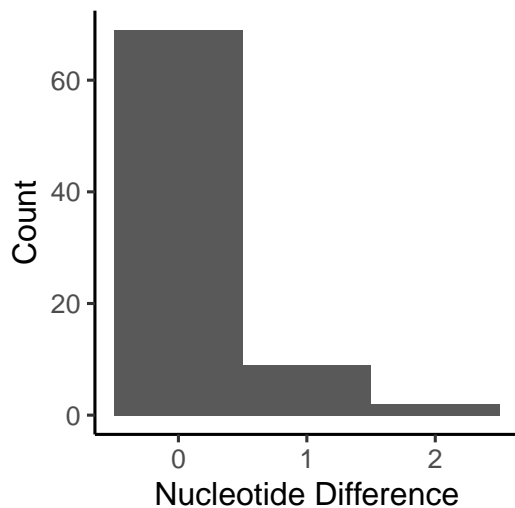


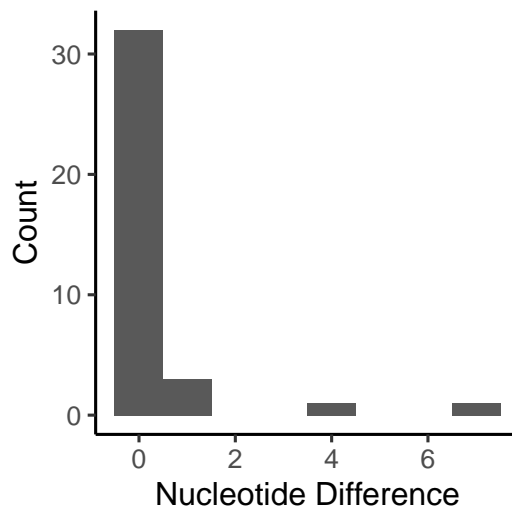
### IGHV1-2\*02

81 sequences assigned  
69 (85.2%) exact matches, in which:  
69 unique CDR3  
6 unique J



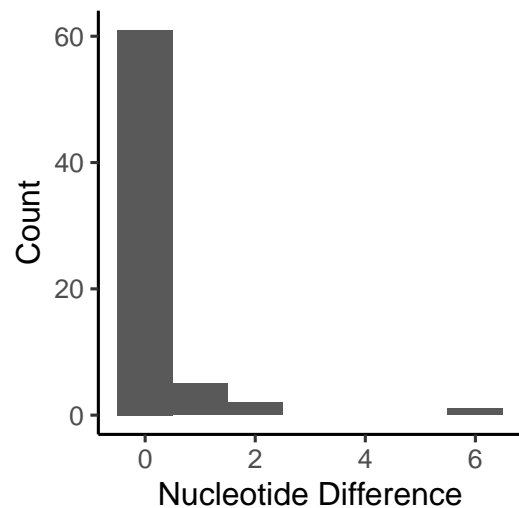
### IGHV1-8\*01

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



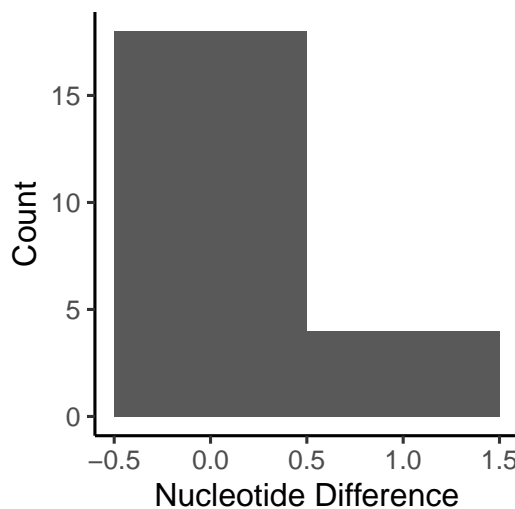
### IGHV1-24\*01

69 sequences assigned  
61 (88.4%) exact matches, in which:  
61 unique CDR3  
5 unique J



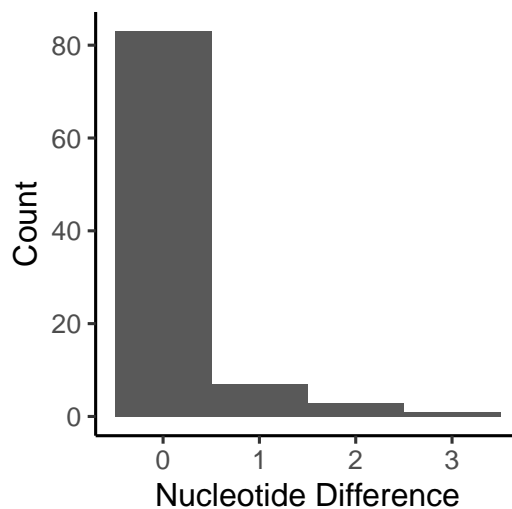
### IGHV1-2\*04

22 sequences assigned  
18 (81.8%) exact matches, in which:  
18 unique CDR3  
4 unique J



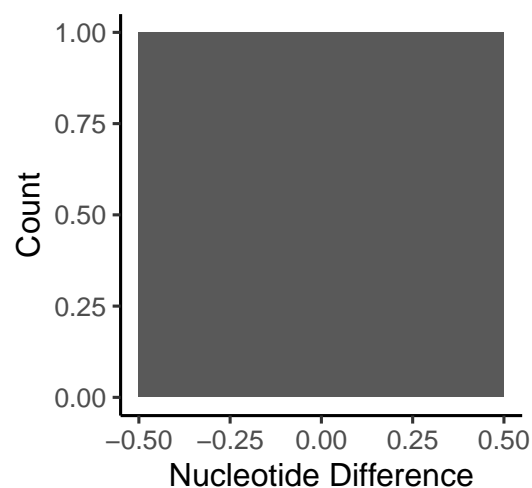
### IGHV1-18\*01

94 sequences assigned  
83 (88.3%) exact matches, in which:  
83 unique CDR3  
5 unique J



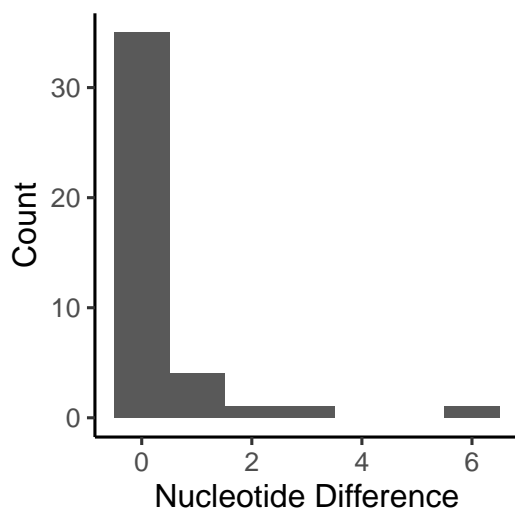
### IGHV1-45\*02

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



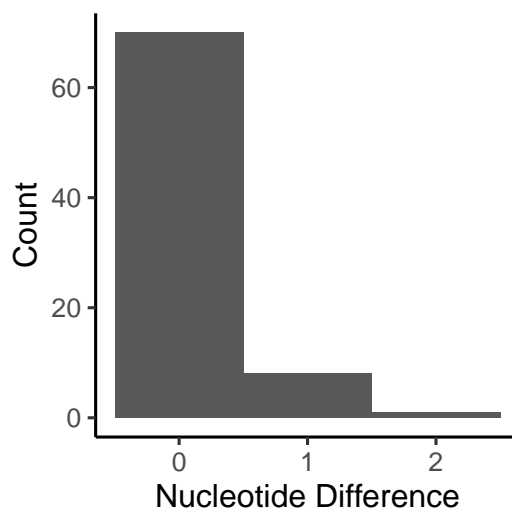
### IGHV1-3\*01

42 sequences assigned  
35 (83.3%) exact matches, in which:  
35 unique CDR3  
4 unique J



