

Gene IGHV4-31\*02\_G92A\_C111T\_A113T\_A138T\_A164G\_A225C\_A234C\_G238C\_A240

Count

1500  
1000  
500  
0



G

C

315  
G

A

G

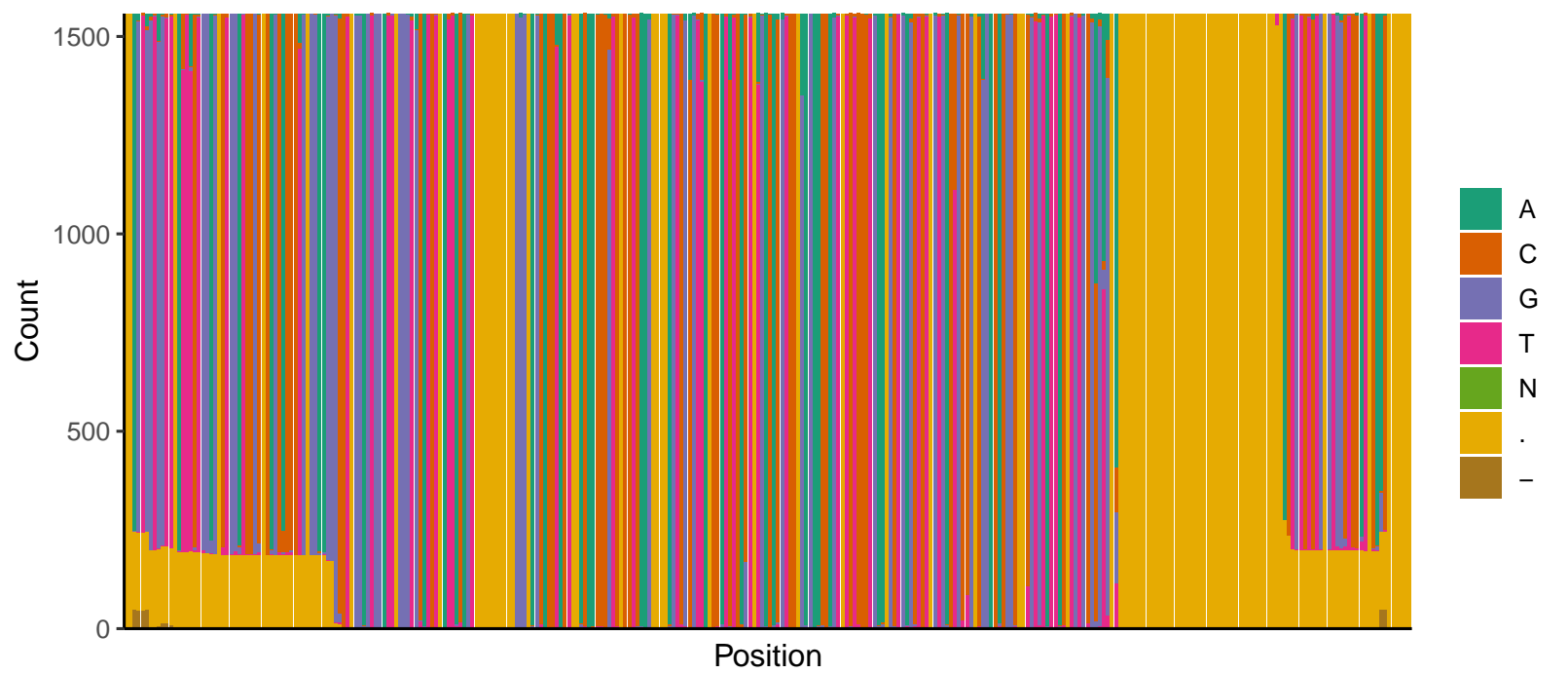
A

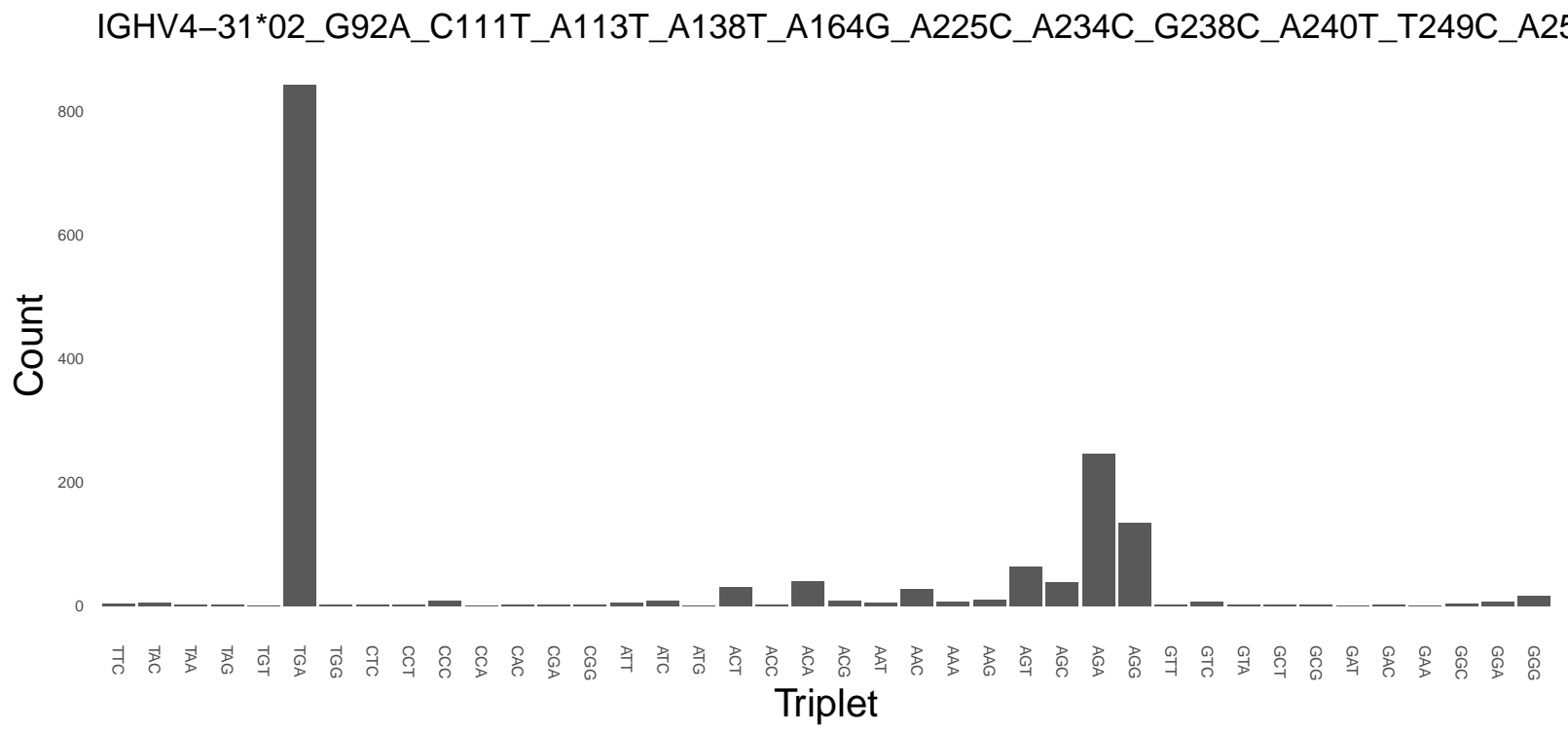
G

320  
A

Position

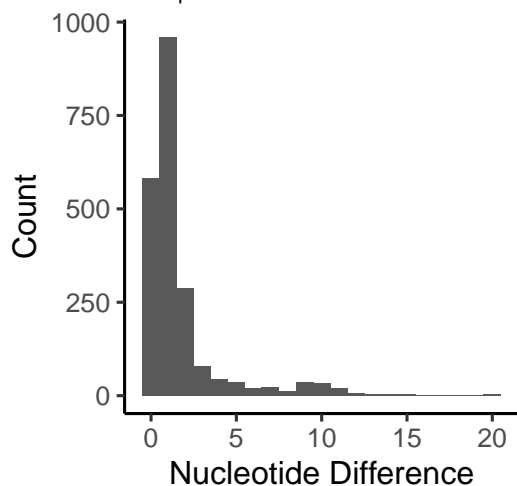
Gene IGHV4-31\*02\_G92A\_C111T\_A113T\_A138T\_A164G\_A225C\_A234C\_G238C\_A240





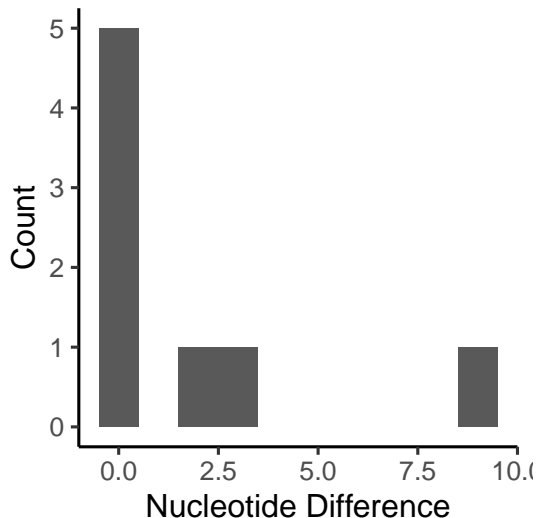
### IGHV1-2\*04

2165 sequences assigned  
581 (26.8%) exact matches, in which:  
438 unique CDR3  
6 unique J



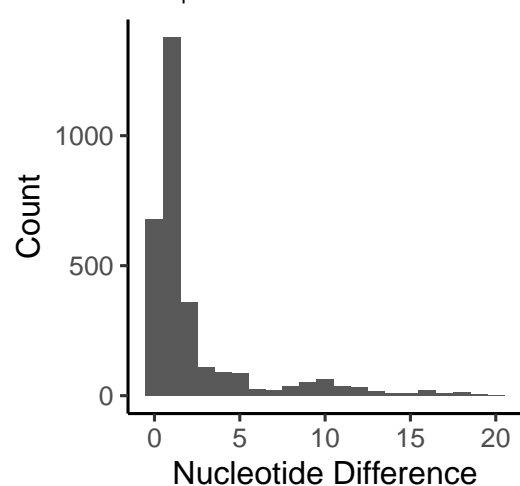
### IGHV1-8\*01

8 sequences assigned  
5 (62.5%) exact matches, in which:  
5 unique CDR3  
3 unique J



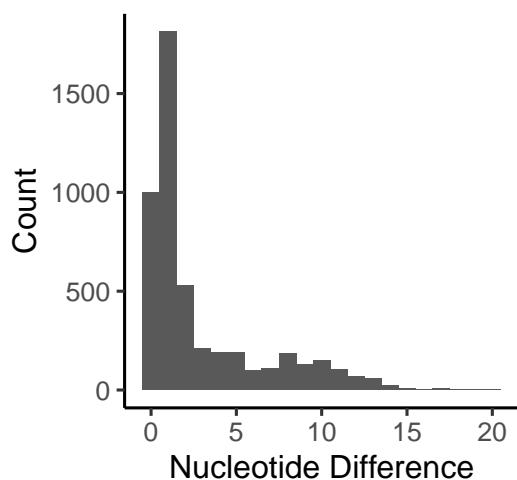
### IGHV1-24\*01

3053 sequences assigned  
679 (22.2%) exact matches, in which:  
492 unique CDR3  
7 unique J



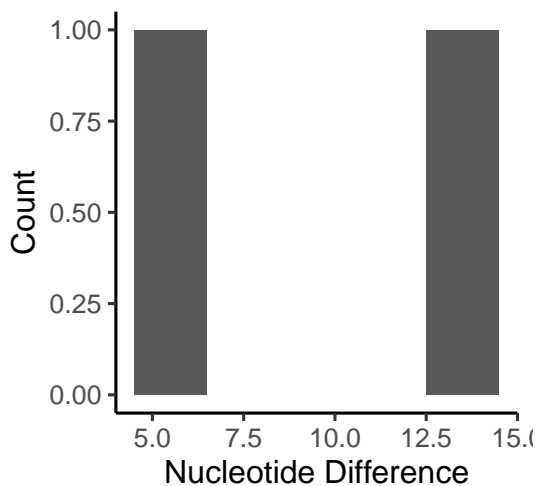
### IGHV1-2\*06

4888 sequences assigned  
1001 (20.5%) exact matches, in which:  
685 unique CDR3  
7 unique J



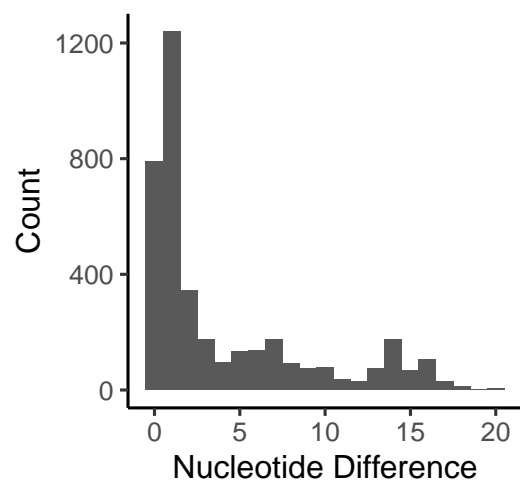
### IGHV1-8\*02

5 sequences assigned  
No exact matches.



