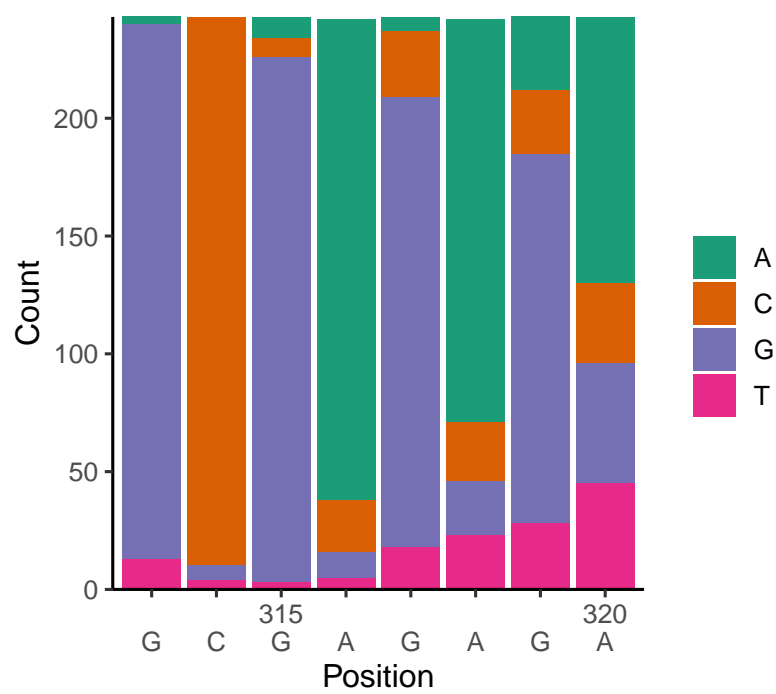
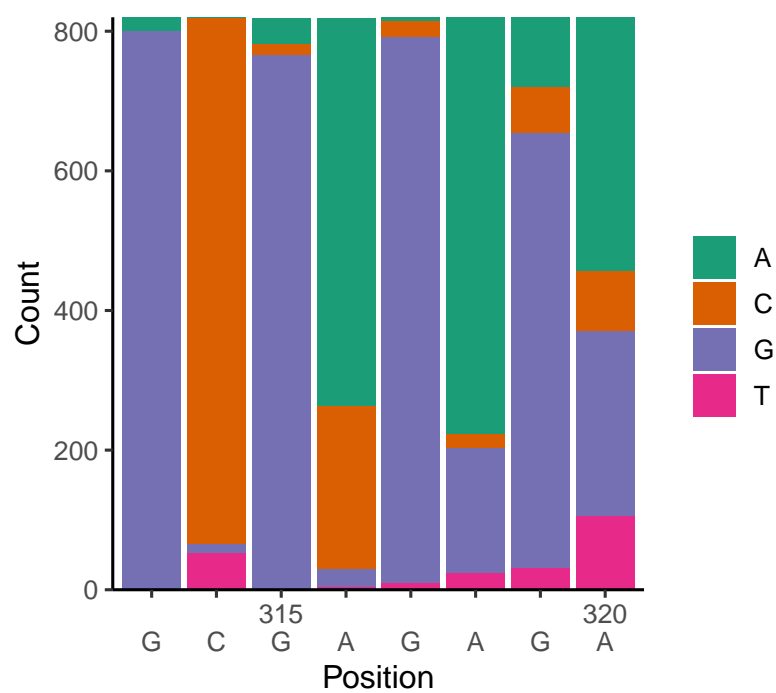