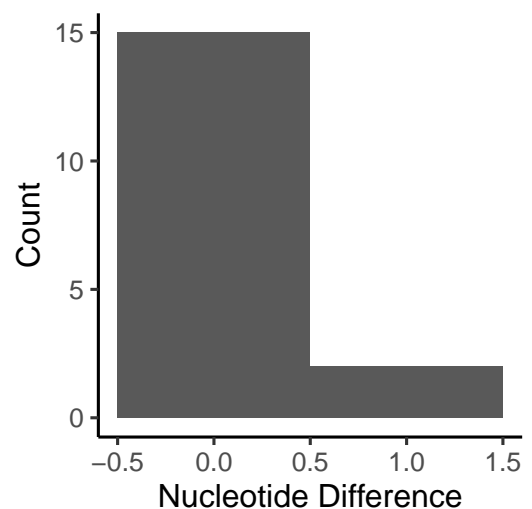
### IGHV1-18\*04

79 sequences assigned  
70 (88.6%) exact matches, in which:  
70 unique CDR3  
5 unique J



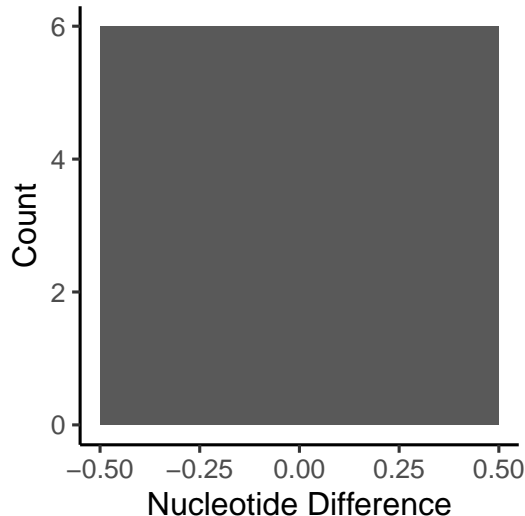
### IGHV1-46\*01

17 sequences assigned  
15 (88.2%) exact matches, in which:  
15 unique CDR3  
4 unique J



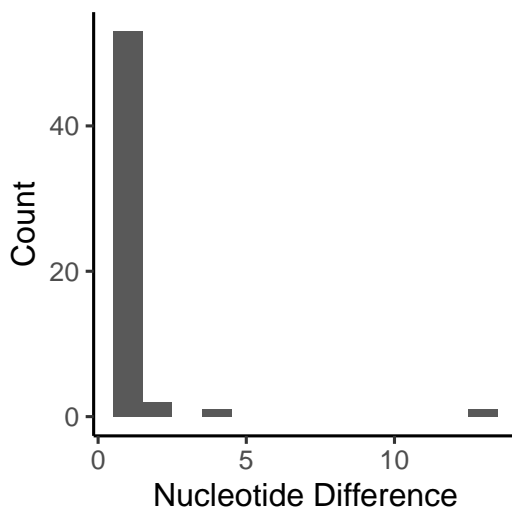
### IGHV1-58\*01

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



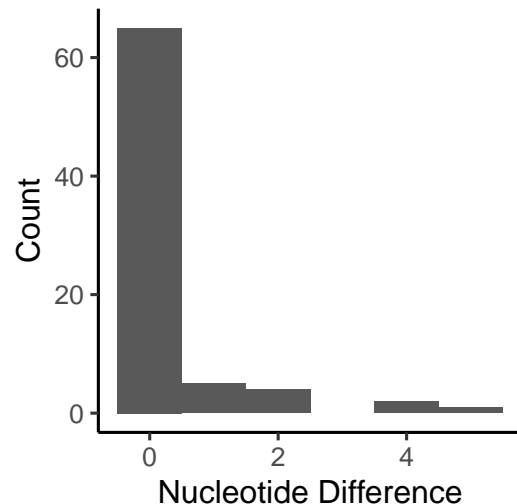
### IGHV1-69\*04

57 sequences assigned  
No exact matches.



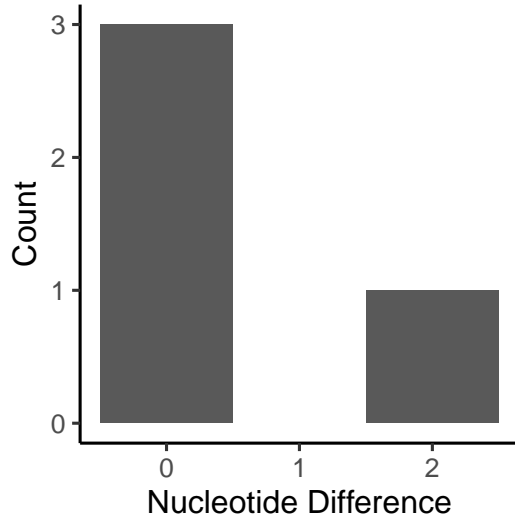
### IGHV2-5\*02

77 sequences assigned  
65 (84.4%) exact matches, in which:  
65 unique CDR3  
6 unique J



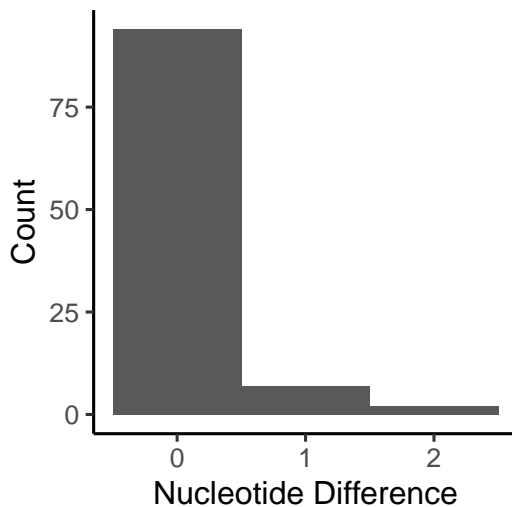
### IGHV1-58\*02

4 sequences assigned  
3 (75%) exact matches, in which:  
3 unique CDR3  
3 unique J



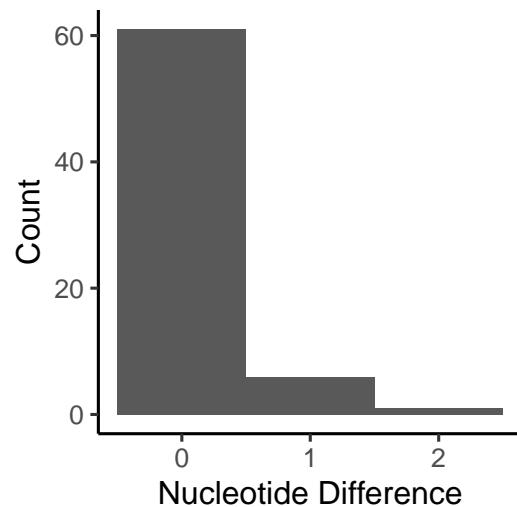
### IGHV1-69\*06

103 sequences assigned  
94 (91.3%) exact matches, in which:  
94 unique CDR3  
6 unique J



