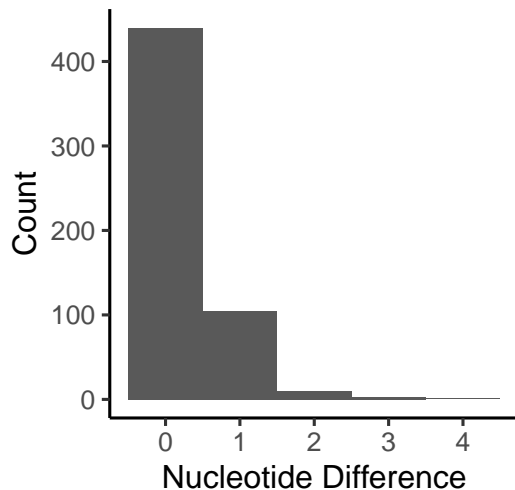


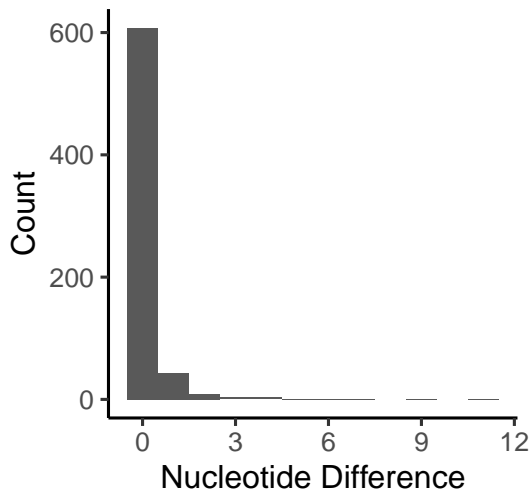
### IGHV1-2\*02

559 sequences assigned  
440 (78.7%) exact matches, in which:  
428 unique CDR3  
6 unique J



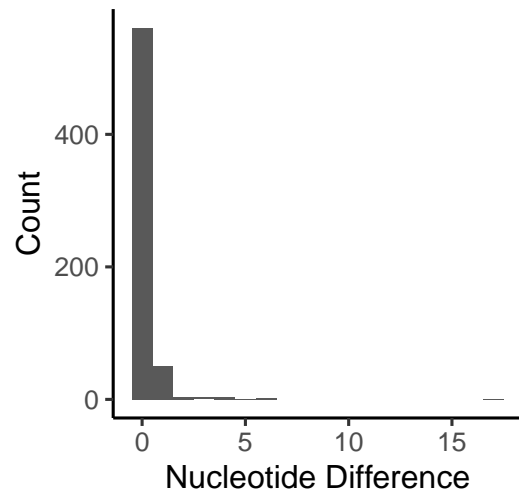
### IGHV1-18\*04

672 sequences assigned  
608 (90.5%) exact matches, in which:  
599 unique CDR3  
7 unique J



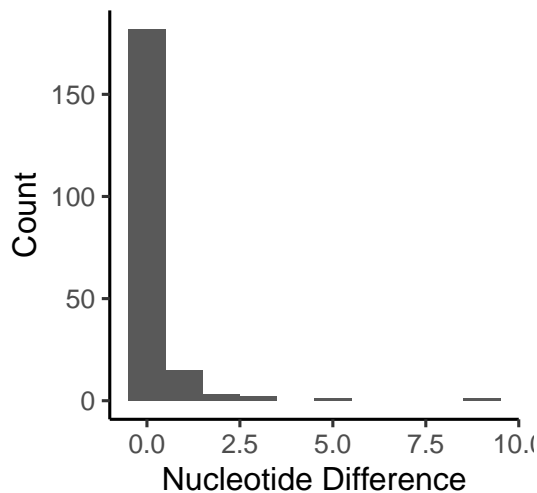
### IGHV1-46\*01

626 sequences assigned  
561 (89.6%) exact matches, in which:  
548 unique CDR3  
7 unique J



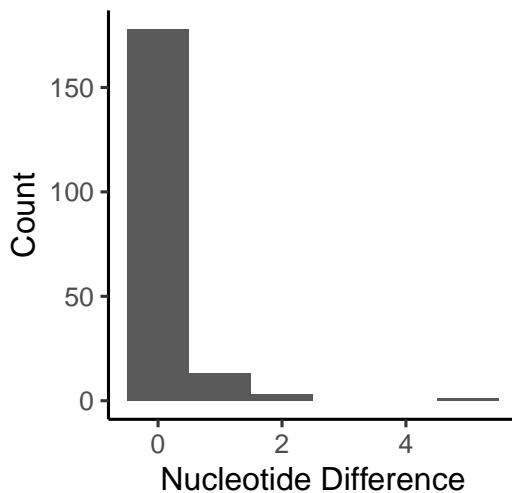
### IGHV1-3\*01

205 sequences assigned  
182 (88.8%) exact matches, in which:  
179 unique CDR3  
6 unique J



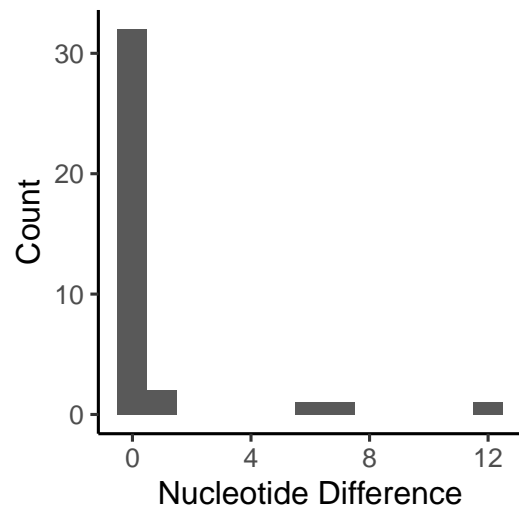
### IGHV1-24\*01

195 sequences assigned  
178 (91.3%) exact matches, in which:  
176 unique CDR3  
7 unique J



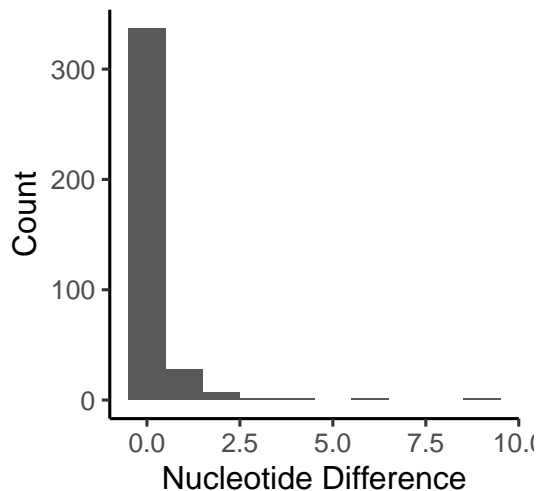
### IGHV1-58\*01

39 sequences assigned  
32 (82.1%) exact matches, in which:  
31 unique CDR3  
6 unique J



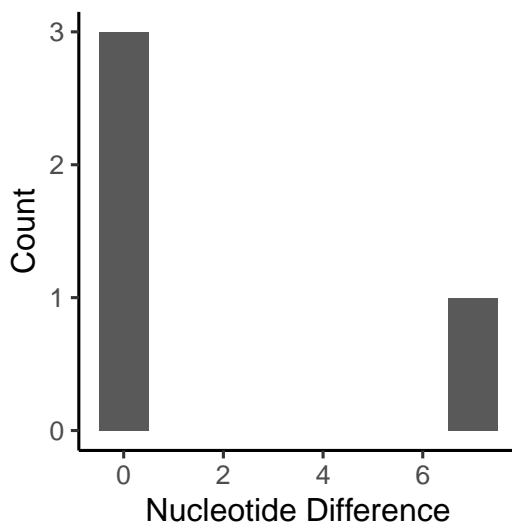
### IGHV1-8\*01

378 sequences assigned  
337 (89.2%) exact matches, in which:  
329 unique CDR3  
7 unique J



