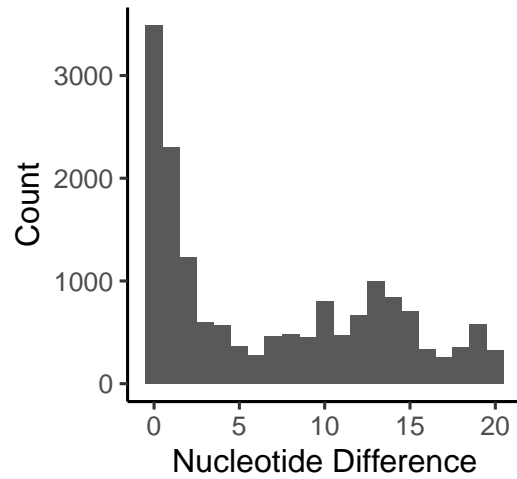


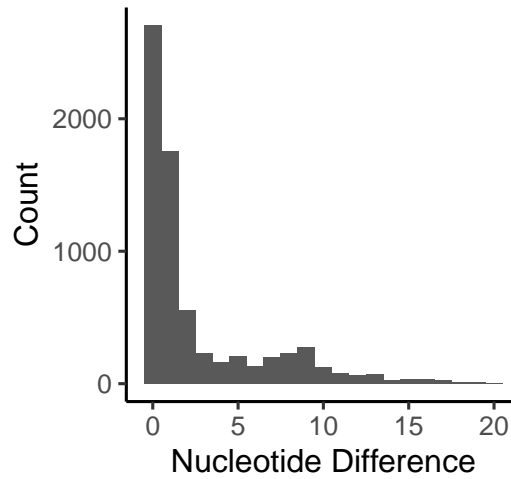
### IGHV1-2\*02

18221 sequences assigned  
3488 (19.1%) exact matches, in which:  
3129 unique CDR3  
7 unique J



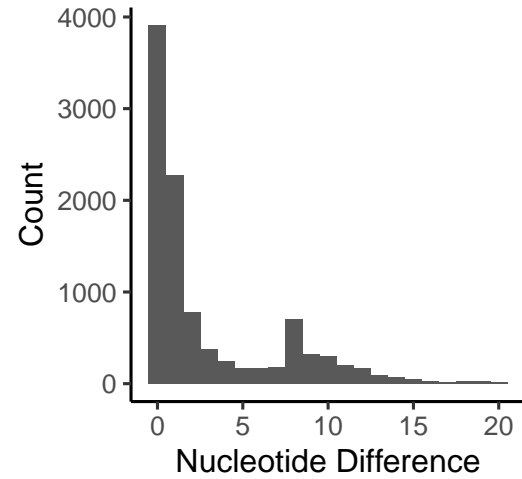
### IGHV1-8\*01

6969 sequences assigned  
2705 (38.8%) exact matches, in which:  
2463 unique CDR3  
7 unique J



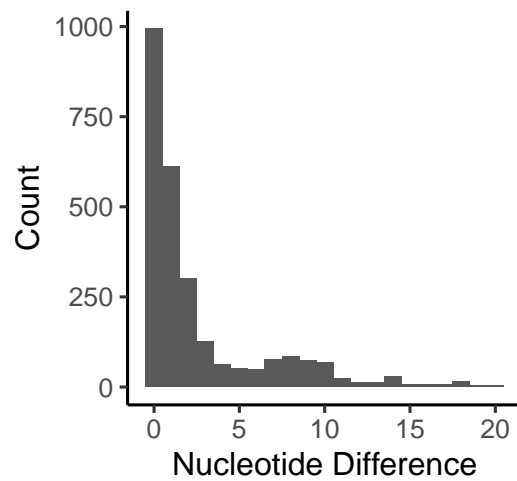
### IGHV1-18\*04

10271 sequences assigned  
3908 (38%) exact matches, in which:  
3555 unique CDR3  
7 unique J



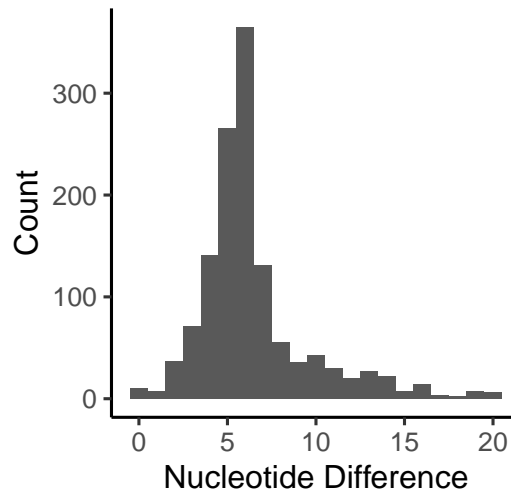
### IGHV1-2\*04

2627 sequences assigned  
994 (37.8%) exact matches, in which:  
913 unique CDR3  
7 unique J



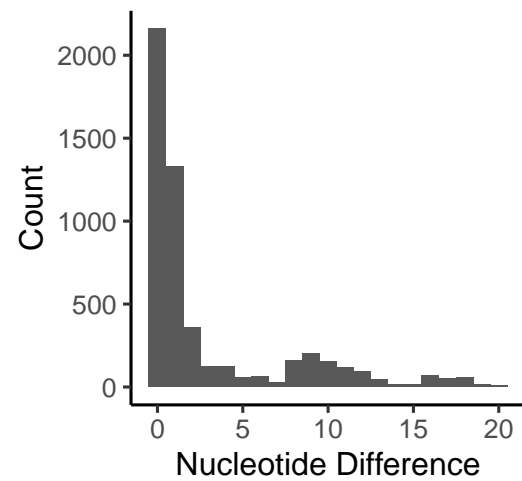
### IGHV1-8\*02

1318 sequences assigned  
10 (0.8%) exact matches, in which:  
10 unique CDR3  
4 unique J



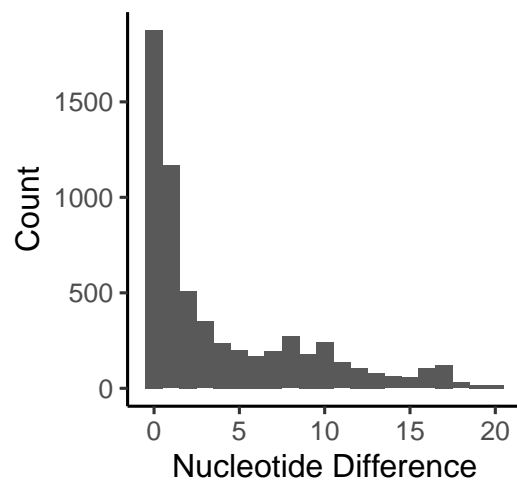
### IGHV1-24\*01

5319 sequences assigned  
2160 (40.6%) exact matches, in which:  
1976 unique CDR3  
7 unique J



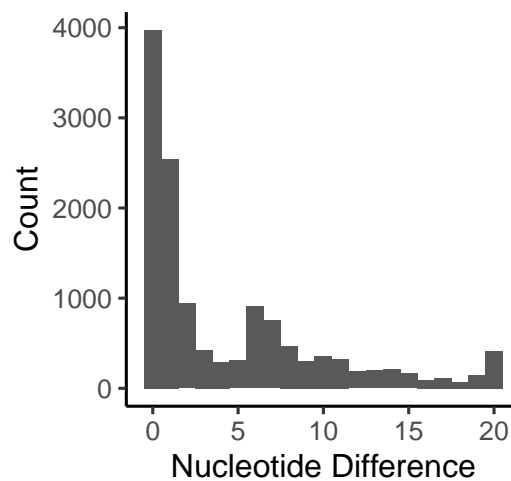
### IGHV1-3\*01\_05

6249 sequences assigned  
1876 (30%) exact matches, in which:  
1636 unique CDR3  
7 unique J



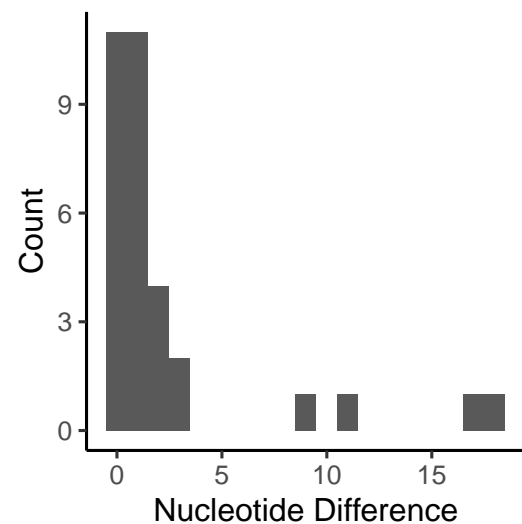
### IGHV1-18\*01

14494 sequences assigned  
3974 (27.4%) exact matches, in which:  
3633 unique CDR3  
7 unique J



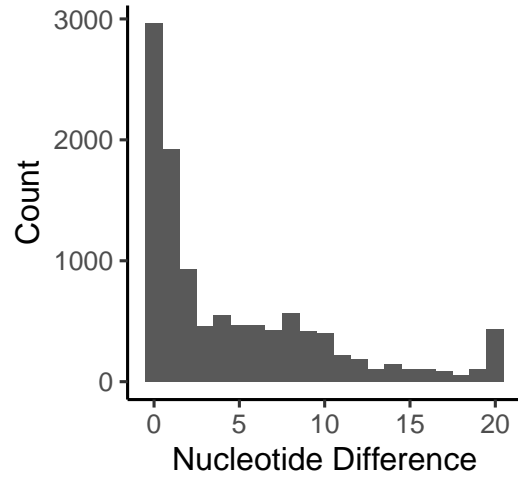
### IGHV1-45\*02

32 sequences assigned  
11 (34.4%) exact matches, in which:  
10 unique CDR3  
4 unique J



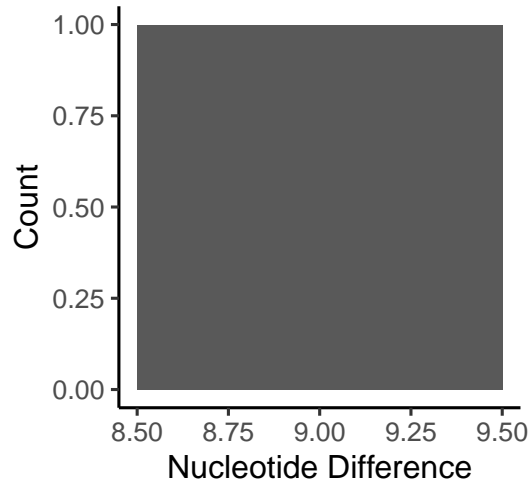
### IGHV1-46\*01

12846 sequences assigned  
2963 (23.1%) exact matches, in which:  
2700 unique CDR3  
7 unique J



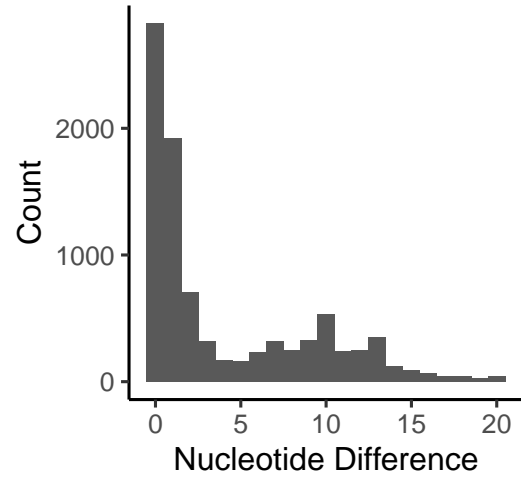
### IGHV1-68\*01

1 sequences assigned  
No exact matches.



