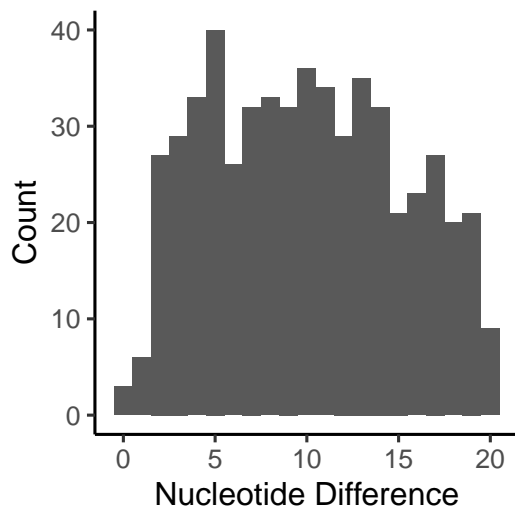


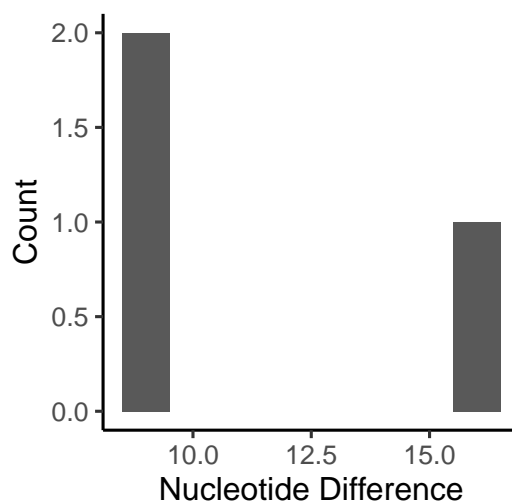
### IGHV1-2\*06

691 sequences assigned  
3 (0.4%) exact matches, in which:  
3 unique CDR3  
2 unique J



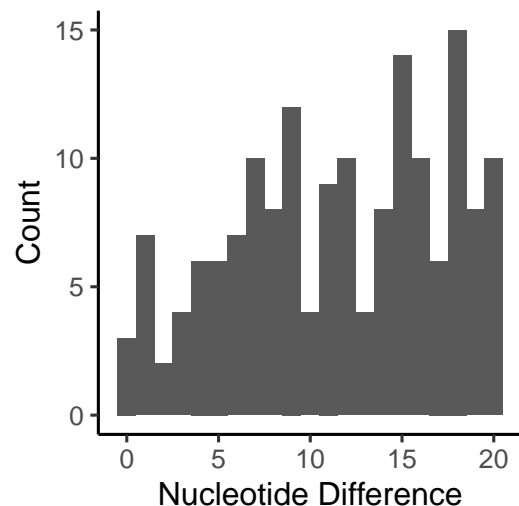
### IGHV1-8\*01

3 sequences assigned  
No exact matches.



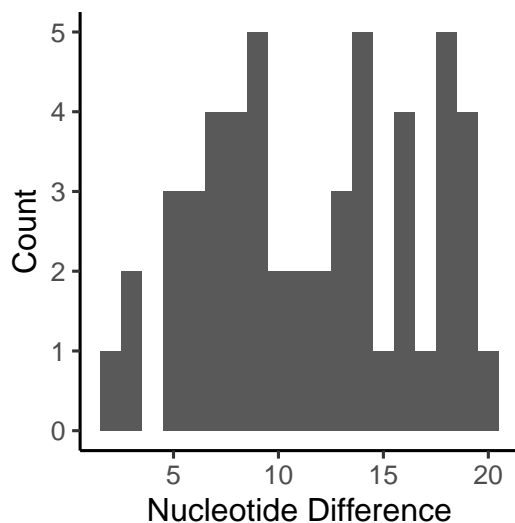
### IGHV1-24\*01

209 sequences assigned  
3 (1.4%) exact matches, in which:  
3 unique CDR3  
2 unique J



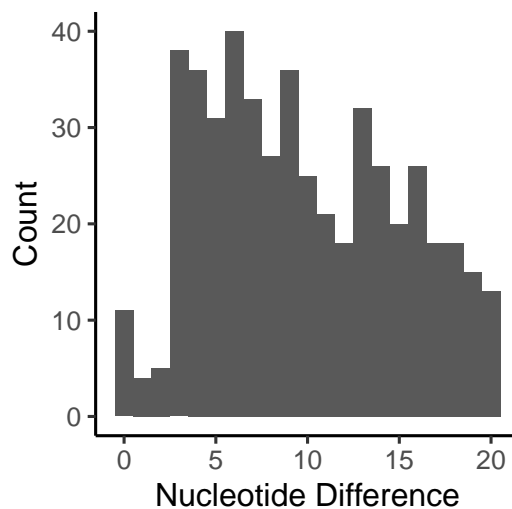
### IGHV1-3\*04

67 sequences assigned  
No exact matches.



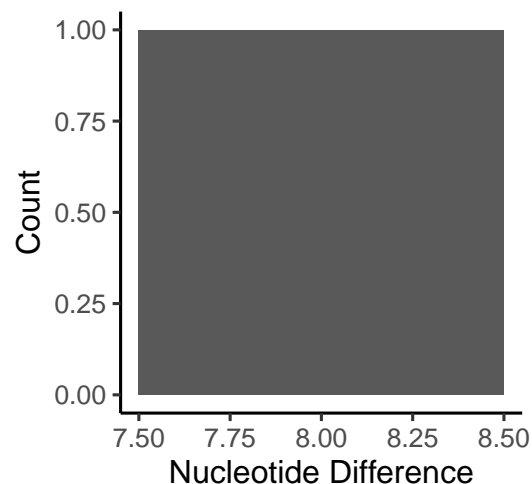
### IGHV1-18\*01

637 sequences assigned  
11 (1.7%) exact matches, in which:  
10 unique CDR3  
3 unique J



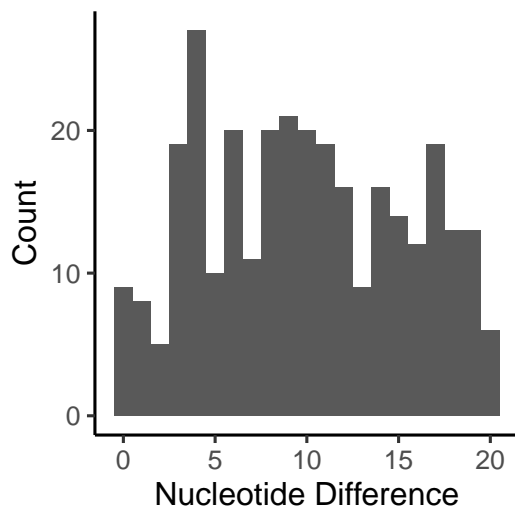
### IGHV1-45\*02

1 sequences assigned  
No exact matches.



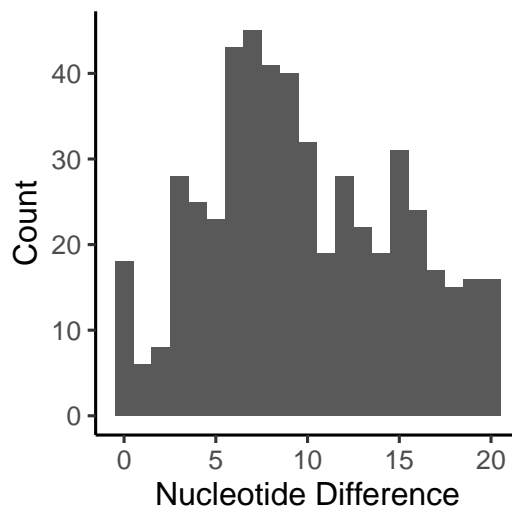
### IGHV1-3\*01\_05

366 sequences assigned  
9 (2.5%) exact matches, in which:  
9 unique CDR3  
3 unique J



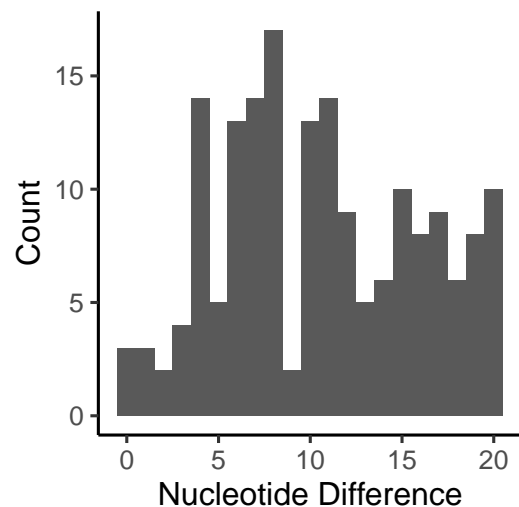
### IGHV1-18\*04

667 sequences assigned  
18 (2.7%) exact matches, in which:  
17 unique CDR3  
5 unique J



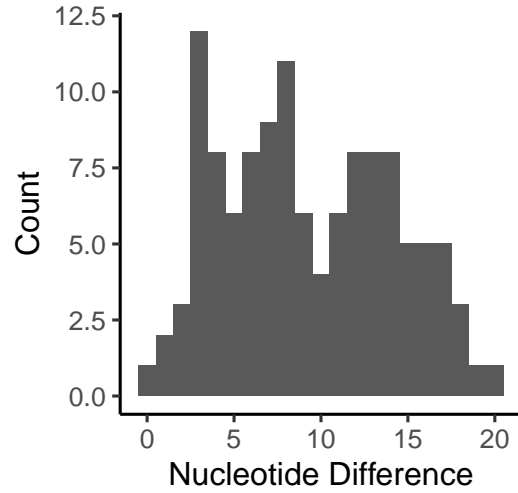
### IGHV1-46\*01

223 sequences assigned  
3 (1.3%) exact matches, in which:  
3 unique CDR3  
2 unique J



