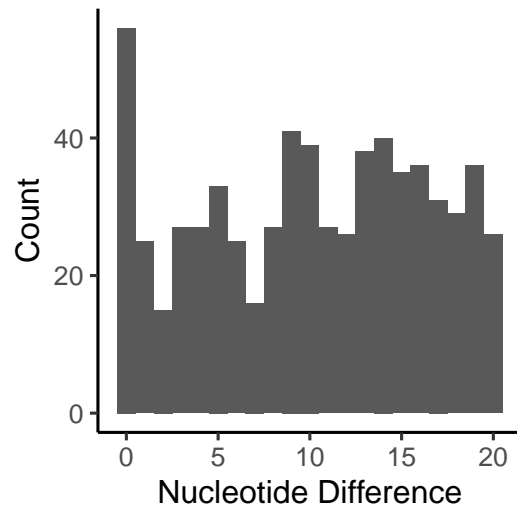


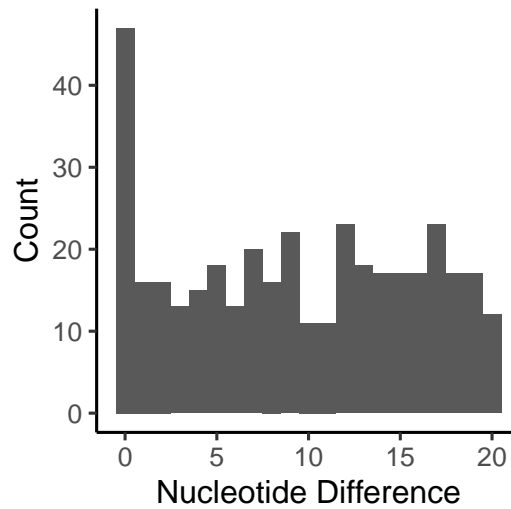
## IGHV1-2\*02

850 sequences assigned  
56 (6.6%) exact matches, in which:  
56 unique CDR3  
6 unique J



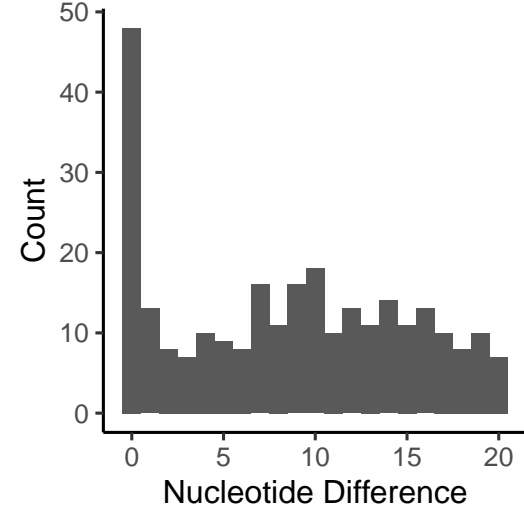
## IGHV1-8\*01

429 sequences assigned  
47 (11%) exact matches, in which:  
44 unique CDR3  
4 unique J



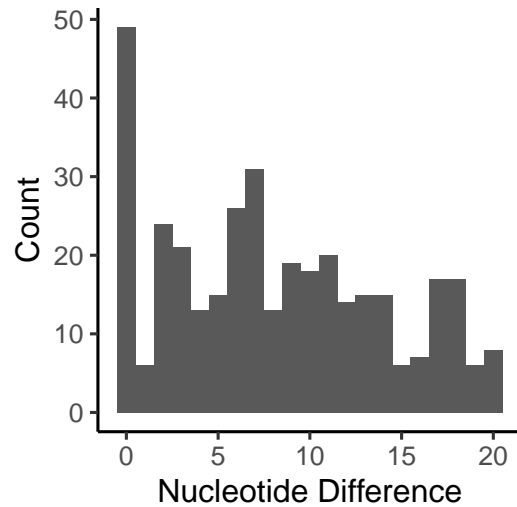
## IGHV1-46\*01

362 sequences assigned  
48 (13.3%) exact matches, in which:  
47 unique CDR3  
5 unique J



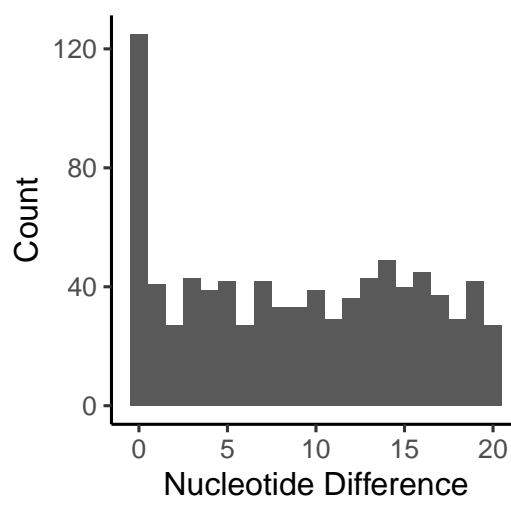
## IGHV1-2\*06

441 sequences assigned  
49 (11.1%) exact matches, in which:  
43 unique CDR3  
5 unique J



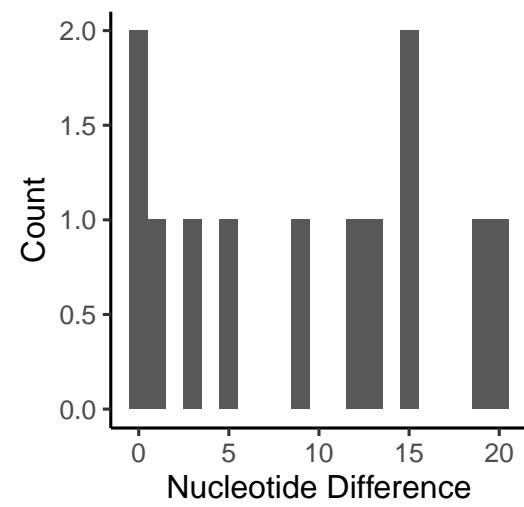
## IGHV1-18\*01

1092 sequences assigned  
125 (11.4%) exact matches, in which:  
113 unique CDR3  
4 unique J



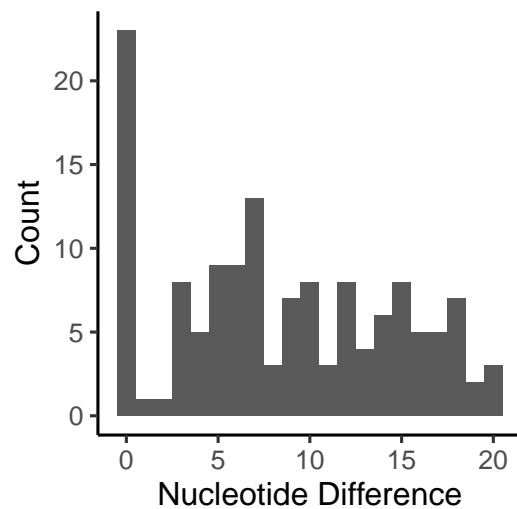
## IGHV1-58\*02

17 sequences assigned  
2 (11.8%) exact matches, in which:  
2 unique CDR3  
1 unique J



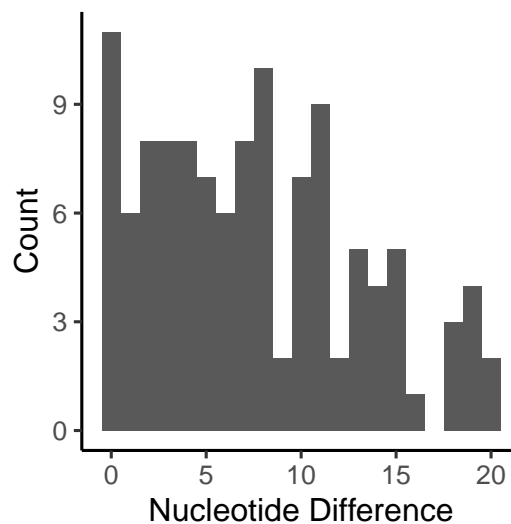
## IGHV1-3\*01\_05

154 sequences assigned  
23 (14.9%) exact matches, in which:  
23 unique CDR3  
5 unique J



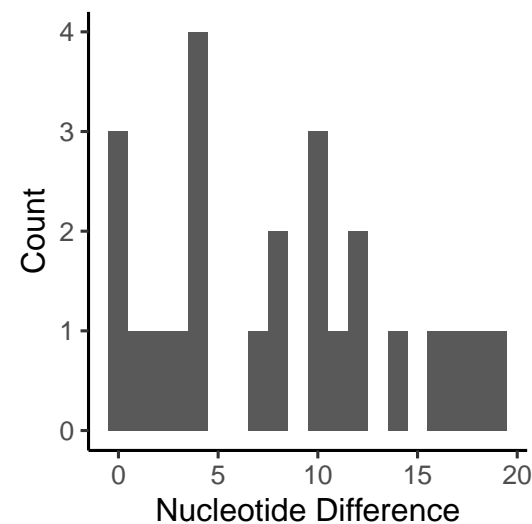
## IGHV1-24\*01

140 sequences assigned  
11 (7.9%) exact matches, in which:  
9 unique CDR3  
5 unique J