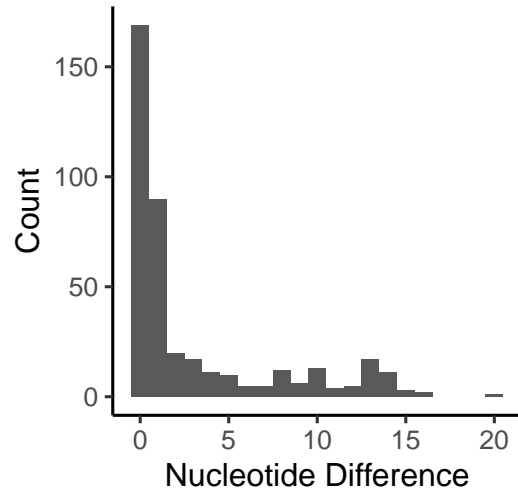
### IGHV1-69\*04\_09

9219 sequences assigned  
2828 (30.7%) exact matches, in which:  
2632 unique CDR3  
7 unique J



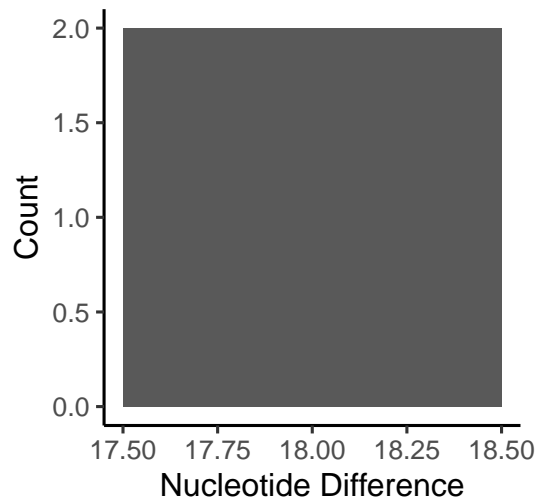
### IGHV1-58\*02

532 sequences assigned  
169 (31.8%) exact matches, in which:  
153 unique CDR3  
7 unique J



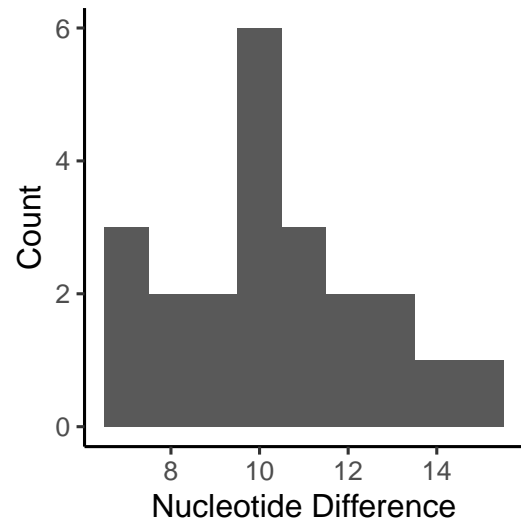
### IGHV1-69-2\*01

2 sequences assigned  
No exact matches.



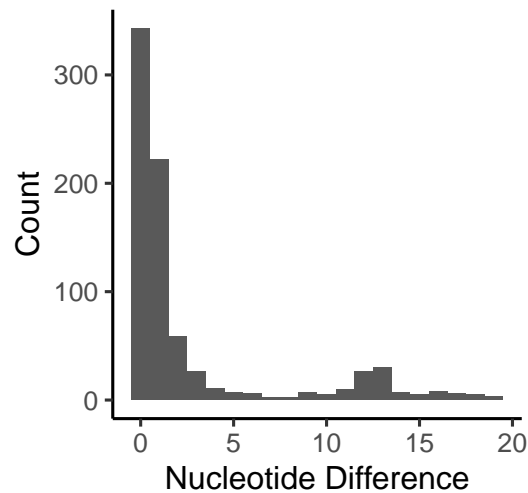
### IGHV1-NL1\*01

22 sequences assigned  
No exact matches.



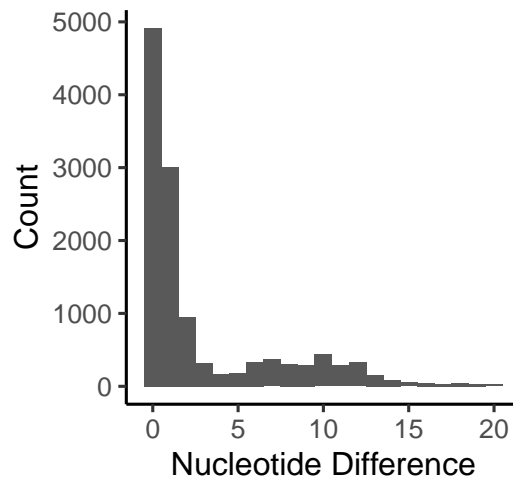
### IGHV1-58\*01\_03

794 sequences assigned  
343 (43.2%) exact matches, in which:  
311 unique CDR3  
7 unique J



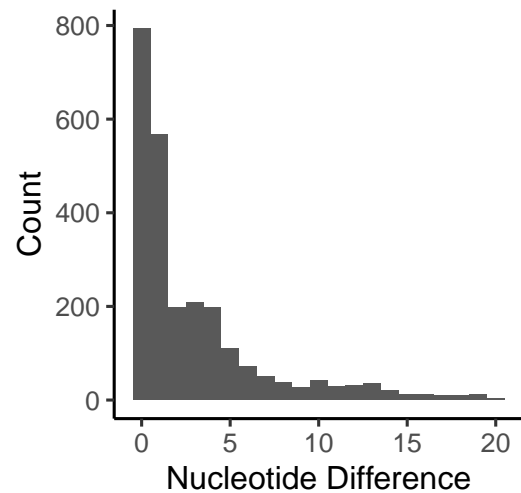
### IGHV1-69\*01\_12\_13

12451 sequences assigned  
4915 (39.5%) exact matches, in which:  
4534 unique CDR3  
7 unique J



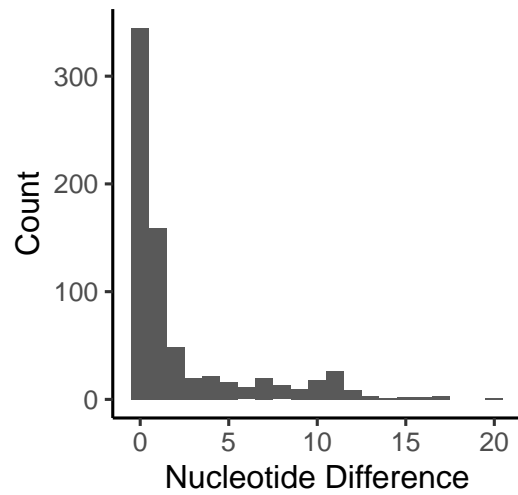
### IGHV2-5\*02

2509 sequences assigned  
794 (31.6%) exact matches, in which:  
712 unique CDR3  
7 unique J



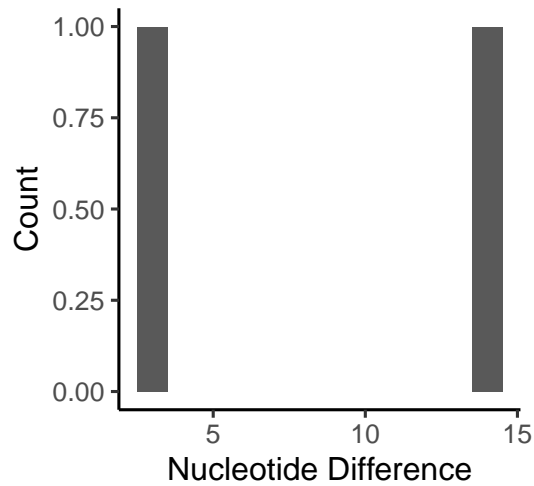
### IGHV2-26\*01

731 sequences assigned  
345 (47.2%) exact matches, in which:  
323 unique CDR3  
6 unique J



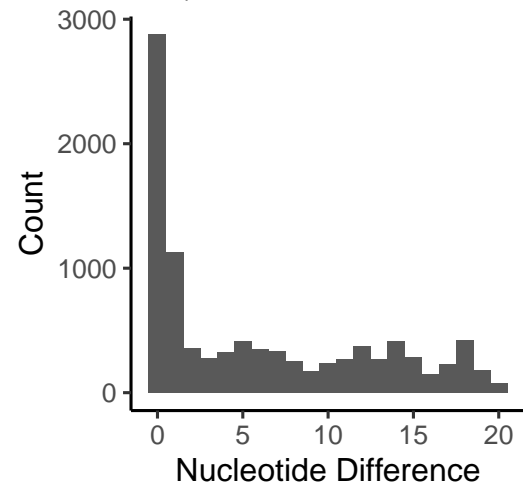
### IGHV2-70D\*04

3 sequences assigned  
No exact matches.



