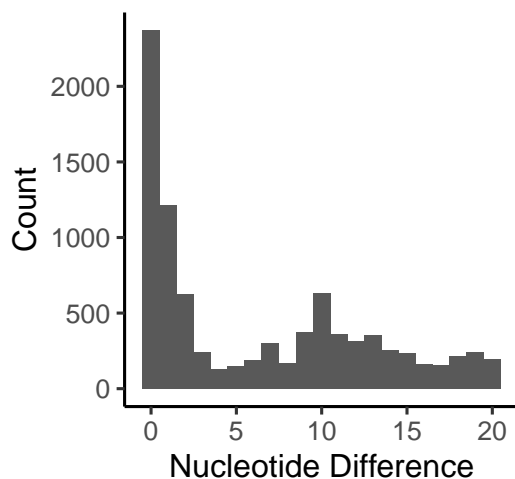


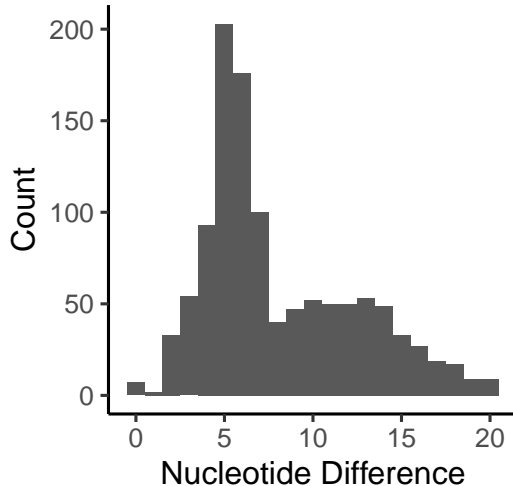
### IGHV1-2\*02

9749 sequences assigned  
2370 (24.3%) exact matches, in which:  
2229 unique CDR3  
7 unique J



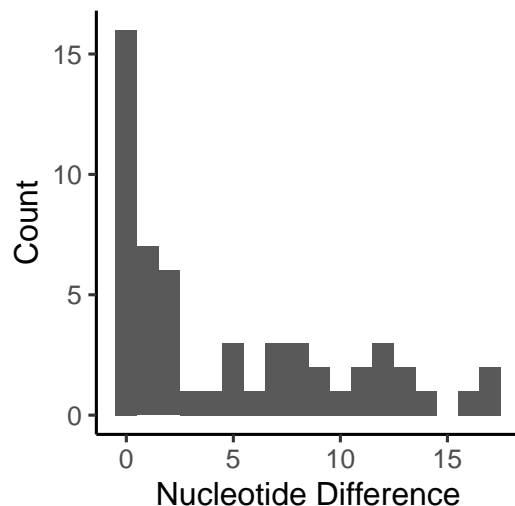
### IGHV1-8\*02

1199 sequences assigned  
7 (0.6%) exact matches, in which:  
7 unique CDR3  
5 unique J



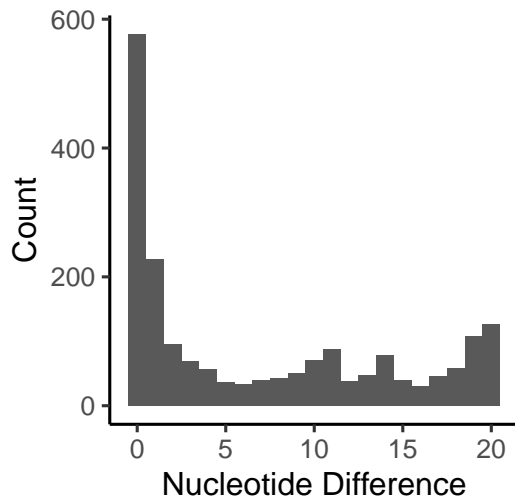
### IGHV1-45\*02

56 sequences assigned  
16 (28.6%) exact matches, in which:  
16 unique CDR3  
4 unique J



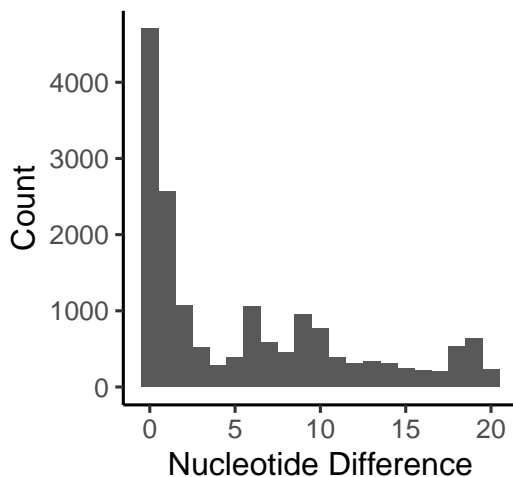
### IGHV1-3\*01\_05

2779 sequences assigned  
577 (20.8%) exact matches, in which:  
535 unique CDR3  
7 unique J



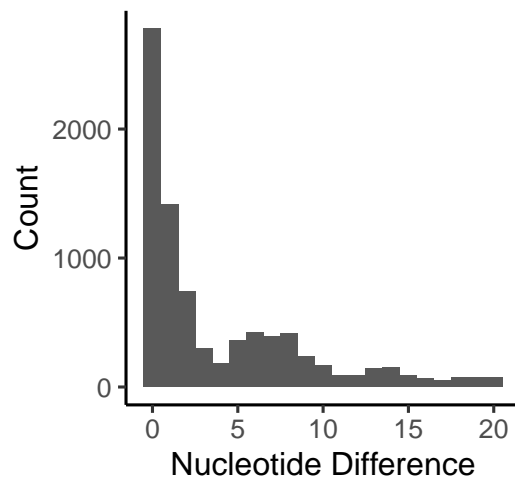
### IGHV1-18\*01

23933 sequences assigned  
4703 (19.7%) exact matches, in which:  
4338 unique CDR3  
7 unique J



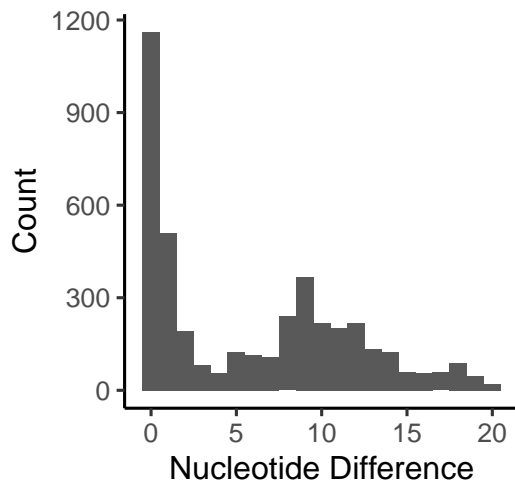
### IGHV1-46\*01

9356 sequences assigned  
2778 (29.7%) exact matches, in which:  
2627 unique CDR3  
7 unique J



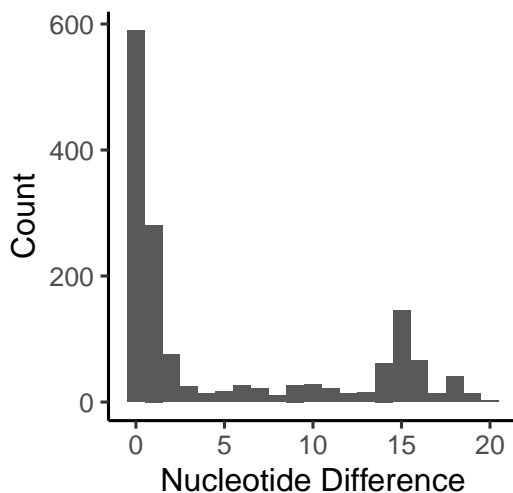
### IGHV1-8\*01

4697 sequences assigned  
1161 (24.7%) exact matches, in which:  
1111 unique CDR3  
7 unique J



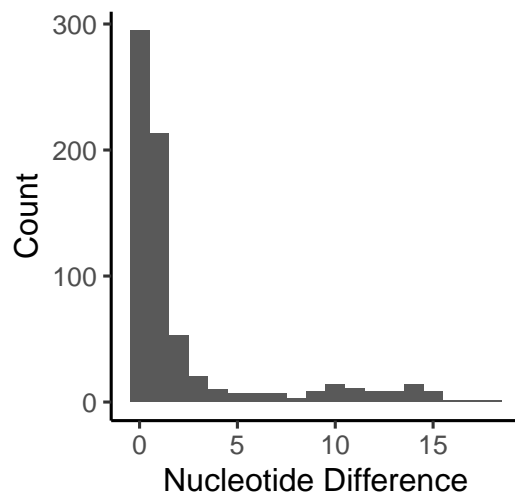
### IGHV1-24\*01

1539 sequences assigned  
590 (38.3%) exact matches, in which:  
545 unique CDR3  
7 unique J



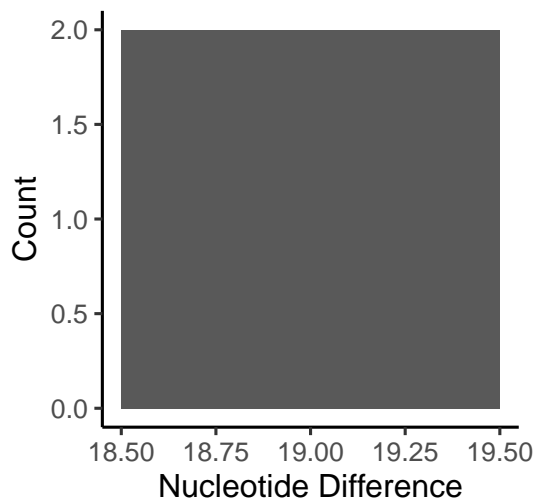
### IGHV1-58\*01\_03

714 sequences assigned  
295 (41.3%) exact matches, in which:  
271 unique CDR3  
7 unique J



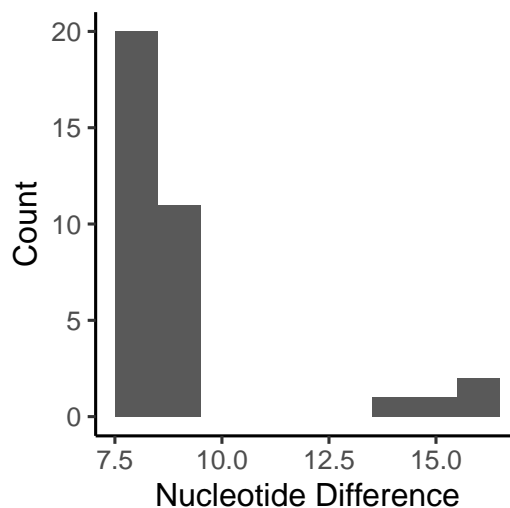
### IGHV1-69-2\*01

2 sequences assigned  
No exact matches.



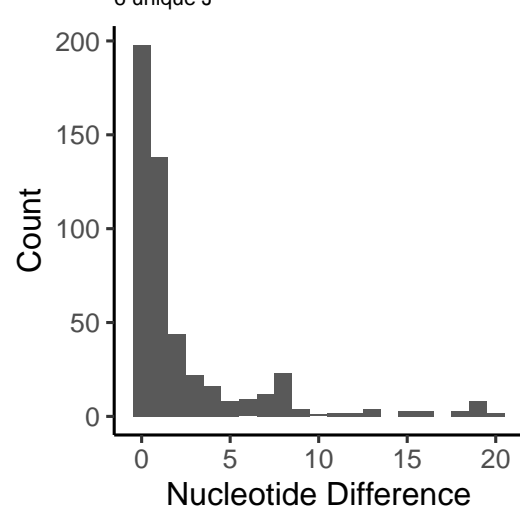
### IGHV1-NL1\*01

35 sequences assigned  
No exact matches.



