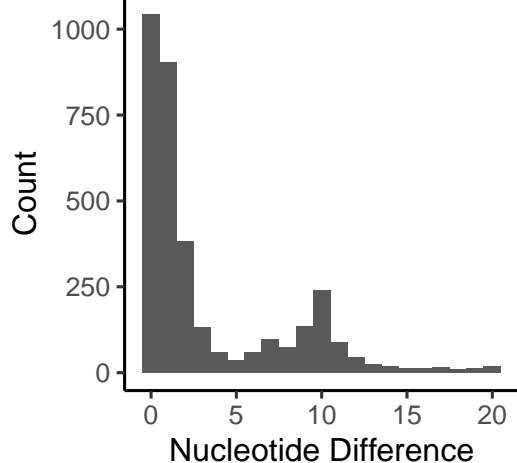


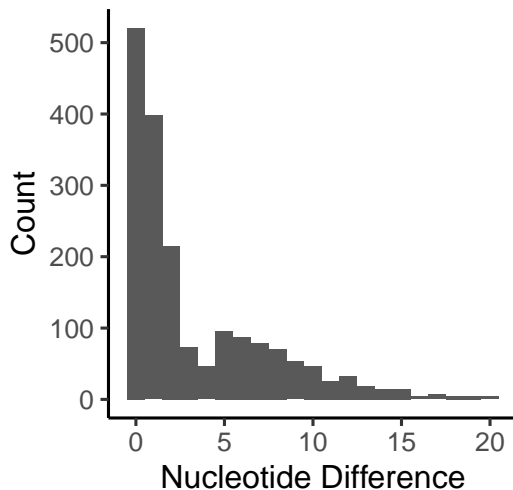
### IGHV1-2\*02

3821 sequences assigned  
1043 (27.3%) exact matches, in which:  
985 unique CDR3  
6 unique J



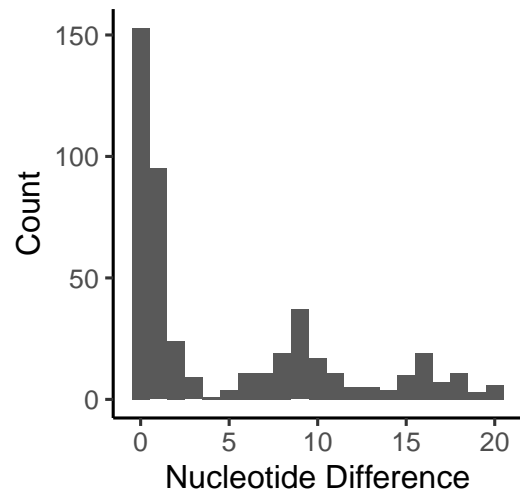
### IGHV1-8\*01

1856 sequences assigned  
521 (28.1%) exact matches, in which:  
503 unique CDR3  
6 unique J



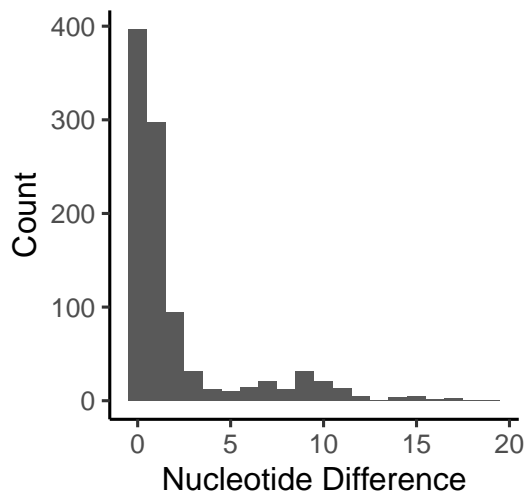
### IGHV1-24\*01

465 sequences assigned  
153 (32.9%) exact matches, in which:  
148 unique CDR3  
6 unique J



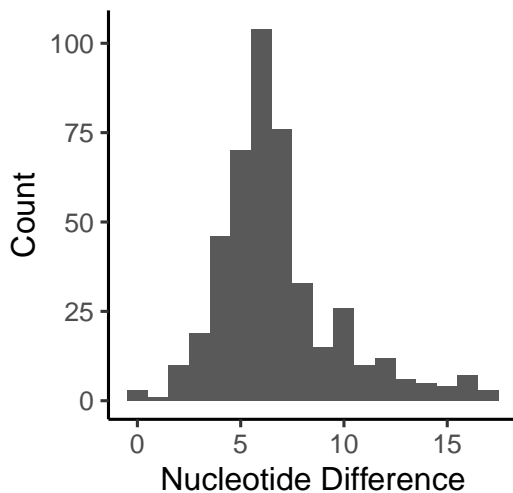
### IGHV1-2\*04

982 sequences assigned  
397 (40.4%) exact matches, in which:  
376 unique CDR3  
6 unique J



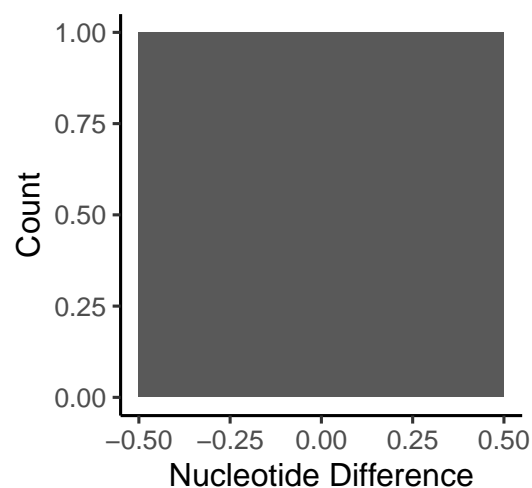
### IGHV1-8\*02

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



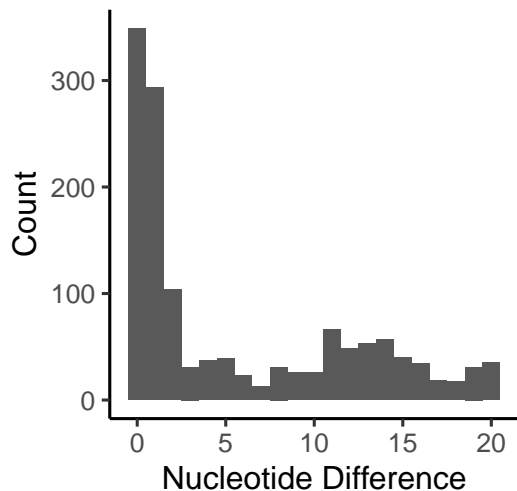
### IGHV1-38-4\*01

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



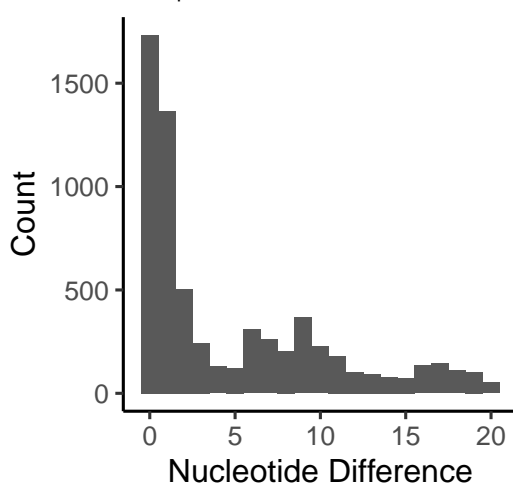
### IGHV1-3\*01\_05

1505 sequences assigned  
349 (23.2%) exact matches, in which:  
328 unique CDR3  
6 unique J



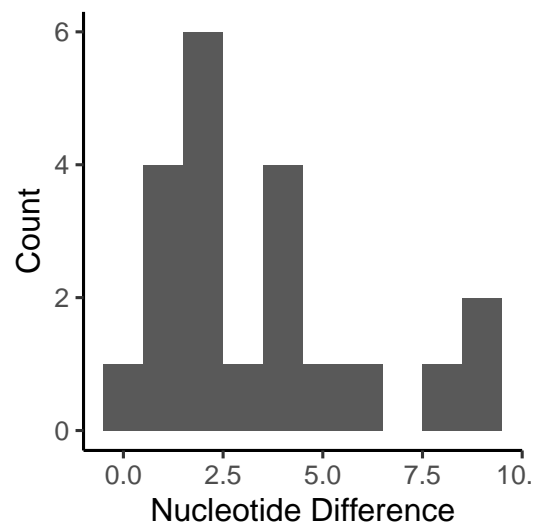
### IGHV1-18\*01

6877 sequences assigned  
1733 (25.2%) exact matches, in which:  
1624 unique CDR3  
6 unique J



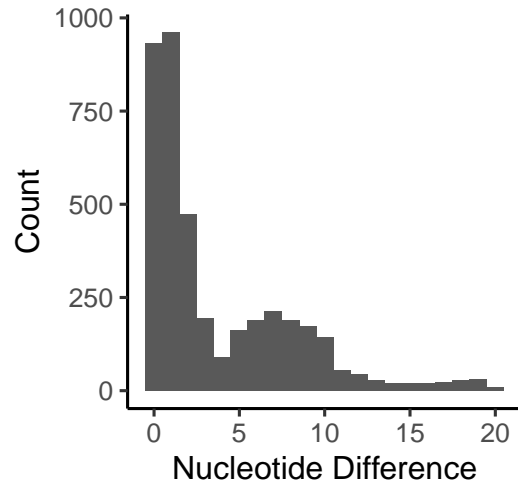
### IGHV1-45\*02

23 sequences assigned  
1 (4.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



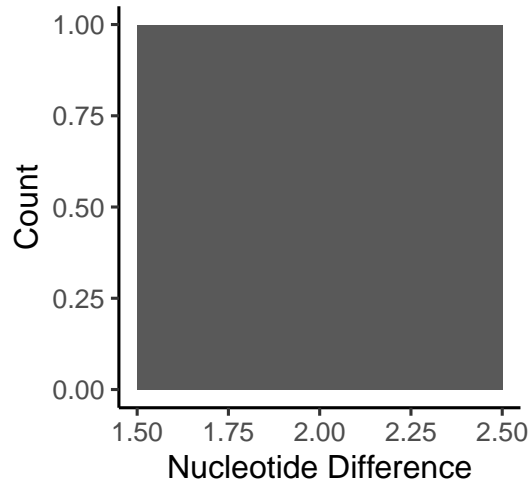
### IGHV1-46\*01

4035 sequences assigned  
932 (23.1%) exact matches, in which:  
883 unique CDR3  
6 unique J



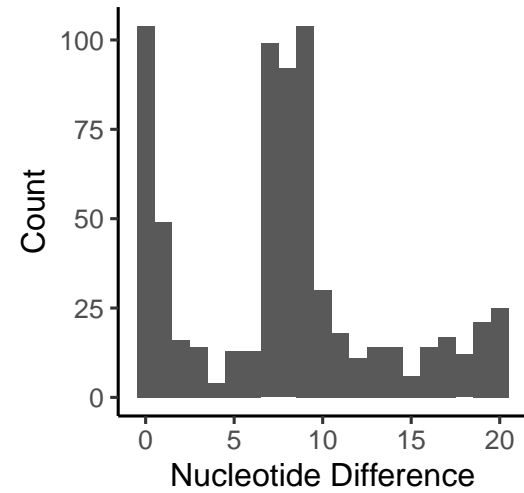
### IGHV1-68\*01

2 sequences assigned  
No exact matches.