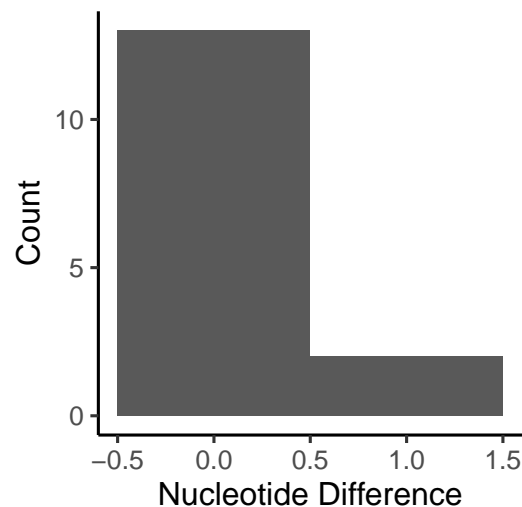
### IGHV1-45\*02

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



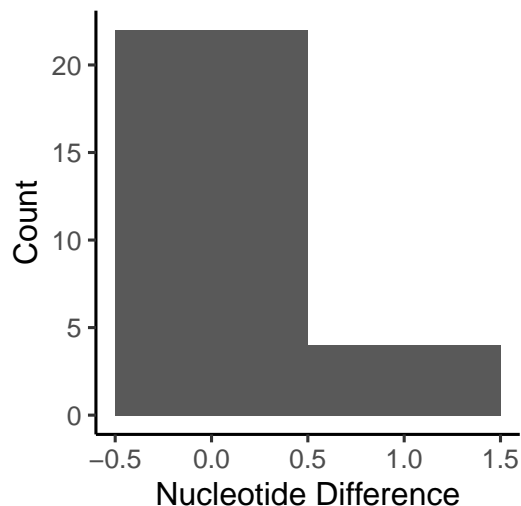
### IGHV1-58\*02

15 sequences assigned  
13 (86.7%) exact matches, in which:  
13 unique CDR3  
4 unique J



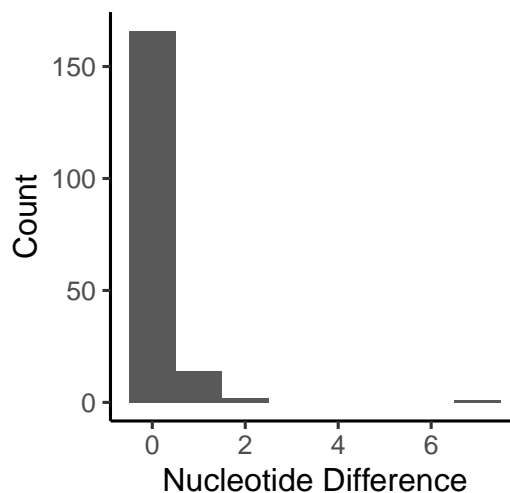
### IGHV1-69-2\*01

26 sequences assigned  
22 (84.6%) exact matches, in which:  
20 unique CDR3  
4 unique J



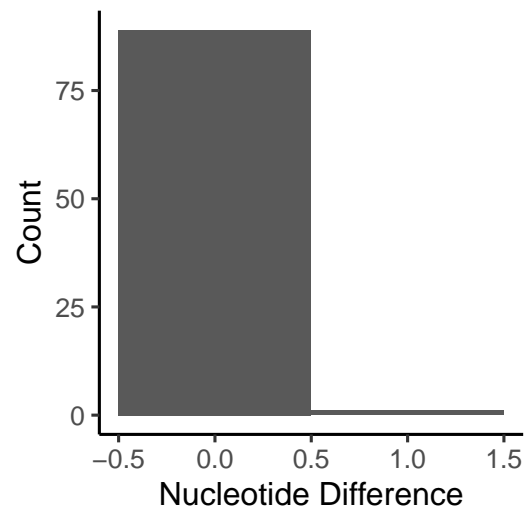
### IGHV2-5\*01

185 sequences assigned  
166 (89.7%) exact matches, in which:  
161 unique CDR3  
6 unique J



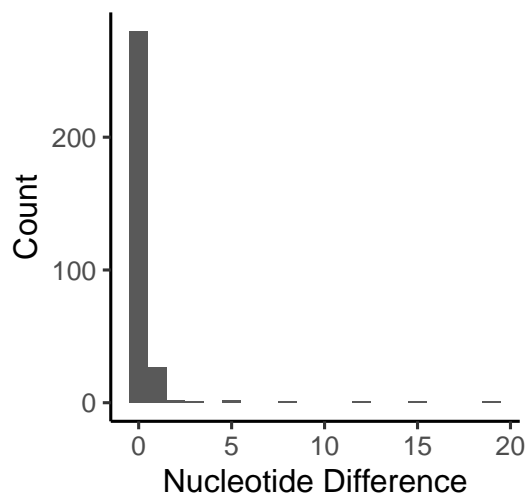
### IGHV2-70\*15

90 sequences assigned  
89 (98.9%) exact matches, in which:  
89 unique CDR3  
6 unique J



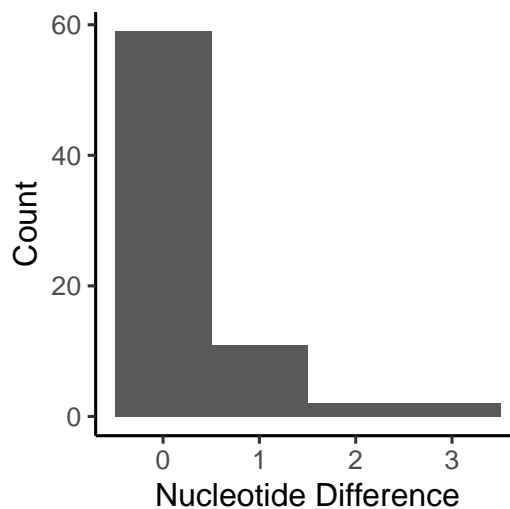
### IGHV1-69\*04

316 sequences assigned  
280 (88.6%) exact matches, in which:  
271 unique CDR3  
6 unique J



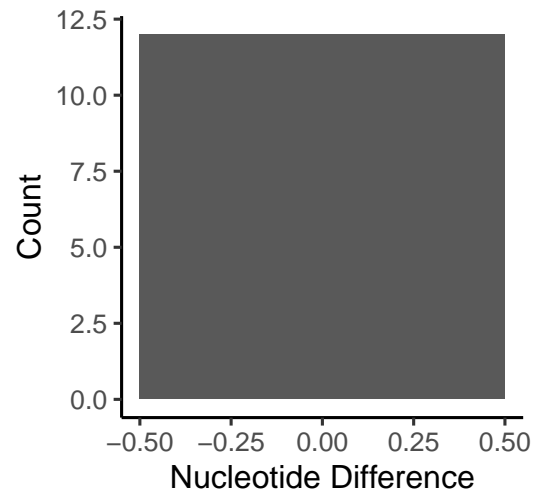
### IGHV2-5\*02

75 sequences assigned  
59 (78.7%) exact matches, in which:  
59 unique CDR3  
4 unique J



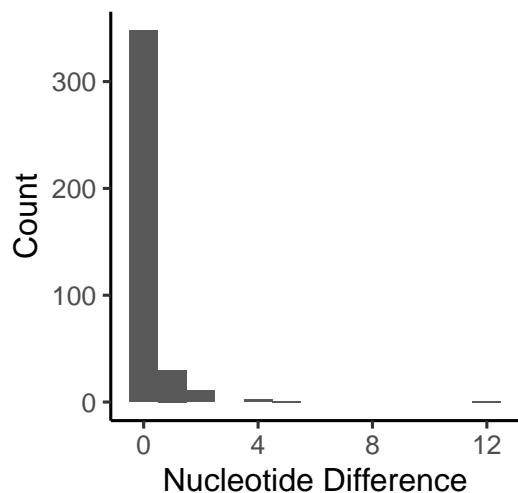
### IGHV2-70D\*04

12 sequences assigned  
12 (100%) exact matches, in which:  
11 unique CDR3  
3 unique J



