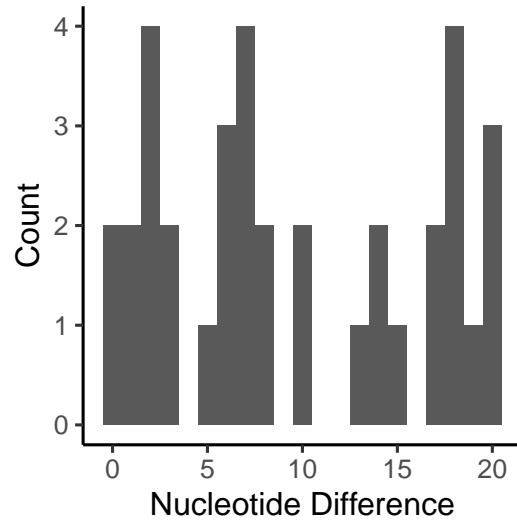


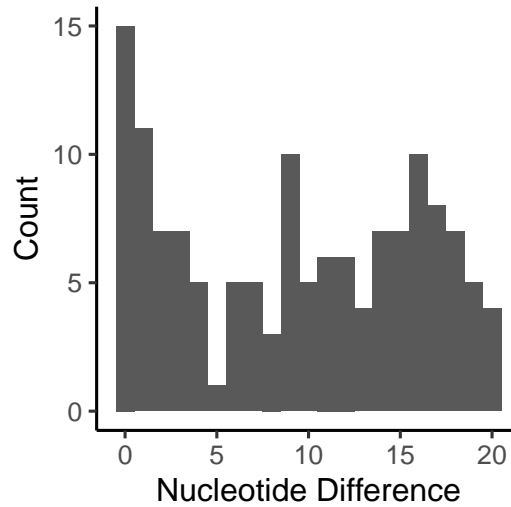
### IGHV1-2\*04

43 sequences assigned  
2 (4.7%) exact matches, in which:  
2 unique CDR3  
2 unique J



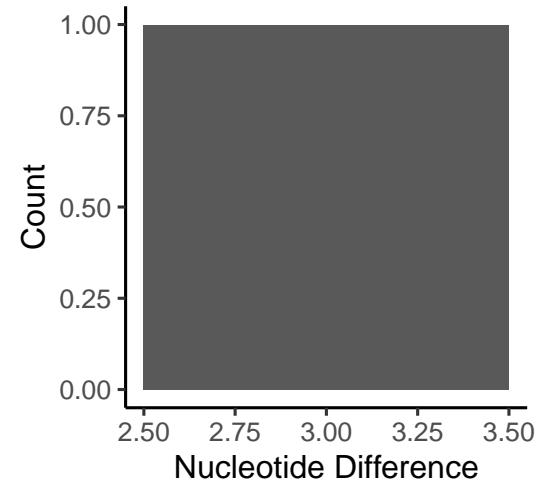
### IGHV1-8\*01

168 sequences assigned  
15 (8.9%) exact matches, in which:  
15 unique CDR3  
6 unique J



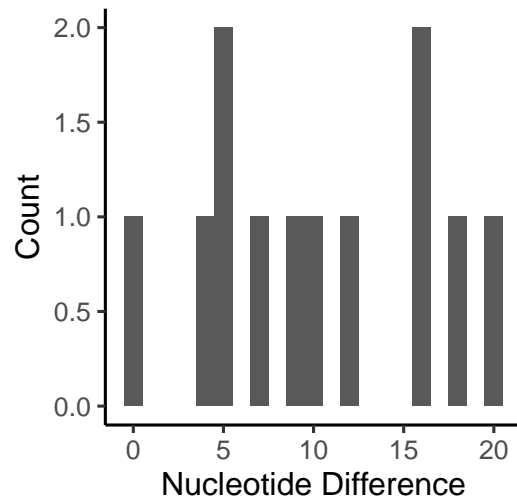
### IGHV1-45\*02

1 sequences assigned  
No exact matches.



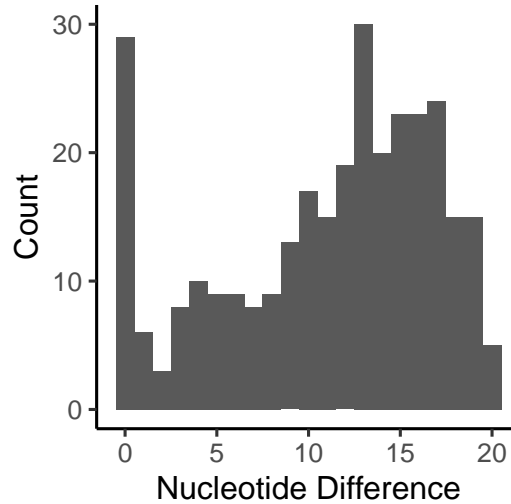
### IGHV1-2\*05

12 sequences assigned  
1 (8.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



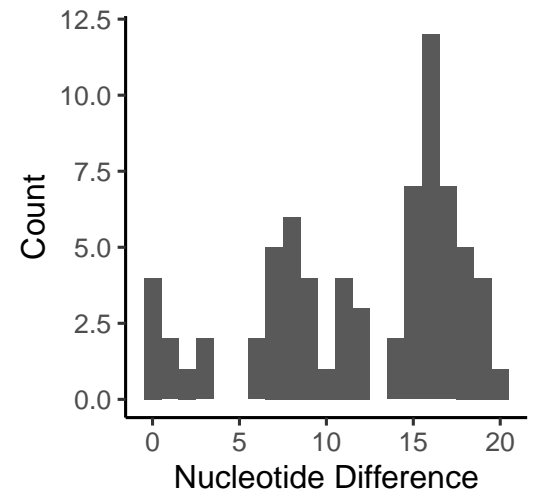
### IGHV1-18\*01

405 sequences assigned  
29 (7.2%) exact matches, in which:  
27 unique CDR3  
6 unique J



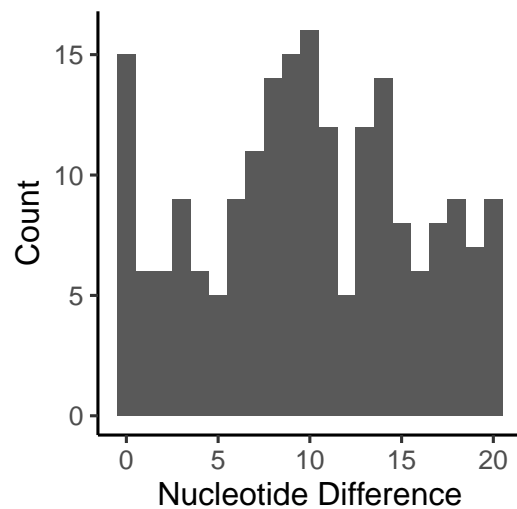
### IGHV1-46\*01

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



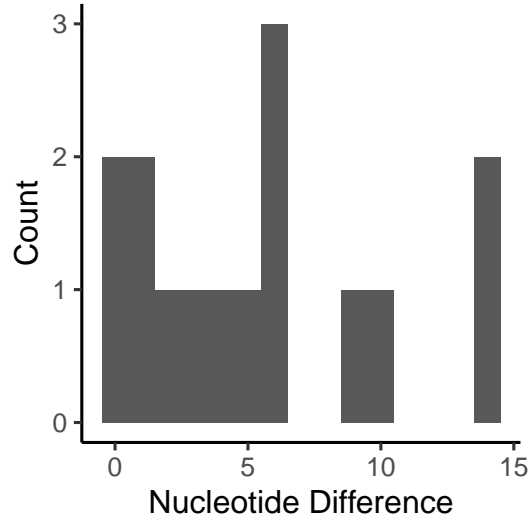
### IGHV1-3\*01

277 sequences assigned  
15 (5.4%) exact matches, in which:  
13 unique CDR3  
5 unique J



