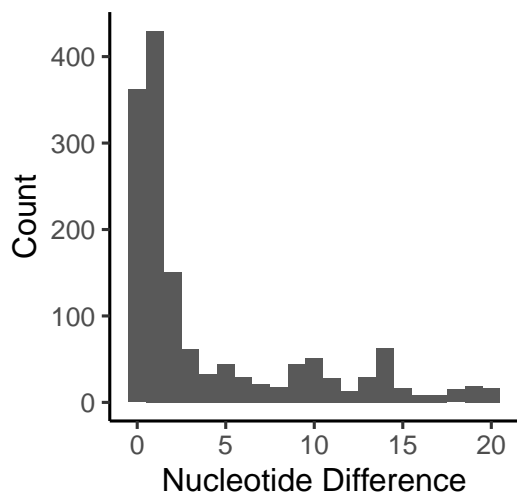


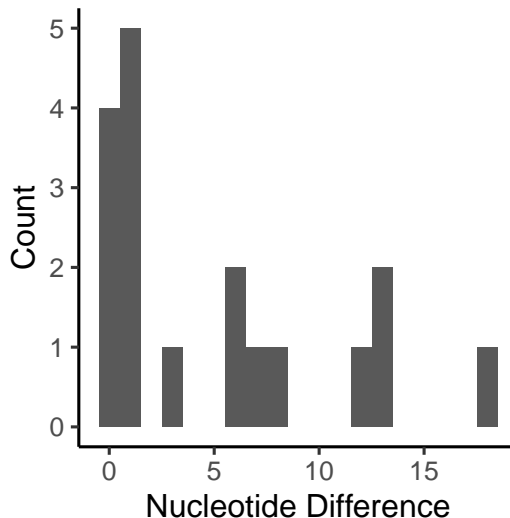
### IGHV1-2\*04

1539 sequences assigned  
362 (23.5%) exact matches, in which:  
289 unique CDR3  
6 unique J



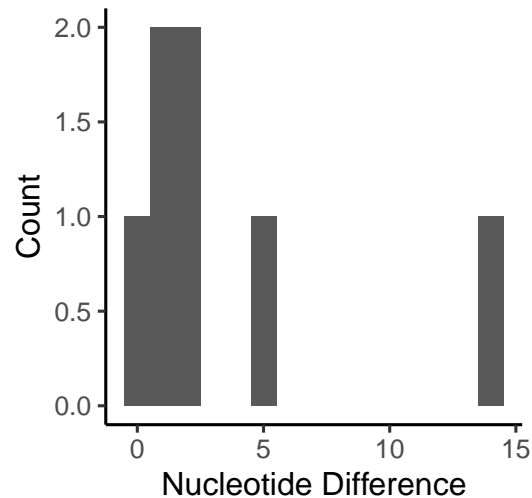
### IGHV1-8\*01

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



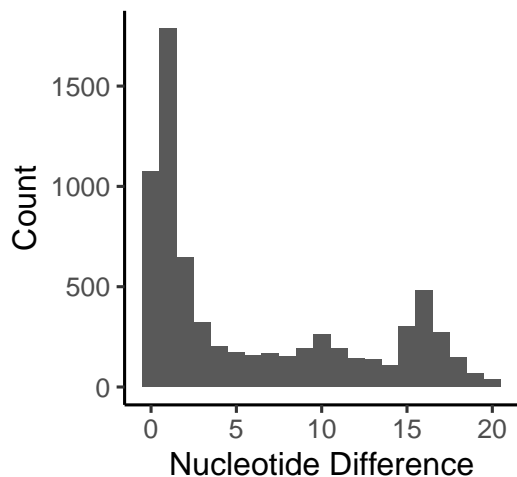
### IGHV1-45\*02

10 sequences assigned  
1 (10%) exact matches, in which:  
1 unique CDR3  
1 unique J



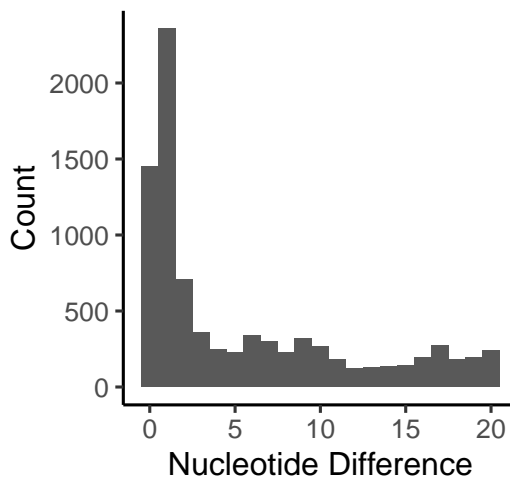
### IGHV1-2\*06

8323 sequences assigned  
1075 (12.9%) exact matches, in which:  
800 unique CDR3  
6 unique J



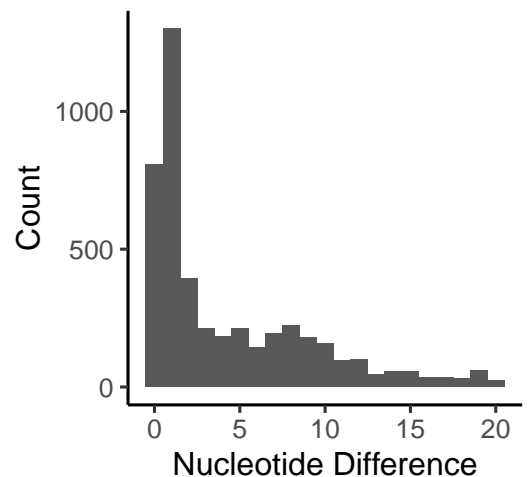
### IGHV1-18\*01

10517 sequences assigned  
1453 (13.8%) exact matches, in which:  
1114 unique CDR3  
6 unique J



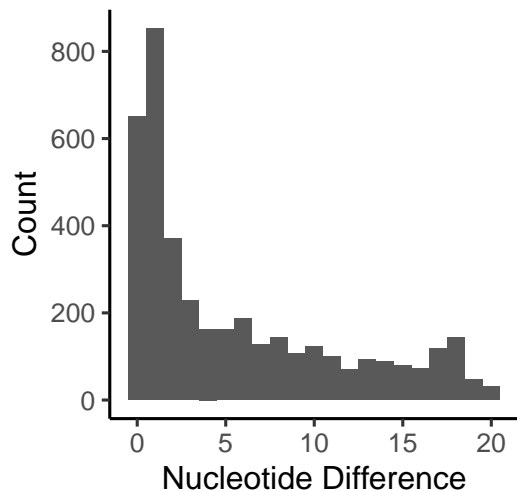
### IGHV1-46\*01

4803 sequences assigned  
809 (16.8%) exact matches, in which:  
604 unique CDR3  
6 unique J



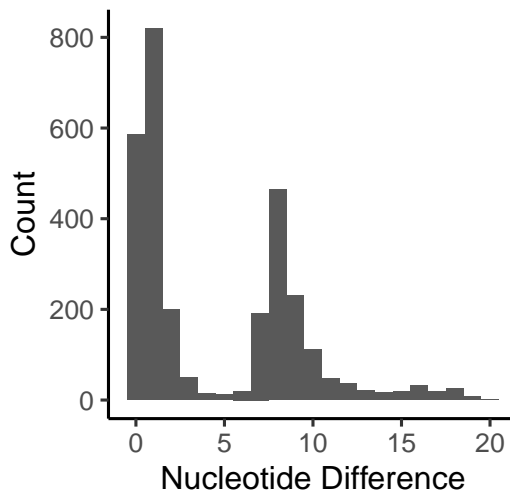
### IGHV1-3\*01\_05

5216 sequences assigned  
650 (12.5%) exact matches, in which:  
517 unique CDR3  
6 unique J



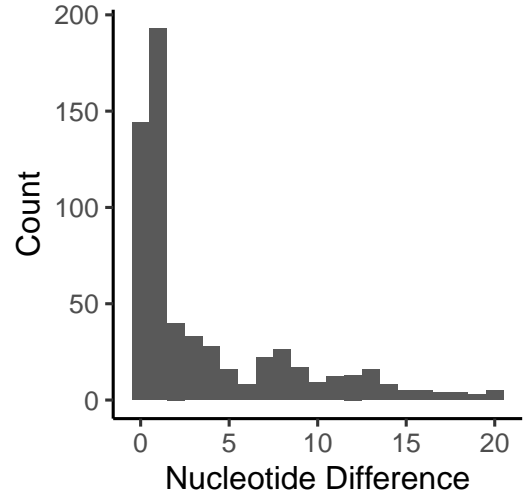
### IGHV1-24\*01

3073 sequences assigned  
585 (19%) exact matches, in which:  
436 unique CDR3  
6 unique J



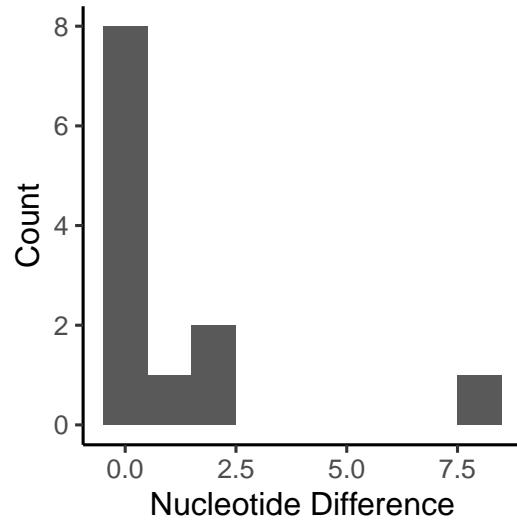
### IGHV1-58\*01\_03

633 sequences assigned  
144 (22.7%) exact matches, in which:  
111 unique CDR3  
6 unique J



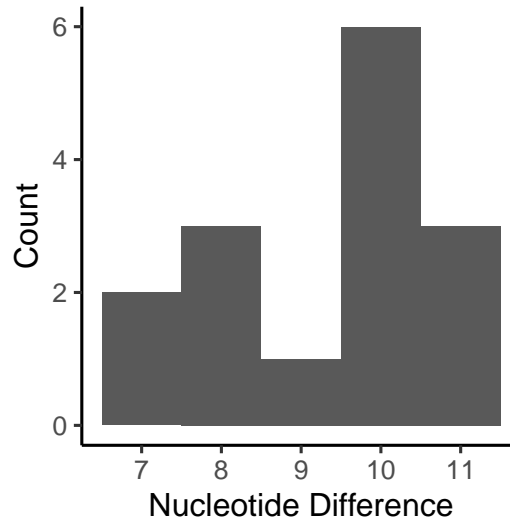
### IGHV1-69-2\*01

19 sequences assigned  
8 (42.1%) exact matches, in which:  
7 unique CDR3  
3 unique J



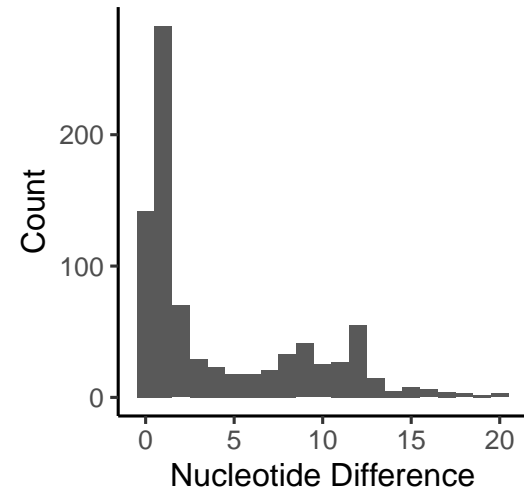
### IGHV1-NL1\*01

15 sequences assigned  
No exact matches.



