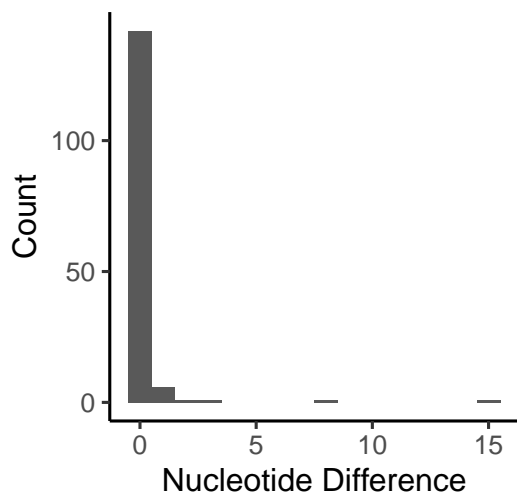


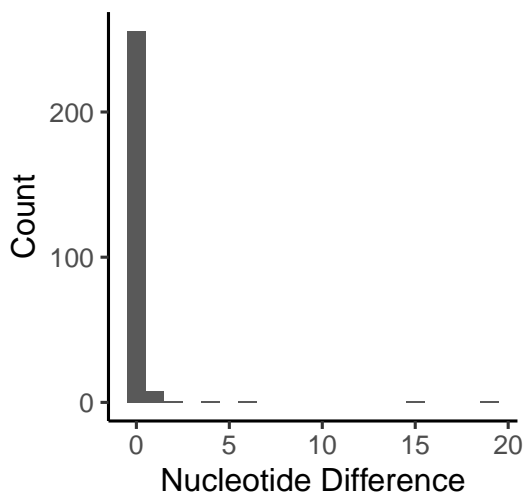
### IGHV1-2\*04

152 sequences assigned  
142 (93.4%) exact matches, in which:  
142 unique CDR3  
6 unique J



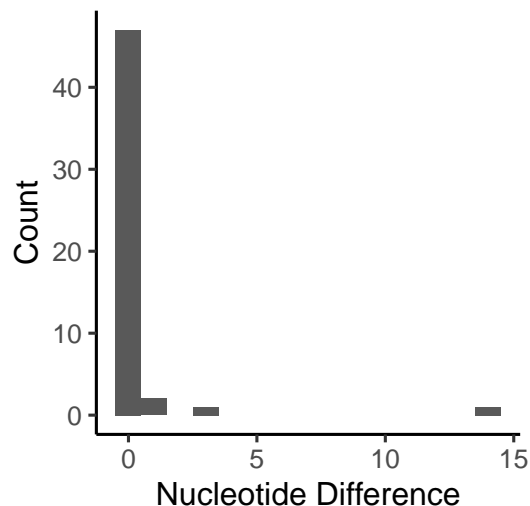
### IGHV1-24\*01

269 sequences assigned  
256 (95.2%) exact matches, in which:  
255 unique CDR3  
7 unique J



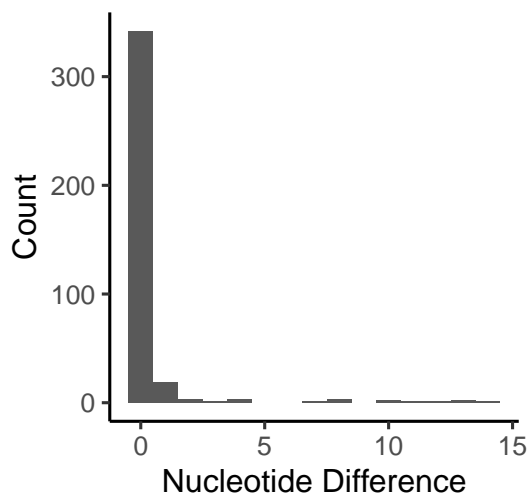
### IGHV1-46\*04

51 sequences assigned  
47 (92.2%) exact matches, in which:  
47 unique CDR3  
7 unique J



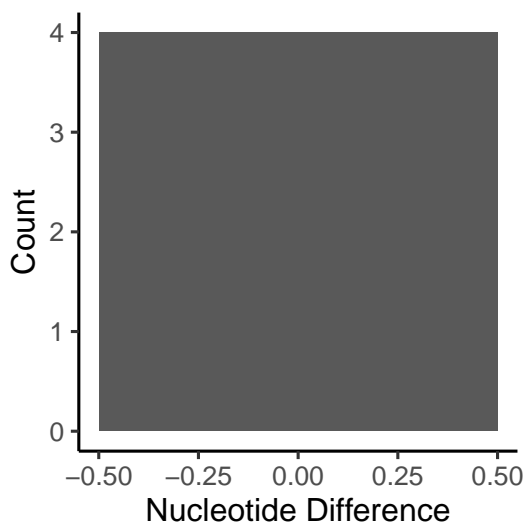
### IGHV1-3\*01

381 sequences assigned  
342 (89.8%) exact matches, in which:  
342 unique CDR3  
7 unique J



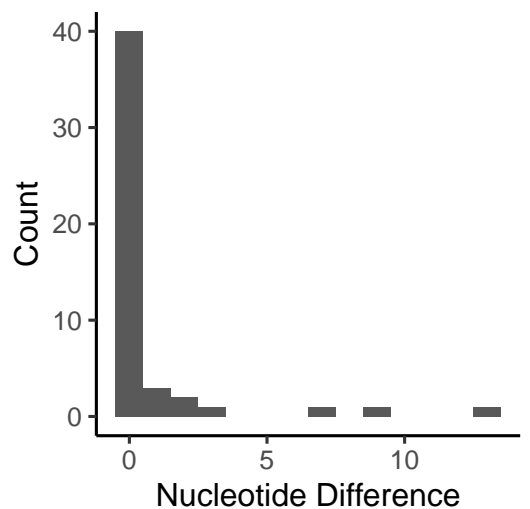
### IGHV1-45\*02

4 sequences assigned  
4 (100%) exact matches, in which:  
4 unique CDR3  
3 unique J



