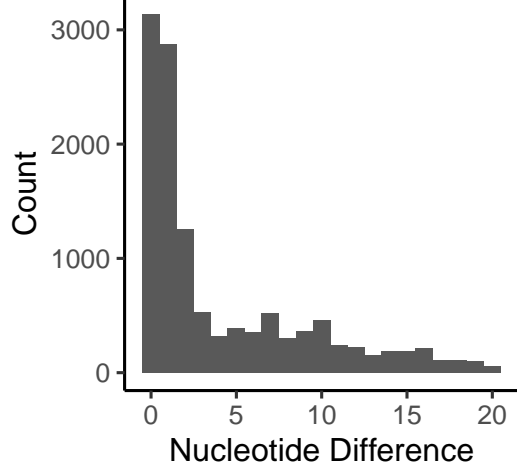


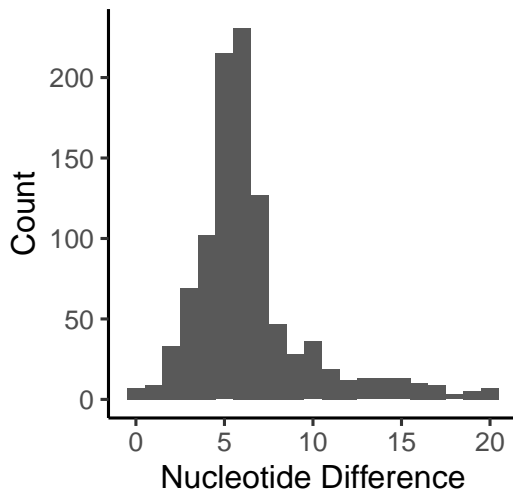
### IGHV1-2\*02

13654 sequences assigned  
3135 (23%) exact matches, in which:  
2711 unique CDR3  
6 unique J



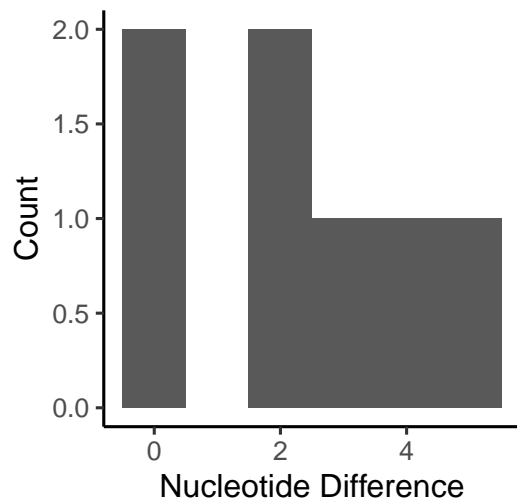
### IGHV1-8\*02

1055 sequences assigned  
7 (0.7%) exact matches, in which:  
7 unique CDR3  
3 unique J



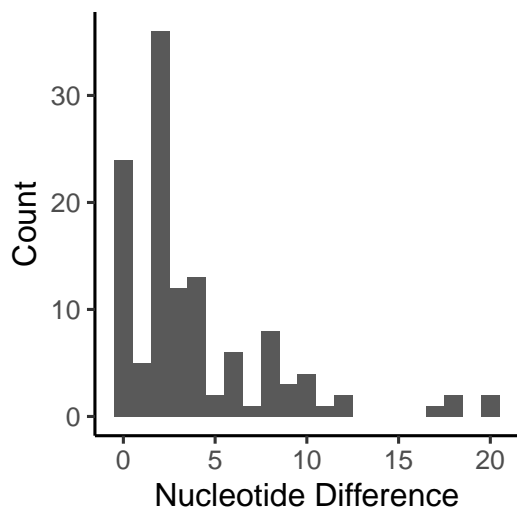
### IGHV1-45\*02

7 sequences assigned  
2 (28.6%) exact matches, in which:  
2 unique CDR3  
2 unique J



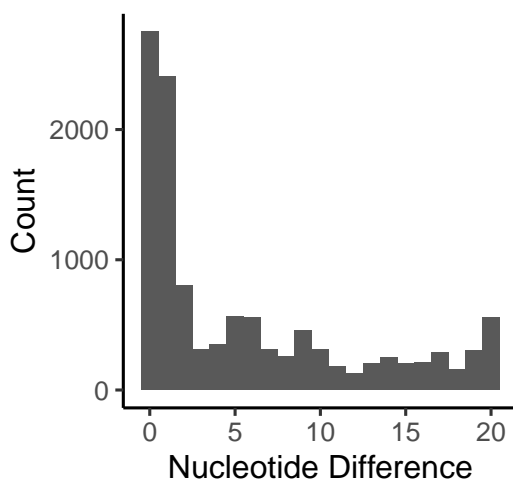
### IGHV1-3\*02

124 sequences assigned  
24 (19.4%) exact matches, in which:  
24 unique CDR3  
4 unique J



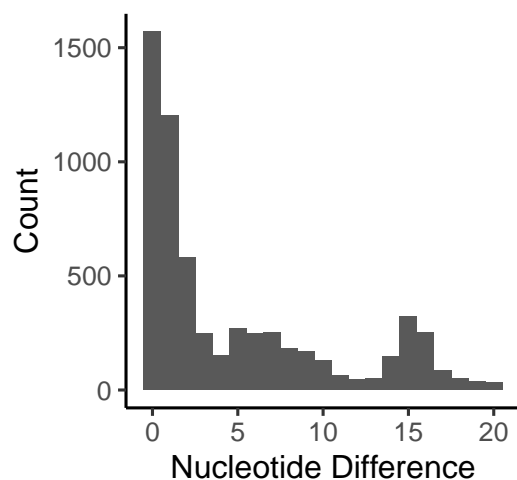
### IGHV1-18\*01

13235 sequences assigned  
2751 (20.8%) exact matches, in which:  
2378 unique CDR3  
6 unique J



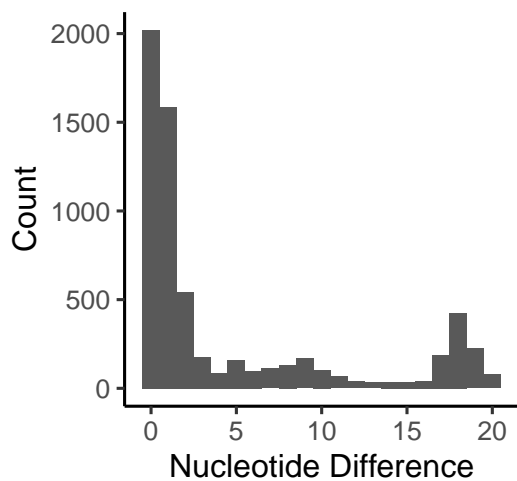
### IGHV1-46\*01

6279 sequences assigned  
1570 (25%) exact matches, in which:  
1408 unique CDR3  
6 unique J



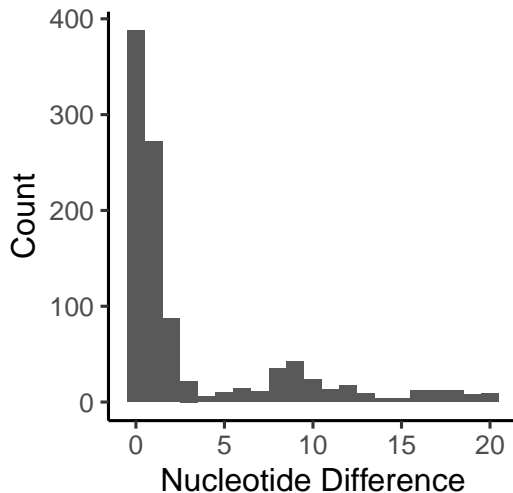
### IGHV1-8\*01

6577 sequences assigned  
2020 (30.7%) exact matches, in which:  
1801 unique CDR3  
6 unique J



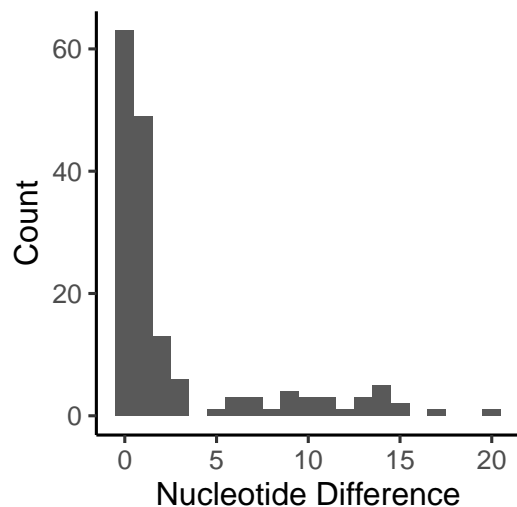
### IGHV1-24\*01

1061 sequences assigned  
388 (36.6%) exact matches, in which:  
351 unique CDR3  
6 unique J



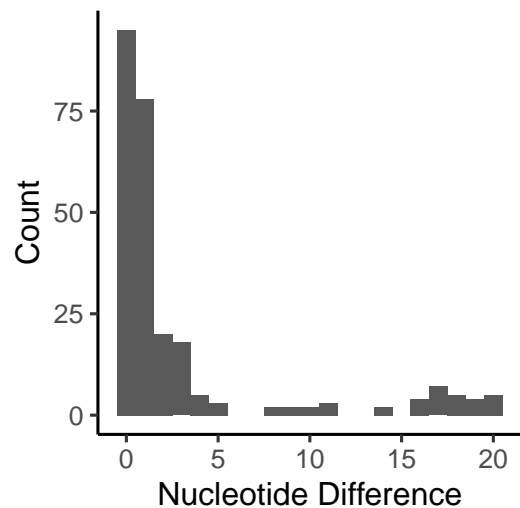
### IGHV1-58\*02

166 sequences assigned  
63 (38%) exact matches, in which:  
56 unique CDR3  
5 unique J



