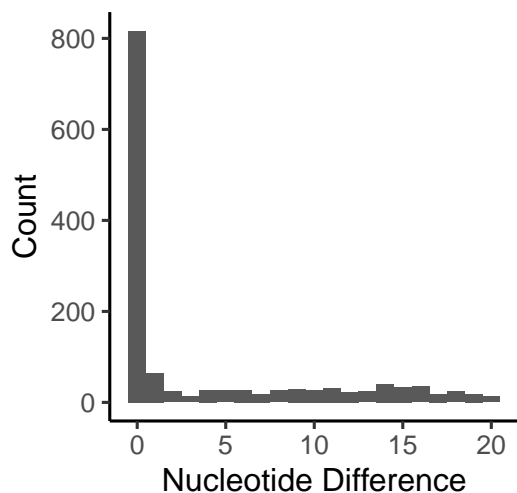


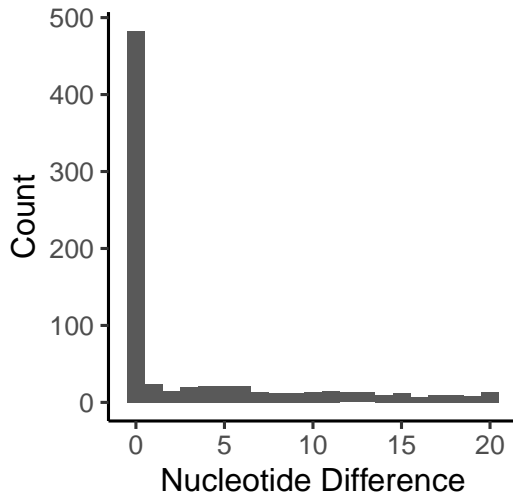
### IGHV1-2\*02

1453 sequences assigned  
817 (56.2%) exact matches, in which:  
813 unique CDR3  
6 unique J



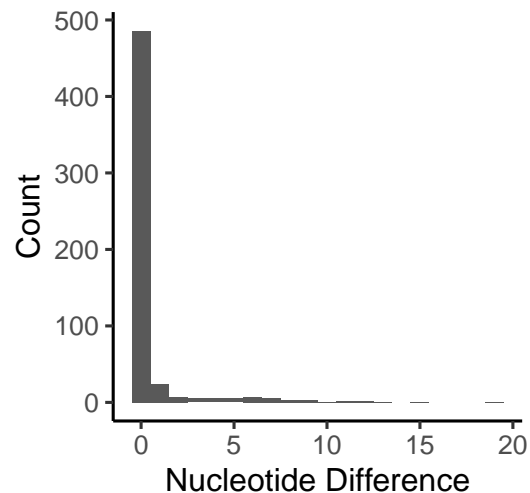
### IGHV1-3\*01\_05

816 sequences assigned  
483 (59.2%) exact matches, in which:  
483 unique CDR3  
7 unique J



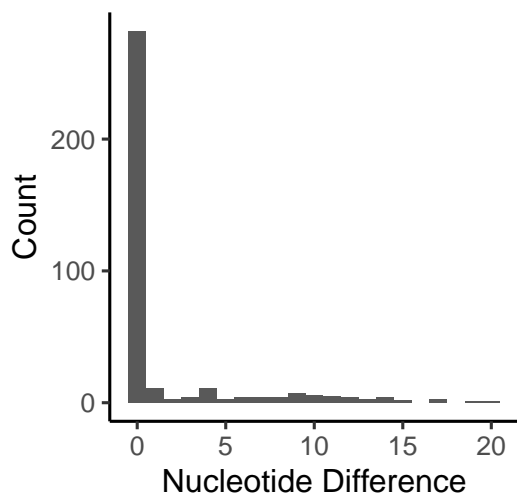
### IGHV1-24\*01

564 sequences assigned  
486 (86.2%) exact matches, in which:  
482 unique CDR3  
7 unique J



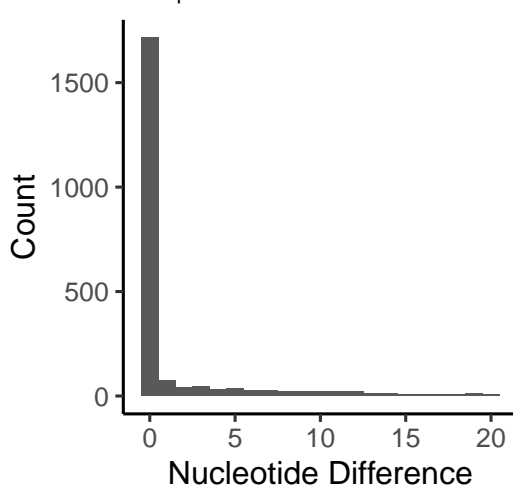
### IGHV1-2\*04

364 sequences assigned  
282 (77.5%) exact matches, in which:  
281 unique CDR3  
7 unique J



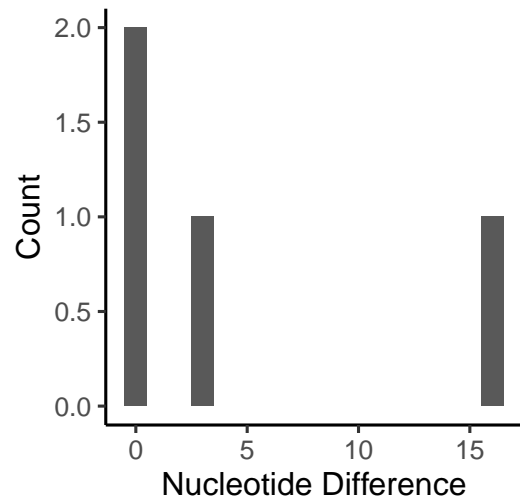
### IGHV1-8\*01

2208 sequences assigned  
1715 (77.7%) exact matches, in which:  
1710 unique CDR3  
7 unique J



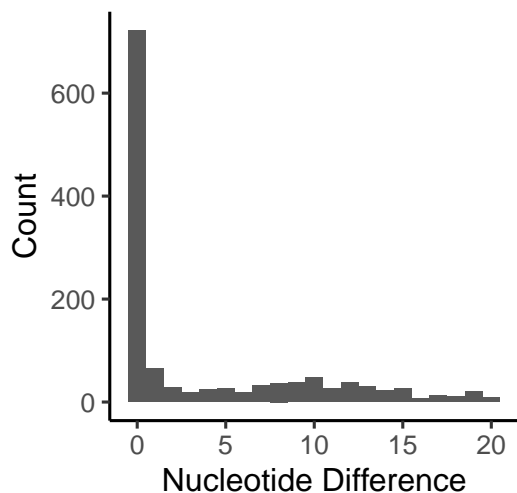
### IGHV1-45\*02

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



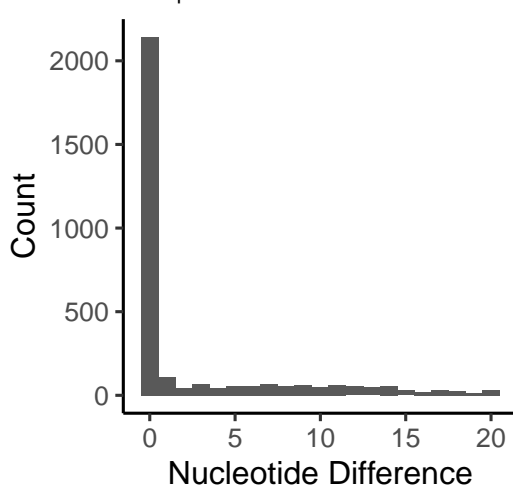
### IGHV1-2\*06

1367 sequences assigned  
722 (52.8%) exact matches, in which:  
717 unique CDR3  
7 unique J



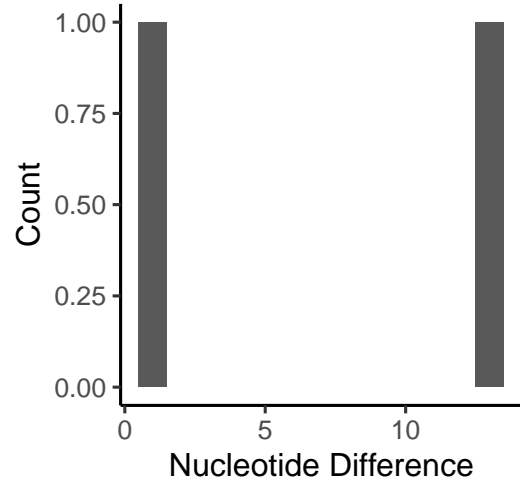
### IGHV1-18\*01

3261 sequences assigned  
2142 (65.7%) exact matches, in which:  
2135 unique CDR3  
7 unique J



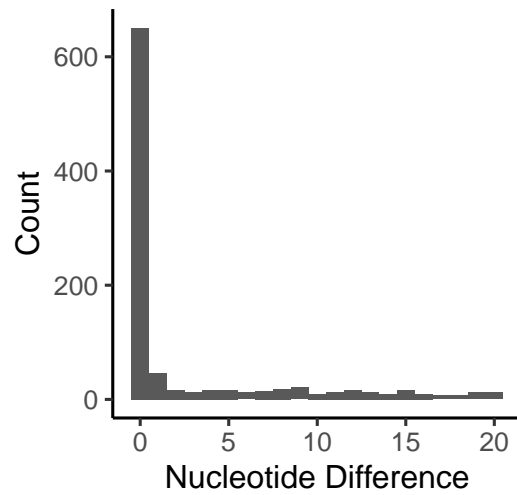
### IGHV1-45\*03

2 sequences assigned  
No exact matches.