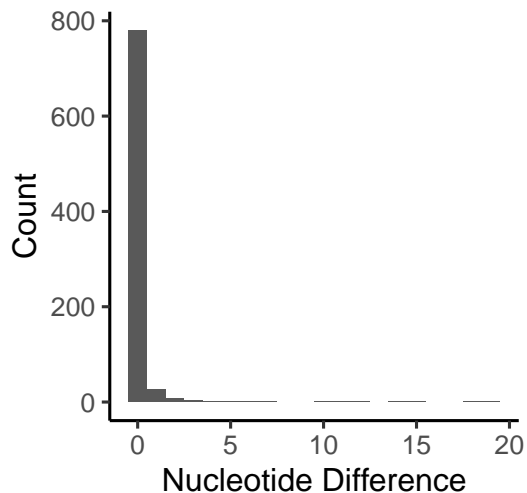
### IGHV1-58\*01

49 sequences assigned  
40 (81.6%) exact matches, in which:  
40 unique CDR3  
7 unique J



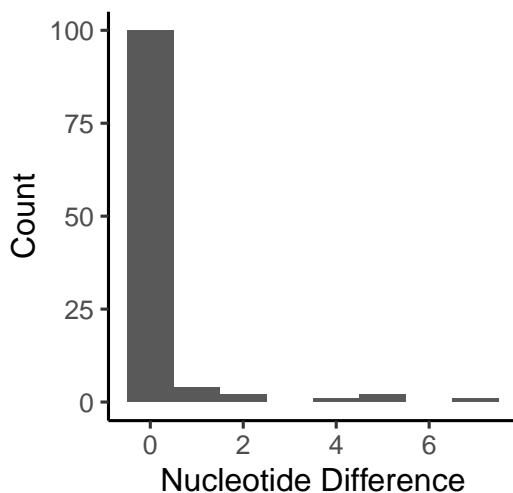
### IGHV1-18\*04

836 sequences assigned  
780 (93.3%) exact matches, in which:  
780 unique CDR3  
7 unique J



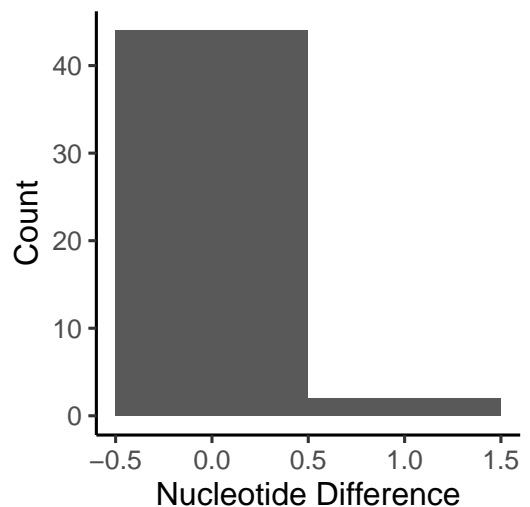
### IGHV1-46\*01

110 sequences assigned  
100 (90.9%) exact matches, in which:  
100 unique CDR3  
6 unique J



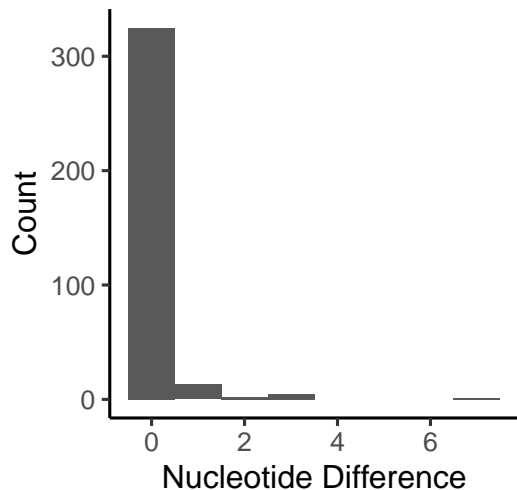
### IGHV1-69-2\*01

46 sequences assigned  
44 (95.7%) exact matches, in which:  
44 unique CDR3  
5 unique J



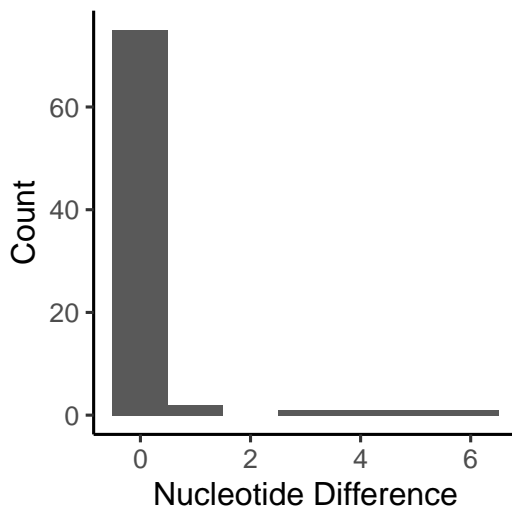
### IGHV1–69\*17

346 sequences assigned  
325 (93.9%) exact matches, in which:  
324 unique CDR3  
7 unique J



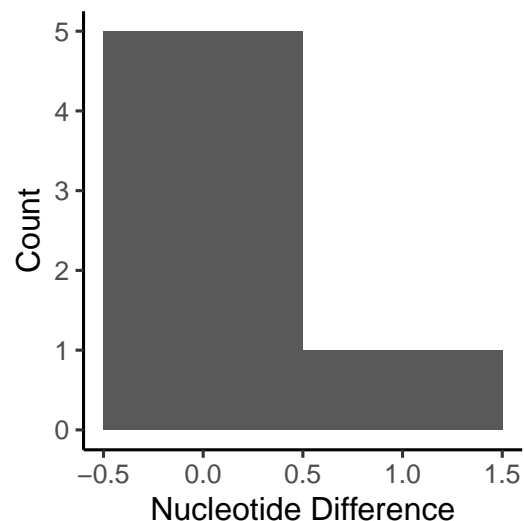
### IGHV2–70\*01

81 sequences assigned  
75 (92.6%) exact matches, in which:  
75 unique CDR3  
6 unique J



