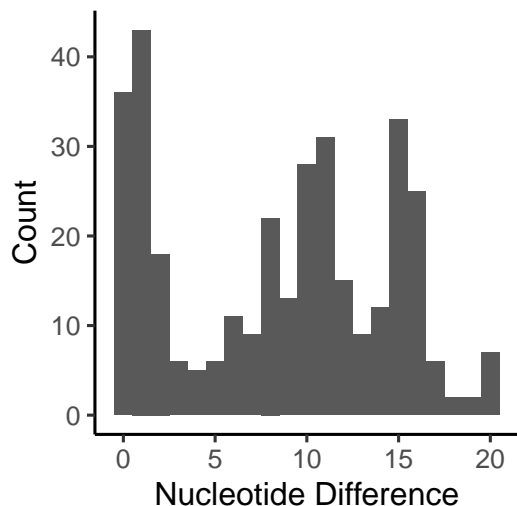


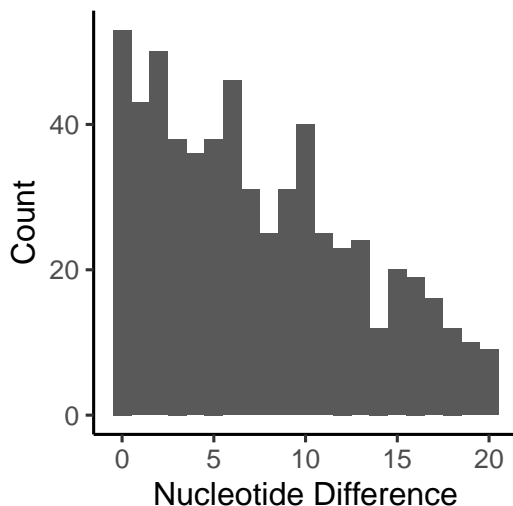
### IGHV1-2\*04

510 sequences assigned  
36 (7.1%) exact matches, in which:  
28 unique CDR3  
5 unique J



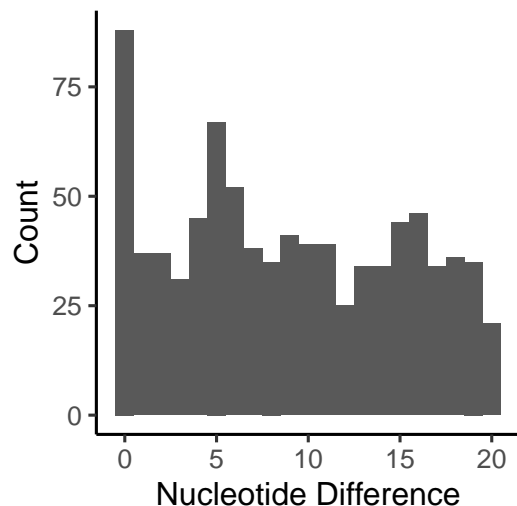
### IGHV1-8\*01

945 sequences assigned  
53 (5.6%) exact matches, in which:  
50 unique CDR3  
6 unique J



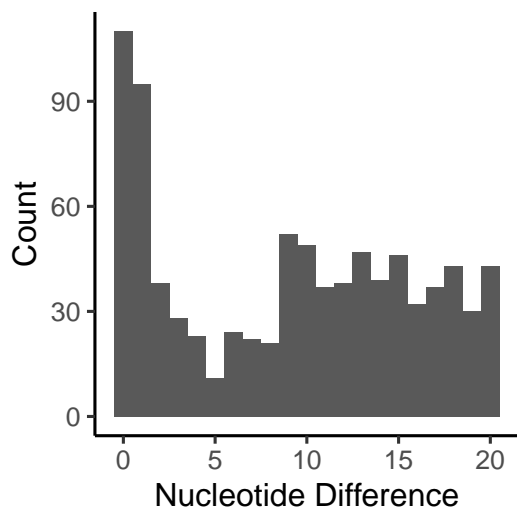
### IGHV1-46\*01

1479 sequences assigned  
88 (5.9%) exact matches, in which:  
83 unique CDR3  
6 unique J



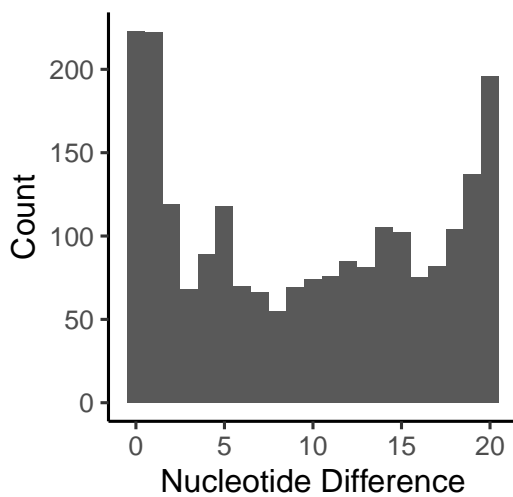
### IGHV1-3\*01

1334 sequences assigned  
110 (8.2%) exact matches, in which:  
101 unique CDR3  
6 unique J



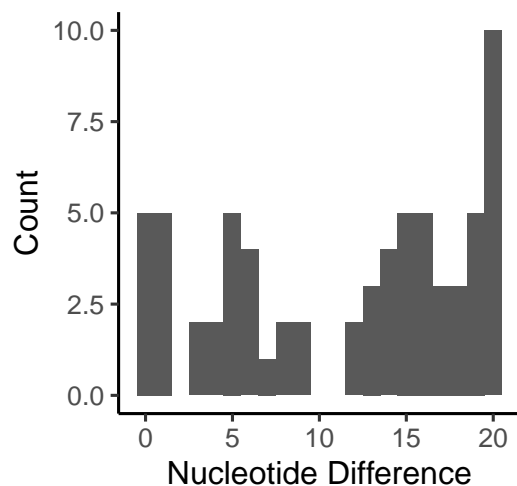
### IGHV1-18\*01

5107 sequences assigned  
223 (4.4%) exact matches, in which:  
197 unique CDR3  
7 unique J



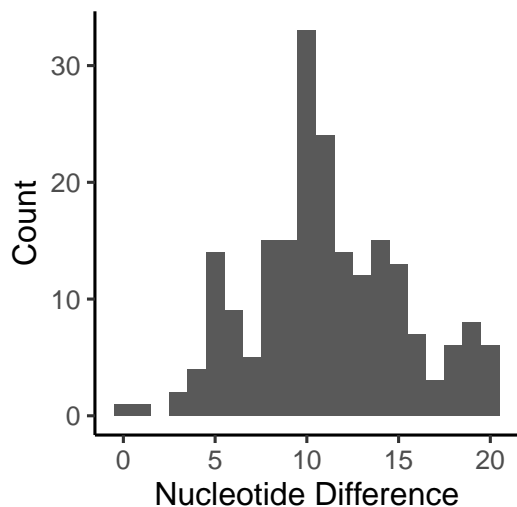
### IGHV1-58\*01

90 sequences assigned  
5 (5.6%) exact matches, in which:  
5 unique CDR3  
3 unique J



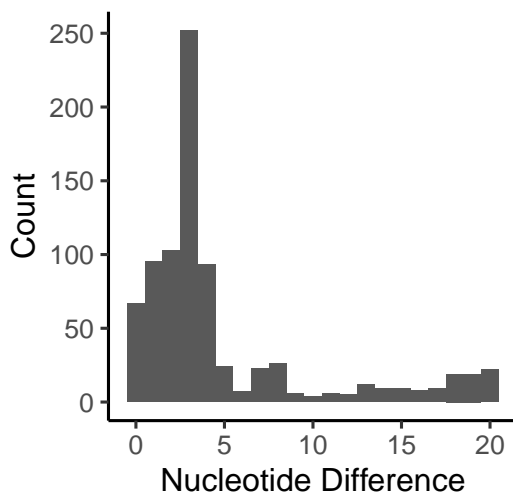
### IGHV1-3\*04

371 sequences assigned  
1 (0.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



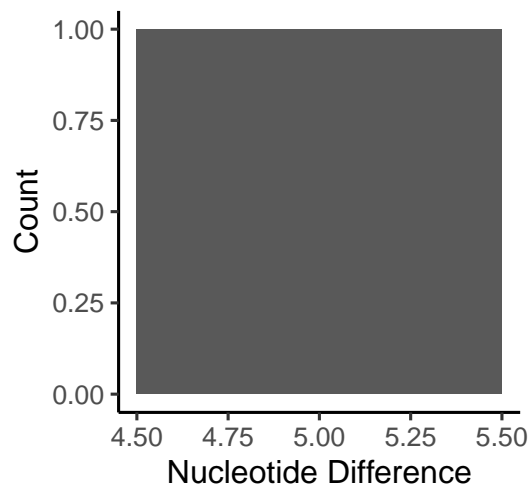
### IGHV1-24\*01

966 sequences assigned  
67 (6.9%) exact matches, in which:  
61 unique CDR3  
7 unique J



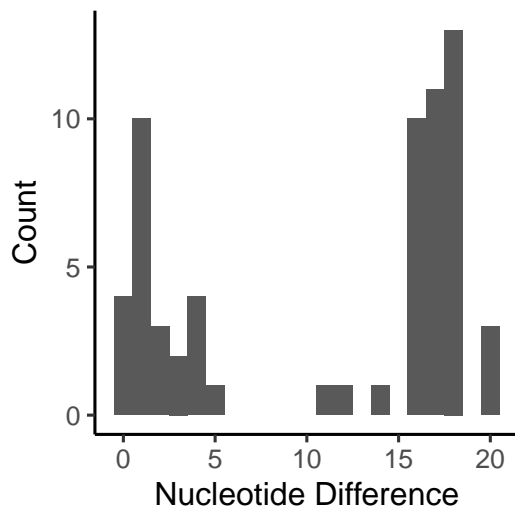
### IGHV1-68\*02

1 sequences assigned  
No exact matches.