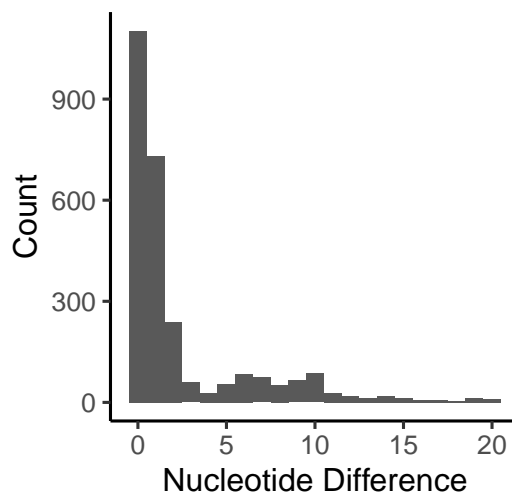
### IGHV1-58\*01\_03

259 sequences assigned  
95 (36.7%) exact matches, in which:  
85 unique CDR3  
5 unique J



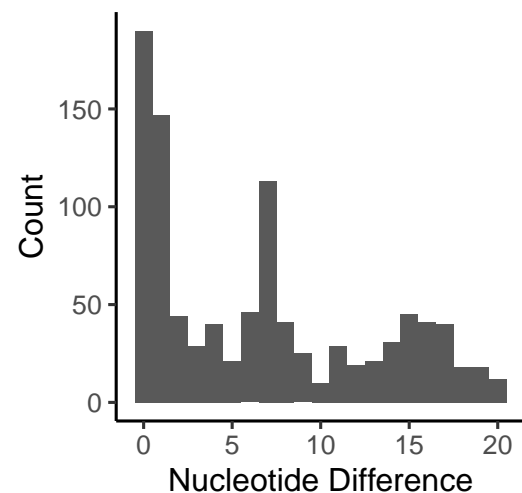
### IGHV1-69\*10

2775 sequences assigned  
1103 (39.7%) exact matches, in which:  
1014 unique CDR3  
6 unique J



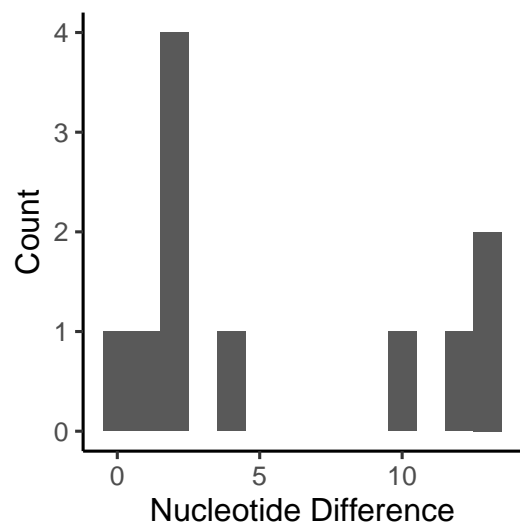
### IGHV2-5\*02

1083 sequences assigned  
190 (17.5%) exact matches, in which:  
167 unique CDR3  
6 unique J



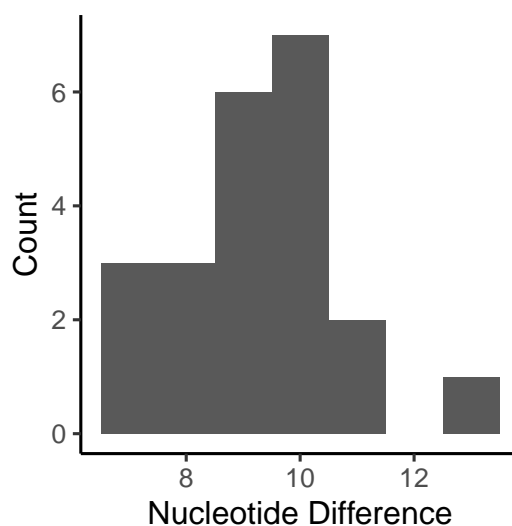
### IGHV1-68\*01

11 sequences assigned  
1 (9.1%) exact matches, in which:  
1 unique CDR3  
1 unique J



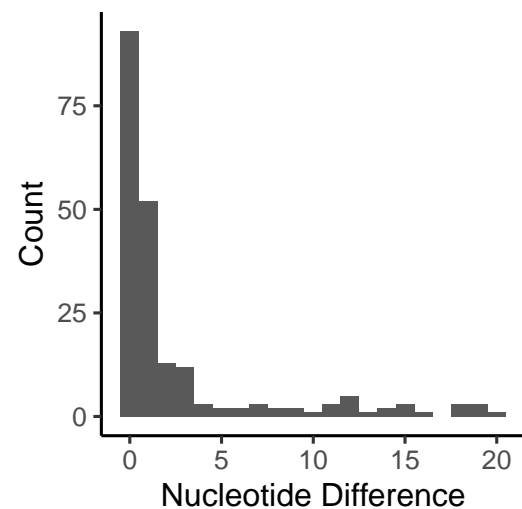
### IGHV1-NL1\*01

22 sequences assigned  
No exact matches.



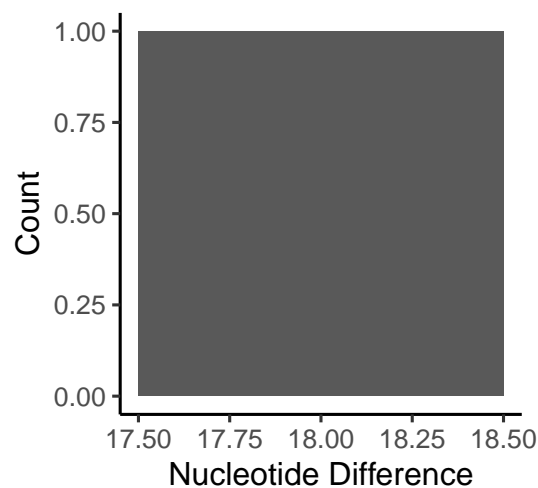
### IGHV2-26\*01

207 sequences assigned  
93 (44.9%) exact matches, in which:  
84 unique CDR3  
5 unique J



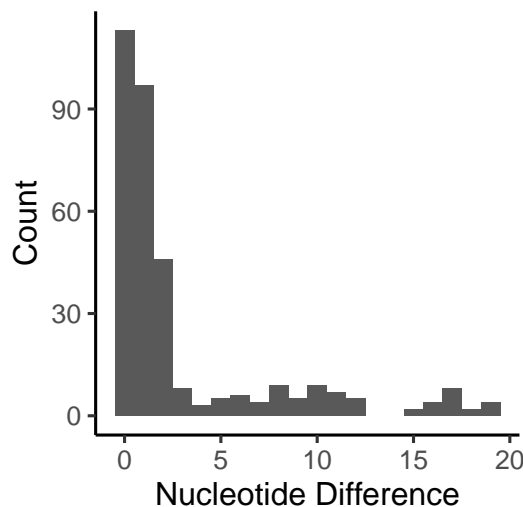
### IGHV1-69-2\*01

1 sequences assigned  
No exact matches.



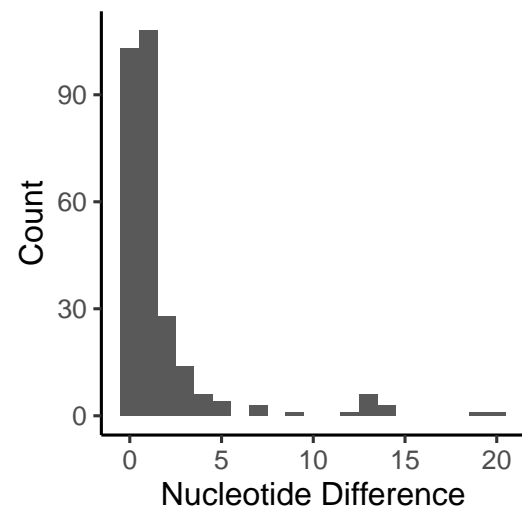
### IGHV2-5\*01

376 sequences assigned  
113 (30.1%) exact matches, in which:  
104 unique CDR3  
6 unique J



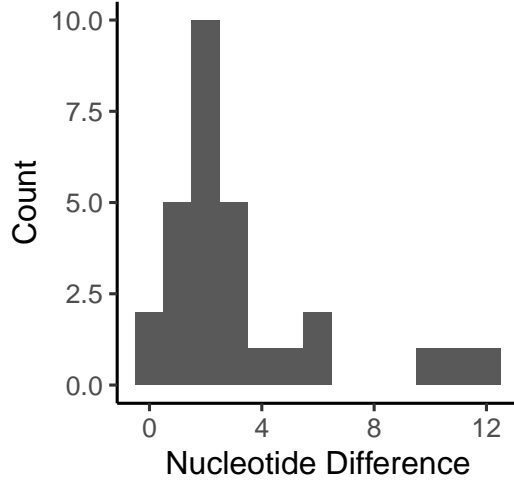
### IGHV2-70\*01

287 sequences assigned  
103 (35.9%) exact matches, in which:  
89 unique CDR3  
5 unique J



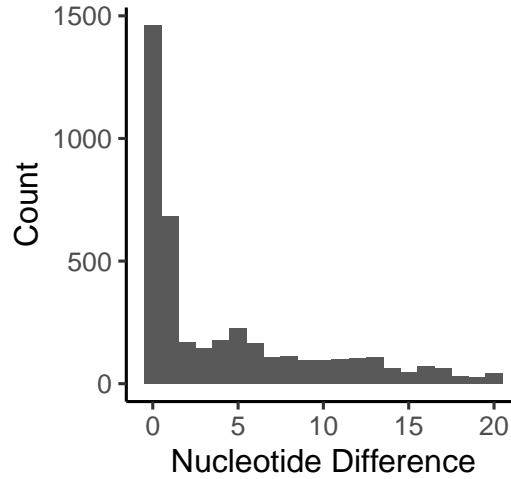
### IGHV2-70\*12

30 sequences assigned  
2 (6.7%) exact matches, in which:  
2 unique CDR3  
2 unique J



