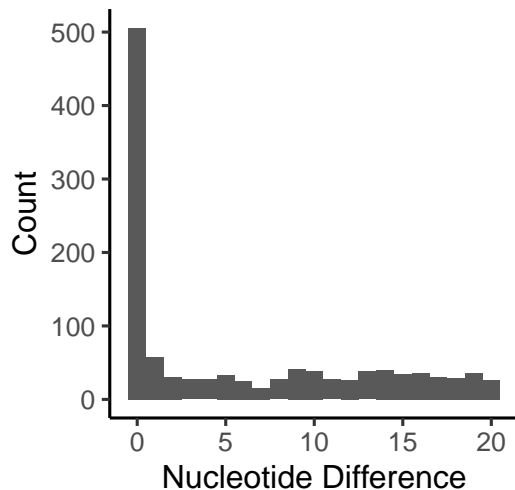


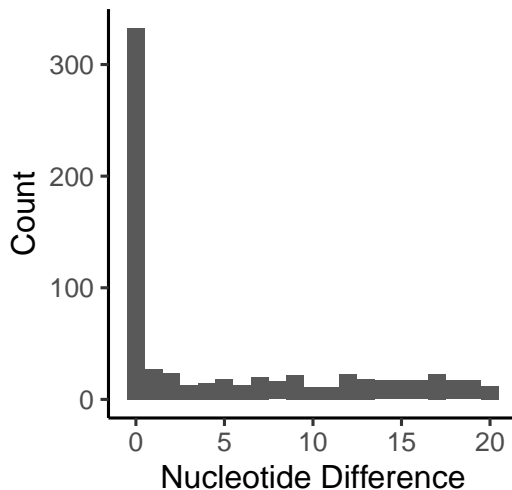
### IGHV1-2\*02

1348 sequences assigned  
506 (37.5%) exact matches, in which:  
504 unique CDR3  
6 unique J



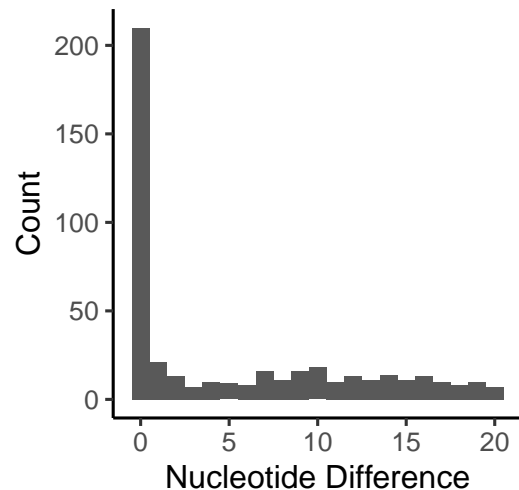
### IGHV1-8\*01

734 sequences assigned  
333 (45.4%) exact matches, in which:  
329 unique CDR3  
6 unique J



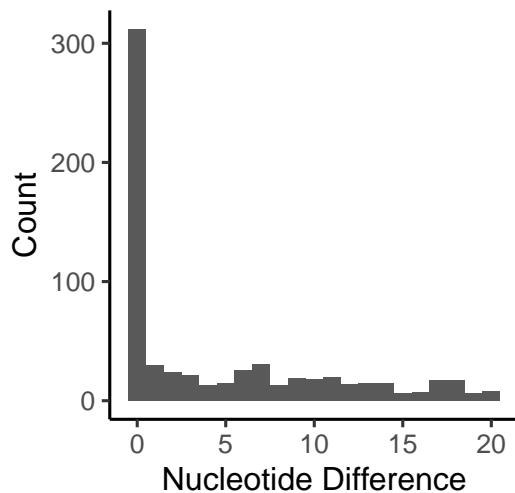
### IGHV1-46\*01

537 sequences assigned  
210 (39.1%) exact matches, in which:  
209 unique CDR3  
5 unique J



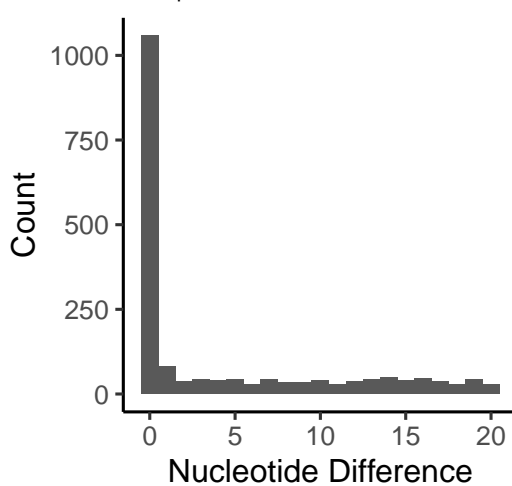
### IGHV1-2\*06

728 sequences assigned  
312 (42.9%) exact matches, in which:  
302 unique CDR3  
6 unique J



