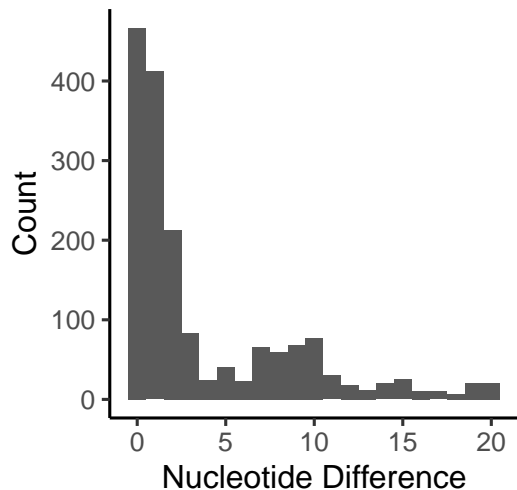


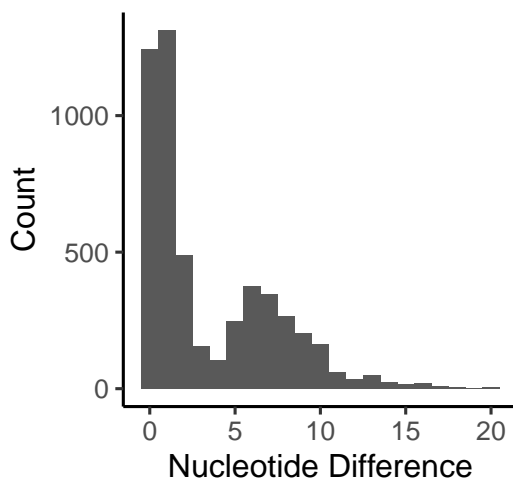
### IGHV1-2\*04

1731 sequences assigned  
467 (27%) exact matches, in which:  
407 unique CDR3  
6 unique J



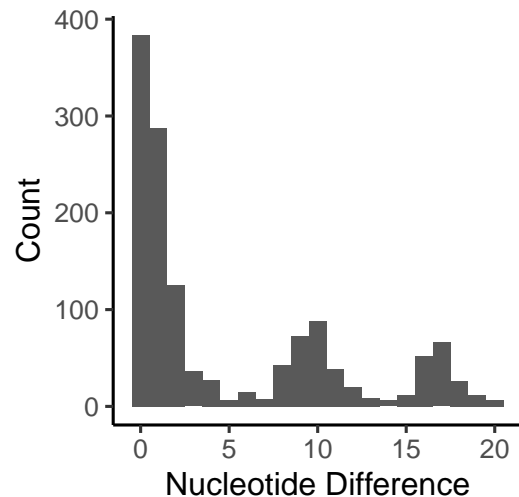
### IGHV1-8\*01

5207 sequences assigned  
1245 (23.9%) exact matches, in which:  
1031 unique CDR3  
6 unique J



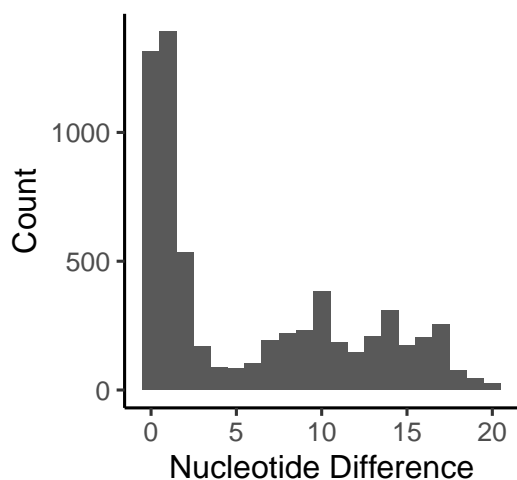
### IGHV1-24\*01

1397 sequences assigned  
384 (27.5%) exact matches, in which:  
319 unique CDR3  
6 unique J



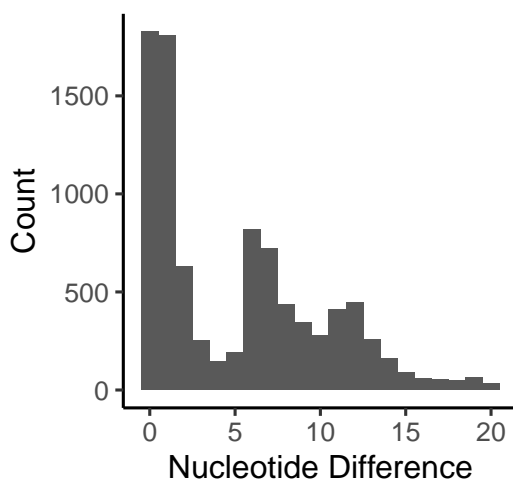
### IGHV1-2\*06

7231 sequences assigned  
1314 (18.2%) exact matches, in which:  
1059 unique CDR3  
6 unique J



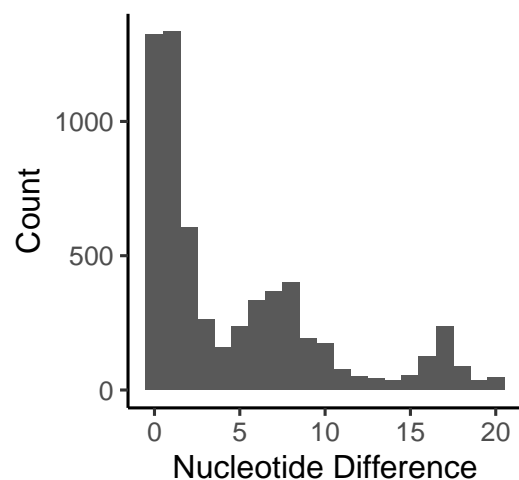
### IGHV1-18\*01

9341 sequences assigned  
1827 (19.6%) exact matches, in which:  
1513 unique CDR3  
6 unique J



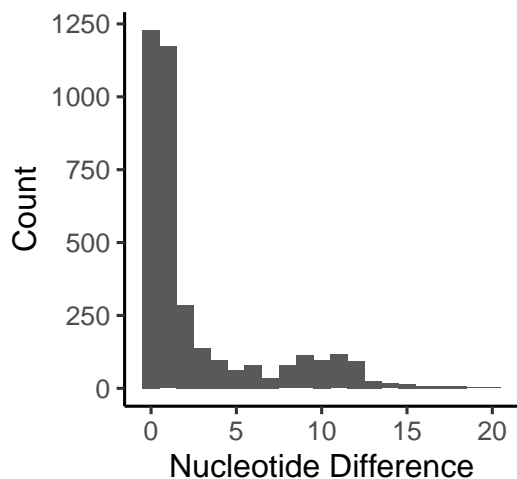
### IGHV1-46\*01

6387 sequences assigned  
1325 (20.7%) exact matches, in which:  
1135 unique CDR3  
6 unique J



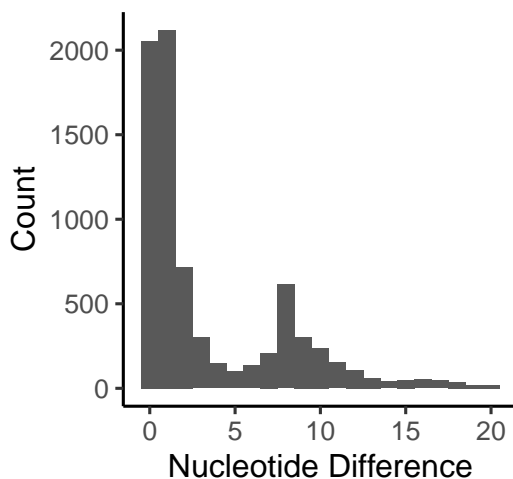
### IGHV1-3\*01\_05

3768 sequences assigned  
1229 (32.6%) exact matches, in which:  
974 unique CDR3  
6 unique J



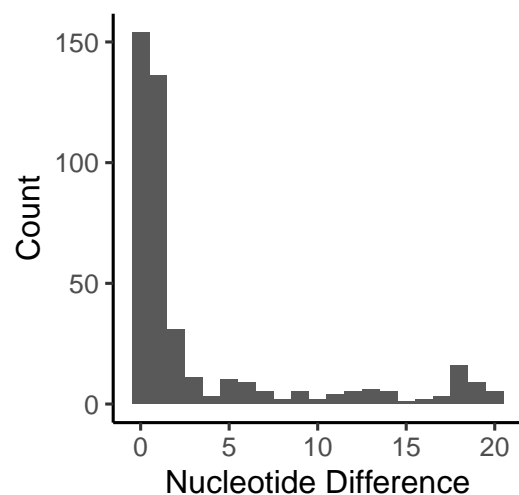
### IGHV1-18\*04

8120 sequences assigned  
2053 (25.3%) exact matches, in which:  
1690 unique CDR3  
6 unique J



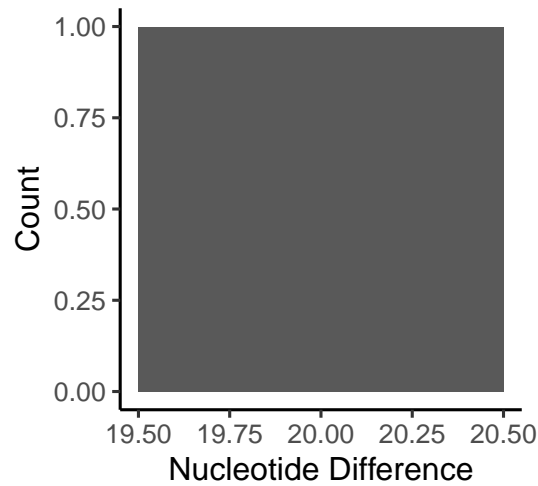
### IGHV1-58\*02

440 sequences assigned  
154 (35%) exact matches, in which:  
130 unique CDR3  
5 unique J



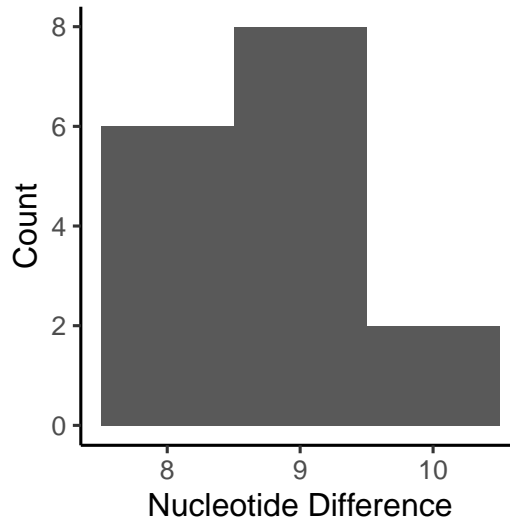
### IGHV1-69-2\*01

1 sequences assigned  
No exact matches.



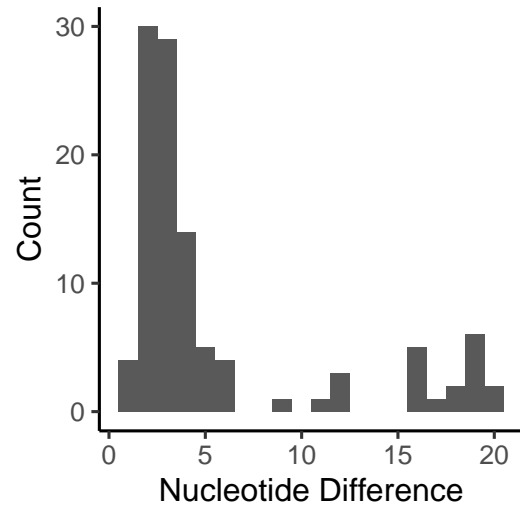
### IGHV1-NL1\*01

16 sequences assigned  
No exact matches.