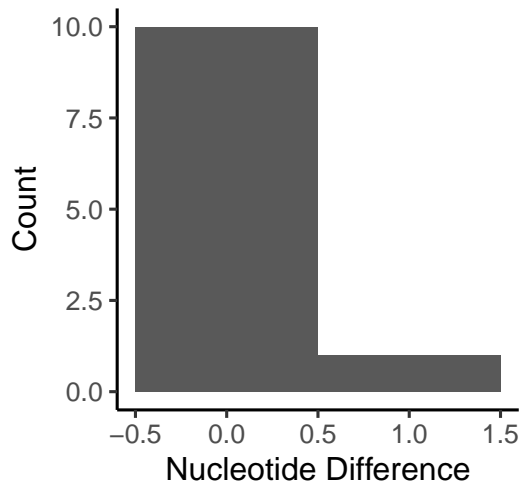
### IGHV2-26\*01

68 sequences assigned  
61 (89.7%) exact matches, in which:  
61 unique CDR3  
5 unique J



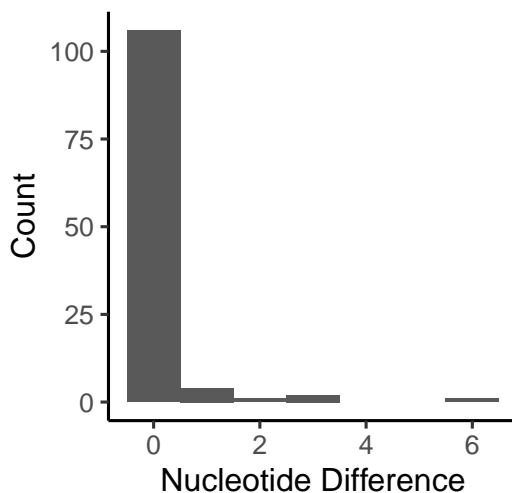
### IGHV1-69-2\*01

11 sequences assigned  
10 (90.9%) exact matches, in which:  
10 unique CDR3  
2 unique J



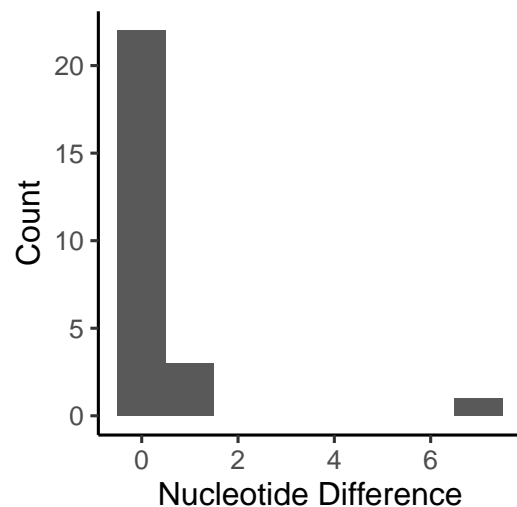
### IGHV2-5\*01

114 sequences assigned  
106 (93%) exact matches, in which:  
106 unique CDR3  
5 unique J



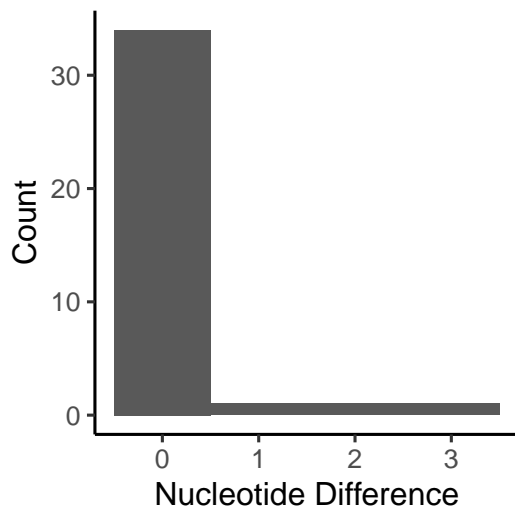
### IGHV2-70\*01

26 sequences assigned  
22 (84.6%) exact matches, in which:  
22 unique CDR3  
3 unique J



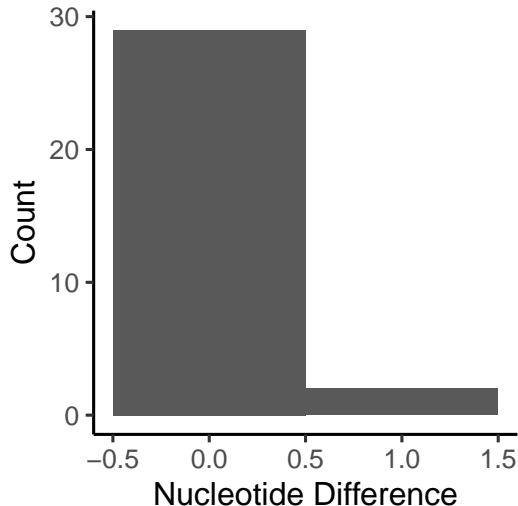
### IGHV2-70\*15

37 sequences assigned  
34 (91.9%) exact matches, in which:  
34 unique CDR3  
5 unique J



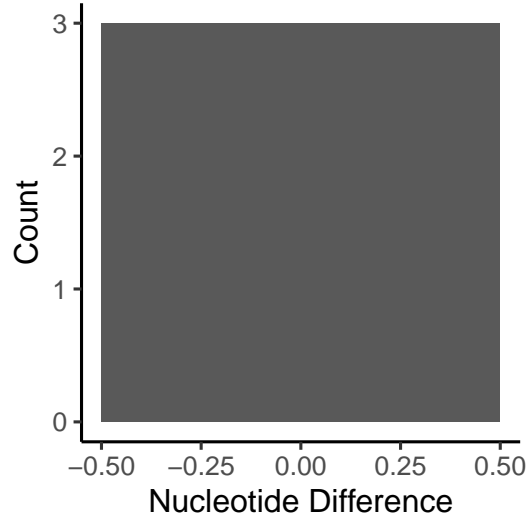
### IGHV3-9\*01

31 sequences assigned  
29 (93.5%) exact matches, in which:  
29 unique CDR3  
6 unique J