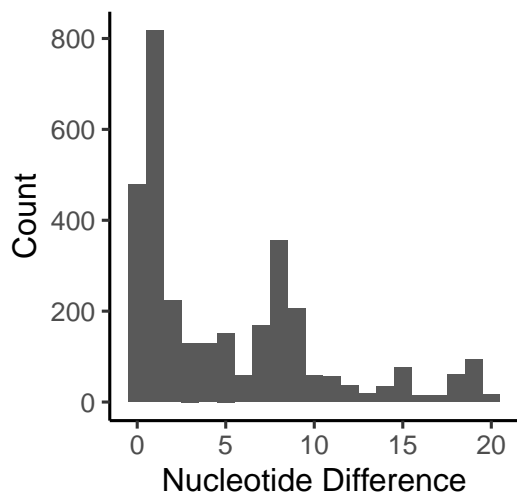
### IGHV1-46\*01

3876 sequences assigned  
789 (20.4%) exact matches, in which:  
585 unique CDR3  
7 unique J



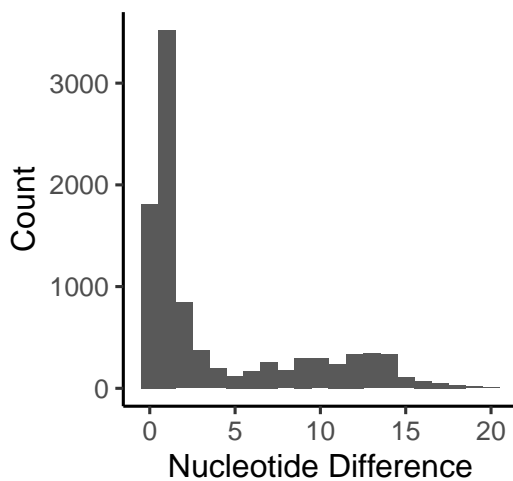
### IGHV1-3\*01\_05

3221 sequences assigned  
479 (14.9%) exact matches, in which:  
354 unique CDR3  
7 unique J



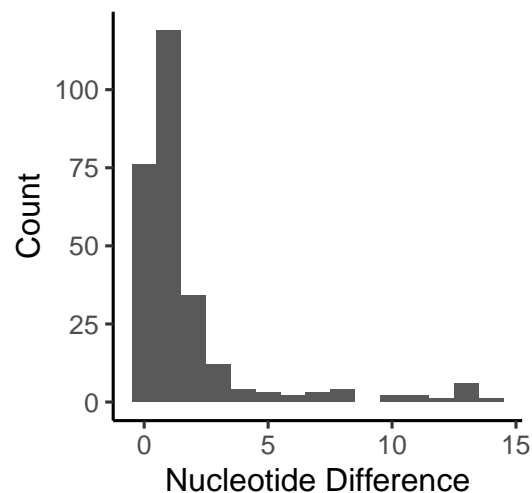
### IGHV1-18\*01

10332 sequences assigned  
1811 (17.5%) exact matches, in which:  
1242 unique CDR3  
7 unique J



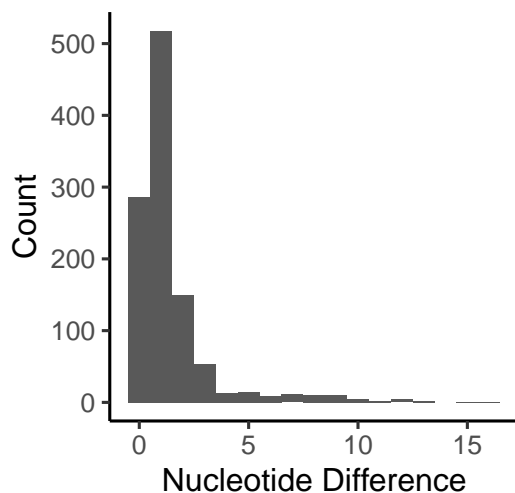
### IGHV1-58\*02

269 sequences assigned  
76 (28.3%) exact matches, in which:  
63 unique CDR3  
5 unique J



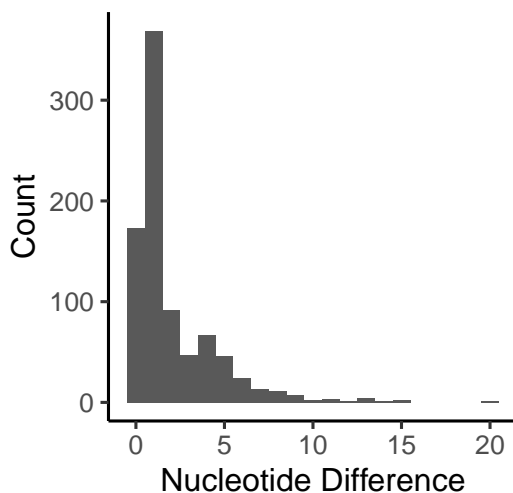
### IGHV1–69\*02

1090 sequences assigned  
286 (26.2%) exact matches, in which:  
200 unique CDR3  
6 unique J



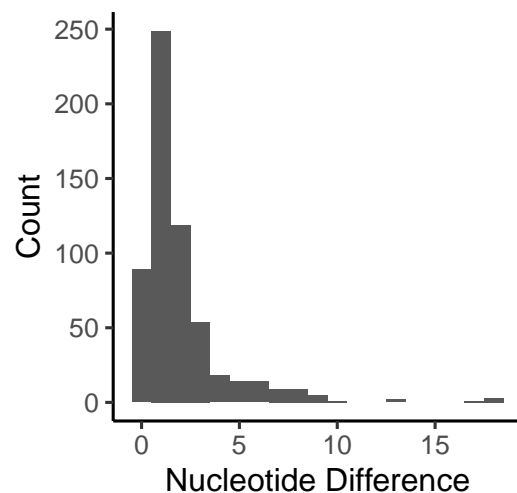
### IGHV2–5\*02

863 sequences assigned  
173 (20%) exact matches, in which:  
106 unique CDR3  
6 unique J



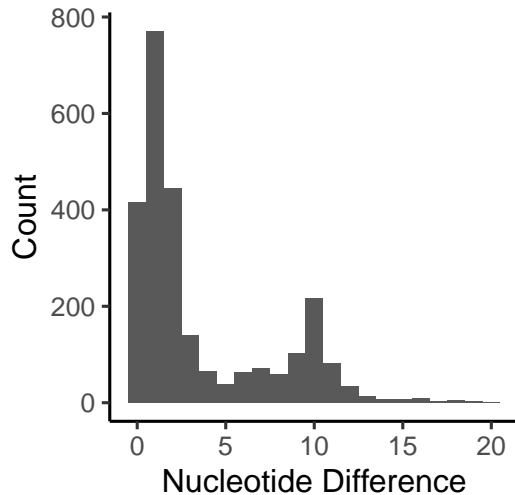
### IGHV2–70\*11\_15

588 sequences assigned  
89 (15.1%) exact matches, in which:  
51 unique CDR3  
4 unique J



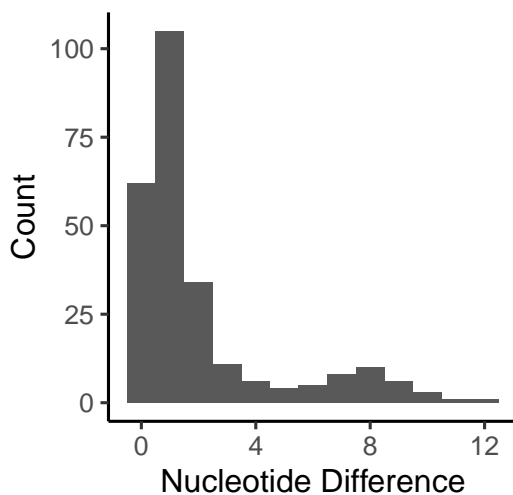
### IGHV1–69\*04\_09

2556 sequences assigned  
415 (16.2%) exact matches, in which:  
343 unique CDR3  
7 unique J



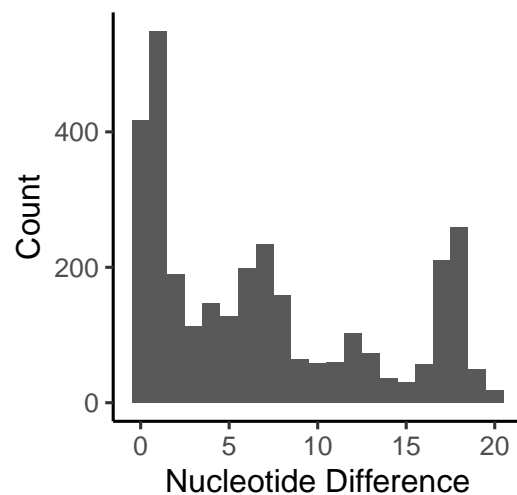
### IGHV2–26\*01

258 sequences assigned  
62 (24%) exact matches, in which:  
42 unique CDR3  
5 unique J



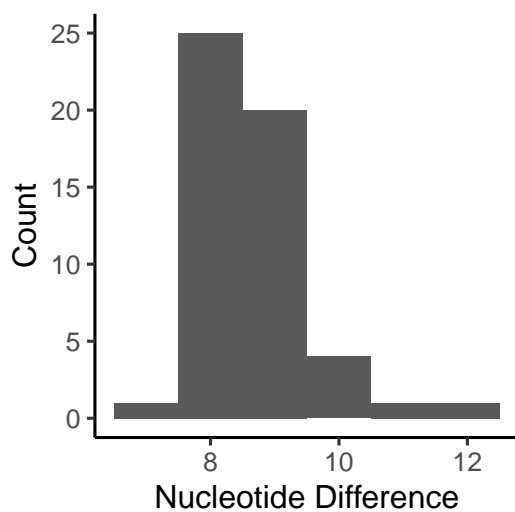
### IGHV3–7\*01

3573 sequences assigned  
417 (11.7%) exact matches, in which:  
278 unique CDR3  
6 unique J



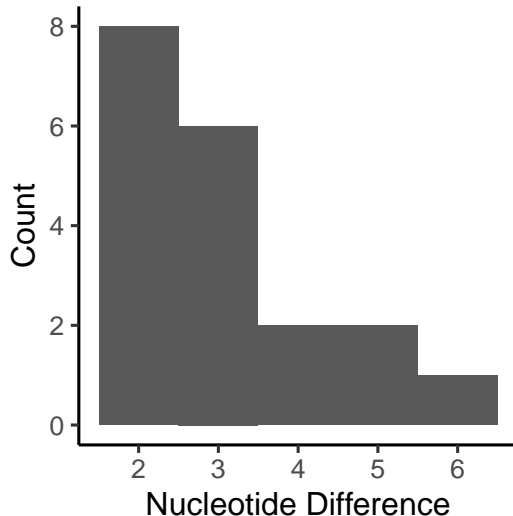
### IGHV1–NL1\*01

52 sequences assigned  
No exact matches.



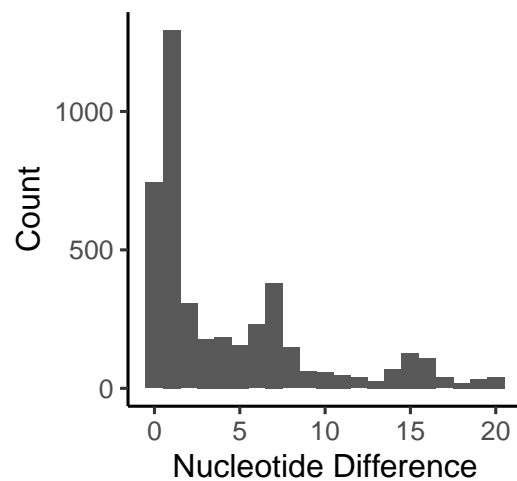
### IGHV2–70\*12

19 sequences assigned  
No exact matches.