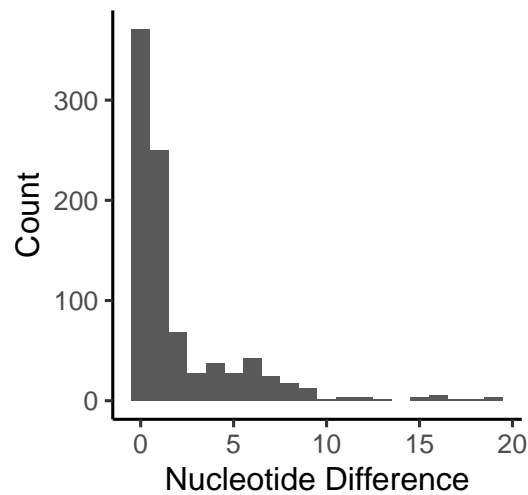
### IGHV3-9\*01

9579 sequences assigned  
2878 (30%) exact matches, in which:  
1950 unique CDR3  
7 unique J



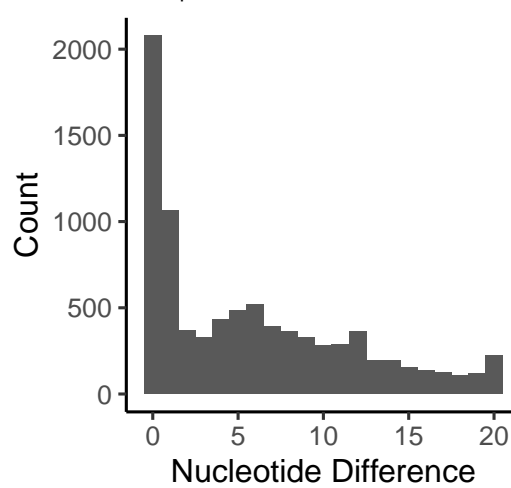
### IGHV2-70\*01

902 sequences assigned  
371 (41.1%) exact matches, in which:  
336 unique CDR3  
6 unique J



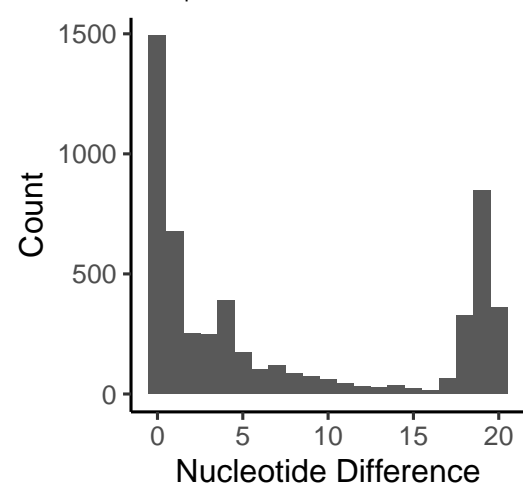
### IGHV3-7\*01

9197 sequences assigned  
2078 (22.6%) exact matches, in which:  
1509 unique CDR3  
7 unique J



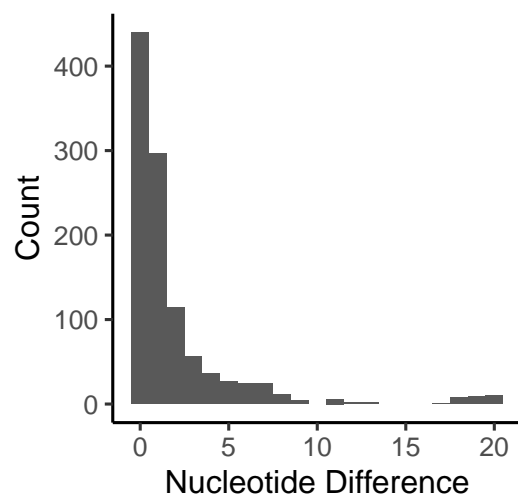
### IGHV3-11\*01

5774 sequences assigned  
1492 (25.8%) exact matches, in which:  
1054 unique CDR3  
7 unique J



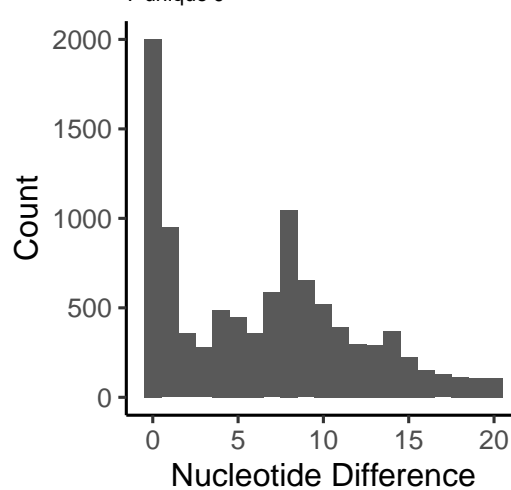
### IGHV2-70\*11\_15

1081 sequences assigned  
440 (40.7%) exact matches, in which:  
403 unique CDR3  
7 unique J



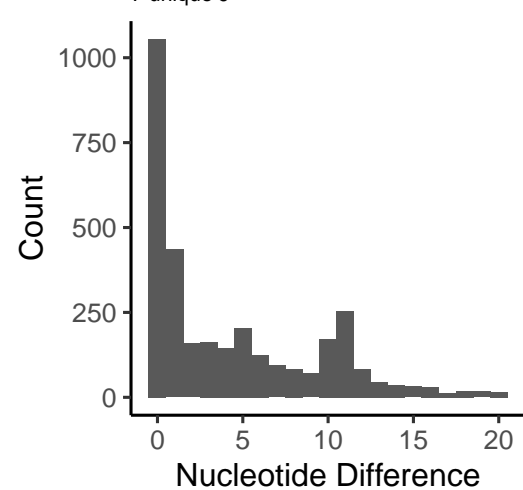
### IGHV3-7\*03

10248 sequences assigned  
2002 (19.5%) exact matches, in which:  
1389 unique CDR3  
7 unique J



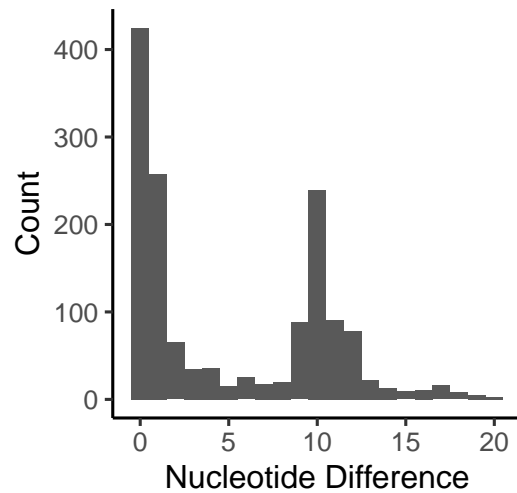
### IGHV3-11\*06

3301 sequences assigned  
1055 (32%) exact matches, in which:  
741 unique CDR3  
7 unique J



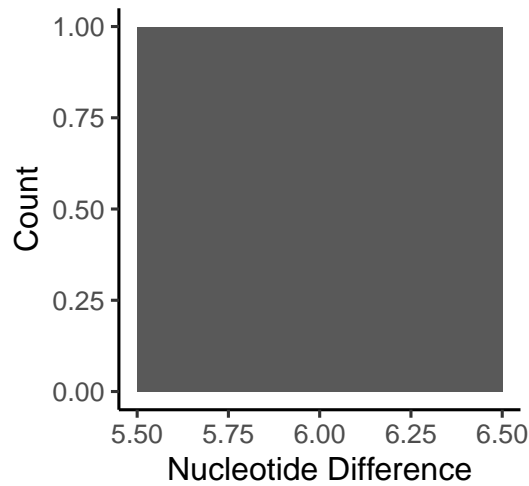
### IGHV3-13\*01

1485 sequences assigned  
425 (28.6%) exact matches, in which:  
258 unique CDR3  
7 unique J



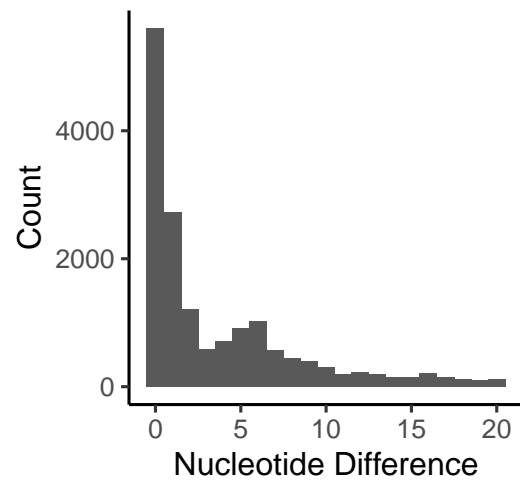
### IGHV3-19\*01

1 sequences assigned  
No exact matches.



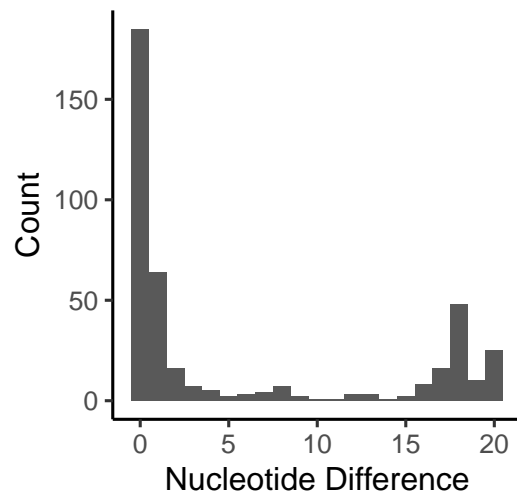
### IGHV3-21\*01\_02

16743 sequences assigned  
5600 (33.4%) exact matches, in which:  
3801 unique CDR3  
7 unique J



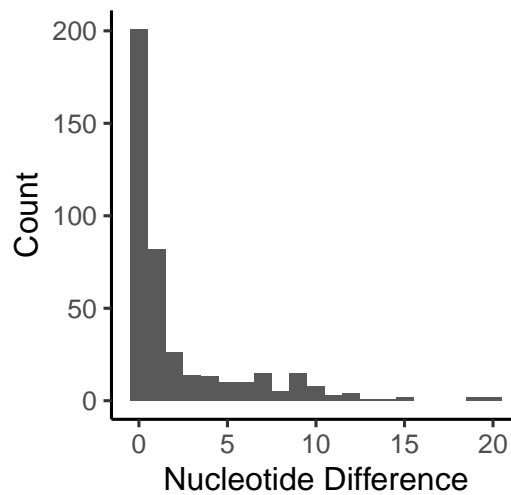
### IGHV3-13\*05

488 sequences assigned  
185 (37.9%) exact matches, in which:  
118 unique CDR3  
6 unique J



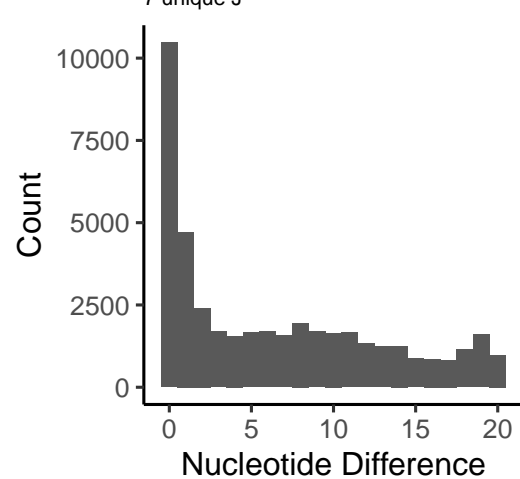
### IGHV3-20\*01\_02

430 sequences assigned  
201 (46.7%) exact matches, in which:  
127 unique CDR3  
6 unique J



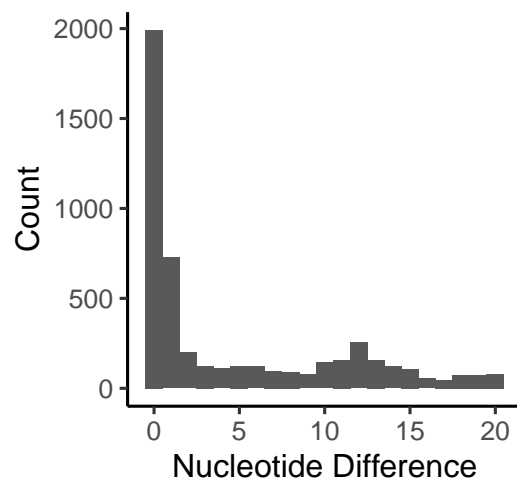
### IGHV3-23\*01\_04

48493 sequences assigned  
10476 (21.6%) exact matches, in which:  
6835 unique CDR3  
7 unique J