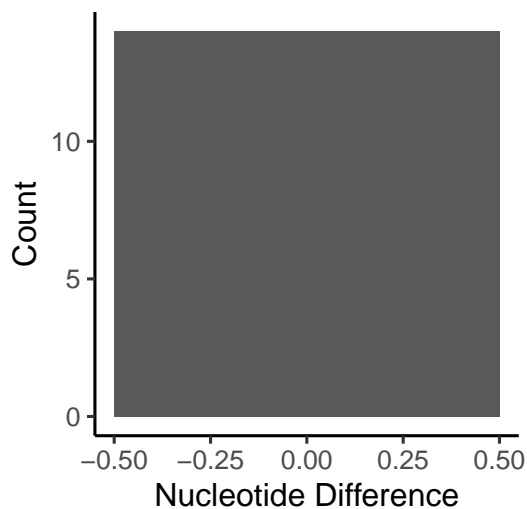
### IGHV3-13\*01

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



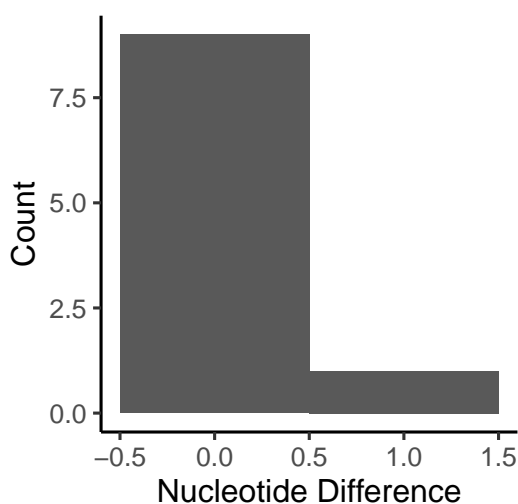
### IGHV3-7\*01

14 sequences assigned  
14 (100%) exact matches, in which:  
14 unique CDR3  
5 unique J



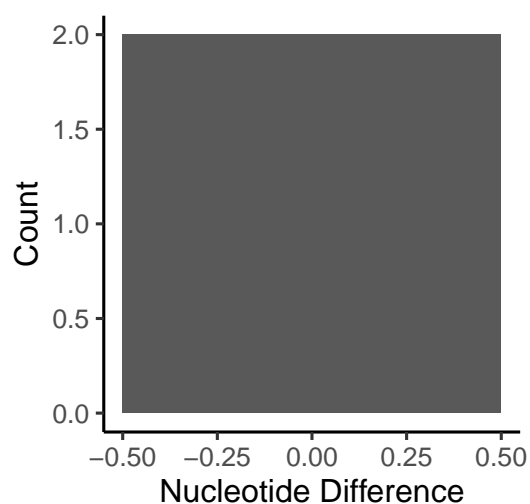
### IGHV3-11\*01

10 sequences assigned  
9 (90%) exact matches, in which:  
9 unique CDR3  
4 unique J



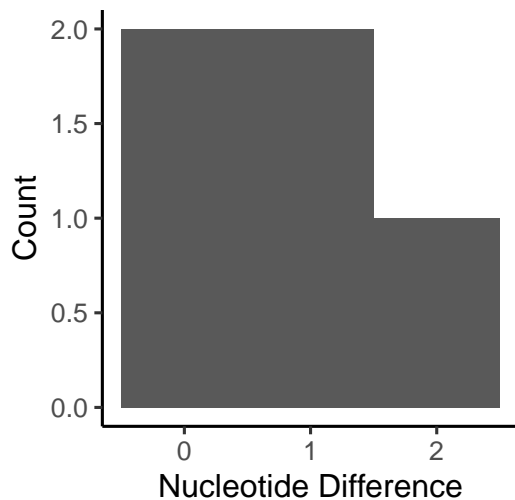
### IGHV3-13\*05

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



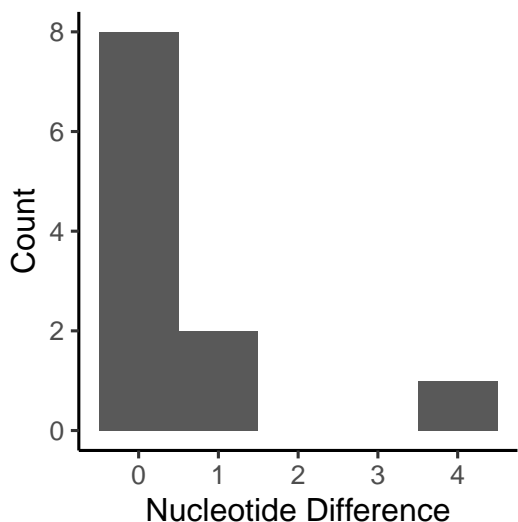
### IGHV3-7\*03

5 sequences assigned  
2 (40%) exact matches, in which:  
2 unique CDR3  
2 unique J



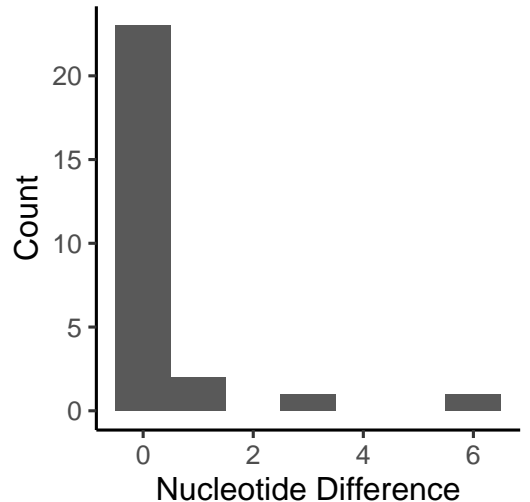
### IGHV3-11\*06

11 sequences assigned  
8 (72.7%) exact matches, in which:  
8 unique CDR3  
3 unique J



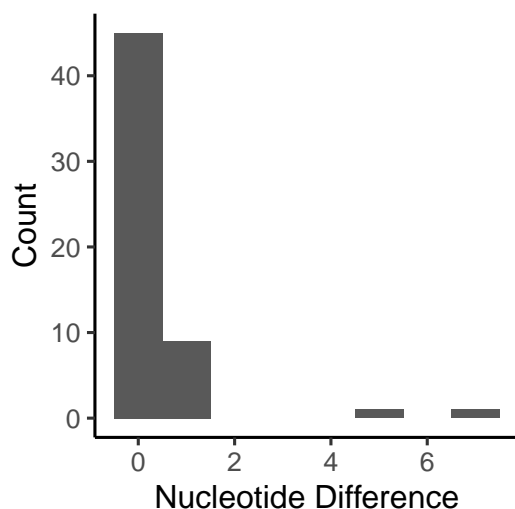
### IGHV3-15\*01

27 sequences assigned  
23 (85.2%) exact matches, in which:  
23 unique CDR3  
5 unique J



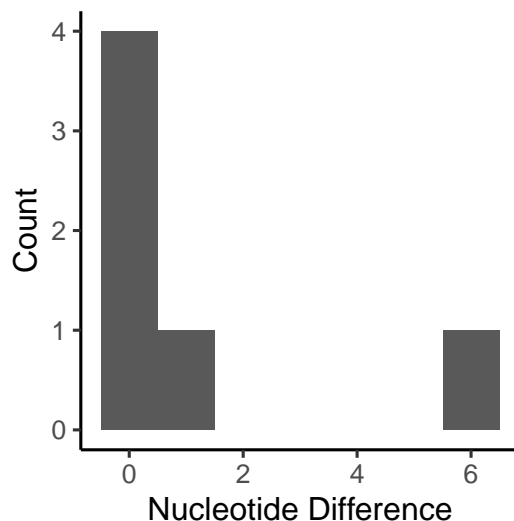
### IGHV3–21\*01

56 sequences assigned  
45 (80.4%) exact matches, in which:  
45 unique CDR3  
6 unique J