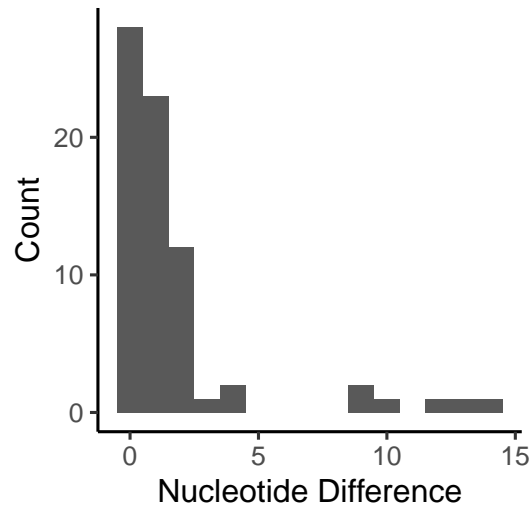
### IGHV1-69\*06\_14

732 sequences assigned  
104 (14.2%) exact matches, in which:  
103 unique CDR3  
5 unique J



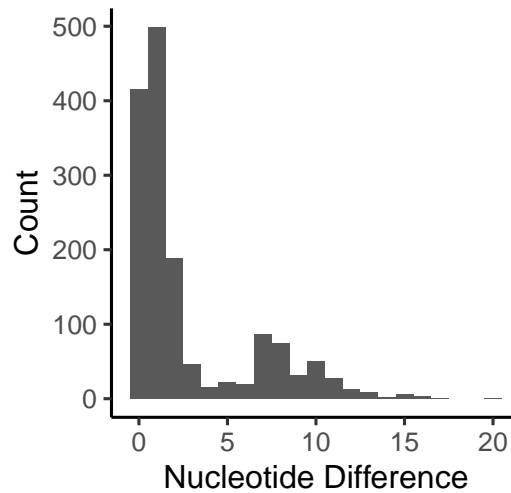
### IGHV1-58\*02

73 sequences assigned  
28 (38.4%) exact matches, in which:  
28 unique CDR3  
4 unique J



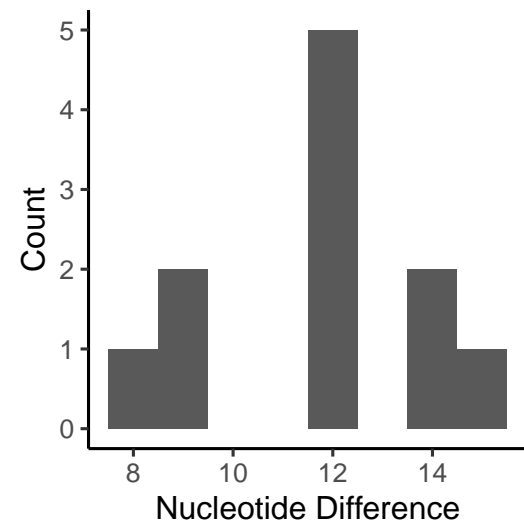
### IGHV1-69\*02

1517 sequences assigned  
415 (27.4%) exact matches, in which:  
398 unique CDR3  
6 unique J



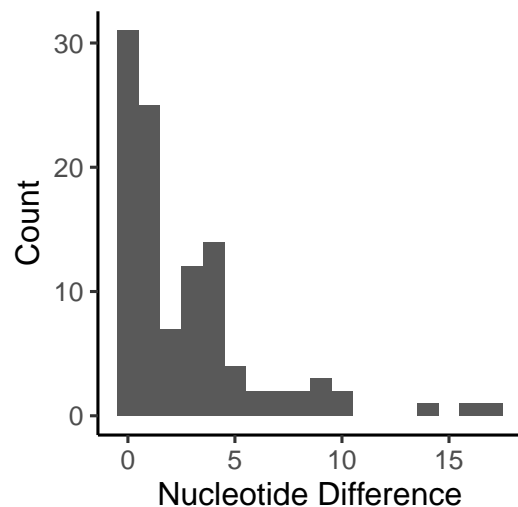
### IGHV1-NL1\*01

11 sequences assigned  
No exact matches.



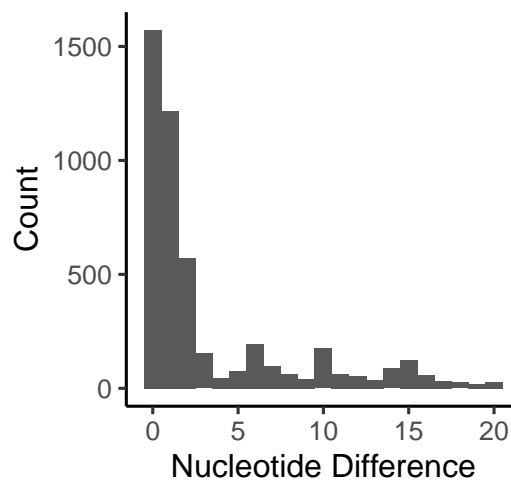
### IGHV1-58\*01\_03

107 sequences assigned  
31 (29%) exact matches, in which:  
31 unique CDR3  
4 unique J



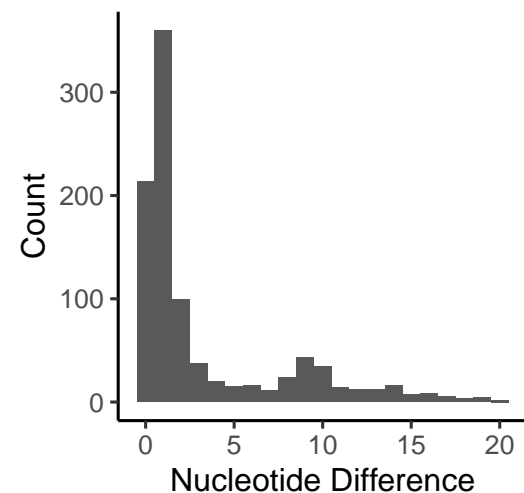
### IGHV1-69\*01\_12\_13

4844 sequences assigned  
1572 (32.5%) exact matches, in which:  
1488 unique CDR3  
6 unique J



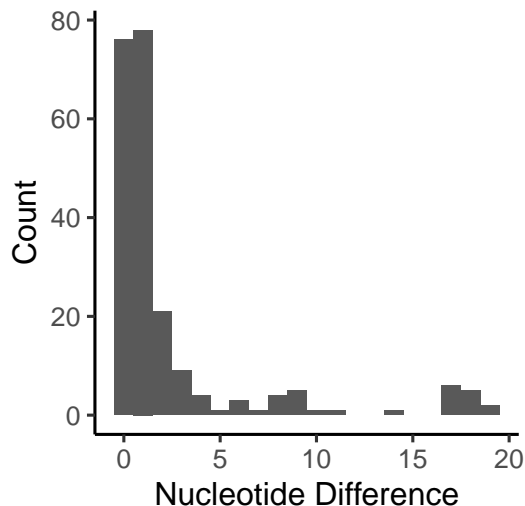
### IGHV2-5\*02

989 sequences assigned  
214 (21.6%) exact matches, in which:  
185 unique CDR3  
6 unique J



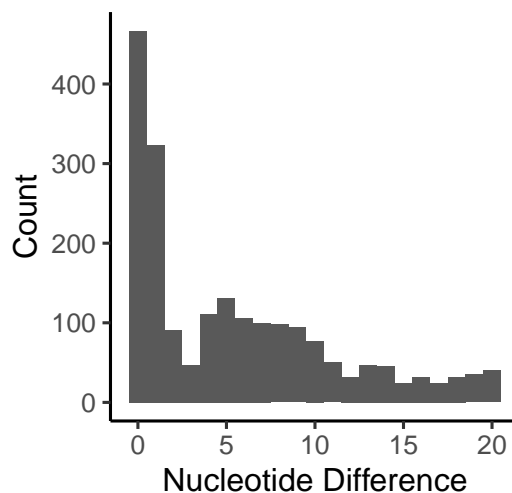
## IGHV2-26\*01

220 sequences assigned  
76 (34.5%) exact matches, in which:  
63 unique CDR3  
5 unique J



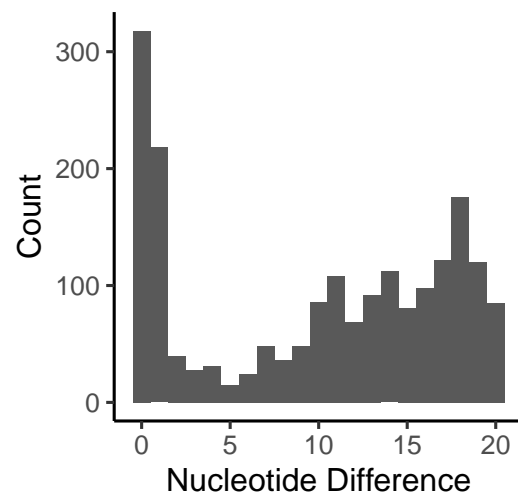
## IGHV3-7\*01

2151 sequences assigned  
467 (21.7%) exact matches, in which:  
387 unique CDR3  
6 unique J



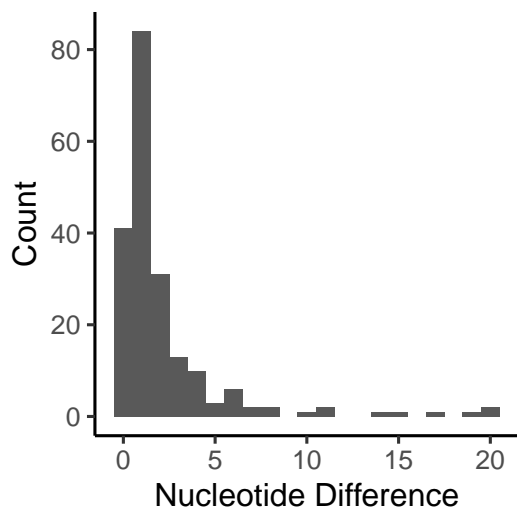
## IGHV3-9\*01

2517 sequences assigned  
318 (12.6%) exact matches, in which:  
249 unique CDR3  
6 unique J



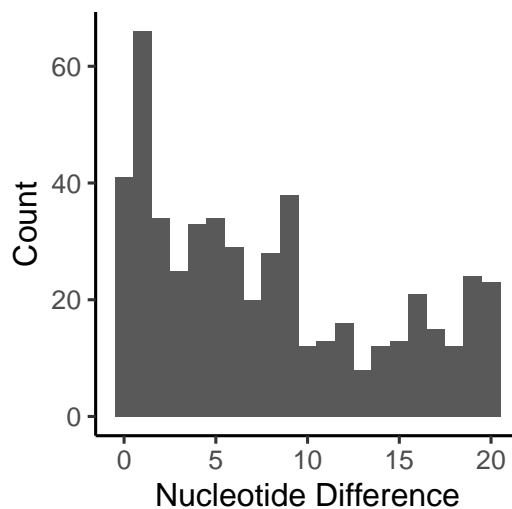
## IGHV2-70\*01

201 sequences assigned  
41 (20.4%) exact matches, in which:  
34 unique CDR3  
4 unique J



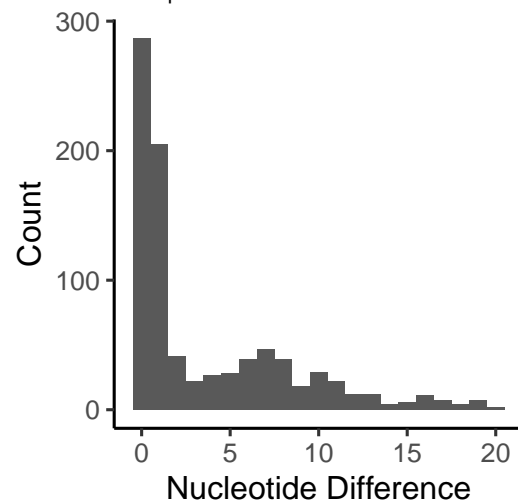
## IGHV3-7\*03

775 sequences assigned  
41 (5.3%) exact matches, in which:  
34 unique CDR3  
4 unique J