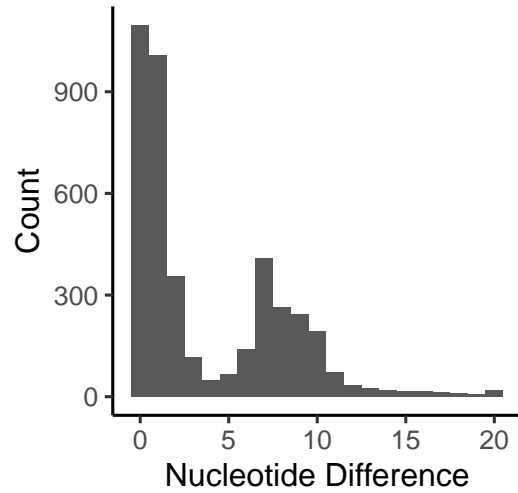
### IGHV2-70\*12

119 sequences assigned  
No exact matches.



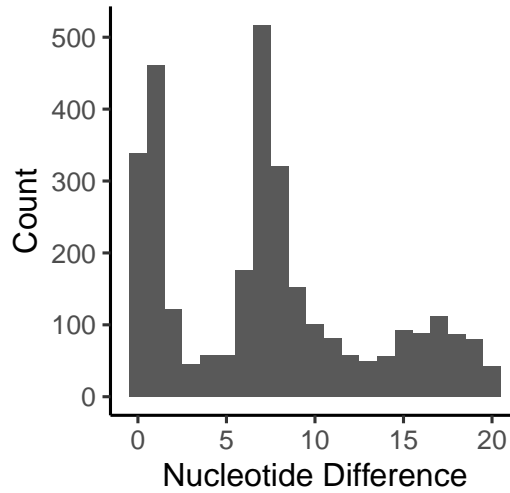
### IGHV1-69\*04\_09

5104 sequences assigned  
1097 (21.5%) exact matches, in which:  
944 unique CDR3  
6 unique J



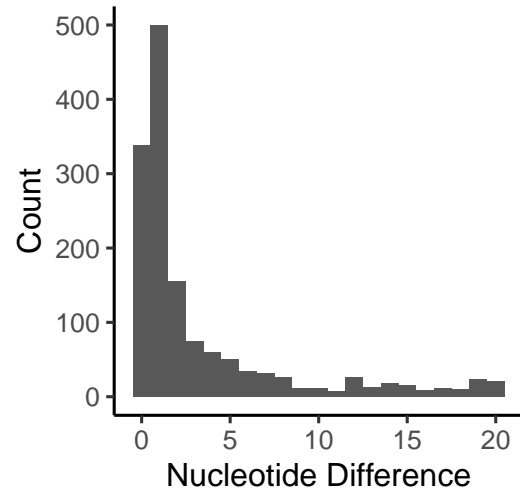
### IGHV2-5\*02

3345 sequences assigned  
339 (10.1%) exact matches, in which:  
252 unique CDR3  
6 unique J



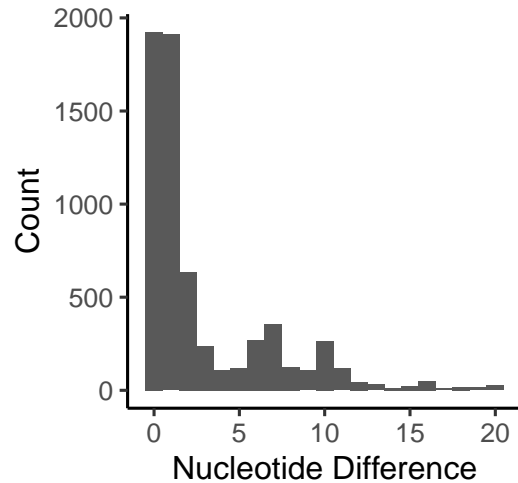
### IGHV2-70\*11\_15

1751 sequences assigned  
338 (19.3%) exact matches, in which:  
223 unique CDR3  
6 unique J



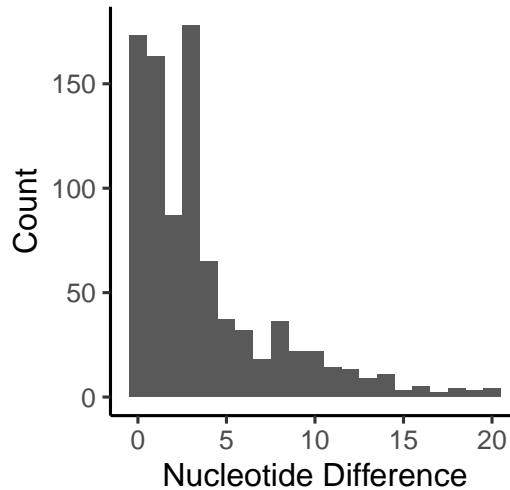
### IGHV1-69\*04\_09\_A244I

6835 sequences assigned  
1924 (28.1%) exact matches, in which:  
1613 unique CDR3  
6 unique J



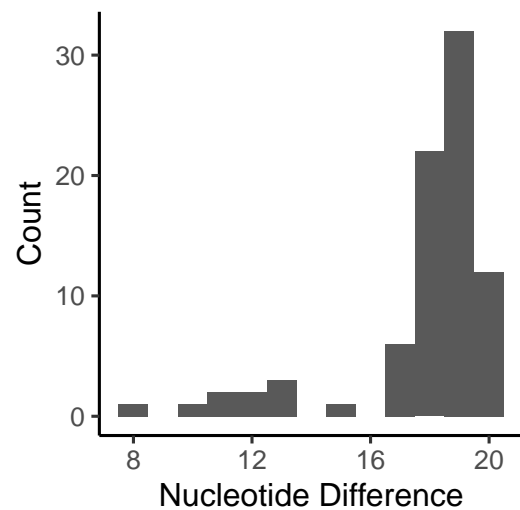
### IGHV2-26\*01

952 sequences assigned  
173 (18.2%) exact matches, in which:  
147 unique CDR3  
5 unique J



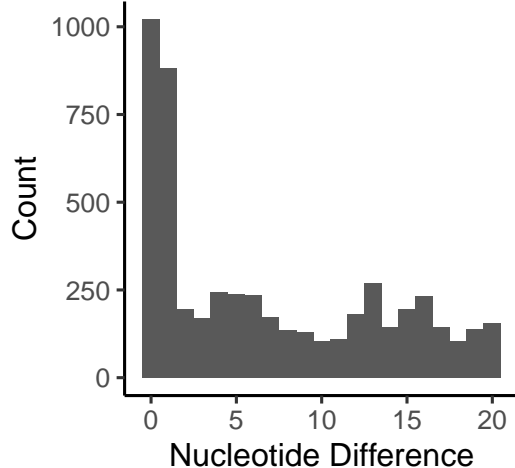
### IGHV2-70D\*04

104 sequences assigned  
No exact matches.



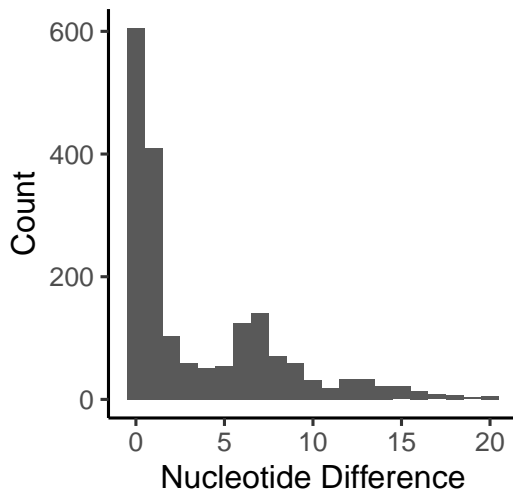
### IGHV3-7\*01

6756 sequences assigned  
1021 (15.1%) exact matches, in which:  
745 unique CDR3  
6 unique J



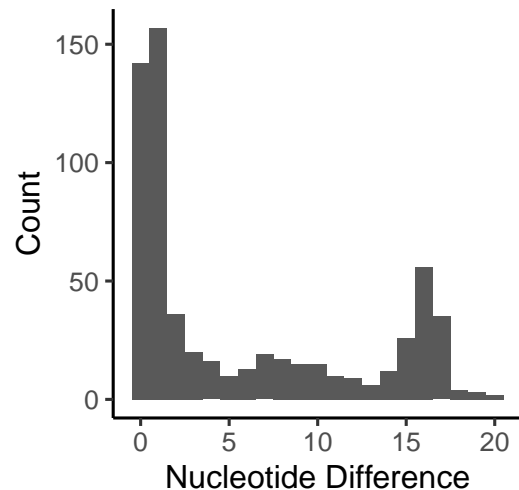
### IGHV3-11\*01

2301 sequences assigned  
606 (26.3%) exact matches, in which:  
404 unique CDR3  
6 unique J



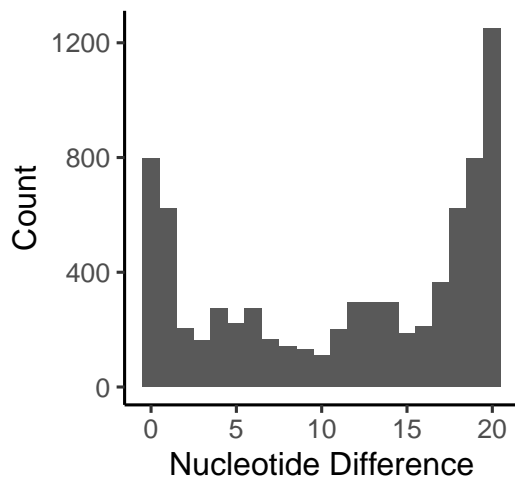
### IGHV3-13\*01

648 sequences assigned  
142 (21.9%) exact matches, in which:  
92 unique CDR3  
5 unique J



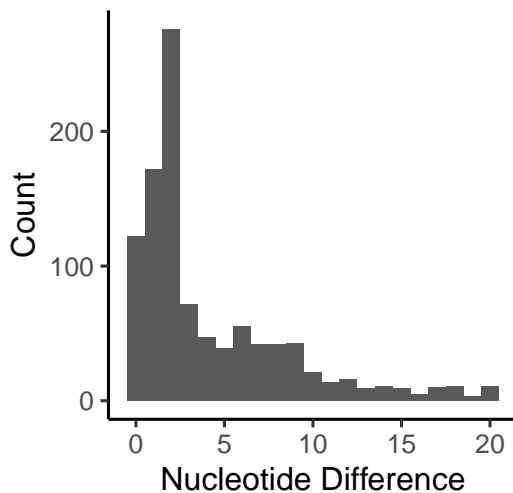
### IGHV3-7\*03

11309 sequences assigned  
795 (7%) exact matches, in which:  
546 unique CDR3  
6 unique J



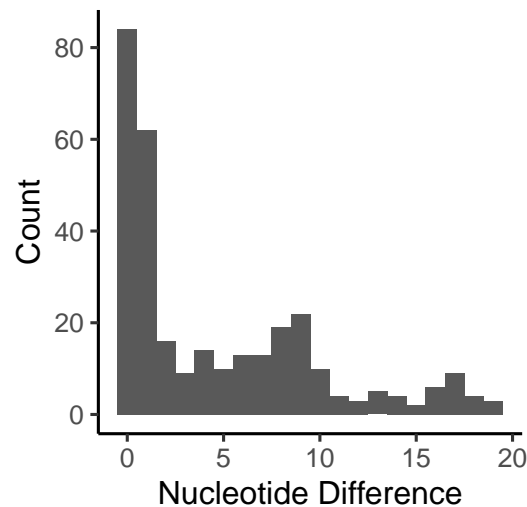
### IGHV3-11\*04

1120 sequences assigned  
122 (10.9%) exact matches, in which:  
119 unique CDR3  
6 unique J