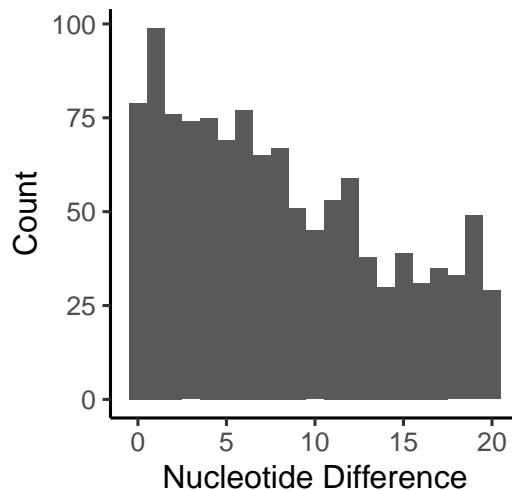
### IGHV1-69-2\*01

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



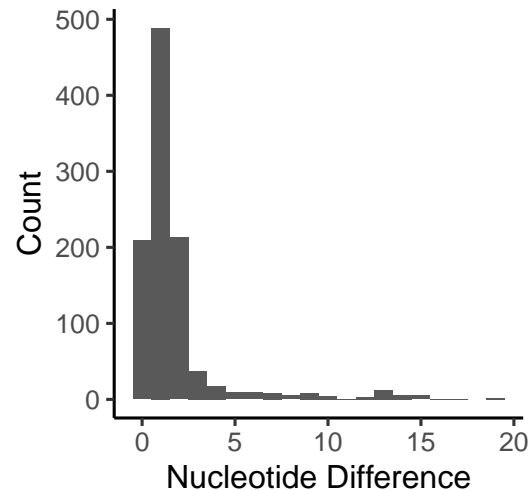
### IGHV2-5\*02

1385 sequences assigned  
79 (5.7%) exact matches, in which:  
74 unique CDR3  
5 unique J



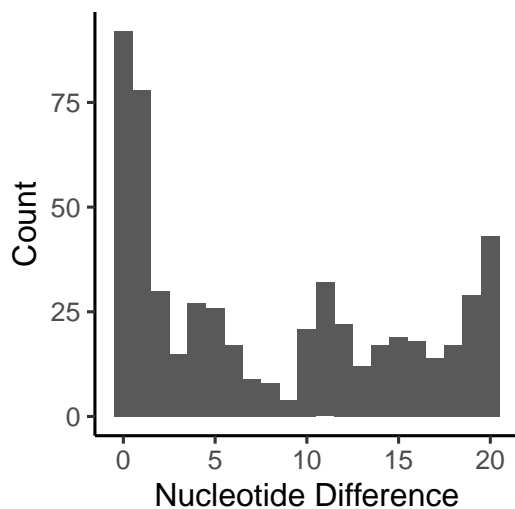
### IGHV2-70\*15

1066 sequences assigned  
209 (19.6%) exact matches, in which:  
78 unique CDR3  
4 unique J



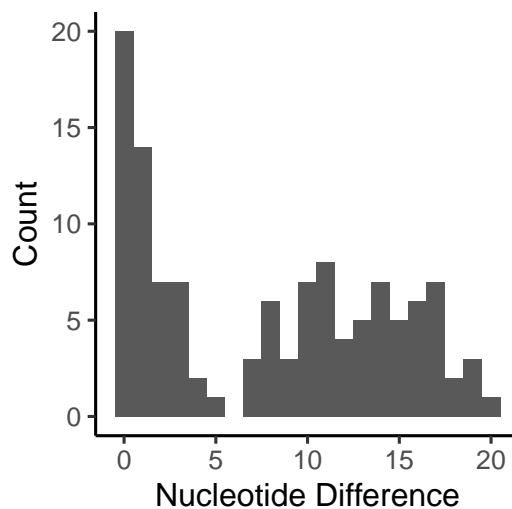
### IGHV1-69\*04

1237 sequences assigned  
92 (7.4%) exact matches, in which:  
89 unique CDR3  
6 unique J



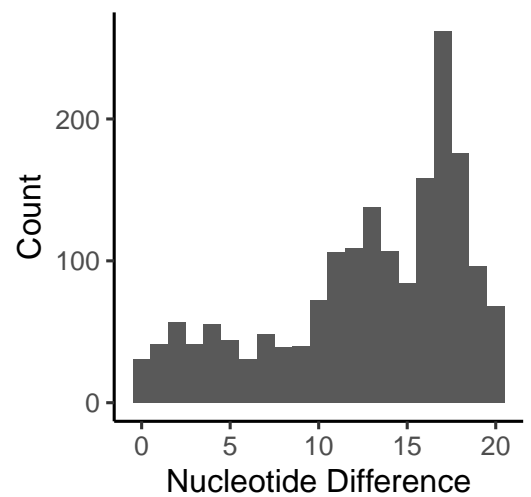
### IGHV2-26\*01

124 sequences assigned  
20 (16.1%) exact matches, in which:  
19 unique CDR3  
6 unique J



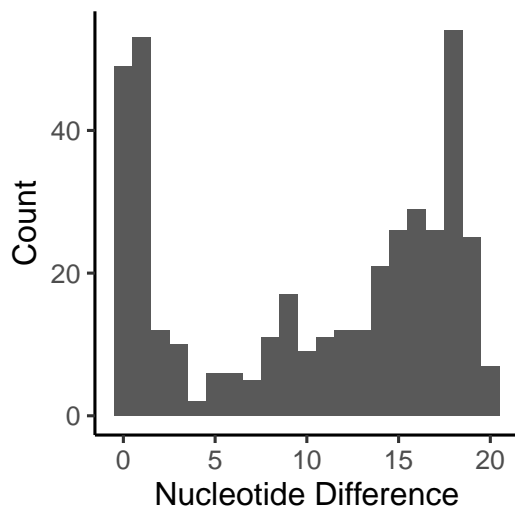
### IGHV3-7\*01

2158 sequences assigned  
31 (1.4%) exact matches, in which:  
31 unique CDR3  
5 unique J



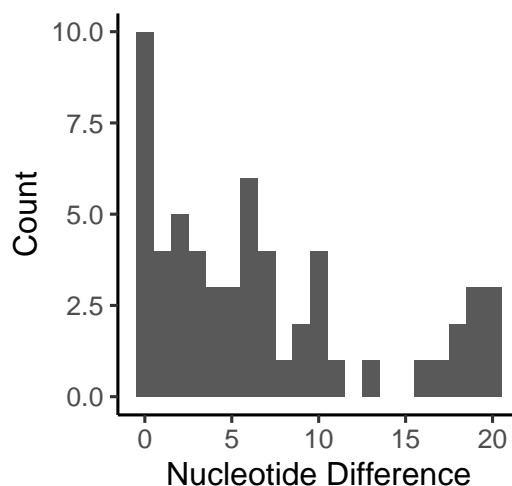
### IGHV1-69\*06

733 sequences assigned  
49 (6.7%) exact matches, in which:  
40 unique CDR3  
4 unique J



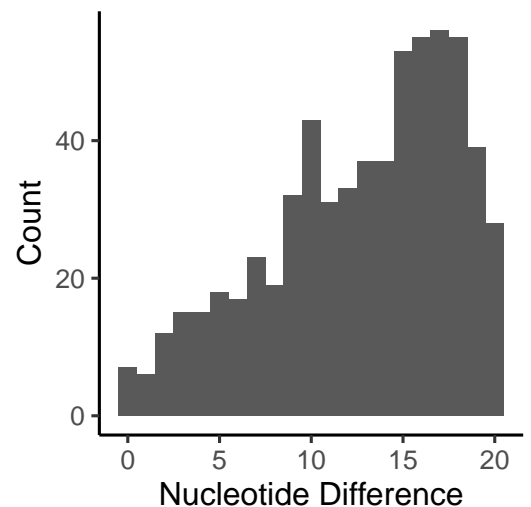
### IGHV2-70\*01

74 sequences assigned  
10 (13.5%) exact matches, in which:  
10 unique CDR3  
4 unique J



