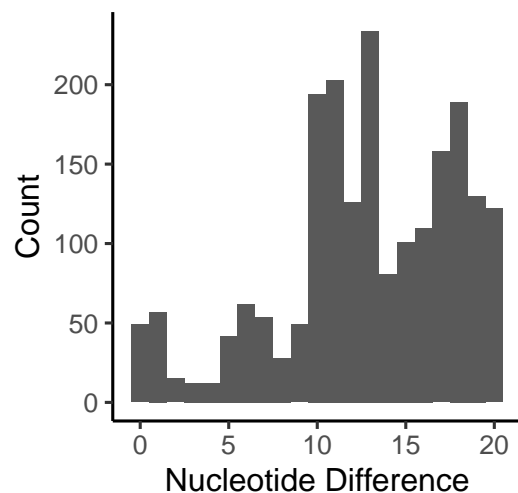


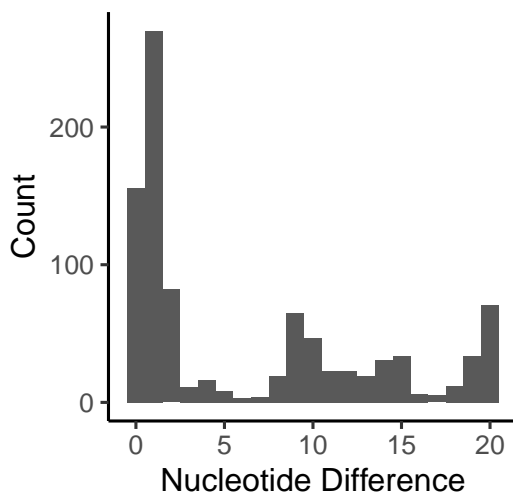
### IGHV1–2\*02

3041 sequences assigned  
49 (1.6%) exact matches, in which:  
34 unique CDR3  
4 unique J



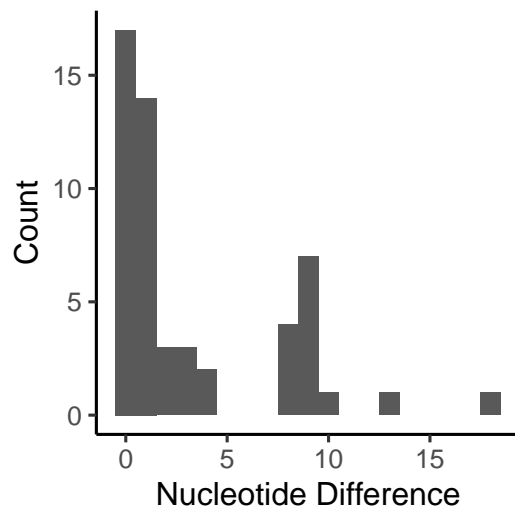
### IGHV1–18\*01

1025 sequences assigned  
156 (15.2%) exact matches, in which:  
99 unique CDR3  
7 unique J



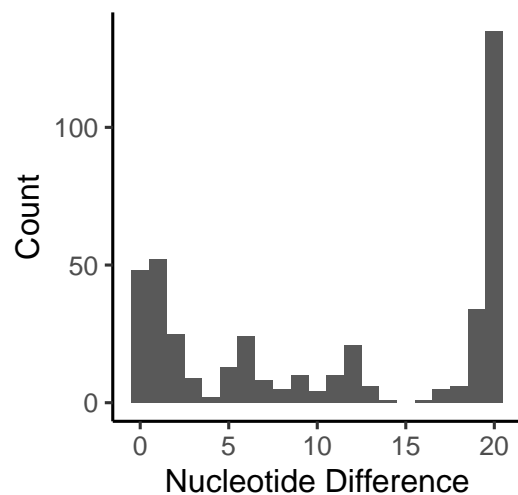
### IGHV1–46\*03

129 sequences assigned  
17 (13.2%) exact matches, in which:  
10 unique CDR3  
2 unique J



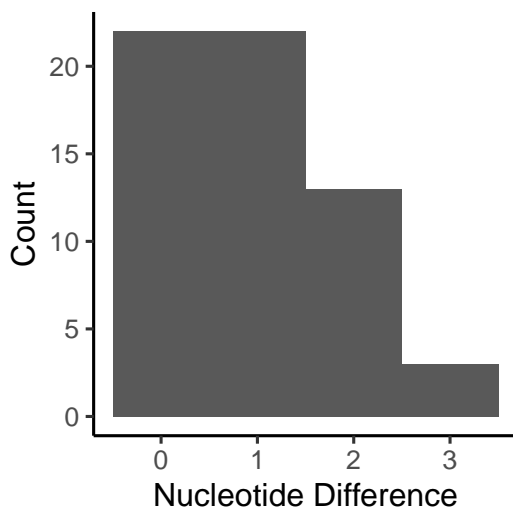
### IGHV1–3\*01

611 sequences assigned  
48 (7.9%) exact matches, in which:  
28 unique CDR3  
4 unique J



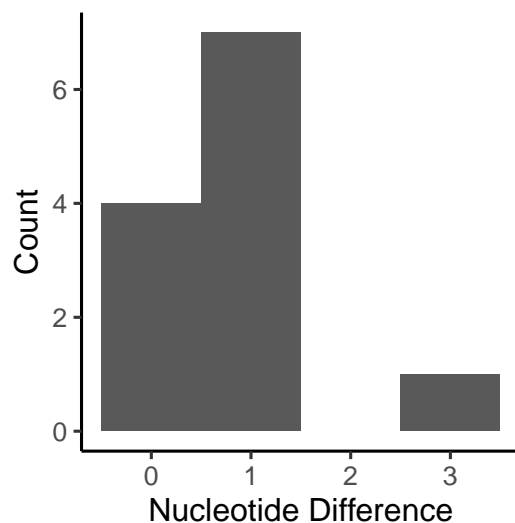
### IGHV1–24\*01

199 sequences assigned  
22 (11.1%) exact matches, in which:  
20 unique CDR3  
5 unique J



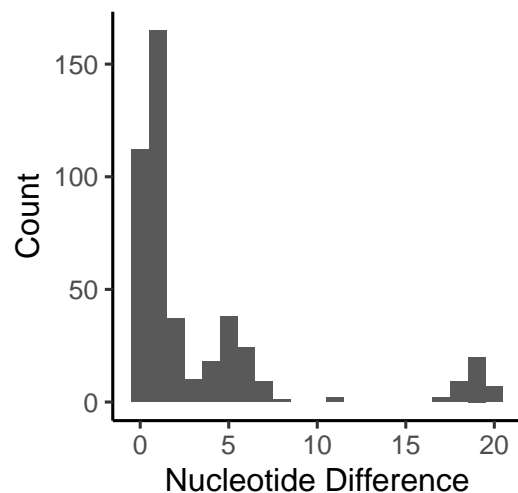
### IGHV1–58\*01

12 sequences assigned  
4 (33.3%) exact matches, in which:  
3 unique CDR3  
2 unique J