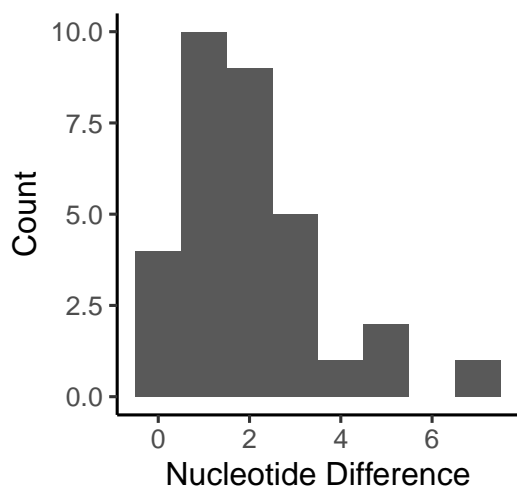
## IGHV3-11\*01

891 sequences assigned  
287 (32.2%) exact matches, in which:  
233 unique CDR3  
6 unique J



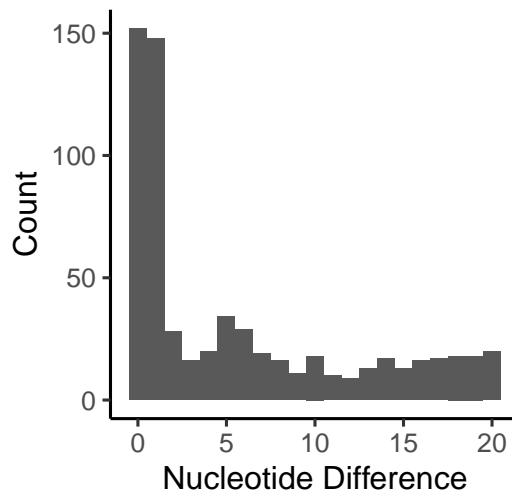
## IGHV2-70\*12

32 sequences assigned  
4 (12.5%) exact matches, in which:  
4 unique CDR3  
2 unique J



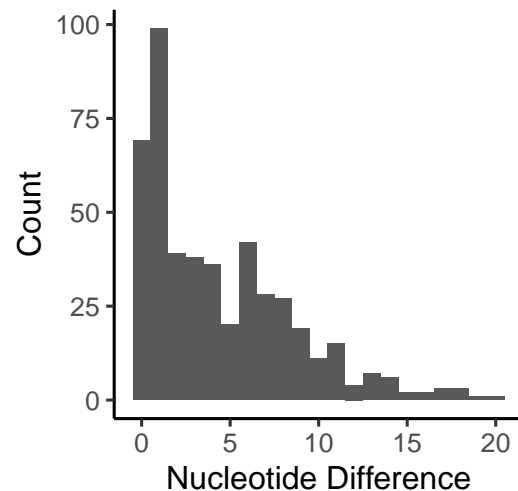
## IGHV3-7\*04

790 sequences assigned  
152 (19.2%) exact matches, in which:  
112 unique CDR3  
6 unique J



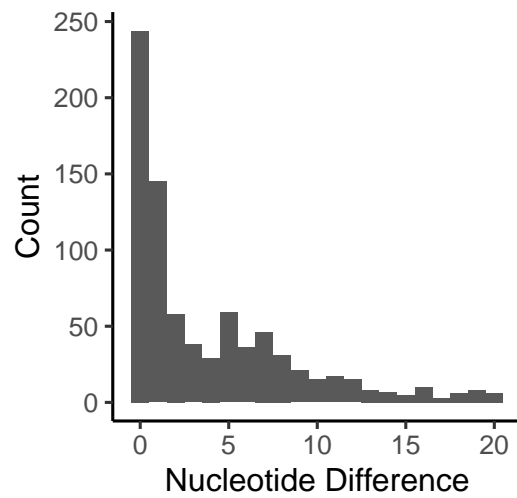
## IGHV3-11\*04

482 sequences assigned  
69 (14.3%) exact matches, in which:  
67 unique CDR3  
4 unique J



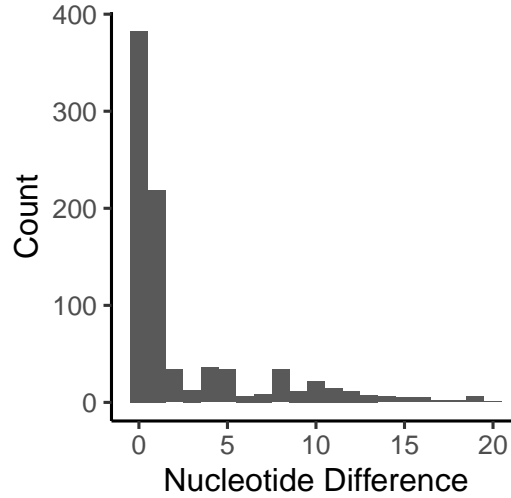
### IGHV3-11\*06

900 sequences assigned  
244 (27.1%) exact matches, in which:  
204 unique CDR3  
6 unique J



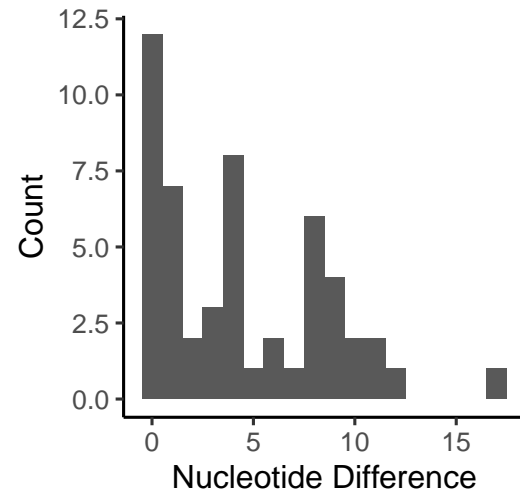
### IGHV3-15\*07

891 sequences assigned  
383 (43%) exact matches, in which:  
262 unique CDR3  
6 unique J



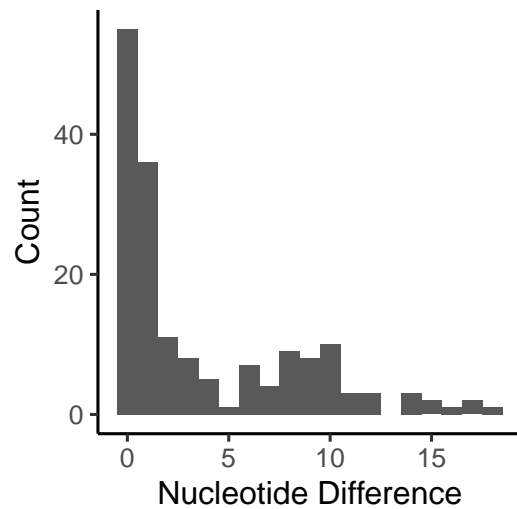
### IGHV3-20\*03\_04

57 sequences assigned  
12 (21.1%) exact matches, in which:  
10 unique CDR3  
2 unique J



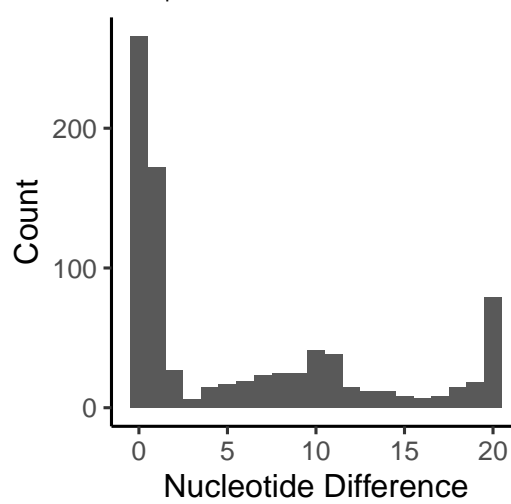
### IGHV3-13\*01

178 sequences assigned  
55 (30.9%) exact matches, in which:  
47 unique CDR3  
5 unique J



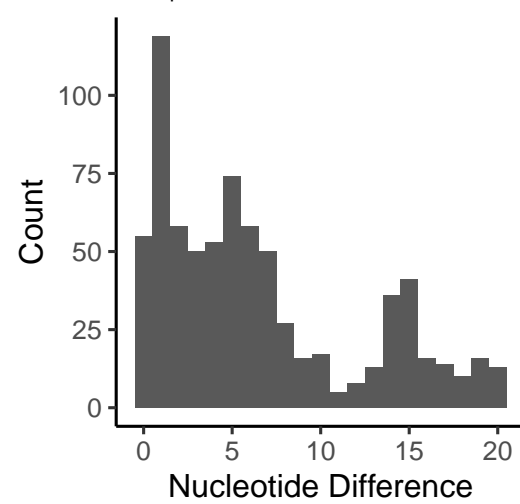
### IGHV3-15\*01\_02

1524 sequences assigned  
266 (17.5%) exact matches, in which:  
197 unique CDR3  
5 unique J



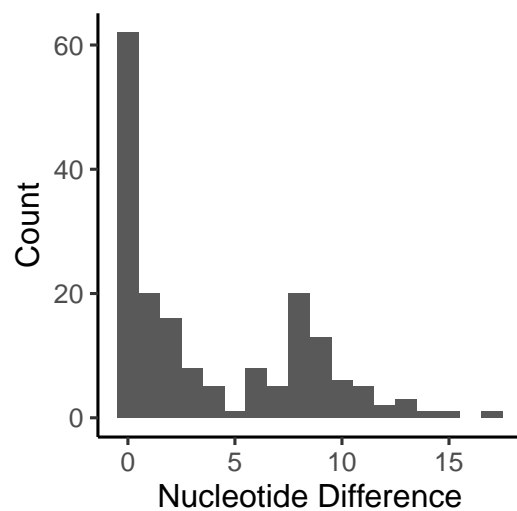
### IGHV3-21\*04

826 sequences assigned  
55 (6.7%) exact matches, in which:  
53 unique CDR3  
5 unique J



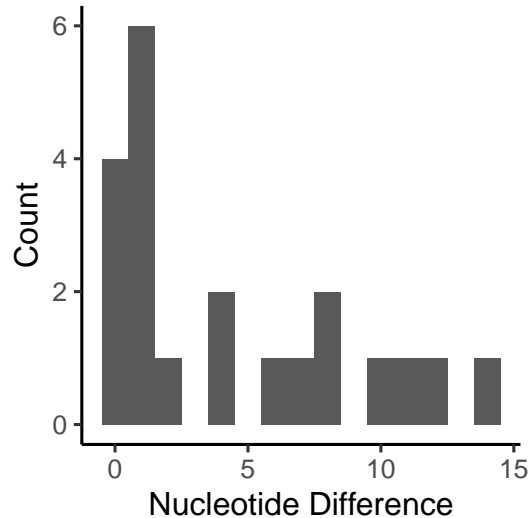
### IGHV3-13\*05

177 sequences assigned  
62 (35%) exact matches, in which:  
60 unique CDR3  
5 unique J



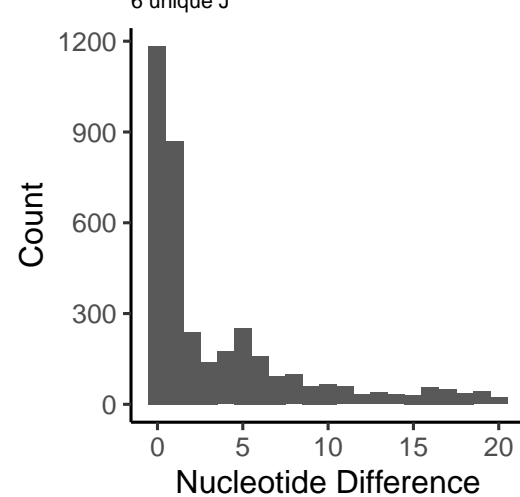
### IGHV3-19\*01

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



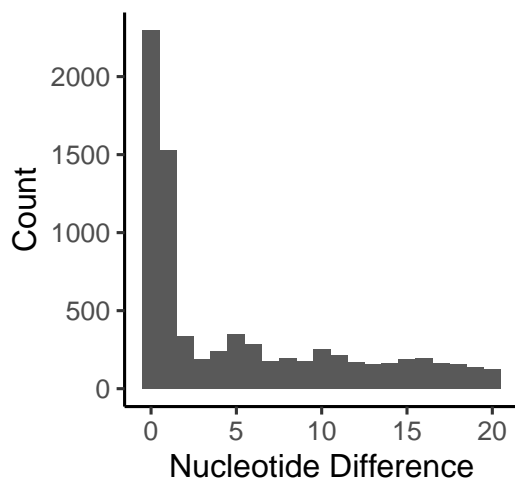
### IGHV3-21\*01\_02

3998 sequences assigned  
1184 (29.6%) exact matches, in which:  
950 unique CDR3  
6 unique J