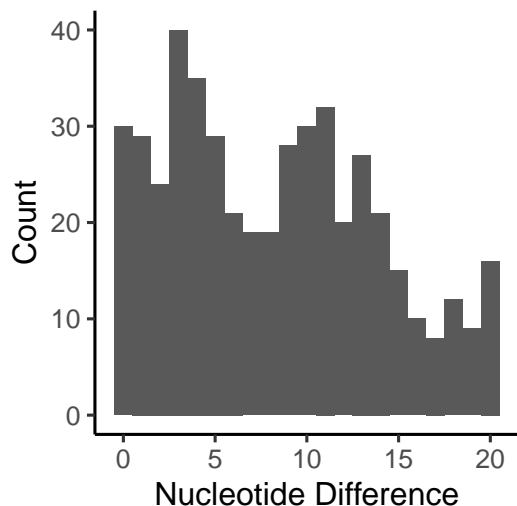
### IGHV3-7\*04

1091 sequences assigned  
7 (0.6%) exact matches, in which:  
7 unique CDR3  
3 unique J



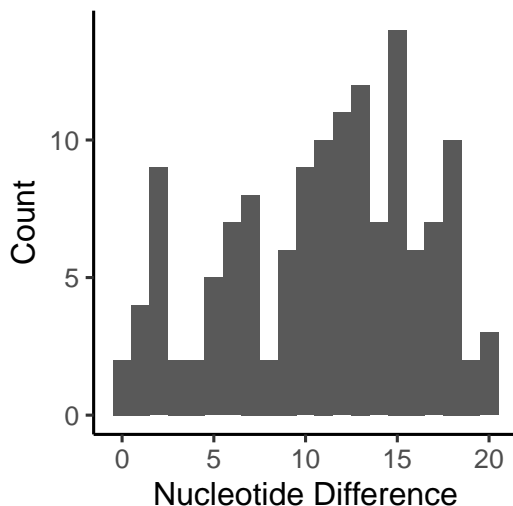
### IGHV3-9\*01

709 sequences assigned  
30 (4.2%) exact matches, in which:  
28 unique CDR3  
5 unique J



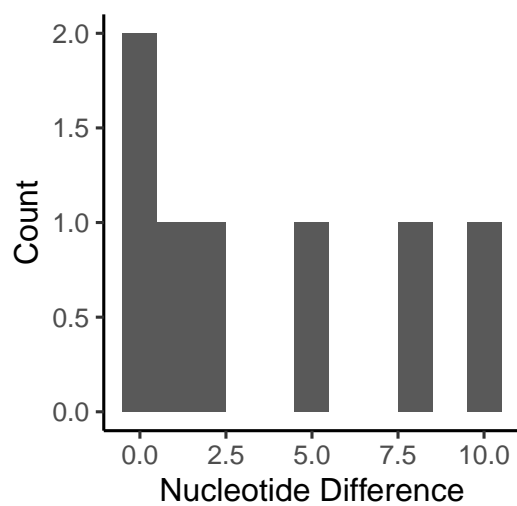
### IGHV3-13\*01

226 sequences assigned  
2 (0.9%) exact matches, in which:  
2 unique CDR3  
2 unique J



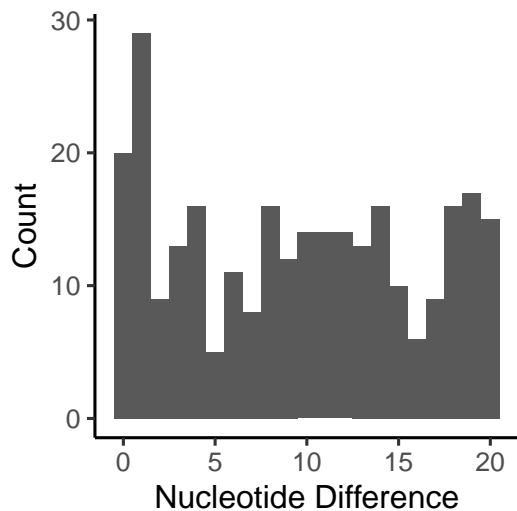
### IGHV3-20\*01

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



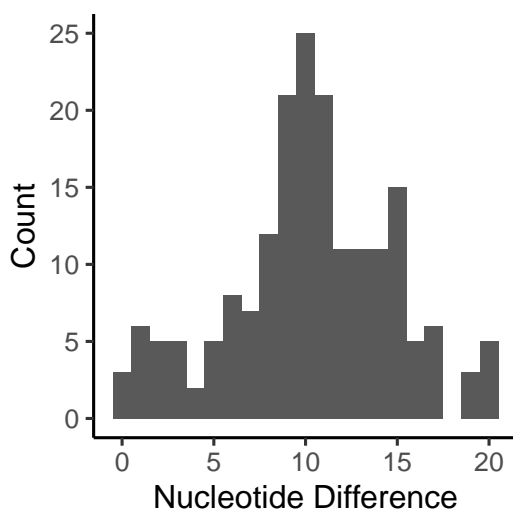
### IGHV3-11\*01

429 sequences assigned  
20 (4.7%) exact matches, in which:  
19 unique CDR3  
4 unique J



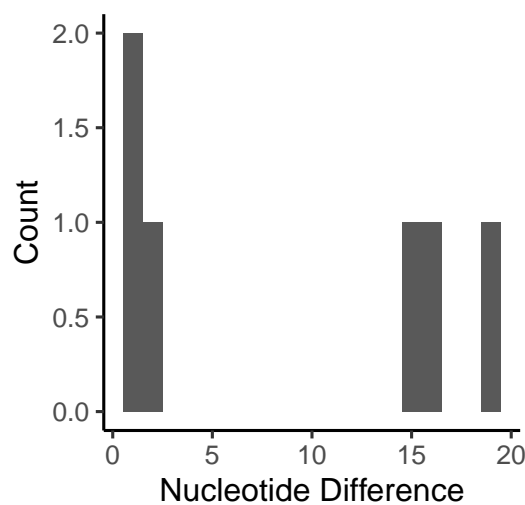
### IGHV3-15\*01

270 sequences assigned  
3 (1.1%) exact matches, in which:  
3 unique CDR3  
3 unique J



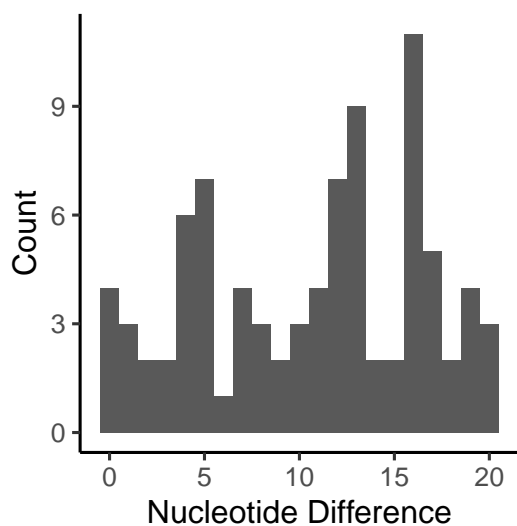
### IGHV3-20\*04

12 sequences assigned  
No exact matches.



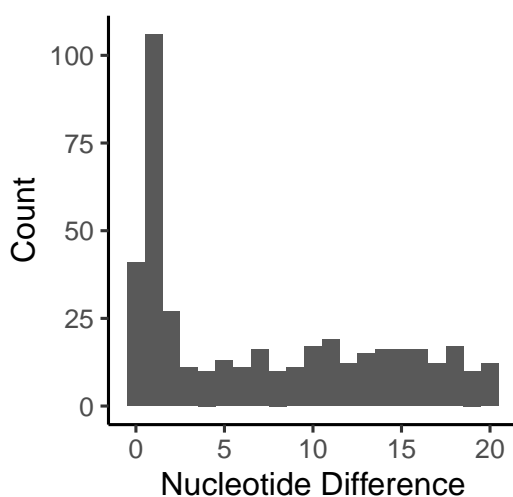
### IGHV3-11\*06

144 sequences assigned  
4 (2.8%) exact matches, in which:  
4 unique CDR3  
2 unique J



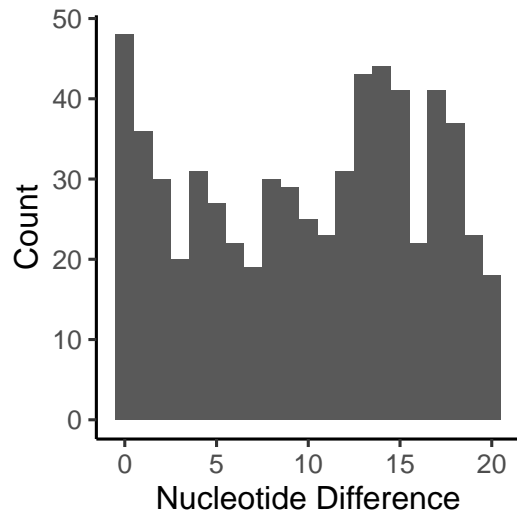
### IGHV3-15\*07

584 sequences assigned  
41 (7%) exact matches, in which:  
26 unique CDR3  
3 unique J