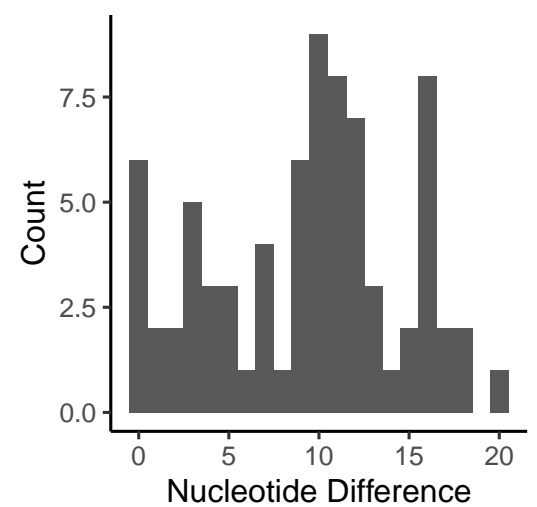
### IGHV1-24\*01

27 sequences assigned  
2 (7.4%) exact matches, in which:  
2 unique CDR3  
2 unique J



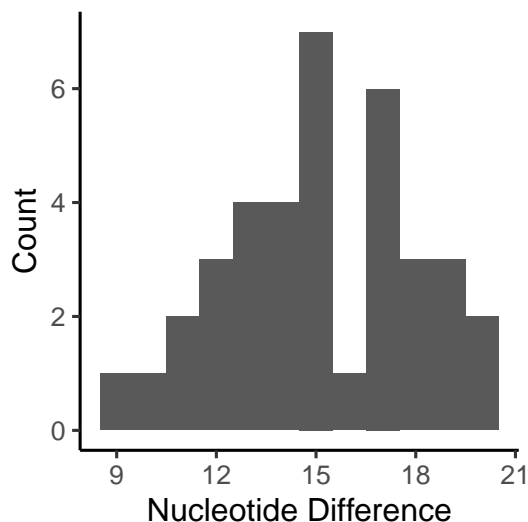
### IGHV1-46\*04

106 sequences assigned  
6 (5.7%) exact matches, in which:  
4 unique CDR3  
3 unique J



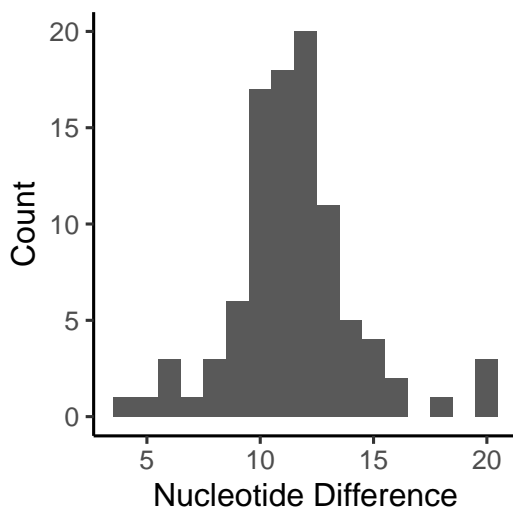
### IGHV1–58\*01

50 sequences assigned  
No exact matches.



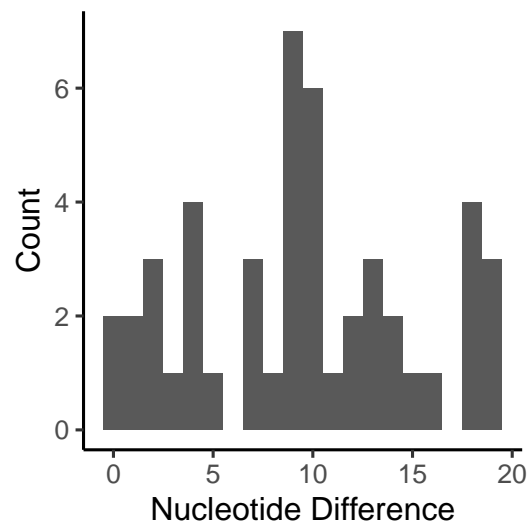
### IGHV1–69\*04

134 sequences assigned  
No exact matches.



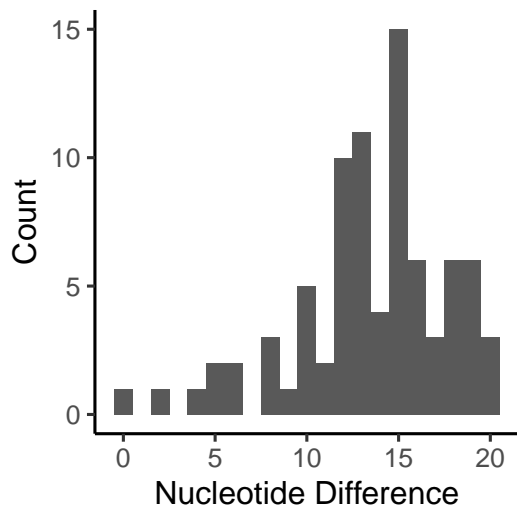
### IGHV2–26\*01

58 sequences assigned  
2 (3.4%) exact matches, in which:  
2 unique CDR3  
1 unique J



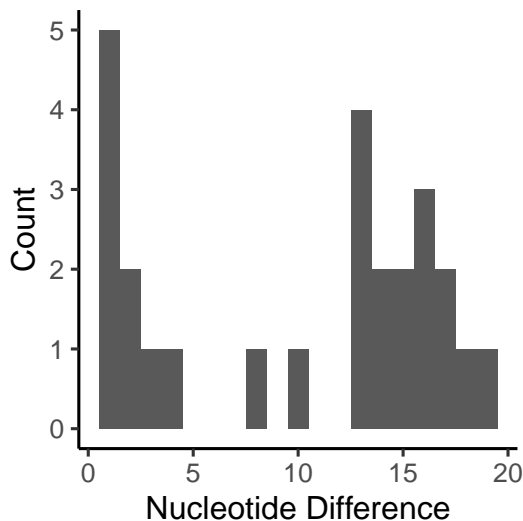
### IGHV1–58\*02

108 sequences assigned  
1 (0.9%) exact matches, in which:  
1 unique CDR3  
1 unique J



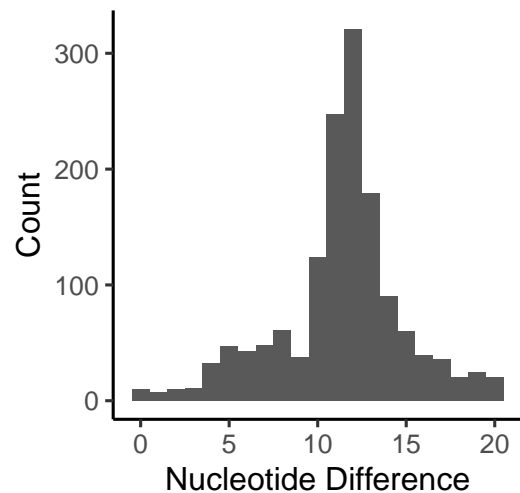
### IGHV1–69\*08

41 sequences assigned  
No exact matches.