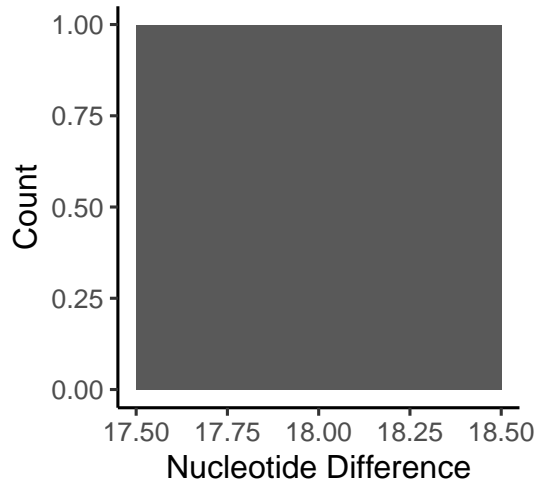
### IGHV1-46\*03

151 sequences assigned  
1 (0.7%) exact matches, in which:  
1 unique CDR3  
1 unique J



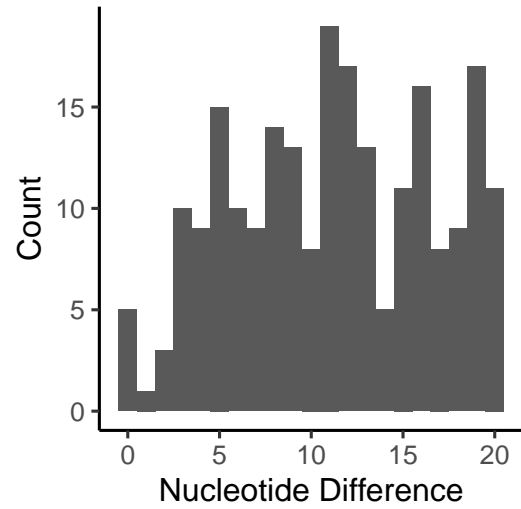
### IGHV1-69-2\*01

1 sequences assigned  
No exact matches.



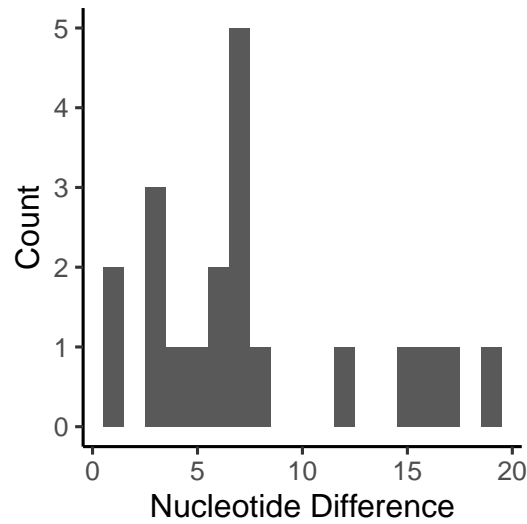
### IGHV1-69\*01\_12\_13

336 sequences assigned  
5 (1.5%) exact matches, in which:  
5 unique CDR3  
3 unique J



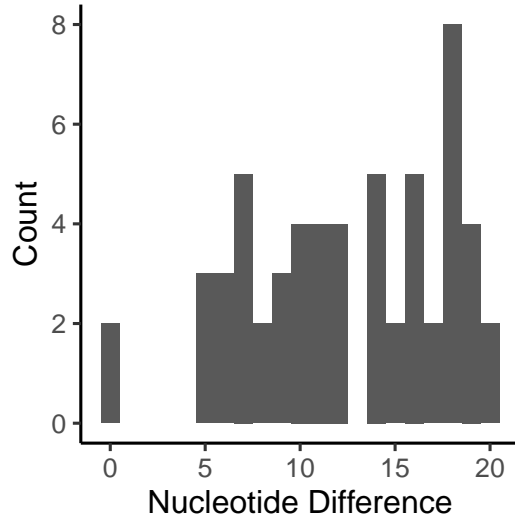
### IGHV1-58\*02

21 sequences assigned  
No exact matches.



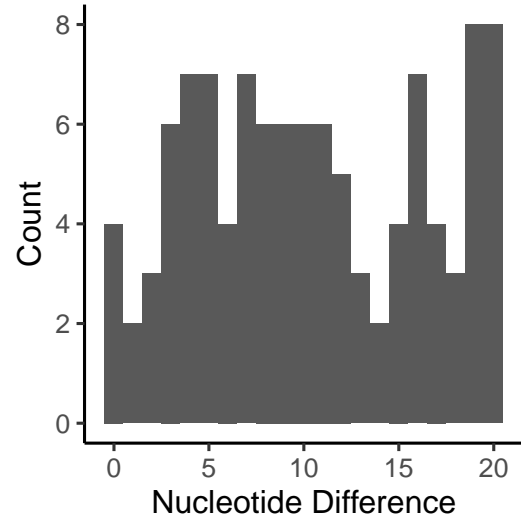
### IGHV1-69\*02

106 sequences assigned  
2 (1.9%) exact matches, in which:  
2 unique CDR3  
2 unique J



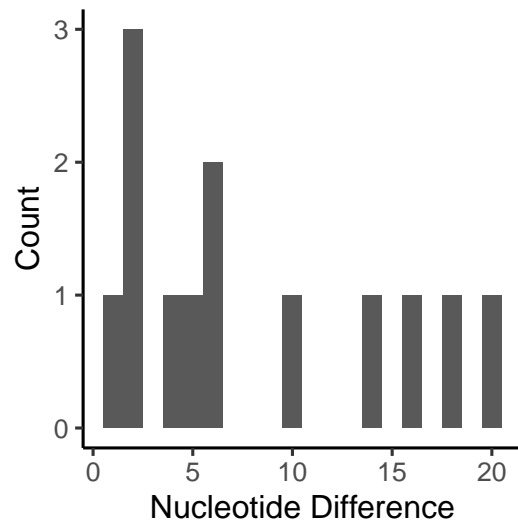
### IGHV1-69\*06\_14

183 sequences assigned  
4 (2.2%) exact matches, in which:  
4 unique CDR3  
3 unique J



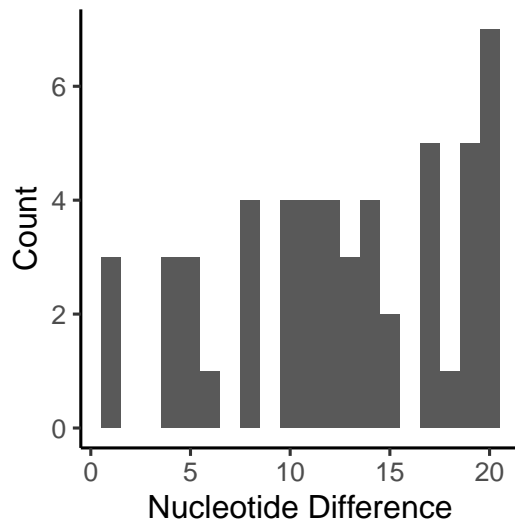
### IGHV1-58\*01\_03

22 sequences assigned  
No exact matches.



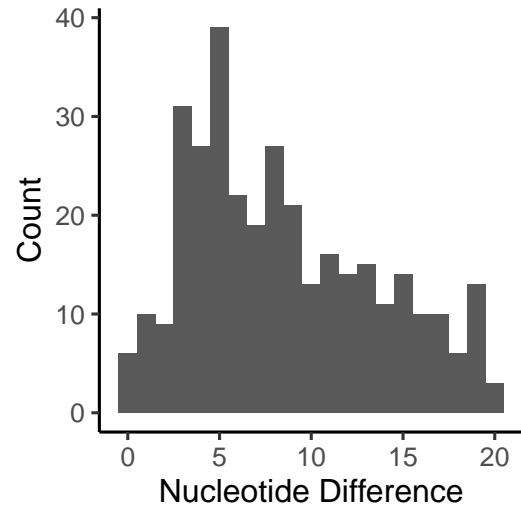
### IGHV1-69\*08

81 sequences assigned  
No exact matches.