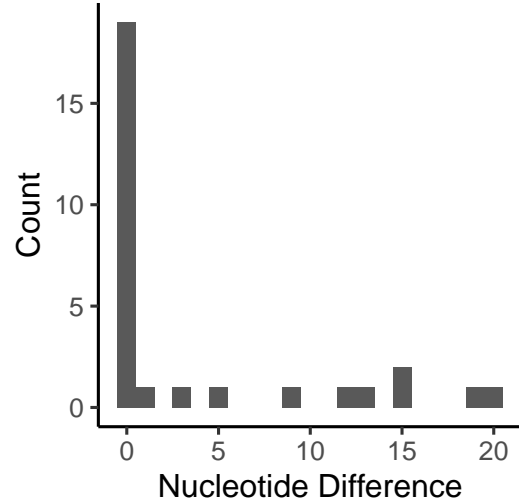
### IGHV1-18\*01

2075 sequences assigned  
1058 (51%) exact matches, in which:  
1042 unique CDR3  
6 unique J



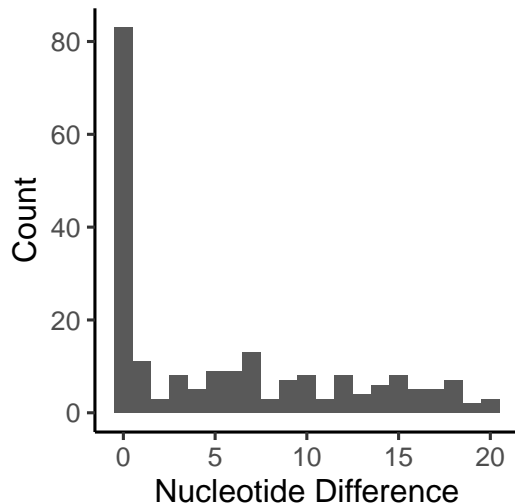
### IGHV1-58\*02

34 sequences assigned  
19 (55.9%) exact matches, in which:  
19 unique CDR3  
5 unique J



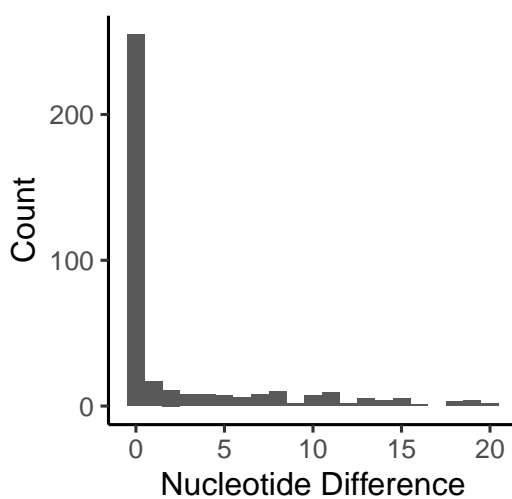
### IGHV1-3\*01\_05

226 sequences assigned  
83 (36.7%) exact matches, in which:  
83 unique CDR3  
6 unique J



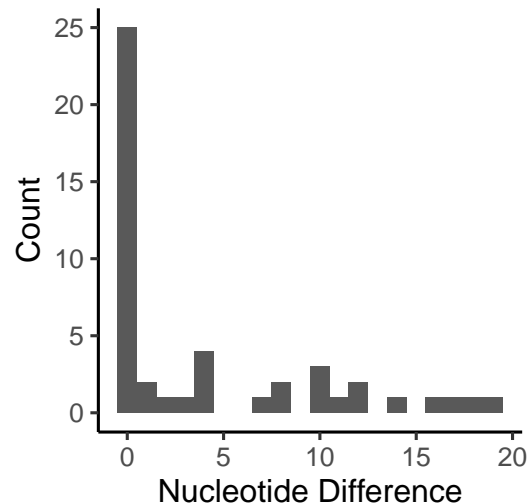
### IGHV1-24\*01

398 sequences assigned  
255 (64.1%) exact matches, in which:  
252 unique CDR3  
6 unique J



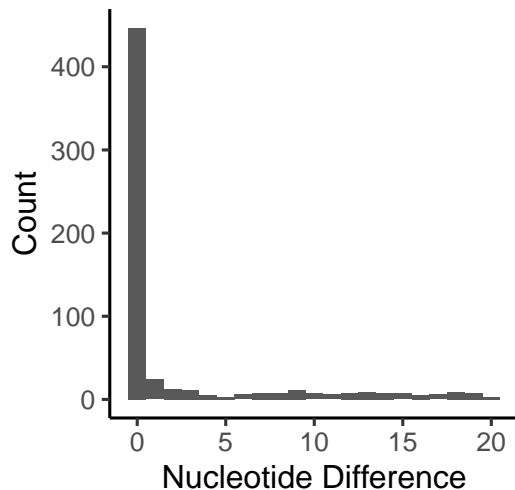
### IGHV1-58\*01\_03

47 sequences assigned  
25 (53.2%) exact matches, in which:  
25 unique CDR3  
4 unique J