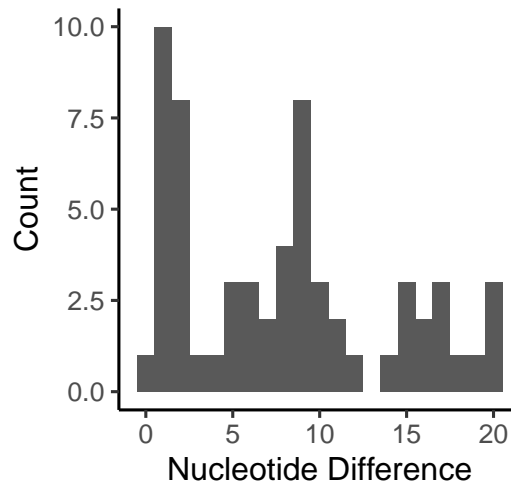
### IGHV3-15\*01\_02

5660 sequences assigned  
1992 (35.2%) exact matches, in which:  
1461 unique CDR3  
7 unique J



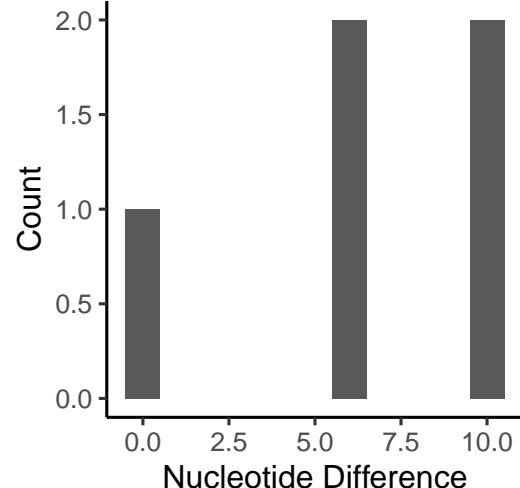
### IGHV3-20\*03\_04

65 sequences assigned  
1 (1.5%) exact matches, in which:  
1 unique CDR3  
1 unique J



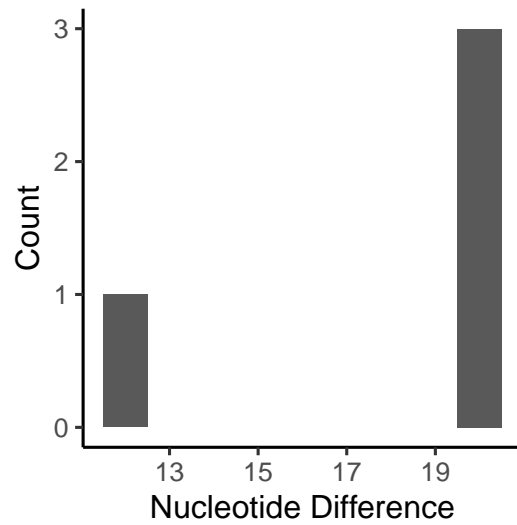
### IGHV3-30-3\*01

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



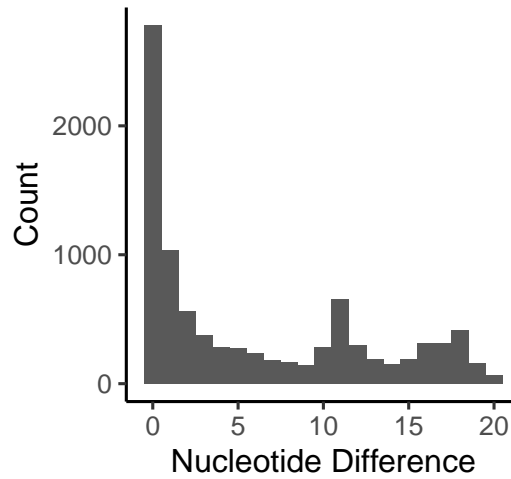
### IGHV3-30-3\*02

14 sequences assigned  
No exact matches.



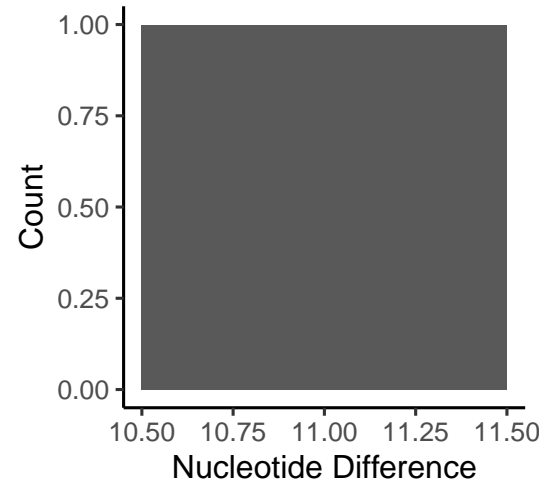
### IGHV3-33\*08

9588 sequences assigned  
2779 (29%) exact matches, in which:  
2015 unique CDR3  
7 unique J



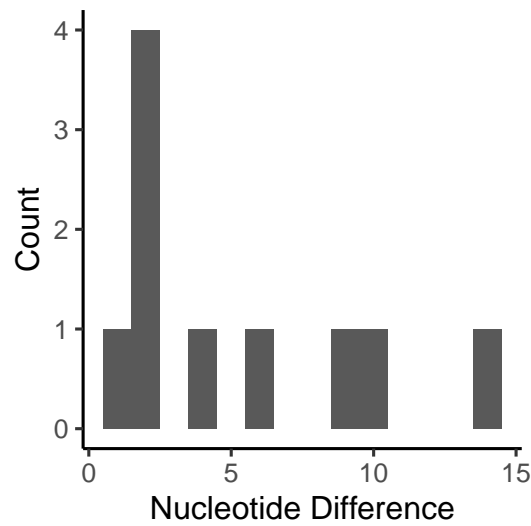
### IGHV3-47\*01

1 sequences assigned  
No exact matches.



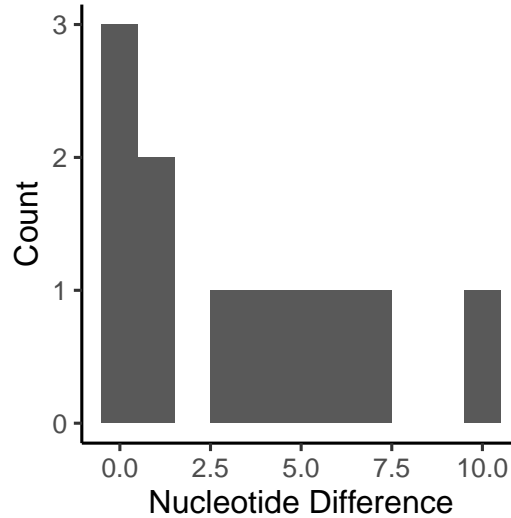
### IGHV3-30-3\*03

13 sequences assigned  
No exact matches.



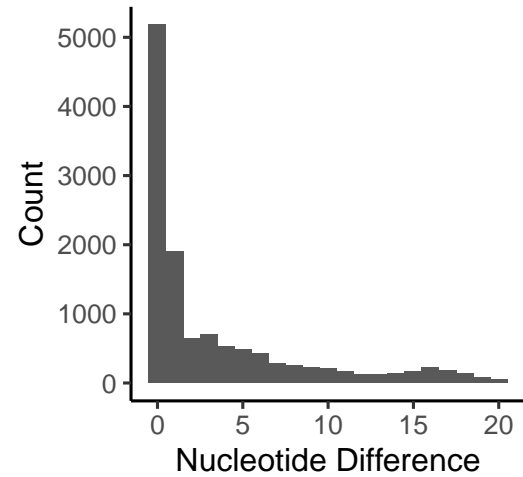
### IGHV3-35\*01

11 sequences assigned  
3 (27.3%) exact matches, in which:  
3 unique CDR3  
2 unique J



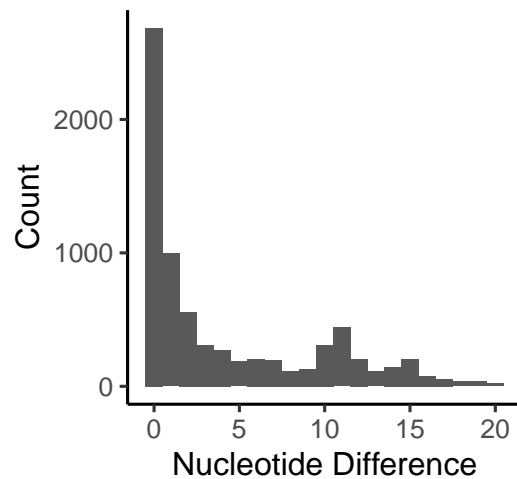
### IGHV3-48\*03

13205 sequences assigned  
5182 (39.2%) exact matches, in which:  
3503 unique CDR3  
7 unique J



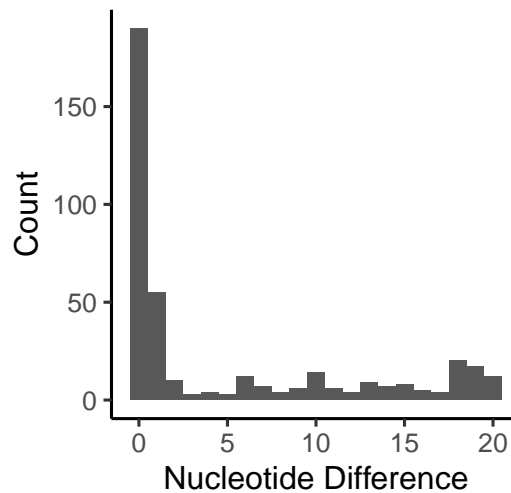
### IGHV3-33\*01

8461 sequences assigned  
2685 (31.7%) exact matches, in which:  
1970 unique CDR3  
7 unique J



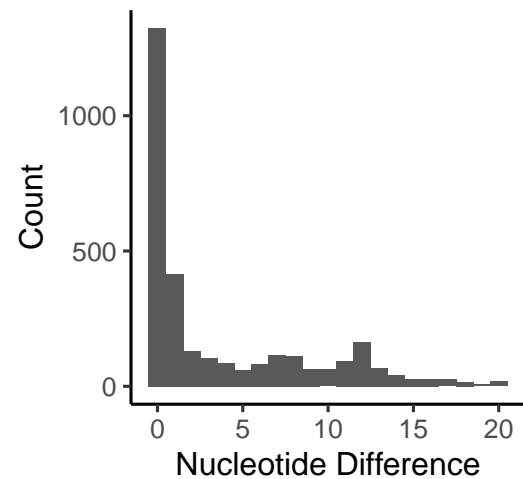
### IGHV3-43\*01

421 sequences assigned  
190 (45.1%) exact matches, in which:  
128 unique CDR3  
7 unique J