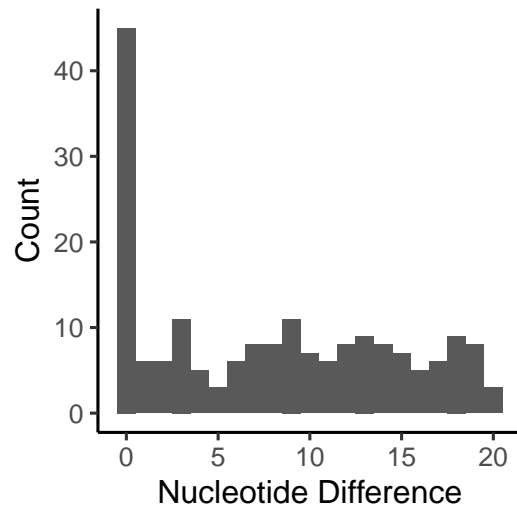
## IGHV1-58\*01\_03

24 sequences assigned  
3 (12.5%) exact matches, in which:  
3 unique CDR3  
2 unique J



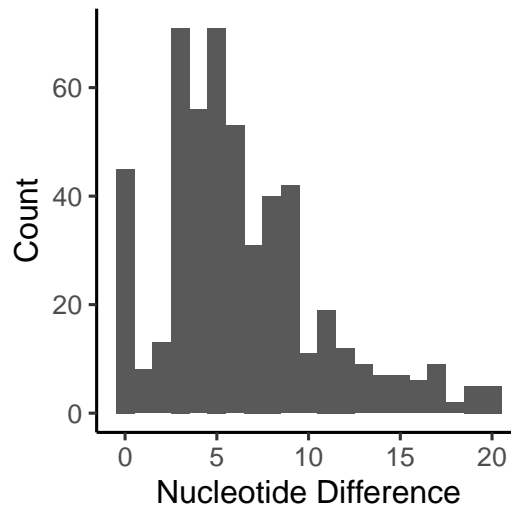
## IGHV1-69\*01\_12\_13

275 sequences assigned  
45 (16.4%) exact matches, in which:  
44 unique CDR3  
4 unique J



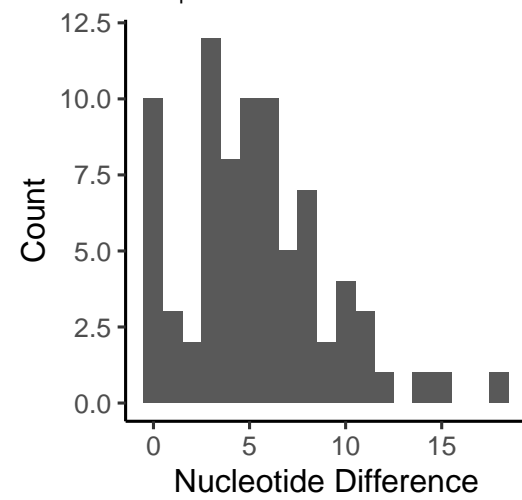
## IGHV2-5\*02

546 sequences assigned  
45 (8.2%) exact matches, in which:  
42 unique CDR3  
5 unique J



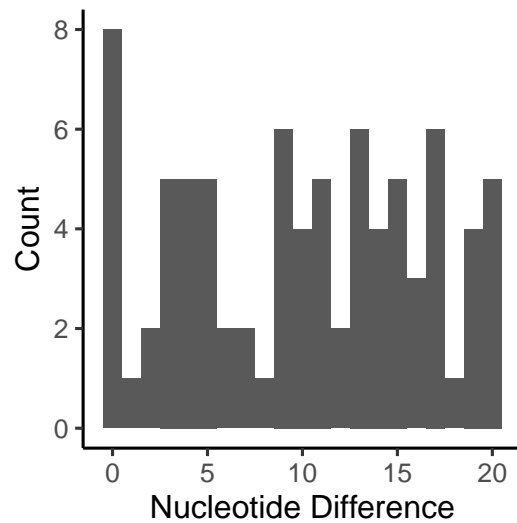
## IGHV2-70\*11\_15

81 sequences assigned  
10 (12.3%) exact matches, in which:  
9 unique CDR3  
2 unique J



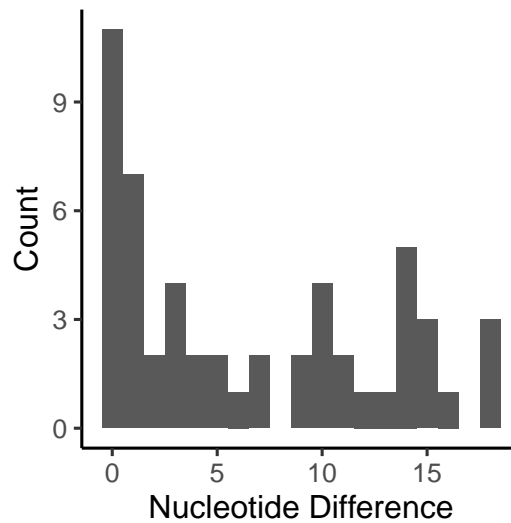
## IGHV1-69\*04\_09

134 sequences assigned  
8 (6%) exact matches, in which:  
7 unique CDR3  
2 unique J



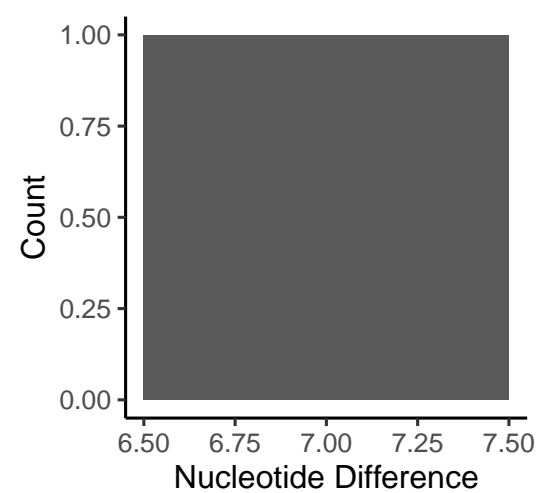
## IGHV2-26\*01

62 sequences assigned  
11 (17.7%) exact matches, in which:  
10 unique CDR3  
3 unique J



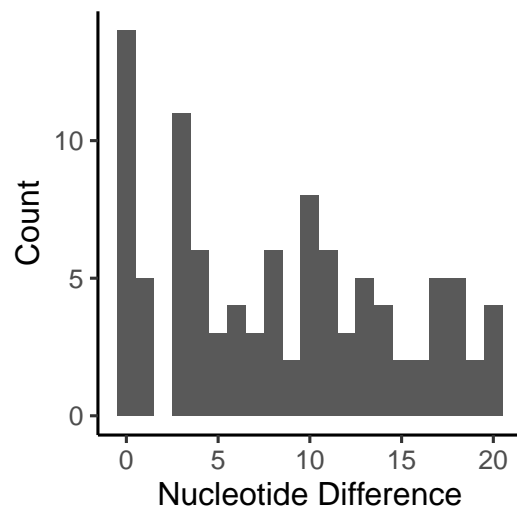
## IGHV2-70D\*04

1 sequences assigned  
No exact matches.



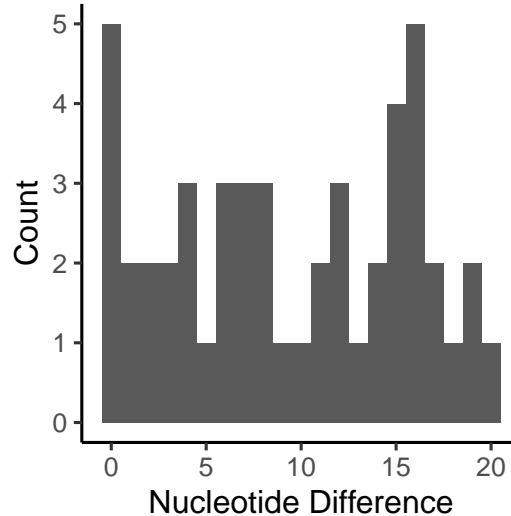
## IGHV2-5\*01

110 sequences assigned  
14 (12.7%) exact matches, in which:  
13 unique CDR3  
3 unique J



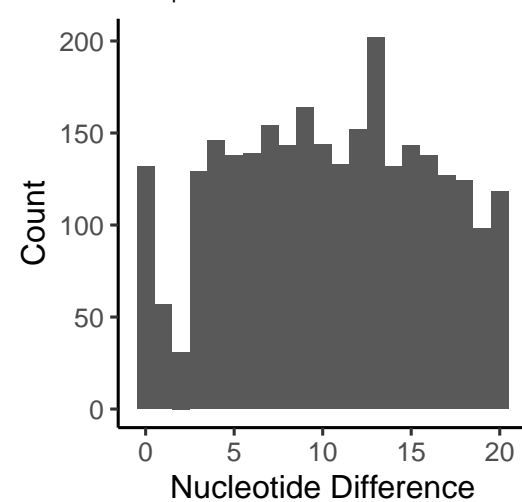
## IGHV2-70\*01

55 sequences assigned  
5 (9.1%) exact matches, in which:  
5 unique CDR3  
2 unique J