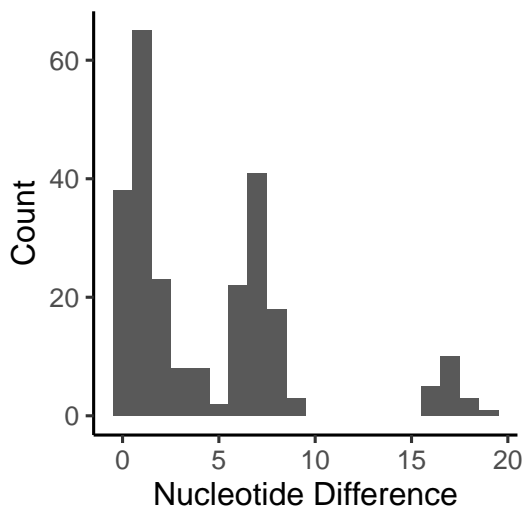
### IGHV1–8\*01

710 sequences assigned  
112 (15.8%) exact matches, in which:  
81 unique CDR3  
6 unique J



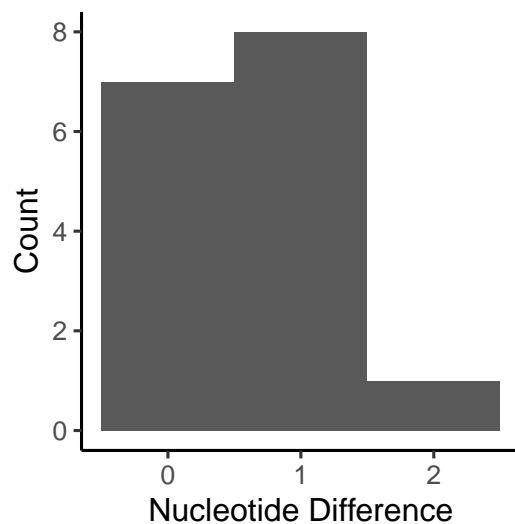
### IGHV1–46\*01

360 sequences assigned  
38 (10.6%) exact matches, in which:  
24 unique CDR3  
5 unique J



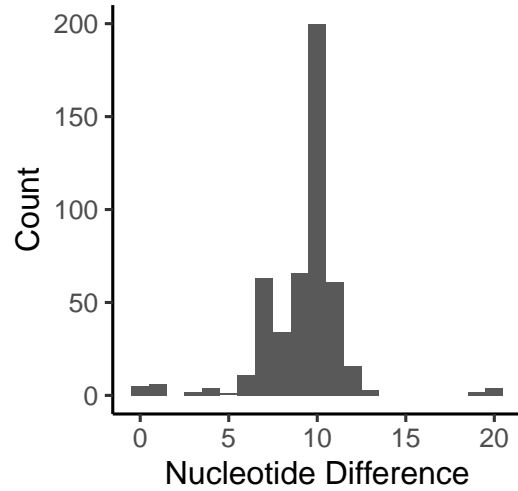
### IGHV1–58\*02

16 sequences assigned  
7 (43.8%) exact matches, in which:  
4 unique CDR3  
3 unique J



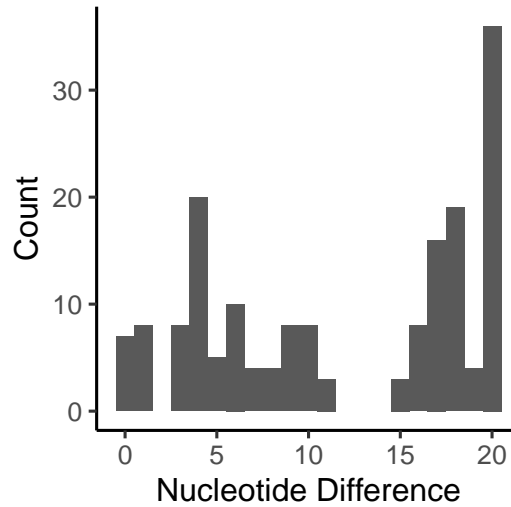
### IGHV1-69-2\*01

580 sequences assigned  
5 (0.9%) exact matches, in which:  
5 unique CDR3  
1 unique J



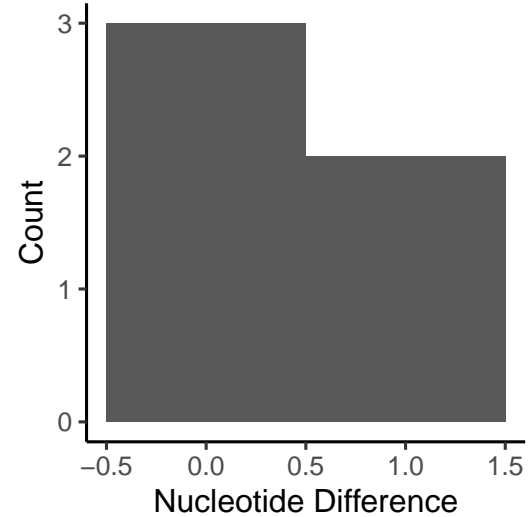
### IGHV2-5\*01

311 sequences assigned  
7 (2.3%) exact matches, in which:  
6 unique CDR3  
4 unique J



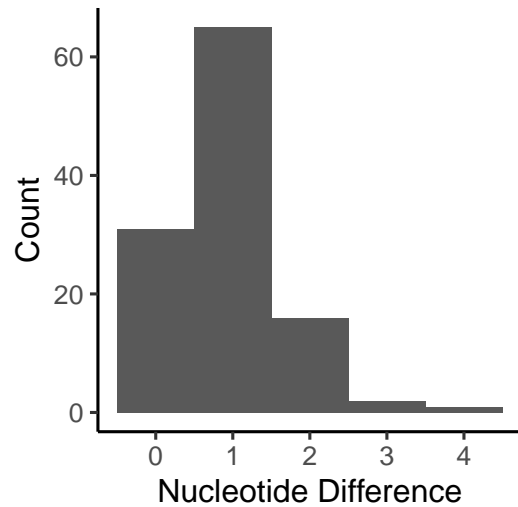
### IGHV2-70\*01

5 sequences assigned  
3 (60%) exact matches, in which:  
2 unique CDR3  
2 unique J



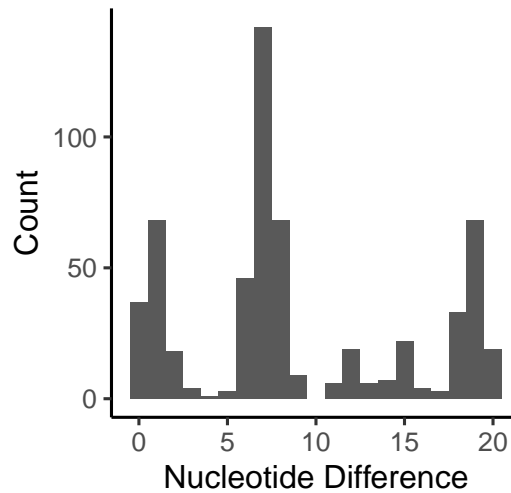
### IGHV1-69\*02

115 sequences assigned  
31 (27%) exact matches, in which:  
26 unique CDR3  
4 unique J