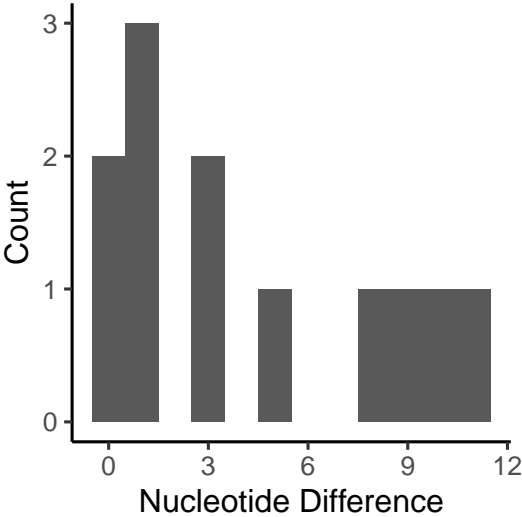
### IGHV3-49\*04

3136 sequences assigned  
1324 (42.2%) exact matches, in which:  
943 unique CDR3  
7 unique J



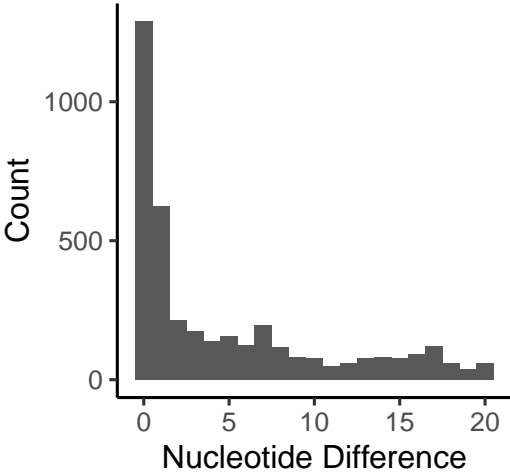
IGHV3-52\*01\_03

12 sequences assigned  
2 (16.7%) exact matches, in which:  
2 unique CDR3  
1 unique J



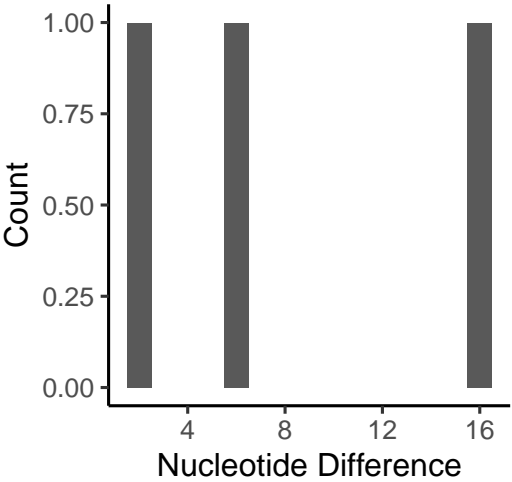
IGHV3-66\*01

4641 sequences assigned  
1289 (27.8%) exact matches, in which:  
893 unique CDR3  
7 unique J



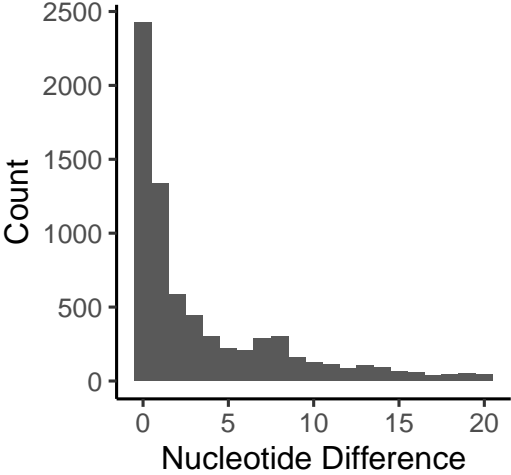
IGHV3-71\*03

3 sequences assigned  
No exact matches.



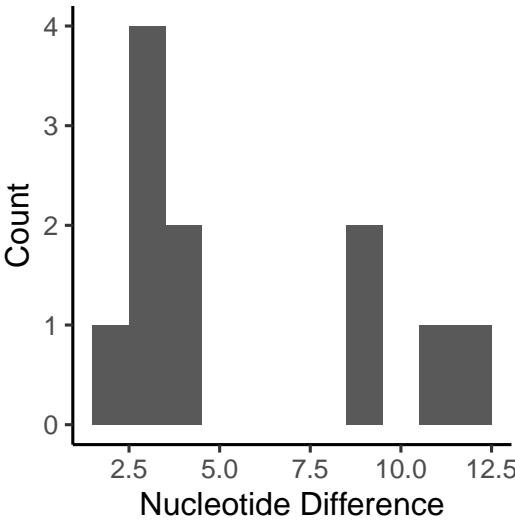
IGHV3-53\*01\_02

7407 sequences assigned  
2424 (32.7%) exact matches, in which:  
1652 unique CDR3  
7 unique J



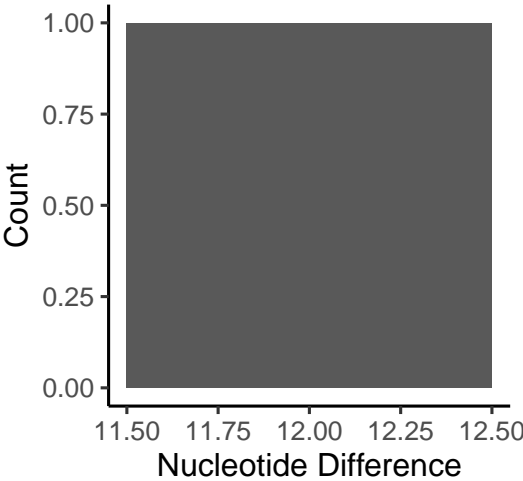
IGHV3-69-1\*01

12 sequences assigned  
No exact matches.



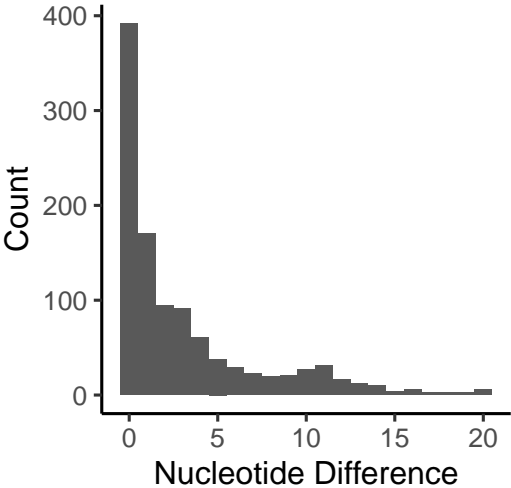
IGHV3-71\*01\_04

2 sequences assigned  
No exact matches.



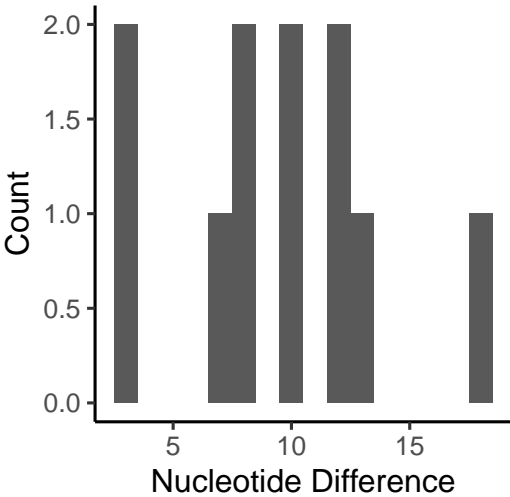
IGHV3-64\*01

1117 sequences assigned  
392 (35.1%) exact matches, in which:  
259 unique CDR3  
7 unique J



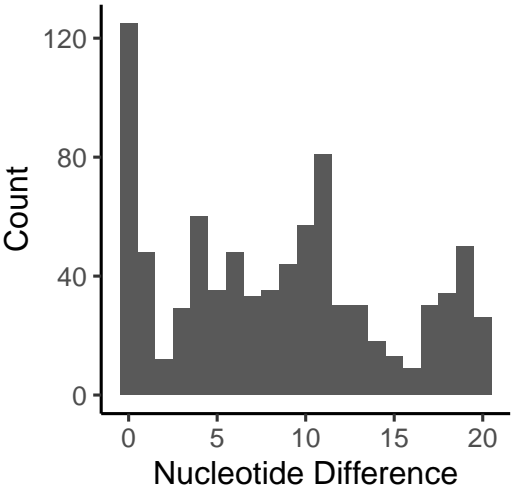
IGHV3-69-1\*02

18 sequences assigned  
No exact matches.



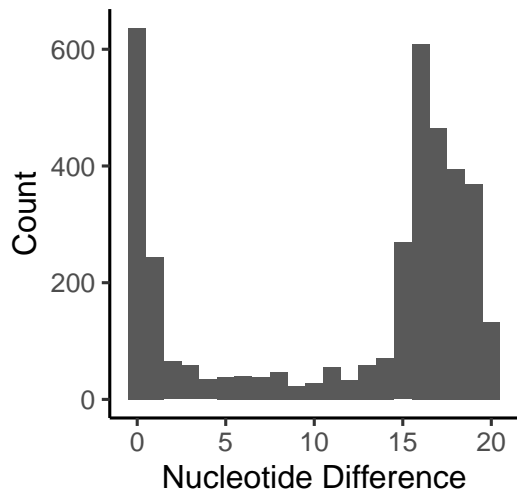
IGHV3-72\*01

906 sequences assigned  
125 (13.8%) exact matches, in which:  
90 unique CDR3  
7 unique J



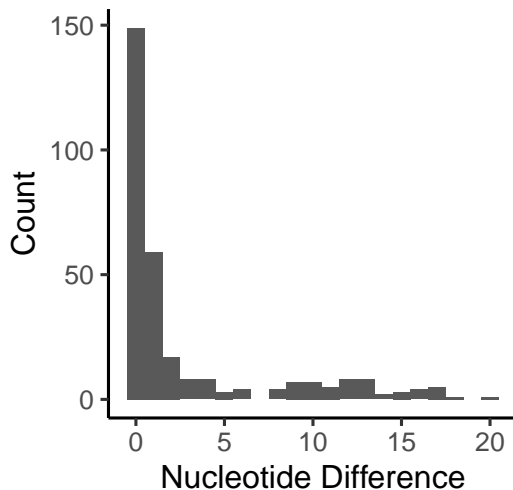
### IGHV3-73\*01\_02

4042 sequences assigned  
637 (15.8%) exact matches, in which:  
434 unique CDR3  
7 unique J



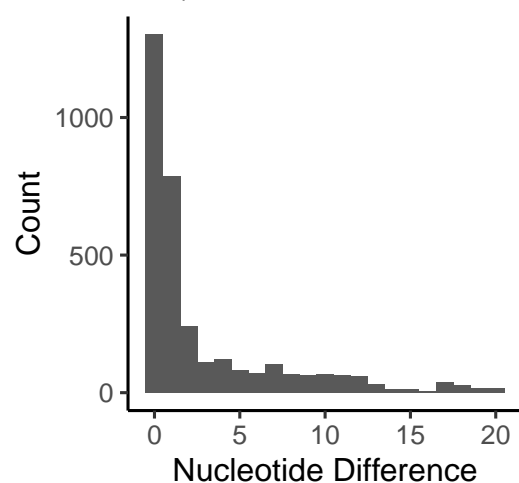
### IGHV3-43D\*04

327 sequences assigned  
149 (45.6%) exact matches, in which:  
110 unique CDR3  
6 unique J