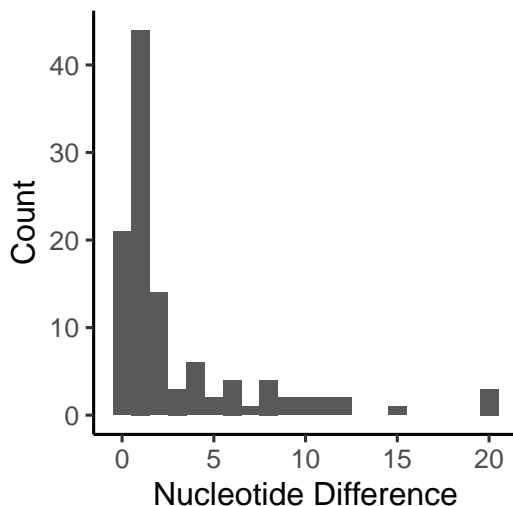
### IGHV3-23\*01\_04

8757 sequences assigned  
2296 (26.2%) exact matches, in which:  
1791 unique CDR3  
6 unique J



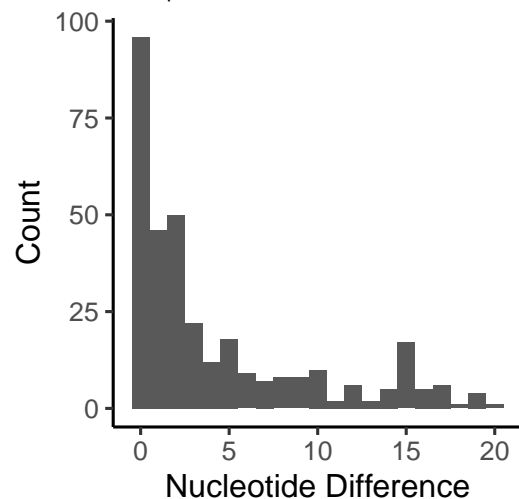
### IGHV3-30\*19

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



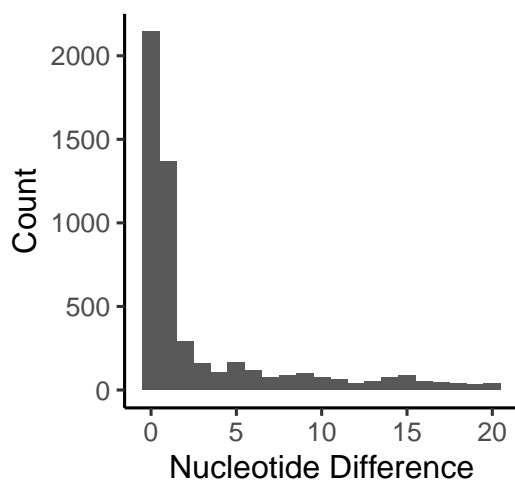
### IGHV3-33\*08

348 sequences assigned  
96 (27.6%) exact matches, in which:  
78 unique CDR3  
5 unique J



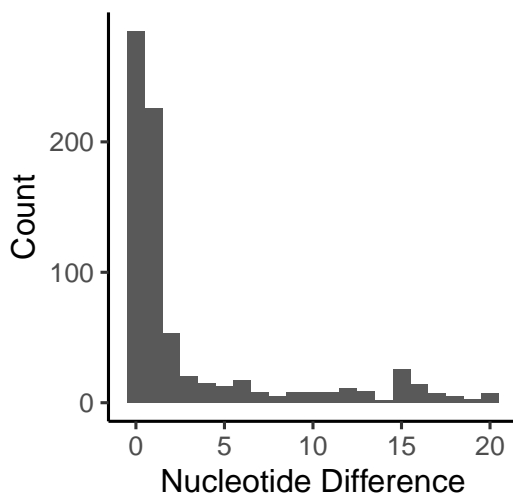
### IGHV3-30-3\*01

5528 sequences assigned  
2144 (38.8%) exact matches, in which:  
1653 unique CDR3  
6 unique J



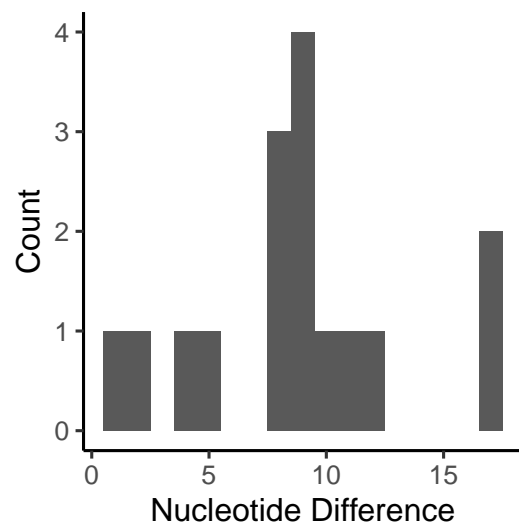
### IGHV3-33\*01

763 sequences assigned  
285 (37.4%) exact matches, in which:  
228 unique CDR3  
6 unique J



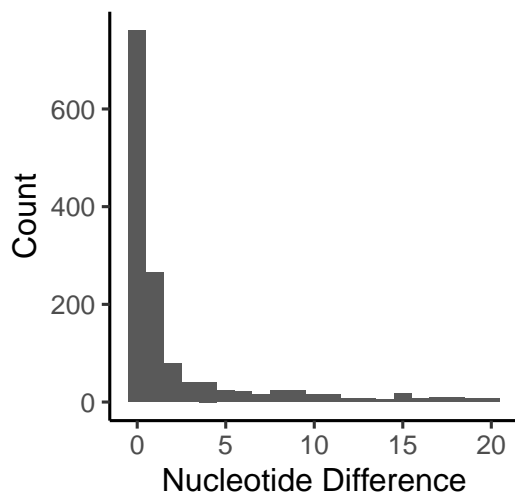
### IGHV3-35\*01

16 sequences assigned  
No exact matches.



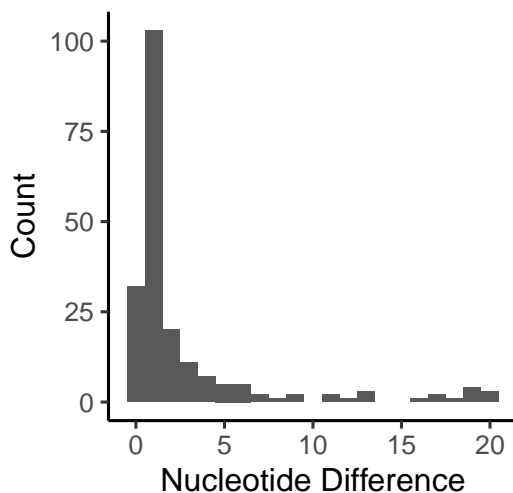
### IGHV3-30\*03

1530 sequences assigned  
761 (49.7%) exact matches, in which:  
661 unique CDR3  
6 unique J



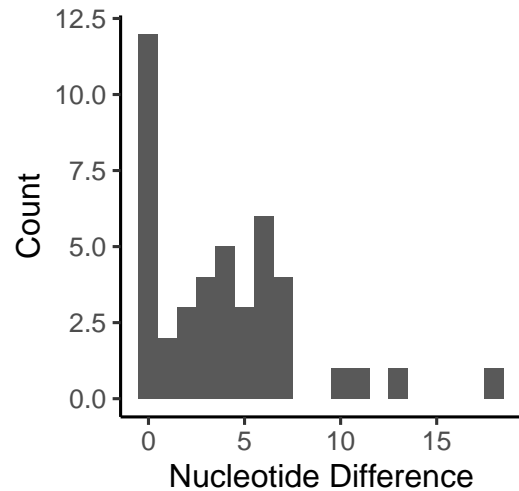
### IGHV3-33\*06

208 sequences assigned  
32 (15.4%) exact matches, in which:  
31 unique CDR3  
4 unique J



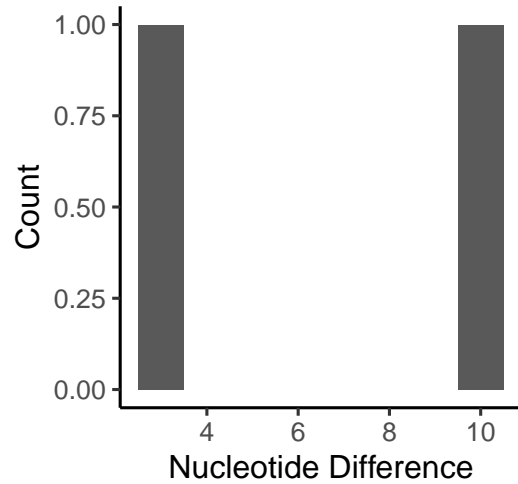
### IGHV3-38-3\*01

43 sequences assigned  
12 (27.9%) exact matches, in which:  
12 unique CDR3  
3 unique J



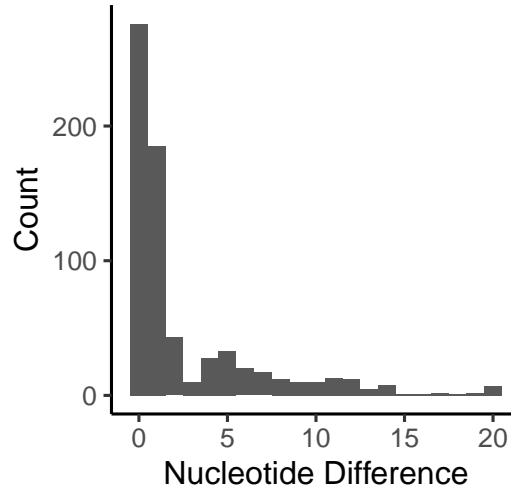
### IGHV3-38\*03

2 sequences assigned  
No exact matches.