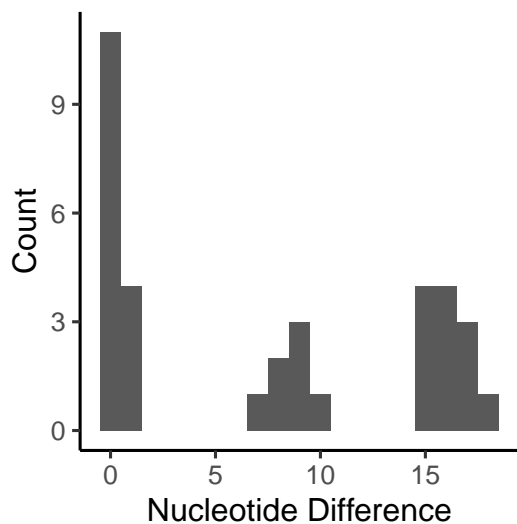
### IGHV3–7\*01

1594 sequences assigned  
10 (0.6%) exact matches, in which:  
8 unique CDR3  
5 unique J



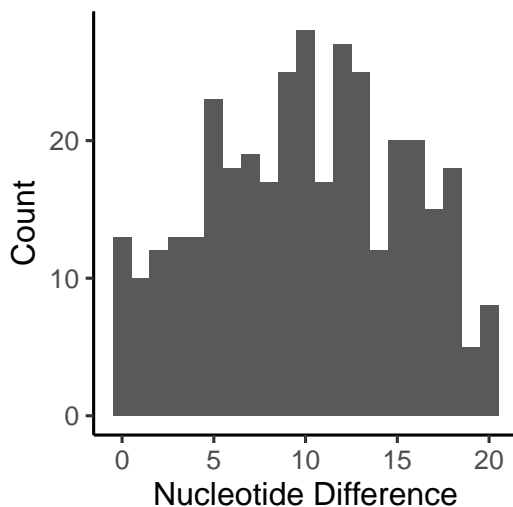
### IGHV1–69\*02

56 sequences assigned  
11 (19.6%) exact matches, in which:  
10 unique CDR3  
4 unique J



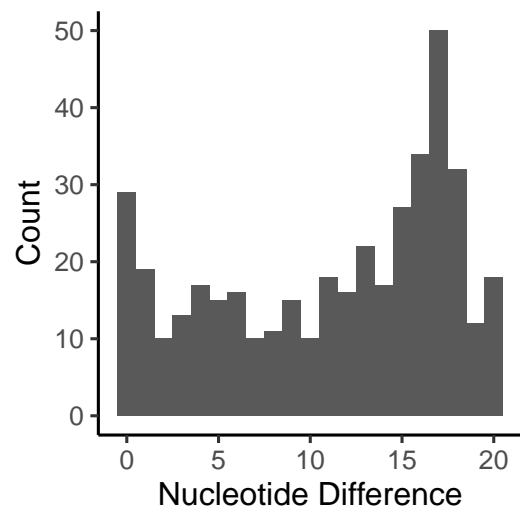
### IGHV2–5\*02

384 sequences assigned  
13 (3.4%) exact matches, in which:  
12 unique CDR3  
3 unique J



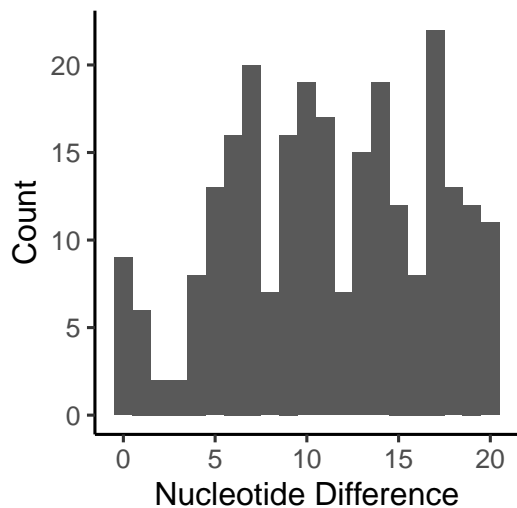
### IGHV3–9\*01

641 sequences assigned  
29 (4.5%) exact matches, in which:  
27 unique CDR3  
4 unique J



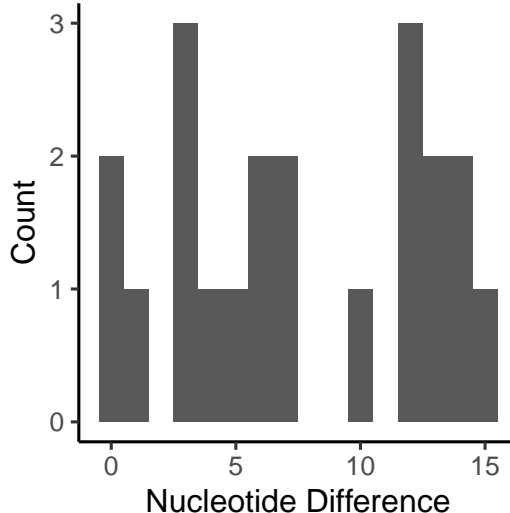
### IGHV3-11\*01

375 sequences assigned  
9 (2.4%) exact matches, in which:  
9 unique CDR3  
3 unique J



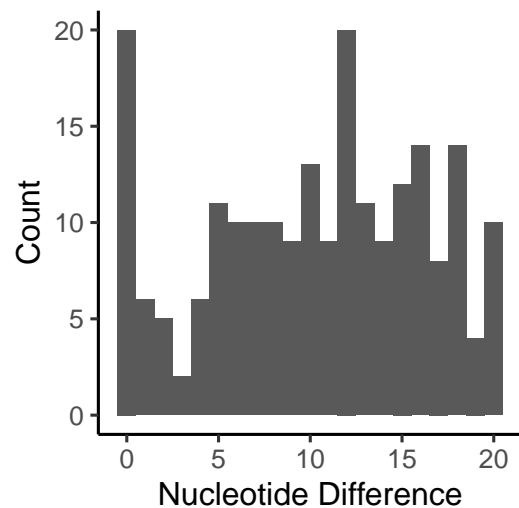
### IGHV3-20\*01

21 sequences assigned  
2 (9.5%) exact matches, in which:  
2 unique CDR3  
2 unique J