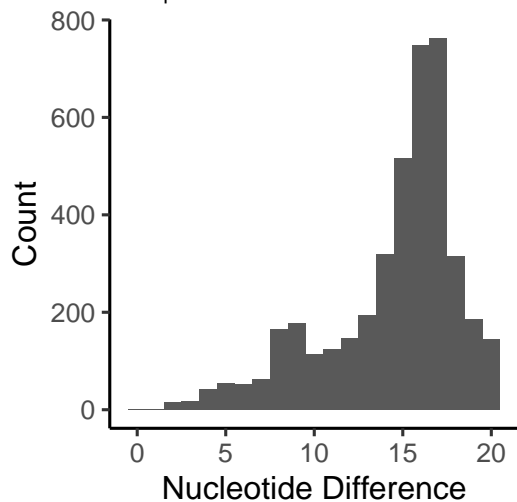
### IGHV4-4\*07

3376 sequences assigned  
1302 (38.6%) exact matches, in which:  
1167 unique CDR3  
7 unique J



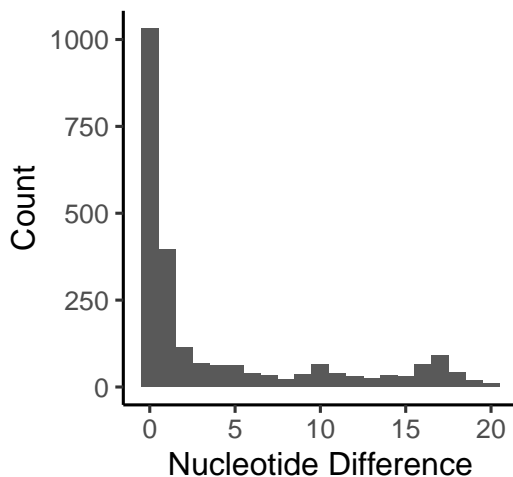
### IGHV3-74\*03

4472 sequences assigned  
2 (0%) exact matches, in which:  
2 unique CDR3  
1 unique J



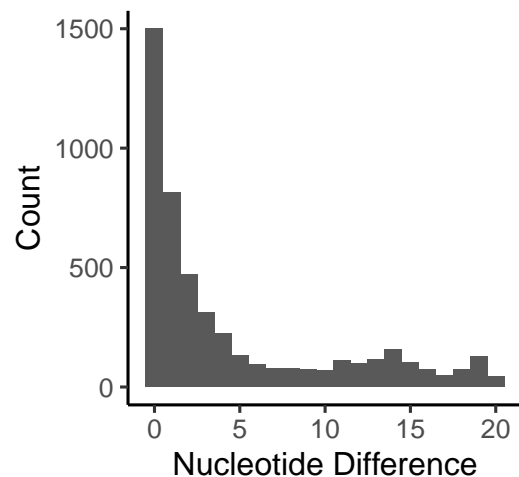
### IGHV3-64D\*06

2556 sequences assigned  
1031 (40.3%) exact matches, in which:  
652 unique CDR3  
7 unique J



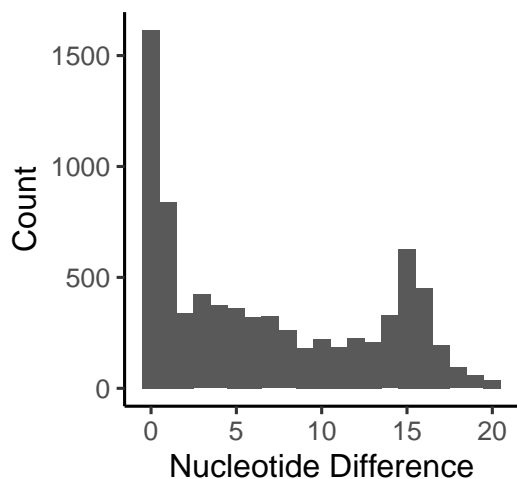
### IGHV4-4\*02\_03

5051 sequences assigned  
1500 (29.7%) exact matches, in which:  
1363 unique CDR3  
7 unique J



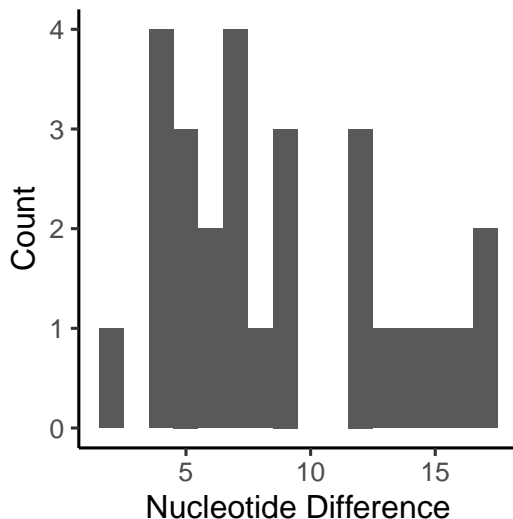
### IGHV3-74\*01\_02

7813 sequences assigned  
1615 (20.7%) exact matches, in which:  
1061 unique CDR3  
7 unique J



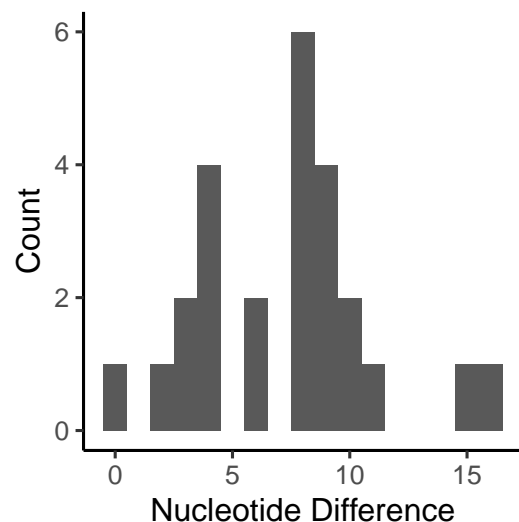
### IGHV3-NL1\*01

38 sequences assigned  
No exact matches.



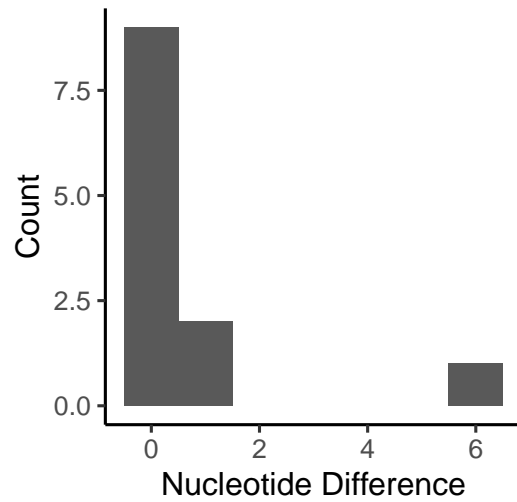
### IGHV4-28\*03

26 sequences assigned  
1 (3.8%) exact matches, in which:  
1 unique CDR3  
1 unique J



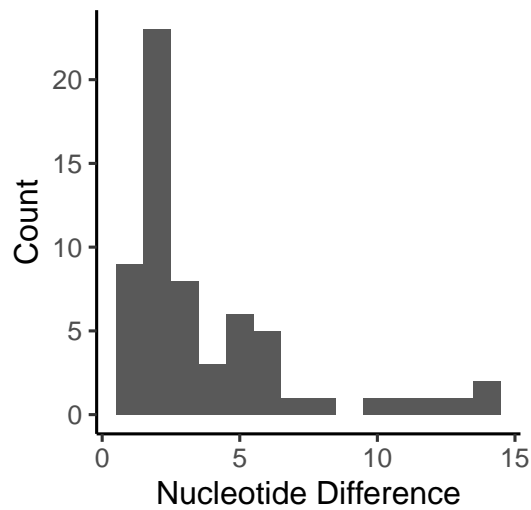
### IGHV4-28\*01\_07

12 sequences assigned  
9 (75%) exact matches, in which:  
9 unique CDR3  
5 unique J



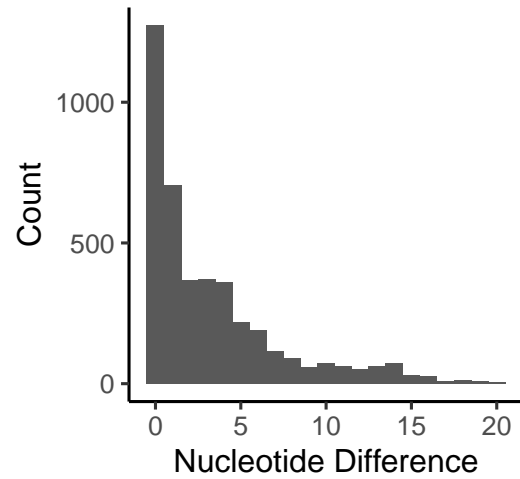
### IGHV4-30-2\*03

69 sequences assigned  
No exact matches.



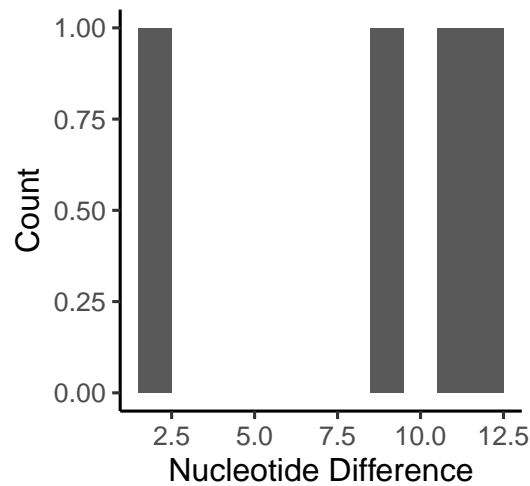
### IGHV4-31\*02

4450 sequences assigned  
1273 (28.6%) exact matches, in which:  
1184 unique CDR3  
7 unique J



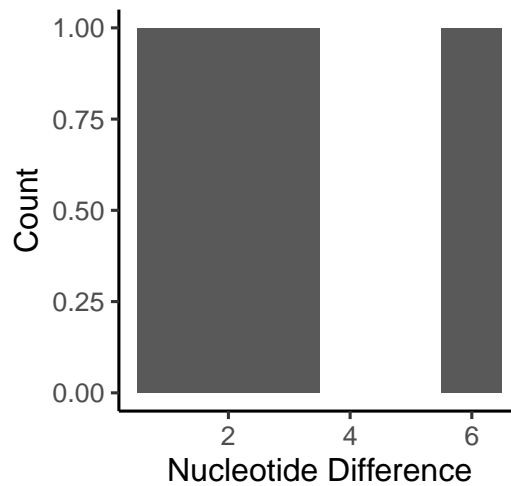
### IGHV4-30-2\*01

4 sequences assigned  
No exact matches.



