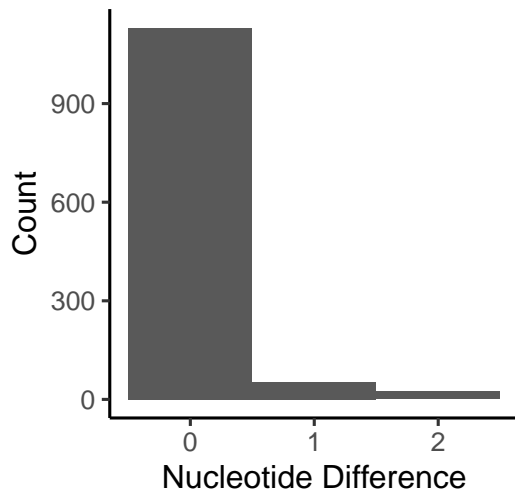


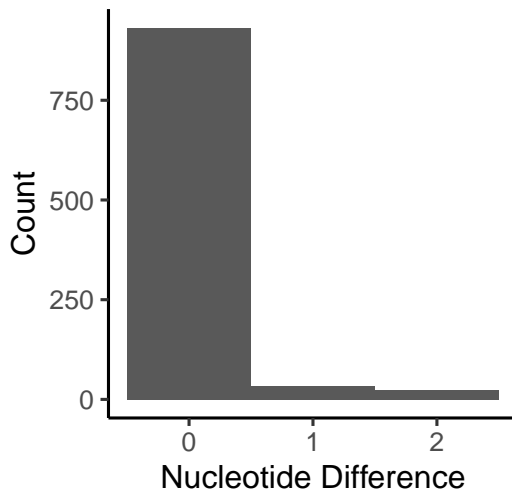
### IGHV1–2\*02

1209 sequences assigned  
1131 (93.5%) exact matches, in which:  
1104 unique CDR3  
7 unique J



### IGHV1–18\*01

990 sequences assigned  
932 (94.1%) exact matches, in which:  
913 unique CDR3  
7 unique J



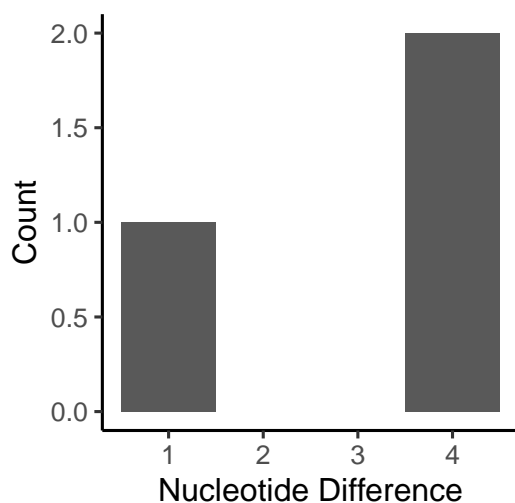
### IGHV1–45\*03

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



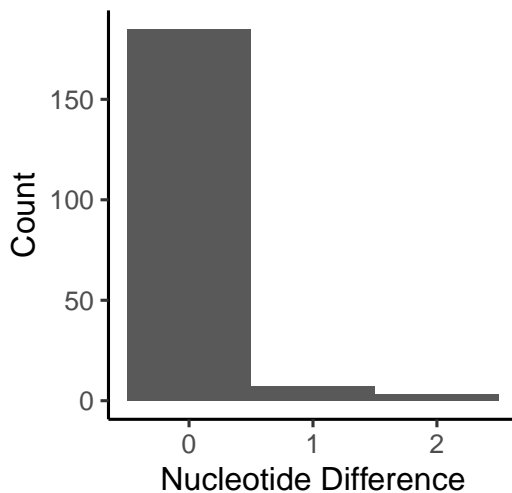
### IGHV1–3\*02

3 sequences assigned  
No exact matches.



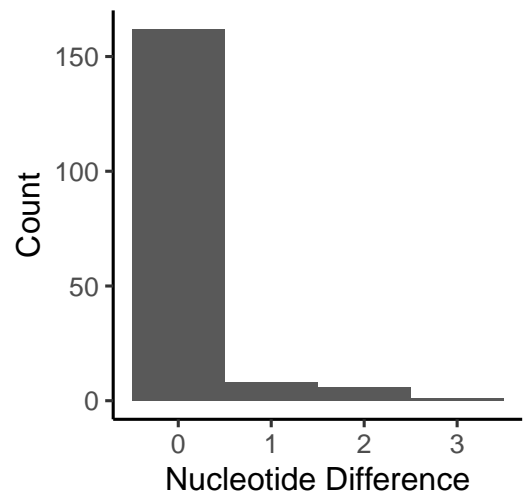
### IGHV1–24\*01

195 sequences assigned  
185 (94.9%) exact matches, in which:  
183 unique CDR3  
7 unique J



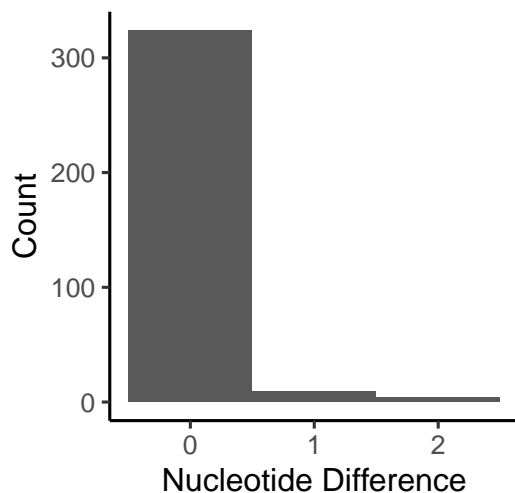
### IGHV1–46\*01

177 sequences assigned  
162 (91.5%) exact matches, in which:  
157 unique CDR3  
6 unique J



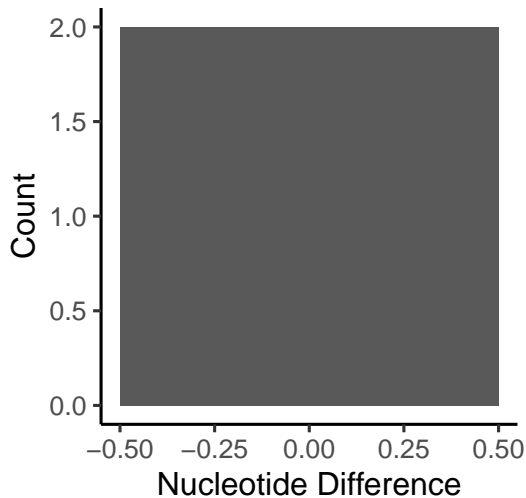
### IGHV1–8\*01

337 sequences assigned  
324 (96.1%) exact matches, in which:  
320 unique CDR3  
6 unique J



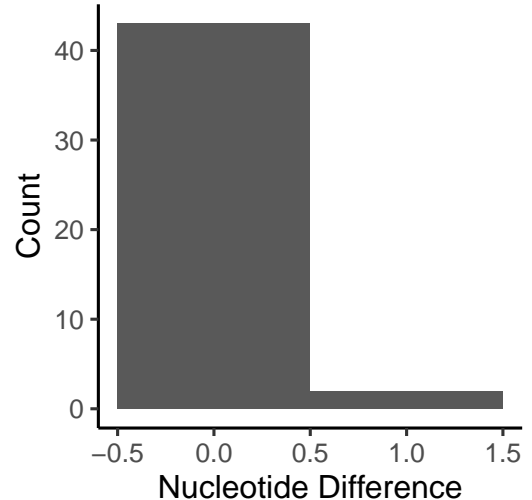
### IGHV1–45\*02

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



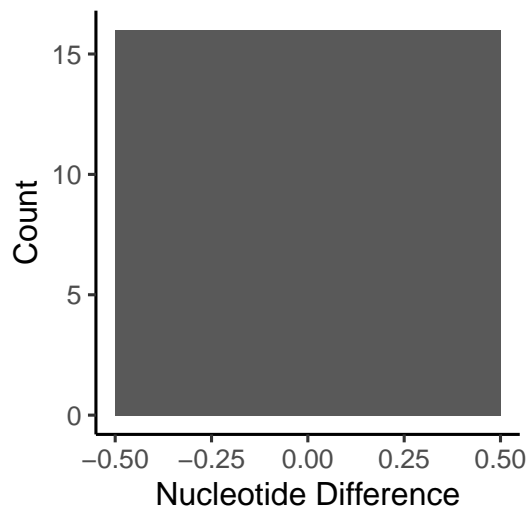
### IGHV1–46\*03

45 sequences assigned  
43 (95.6%) exact matches, in which:  
42 unique CDR3  
6 unique J



