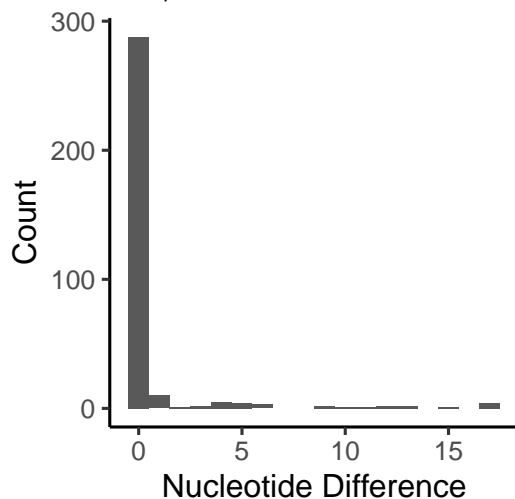


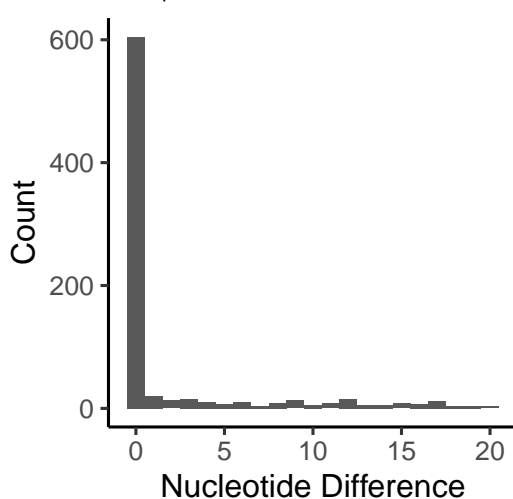
### IGHV1-2\*04

328 sequences assigned  
288 (87.8%) exact matches, in which:  
282 unique CDR3  
7 unique J



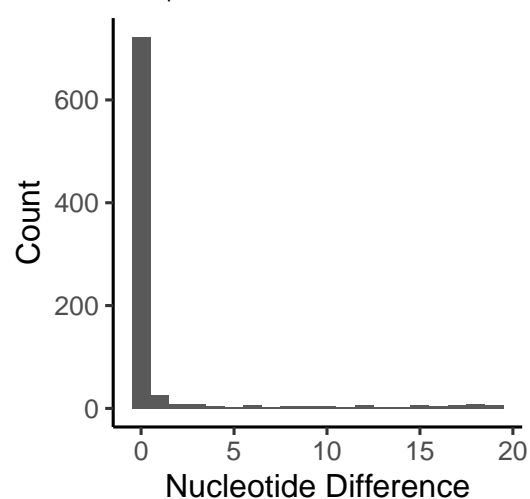
### IGHV1-8\*01

805 sequences assigned  
605 (75.2%) exact matches, in which:  
601 unique CDR3  
6 unique J



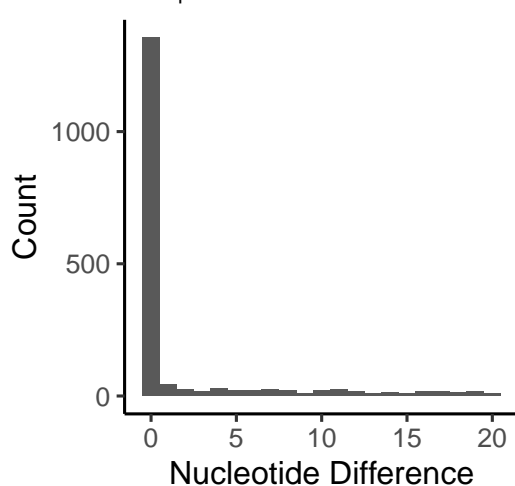
### IGHV1-24\*01

861 sequences assigned  
723 (84%) exact matches, in which:  
712 unique CDR3  
7 unique J



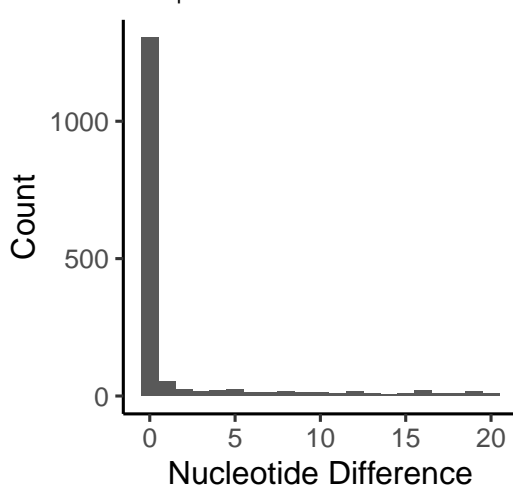
### IGHV1-2\*06

1837 sequences assigned  
1355 (73.8%) exact matches, in which:  
1341 unique CDR3  
7 unique J



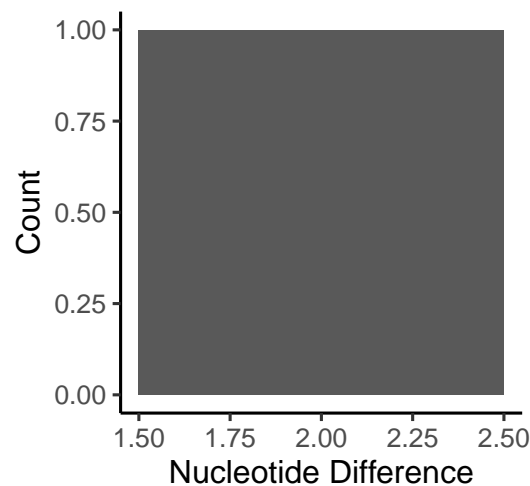
### IGHV1-18\*01

1696 sequences assigned  
1304 (76.9%) exact matches, in which:  
1292 unique CDR3  
7 unique J



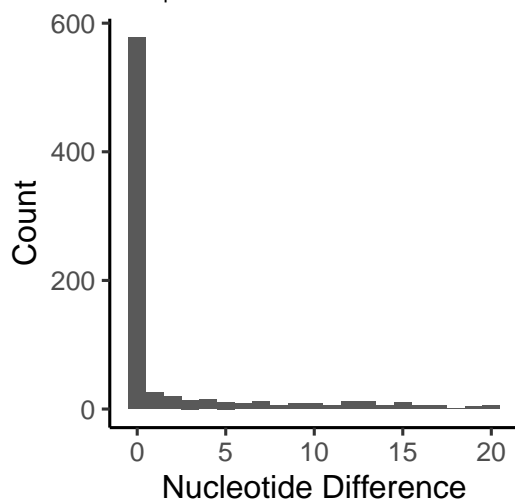
### IGHV1-38-4\*01

1 sequences assigned  
No exact matches.



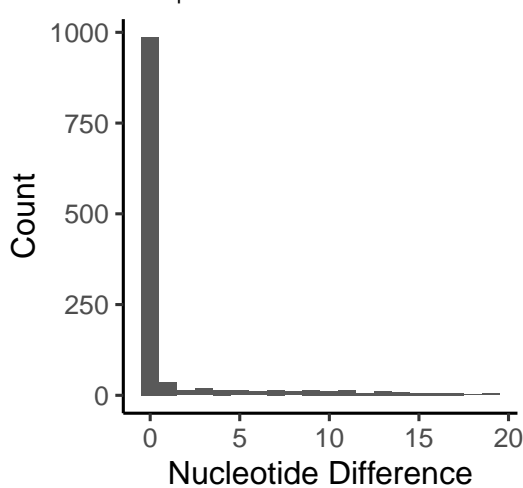
### IGHV1-3\*01\_05

829 sequences assigned  
578 (69.7%) exact matches, in which:  
577 unique CDR3  
7 unique J



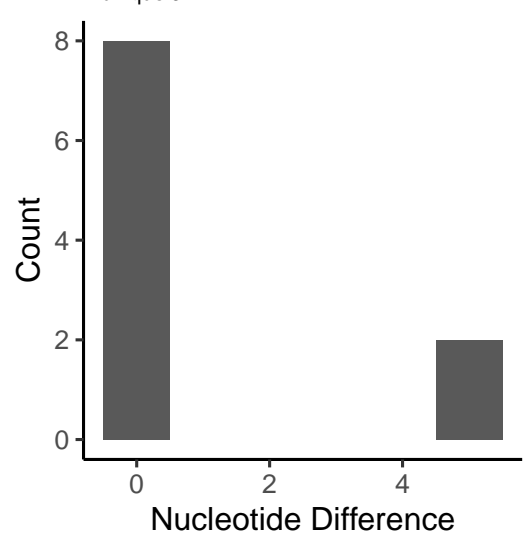
### IGHV1-18\*04

1275 sequences assigned  
987 (77.4%) exact matches, in which:  
976 unique CDR3  
6 unique J