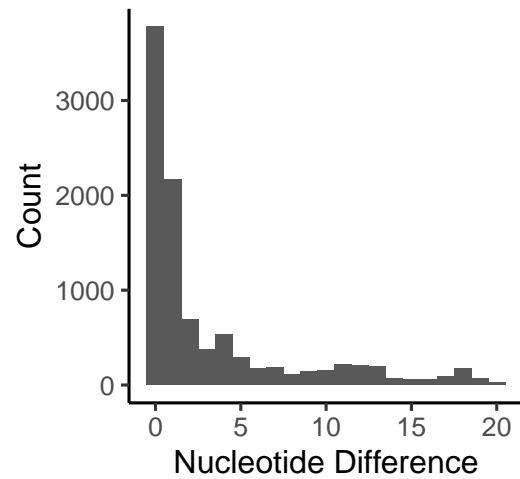
### IGHV4-30-2\*04

4 sequences assigned  
No exact matches.



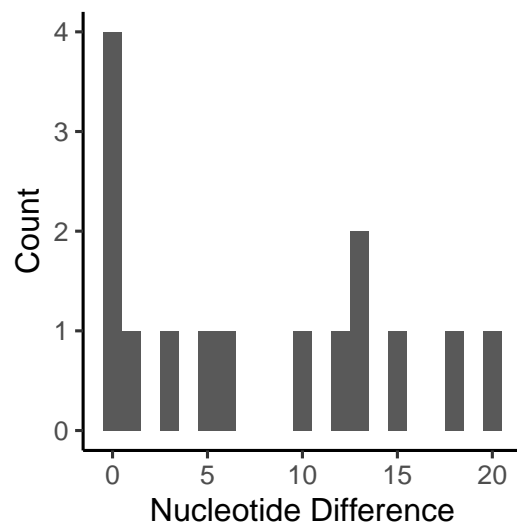
### IGHV4-34\*01\_02

10004 sequences assigned  
3778 (37.8%) exact matches, in which:  
3326 unique CDR3  
7 unique J



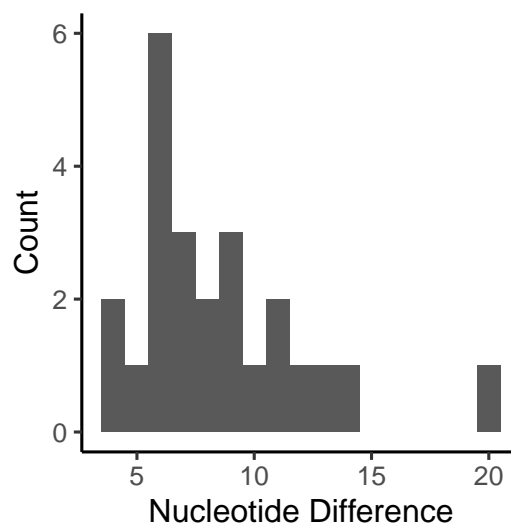
### IGHV4-30-4\*01

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



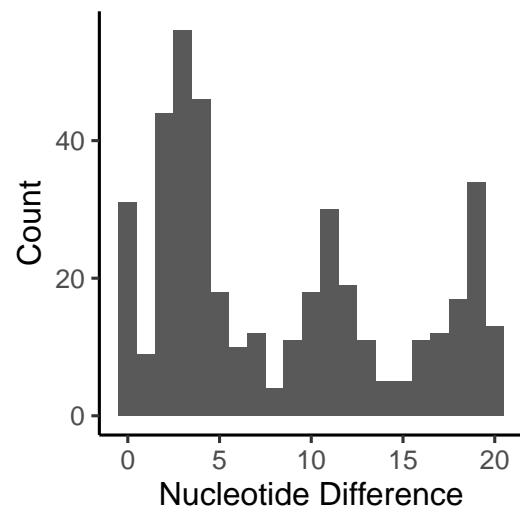
### IGHV4-30-4\*08

28 sequences assigned  
No exact matches.



### IGHV4-38-2\*02

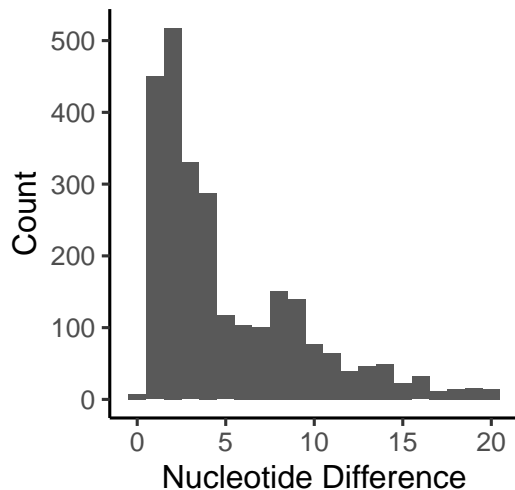
465 sequences assigned  
31 (6.7%) exact matches, in which:  
31 unique CDR3  
6 unique J





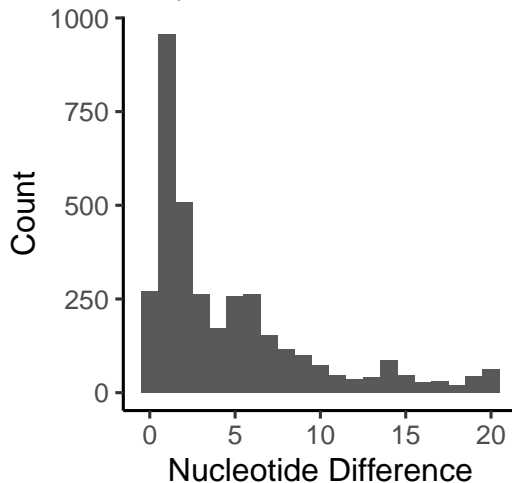
### IGHV4–39\*07

2870 sequences assigned  
8 (0.3%) exact matches, in which:  
8 unique CDR3  
3 unique J



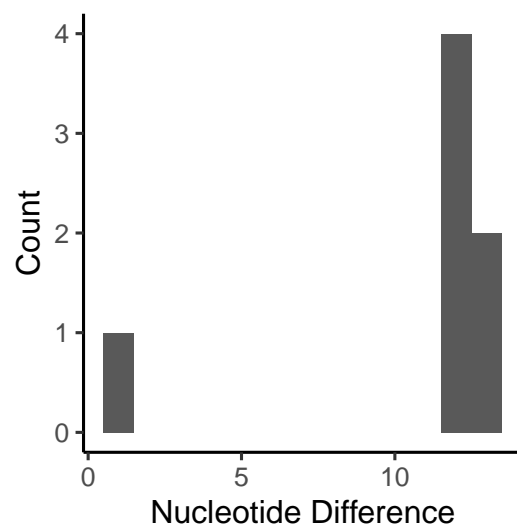
### IGHV4–59\*12

3725 sequences assigned  
270 (7.2%) exact matches, in which:  
268 unique CDR3  
7 unique J



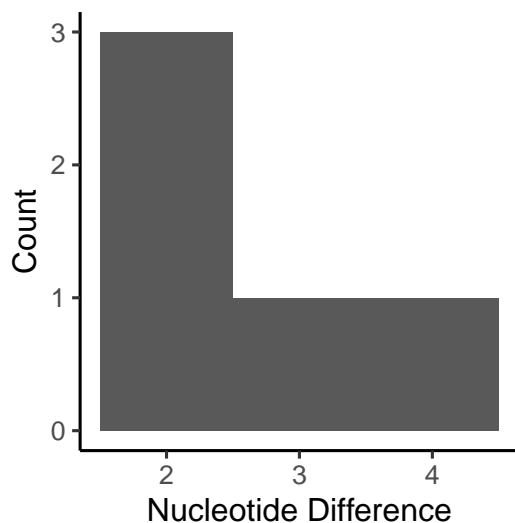
### IGHV4/OR15–8\*01

8 sequences assigned  
No exact matches.



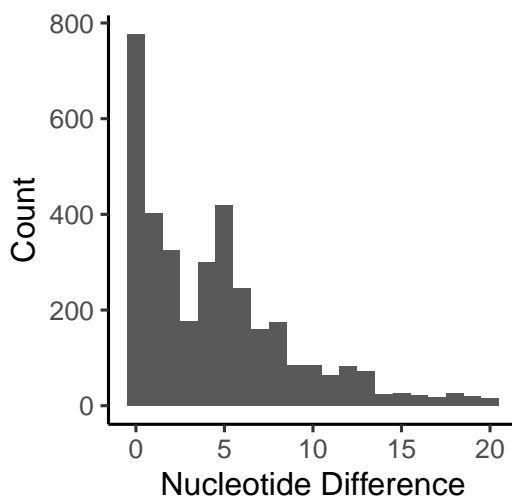
### IGHV4–55\*09

6 sequences assigned  
No exact matches.



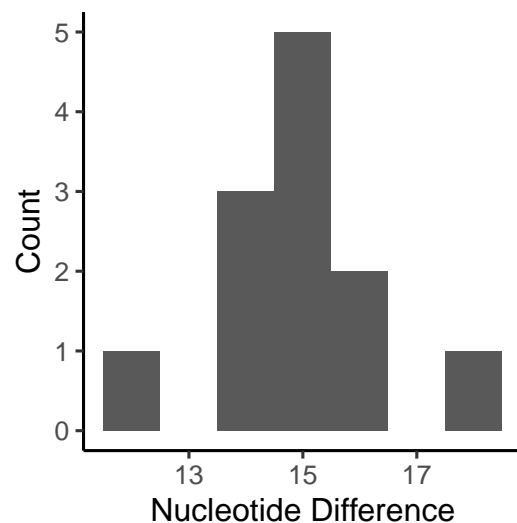
### IGHV4–61\*01

3560 sequences assigned  
777 (21.8%) exact matches, in which:  
731 unique CDR3  
7 unique J



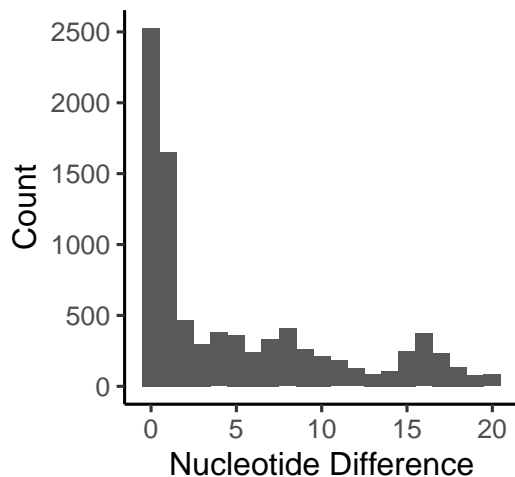
### IGHV4/OR15–8\*02

15 sequences assigned  
No exact matches.