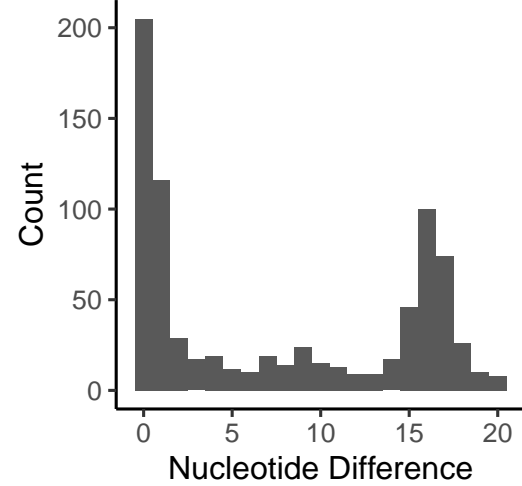
### IGHV3-9\*01

4551 sequences assigned  
1461 (32.1%) exact matches, in which:  
982 unique CDR3  
6 unique J



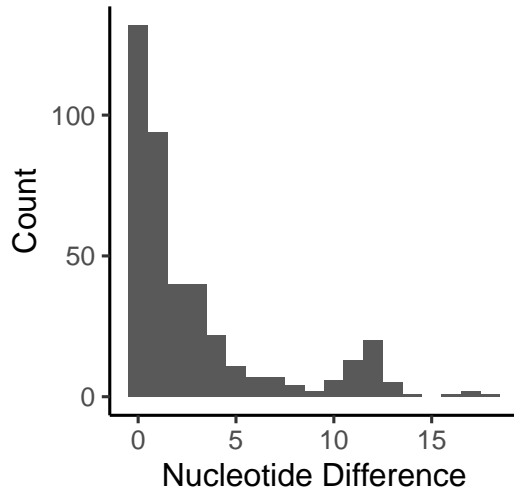
### IGHV3-13\*01

923 sequences assigned  
205 (22.2%) exact matches, in which:  
149 unique CDR3  
5 unique J



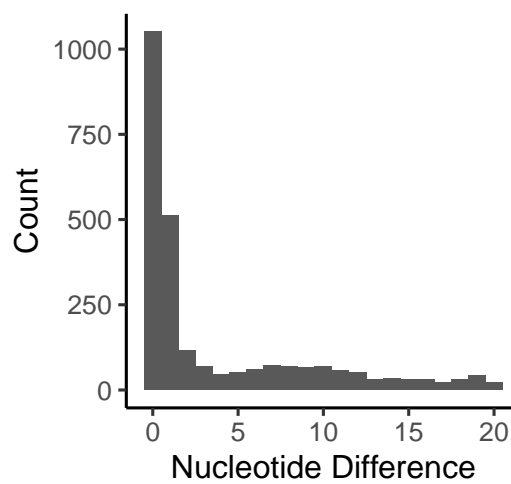
### IGHV2-70\*11\_15

412 sequences assigned  
132 (32%) exact matches, in which:  
115 unique CDR3  
5 unique J



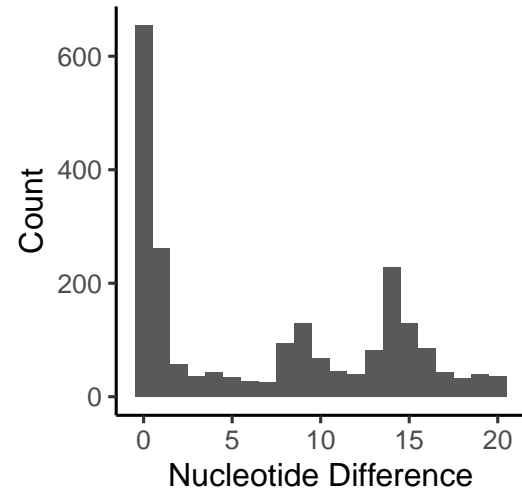
### IGHV3-11\*01

2651 sequences assigned  
1051 (39.6%) exact matches, in which:  
740 unique CDR3  
6 unique J



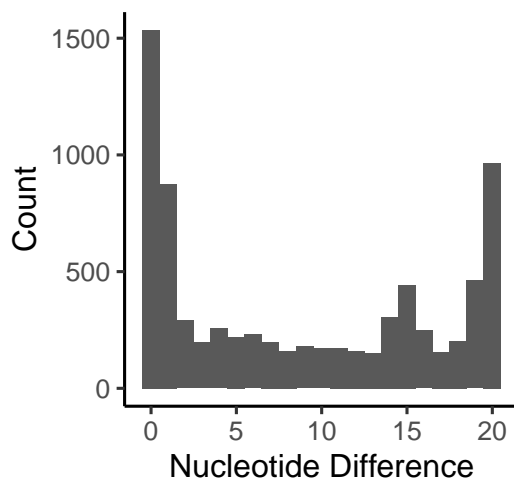
### IGHV3-15\*01\_02

2565 sequences assigned  
655 (25.5%) exact matches, in which:  
453 unique CDR3  
6 unique J



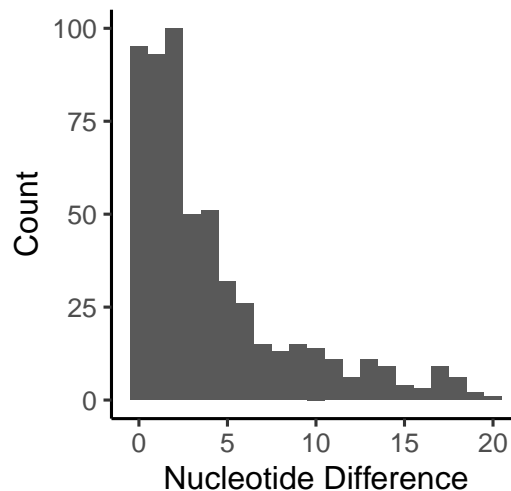
### IGHV3-7\*01

9952 sequences assigned  
1535 (15.4%) exact matches, in which:  
1066 unique CDR3  
6 unique J



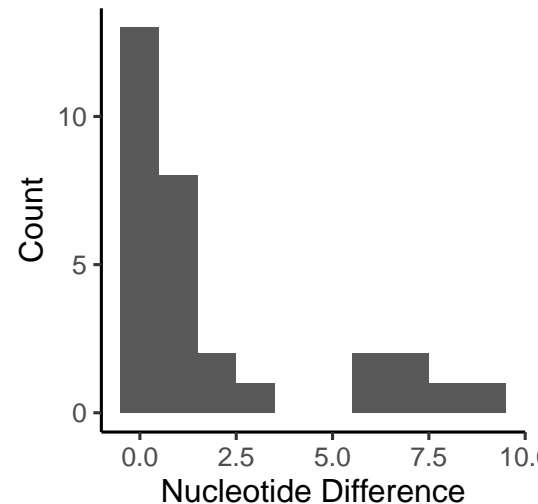
### IGHV3-11\*04

581 sequences assigned  
95 (16.4%) exact matches, in which:  
91 unique CDR3  
5 unique J



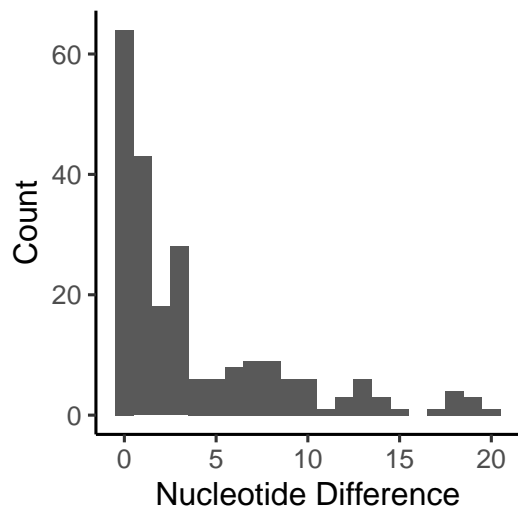
### IGHV3-19\*01

30 sequences assigned  
13 (43.3%) exact matches, in which:  
10 unique CDR3  
2 unique J



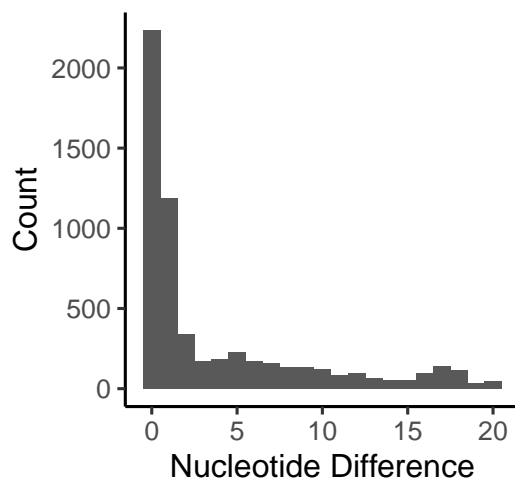
### IGHV3-20\*01\_02

226 sequences assigned  
64 (28.3%) exact matches, in which:  
41 unique CDR3  
4 unique J



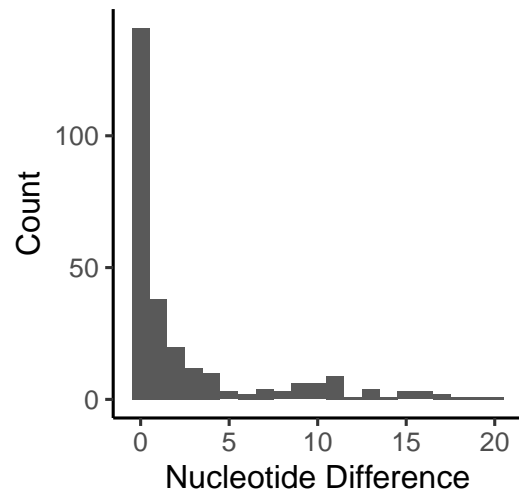
### IGHV3-21\*01\_02

6274 sequences assigned  
2234 (35.6%) exact matches, in which:  
1484 unique CDR3  
6 unique J



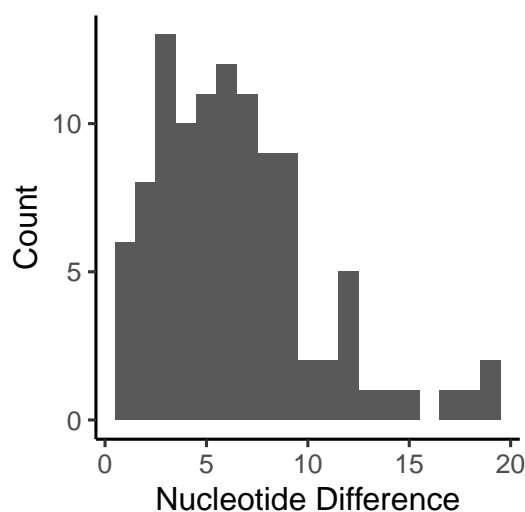
### IGHV3-30\*03

399 sequences assigned  
141 (35.3%) exact matches, in which:  
131 unique CDR3  
5 unique J



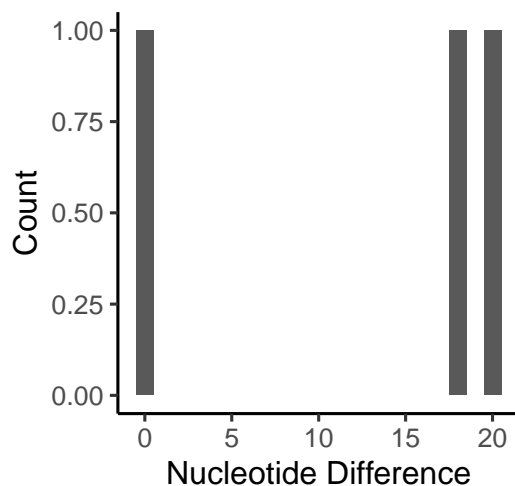
### IGHV3-20\*03\_04

128 sequences assigned  
No exact matches.