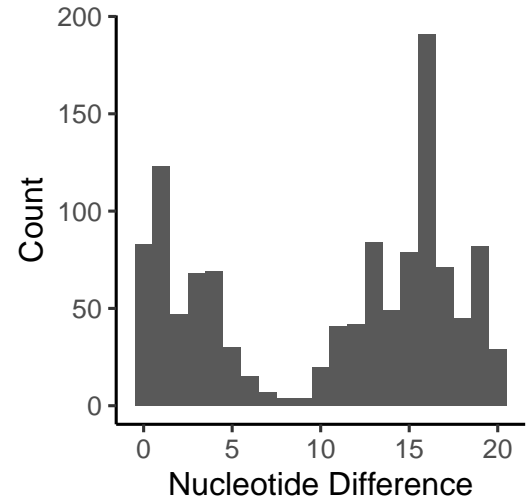
### IGHV2-5\*02

592 sequences assigned  
37 (6.2%) exact matches, in which:  
22 unique CDR3  
3 unique J



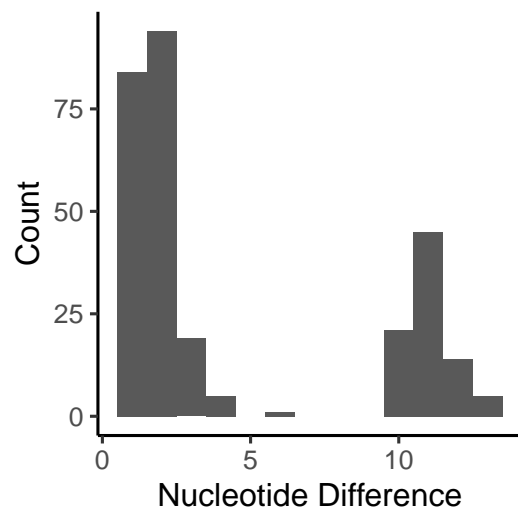
### IGHV3-7\*01

1300 sequences assigned  
83 (6.4%) exact matches, in which:  
65 unique CDR3  
7 unique J



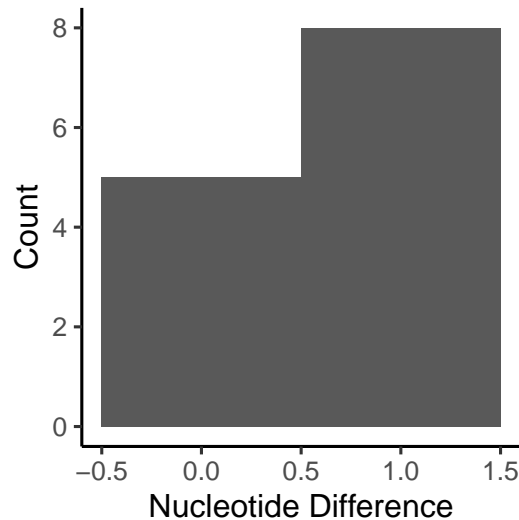
### IGHV1-69\*04

301 sequences assigned  
No exact matches.



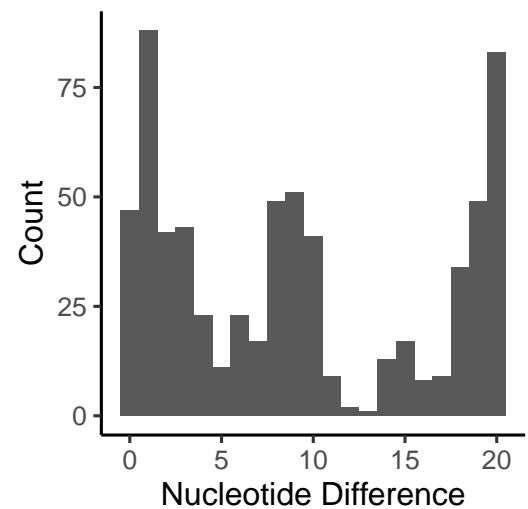
### IGHV2-26\*01

13 sequences assigned  
5 (38.5%) exact matches, in which:  
3 unique CDR3  
1 unique J



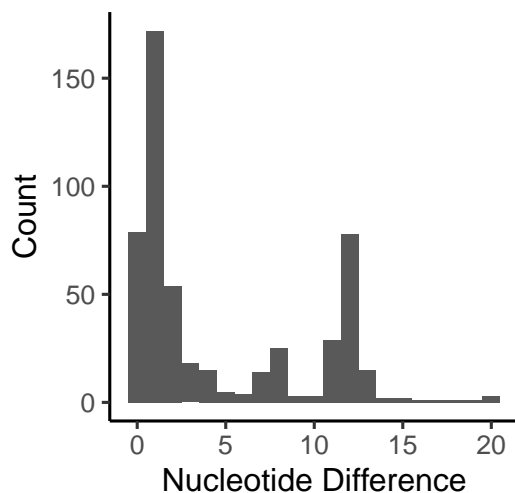
### IGHV3-9\*01

1069 sequences assigned  
47 (4.4%) exact matches, in which:  
37 unique CDR3  
5 unique J



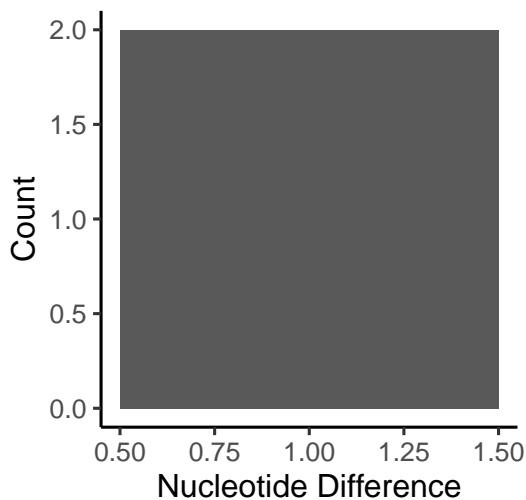
### IGHV3-11\*01

578 sequences assigned  
79 (13.7%) exact matches, in which:  
54 unique CDR3  
5 unique J



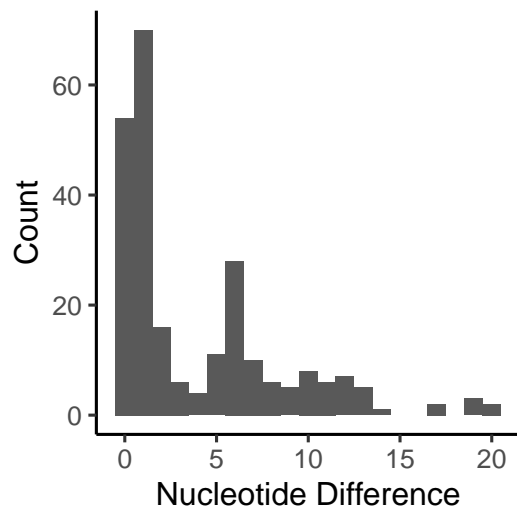
### IGHV3-20\*01

2 sequences assigned  
No exact matches.