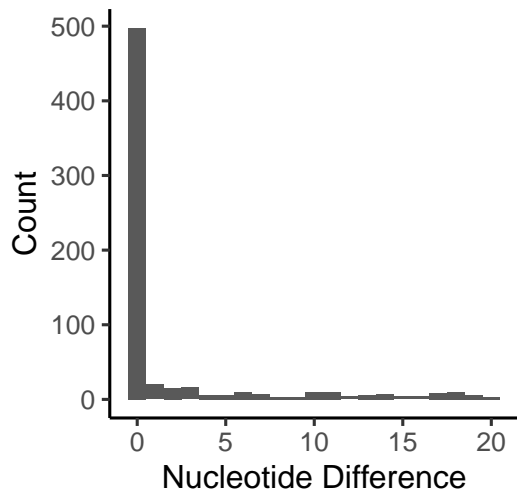
### IGHV1-45\*02

11 sequences assigned  
8 (72.7%) exact matches, in which:  
8 unique CDR3  
2 unique J



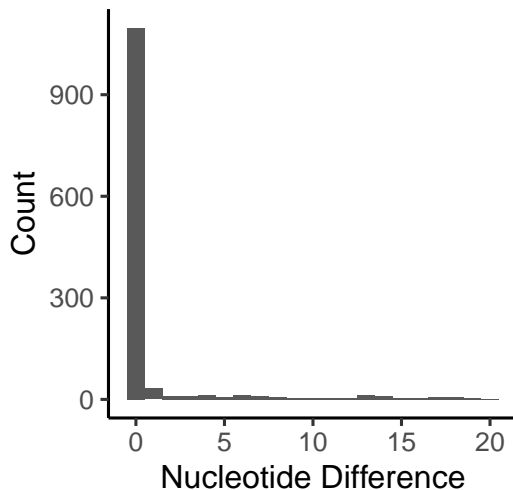
### IGHV1–46\*03

700 sequences assigned  
498 (71.1%) exact matches, in which:  
493 unique CDR3  
7 unique J



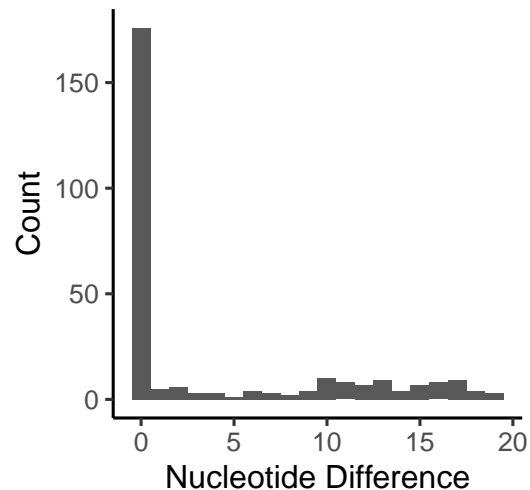
### IGHV1–69\*01\_12\_13

1316 sequences assigned  
1098 (83.4%) exact matches, in which:  
1089 unique CDR3  
6 unique J



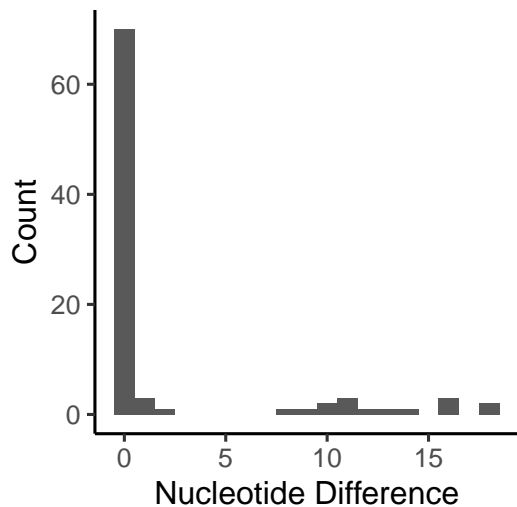
### IGHV2–26\*01

291 sequences assigned  
176 (60.5%) exact matches, in which:  
176 unique CDR3  
7 unique J



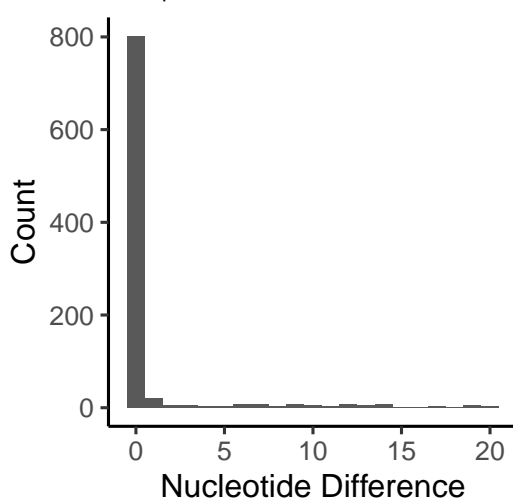
### IGHV1–58\*02

92 sequences assigned  
70 (76.1%) exact matches, in which:  
70 unique CDR3  
6 unique J



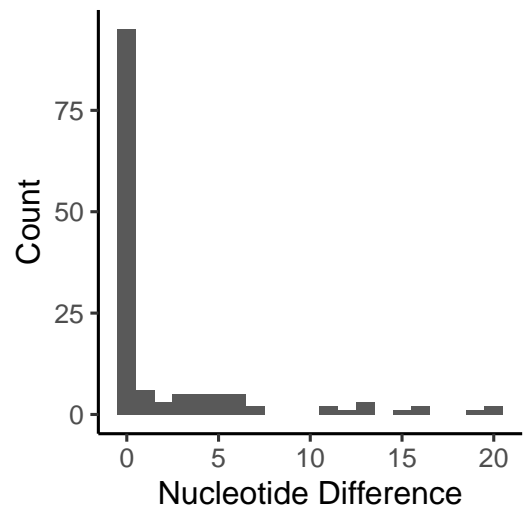
### IGHV1–69\*04\_09

948 sequences assigned  
802 (84.6%) exact matches, in which:  
797 unique CDR3  
7 unique J



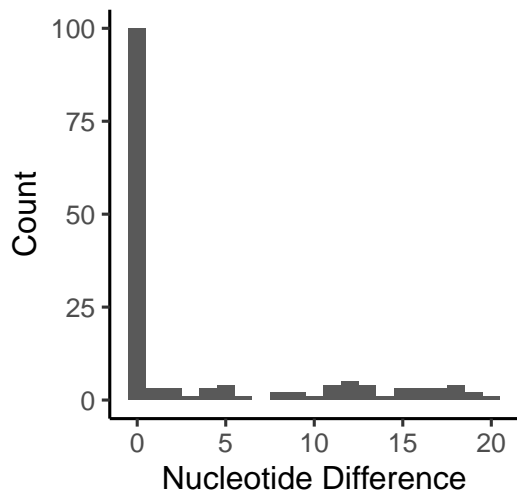
### IGHV2–70\*01

142 sequences assigned  
95 (66.9%) exact matches, in which:  
94 unique CDR3  
5 unique J



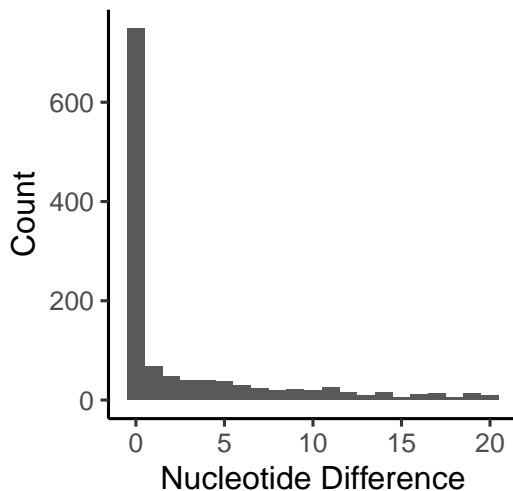
### IGHV1–58\*01\_03

186 sequences assigned  
100 (53.8%) exact matches, in which:  
99 unique CDR3  
6 unique J