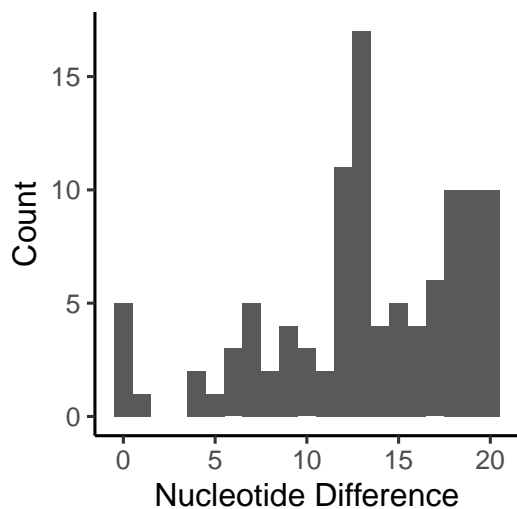
### IGHV3-30-3\*01

342 sequences assigned  
20 (5.8%) exact matches, in which:  
19 unique CDR3  
5 unique J



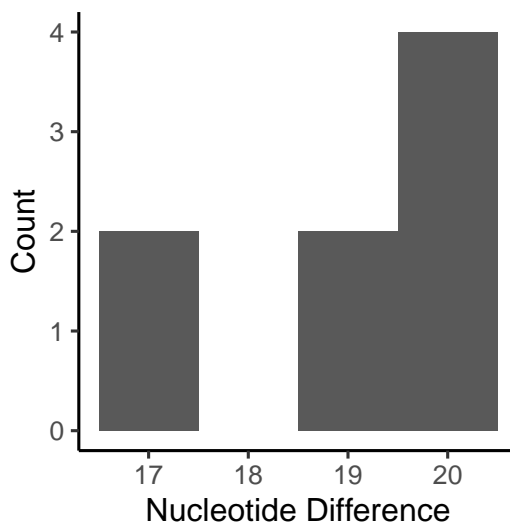
### IGHV3-13\*01

172 sequences assigned  
5 (2.9%) exact matches, in which:  
5 unique CDR3  
3 unique J



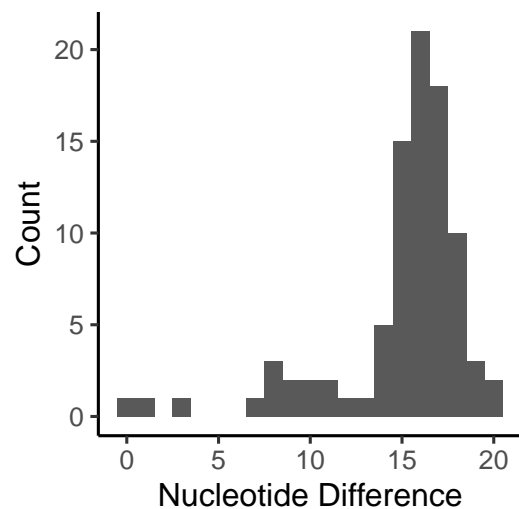
### IGHV3-20\*04

15 sequences assigned  
No exact matches.



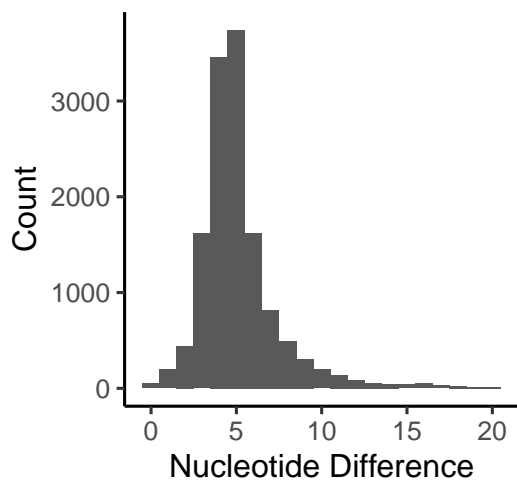
### IGHV3-30\*03

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



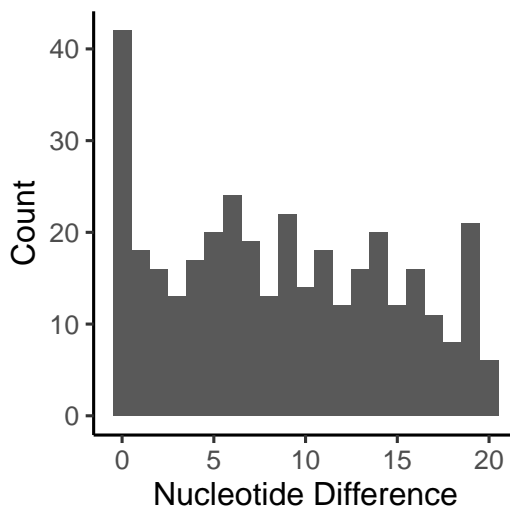
### IGHV3-15\*01

13984 sequences assigned  
51 (0.4%) exact matches, in which:  
19 unique CDR3  
5 unique J



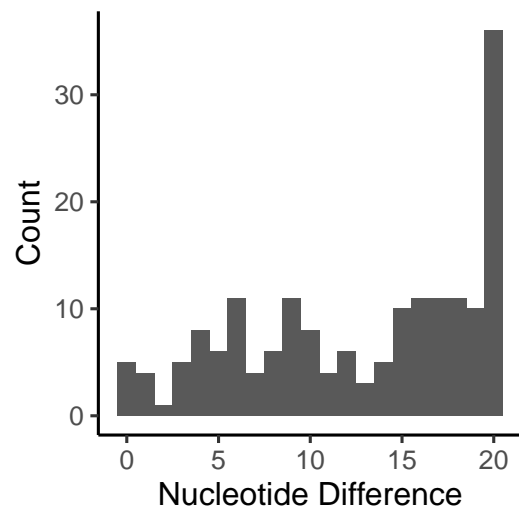
### IGHV3-21\*01

671 sequences assigned  
42 (6.3%) exact matches, in which:  
35 unique CDR3  
5 unique J



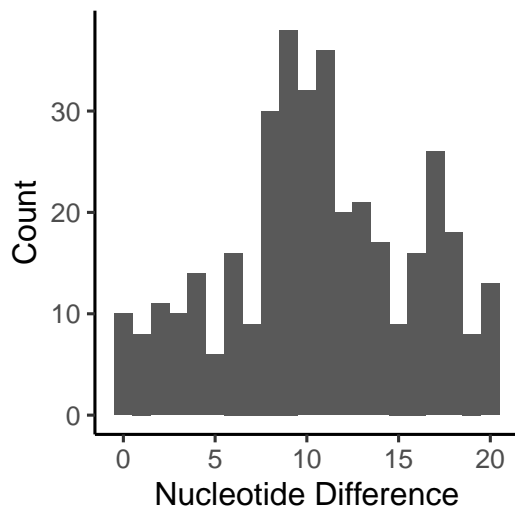
### IGHV3-33\*01

600 sequences assigned  
5 (0.8%) exact matches, in which:  
5 unique CDR3  
3 unique J



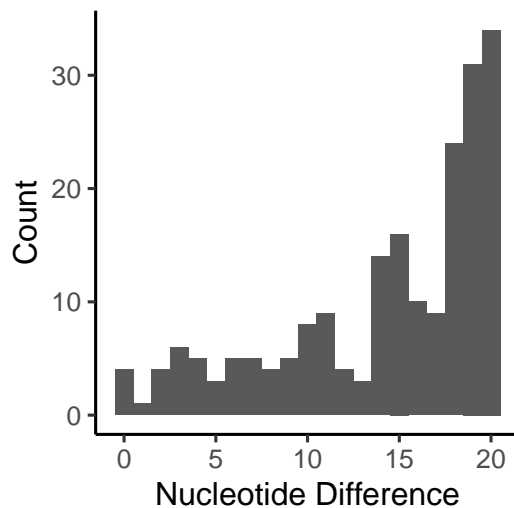
### IGHV3-33\*08

459 sequences assigned  
10 (2.2%) exact matches, in which:  
10 unique CDR3  
3 unique J