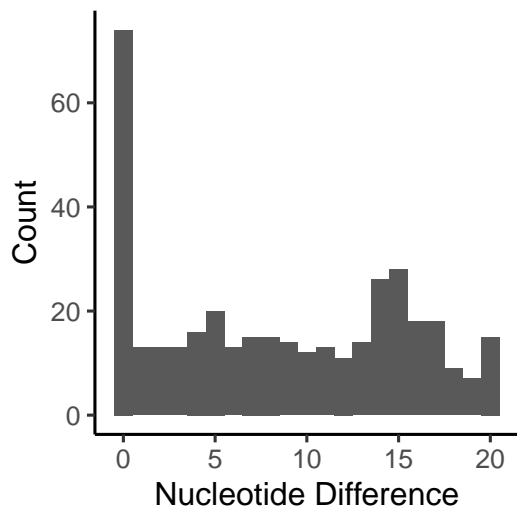
## IGHV3-7\*01

3136 sequences assigned  
132 (4.2%) exact matches, in which:  
70 unique CDR3  
5 unique J



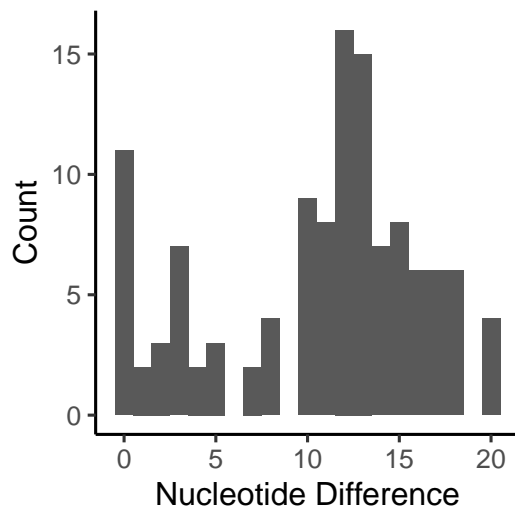
### IGHV3-9\*01

458 sequences assigned  
74 (16.2%) exact matches, in which:  
54 unique CDR3  
5 unique J



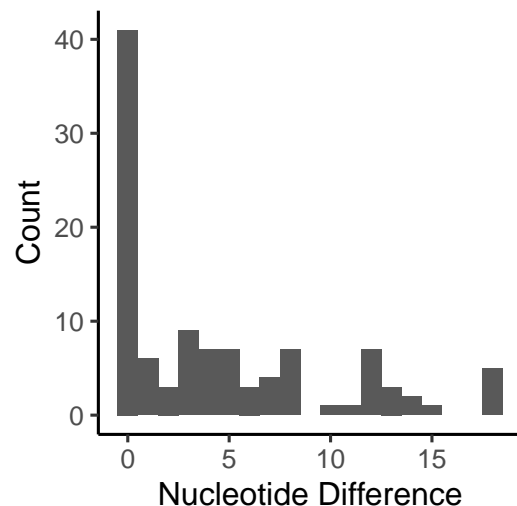
### IGHV3-13\*01

125 sequences assigned  
11 (8.8%) exact matches, in which:  
5 unique CDR3  
4 unique J



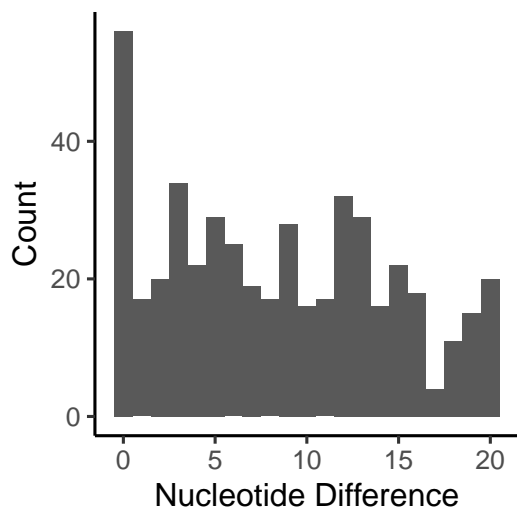
### IGHV3-20\*01\_02

113 sequences assigned  
41 (36.3%) exact matches, in which:  
19 unique CDR3  
5 unique J



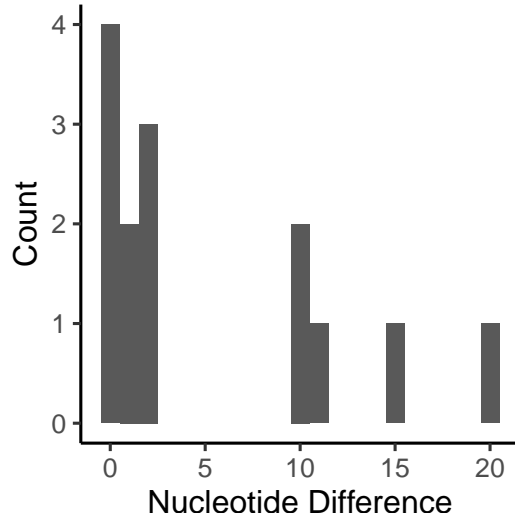
### IGHV3-11\*01

543 sequences assigned  
56 (10.3%) exact matches, in which:  
34 unique CDR3  
4 unique J



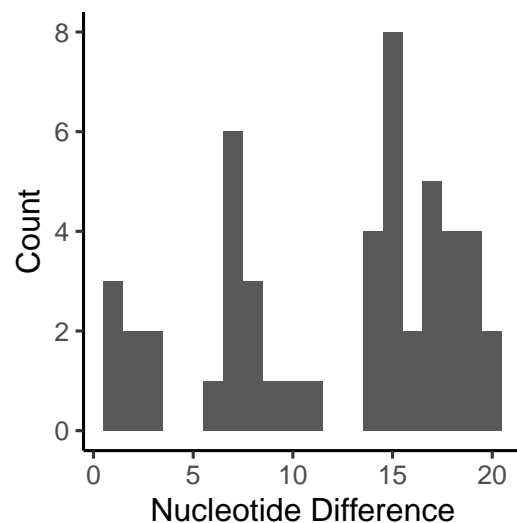
### IGHV3-13\*05

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



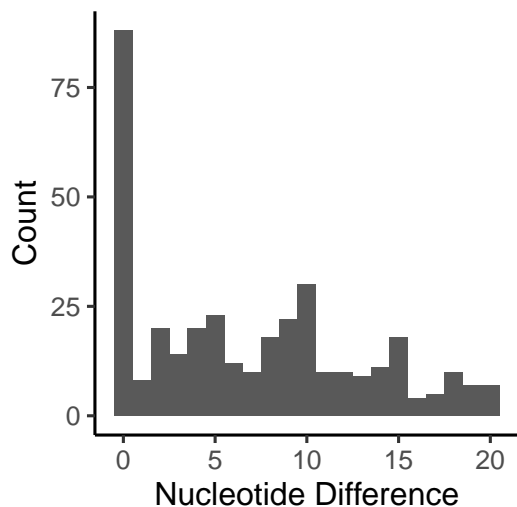
### IGHV3-20\*03\_04

78 sequences assigned  
No exact matches.



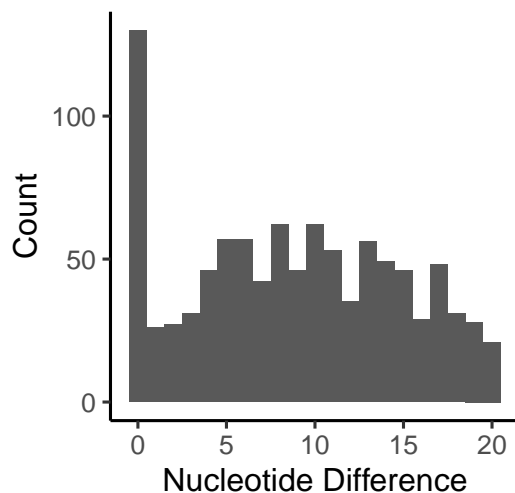
### IGHV3-11\*06

425 sequences assigned  
88 (20.7%) exact matches, in which:  
51 unique CDR3  
6 unique J



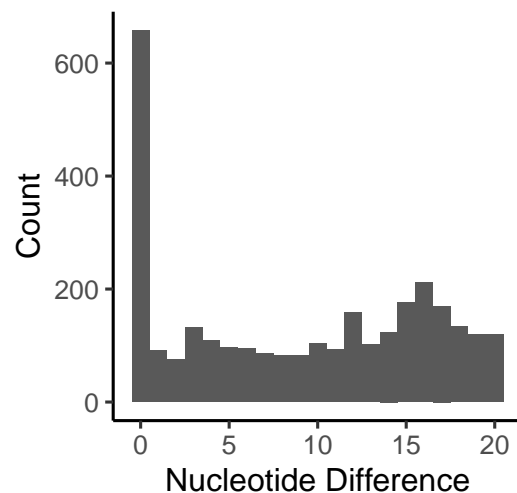
### IGHV3-15\*01\_02

1204 sequences assigned  
130 (10.8%) exact matches, in which:  
85 unique CDR3  
6 unique J



