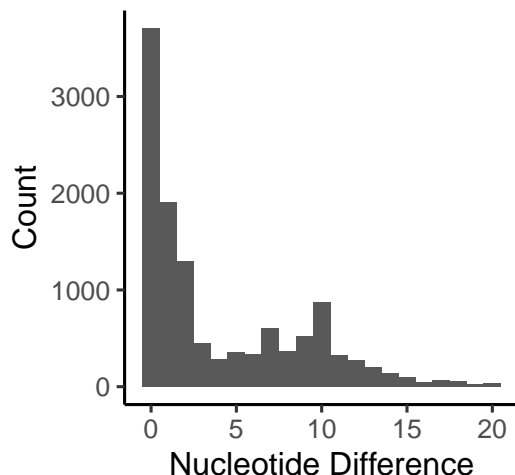


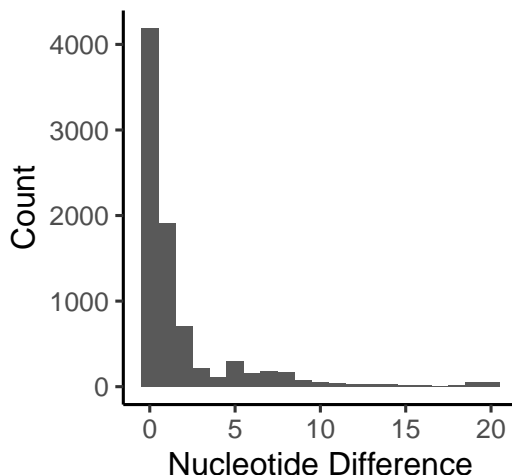
### IGHV1-2\*02

12670 sequences assigned  
3704 (29.2%) exact matches, in which:  
3476 unique CDR3  
7 unique J



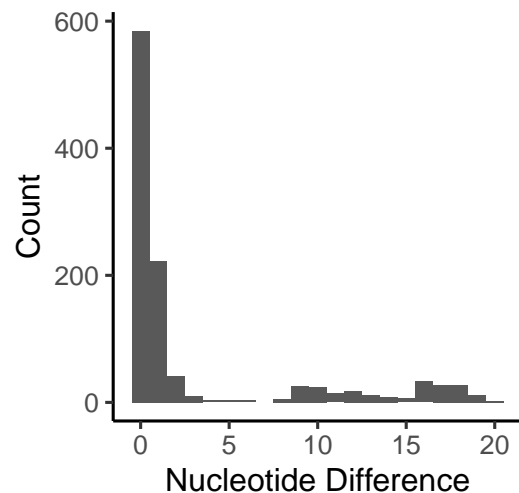
### IGHV1-8\*01

8554 sequences assigned  
4187 (48.9%) exact matches, in which:  
3980 unique CDR3  
7 unique J



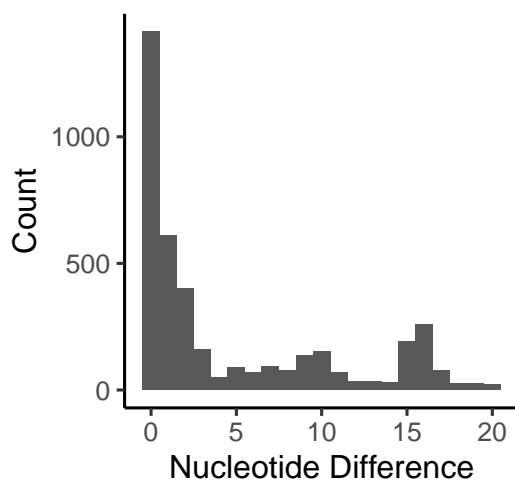
### IGHV1-24\*01

1222 sequences assigned  
585 (47.9%) exact matches, in which:  
542 unique CDR3  
7 unique J



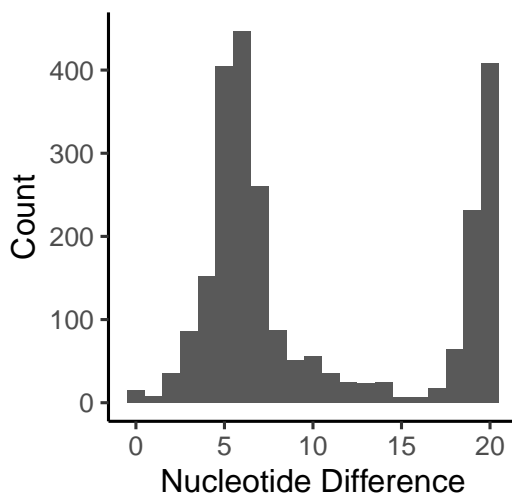
### IGHV1-2\*04

4437 sequences assigned  
1415 (31.9%) exact matches, in which:  
1353 unique CDR3  
7 unique J



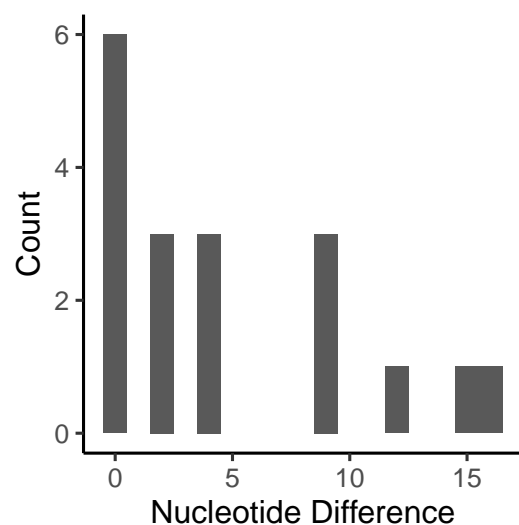
### IGHV1-8\*02

2786 sequences assigned  
15 (0.5%) exact matches, in which:  
15 unique CDR3  
5 unique J



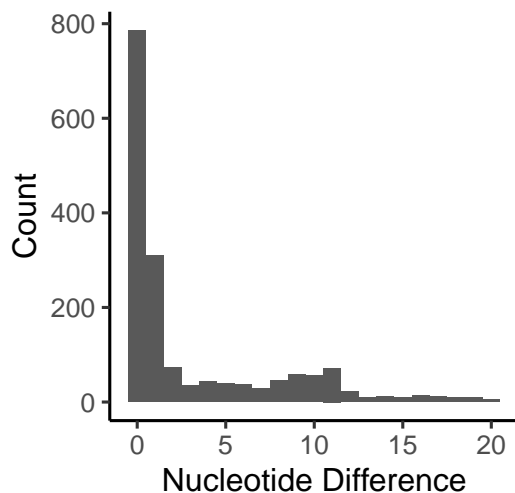
### IGHV1-45\*02

18 sequences assigned  
6 (33.3%) exact matches, in which:  
6 unique CDR3  
3 unique J



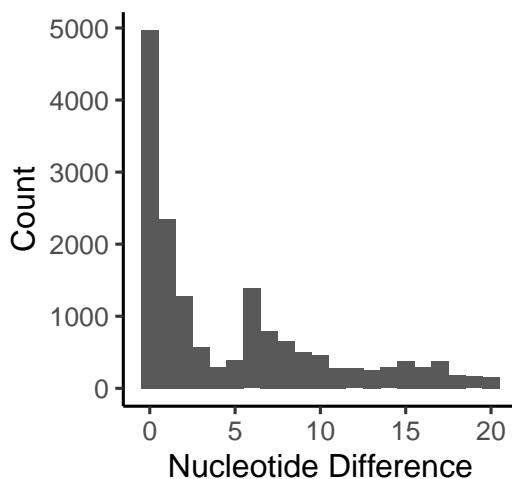
### IGHV1-3\*01\_05

1818 sequences assigned  
786 (43.2%) exact matches, in which:  
733 unique CDR3  
7 unique J



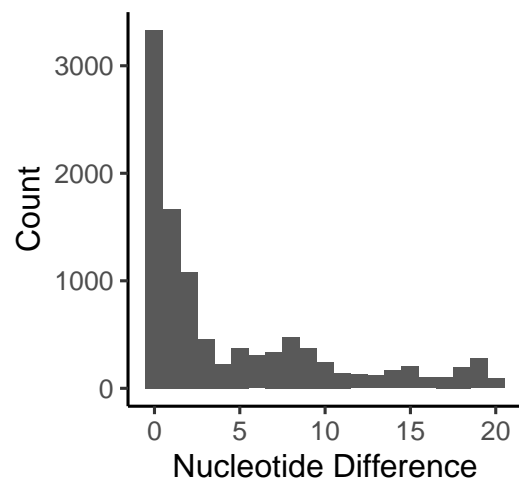
### IGHV1-18\*01

18340 sequences assigned  
4971 (27.1%) exact matches, in which:  
4678 unique CDR3  
7 unique J



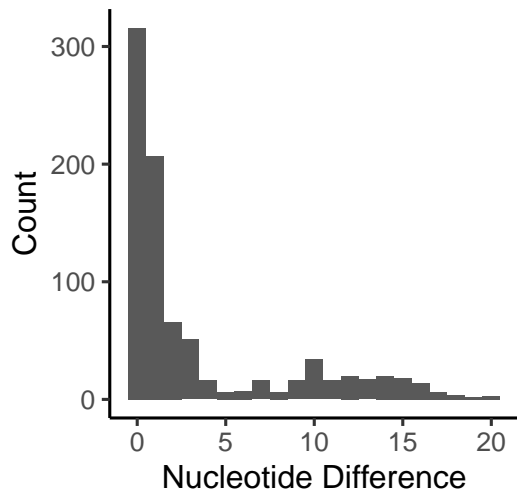
### IGHV1-46\*01

11523 sequences assigned  
3332 (28.9%) exact matches, in which:  
3179 unique CDR3  
7 unique J



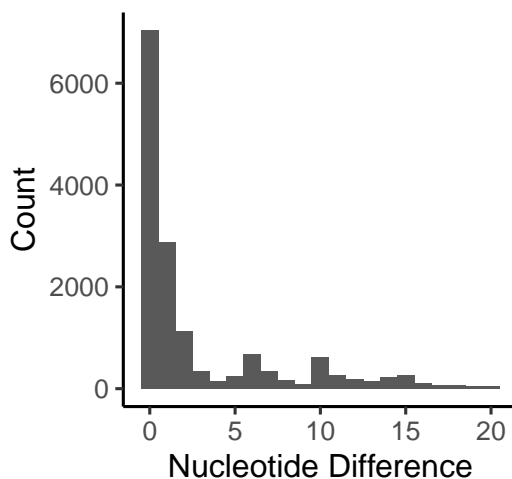
### IGHV1–58\*01\_03

883 sequences assigned  
316 (35.8%) exact matches, in which:  
304 unique CDR3  
7 unique J



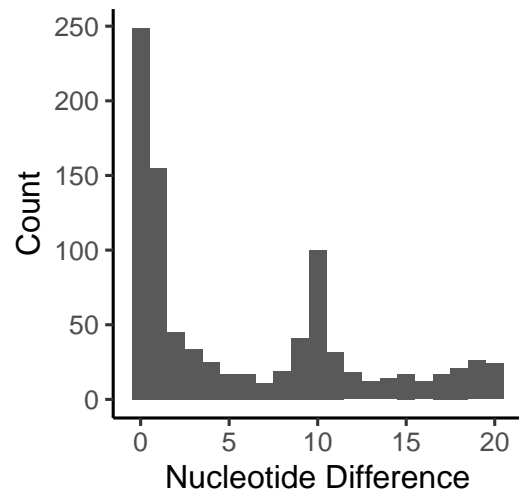
### IGHV1–69\*01\_12\_13

16398 sequences assigned  
7037 (42.9%) exact matches, in which:  
6727 unique CDR3  
7 unique J



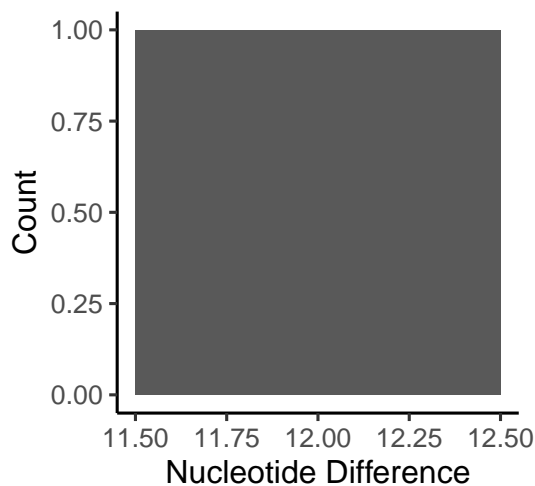
### IGHV2–5\*01

1199 sequences assigned  
249 (20.8%) exact matches, in which:  
238 unique CDR3  
7 unique J



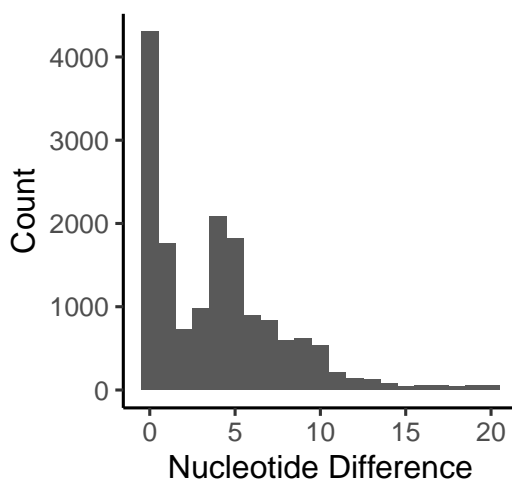
### IGHV1–68\*01

1 sequences assigned  
No exact matches.