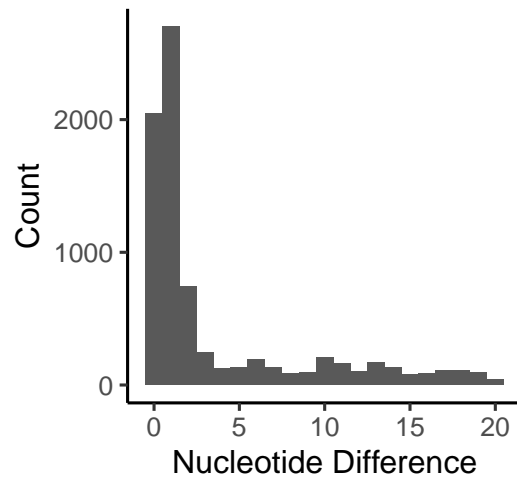
### IGHV2-70\*01

918 sequences assigned  
142 (15.5%) exact matches, in which:  
87 unique CDR3  
4 unique J



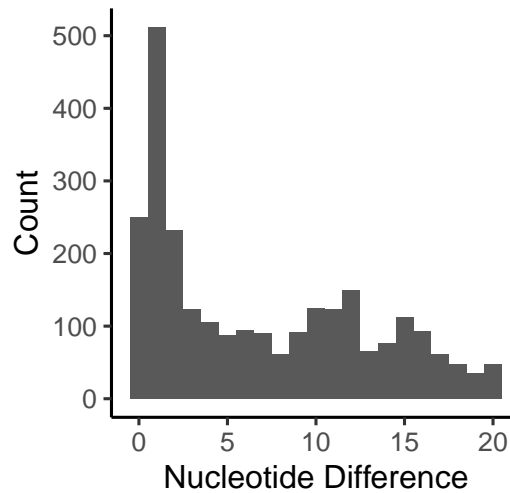
### IGHV1-69\*01\_12\_13

8371 sequences assigned  
2043 (24.4%) exact matches, in which:  
1629 unique CDR3  
6 unique J



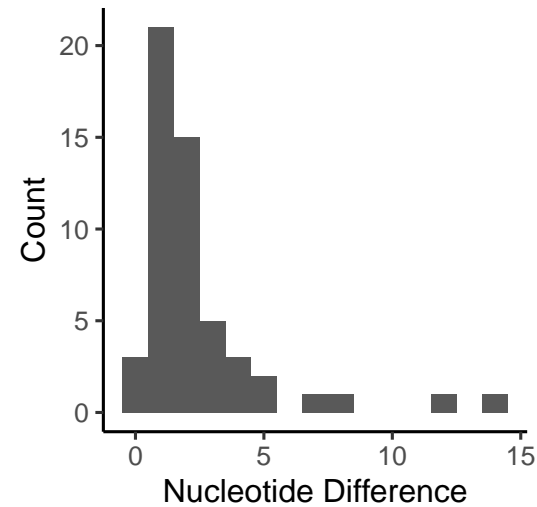
### IGHV2-5\*02

3304 sequences assigned  
250 (7.6%) exact matches, in which:  
184 unique CDR3  
5 unique J



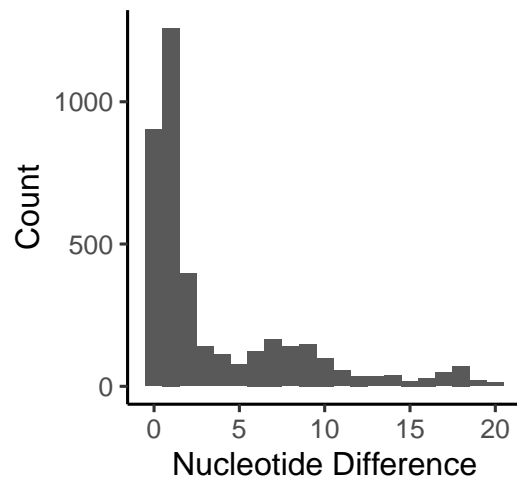
### IGHV2-70\*12

56 sequences assigned  
3 (5.4%) exact matches, in which:  
2 unique CDR3  
2 unique J



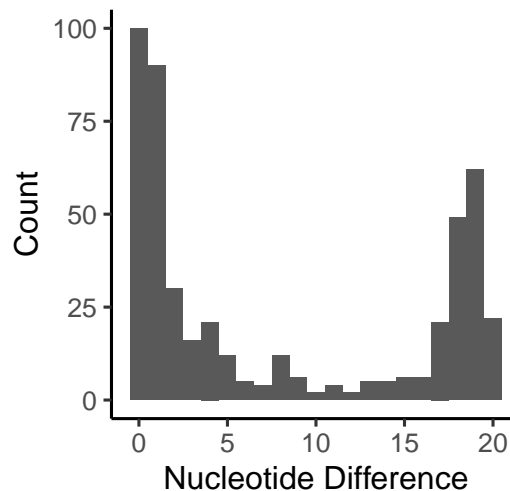
### IGHV1-69\*06\_14

4166 sequences assigned  
903 (21.7%) exact matches, in which:  
728 unique CDR3  
6 unique J



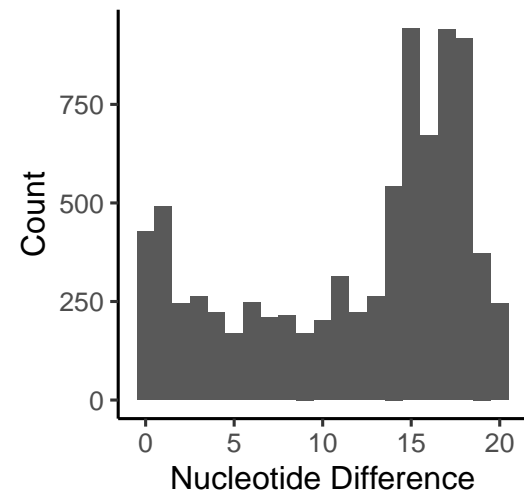
### IGHV2-26\*01

506 sequences assigned  
100 (19.8%) exact matches, in which:  
83 unique CDR3  
5 unique J



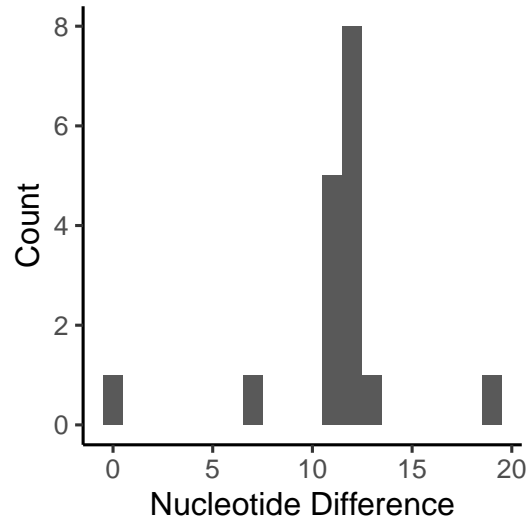
### IGHV3-7\*04

9756 sequences assigned  
427 (4.4%) exact matches, in which:  
289 unique CDR3  
6 unique J



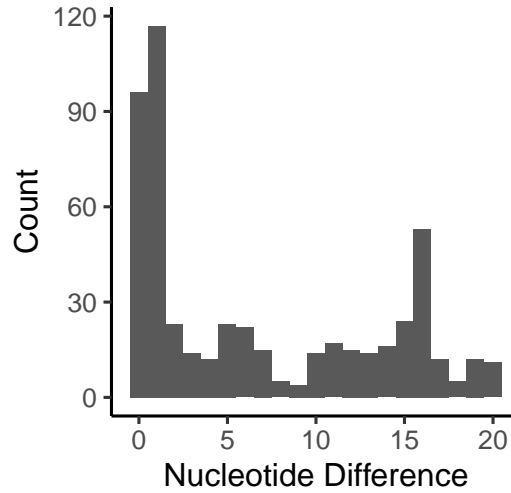
### IGHV3-9\*01

17 sequences assigned  
1 (5.9%) exact matches, in which:  
1 unique CDR3  
1 unique J



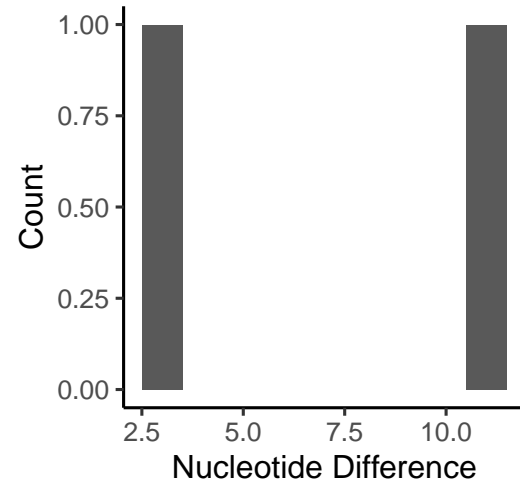
### IGHV3-13\*04

766 sequences assigned  
96 (12.5%) exact matches, in which:  
61 unique CDR3  
5 unique J



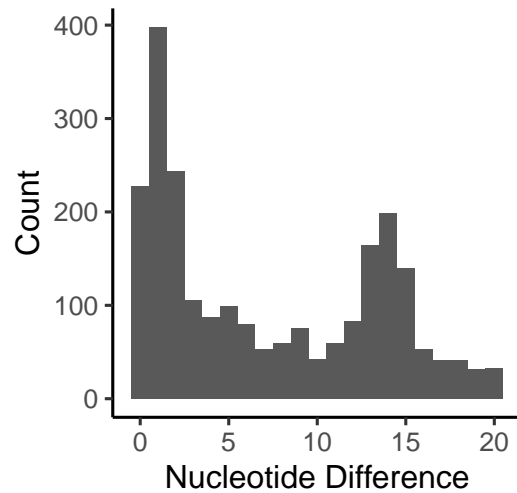
### IGHV3-19\*01

2 sequences assigned  
No exact matches.