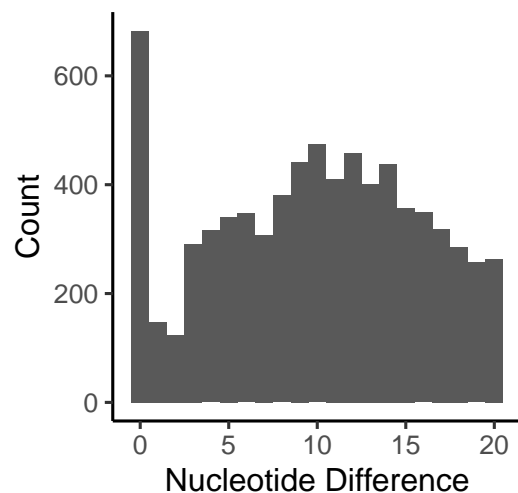
### IGHV3-21\*01\_02

3770 sequences assigned  
658 (17.5%) exact matches, in which:  
310 unique CDR3  
6 unique J



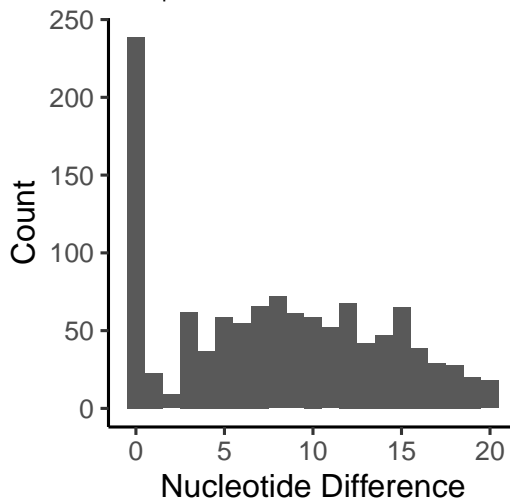
### IGHV3-23\*01\_04

9856 sequences assigned  
683 (6.9%) exact matches, in which:  
366 unique CDR3  
6 unique J



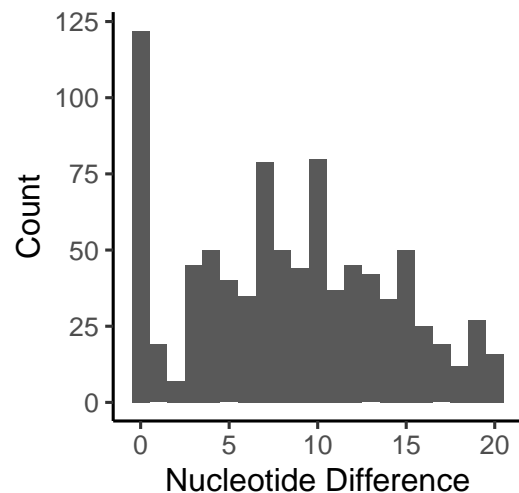
### IGHV3-33\*01

1274 sequences assigned  
239 (18.8%) exact matches, in which:  
141 unique CDR3  
5 unique J



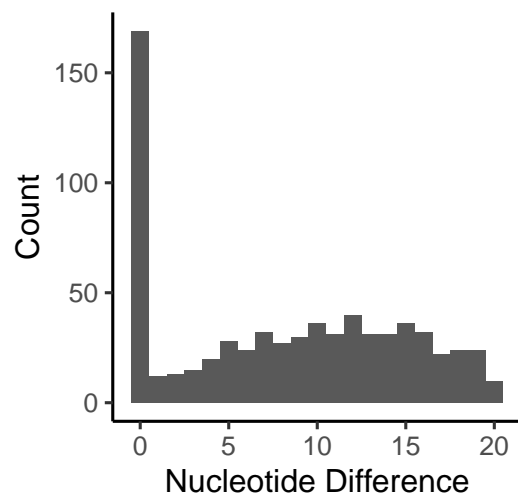
### IGHV3-48\*02

965 sequences assigned  
122 (12.6%) exact matches, in which:  
53 unique CDR3  
4 unique J



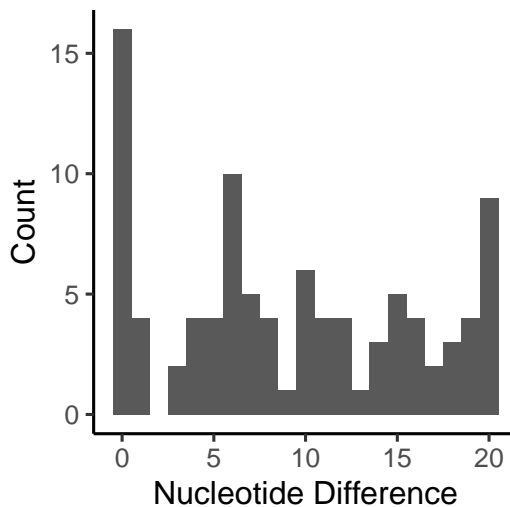
### IGHV3-30-3\*01

859 sequences assigned  
169 (19.7%) exact matches, in which:  
117 unique CDR3  
6 unique J



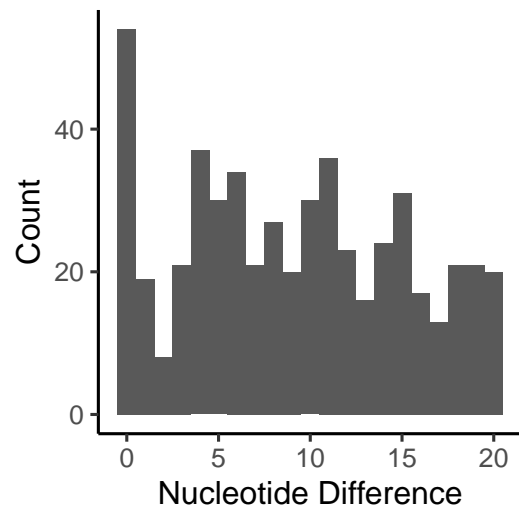
### IGHV3-43\*01

109 sequences assigned  
16 (14.7%) exact matches, in which:  
8 unique CDR3  
4 unique J



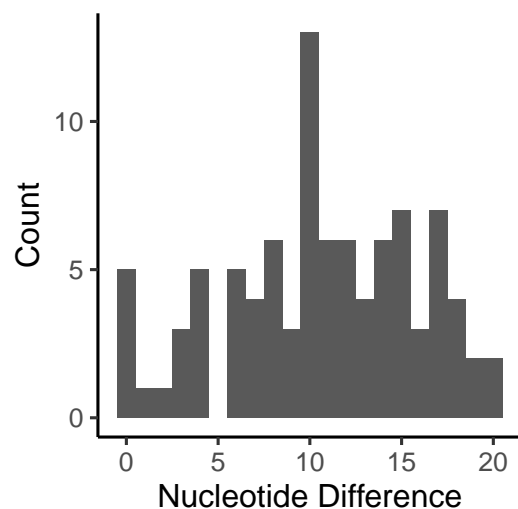
### IGHV3-48\*03

640 sequences assigned  
54 (8.4%) exact matches, in which:  
28 unique CDR3  
4 unique J



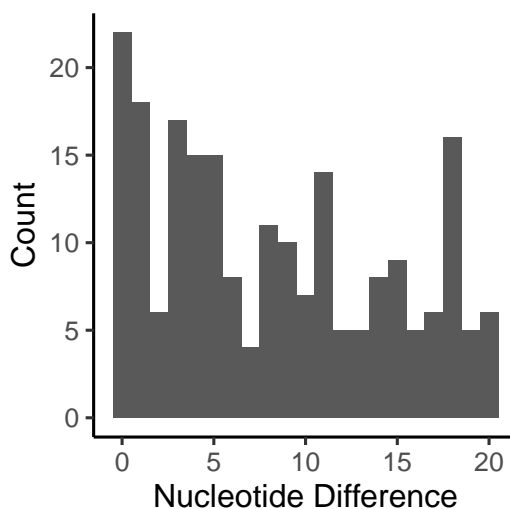
### IGHV3-30\*03

133 sequences assigned  
5 (3.8%) exact matches, in which:  
4 unique CDR3  
2 unique J



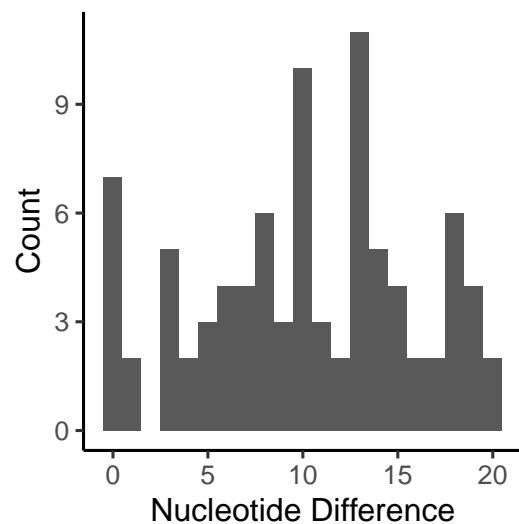
### IGHV3-43\*02

285 sequences assigned  
22 (7.7%) exact matches, in which:  
15 unique CDR3  
4 unique J