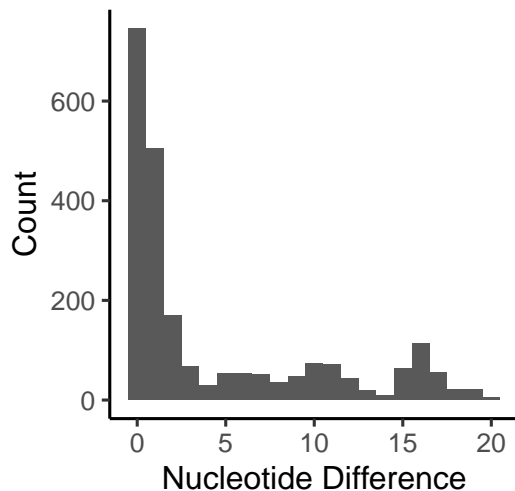
### IGHV3-13\*05

319 sequences assigned  
84 (26.3%) exact matches, in which:  
60 unique CDR3  
6 unique J



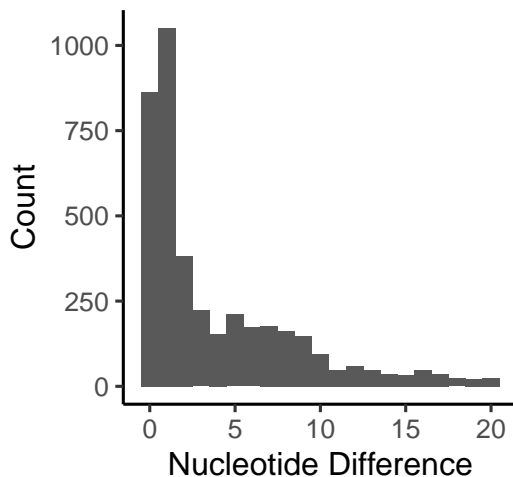
### IGHV3-9\*01

2718 sequences assigned  
746 (27.4%) exact matches, in which:  
420 unique CDR3  
6 unique J



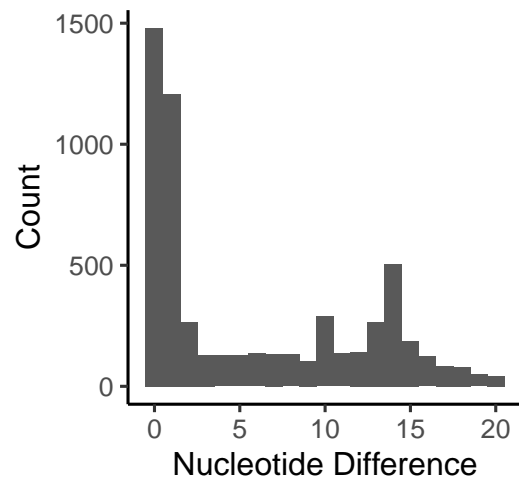
### IGHV3-11\*06

4532 sequences assigned  
864 (19.1%) exact matches, in which:  
542 unique CDR3  
6 unique J



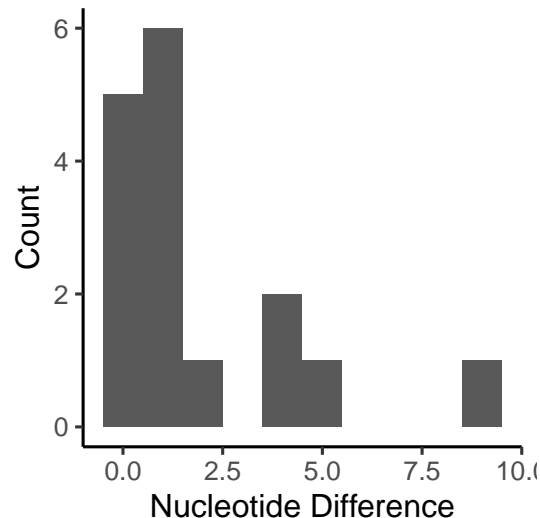
### IGHV3-15\*01\_02

6401 sequences assigned  
1480 (23.1%) exact matches, in which:  
849 unique CDR3  
6 unique J



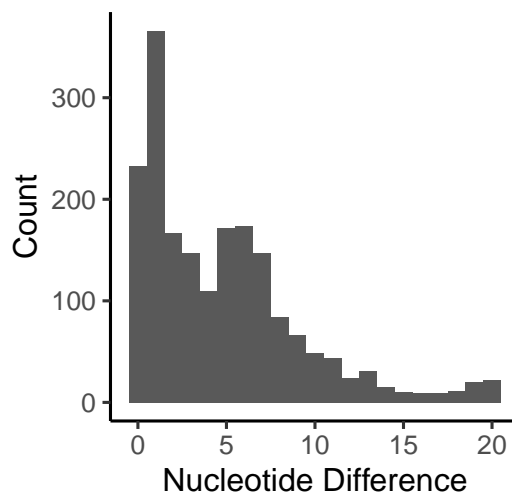
### IGHV3-19\*01

16 sequences assigned  
5 (31.2%) exact matches, in which:  
4 unique CDR3  
4 unique J



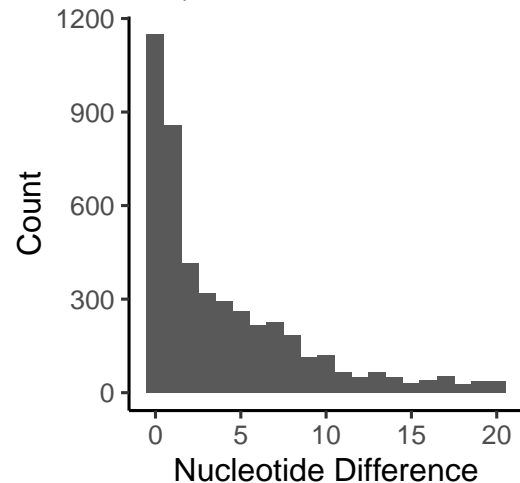
### IGHV3-21\*04

2318 sequences assigned  
233 (10.1%) exact matches, in which:  
214 unique CDR3  
6 unique J



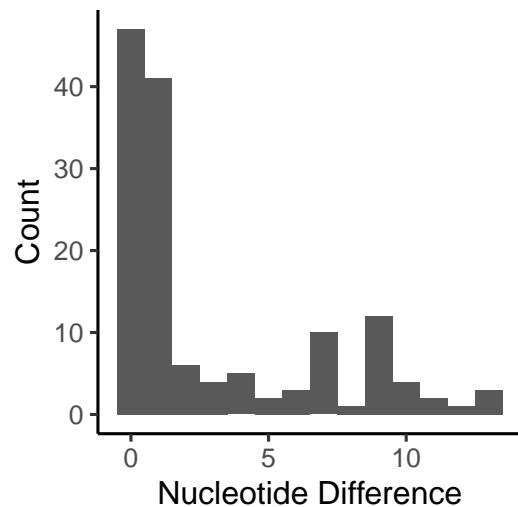
### IGHV3-23\*03

5330 sequences assigned  
1149 (21.6%) exact matches, in which:  
739 unique CDR3  
6 unique J



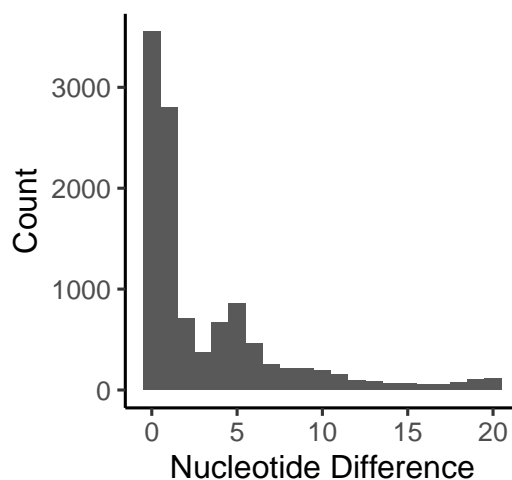
### IGHV3-20\*01\_02

152 sequences assigned  
47 (30.9%) exact matches, in which:  
25 unique CDR3  
5 unique J



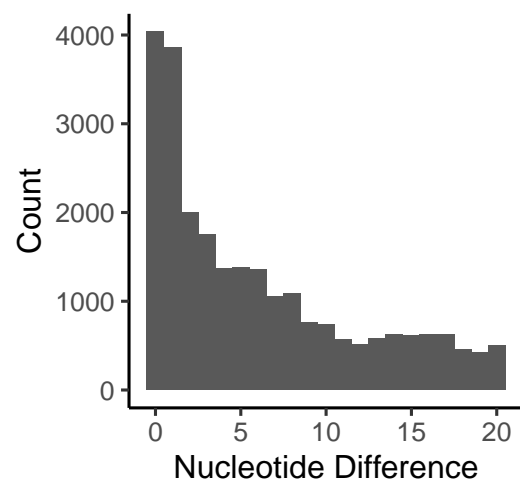
### IGHV3-21\*01\_02

13202 sequences assigned  
3551 (26.9%) exact matches, in which:  
2190 unique CDR3  
6 unique J



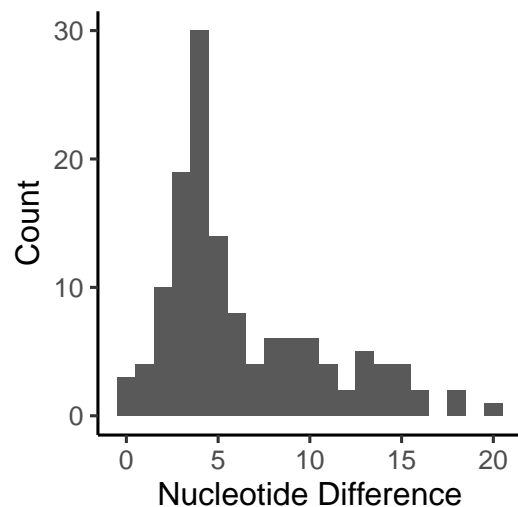
### IGHV3-23\*01\_04

31233 sequences assigned  
4037 (12.9%) exact matches, in which:  
2286 unique CDR3  
6 unique J



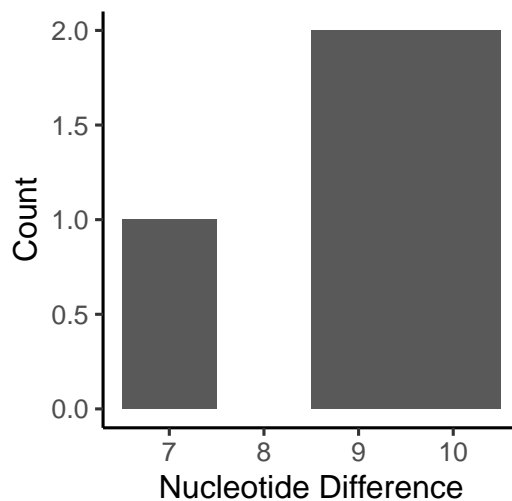
### IGHV3-20\*03\_04

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



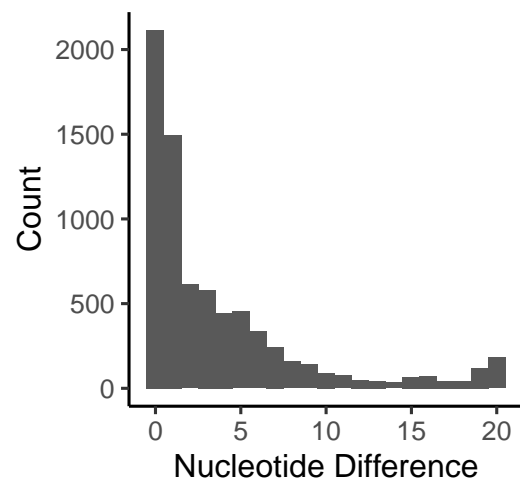
### IGHV3-22\*01\_02

9 sequences assigned  
No exact matches.