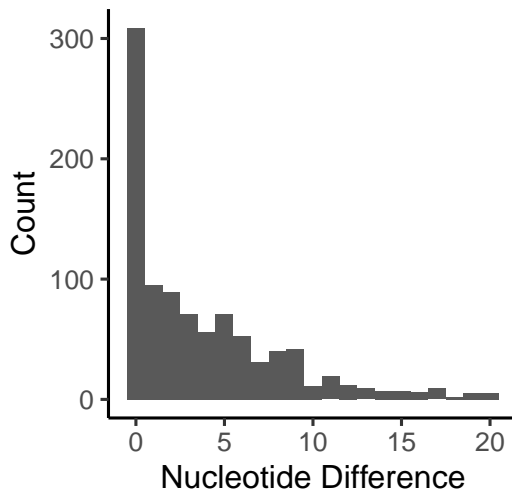
### IGHV1-69\*01\_12\_13

702 sequences assigned  
447 (63.7%) exact matches, in which:  
446 unique CDR3  
6 unique J



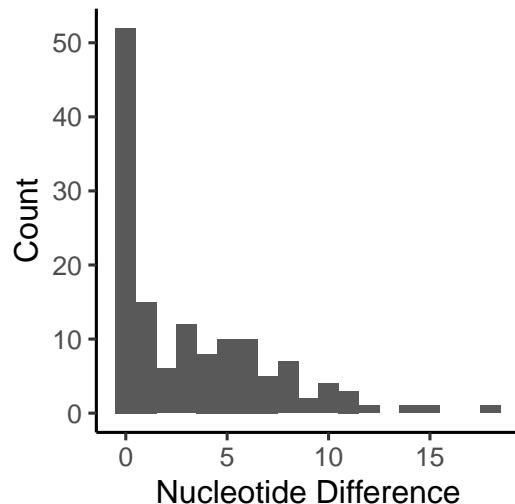
### IGHV2-5\*02

973 sequences assigned  
309 (31.8%) exact matches, in which:  
281 unique CDR3  
6 unique J



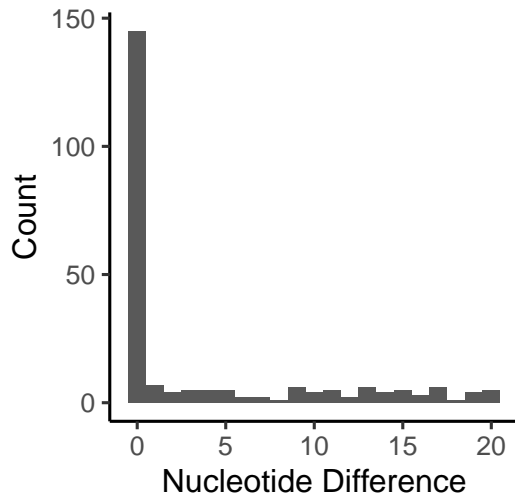
### IGHV2-70\*11\_15

139 sequences assigned  
52 (37.4%) exact matches, in which:  
51 unique CDR3  
5 unique J



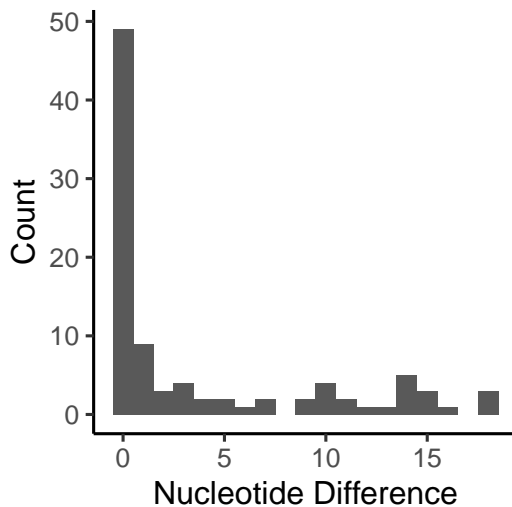
### IGHV1-69\*04\_09

279 sequences assigned  
145 (52%) exact matches, in which:  
144 unique CDR3  
6 unique J



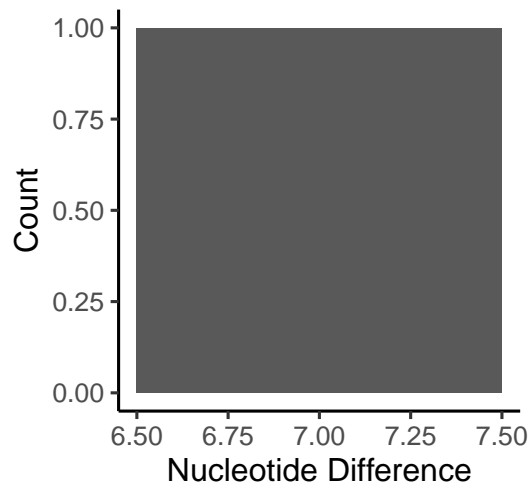
### IGHV2-26\*01

103 sequences assigned  
49 (47.6%) exact matches, in which:  
48 unique CDR3  
6 unique J