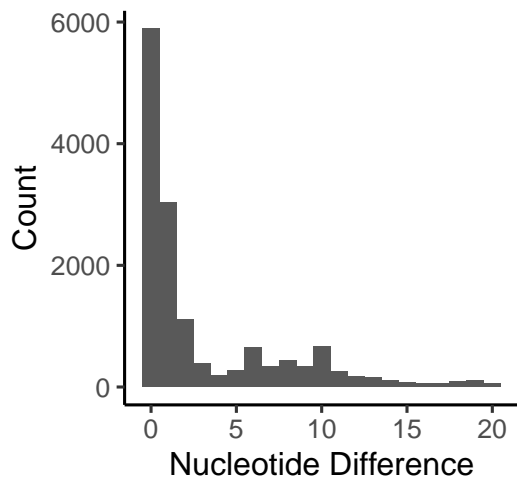
### IGHV2-70\*01

509 sequences assigned  
198 (38.9%) exact matches, in which:  
178 unique CDR3  
6 unique J



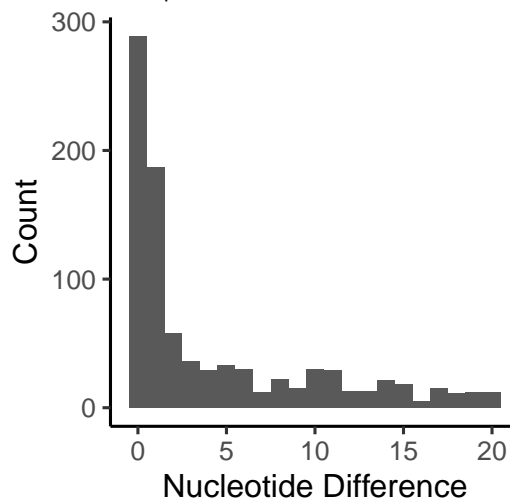
### IGHV1-69\*01\_12\_13

14963 sequences assigned  
5890 (39.4%) exact matches, in which:  
5572 unique CDR3  
7 unique J



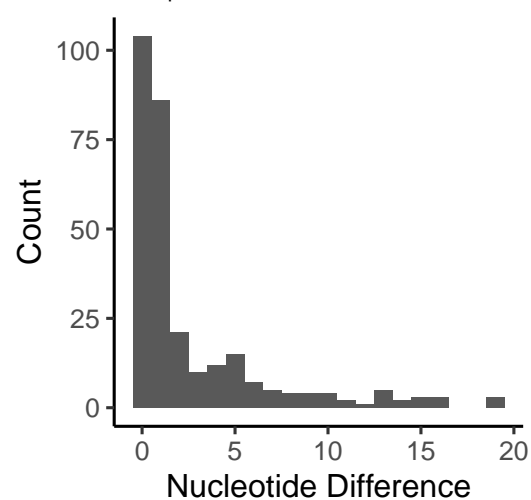
### IGHV2-5\*02

995 sequences assigned  
289 (29%) exact matches, in which:  
263 unique CDR3  
7 unique J



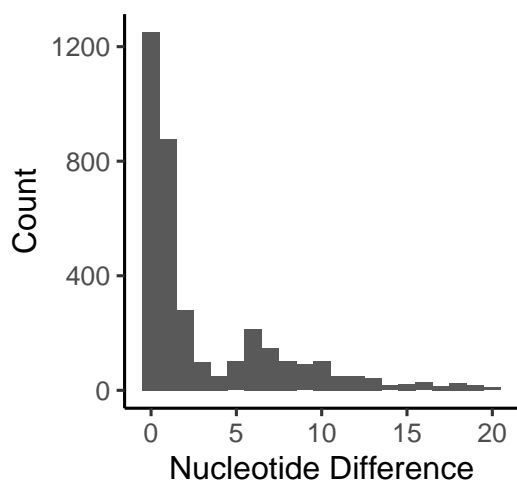
### IGHV2-70\*11\_15

297 sequences assigned  
104 (35%) exact matches, in which:  
100 unique CDR3  
7 unique J



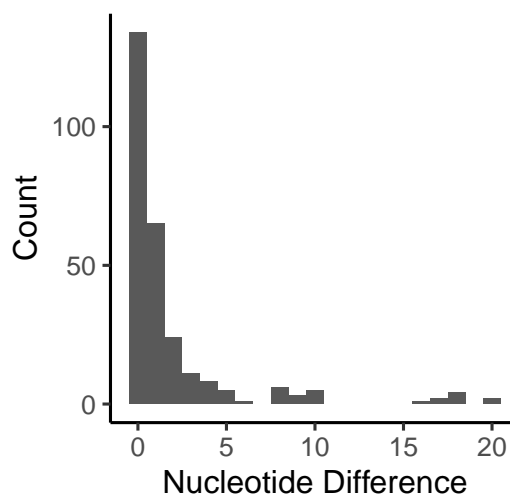
### IGHV1-69\*04\_09

3730 sequences assigned  
1251 (33.5%) exact matches, in which:  
1191 unique CDR3  
7 unique J



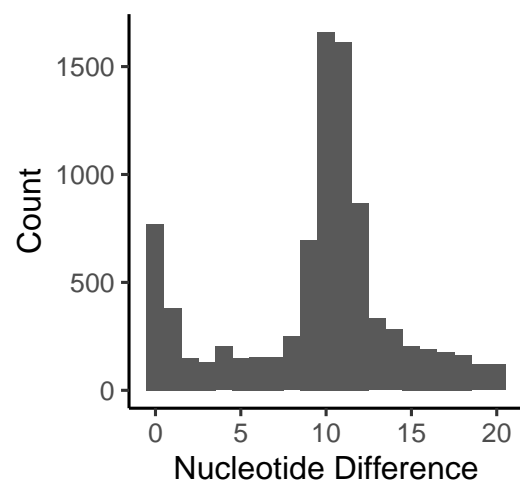
### IGHV2-26\*01

281 sequences assigned  
134 (47.7%) exact matches, in which:  
124 unique CDR3  
6 unique J



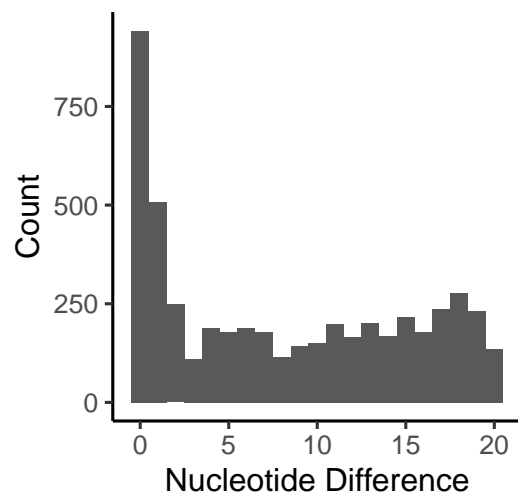
### IGHV3-7\*01

9314 sequences assigned  
772 (8.3%) exact matches, in which:  
633 unique CDR3  
7 unique J



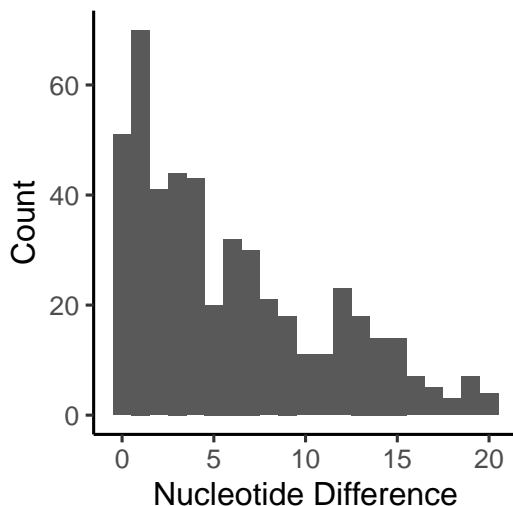
### IGHV3-7\*03

5763 sequences assigned  
942 (16.3%) exact matches, in which:  
754 unique CDR3  
7 unique J



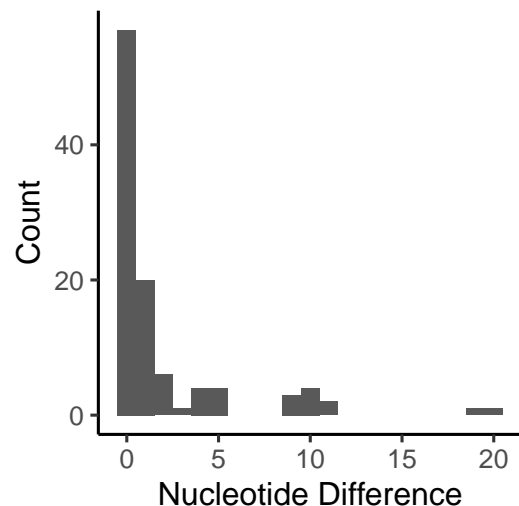
### IGHV3-11\*04

525 sequences assigned  
51 (9.7%) exact matches, in which:  
51 unique CDR3  
7 unique J



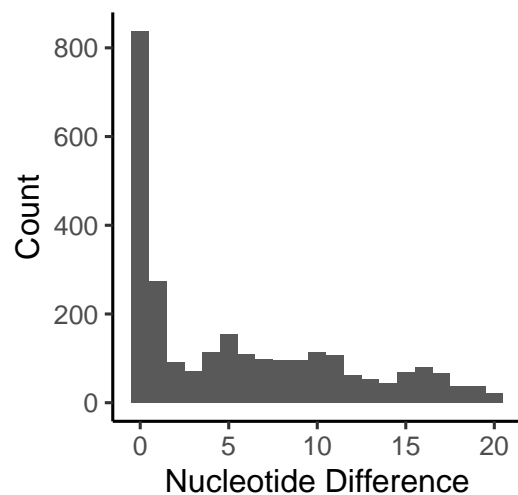
### IGHV3-13\*05

112 sequences assigned  
57 (50.9%) exact matches, in which:  
44 unique CDR3  
6 unique J



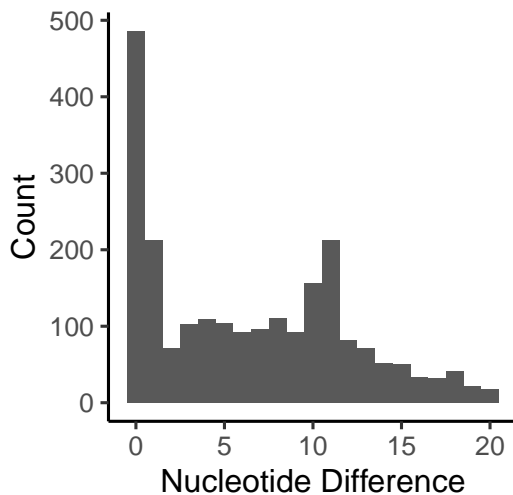
### IGHV3-9\*01

3195 sequences assigned  
838 (26.2%) exact matches, in which:  
658 unique CDR3  
7 unique J



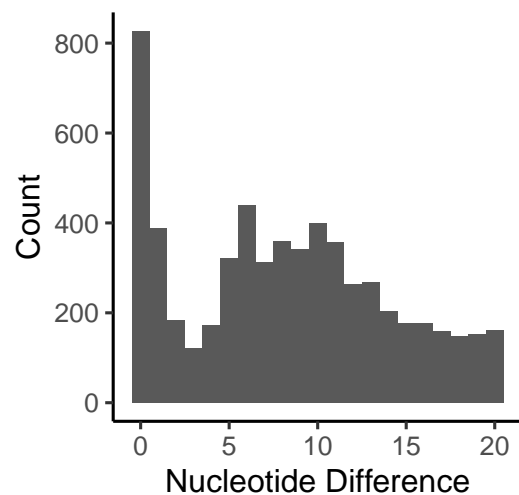
### IGHV3-11\*06

2748 sequences assigned  
486 (17.7%) exact matches, in which:  
394 unique CDR3  
6 unique J