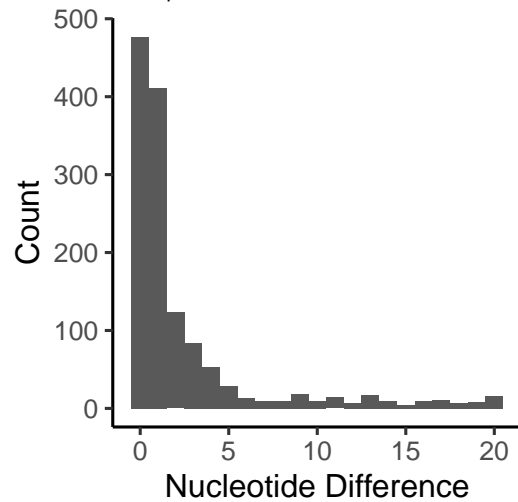
### IGHV3-30-3\*01

9532 sequences assigned  
2115 (22.2%) exact matches, in which:  
1405 unique CDR3  
6 unique J



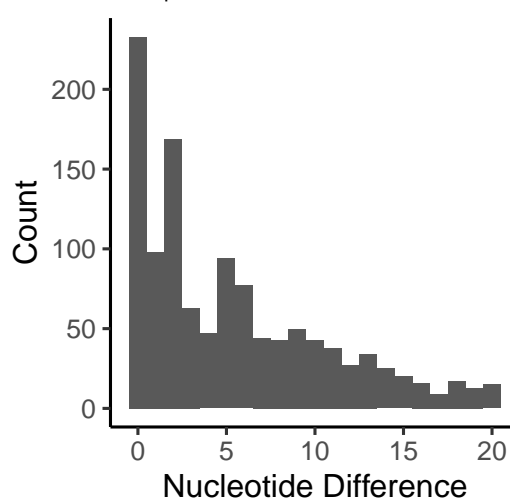
### IGHV3–30\*03

2980 sequences assigned  
477 (16%) exact matches, in which:  
433 unique CDR3  
6 unique J



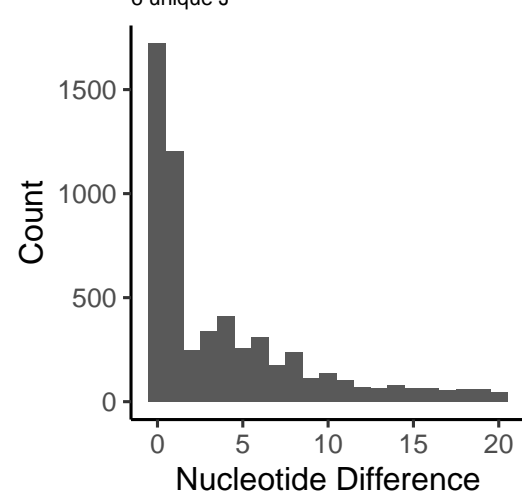
### IGHV3–33\*08

1262 sequences assigned  
233 (18.5%) exact matches, in which:  
189 unique CDR3  
6 unique J



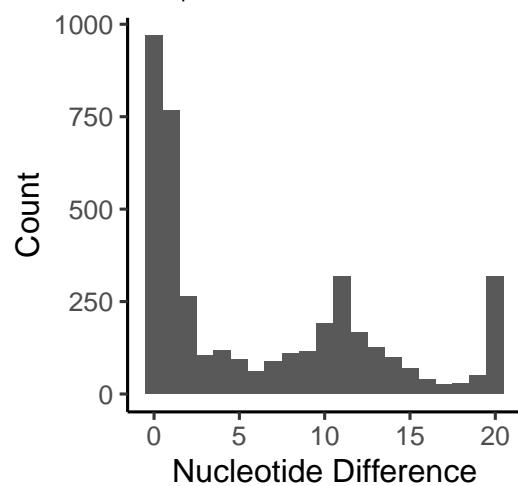
### IGHV3–48\*03

6435 sequences assigned  
1722 (26.8%) exact matches, in which:  
999 unique CDR3  
6 unique J



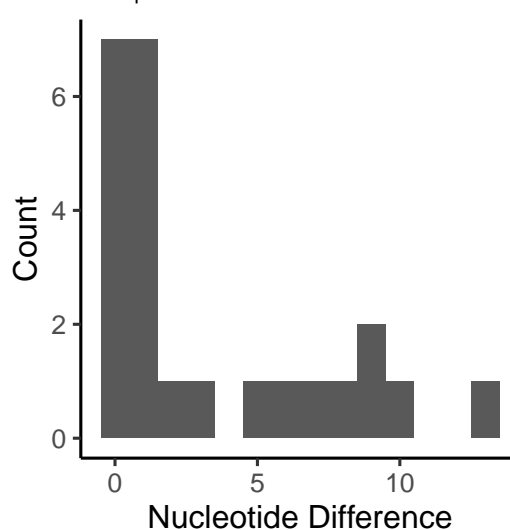
### IGHV3–33\*01

5311 sequences assigned  
969 (18.2%) exact matches, in which:  
655 unique CDR3  
6 unique J



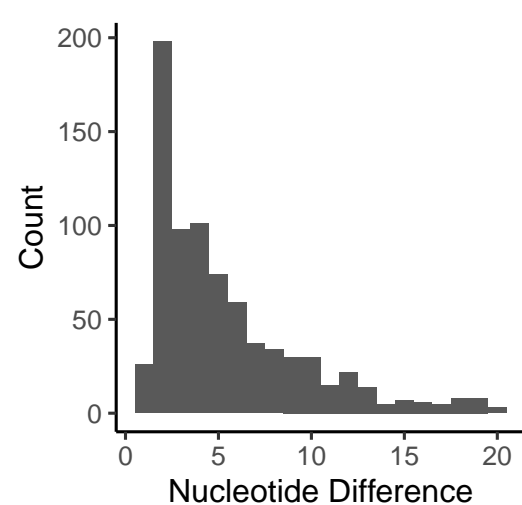
### IGHV3–35\*01

24 sequences assigned  
7 (29.2%) exact matches, in which:  
5 unique CDR3  
3 unique J



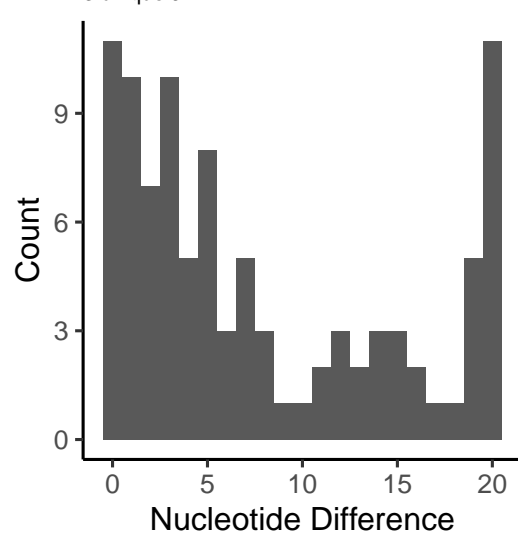
### IGHV3–48\*04

876 sequences assigned  
No exact matches.



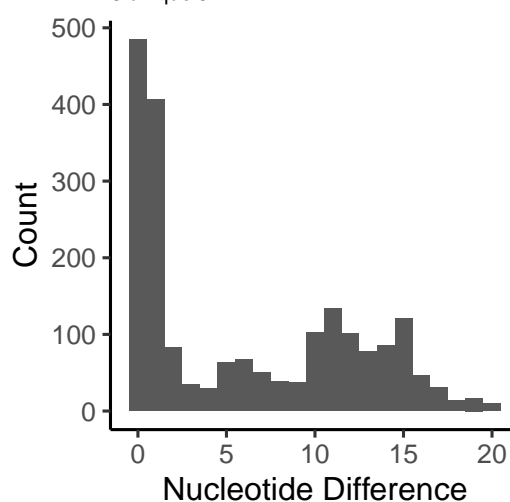
### IGHV3–33\*05

292 sequences assigned  
11 (3.8%) exact matches, in which:  
9 unique CDR3  
3 unique J



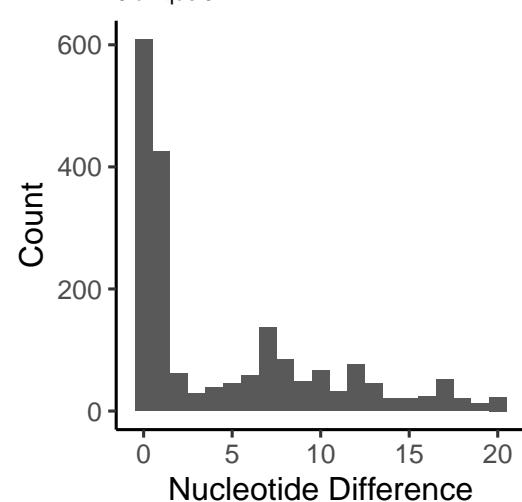
### IGHV3–43\*02

2238 sequences assigned  
485 (21.7%) exact matches, in which:  
272 unique CDR3  
6 unique J



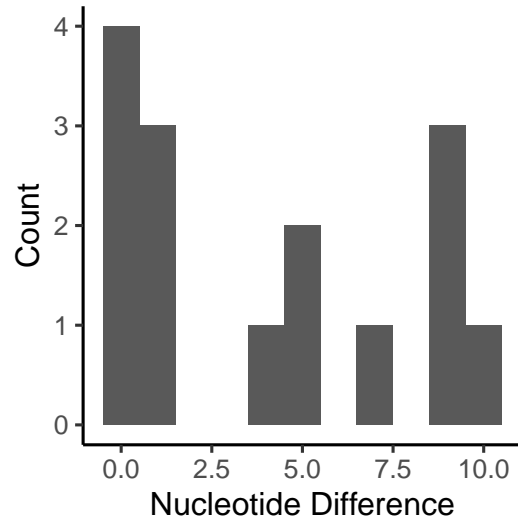
### IGHV3–49\*04

2488 sequences assigned  
609 (24.5%) exact matches, in which:  
373 unique CDR3  
6 unique J



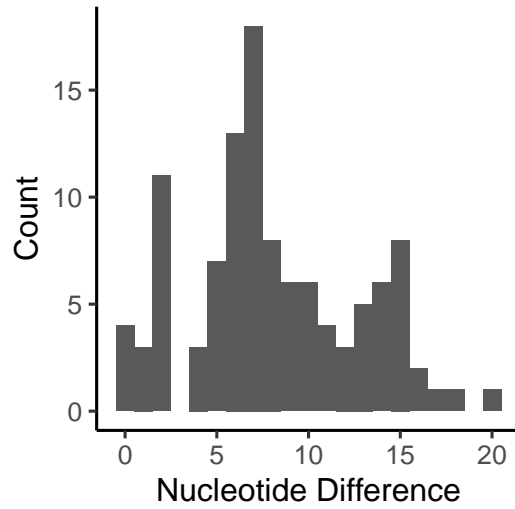
### IGHV3-52\*01\_03

15 sequences assigned  
4 (26.7%) exact matches, in which:  
3 unique CDR3  
2 unique J