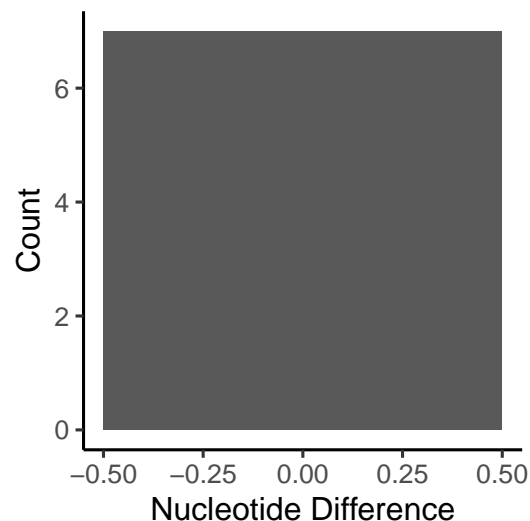
### IGHV3–43\*01

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



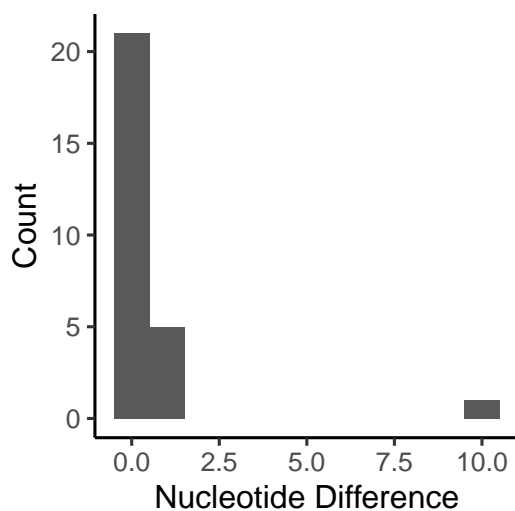
### IGHV3–49\*03

7 sequences assigned  
7 (100%) exact matches, in which:  
7 unique CDR3  
3 unique J



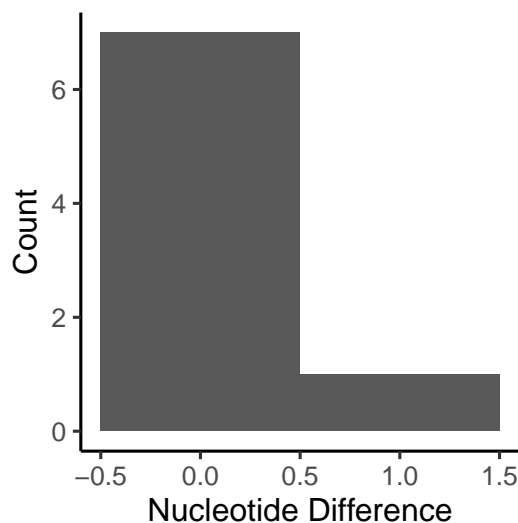
### IGHV3–30–3\*01

27 sequences assigned  
21 (77.8%) exact matches, in which:  
21 unique CDR3  
5 unique J



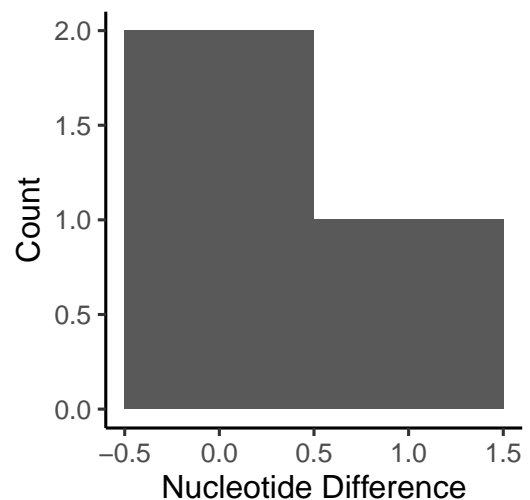
### IGHV3–48\*02

8 sequences assigned  
7 (87.5%) exact matches, in which:  
7 unique CDR3  
2 unique J



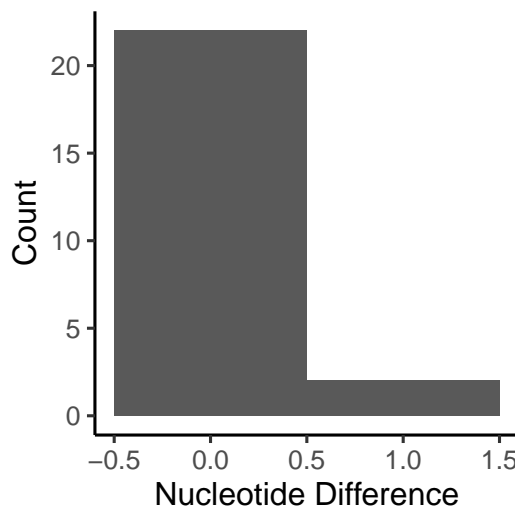
### IGHV3–49\*05

3 sequences assigned  
2 (66.7%) exact matches, in which:  
2 unique CDR3  
1 unique J



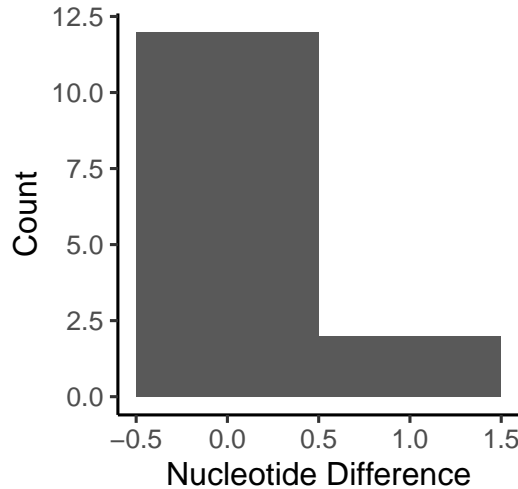
### IGHV3–33\*01

24 sequences assigned  
22 (91.7%) exact matches, in which:  
22 unique CDR3  
4 unique J



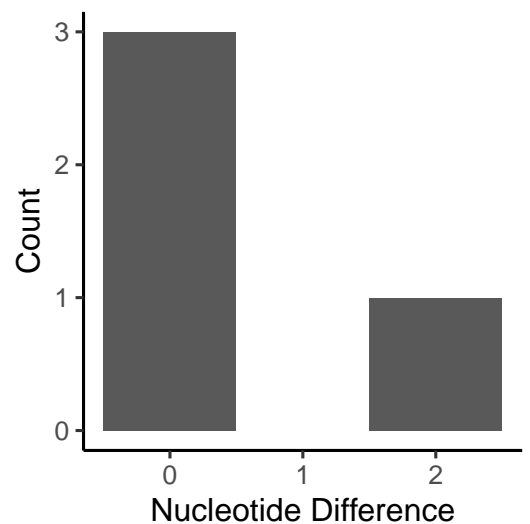
### IGHV3–48\*04

14 sequences assigned  
12 (85.7%) exact matches, in which:  
12 unique CDR3  
4 unique J



### IGHV3–53\*04

4 sequences assigned  
3 (75%) exact matches, in which:  
3 unique CDR3  
1 unique J



