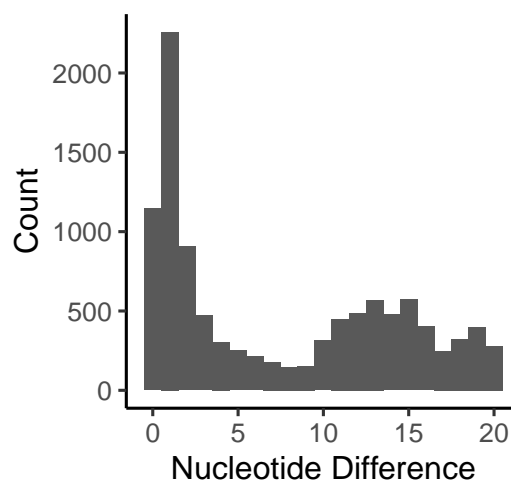
### IGHV4-31\*02

1 sequences assigned  
No exact matches.



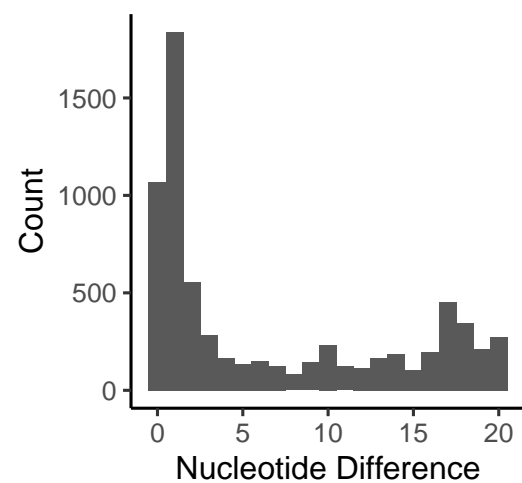
### IGHV4-38-2\*02

12325 sequences assigned  
1145 (9.3%) exact matches, in which:  
835 unique CDR3  
6 unique J



### IGHV4-59\*08

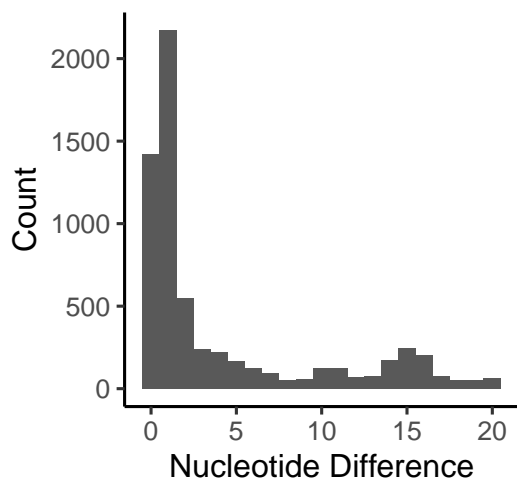
14713 sequences assigned  
1070 (7.3%) exact matches, in which:  
777 unique CDR3  
6 unique J





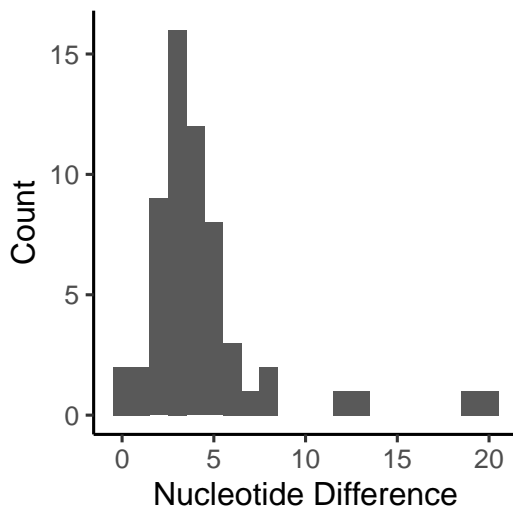
### IGHV4-59\*01\_07

7415 sequences assigned  
1419 (19.1%) exact matches, in which:  
1002 unique CDR3  
6 unique J



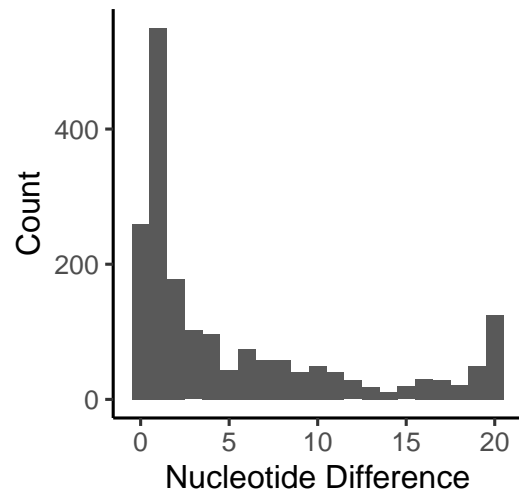
### IGHV4-61\*05

64 sequences assigned  
2 (3.1%) exact matches, in which:  
2 unique CDR3  
1 unique J