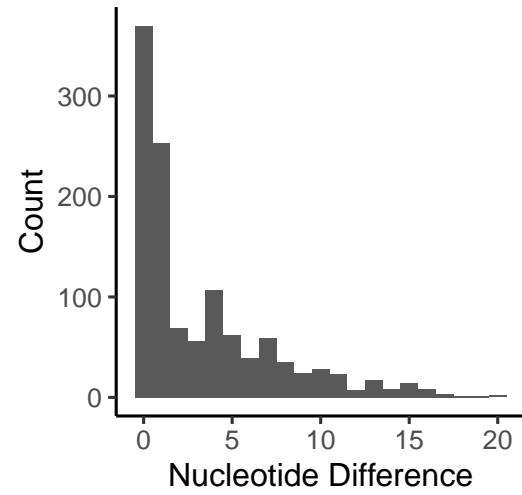
### IGHV3-53\*01\_02

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



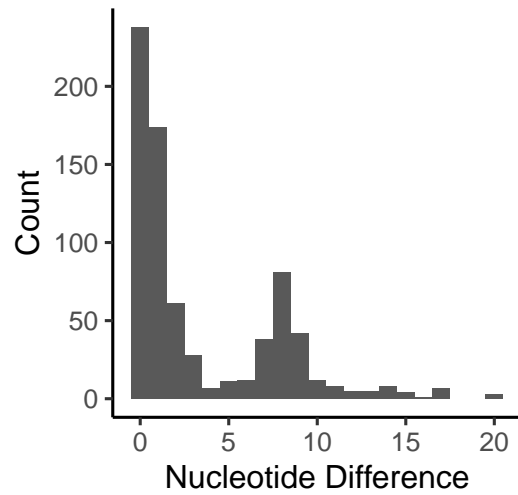
### IGHV3-64\*01

1253 sequences assigned  
370 (29.5%) exact matches, in which:  
240 unique CDR3  
5 unique J



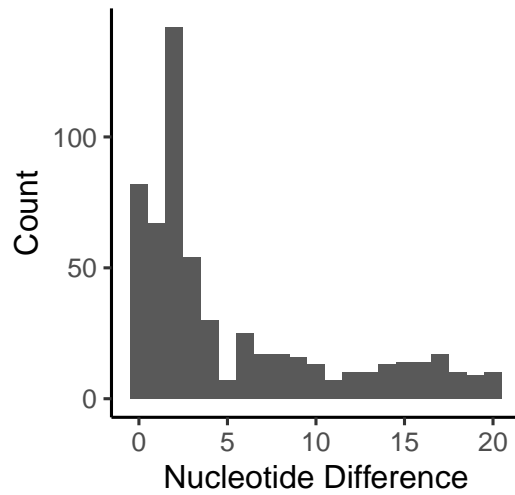
### IGHV3-53\*04

854 sequences assigned  
238 (27.9%) exact matches, in which:  
168 unique CDR3  
6 unique J



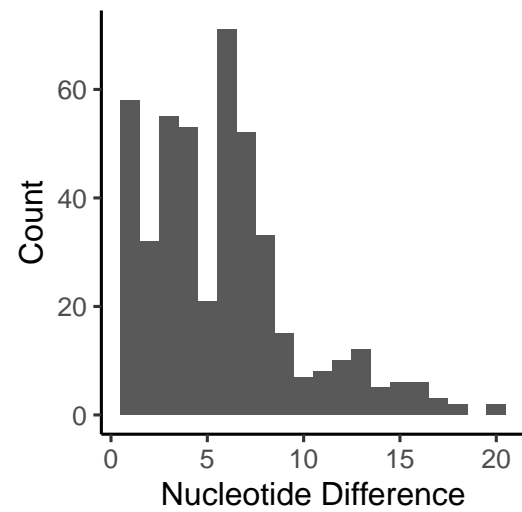
### IGHV3-53\*01\_02\_G81A\_

687 sequences assigned  
82 (11.9%) exact matches, in which:  
79 unique CDR3  
4 unique J



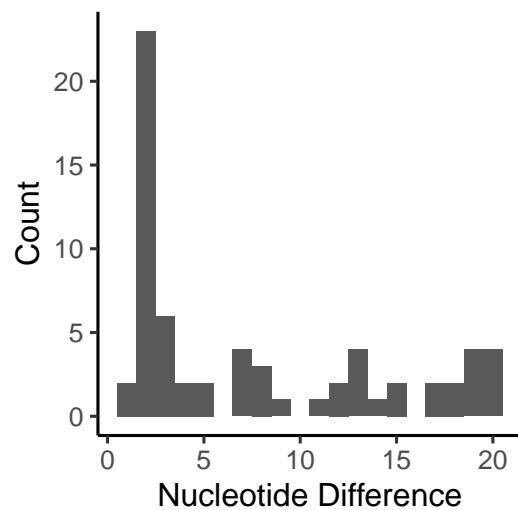
### IGHV3-64\*04

471 sequences assigned  
No exact matches.



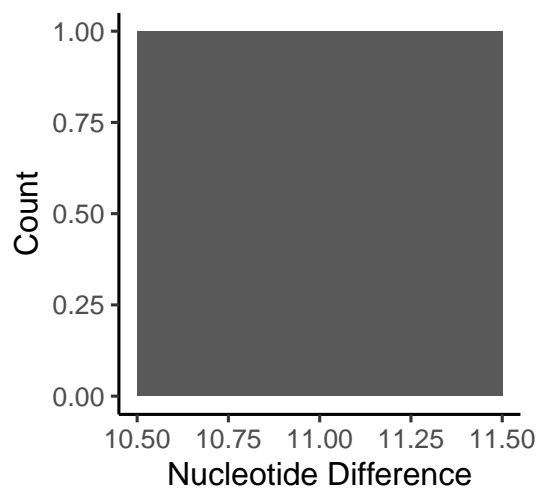
### IGHV3-53\*05

412 sequences assigned  
No exact matches.



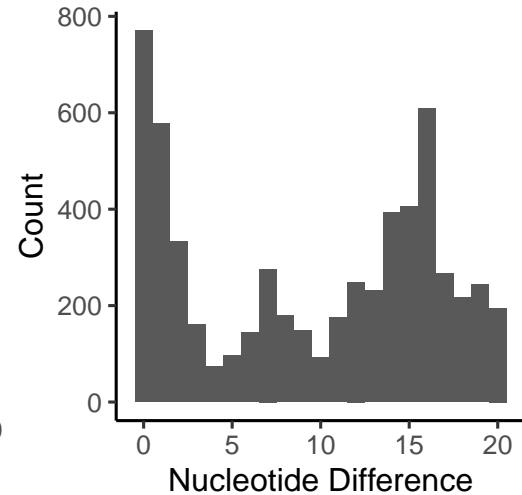
### IGHV3-62\*03

1 sequences assigned  
No exact matches.



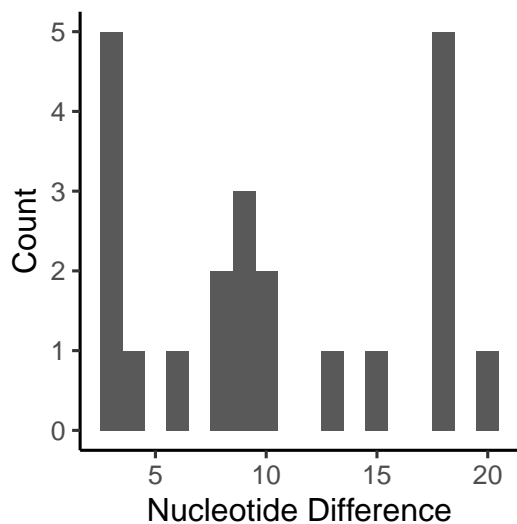
### IGHV3-66\*01

7229 sequences assigned  
771 (10.7%) exact matches, in which:  
530 unique CDR3  
6 unique J



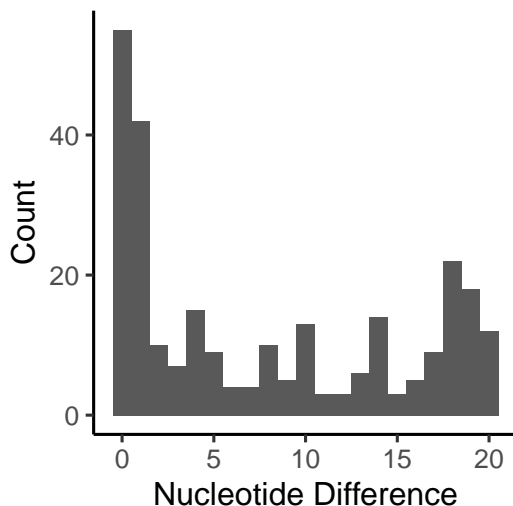
### IGHV3-69-1\*01

26 sequences assigned  
No exact matches.



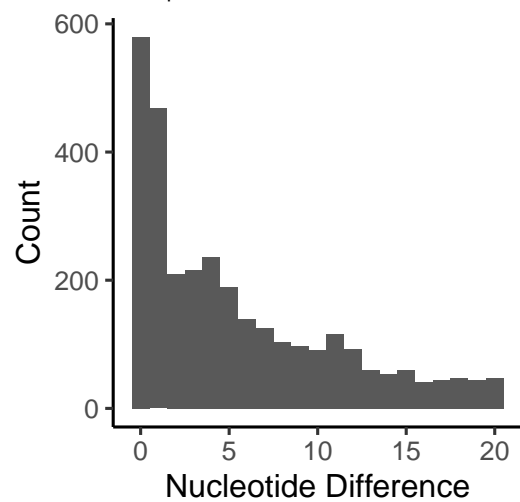
### IGHV3-72\*01

468 sequences assigned  
55 (11.8%) exact matches, in which:  
40 unique CDR3  
5 unique J



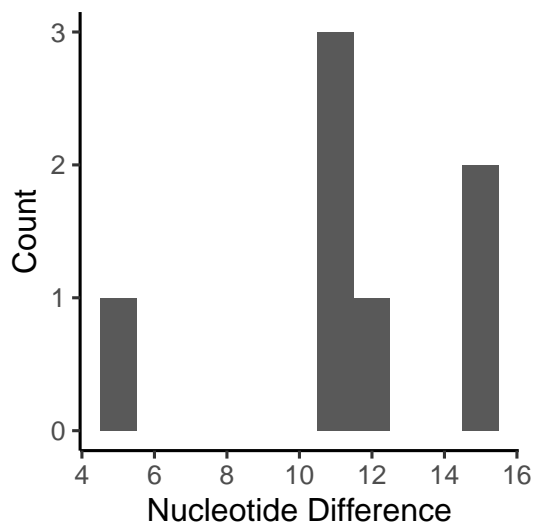
### IGHV3-74\*01\_02

3429 sequences assigned  
580 (16.9%) exact matches, in which:  
404 unique CDR3  
6 unique J



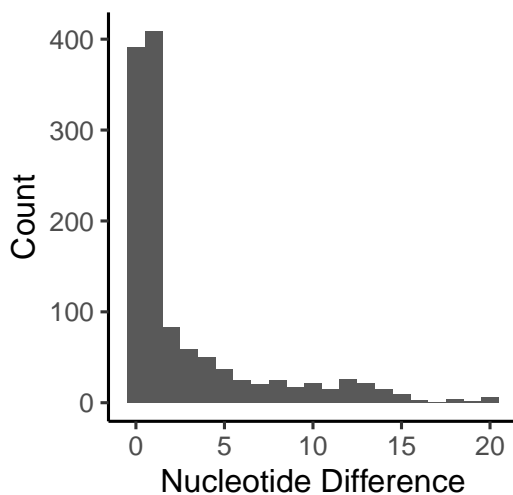
### IGHV3-69-1\*02

36 sequences assigned  
No exact matches.