Gene IGHV1-69\*08\_C191T



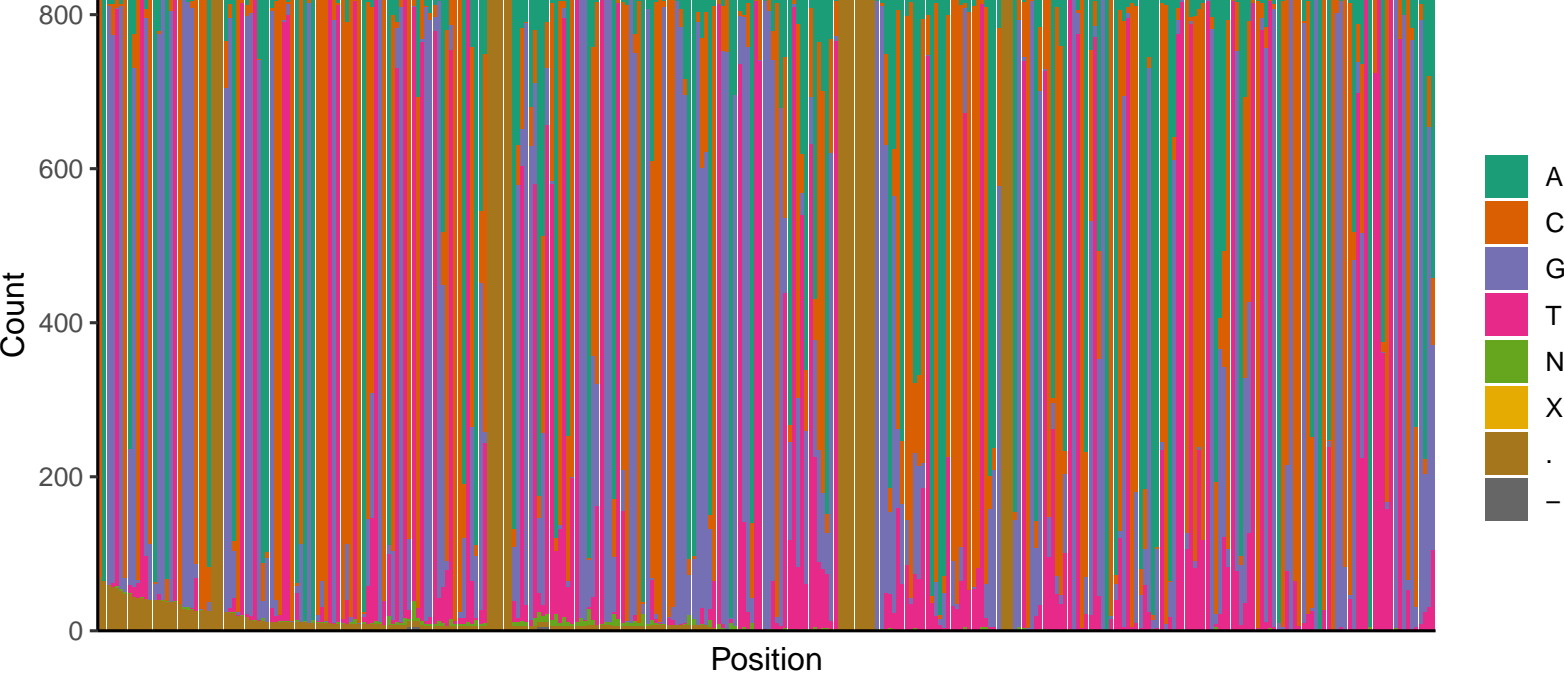
Gene IGHV4-61\*02\_A234G



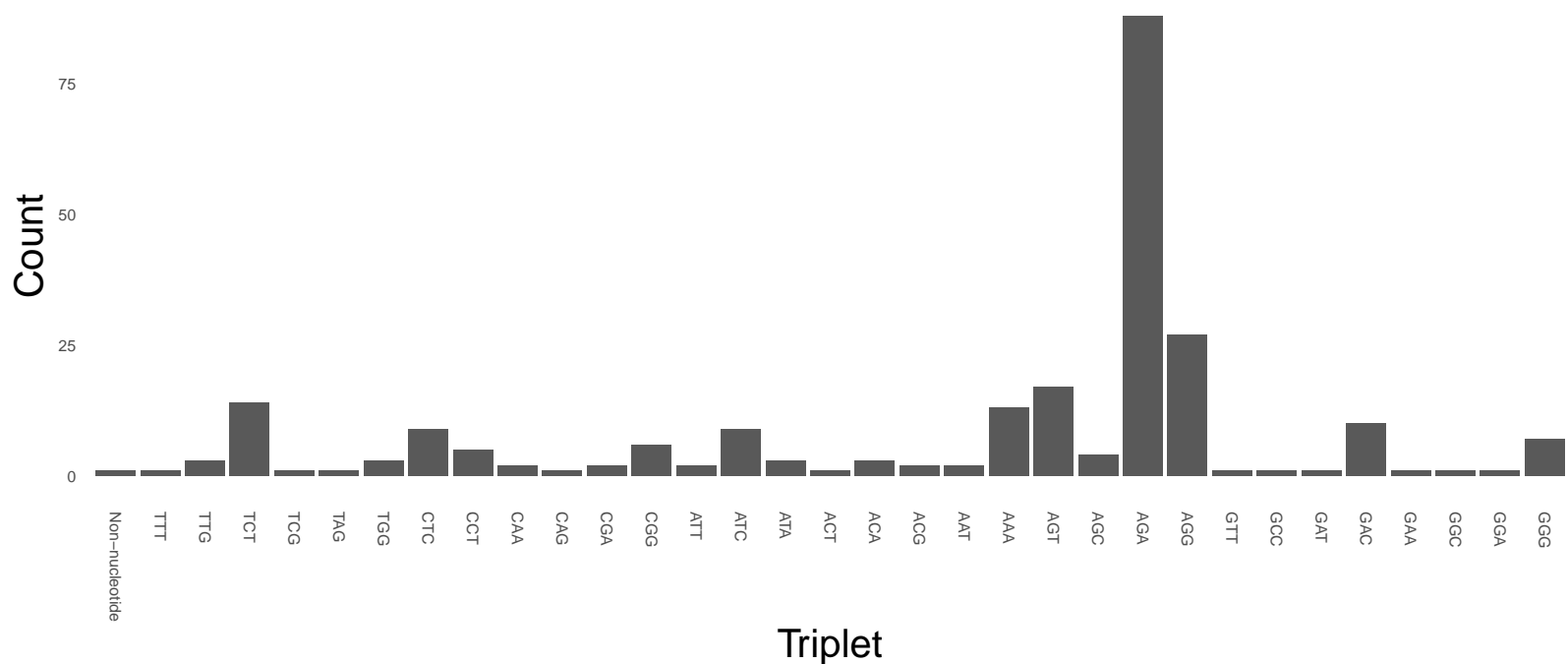
Gene IGHV1-69\*08\_C191T



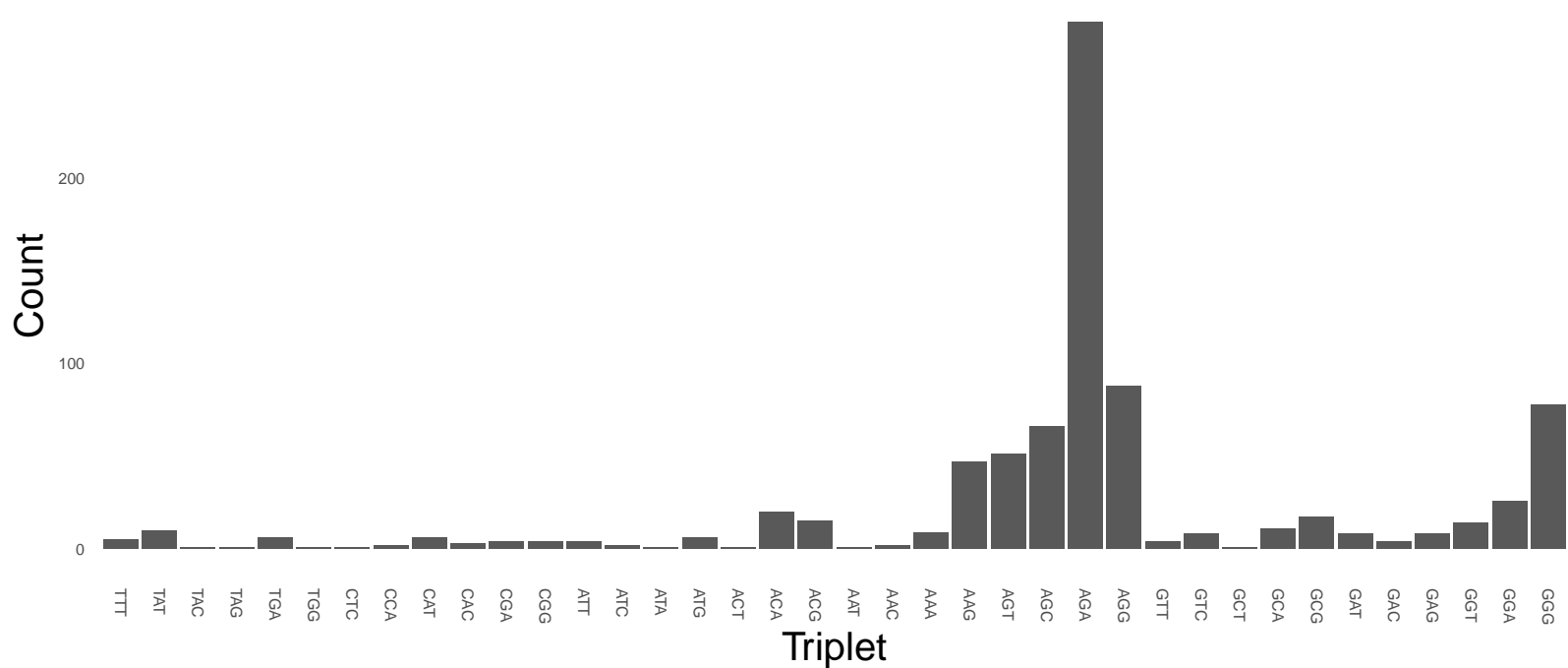
Gene IGHV4-61\*02\_A234G



IGHV1-69\*08\_C191T- Final 3 nucleotides as a triplet

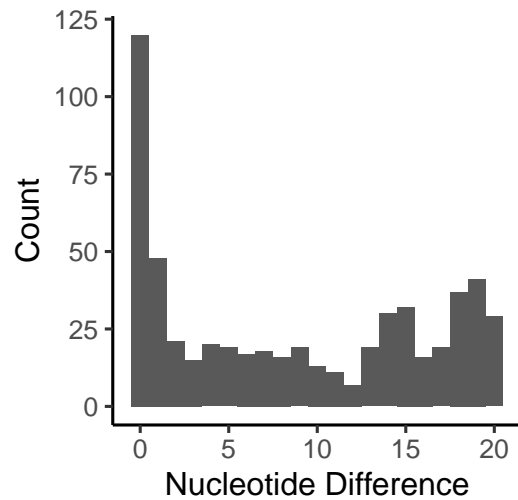


IGHV4-61\*02\_A234G- Final 3 nucleotides as a triplet



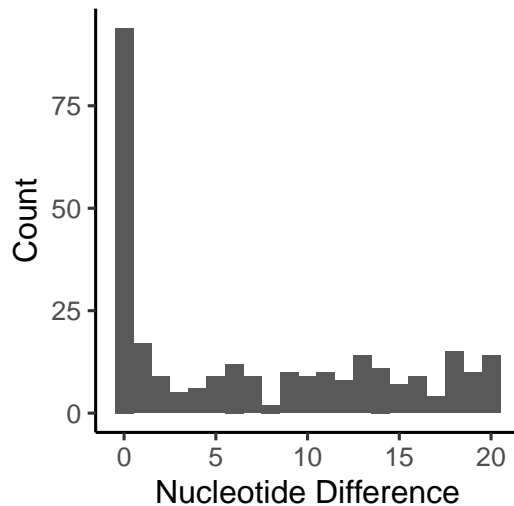
### IGHV1-2\*02

1009 sequences assigned  
120 (11.9%) exact matches, in which:  
116 unique CDR3  
7 unique J



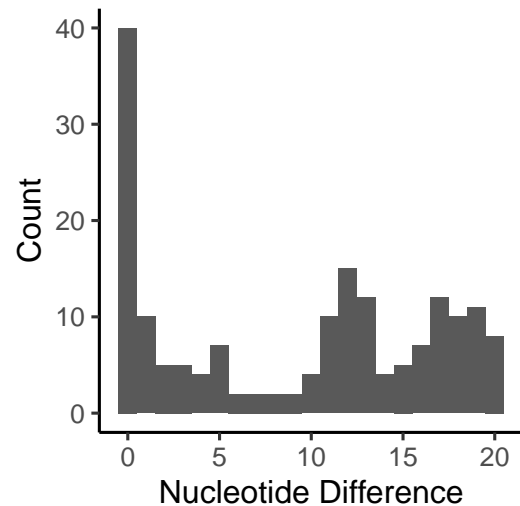
### IGHV1-18\*01

620 sequences assigned  
94 (15.2%) exact matches, in which:  
94 unique CDR3  
6 unique J



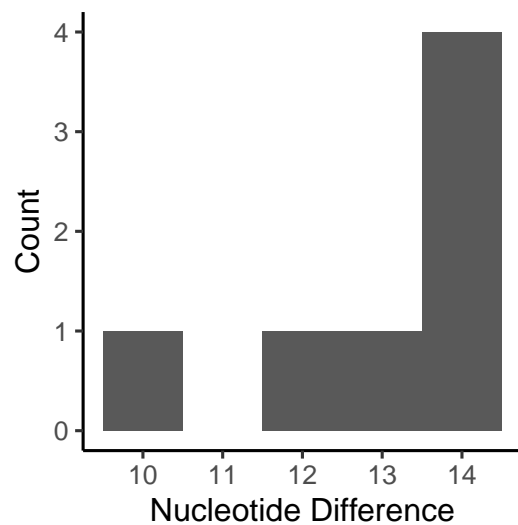
### IGHV1-46\*03

376 sequences assigned  
40 (10.6%) exact matches, in which:  
38 unique CDR3  
6 unique J



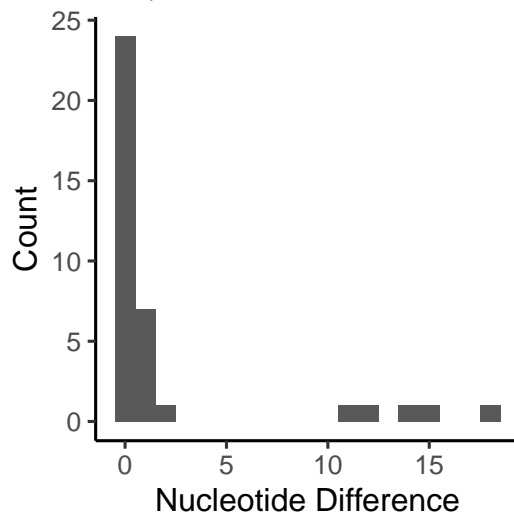
### IGHV1-3\*02

10 sequences assigned  
No exact matches.