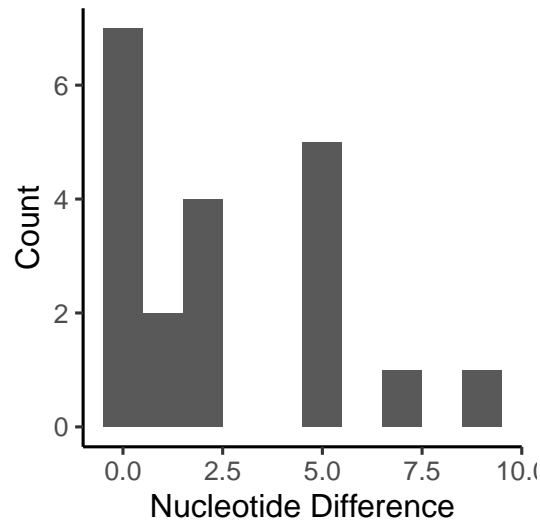
### IGHV3–7\*03

5453 sequences assigned  
743 (13.6%) exact matches, in which:  
476 unique CDR3  
7 unique J



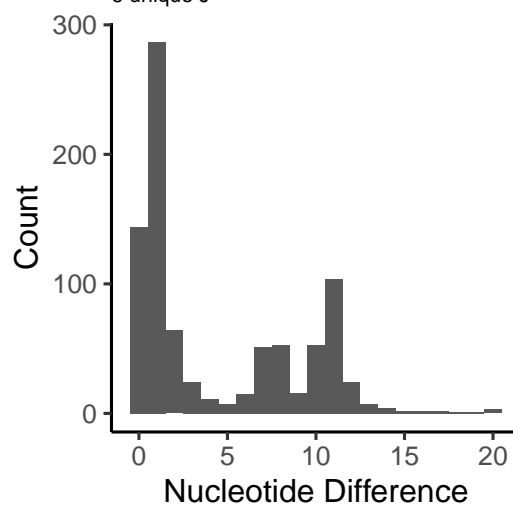
### IGHV3-9\*01

21 sequences assigned  
7 (33.3%) exact matches, in which:  
4 unique CDR3  
3 unique J



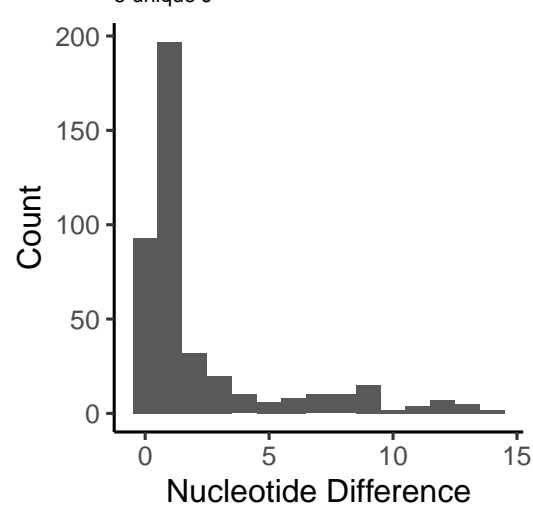
### IGHV3-13\*04

875 sequences assigned  
144 (16.5%) exact matches, in which:  
89 unique CDR3  
6 unique J



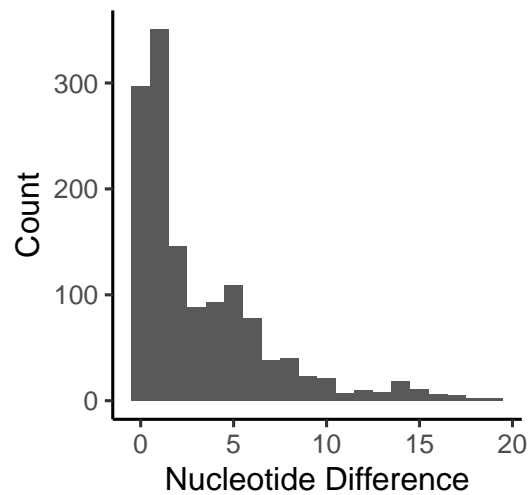
### IGHV3-20\*01\_02

422 sequences assigned  
93 (22%) exact matches, in which:  
44 unique CDR3  
5 unique J



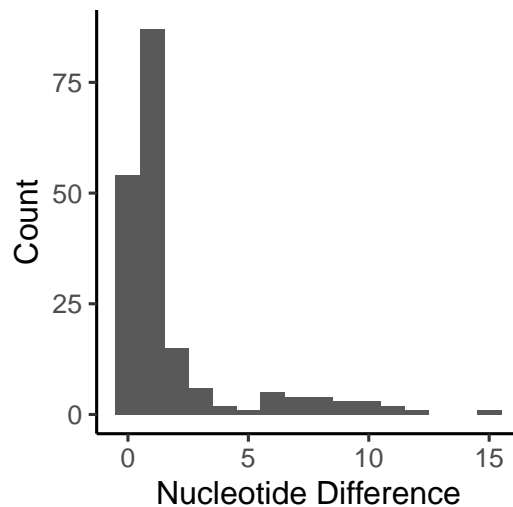
### IGHV3-11\*06

1357 sequences assigned  
297 (21.9%) exact matches, in which:  
196 unique CDR3  
6 unique J



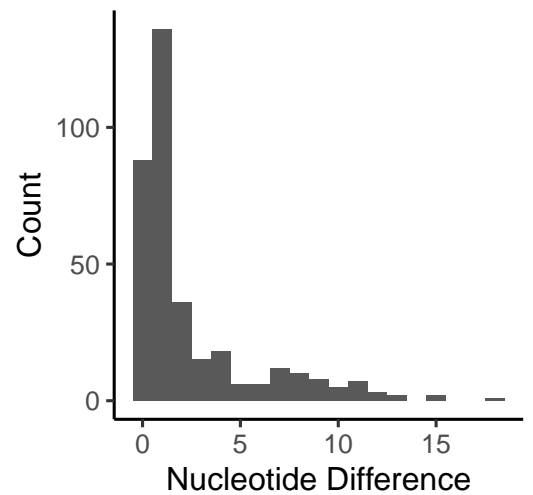
### IGHV3-13\*05

188 sequences assigned  
54 (28.7%) exact matches, in which:  
32 unique CDR3  
6 unique J



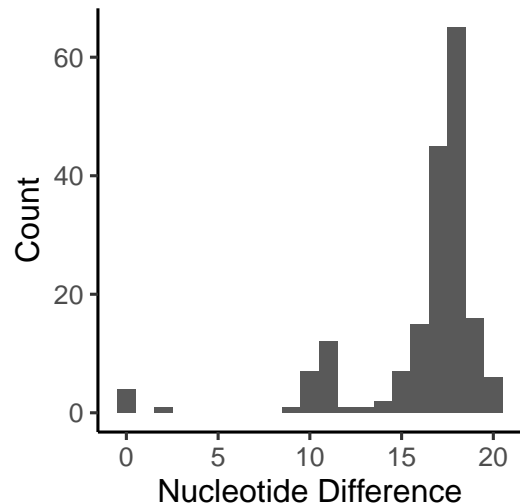
### IGHV3-20\*03\_04

355 sequences assigned  
88 (24.8%) exact matches, in which:  
61 unique CDR3  
4 unique J



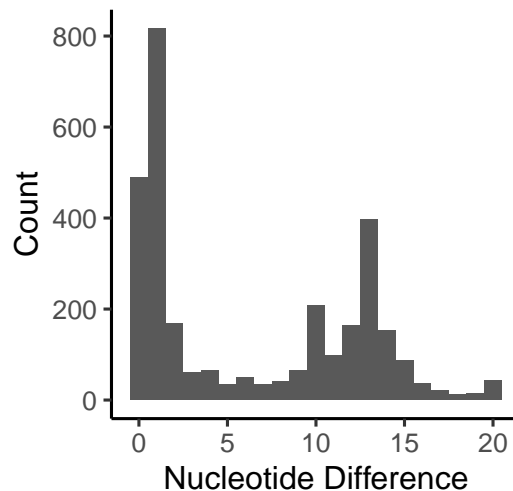
### IGHV3-13\*01

194 sequences assigned  
4 (2.1%) exact matches, in which:  
4 unique CDR3  
2 unique J



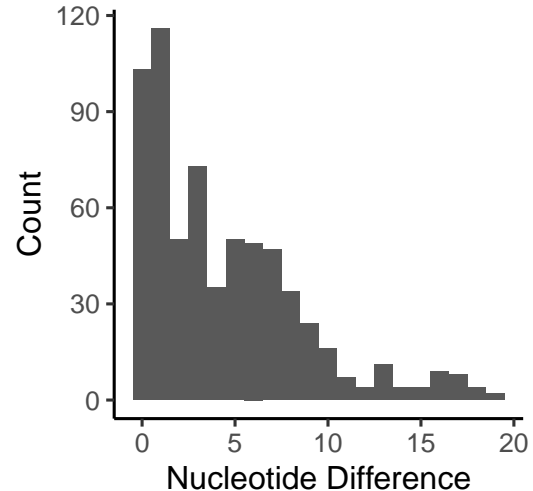
### IGHV3-15\*01\_02

3706 sequences assigned  
490 (13.2%) exact matches, in which:  
270 unique CDR3  
6 unique J



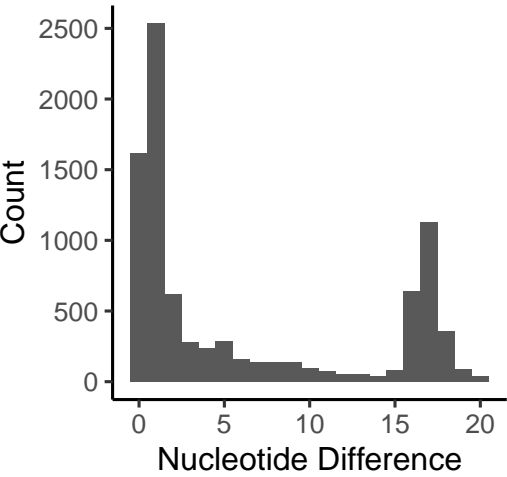
### IGHV3-21\*04

656 sequences assigned  
103 (15.7%) exact matches, in which:  
85 unique CDR3  
6 unique J



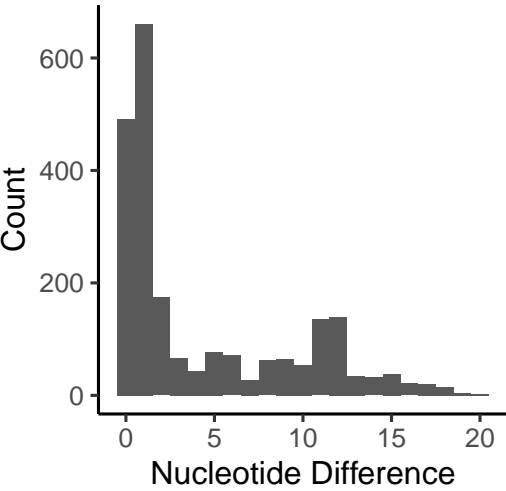
IGHV3-21\*01\_02

8849 sequences assigned  
1620 (18.3%) exact matches, in which:  
900 unique CDR3  
7 unique J



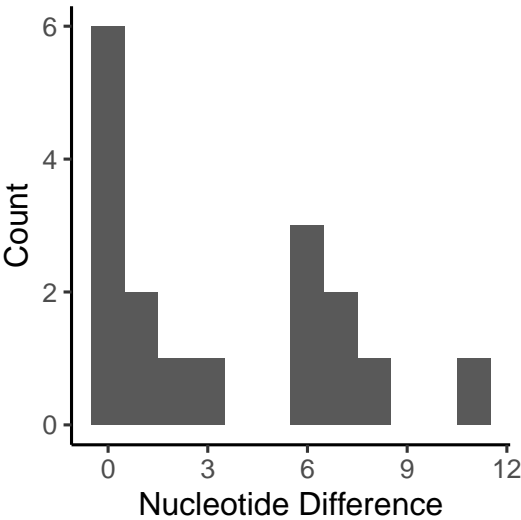
IGHV3-30\*01

2548 sequences assigned  
491 (19.3%) exact matches, in which:  
311 unique CDR3  
7 unique J