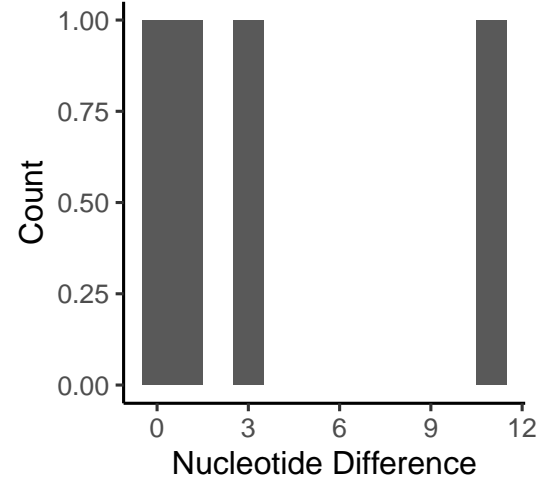
### IGHV3-48\*02

815 sequences assigned  
276 (33.9%) exact matches, in which:  
212 unique CDR3  
6 unique J



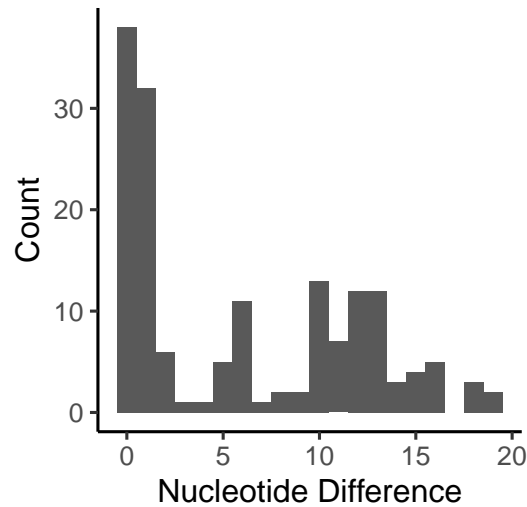
### IGHV3-52\*02

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



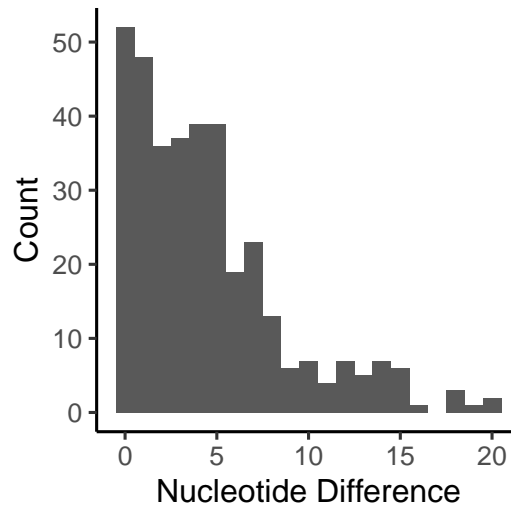
### IGHV3-43\*01

194 sequences assigned  
38 (19.6%) exact matches, in which:  
27 unique CDR3  
3 unique J



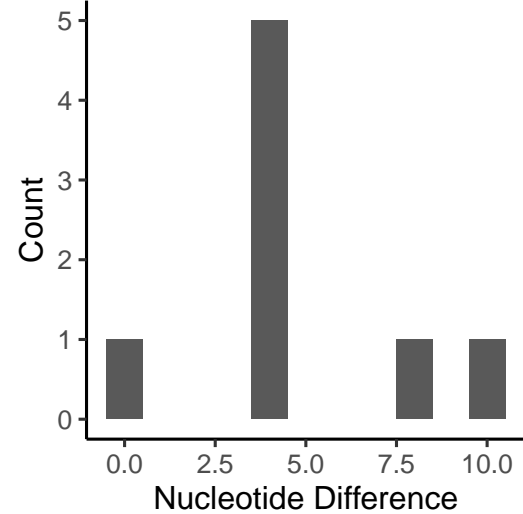
### IGHV3-48\*04

371 sequences assigned  
52 (14%) exact matches, in which:  
52 unique CDR3  
5 unique J



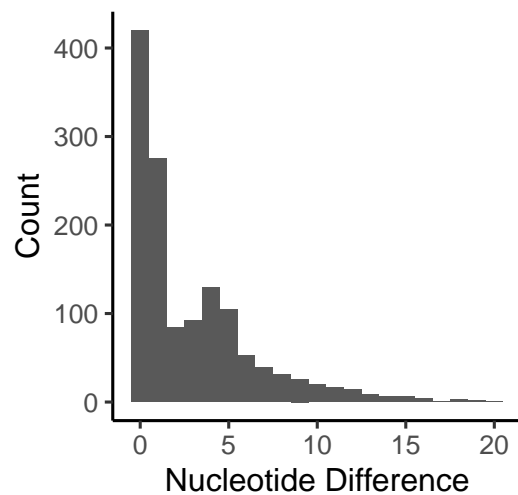
### IGHV3-52\*01\_03

8 sequences assigned  
1 (12.5%) exact matches, in which:  
1 unique CDR3  
1 unique J



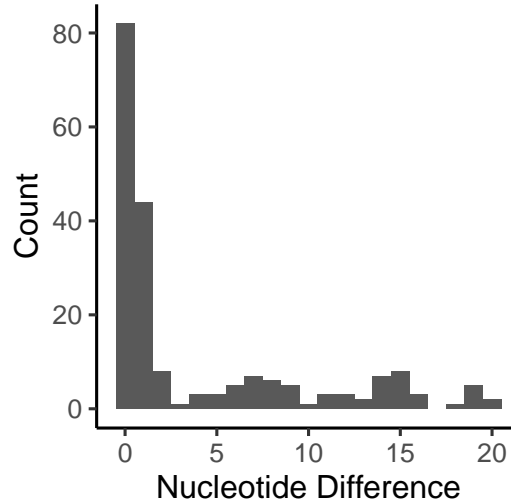
### IGHV3-48\*01

1379 sequences assigned  
420 (30.5%) exact matches, in which:  
340 unique CDR3  
6 unique J



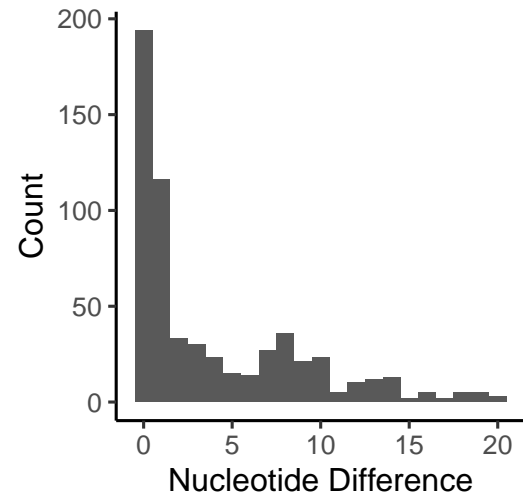
### IGHV3-49\*03\_05

210 sequences assigned  
82 (39%) exact matches, in which:  
59 unique CDR3  
5 unique J



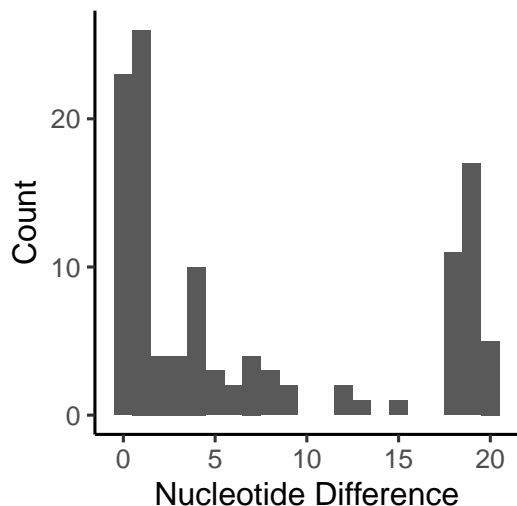
### IGHV3-53\*01\_02

599 sequences assigned  
194 (32.4%) exact matches, in which:  
161 unique CDR3  
5 unique J



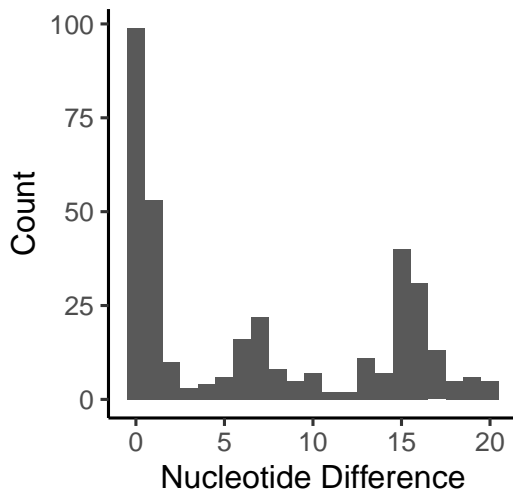
## IGHV3-64\*01

141 sequences assigned  
23 (16.3%) exact matches, in which:  
19 unique CDR3  
4 unique J



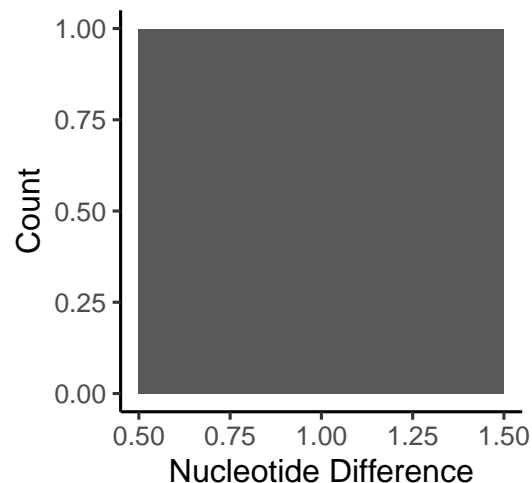
## IGHV3-66\*02

399 sequences assigned  
99 (24.8%) exact matches, in which:  
88 unique CDR3  
6 unique J



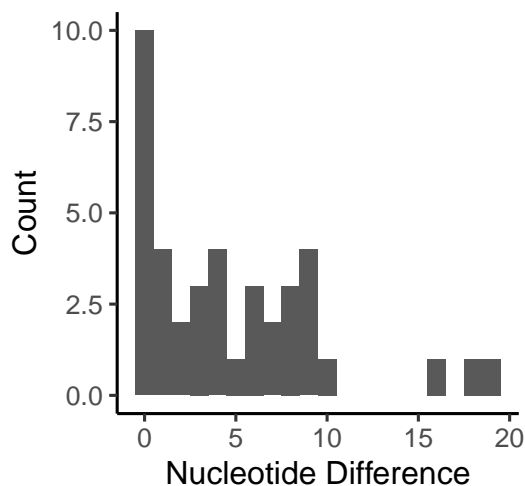
## IGHV3-71\*01\_04

2 sequences assigned  
No exact matches.



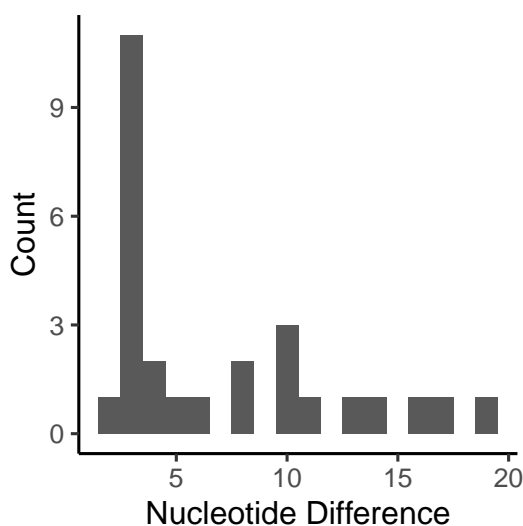
## IGHV3-64\*02\_07

50 sequences assigned  
10 (20%) exact matches, in which:  
10 unique CDR3  
3 unique J



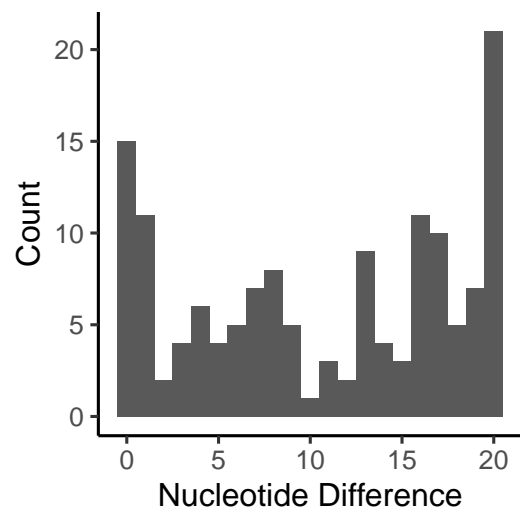
## IGHV3-69-1\*01

33 sequences assigned  
No exact matches.