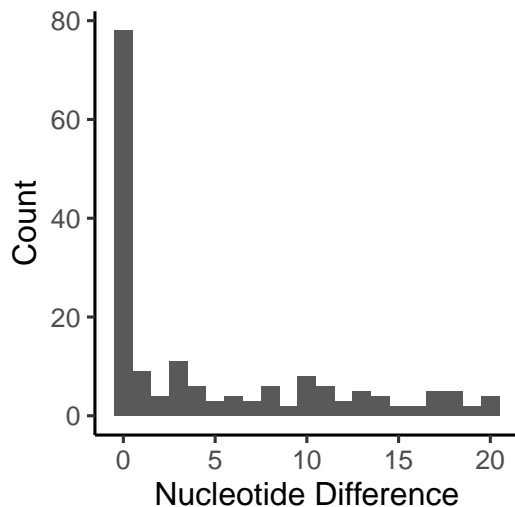
### IGHV2-70D\*04

1 sequences assigned  
No exact matches.



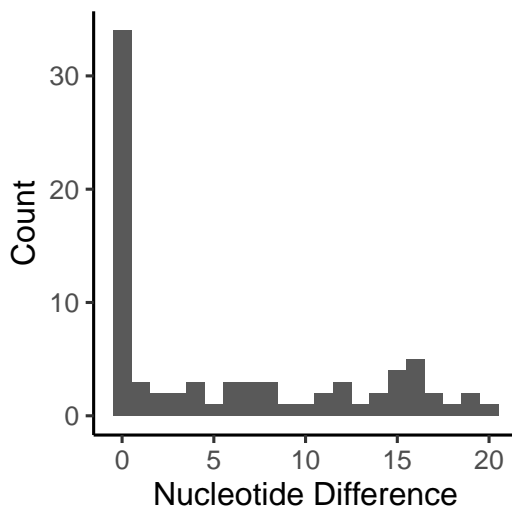
### IGHV2-5\*01

182 sequences assigned  
78 (42.9%) exact matches, in which:  
77 unique CDR3  
6 unique J



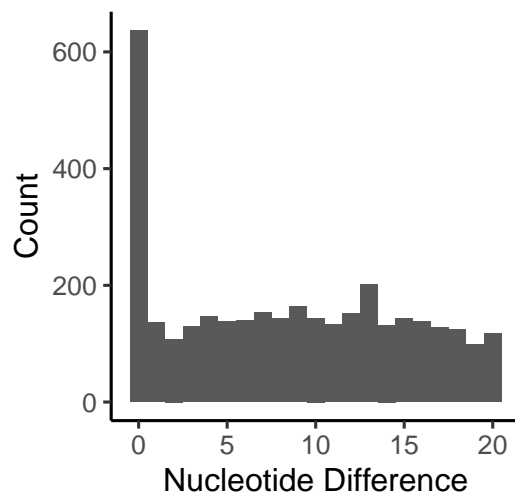
### IGHV2-70\*01

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



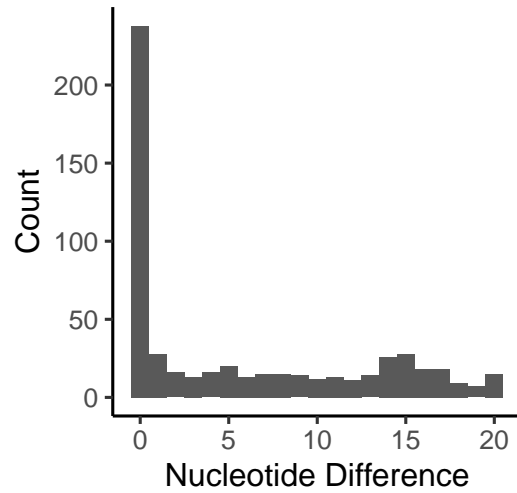
### IGHV3-7\*01

3798 sequences assigned  
637 (16.8%) exact matches, in which:  
512 unique CDR3  
6 unique J



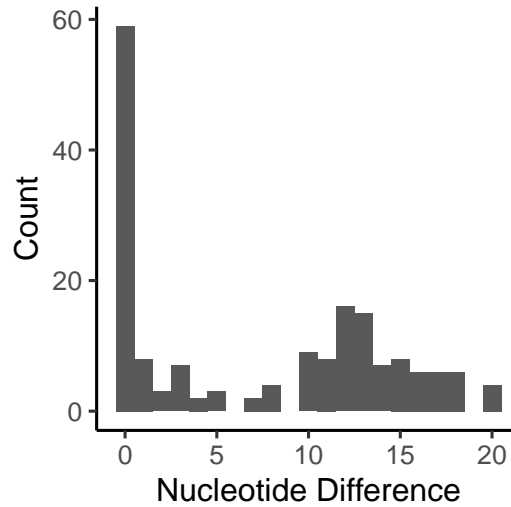
### IGHV3-9\*01

640 sequences assigned  
238 (37.2%) exact matches, in which:  
210 unique CDR3  
6 unique J