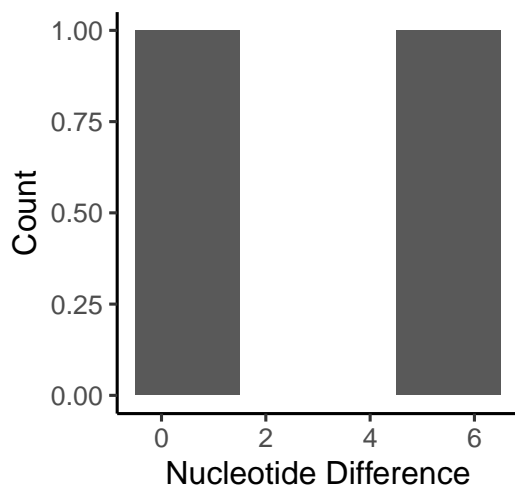
### IGHV3-33\*01

272 sequences assigned  
54 (19.9%) exact matches, in which:  
37 unique CDR3  
3 unique J



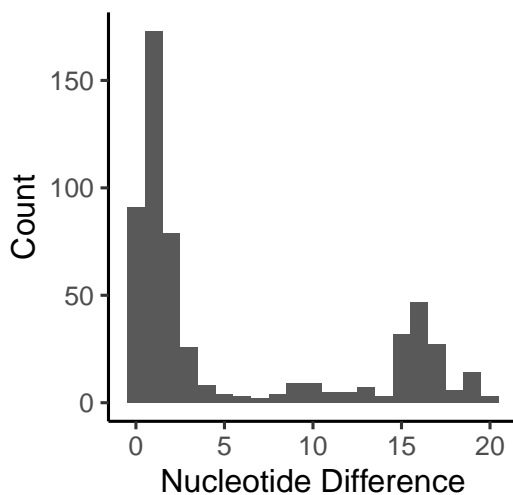
### IGHV3-13\*01

4 sequences assigned  
1 (25%) exact matches, in which:  
1 unique CDR3  
1 unique J



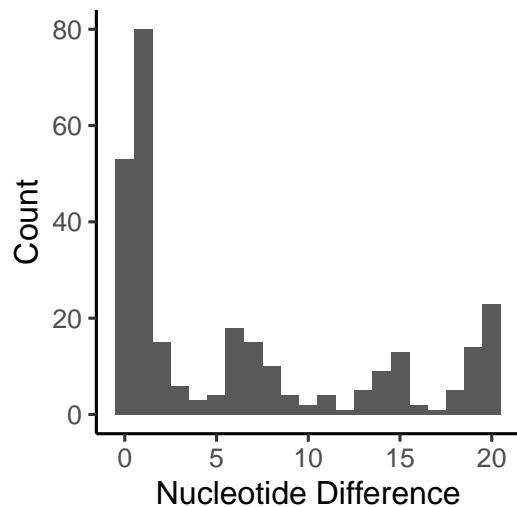
### IGHV3-21\*01

764 sequences assigned  
91 (11.9%) exact matches, in which:  
56 unique CDR3  
6 unique J



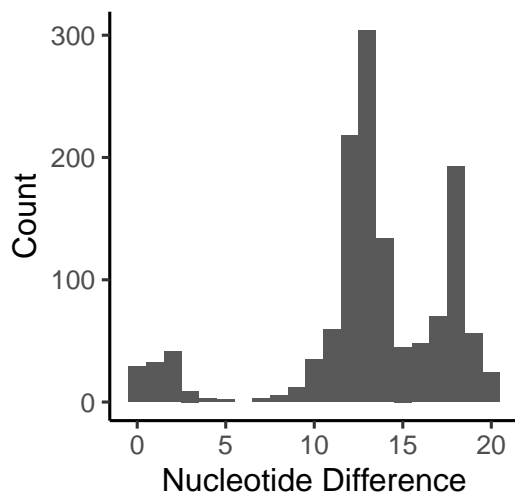
### IGHV3-33\*08

670 sequences assigned  
53 (7.9%) exact matches, in which:  
42 unique CDR3  
4 unique J



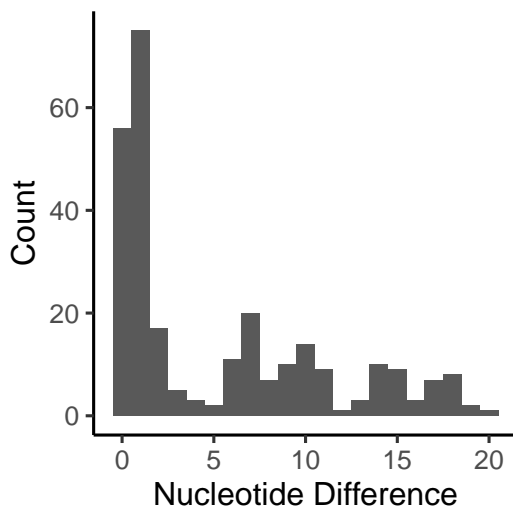
### IGHV3-15\*01

1355 sequences assigned  
29 (2.1%) exact matches, in which:  
26 unique CDR3  
4 unique J



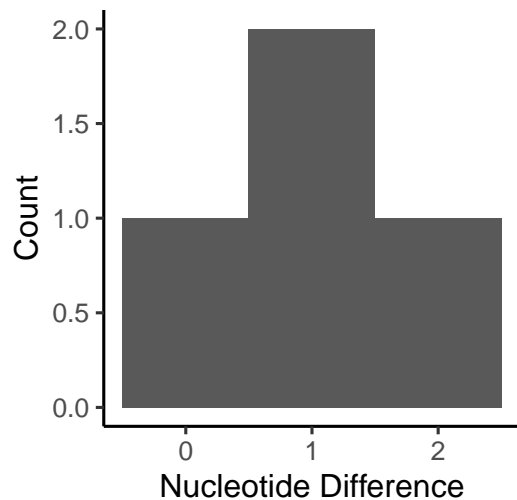
### IGHV3-30-3\*01

470 sequences assigned  
56 (11.9%) exact matches, in which:  
36 unique CDR3  
6 unique J



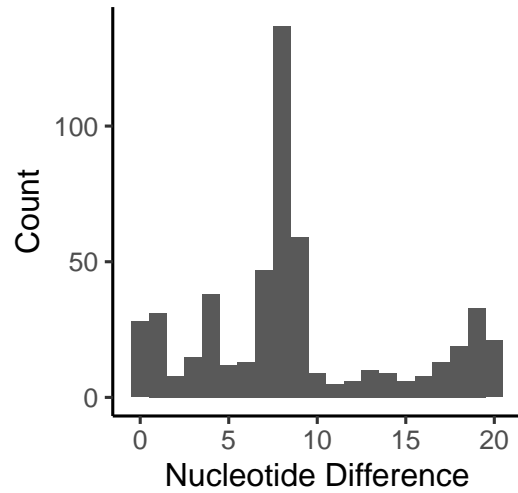
### IGHV3-43\*01

23 sequences assigned  
1 (4.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



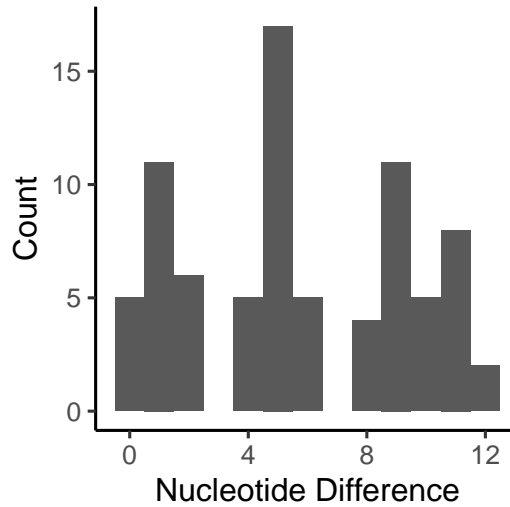
### IGHV3-48\*01

529 sequences assigned  
28 (5.3%) exact matches, in which:  
19 unique CDR3  
4 unique J