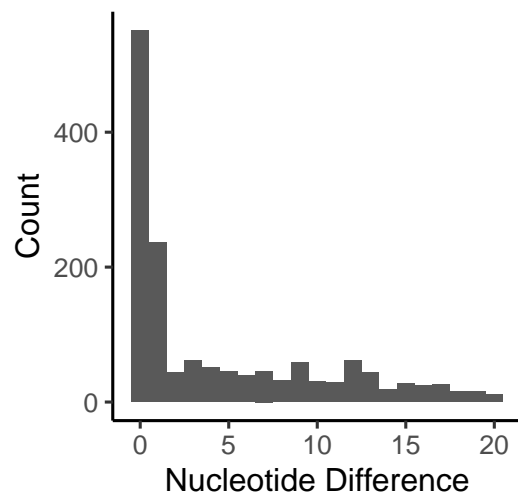
### IGHV3-15\*01\_02

6809 sequences assigned  
827 (12.1%) exact matches, in which:  
628 unique CDR3  
7 unique J



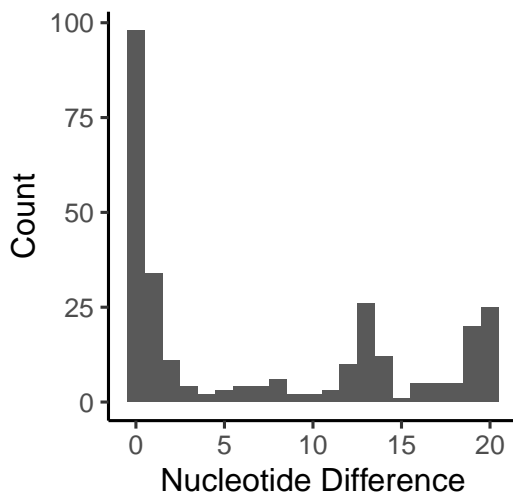
### IGHV3-11\*01

1573 sequences assigned  
551 (35%) exact matches, in which:  
425 unique CDR3  
7 unique J



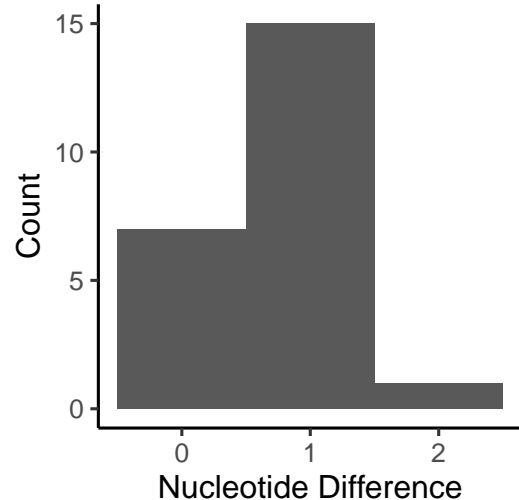
### IGHV3-13\*01

340 sequences assigned  
98 (28.8%) exact matches, in which:  
68 unique CDR3  
5 unique J



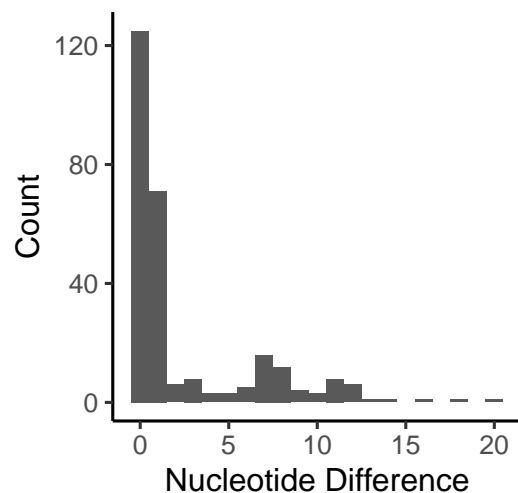
### IGHV3-19\*01

23 sequences assigned  
7 (30.4%) exact matches, in which:  
3 unique CDR3  
2 unique J



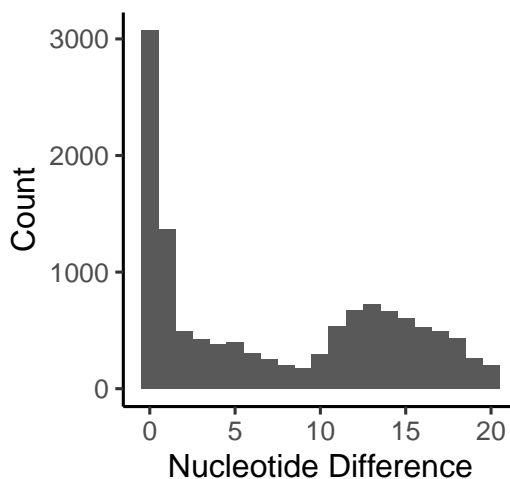
### IGHV3-20\*01\_02

295 sequences assigned  
125 (42.4%) exact matches, in which:  
91 unique CDR3  
6 unique J



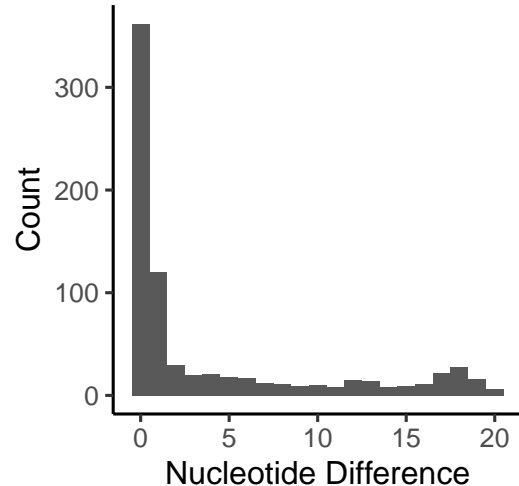
### IGHV3-21\*01\_02

13524 sequences assigned  
3073 (22.7%) exact matches, in which:  
2414 unique CDR3  
7 unique J



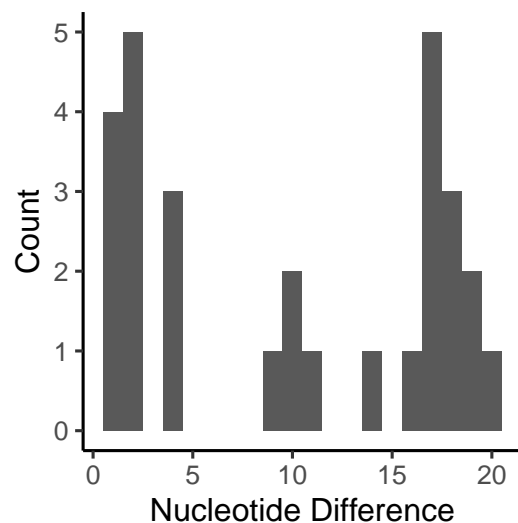
### IGHV3-30\*03

1029 sequences assigned  
362 (35.2%) exact matches, in which:  
343 unique CDR3  
7 unique J



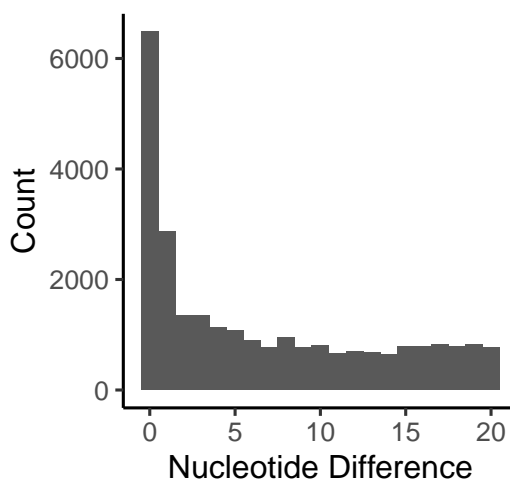
### IGHV3-20\*03\_04

34 sequences assigned  
No exact matches.



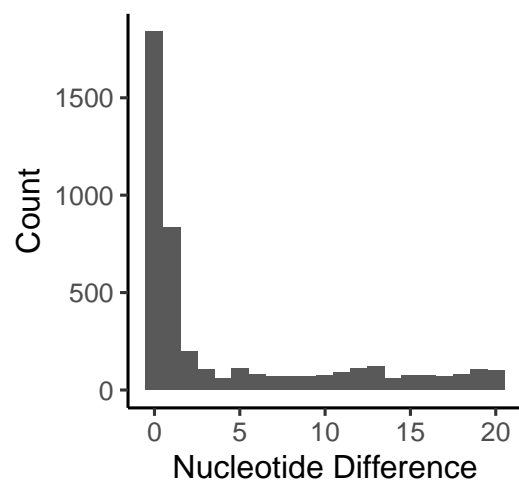
### IGHV3-23\*01\_04

32374 sequences assigned  
6484 (20%) exact matches, in which:  
4851 unique CDR3  
7 unique J



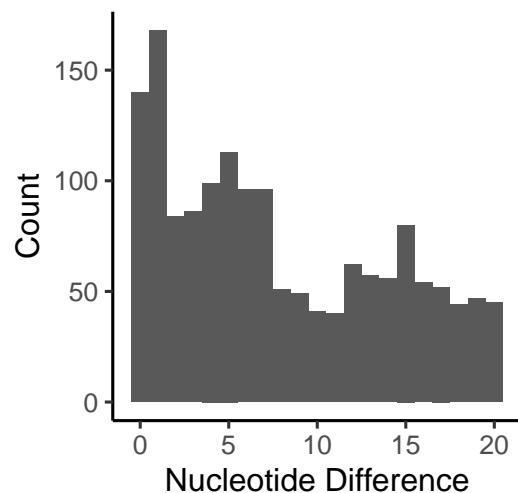
### IGHV3-30\*18

5069 sequences assigned  
1839 (36.3%) exact matches, in which:  
1429 unique CDR3  
7 unique J



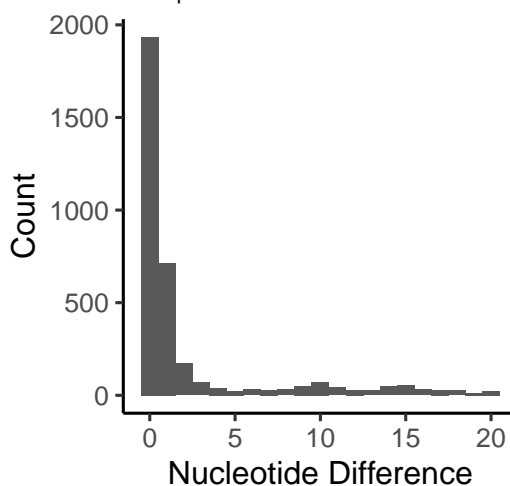
### IGHV3-21\*04

1804 sequences assigned  
140 (7.8%) exact matches, in which:  
136 unique CDR3  
6 unique J



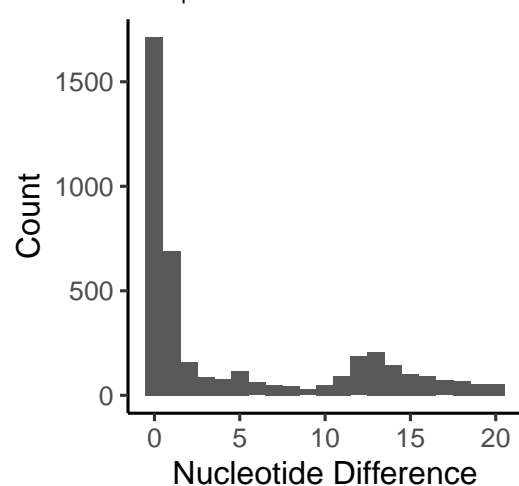
### IGHV3-30-3\*01

3780 sequences assigned  
1934 (51.2%) exact matches, in which:  
1537 unique CDR3  
7 unique J