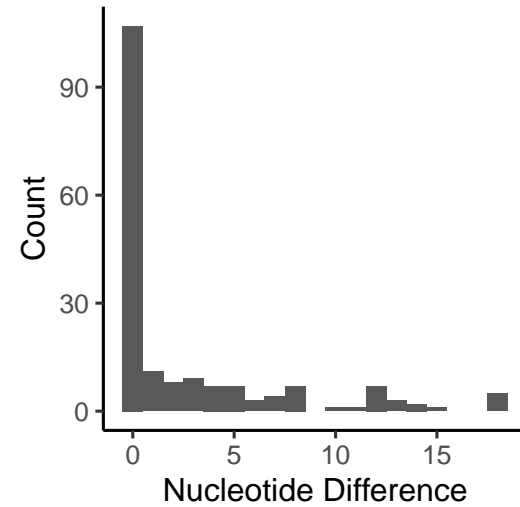
### IGHV3-13\*01

179 sequences assigned  
59 (33%) exact matches, in which:  
46 unique CDR3  
5 unique J



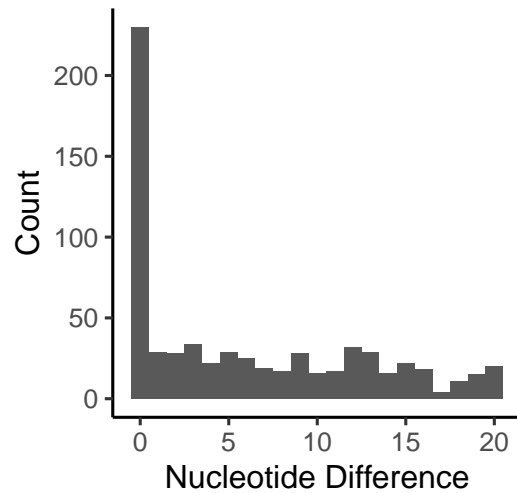
### IGHV3-20\*01\_02

189 sequences assigned  
107 (56.6%) exact matches, in which:  
82 unique CDR3  
6 unique J



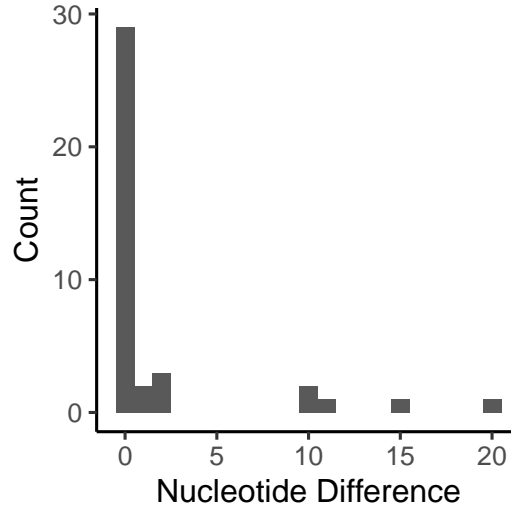
### IGHV3-11\*01

737 sequences assigned  
230 (31.2%) exact matches, in which:  
195 unique CDR3  
6 unique J



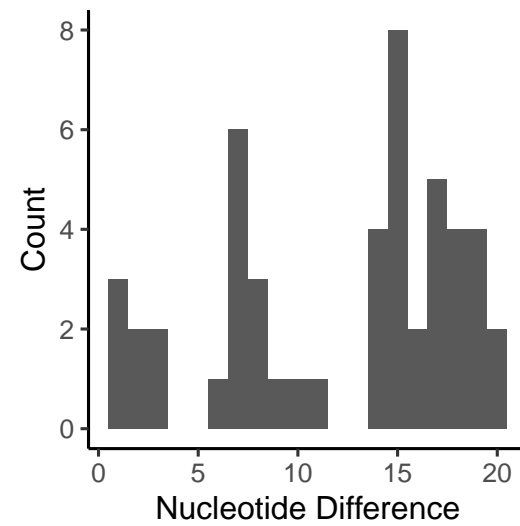
### IGHV3-13\*05

41 sequences assigned  
29 (70.7%) exact matches, in which:  
27 unique CDR3  
5 unique J



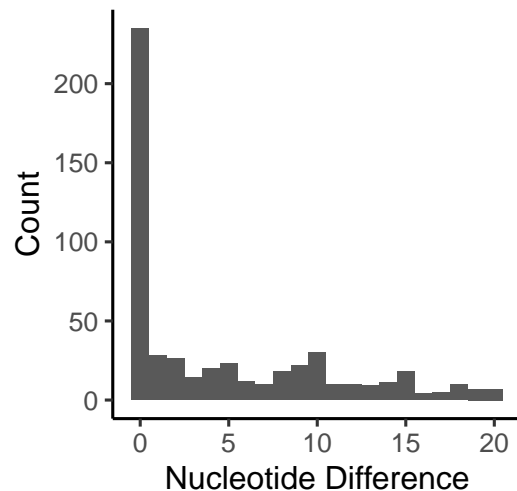
### IGHV3-20\*03\_04

78 sequences assigned  
No exact matches.