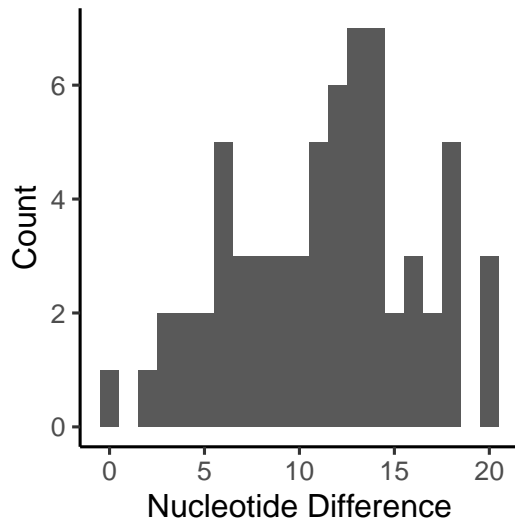
### IGHV2-5\*02

381 sequences assigned  
6 (1.6%) exact matches, in which:  
6 unique CDR3  
3 unique J



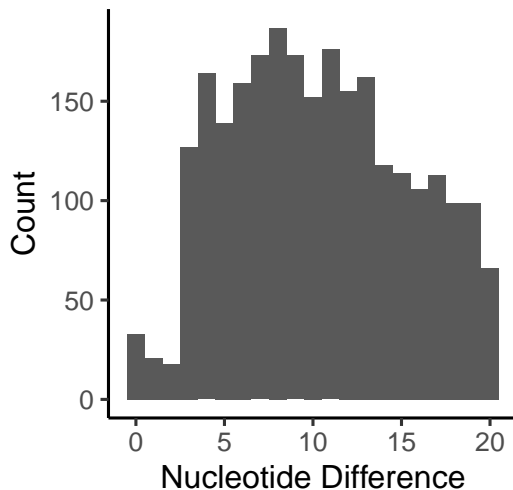
### IGHV2-26\*01

71 sequences assigned  
1 (1.4%) exact matches, in which:  
1 unique CDR3  
1 unique J



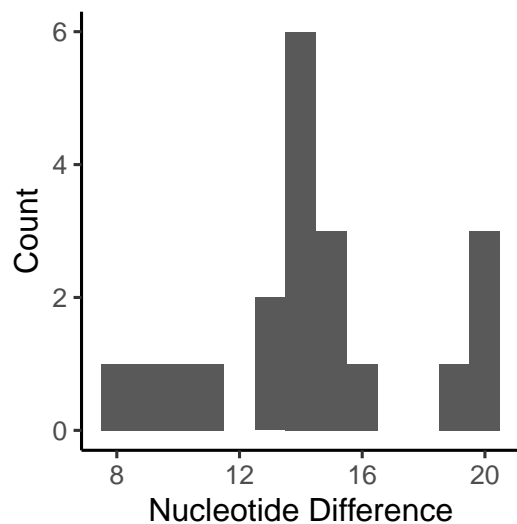
### IGHV3-7\*03

2856 sequences assigned  
33 (1.2%) exact matches, in which:  
25 unique CDR3  
6 unique J



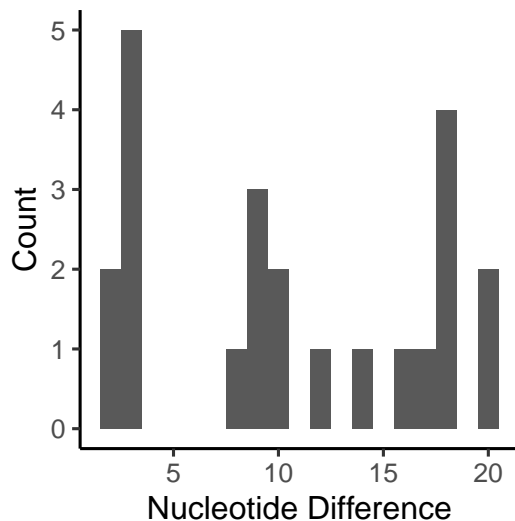
### IGHV3-13\*01

25 sequences assigned  
No exact matches.



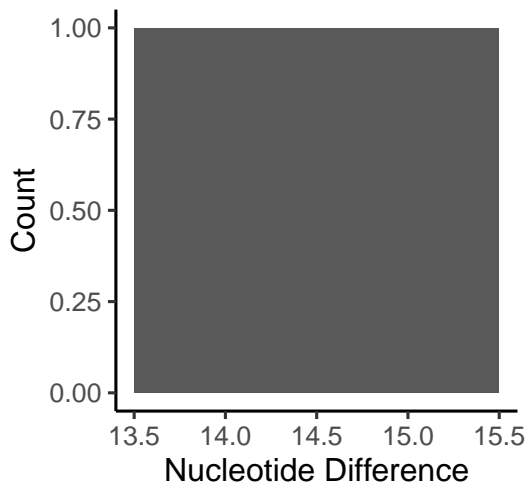
### IGHV2-70\*01

31 sequences assigned  
No exact matches.



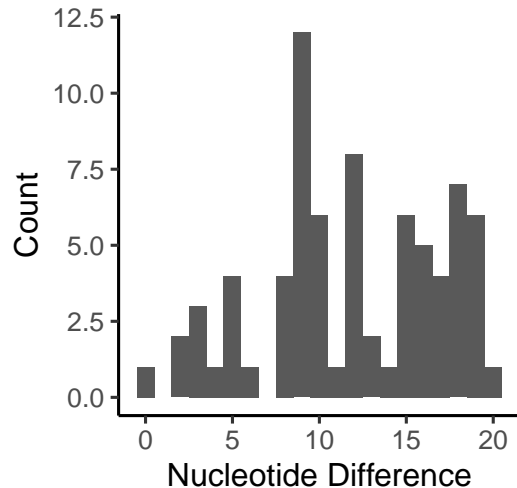
### IGHV3-9\*01

2 sequences assigned  
No exact matches.



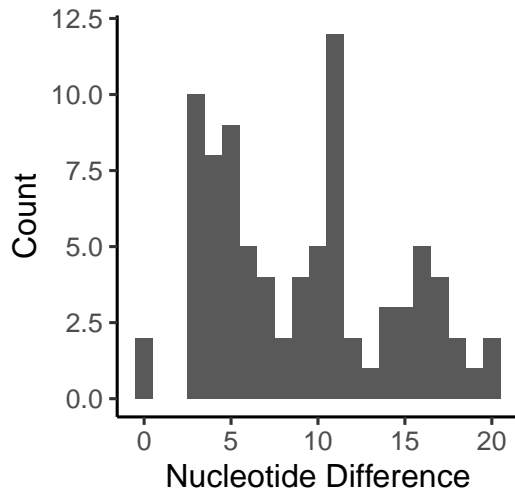
### IGHV3-13\*05

78 sequences assigned  
1 (1.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



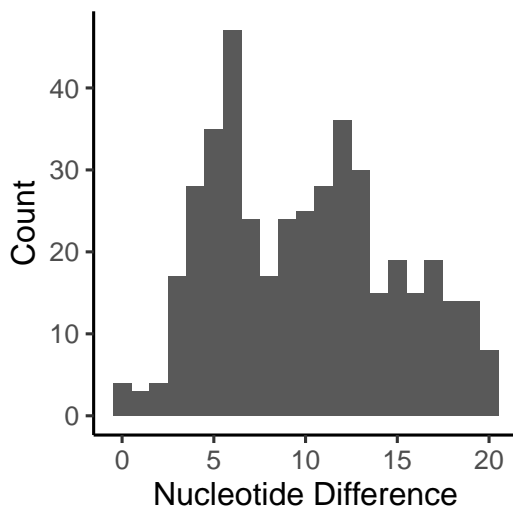
### IGHV2-70\*11\_15

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



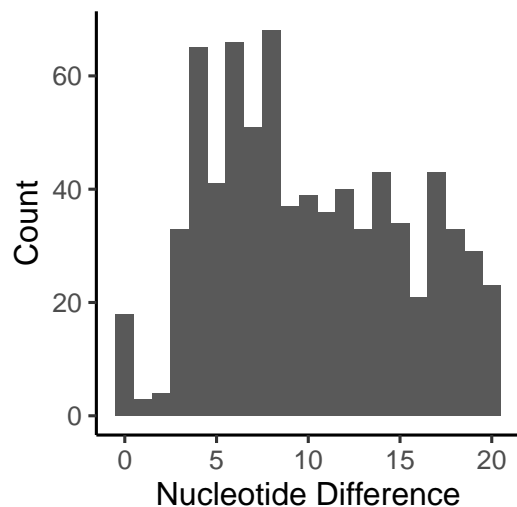
### IGHV3-11\*06

525 sequences assigned  
4 (0.8%) exact matches, in which:  
4 unique CDR3  
2 unique J



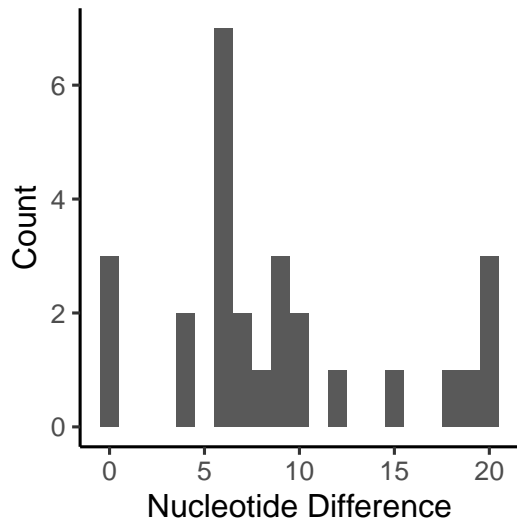
### IGHV3-15\*01\_02

899 sequences assigned  
18 (2%) exact matches, in which:  
13 unique CDR3  
4 unique J



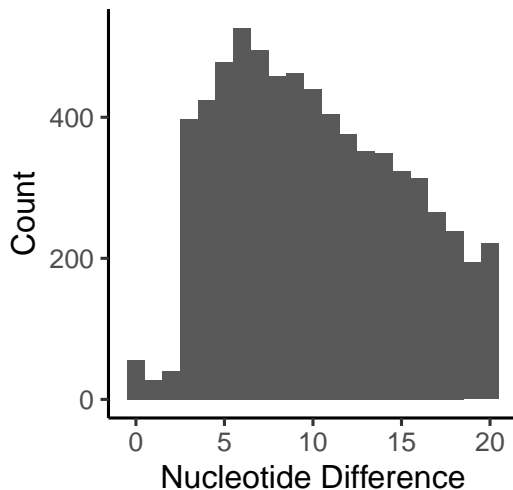
### IGHV3-20\*01\_02

28 sequences assigned  
3 (10.7%) exact matches, in which:  
2 unique CDR3  
1 unique J