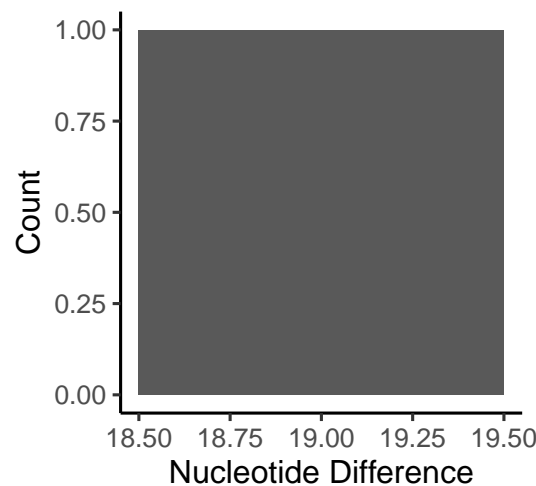
### IGHV3-73\*01\_02

1518 sequences assigned  
391 (25.8%) exact matches, in which:  
240 unique CDR3  
5 unique J



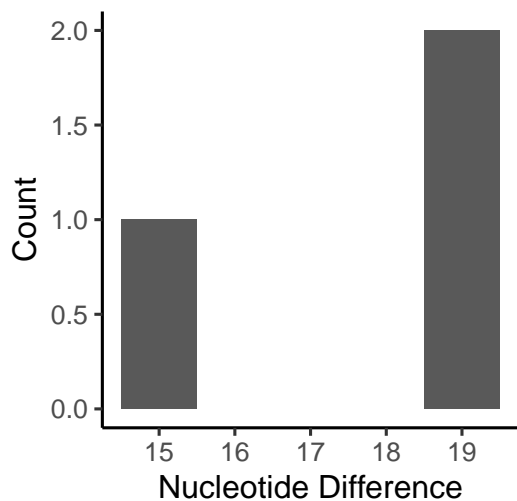
### IGHV3-43D\*04

1 sequences assigned  
No exact matches.



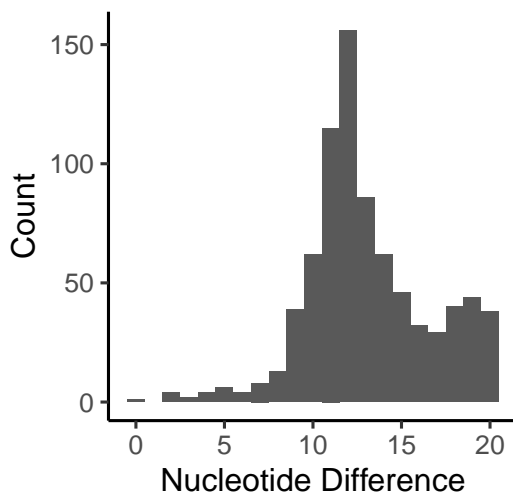
### IGHV3-71\*01\_04

10 sequences assigned  
No exact matches.



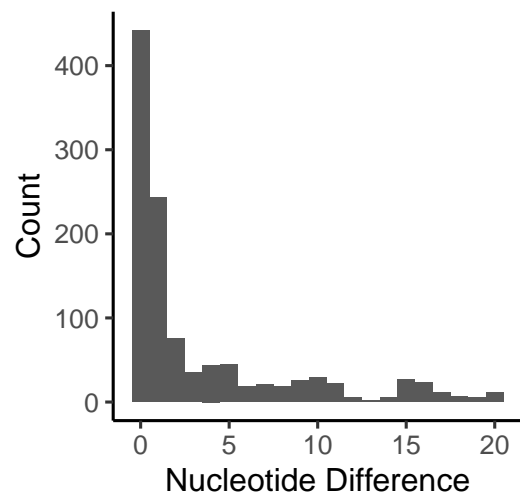
### IGHV3-74\*03

1144 sequences assigned  
1 (0.1%) exact matches, in which:  
1 unique CDR3  
1 unique J



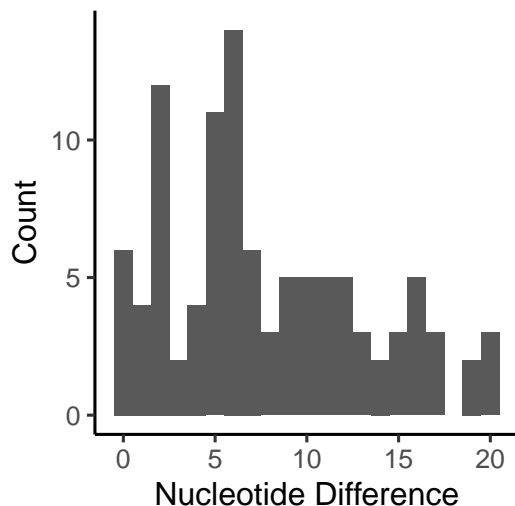
### IGHV3-64D\*06

1327 sequences assigned  
442 (33.3%) exact matches, in which:  
261 unique CDR3  
6 unique J



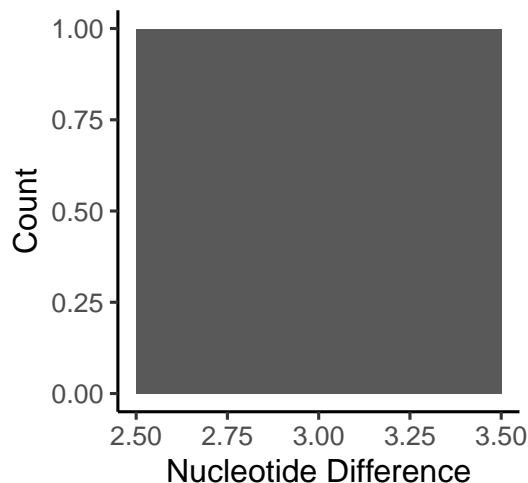
### IGHV3–NL1\*01

138 sequences assigned  
6 (4.3%) exact matches, in which:  
6 unique CDR3  
2 unique J



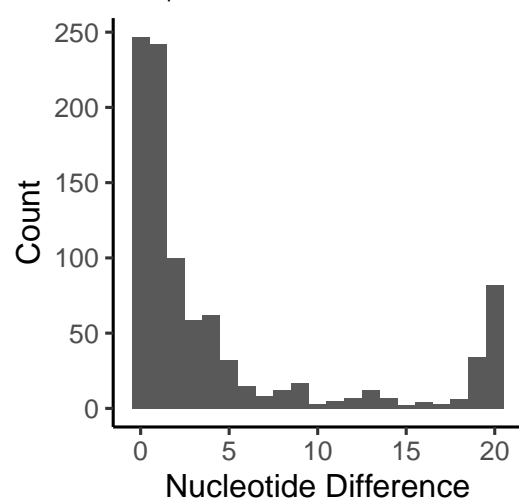
### IGHV4–28\*01\_07

2 sequences assigned  
No exact matches.



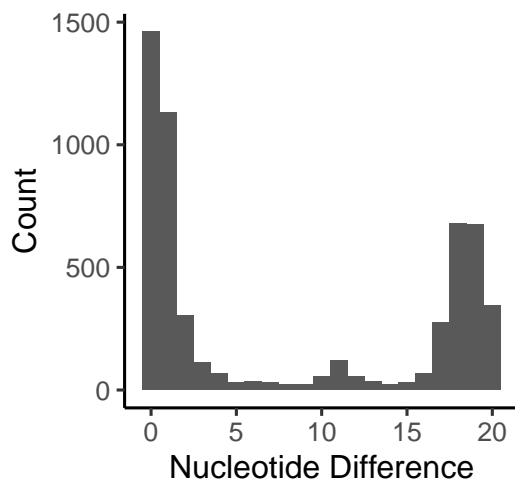
### IGHV4–30–2\*01

1413 sequences assigned  
247 (17.5%) exact matches, in which:  
174 unique CDR3  
6 unique J



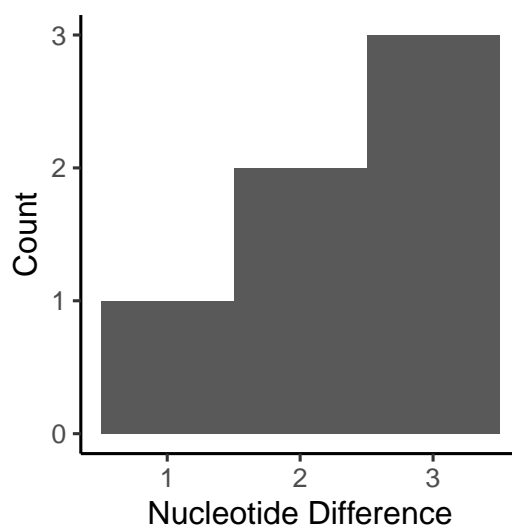
### IGHV4–4\*02\_03

7349 sequences assigned  
1461 (19.9%) exact matches, in which:  
1079 unique CDR3  
6 unique J



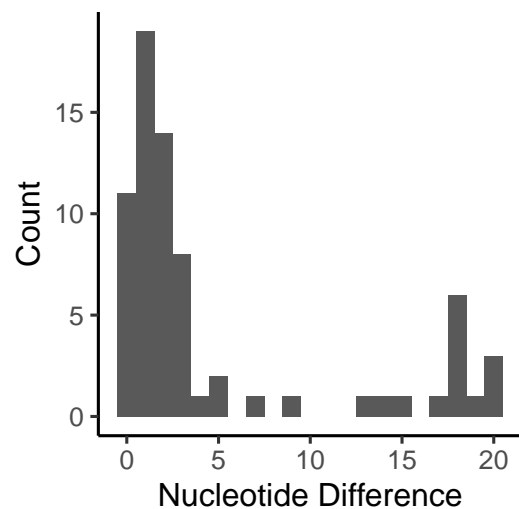
### IGHV4–28\*02\_05

6 sequences assigned  
No exact matches.



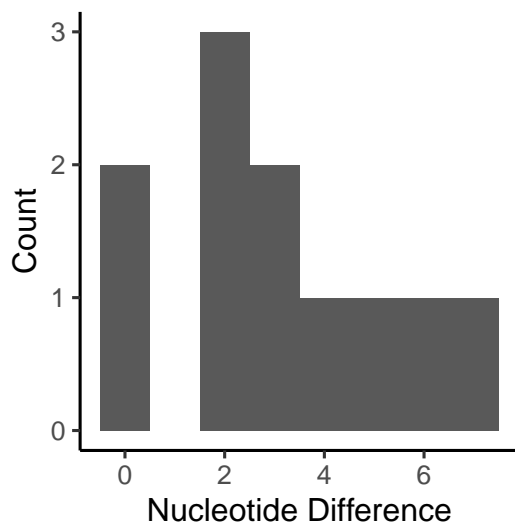
### IGHV4–30–2\*02

81 sequences assigned  
11 (13.6%) exact matches, in which:  
11 unique CDR3  
4 unique J



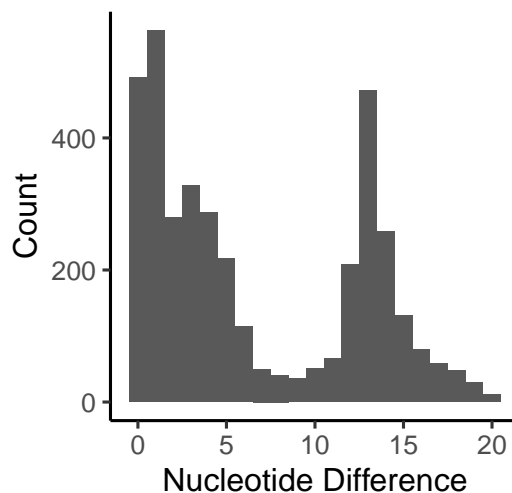
### IGHV4–28\*03

11 sequences assigned  
2 (18.2%) exact matches, in which:  
2 unique CDR3  
2 unique J



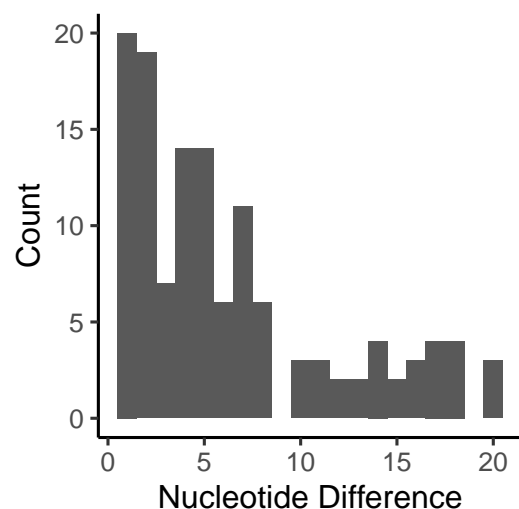
### IGHV4–30–4\*01

4888 sequences assigned  
492 (10.1%) exact matches, in which:  
379 unique CDR3  
6 unique J



### IGHV4–30–2\*03

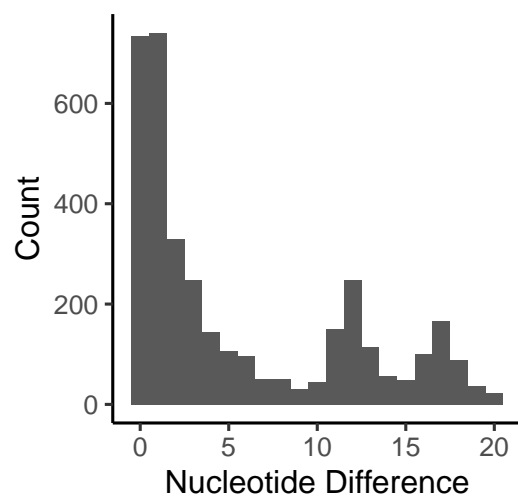
240 sequences assigned  
No exact matches.