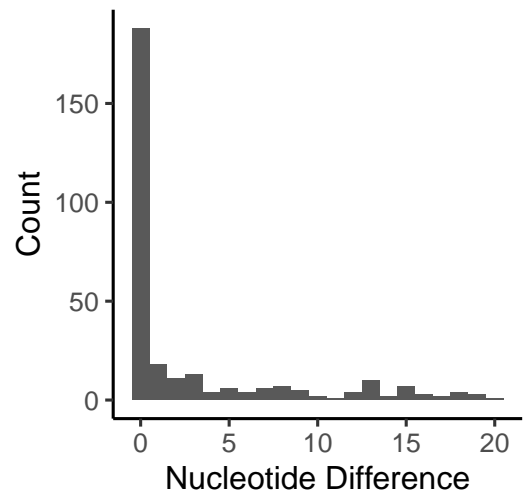
### IGHV2–5\*02

1268 sequences assigned  
749 (59.1%) exact matches, in which:  
742 unique CDR3  
7 unique J



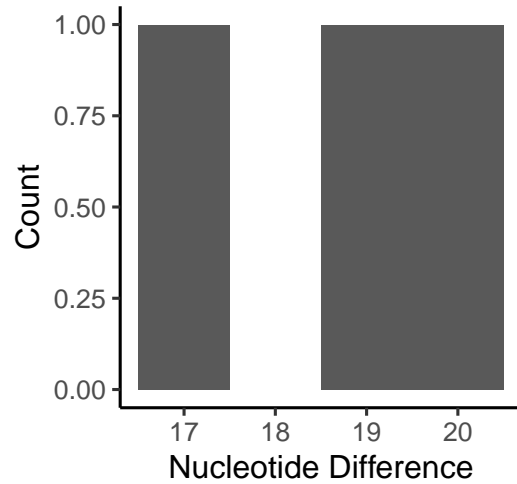
### IGHV2–70\*11\_15

314 sequences assigned  
188 (59.9%) exact matches, in which:  
186 unique CDR3  
6 unique J



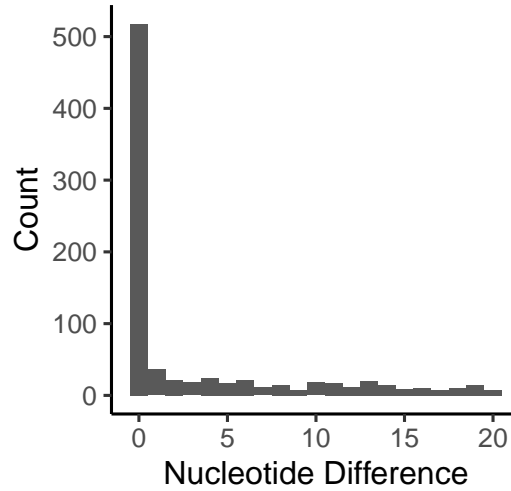
### IGHV2-70D\*04

3 sequences assigned  
No exact matches.



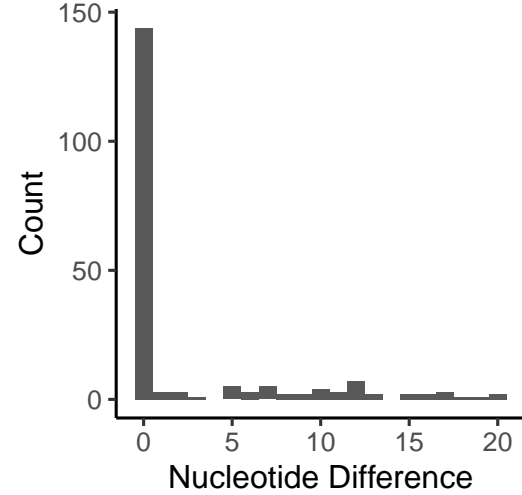
### IGHV3-9\*01

877 sequences assigned  
518 (59.1%) exact matches, in which:  
507 unique CDR3  
7 unique J



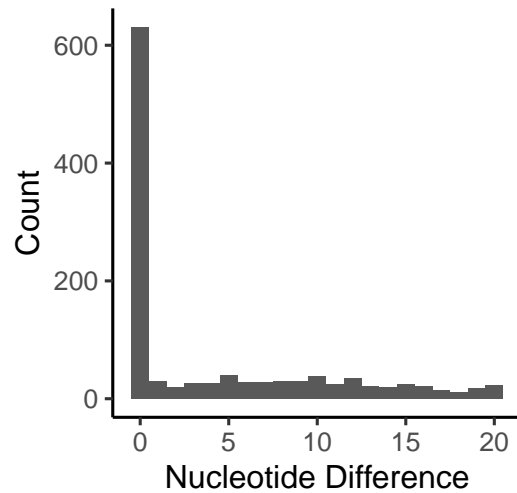
### IGHV3-13\*01

202 sequences assigned  
144 (71.3%) exact matches, in which:  
141 unique CDR3  
7 unique J



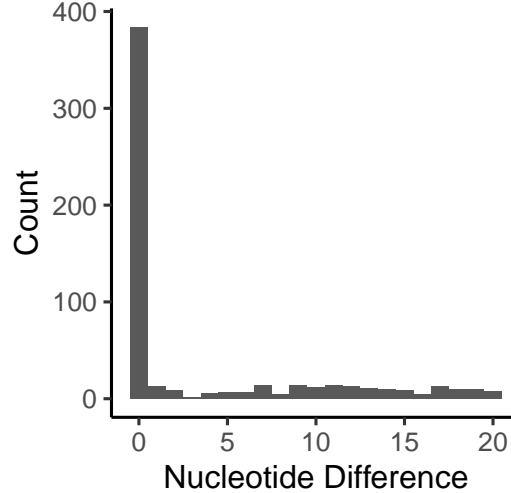
### IGHV3-7\*01

1256 sequences assigned  
631 (50.2%) exact matches, in which:  
599 unique CDR3  
7 unique J



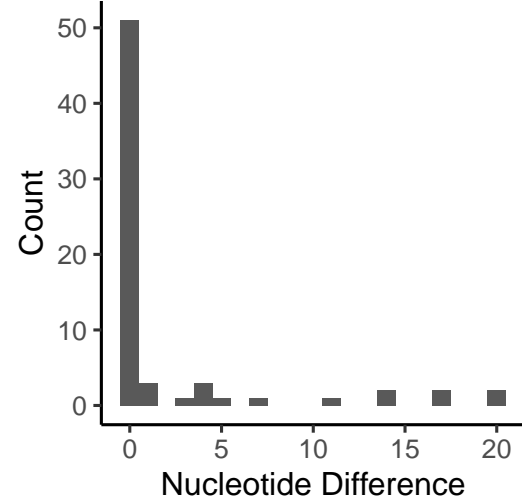
### IGHV3-11\*01

626 sequences assigned  
384 (61.3%) exact matches, in which:  
374 unique CDR3  
6 unique J



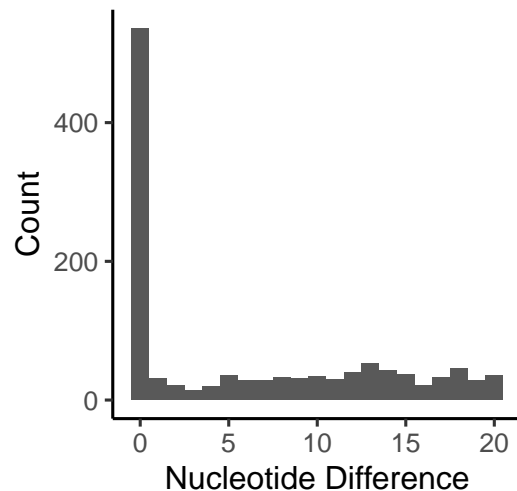
### IGHV3-13\*05

76 sequences assigned  
51 (67.1%) exact matches, in which:  
49 unique CDR3  
4 unique J