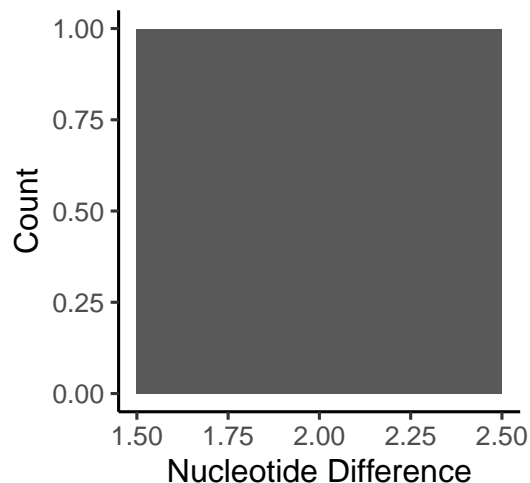
### IGHV3-23\*01\_04

8320 sequences assigned  
56 (0.7%) exact matches, in which:  
46 unique CDR3  
7 unique J



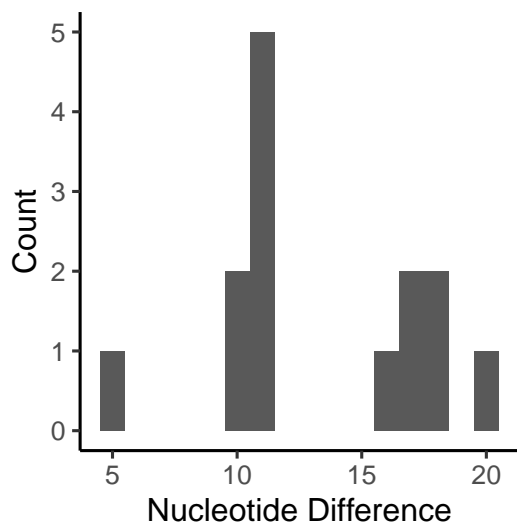
### IGHV3-47\*02

1 sequences assigned  
No exact matches.



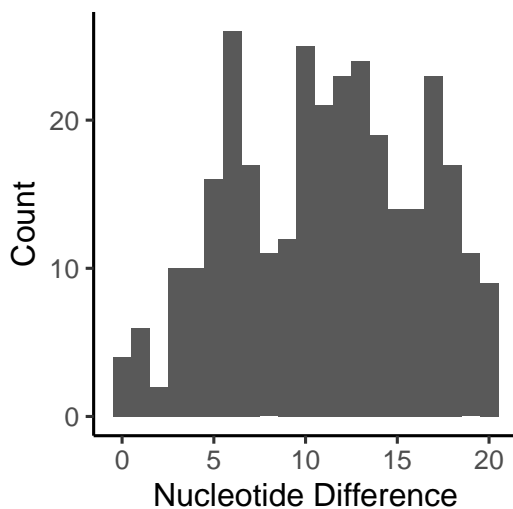
### IGHV3-20\*03\_04

20 sequences assigned  
No exact matches.



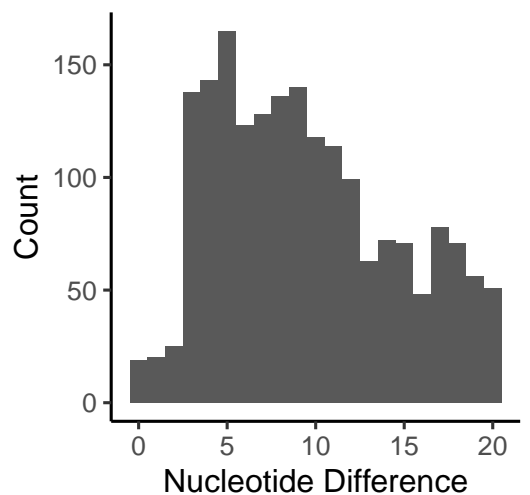
### IGHV3-33\*01

423 sequences assigned  
4 (0.9%) exact matches, in which:  
4 unique CDR3  
2 unique J



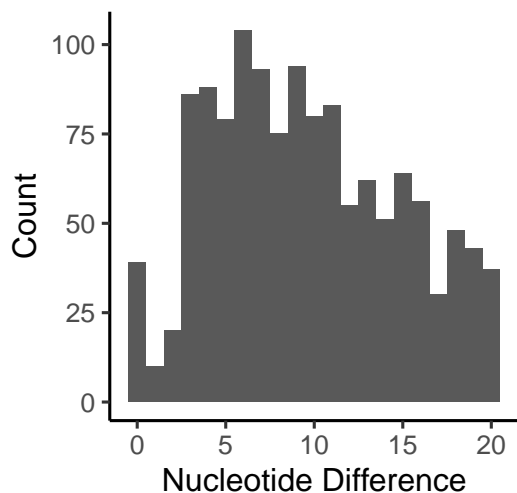
### IGHV3-48\*02

2193 sequences assigned  
19 (0.9%) exact matches, in which:  
14 unique CDR3  
4 unique J



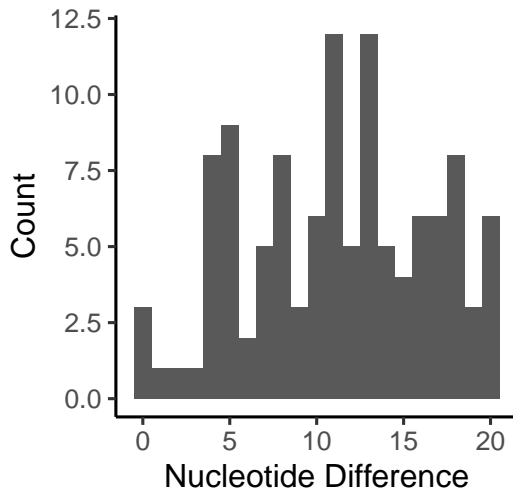
### IGHV3-21\*01\_02

1665 sequences assigned  
39 (2.3%) exact matches, in which:  
29 unique CDR3  
6 unique J



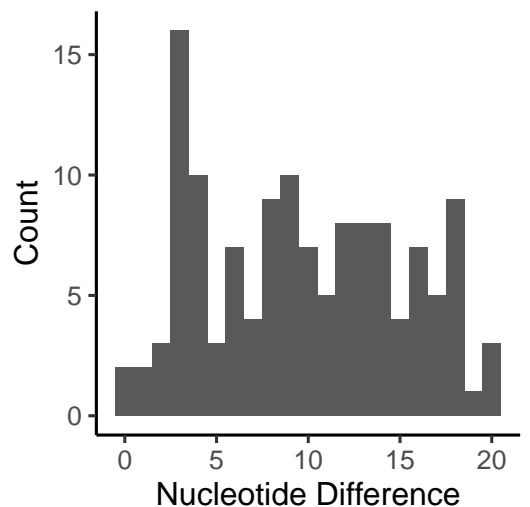
### IGHV3-43\*01

161 sequences assigned  
3 (1.9%) exact matches, in which:  
3 unique CDR3  
2 unique J



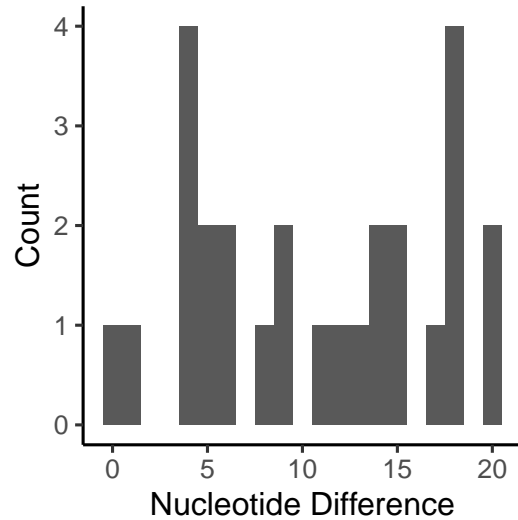
### IGHV3-49\*04

144 sequences assigned  
2 (1.4%) exact matches, in which:  
2 unique CDR3  
2 unique J



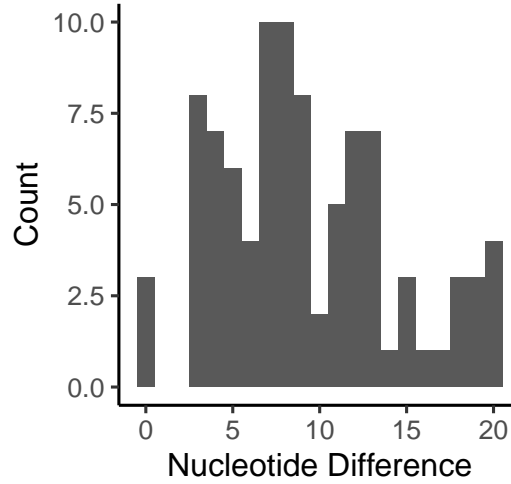
### IGHV3-49\*03\_05

42 sequences assigned  
1 (2.4%) exact matches, in which:  
1 unique CDR3  
1 unique J



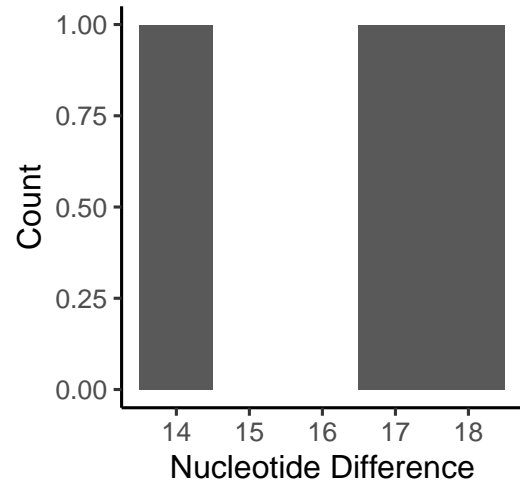
### IGHV3-64\*01

133 sequences assigned  
3 (2.3%) exact matches, in which:  
2 unique CDR3  
2 unique J



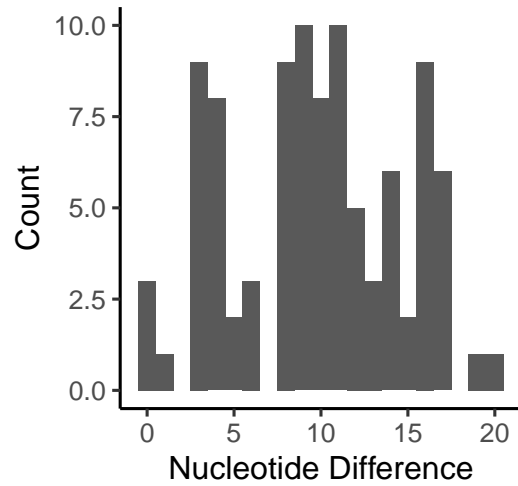
### IGHV3-69-1\*01

8 sequences assigned  
No exact matches.