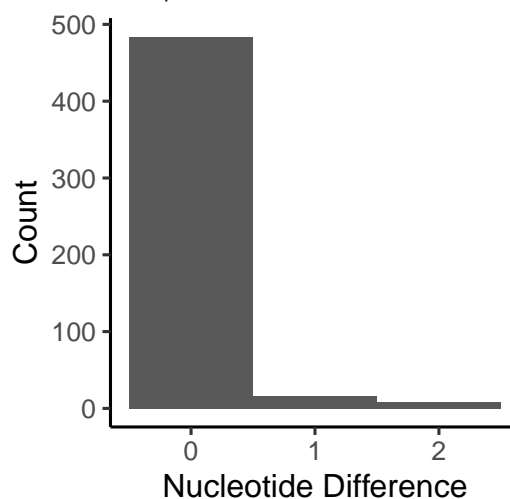
### IGHV1-58\*02

16 sequences assigned  
16 (100%) exact matches, in which:  
15 unique CDR3  
3 unique J



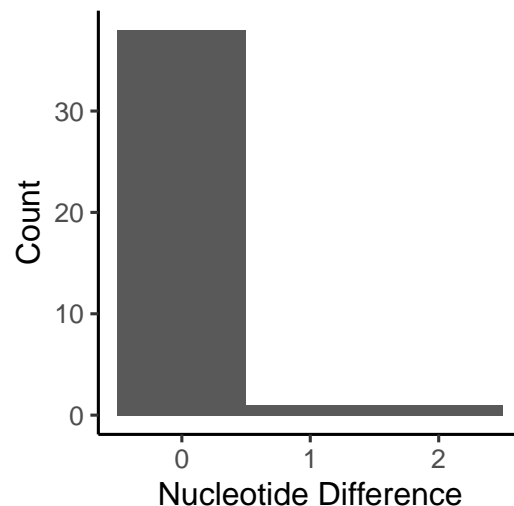
### IGHV1-69\*06\_14

508 sequences assigned  
484 (95.3%) exact matches, in which:  
479 unique CDR3  
7 unique J



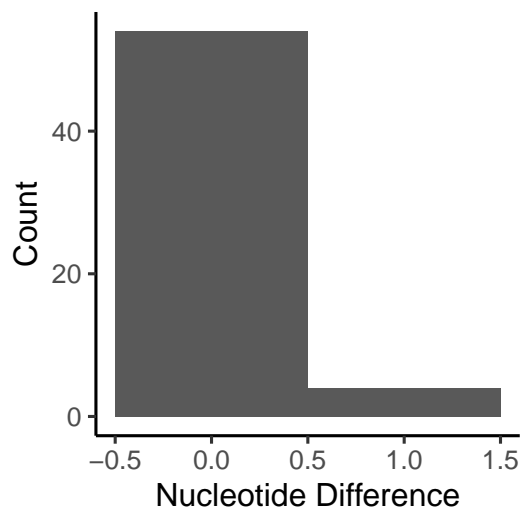
### IGHV2-26\*01

40 sequences assigned  
38 (95%) exact matches, in which:  
37 unique CDR3  
6 unique J



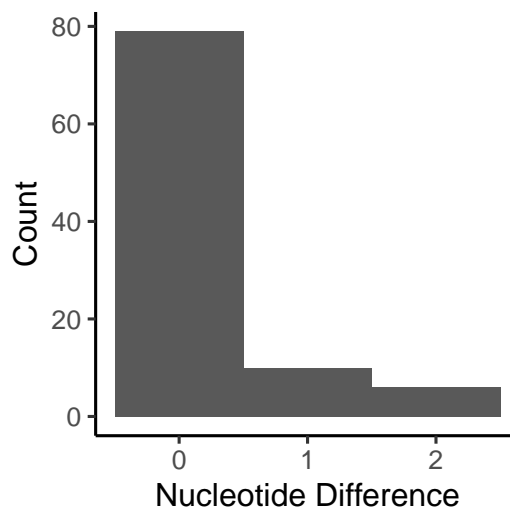
### IGHV1-58\*01\_03

58 sequences assigned  
54 (93.1%) exact matches, in which:  
52 unique CDR3  
5 unique J



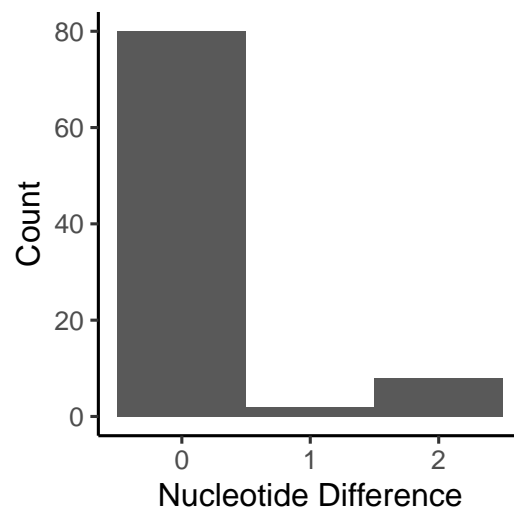
### IGHV2-5\*01

95 sequences assigned  
79 (83.2%) exact matches, in which:  
75 unique CDR3  
6 unique J



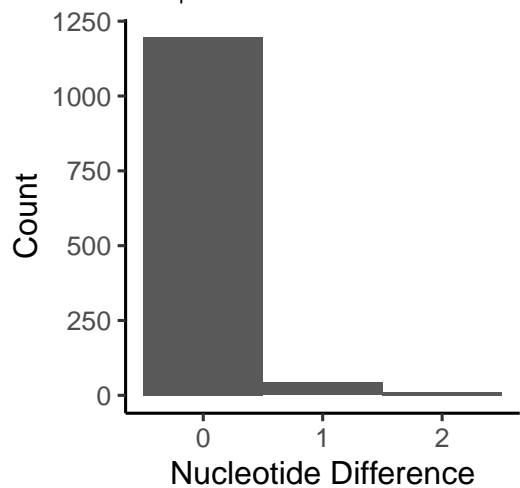
### IGHV2-70\*01

90 sequences assigned  
80 (88.9%) exact matches, in which:  
80 unique CDR3  
6 unique J



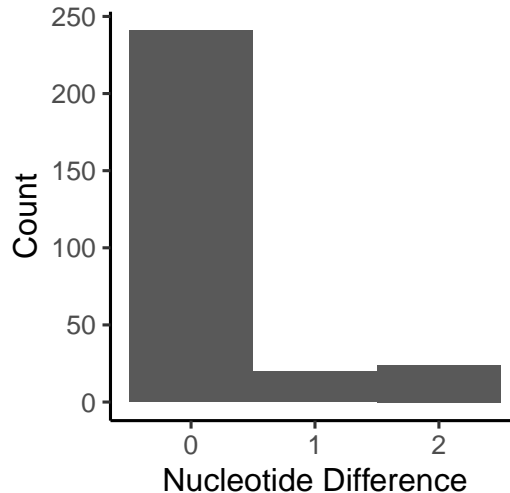
### IGHV1-69\*01\_12\_13

1251 sequences assigned  
1197 (95.7%) exact matches, in which:  
1180 unique CDR3  
7 unique J