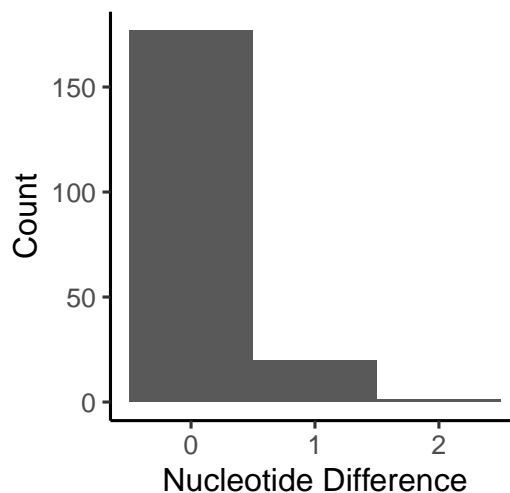
### IGHV1-69\*06

393 sequences assigned  
348 (88.5%) exact matches, in which:  
342 unique CDR3  
6 unique J



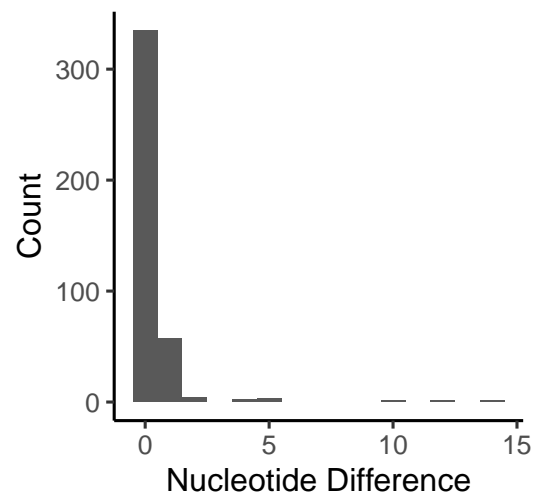
### IGHV2-26\*01

198 sequences assigned  
177 (89.4%) exact matches, in which:  
176 unique CDR3  
7 unique J



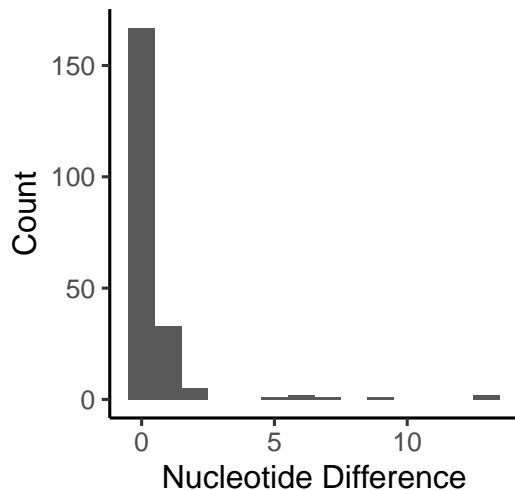
### IGHV3-7\*01

405 sequences assigned  
335 (82.7%) exact matches, in which:  
325 unique CDR3  
7 unique J



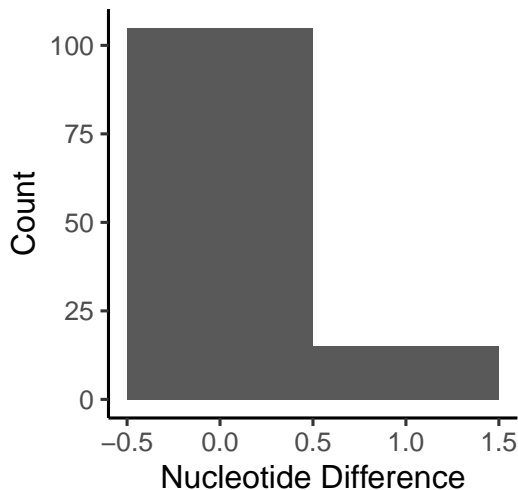
### IGHV3-7\*03

215 sequences assigned  
167 (77.7%) exact matches, in which:  
163 unique CDR3  
6 unique J



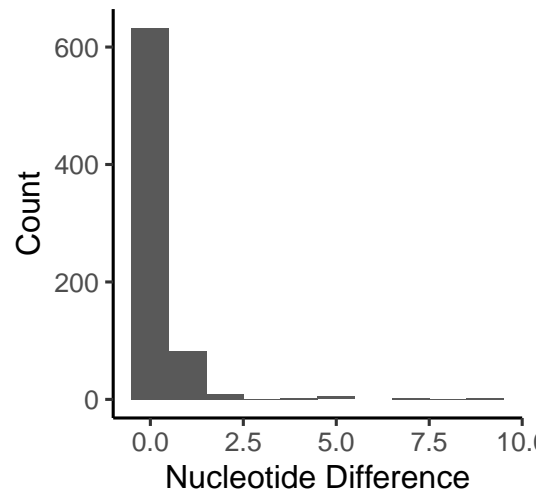
### IGHV3-11\*06

120 sequences assigned  
105 (87.5%) exact matches, in which:  
97 unique CDR3  
5 unique J



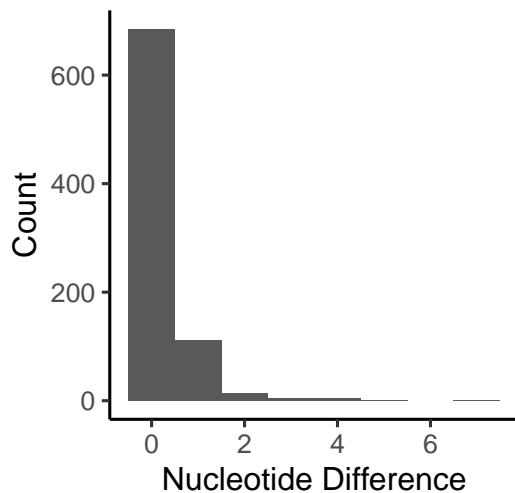
### IGHV3-15\*01

740 sequences assigned  
633 (85.5%) exact matches, in which:  
618 unique CDR3  
7 unique J



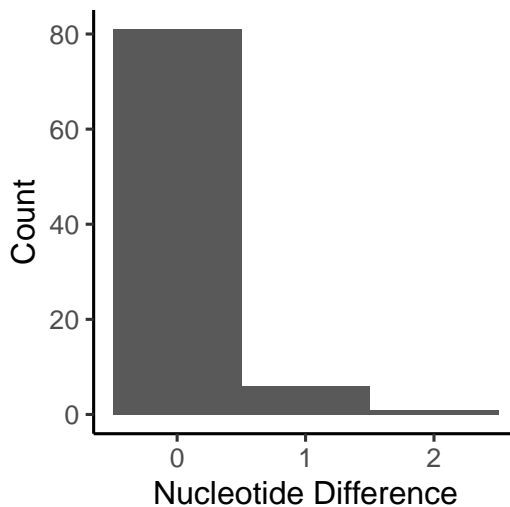
### IGHV3-9\*01

820 sequences assigned  
685 (83.5%) exact matches, in which:  
658 unique CDR3  
6 unique J



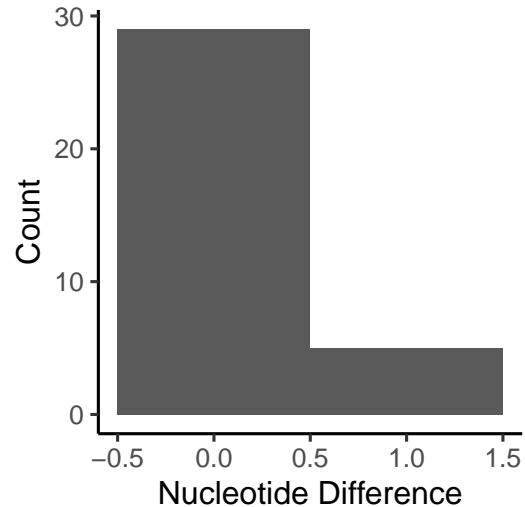
### IGHV3-13\*01

88 sequences assigned  
81 (92%) exact matches, in which:  
78 unique CDR3  
5 unique J