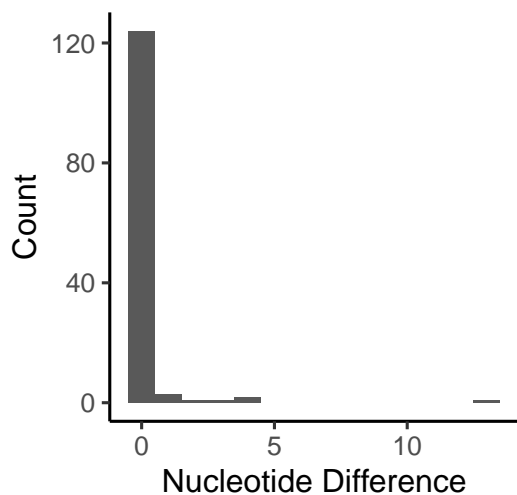
### IGHV3–13\*05

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



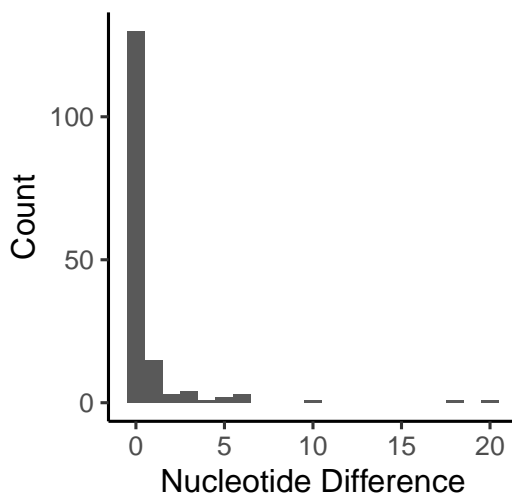
### IGHV2–5\*02

132 sequences assigned  
124 (93.9%) exact matches, in which:  
124 unique CDR3  
7 unique J



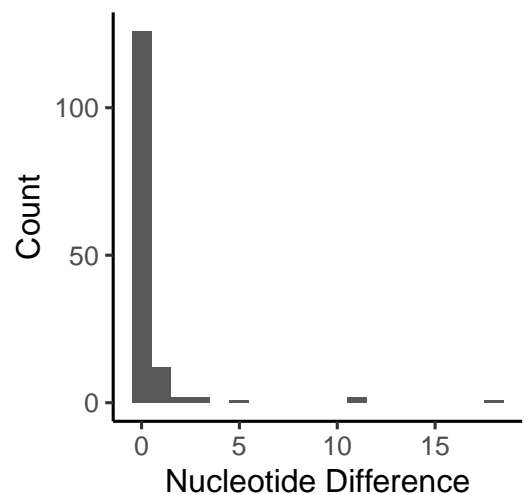
### IGHV3–7\*03

161 sequences assigned  
130 (80.7%) exact matches, in which:  
130 unique CDR3  
7 unique J



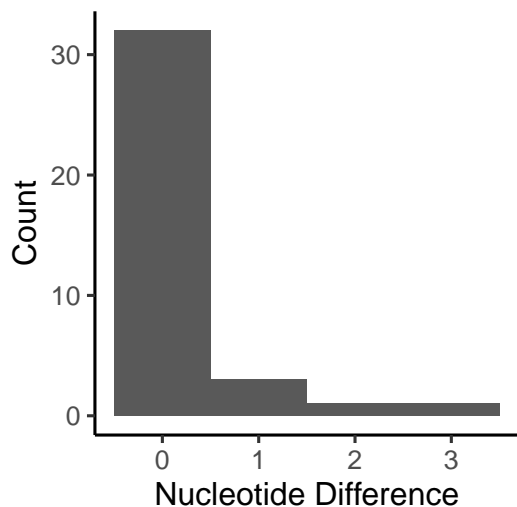
### IGHV3–15\*01

146 sequences assigned  
126 (86.3%) exact matches, in which:  
126 unique CDR3  
5 unique J



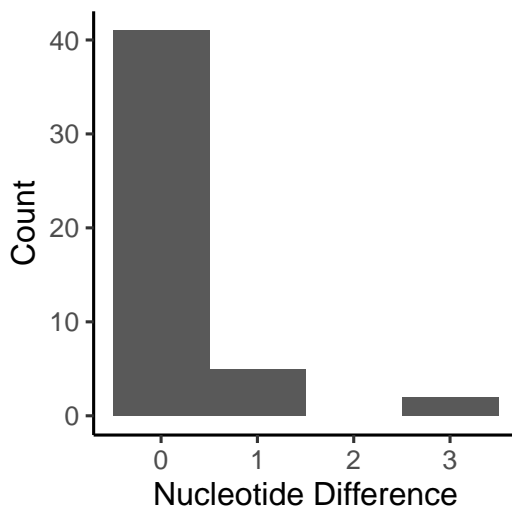
### IGHV2–26\*01

37 sequences assigned  
32 (86.5%) exact matches, in which:  
32 unique CDR3  
5 unique J



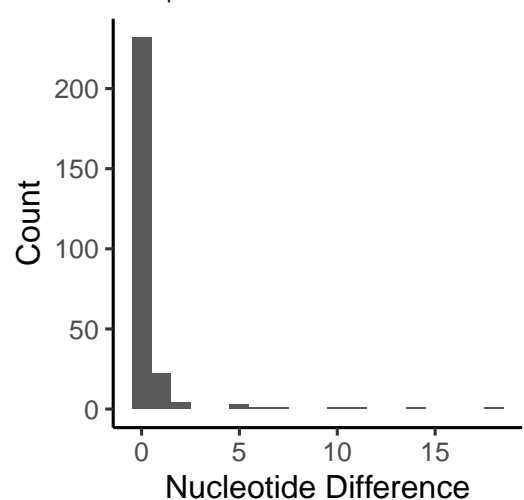
### IGHV3–11\*06

48 sequences assigned  
41 (85.4%) exact matches, in which:  
41 unique CDR3  
6 unique J