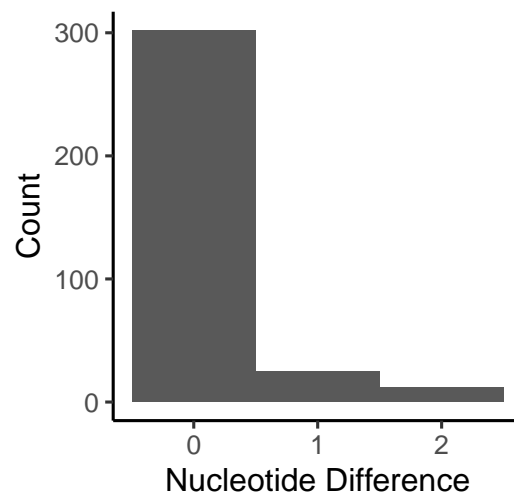
### IGHV2-5\*02

285 sequences assigned  
241 (84.6%) exact matches, in which:  
234 unique CDR3  
6 unique J



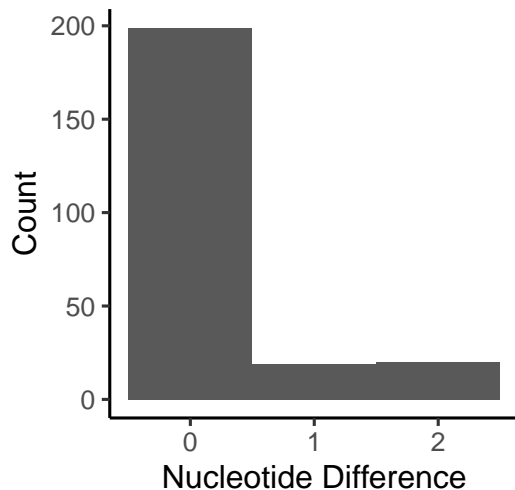
### IGHV3-7\*01

339 sequences assigned  
302 (89.1%) exact matches, in which:  
281 unique CDR3  
6 unique J



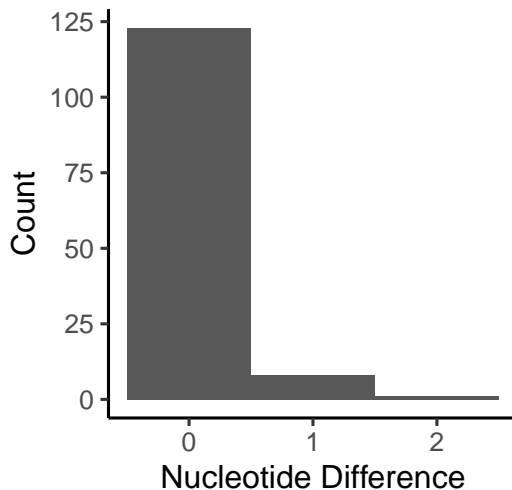
### IGHV3-7\*04

238 sequences assigned  
199 (83.6%) exact matches, in which:  
182 unique CDR3  
6 unique J



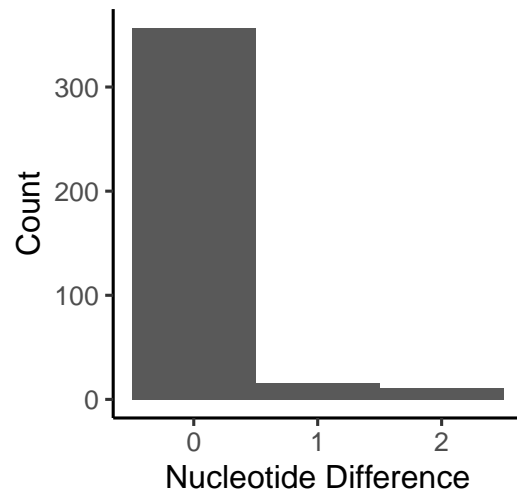
### IGHV3-11\*06

132 sequences assigned  
123 (93.2%) exact matches, in which:  
114 unique CDR3  
6 unique J



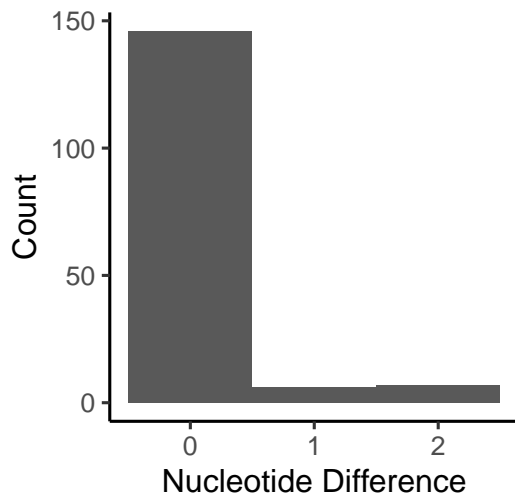
### IGHV3-15\*01\_02

384 sequences assigned  
357 (93%) exact matches, in which:  
335 unique CDR3  
7 unique J



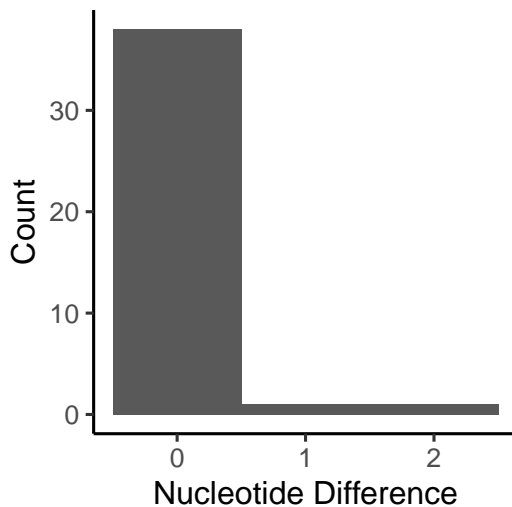
### IGHV3-9\*01

159 sequences assigned  
146 (91.8%) exact matches, in which:  
143 unique CDR3  
6 unique J



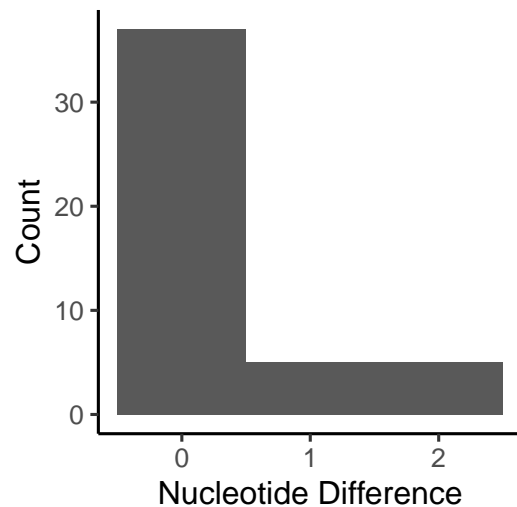
### IGHV3-13\*01

40 sequences assigned  
38 (95%) exact matches, in which:  
38 unique CDR3  
5 unique J



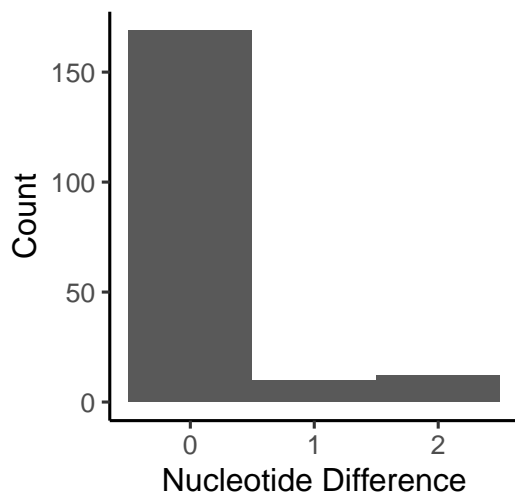
### IGHV3-20\*01\_02

47 sequences assigned  
37 (78.7%) exact matches, in which:  
36 unique CDR3  
6 unique J