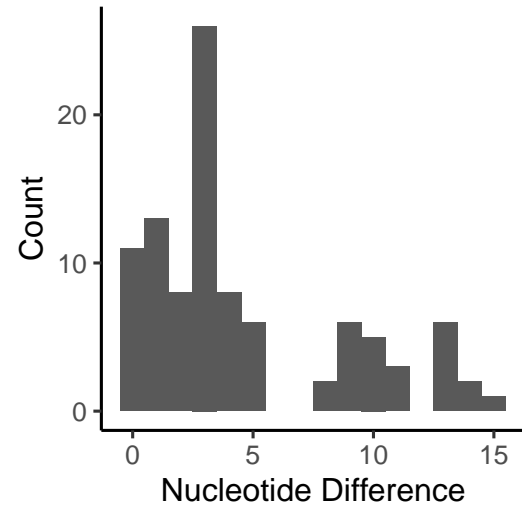
### IGHV3-49\*05

79 sequences assigned  
5 (6.3%) exact matches, in which:  
3 unique CDR3  
2 unique J



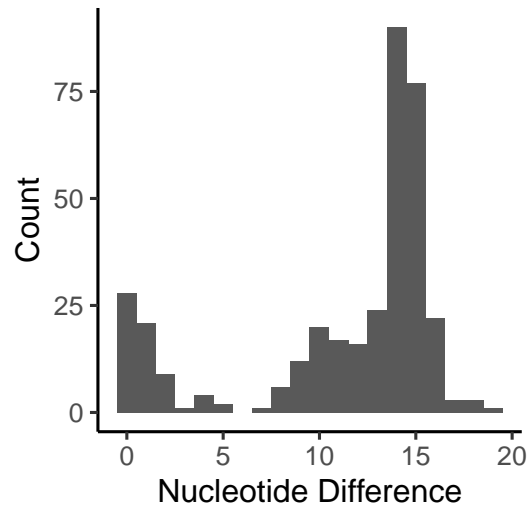
### IGHV3-66\*02

103 sequences assigned  
11 (10.7%) exact matches, in which:  
10 unique CDR3  
5 unique J



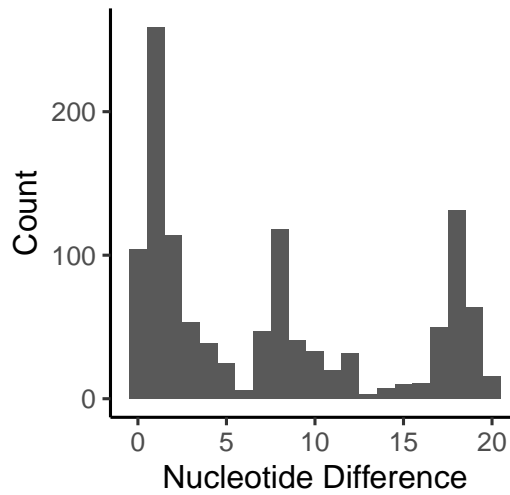
### IGHV3-48\*02

408 sequences assigned  
28 (6.9%) exact matches, in which:  
19 unique CDR3  
6 unique J



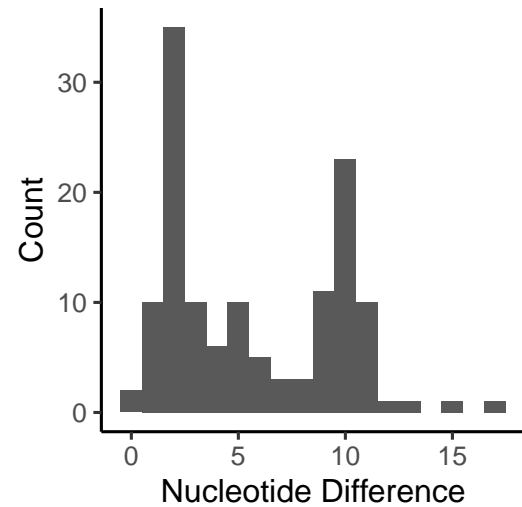
### IGHV3-53\*01

1549 sequences assigned  
104 (6.7%) exact matches, in which:  
75 unique CDR3  
6 unique J



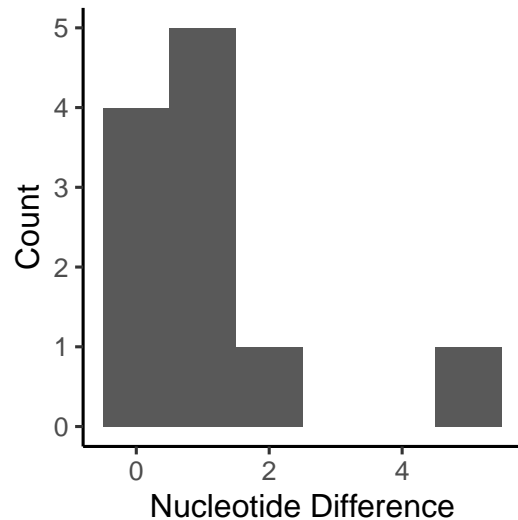
### IGHV3-72\*01

189 sequences assigned  
2 (1.1%) exact matches, in which:  
1 unique CDR3  
1 unique J



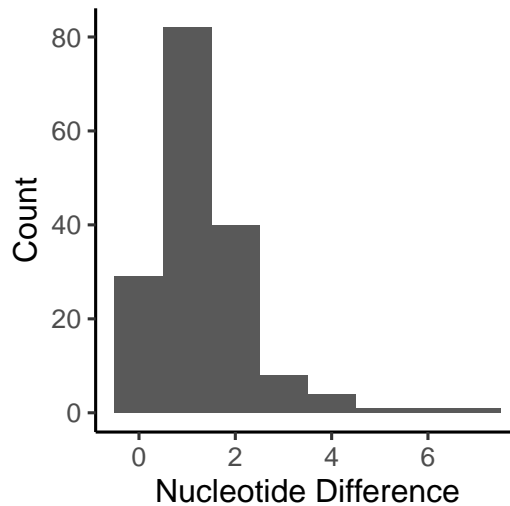
### IGHV3-49\*03

11 sequences assigned  
4 (36.4%) exact matches, in which:  
4 unique CDR3  
3 unique J



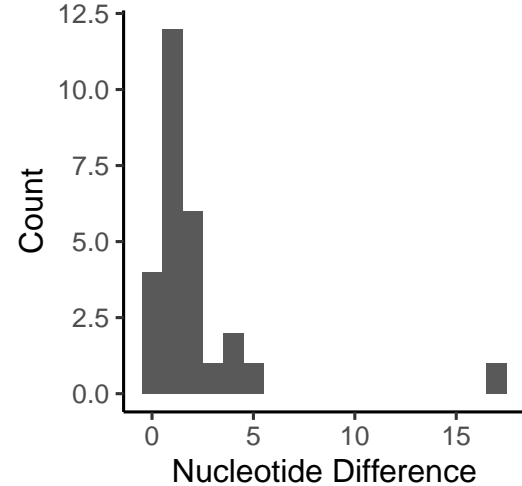
### IGHV3-64\*01

166 sequences assigned  
29 (17.5%) exact matches, in which:  
19 unique CDR3  
2 unique J