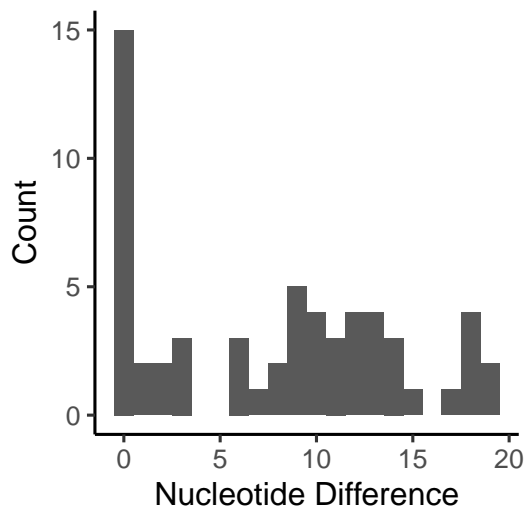
### IGHV3-49\*04

119 sequences assigned  
7 (5.9%) exact matches, in which:  
6 unique CDR3  
3 unique J



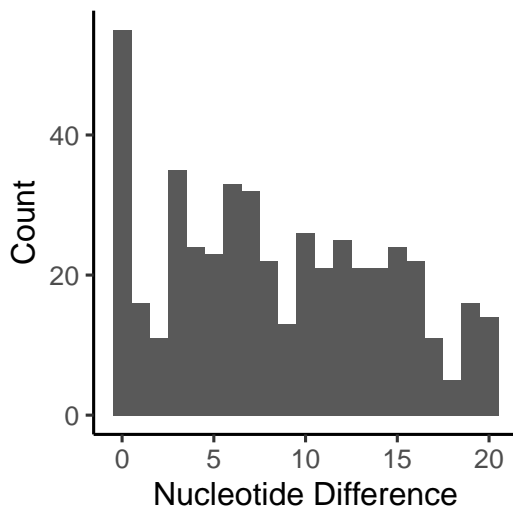
### IGHV3-49\*03\_05

65 sequences assigned  
15 (23.1%) exact matches, in which:  
14 unique CDR3  
4 unique J



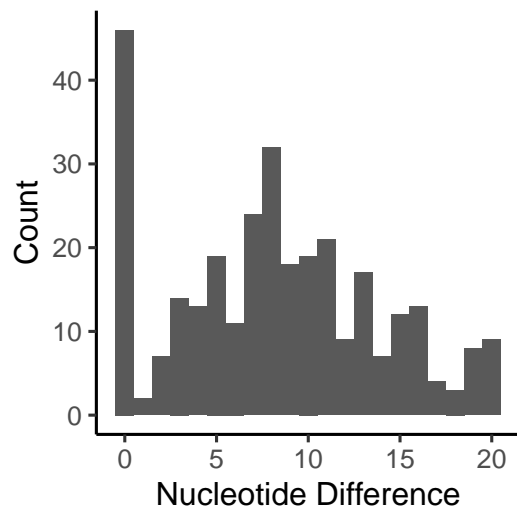
### IGHV3-53\*01\_02

549 sequences assigned  
55 (10%) exact matches, in which:  
31 unique CDR3  
4 unique J



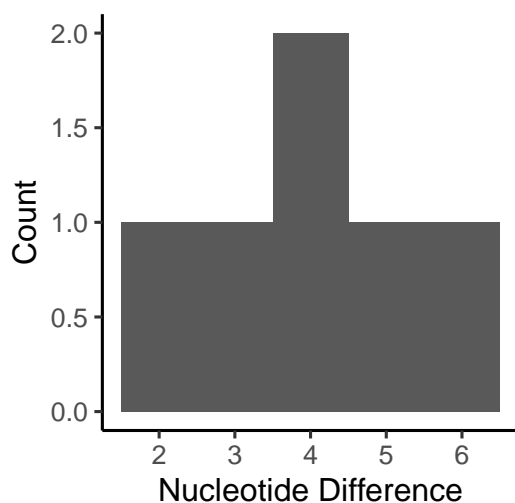
### IGHV3-66\*01

403 sequences assigned  
46 (11.4%) exact matches, in which:  
22 unique CDR3  
5 unique J



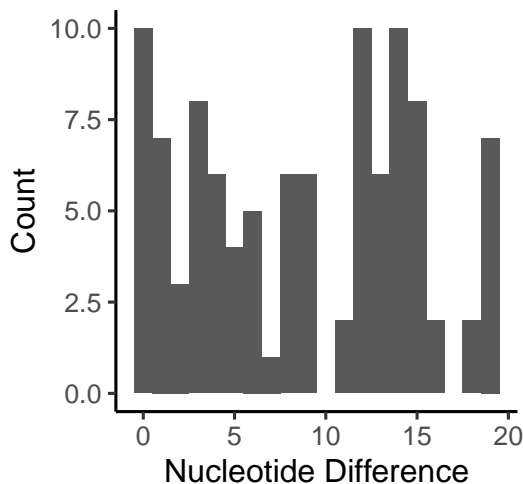
### IGHV3-52\*01\_03

6 sequences assigned  
No exact matches.



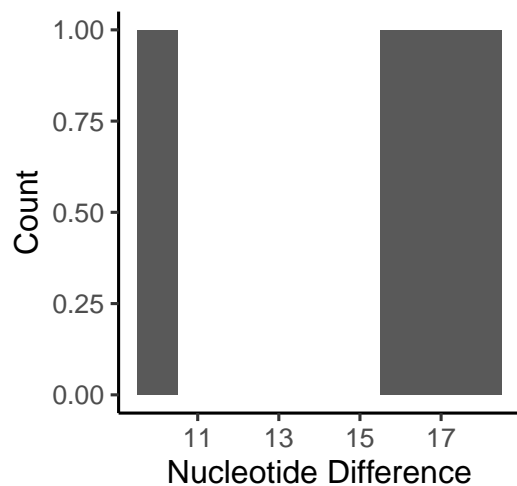
### IGHV3-64\*01

112 sequences assigned  
10 (8.9%) exact matches, in which:  
5 unique CDR3  
2 unique J



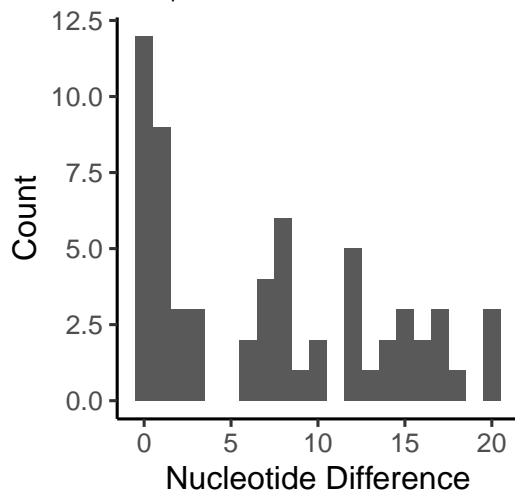
### IGHV3-69-1\*01

16 sequences assigned  
No exact matches.



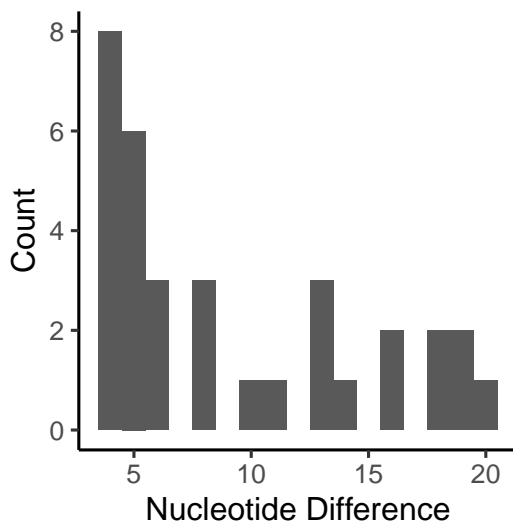
### IGHV3-53\*04

76 sequences assigned  
12 (15.8%) exact matches, in which:  
5 unique CDR3  
3 unique J



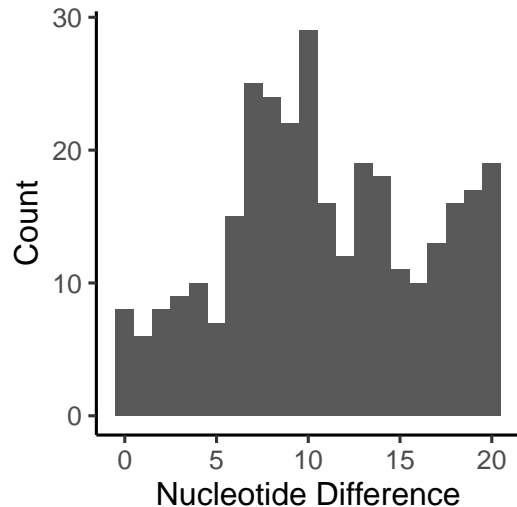
### IGHV3-64\*02\_07

43 sequences assigned  
No exact matches.