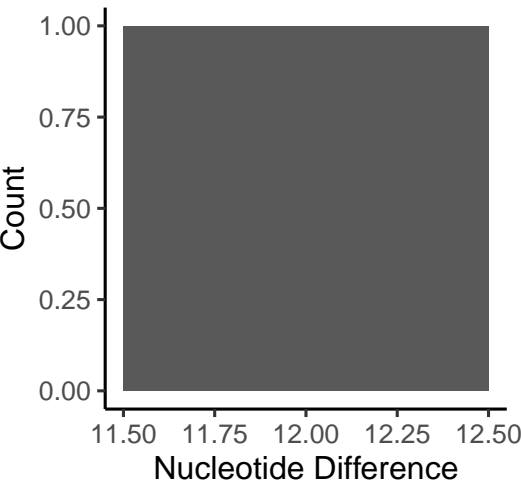
IGHV3-30-3\*03

17 sequences assigned  
6 (35.3%) exact matches, in which:  
6 unique CDR3  
3 unique J



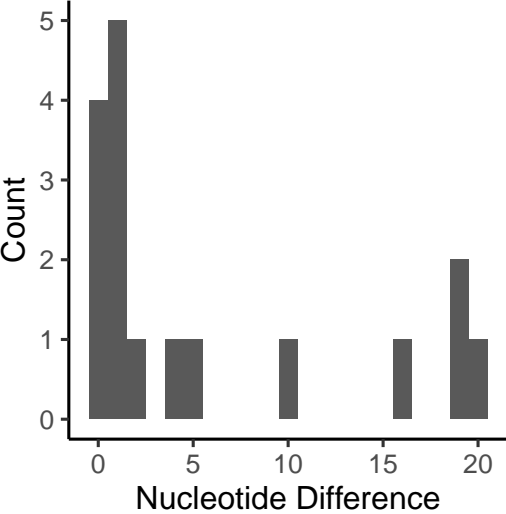
IGHV3-22\*01\_02

1 sequences assigned  
No exact matches.



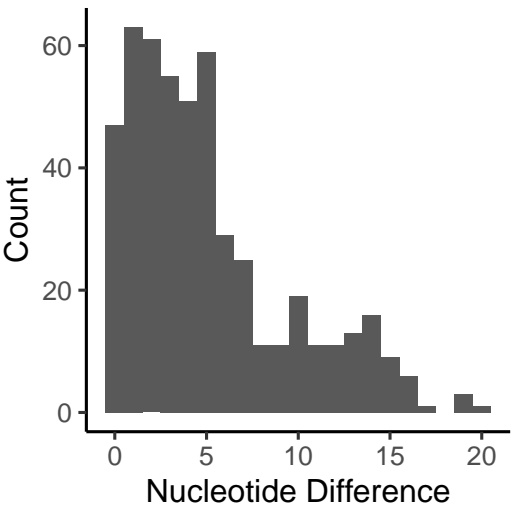
IGHV3-30-3\*01

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



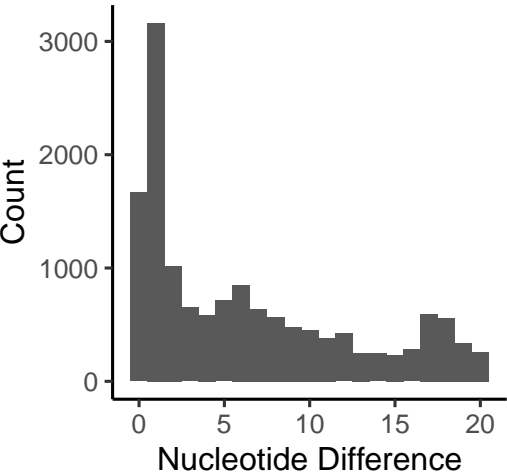
IGHV3-30\*07

511 sequences assigned  
47 (9.2%) exact matches, in which:  
45 unique CDR3  
6 unique J



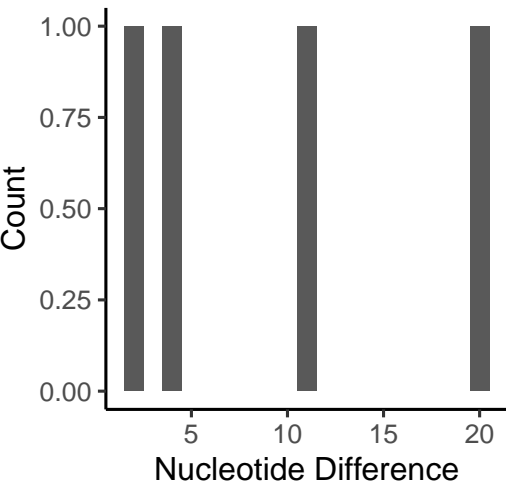
IGHV3-23\*01\_04

22210 sequences assigned  
1668 (7.5%) exact matches, in which:  
919 unique CDR3  
7 unique J



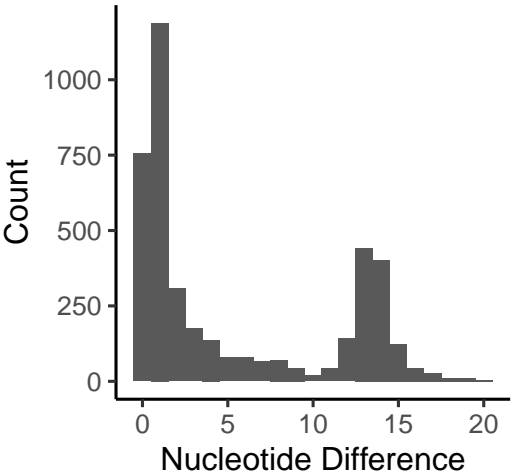
IGHV3-30-3\*02

22 sequences assigned  
No exact matches.



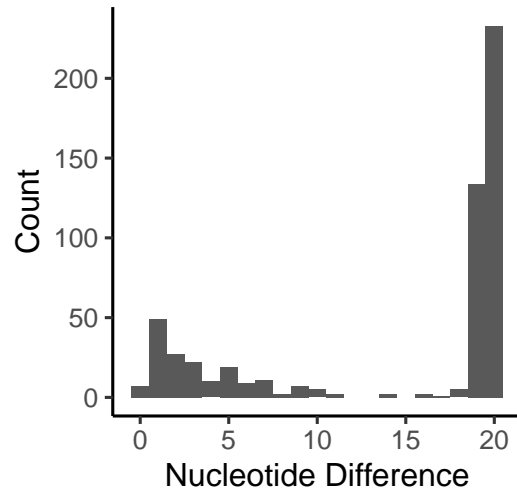
IGHV3-33\*01

4198 sequences assigned  
755 (18%) exact matches, in which:  
478 unique CDR3  
7 unique J



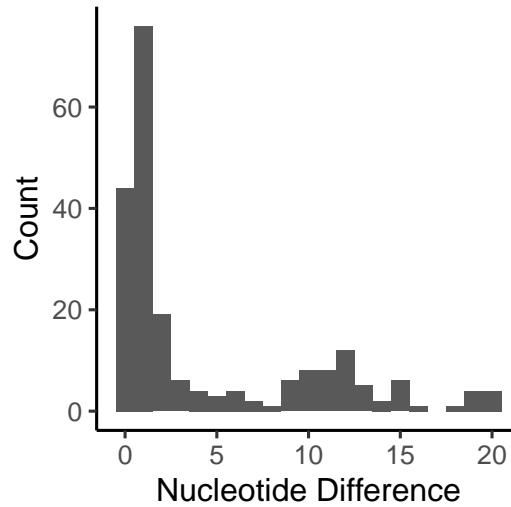
### IGHV3-33\*05

3192 sequences assigned  
7 (0.2%) exact matches, in which:  
7 unique CDR3  
4 unique J



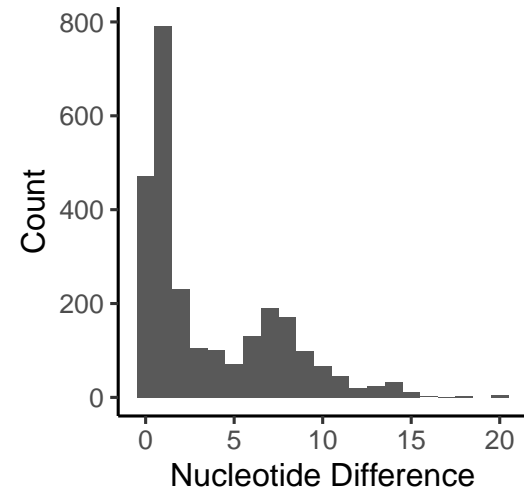
### IGHV3-43\*01

425 sequences assigned  
44 (10.4%) exact matches, in which:  
28 unique CDR3  
2 unique J



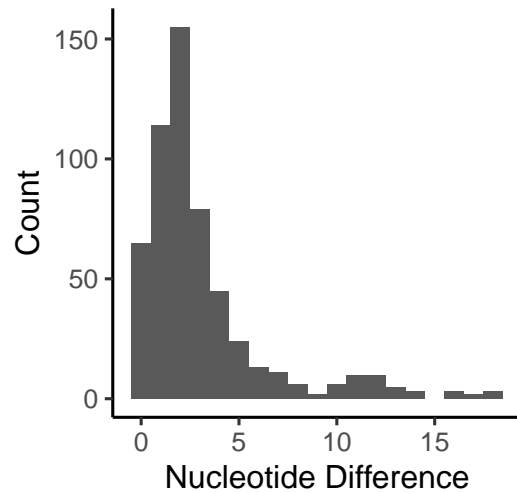
### IGHV3-48\*02

2641 sequences assigned  
472 (17.9%) exact matches, in which:  
285 unique CDR3  
6 unique J



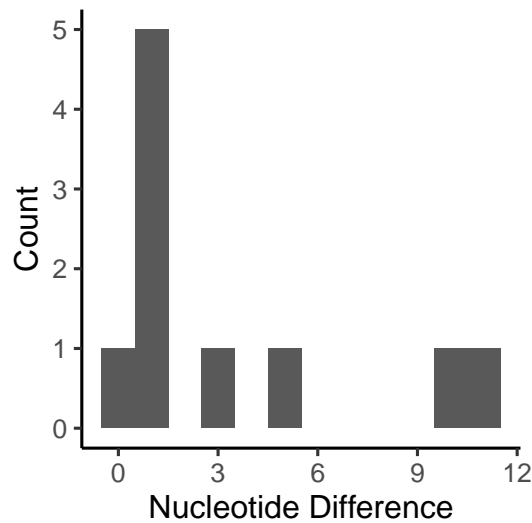
### IGHV3-33\*06

559 sequences assigned  
65 (11.6%) exact matches, in which:  
56 unique CDR3  
6 unique J



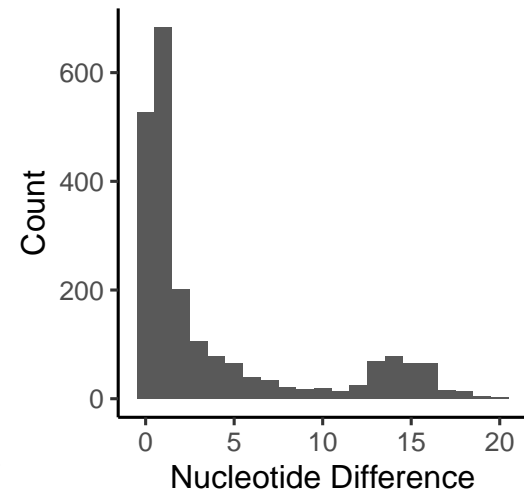
### IGHV3-47\*01

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



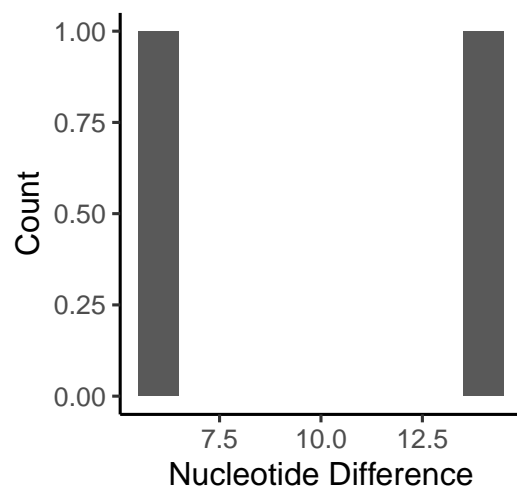
### IGHV3-48\*04

2535 sequences assigned  
527 (20.8%) exact matches, in which:  
343 unique CDR3  
7 unique J



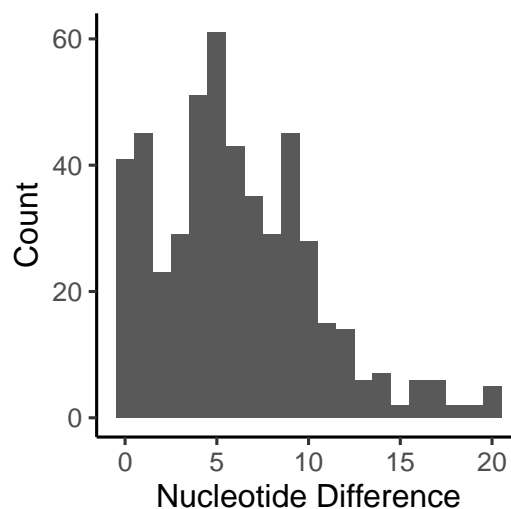
### IGHV3-35\*01

2 sequences assigned  
No exact matches.