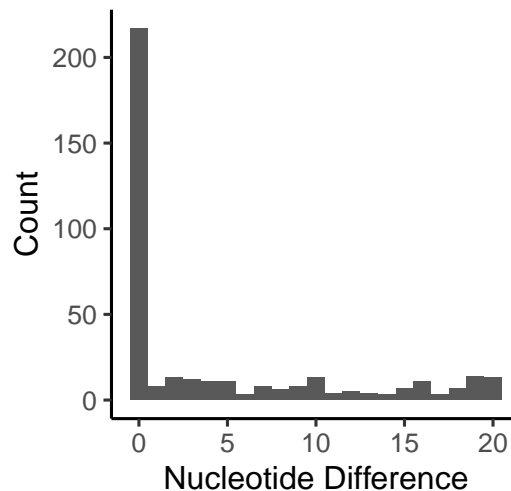
### IGHV3-7\*03

1354 sequences assigned  
536 (39.6%) exact matches, in which:  
515 unique CDR3  
7 unique J



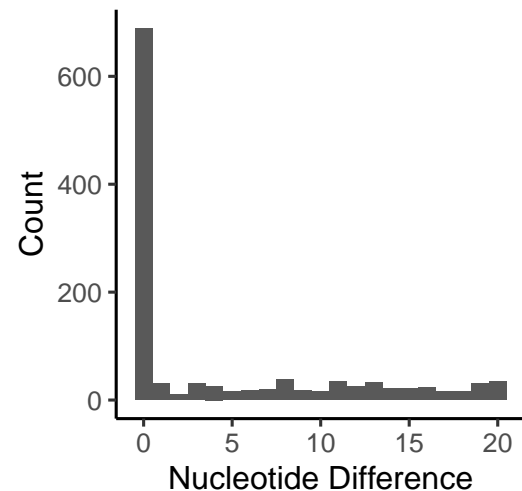
### IGHV3-11\*06

424 sequences assigned  
217 (51.2%) exact matches, in which:  
211 unique CDR3  
7 unique J



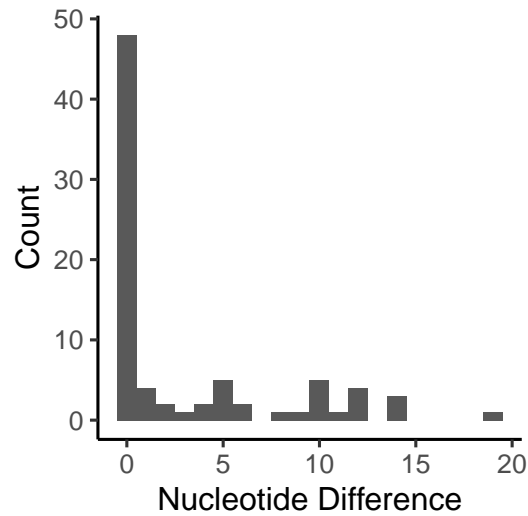
### IGHV3-15\*01\_02

1299 sequences assigned  
689 (53%) exact matches, in which:  
670 unique CDR3  
7 unique J



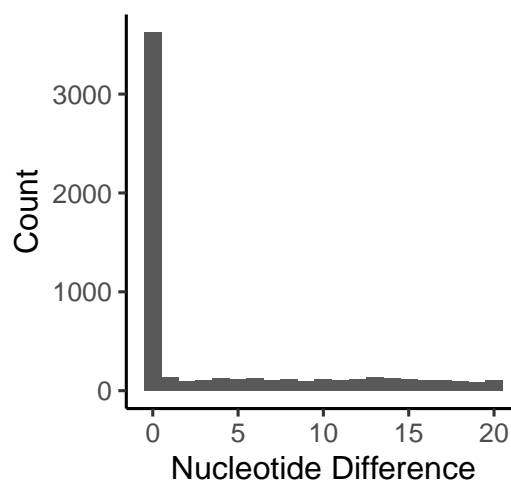
### IGHV3-20\*01\_02

81 sequences assigned  
48 (59.3%) exact matches, in which:  
48 unique CDR3  
5 unique J



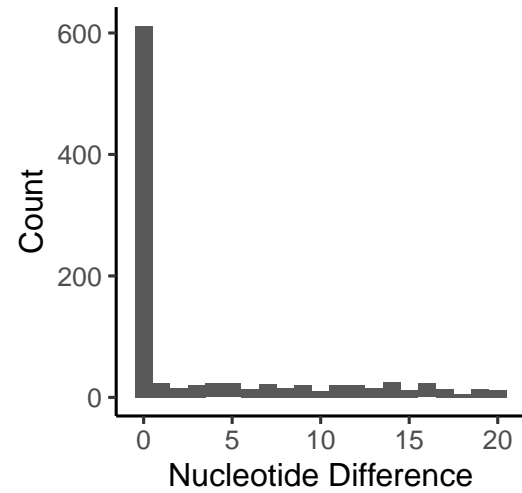
### IGHV3-23\*01\_04

6485 sequences assigned  
3624 (55.9%) exact matches, in which:  
3445 unique CDR3  
7 unique J



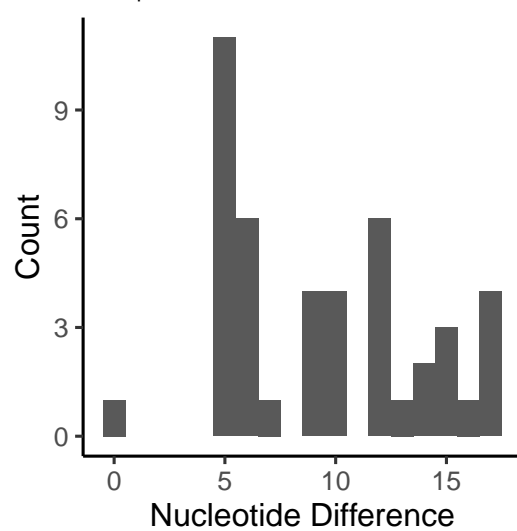
### IGHV3-48\*01

1038 sequences assigned  
612 (59%) exact matches, in which:  
581 unique CDR3  
6 unique J



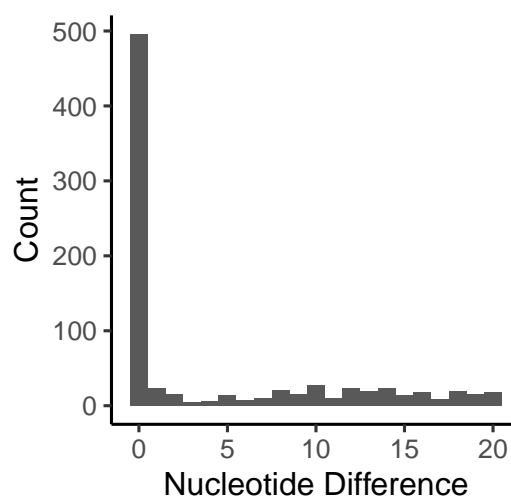
### IGHV3-20\*03\_04

61 sequences assigned  
1 (1.6%) exact matches, in which:  
1 unique CDR3  
1 unique J



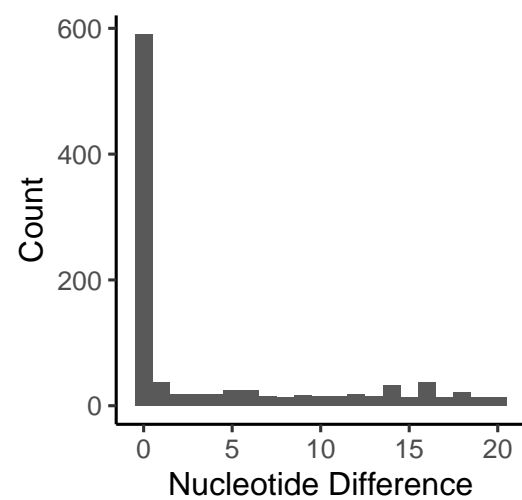
### IGHV3-33\*01

913 sequences assigned  
496 (54.3%) exact matches, in which:  
477 unique CDR3  
6 unique J



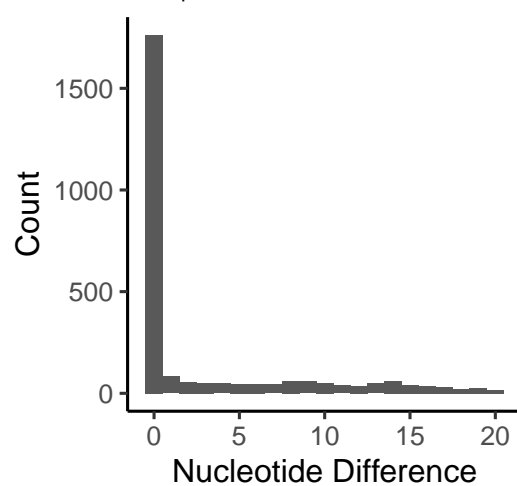
### IGHV3-48\*02

1086 sequences assigned  
591 (54.4%) exact matches, in which:  
561 unique CDR3  
7 unique J