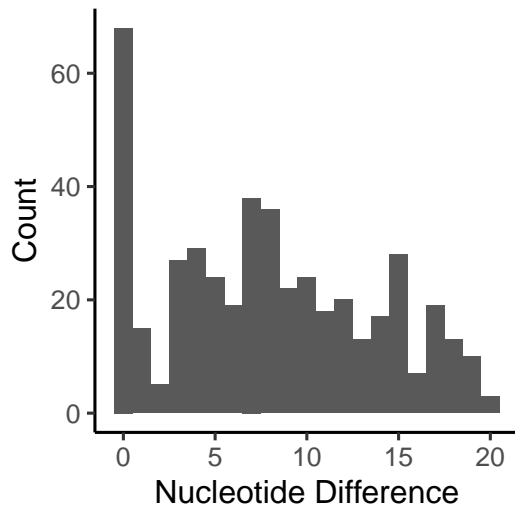
### IGHV3-72\*01

376 sequences assigned  
8 (2.1%) exact matches, in which:  
5 unique CDR3  
3 unique J



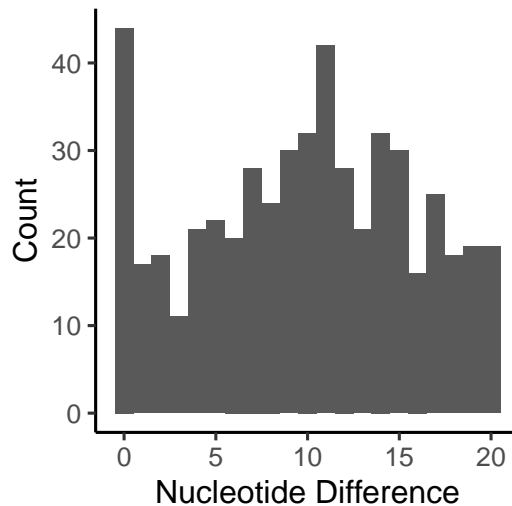
### IGHV3-73\*01\_02

513 sequences assigned  
68 (13.3%) exact matches, in which:  
31 unique CDR3  
4 unique J



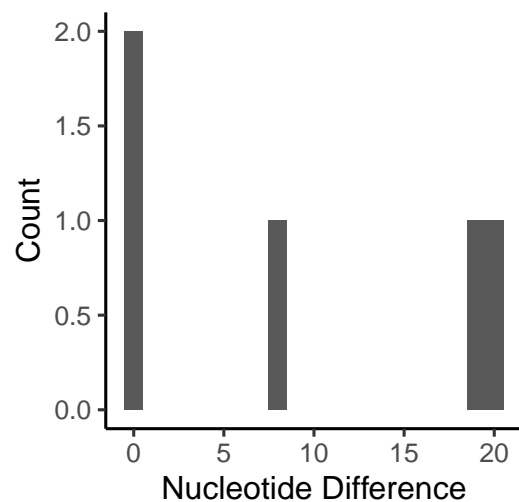
### IGHV3-64D\*06

626 sequences assigned  
44 (7%) exact matches, in which:  
23 unique CDR3  
6 unique J



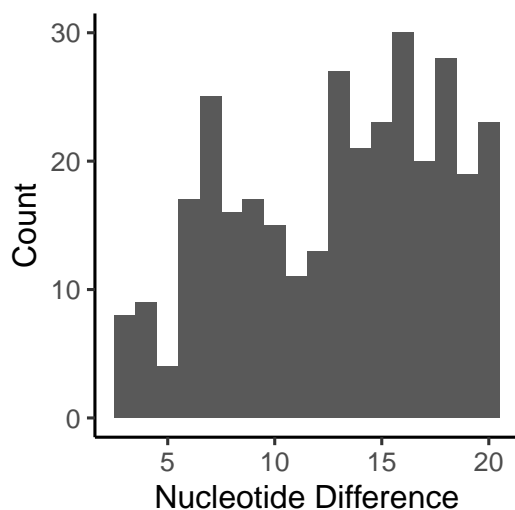
### IGHV4-28\*03

5 sequences assigned  
2 (40%) exact matches, in which:  
1 unique CDR3  
1 unique J



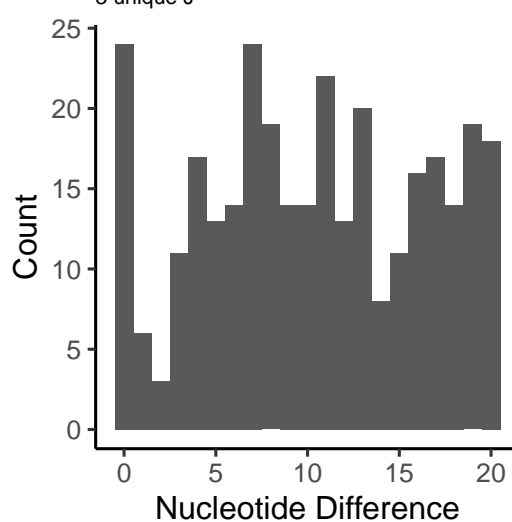
### IGHV3-74\*03

454 sequences assigned  
No exact matches.



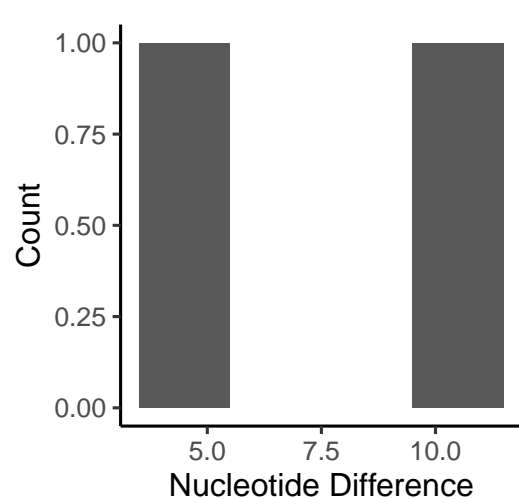
### IGHV4-4\*07

376 sequences assigned  
24 (6.4%) exact matches, in which:  
16 unique CDR3  
3 unique J



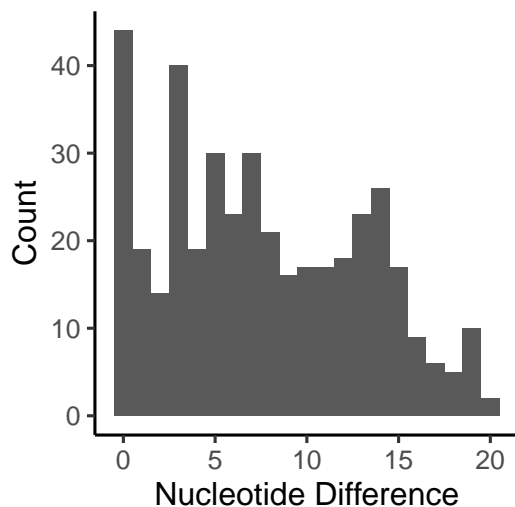
### IGHV4-28\*01\_07

6 sequences assigned  
No exact matches.



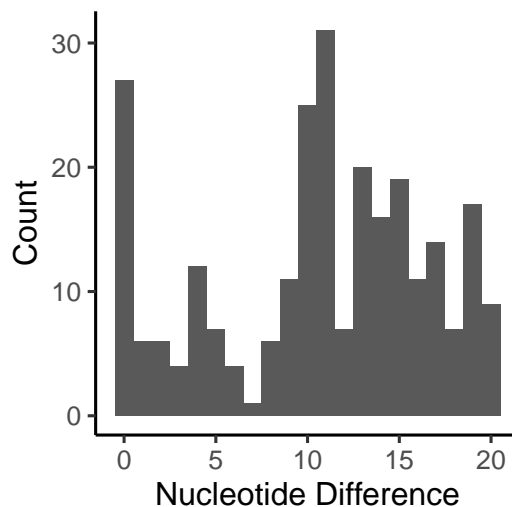
### IGHV3-74\*01\_02

473 sequences assigned  
44 (9.3%) exact matches, in which:  
26 unique CDR3  
4 unique J



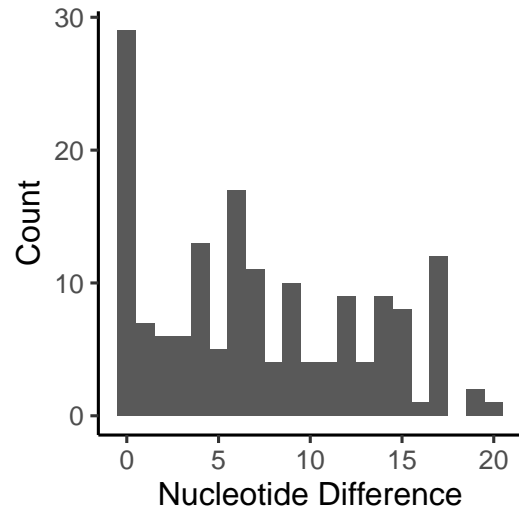
### IGHV4-4\*02\_03

301 sequences assigned  
27 (9%) exact matches, in which:  
20 unique CDR3  
4 unique J



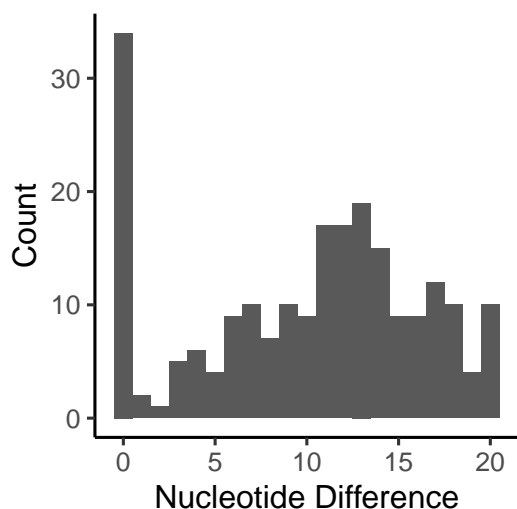
### IGHV4-30-2\*01

200 sequences assigned  
29 (14.5%) exact matches, in which:  
17 unique CDR3  
4 unique J