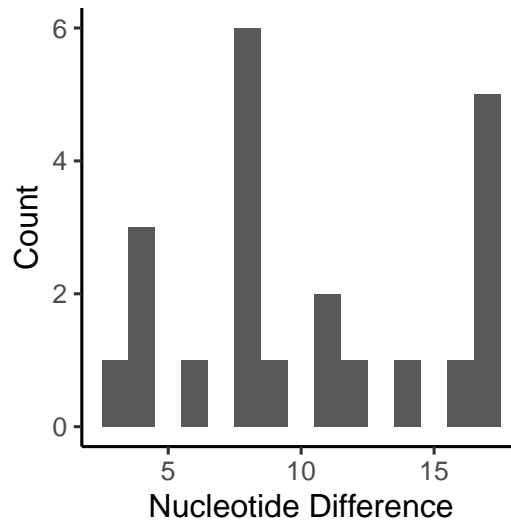
### IGHV3-53\*04

110 sequences assigned  
3 (2.7%) exact matches, in which:  
2 unique CDR3  
1 unique J



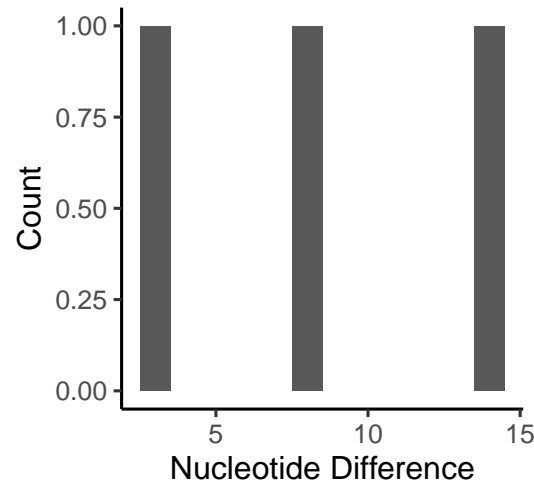
### IGHV3-64\*02\_07

32 sequences assigned  
No exact matches.



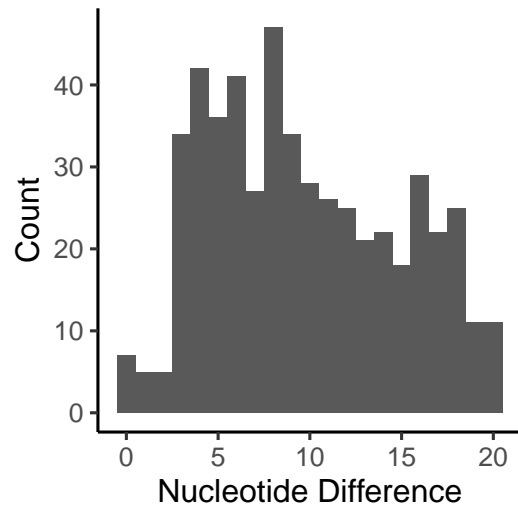
### IGHV3-69-1\*02

5 sequences assigned  
No exact matches.



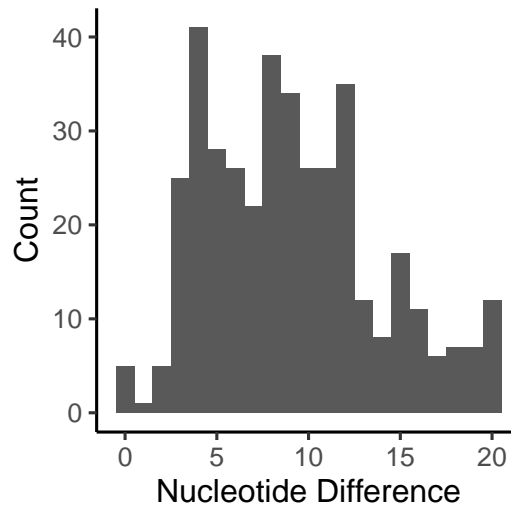
### IGHV3-53\*01\_02

603 sequences assigned  
7 (1.2%) exact matches, in which:  
6 unique CDR3  
2 unique J



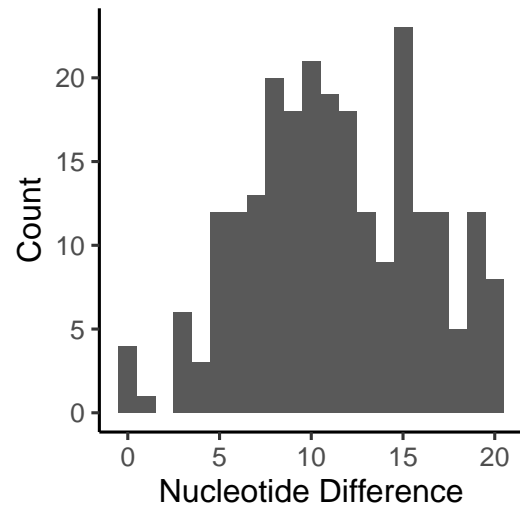
### IGHV3-66\*01

474 sequences assigned  
5 (1.1%) exact matches, in which:  
4 unique CDR3  
3 unique J



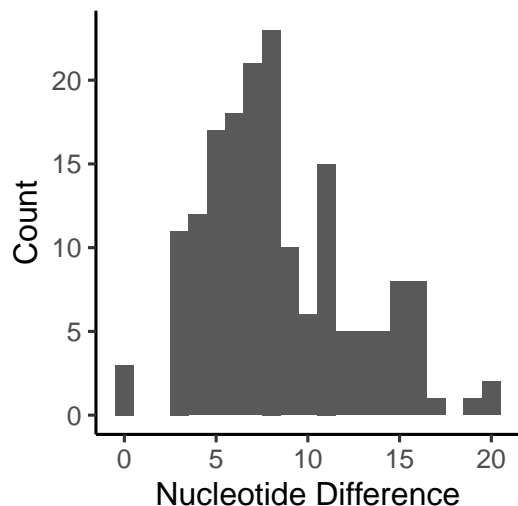
### IGHV3-72\*01

266 sequences assigned  
4 (1.5%) exact matches, in which:  
2 unique CDR3  
2 unique J



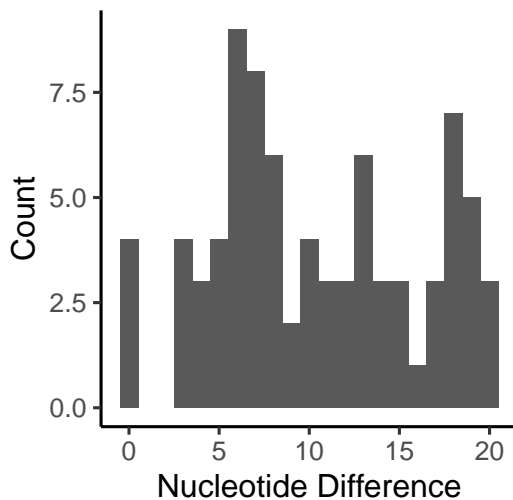
### IGHV3-73\*01\_02

195 sequences assigned  
3 (1.5%) exact matches, in which:  
2 unique CDR3  
1 unique J



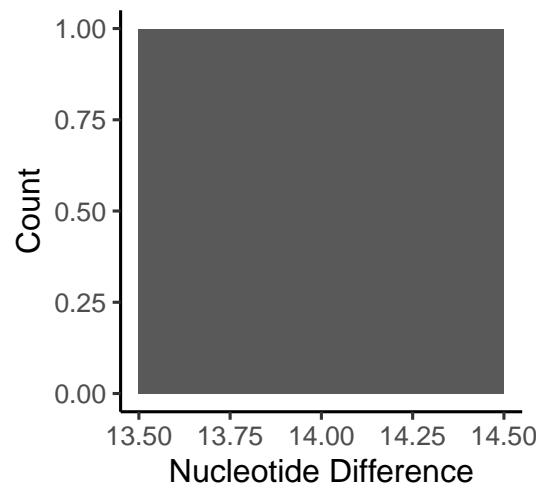
### IGHV3-43D\*03

98 sequences assigned  
4 (4.1%) exact matches, in which:  
4 unique CDR3  
1 unique J



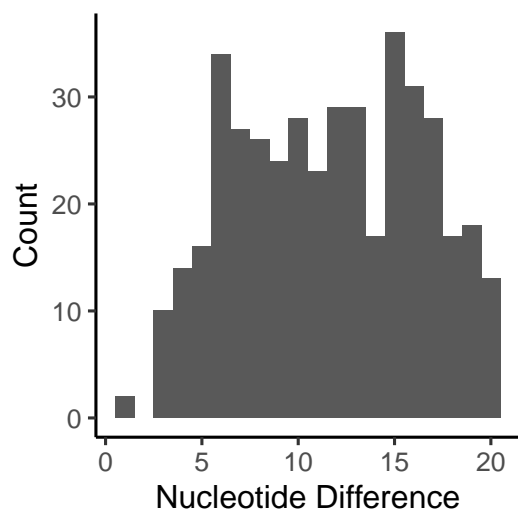
### IGHV4-28\*03

1 sequences assigned  
No exact matches.