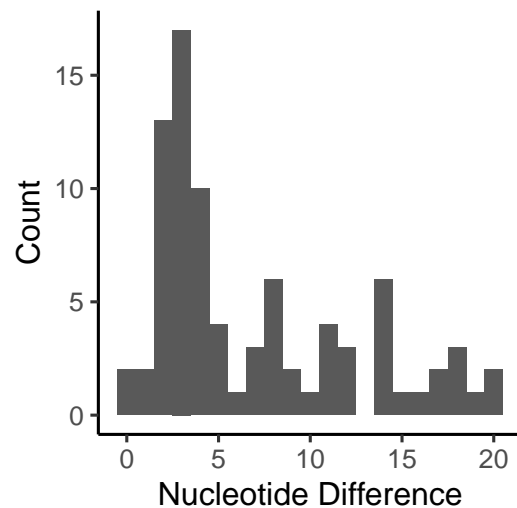
### IGHV3-48\*01

853 sequences assigned  
4 (0.5%) exact matches, in which:  
3 unique CDR3  
1 unique J



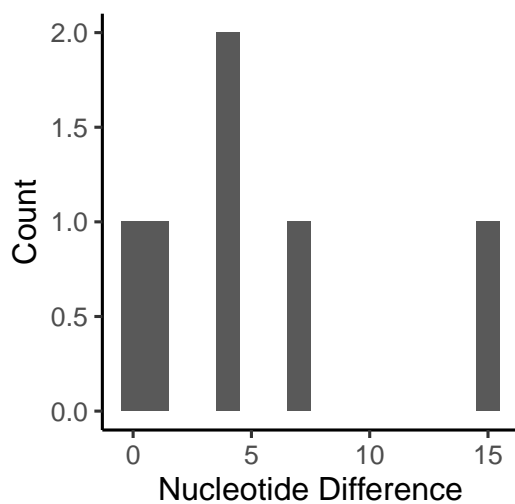
### IGHV3-49\*04

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



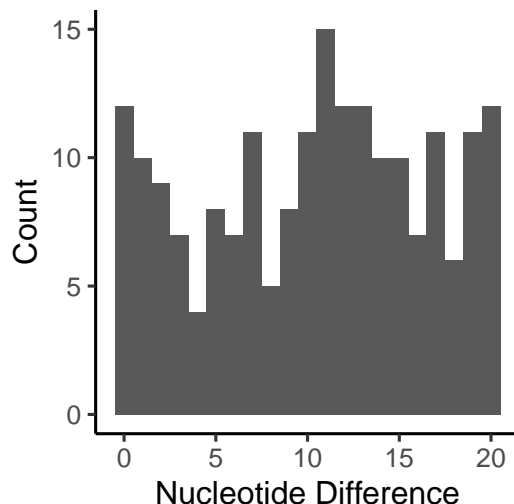
### IGHV3-43\*01

12 sequences assigned  
1 (8.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



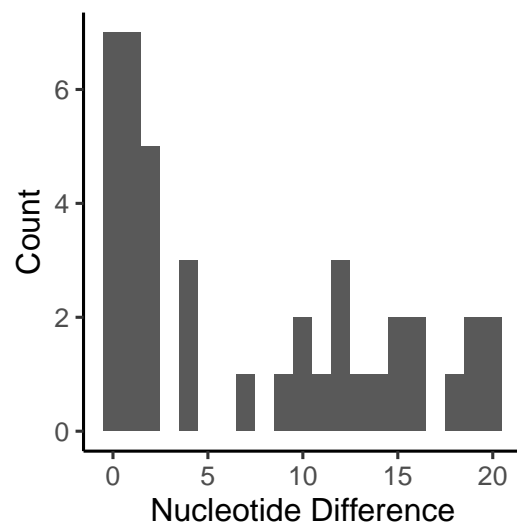
### IGHV3-48\*03

266 sequences assigned  
12 (4.5%) exact matches, in which:  
12 unique CDR3  
4 unique J



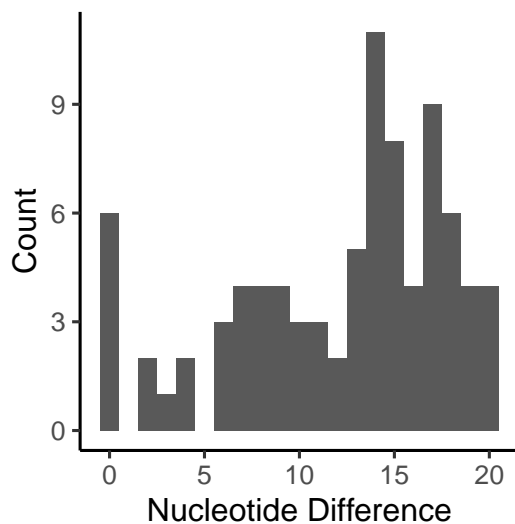
### IGHV3-53\*02

50 sequences assigned  
7 (14%) exact matches, in which:  
4 unique CDR3  
2 unique J



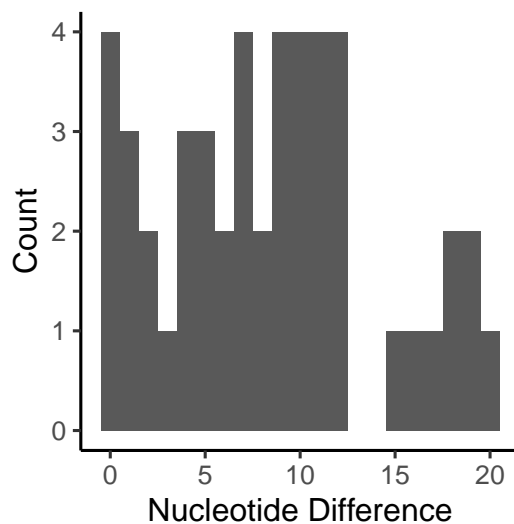
### IGHV3-43\*02

176 sequences assigned  
6 (3.4%) exact matches, in which:  
4 unique CDR3  
2 unique J