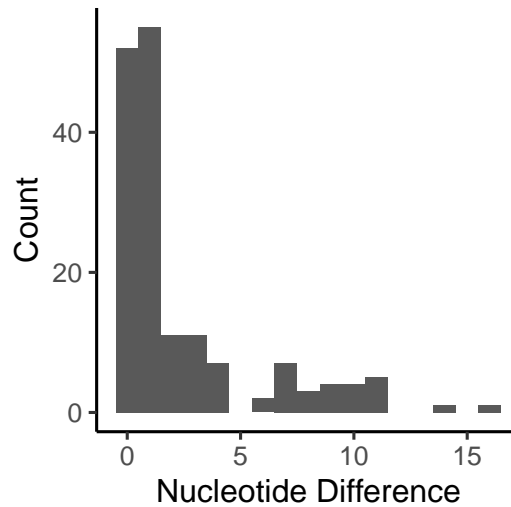
### IGHV3-11\*06

3570 sequences assigned  
228 (6.4%) exact matches, in which:  
174 unique CDR3  
5 unique J



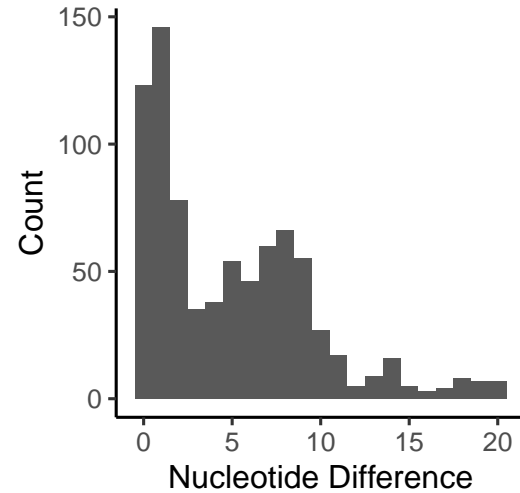
### IGHV3-13\*05

201 sequences assigned  
52 (25.9%) exact matches, in which:  
34 unique CDR3  
4 unique J



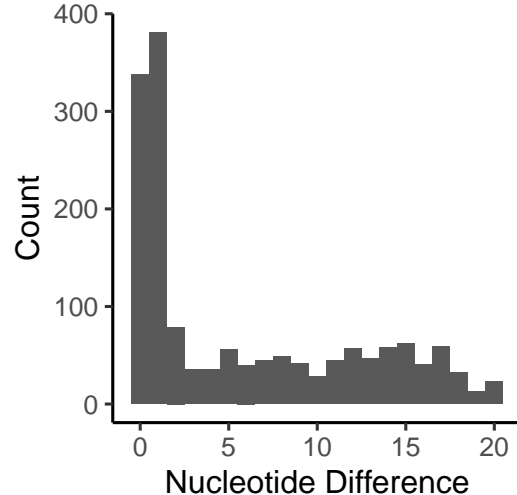
### IGHV3-20\*03\_04

844 sequences assigned  
123 (14.6%) exact matches, in which:  
76 unique CDR3  
5 unique J



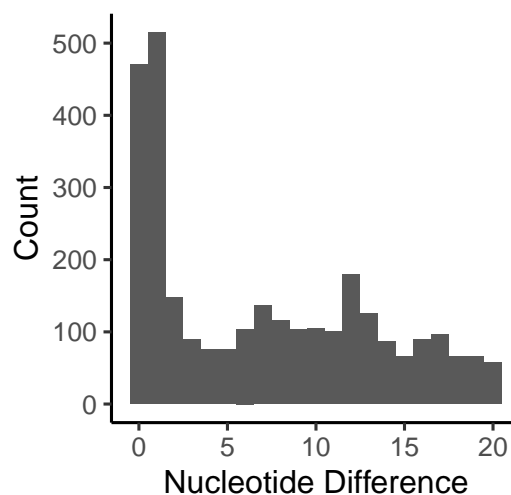
### IGHV3-11\*03\_05

1967 sequences assigned  
338 (17.2%) exact matches, in which:  
203 unique CDR3  
6 unique J



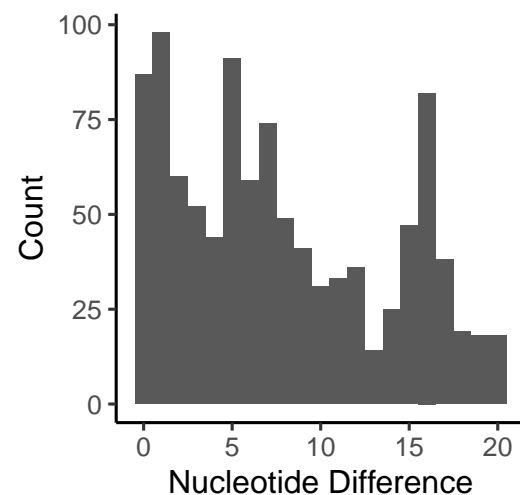
### IGHV3-15\*01\_02

3862 sequences assigned  
471 (12.2%) exact matches, in which:  
267 unique CDR3  
6 unique J



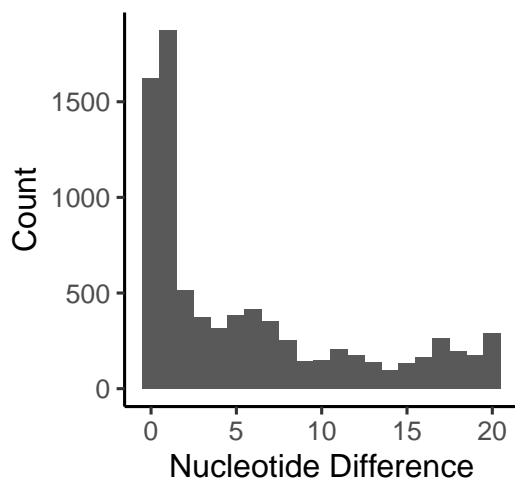
### IGHV3-21\*04

1183 sequences assigned  
87 (7.4%) exact matches, in which:  
74 unique CDR3  
6 unique J



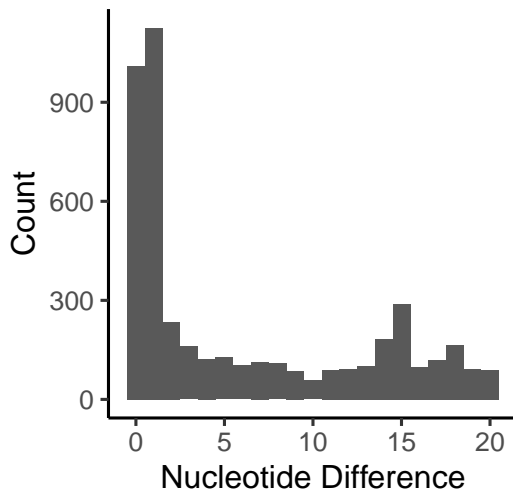
### IGHV3-21\*01\_02

11078 sequences assigned  
1621 (14.6%) exact matches, in which:  
979 unique CDR3  
6 unique J



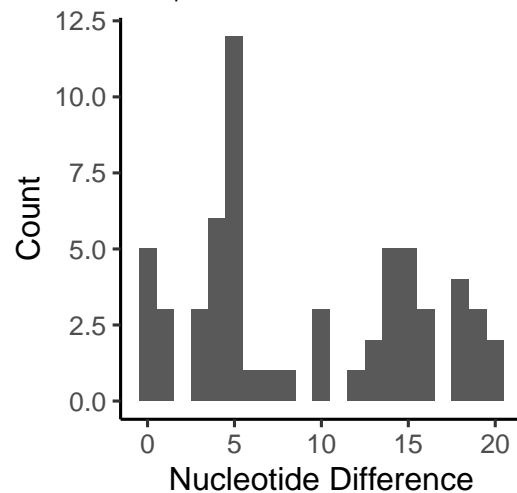
### IGHV3-30\*01

5774 sequences assigned  
1009 (17.5%) exact matches, in which:  
643 unique CDR3  
6 unique J



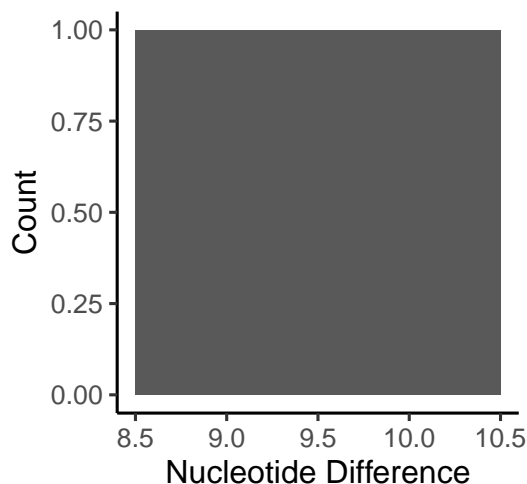
### IGHV3-30-3\*03

389 sequences assigned  
5 (1.3%) exact matches, in which:  
5 unique CDR3  
2 unique J



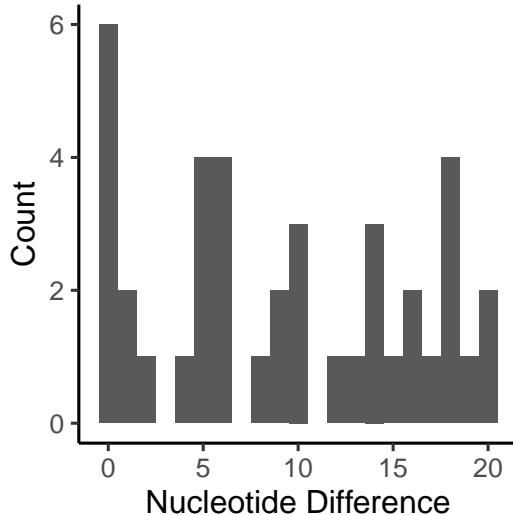
### IGHV3-22\*01\_02

12 sequences assigned  
No exact matches.



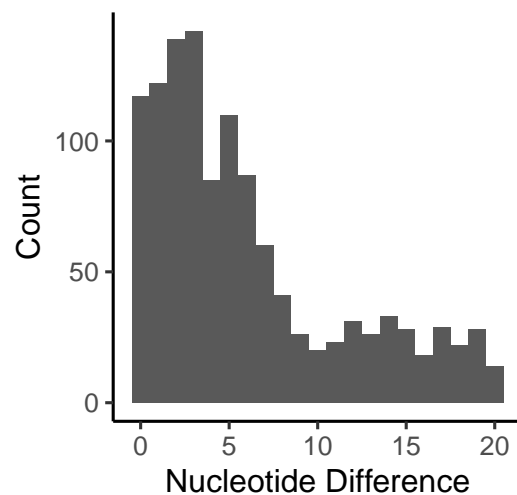
### IGHV3-30-5\*01

549 sequences assigned  
6 (1.1%) exact matches, in which:  
6 unique CDR3  
4 unique J



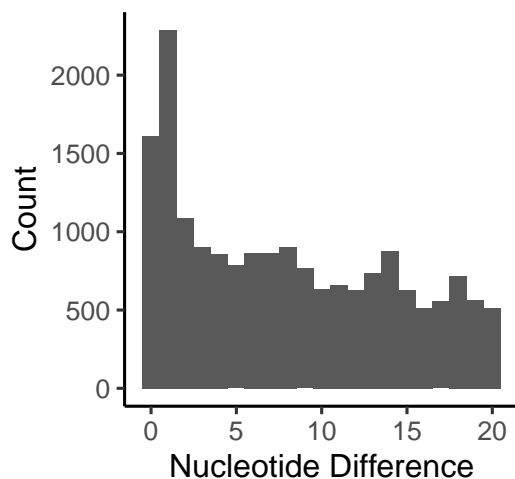
### IGHV3-30\*07

1367 sequences assigned  
117 (8.6%) exact matches, in which:  
106 unique CDR3  
6 unique J