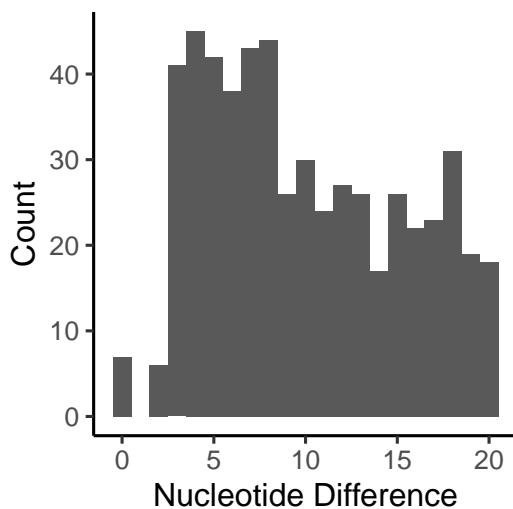
### IGHV3-74\*03

488 sequences assigned  
No exact matches.



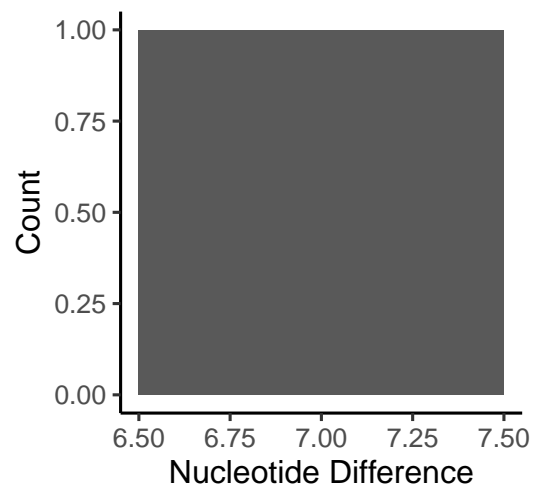
### IGHV3-64D\*06

665 sequences assigned  
7 (1.1%) exact matches, in which:  
6 unique CDR3  
5 unique J



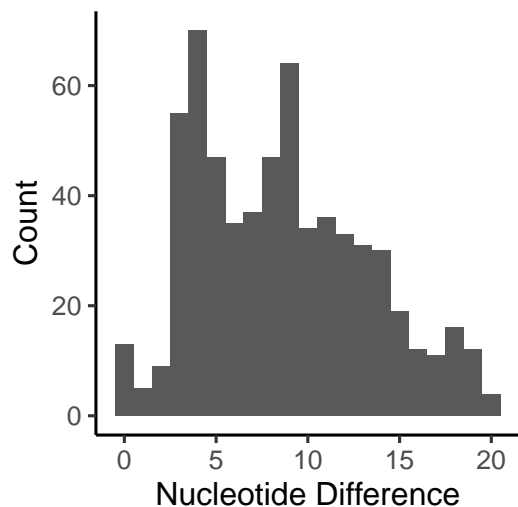
### IGHV4-28\*06

1 sequences assigned  
No exact matches.



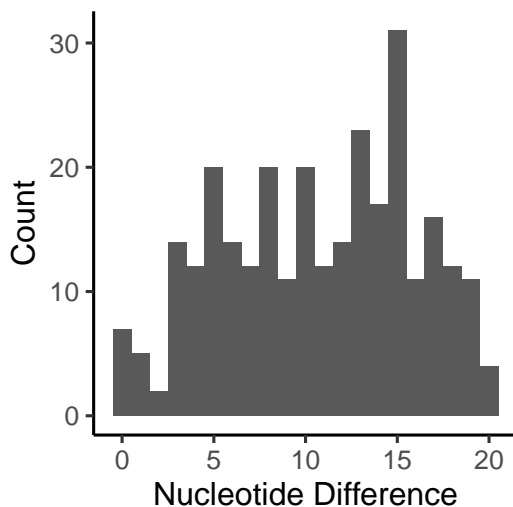
### IGHV3-74\*01\_02

687 sequences assigned  
13 (1.9%) exact matches, in which:  
10 unique CDR3  
4 unique J



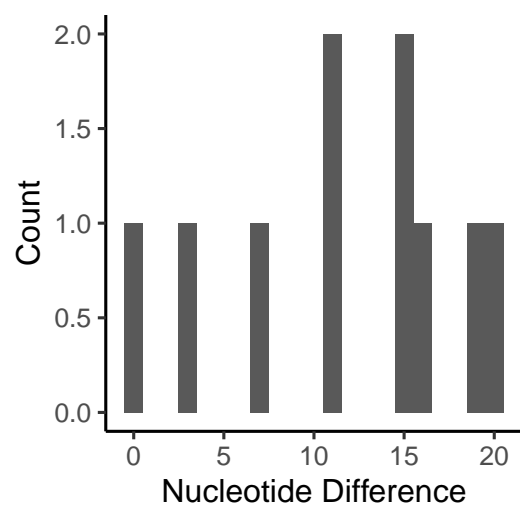
### IGHV4-4\*02\_03

389 sequences assigned  
7 (1.8%) exact matches, in which:  
6 unique CDR3  
2 unique J



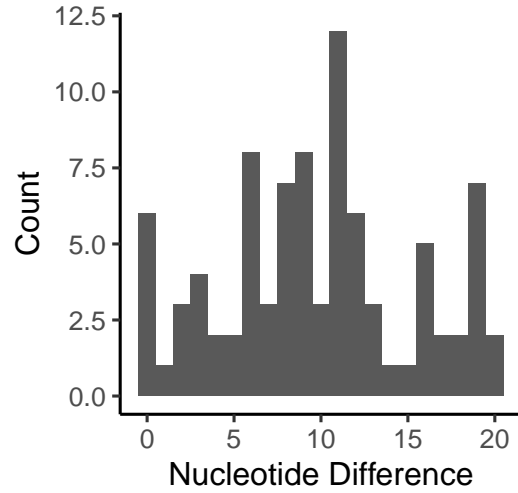
### IGHV4-28\*01\_07

10 sequences assigned  
1 (10%) exact matches, in which:  
1 unique CDR3  
1 unique J



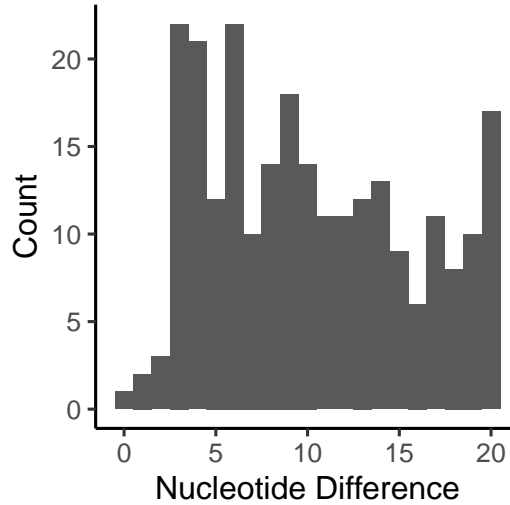
### IGHV4-30-2\*01

116 sequences assigned  
6 (5.2%) exact matches, in which:  
6 unique CDR3  
4 unique J



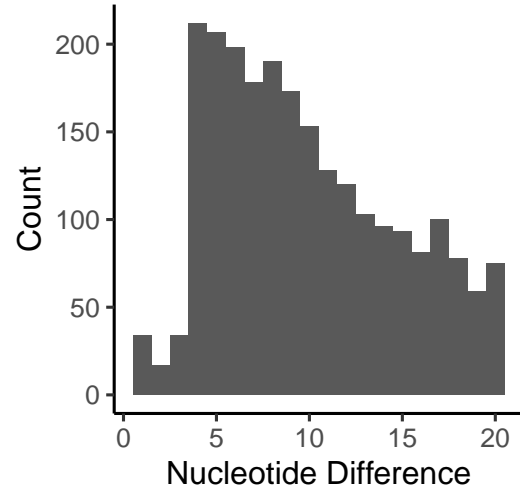
### IGHV4-31\*02

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



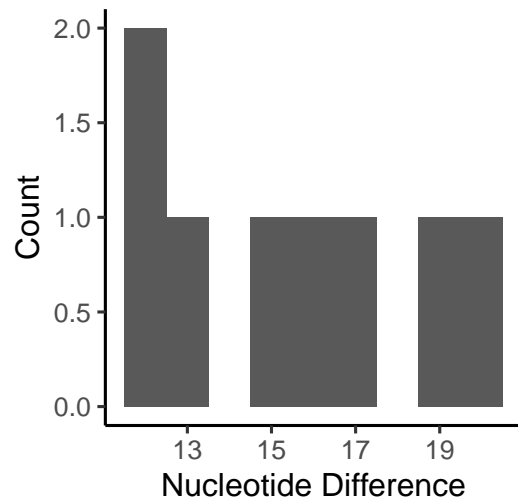
### IGHV4-39\*02

3081 sequences assigned  
No exact matches.