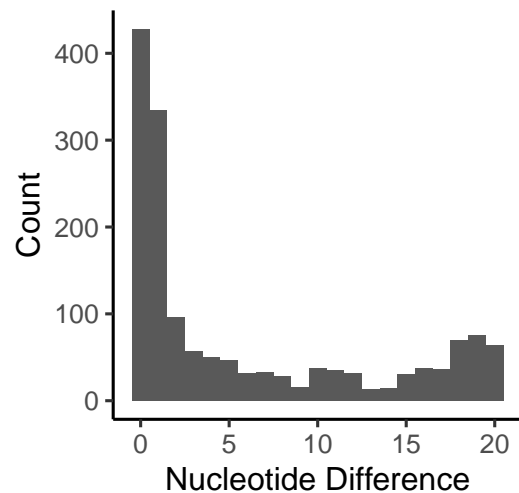
### IGHV1–69\*06\_14

16309 sequences assigned  
4303 (26.4%) exact matches, in which:  
4147 unique CDR3  
7 unique J



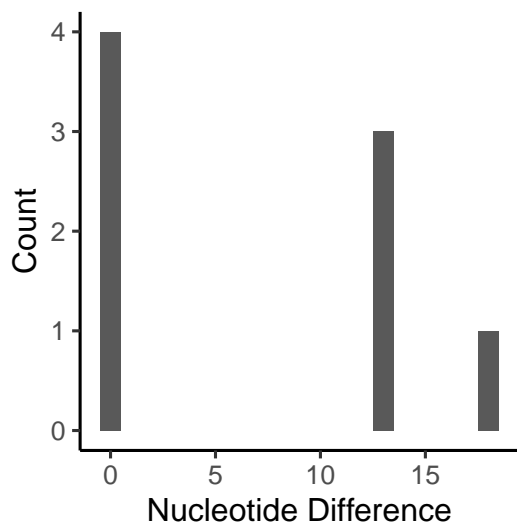
### IGHV2–5\*02

2213 sequences assigned  
428 (19.3%) exact matches, in which:  
405 unique CDR3  
7 unique J



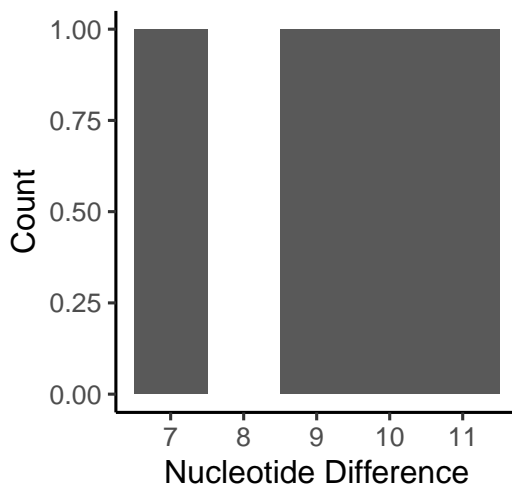
### IGHV1–69–2\*01

87 sequences assigned  
4 (4.6%) exact matches, in which:  
3 unique CDR3  
2 unique J



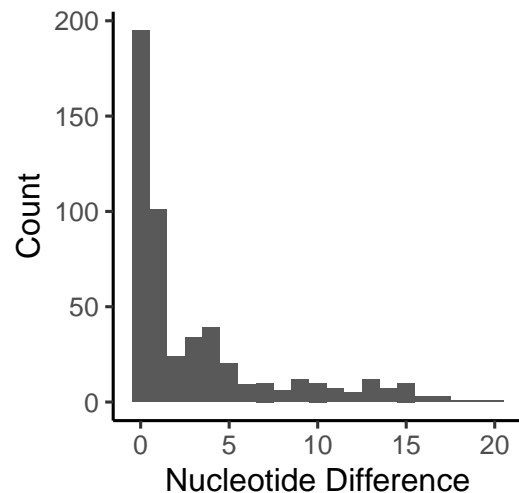
### IGHV1–NL1\*01

4 sequences assigned  
No exact matches.



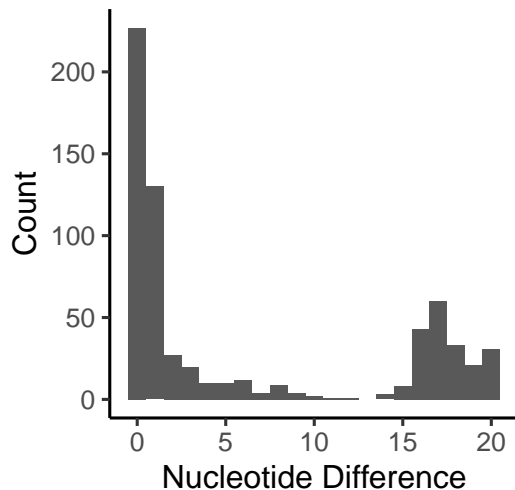
### IGHV2–26\*01

537 sequences assigned  
195 (36.3%) exact matches, in which:  
189 unique CDR3  
7 unique J



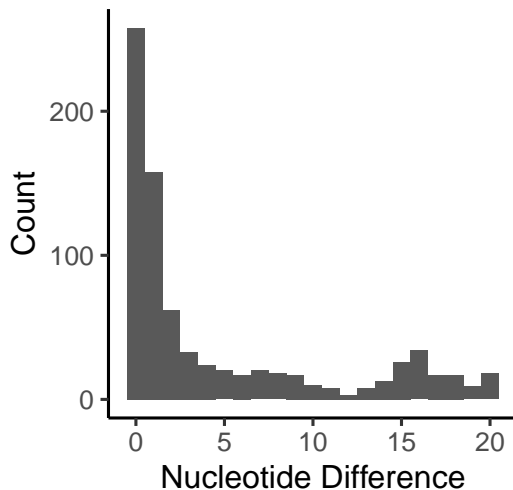
### IGHV2-70\*01

710 sequences assigned  
227 (32%) exact matches, in which:  
214 unique CDR3  
7 unique J



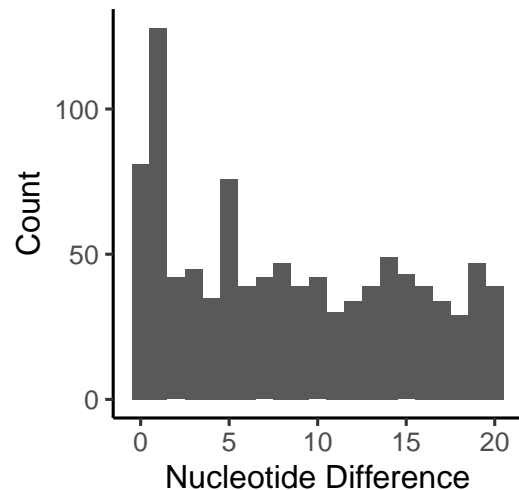
### IGHV2-70\*11\_15

1139 sequences assigned  
258 (22.7%) exact matches, in which:  
241 unique CDR3  
7 unique J



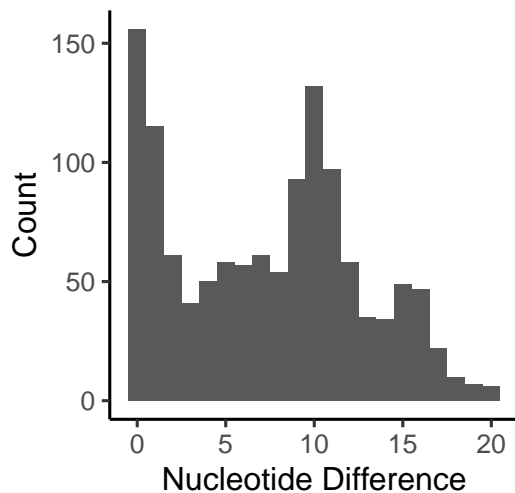
### IGHV3-7\*03

1891 sequences assigned  
81 (4.3%) exact matches, in which:  
74 unique CDR3  
7 unique J



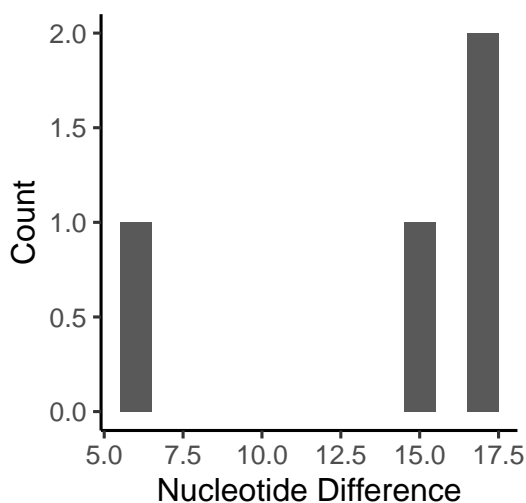
### IGHV2-70\*04

1298 sequences assigned  
156 (12%) exact matches, in which:  
146 unique CDR3  
7 unique J



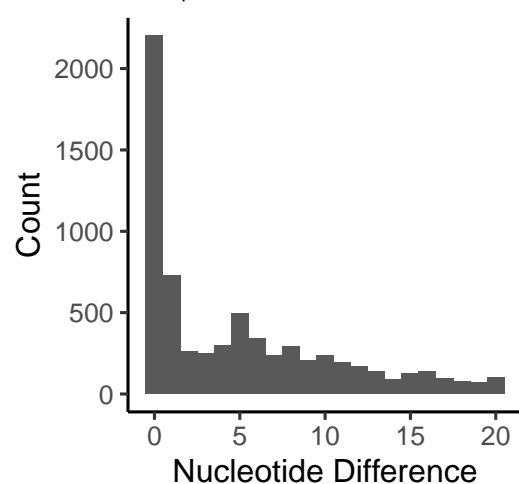
### IGHV2-70D\*14

4 sequences assigned  
No exact matches.



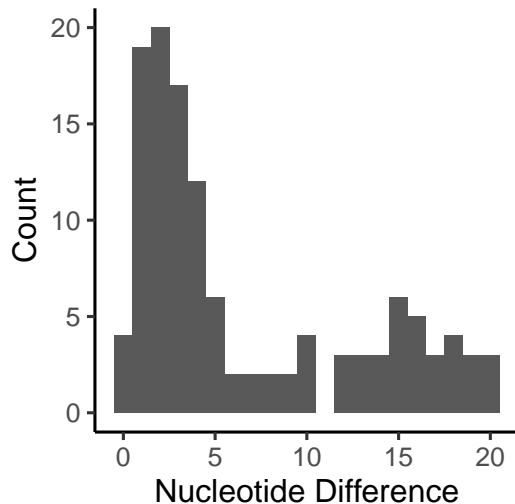
### IGHV3-9\*01

8120 sequences assigned  
2202 (27.1%) exact matches, in which:  
1748 unique CDR3  
7 unique J



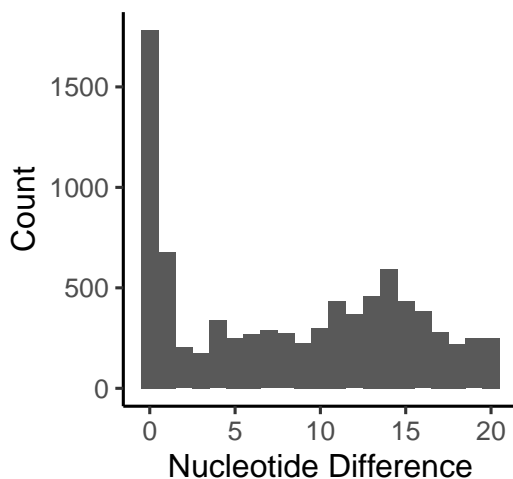
### IGHV2-70\*12

130 sequences assigned  
4 (3.1%) exact matches, in which:  
4 unique CDR3  
4 unique J



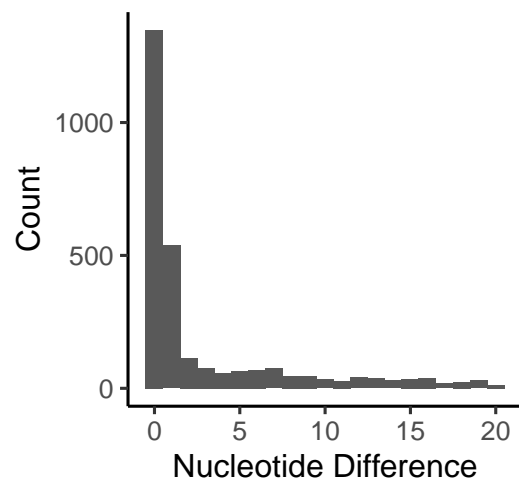
### IGHV3-7\*01

11247 sequences assigned  
1783 (15.9%) exact matches, in which:  
1478 unique CDR3  
7 unique J