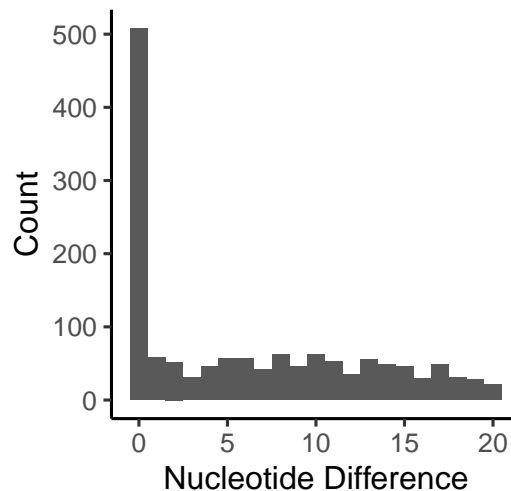
### IGHV3-11\*06

598 sequences assigned  
235 (39.3%) exact matches, in which:  
186 unique CDR3  
6 unique J



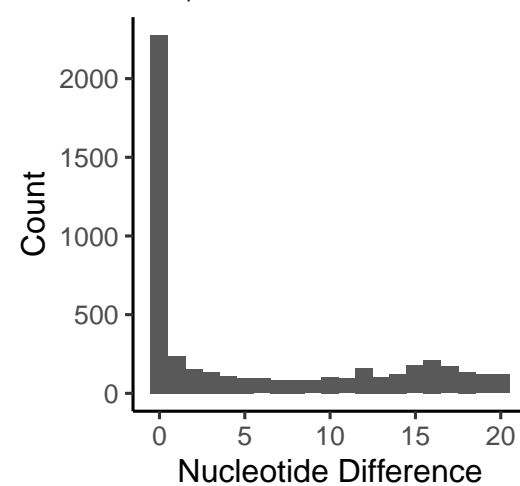
### IGHV3-15\*01\_02

1639 sequences assigned  
508 (31%) exact matches, in which:  
410 unique CDR3  
6 unique J



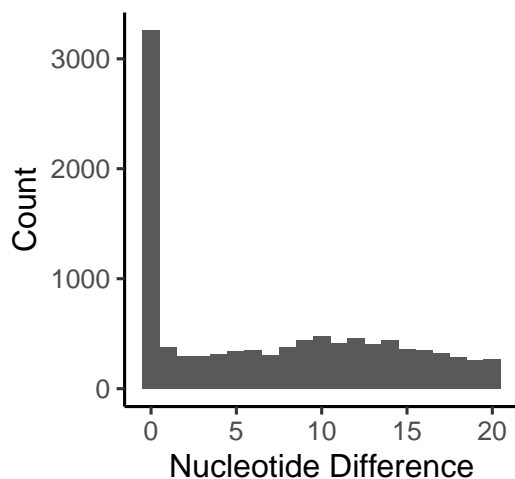
### IGHV3-21\*01\_02

5616 sequences assigned  
2277 (40.5%) exact matches, in which:  
1663 unique CDR3  
6 unique J



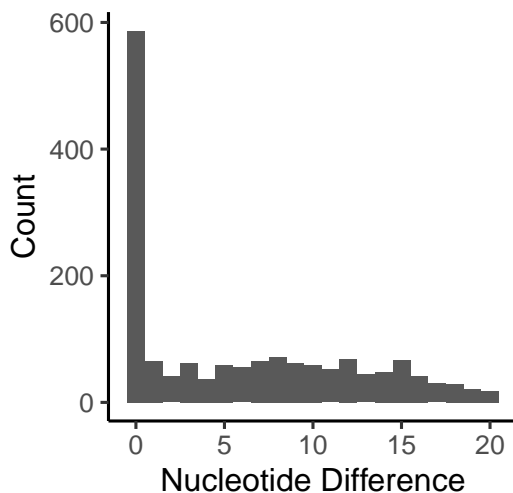
### IGHV3-23\*01\_04

12831 sequences assigned  
3258 (25.4%) exact matches, in which:  
2715 unique CDR3  
6 unique J