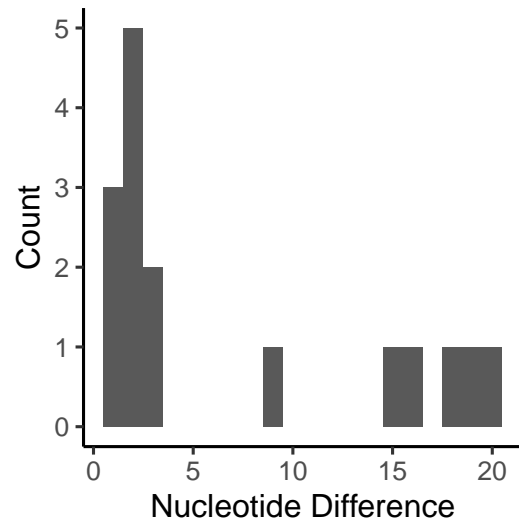
### IGHV3-30-3\*01

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



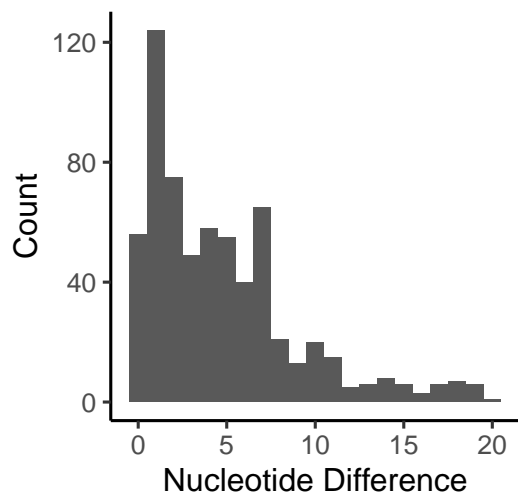
### IGHV3-30-3\*03

28 sequences assigned  
No exact matches.



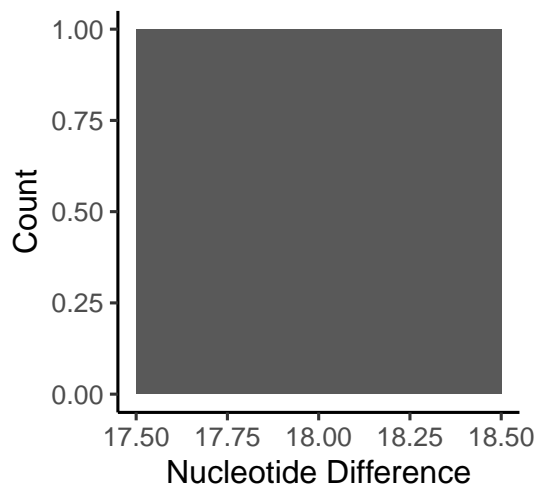
### IGHV3-21\*04

661 sequences assigned  
56 (8.5%) exact matches, in which:  
55 unique CDR3  
5 unique J



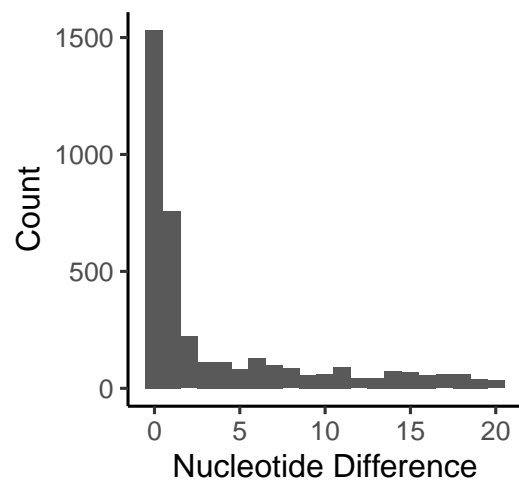
### IGHV3-30-3\*02

1 sequences assigned  
No exact matches.



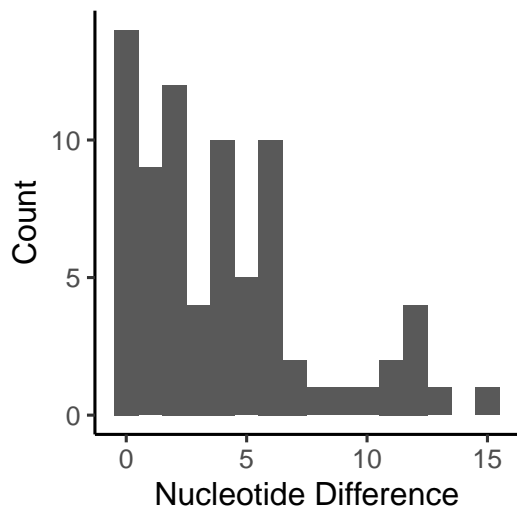
### IGHV3-33\*01

4108 sequences assigned  
1532 (37.3%) exact matches, in which:  
1090 unique CDR3  
6 unique J



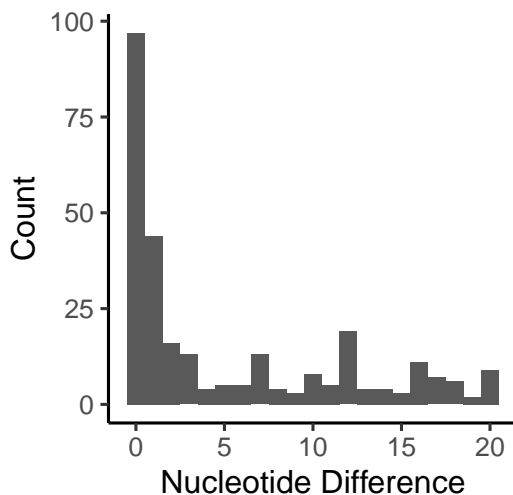
### IGHV3-33\*05

79 sequences assigned  
14 (17.7%) exact matches, in which:  
12 unique CDR3  
3 unique J



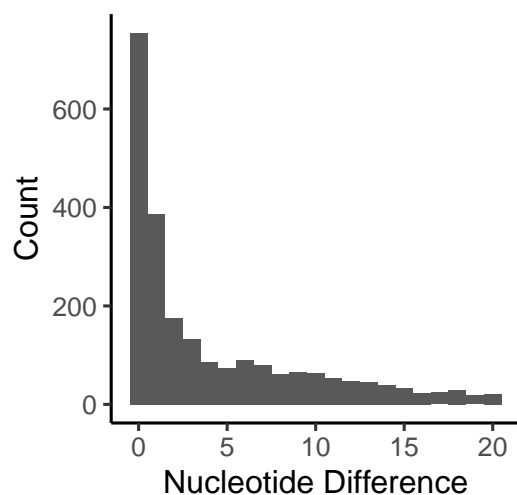
### IGHV3-43\*01

317 sequences assigned  
97 (30.6%) exact matches, in which:  
68 unique CDR3  
4 unique J



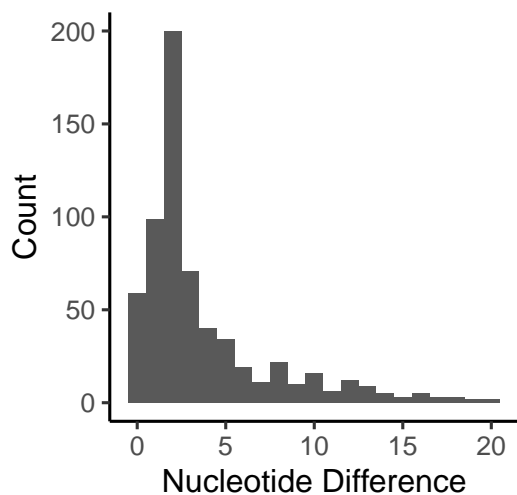
### IGHV3-48\*03

2552 sequences assigned  
755 (29.6%) exact matches, in which:  
508 unique CDR3  
5 unique J



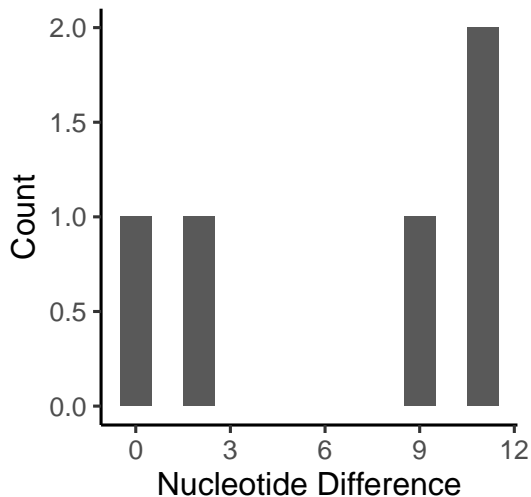
### IGHV3-33\*06

659 sequences assigned  
59 (9%) exact matches, in which:  
55 unique CDR3  
5 unique J