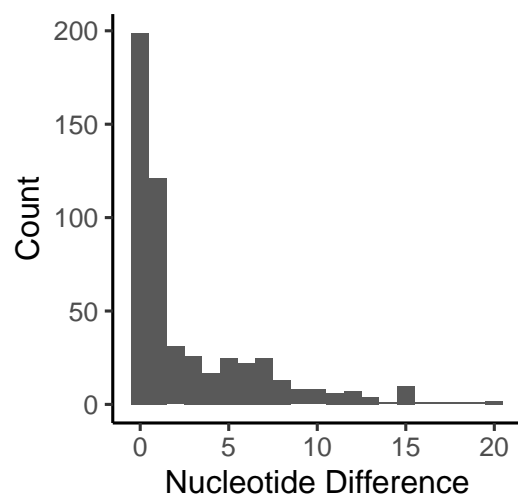
### IGHV3-11\*01

3508 sequences assigned  
1348 (38.4%) exact matches, in which:  
1147 unique CDR3  
7 unique J



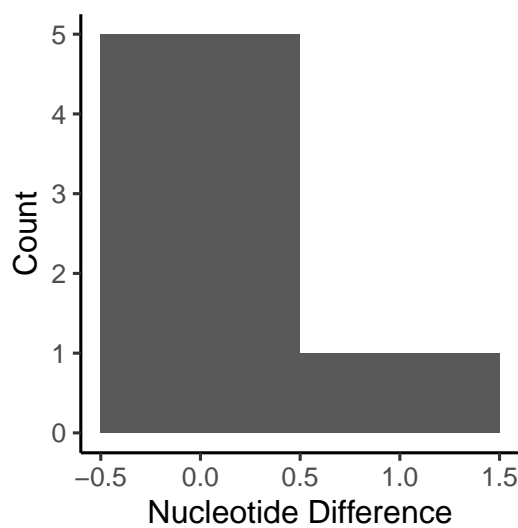
### IGHV3-11\*04

554 sequences assigned  
199 (35.9%) exact matches, in which:  
198 unique CDR3  
7 unique J



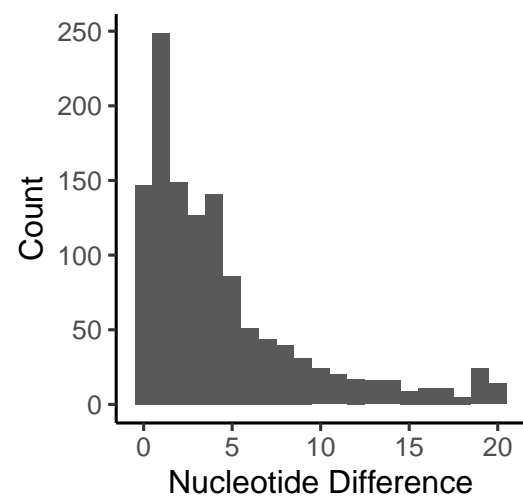
### IGHV3-19\*01

6 sequences assigned  
5 (83.3%) exact matches, in which:  
4 unique CDR3  
2 unique J



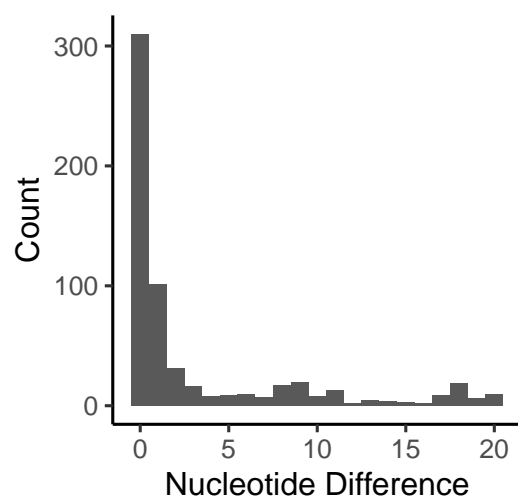
### IGHV3-21\*04

1431 sequences assigned  
147 (10.3%) exact matches, in which:  
145 unique CDR3  
7 unique J



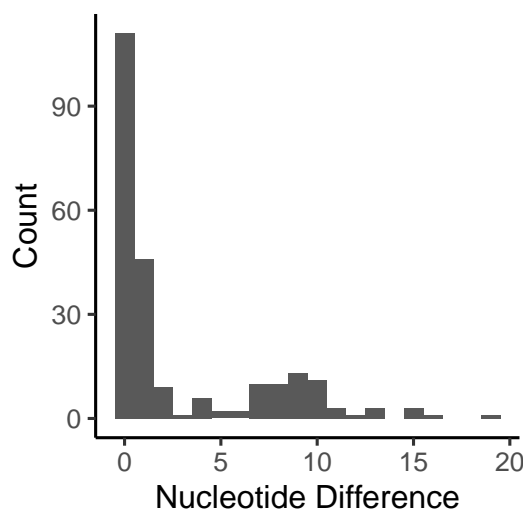
### IGHV3-13\*01

675 sequences assigned  
310 (45.9%) exact matches, in which:  
241 unique CDR3  
7 unique J



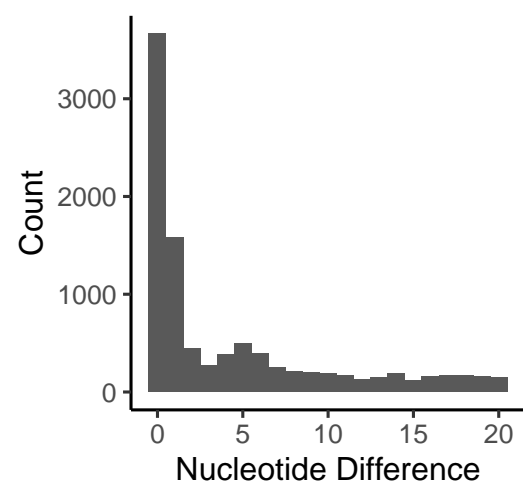
### IGHV3-20\*01\_02

236 sequences assigned  
111 (47%) exact matches, in which:  
88 unique CDR3  
6 unique J



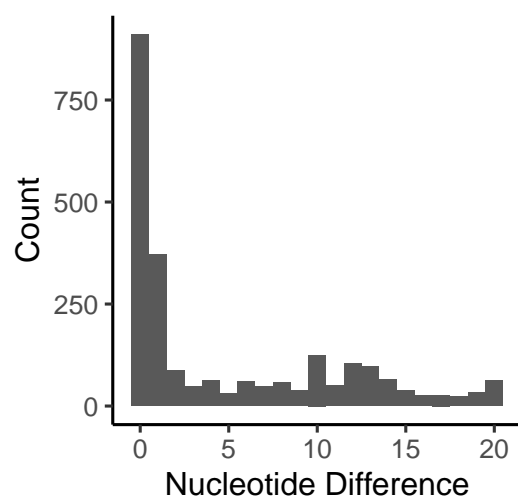
### IGHV3-21\*01\_02

11129 sequences assigned  
3665 (32.9%) exact matches, in which:  
2990 unique CDR3  
7 unique J



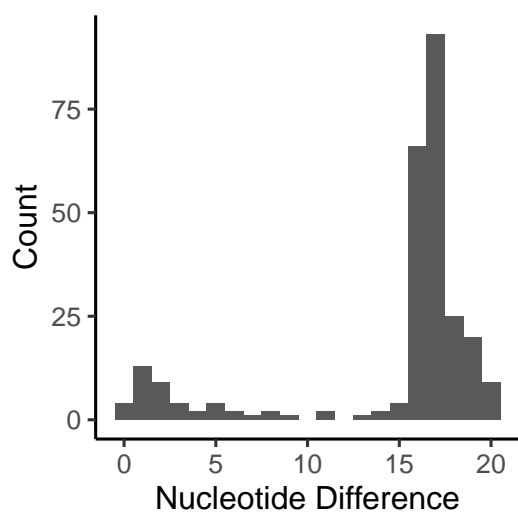
### IGHV3-15\*01\_02

2984 sequences assigned  
911 (30.5%) exact matches, in which:  
743 unique CDR3  
7 unique J



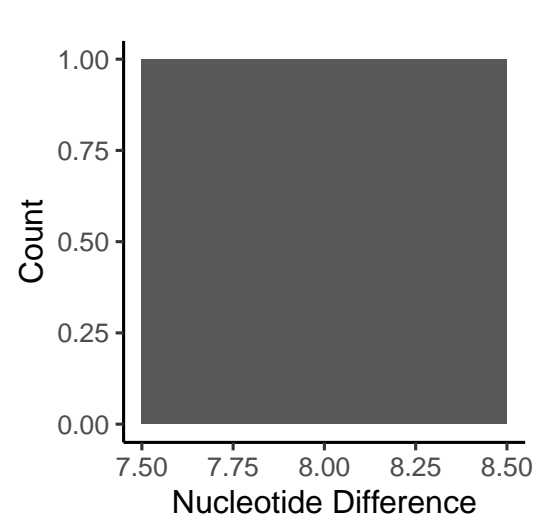
### IGHV3-20\*03\_04

345 sequences assigned  
4 (1.2%) exact matches, in which:  
4 unique CDR3  
3 unique J



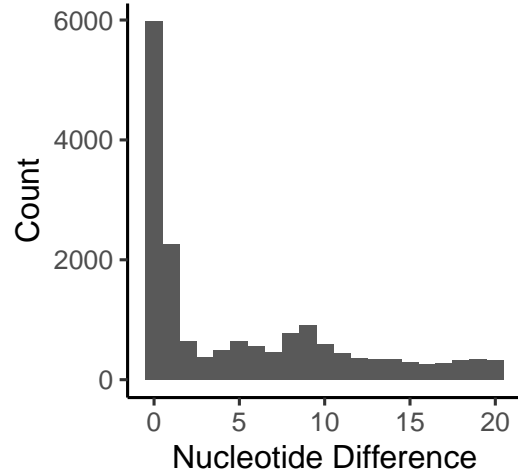
### IGHV3-22\*01\_02

5 sequences assigned  
No exact matches.



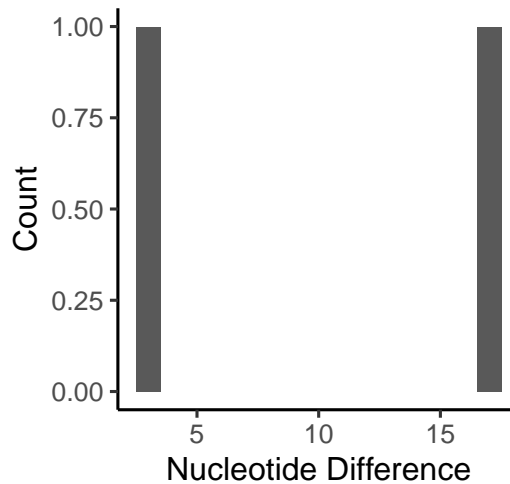
### IGHV3-23\*01\_04

21896 sequences assigned  
5977 (27.3%) exact matches, in which:  
4605 unique CDR3  
7 unique J



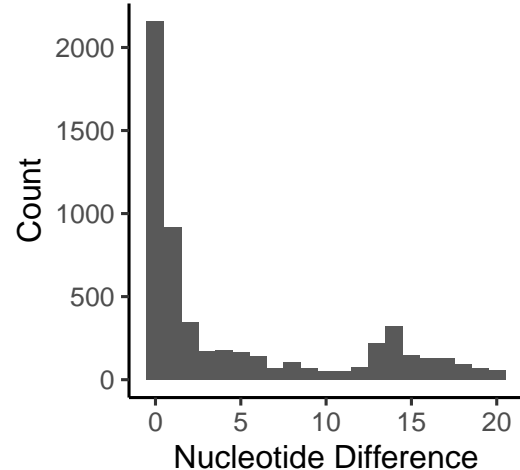
### IGHV3-30-3\*02

4 sequences assigned  
No exact matches.