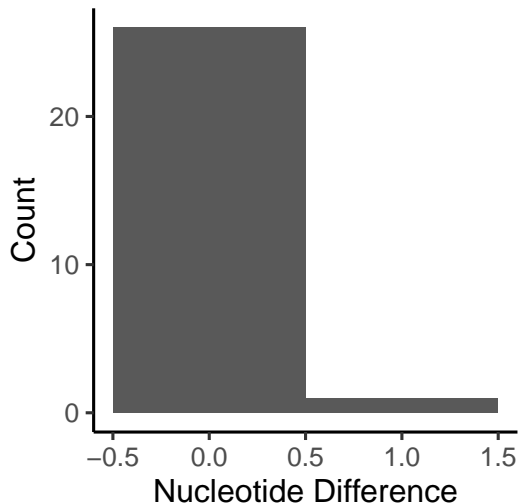
### IGHV3-11\*01

191 sequences assigned  
169 (88.5%) exact matches, in which:  
164 unique CDR3  
6 unique J



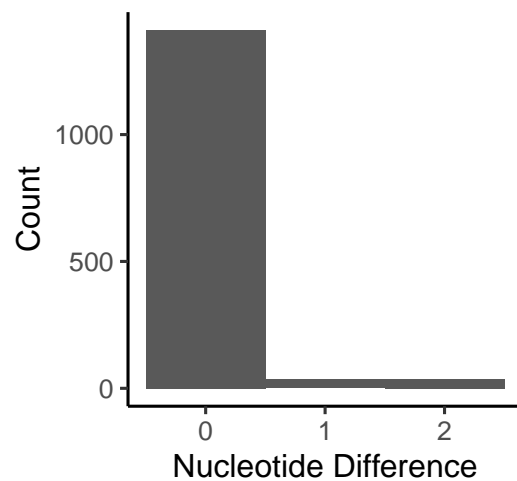
### IGHV3-13\*05

27 sequences assigned  
26 (96.3%) exact matches, in which:  
25 unique CDR3  
4 unique J



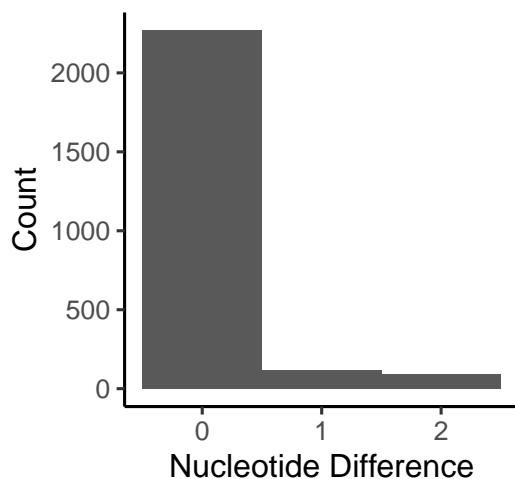
### IGHV3-21\*01\_02

1483 sequences assigned  
1412 (95.2%) exact matches, in which:  
1284 unique CDR3  
7 unique J



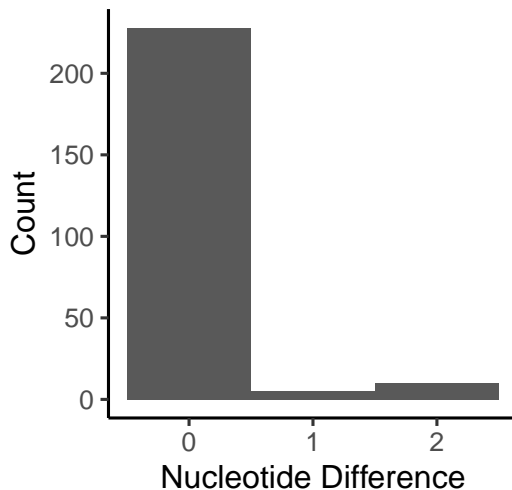
### IGHV3-23\*01\_04

2477 sequences assigned  
2269 (91.6%) exact matches, in which:  
2074 unique CDR3  
7 unique J



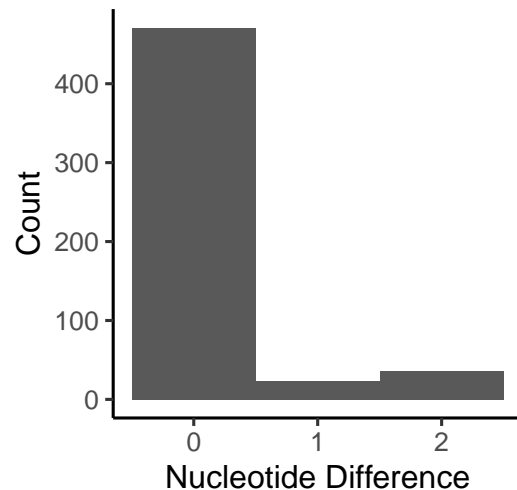
### IGHV3-43\*02

243 sequences assigned  
228 (93.8%) exact matches, in which:  
209 unique CDR3  
6 unique J



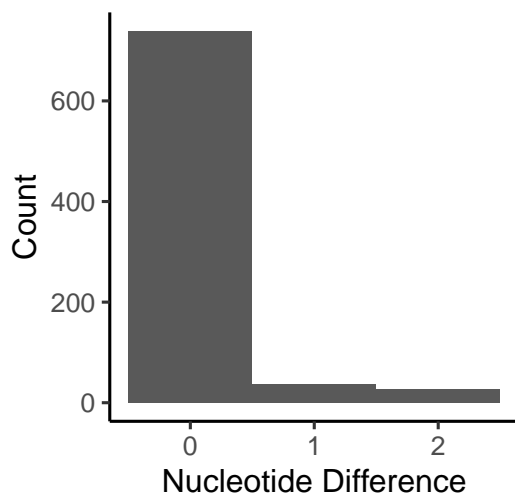
### IGHV3-48\*03

530 sequences assigned  
471 (88.9%) exact matches, in which:  
446 unique CDR3  
6 unique J



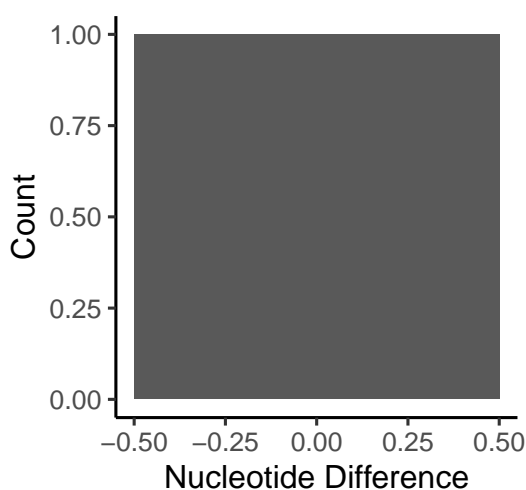
### IGHV3-30-3\*01

801 sequences assigned  
739 (92.3%) exact matches, in which:  
707 unique CDR3  
7 unique J