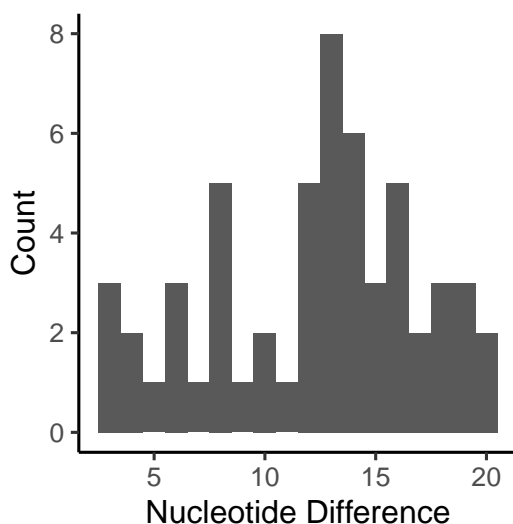
### IGHV4-30-4\*01

314 sequences assigned  
34 (10.8%) exact matches, in which:  
24 unique CDR3  
5 unique J



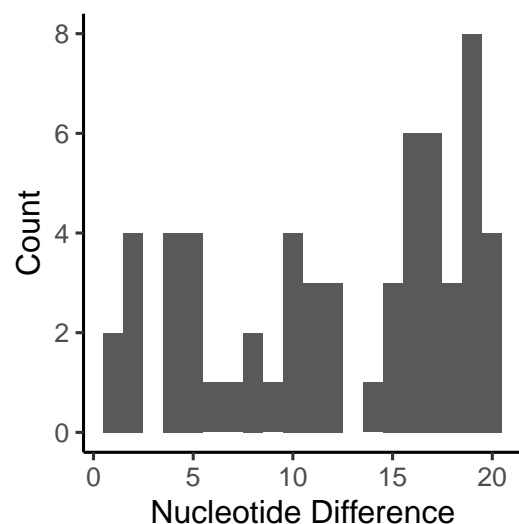
### IGHV4-39\*02

80 sequences assigned  
No exact matches.



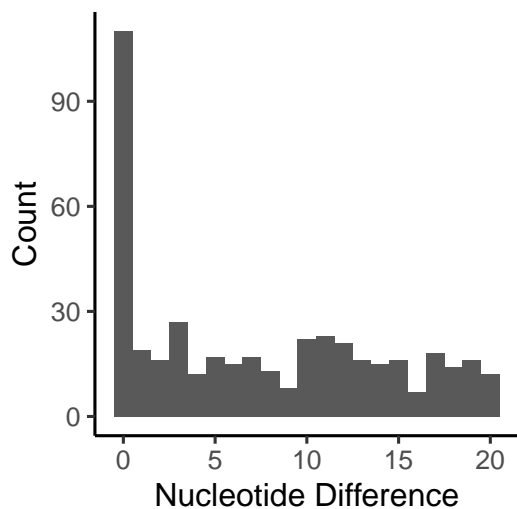
### IGHV4-59\*11

177 sequences assigned  
No exact matches.



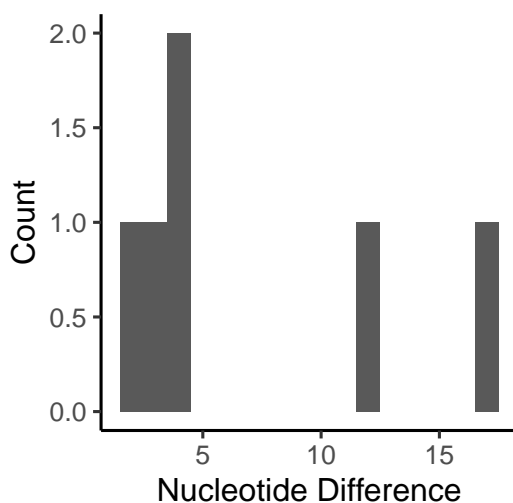
### IGHV4-31\*02

527 sequences assigned  
110 (20.9%) exact matches, in which:  
82 unique CDR3  
5 unique J



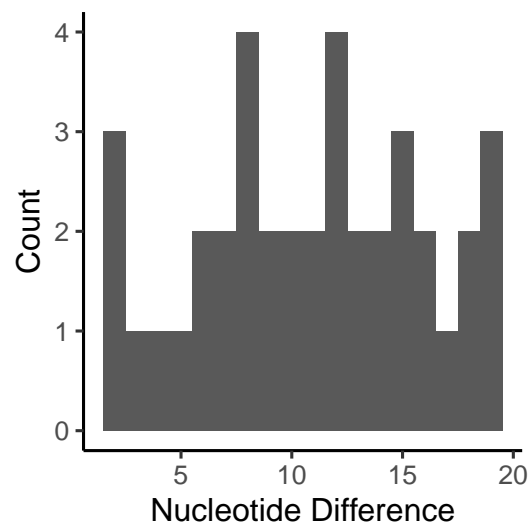
### IGHV4-39\*07

10 sequences assigned  
No exact matches.



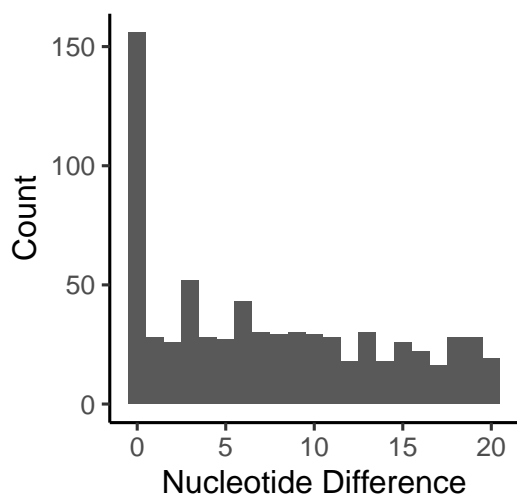
### IGHV4-59\*12

116 sequences assigned  
No exact matches.



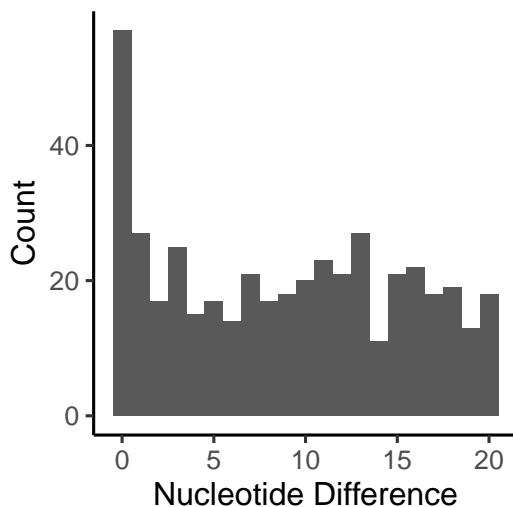
### IGHV4-34\*01\_02

889 sequences assigned  
156 (17.5%) exact matches, in which:  
86 unique CDR3  
4 unique J



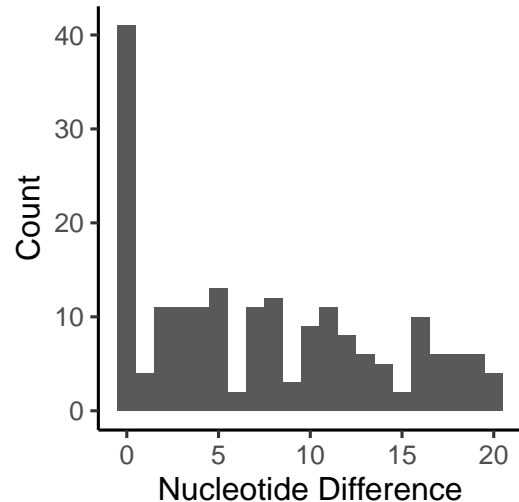
### IGHV4-59\*08

609 sequences assigned  
57 (9.4%) exact matches, in which:  
38 unique CDR3  
5 unique J



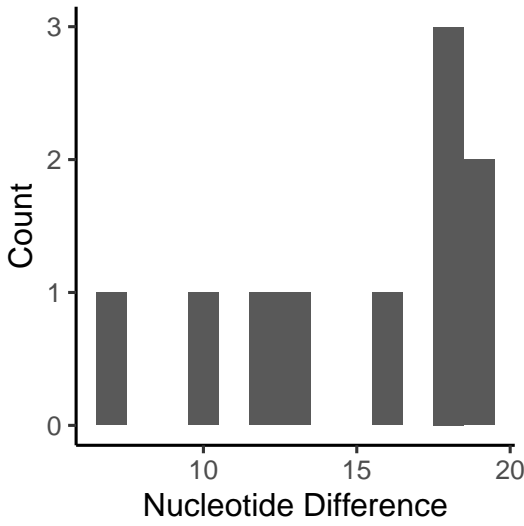
### IGHV4-61\*01

216 sequences assigned  
41 (19%) exact matches, in which:  
30 unique CDR3  
4 unique J



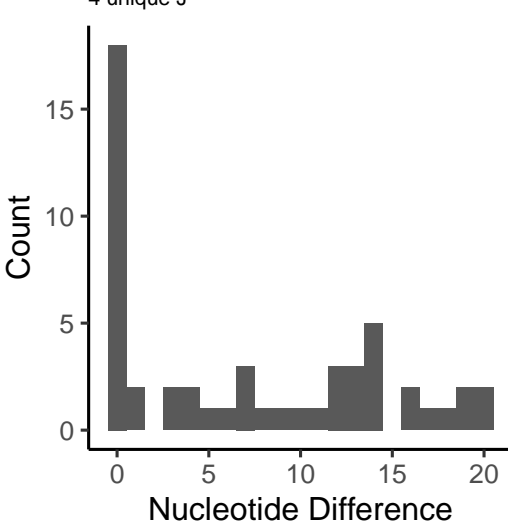
IGHV4-61\*02

34 sequences assigned  
No exact matches.