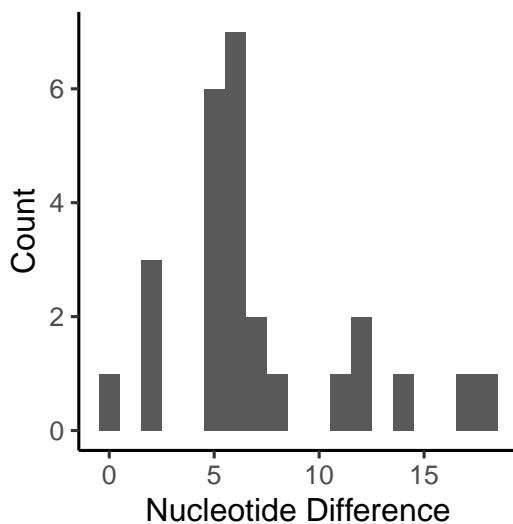
### IGHV3-23\*01\_04

28322 sequences assigned  
1610 (5.7%) exact matches, in which:  
927 unique CDR3  
6 unique J



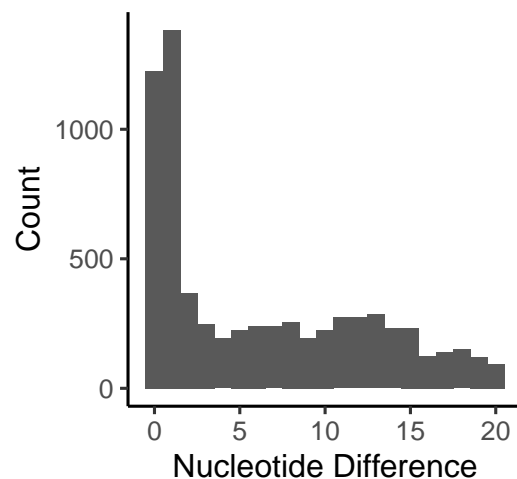
### IGHV3-30-3\*01

47 sequences assigned  
1 (2.1%) exact matches, in which:  
1 unique CDR3  
1 unique J



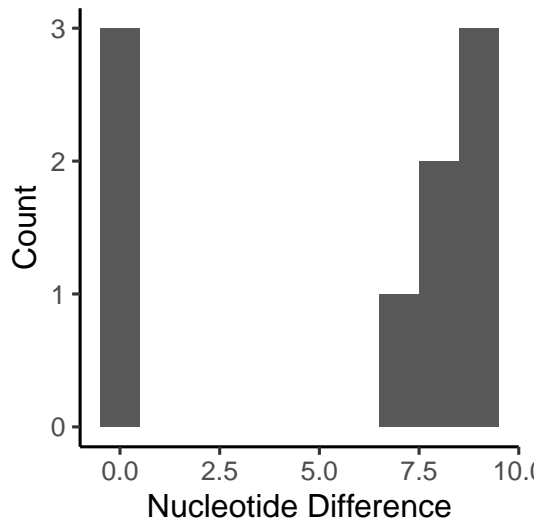
### IGHV3-33\*01

9391 sequences assigned  
1225 (13%) exact matches, in which:  
798 unique CDR3  
6 unique J



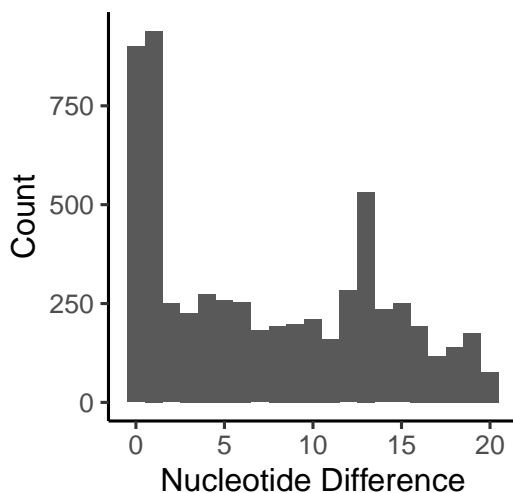
### IGHV3-35\*01

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



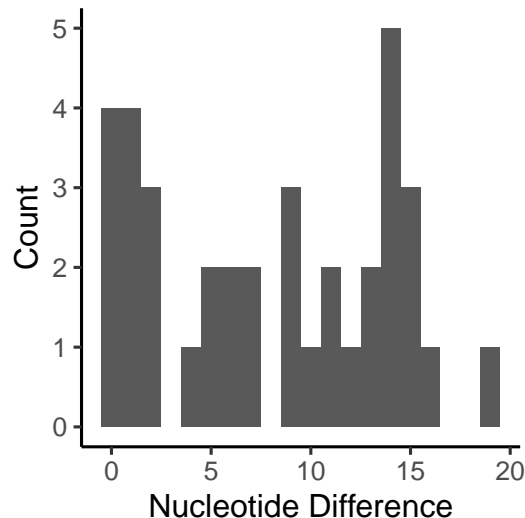
### IGHV3-48\*03

7736 sequences assigned  
900 (11.6%) exact matches, in which:  
554 unique CDR3  
6 unique J



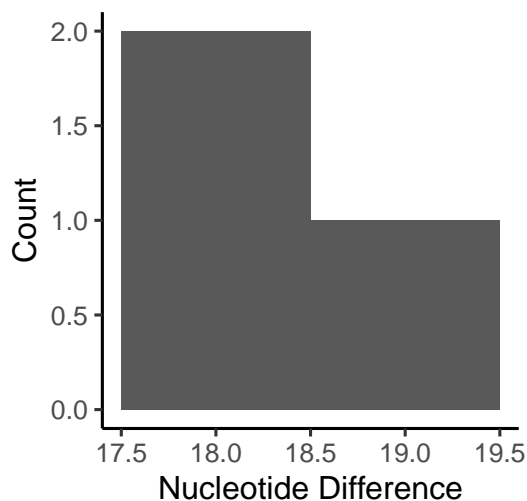
### IGHV3-53\*05

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



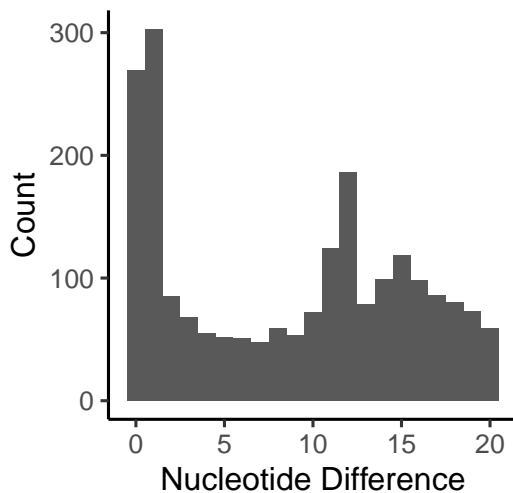
### IGHV3-43\*01

14 sequences assigned  
No exact matches.



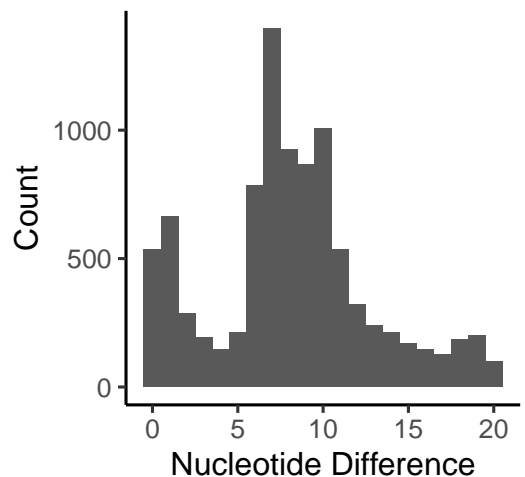
### IGHV3-49\*04

5135 sequences assigned  
269 (5.2%) exact matches, in which:  
158 unique CDR3  
6 unique J



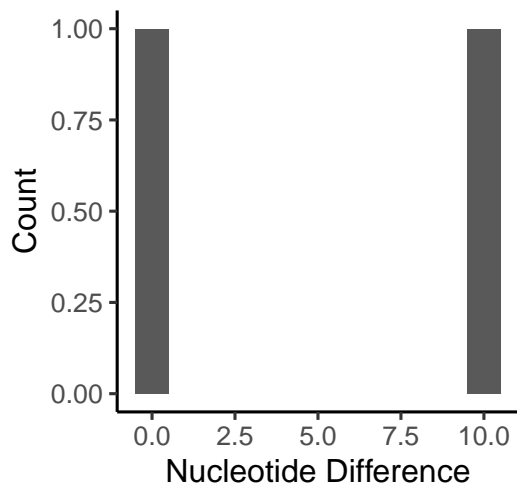
### IGHV3-53\*01\_02

10102 sequences assigned  
534 (5.3%) exact matches, in which:  
356 unique CDR3  
6 unique J



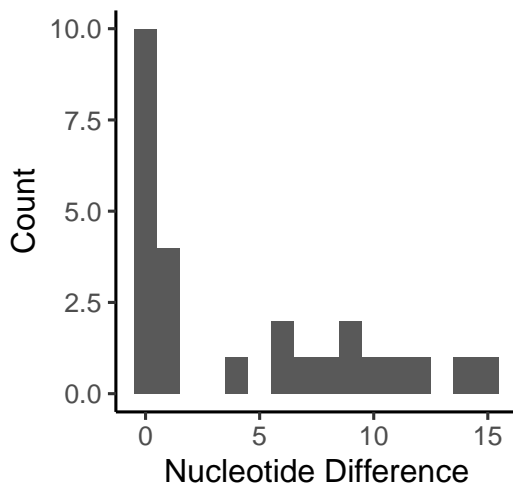
### IGHV3-47\*01

2 sequences assigned  
1 (50%) exact matches, in which:  
1 unique CDR3  
1 unique J



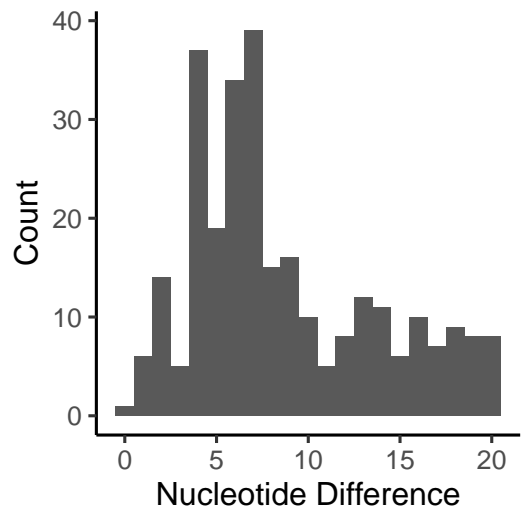
### IGHV3-52\*01\_03

26 sequences assigned  
10 (38.5%) exact matches, in which:  
6 unique CDR3  
4 unique J