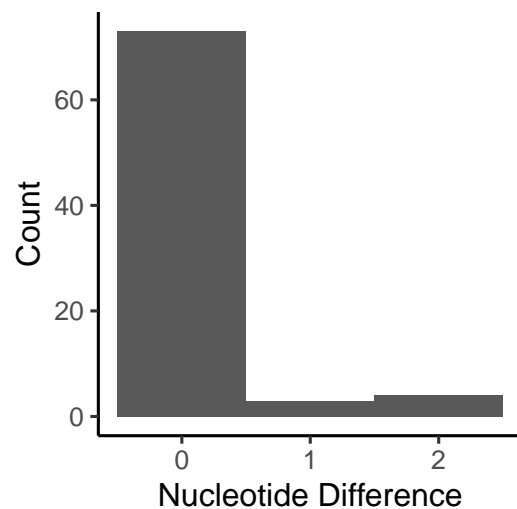
### IGHV3-47\*02

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



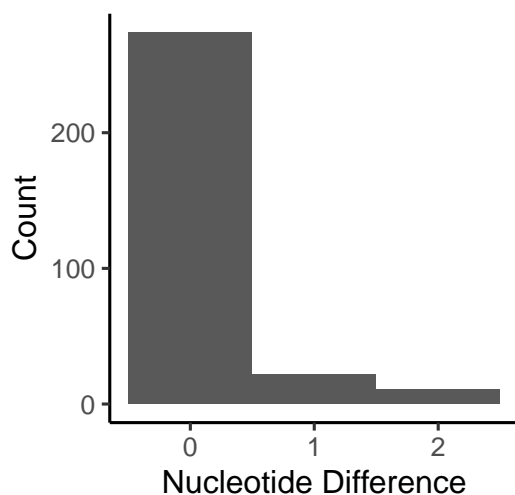
### IGHV3-49\*04

80 sequences assigned  
73 (91.2%) exact matches, in which:  
71 unique CDR3  
5 unique J



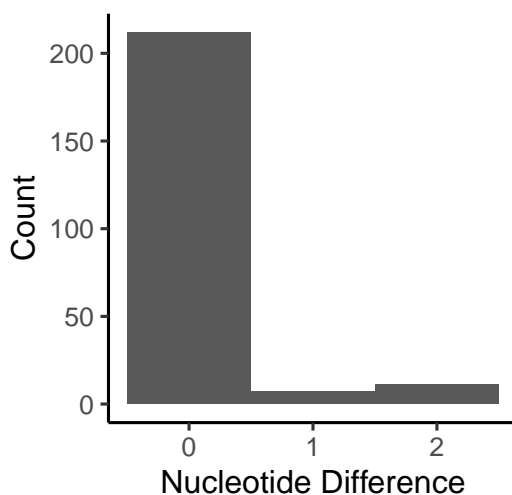
### IGHV3-33\*01

307 sequences assigned  
274 (89.3%) exact matches, in which:  
266 unique CDR3  
7 unique J



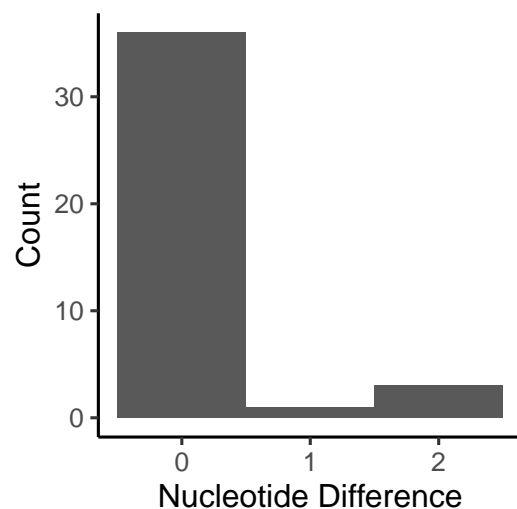
### IGHV3-48\*01

230 sequences assigned  
212 (92.2%) exact matches, in which:  
188 unique CDR3  
6 unique J



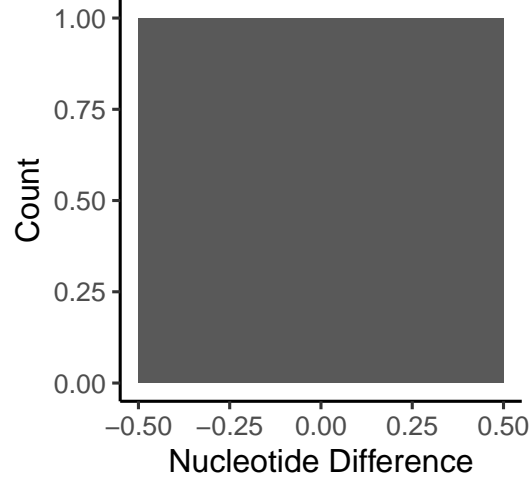
### IGHV3-49\*03\_05

40 sequences assigned  
36 (90%) exact matches, in which:  
34 unique CDR3  
5 unique J



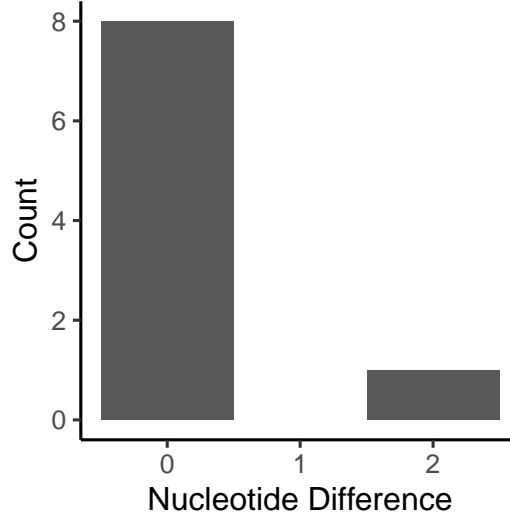
### IGHV3-52\*01\_03

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



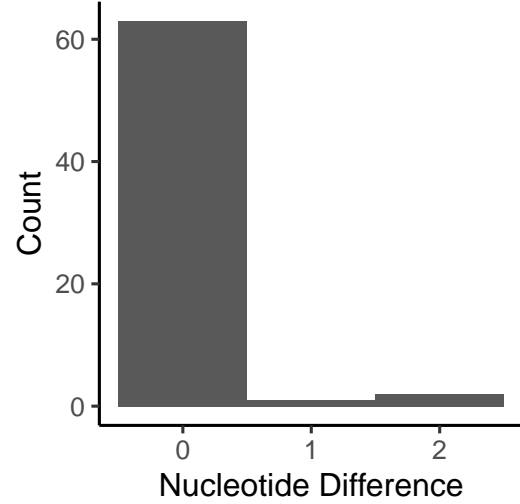
### IGHV3-64\*02\_07

9 sequences assigned  
8 (88.9%) exact matches, in which:  
8 unique CDR3  
3 unique J



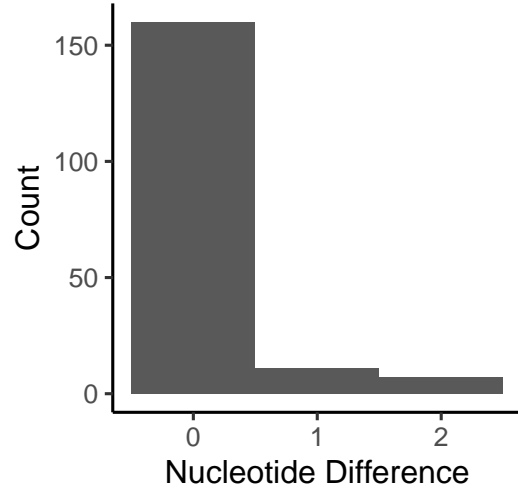
### IGHV3-73\*01\_02

66 sequences assigned  
63 (95.5%) exact matches, in which:  
62 unique CDR3  
6 unique J



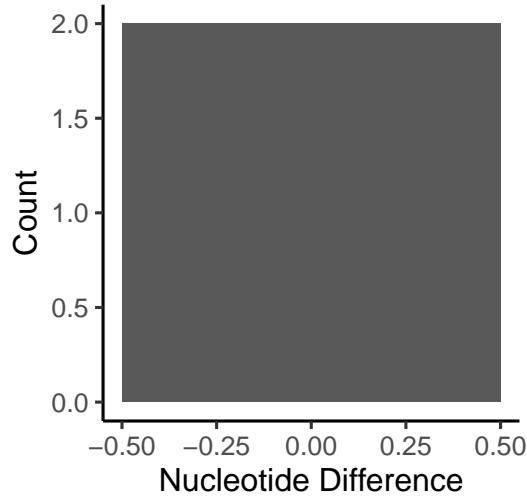
### IGHV3-53\*04

178 sequences assigned  
160 (89.9%) exact matches, in which:  
149 unique CDR3  
7 unique J