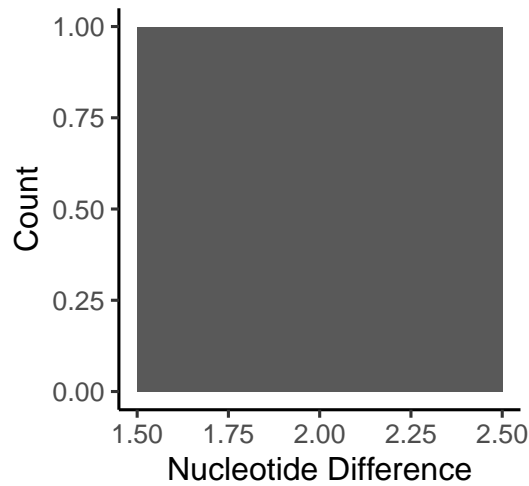
### IGHV1-46\*01

1011 sequences assigned  
651 (64.4%) exact matches, in which:  
648 unique CDR3  
7 unique J



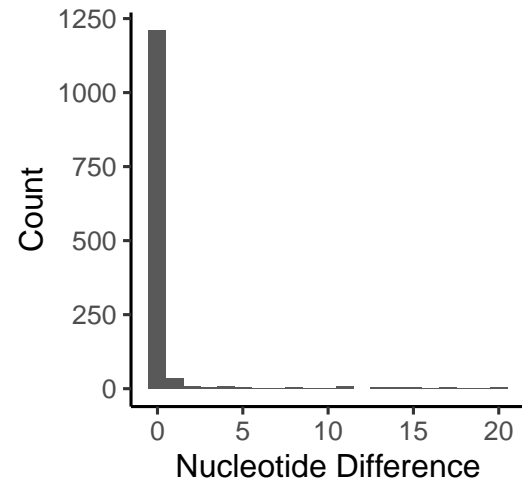
### IGHV1-68\*02\_03

1 sequences assigned  
No exact matches.



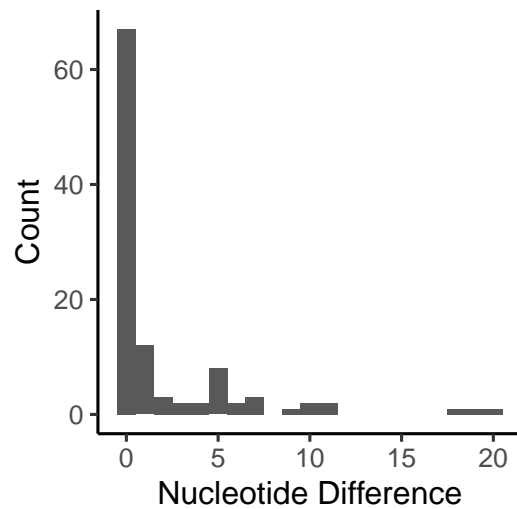
### IGHV1-69\*01\_12\_13

1337 sequences assigned  
1210 (90.5%) exact matches, in which:  
1210 unique CDR3  
7 unique J



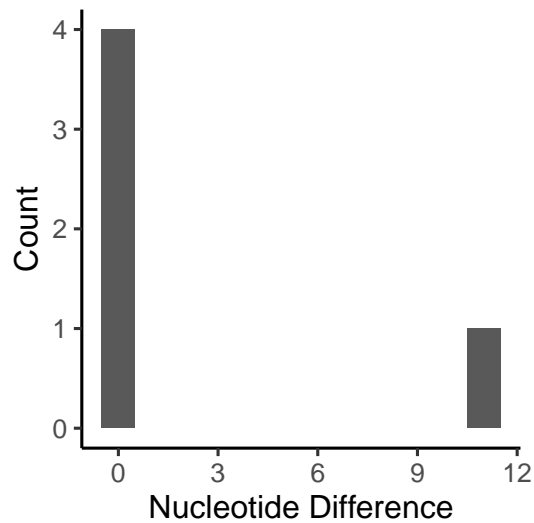
### IGHV1-58\*02

108 sequences assigned  
67 (62%) exact matches, in which:  
66 unique CDR3  
5 unique J



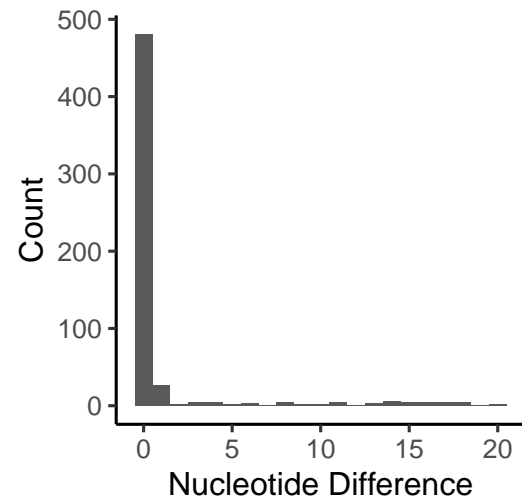
### IGHV1-69-2\*01

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



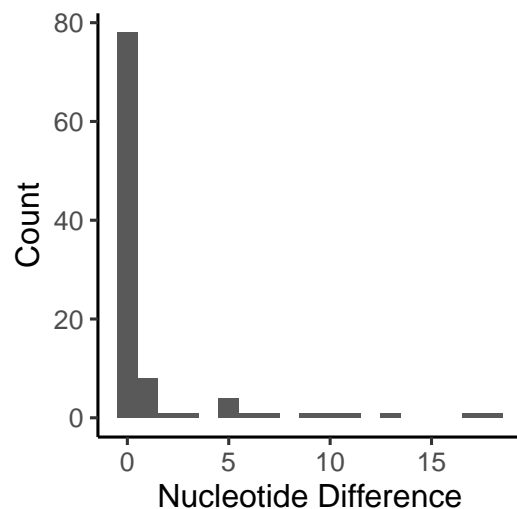
### IGHV1-69\*04\_09\_C184T

583 sequences assigned  
481 (82.5%) exact matches, in which:  
476 unique CDR3  
6 unique J



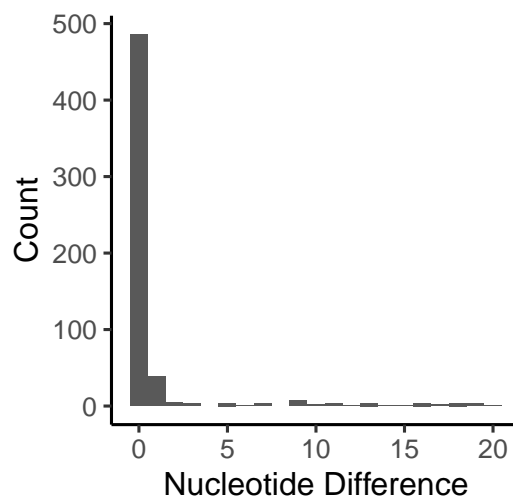
### IGHV1-58\*01\_03

100 sequences assigned  
78 (78%) exact matches, in which:  
78 unique CDR3  
7 unique J



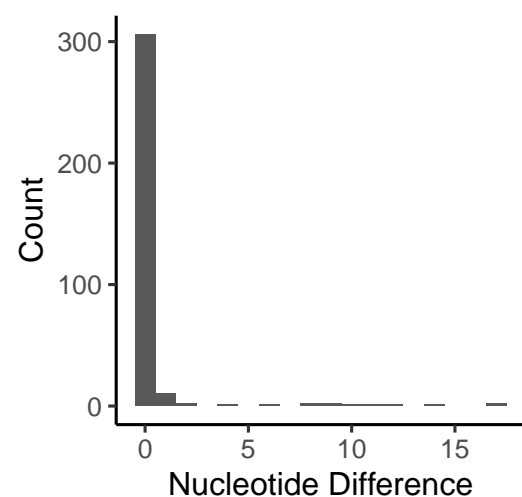
### IGHV1-69\*02

587 sequences assigned  
486 (82.8%) exact matches, in which:  
486 unique CDR3  
6 unique J



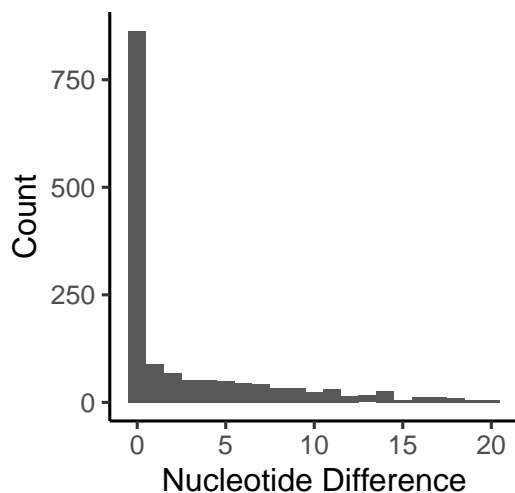
### IGHV1-69\*06\_14

334 sequences assigned  
306 (91.6%) exact matches, in which:  
306 unique CDR3  
6 unique J