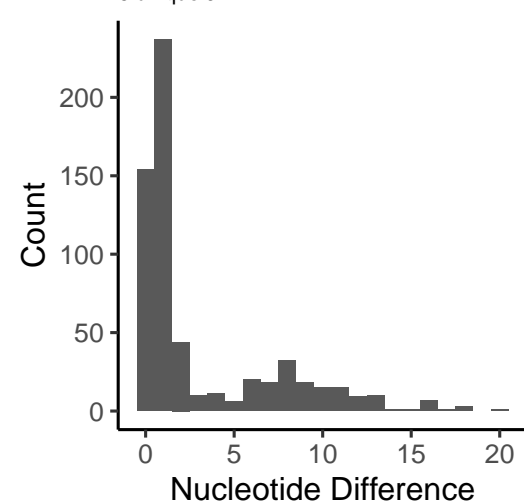
### IGHV3-48\*01

781 sequences assigned  
41 (5.2%) exact matches, in which:  
37 unique CDR3  
6 unique J



### IGHV3-49\*03\_05

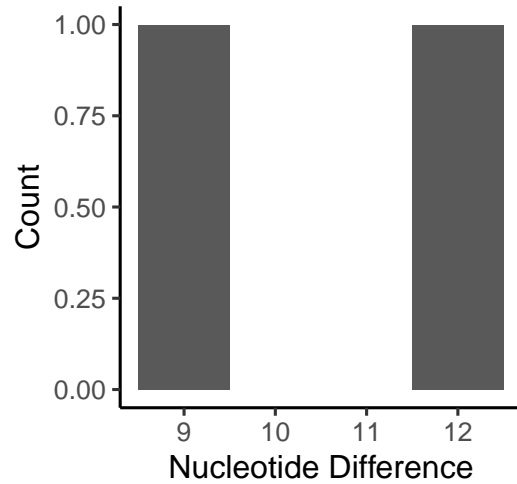
614 sequences assigned  
154 (25.1%) exact matches, in which:  
104 unique CDR3  
6 unique J





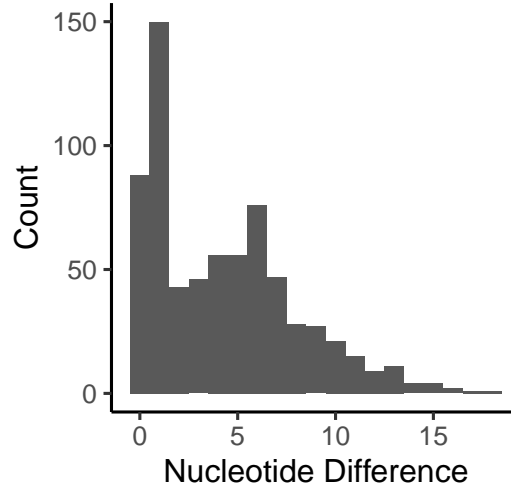
### IGHV3-52\*01\_03

2 sequences assigned  
No exact matches.



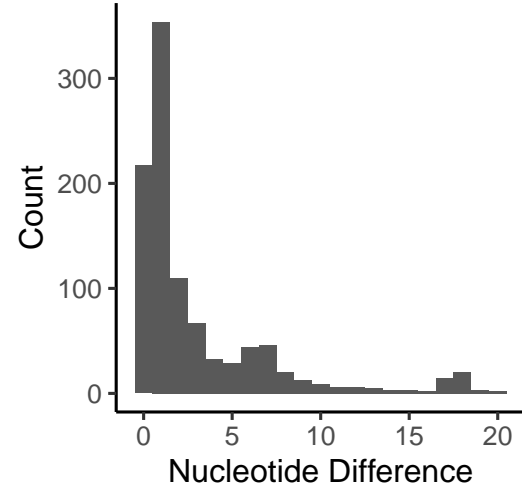
### IGHV3-53\*01\_02

690 sequences assigned  
88 (12.8%) exact matches, in which:  
59 unique CDR3  
6 unique J



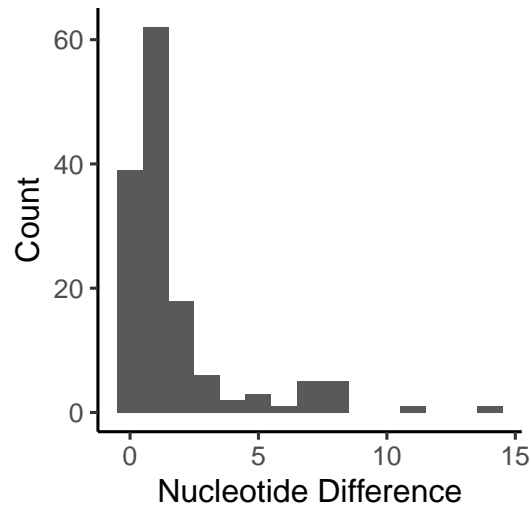
### IGHV3-66\*01

1012 sequences assigned  
217 (21.4%) exact matches, in which:  
147 unique CDR3  
6 unique J



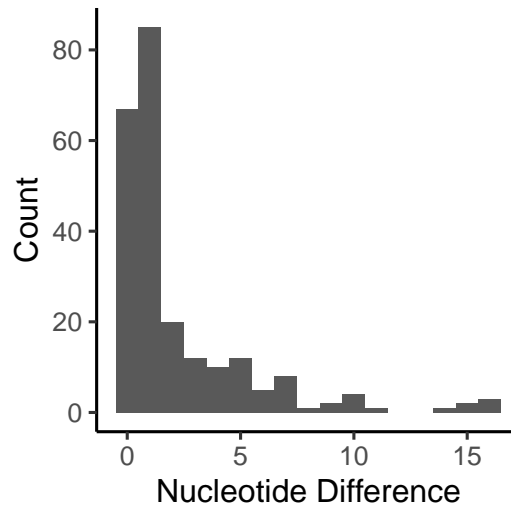
### IGHV3-53\*04

143 sequences assigned  
39 (27.3%) exact matches, in which:  
24 unique CDR3  
6 unique J



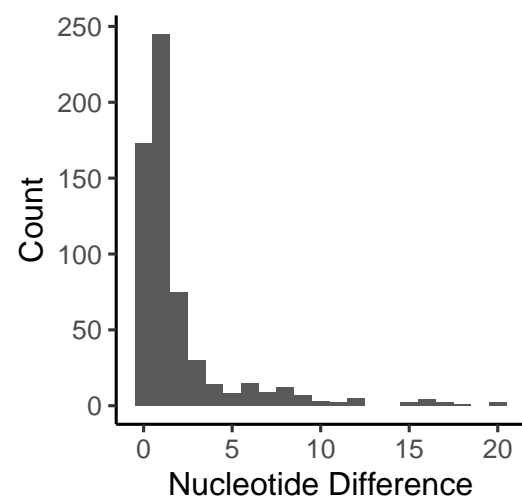
### IGHV3-64\*01

233 sequences assigned  
67 (28.8%) exact matches, in which:  
44 unique CDR3  
6 unique J



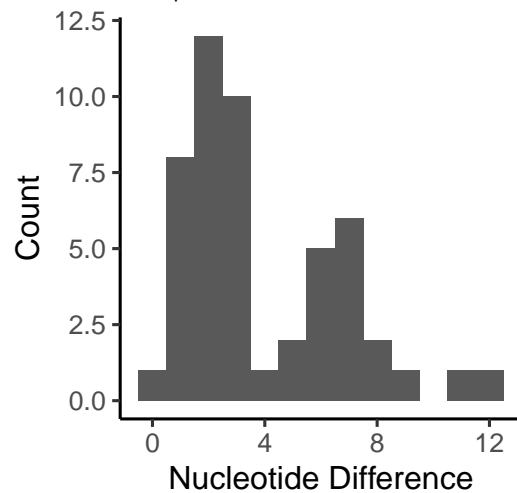
### IGHV3-66\*02

610 sequences assigned  
173 (28.4%) exact matches, in which:  
121 unique CDR3  
7 unique J



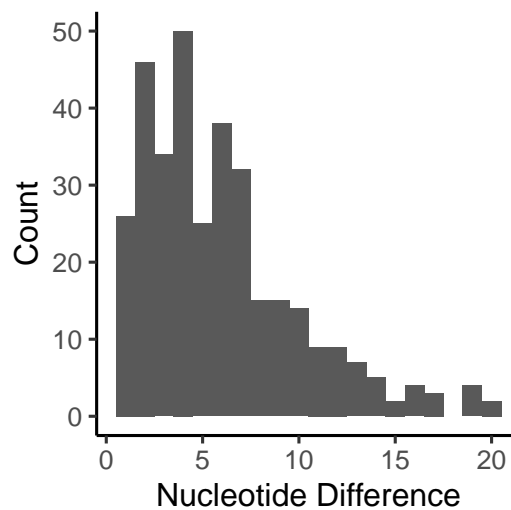
### IGHV3-53\*05

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



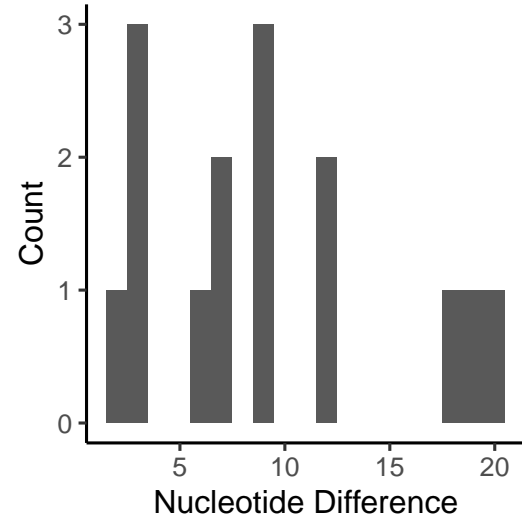
### IGHV3-64\*04

345 sequences assigned  
No exact matches.



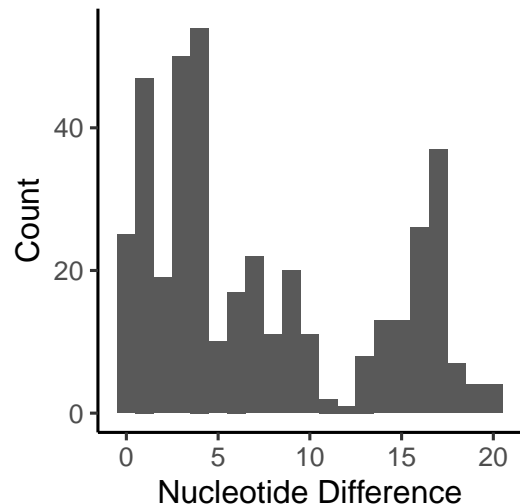
### IGHV3-69-1\*01

17 sequences assigned  
No exact matches.