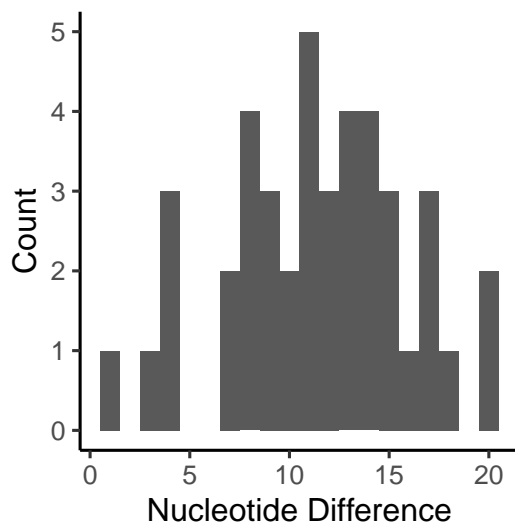
### IGHV3-64\*04

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



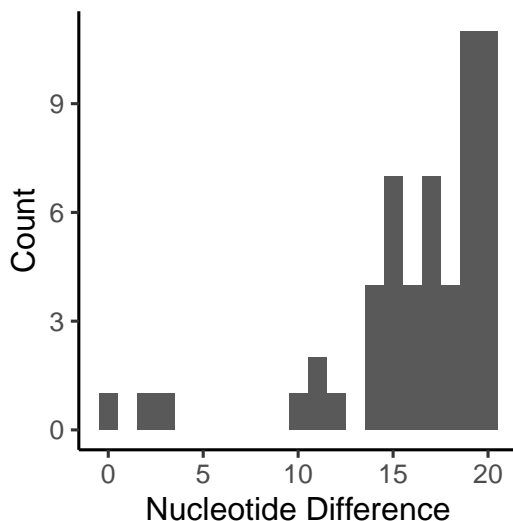
### IGHV3-66\*01

71 sequences assigned  
No exact matches.



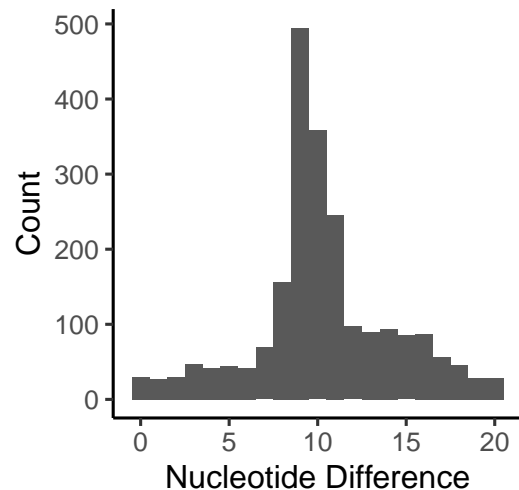
### IGHV3-69-1\*02

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



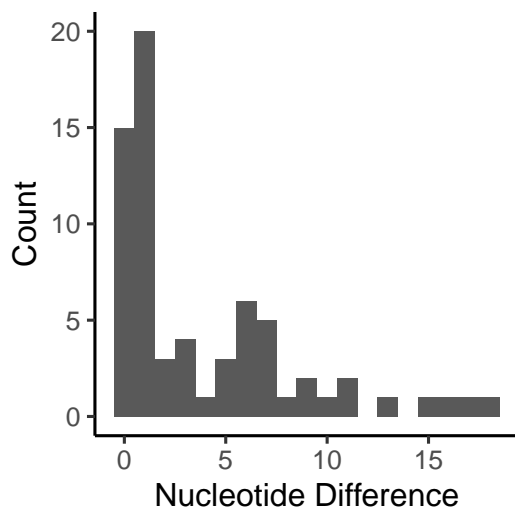
### IGHV3-72\*01

2730 sequences assigned  
30 (1.1%) exact matches, in which:  
22 unique CDR3  
4 unique J



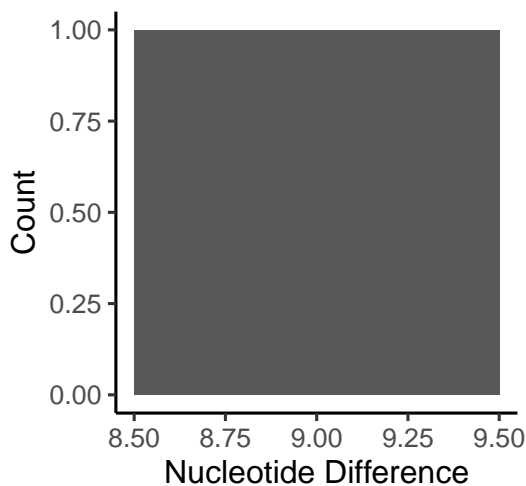
### IGHV3-66\*03

78 sequences assigned  
15 (19.2%) exact matches, in which:  
13 unique CDR3  
3 unique J



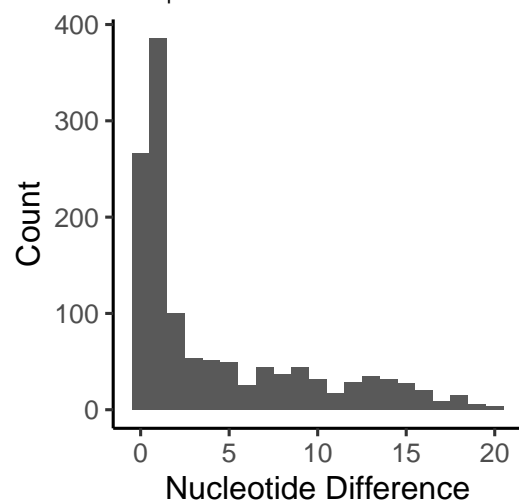
### IGHV3-71\*03

1 sequences assigned  
No exact matches.



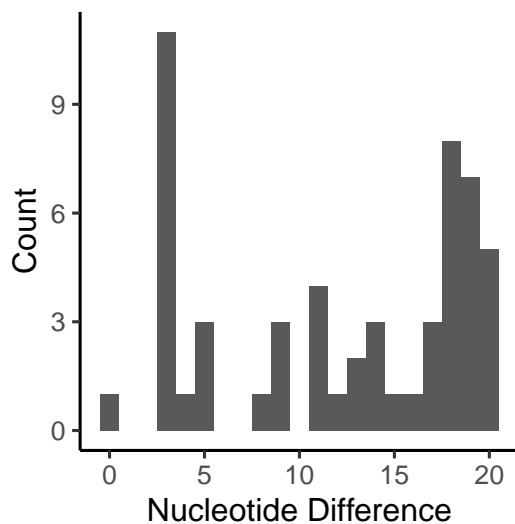
### IGHV3-73\*01\_02

1456 sequences assigned  
266 (18.3%) exact matches, in which:  
151 unique CDR3  
5 unique J



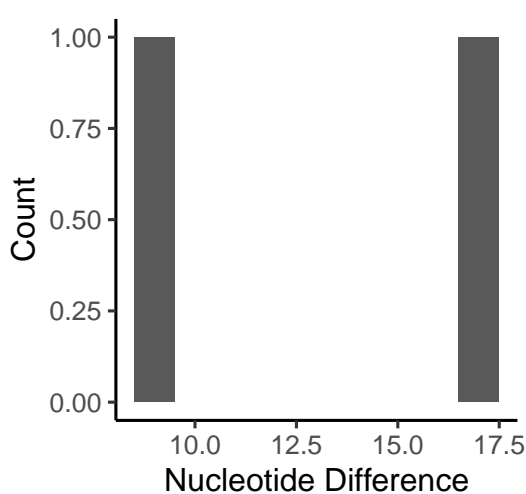
### IGHV3-69-1\*01

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



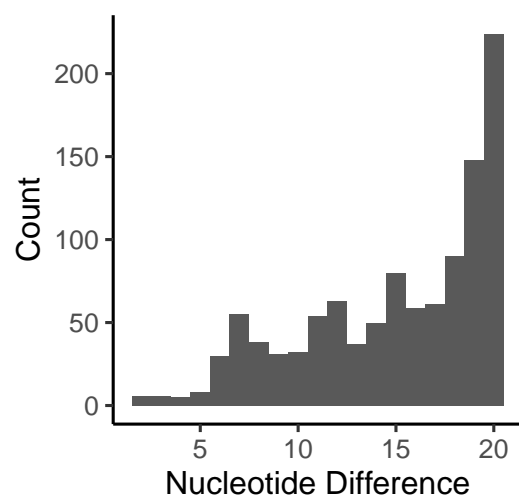
### IGHV3-71\*01\_04

10 sequences assigned  
No exact matches.



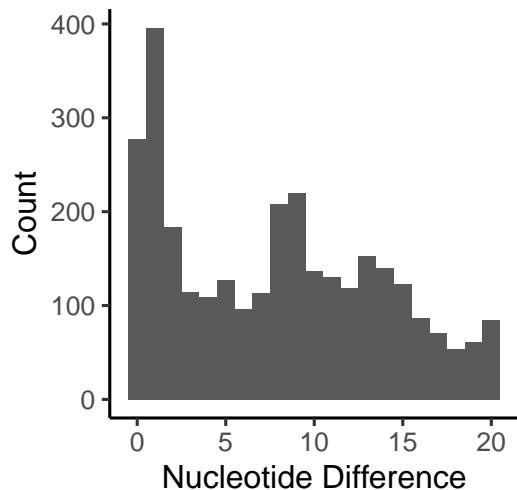
### IGHV3-74\*03

3161 sequences assigned  
No exact matches.



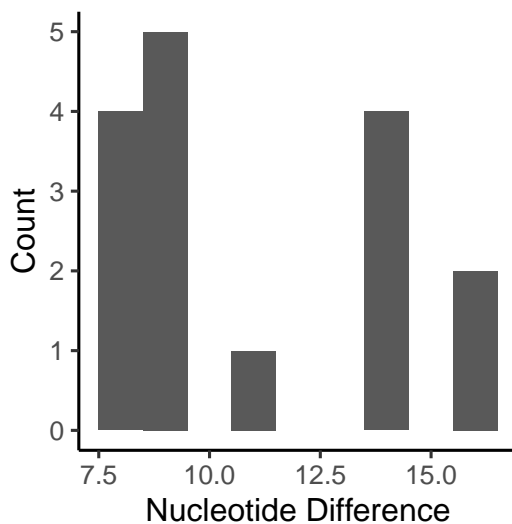
### IGHV3-74\*01\_02

4404 sequences assigned  
277 (6.3%) exact matches, in which:  
187 unique CDR3  
6 unique J



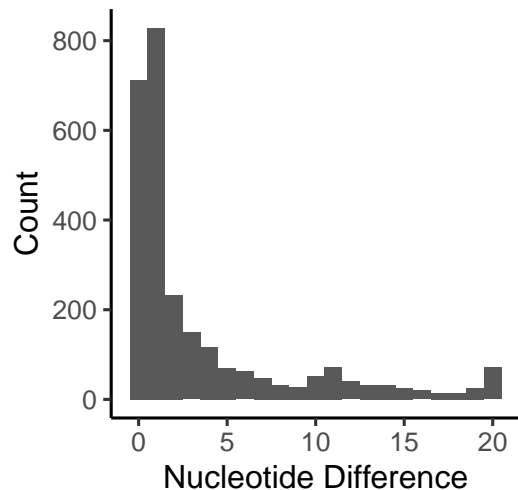
### IGHV3-64D\*08

17 sequences assigned  
No exact matches.