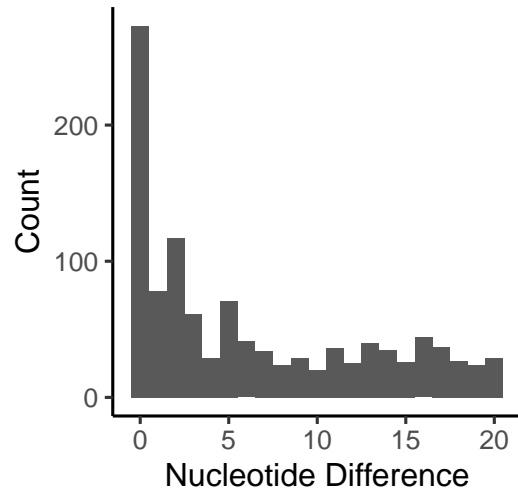
### IGHV3-33\*01

4641 sequences assigned  
1714 (36.9%) exact matches, in which:  
1429 unique CDR3  
7 unique J



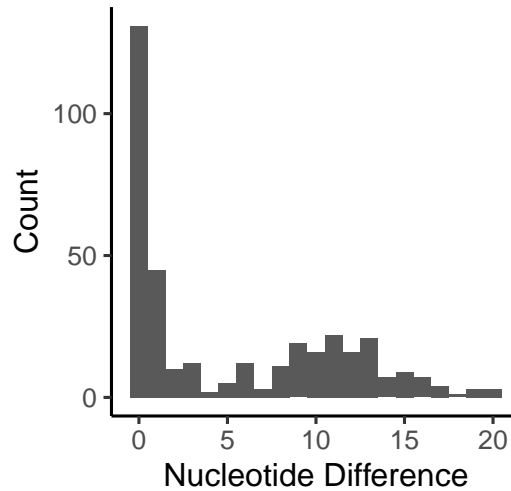
### IGHV3–33\*08

1289 sequences assigned  
273 (21.2%) exact matches, in which:  
259 unique CDR3  
7 unique J



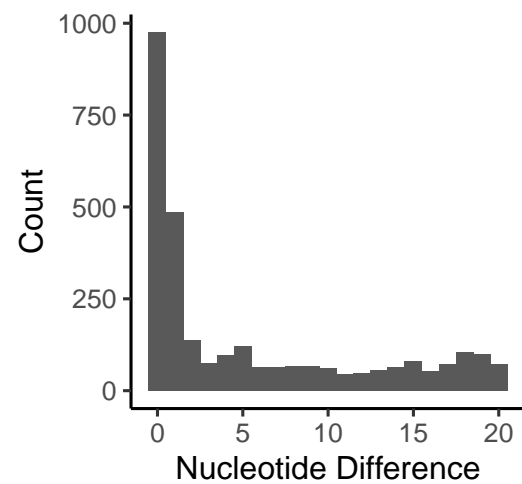
### IGHV3–43\*01

387 sequences assigned  
131 (33.9%) exact matches, in which:  
105 unique CDR3  
7 unique J



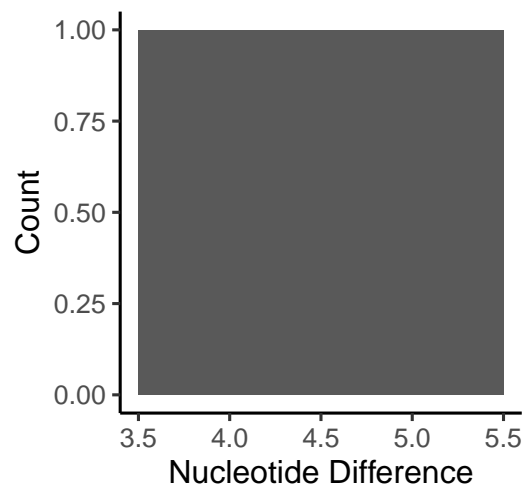
### IGHV3–48\*02

3976 sequences assigned  
975 (24.5%) exact matches, in which:  
756 unique CDR3  
7 unique J



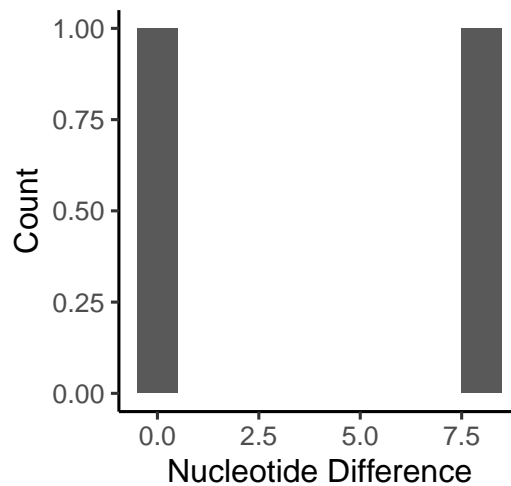
### IGHV3–35\*01

2 sequences assigned  
No exact matches.



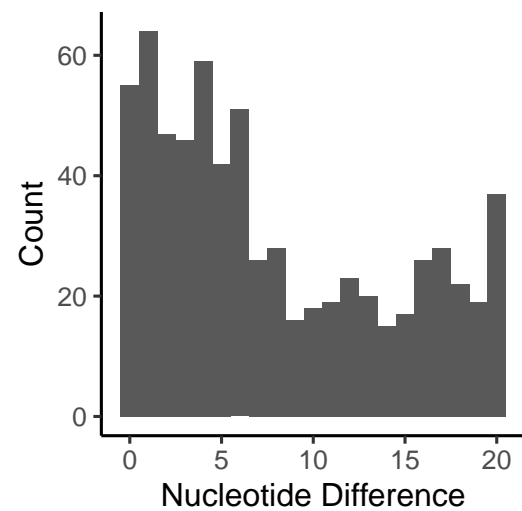
### IGHV3–47\*02

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



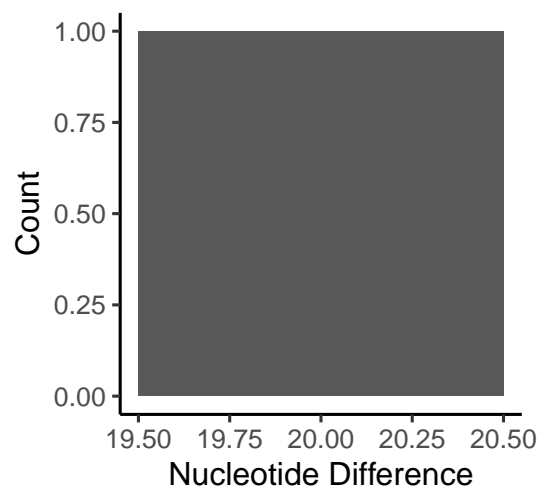
### IGHV3–48\*04

928 sequences assigned  
55 (5.9%) exact matches, in which:  
54 unique CDR3  
6 unique J



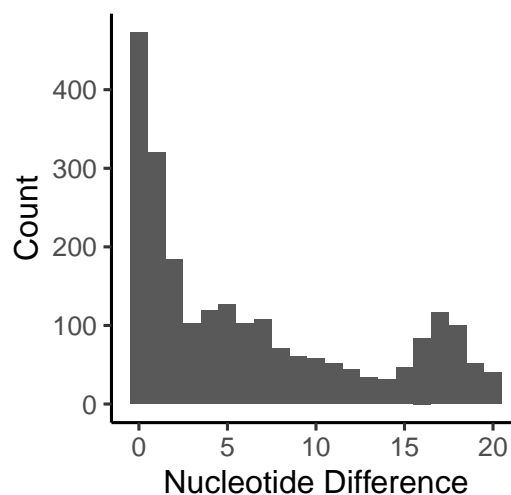
### IGHV3–38–3\*01

1 sequences assigned  
No exact matches.



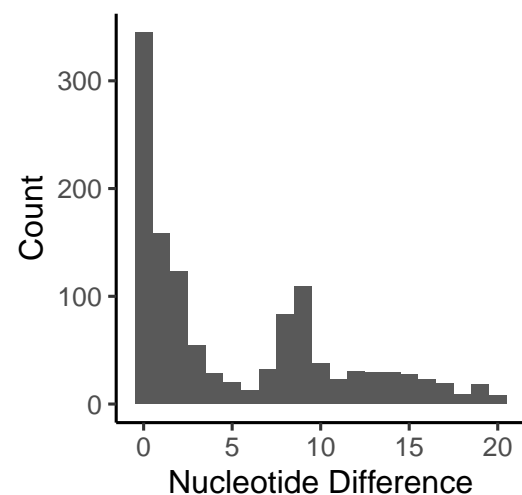
### IGHV3–48\*01

2703 sequences assigned  
473 (17.5%) exact matches, in which:  
383 unique CDR3  
7 unique J



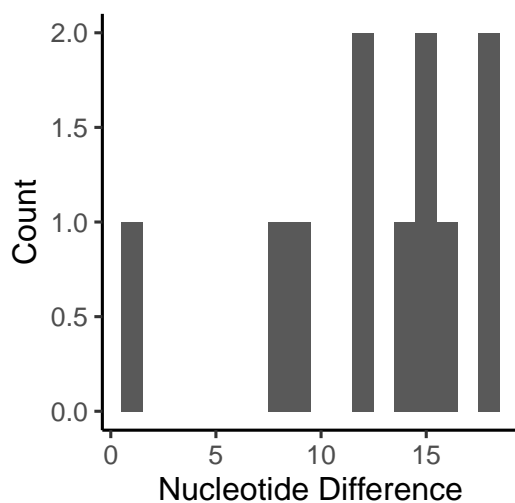
### IGHV3–49\*03\_05

1279 sequences assigned  
345 (27%) exact matches, in which:  
279 unique CDR3  
7 unique J



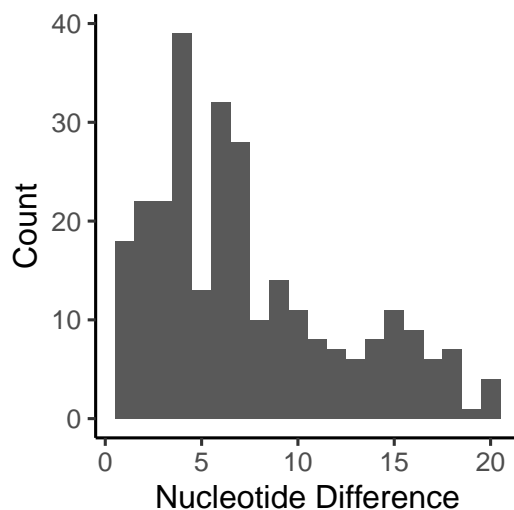
### IGHV3-52\*01\_03

11 sequences assigned  
No exact matches.



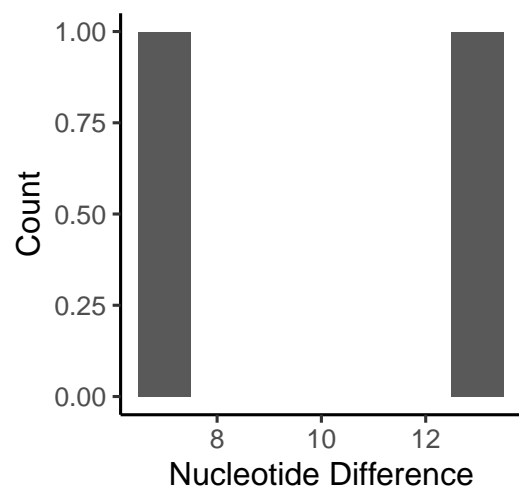
### IGHV3-64\*04

306 sequences assigned  
No exact matches.



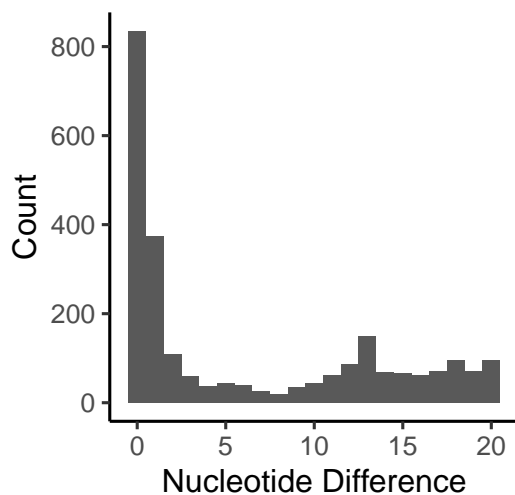
### IGHV3-69-1\*02

35 sequences assigned  
No exact matches.