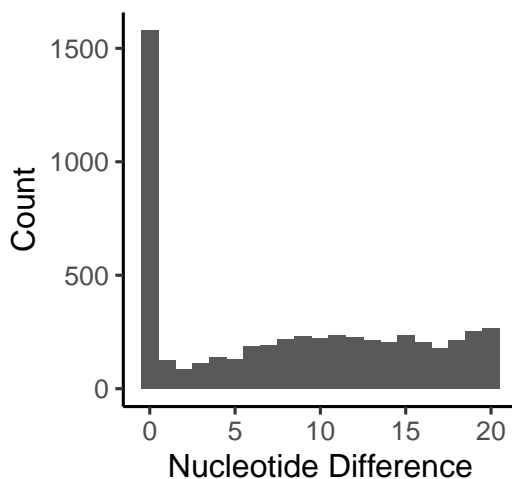
### IGHV2-5\*02

1535 sequences assigned  
864 (56.3%) exact matches, in which:  
860 unique CDR3  
7 unique J



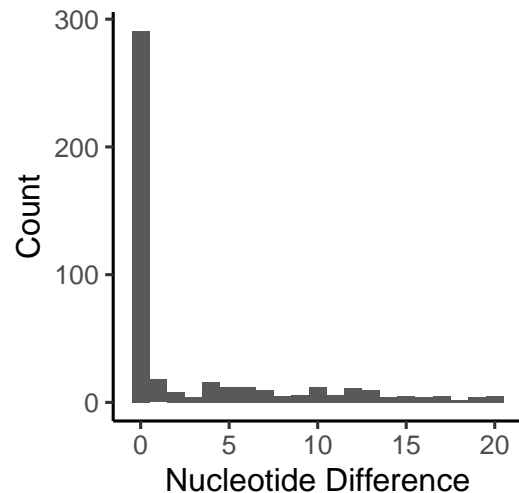
### IGHV3-7\*01

6514 sequences assigned  
1579 (24.2%) exact matches, in which:  
1531 unique CDR3  
7 unique J



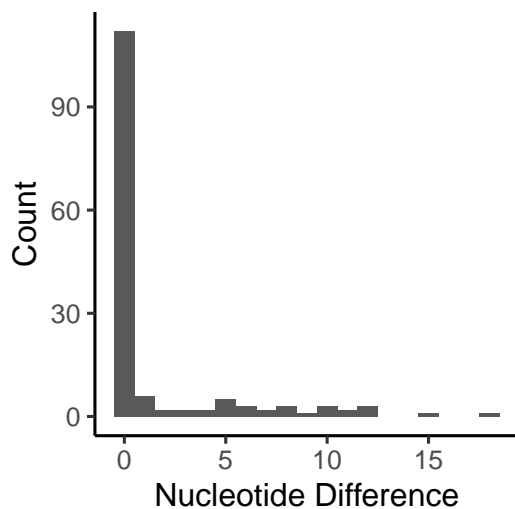
### IGHV3-13\*01

477 sequences assigned  
291 (61%) exact matches, in which:  
285 unique CDR3  
6 unique J



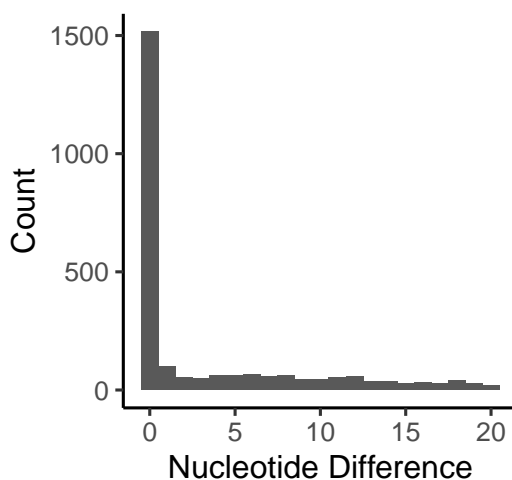
### IGHV2-26\*01

149 sequences assigned  
112 (75.2%) exact matches, in which:  
112 unique CDR3  
6 unique J



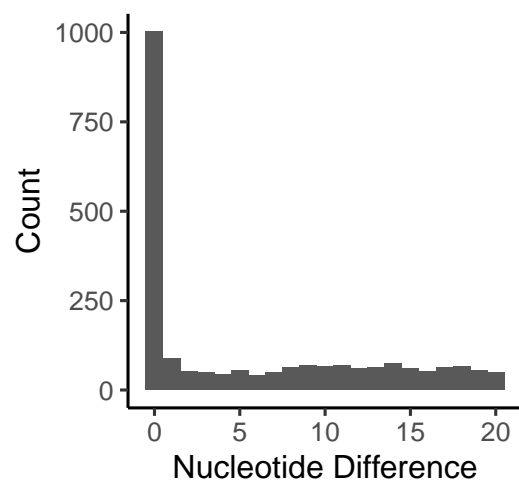
### IGHV3-9\*01

2581 sequences assigned  
1516 (58.7%) exact matches, in which:  
1483 unique CDR3  
7 unique J



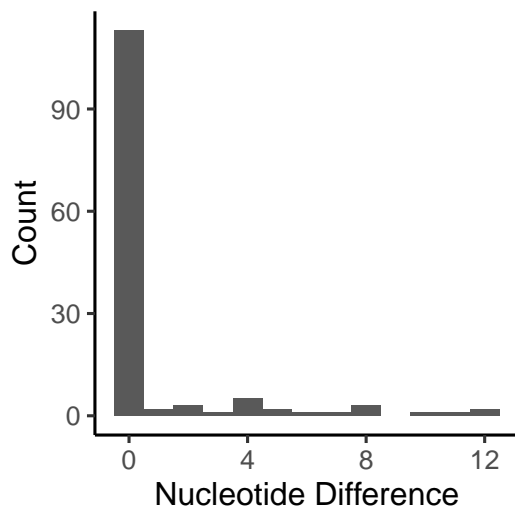
### IGHV3-15\*01\_02

2408 sequences assigned  
1002 (41.6%) exact matches, in which:  
970 unique CDR3  
7 unique J



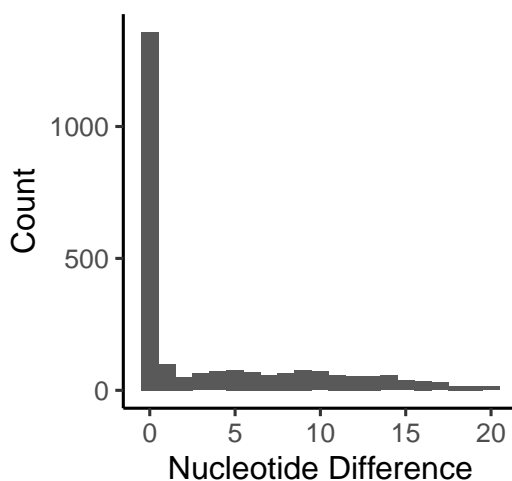
### IGHV2-70\*01

136 sequences assigned  
113 (83.1%) exact matches, in which:  
113 unique CDR3  
6 unique J



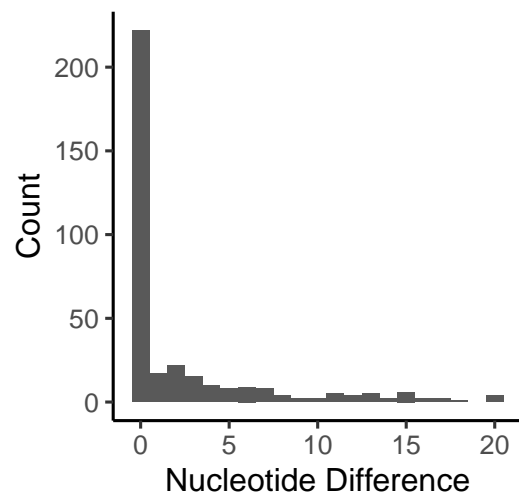
### IGHV3-11\*01

2520 sequences assigned  
1358 (53.9%) exact matches, in which:  
1317 unique CDR3  
7 unique J



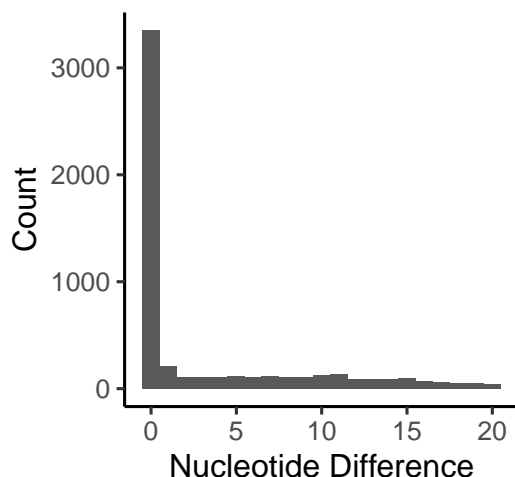
### IGHV3-20\*01\_02

353 sequences assigned  
222 (62.9%) exact matches, in which:  
208 unique CDR3  
7 unique J