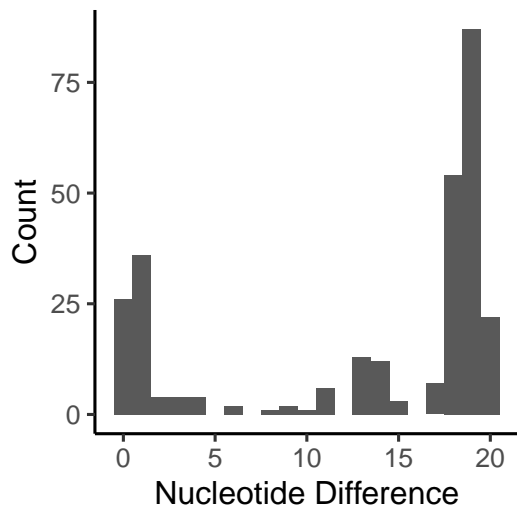
### IGHV4-4\*02\_03

3387 sequences assigned  
712 (21%) exact matches, in which:  
537 unique CDR3  
6 unique J



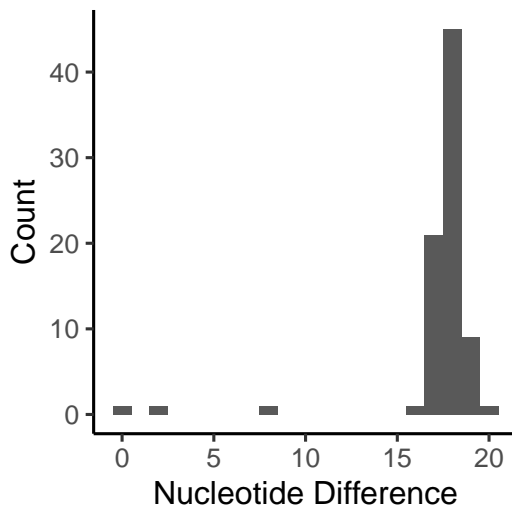
### IGHV3-43D\*04

332 sequences assigned  
26 (7.8%) exact matches, in which:  
15 unique CDR3  
3 unique J



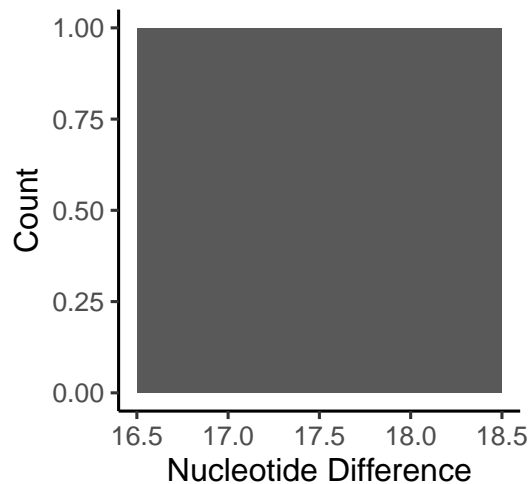
### IGHV3-64D\*09

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



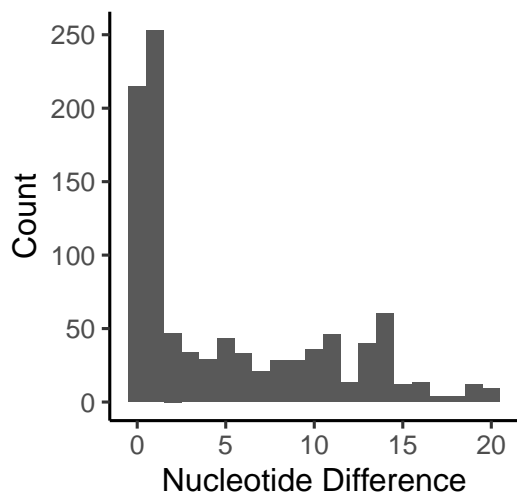
### IGHV4-28\*03

4 sequences assigned  
No exact matches.



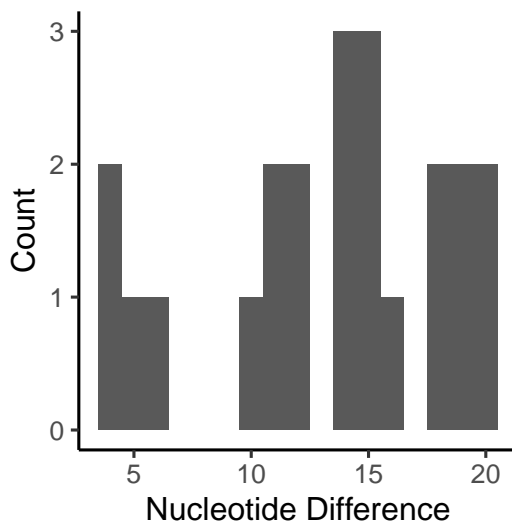
### IGHV3-64D\*06

1152 sequences assigned  
215 (18.7%) exact matches, in which:  
113 unique CDR3  
6 unique J



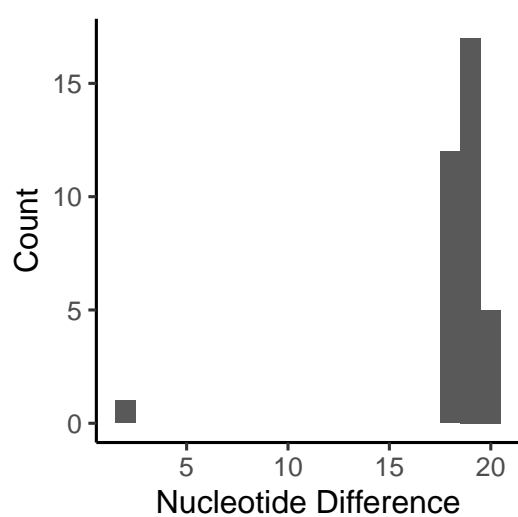
### IGHV3-NL1\*01

30 sequences assigned  
No exact matches.



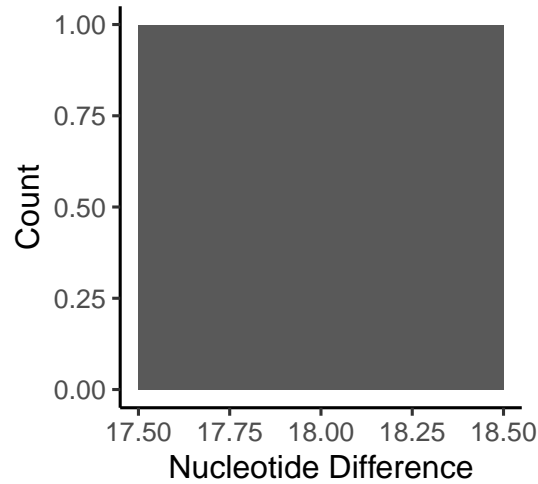
### IGHV4-30-2\*01

42 sequences assigned  
No exact matches.



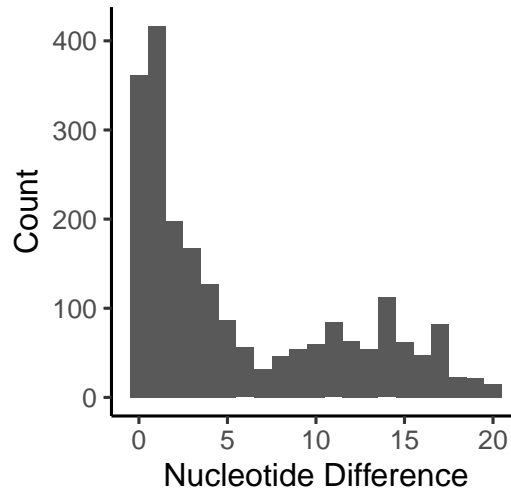
### IGHV4-30-4\*01

4 sequences assigned  
No exact matches.



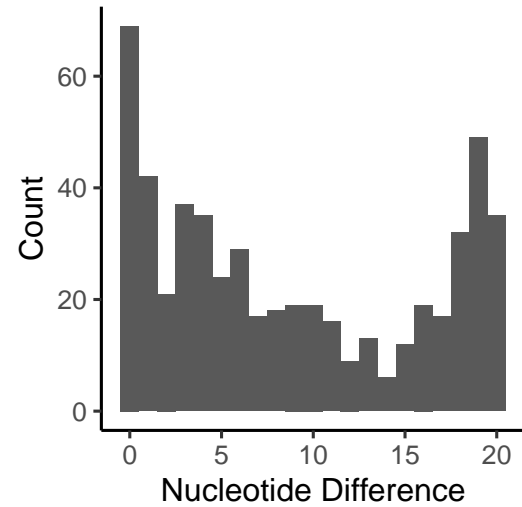
### IGHV4-31\*02

2515 sequences assigned  
362 (14.4%) exact matches, in which:  
298 unique CDR3  
6 unique J



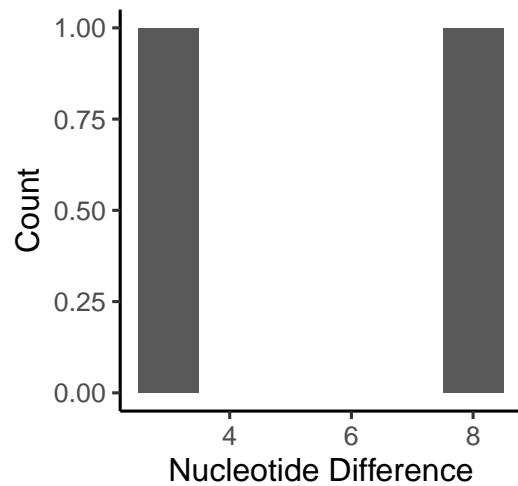
### IGHV4-38-2\*02

1586 sequences assigned  
69 (4.4%) exact matches, in which:  
52 unique CDR3  
4 unique J



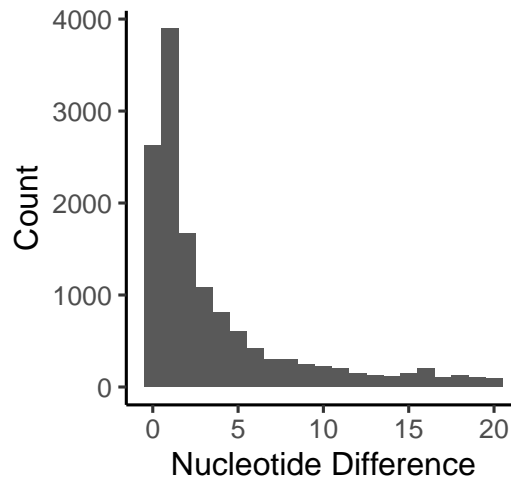
### IGHV4-30-2\*04

5 sequences assigned  
No exact matches.