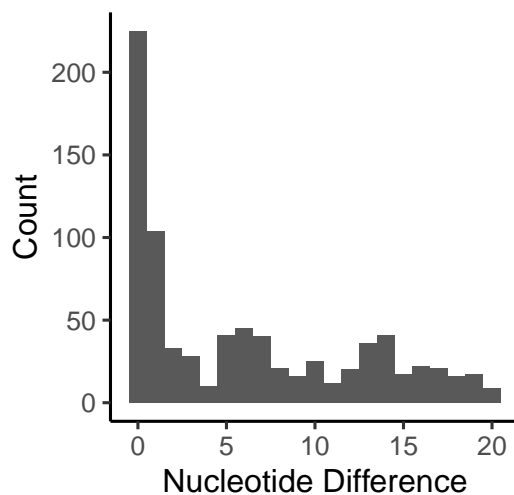
### IGHV3-53\*01\_02

3309 sequences assigned  
835 (25.2%) exact matches, in which:  
677 unique CDR3  
7 unique J



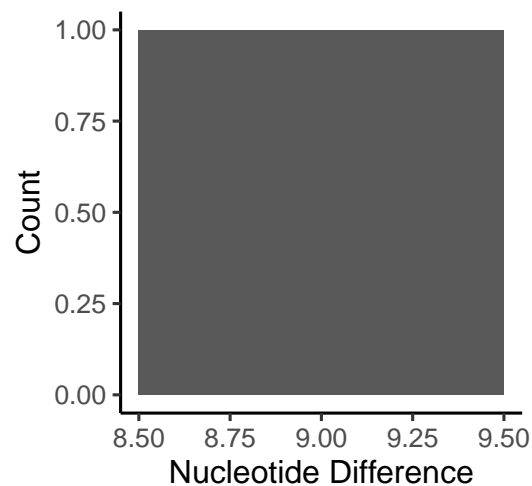
### IGHV3-66\*01

935 sequences assigned  
225 (24.1%) exact matches, in which:  
184 unique CDR3  
7 unique J



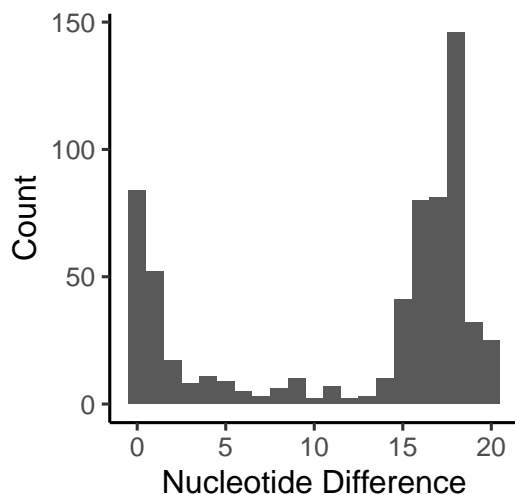
### IGHV3-71\*01\_04

3 sequences assigned  
No exact matches.



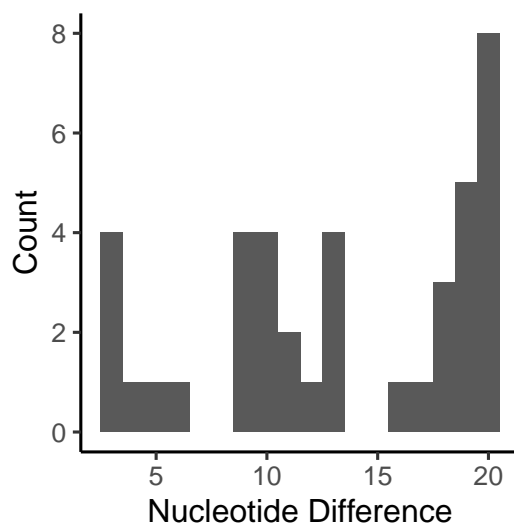
### IGHV3-64\*01

693 sequences assigned  
84 (12.1%) exact matches, in which:  
64 unique CDR3  
7 unique J



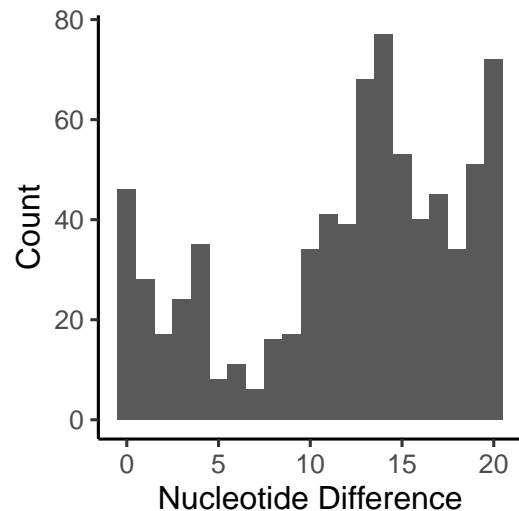
### IGHV3-69-1\*01

111 sequences assigned  
No exact matches.



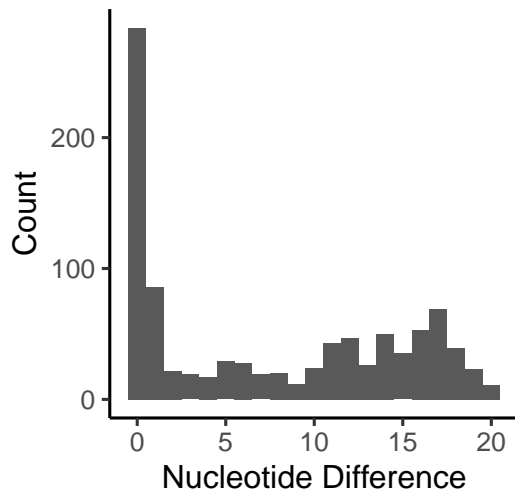
### IGHV3-72\*01

1072 sequences assigned  
46 (4.3%) exact matches, in which:  
32 unique CDR3  
6 unique J



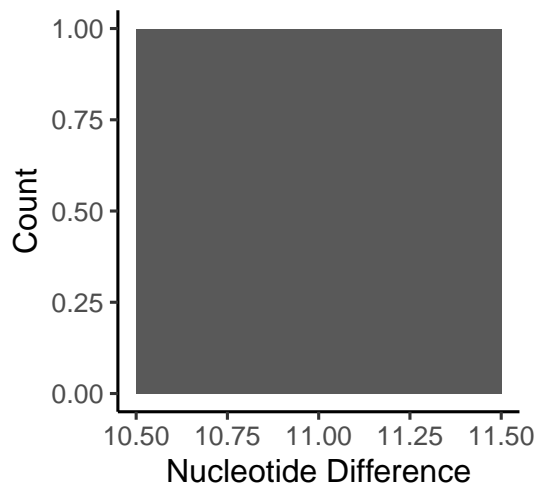
### IGHV3-73\*01\_02

1024 sequences assigned  
284 (27.7%) exact matches, in which:  
235 unique CDR3  
7 unique J



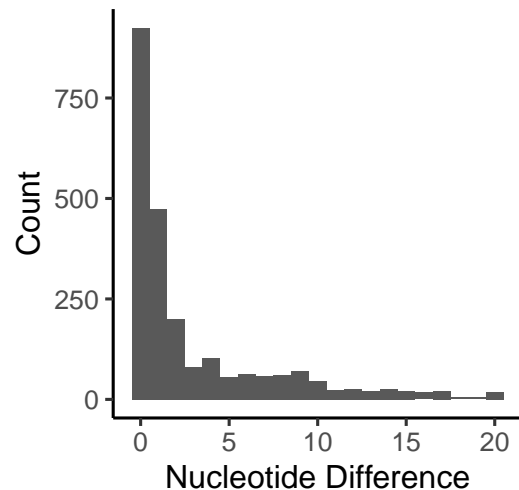
### IGHV3-43D\*04

3 sequences assigned  
No exact matches.



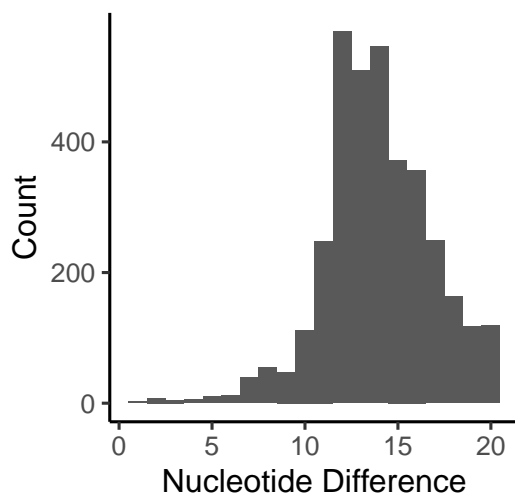
### IGHV4-4\*07

2830 sequences assigned  
925 (32.7%) exact matches, in which:  
838 unique CDR3  
6 unique J



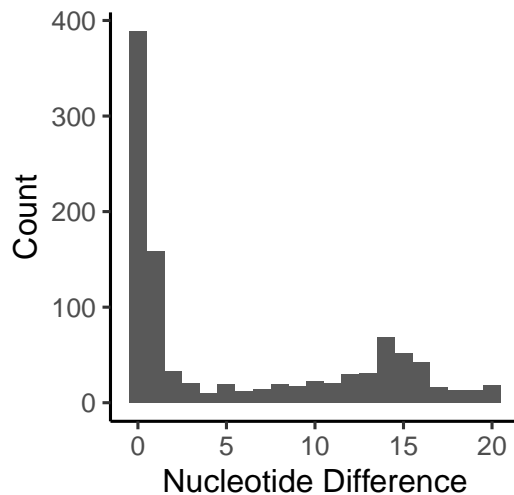
### IGHV3-74\*03

4336 sequences assigned  
No exact matches.



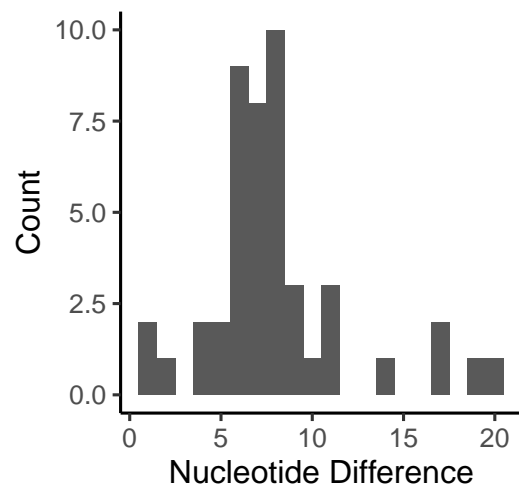
### IGHV3-64D\*06

1123 sequences assigned  
389 (34.6%) exact matches, in which:  
286 unique CDR3  
7 unique J



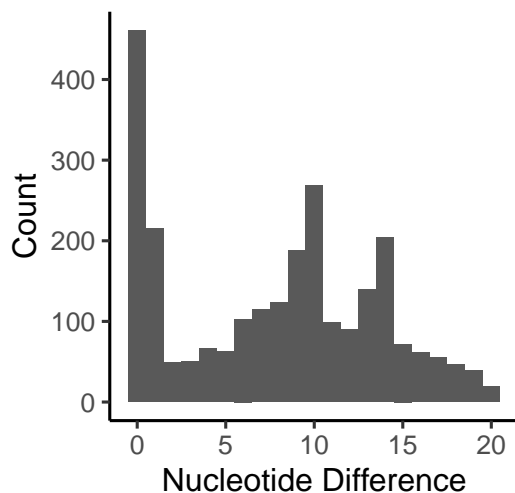
### IGHV4-28\*03

50 sequences assigned  
No exact matches.