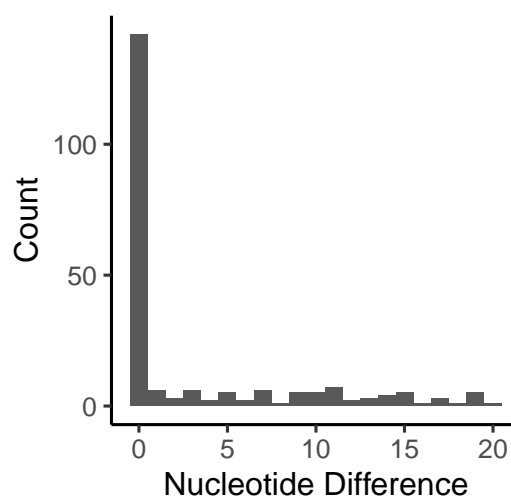
### IGHV3-21\*01\_02

2798 sequences assigned  
1762 (63%) exact matches, in which:  
1671 unique CDR3  
7 unique J



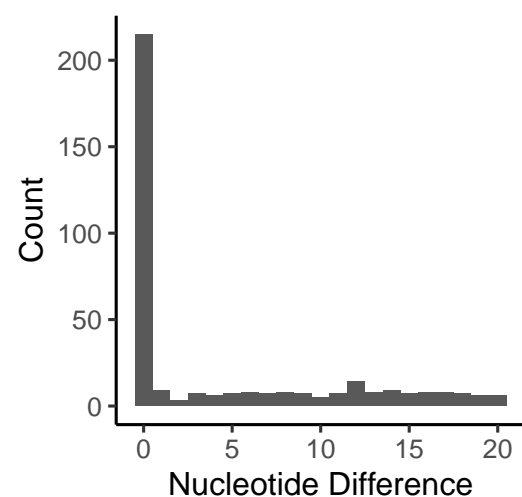
### IGHV3-43\*01

232 sequences assigned  
142 (61.2%) exact matches, in which:  
137 unique CDR3  
7 unique J



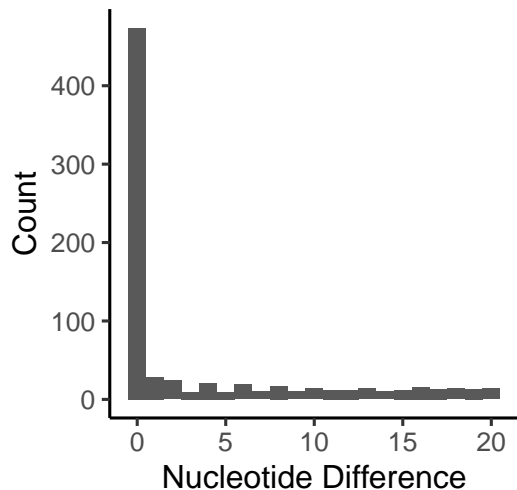
### IGHV3-49\*03\_05

395 sequences assigned  
215 (54.4%) exact matches, in which:  
207 unique CDR3  
7 unique J



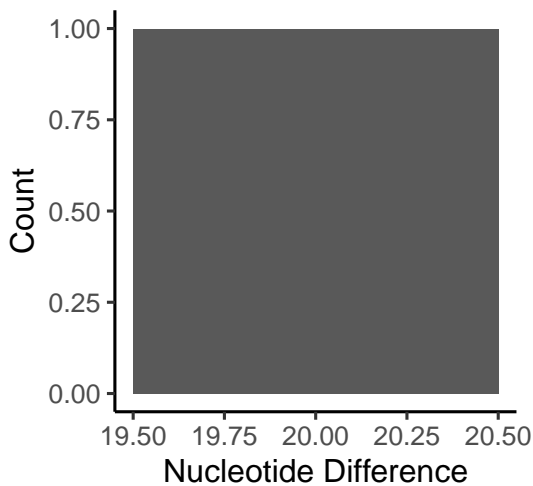
### IGHV3-53\*01\_02

825 sequences assigned  
474 (57.5%) exact matches, in which:  
442 unique CDR3  
7 unique J



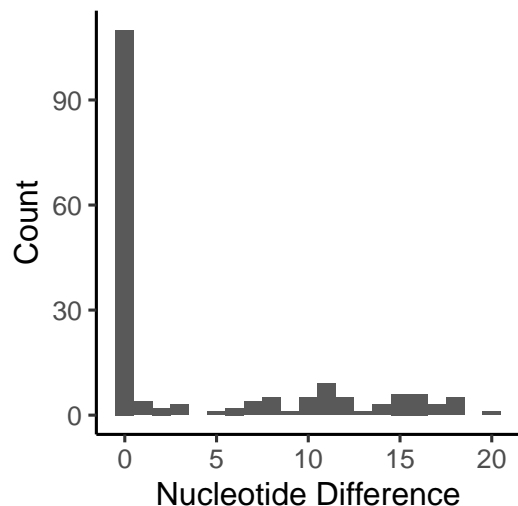
### IGHV3-69-1\*01

20 sequences assigned  
No exact matches.



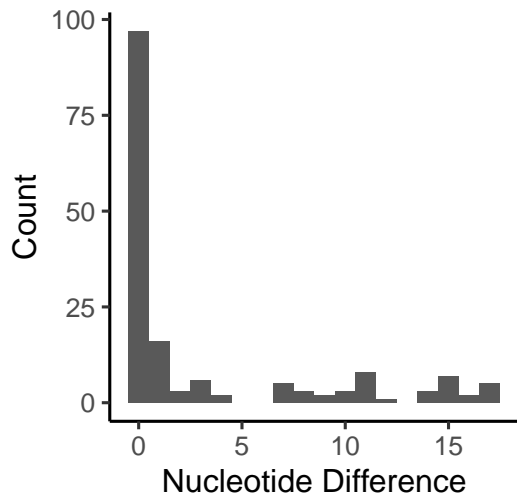
### IGHV3-73\*01\_02

214 sequences assigned  
110 (51.4%) exact matches, in which:  
108 unique CDR3  
6 unique J



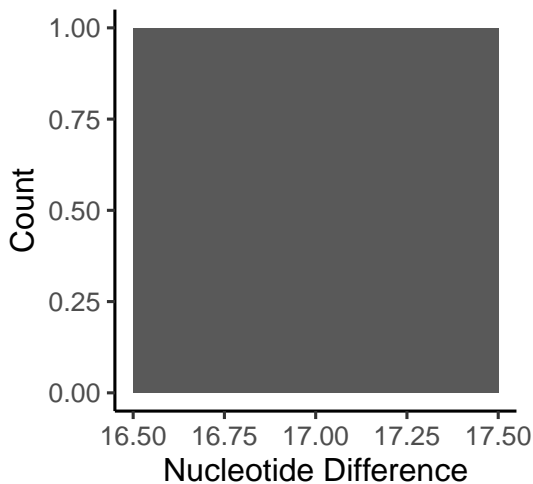
### IGHV3-64\*01

251 sequences assigned  
97 (38.6%) exact matches, in which:  
94 unique CDR3  
6 unique J



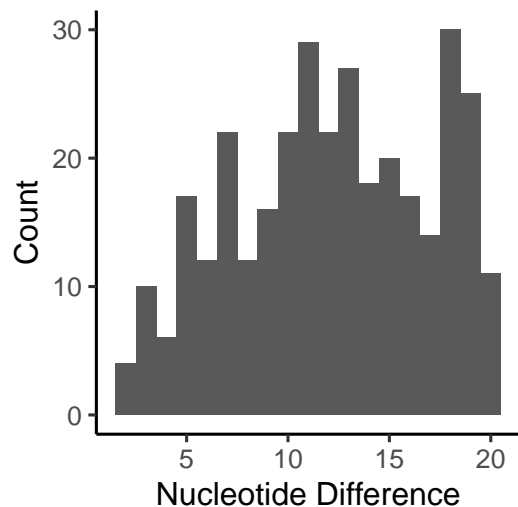
### IGHV3-69-1\*02

2 sequences assigned  
No exact matches.