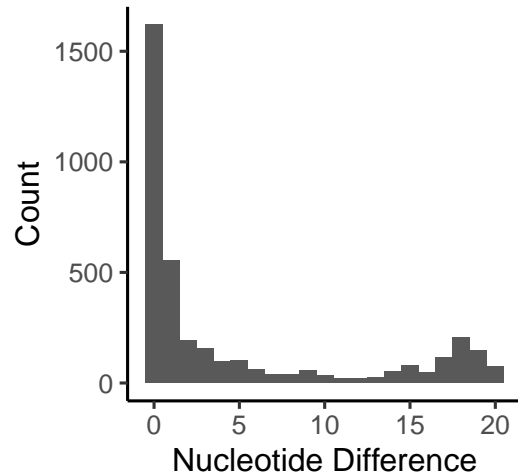
### IGHV3-33\*01

6258 sequences assigned  
2157 (34.5%) exact matches, in which:  
1819 unique CDR3  
7 unique J



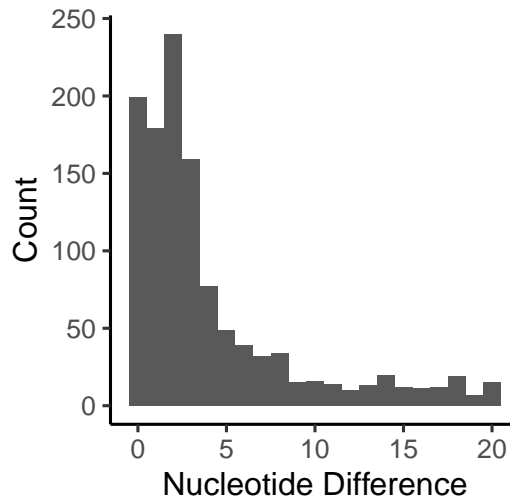
### IGHV3-30\*01

4127 sequences assigned  
1620 (39.3%) exact matches, in which:  
1382 unique CDR3  
7 unique J



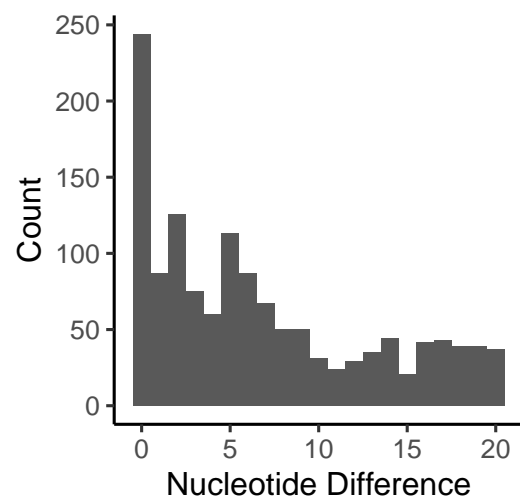
### IGHV3-30\*07

1226 sequences assigned  
199 (16.2%) exact matches, in which:  
197 unique CDR3  
7 unique J



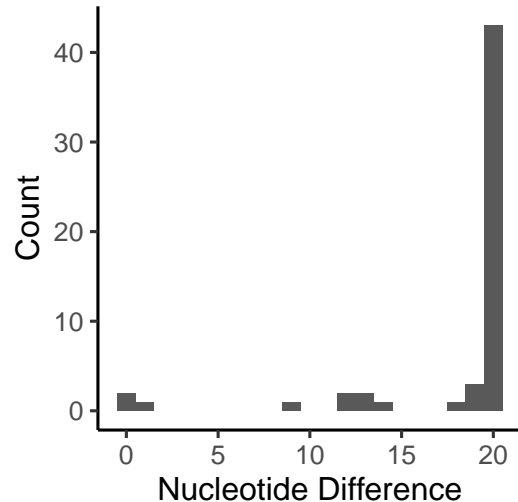
### IGHV3-33\*08

1515 sequences assigned  
244 (16.1%) exact matches, in which:  
240 unique CDR3  
7 unique J



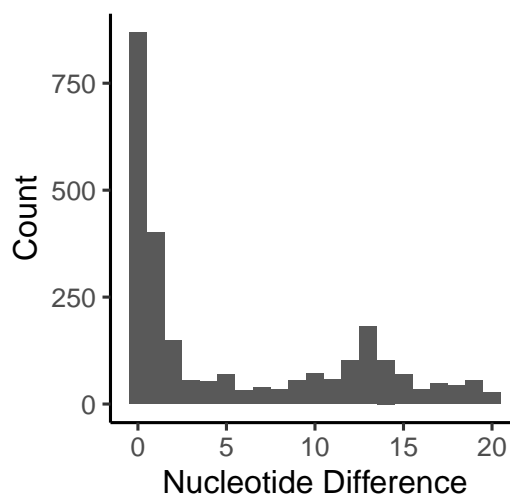
### IGHV3-30-3\*01

177 sequences assigned  
2 (1.1%) exact matches, in which:  
1 unique CDR3  
1 unique J



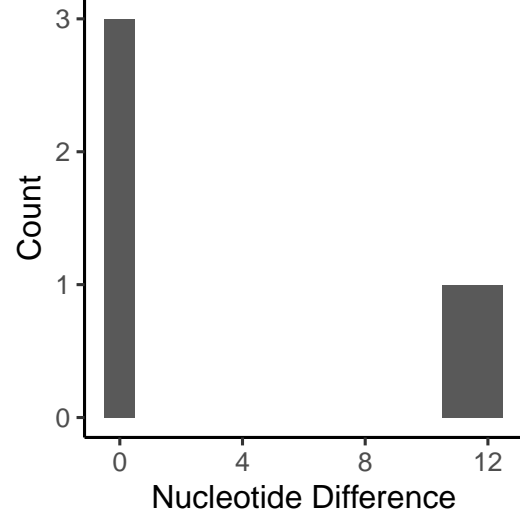
### IGHV3-30\*18

2983 sequences assigned  
869 (29.1%) exact matches, in which:  
749 unique CDR3  
7 unique J



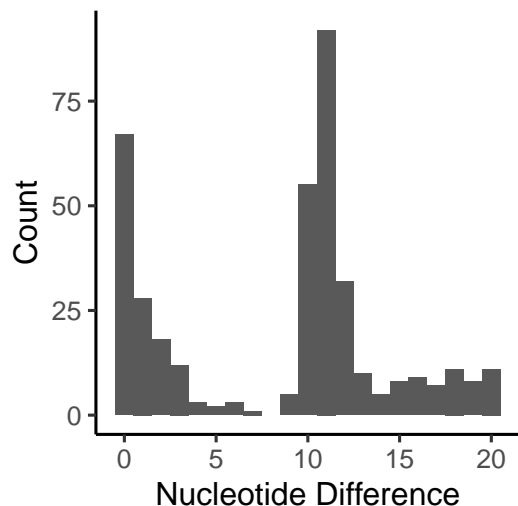
### IGHV3-35\*01

5 sequences assigned  
3 (60%) exact matches, in which:  
2 unique CDR3  
2 unique J



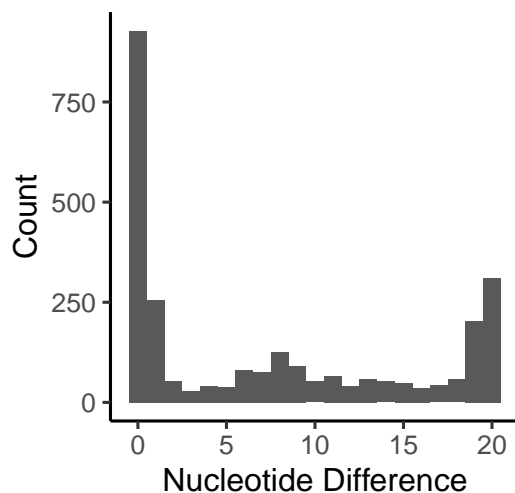
### IGHV3-43\*01

521 sequences assigned  
67 (12.9%) exact matches, in which:  
56 unique CDR3  
5 unique J



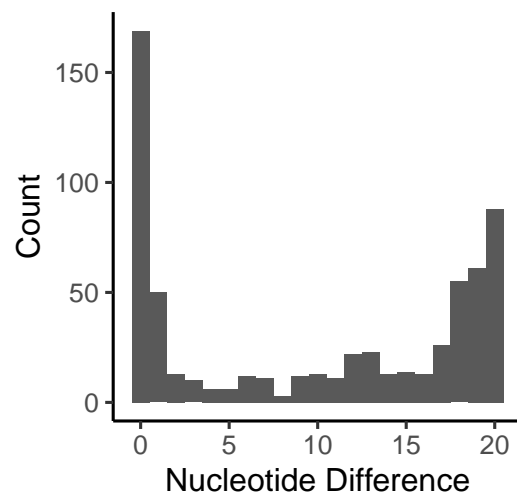
### IGHV3-48\*03

3299 sequences assigned  
928 (28.1%) exact matches, in which:  
762 unique CDR3  
7 unique J



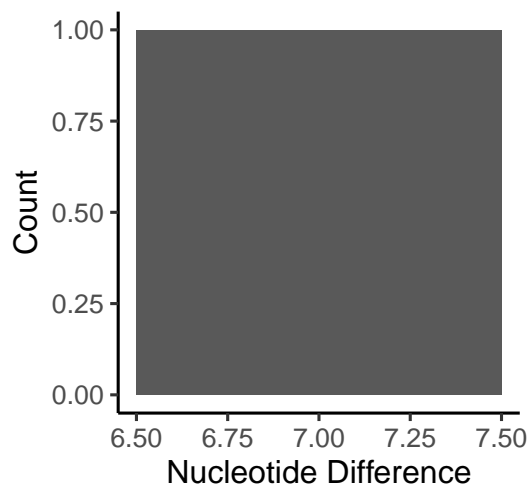
### IGHV3-49\*03\_05

1061 sequences assigned  
169 (15.9%) exact matches, in which:  
141 unique CDR3  
7 unique J



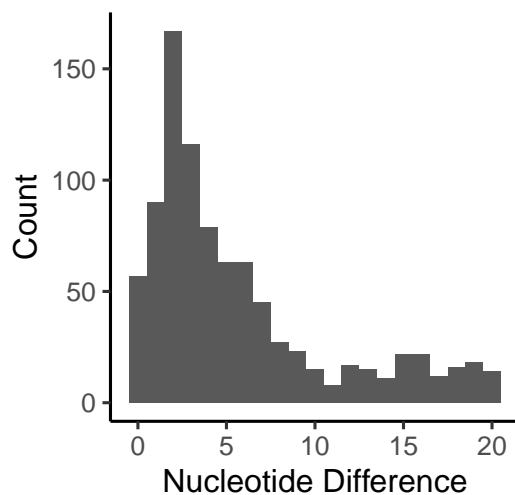
### IGHV3-47\*02

3 sequences assigned  
No exact matches.



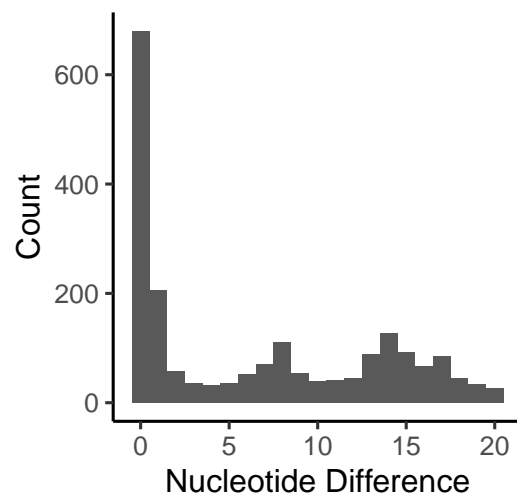
### IGHV3-48\*04

1201 sequences assigned  
57 (4.7%) exact matches, in which:  
57 unique CDR3  
6 unique J



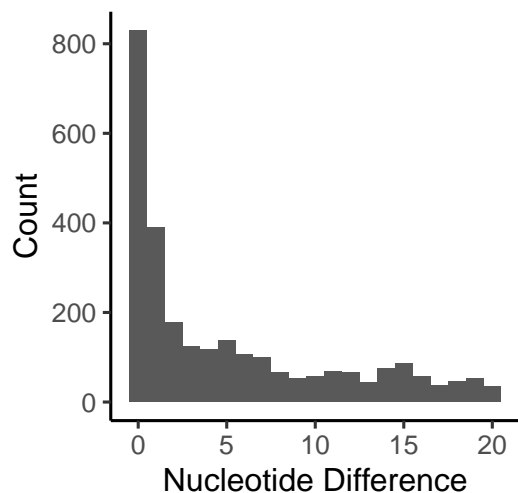
### IGHV3-53\*01\_02

2398 sequences assigned  
680 (28.4%) exact matches, in which:  
579 unique CDR3  
7 unique J



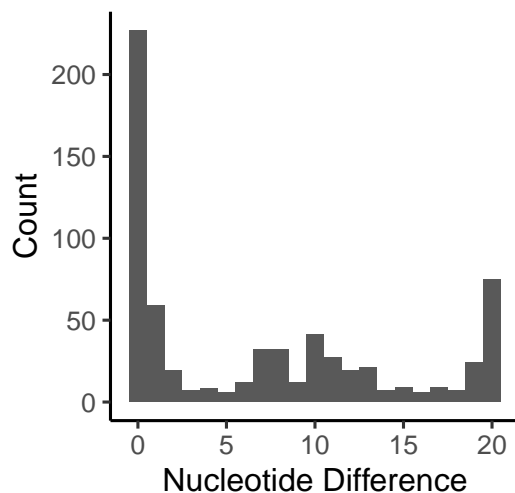
### IGHV3-48\*01

4829 sequences assigned  
830 (17.2%) exact matches, in which:  
691 unique CDR3  
7 unique J



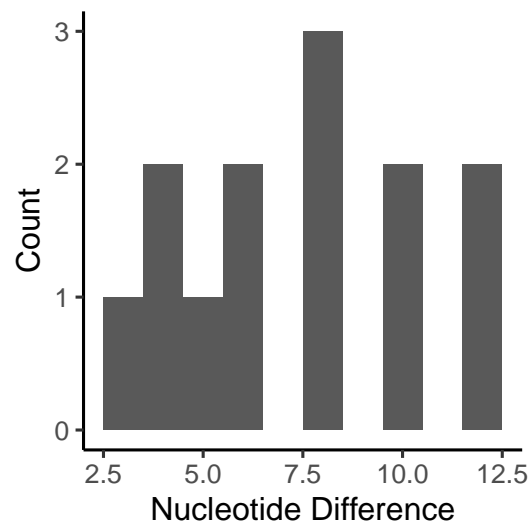
### IGHV3-49\*04

1021 sequences assigned  
227 (22.2%) exact matches, in which:  
198 unique CDR3  
7 unique J



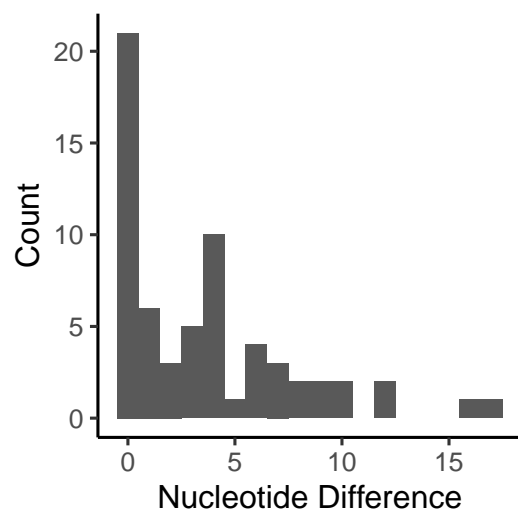
### IGHV3-64\*04

19 sequences assigned  
No exact matches.