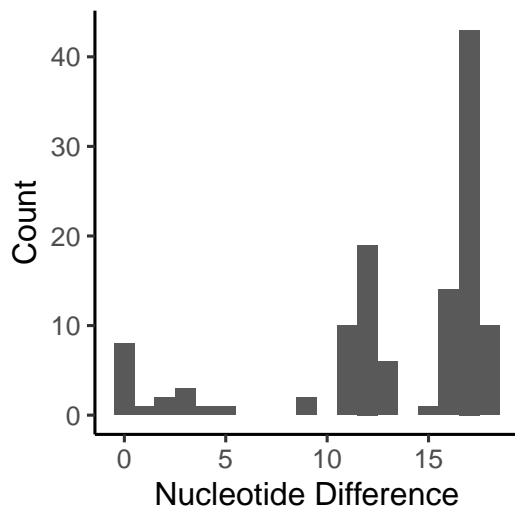
### IGHV3-73\*01

27 sequences assigned  
4 (14.8%) exact matches, in which:  
4 unique CDR3  
2 unique J



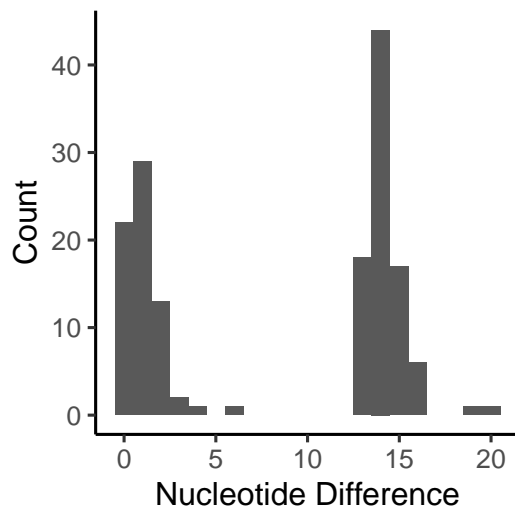
### IGHV3-73\*02

122 sequences assigned  
8 (6.6%) exact matches, in which:  
7 unique CDR3  
2 unique J



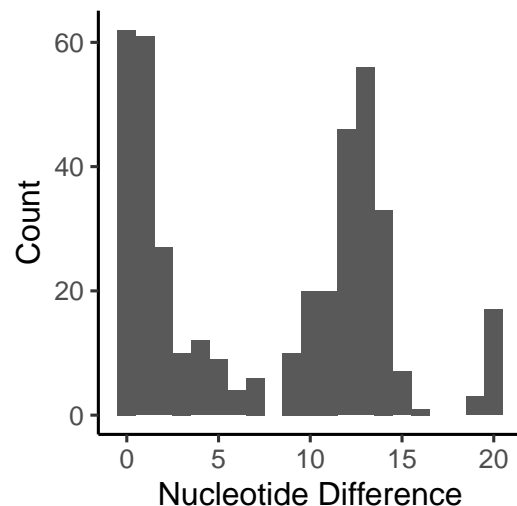
### IGHV4-30-4\*01

253 sequences assigned  
22 (8.7%) exact matches, in which:  
16 unique CDR3  
3 unique J



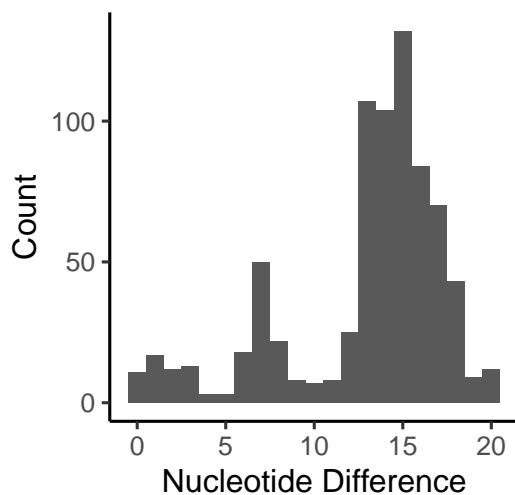
### IGHV4-34\*01

898 sequences assigned  
62 (6.9%) exact matches, in which:  
56 unique CDR3  
6 unique J



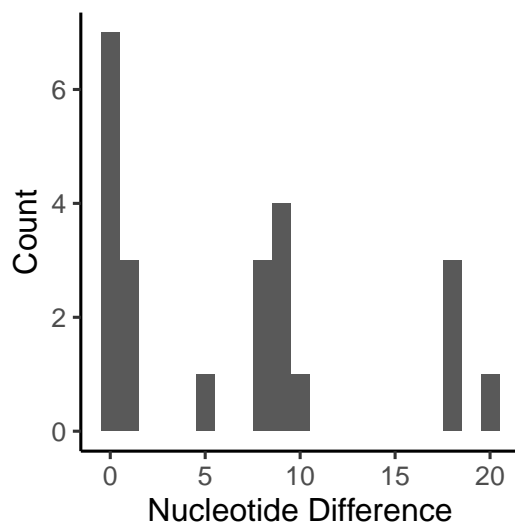
### IGHV3-74\*01

966 sequences assigned  
11 (1.1%) exact matches, in which:  
10 unique CDR3  
4 unique J



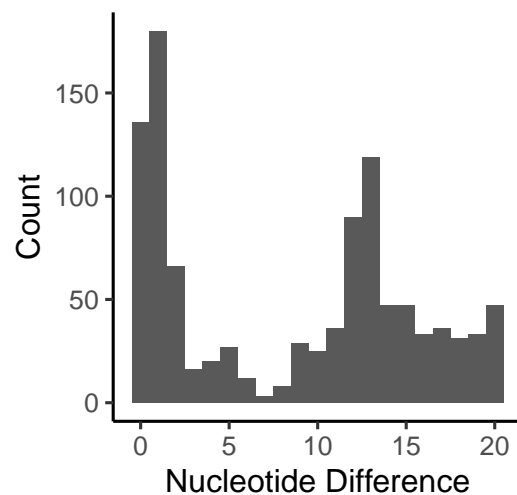
### IGHV4-30-2\*01

25 sequences assigned  
7 (28%) exact matches, in which:  
5 unique CDR3  
3 unique J



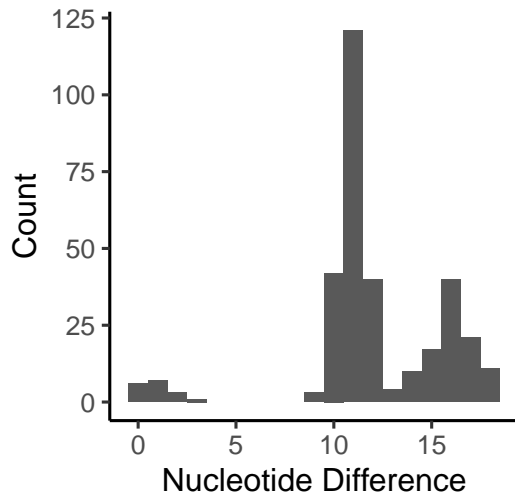
### IGHV4-39\*01

1705 sequences assigned  
136 (8%) exact matches, in which:  
102 unique CDR3  
7 unique J