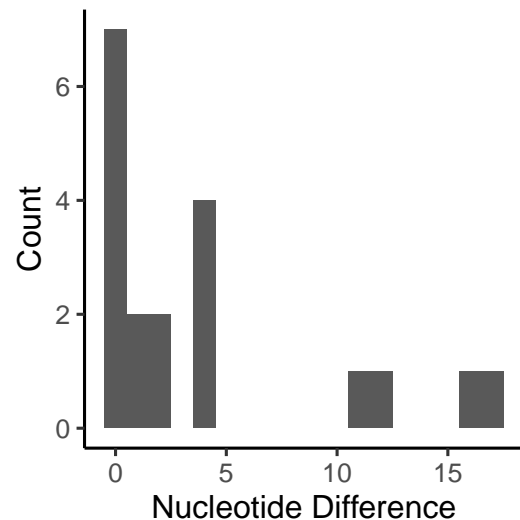
### IGHV1-24\*01

67 sequences assigned  
24 (35.8%) exact matches, in which:  
24 unique CDR3  
5 unique J



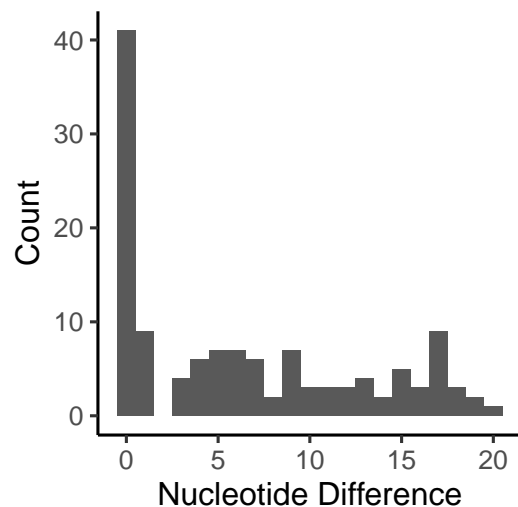
### IGHV1-58\*02

36 sequences assigned  
7 (19.4%) exact matches, in which:  
7 unique CDR3  
2 unique J



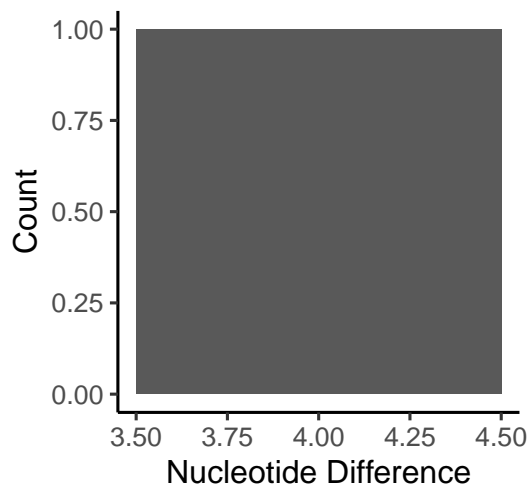
### IGHV1-8\*01

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



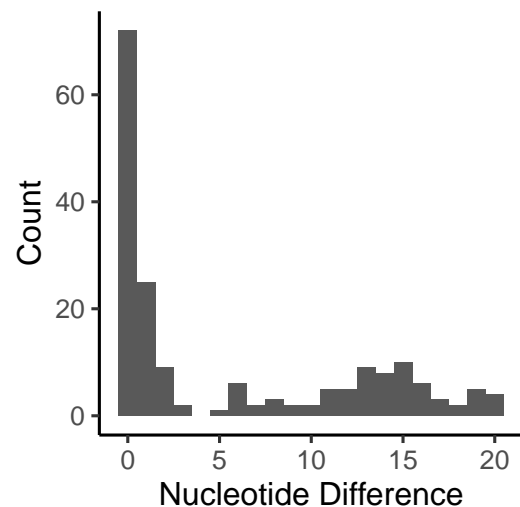
### IGHV1-45\*02

17 sequences assigned  
No exact matches.



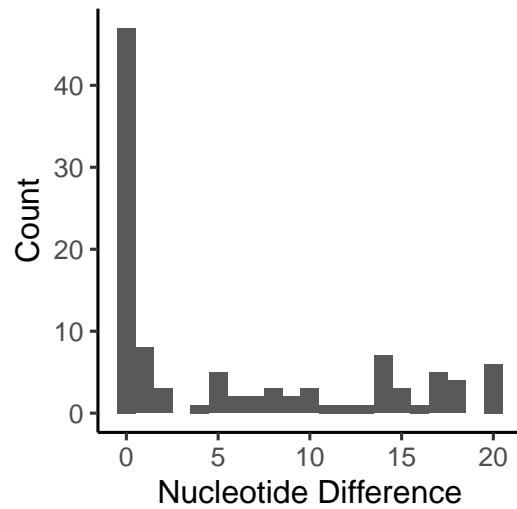
### IGHV1-69\*01

382 sequences assigned  
72 (18.8%) exact matches, in which:  
69 unique CDR3  
5 unique J



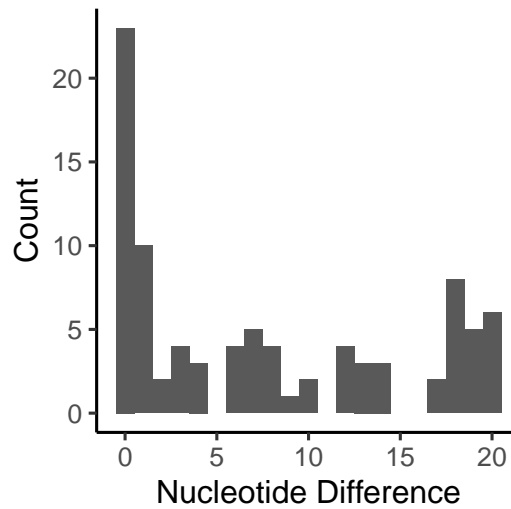
## IGHV1-69\*08\_C191T

243 sequences assigned  
47 (19.3%) exact matches, in which:  
46 unique CDR3  
6 unique J



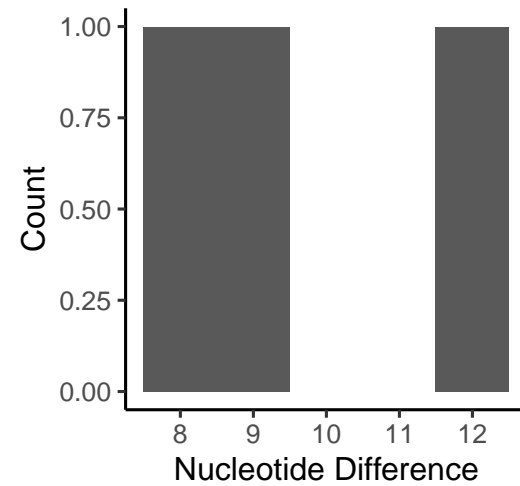
## IGHV2-26\*01

137 sequences assigned  
23 (16.8%) exact matches, in which:  
23 unique CDR3  
6 unique J



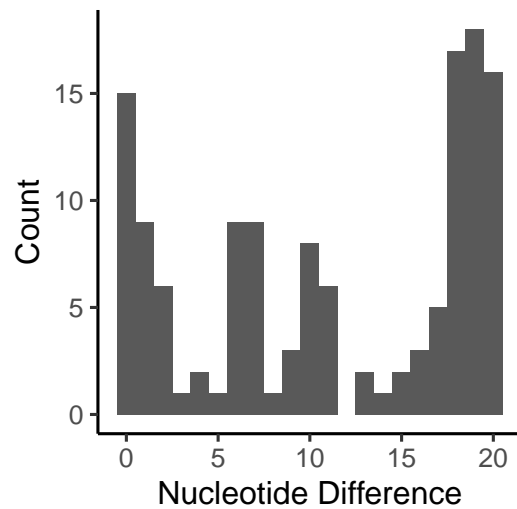
## IGHV2-70D\*14

3 sequences assigned  
No exact matches.



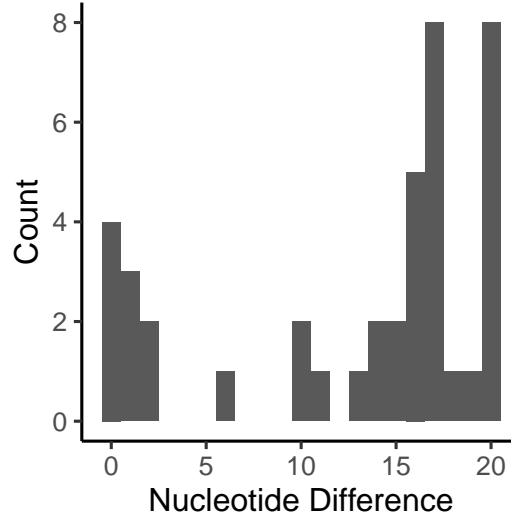
## IGHV2-5\*01

229 sequences assigned  
15 (6.6%) exact matches, in which:  
15 unique CDR3  
4 unique J



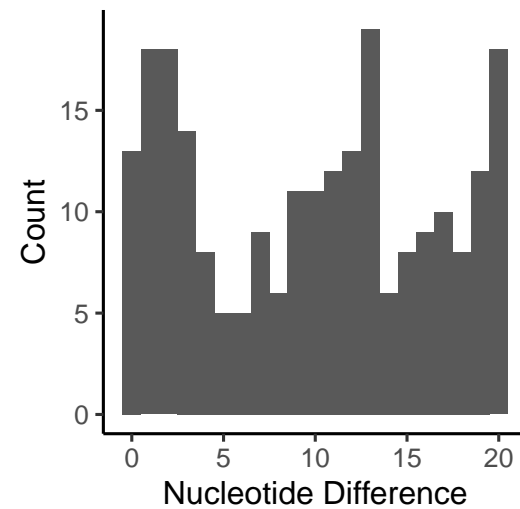
## IGHV2-70\*01

69 sequences assigned  
4 (5.8%) exact matches, in which:  
4 unique CDR3  
3 unique J