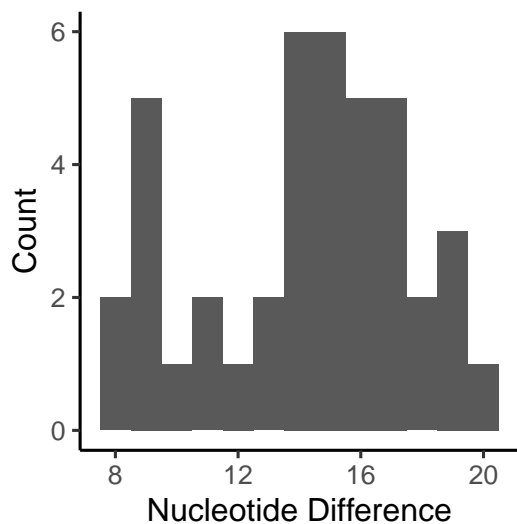
### IGHV3-21\*01

1067 sequences assigned  
48 (4.5%) exact matches, in which:  
43 unique CDR3  
7 unique J



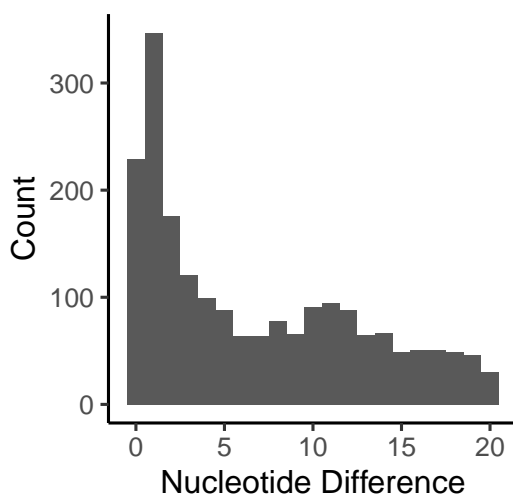
### IGHV3-21\*02

217 sequences assigned  
No exact matches.



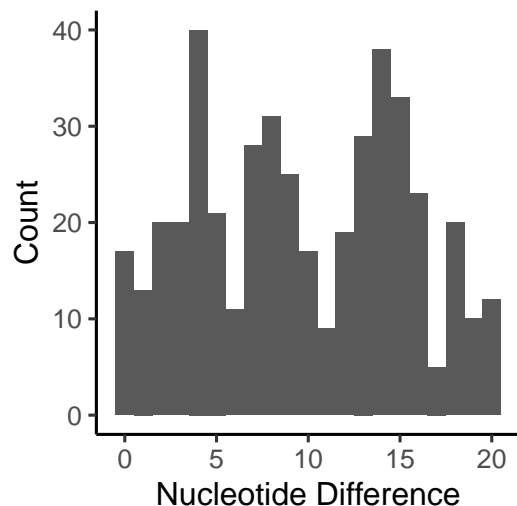
### IGHV3-33\*01

2533 sequences assigned  
229 (9%) exact matches, in which:  
159 unique CDR3  
6 unique J



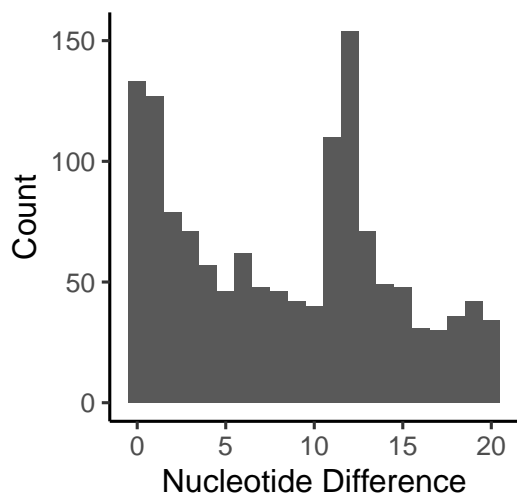
### IGHV3-48\*02

646 sequences assigned  
17 (2.6%) exact matches, in which:  
14 unique CDR3  
4 unique J



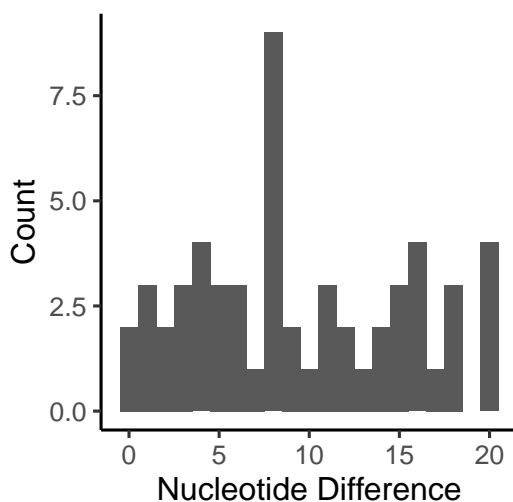
### IGHV3-30-3\*01

1883 sequences assigned  
133 (7.1%) exact matches, in which:  
116 unique CDR3  
7 unique J



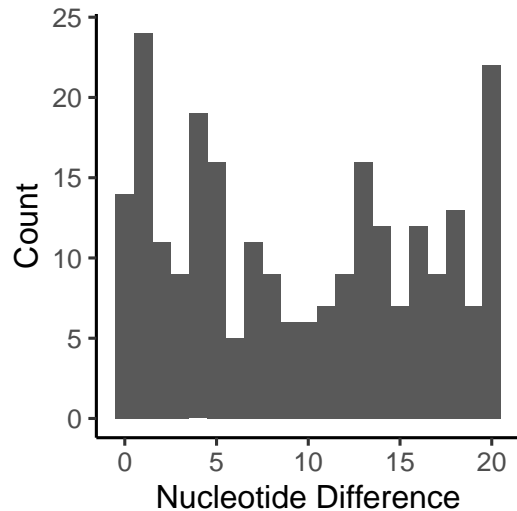
### IGHV3-43\*01

94 sequences assigned  
2 (2.1%) exact matches, in which:  
2 unique CDR3  
2 unique J



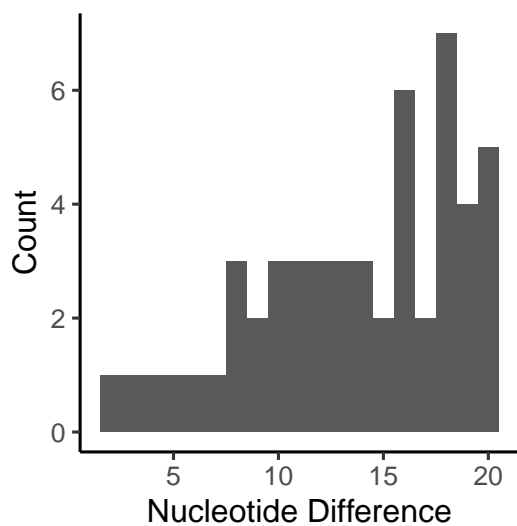
### IGHV3-49\*03

323 sequences assigned  
14 (4.3%) exact matches, in which:  
12 unique CDR3  
3 unique J



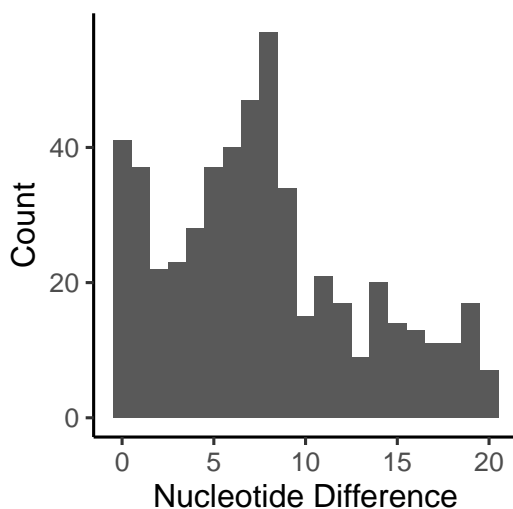
### IGHV3-30\*04

150 sequences assigned  
No exact matches.



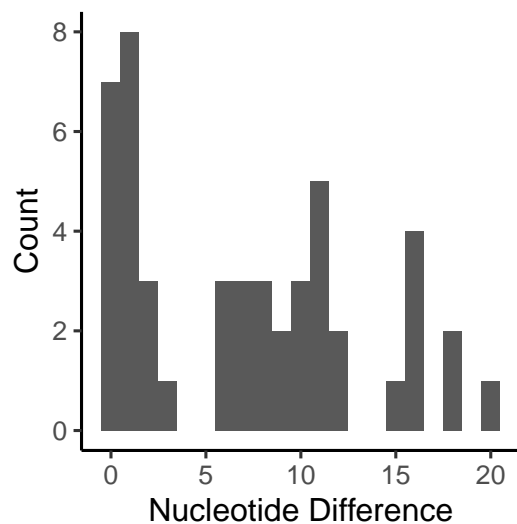
### IGHV3-48\*01

716 sequences assigned  
41 (5.7%) exact matches, in which:  
34 unique CDR3  
4 unique J



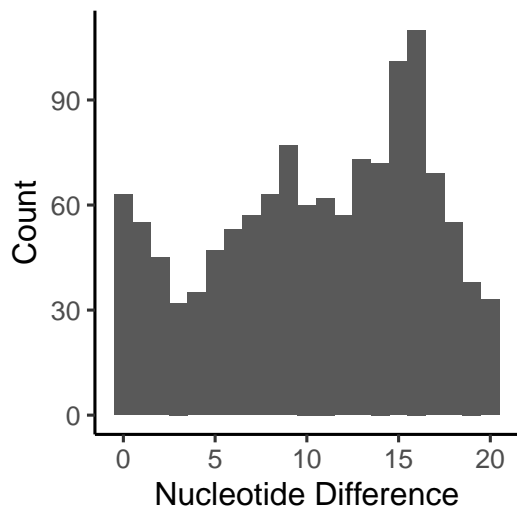
### IGHV3-49\*05

84 sequences assigned  
7 (8.3%) exact matches, in which:  
7 unique CDR3  
3 unique J