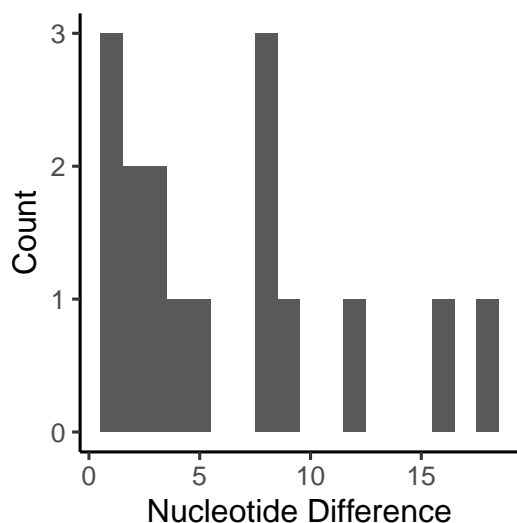
## IGHV3-72\*01

173 sequences assigned  
15 (8.7%) exact matches, in which:  
12 unique CDR3  
3 unique J



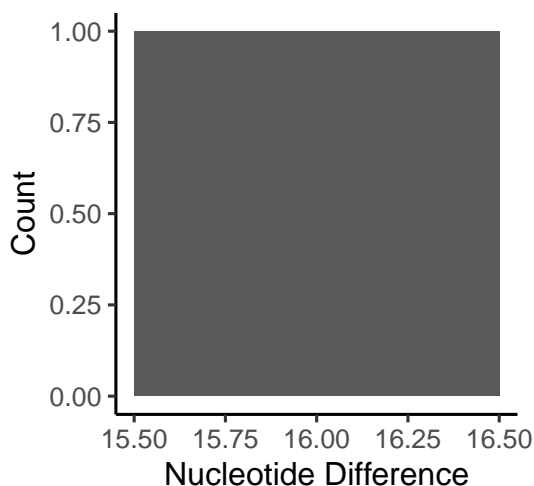
## IGHV3-66\*01

18 sequences assigned  
No exact matches.



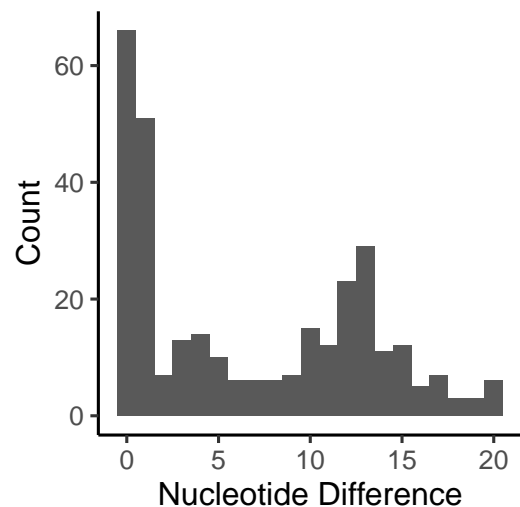
## IGHV3-71\*03

1 sequences assigned  
No exact matches.



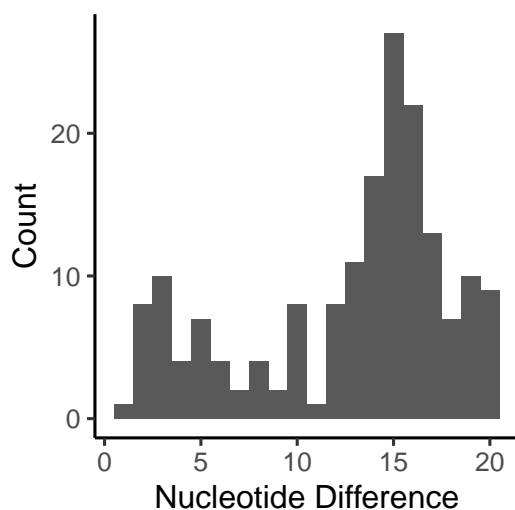
## IGHV3-73\*01\_02

334 sequences assigned  
66 (19.8%) exact matches, in which:  
53 unique CDR3  
4 unique J



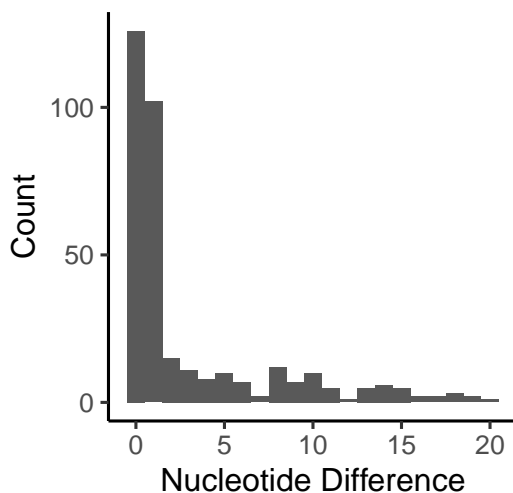
### IGHV3-74\*03

240 sequences assigned  
No exact matches.



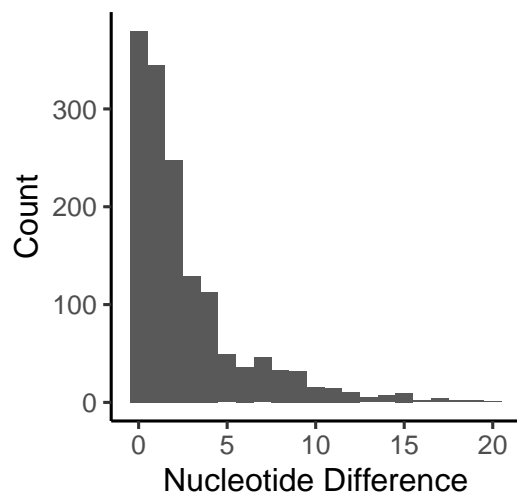
### IGHV3-64D\*06

391 sequences assigned  
126 (32.2%) exact matches, in which:  
85 unique CDR3  
5 unique J



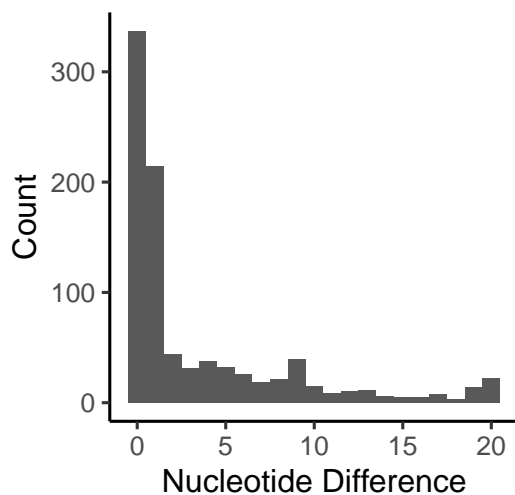
### IGHV4-4\*02\_03

1526 sequences assigned  
380 (24.9%) exact matches, in which:  
328 unique CDR3  
6 unique J



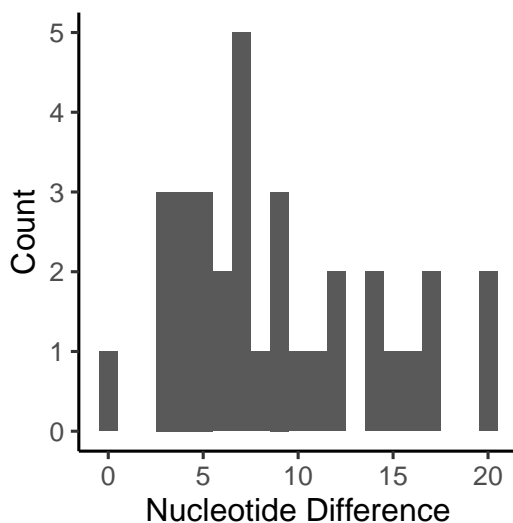
### IGHV3-74\*01\_02

1026 sequences assigned  
337 (32.8%) exact matches, in which:  
260 unique CDR3  
5 unique J



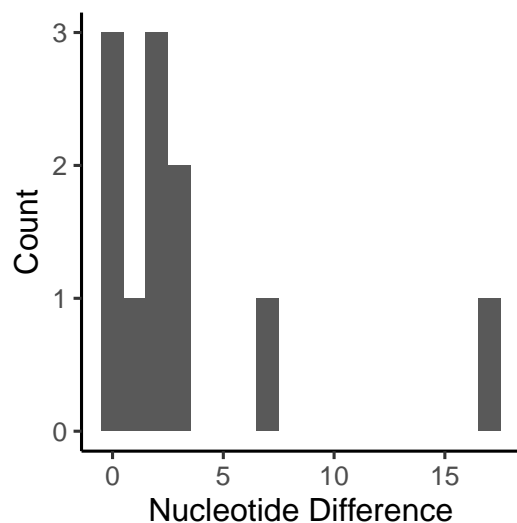
### IGHV3-NL1\*01

34 sequences assigned  
1 (2.9%) exact matches, in which:  
1 unique CDR3  
1 unique J



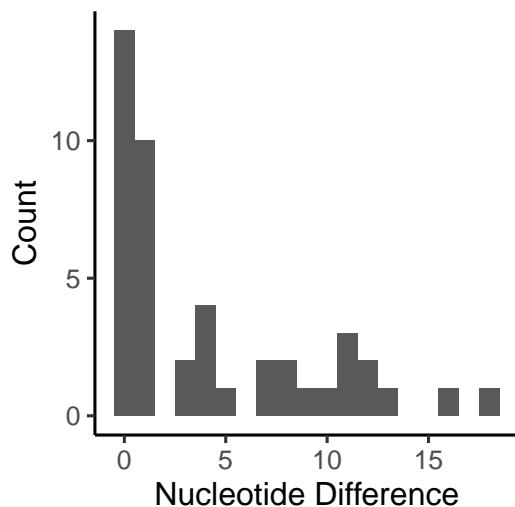
### IGHV4-28\*03

12 sequences assigned  
3 (25%) exact matches, in which:  
3 unique CDR3  
2 unique J



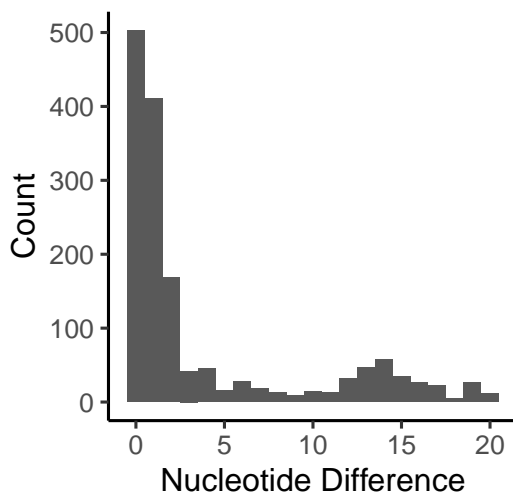
### IGHV3-43D\*03

49 sequences assigned  
14 (28.6%) exact matches, in which:  
12 unique CDR3  
2 unique J



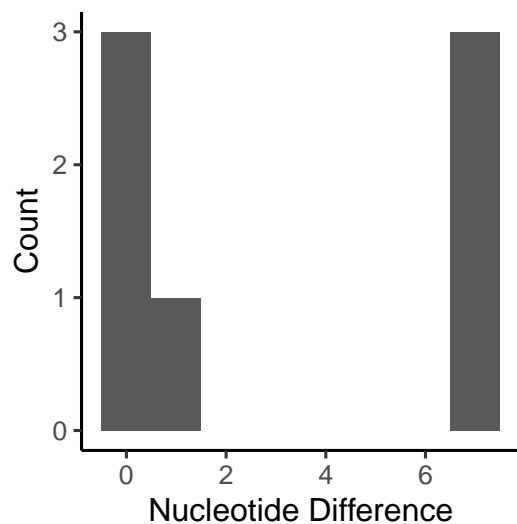
### IGHV4-4\*07

1736 sequences assigned  
503 (29%) exact matches, in which:  
466 unique CDR3  
6 unique J