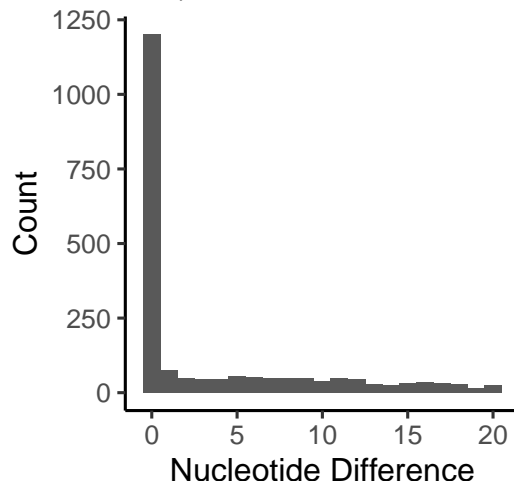
### IGHV3-21\*01\_02

5607 sequences assigned  
3350 (59.7%) exact matches, in which:  
3209 unique CDR3  
7 unique J



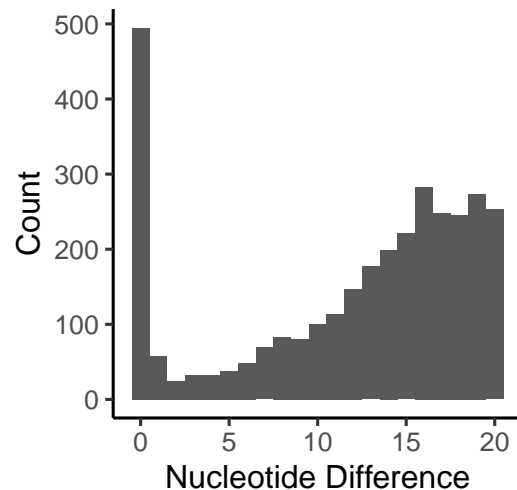
### IGHV3-33\*01

2117 sequences assigned  
1201 (56.7%) exact matches, in which:  
1167 unique CDR3  
7 unique J



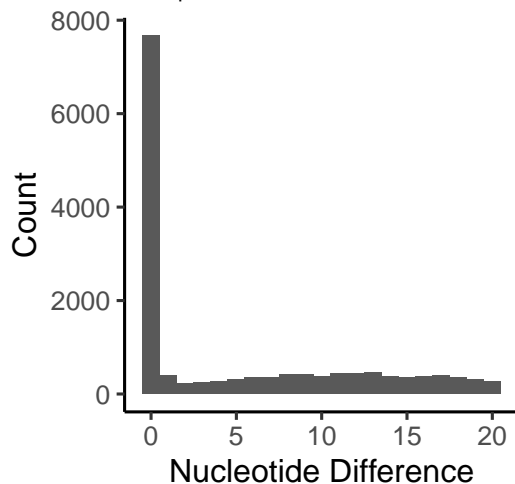
### IGHV3-48\*01

4631 sequences assigned  
495 (10.7%) exact matches, in which:  
472 unique CDR3  
6 unique J



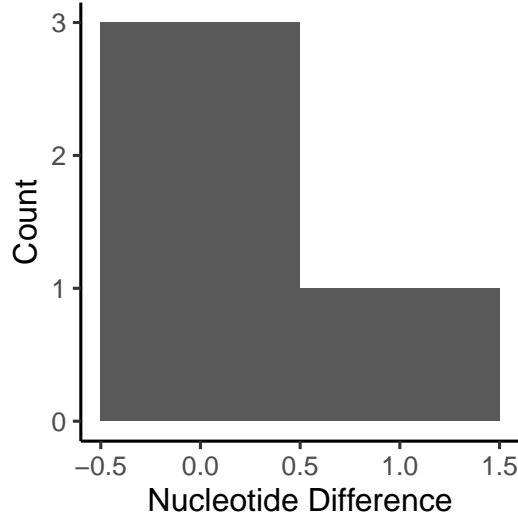
### IGHV3-23\*01\_04

16191 sequences assigned  
7668 (47.4%) exact matches, in which:  
7381 unique CDR3  
7 unique J



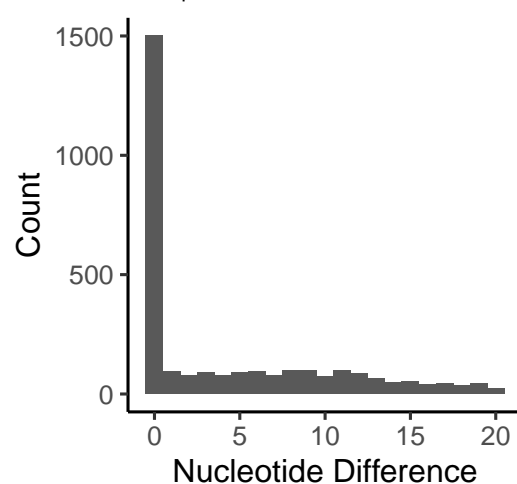
### IGHV3-35\*01

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



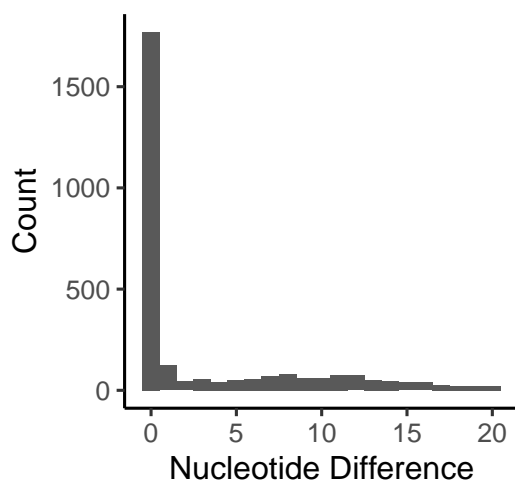
### IGHV3-48\*03

3043 sequences assigned  
1501 (49.3%) exact matches, in which:  
1466 unique CDR3  
7 unique J



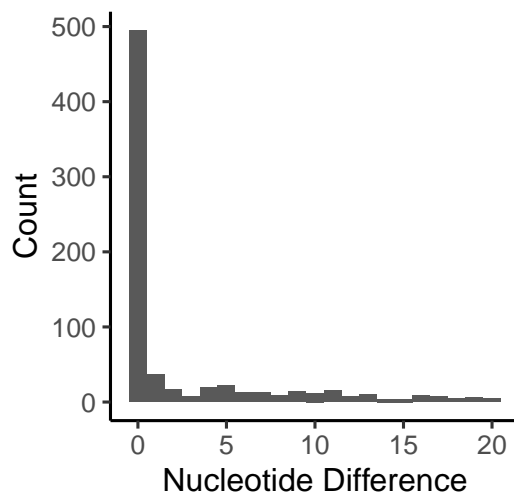
### IGHV3-30-3\*01

3001 sequences assigned  
1770 (59%) exact matches, in which:  
1727 unique CDR3  
7 unique J



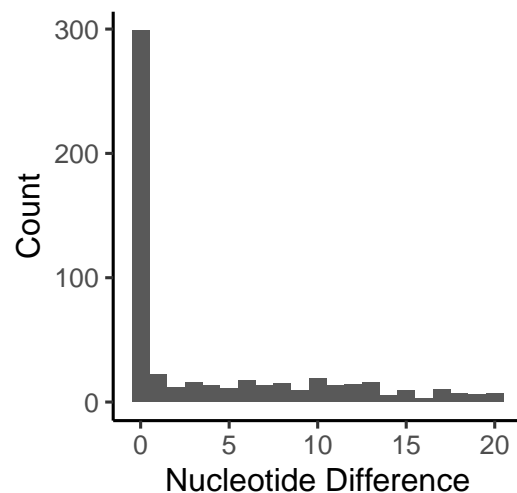
### IGHV3-43\*02

768 sequences assigned  
495 (64.5%) exact matches, in which:  
480 unique CDR3  
7 unique J



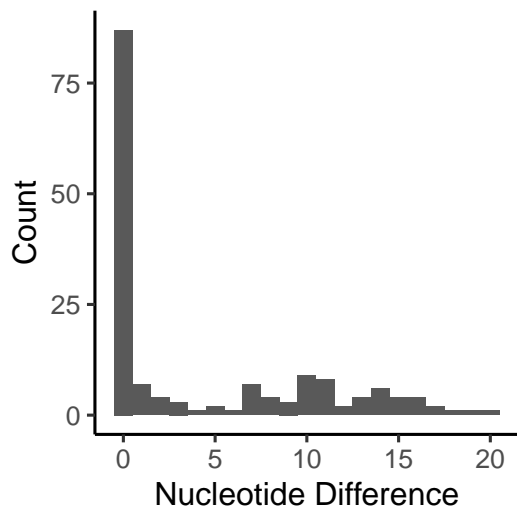
### IGHV3-49\*04

562 sequences assigned  
299 (53.2%) exact matches, in which:  
294 unique CDR3  
7 unique J