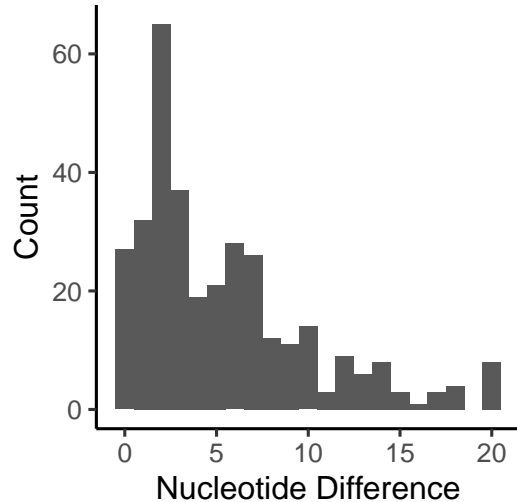
### IGHV3-47\*02

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



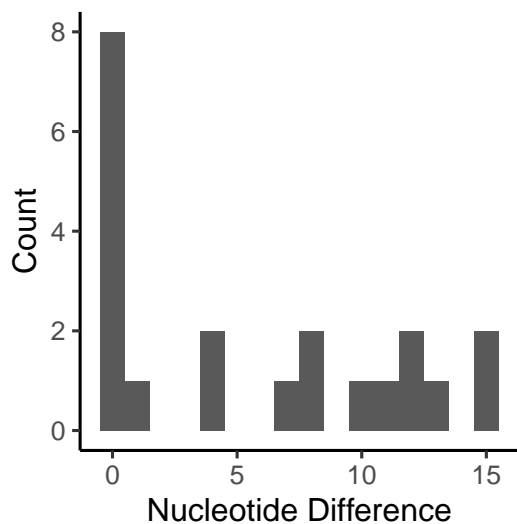
### IGHV3-48\*04

369 sequences assigned  
27 (7.3%) exact matches, in which:  
27 unique CDR3  
4 unique J



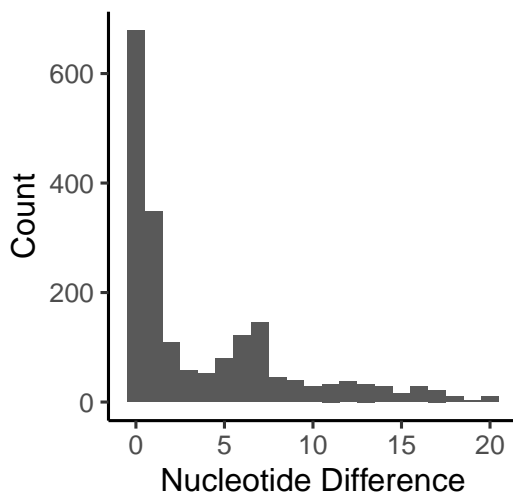
### IGHV3-35\*01

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



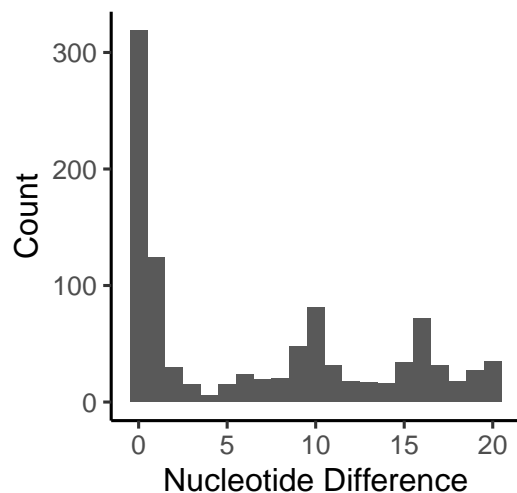
### IGHV3-48\*02

2792 sequences assigned  
679 (24.3%) exact matches, in which:  
461 unique CDR3  
6 unique J



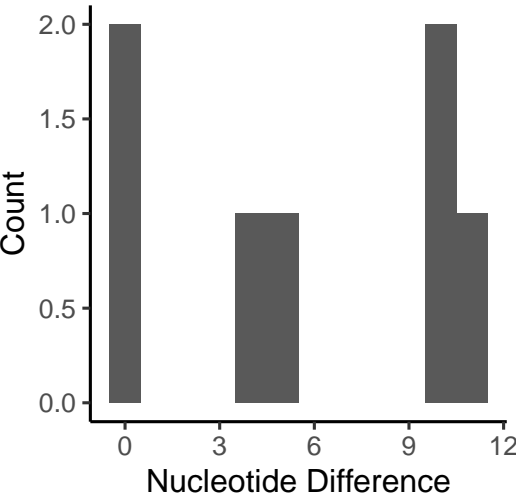
### IGHV3-49\*03\_05

1164 sequences assigned  
319 (27.4%) exact matches, in which:  
212 unique CDR3  
6 unique J



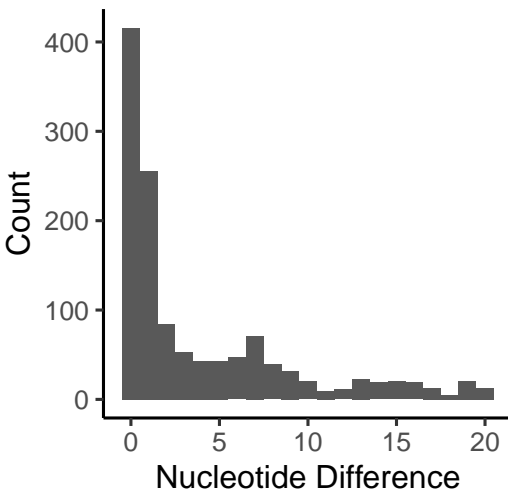
IGHV3-52\*01\_03

7 sequences assigned  
2 (28.6%) exact matches, in which:  
2 unique CDR3  
1 unique J



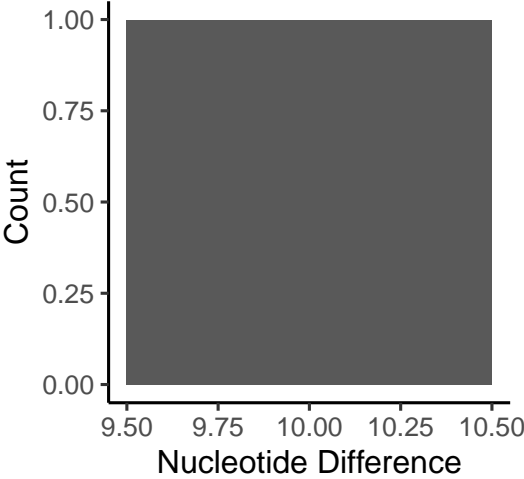
IGHV3-66\*01

1424 sequences assigned  
416 (29.2%) exact matches, in which:  
295 unique CDR3  
6 unique J



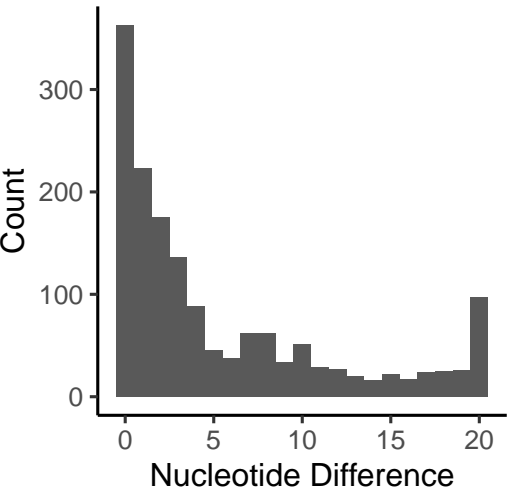
IGHV3-71\*01\_04

1 sequences assigned  
No exact matches.



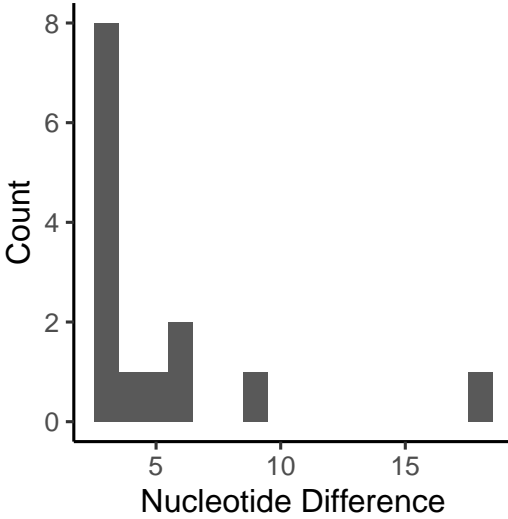
IGHV3-53\*01\_02

2128 sequences assigned  
363 (17.1%) exact matches, in which:  
251 unique CDR3  
6 unique J



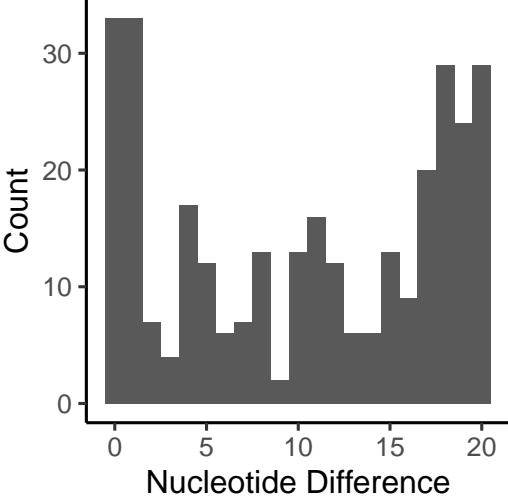
IGHV3-69-1\*01

18 sequences assigned  
No exact matches.