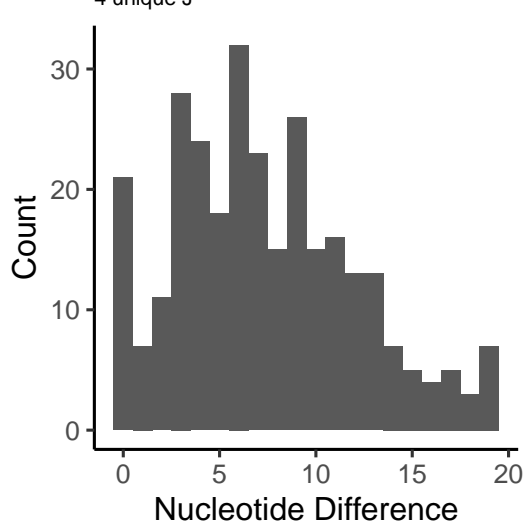
IGHV5-10-1\*01\_03

67 sequences assigned  
18 (26.9%) exact matches, in which:  
18 unique CDR3  
4 unique J



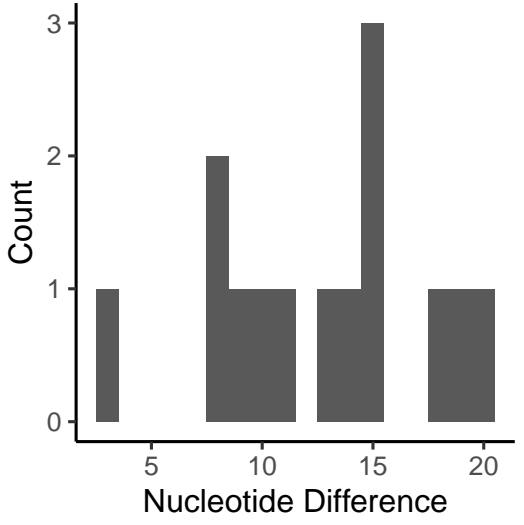
IGHV6-1\*01\_02

320 sequences assigned  
21 (6.6%) exact matches, in which:  
16 unique CDR3  
4 unique J



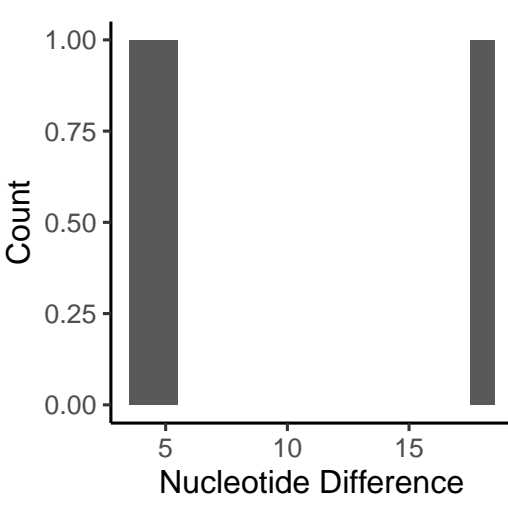
IGHV4-61\*08

32 sequences assigned  
No exact matches.



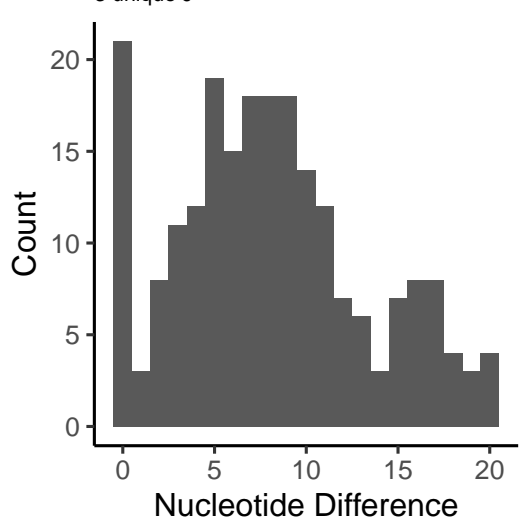
IGHV5-51\*06

3 sequences assigned  
No exact matches.



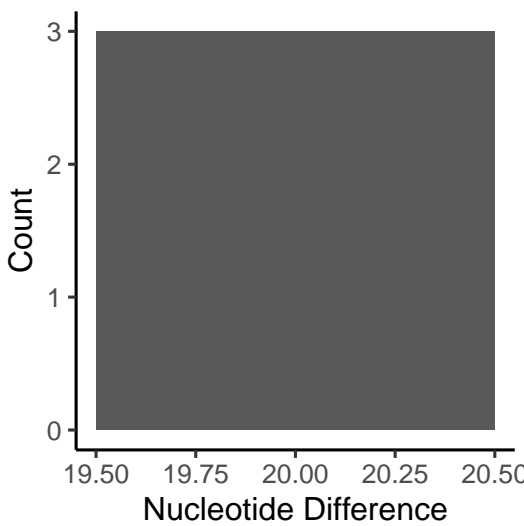
IGHV7-4-1\*02

227 sequences assigned  
21 (9.3%) exact matches, in which:  
20 unique CDR3  
3 unique J



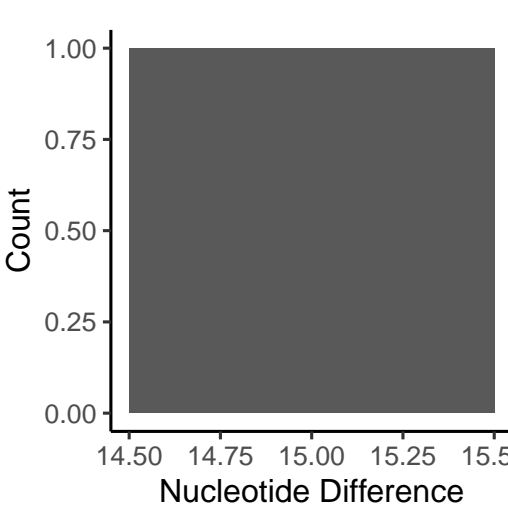
IGHV4/OR15-8\*01

5 sequences assigned  
No exact matches.



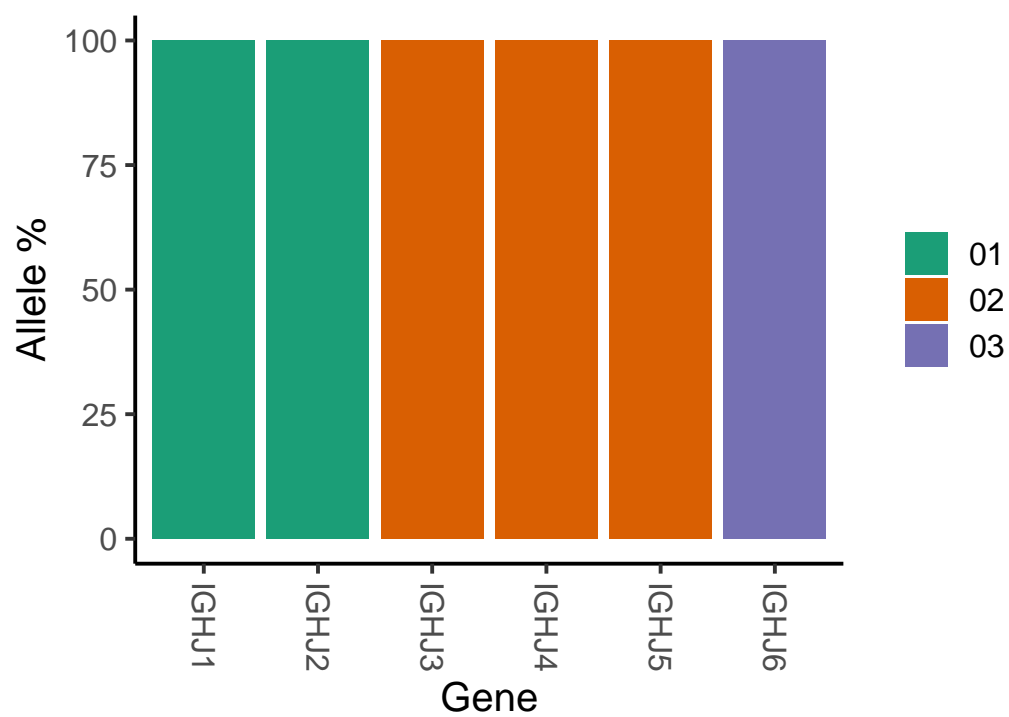
IGHV5-51\*07

1 sequences assigned  
No exact matches.





Allele Usage



[illegible]