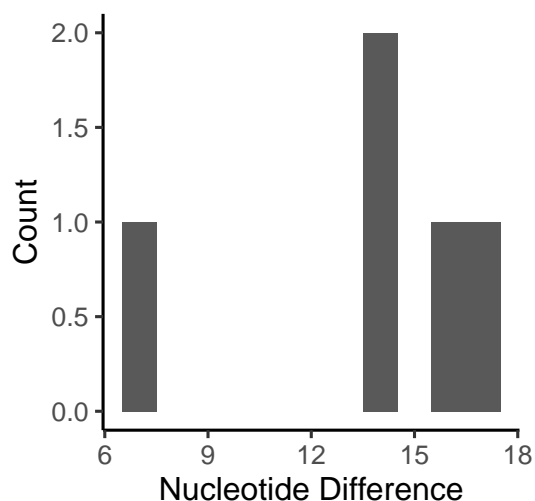
### IGHV3-64\*02\_07

64 sequences assigned  
21 (32.8%) exact matches, in which:  
20 unique CDR3  
6 unique J



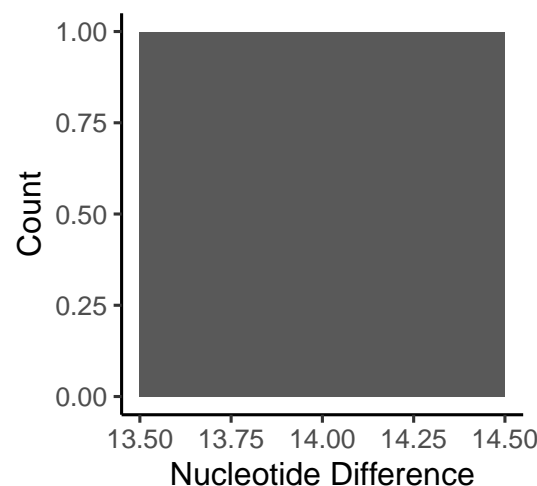
### IGHV3-66\*04

7 sequences assigned  
No exact matches.



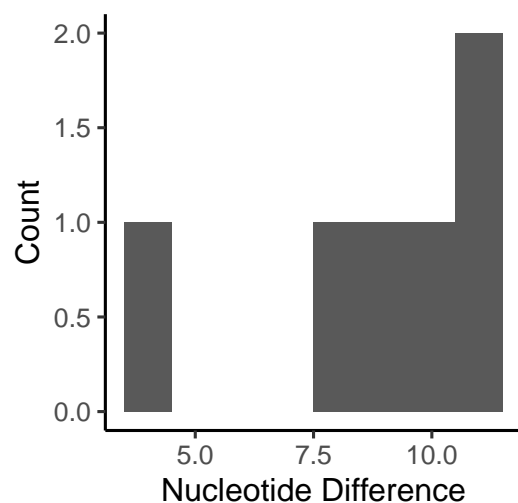
### IGHV3-71\*03

1 sequences assigned  
No exact matches.



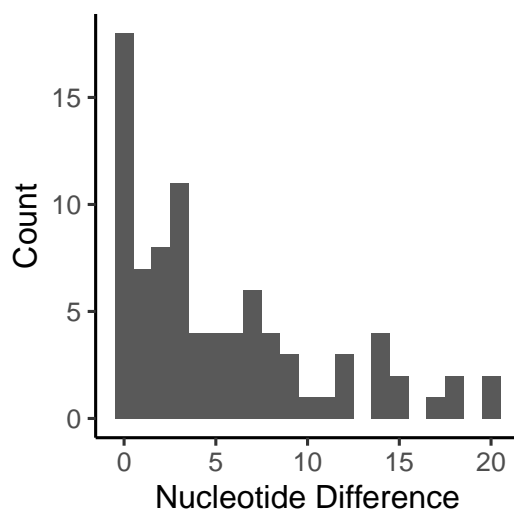
### IGHV3-66\*02

6 sequences assigned  
No exact matches.



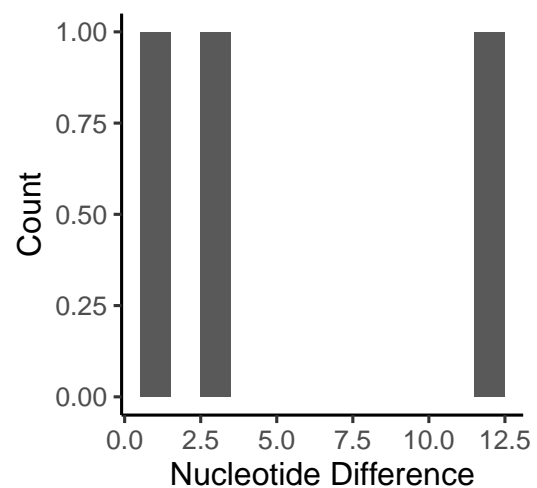
### IGHV3-69-1\*01

113 sequences assigned  
18 (15.9%) exact matches, in which:  
17 unique CDR3  
6 unique J



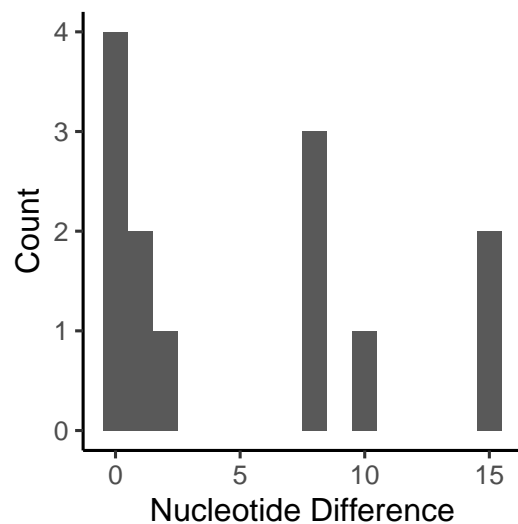
### IGHV3-71\*01\_04

5 sequences assigned  
No exact matches.



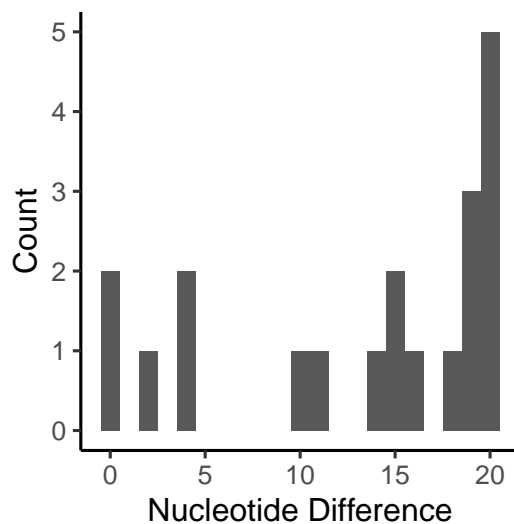
### IGHV3-66\*03

13 sequences assigned  
4 (30.8%) exact matches, in which:  
4 unique CDR3  
2 unique J



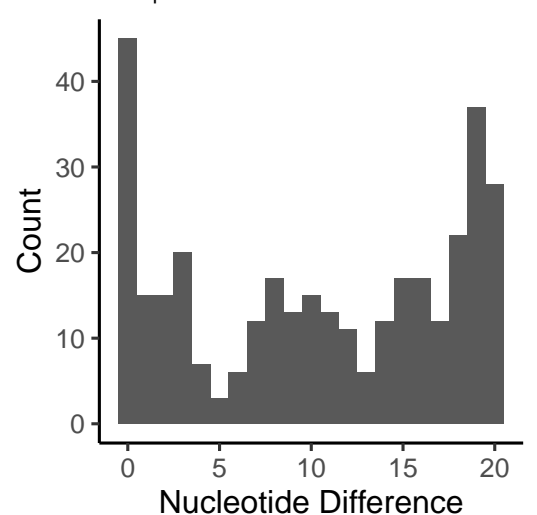
### IGHV3-69-1\*02

38 sequences assigned  
2 (5.3%) exact matches, in which:  
2 unique CDR3  
2 unique J



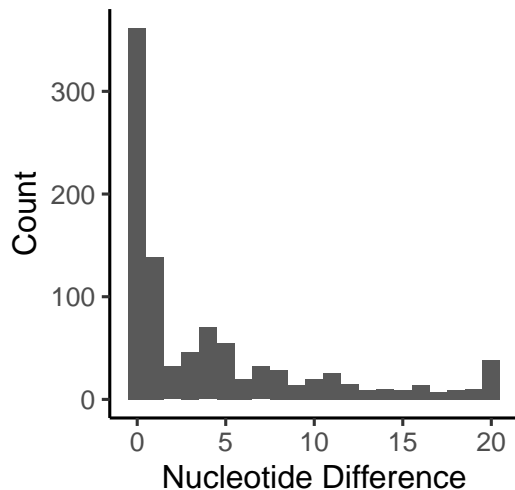
### IGHV3-72\*01

455 sequences assigned  
45 (9.9%) exact matches, in which:  
39 unique CDR3  
6 unique J



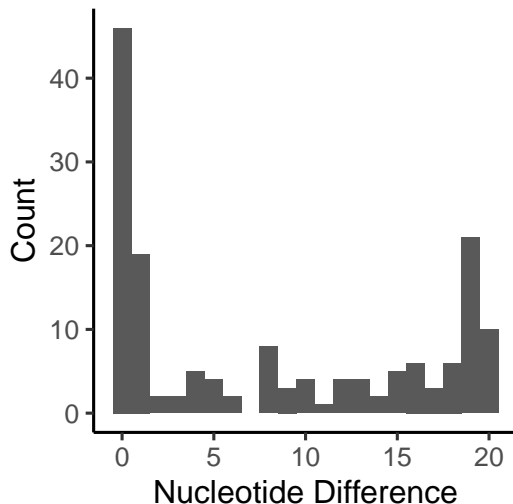
### IGHV3-73\*01\_02

1162 sequences assigned  
362 (31.2%) exact matches, in which:  
307 unique CDR3  
7 unique J



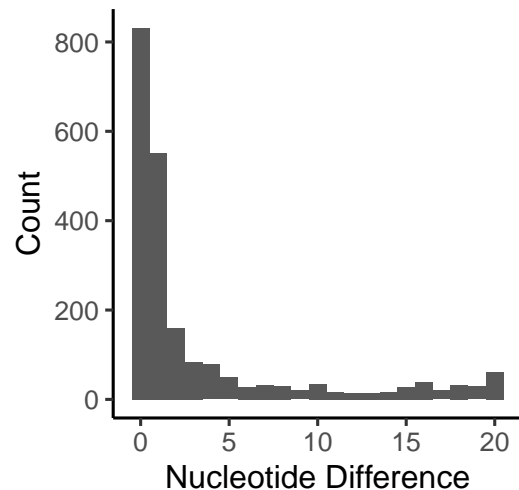
### IGHV3-43D\*04

186 sequences assigned  
46 (24.7%) exact matches, in which:  
41 unique CDR3  
3 unique J



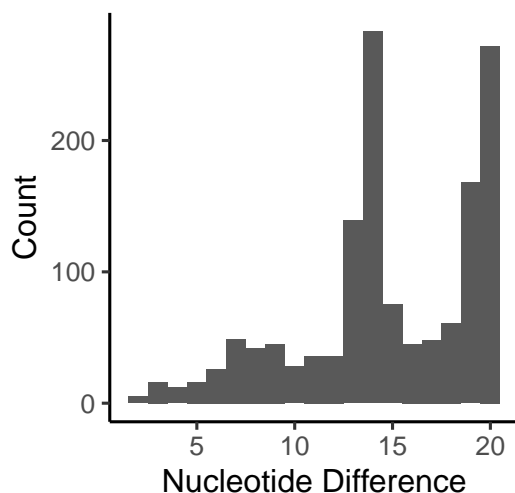
### IGHV4-4\*07

3998 sequences assigned  
832 (20.8%) exact matches, in which:  
788 unique CDR3  
7 unique J



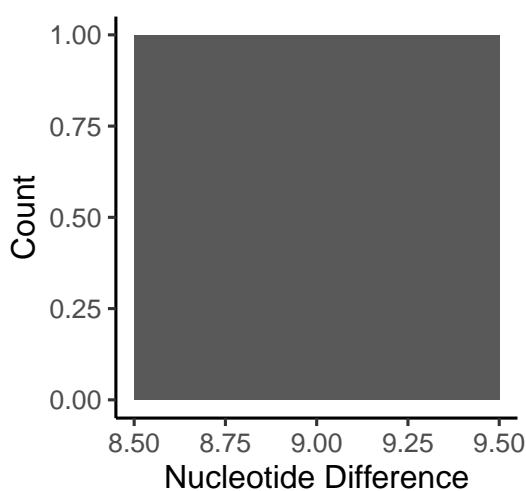
### IGHV3-74\*03

2957 sequences assigned  
No exact matches.