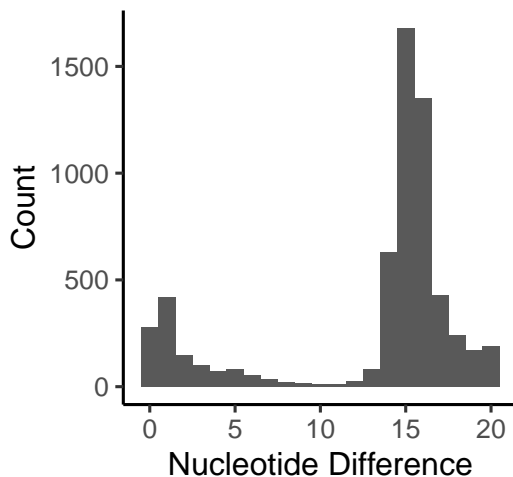
### IGHV3-72\*01

406 sequences assigned  
25 (6.2%) exact matches, in which:  
16 unique CDR3  
4 unique J



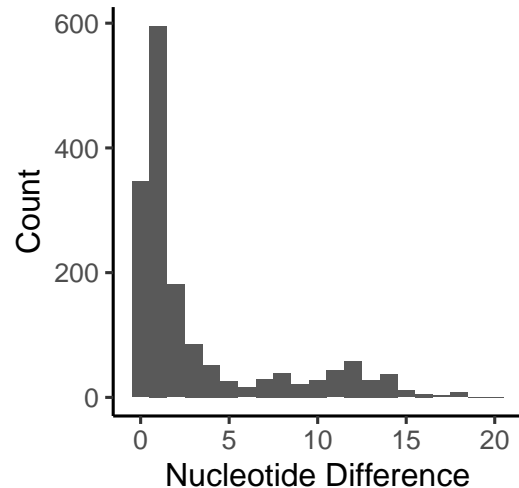
### IGHV3-74\*01\_02

6226 sequences assigned  
281 (4.5%) exact matches, in which:  
189 unique CDR3  
7 unique J



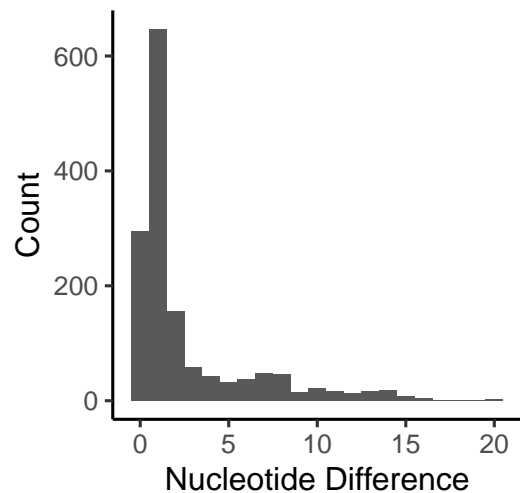
### IGHV3-64D\*06

1777 sequences assigned  
346 (19.5%) exact matches, in which:  
209 unique CDR3  
7 unique J



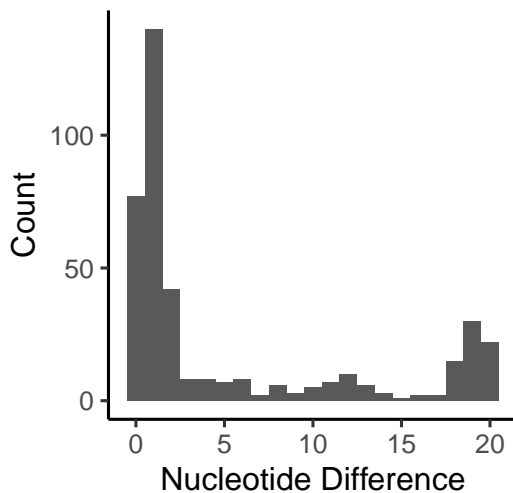
### IGHV3-73\*01\_02

1481 sequences assigned  
295 (19.9%) exact matches, in which:  
173 unique CDR3  
6 unique J



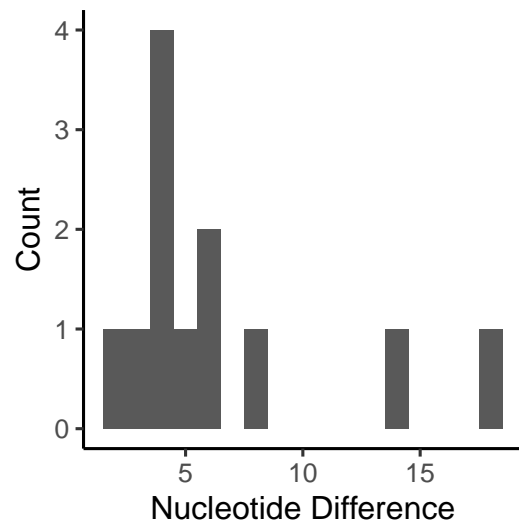
### IGHV3-43D\*03

417 sequences assigned  
77 (18.5%) exact matches, in which:  
45 unique CDR3  
4 unique J



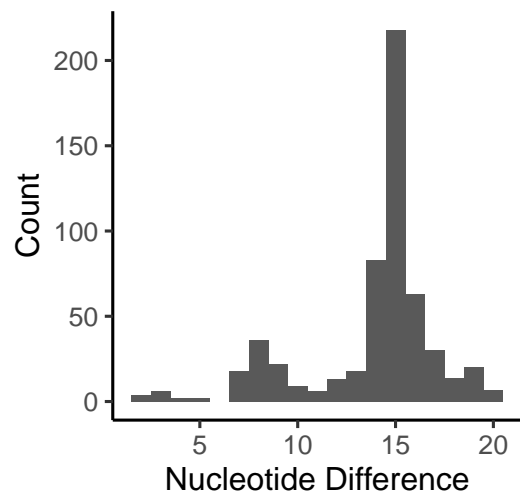
### IGHV3-NL1\*01

15 sequences assigned  
No exact matches.



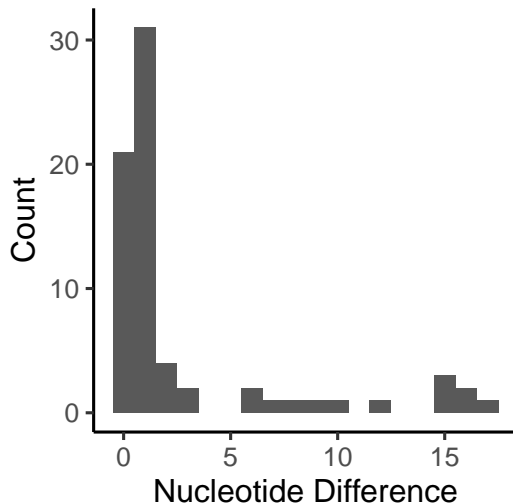
### IGHV3-74\*03

621 sequences assigned  
No exact matches.



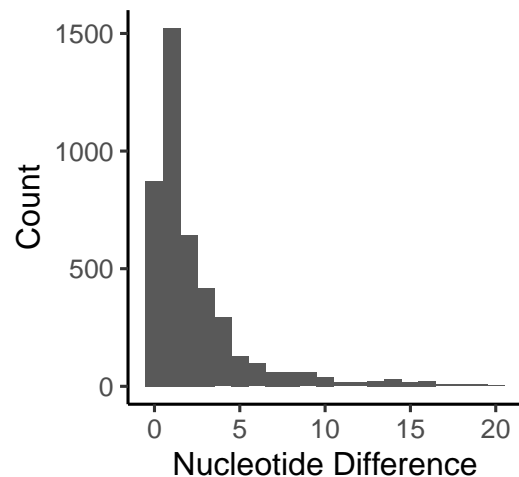
### IGHV3-43D\*04

72 sequences assigned  
21 (29.2%) exact matches, in which:  
16 unique CDR3  
4 unique J



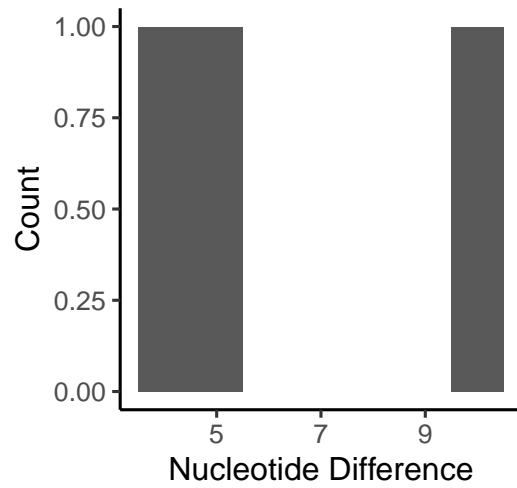
### IGHV4-4\*02\_03

6369 sequences assigned  
874 (13.7%) exact matches, in which:  
567 unique CDR3  
7 unique J



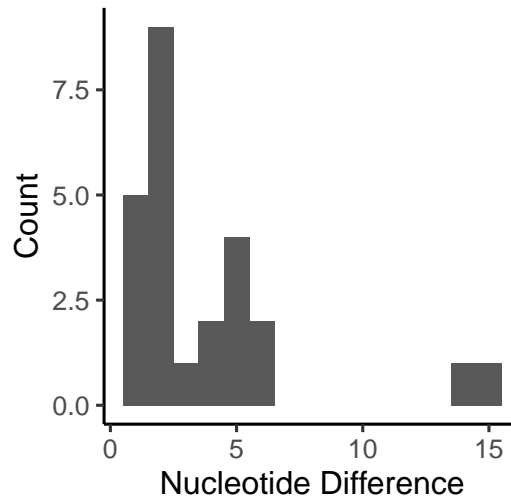
### IGHV4-28\*03

3 sequences assigned  
No exact matches.



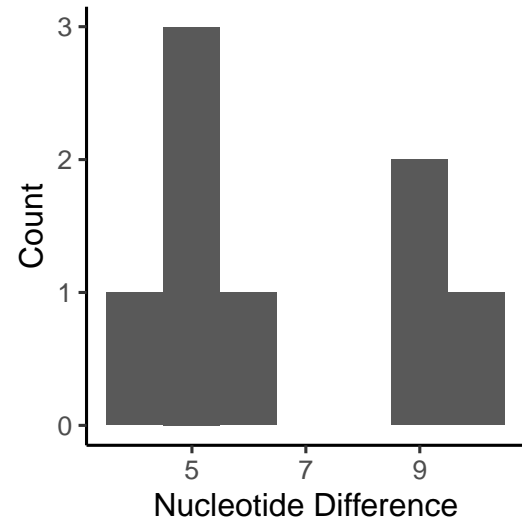
### IGHV4-30-2\*03

25 sequences assigned  
No exact matches.



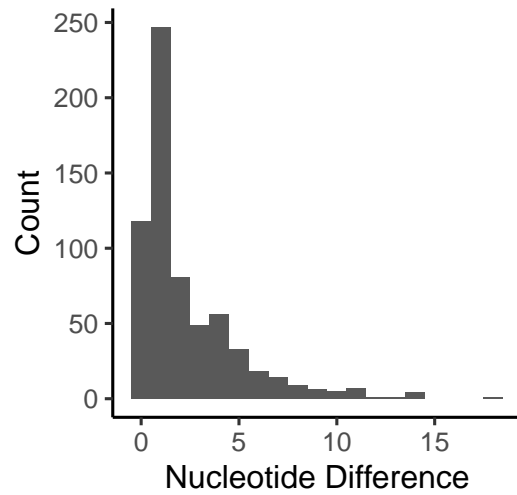
### IGHV4-30-4\*07

8 sequences assigned  
No exact matches.