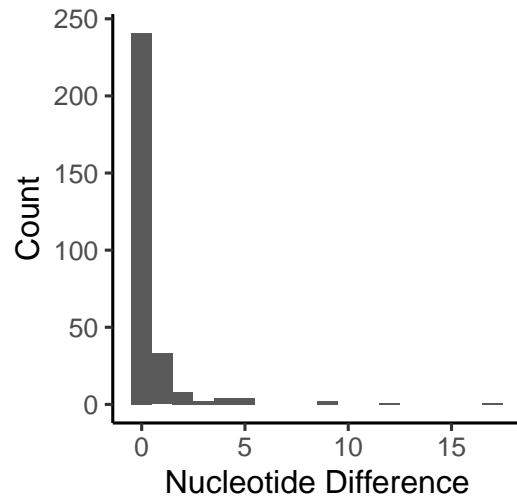
### IGHV3–21\*01

267 sequences assigned  
232 (86.9%) exact matches, in which:  
232 unique CDR3  
6 unique J



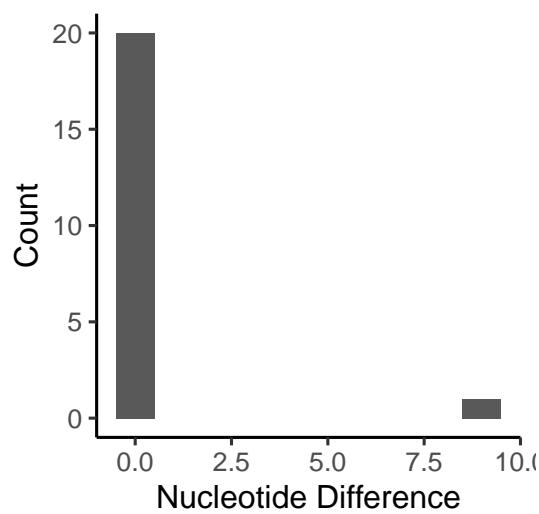
### IGHV3-33\*01

296 sequences assigned  
241 (81.4%) exact matches, in which:  
241 unique CDR3  
7 unique J



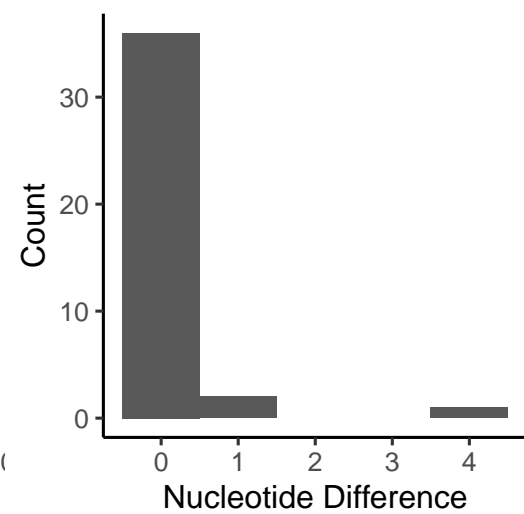
### IGHV3-43\*01

21 sequences assigned  
20 (95.2%) exact matches, in which:  
20 unique CDR3  
5 unique J



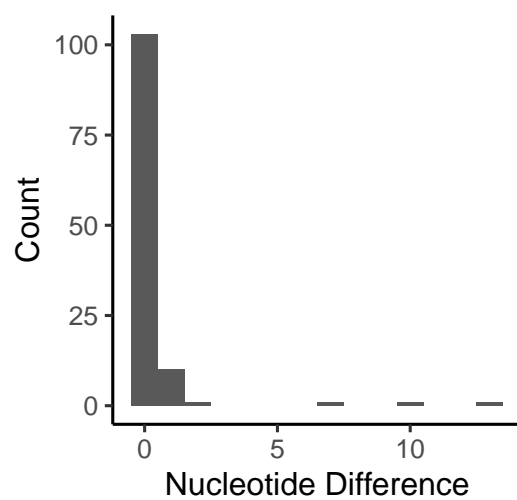
### IGHV3-49\*03

39 sequences assigned  
36 (92.3%) exact matches, in which:  
36 unique CDR3  
6 unique J



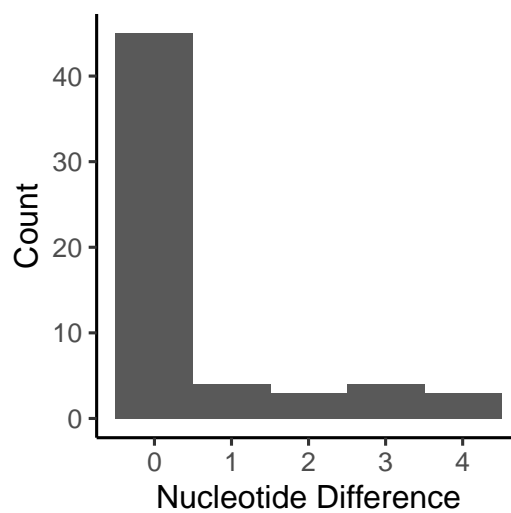
### IGHV3-33\*08

117 sequences assigned  
103 (88%) exact matches, in which:  
103 unique CDR3  
7 unique J