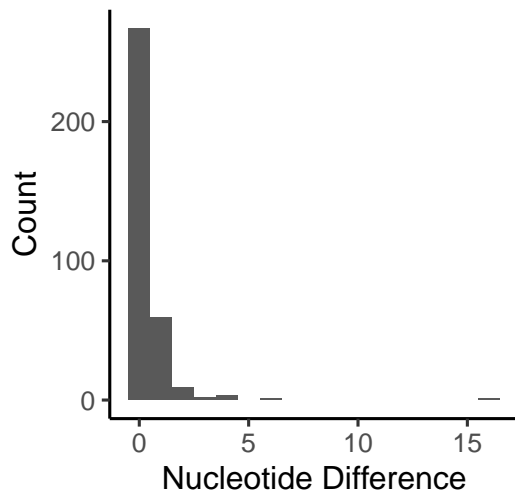
### IGHV3-20\*01

34 sequences assigned  
29 (85.3%) exact matches, in which:  
29 unique CDR3  
5 unique J



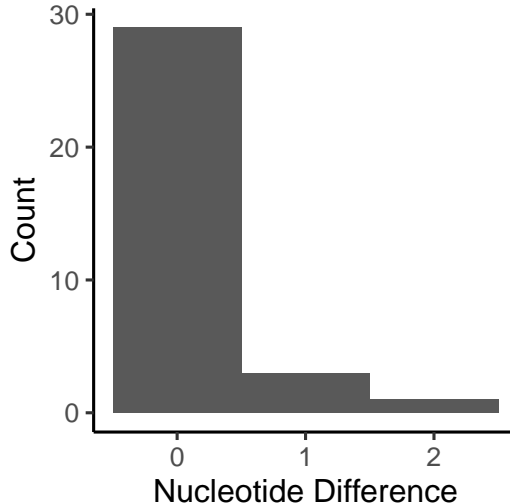
### IGHV3-11\*01

343 sequences assigned  
267 (77.8%) exact matches, in which:  
259 unique CDR3  
6 unique J



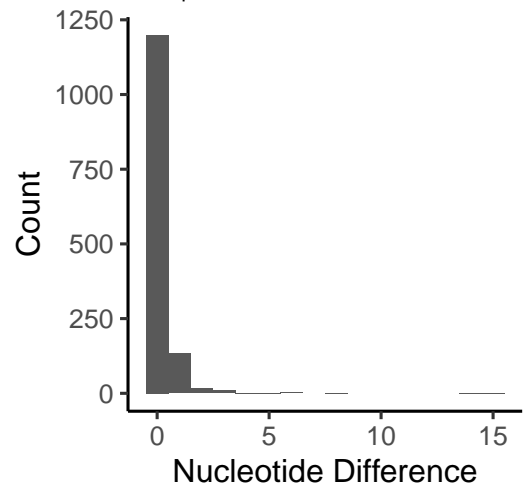
### IGHV3-13\*05

33 sequences assigned  
29 (87.9%) exact matches, in which:  
27 unique CDR3  
4 unique J



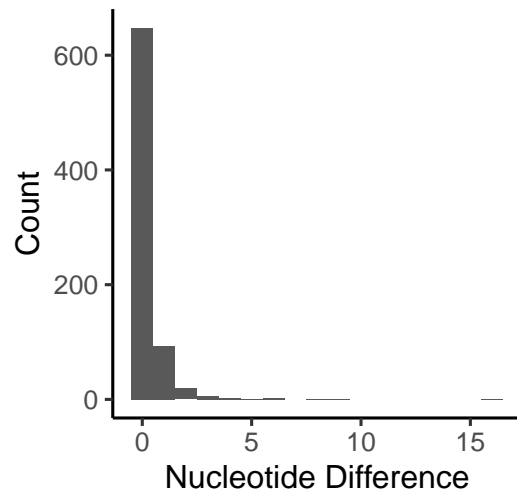
### IGHV3-21\*01

1370 sequences assigned  
1199 (87.5%) exact matches, in which:  
1146 unique CDR3  
7 unique J



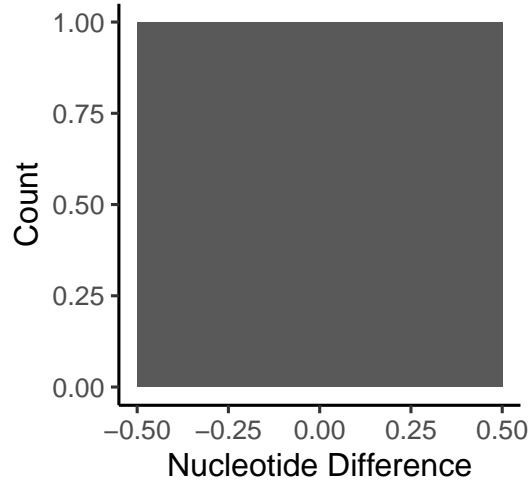
### IGHV3-23\*04

774 sequences assigned  
648 (83.7%) exact matches, in which:  
622 unique CDR3  
6 unique J



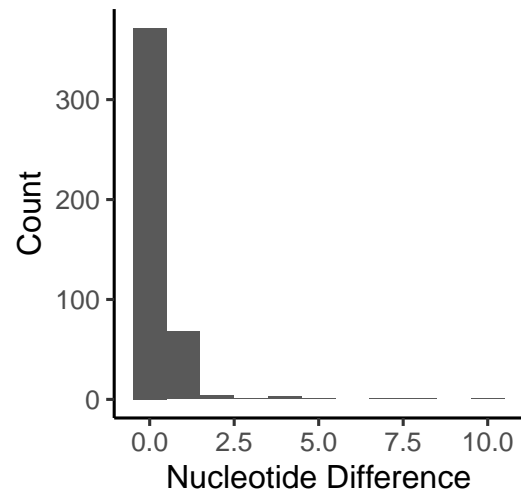
### IGHV3-35\*01

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



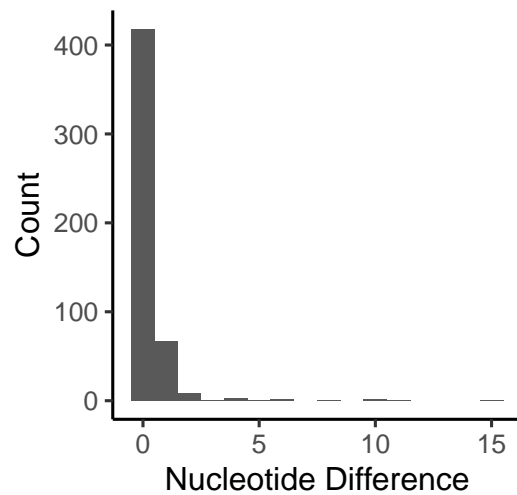
### IGHV3-48\*03

452 sequences assigned  
372 (82.3%) exact matches, in which:  
363 unique CDR3  
7 unique J



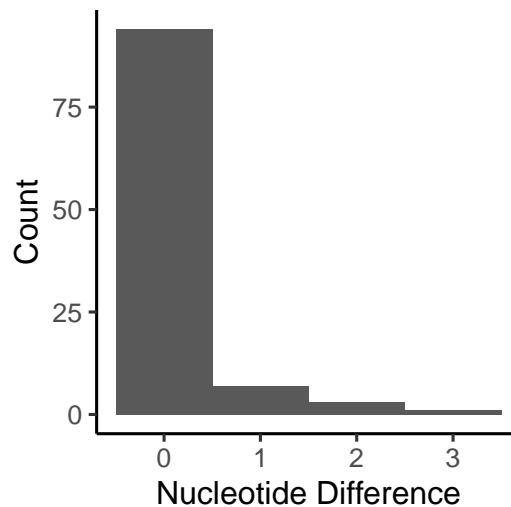
### IGHV3-33\*01

505 sequences assigned  
418 (82.8%) exact matches, in which:  
394 unique CDR3  
7 unique J