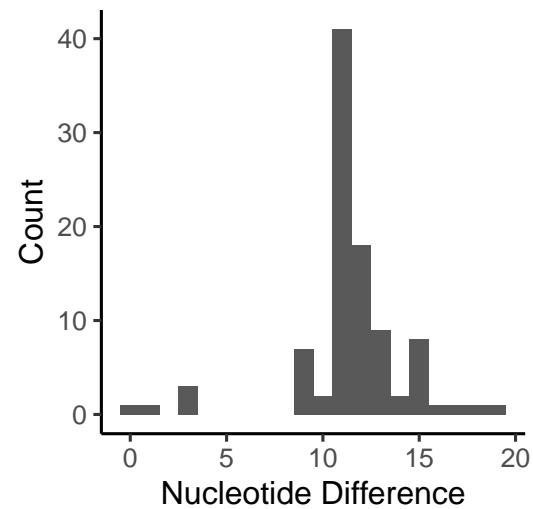
### IGHV4-34\*01\_02

14901 sequences assigned  
2625 (17.6%) exact matches, in which:  
1805 unique CDR3  
6 unique J



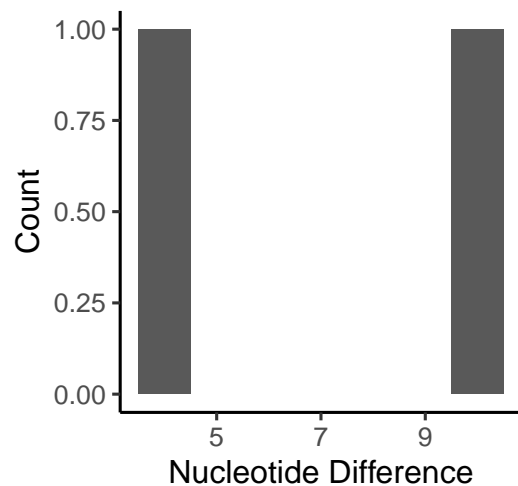
### IGHV4-39\*07

120 sequences assigned  
1 (0.8%) exact matches, in which:  
1 unique CDR3  
0 unique J



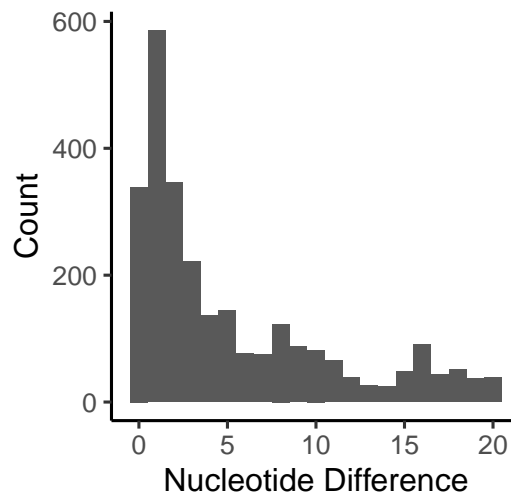
### IGHV4-30-4\*08

5 sequences assigned  
No exact matches.



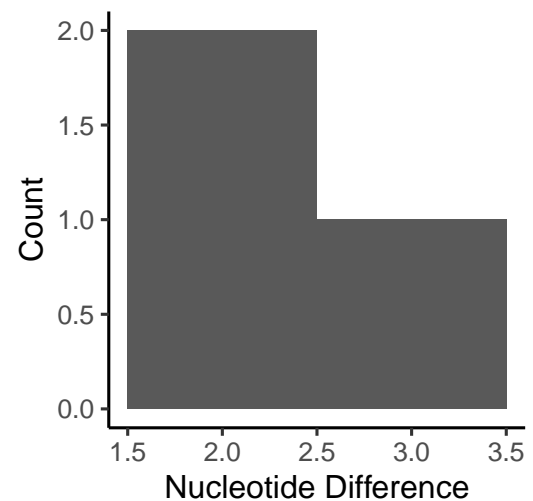
### IGHV4-38-2\*01

4443 sequences assigned  
339 (7.6%) exact matches, in which:  
265 unique CDR3  
6 unique J



### IGHV4-55\*09

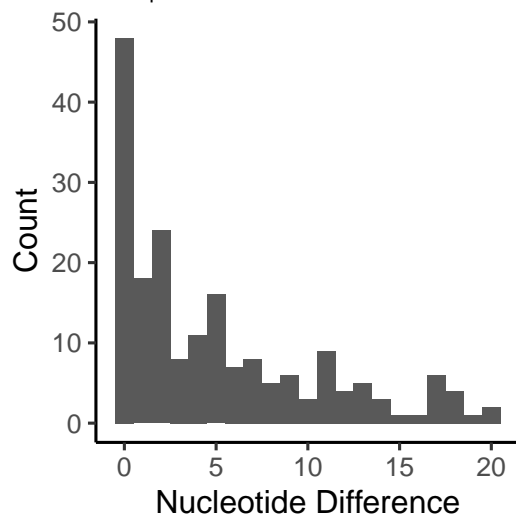
3 sequences assigned  
No exact matches.





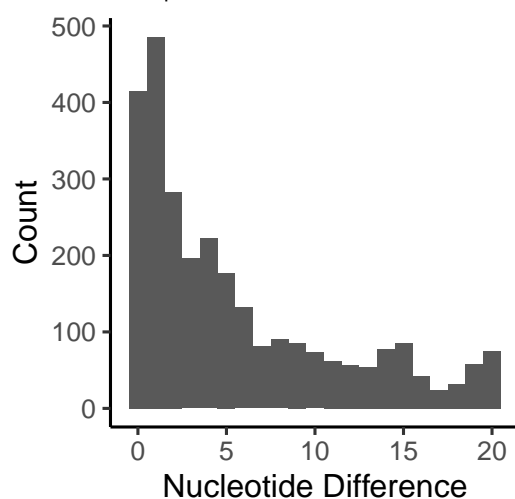
### IGHV4–59\*08

524 sequences assigned  
48 (9.2%) exact matches, in which:  
42 unique CDR3  
4 unique J



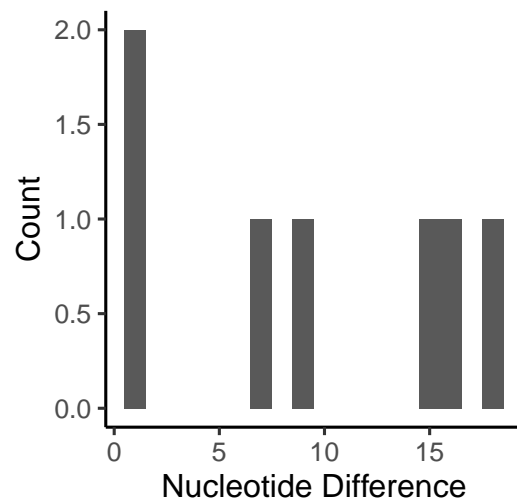
### IGHV4–61\*01

3637 sequences assigned  
415 (11.4%) exact matches, in which:  
345 unique CDR3  
6 unique J



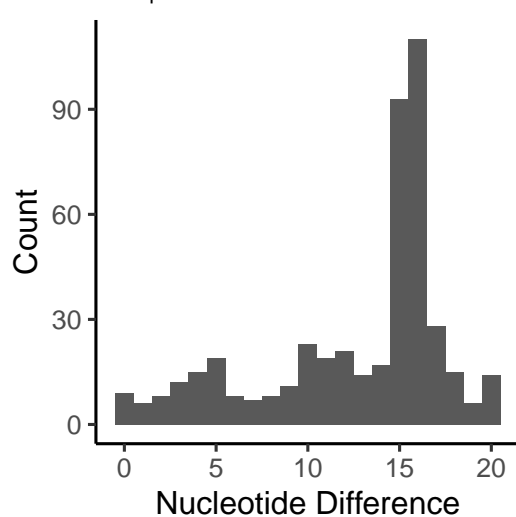
### IGHV4/OR15–8\*01

60 sequences assigned  
No exact matches.



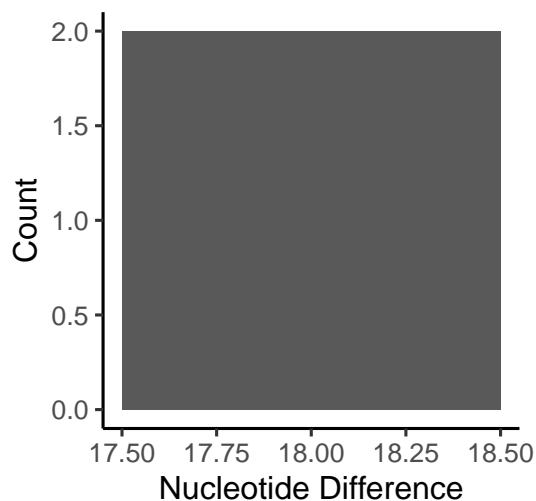
### IGHV4–59\*11

1554 sequences assigned  
9 (0.6%) exact matches, in which:  
9 unique CDR3  
4 unique J



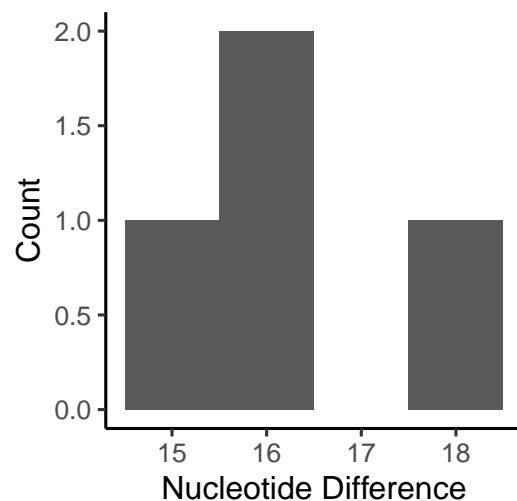
### IGHV1/OR15–2\*02\_03

3 sequences assigned  
No exact matches.



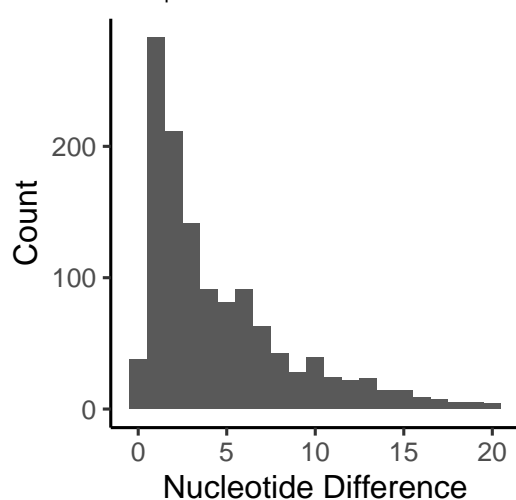
### IGHV4/OR15–8\*02

6 sequences assigned  
No exact matches.