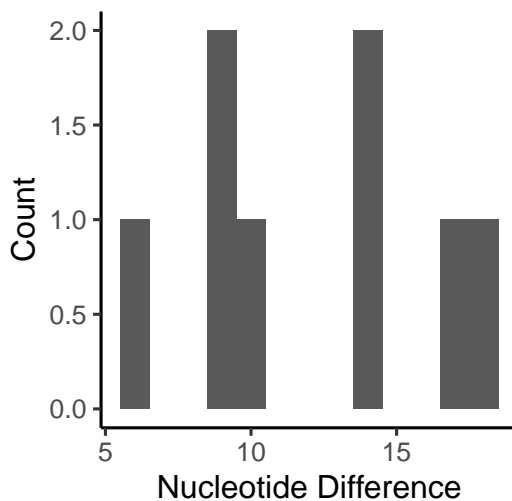
### IGHV4–59\*08

9641 sequences assigned  
2527 (26.2%) exact matches, in which:  
2268 unique CDR3  
7 unique J



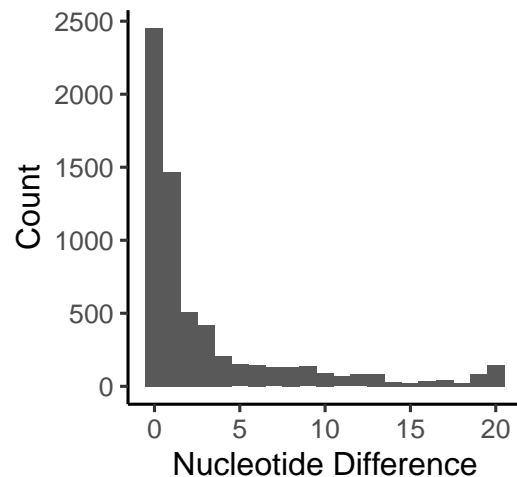
### IGHV1/OR15–3\*02

8 sequences assigned  
No exact matches.



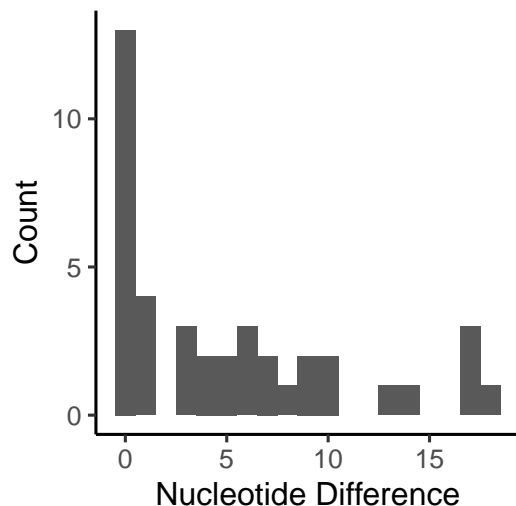
### IGHV5–10–1\*01\_03

6590 sequences assigned  
2453 (37.2%) exact matches, in which:  
1915 unique CDR3  
7 unique J



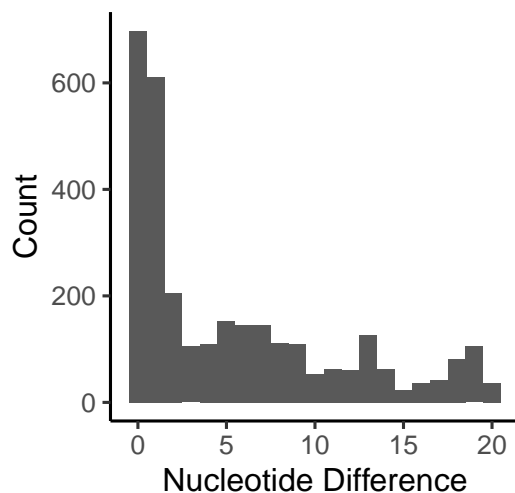
### IGHV5–51\*04

40 sequences assigned  
13 (32.5%) exact matches, in which:  
12 unique CDR3  
5 unique J



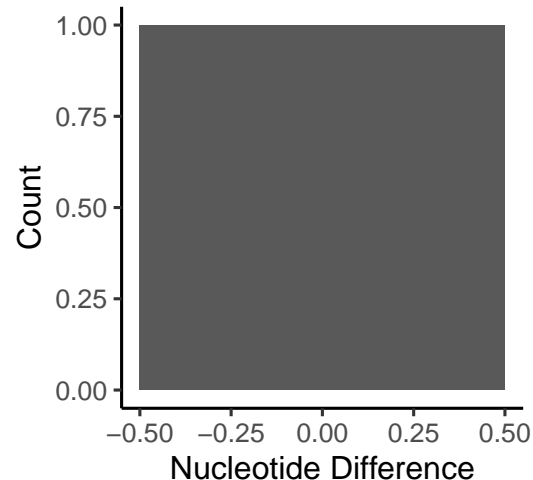
### IGHV6–1\*01\_02

3533 sequences assigned  
698 (19.8%) exact matches, in which:  
624 unique CDR3  
7 unique J



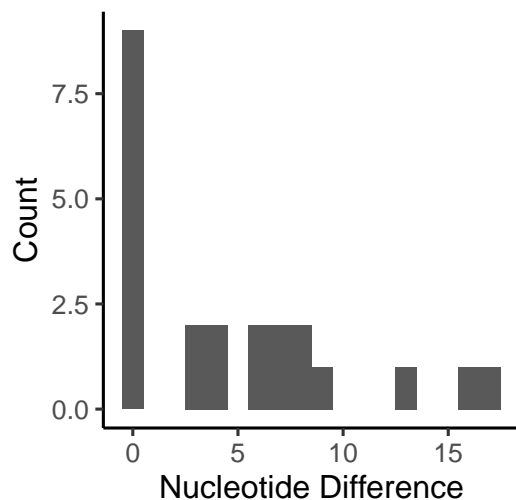
### IGHV7–4–1\*02

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



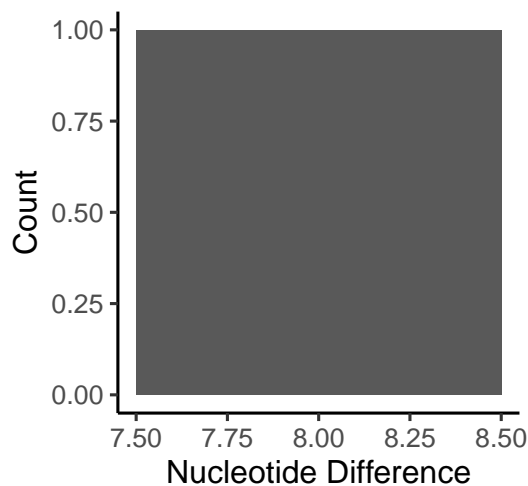
### IGHV5–51\*06

23 sequences assigned  
9 (39.1%) exact matches, in which:  
9 unique CDR3  
4 unique J



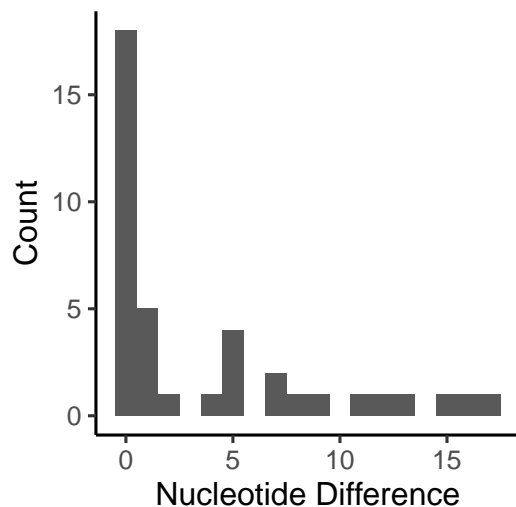
### IGHV3/OR16–13\*01

1 sequences assigned  
No exact matches.



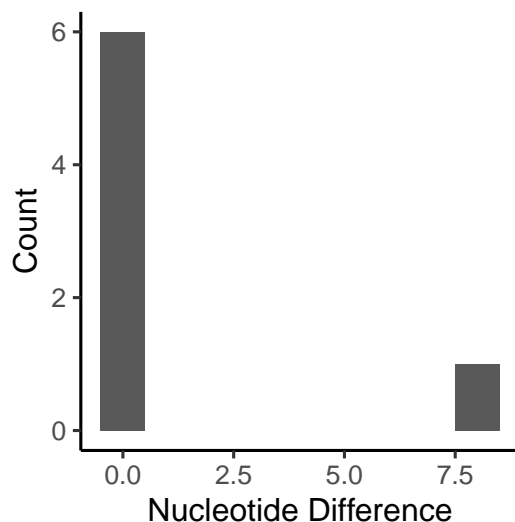
### IGHV5–51\*07

40 sequences assigned  
18 (45%) exact matches, in which:  
18 unique CDR3  
5 unique J

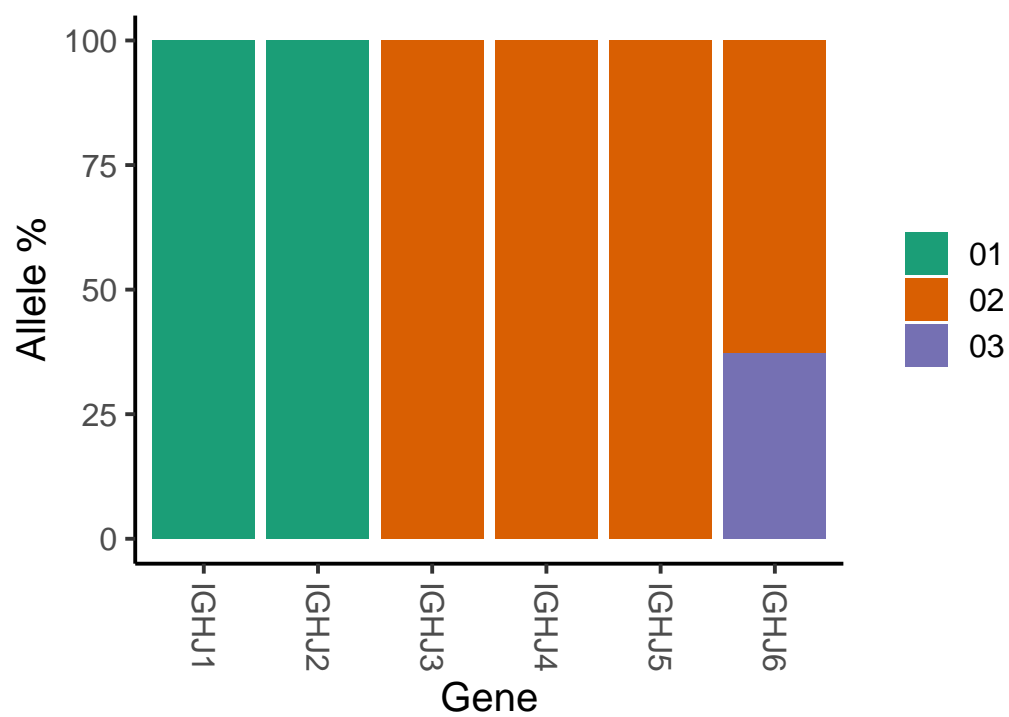


### IGHV7–4–1\*01

7 sequences assigned  
6 (85.7%) exact matches, in which:  
6 unique CDR3  
4 unique J



Allele Usage



## Sequence Count byIGHJ6 allele usage



[illegible]