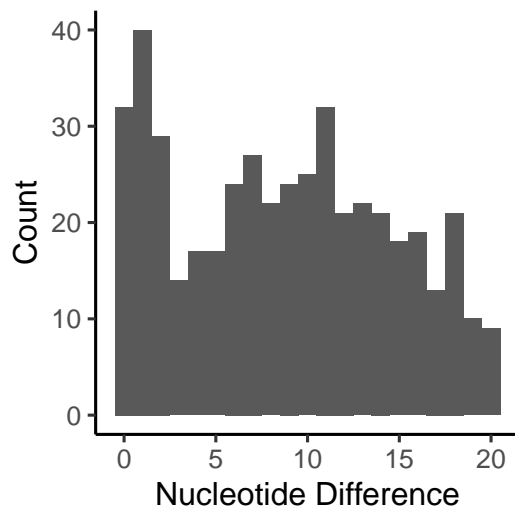
### IGHV3-53\*01

1952 sequences assigned  
63 (3.2%) exact matches, in which:  
62 unique CDR3  
6 unique J



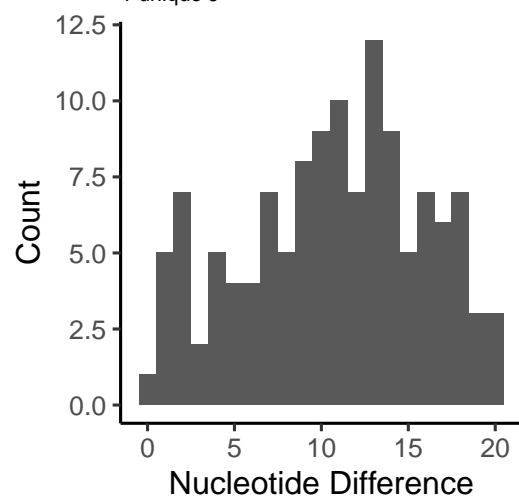
### IGHV3-66\*01

559 sequences assigned  
32 (5.7%) exact matches, in which:  
29 unique CDR3  
4 unique J



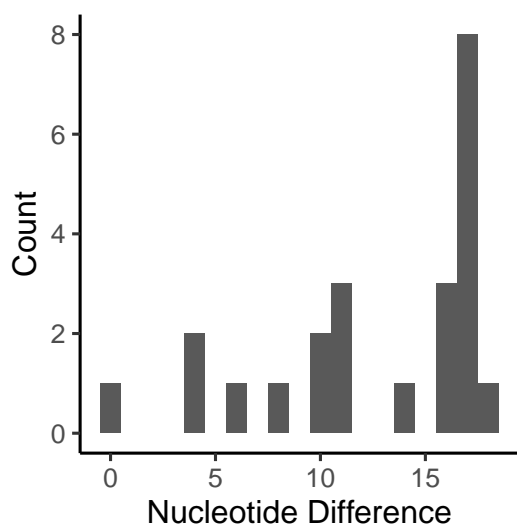
### IGHV3-72\*01

166 sequences assigned  
1 (0.6%) exact matches, in which:  
1 unique CDR3  
1 unique J



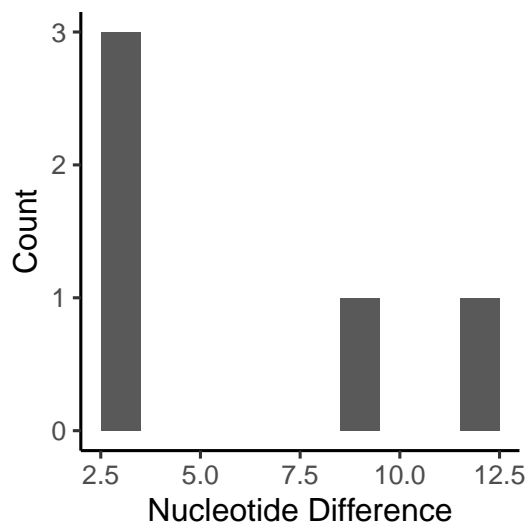
### IGHV3-64\*02

26 sequences assigned  
1 (3.8%) exact matches, in which:  
1 unique CDR3  
1 unique J



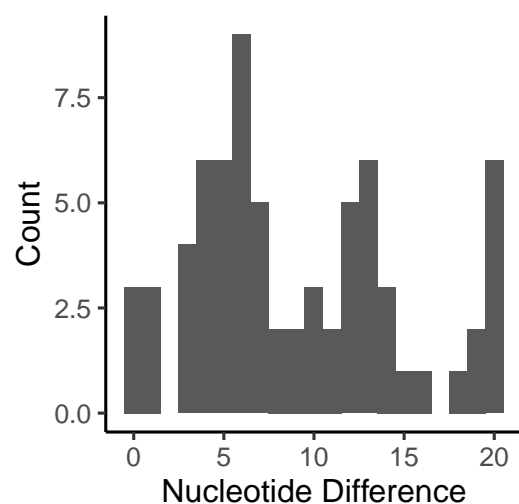
### IGHV3-69-1\*01

10 sequences assigned  
No exact matches.



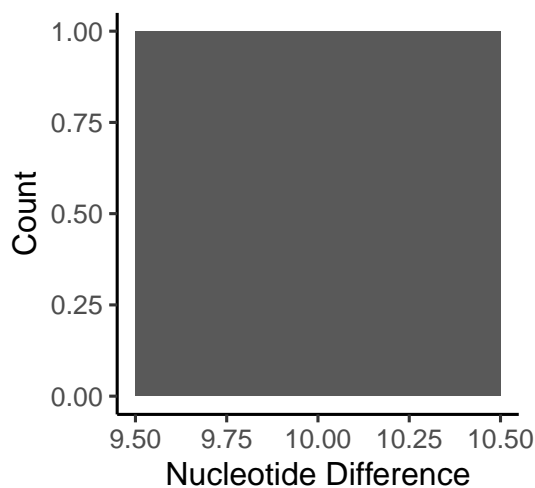
### IGHV3-73\*01

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



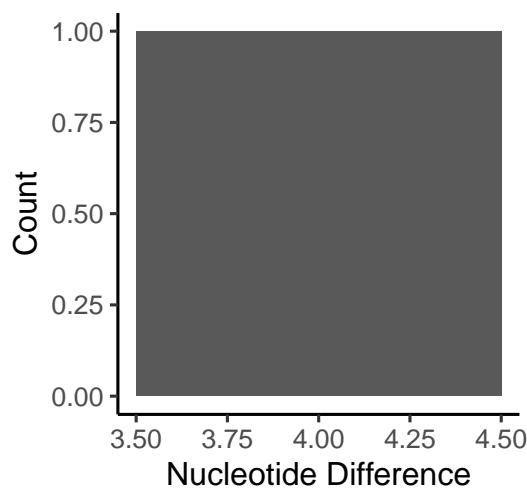
### IGHV3-64\*04

1 sequences assigned  
No exact matches.



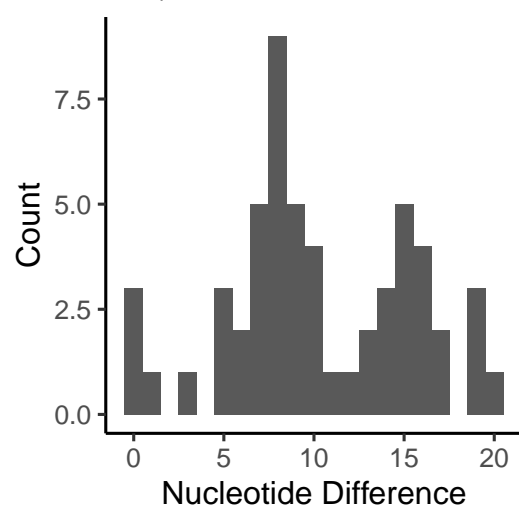
### IGHV3-69-1\*02

8 sequences assigned  
No exact matches.