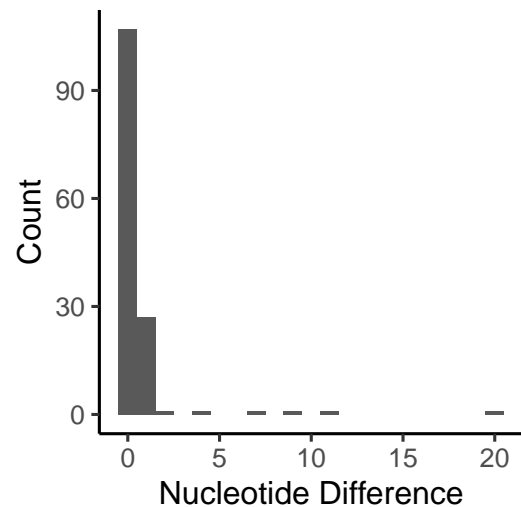
### IGHV3-43\*01

105 sequences assigned  
94 (89.5%) exact matches, in which:  
89 unique CDR3  
7 unique J



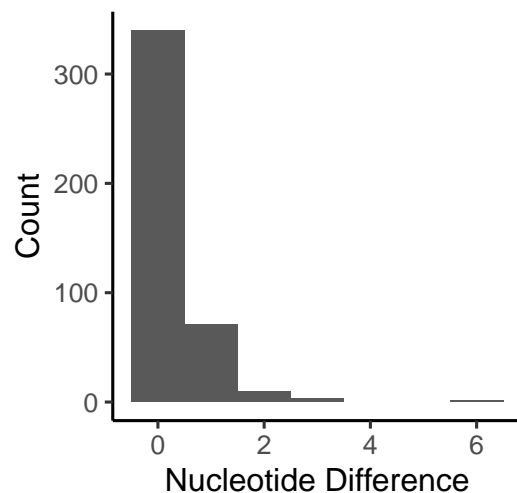
### IGHV3-49\*03

140 sequences assigned  
107 (76.4%) exact matches, in which:  
103 unique CDR3  
5 unique J



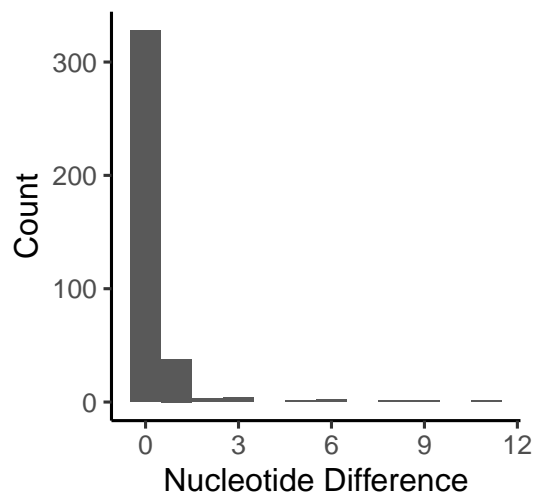
### IGHV3-33\*08

425 sequences assigned  
340 (80%) exact matches, in which:  
318 unique CDR3  
7 unique J



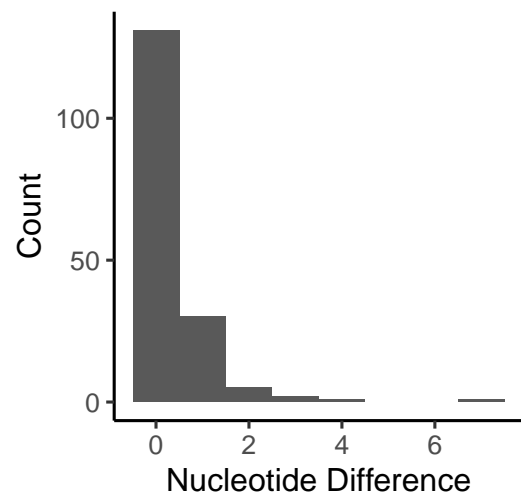
### IGHV3-48\*01

379 sequences assigned  
328 (86.5%) exact matches, in which:  
315 unique CDR3  
6 unique J



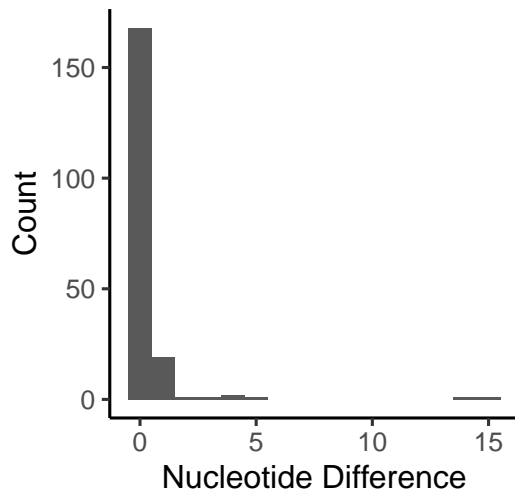
### IGHV3-49\*04

170 sequences assigned  
131 (77.1%) exact matches, in which:  
128 unique CDR3  
6 unique J



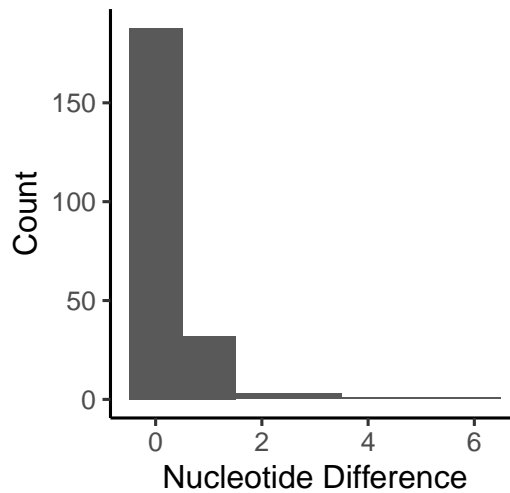
### IGHV3-53\*01

194 sequences assigned  
168 (86.6%) exact matches, in which:  
162 unique CDR3  
6 unique J



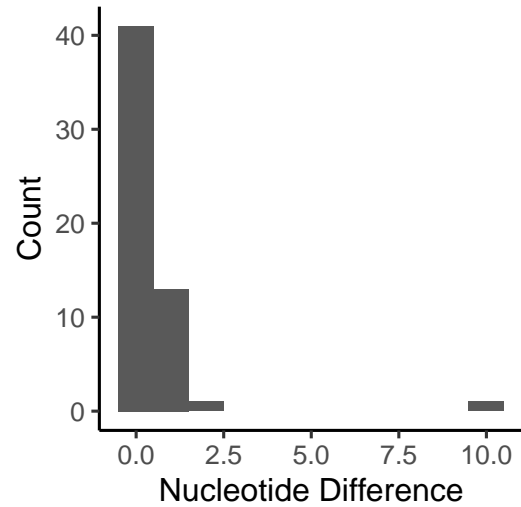
### IGHV3-66\*01

229 sequences assigned  
188 (82.1%) exact matches, in which:  
175 unique CDR3  
6 unique J



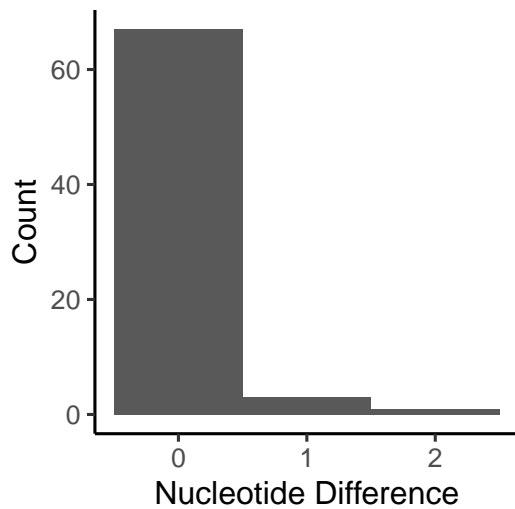
### IGHV3-73\*01

56 sequences assigned  
41 (73.2%) exact matches, in which:  
40 unique CDR3  
5 unique J