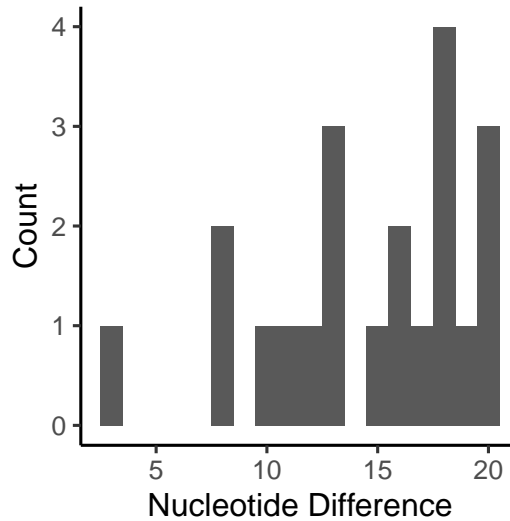
### IGHV4-31\*02

4817 sequences assigned  
735 (15.3%) exact matches, in which:  
614 unique CDR3  
6 unique J



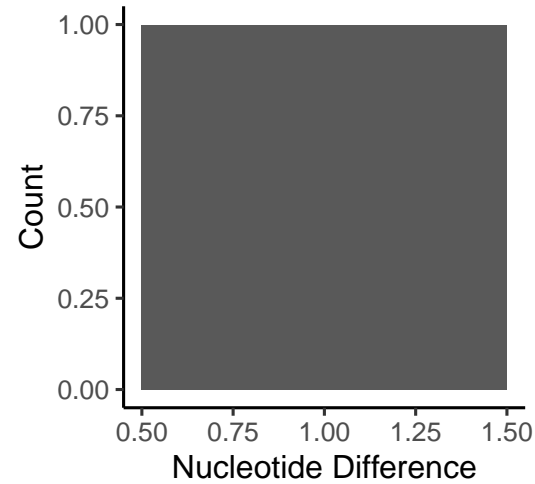
### IGHV4-38-2\*02

42 sequences assigned  
No exact matches.



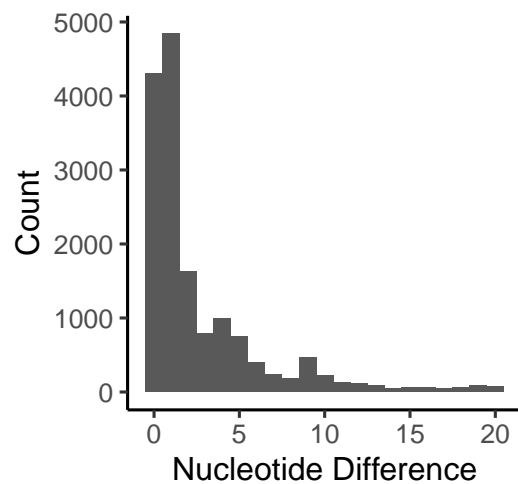
### IGHV4-55\*02\_04\_08

1 sequences assigned  
No exact matches.



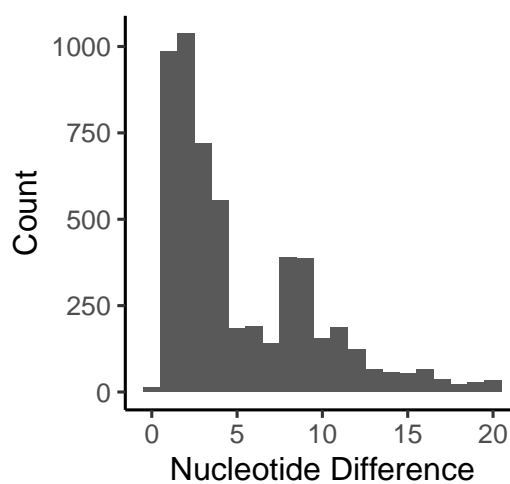
### IGHV4-34\*01\_02

19291 sequences assigned  
4298 (22.3%) exact matches, in which:  
2890 unique CDR3  
6 unique J



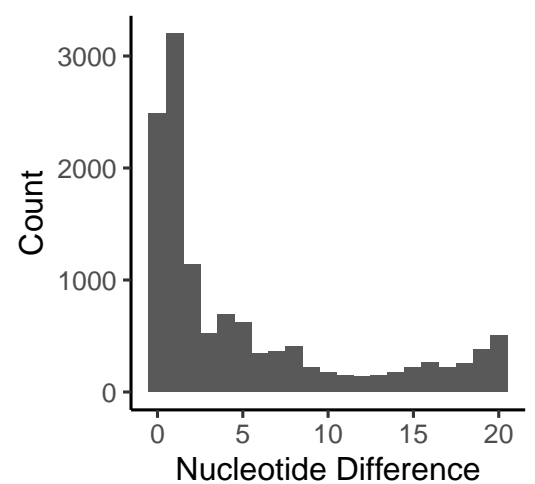
### IGHV4-39\*07

6114 sequences assigned  
13 (0.2%) exact matches, in which:  
13 unique CDR3  
4 unique J



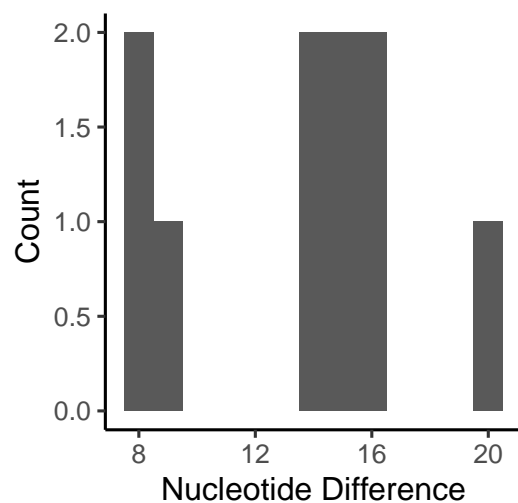
### IGHV4-59\*08

19007 sequences assigned  
2488 (13.1%) exact matches, in which:  
1893 unique CDR3  
6 unique J



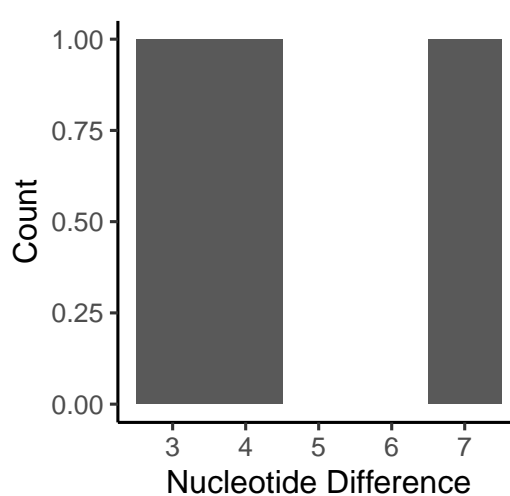
### IGHV4-38-2\*01

36 sequences assigned  
No exact matches.



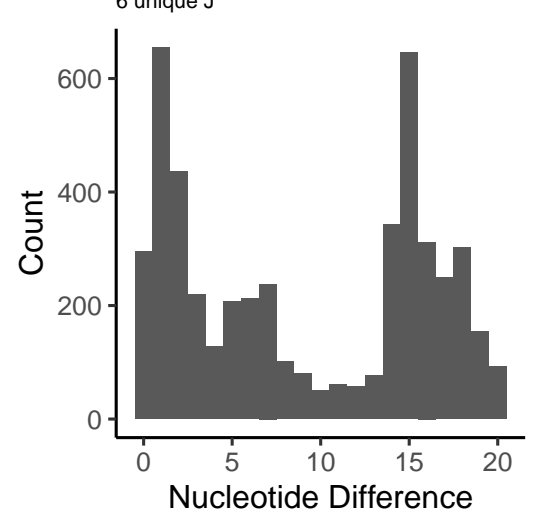
### IGHV4-55\*09

12 sequences assigned  
No exact matches.



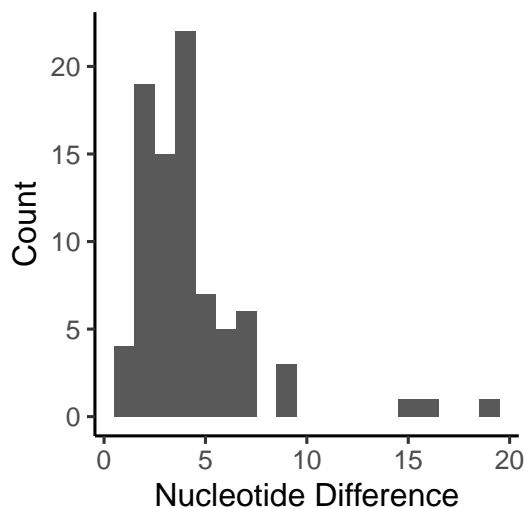
### IGHV4-59\*12

5903 sequences assigned  
296 (5%) exact matches, in which:  
279 unique CDR3  
6 unique J



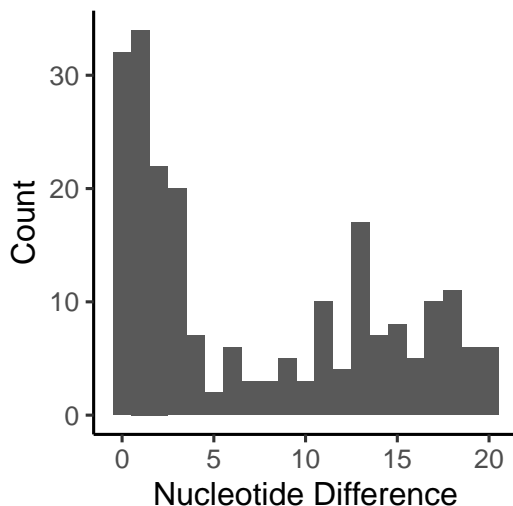
### IGHV4-61\*05

98 sequences assigned  
No exact matches.