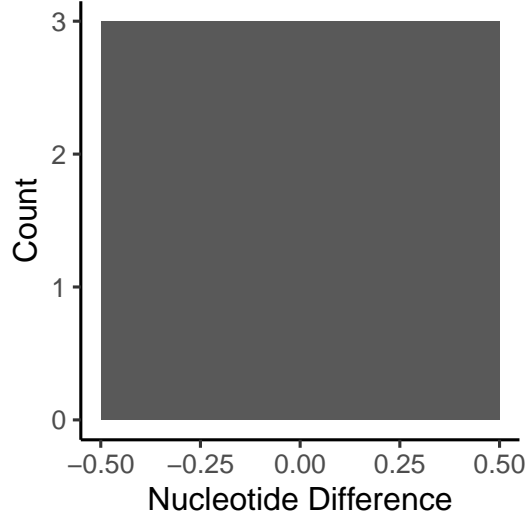
### IGHV3-64\*01

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



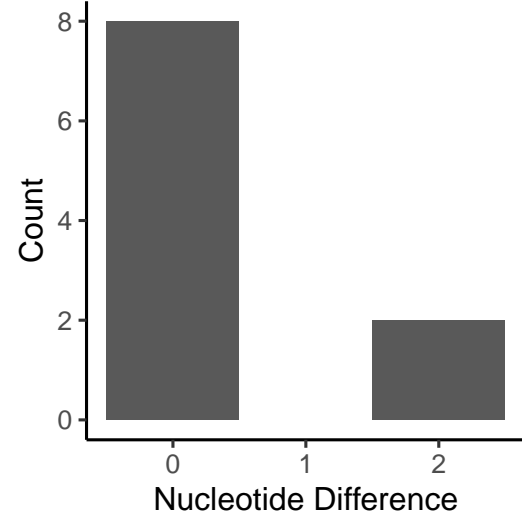
### IGHV3-73\*01

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



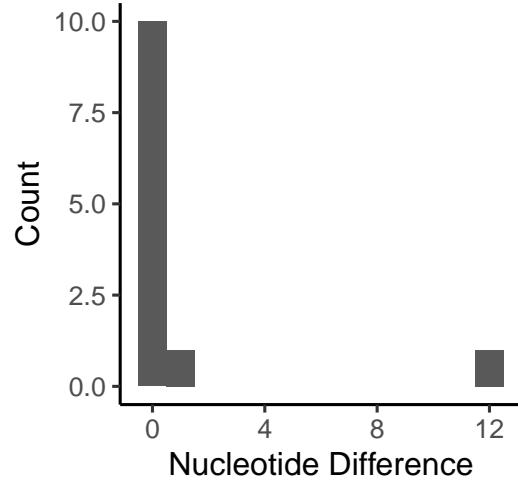
### IGHV3-64D\*06

10 sequences assigned  
8 (80%) exact matches, in which:  
7 unique CDR3  
3 unique J



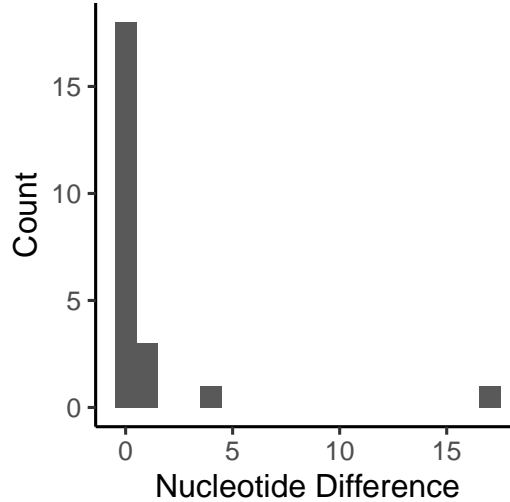
### IGHV3-66\*01

12 sequences assigned  
10 (83.3%) exact matches, in which:  
10 unique CDR3  
4 unique J



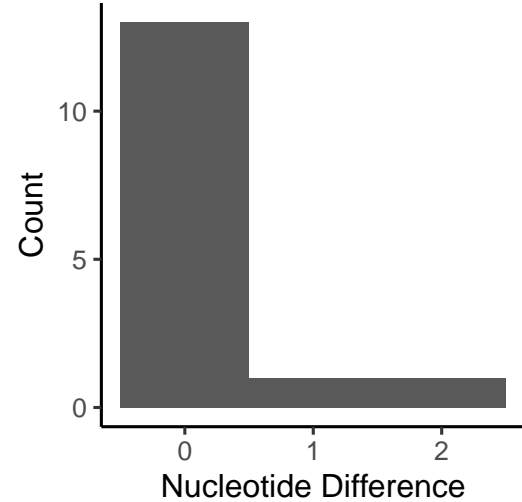
### IGHV3-74\*01

23 sequences assigned  
18 (78.3%) exact matches, in which:  
18 unique CDR3  
4 unique J



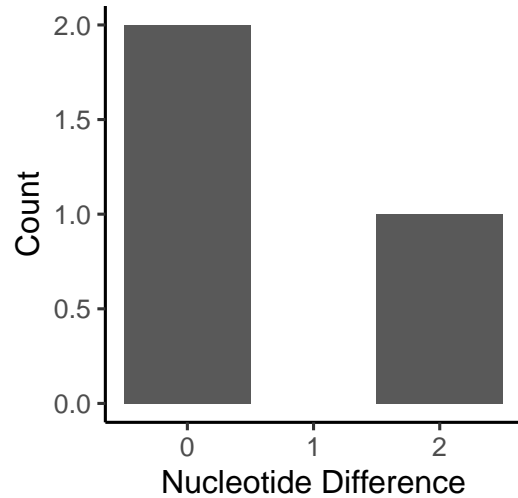
### IGHV4-4\*02

15 sequences assigned  
13 (86.7%) exact matches, in which:  
13 unique CDR3  
4 unique J



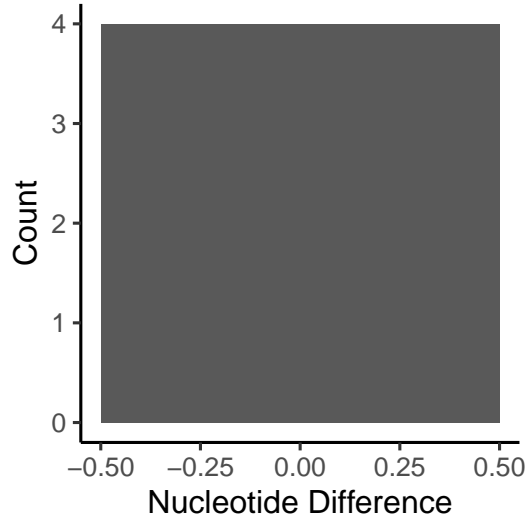
### IGHV3-72\*01

3 sequences assigned  
2 (66.7%) exact matches, in which:  
2 unique CDR3  
2 unique J