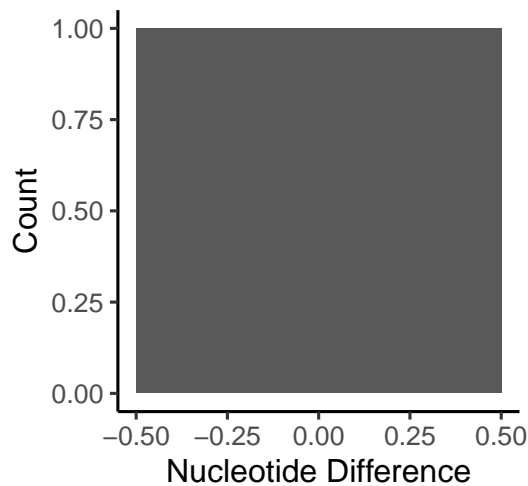
### IGHV3-53\*02

72 sequences assigned  
67 (93.1%) exact matches, in which:  
67 unique CDR3  
6 unique J



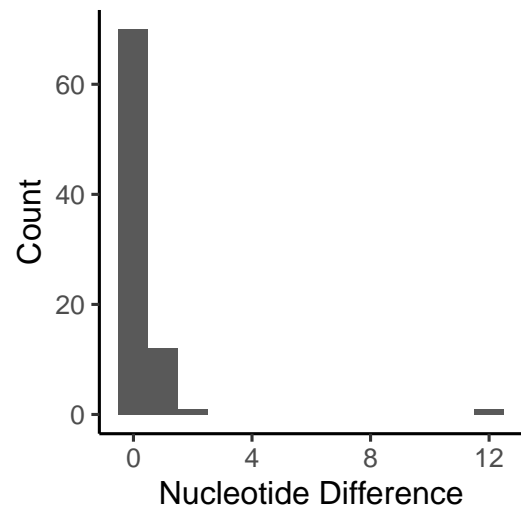
### IGHV3-69-1\*01

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



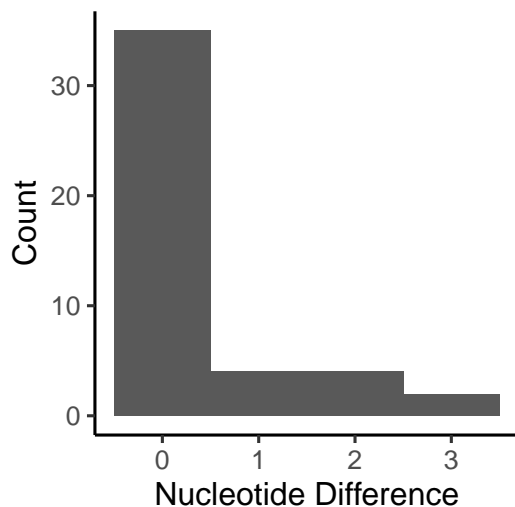
### IGHV3-73\*02

84 sequences assigned  
70 (83.3%) exact matches, in which:  
69 unique CDR3  
5 unique J



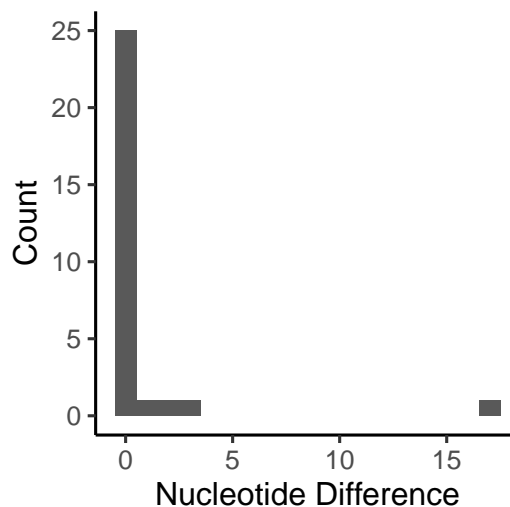
### IGHV3-64\*01

45 sequences assigned  
35 (77.8%) exact matches, in which:  
32 unique CDR3  
3 unique J



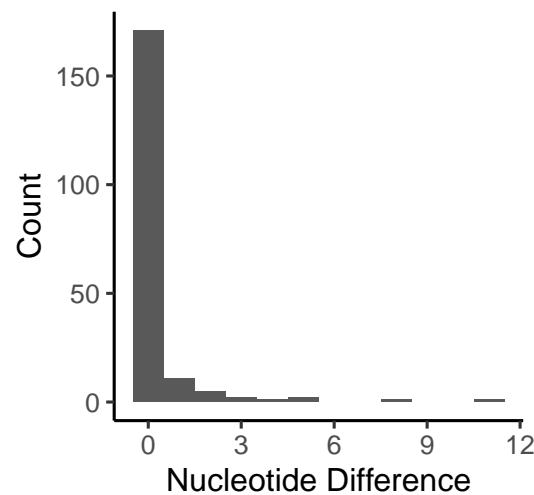
### IGHV3-72\*01

30 sequences assigned  
25 (83.3%) exact matches, in which:  
25 unique CDR3  
5 unique J



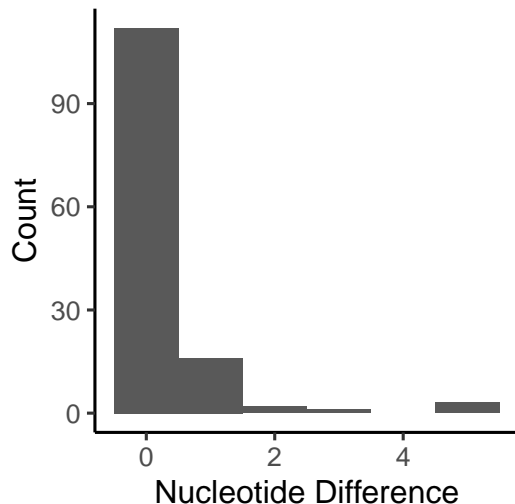
### IGHV3-74\*01

194 sequences assigned  
171 (88.1%) exact matches, in which:  
166 unique CDR3  
7 unique J



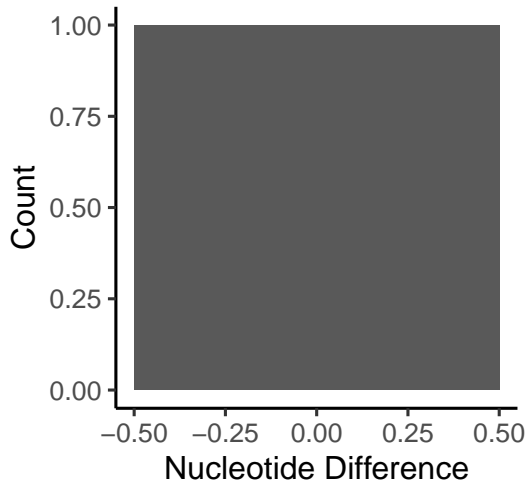
### IGHV3-64D\*06

134 sequences assigned  
112 (83.6%) exact matches, in which:  
106 unique CDR3  
6 unique J



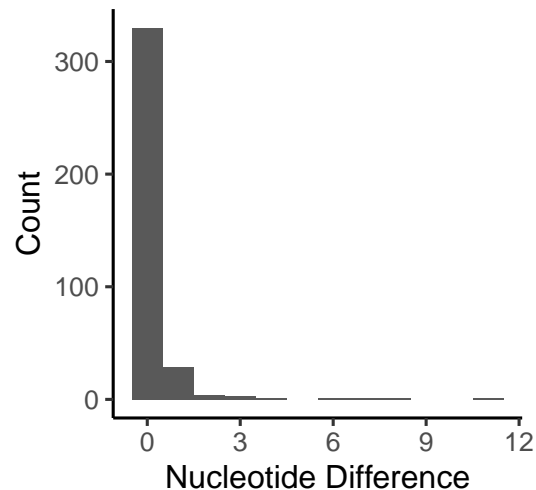
### IGHV4-28\*03

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



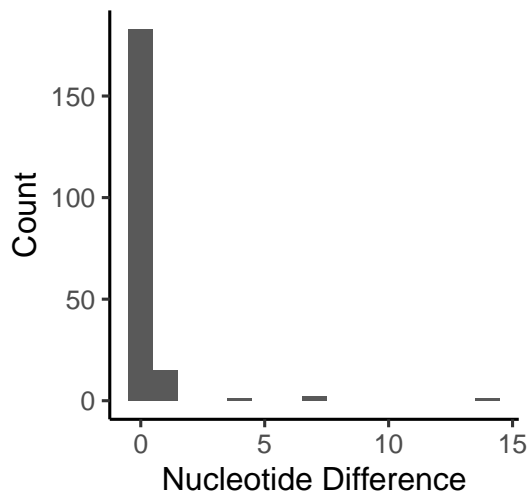
### IGHV4-31\*03

373 sequences assigned  
330 (88.5%) exact matches, in which:  
323 unique CDR3  
6 unique J