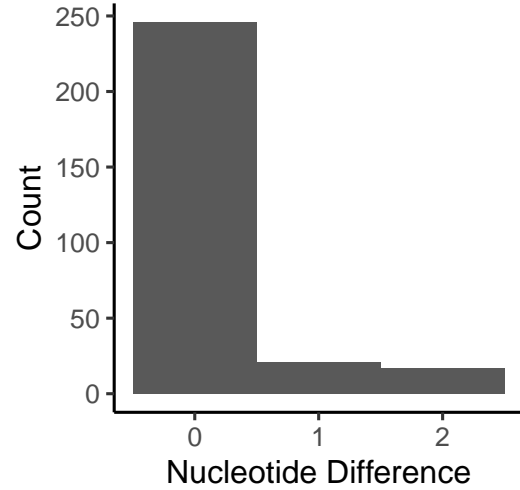
### IGHV3-66\*03

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



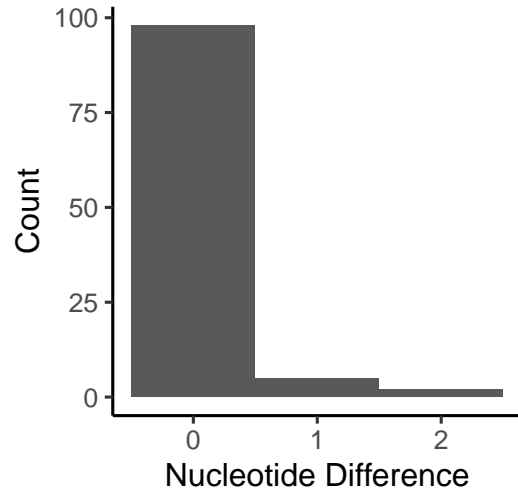
### IGHV3-74\*01\_02

284 sequences assigned  
246 (86.6%) exact matches, in which:  
217 unique CDR3  
7 unique J



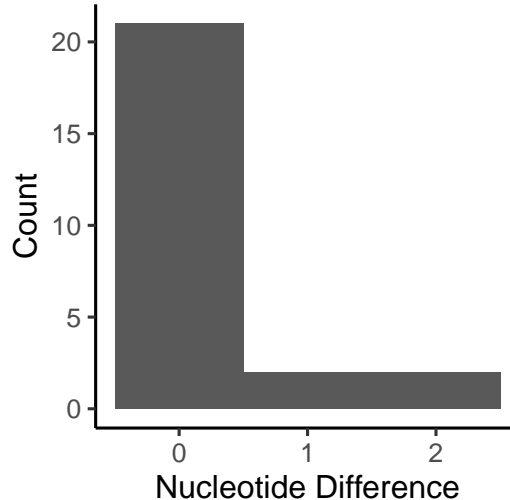
### IGHV3-53\*01\_02

105 sequences assigned  
98 (93.3%) exact matches, in which:  
88 unique CDR3  
5 unique J



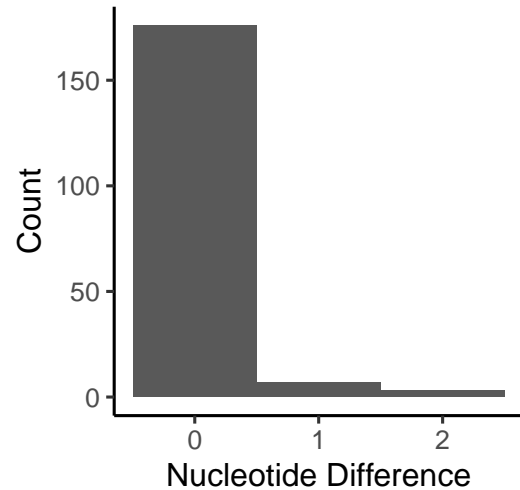
### IGHV3-72\*01

25 sequences assigned  
21 (84%) exact matches, in which:  
21 unique CDR3  
6 unique J



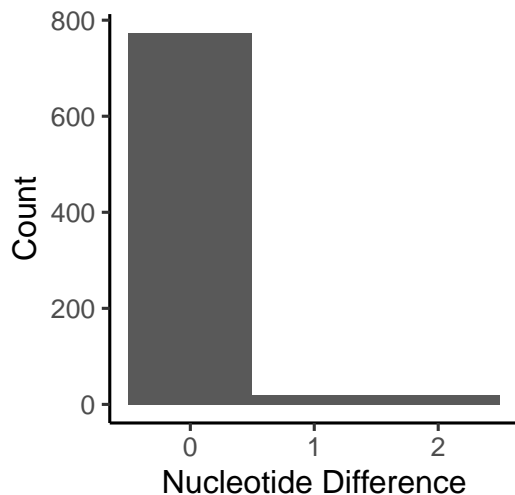
### IGHV3-64D\*06

186 sequences assigned  
176 (94.6%) exact matches, in which:  
162 unique CDR3  
6 unique J



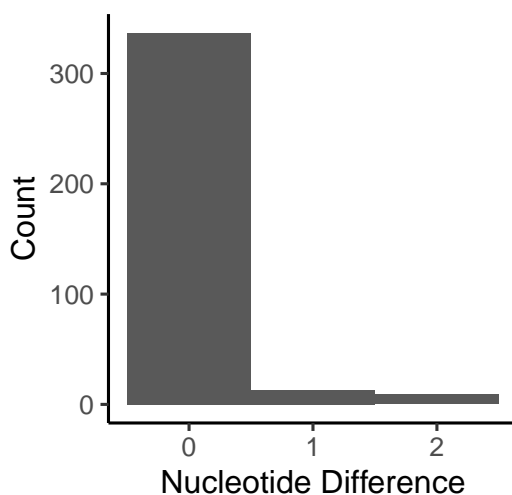
### IGHV4-4\*07

813 sequences assigned  
774 (95.2%) exact matches, in which:  
711 unique CDR3  
7 unique J



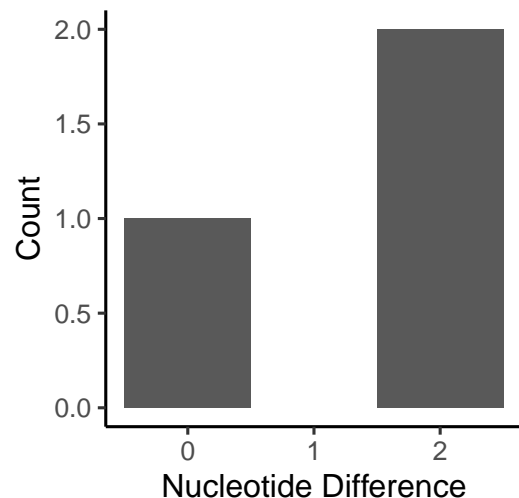
### IGHV4-30-2\*01

359 sequences assigned  
337 (93.9%) exact matches, in which:  
315 unique CDR3  
7 unique J



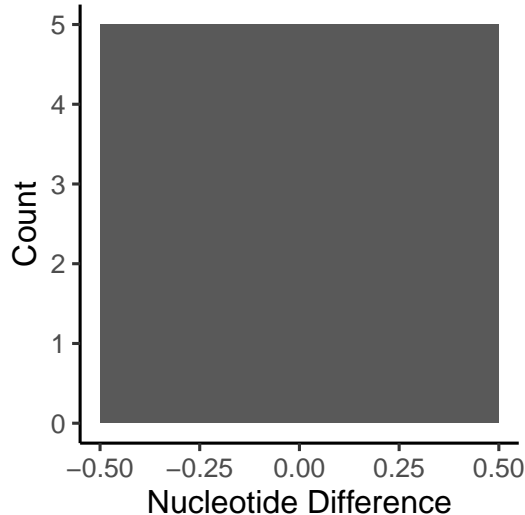
### IGHV4-39\*02

3 sequences assigned  
1 (33.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