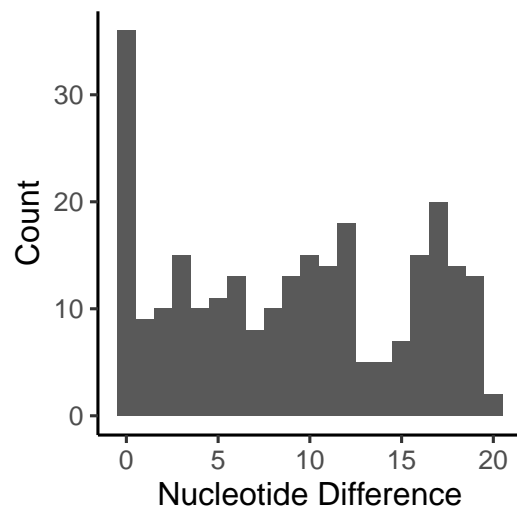
## IGHV3-7\*01

522 sequences assigned  
13 (2.5%) exact matches, in which:  
11 unique CDR3  
4 unique J



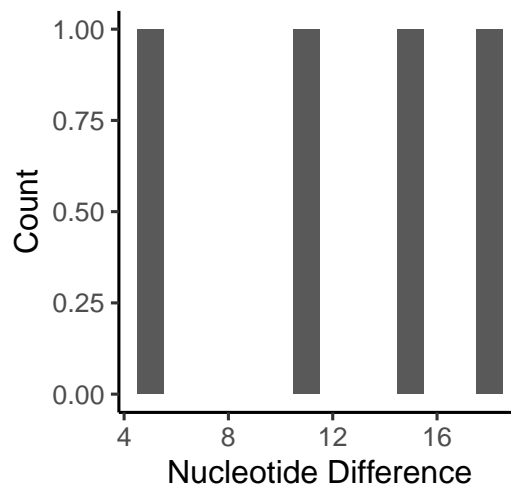
## IGHV2-5\*02

503 sequences assigned  
36 (7.2%) exact matches, in which:  
36 unique CDR3  
5 unique J



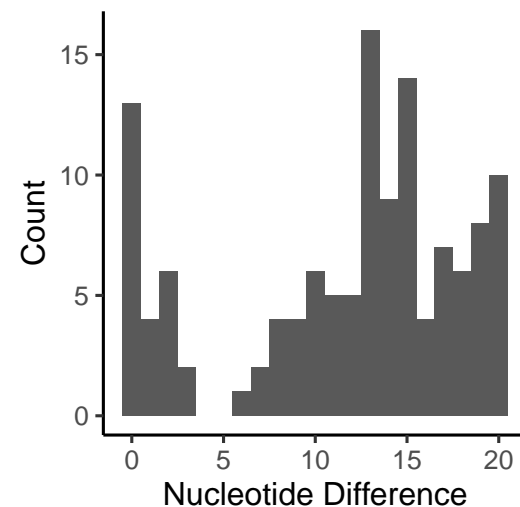
## IGHV2-70\*20

4 sequences assigned  
No exact matches.



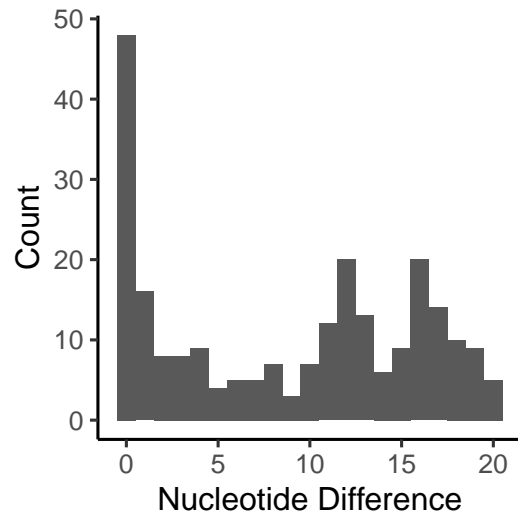
## IGHV3-7\*04

220 sequences assigned  
13 (5.9%) exact matches, in which:  
11 unique CDR3  
3 unique J



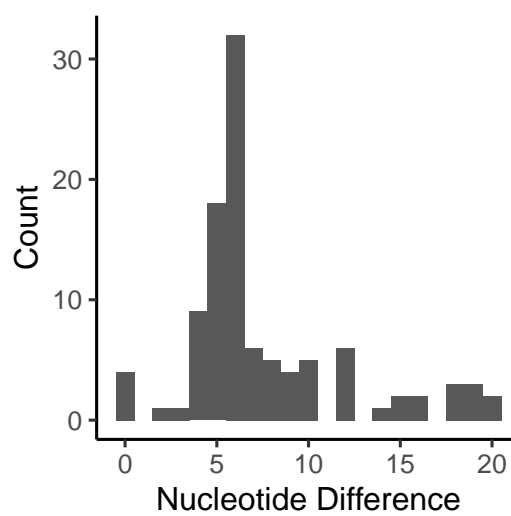
### IGHV3-9\*01

642 sequences assigned  
48 (7.5%) exact matches, in which:  
47 unique CDR3  
5 unique J



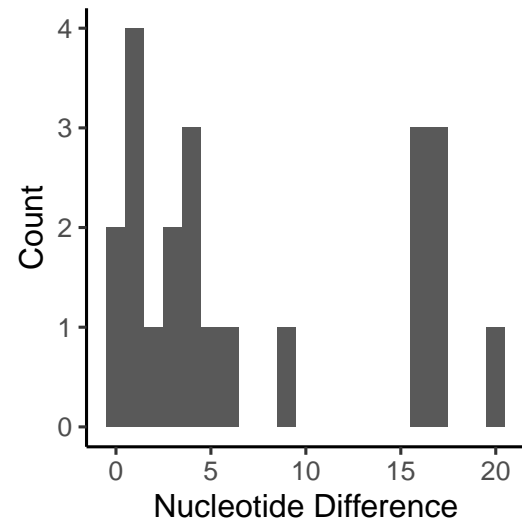
### IGHV3-13\*01

121 sequences assigned  
4 (3.3%) exact matches, in which:  
4 unique CDR3  
3 unique J



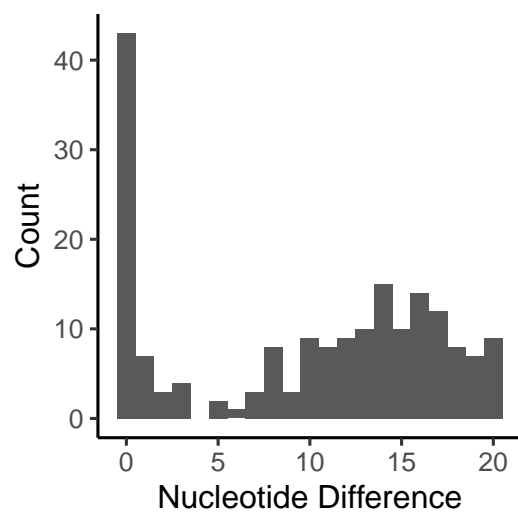
### IGHV3-20\*01

24 sequences assigned  
2 (8.3%) exact matches, in which:  
2 unique CDR3  
2 unique J



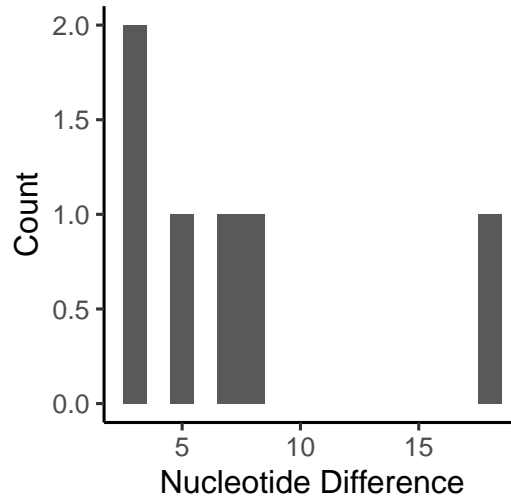
### IGHV3-11\*01

497 sequences assigned  
43 (8.7%) exact matches, in which:  
41 unique CDR3  
5 unique J



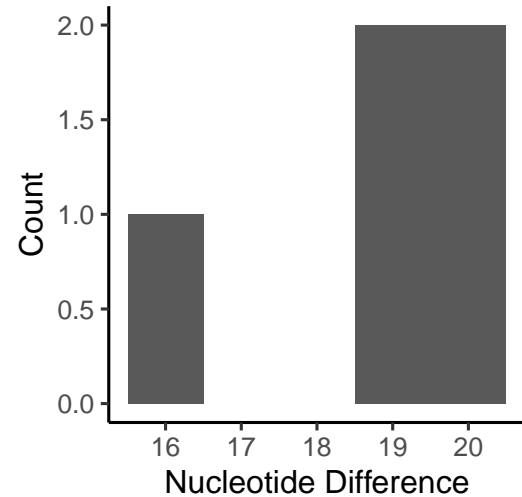
### IGHV3-13\*05

7 sequences assigned  
No exact matches.