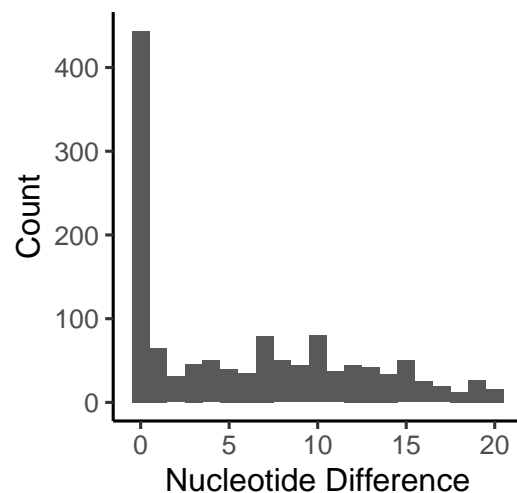
### IGHV3-33\*01

1721 sequences assigned  
587 (34.1%) exact matches, in which:  
455 unique CDR3  
6 unique J



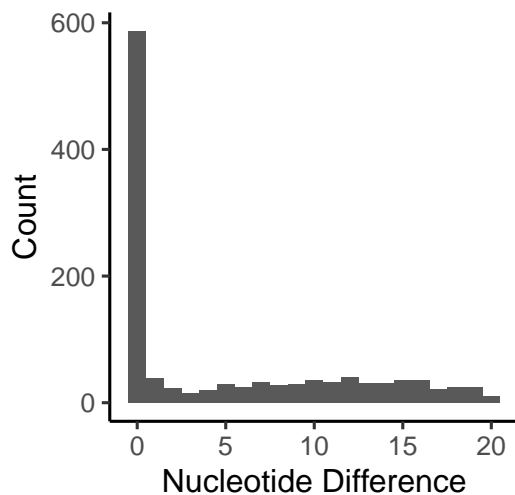
### IGHV3-48\*02

1358 sequences assigned  
444 (32.7%) exact matches, in which:  
335 unique CDR3  
6 unique J



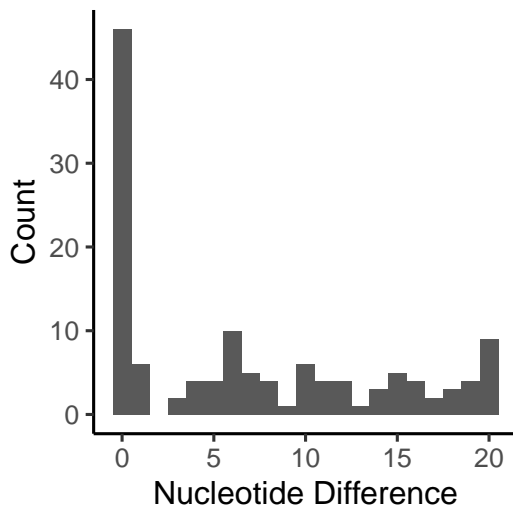
### IGHV3-30-3\*01

1327 sequences assigned  
587 (44.2%) exact matches, in which:  
518 unique CDR3  
6 unique J



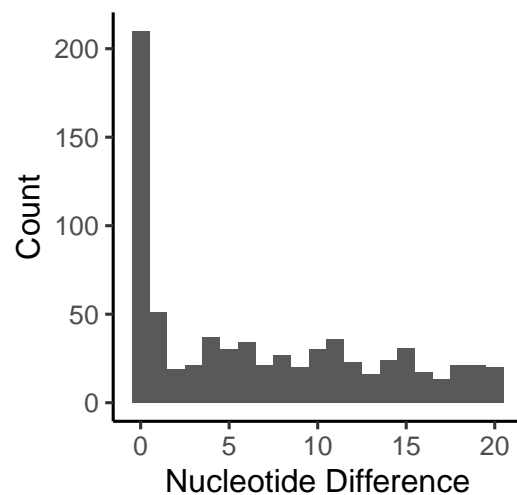
### IGHV3-43\*01

141 sequences assigned  
46 (32.6%) exact matches, in which:  
37 unique CDR3  
5 unique J



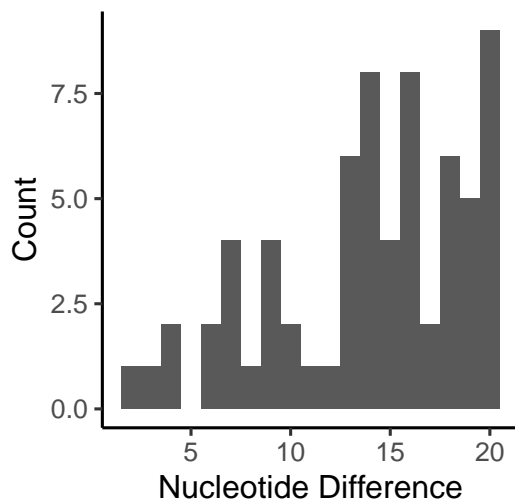
### IGHV3-48\*03

839 sequences assigned  
210 (25%) exact matches, in which:  
173 unique CDR3  
5 unique J