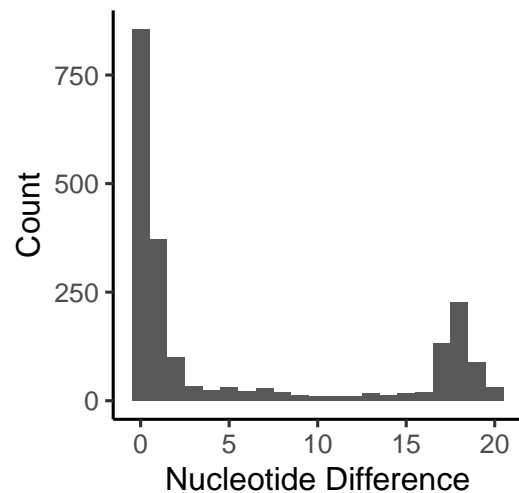
### IGHV3-64D\*06

6 sequences assigned  
No exact matches.



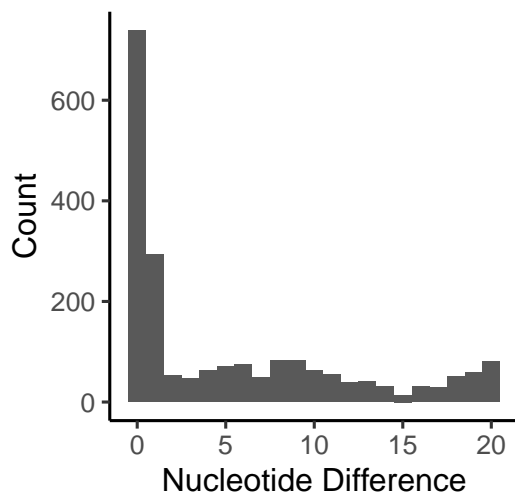
### IGHV4-4\*02\_03

2347 sequences assigned  
856 (36.5%) exact matches, in which:  
795 unique CDR3  
7 unique J



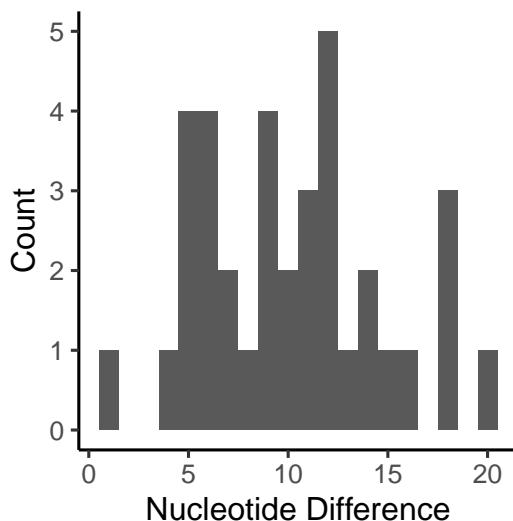
### IGHV3-74\*01\_02

2257 sequences assigned  
739 (32.7%) exact matches, in which:  
570 unique CDR3  
7 unique J



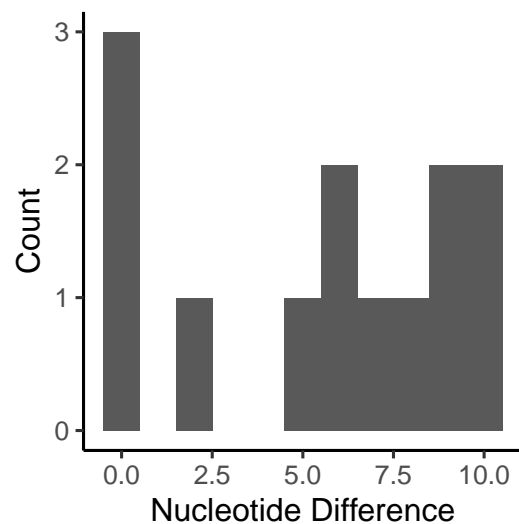
### IGHV3-NL1\*01

47 sequences assigned  
No exact matches.



### IGHV4-28\*03

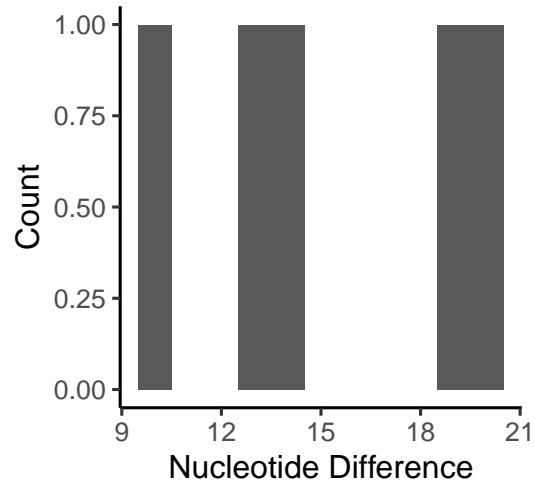
15 sequences assigned  
3 (20%) exact matches, in which:  
3 unique CDR3  
2 unique J





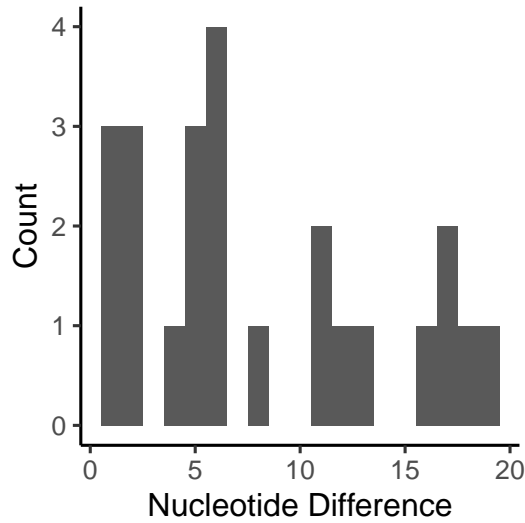
### IGHV4-28\*01\_07

5 sequences assigned  
No exact matches.



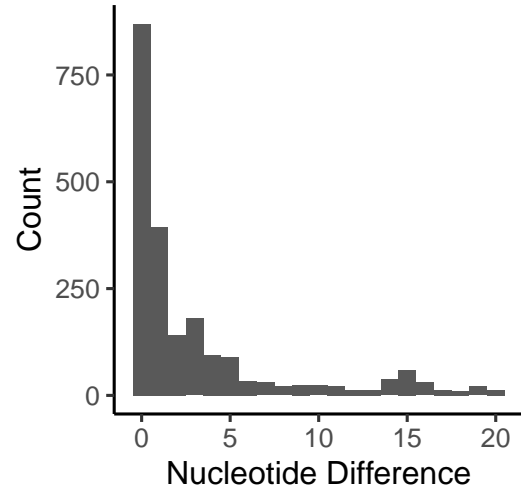
### IGHV4-30-2\*03

50 sequences assigned  
No exact matches.



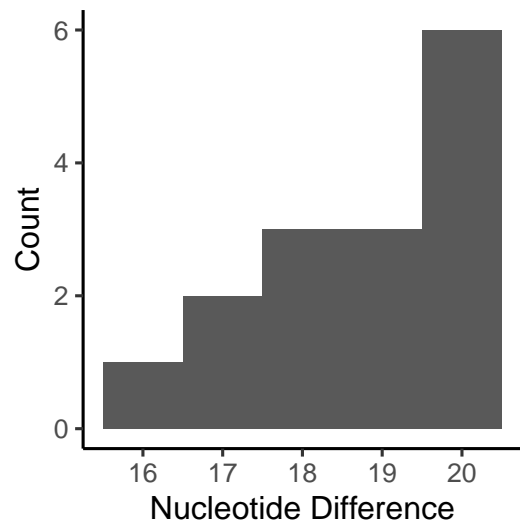
### IGHV4-31\*02

3689 sequences assigned  
870 (23.6%) exact matches, in which:  
815 unique CDR3  
7 unique J



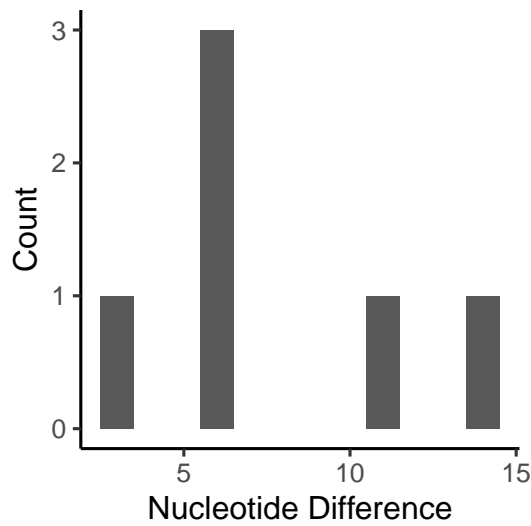
### IGHV4-30-4\*01

76 sequences assigned  
No exact matches.



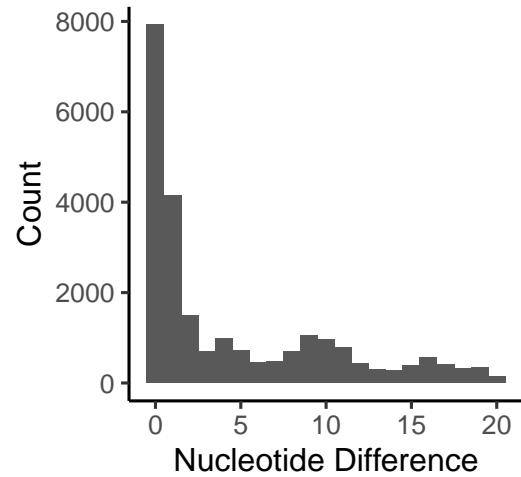
### IGHV4-30-4\*08

18 sequences assigned  
No exact matches.



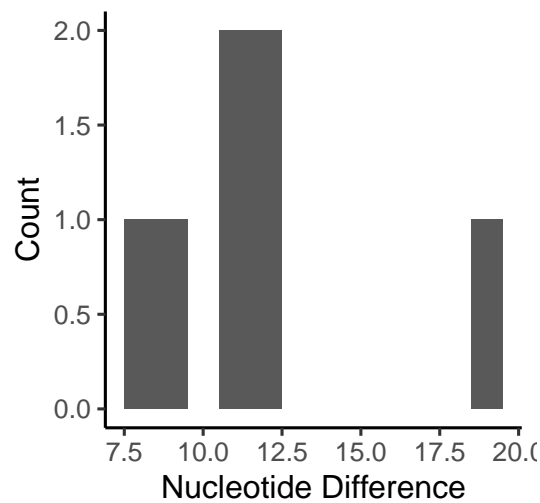
### IGHV4-34\*01\_02

38533 sequences assigned  
7927 (20.6%) exact matches, in which:  
6820 unique CDR3  
7 unique J



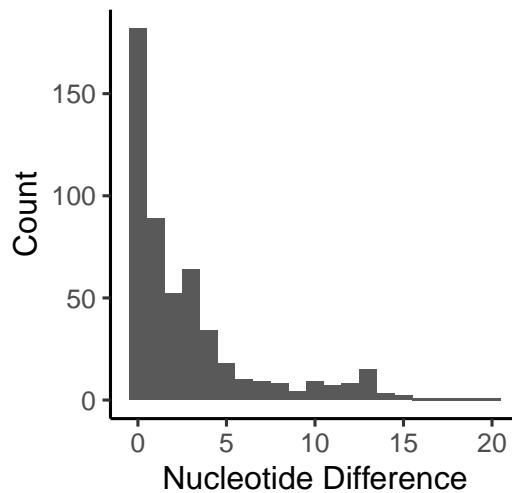
### IGHV4-30-2\*01

10 sequences assigned  
No exact matches.