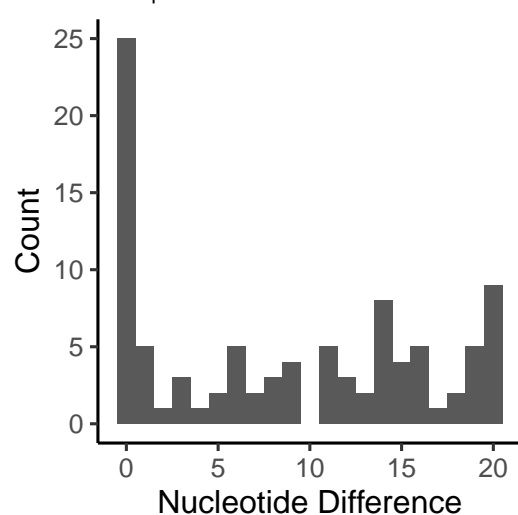
### IGHV3-20\*04

89 sequences assigned  
No exact matches.



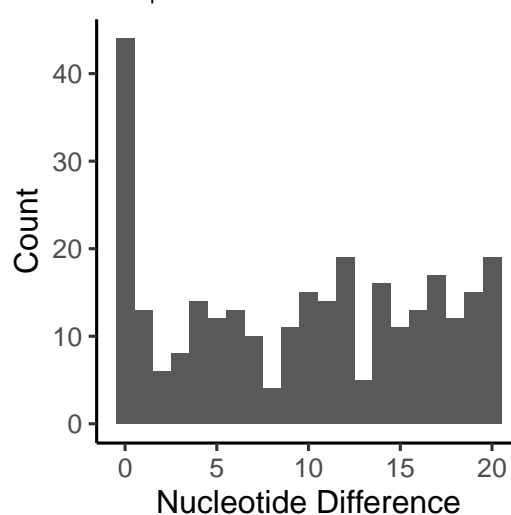
### IGHV3-11\*06

199 sequences assigned  
25 (12.6%) exact matches, in which:  
24 unique CDR3  
4 unique J



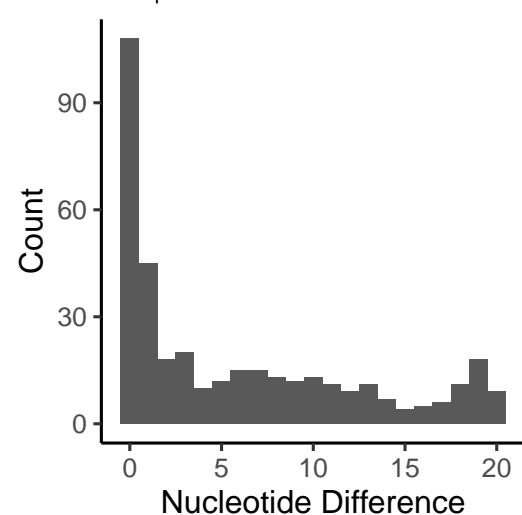
### IGHV3-15\*01

643 sequences assigned  
44 (6.8%) exact matches, in which:  
44 unique CDR3  
6 unique J



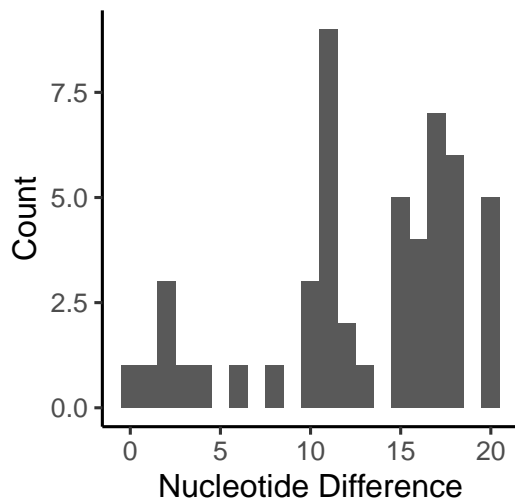
### IGHV3-21\*01

531 sequences assigned  
108 (20.3%) exact matches, in which:  
105 unique CDR3  
5 unique J



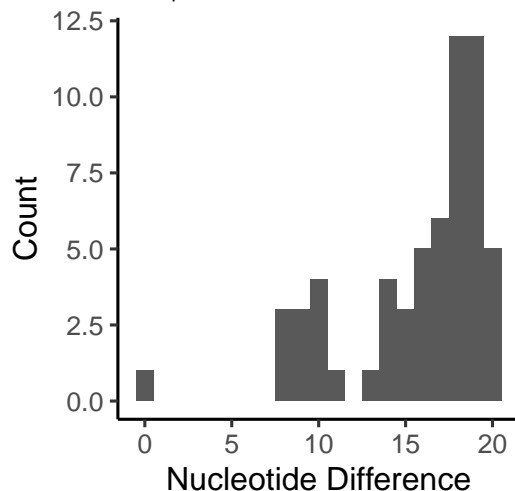
### IGHV3-21\*02

253 sequences assigned  
1 (0.4%) exact matches, in which:  
1 unique CDR3  
1 unique J



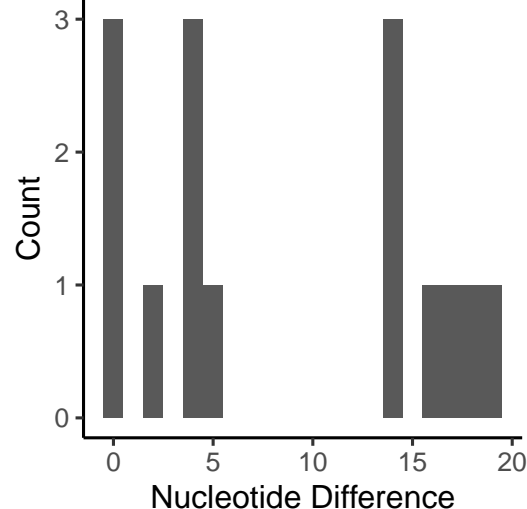
### IGHV3-30\*03

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



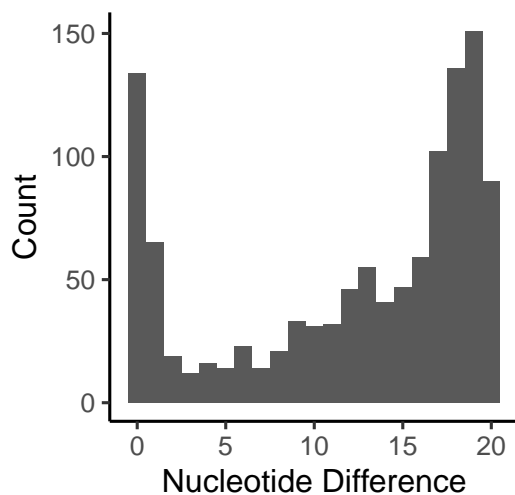
### IGHV3-43\*01

19 sequences assigned  
3 (15.8%) exact matches, in which:  
3 unique CDR3  
2 unique J



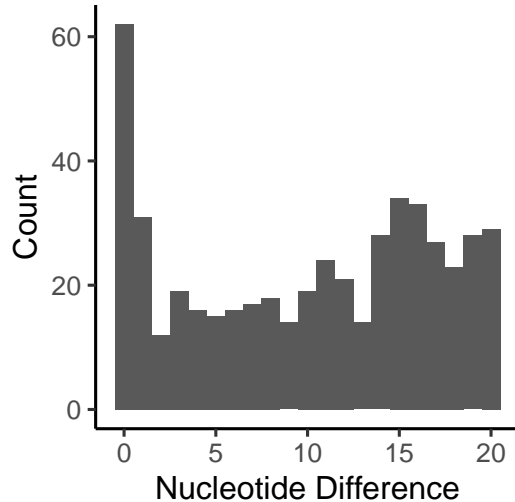
### IGHV3-23\*01

2489 sequences assigned  
134 (5.4%) exact matches, in which:  
133 unique CDR3  
7 unique J



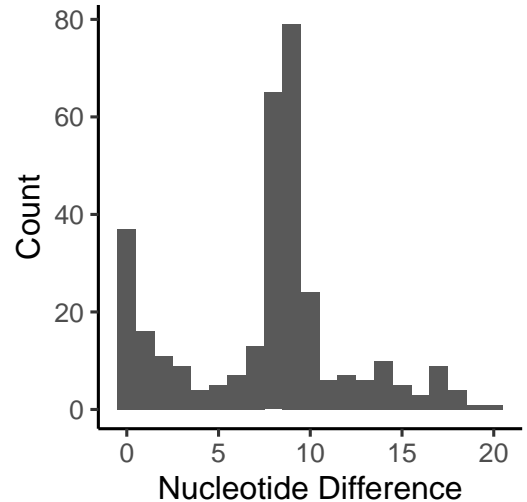
### IGHV3-30\*18

1117 sequences assigned  
62 (5.6%) exact matches, in which:  
59 unique CDR3  
7 unique J



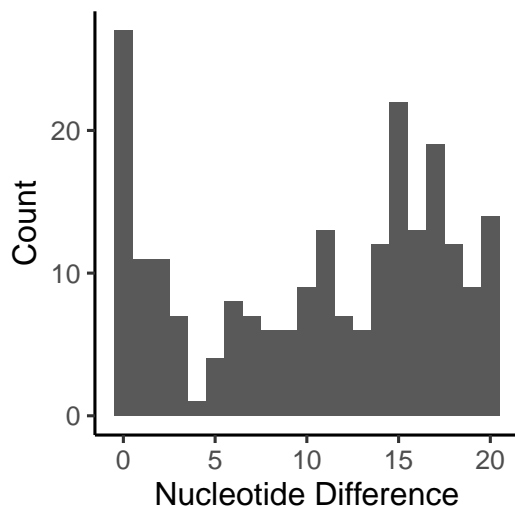
### IGHV3-48\*01

543 sequences assigned  
37 (6.8%) exact matches, in which:  
31 unique CDR3  
6 unique J