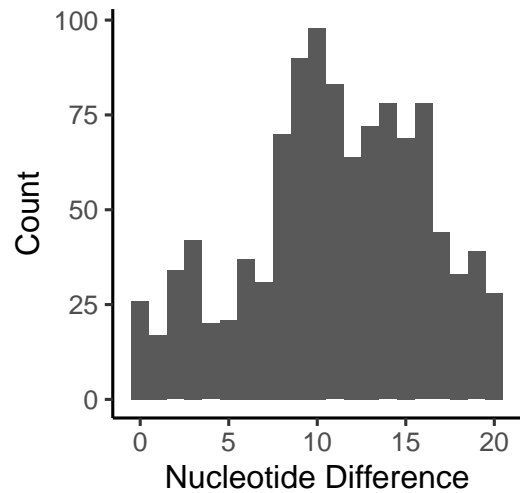
### IGHV3-73\*02

104 sequences assigned  
3 (2.9%) exact matches, in which:  
3 unique CDR3  
2 unique J



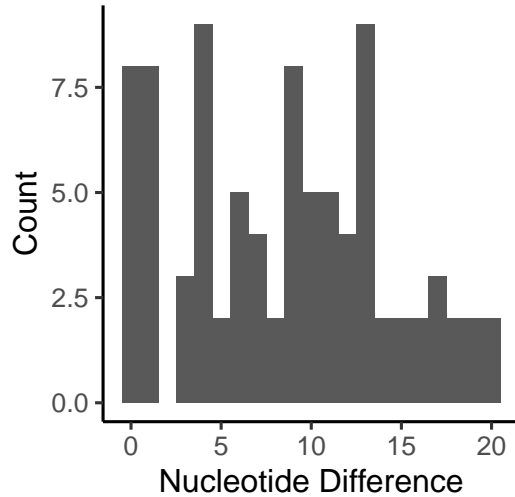
### IGHV3-74\*01

1474 sequences assigned  
26 (1.8%) exact matches, in which:  
21 unique CDR3  
5 unique J



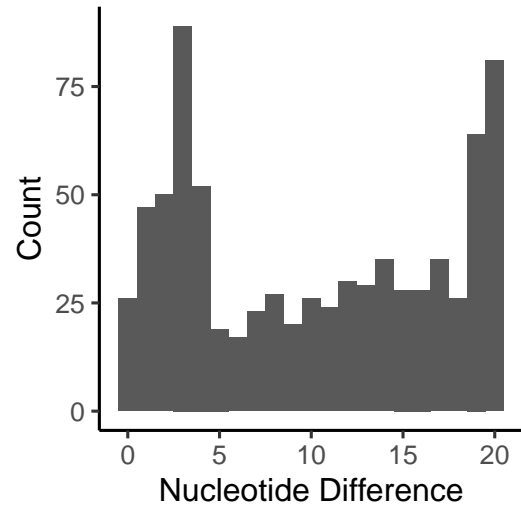
### IGHV3-64D\*06

92 sequences assigned  
8 (8.7%) exact matches, in which:  
7 unique CDR3  
1 unique J



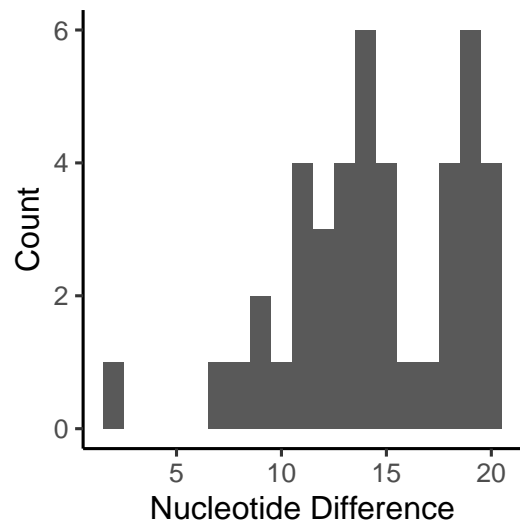
### IGHV4-4\*02

1239 sequences assigned  
26 (2.1%) exact matches, in which:  
22 unique CDR3  
7 unique J



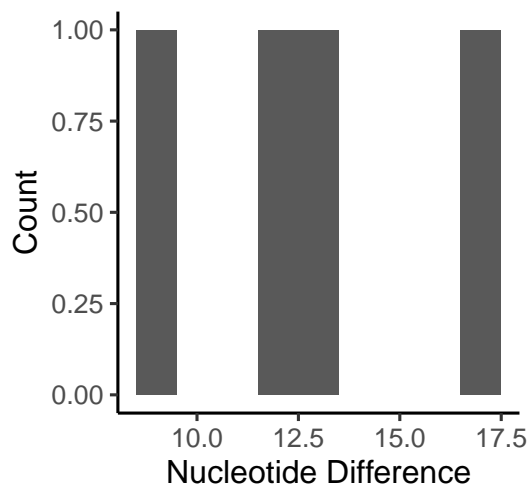
### IGHV3-74\*03

266 sequences assigned  
No exact matches.



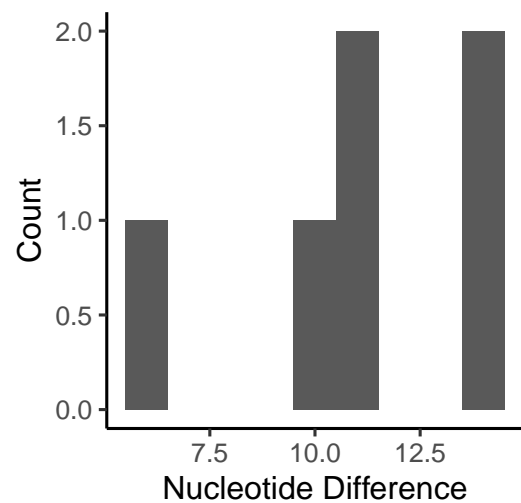
### IGHV3-64D\*08

8 sequences assigned  
No exact matches.



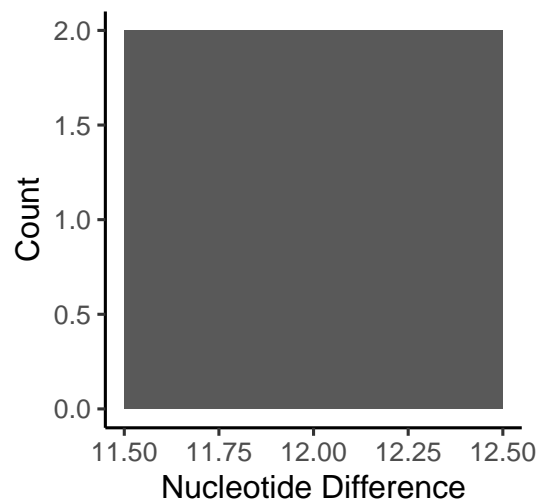
### IGHV4-28\*01

6 sequences assigned  
No exact matches.



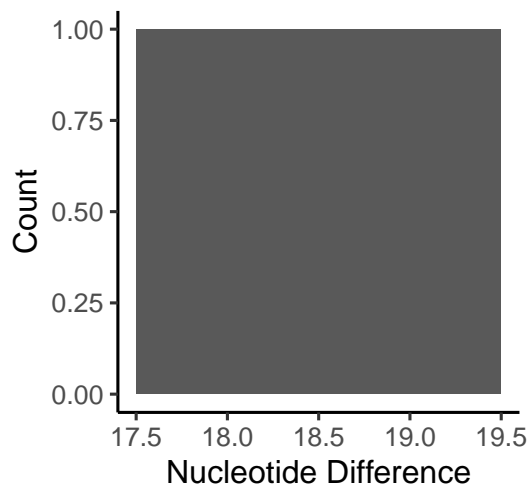
### IGHV3-43D\*04

9 sequences assigned  
No exact matches.



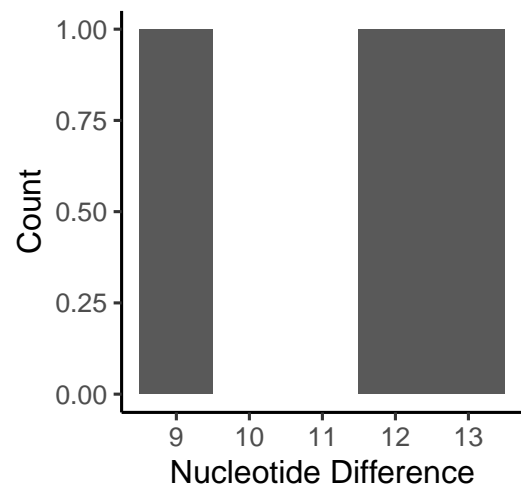
### IGHV3-NL1\*01

2 sequences assigned  
No exact matches.



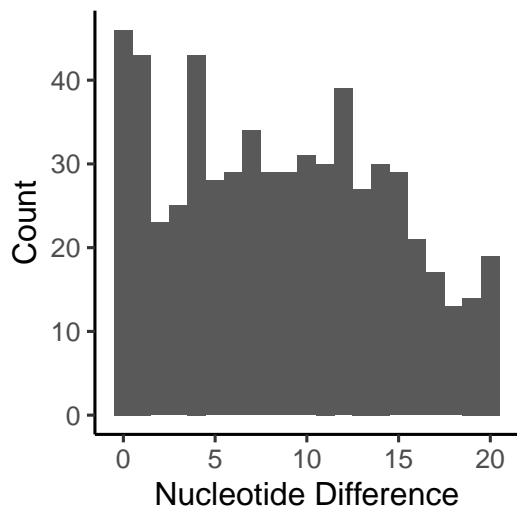
### IGHV4-28\*07

3 sequences assigned  
No exact matches.