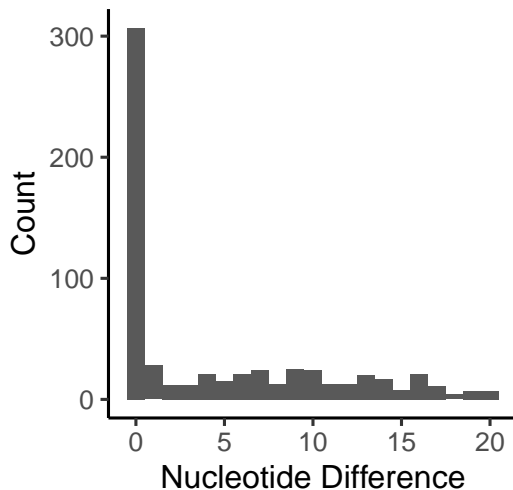
### IGHV3-49\*03\_05

191 sequences assigned  
87 (45.5%) exact matches, in which:  
85 unique CDR3  
5 unique J



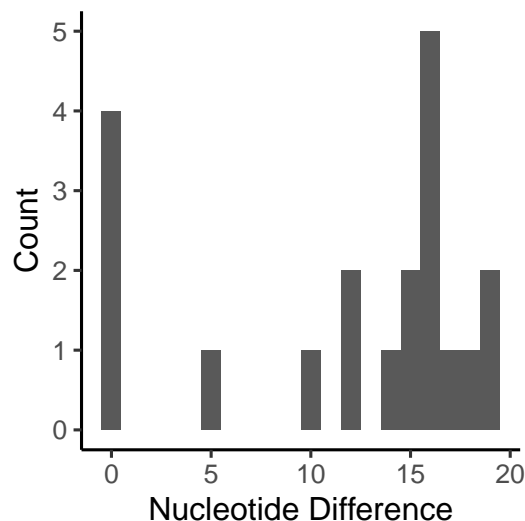
### IGHV3-53\*01\_02

655 sequences assigned  
307 (46.9%) exact matches, in which:  
299 unique CDR3  
6 unique J



### IGHV3-69-1\*01

108 sequences assigned  
4 (3.7%) exact matches, in which:  
4 unique CDR3  
2 unique J



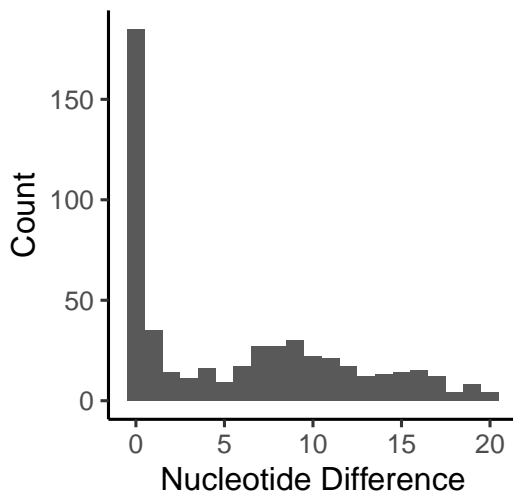
### IGHV3-52\*01\_03

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



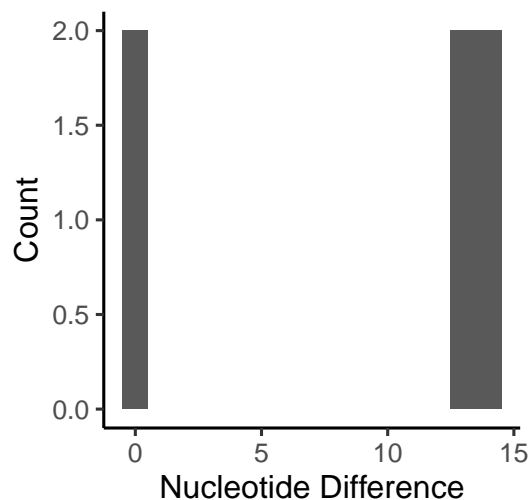
### IGHV3-64\*01

605 sequences assigned  
185 (30.6%) exact matches, in which:  
176 unique CDR3  
5 unique J



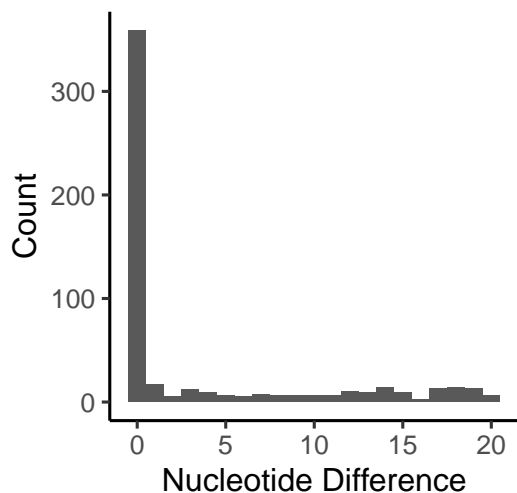
### IGHV3-69-1\*02

18 sequences assigned  
2 (11.1%) exact matches, in which:  
2 unique CDR3  
2 unique J



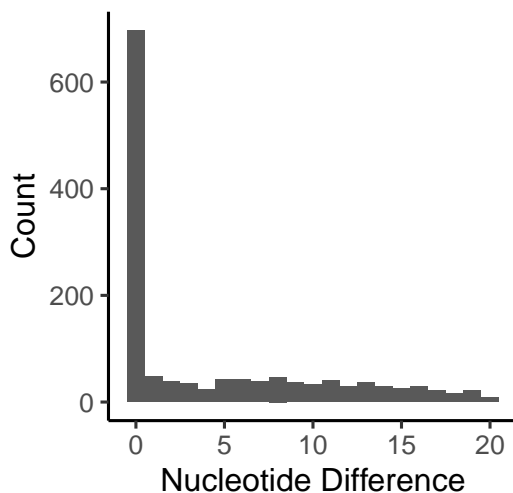
### IGHV3-53\*04

601 sequences assigned  
359 (59.7%) exact matches, in which:  
348 unique CDR3  
7 unique J



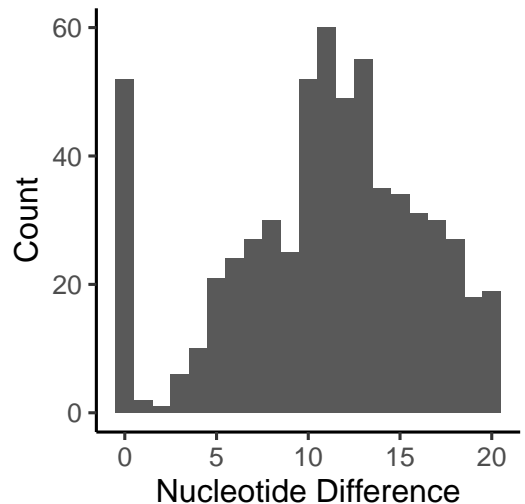
### IGHV3-66\*02

1483 sequences assigned  
697 (47%) exact matches, in which:  
660 unique CDR3  
6 unique J



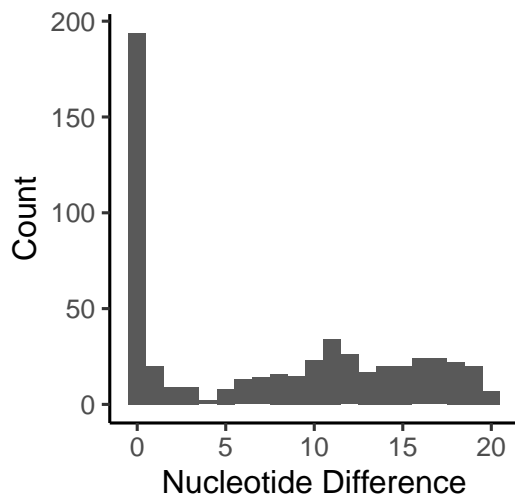
### IGHV3-72\*01

661 sequences assigned  
52 (7.9%) exact matches, in which:  
52 unique CDR3  
6 unique J



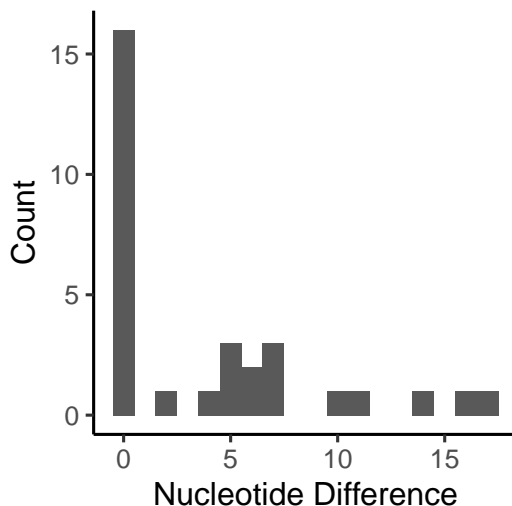
### IGHV3-73\*01\_02

565 sequences assigned  
194 (34.3%) exact matches, in which:  
190 unique CDR3  
7 unique J



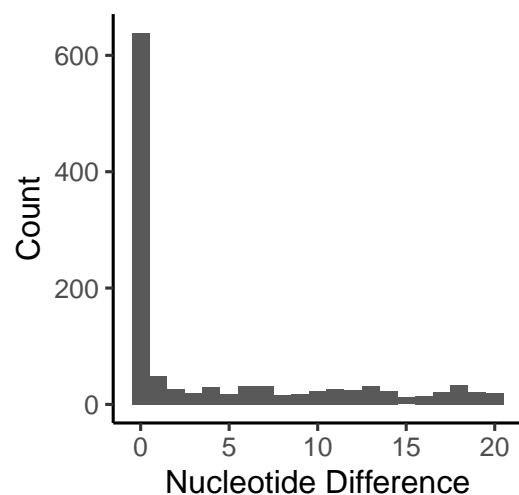
### IGHV3-43D\*04

32 sequences assigned  
16 (50%) exact matches, in which:  
16 unique CDR3  
2 unique J