### IGHV4-28\*01\_07

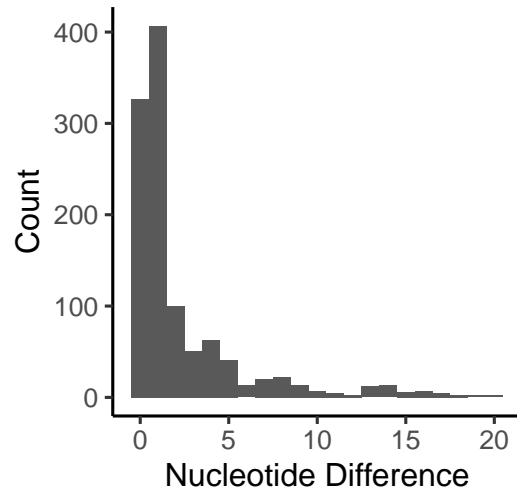
7 sequences assigned  
3 (42.9%) exact matches, in which:  
2 unique CDR3  
1 unique J





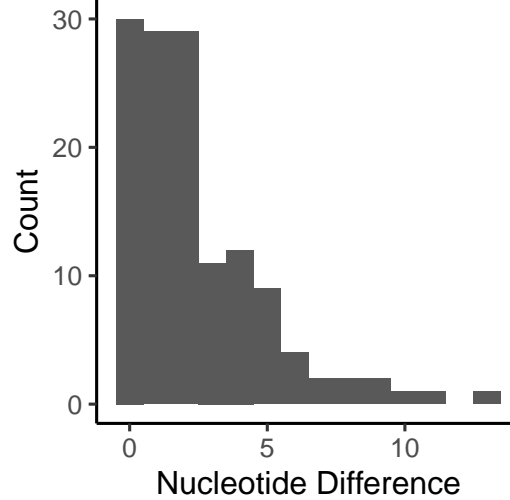
### IGHV4-30-4\*01

1157 sequences assigned  
327 (28.3%) exact matches, in which:  
269 unique CDR3  
5 unique J



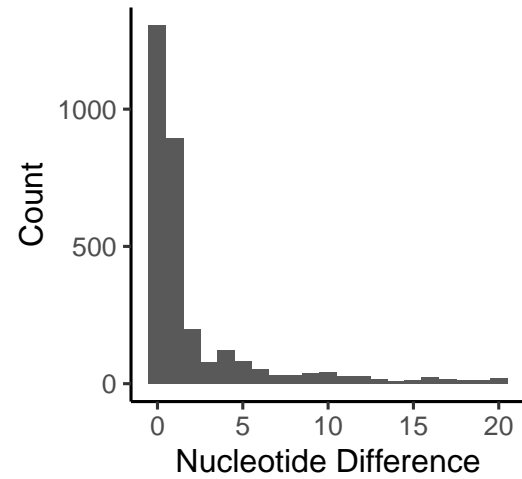
### IGHV4-30-2\*05

134 sequences assigned  
30 (22.4%) exact matches, in which:  
30 unique CDR3  
5 unique J



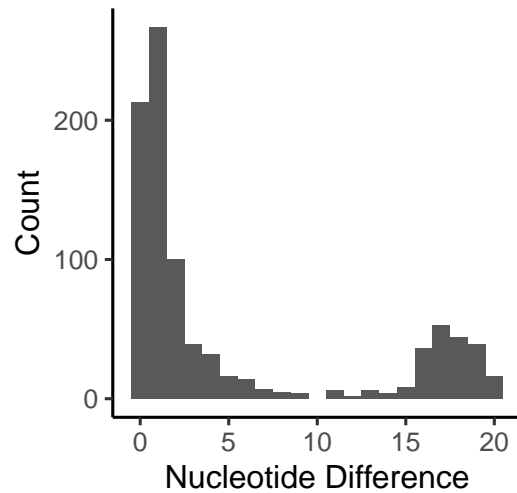
### IGHV4-34\*01\_02

3126 sequences assigned  
1305 (41.7%) exact matches, in which:  
1098 unique CDR3  
6 unique J



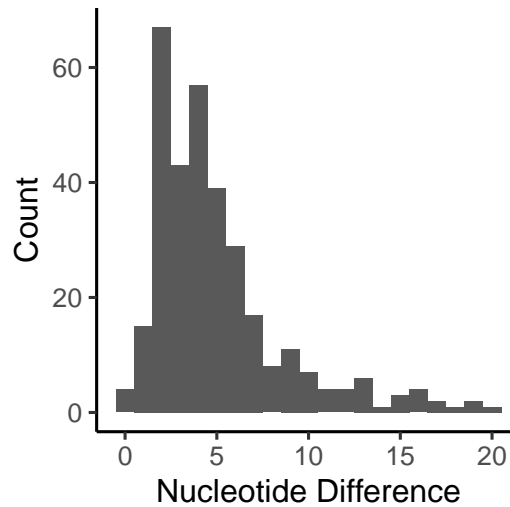
### IGHV4-30-2\*01

939 sequences assigned  
213 (22.7%) exact matches, in which:  
149 unique CDR3  
5 unique J



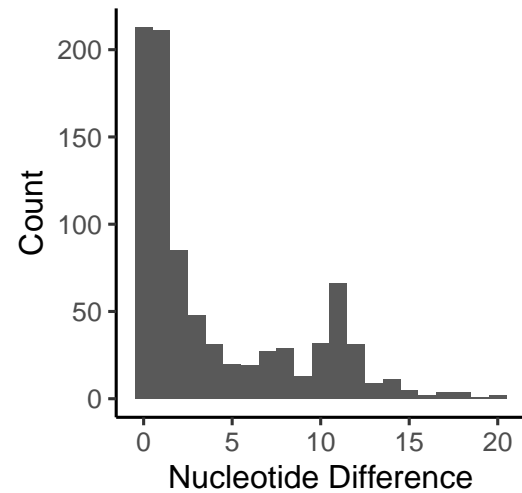
### IGHV4-30-4\*08

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



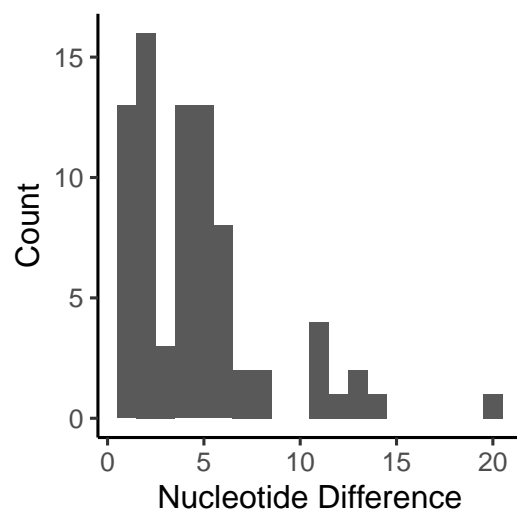
### IGHV4-38-2\*02

901 sequences assigned  
213 (23.6%) exact matches, in which:  
199 unique CDR3  
6 unique J



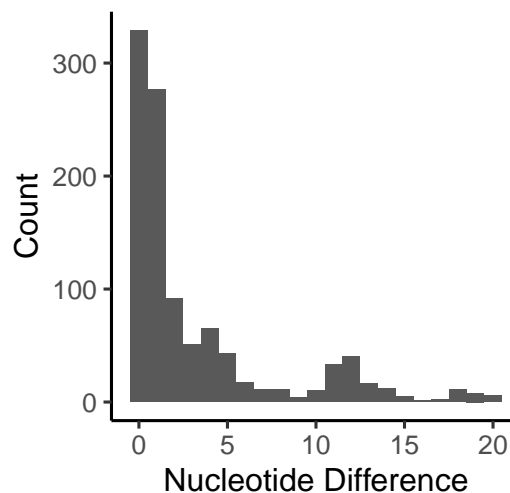
### IGHV4-30-2\*03

80 sequences assigned  
No exact matches.



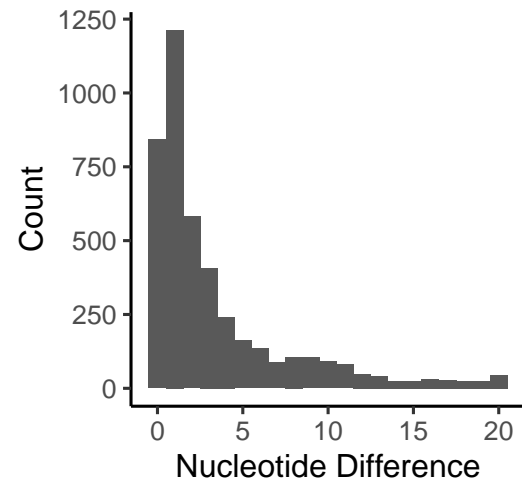
### IGHV4-31\*02

1160 sequences assigned  
329 (28.4%) exact matches, in which:  
291 unique CDR3  
6 unique J



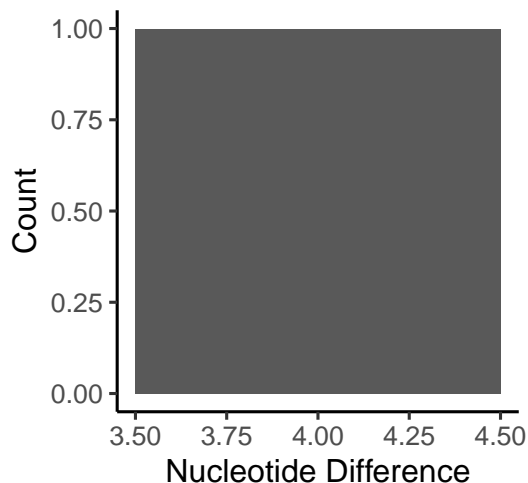
### IGHV4-39\*07

4712 sequences assigned  
842 (17.9%) exact matches, in which:  
750 unique CDR3  
6 unique J



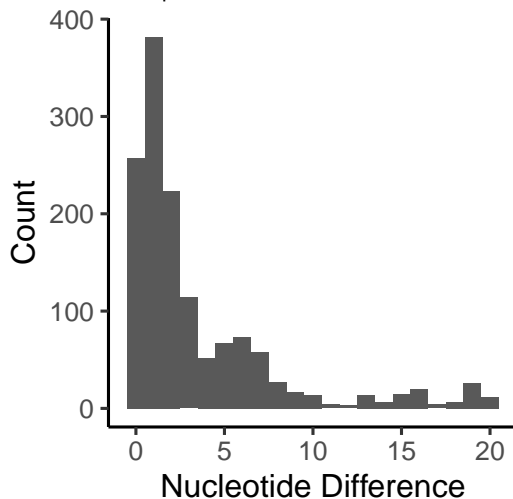
### IGHV4-55\*09

1 sequences assigned  
No exact matches.



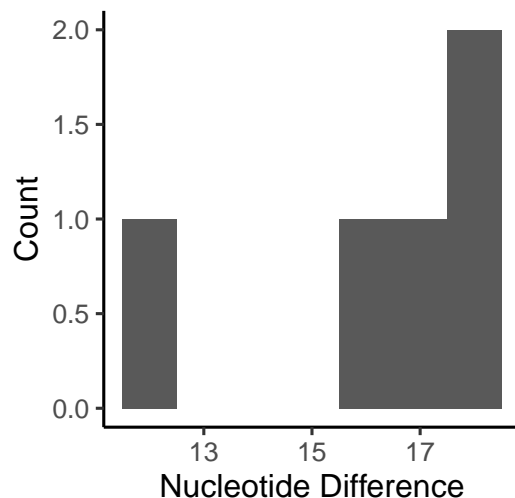
### IGHV4-59\*12

1714 sequences assigned  
257 (15%) exact matches, in which:  
250 unique CDR3  
6 unique J



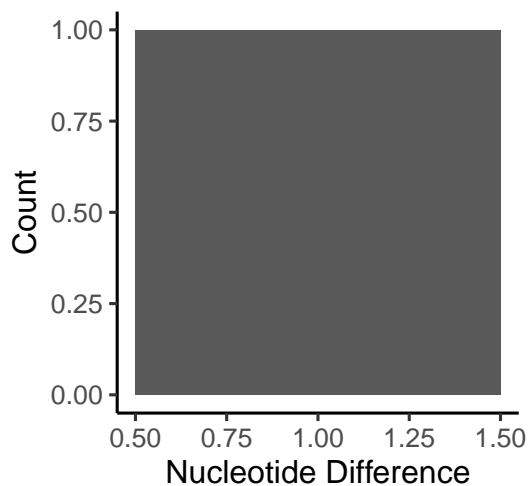
### IGHV1/OR15-2\*02\_03

6 sequences assigned  
No exact matches.