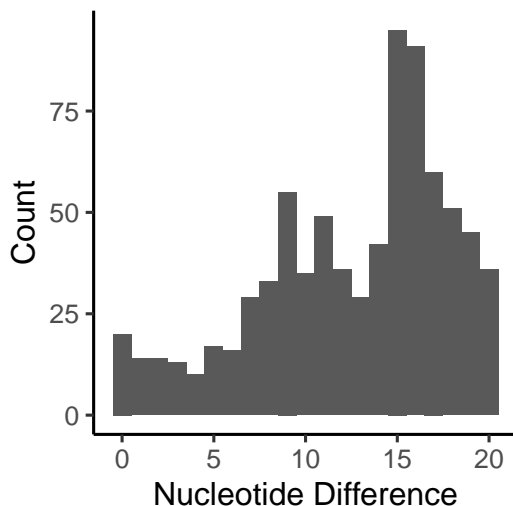
### IGHV4-30-4\*01

837 sequences assigned  
46 (5.5%) exact matches, in which:  
43 unique CDR3  
6 unique J



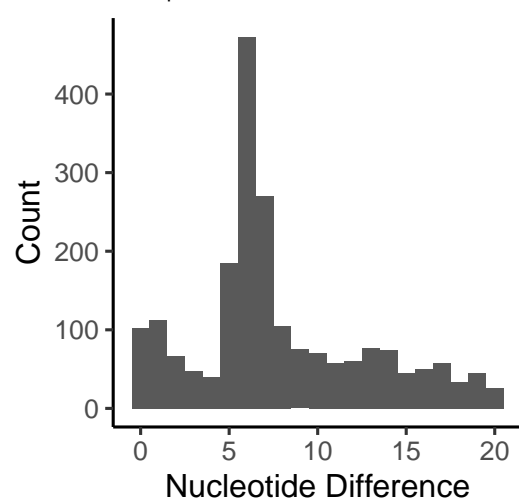
### IGHV4-34\*01

1099 sequences assigned  
20 (1.8%) exact matches, in which:  
16 unique CDR3  
6 unique J



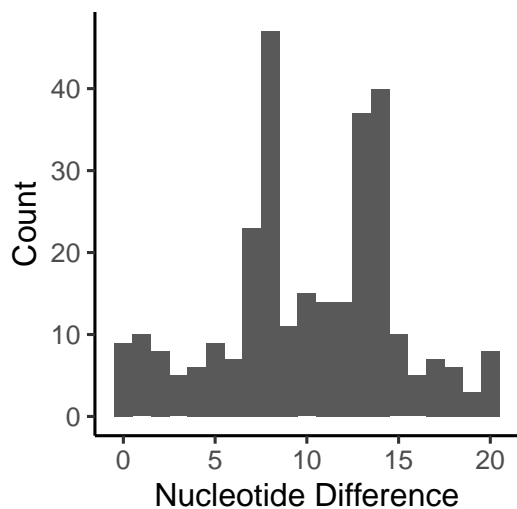
### IGHV4-59\*01

2852 sequences assigned  
102 (3.6%) exact matches, in which:  
76 unique CDR3  
7 unique J



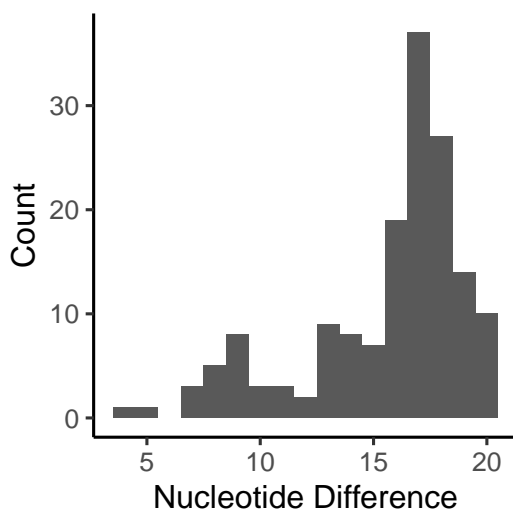
### IGHV4-30-2\*01

516 sequences assigned  
9 (1.7%) exact matches, in which:  
8 unique CDR3  
4 unique J



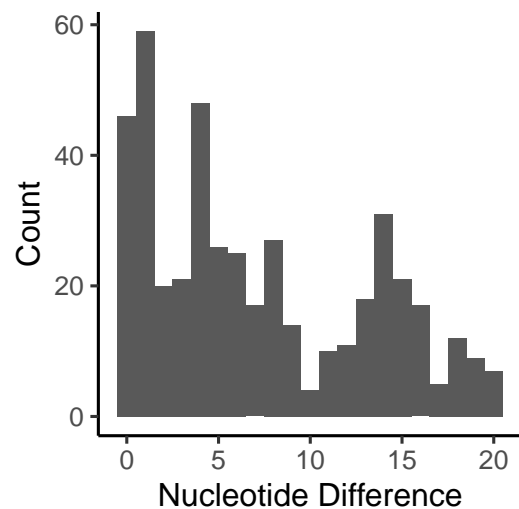
### IGHV4-34\*02

279 sequences assigned  
No exact matches.



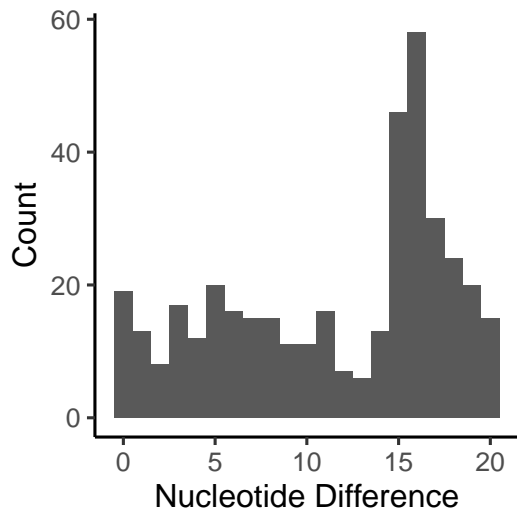
### IGHV4-61\*01

568 sequences assigned  
46 (8.1%) exact matches, in which:  
28 unique CDR3  
6 unique J



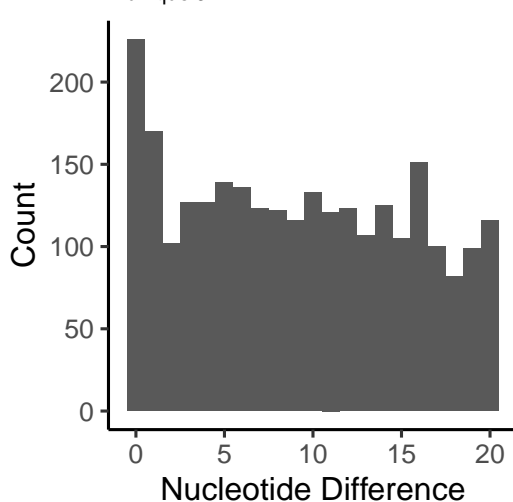
### IGHV4-31\*03

663 sequences assigned  
19 (2.9%) exact matches, in which:  
17 unique CDR3  
6 unique J



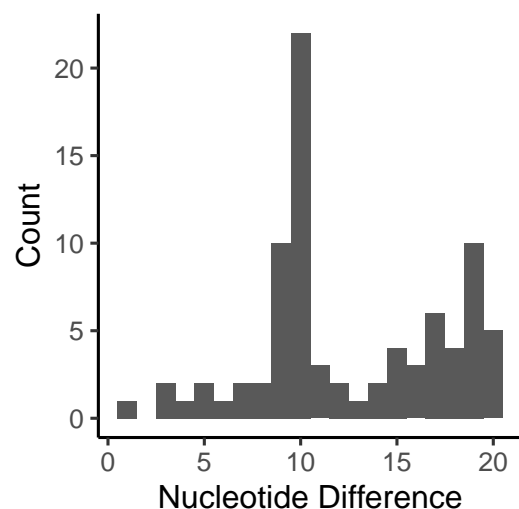
### IGHV4-39\*01

4510 sequences assigned  
226 (5%) exact matches, in which:  
202 unique CDR3  
7 unique J



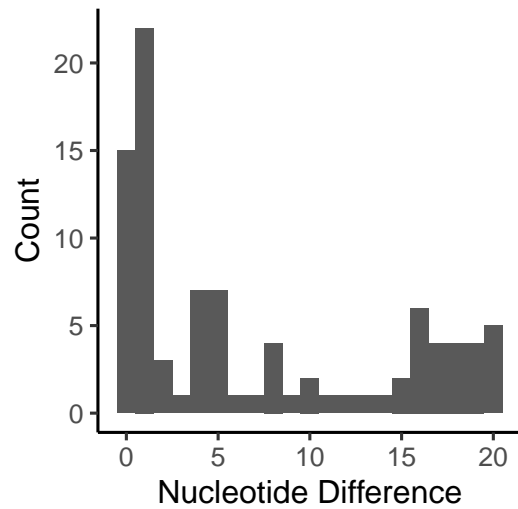
### IGHV4-61\*08

110 sequences assigned  
No exact matches.