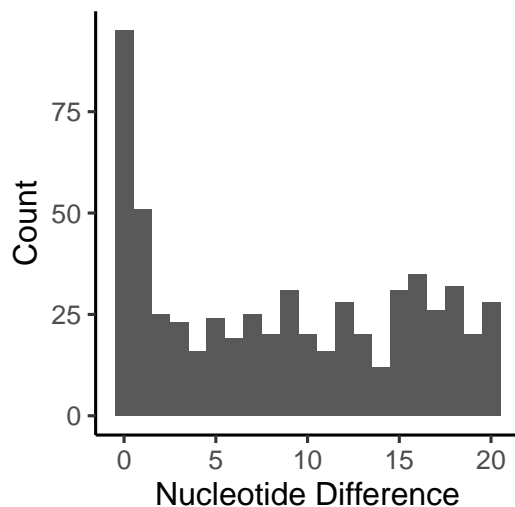
### IGHV3-30-3\*01

527 sequences assigned  
27 (5.1%) exact matches, in which:  
26 unique CDR3  
5 unique J



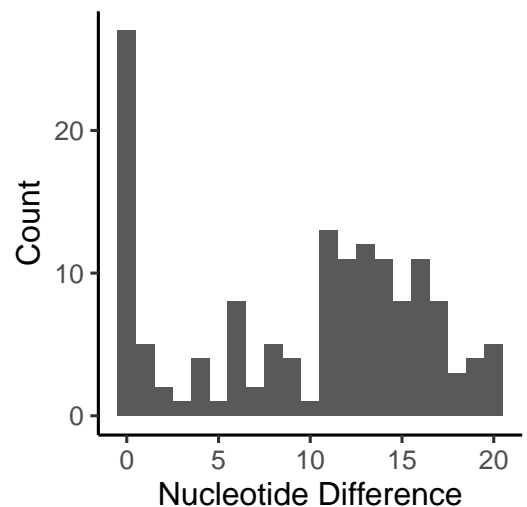
### IGHV3-33\*01

2013 sequences assigned  
95 (4.7%) exact matches, in which:  
94 unique CDR3  
7 unique J



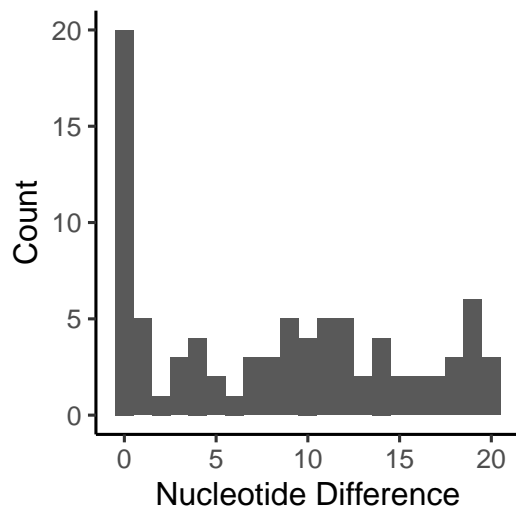
### IGHV3-49\*03

239 sequences assigned  
27 (11.3%) exact matches, in which:  
26 unique CDR3  
6 unique J



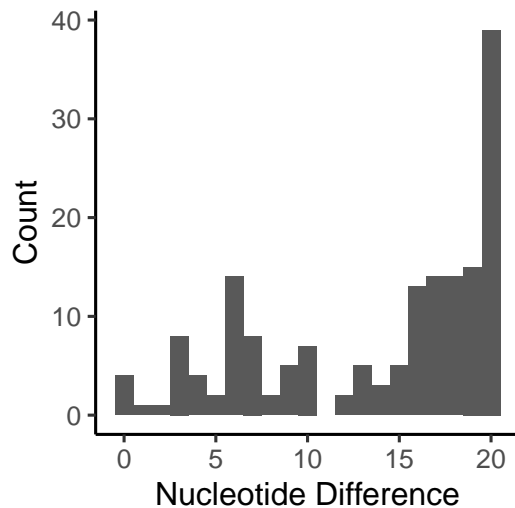
### IGHV3-53\*02

156 sequences assigned  
20 (12.8%) exact matches, in which:  
19 unique CDR3  
5 unique J



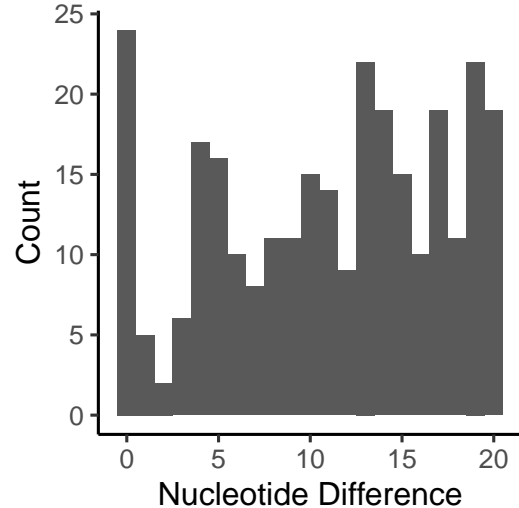
### IGHV3-72\*01

241 sequences assigned  
4 (1.7%) exact matches, in which:  
4 unique CDR3  
3 unique J



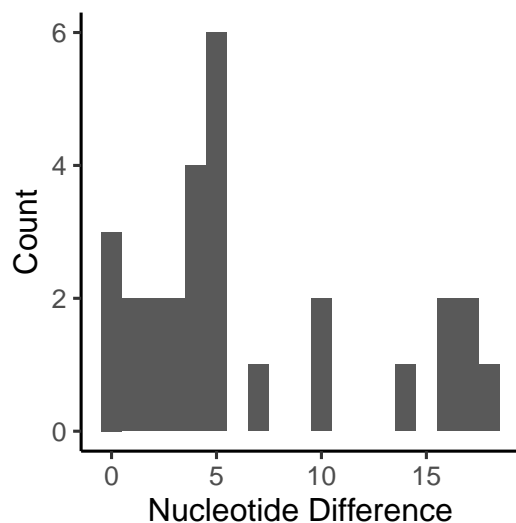
### IGHV3-74\*01

502 sequences assigned  
24 (4.8%) exact matches, in which:  
23 unique CDR3  
5 unique J



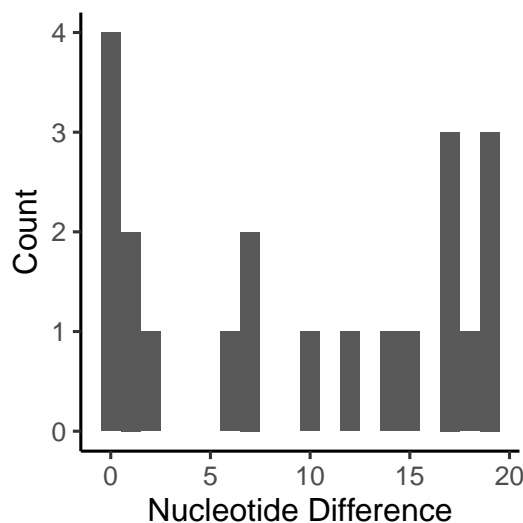
### IGHV3-64\*01

42 sequences assigned  
3 (7.1%) exact matches, in which:  
3 unique CDR3  
2 unique J



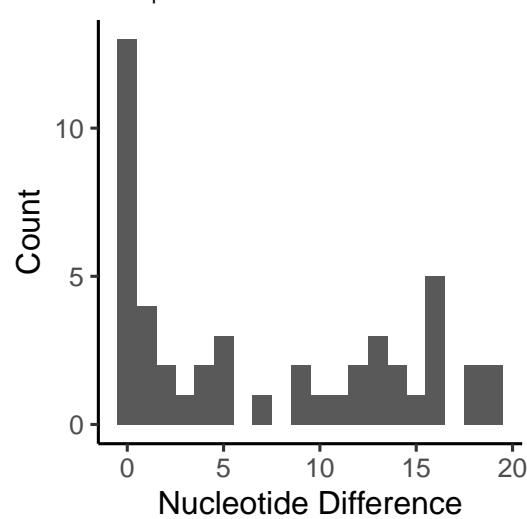
### IGHV3-73\*01

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



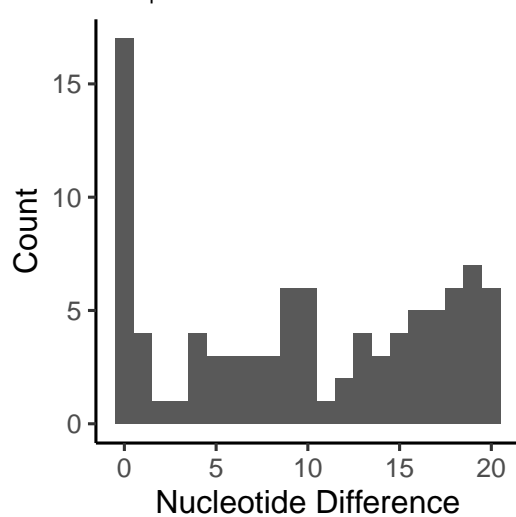
### IGHV3-64D\*06

177 sequences assigned  
13 (7.3%) exact matches, in which:  
13 unique CDR3  
5 unique J