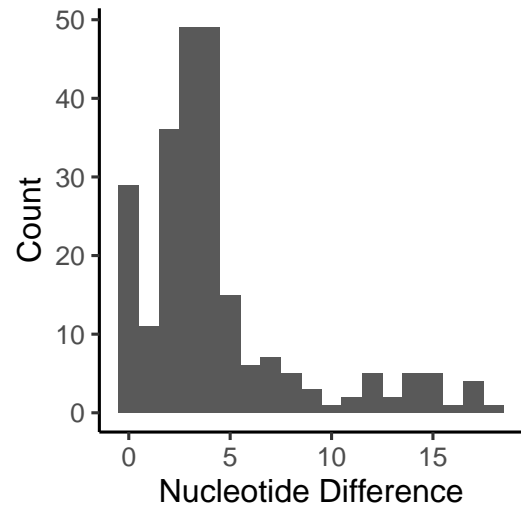
### IGHV4-31\*01

727 sequences assigned  
182 (25%) exact matches, in which:  
173 unique CDR3  
7 unique J



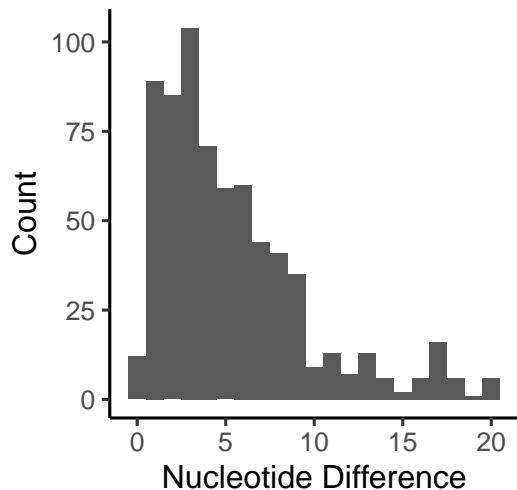
### IGHV4-38-2\*02

398 sequences assigned  
29 (7.3%) exact matches, in which:  
29 unique CDR3  
7 unique J



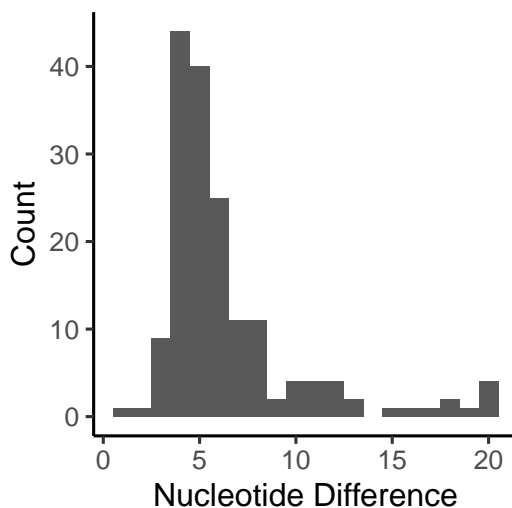
### IGHV4–39\*07

828 sequences assigned  
12 (1.4%) exact matches, in which:  
12 unique CDR3  
6 unique J



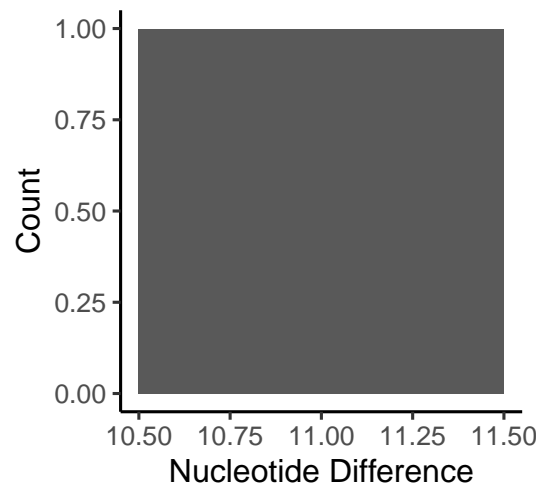
### IGHV4–59\*10

175 sequences assigned  
No exact matches.



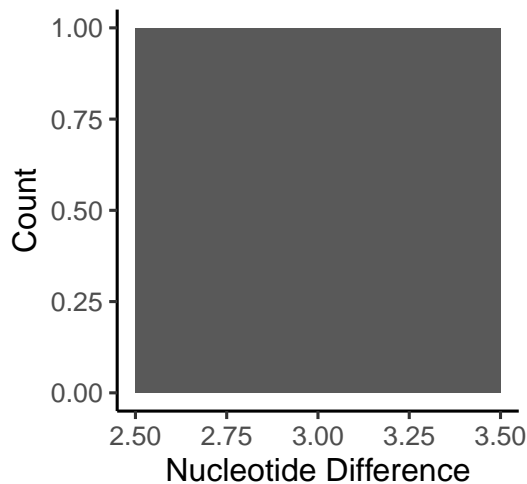
### IGHV1/OR15–1\*04

4 sequences assigned  
No exact matches.



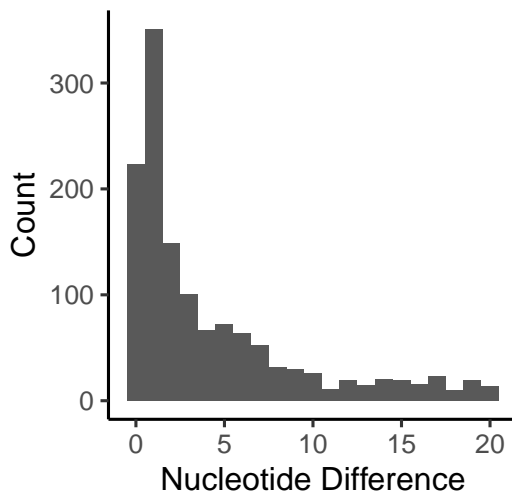
### IGHV4–55\*09

1 sequences assigned  
No exact matches.



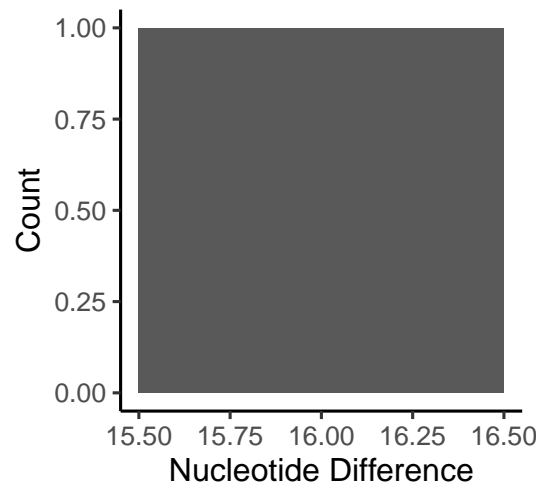
### IGHV4–59\*12

1693 sequences assigned  
223 (13.2%) exact matches, in which:  
222 unique CDR3  
7 unique J



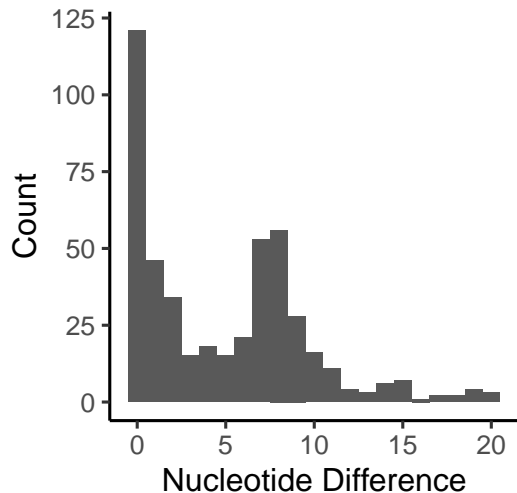
### IGHV1/OR15–2\*01

1 sequences assigned  
No exact matches.



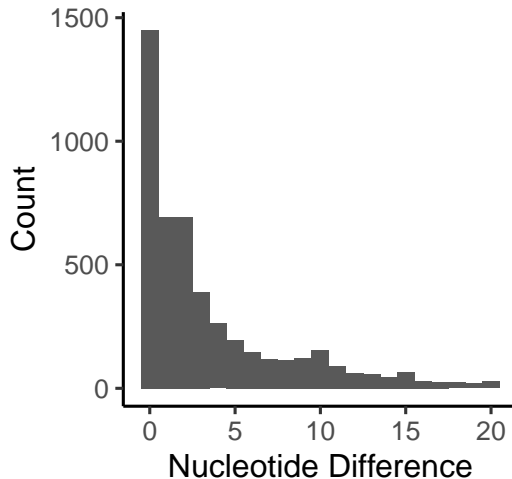
### IGHV4–59\*08

531 sequences assigned  
121 (22.8%) exact matches, in which:  
116 unique CDR3  
7 unique J



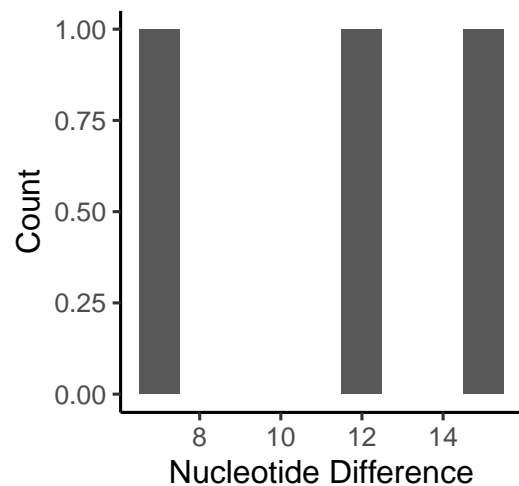
### IGHV4–61\*01

5534 sequences assigned  
1450 (26.2%) exact matches, in which:  
1407 unique CDR3  
7 unique J



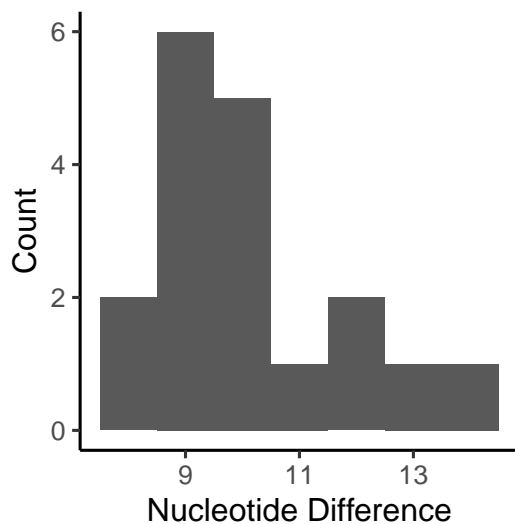
### IGHV1/OR15–2\*02\_03

4 sequences assigned  
No exact matches.



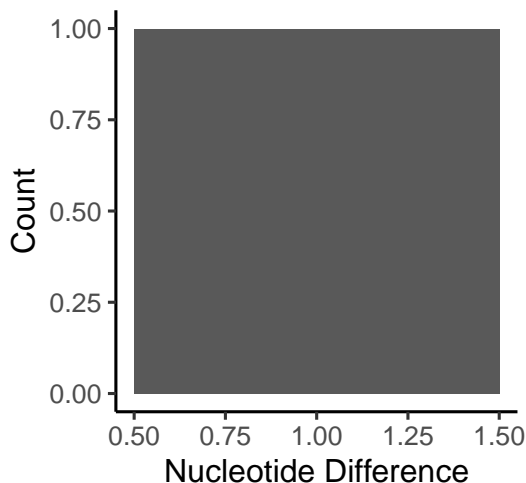
### IGHV1/OR15-3\*02

18 sequences assigned  
No exact matches.



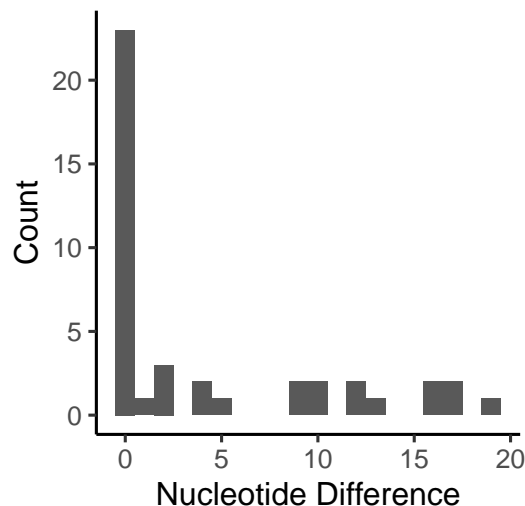
### IGHV5-10-1\*01\_03

1 sequences assigned  
No exact matches.