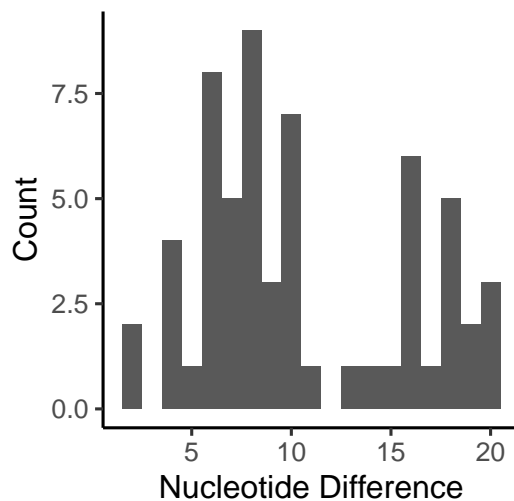
### IGHV3-74\*01\_02

2752 sequences assigned  
461 (16.8%) exact matches, in which:  
334 unique CDR3  
7 unique J



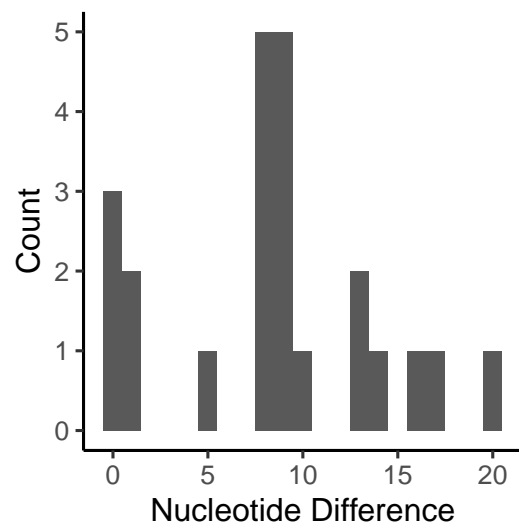
### IGHV3-NL1\*01

84 sequences assigned  
No exact matches.



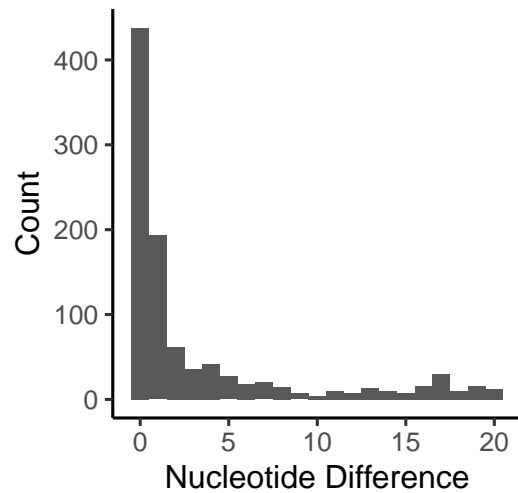
### IGHV4-28\*01\_07

25 sequences assigned  
3 (12%) exact matches, in which:  
3 unique CDR3  
2 unique J



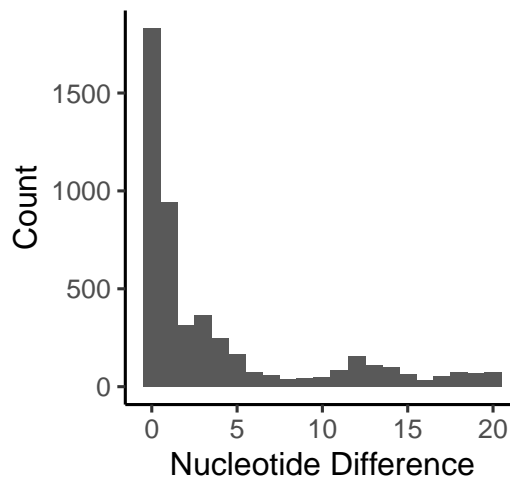
### IGHV4-30-2\*01

1467 sequences assigned  
438 (29.9%) exact matches, in which:  
353 unique CDR3  
7 unique J



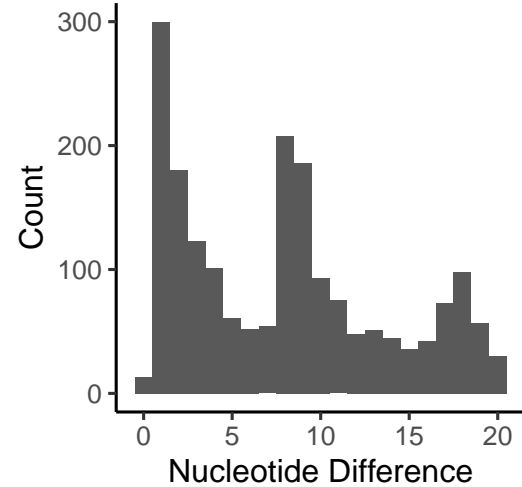
### IGHV4-31\*02

5830 sequences assigned  
1830 (31.4%) exact matches, in which:  
1704 unique CDR3  
7 unique J



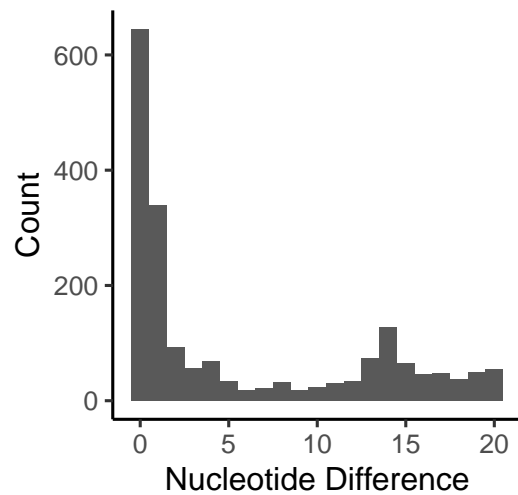
### IGHV4-39\*07

2262 sequences assigned  
13 (0.6%) exact matches, in which:  
13 unique CDR3  
5 unique J



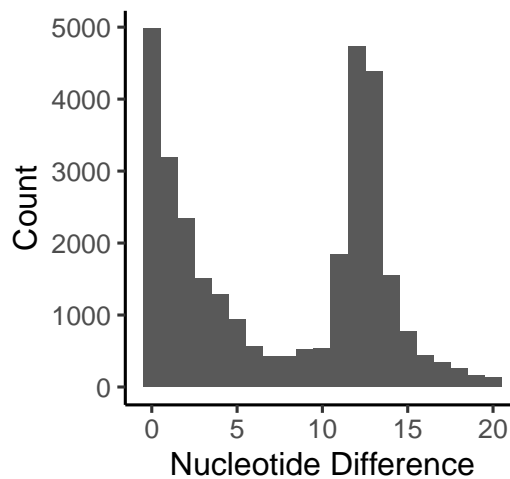
### IGHV4-30-4\*01

2277 sequences assigned  
645 (28.3%) exact matches, in which:  
604 unique CDR3  
7 unique J



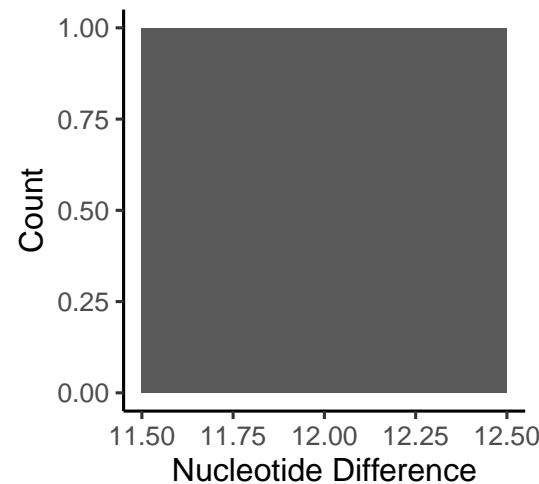
### IGHV4-34\*01\_02

32107 sequences assigned  
4978 (15.5%) exact matches, in which:  
4499 unique CDR3  
7 unique J



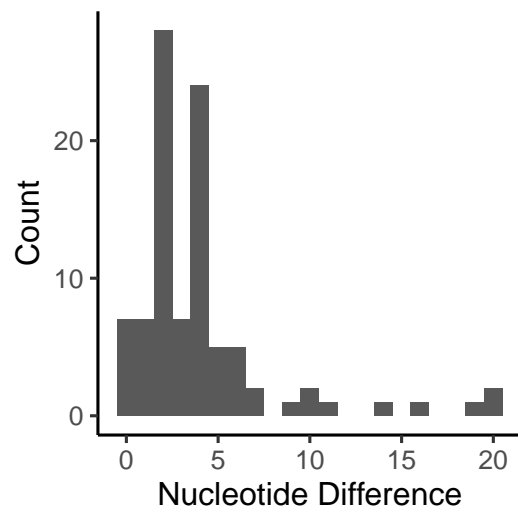
### IGHV4-55\*09

1 sequences assigned  
No exact matches.



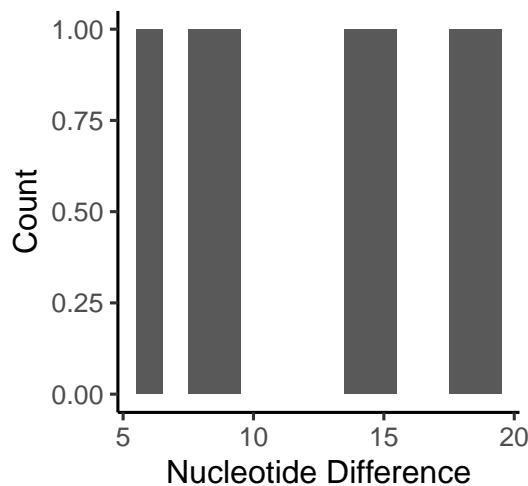
### IGHV4-30-2\*05

106 sequences assigned  
7 (6.6%) exact matches, in which:  
7 unique CDR3  
5 unique J



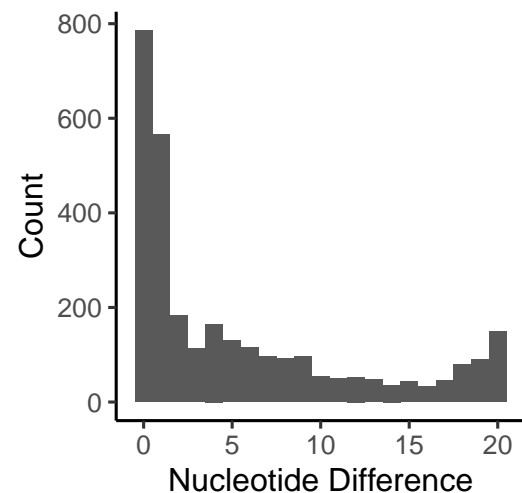
### IGHV4-38-2\*02

26 sequences assigned  
No exact matches.