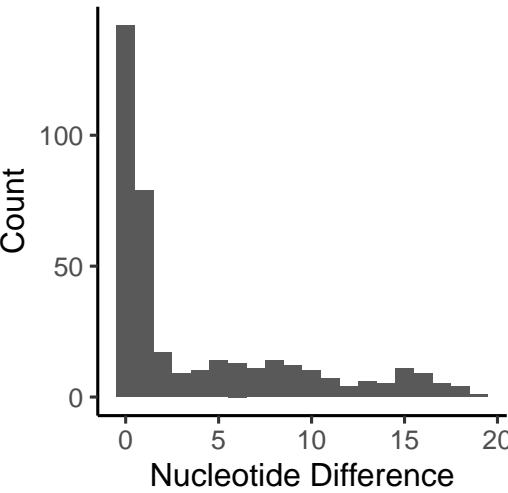
IGHV3-72\*01

421 sequences assigned  
33 (7.8%) exact matches, in which:  
23 unique CDR3  
4 unique J



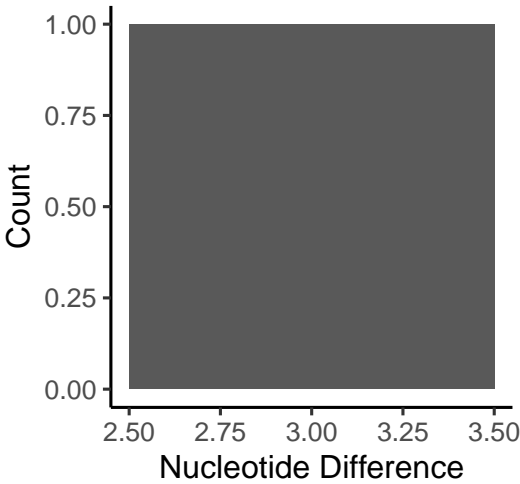
IGHV3-64\*01

432 sequences assigned  
142 (32.9%) exact matches, in which:  
99 unique CDR3  
6 unique J



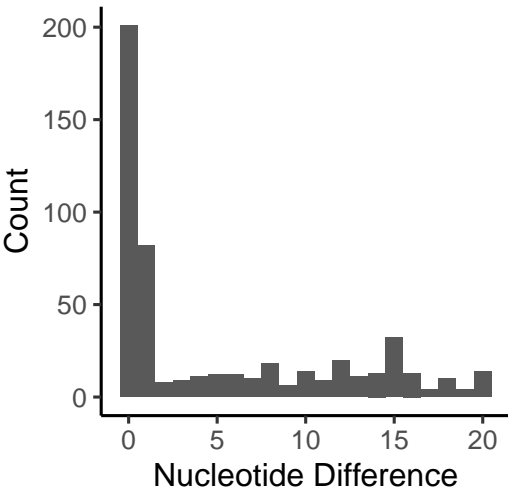
IGHV3-69-1\*02

35 sequences assigned  
No exact matches.



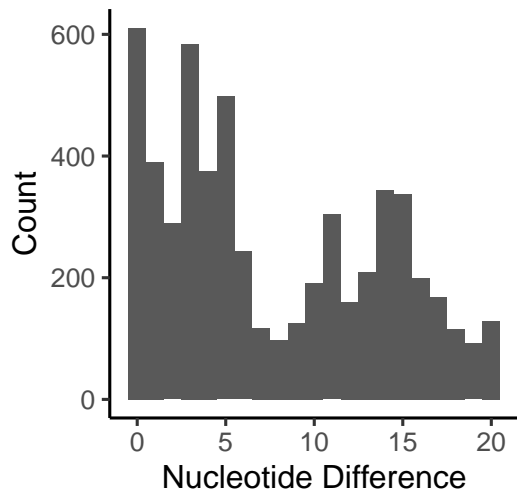
IGHV3-73\*01\_02

725 sequences assigned  
201 (27.7%) exact matches, in which:  
142 unique CDR3  
5 unique J



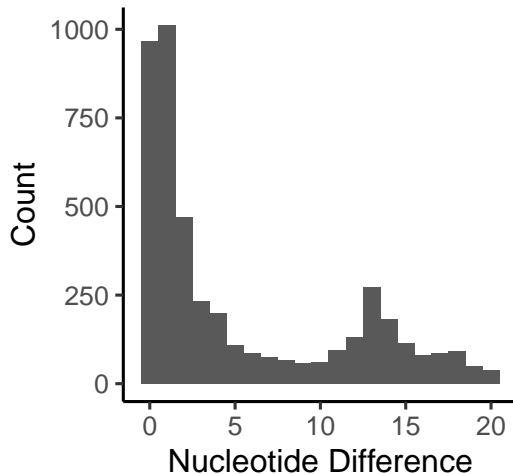
### IGHV3–74\*01\_02

18591 sequences assigned  
611 (3.3%) exact matches, in which:  
413 unique CDR3  
6 unique J



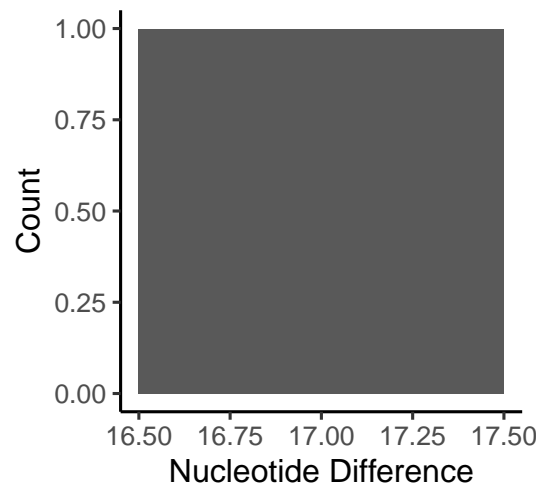
### IGHV4–4\*07

5014 sequences assigned  
967 (19.3%) exact matches, in which:  
878 unique CDR3  
6 unique J



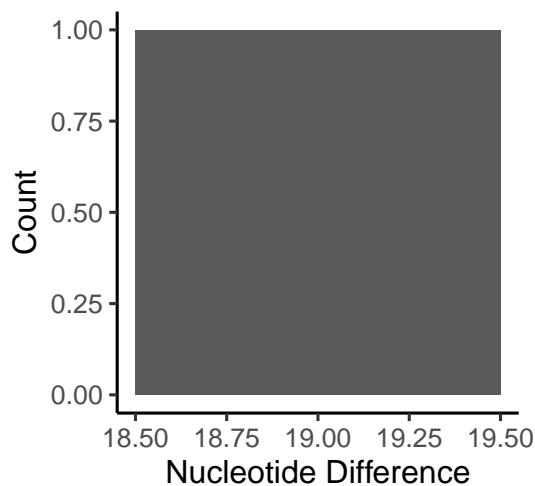
### IGHV4–30–4\*01

3 sequences assigned  
No exact matches.



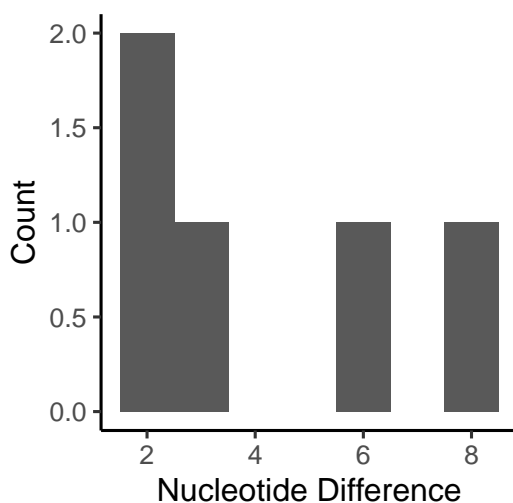
### IGHV3–64D\*09

1 sequences assigned  
No exact matches.



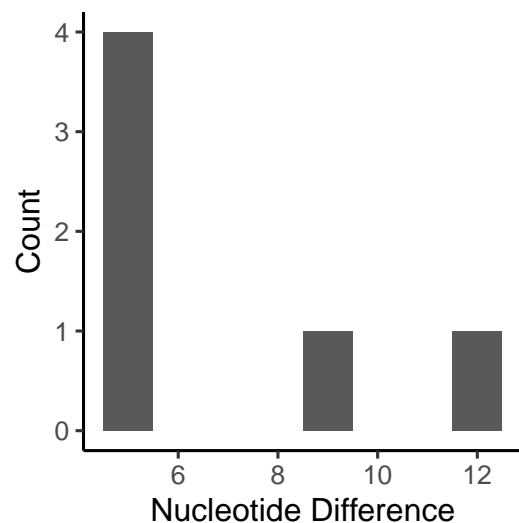
### IGHV4–28\*03

6 sequences assigned  
No exact matches.



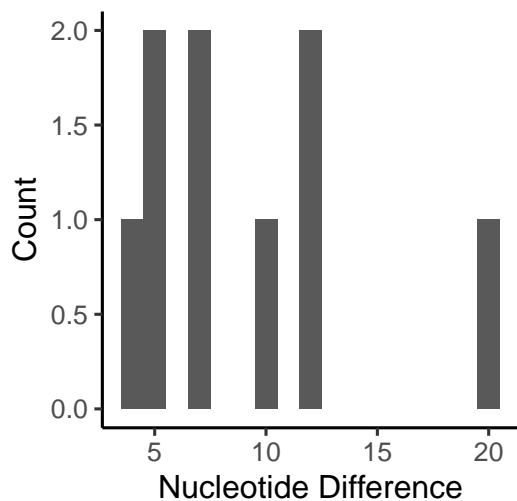
### IGHV4–30–2\*03

6 sequences assigned  
No exact matches.



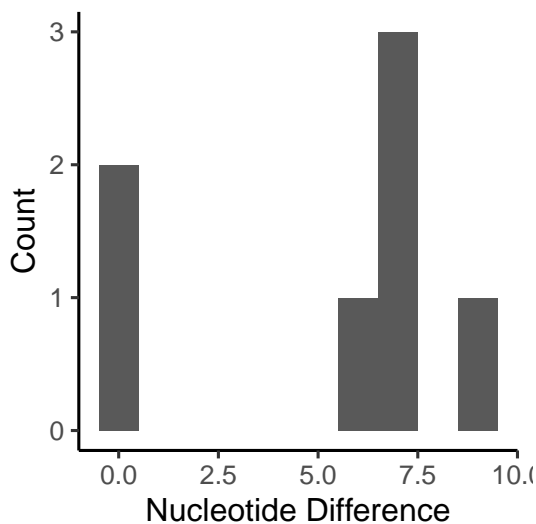
### IGHV3–NL1\*01

12 sequences assigned  
No exact matches.