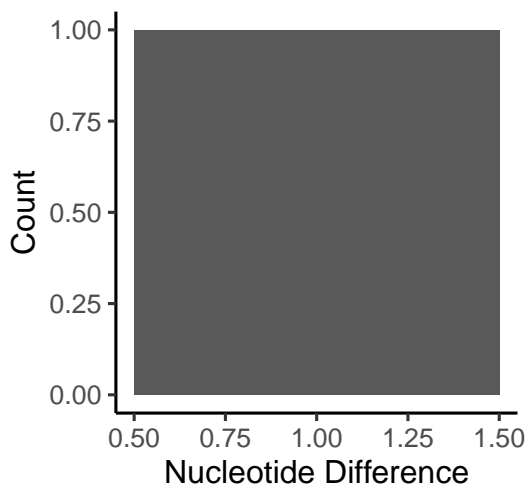
### IGHV4-4\*02

202 sequences assigned  
183 (90.6%) exact matches, in which:  
183 unique CDR3  
6 unique J



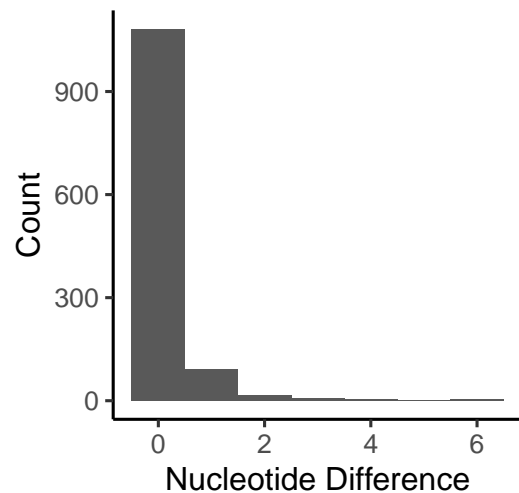
### IGHV4-28\*04

1 sequences assigned  
No exact matches.



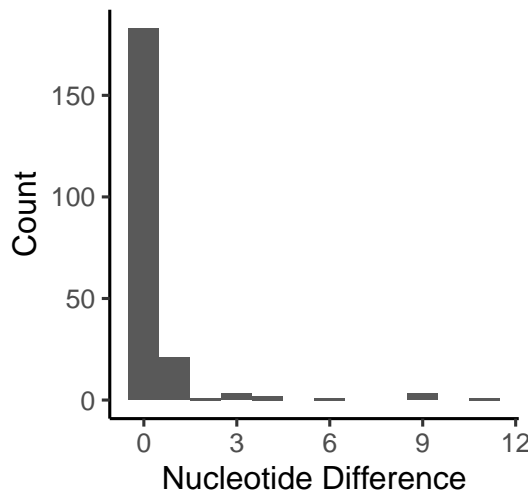
### IGHV4-34\*01

1208 sequences assigned  
1082 (89.6%) exact matches, in which:  
1054 unique CDR3  
7 unique J



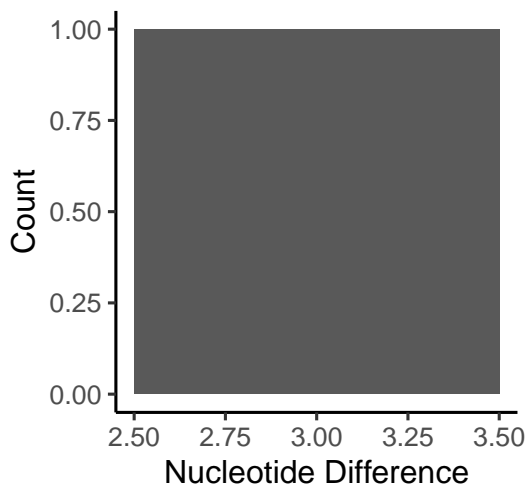
### IGHV4-4\*07

215 sequences assigned  
183 (85.1%) exact matches, in which:  
183 unique CDR3  
6 unique J



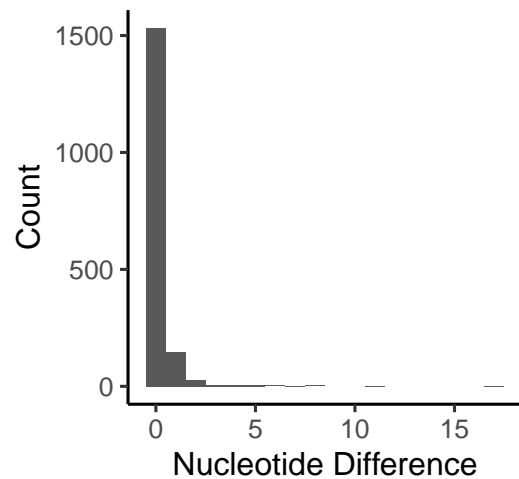
### IGHV4-30-4\*07

1 sequences assigned  
No exact matches.



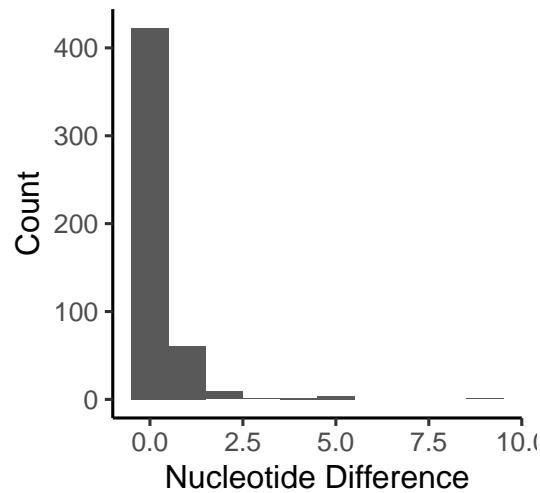
### IGHV4-39\*01

1738 sequences assigned  
1532 (88.1%) exact matches, in which:  
1481 unique CDR3  
7 unique J



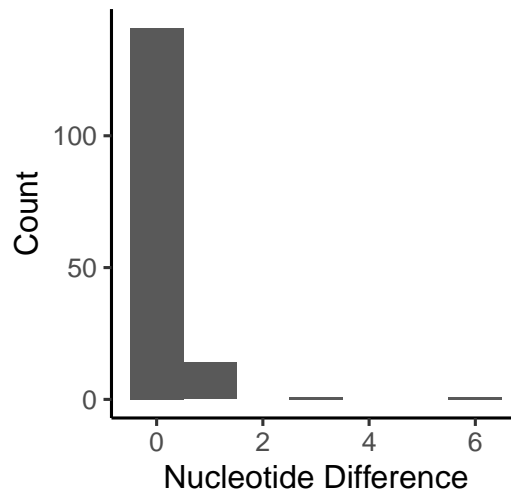
### IGHV4–59\*01

502 sequences assigned  
423 (84.3%) exact matches, in which:  
418 unique CDR3  
7 unique J



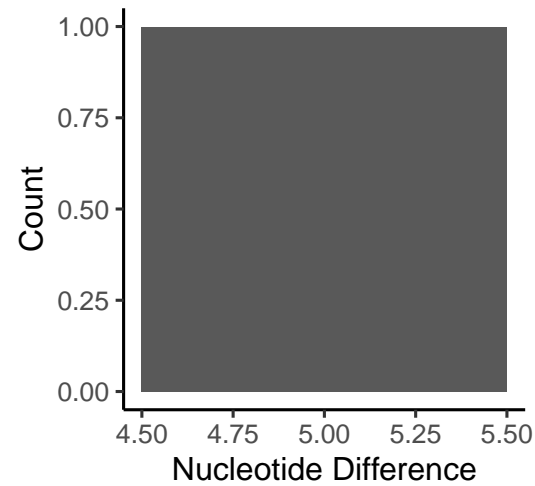
### IGHV5–10–1\*03

157 sequences assigned  
141 (89.8%) exact matches, in which:  
138 unique CDR3  
7 unique J