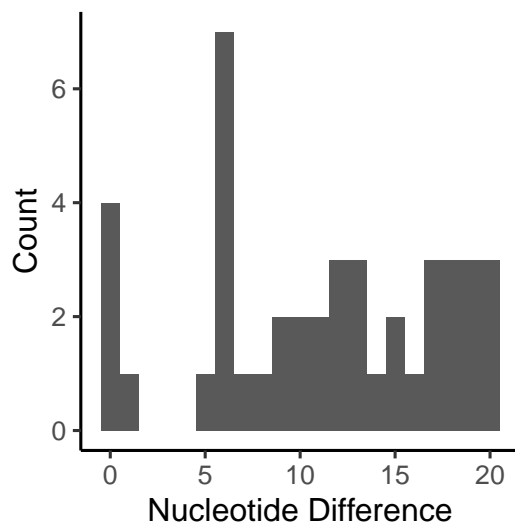
### IGHV3-66\*02

272 sequences assigned  
17 (6.2%) exact matches, in which:  
17 unique CDR3  
4 unique J



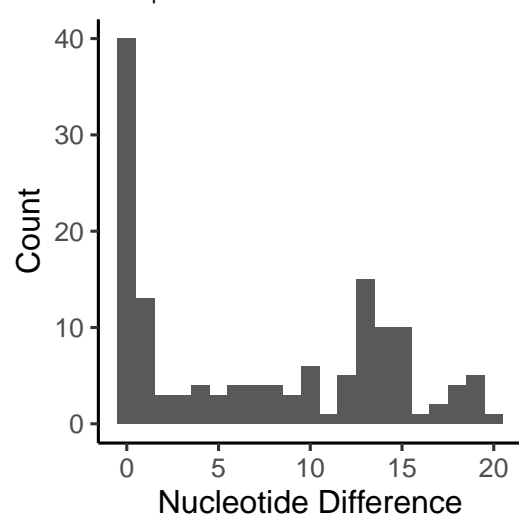
### IGHV3-73\*02

82 sequences assigned  
4 (4.9%) exact matches, in which:  
4 unique CDR3  
2 unique J



### IGHV4-4\*07

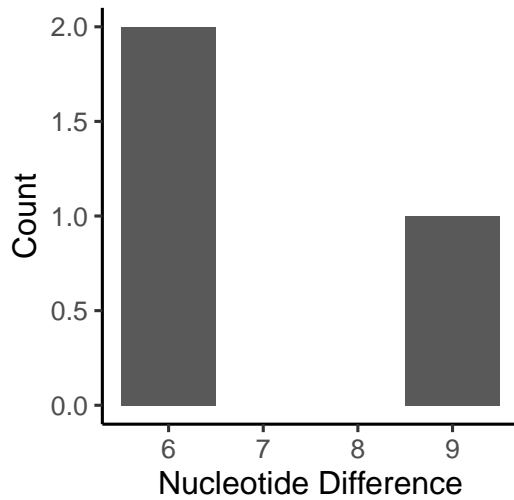
326 sequences assigned  
40 (12.3%) exact matches, in which:  
40 unique CDR3  
7 unique J





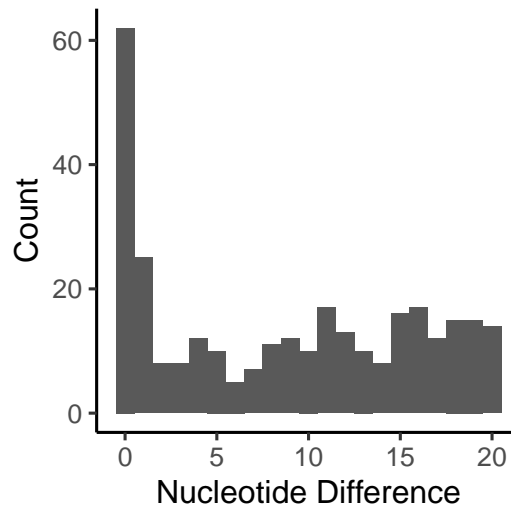
### IGHV4-28\*01

6 sequences assigned  
No exact matches.



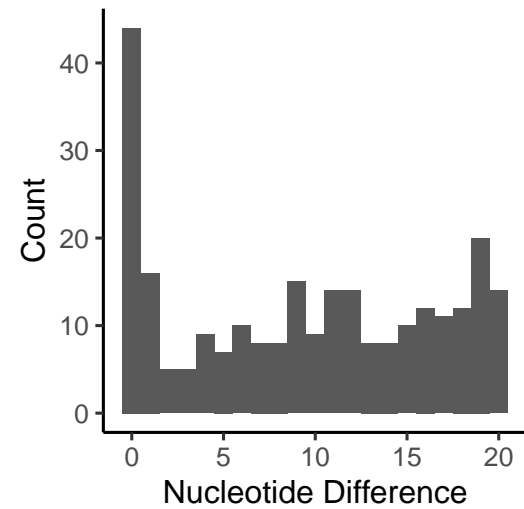
### IGHV4-31\*03

640 sequences assigned  
62 (9.7%) exact matches, in which:  
62 unique CDR3  
6 unique J



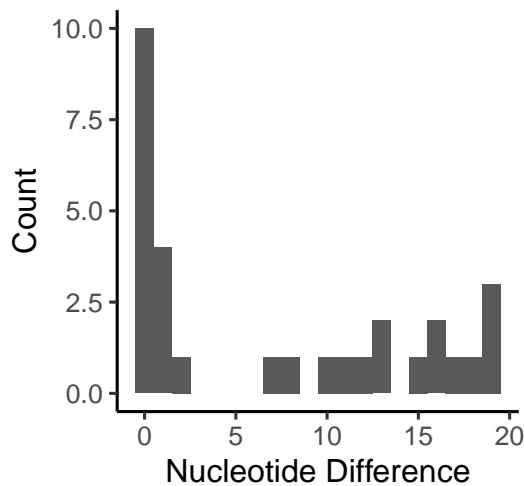
### IGHV4-59\*01

505 sequences assigned  
44 (8.7%) exact matches, in which:  
44 unique CDR3  
6 unique J



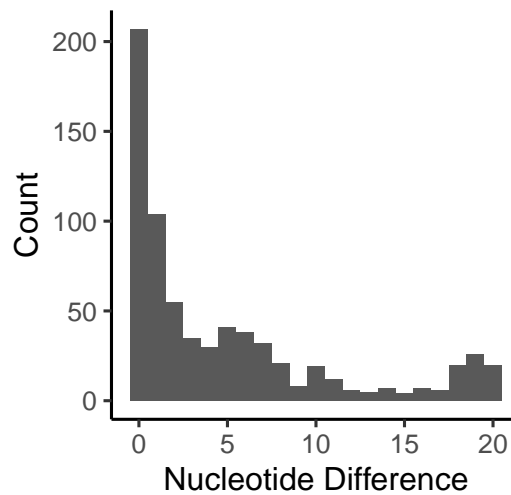
### IGHV4-30-4\*01

137 sequences assigned  
10 (7.3%) exact matches, in which:  
10 unique CDR3  
4 unique J



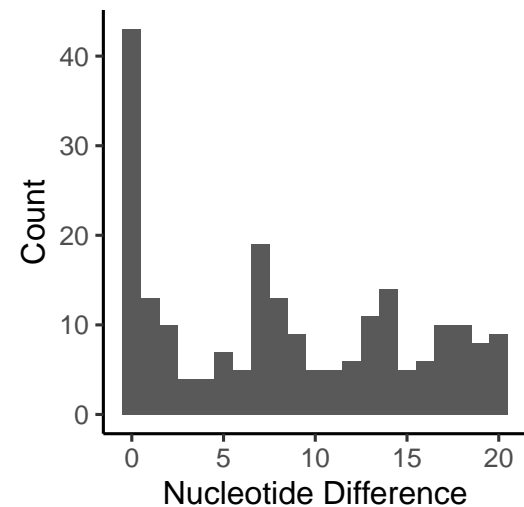
### IGHV4-34\*01

1276 sequences assigned  
207 (16.2%) exact matches, in which:  
193 unique CDR3  
7 unique J



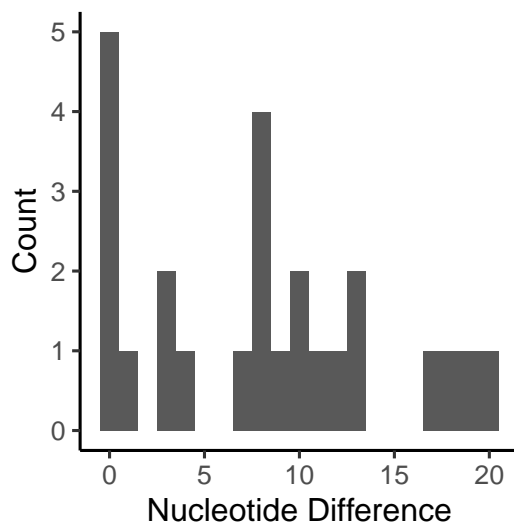
### IGHV4-61\*02

329 sequences assigned  
43 (13.1%) exact matches, in which:  
42 unique CDR3  
6 unique J



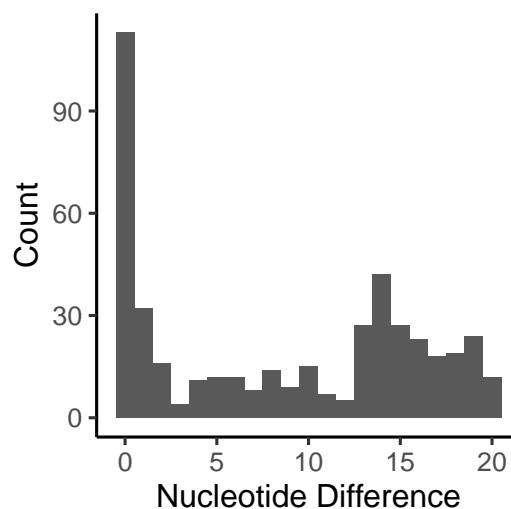
### IGHV4-30-2\*01

49 sequences assigned  
5 (10.2%) exact matches, in which:  
5 unique CDR3  
4 unique J