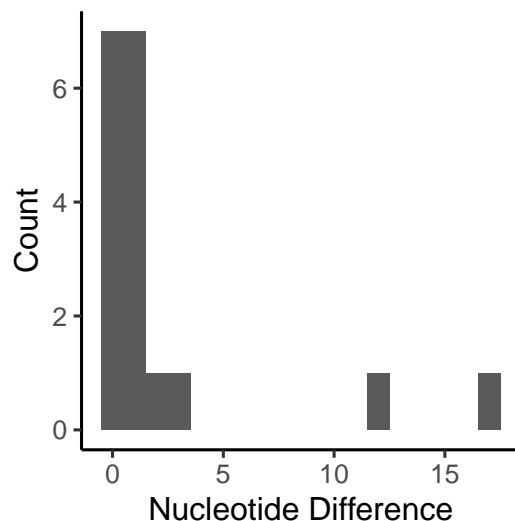
### IGHV4/OR15-8\*01\_C193/

402 sequences assigned  
32 (8%) exact matches, in which:  
24 unique CDR3  
5 unique J



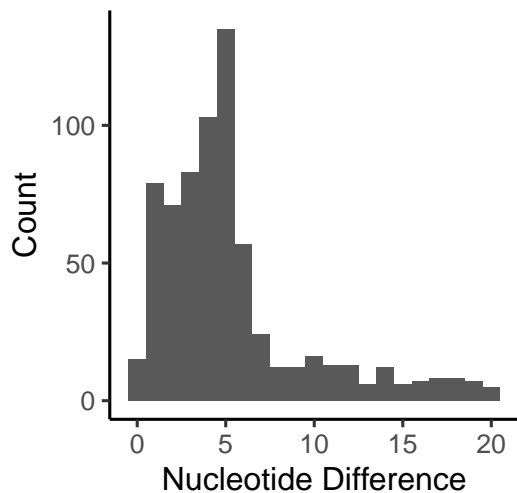
### IGHV5-51\*06

19 sequences assigned  
7 (36.8%) exact matches, in which:  
7 unique CDR3  
4 unique J



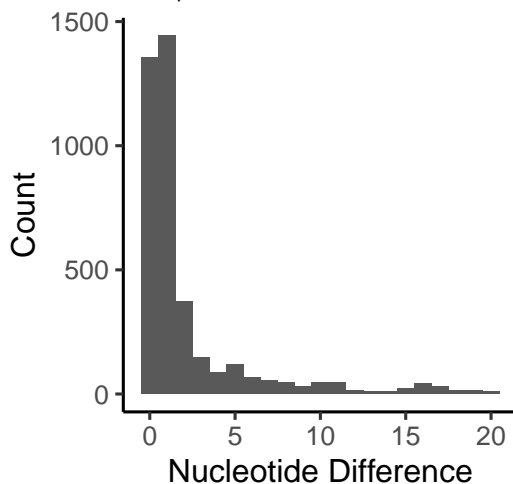
### IGHV4-61\*08

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



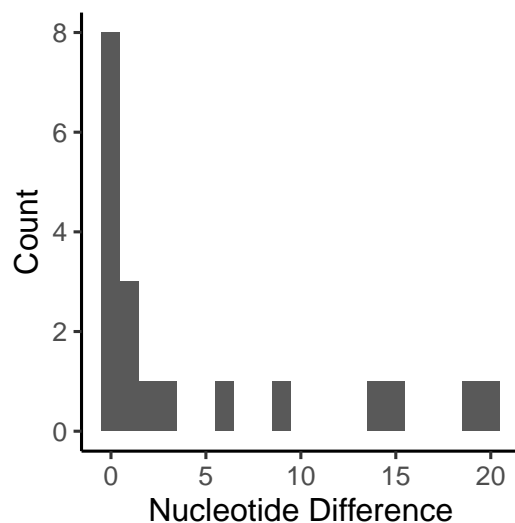
### IGHV5-10-1\*01\_03

4365 sequences assigned  
1356 (31.1%) exact matches, in which:  
850 unique CDR3  
6 unique J



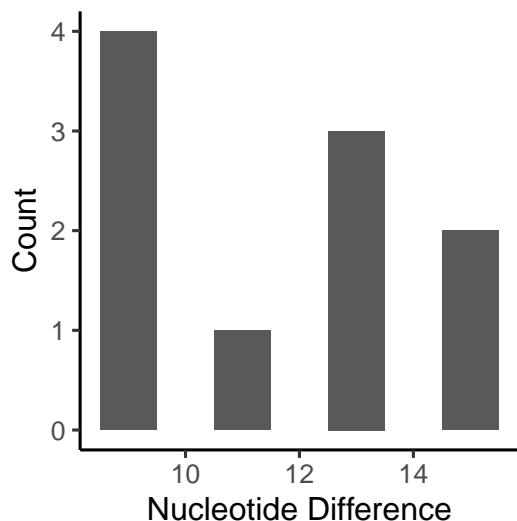
### IGHV5-51\*07

29 sequences assigned  
8 (27.6%) exact matches, in which:  
8 unique CDR3  
4 unique J



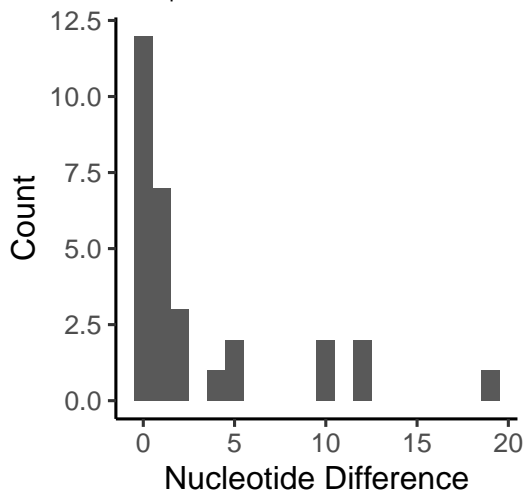
### IGHV1/OR15-3\*02

10 sequences assigned  
No exact matches.



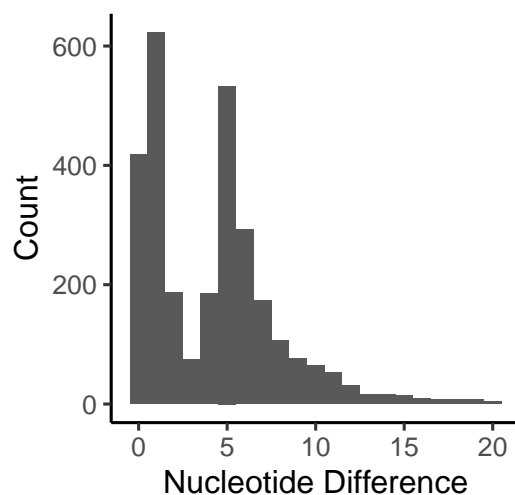
### IGHV5-51\*04

45 sequences assigned  
12 (26.7%) exact matches, in which:  
12 unique CDR3  
5 unique J



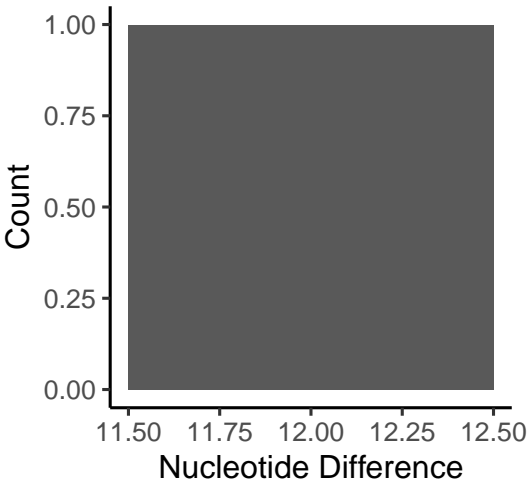
### IGHV6-1\*01\_02

3023 sequences assigned  
419 (13.9%) exact matches, in which:  
319 unique CDR3  
6 unique J



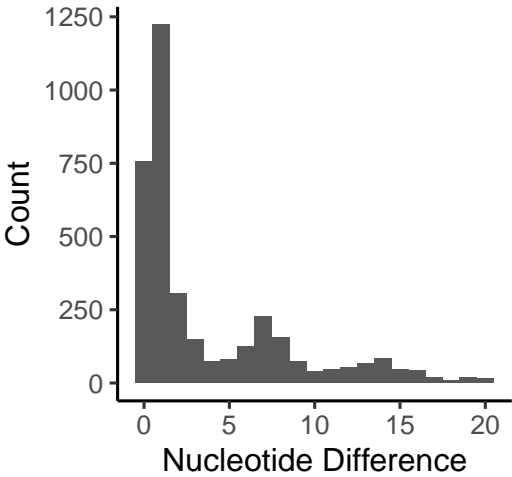
IGHV3/OR16-10\*01\_03

1 sequences assigned  
No exact matches.



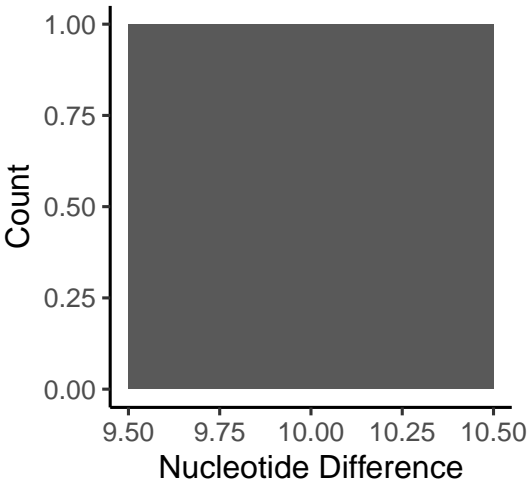
IGHV7-4-1\*02

3673 sequences assigned  
757 (20.6%) exact matches, in which:  
578 unique CDR3  
6 unique J

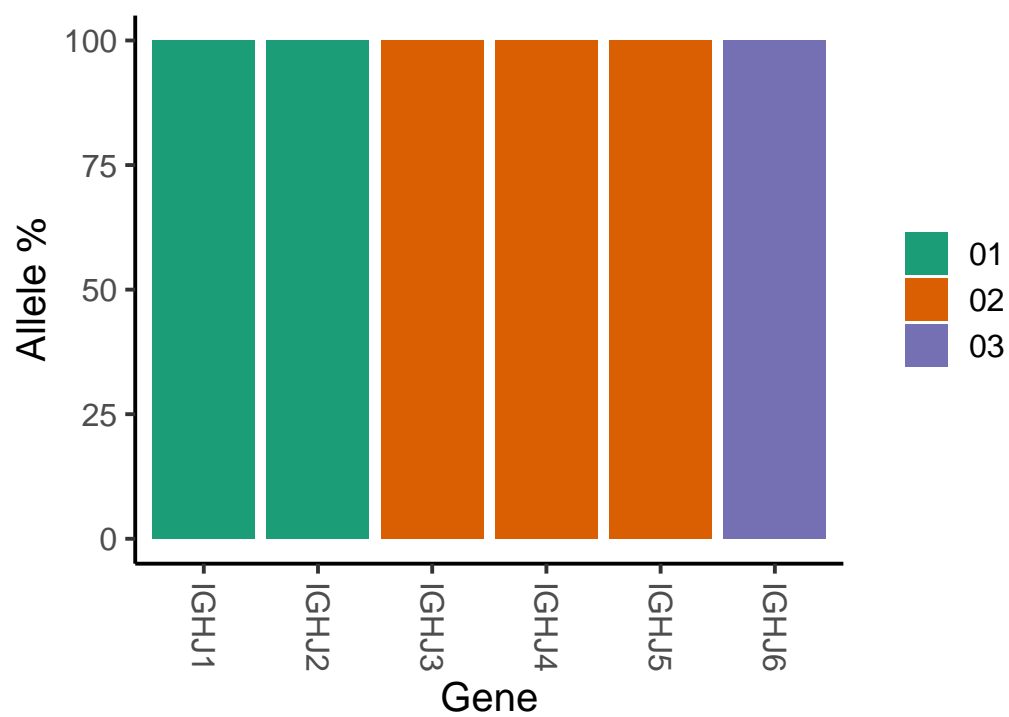


IGHV7-81\*01

1 sequences assigned  
No exact matches.



Allele Usage



Warning – no inferred sequences found.