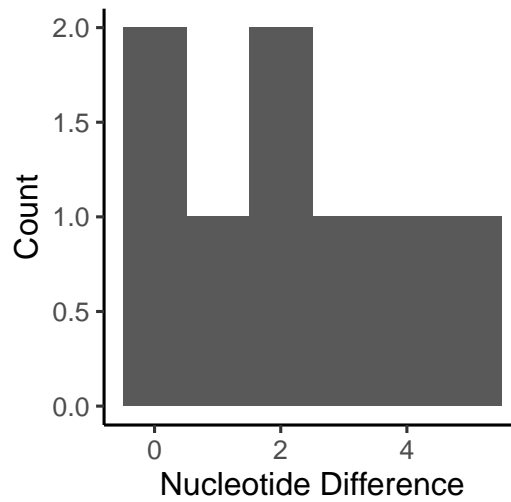
### IGHV4-30-2\*01

650 sequences assigned  
118 (18.2%) exact matches, in which:  
63 unique CDR3  
4 unique J



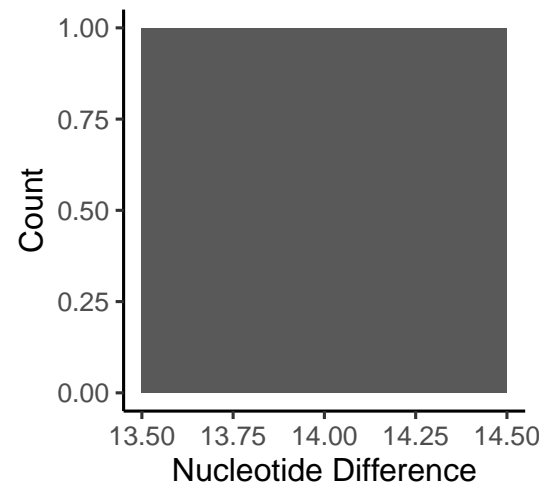
### IGHV4-30-2\*04

8 sequences assigned  
2 (25%) exact matches, in which:  
2 unique CDR3  
1 unique J



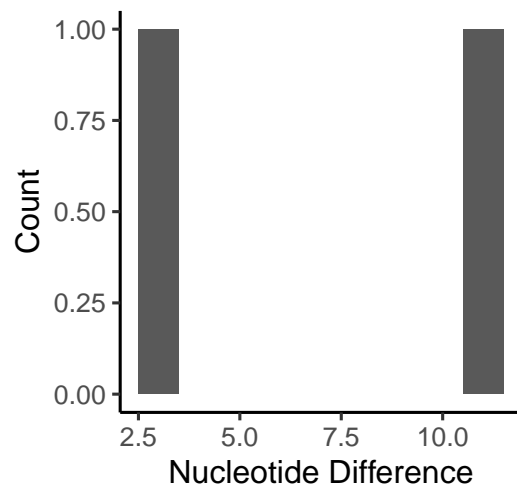
### IGHV4-30-4\*08

2 sequences assigned  
No exact matches.



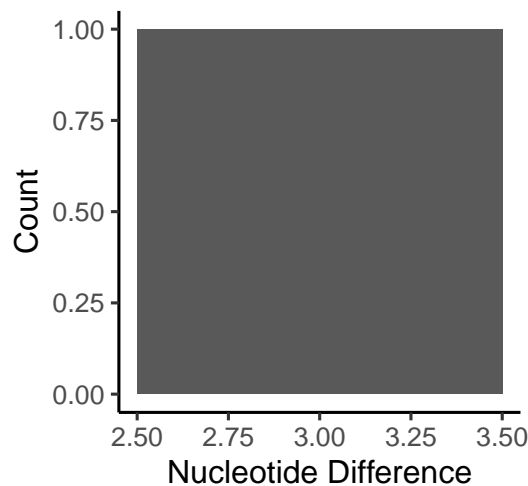
### IGHV4-30-4\*01

2 sequences assigned  
No exact matches.



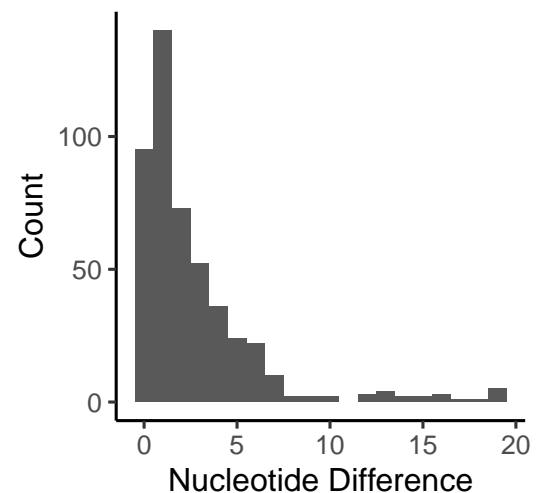
### IGHV4-30-4\*05

1 sequences assigned  
No exact matches.



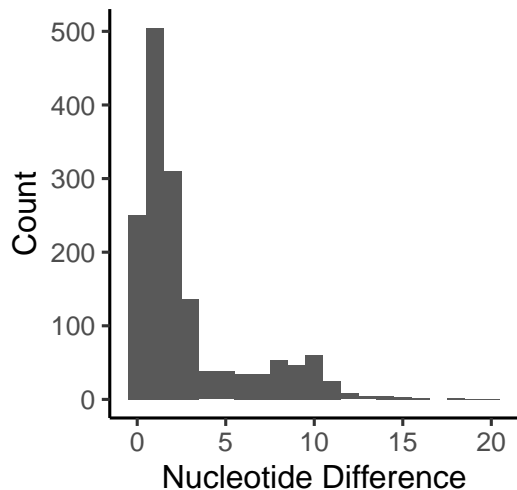
### IGHV4-31\*01

2590 sequences assigned  
95 (3.7%) exact matches, in which:  
64 unique CDR3  
5 unique J



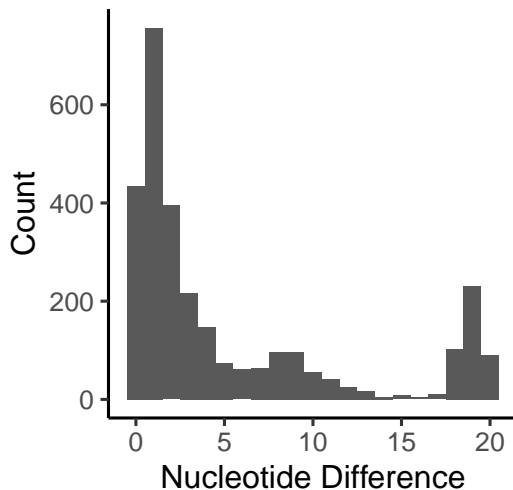
### IGHV4-31\*02\_G92A\_C1'

1558 sequences assigned  
251 (16.1%) exact matches, in which:  
210 unique CDR3  
6 unique J



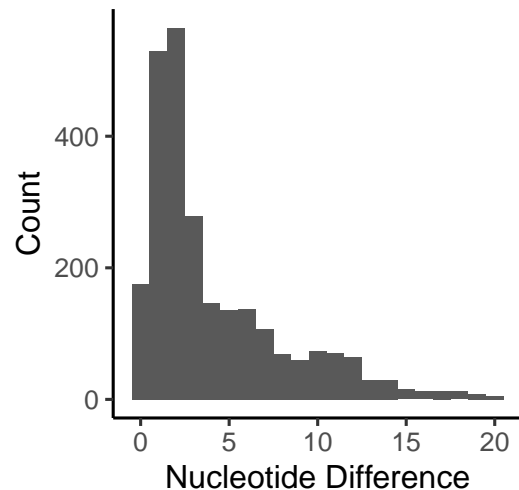
### IGHV4-38-2\*02

3038 sequences assigned  
435 (14.3%) exact matches, in which:  
318 unique CDR3  
7 unique J



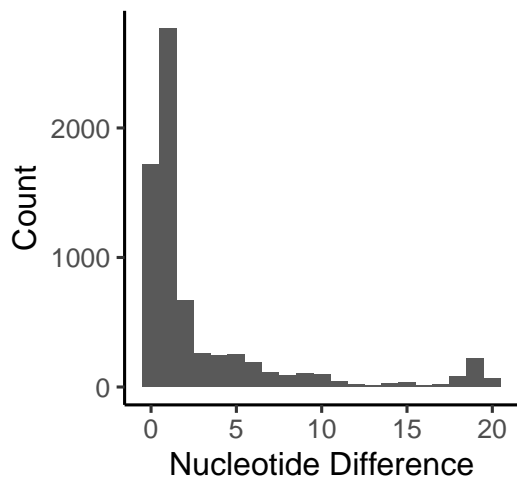
### IGHV4-59\*12

2768 sequences assigned  
176 (6.4%) exact matches, in which:  
152 unique CDR3  
7 unique J



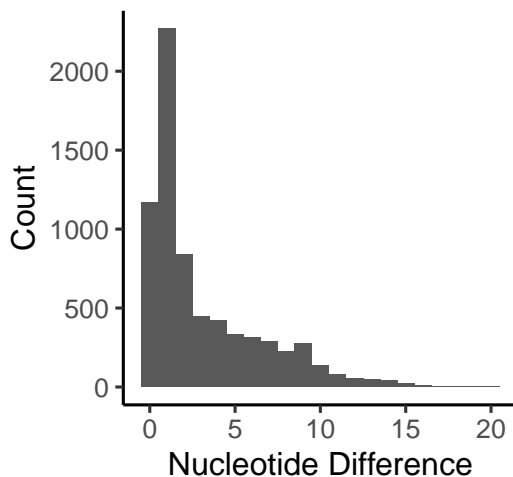
### IGHV4-34\*01\_02

7082 sequences assigned  
1717 (24.2%) exact matches, in which:  
1074 unique CDR3  
7 unique J



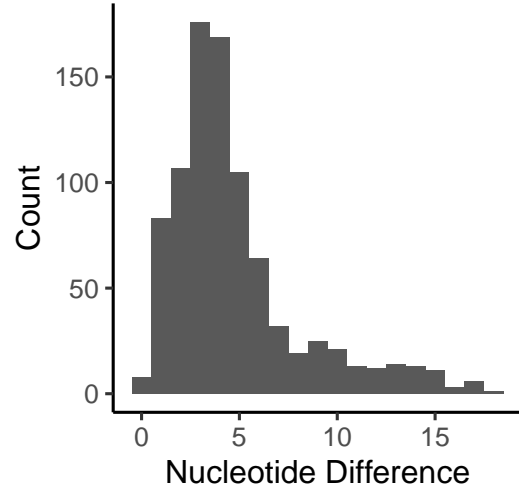
### IGHV4-39\*07

7776 sequences assigned  
1169 (15%) exact matches, in which:  
740 unique CDR3  
7 unique J



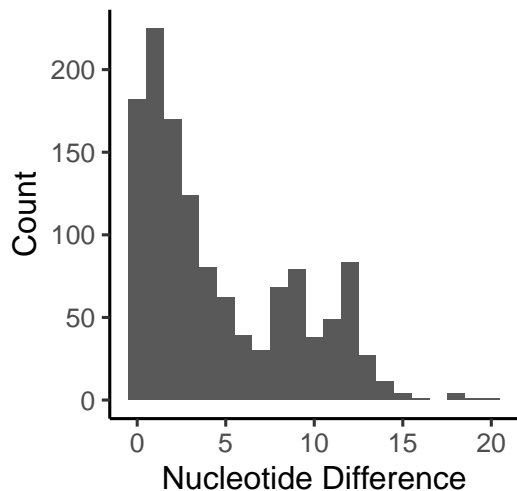
### IGHV4-61\*01

884 sequences assigned  
8 (0.9%) exact matches, in which:  
7 unique CDR3  
4 unique J



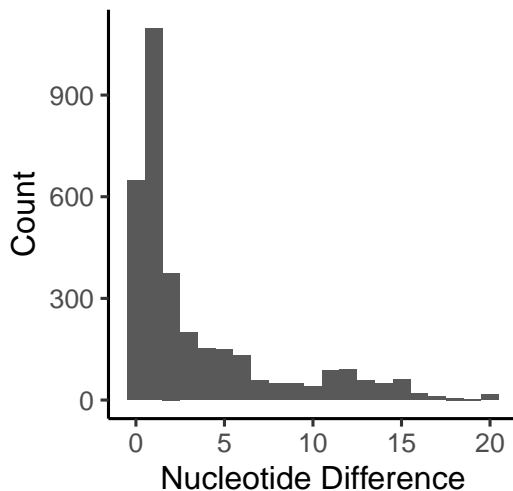
### IGHV4-38-2\*01

1281 sequences assigned  
182 (14.2%) exact matches, in which:  
159 unique CDR3  
7 unique J



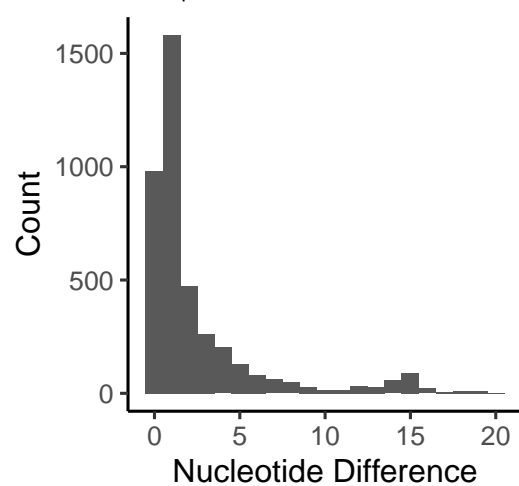
### IGHV4-59\*08

3756 sequences assigned  
647 (17.2%) exact matches, in which:  
431 unique CDR3  
7 unique J