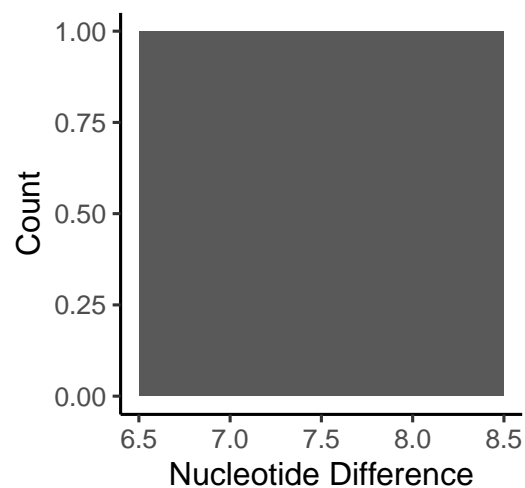
### IGHV4–28\*01\_07

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



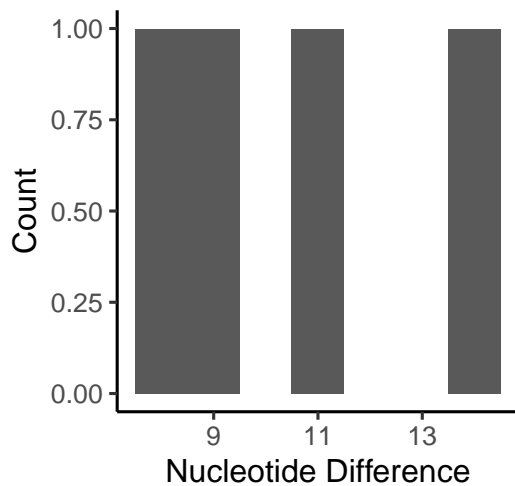
### IGHV4–30–2\*04

2 sequences assigned  
No exact matches.



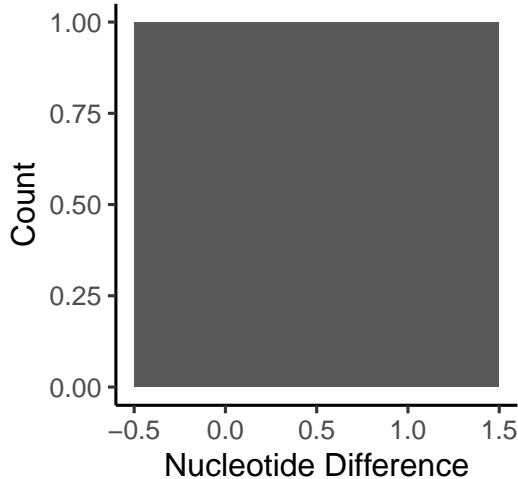
### IGHV4-30-4\*08

10 sequences assigned  
No exact matches.



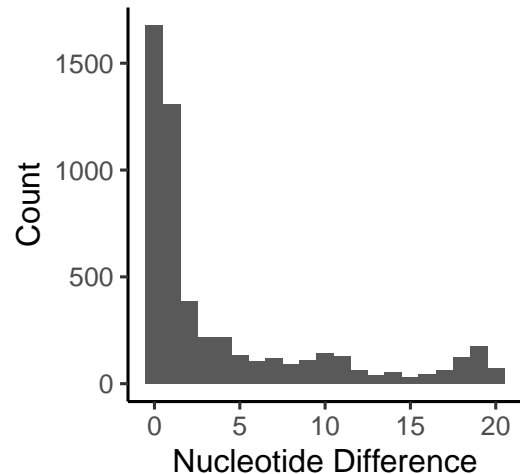
### IGHV4-38-2\*01

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



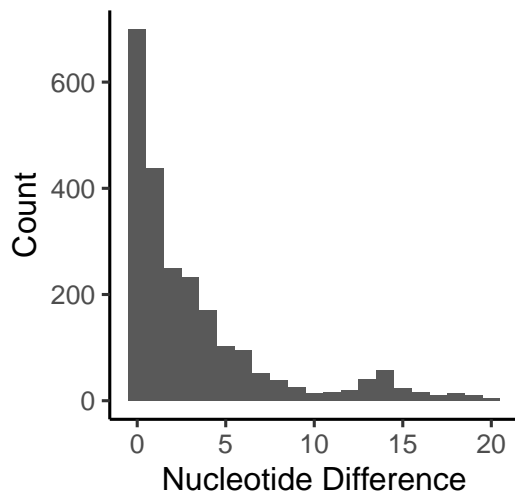
### IGHV4-39\*01\_05

6128 sequences assigned  
1677 (27.4%) exact matches, in which:  
1420 unique CDR3  
6 unique J



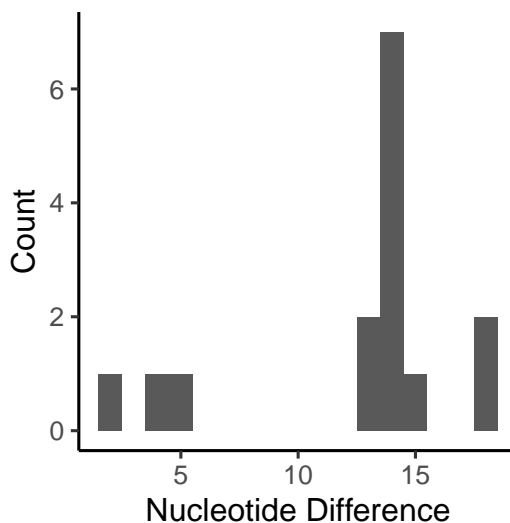
### IGHV4-31\*03\_04

2945 sequences assigned  
700 (23.8%) exact matches, in which:  
641 unique CDR3  
5 unique J



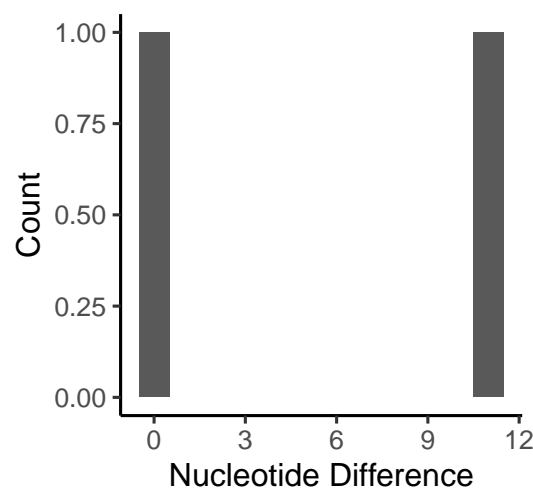
### IGHV4-38-2\*02

26 sequences assigned  
No exact matches.



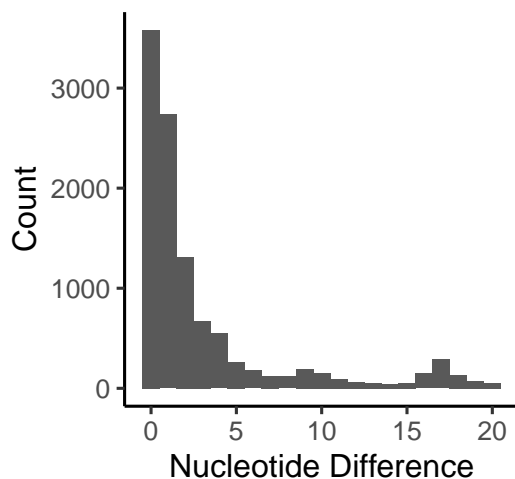
### IGHV4-55\*02\_04\_08

2 sequences assigned  
1 (50%) exact matches, in which:  
1 unique CDR3  
1 unique J



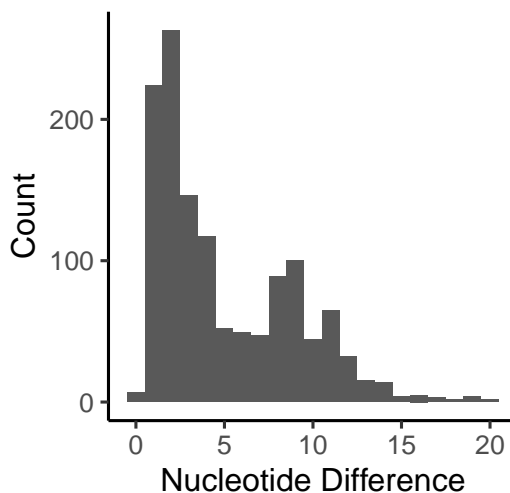
### IGHV4-34\*01\_02

11758 sequences assigned  
3580 (30.4%) exact matches, in which:  
2804 unique CDR3  
6 unique J



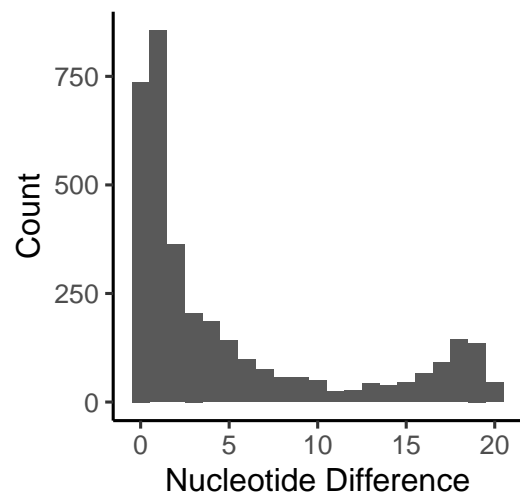
### IGHV4-39\*07

1309 sequences assigned  
7 (0.5%) exact matches, in which:  
7 unique CDR3  
3 unique J