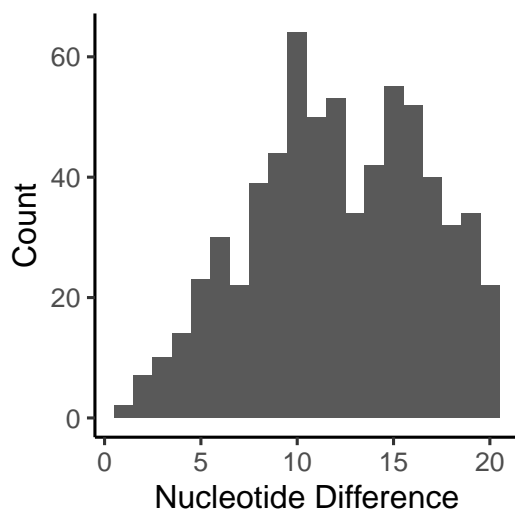
### IGHV4-4\*02\_03

1196 sequences assigned  
639 (53.4%) exact matches, in which:  
625 unique CDR3  
7 unique J



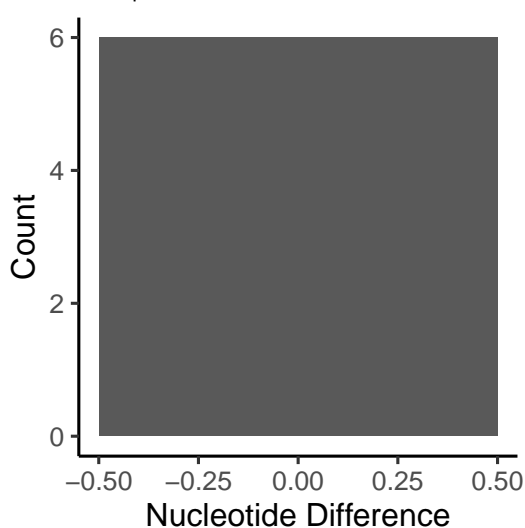
### IGHV3-74\*03

817 sequences assigned  
No exact matches.



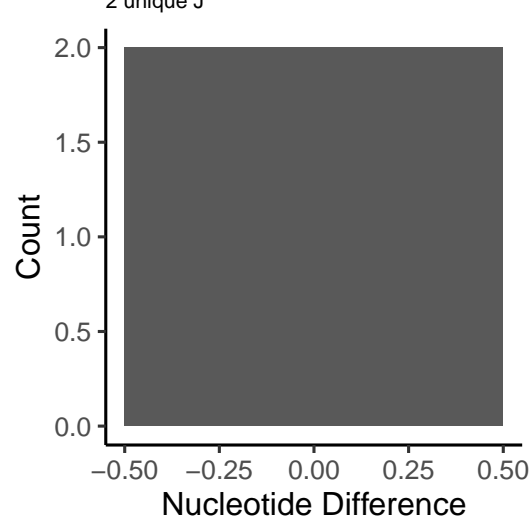
### IGHV3-64D\*06

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



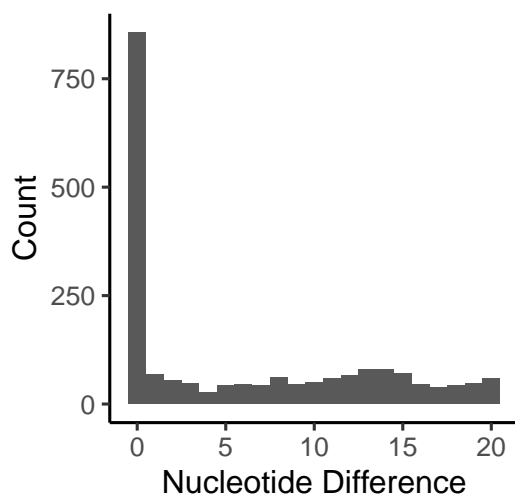
### IGHV4-28\*03

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



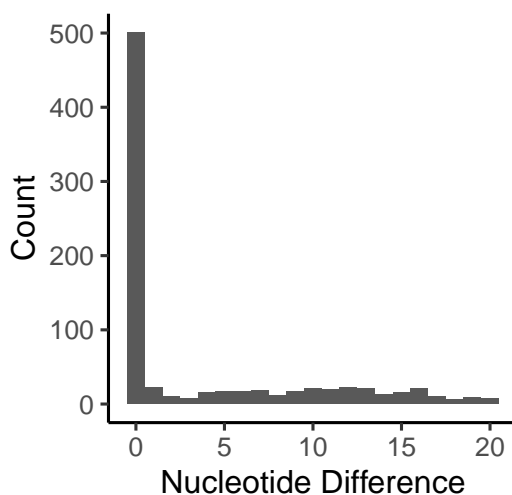
### IGHV3-74\*01\_02

2059 sequences assigned  
857 (41.6%) exact matches, in which:  
831 unique CDR3  
7 unique J



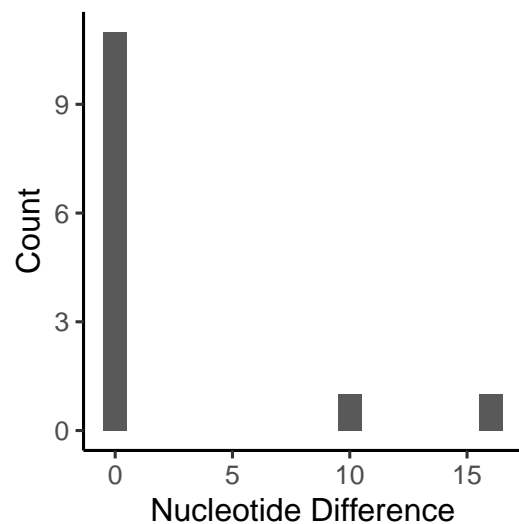
### IGHV4-4\*07

875 sequences assigned  
501 (57.3%) exact matches, in which:  
483 unique CDR3  
6 unique J



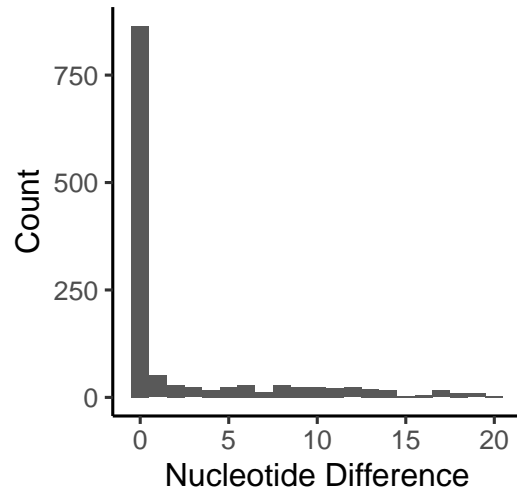
### IGHV4-28\*01\_07

13 sequences assigned  
11 (84.6%) exact matches, in which:  
9 unique CDR3  
3 unique J



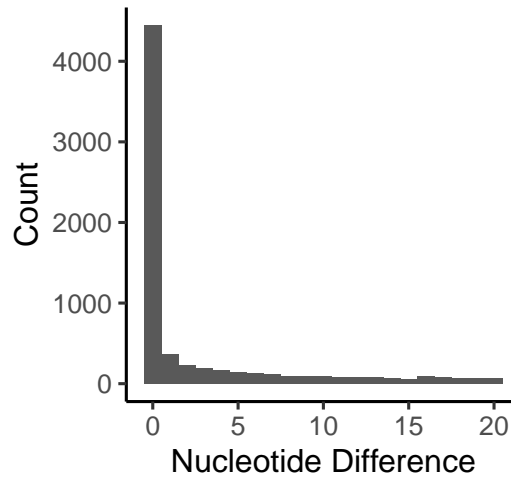
### IGHV4-30-4\*01

1292 sequences assigned  
865 (67%) exact matches, in which:  
849 unique CDR3  
7 unique J



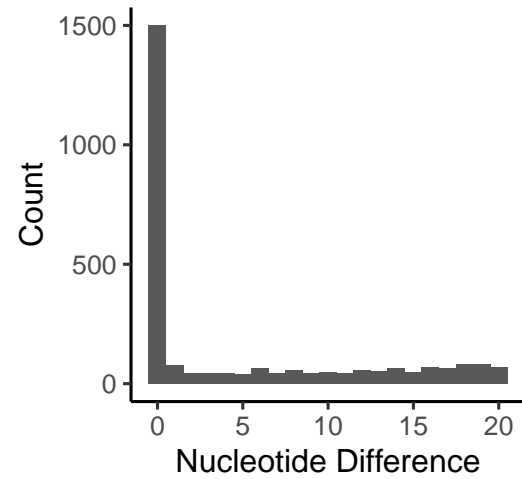
### IGHV4-34\*01\_02

7343 sequences assigned  
4445 (60.5%) exact matches, in which:  
4272 unique CDR3  
7 unique J