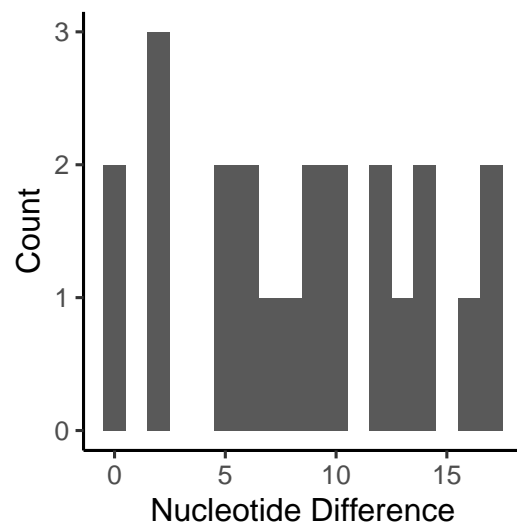
### IGHV3-49\*03

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



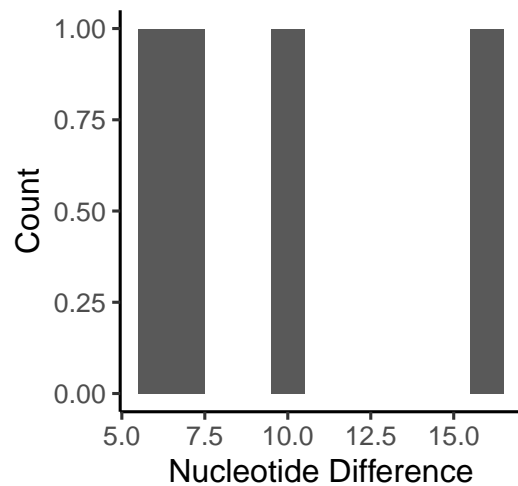
### IGHV3-53\*04

29 sequences assigned  
2 (6.9%) exact matches, in which:  
2 unique CDR3  
2 unique J



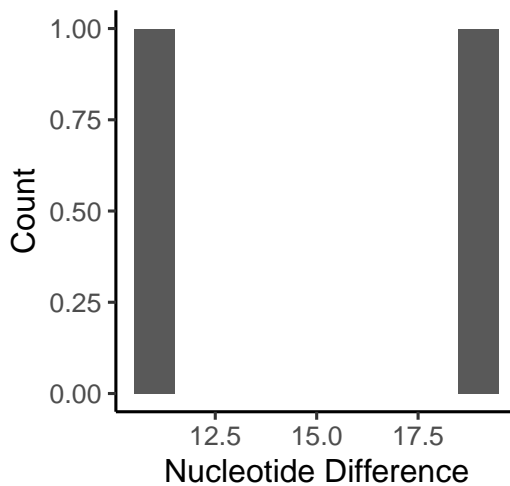
### IGHV3-53\*05

5 sequences assigned  
No exact matches.



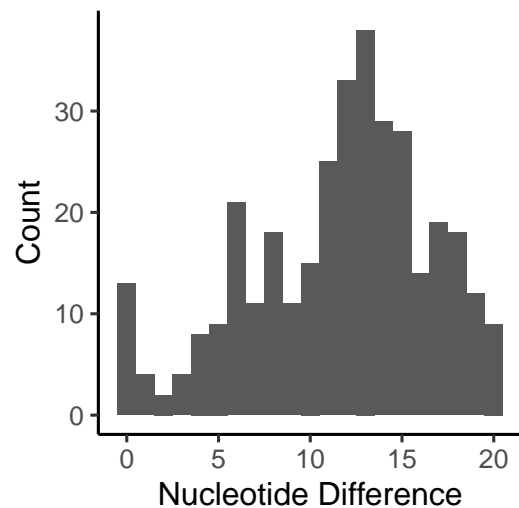
### IGHV3-69-1\*01

2 sequences assigned  
No exact matches.



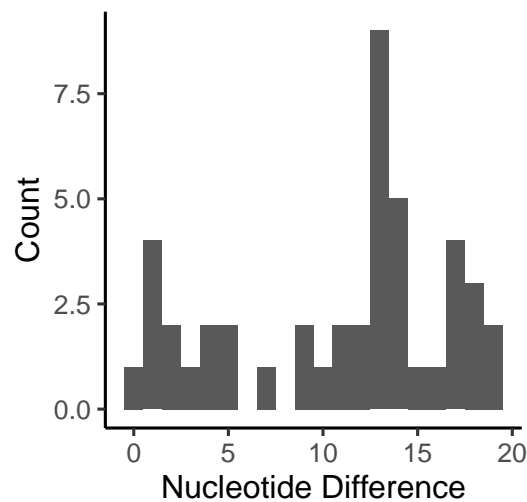
### IGHV3-74\*01

535 sequences assigned  
13 (2.4%) exact matches, in which:  
11 unique CDR3  
4 unique J



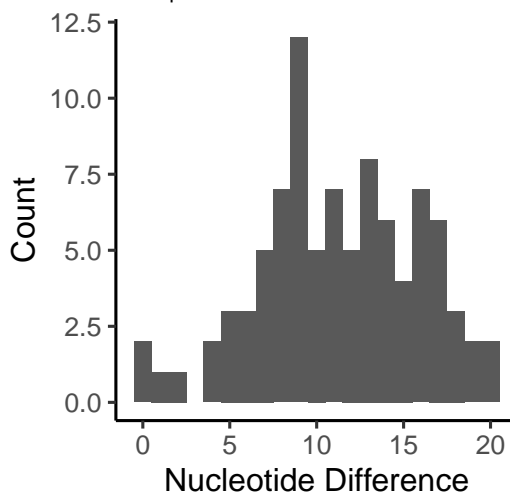
### IGHV3-64\*01

53 sequences assigned  
1 (1.9%) exact matches, in which:  
1 unique CDR3  
1 unique J



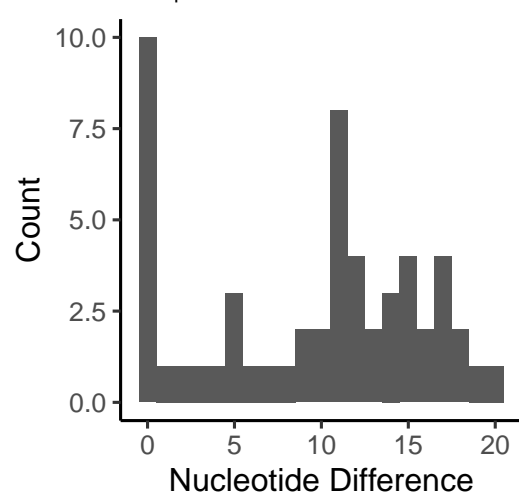
### IGHV3-72\*01

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



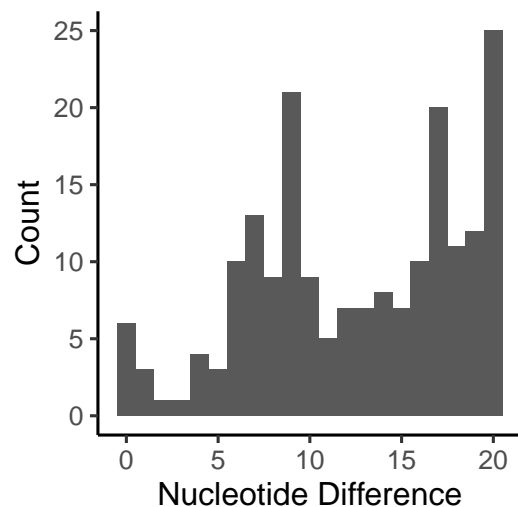
### IGHV4-4\*02

128 sequences assigned  
10 (7.8%) exact matches, in which:  
9 unique CDR3  
3 unique J