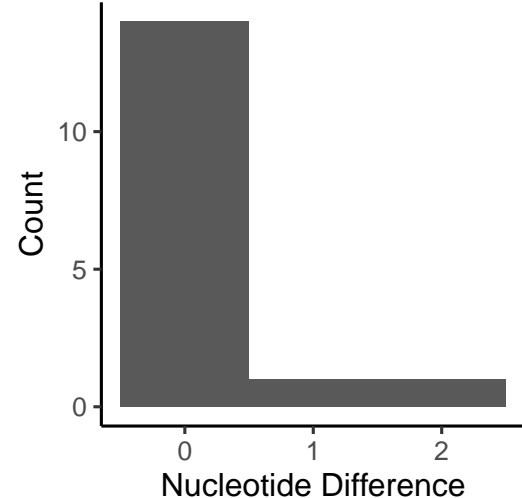
### IGHV3-43D\*03

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



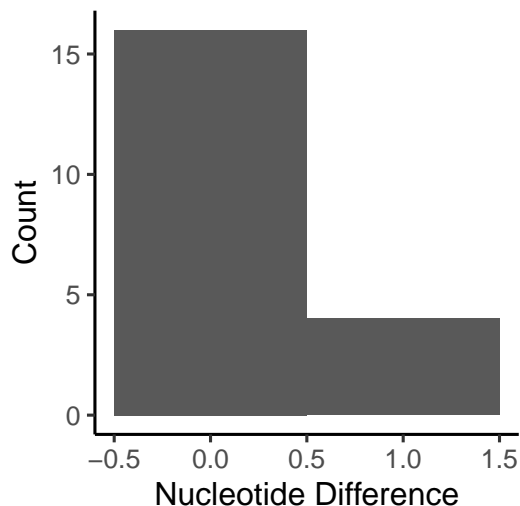
### IGHV4-4\*07

16 sequences assigned  
14 (87.5%) exact matches, in which:  
14 unique CDR3  
4 unique J



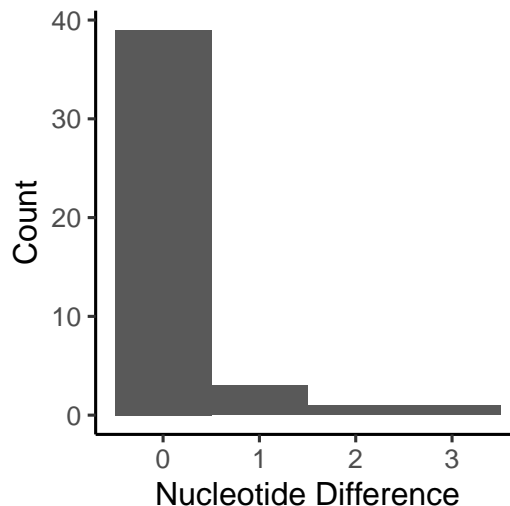
### IGHV4-30-2\*01

20 sequences assigned  
16 (80%) exact matches, in which:  
16 unique CDR3  
4 unique J



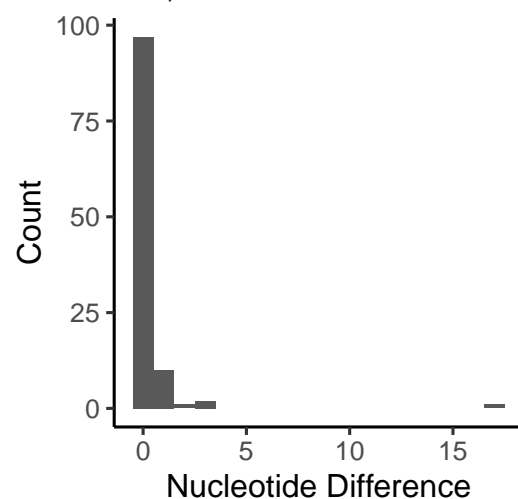
### IGHV4-31\*03

44 sequences assigned  
39 (88.6%) exact matches, in which:  
39 unique CDR3  
5 unique J



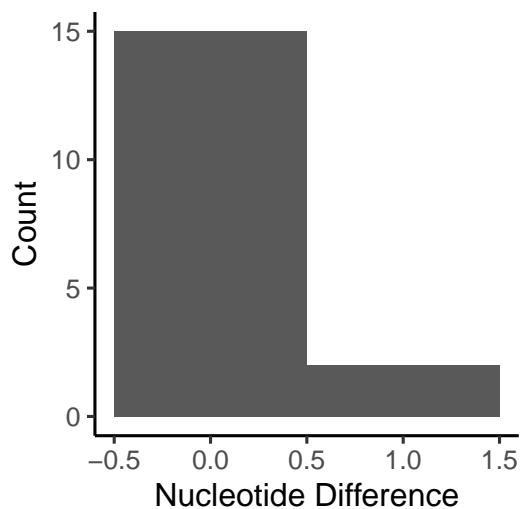
### IGHV4-39\*01

111 sequences assigned  
97 (87.4%) exact matches, in which:  
97 unique CDR3  
6 unique J



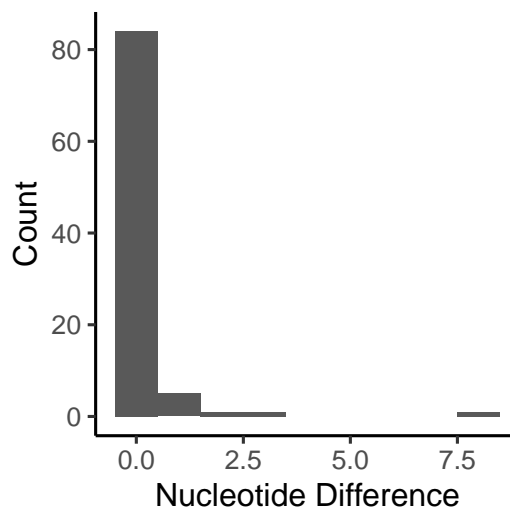
### IGHV4-30-4\*01

17 sequences assigned  
15 (88.2%) exact matches, in which:  
15 unique CDR3  
4 unique J



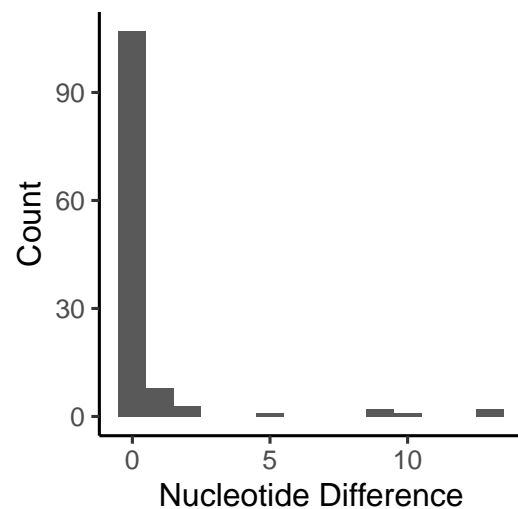
### IGHV4-34\*01

92 sequences assigned  
84 (91.3%) exact matches, in which:  
84 unique CDR3  
6 unique J



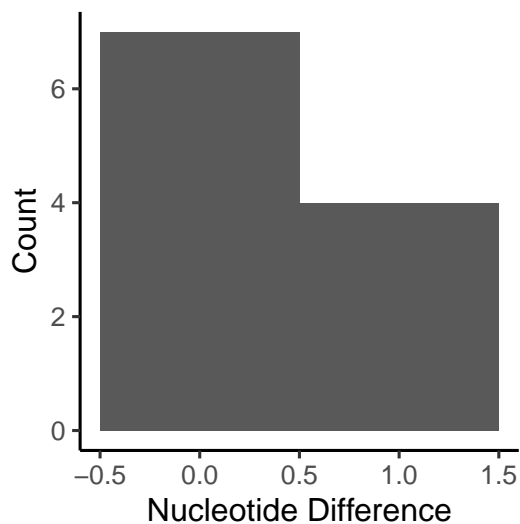
### IGHV4-39\*07

124 sequences assigned  
107 (86.3%) exact matches, in which:  
107 unique CDR3  
5 unique J