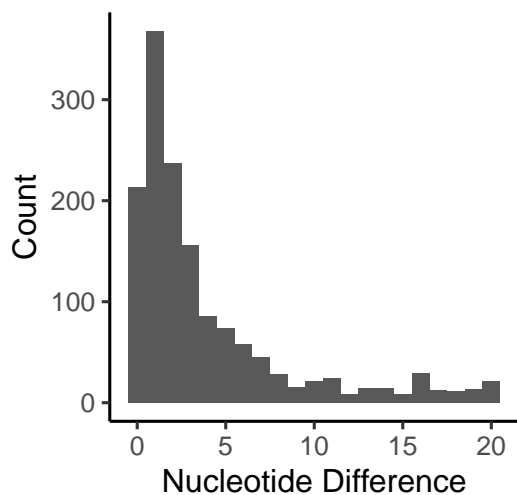
### IGHV6-1\*01\_02

3343 sequences assigned  
259 (7.7%) exact matches, in which:  
186 unique CDR3  
5 unique J



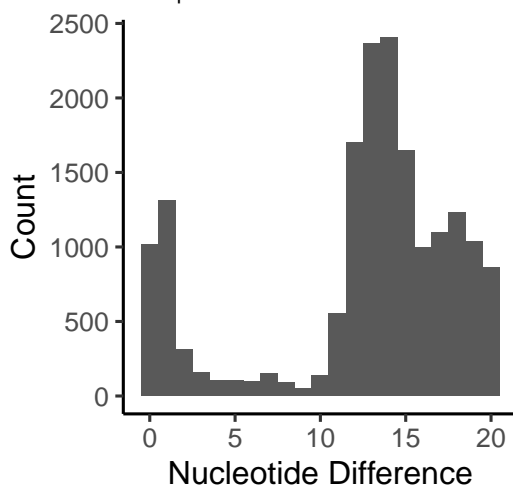
### IGHV4-59\*12

2056 sequences assigned  
213 (10.4%) exact matches, in which:  
211 unique CDR3  
6 unique J



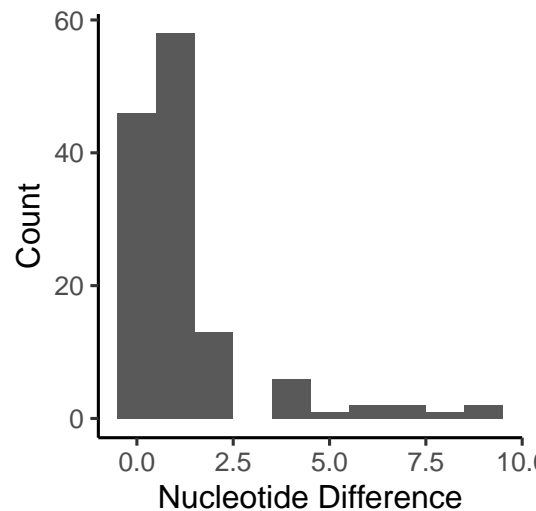
### IGHV5-10-1\*01\_03

18691 sequences assigned  
1016 (5.4%) exact matches, in which:  
596 unique CDR3  
6 unique J



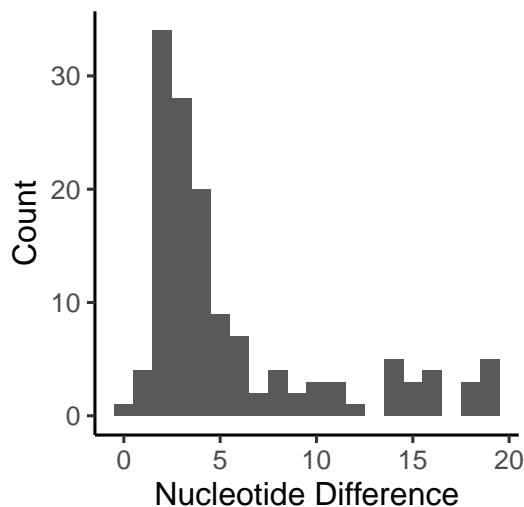
### IGHV7-4-1\*01

131 sequences assigned  
46 (35.1%) exact matches, in which:  
35 unique CDR3  
5 unique J



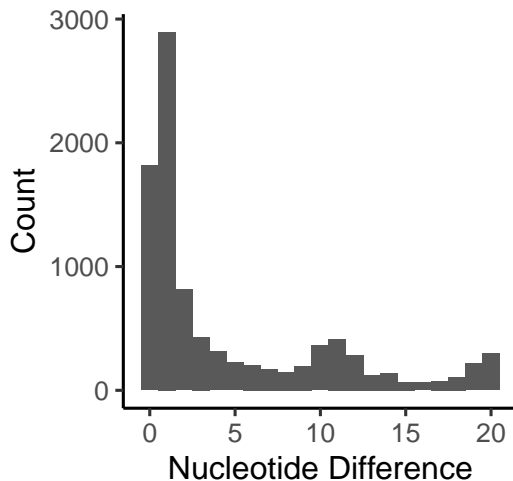
### IGHV4-61\*01

150 sequences assigned  
1 (0.7%) exact matches, in which:  
1 unique CDR3  
1 unique J



### IGHV5-51\*01\_03

10060 sequences assigned  
1817 (18.1%) exact matches, in which:  
974 unique CDR3  
6 unique J





Novel sequence(s) IGHV3-30\*03\_T288C 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) IGHV3-33\*01\_G75C IGHV4-59\*02\_G88A IGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV3-33\*01\_G75C IGHV4-59\*02\_G88A IGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV3-30\*03\_T288C IGHV4-59\*02\_G88A IGHV5-51\*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\_G112A IGHV4-59\*02\_G88A IGHV5-10-1\*01\_03\_T258C 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\_C191T IGHV3-48\*03\_T303G IGHV4-59\*02\_G88A 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\_T288C IGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

Warning: IGHV4-31\*02, IGHV4-31\*03\_04 have identical germline sequences.