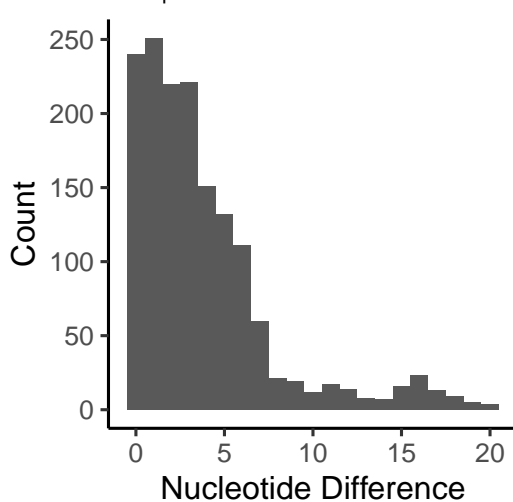
### IGHV4-55\*01\_05

1 sequences assigned  
No exact matches.



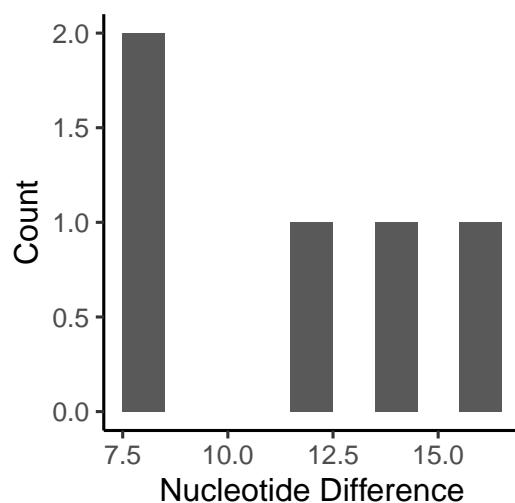
### IGHV4-61\*01

1583 sequences assigned  
240 (15.2%) exact matches, in which:  
227 unique CDR3  
6 unique J



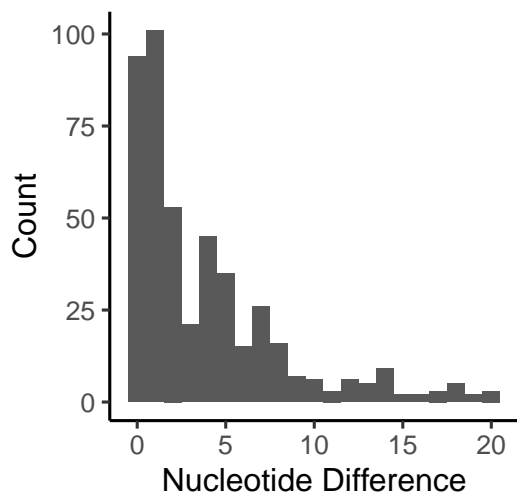
### IGHV1/OR15-3\*02

6 sequences assigned  
No exact matches.



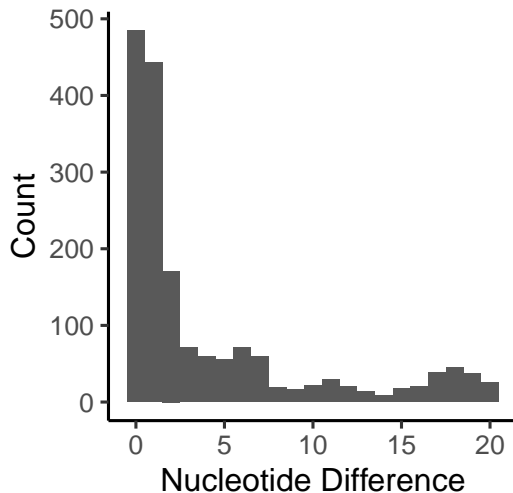
### IGHV4-59\*08

472 sequences assigned  
94 (19.9%) exact matches, in which:  
92 unique CDR3  
6 unique J



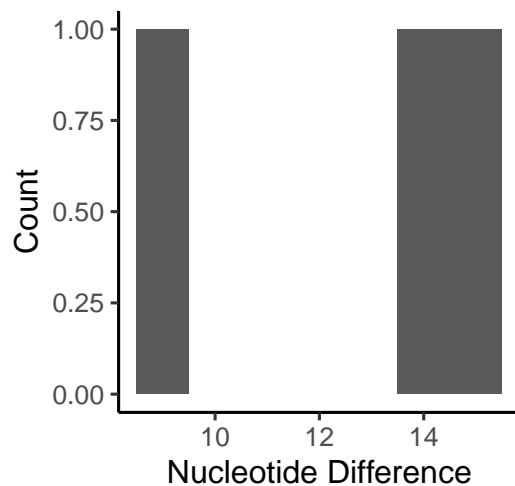
### IGHV4-61\*02

1882 sequences assigned  
485 (25.8%) exact matches, in which:  
444 unique CDR3  
6 unique J



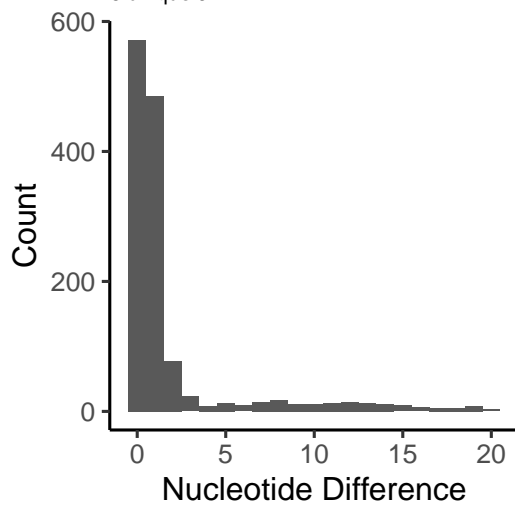
### IGHV4/OR15-8\*01

7 sequences assigned  
No exact matches.



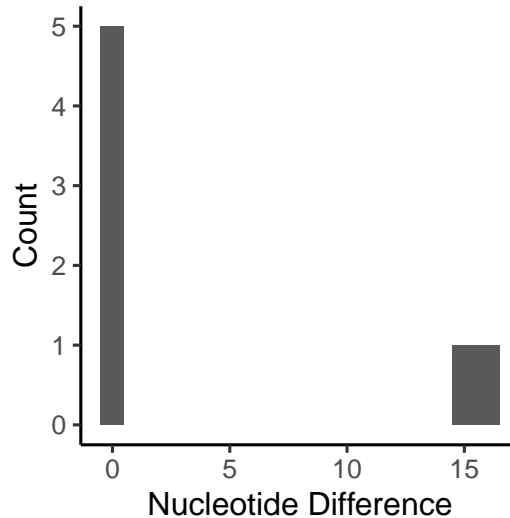
### IGHV5-10-1\*01\_03

1353 sequences assigned  
572 (42.3%) exact matches, in which:  
476 unique CDR3  
6 unique J



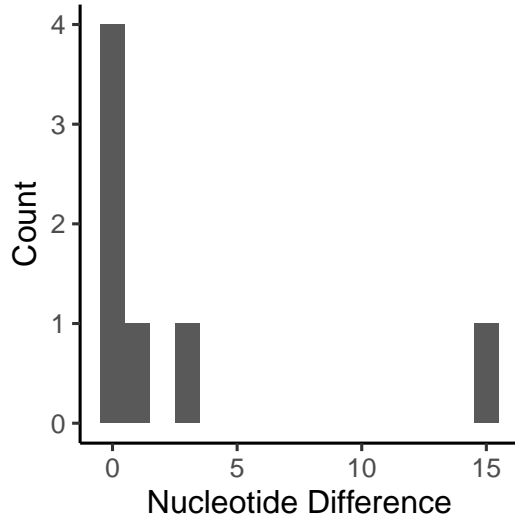
### IGHV5-51\*07

7 sequences assigned  
5 (71.4%) exact matches, in which:  
5 unique CDR3  
3 unique J



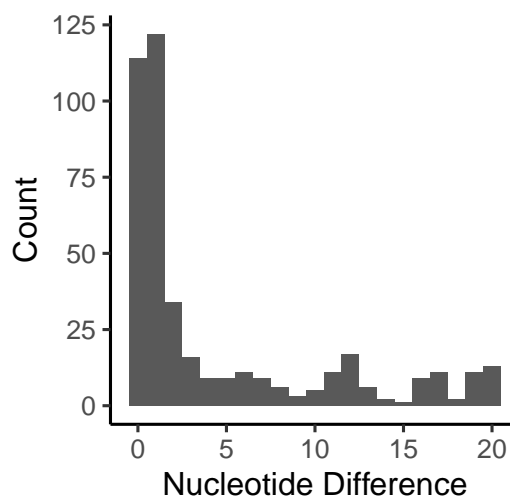
### IGHV5-51\*04

7 sequences assigned  
4 (57.1%) exact matches, in which:  
4 unique CDR3  
3 unique J



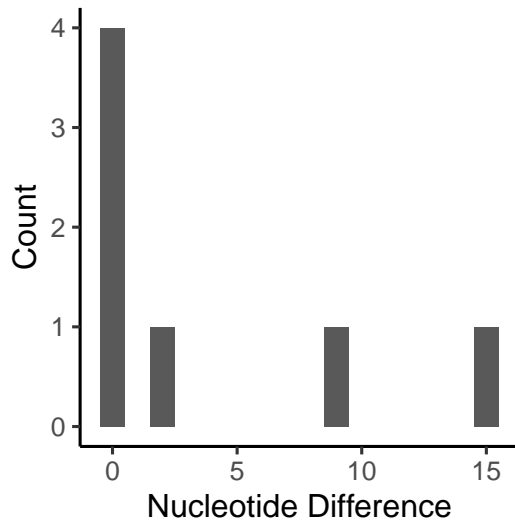
### IGHV6-1\*01\_02

435 sequences assigned  
114 (26.2%) exact matches, in which:  
100 unique CDR3  
6 unique J



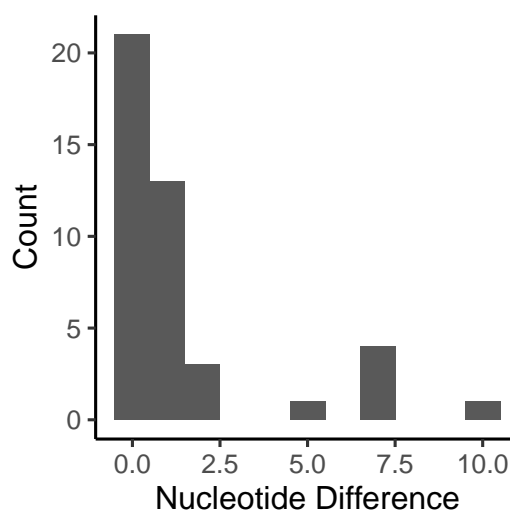
### IGHV5-51\*06

7 sequences assigned  
4 (57.1%) exact matches, in which:  
4 unique CDR3  
1 unique J



### IGHV7-4-1\*01

44 sequences assigned  
21 (47.7%) exact matches, in which:  
18 unique CDR3  
3 unique J





[illegible]