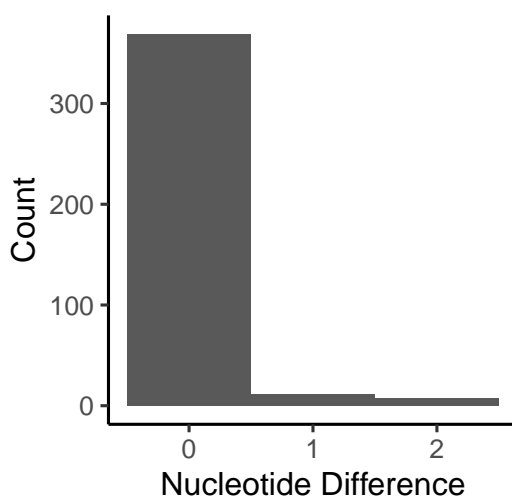
### IGHV4-28\*01\_07

5 sequences assigned  
5 (100%) exact matches, in which:  
5 unique CDR3  
3 unique J



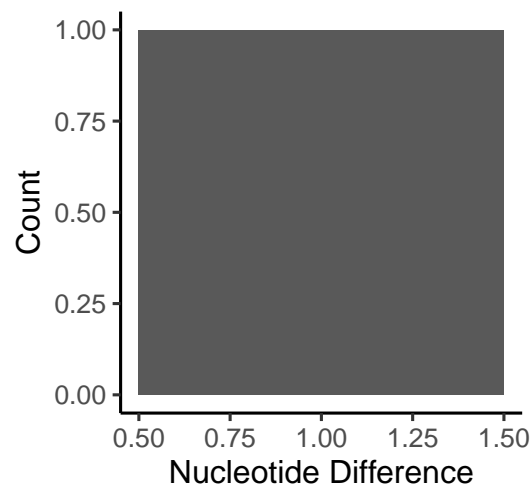
### IGHV4-31\*02

387 sequences assigned  
369 (95.3%) exact matches, in which:  
362 unique CDR3  
7 unique J



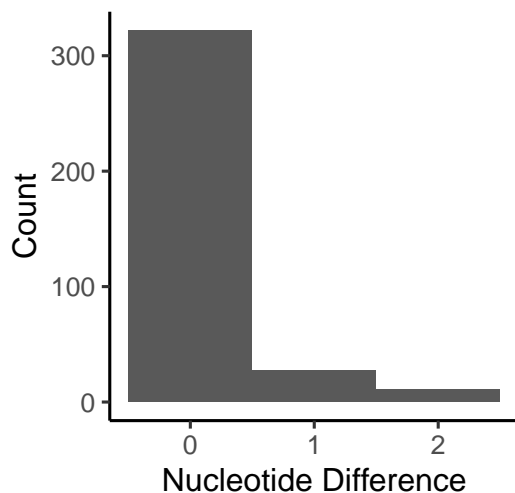
### IGHV4-59\*02

1 sequences assigned  
No exact matches.



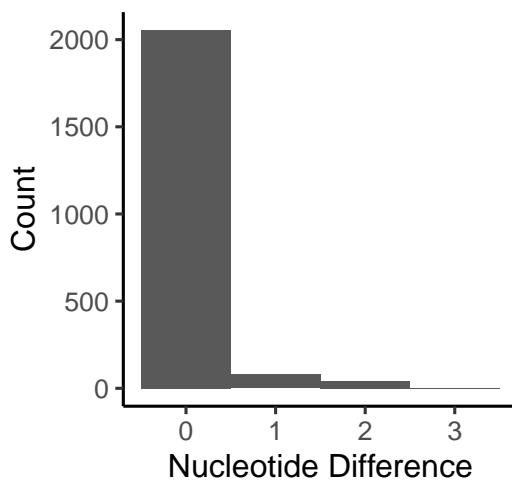
### IGHV4-30-4\*01

360 sequences assigned  
322 (89.4%) exact matches, in which:  
308 unique CDR3  
7 unique J



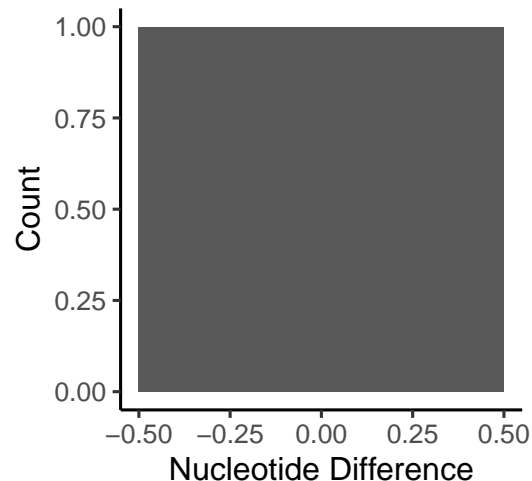
### IGHV4-34\*01\_02

2176 sequences assigned  
2055 (94.4%) exact matches, in which:  
1866 unique CDR3  
7 unique J



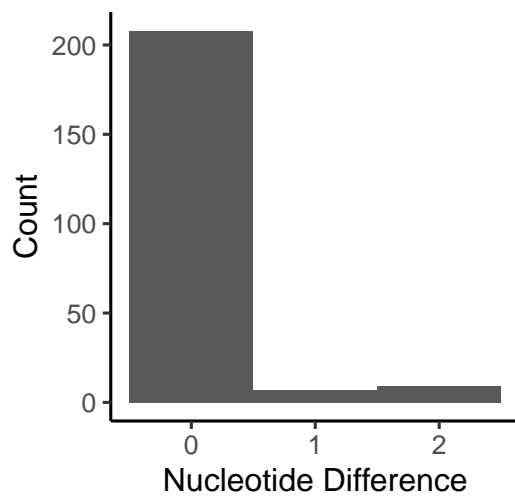
### IGHV4-59\*13

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



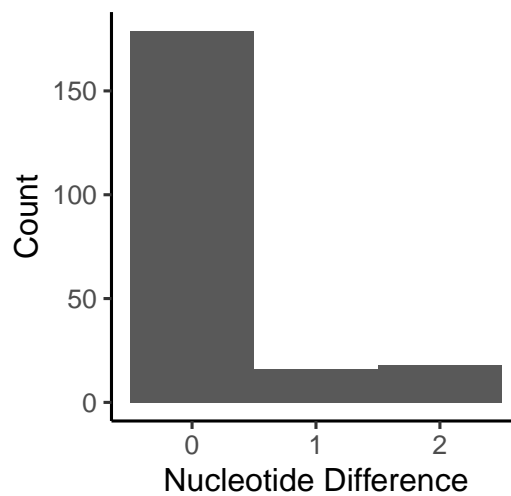
### IGHV4–61\*01

224 sequences assigned  
208 (92.9%) exact matches, in which:  
188 unique CDR3  
6 unique J



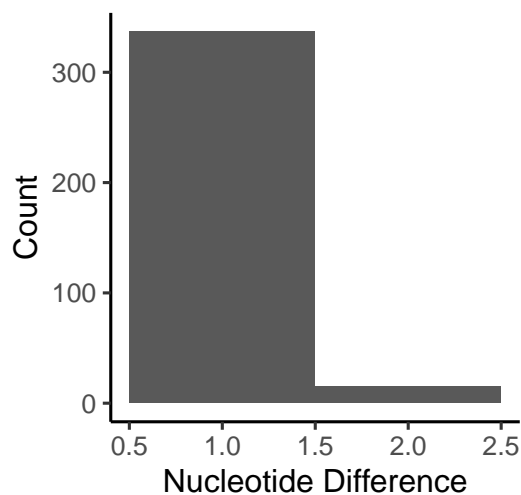
### IGHV6–1\*01\_02

213 sequences assigned  
179 (84%) exact matches, in which:  
176 unique CDR3  
7 unique J