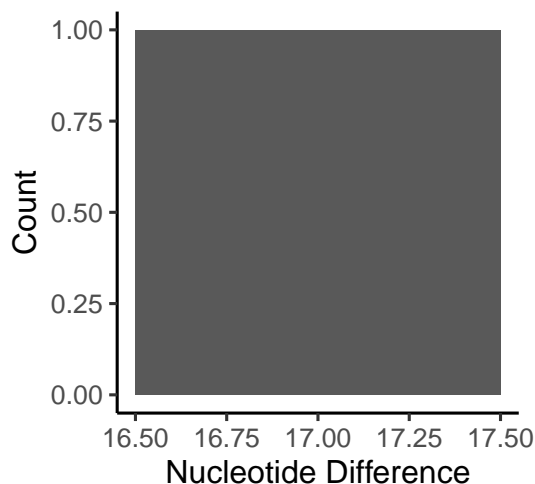
### IGHV5-51\*07

45 sequences assigned  
23 (51.1%) exact matches, in which:  
23 unique CDR3  
6 unique J



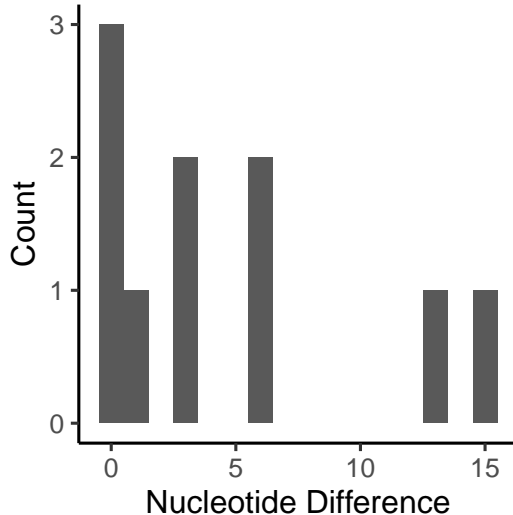
### IGHV1/OR15-4\*01

1 sequences assigned  
No exact matches.



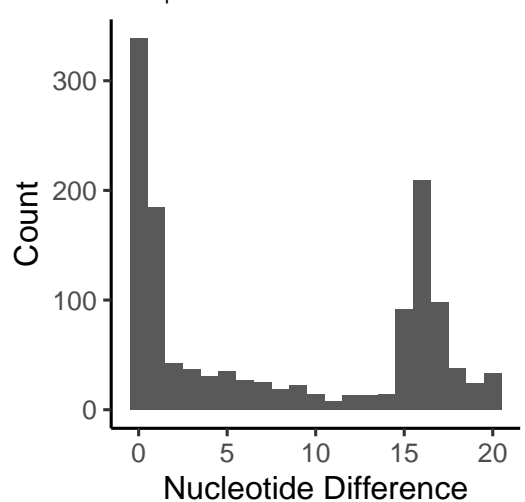
### IGHV5-51\*04

23 sequences assigned  
3 (13%) exact matches, in which:  
3 unique CDR3  
2 unique J



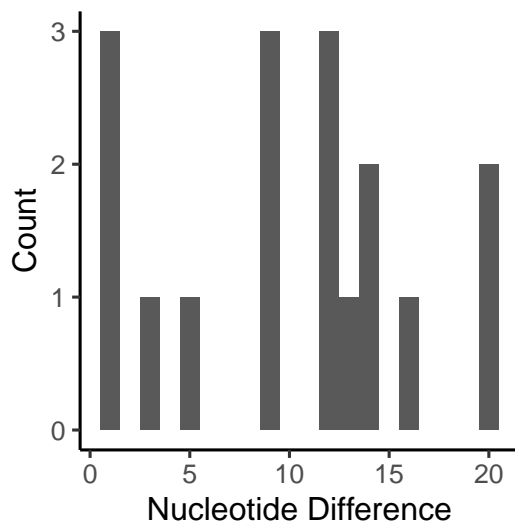
### IGHV6-1\*01\_02

1531 sequences assigned  
339 (22.1%) exact matches, in which:  
318 unique CDR3  
7 unique J



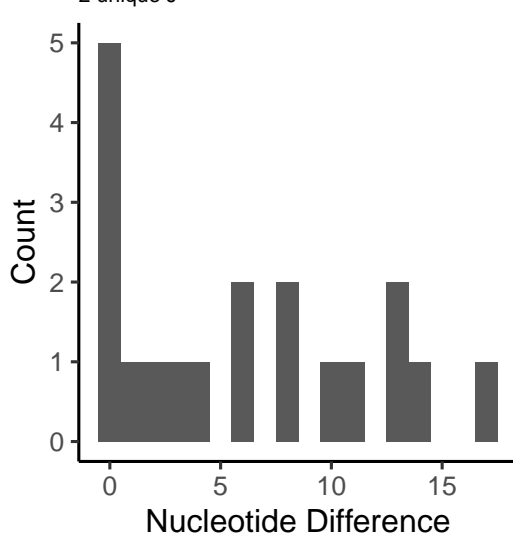
### IGHV4/OR15-8\*01

21 sequences assigned  
No exact matches.



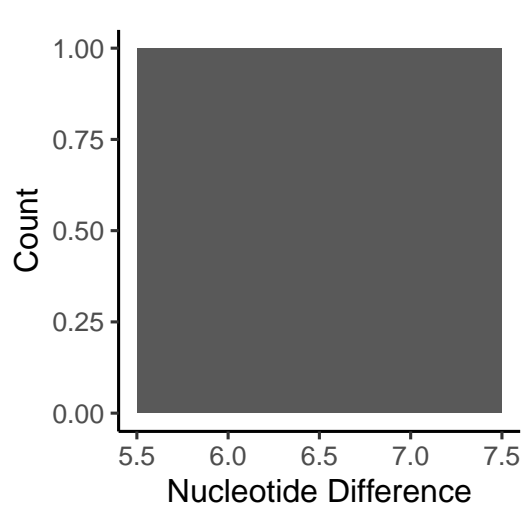
### IGHV5-51\*06

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



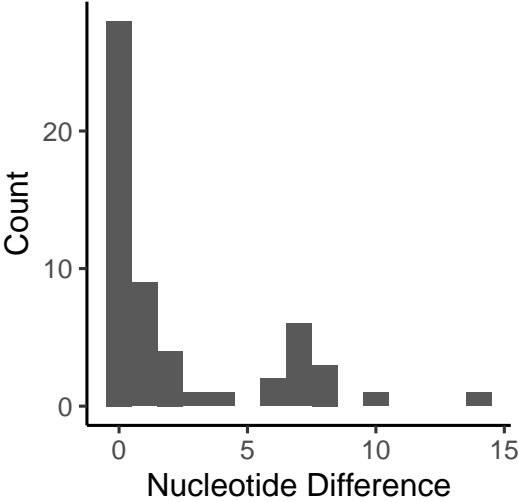
### IGHV3/OR16-10\*01\_03

6 sequences assigned  
No exact matches.

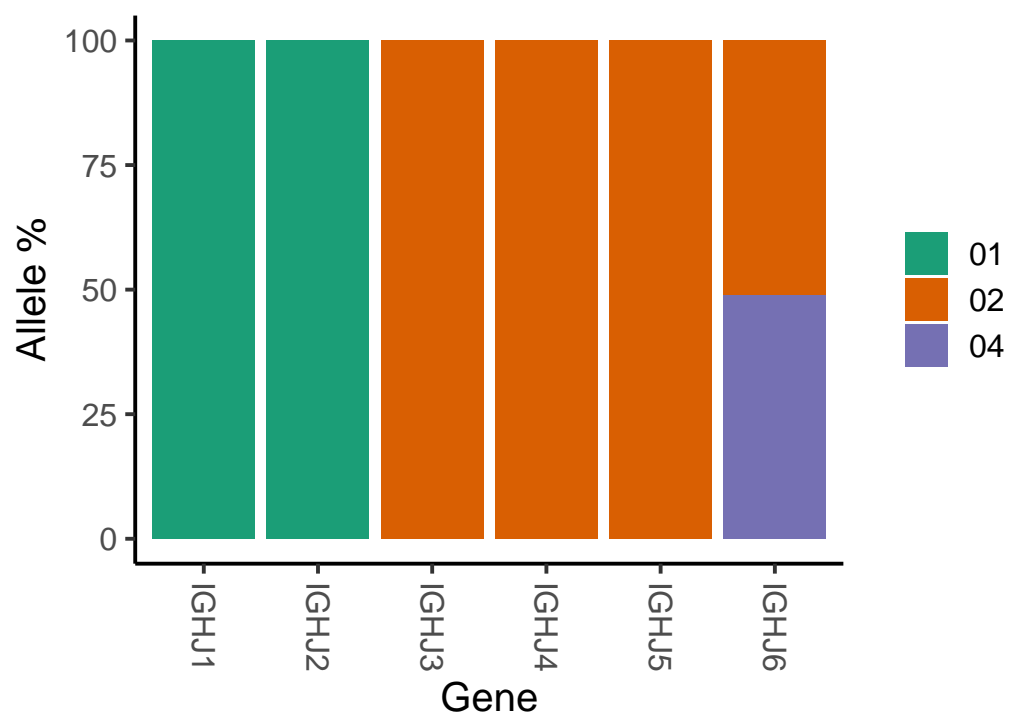


# IGHV7-4-1\*01

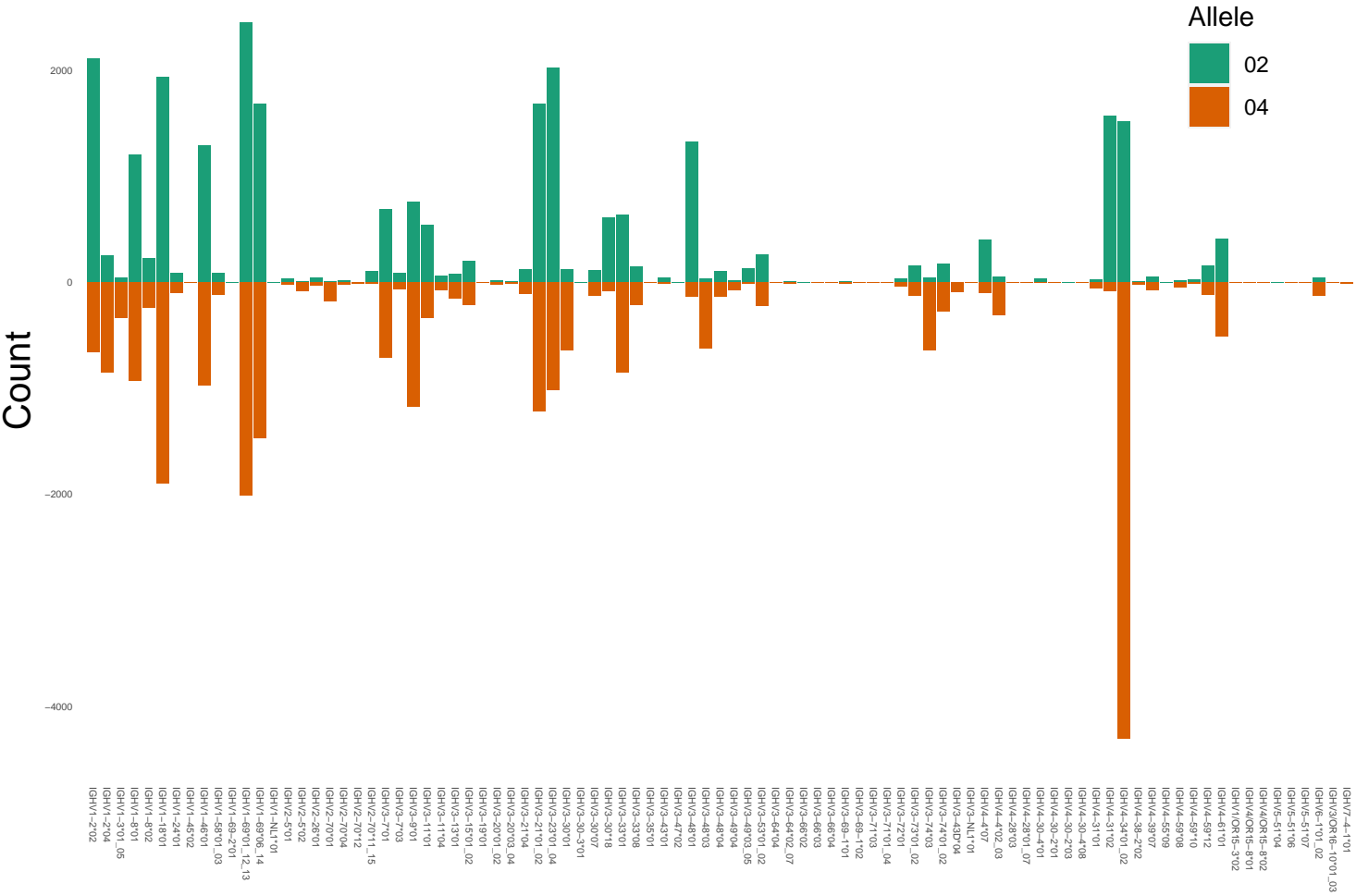
56 sequences assigned  
28 (50%) exact matches, in which:  
26 unique CDR3  
4 unique J



Allele Usage



Sequence Count by IGHJ6 allele usage



Warning – no inferred sequences found.