### IGHV4-59\*08

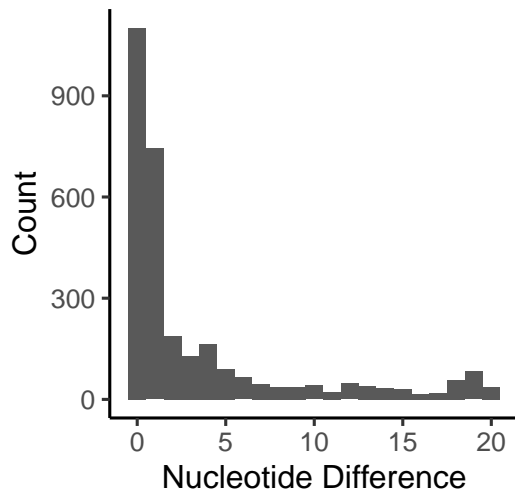
3668 sequences assigned  
737 (20.1%) exact matches, in which:  
631 unique CDR3  
6 unique J





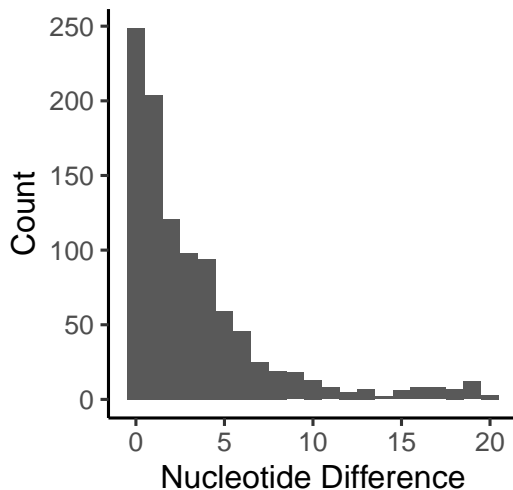
### IGHV4-59\*01\_07

5660 sequences assigned  
1102 (19.5%) exact matches, in which:  
1001 unique CDR3  
6 unique J



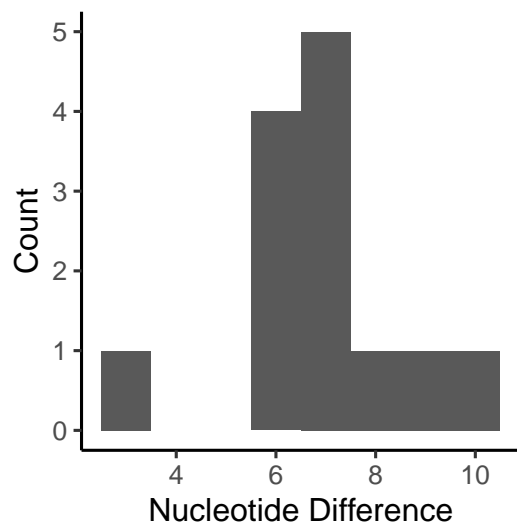
### IGHV4-61\*01

1113 sequences assigned  
249 (22.4%) exact matches, in which:  
233 unique CDR3  
5 unique J



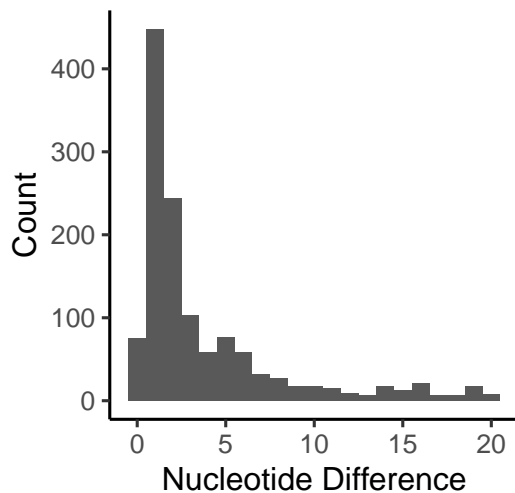
### IGHV5-10-1\*01\_03

13 sequences assigned  
No exact matches.



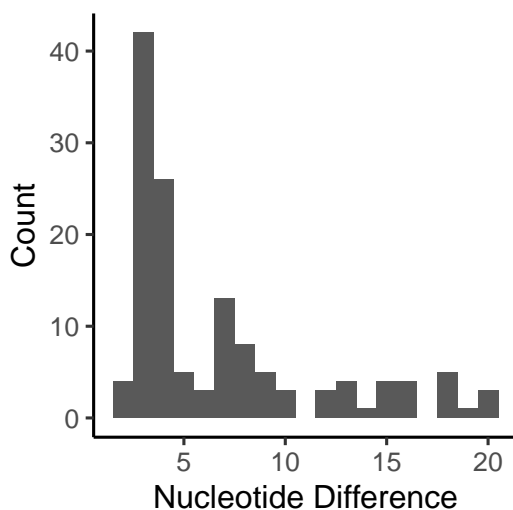
### IGHV4-59\*12

2052 sequences assigned  
75 (3.7%) exact matches, in which:  
75 unique CDR3  
4 unique J



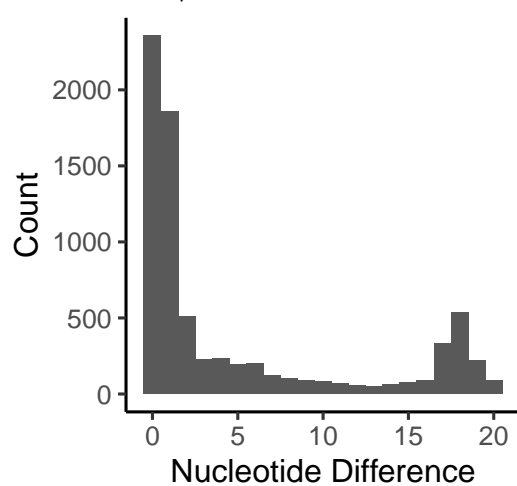
### IGHV4-61\*02

251 sequences assigned  
No exact matches.



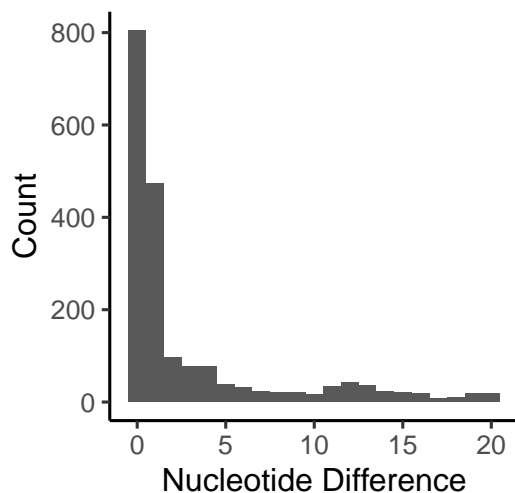
### IGHV5-51\*01\_03

8050 sequences assigned  
2356 (29.3%) exact matches, in which:  
1415 unique CDR3  
6 unique J



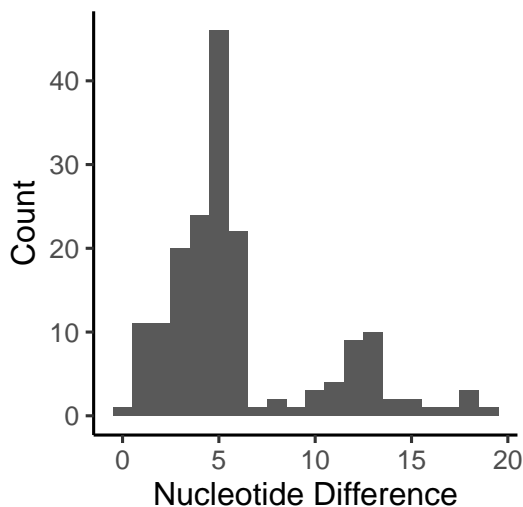
### IGHV4-59\*13

2515 sequences assigned  
805 (32%) exact matches, in which:  
744 unique CDR3  
6 unique J



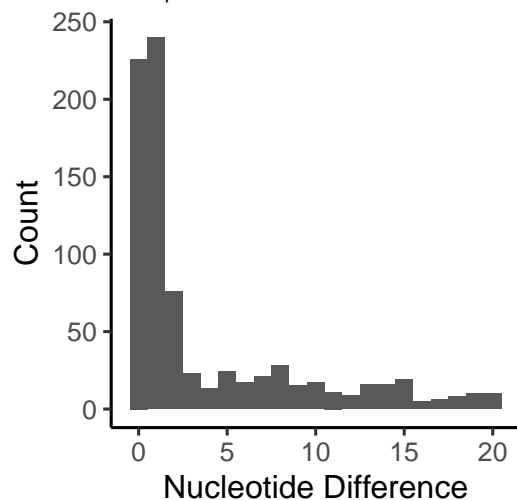
### IGHV4-61\*08

192 sequences assigned  
1 (0.5%) exact matches, in which:  
1 unique CDR3  
1 unique J



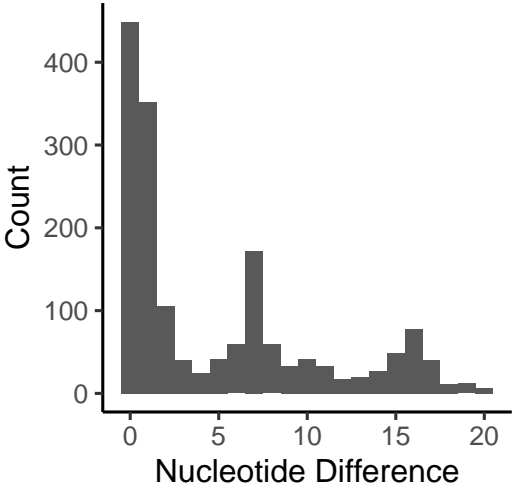
### IGHV6-1\*01\_02

935 sequences assigned  
226 (24.2%) exact matches, in which:  
202 unique CDR3  
6 unique J



# IGHV7-4-1\*02

1729 sequences assigned  
449 (26%) exact matches, in which:  
396 unique CDR3  
6 unique J





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

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

Warning – no inferred sequences found.

Warning – no inferred sequences found.

Warning – no inferred sequences found.

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

Warning – no inferred sequences found.

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

Warning – no inferred sequences found.

Warning – no inferred sequences found.

Novel sequence(s)IGHV3-30\*03\_T288CIGHV5-51\*07\_A128G are not listed in the genotype and will be ignored.

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

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

Novel sequence(s)IGHV1-69\*04\_09\_G112A are not listed in the genotype and will be ignored.

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

Warning – no inferred sequences found.

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

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.