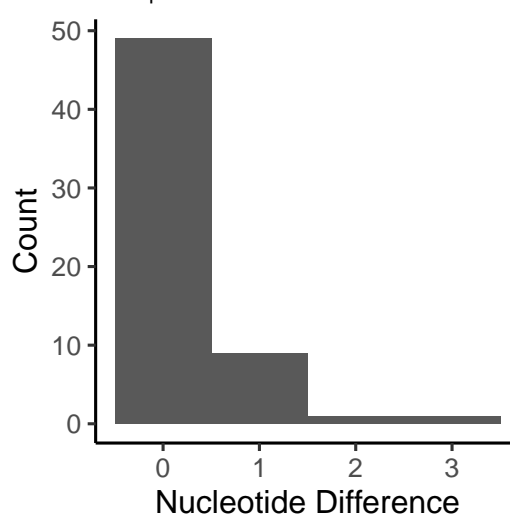
### IGHV4-30-4\*07

11 sequences assigned  
7 (63.6%) exact matches, in which:  
7 unique CDR3  
4 unique J



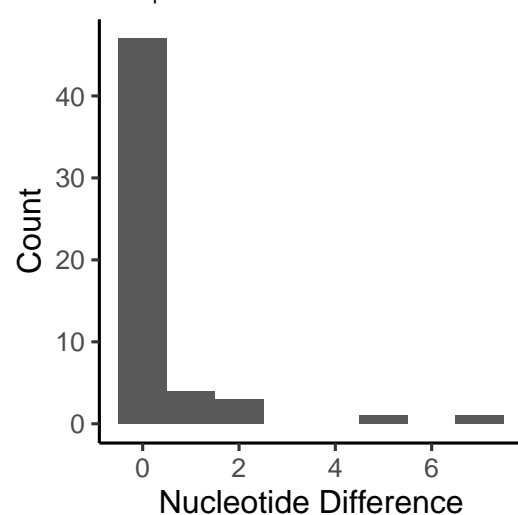
### IGHV4-38-2\*02

60 sequences assigned  
49 (81.7%) exact matches, in which:  
49 unique CDR3  
4 unique J



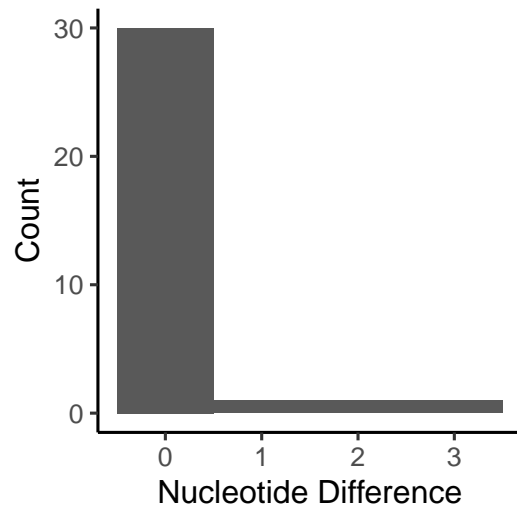
### IGHV4-59\*01

56 sequences assigned  
47 (83.9%) exact matches, in which:  
47 unique CDR3  
5 unique J



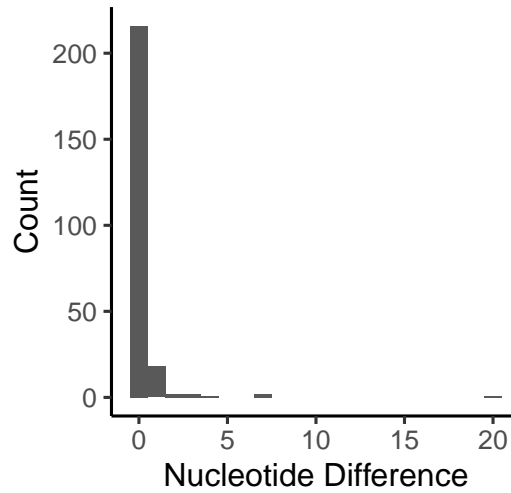
## IGHV4-59\*08

33 sequences assigned  
30 (90.9%) exact matches, in which:  
30 unique CDR3  
5 unique J



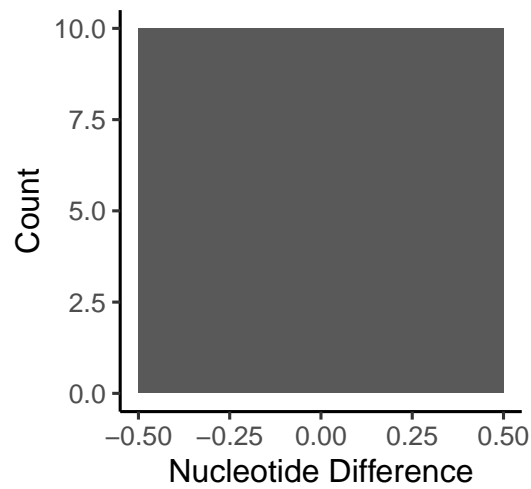
## IGHV5-51\*01

242 sequences assigned  
216 (89.3%) exact matches, in which:  
216 unique CDR3  
6 unique J



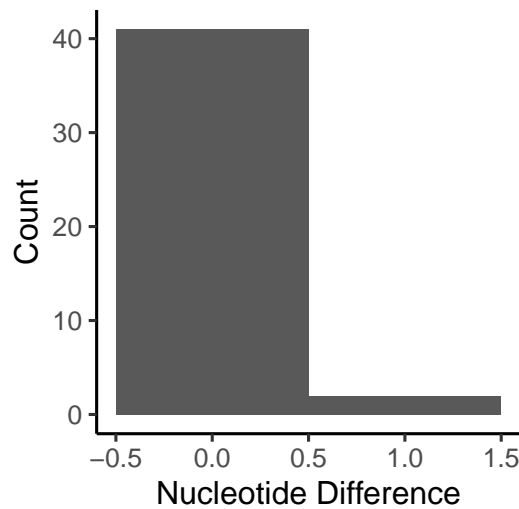
## IGHV4-61\*01

10 sequences assigned  
10 (100%) exact matches, in which:  
10 unique CDR3  
3 unique J



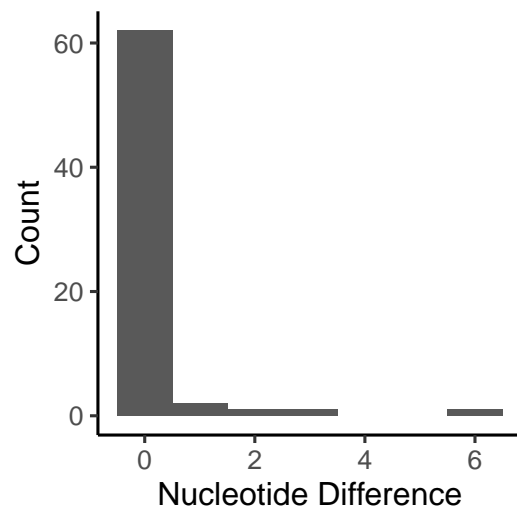
## IGHV6-1\*01

43 sequences assigned  
41 (95.3%) exact matches, in which:  
41 unique CDR3  
4 unique J



## IGHV5-10-1\*03

67 sequences assigned  
62 (92.5%) exact matches, in which:  
62 unique CDR3  
6 unique J







[illegible]