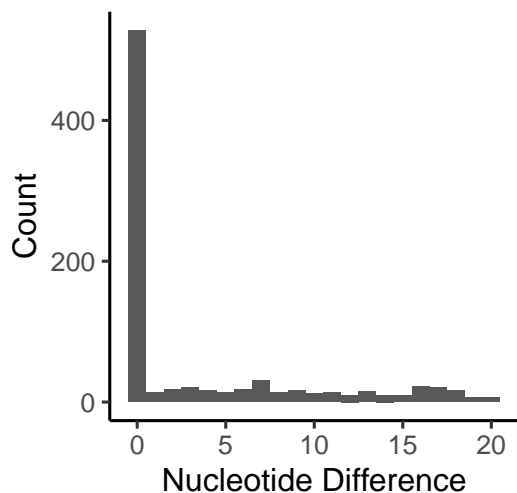
### IGHV3-74\*03

432 sequences assigned  
No exact matches.



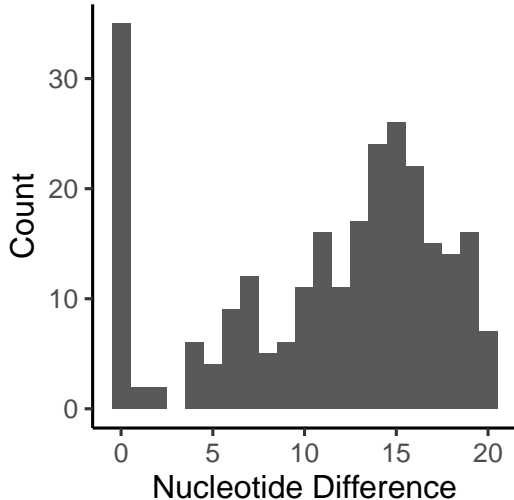
### IGHV3-66\*01

902 sequences assigned  
528 (58.5%) exact matches, in which:  
503 unique CDR3  
6 unique J



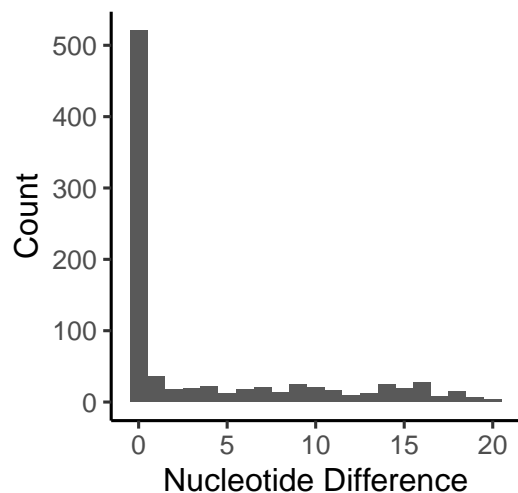
### IGHV3-72\*01

316 sequences assigned  
35 (11.1%) exact matches, in which:  
35 unique CDR3  
6 unique J



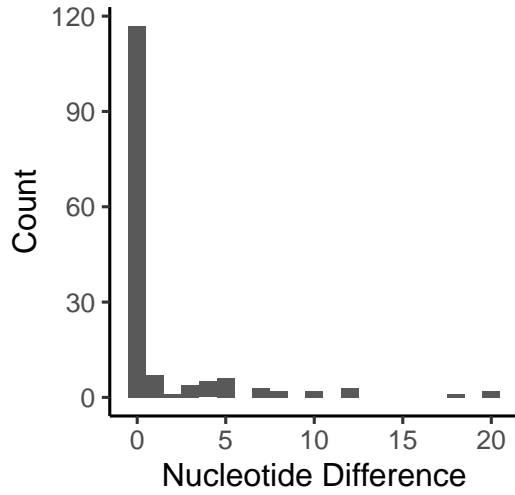
### IGHV3-74\*01\_02

893 sequences assigned  
521 (58.3%) exact matches, in which:  
493 unique CDR3  
7 unique J



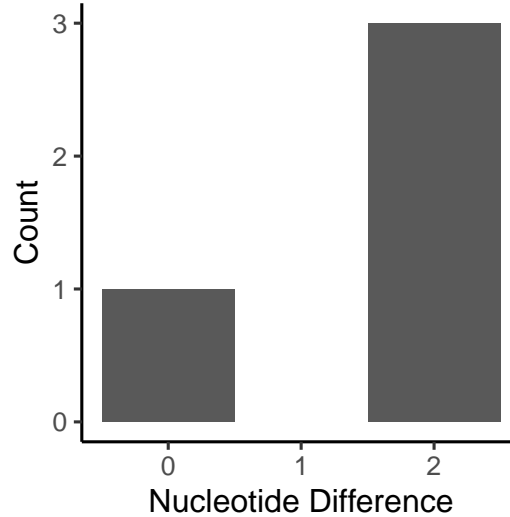
### IGHV3-43D\*03

162 sequences assigned  
117 (72.2%) exact matches, in which:  
108 unique CDR3  
6 unique J



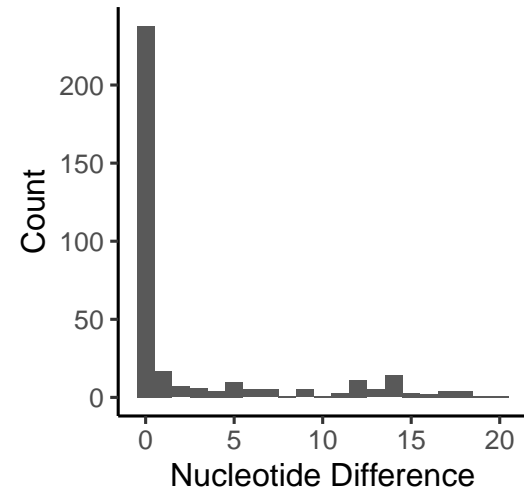
### IGHV4-28\*01\_07

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



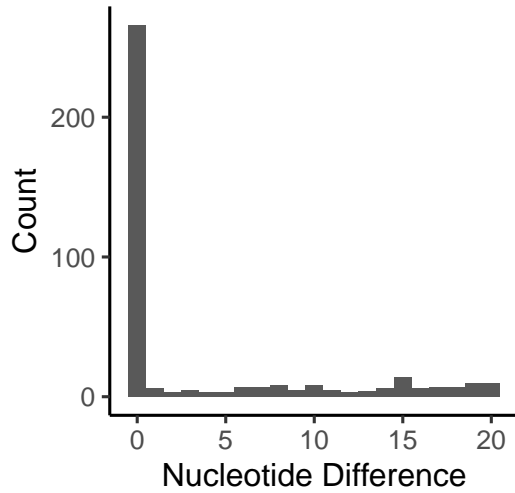
### IGHV4-30-4\*07

368 sequences assigned  
238 (64.7%) exact matches, in which:  
233 unique CDR3  
5 unique J



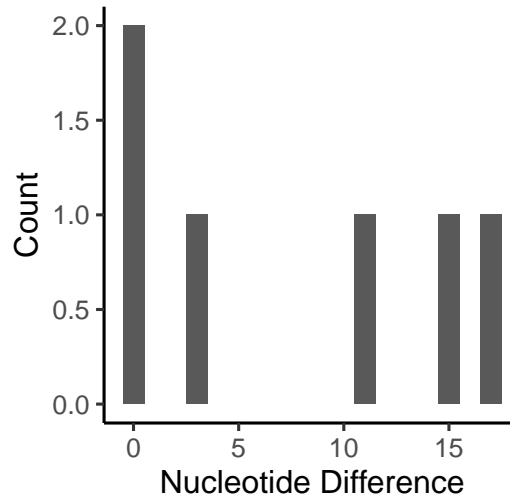
### IGHV3-64D\*06

439 sequences assigned  
266 (60.6%) exact matches, in which:  
258 unique CDR3  
7 unique J