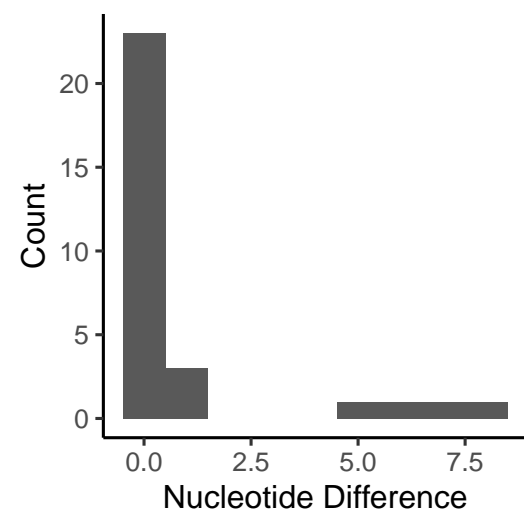
### IGHV3-48\*01

59 sequences assigned  
45 (76.3%) exact matches, in which:  
45 unique CDR3  
6 unique J



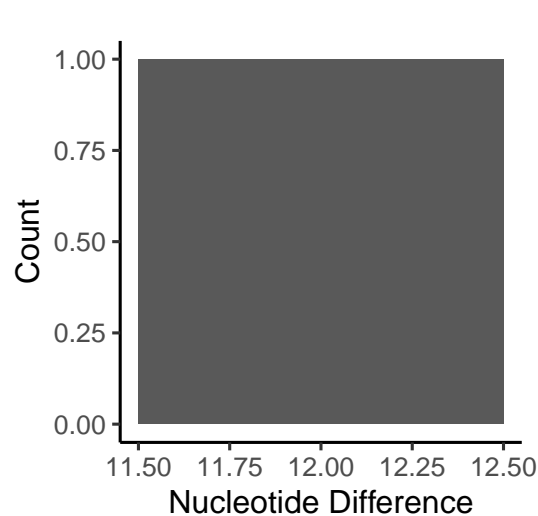
### IGHV3-49\*05

30 sequences assigned  
23 (76.7%) exact matches, in which:  
23 unique CDR3  
5 unique J



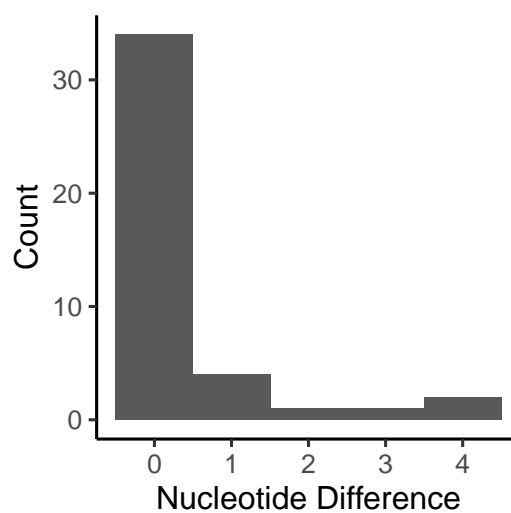
### IGHV3-38-3\*01

1 sequences assigned  
No exact matches.



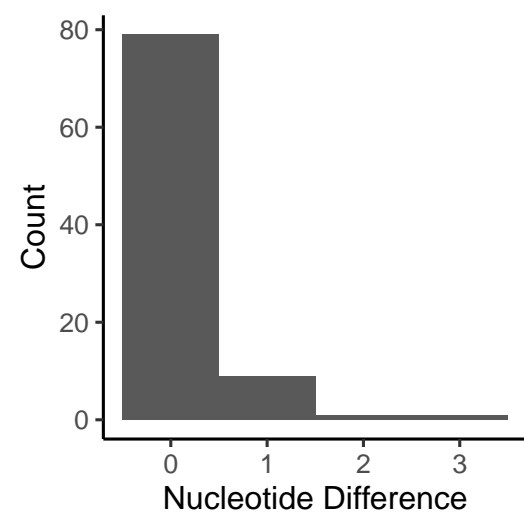
### IGHV3-48\*02

42 sequences assigned  
34 (81%) exact matches, in which:  
34 unique CDR3  
5 unique J



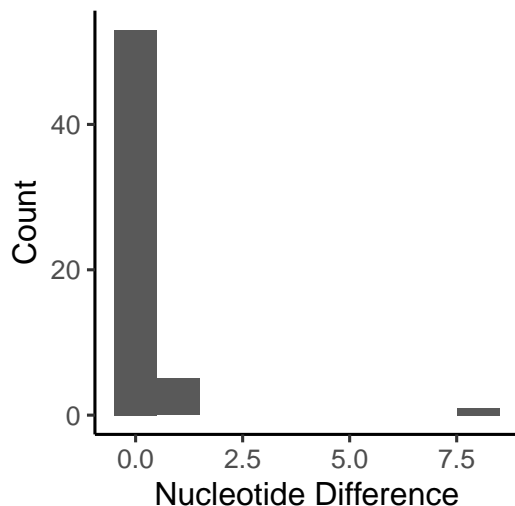
### IGHV3-53\*01

90 sequences assigned  
79 (87.8%) exact matches, in which:  
79 unique CDR3  
7 unique J



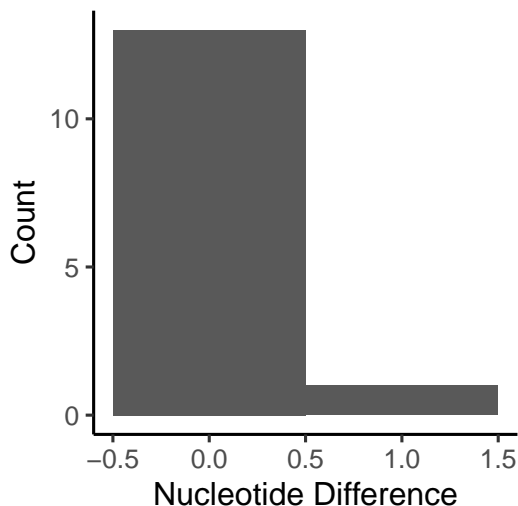
### IGHV3-53\*02

59 sequences assigned  
53 (89.8%) exact matches, in which:  
53 unique CDR3  
5 unique J