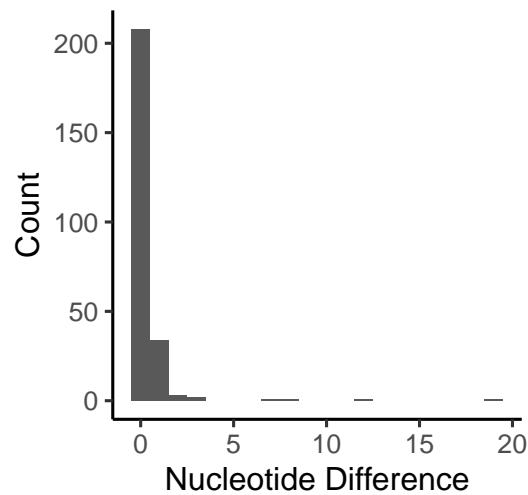
### IGHV3/OR16–15\*02

1 sequences assigned  
No exact matches.



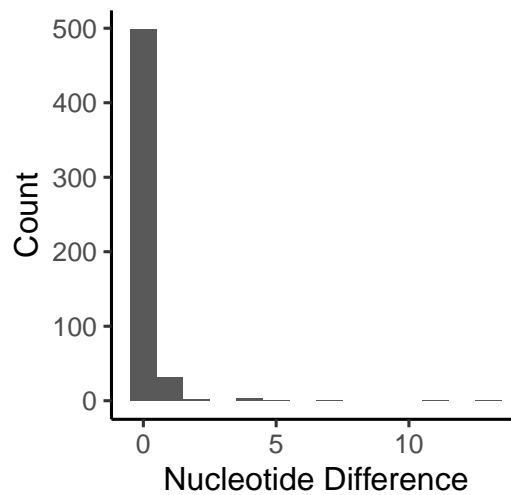
### IGHV4–59\*08

251 sequences assigned  
208 (82.9%) exact matches, in which:  
205 unique CDR3  
7 unique J



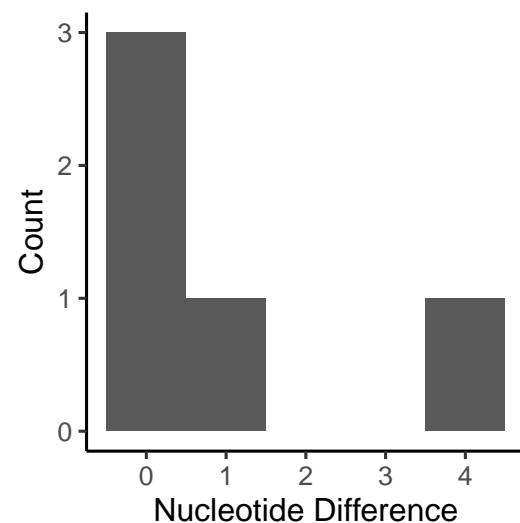
### IGHV5–51\*01

541 sequences assigned  
499 (92.2%) exact matches, in which:  
490 unique CDR3  
7 unique J



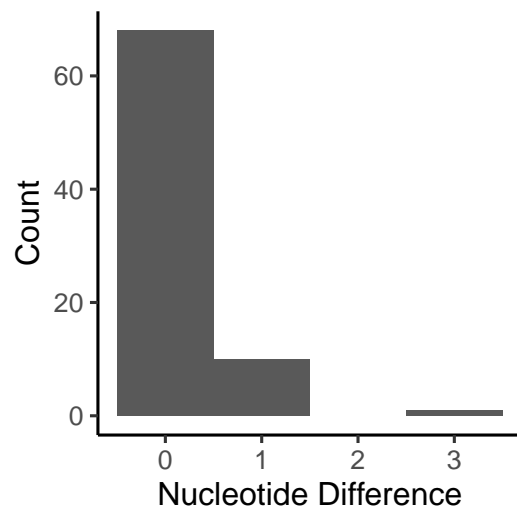
### IGHV7–4–1\*01

5 sequences assigned  
3 (60%) exact matches, in which:  
3 unique CDR3  
2 unique J



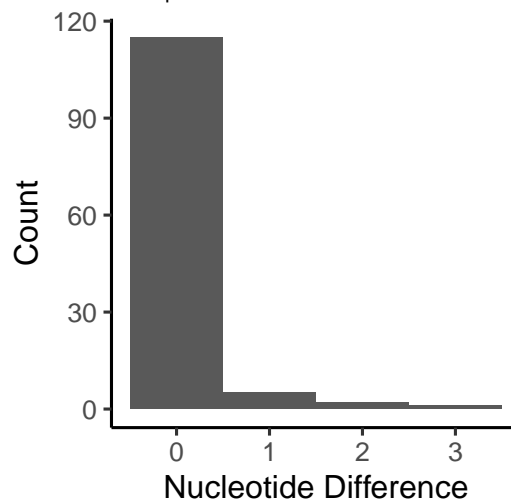
### IGHV4–61\*01

79 sequences assigned  
68 (86.1%) exact matches, in which:  
66 unique CDR3  
5 unique J

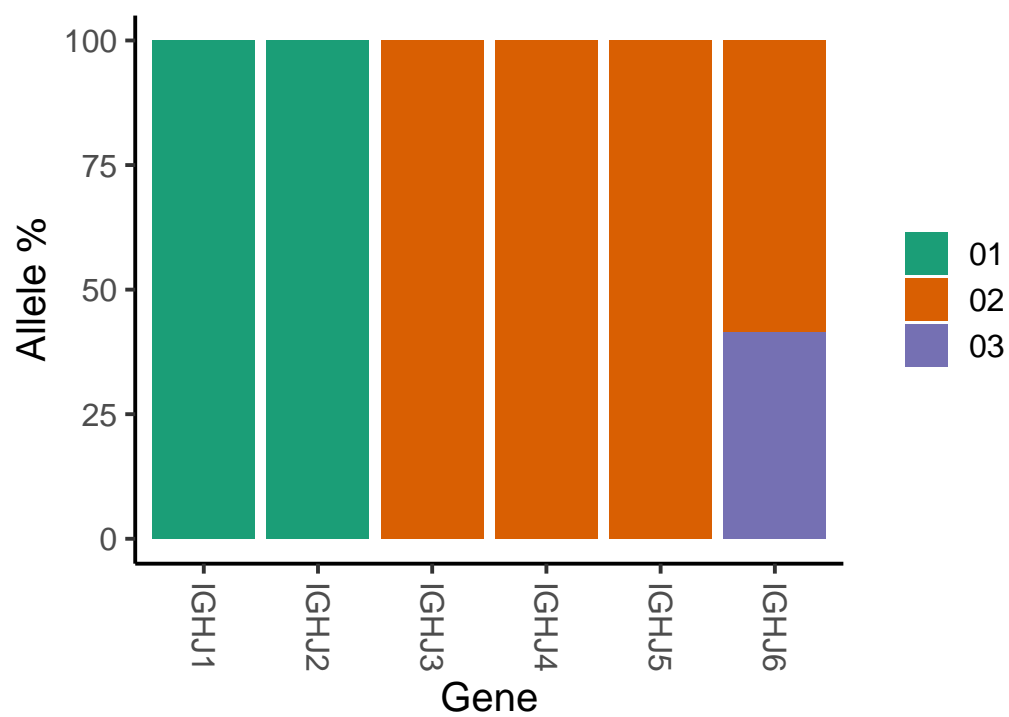


### IGHV6–1\*01

123 sequences assigned  
115 (93.5%) exact matches, in which:  
114 unique CDR3  
7 unique J



Allele Usage





Sequence Count by IGHJ6 allele usage