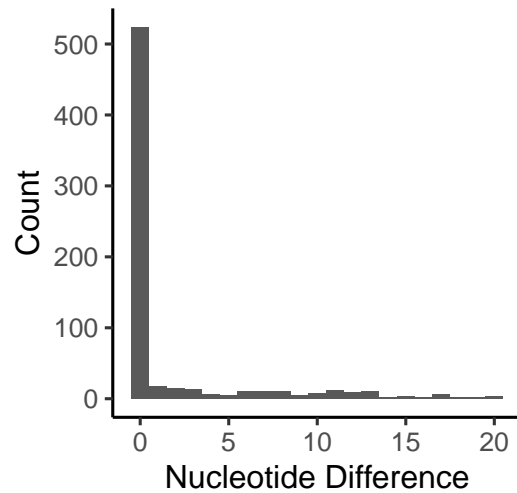
### IGHV4-39\*07

3526 sequences assigned  
1500 (42.5%) exact matches, in which:  
1446 unique CDR3  
6 unique J



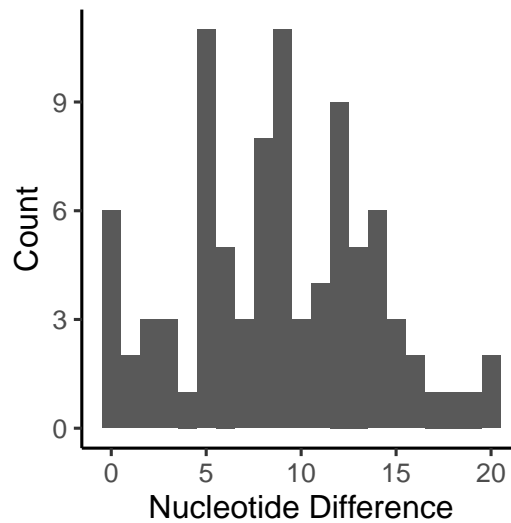
### IGHV4-30-2\*01

698 sequences assigned  
524 (75.1%) exact matches, in which:  
506 unique CDR3  
7 unique J



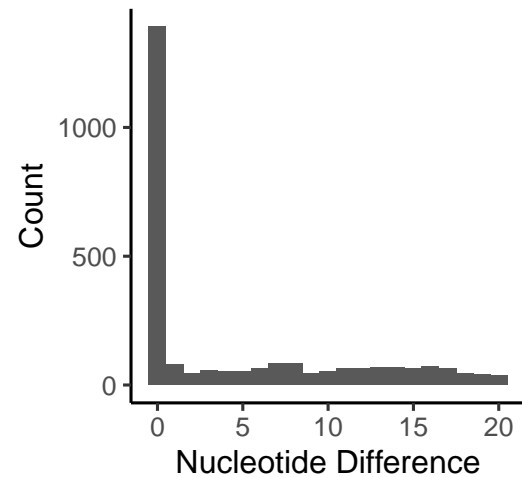
### IGHV4-38-2\*02

98 sequences assigned  
6 (6.1%) exact matches, in which:  
6 unique CDR3  
3 unique J



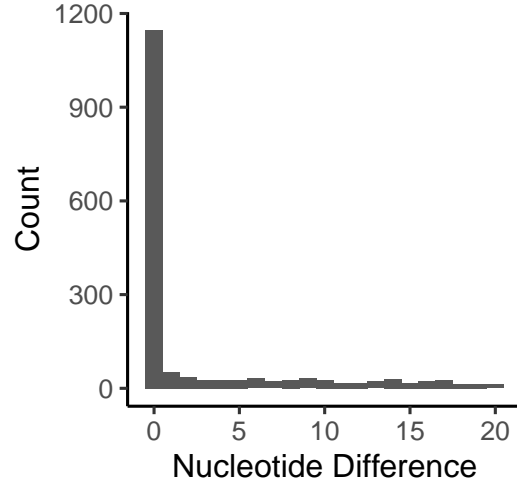
### IGHV4-39\*02\_C258G

3376 sequences assigned  
1391 (41.2%) exact matches, in which:  
1355 unique CDR3  
7 unique J



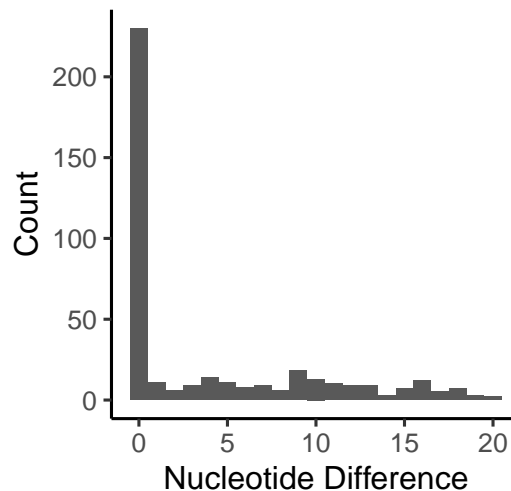
### IGHV4-31\*02

1711 sequences assigned  
1147 (67%) exact matches, in which:  
1124 unique CDR3  
7 unique J



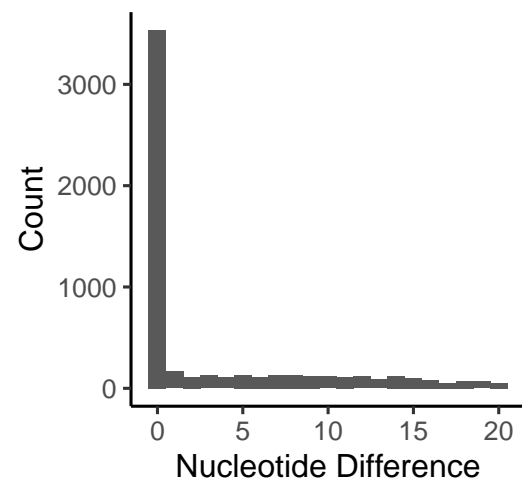
### IGHV4-38-2\*02\_A70G

412 sequences assigned  
230 (55.8%) exact matches, in which:  
230 unique CDR3  
5 unique J



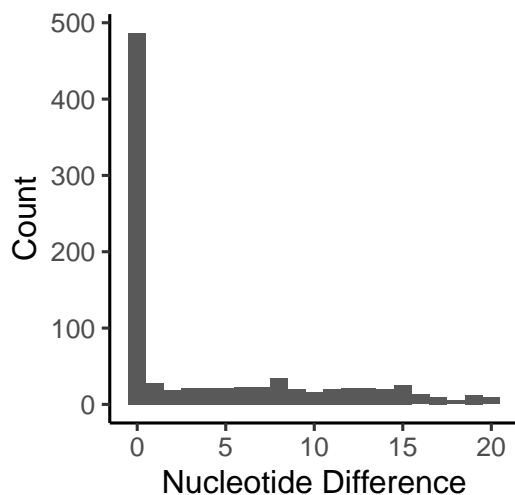
### IGHV4-59\*02\_G88A

5950 sequences assigned  
3536 (59.4%) exact matches, in which:  
3422 unique CDR3  
7 unique J



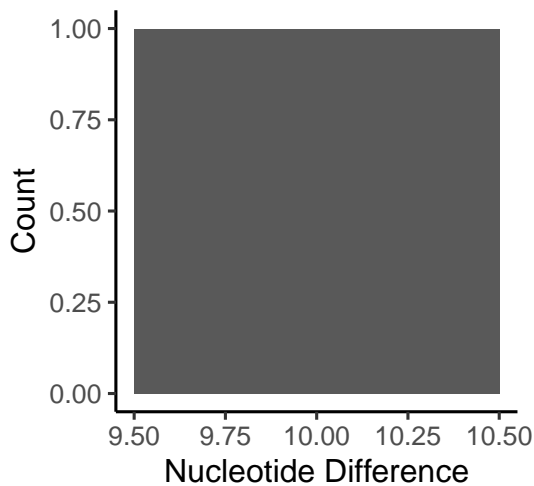
### IGHV4–61\*01

940 sequences assigned  
487 (51.8%) exact matches, in which:  
479 unique CDR3  
7 unique J



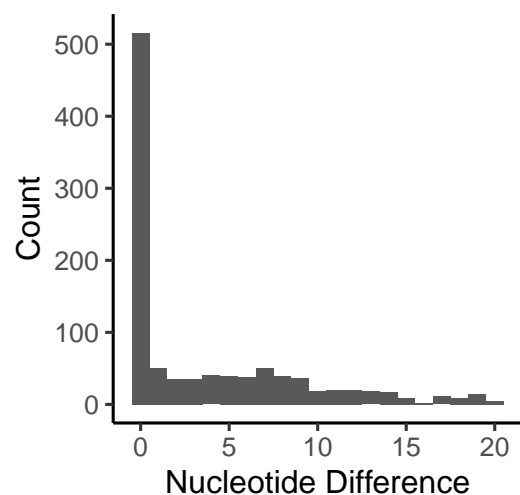
### IGHV4/OR15–8\*02

2 sequences assigned  
No exact matches.