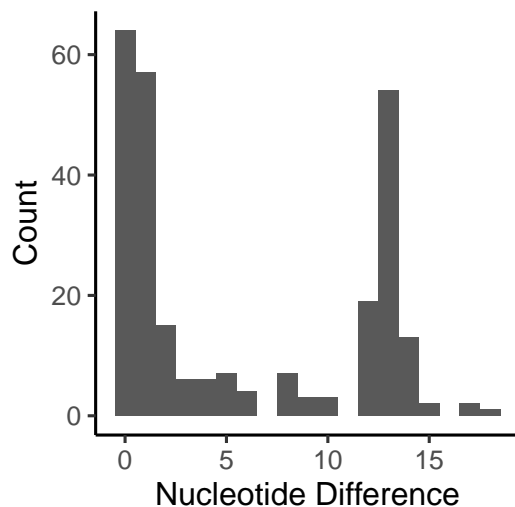
### IGHV4-4\*07

467 sequences assigned  
6 (1.3%) exact matches, in which:  
4 unique CDR3  
3 unique J



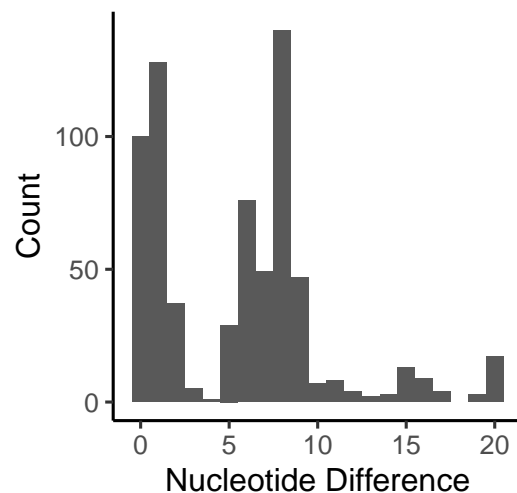
### IGHV4-31\*03

277 sequences assigned  
64 (23.1%) exact matches, in which:  
36 unique CDR3  
5 unique J



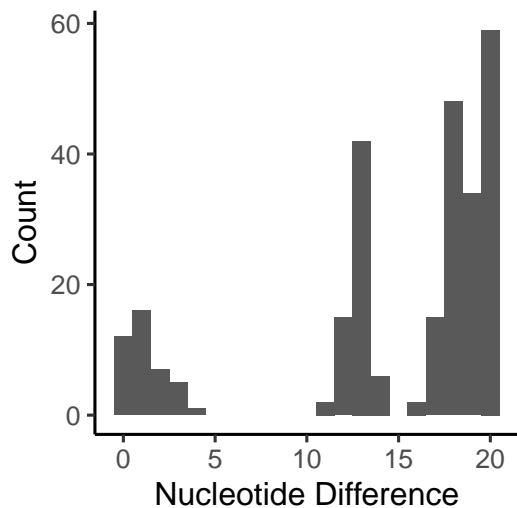
### IGHV4-59\*01

1272 sequences assigned  
100 (7.9%) exact matches, in which:  
68 unique CDR3  
5 unique J



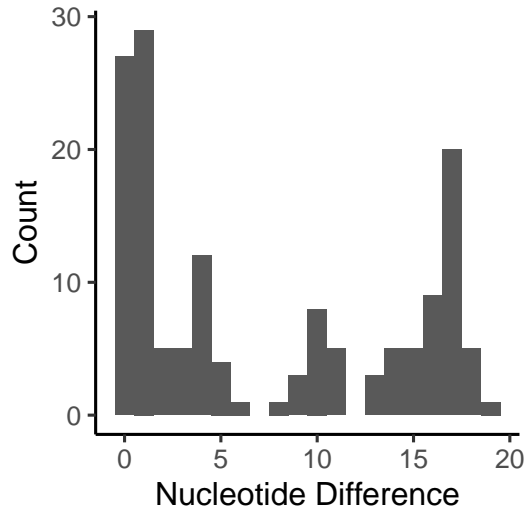
### IGHV4-61\*01

279 sequences assigned  
12 (4.3%) exact matches, in which:  
7 unique CDR3  
2 unique J



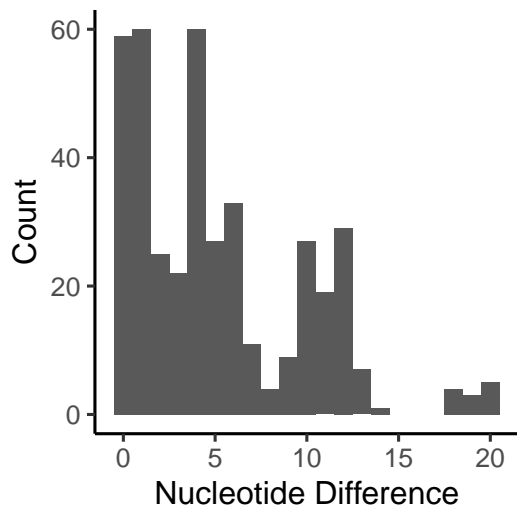
### IGHV5-51\*03

193 sequences assigned  
27 (14%) exact matches, in which:  
23 unique CDR3  
4 unique J



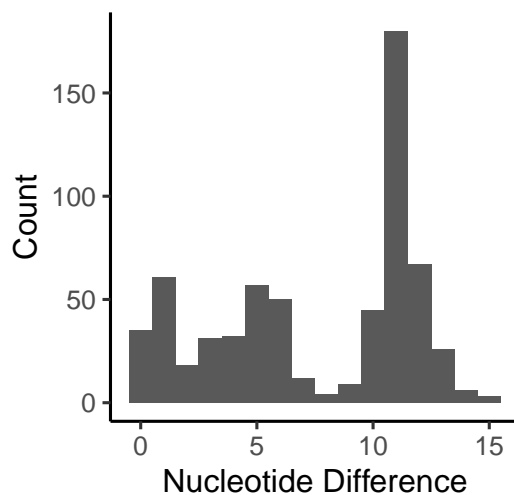
### IGHV4-61\*02

536 sequences assigned  
59 (11%) exact matches, in which:  
34 unique CDR3  
6 unique J



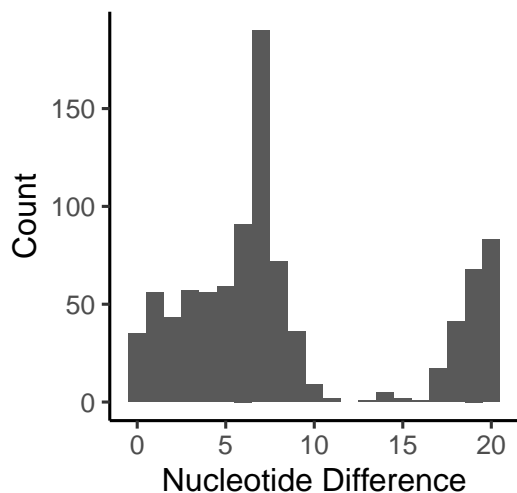
### IGHV6-1\*01

636 sequences assigned  
35 (5.5%) exact matches, in which:  
18 unique CDR3  
4 unique J