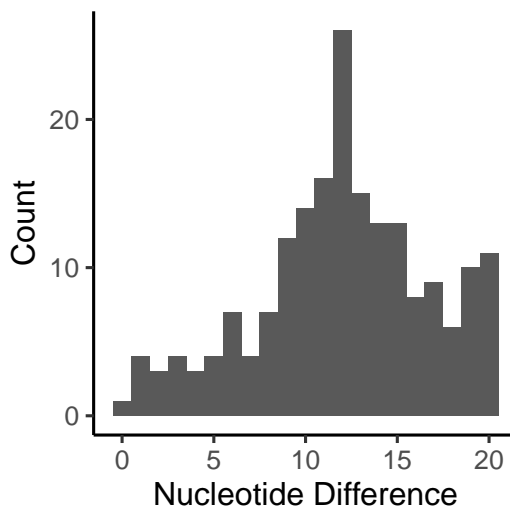
### IGHV3-66\*02

235 sequences assigned  
6 (2.6%) exact matches, in which:  
6 unique CDR3  
4 unique J



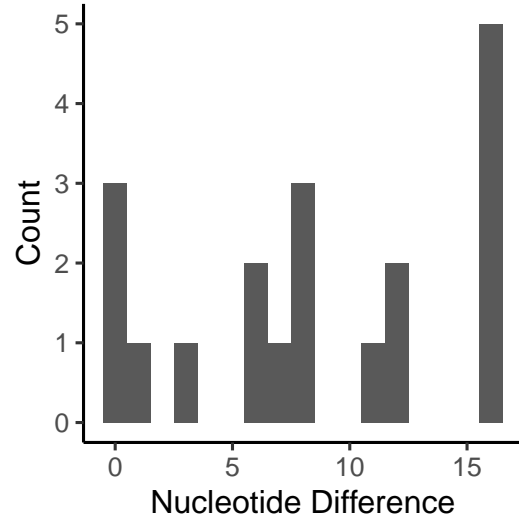
### IGHV3-73\*01

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



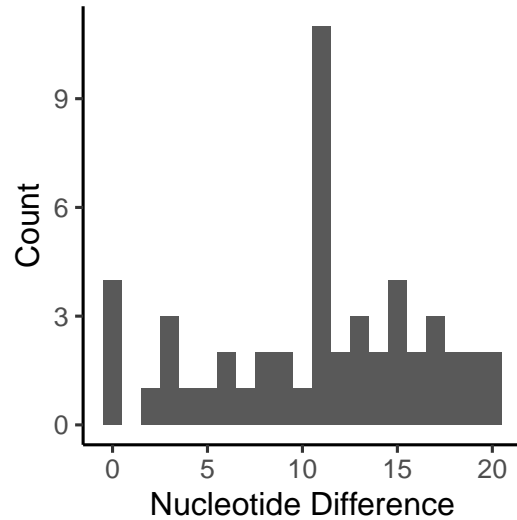
### IGHV4-30-2\*01

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



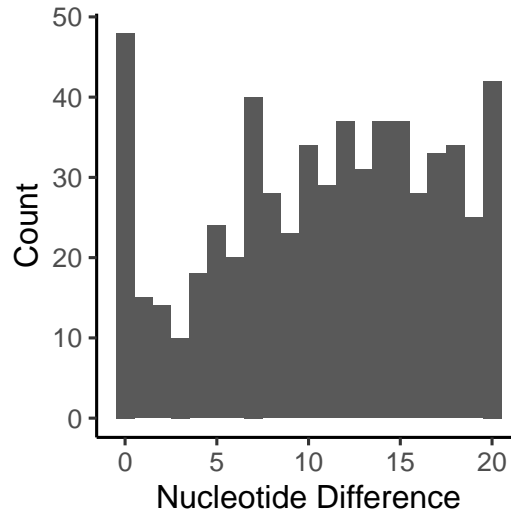
### IGHV4-30-4\*01

118 sequences assigned  
4 (3.4%) exact matches, in which:  
4 unique CDR3  
2 unique J



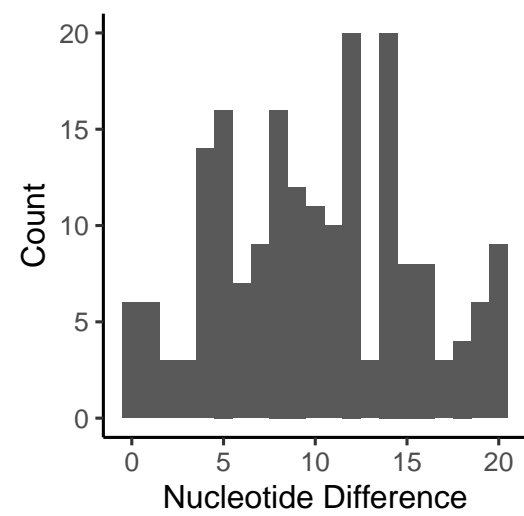
### IGHV4-39\*01

934 sequences assigned  
48 (5.1%) exact matches, in which:  
43 unique CDR3  
6 unique J



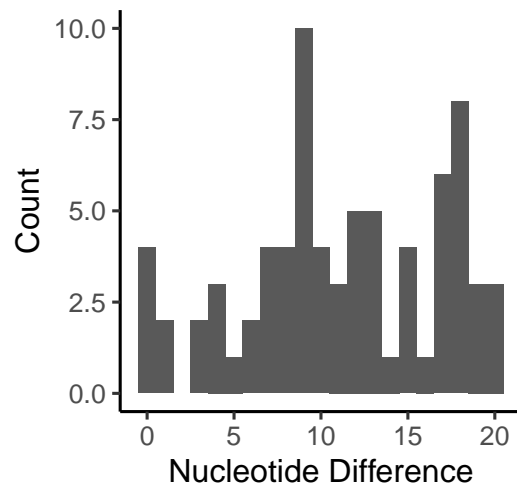
### IGHV5-51\*01

289 sequences assigned  
6 (2.1%) exact matches, in which:  
5 unique CDR3  
3 unique J



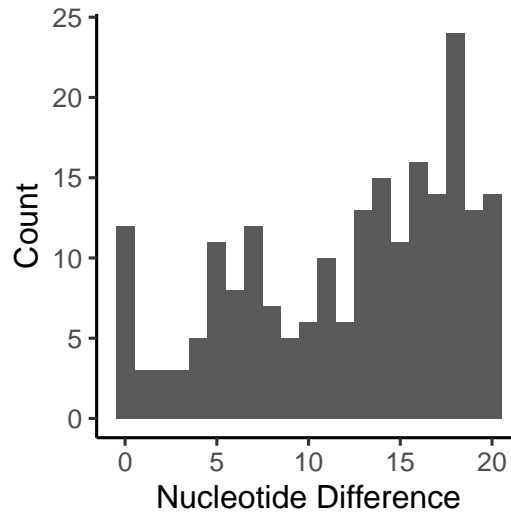
### IGHV4-31\*03

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



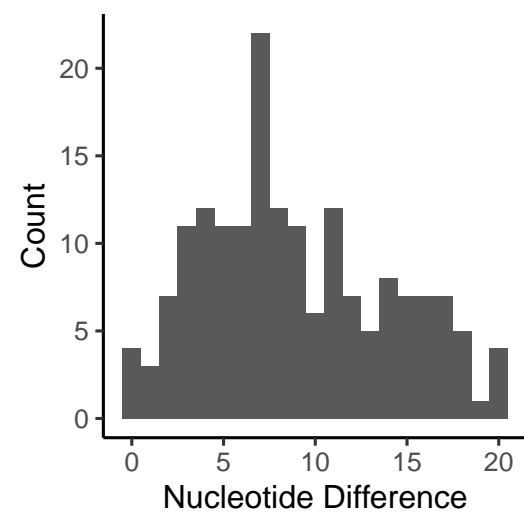
### IGHV4-59\*01

283 sequences assigned  
12 (4.2%) exact matches, in which:  
12 unique CDR3  
5 unique J