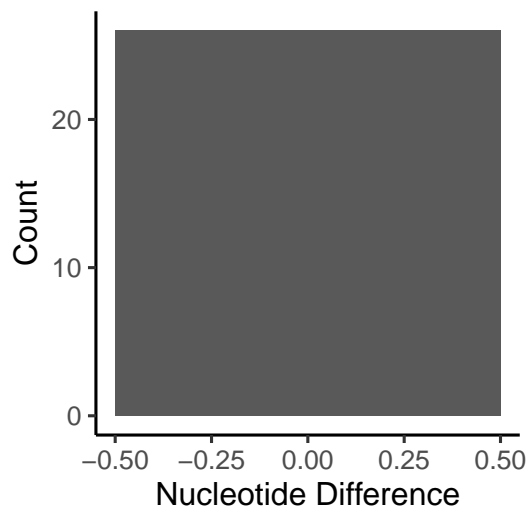
### IGHV4–61\*02

352 sequences assigned  
No exact matches.

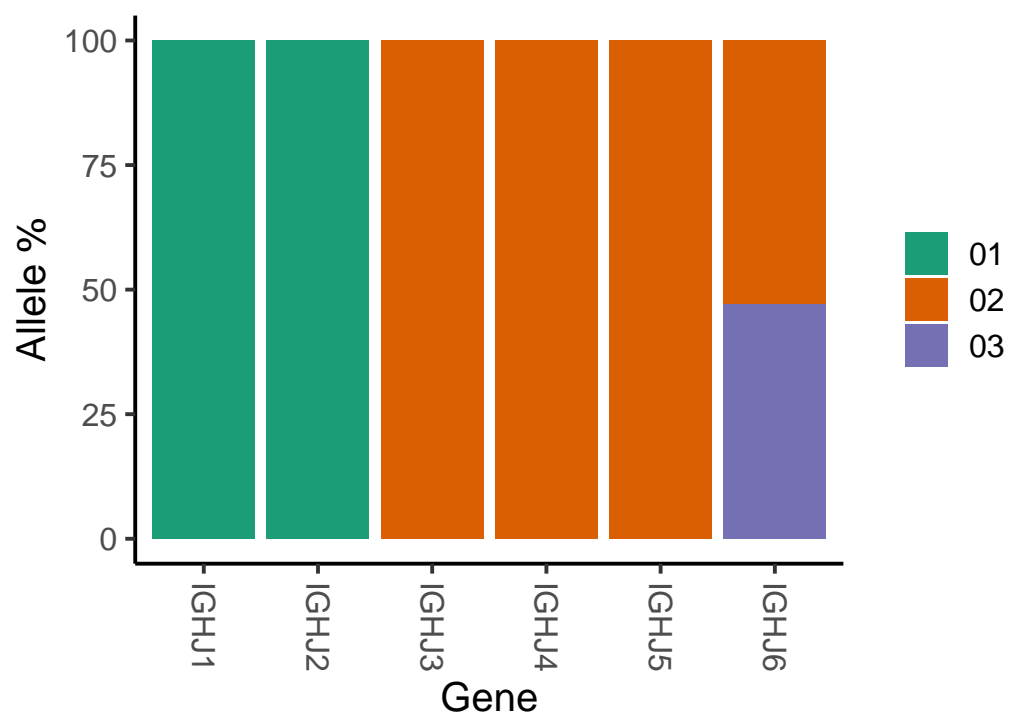


### IGHV5–10–1\*01\_03

26 sequences assigned  
26 (100%) exact matches, in which:  
26 unique CDR3  
4 unique J

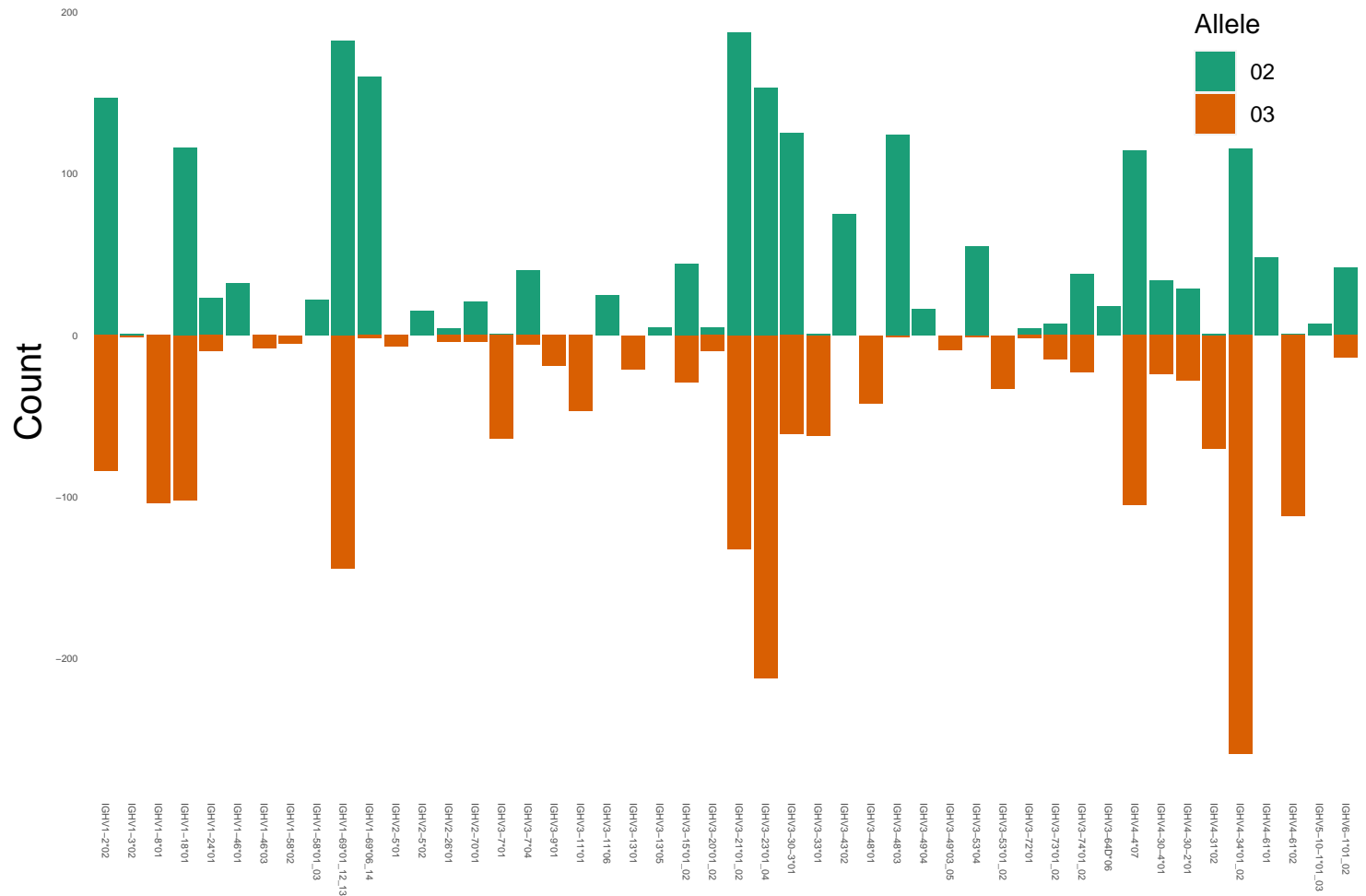


Allele Usage





## Sequence Count byIGHJ6 allele usage



[illegible]