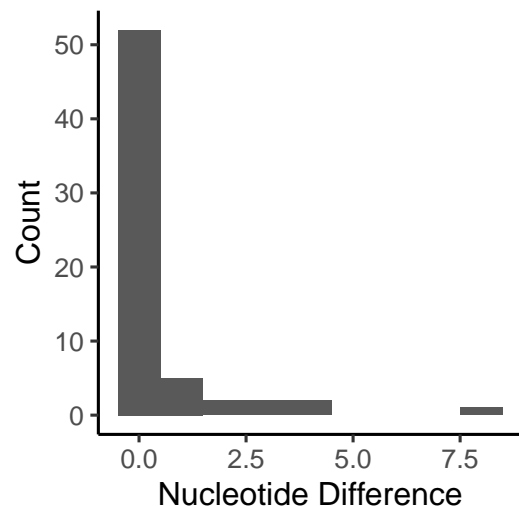
### IGHV3-73\*01

14 sequences assigned  
13 (92.9%) exact matches, in which:  
13 unique CDR3  
4 unique J



### IGHV3-64D\*06

64 sequences assigned  
52 (81.2%) exact matches, in which:  
52 unique CDR3  
7 unique J



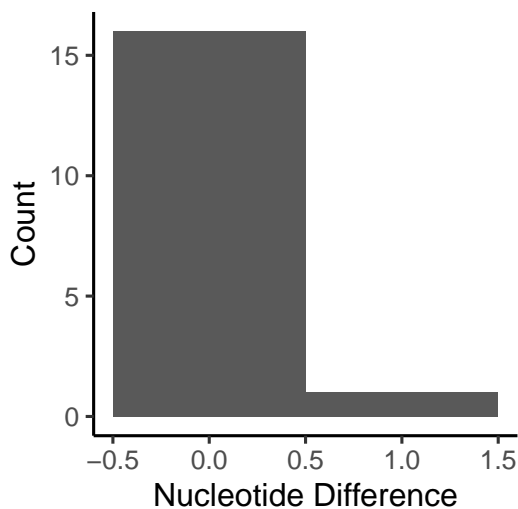
### IGHV3-64\*02

1 sequences assigned  
1 (100%) exact matches, in which:  
1 unique CDR3  
1 unique J



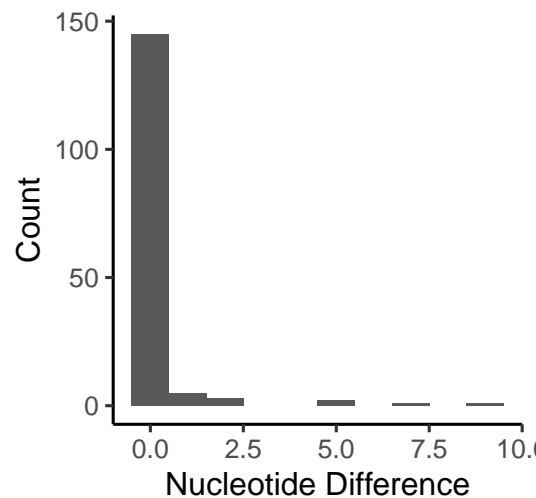
### IGHV3-73\*02

17 sequences assigned  
16 (94.1%) exact matches, in which:  
16 unique CDR3  
3 unique J



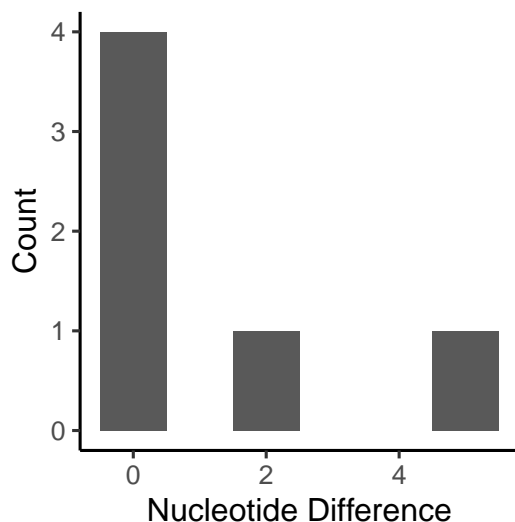
### IGHV4-4\*02

157 sequences assigned  
145 (92.4%) exact matches, in which:  
145 unique CDR3  
7 unique J



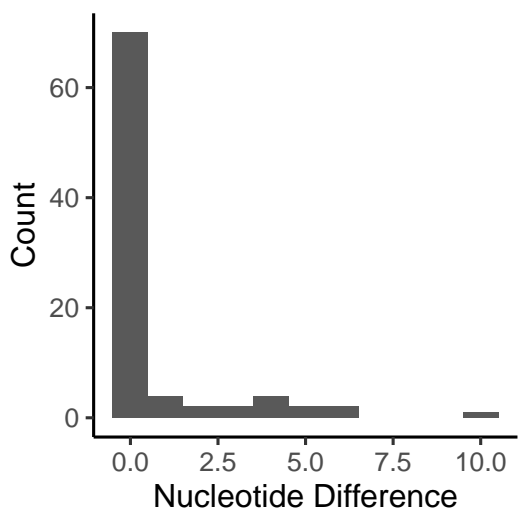
### IGHV3-72\*01

6 sequences assigned  
4 (66.7%) exact matches, in which:  
4 unique CDR3  
3 unique J



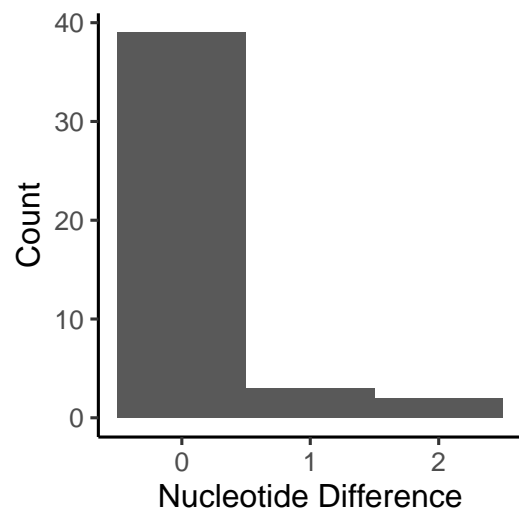
### IGHV3-74\*01

87 sequences assigned  
70 (80.5%) exact matches, in which:  
70 unique CDR3  
7 unique J