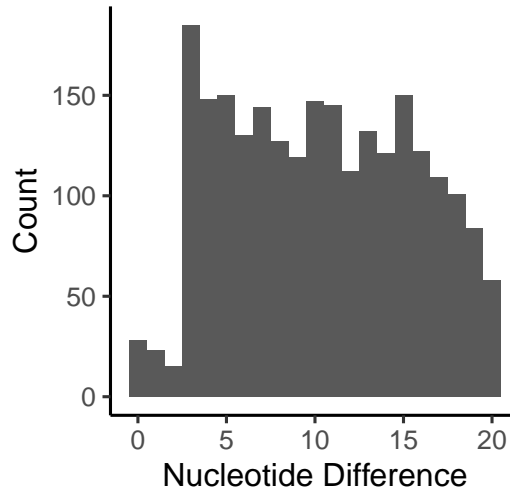
### IGHV4-30-2\*06

22 sequences assigned  
No exact matches.



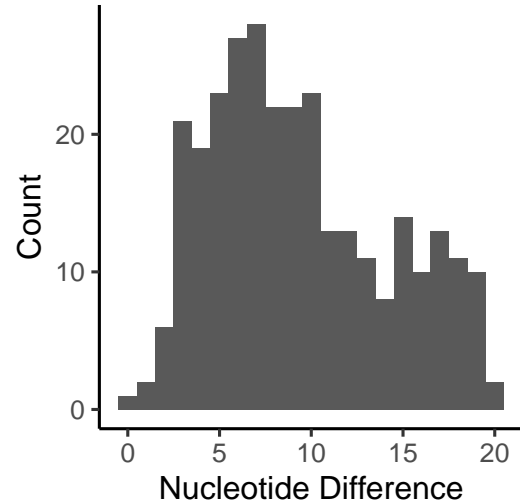
### IGHV4-34\*01\_02

2940 sequences assigned  
28 (1%) exact matches, in which:  
24 unique CDR3  
6 unique J



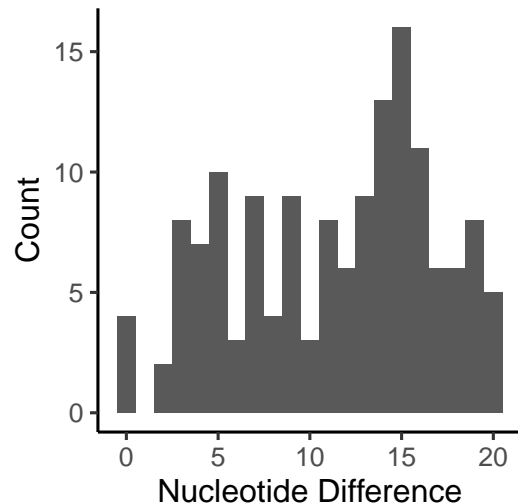
### IGHV4-39\*01\_05

410 sequences assigned  
1 (0.2%) exact matches, in which:  
1 unique CDR3  
1 unique J



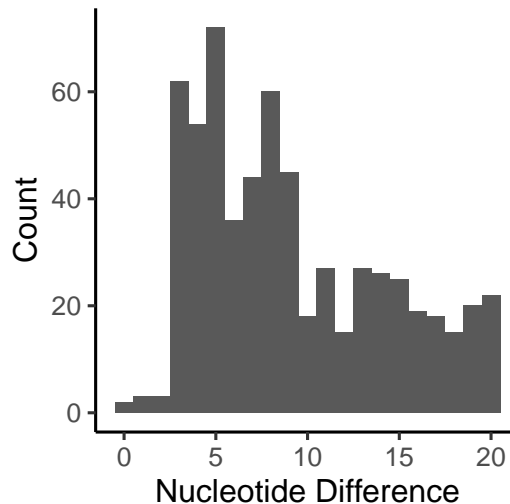
### IGHV4-30-4\*07

224 sequences assigned  
4 (1.8%) exact matches, in which:  
3 unique CDR3  
3 unique J



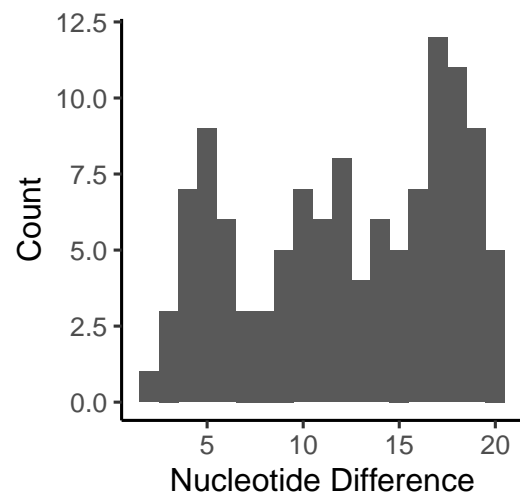
### IGHV4-38-2\*02

745 sequences assigned  
2 (0.3%) exact matches, in which:  
2 unique CDR3  
1 unique J



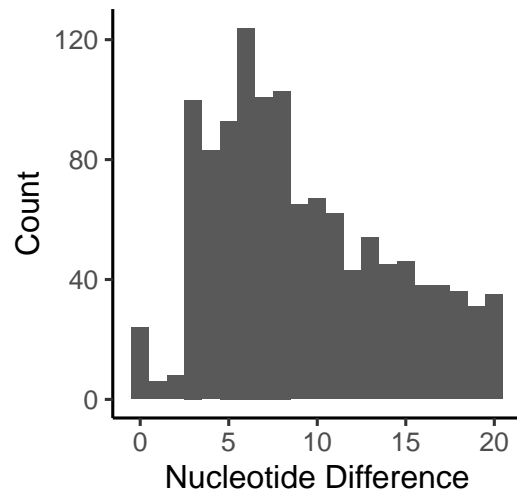
### IGHV4-59\*02

166 sequences assigned  
No exact matches.



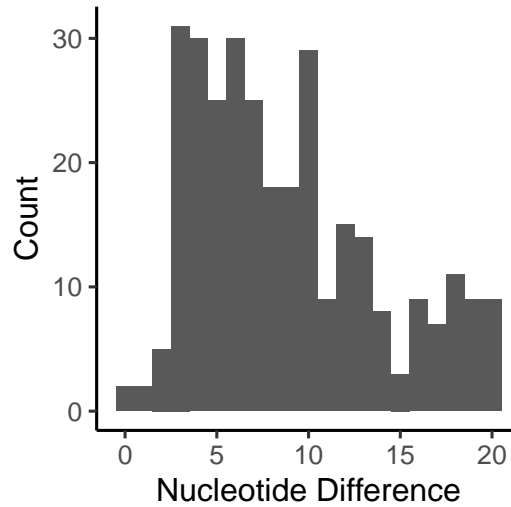
### IGHV4–59\*08

1430 sequences assigned  
24 (1.7%) exact matches, in which:  
20 unique CDR3  
5 unique J



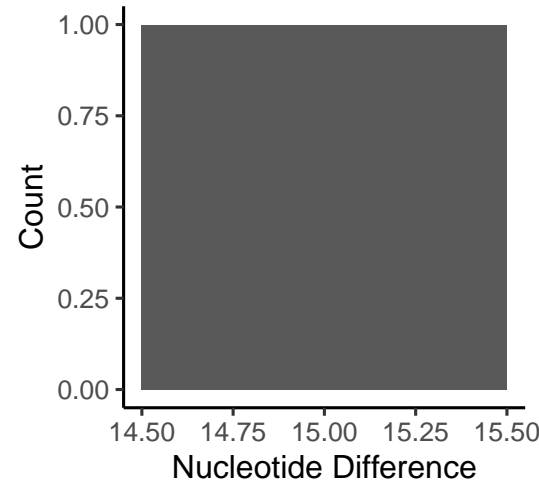
### IGHV4–61\*01

361 sequences assigned  
2 (0.6%) exact matches, in which:  
1 unique CDR3  
1 unique J



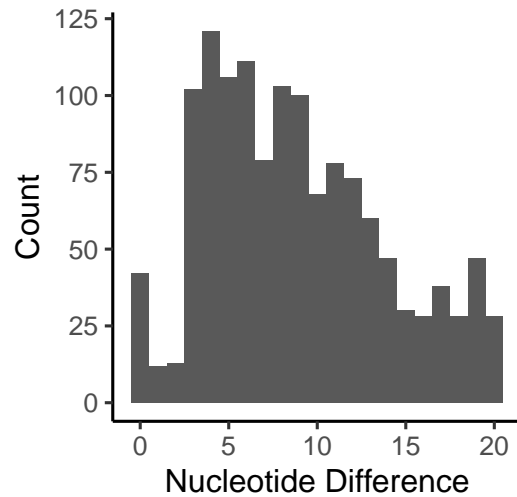
### IGHV4/OR15–8\*02

7 sequences assigned  
No exact matches.