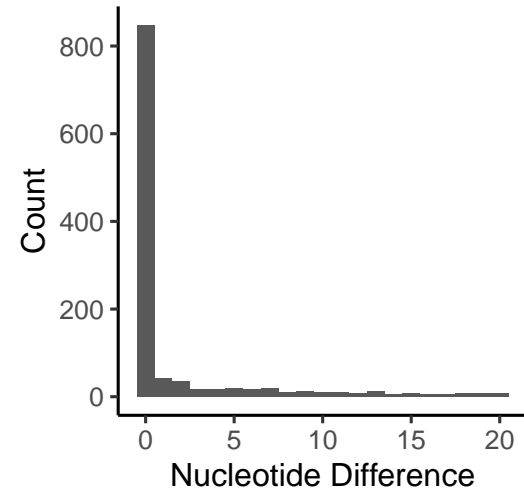
### IGHV4-28\*02\_05

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



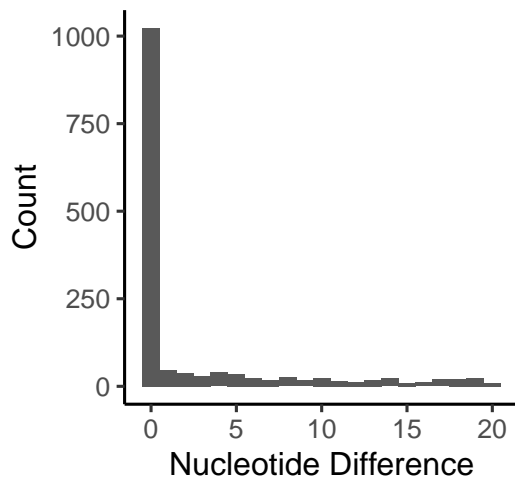
### IGHV4-31\*02

1204 sequences assigned  
848 (70.4%) exact matches, in which:  
821 unique CDR3  
7 unique J



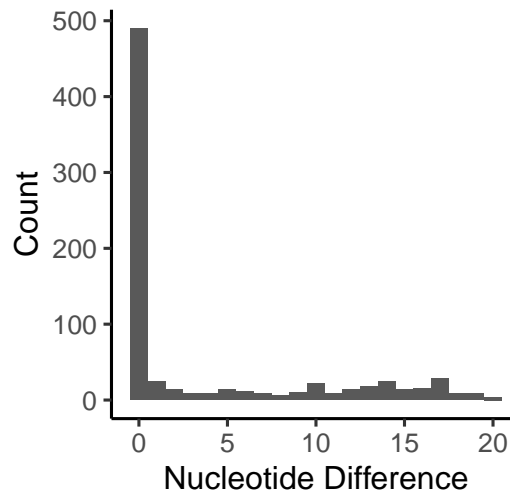
### IGHV4-4\*02\_03

1606 sequences assigned  
1023 (63.7%) exact matches, in which:  
989 unique CDR3  
7 unique J



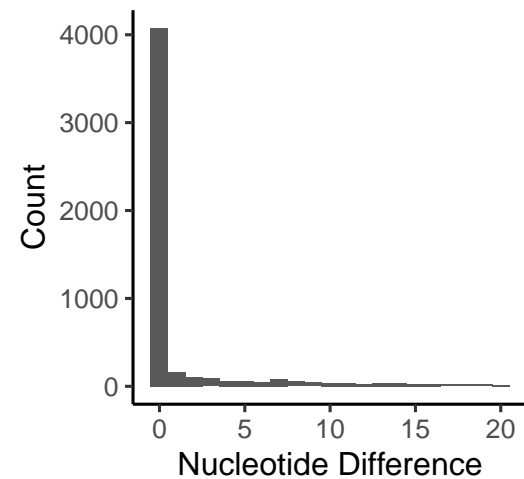
### IGHV4-30-2\*01

798 sequences assigned  
490 (61.4%) exact matches, in which:  
464 unique CDR3  
6 unique J



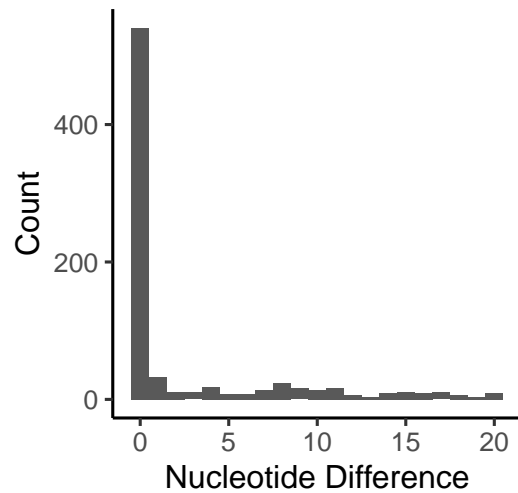
### IGHV4-34\*01\_02

5290 sequences assigned  
4076 (77.1%) exact matches, in which:  
3883 unique CDR3  
7 unique J



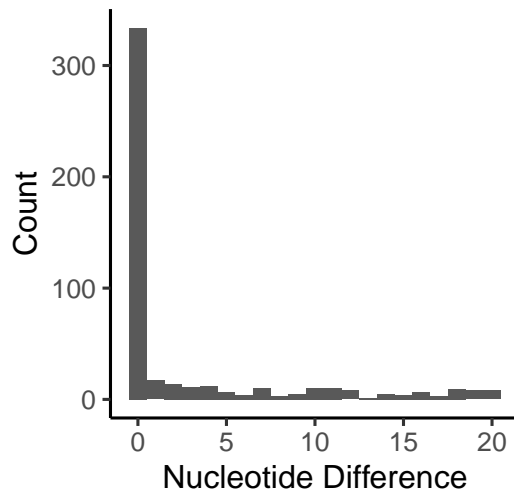
### IGHV4–38–2\*02

855 sequences assigned  
541 (63.3%) exact matches, in which:  
527 unique CDR3  
6 unique J



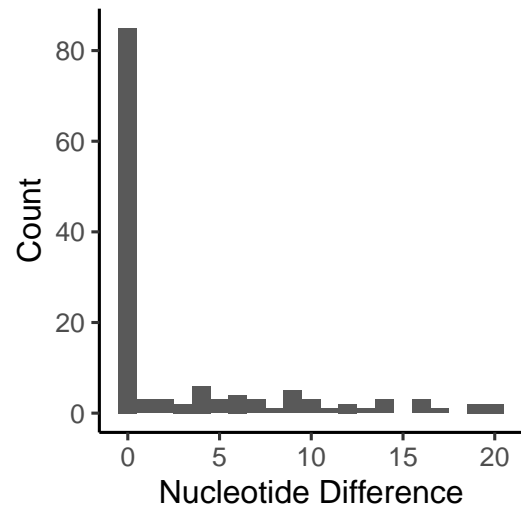
### IGHV4–61\*01

523 sequences assigned  
334 (63.9%) exact matches, in which:  
316 unique CDR3  
7 unique J



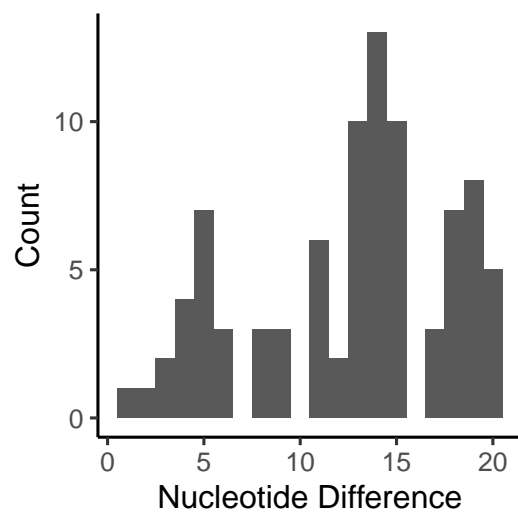
### IGHV5–10–1\*01\_03

140 sequences assigned  
85 (60.7%) exact matches, in which:  
85 unique CDR3  
5 unique J



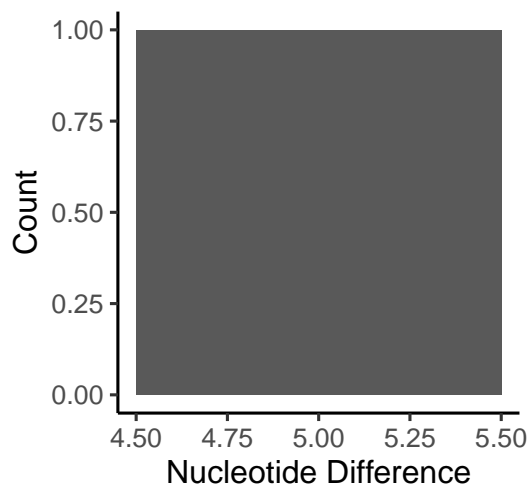
### IGHV4–39\*02

133 sequences assigned  
No exact matches.