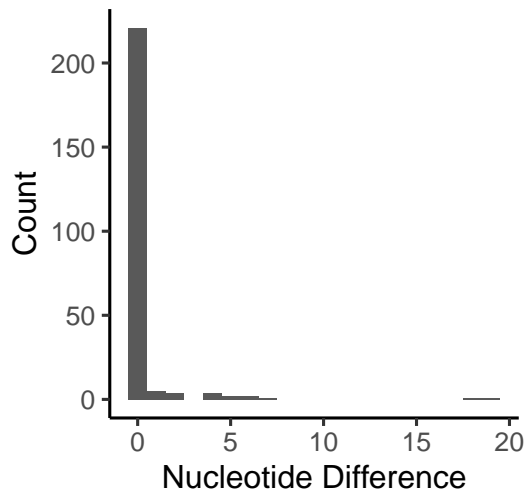
### IGHV4-30-2\*01

45 sequences assigned  
39 (86.7%) exact matches, in which:  
39 unique CDR3  
7 unique J



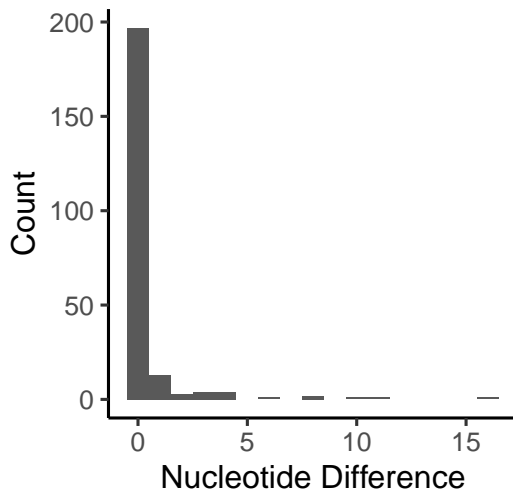
### IGHV4–31\*03

241 sequences assigned  
221 (91.7%) exact matches, in which:  
221 unique CDR3  
7 unique J



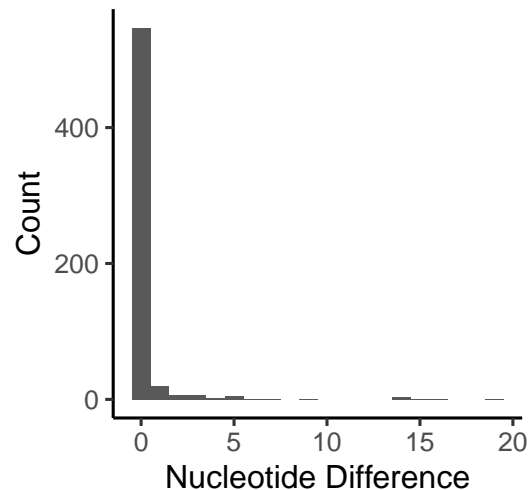
### IGHV4–59\*01

227 sequences assigned  
197 (86.8%) exact matches, in which:  
197 unique CDR3  
7 unique J



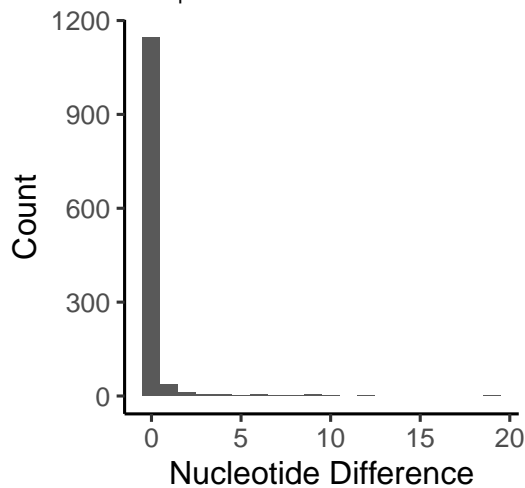
### IGHV5–51\*01

596 sequences assigned  
547 (91.8%) exact matches, in which:  
546 unique CDR3  
7 unique J



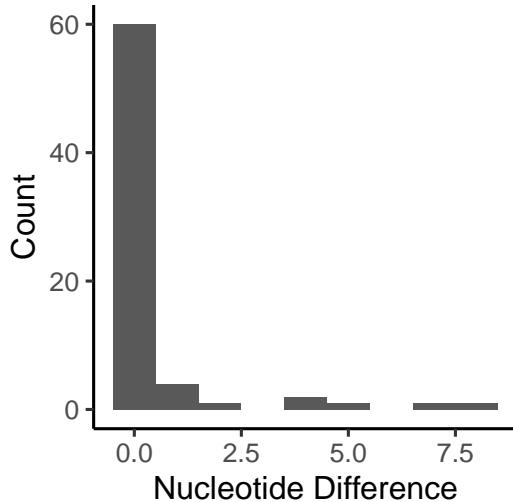
### IGHV4–34\*01

1220 sequences assigned  
1145 (93.9%) exact matches, in which:  
1145 unique CDR3  
7 unique J



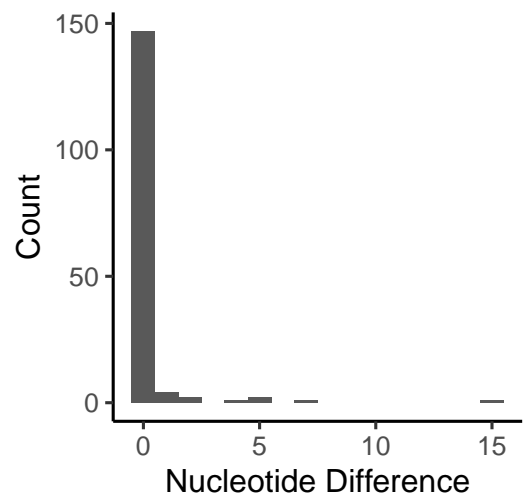
### IGHV4–61\*01

70 sequences assigned  
60 (85.7%) exact matches, in which:  
60 unique CDR3  
7 unique J