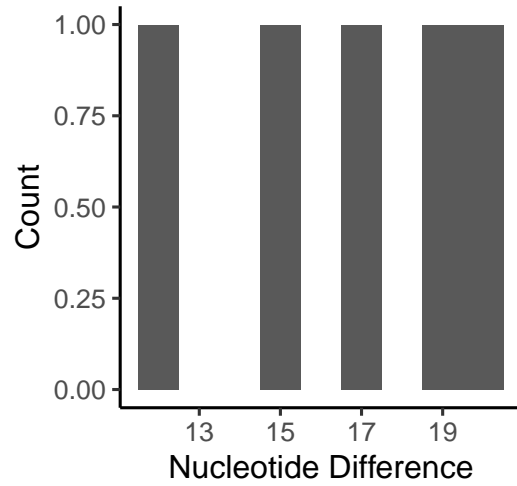
### IGHV4-61\*02

4147 sequences assigned  
980 (23.6%) exact matches, in which:  
682 unique CDR3  
7 unique J



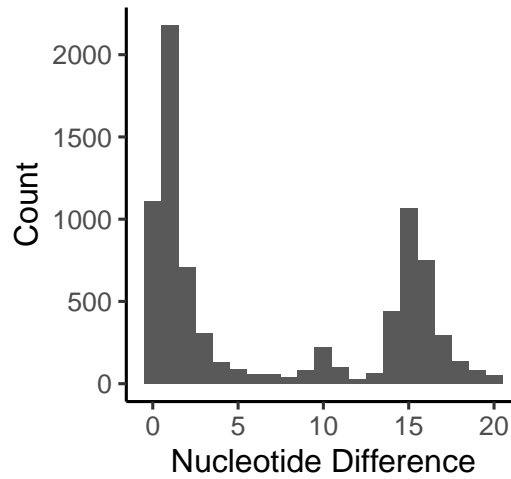
### IGHV1/OR15-2\*02\_03

5 sequences assigned  
No exact matches.



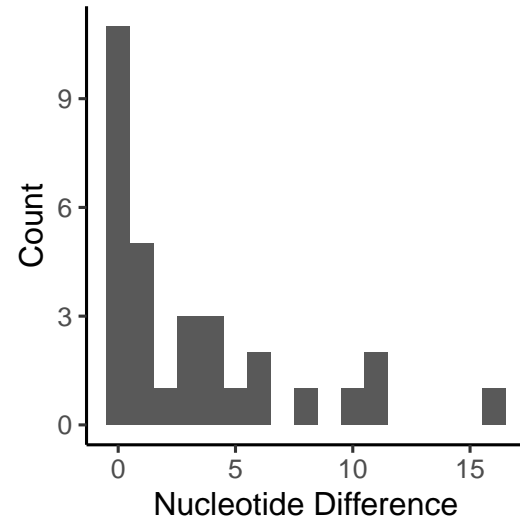
### IGHV5-10-1\*01\_03

8103 sequences assigned  
1112 (13.7%) exact matches, in which:  
628 unique CDR3  
6 unique J



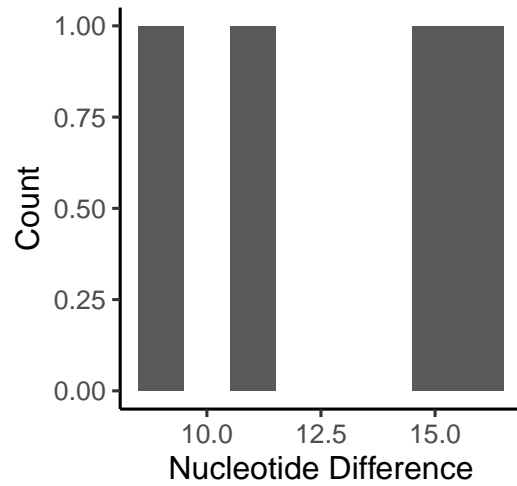
### IGHV5-51\*07

31 sequences assigned  
11 (35.5%) exact matches, in which:  
11 unique CDR3  
4 unique J



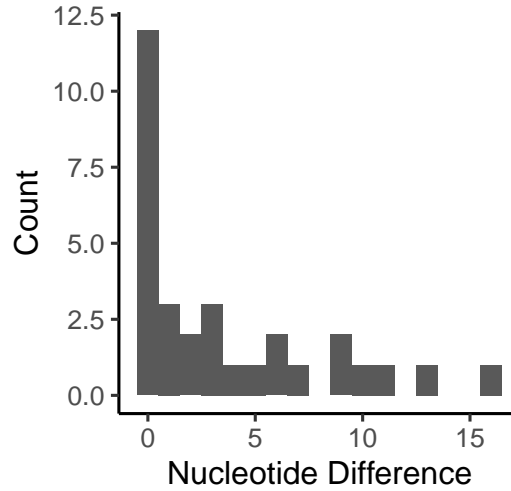
### IGHV1/OR15-3\*02

4 sequences assigned  
No exact matches.



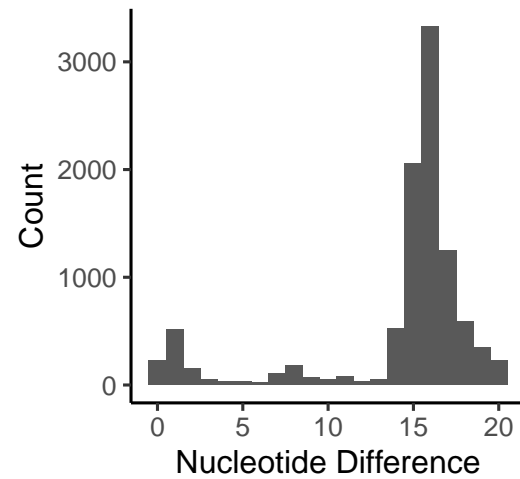
### IGHV5-51\*04

31 sequences assigned  
12 (38.7%) exact matches, in which:  
12 unique CDR3  
4 unique J



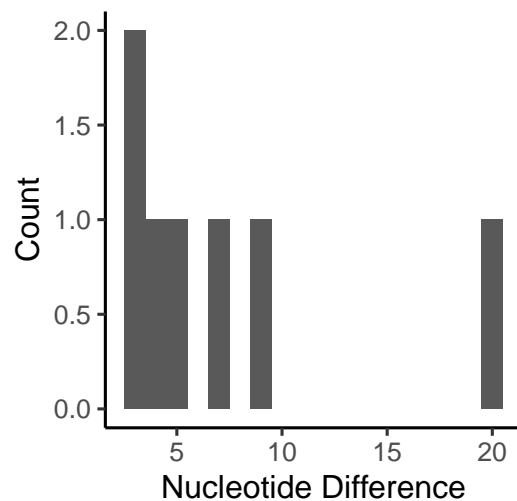
### IGHV6-1\*01\_02

10433 sequences assigned  
227 (2.2%) exact matches, in which:  
158 unique CDR3  
7 unique J



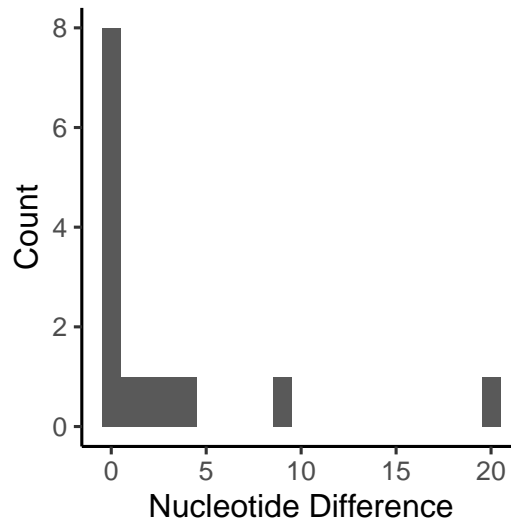
### IGHV4/OR15-8\*01

7 sequences assigned  
No exact matches.



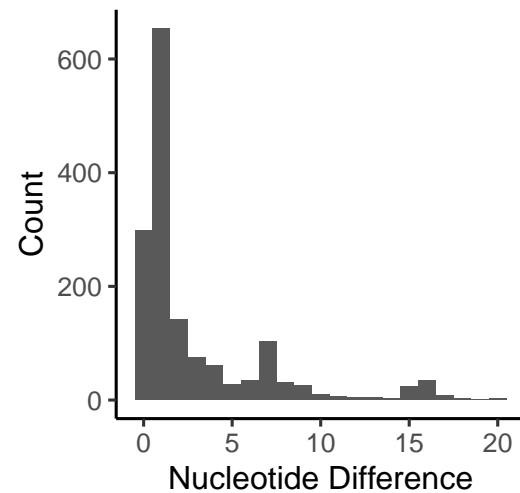
### IGHV5-51\*06

14 sequences assigned  
8 (57.1%) exact matches, in which:  
8 unique CDR3  
2 unique J

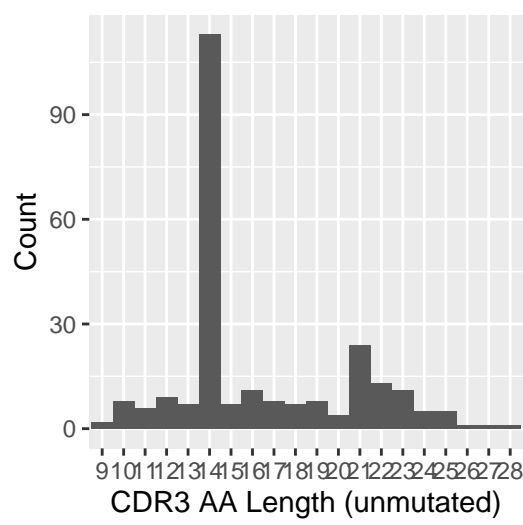


### IGHV7-4-1\*02

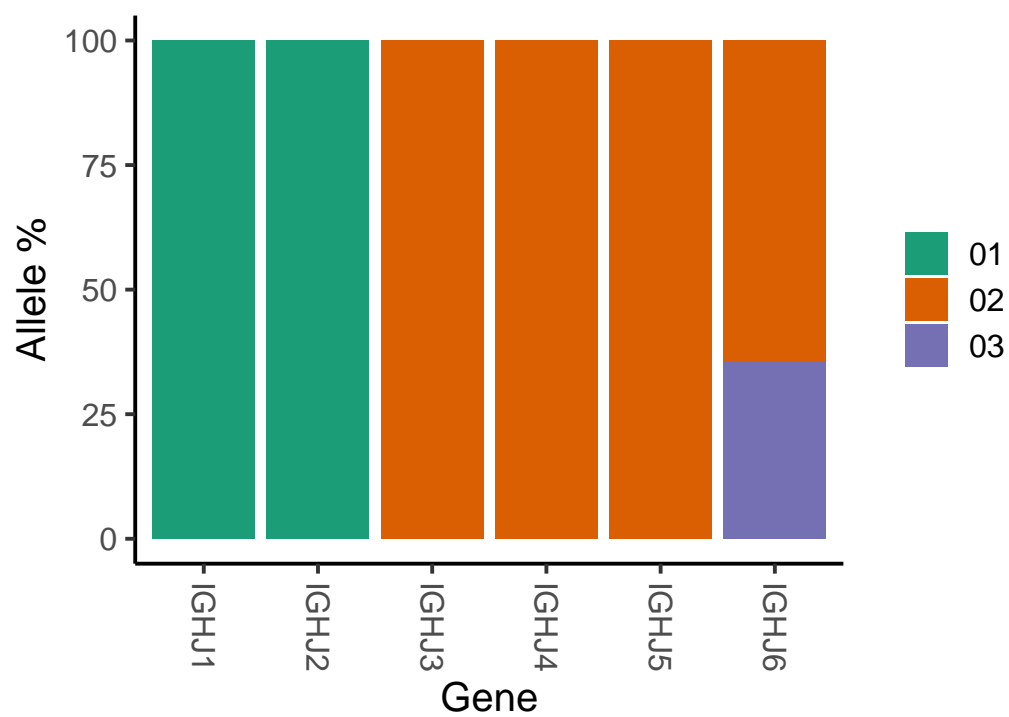
1555 sequences assigned  
299 (19.2%) exact matches, in which:  
205 unique CDR3  
7 unique J



IGHV4-31\*02\_G92A\_C111T\_A113T\_A138T\_A164G\_A225C\_A234C\_G238C\_A240T\_T249C\_A25



Allele Usage



## Sequence Count by IGHJ6 allele usage