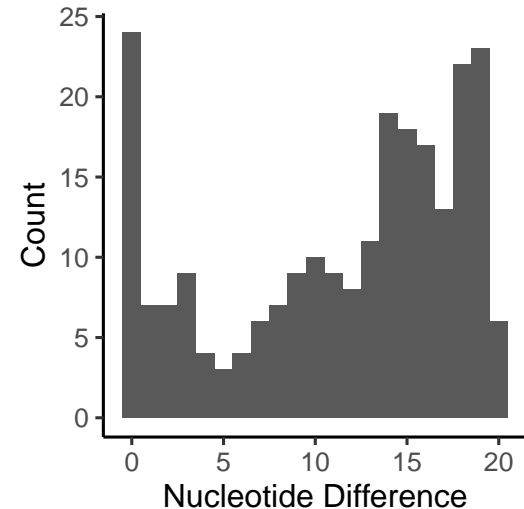
### IGHV4-39\*01

1158 sequences assigned  
113 (9.8%) exact matches, in which:  
108 unique CDR3  
6 unique J



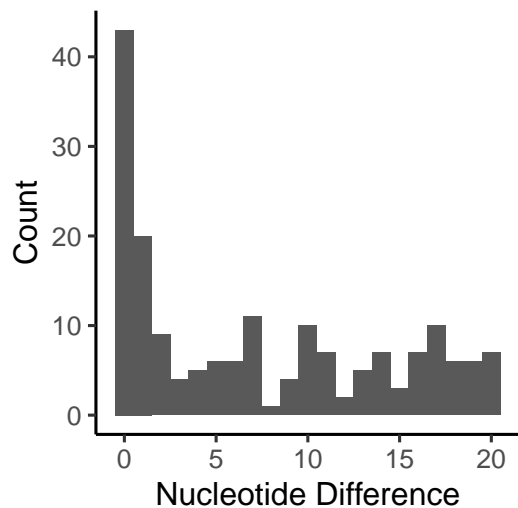
### IGHV4-61\*02\_A234G

820 sequences assigned  
24 (2.9%) exact matches, in which:  
20 unique CDR3  
4 unique J



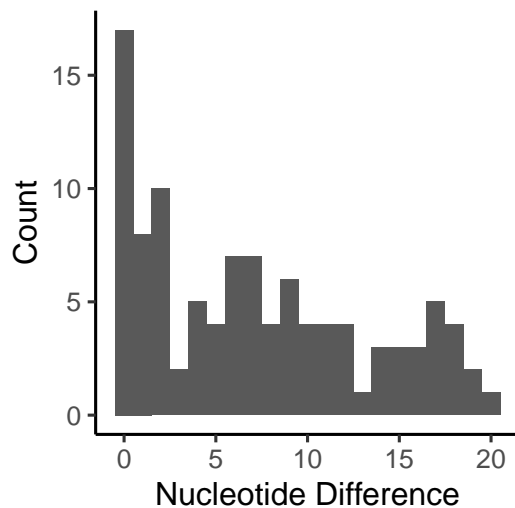
## IGHV5-10-1\*03

399 sequences assigned  
43 (10.8%) exact matches, in which:  
43 unique CDR3  
4 unique J



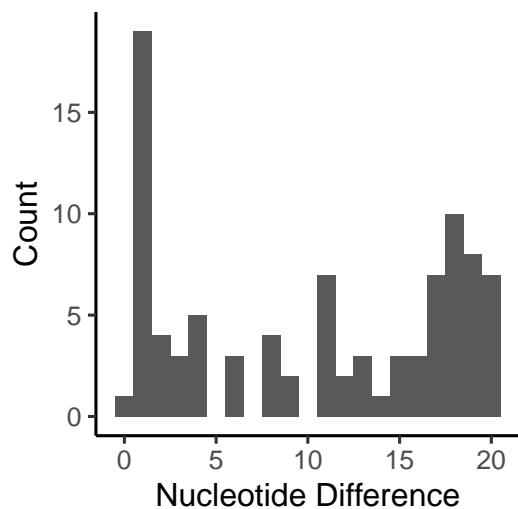
## IGHV6-1\*01

146 sequences assigned  
17 (11.6%) exact matches, in which:  
17 unique CDR3  
4 unique J



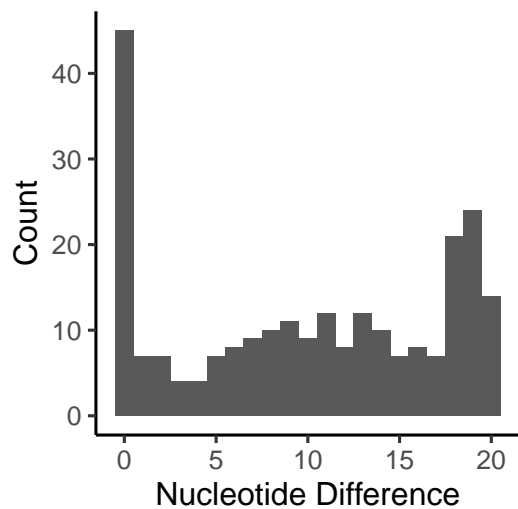
## IGHV5-51\*01

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

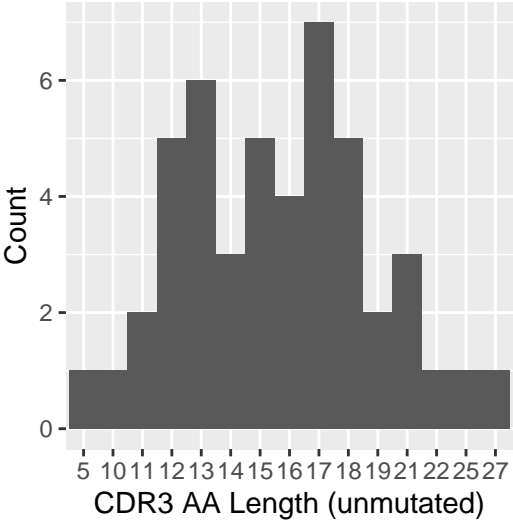


## IGHV5-51\*03

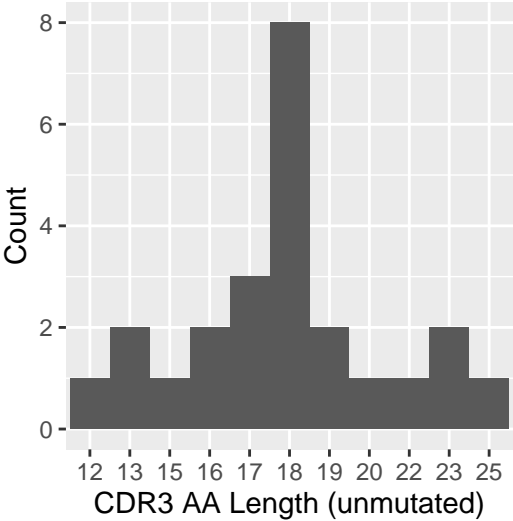
450 sequences assigned  
45 (10%) exact matches, in which:  
44 unique CDR3  
7 unique J



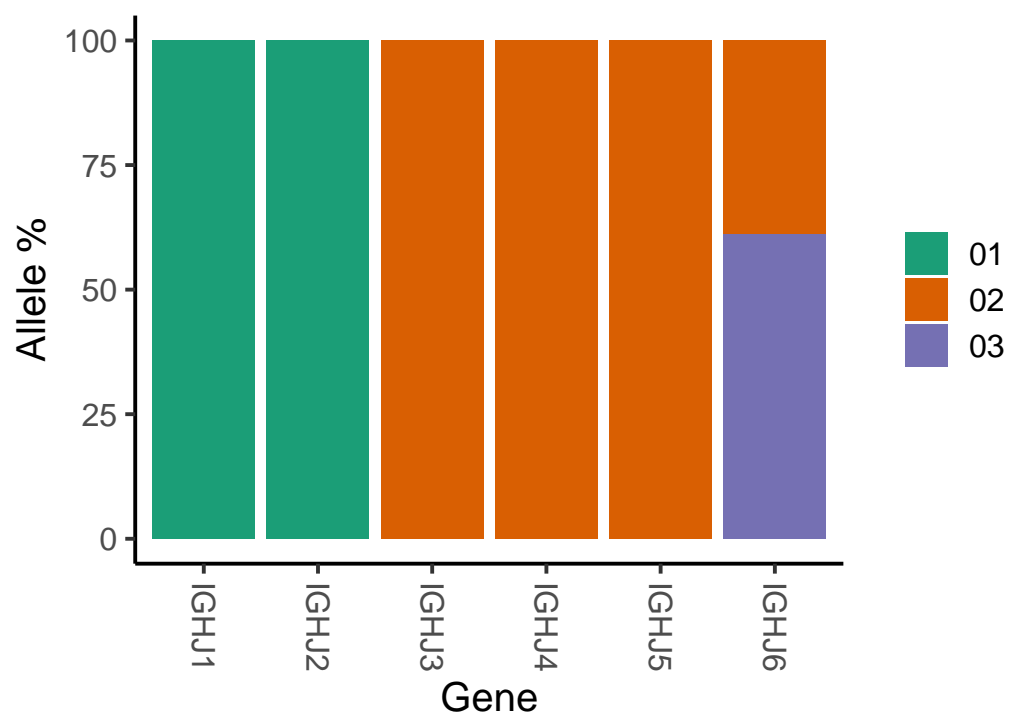
IGHV1-69\*08\_C191T



IGHV4-61\*02\_A234G



Allele Usage



Sequence Count by IGHJ6 allele usage