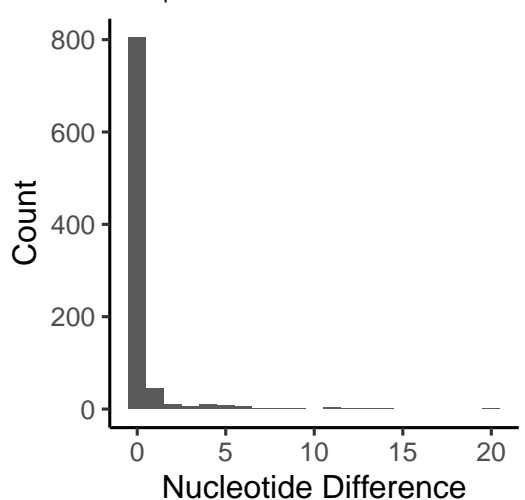
### IGHV6–1\*01

158 sequences assigned  
147 (93%) exact matches, in which:  
146 unique CDR3  
7 unique J



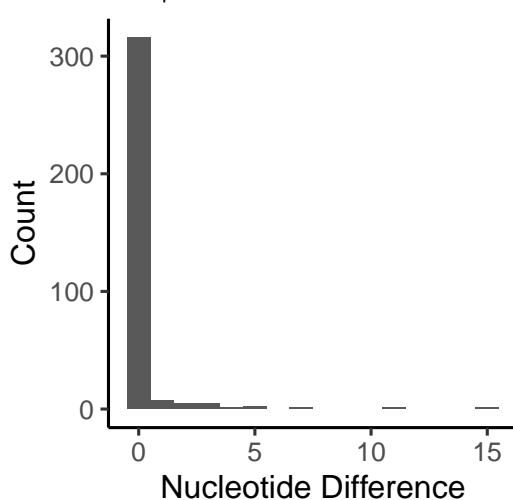
### IGHV4–39\*01

901 sequences assigned  
805 (89.3%) exact matches, in which:  
805 unique CDR3  
7 unique J



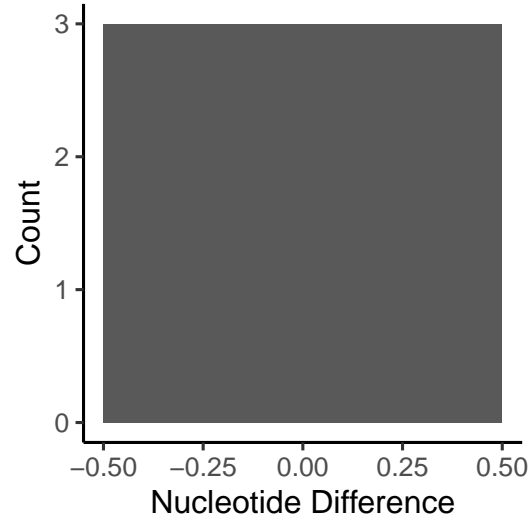
### IGHV5–10–1\*03

339 sequences assigned  
316 (93.2%) exact matches, in which:  
316 unique CDR3  
7 unique J

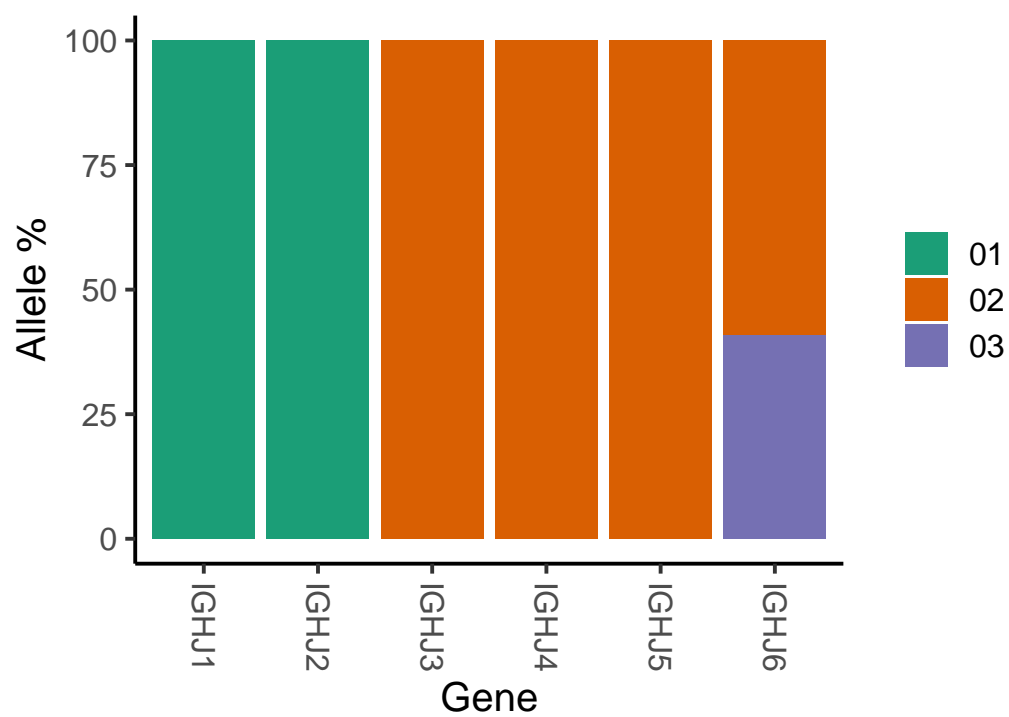


### IGHV7–4–1\*01

3 sequences assigned  
3 (100%) exact matches, in which:  
3 unique CDR3  
2 unique J



Allele Usage



Sequence Count by IGHJ6 allele usage