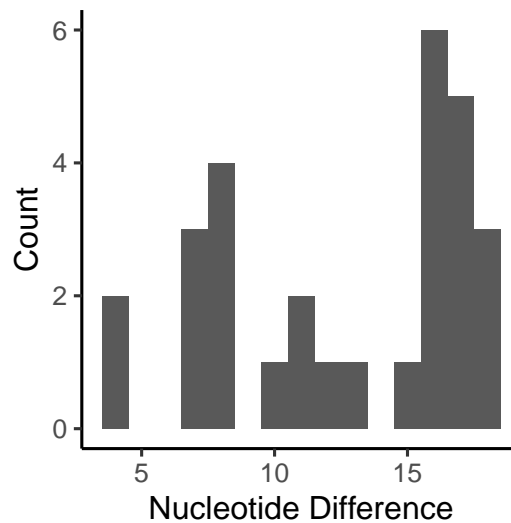
### IGHV4–59\*01\_07

1563 sequences assigned  
42 (2.7%) exact matches, in which:  
26 unique CDR3  
6 unique J



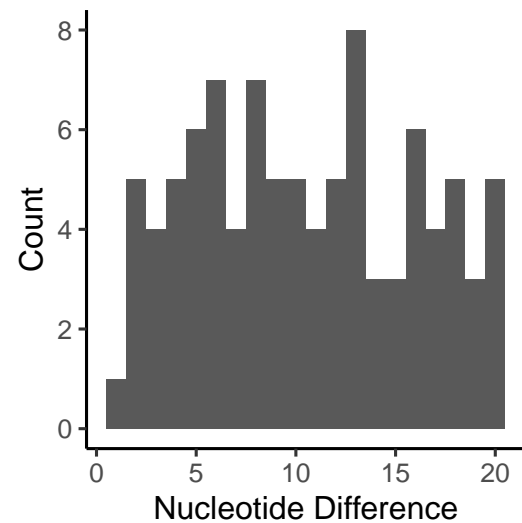
### IGHV4–61\*08

58 sequences assigned  
No exact matches.



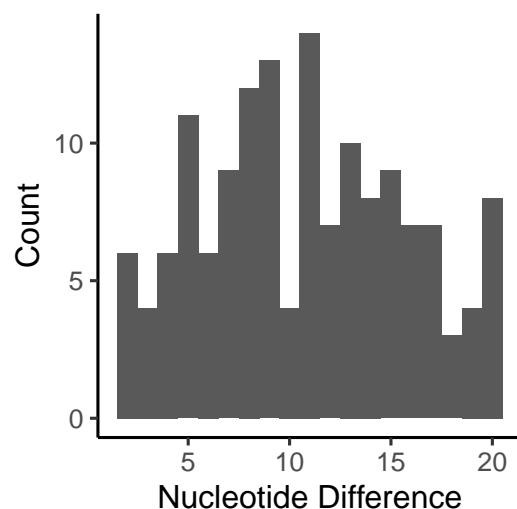
### IGHV5–10–1\*01\_03

122 sequences assigned  
No exact matches.



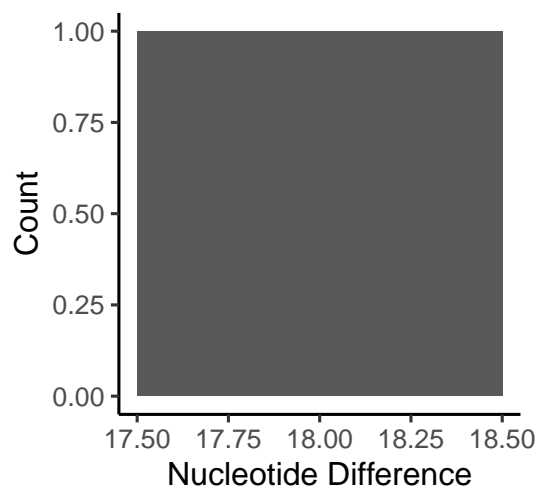
### IGHV4–59\*11

204 sequences assigned  
No exact matches.



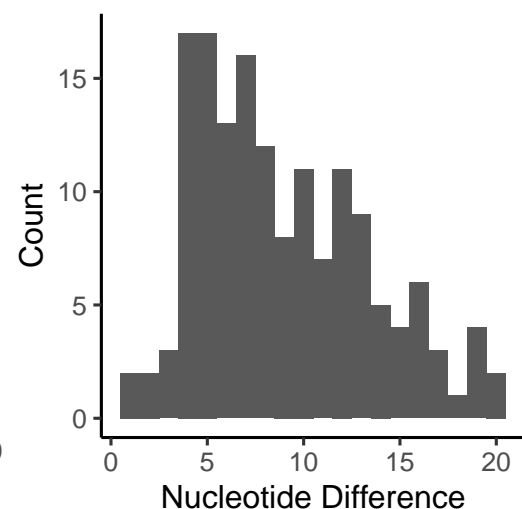
### IGHV4/OR15–8\*01

2 sequences assigned  
No exact matches.



### IGHV5–51\*07

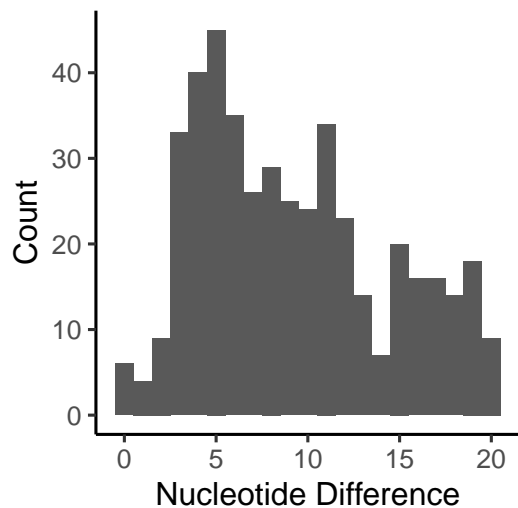
175 sequences assigned  
No exact matches.





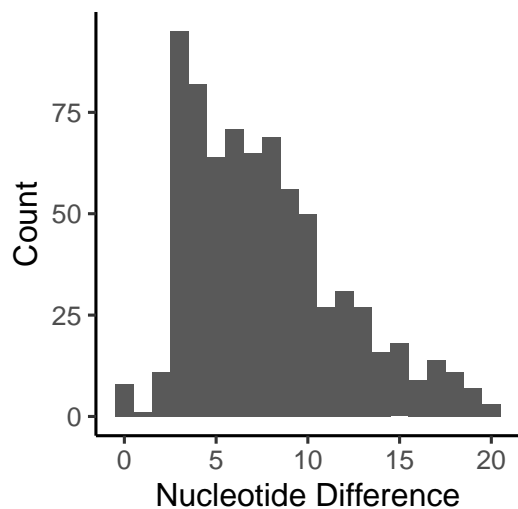
## IGHV5-51\*01\_03

496 sequences assigned  
6 (1.2%) exact matches, in which:  
6 unique CDR3  
3 unique J



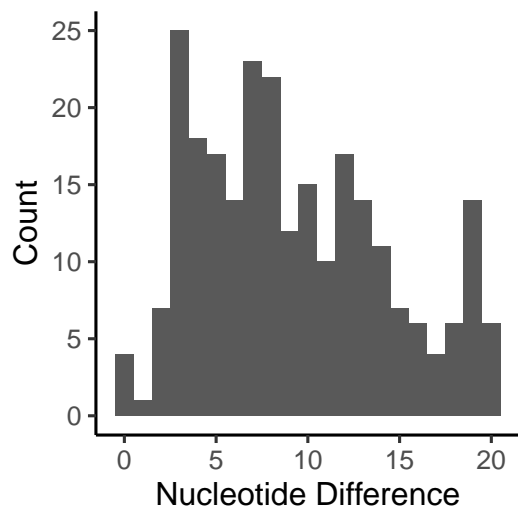
## IGHV6-1\*01\_02

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

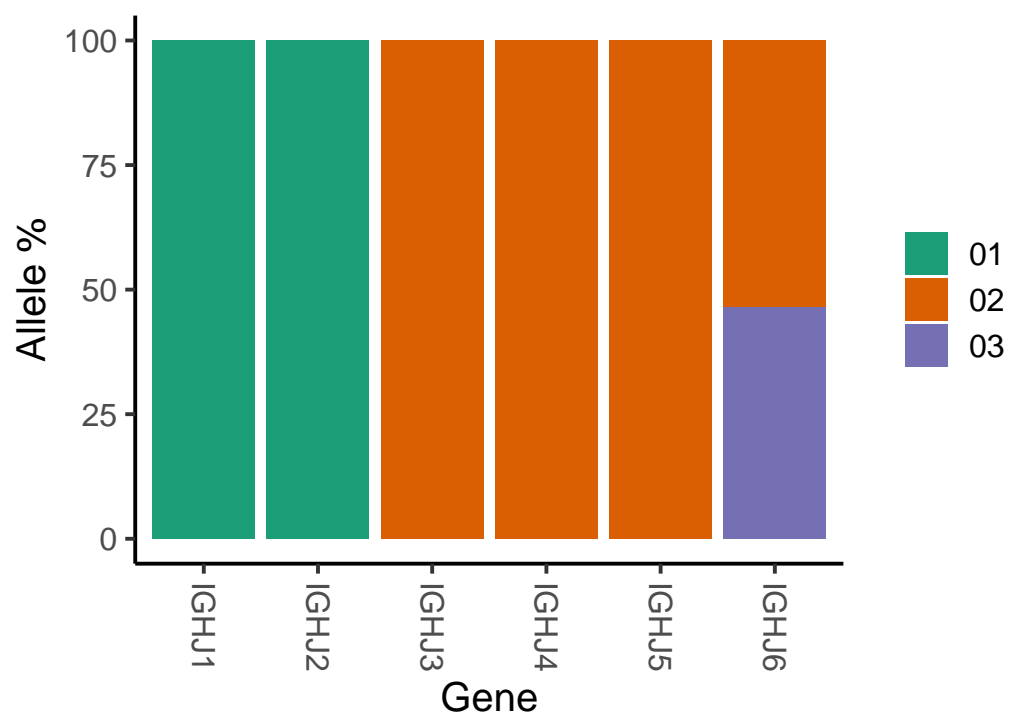


## IGHV7-4-1\*02

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



Allele Usage



Sequence Count by IGHJ6 allele usage



Warning – no inferred sequences found.