### IGHV4-59\*08

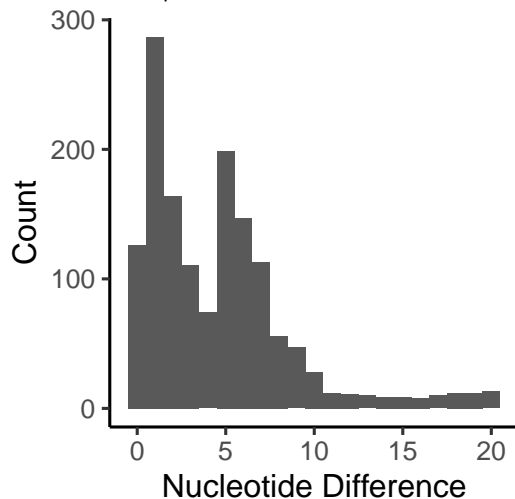
3501 sequences assigned  
786 (22.5%) exact matches, in which:  
724 unique CDR3  
7 unique J





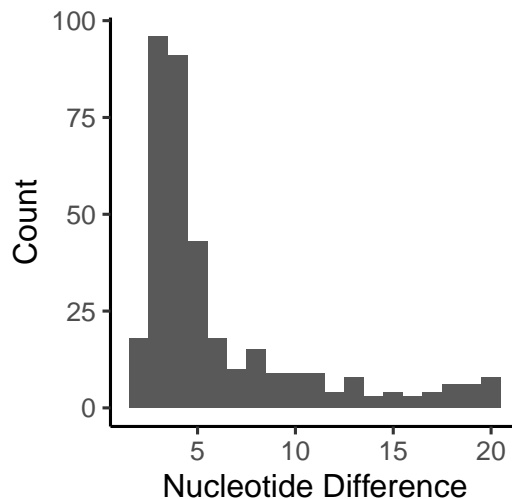
### IGHV4–59\*12

1569 sequences assigned  
126 (8%) exact matches, in which:  
126 unique CDR3  
6 unique J



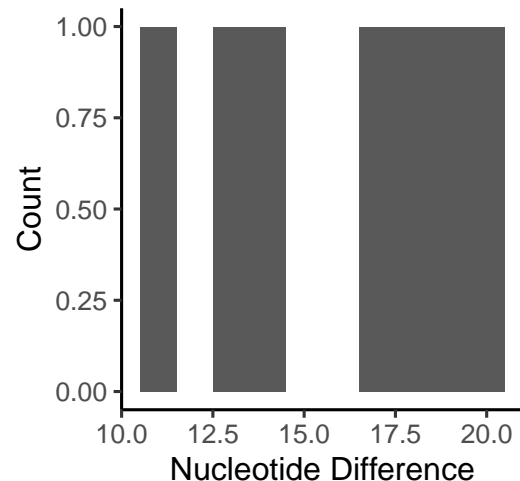
### IGHV4–61\*05

414 sequences assigned  
No exact matches.



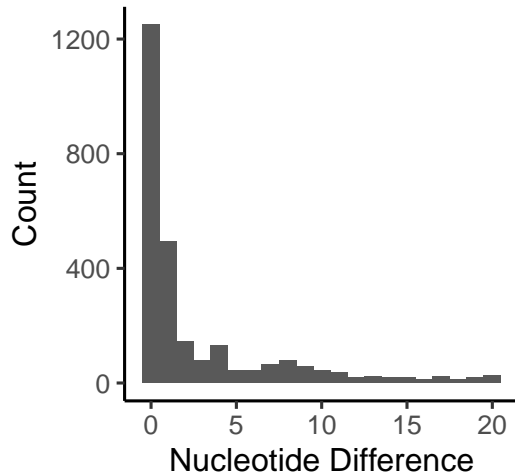
### IGHV1/OR15–2\*02\_03

12 sequences assigned  
No exact matches.



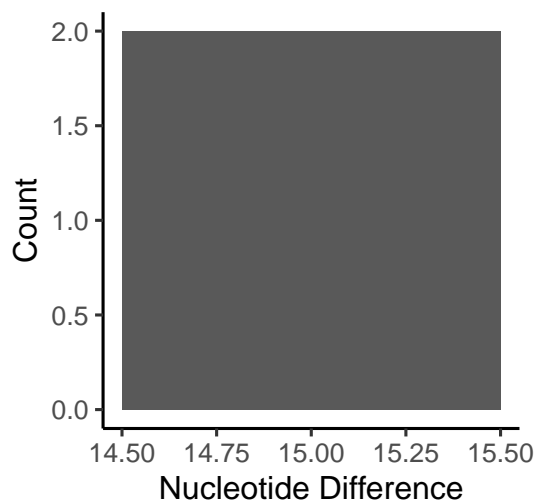
### IGHV4–59\*13

3479 sequences assigned  
1250 (35.9%) exact matches, in which:  
1210 unique CDR3  
7 unique J



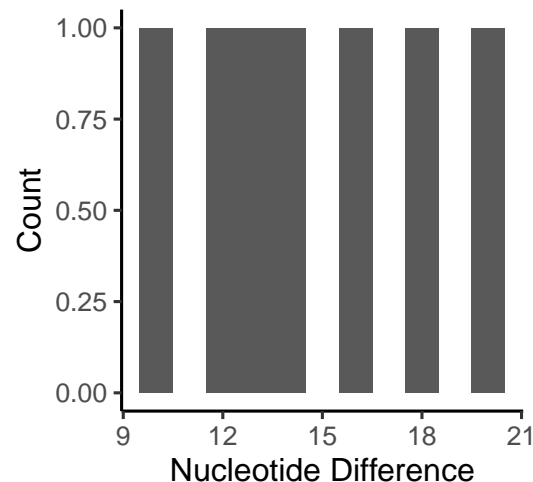
### IGHV1/OR15–1\*04

2 sequences assigned  
No exact matches.



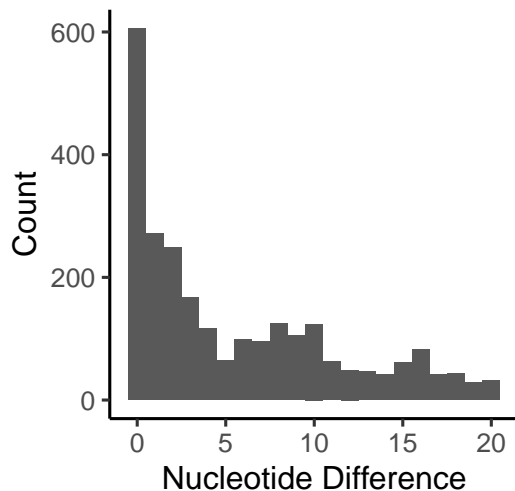
### IGHV1/OR15–3\*02

10 sequences assigned  
No exact matches.



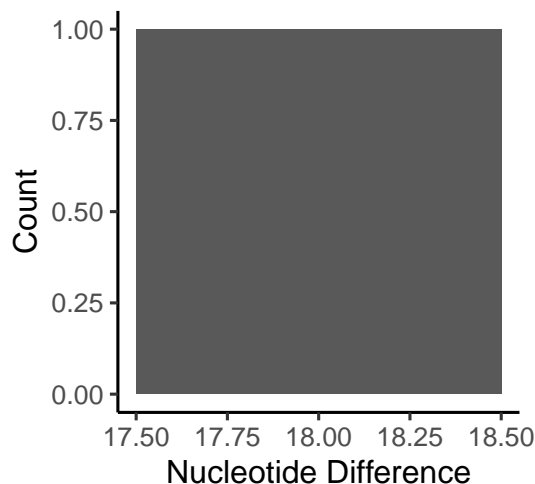
### IGHV4–61\*01

3172 sequences assigned  
606 (19.1%) exact matches, in which:  
587 unique CDR3  
7 unique J



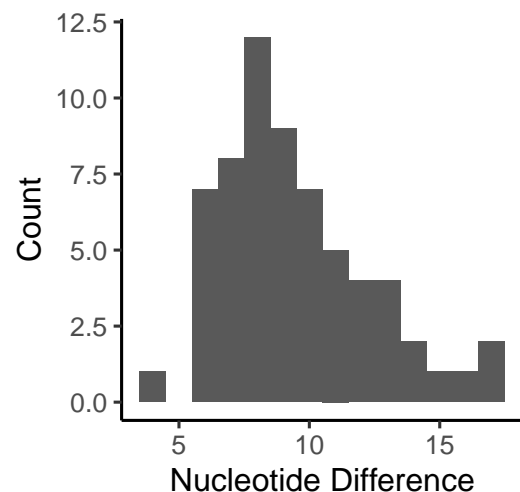
### IGHV1/OR15–2\*01

1 sequences assigned  
No exact matches.



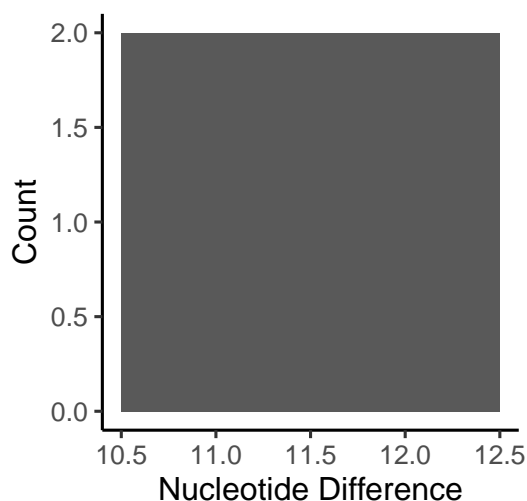
### IGHV4/OR15–8\*02

71 sequences assigned  
No exact matches.



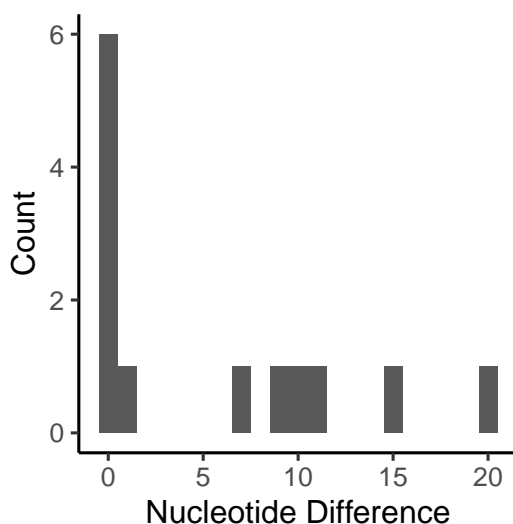
### IGHV1/OR15–9\*01

4 sequences assigned  
No exact matches.



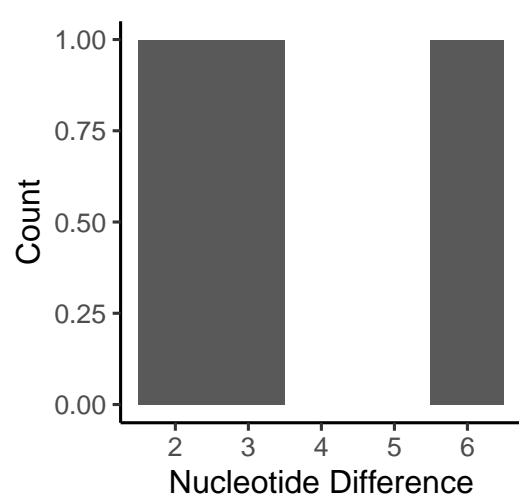
### IGHV5–51\*06

13 sequences assigned  
6 (46.2%) exact matches, in which:  
6 unique CDR3  
4 unique J



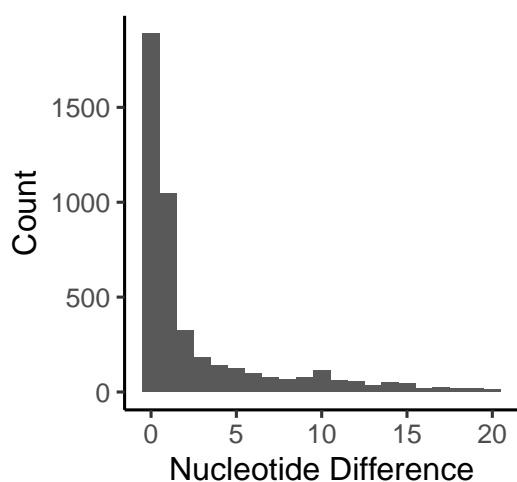
### IGHV3/OR16–9\*01

3 sequences assigned  
No exact matches.