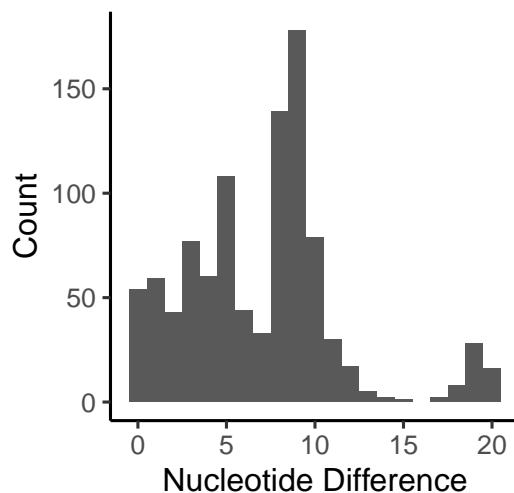
### IGHV5-51\*01

1169 sequences assigned  
35 (3%) exact matches, in which:  
31 unique CDR3  
4 unique J

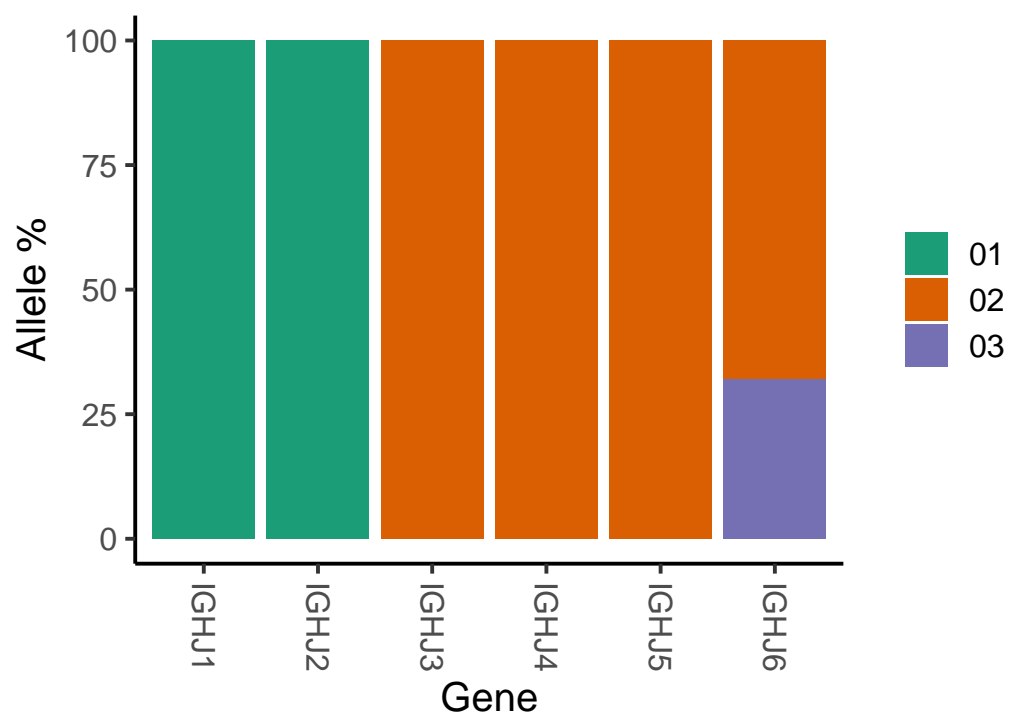


### IGHV7-4-1\*02

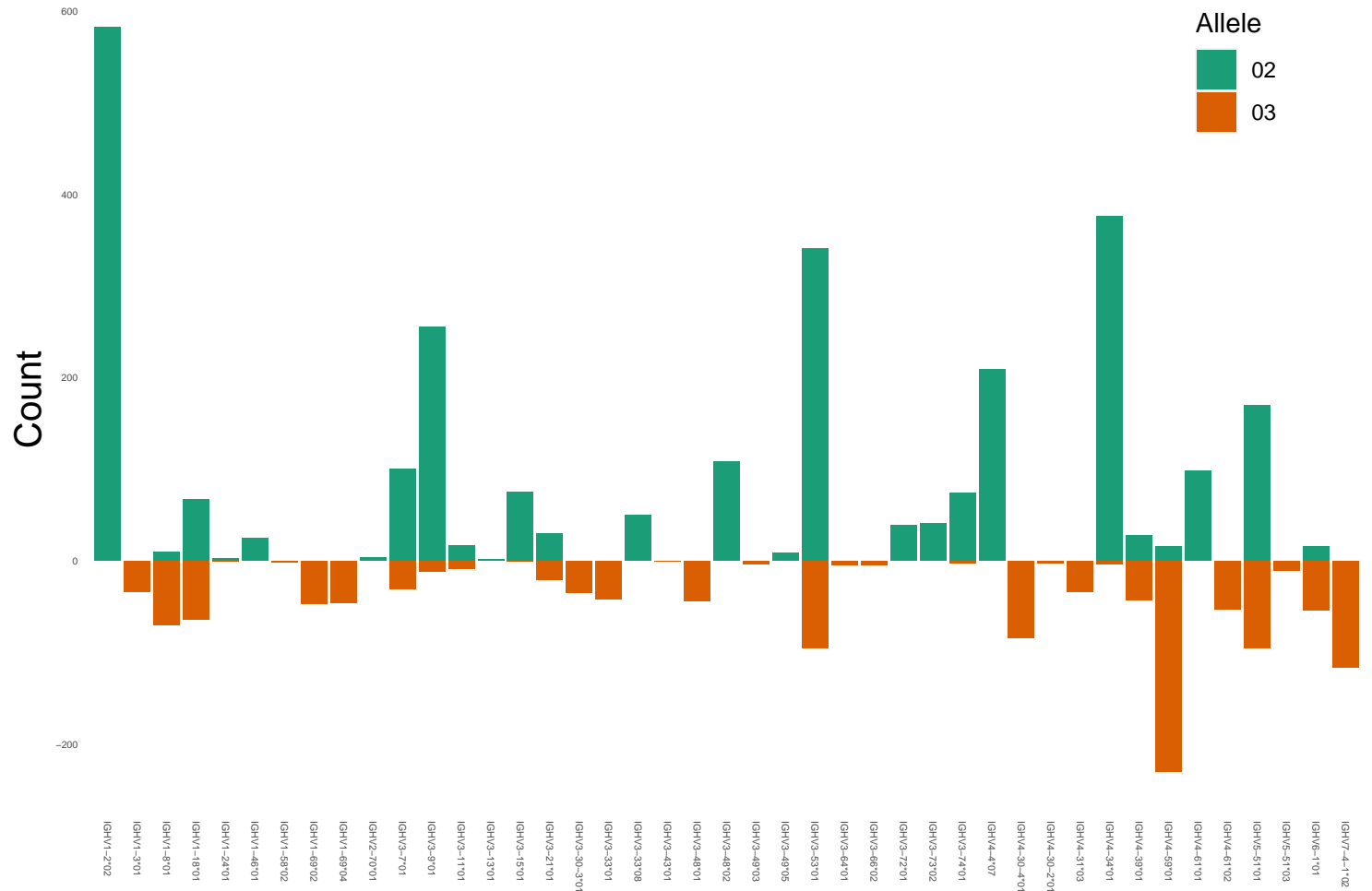
1043 sequences assigned  
54 (5.2%) exact matches, in which:  
32 unique CDR3  
6 unique J



Allele Usage



### Sequence Count by IGHJ6 allele usage





[illegible]