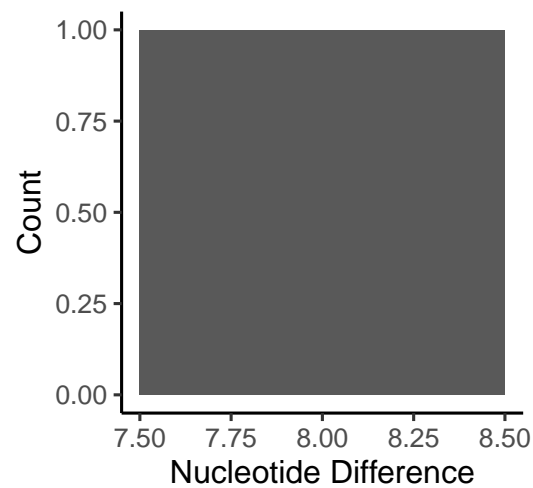
### IGHV4/OR15–8\*01

15 sequences assigned  
No exact matches.



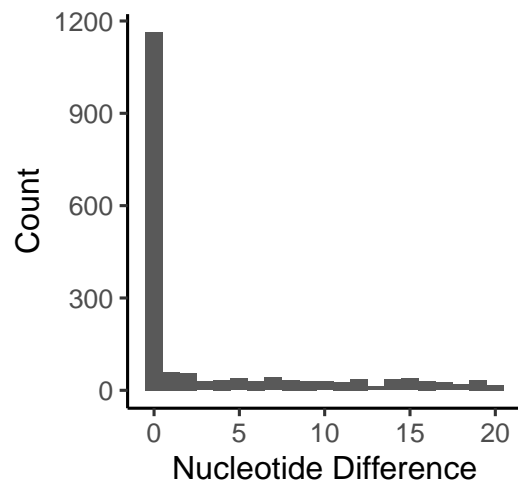
### IGHV5–51\*04

1 sequences assigned  
No exact matches.



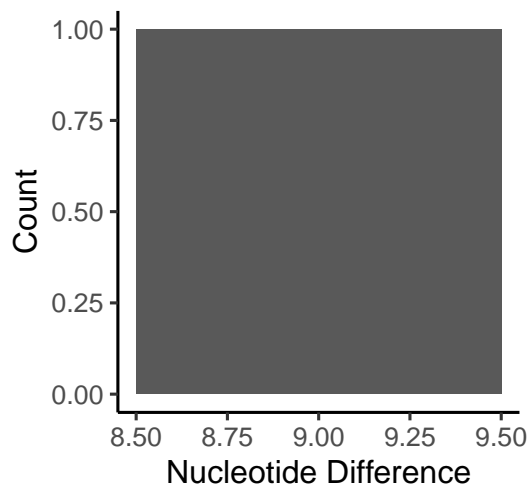
### IGHV4–59\*08

1966 sequences assigned  
1164 (59.2%) exact matches, in which:  
1107 unique CDR3  
7 unique J



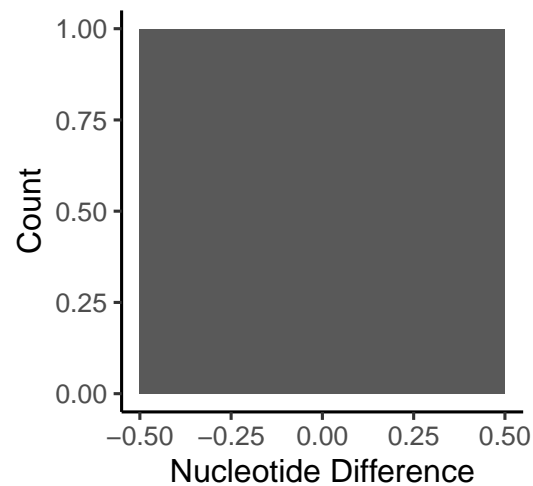
### IGHV1/OR15–9\*01

1 sequences assigned  
No exact matches.



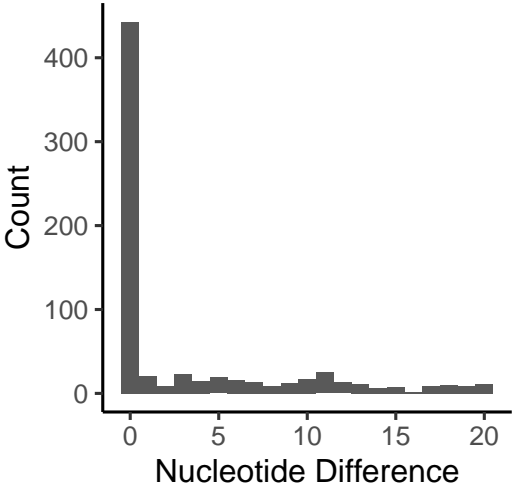
### IGHV5–51\*01\_03

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



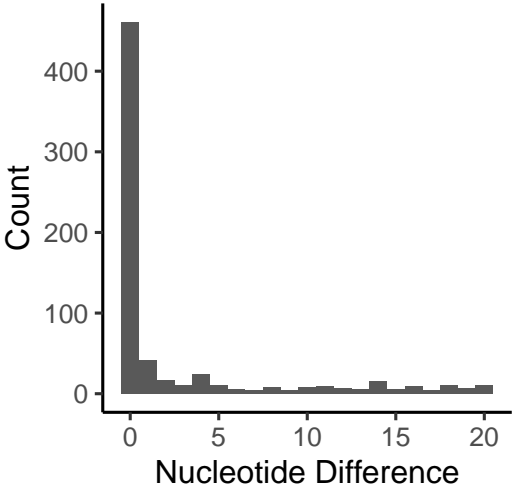
# IGHV6-1\*01\_02

772 sequences assigned  
443 (57.4%) exact matches, in which:  
434 unique CDR3  
7 unique J



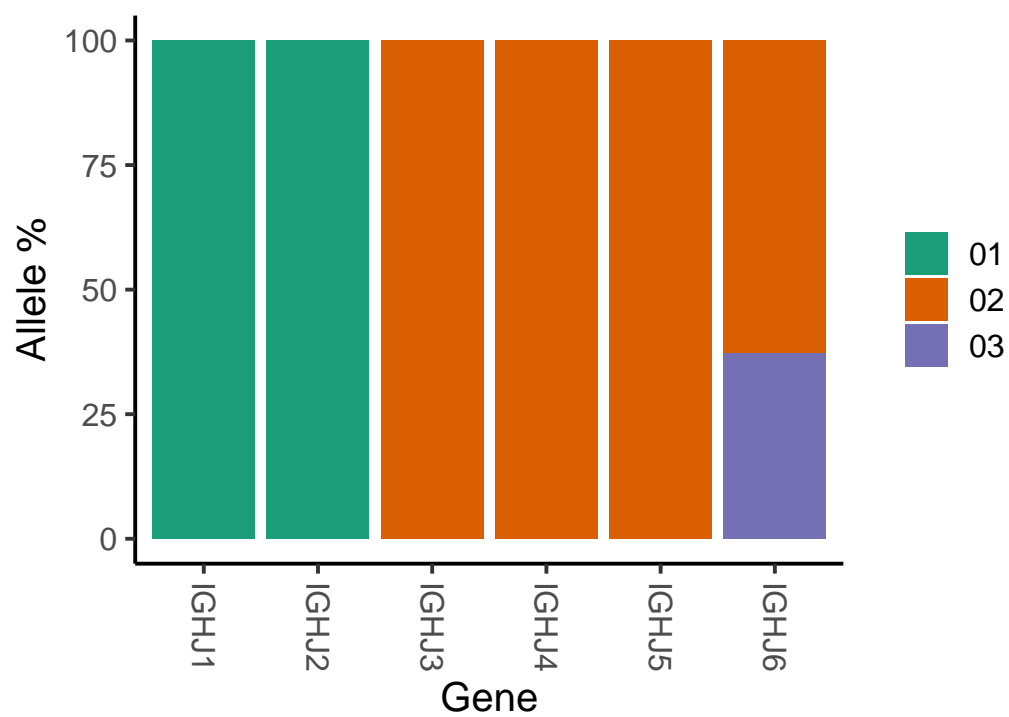
# IGHV7-4-1\*02

716 sequences assigned  
461 (64.4%) exact matches, in which:  
459 unique CDR3  
7 unique J





Allele Usage



Sequence Count by IGHJ6 allele usage