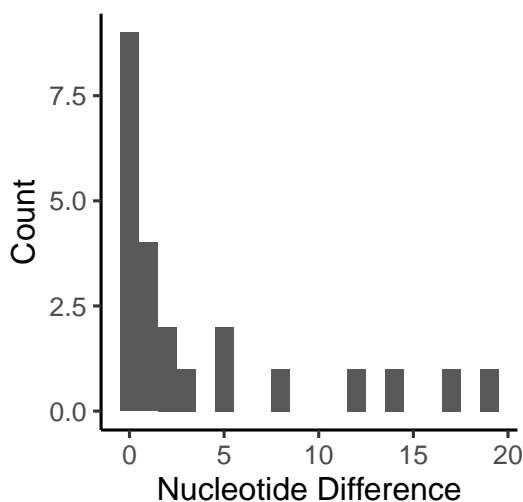
### IGHV5–10–1\*01\_03

4589 sequences assigned  
1888 (41.1%) exact matches, in which:  
1478 unique CDR3  
7 unique J



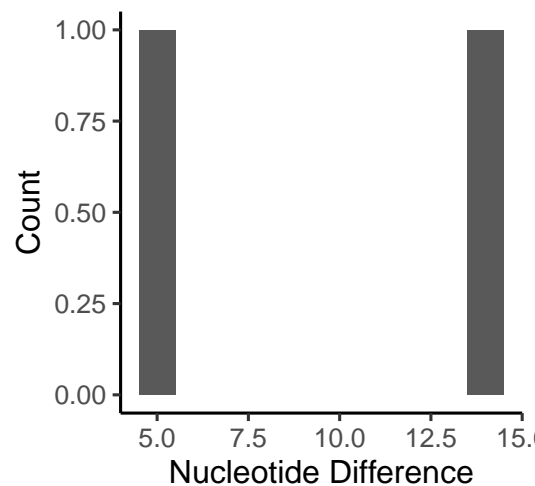
### IGHV5–51\*07

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



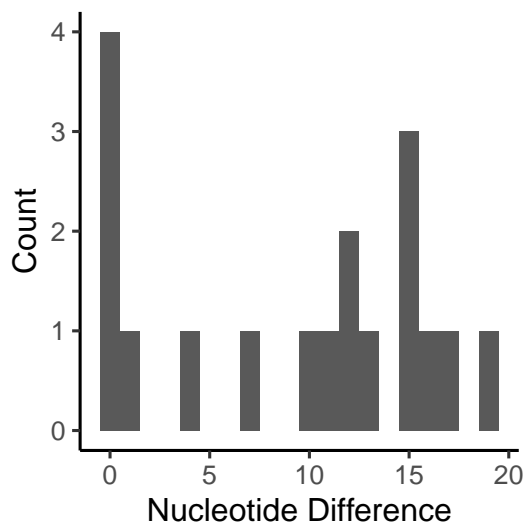
### IGHV3/OR16–10\*01\_03

3 sequences assigned  
No exact matches.



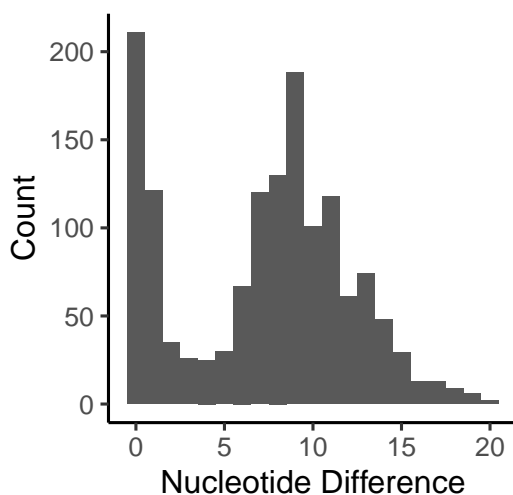
### IGHV5–51\*04

47 sequences assigned  
4 (8.5%) exact matches, in which:  
4 unique CDR3  
3 unique J



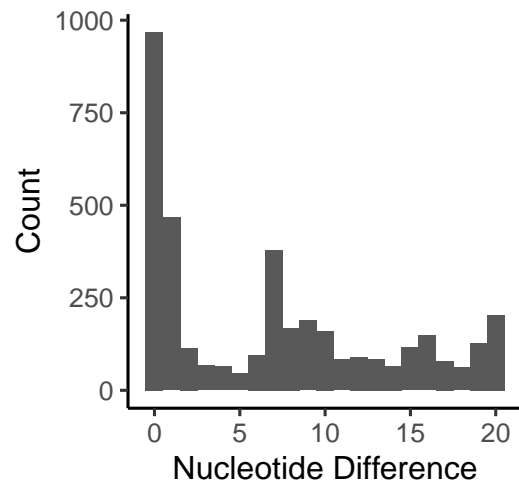
### IGHV6–1\*01\_02

1466 sequences assigned  
211 (14.4%) exact matches, in which:  
196 unique CDR3  
7 unique J



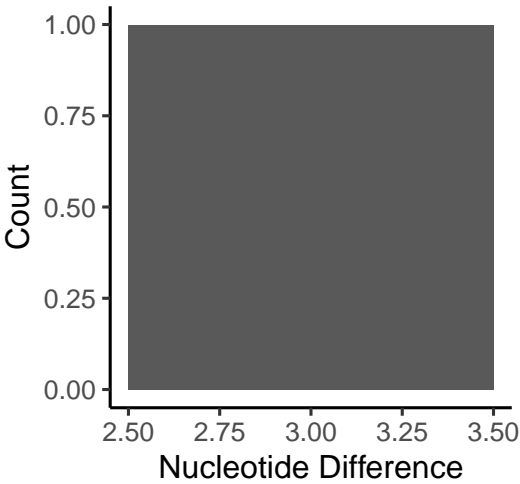
### IGHV7–4–1\*02

4154 sequences assigned  
968 (23.3%) exact matches, in which:  
911 unique CDR3  
7 unique J

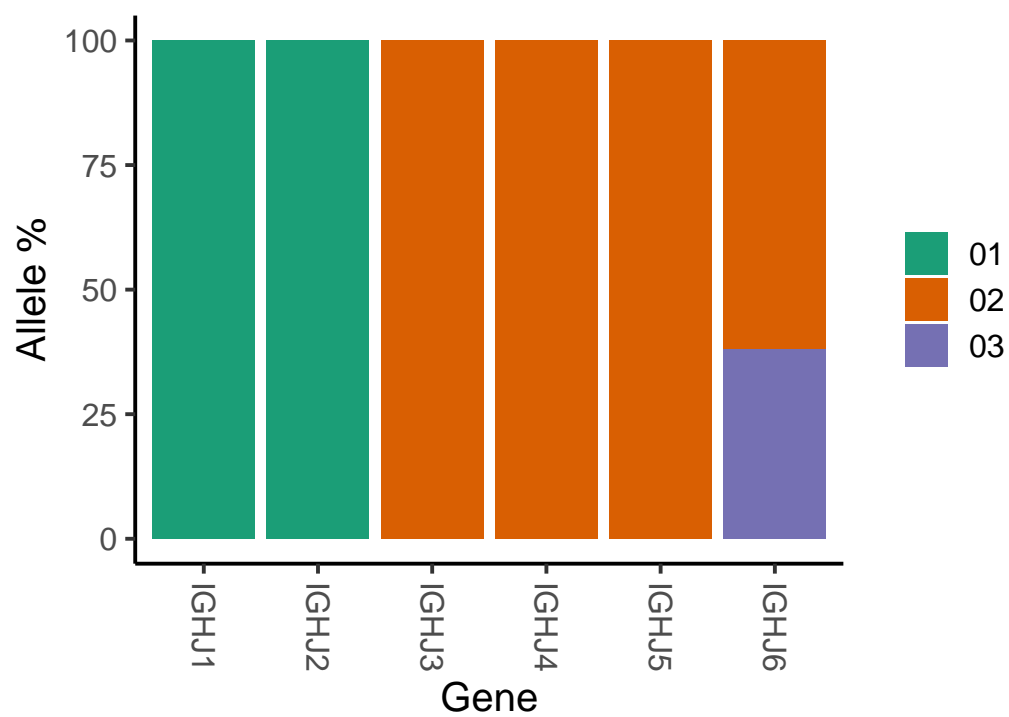


# IGHV7-81\*01

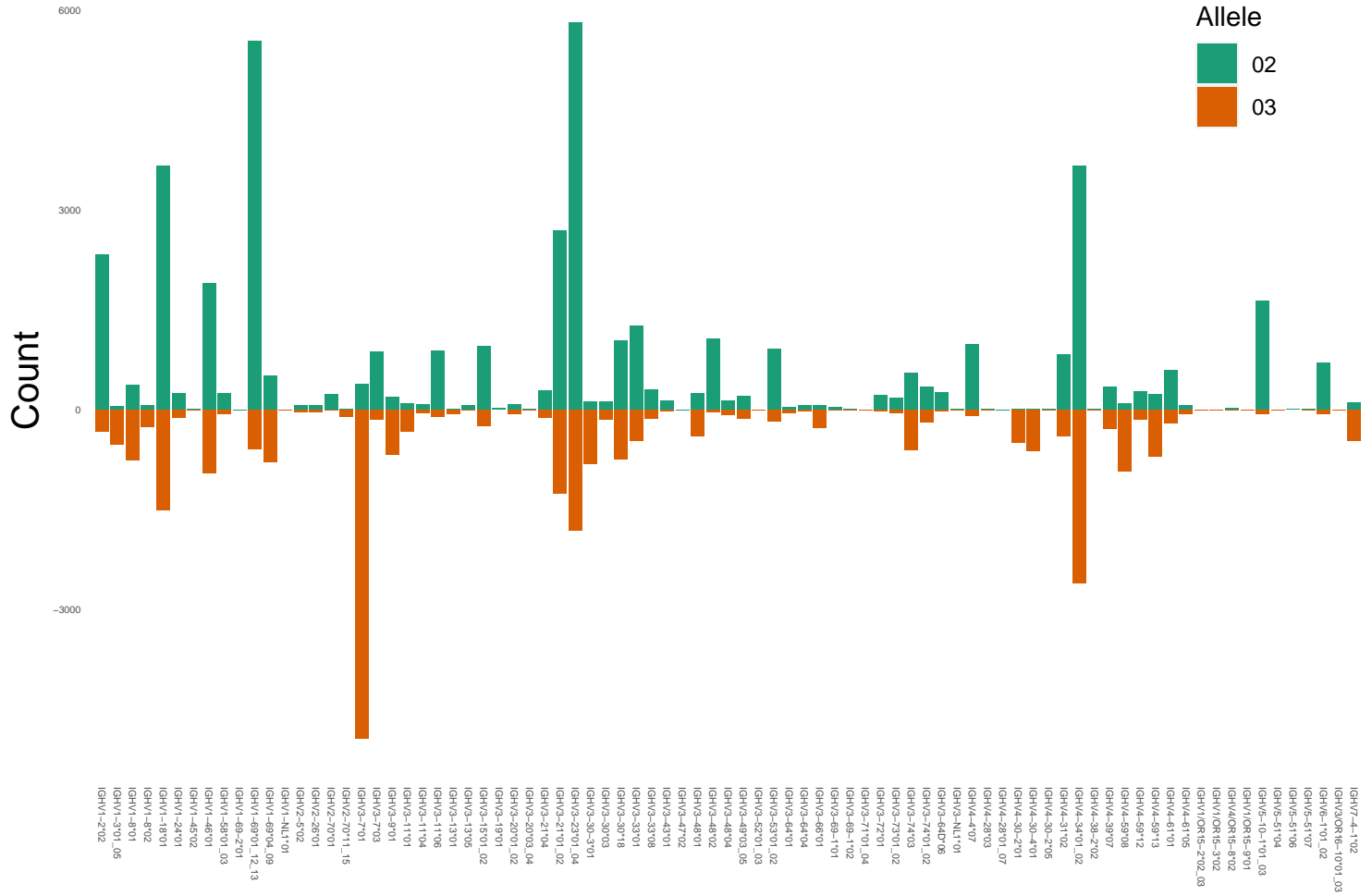
1 sequences assigned  
No exact matches.



Allele Usage



Sequence Count by IGHJ6 allele usage



Warning – no inferred sequences found.