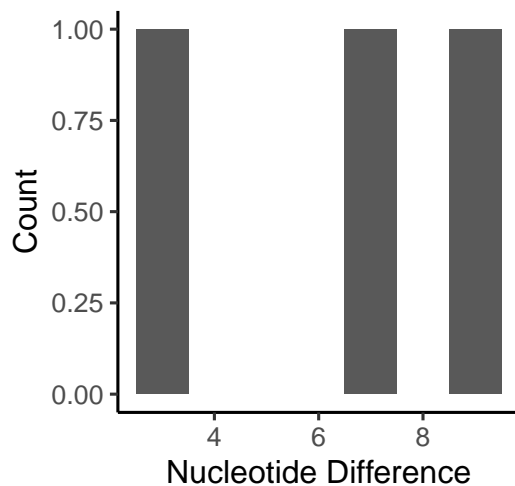
### IGHV4–59\*12

1305 sequences assigned  
38 (2.9%) exact matches, in which:  
37 unique CDR3  
4 unique J



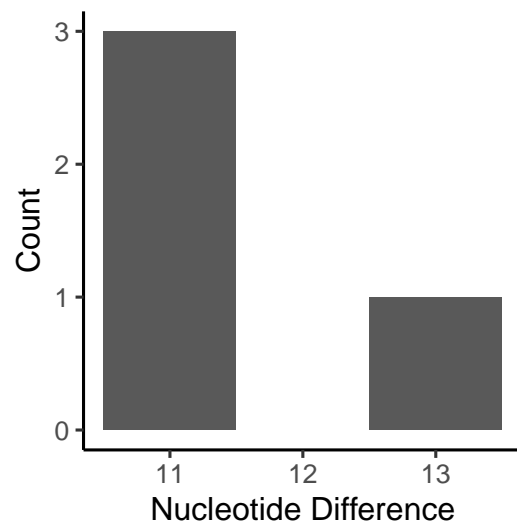
### IGHV1/OR15–3\*02

4 sequences assigned  
No exact matches.



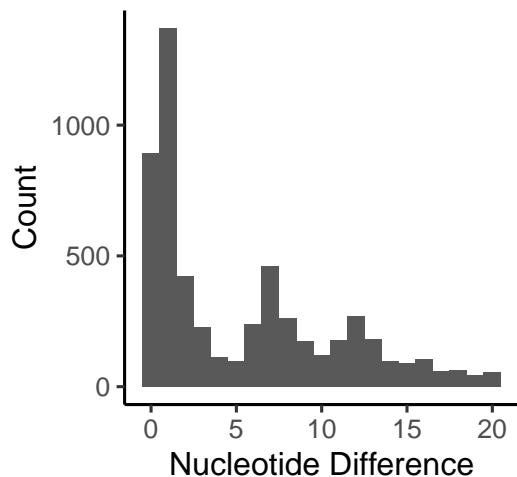
### IGHV1/OR15–9\*01

4 sequences assigned  
No exact matches.



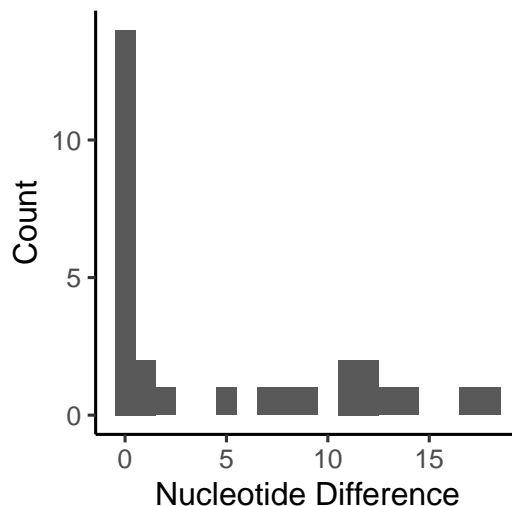
### IGHV5-10-1\*01\_03

6848 sequences assigned  
893 (13%) exact matches, in which:  
531 unique CDR3  
6 unique J



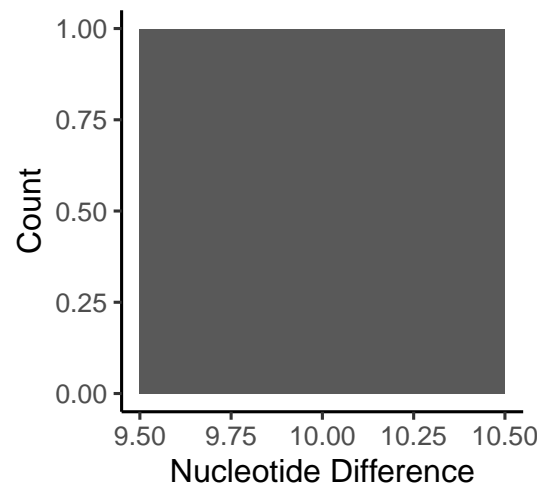
### IGHV5-51\*07

31 sequences assigned  
14 (45.2%) exact matches, in which:  
14 unique CDR3  
5 unique J



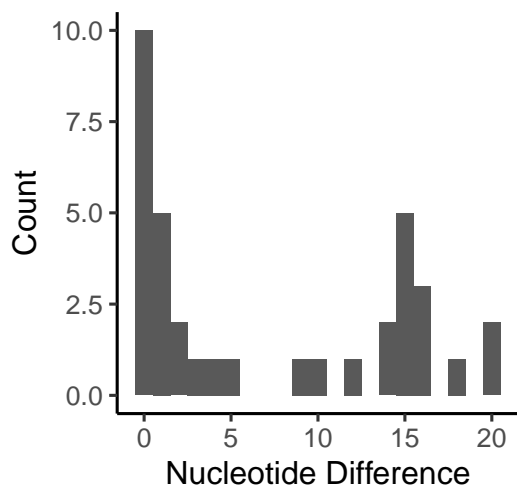
### IGHV7-81\*01

1 sequences assigned  
No exact matches.



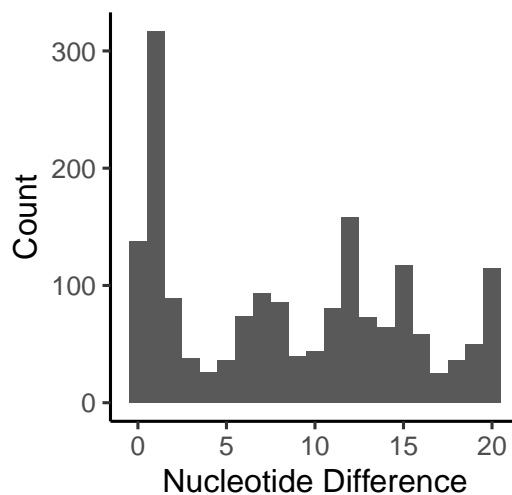
### IGHV5-51\*04

44 sequences assigned  
10 (22.7%) exact matches, in which:  
9 unique CDR3  
2 unique J



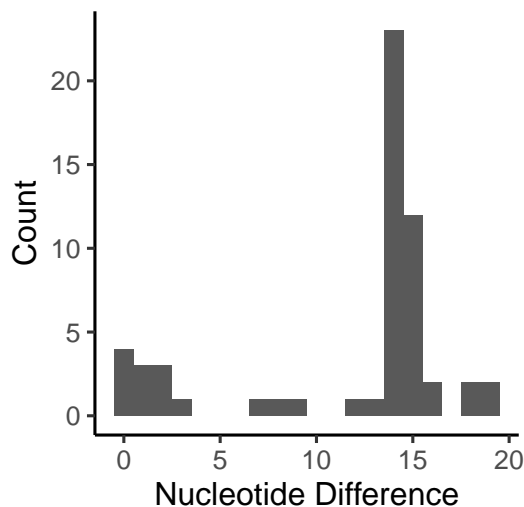
### IGHV6-1\*01\_02

2666 sequences assigned  
138 (5.2%) exact matches, in which:  
103 unique CDR3  
5 unique J



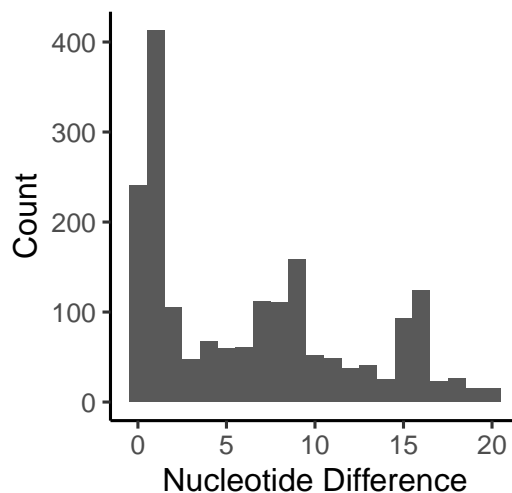
### IGHV5-51\*06

98 sequences assigned  
4 (4.1%) exact matches, in which:  
4 unique CDR3  
2 unique J

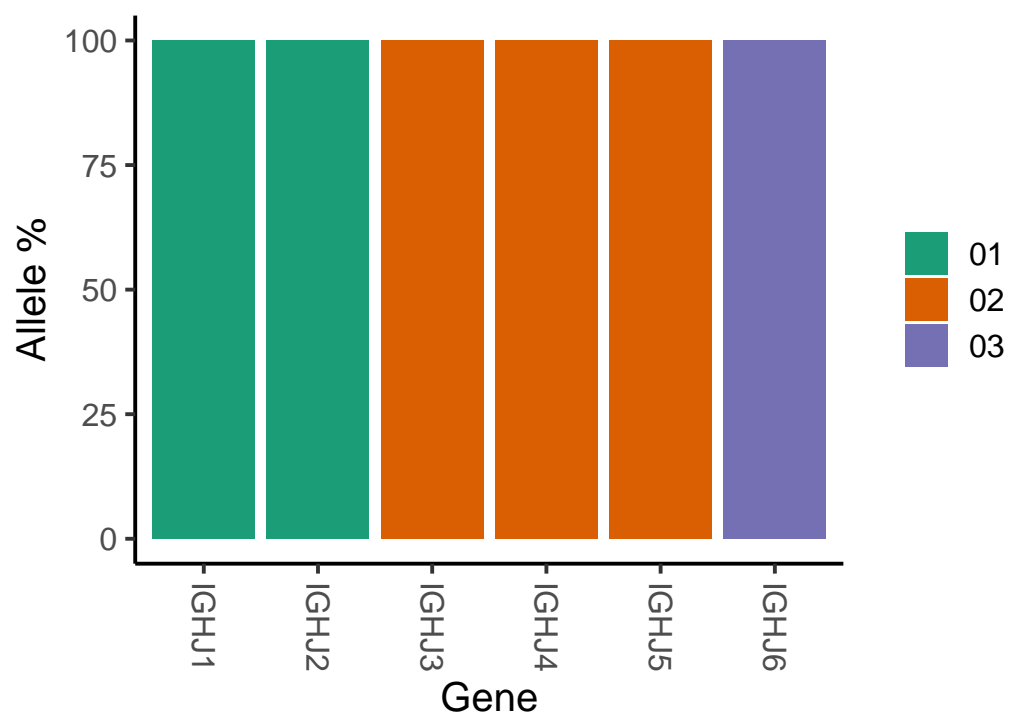


### IGHV7-4-1\*02

2609 sequences assigned  
241 (9.2%) exact matches, in which:  
171 unique CDR3  
4 unique J



Allele Usage



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