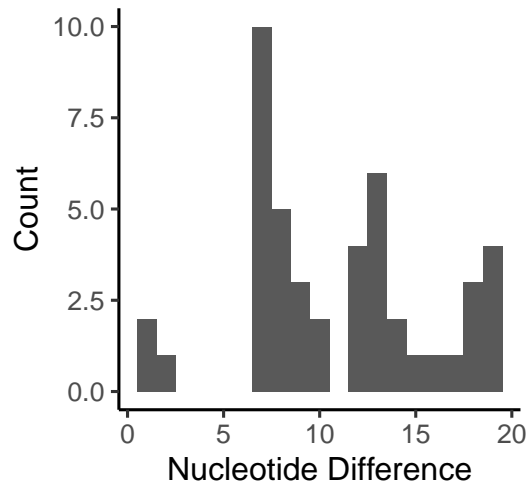
## IGHV5-10-1\*03

141 sequences assigned  
15 (10.6%) exact matches, in which:  
10 unique CDR3  
3 unique J



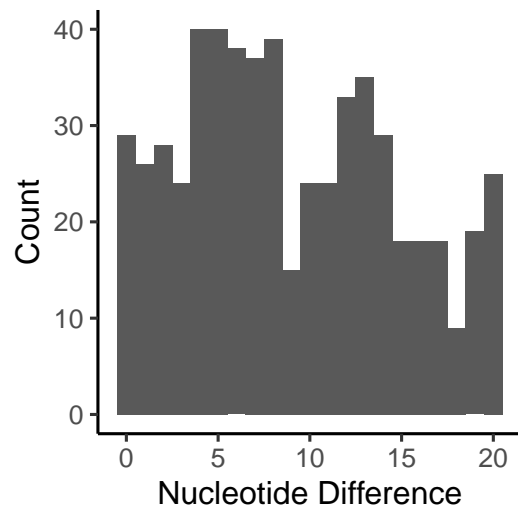
## IGHV7-4-1\*01

79 sequences assigned  
No exact matches.



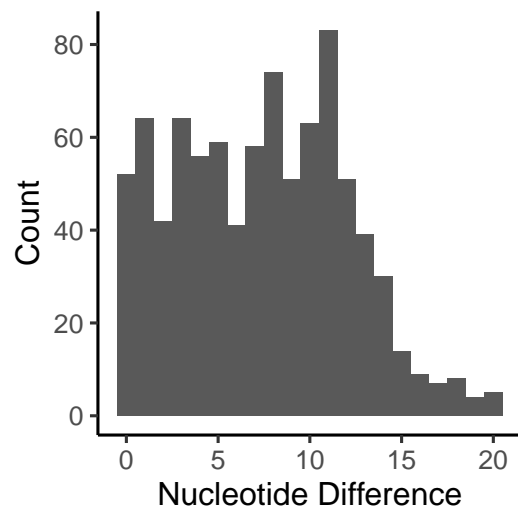
## IGHV5-51\*01

973 sequences assigned  
29 (3%) exact matches, in which:  
27 unique CDR3  
5 unique J



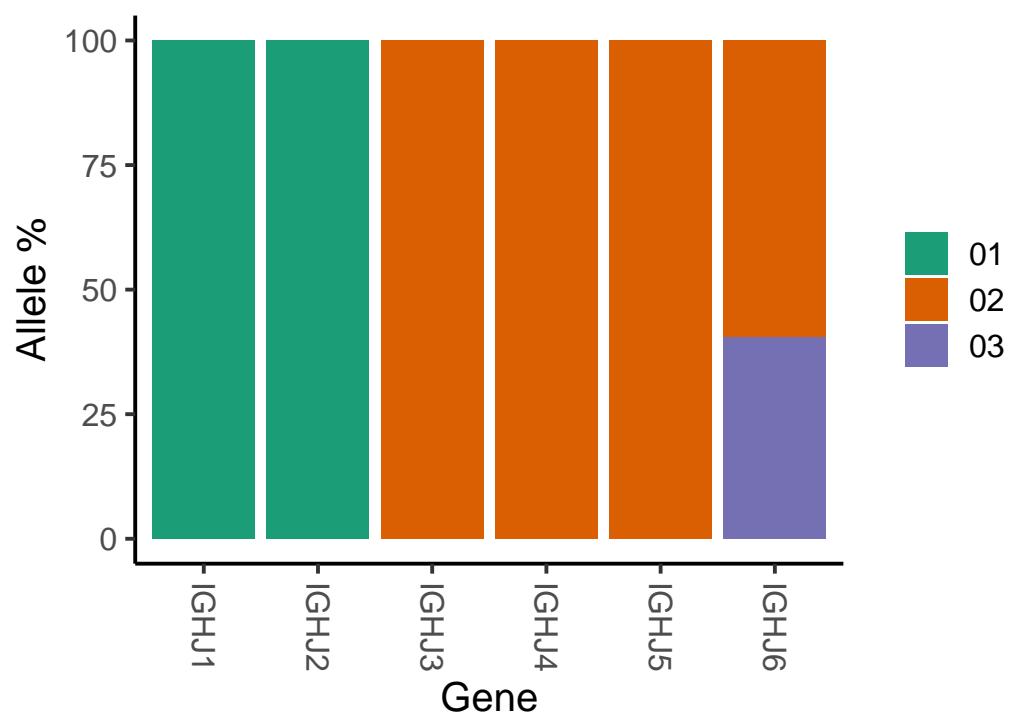
## IGHV6-1\*01

950 sequences assigned  
52 (5.5%) exact matches, in which:  
48 unique CDR3  
5 unique J

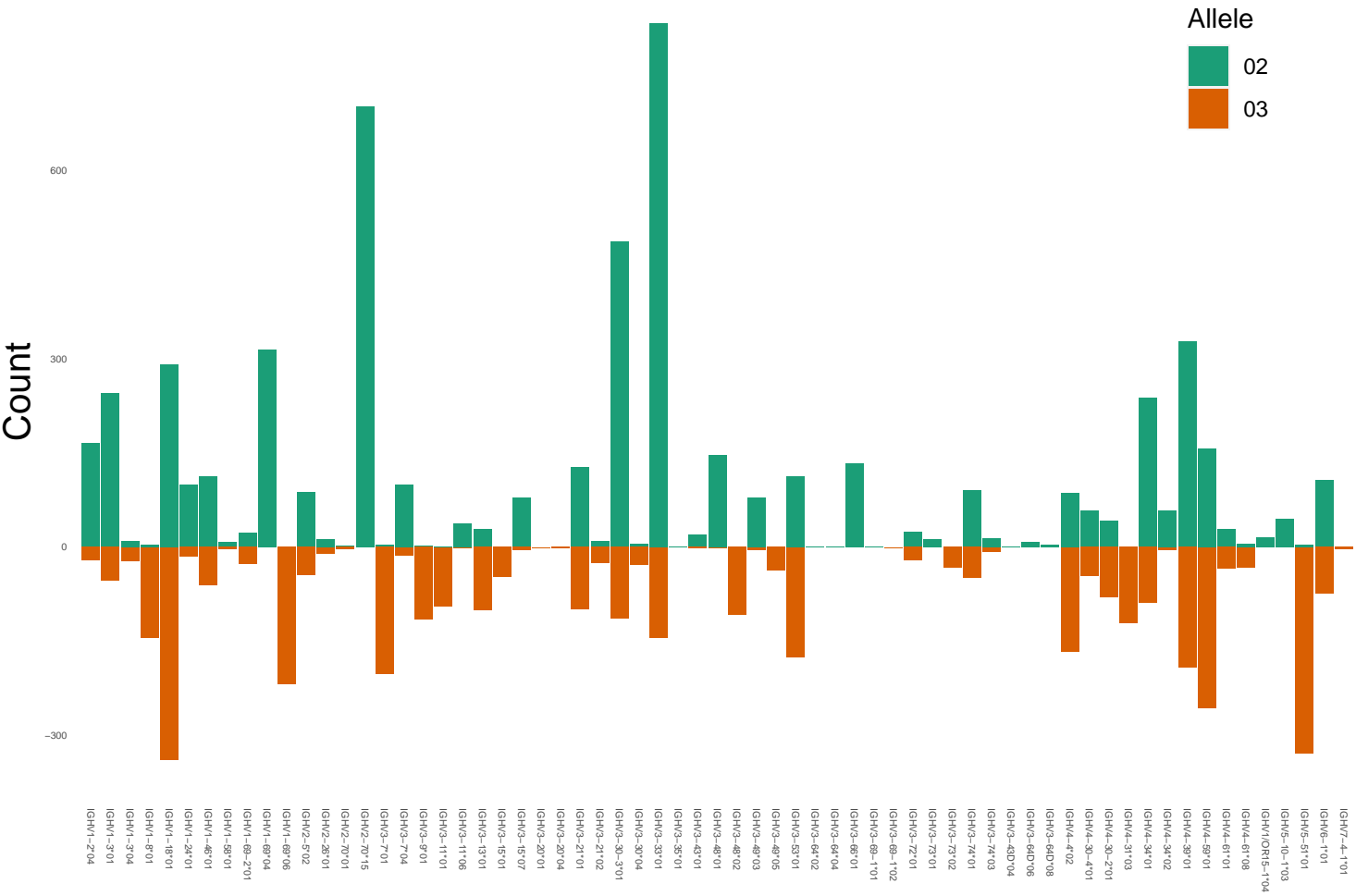




Allele Usage



Sequence Count by IGHJ6 allele usage



[illegible]