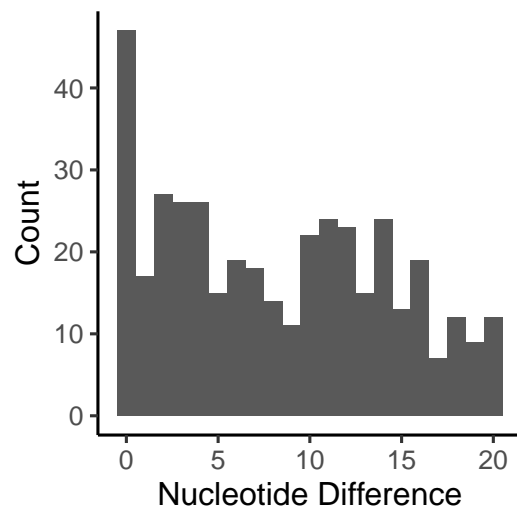
### IGHV6-1\*01

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



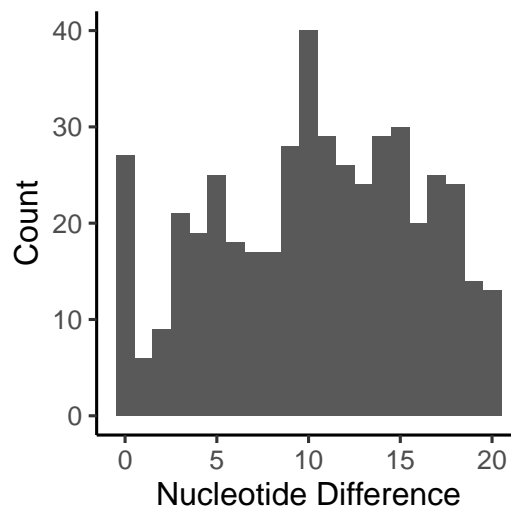
### IGHV4-34\*01

598 sequences assigned  
47 (7.9%) exact matches, in which:  
42 unique CDR3  
5 unique J



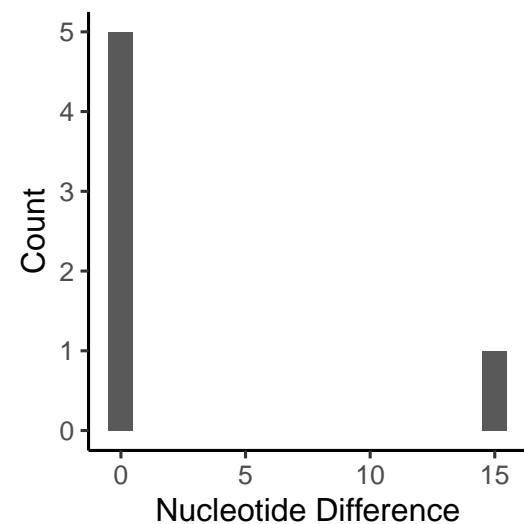
### IGHV4-61\*02

780 sequences assigned  
27 (3.5%) exact matches, in which:  
25 unique CDR3  
6 unique J



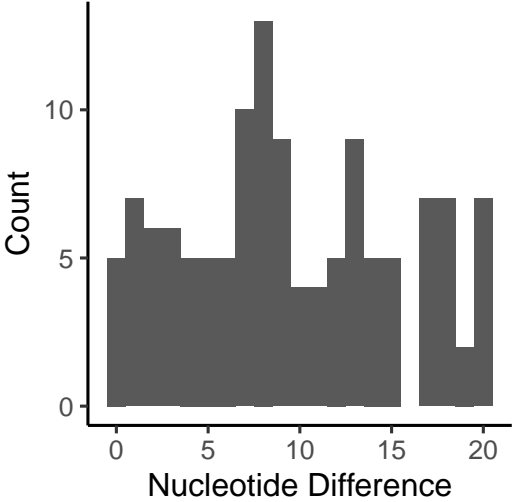
### IGHV3/OR16-6\*02

6 sequences assigned  
5 (83.3%) exact matches, in which:  
1 unique CDR3  
1 unique J

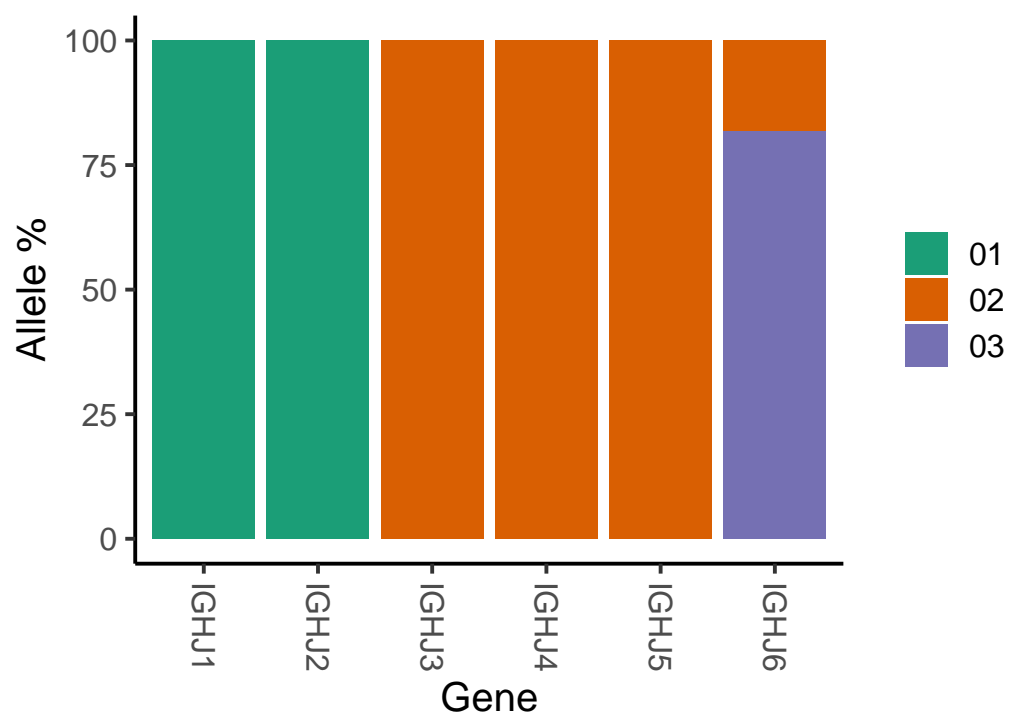


# IGHV7-4-1\*02

152 sequences assigned  
5 (3.3%) exact matches, in which:  
5 unique CDR3  
3 unique J



Allele Usage





[illegible]