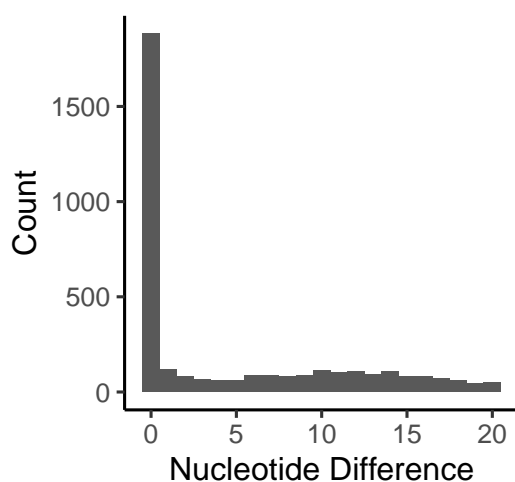
### IGHV6–1\*01\_02

1042 sequences assigned  
516 (49.5%) exact matches, in which:  
509 unique CDR3  
7 unique J



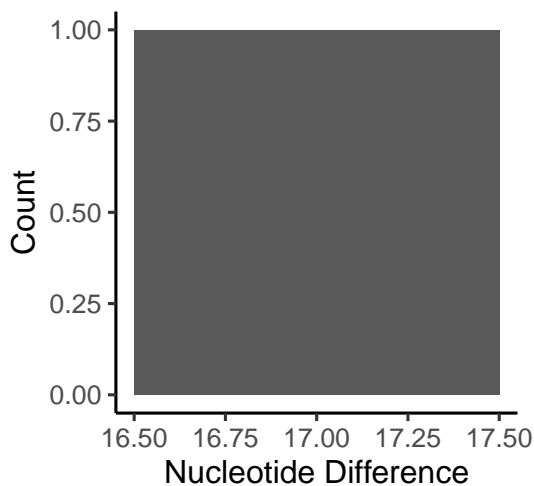
### IGHV4–61\*02

3720 sequences assigned  
1882 (50.6%) exact matches, in which:  
1827 unique CDR3  
6 unique J



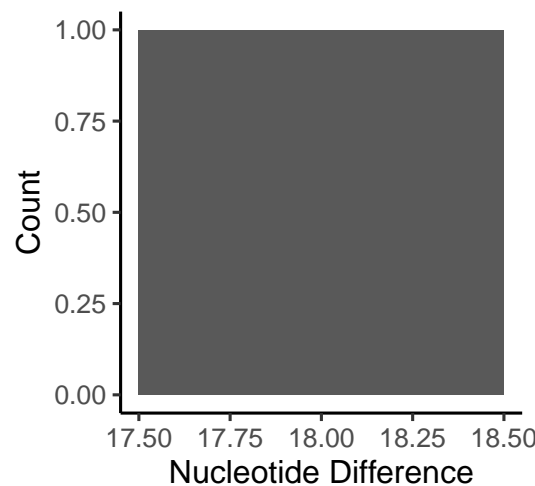
### IGHV4/OR15–8\*03

1 sequences assigned  
No exact matches.



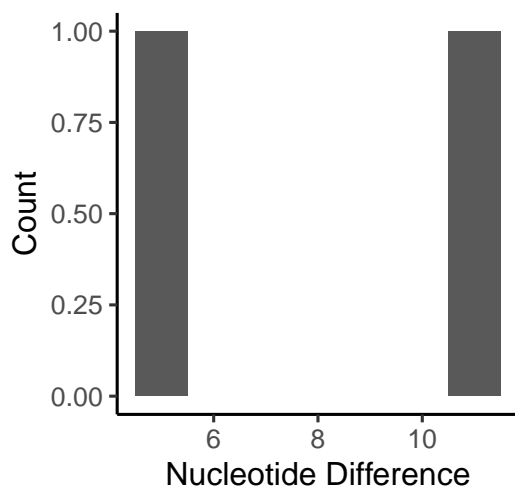
### IGHV3/OR16–9\*01

1 sequences assigned  
No exact matches.



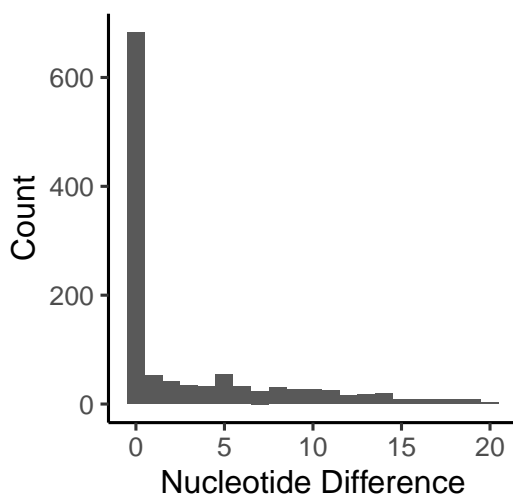
### IGHV4/OR15–8\*01

2 sequences assigned  
No exact matches.



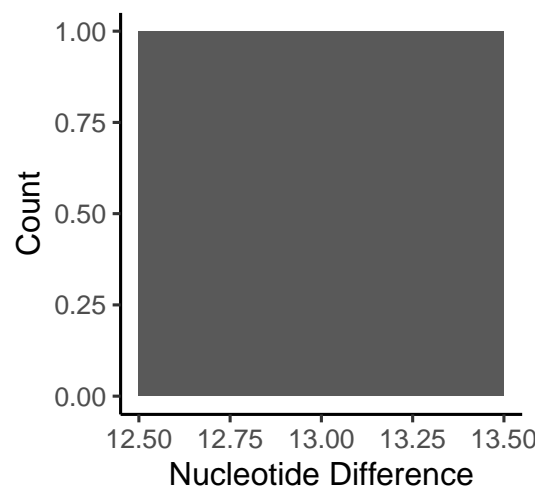
### IGHV5–51\*07\_A128G

1199 sequences assigned  
683 (57%) exact matches, in which:  
682 unique CDR3  
7 unique J



### IGHV3/OR16–13\*01

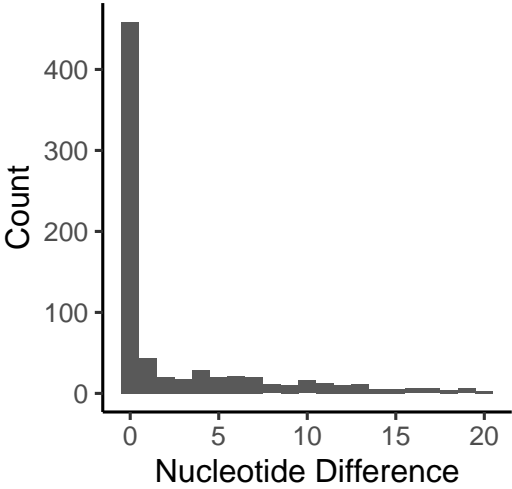
1 sequences assigned  
No exact matches.



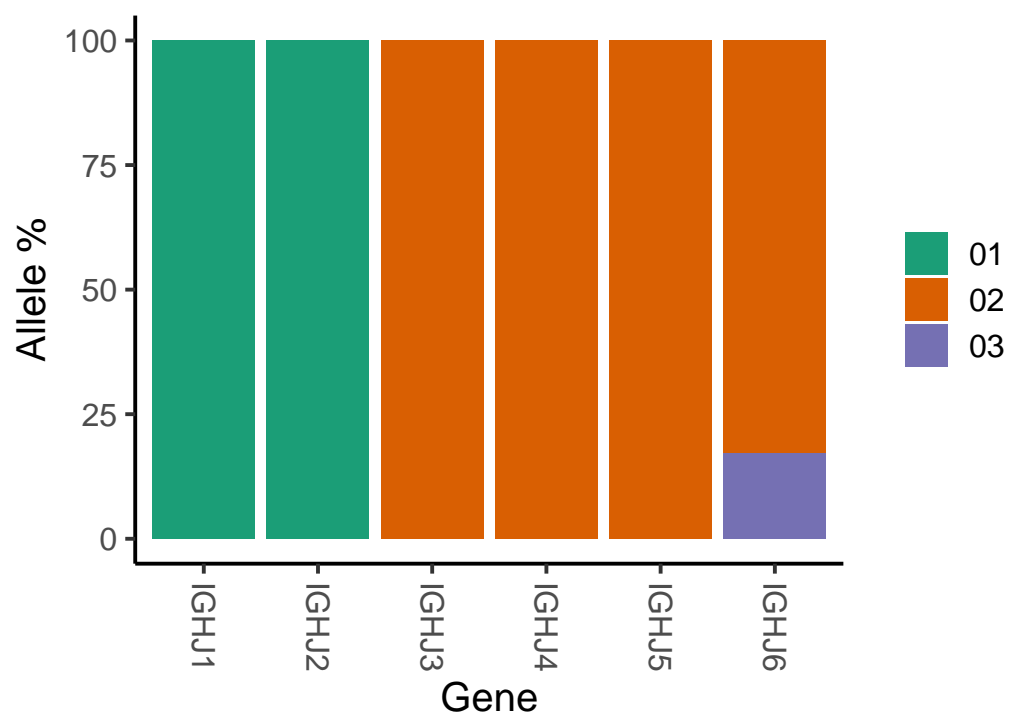


# IGHV7-4-1\*02

778 sequences assigned  
459 (59%) exact matches, in which:  
457 unique CDR3  
7 unique J



Allele Usage



Warning – no inferred sequences found.