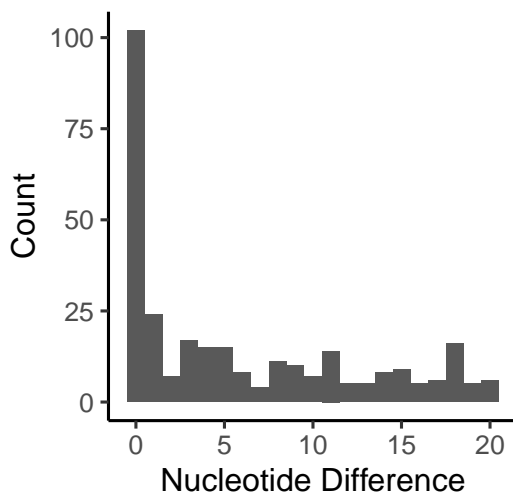
### IGHV3-30\*04

146 sequences assigned  
No exact matches.



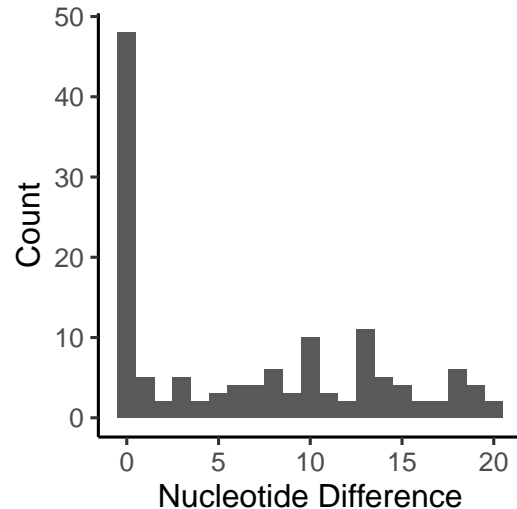
### IGHV3-43\*02

372 sequences assigned  
102 (27.4%) exact matches, in which:  
93 unique CDR3  
4 unique J



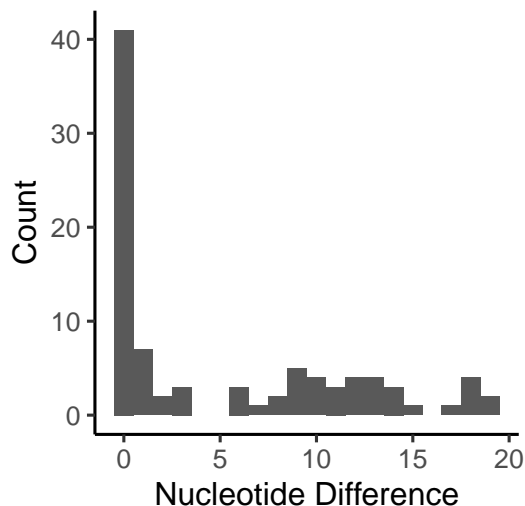
### IGHV3-49\*04

165 sequences assigned  
48 (29.1%) exact matches, in which:  
45 unique CDR3  
4 unique J



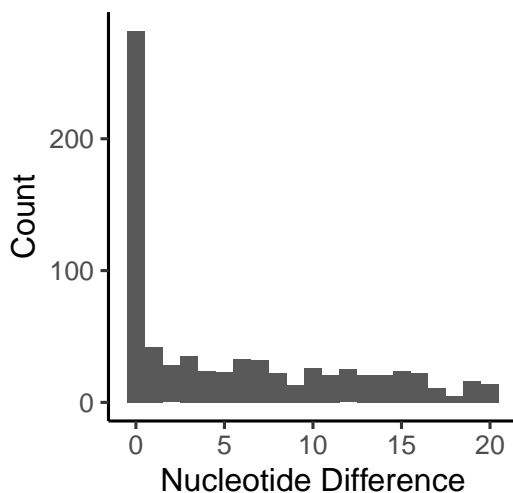
### IGHV3-49\*03\_05

96 sequences assigned  
41 (42.7%) exact matches, in which:  
39 unique CDR3  
5 unique J



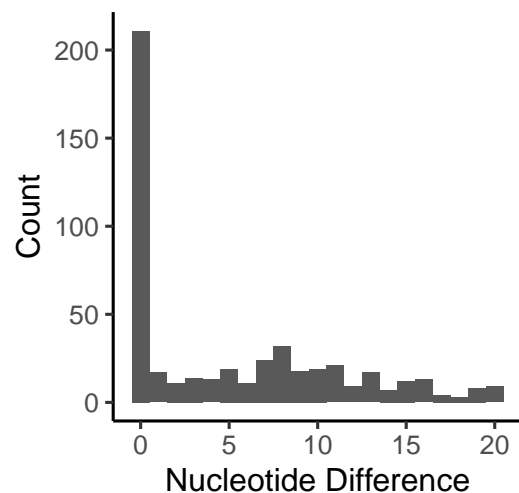
### IGHV3-53\*01\_02

819 sequences assigned  
282 (34.4%) exact matches, in which:  
237 unique CDR3  
6 unique J



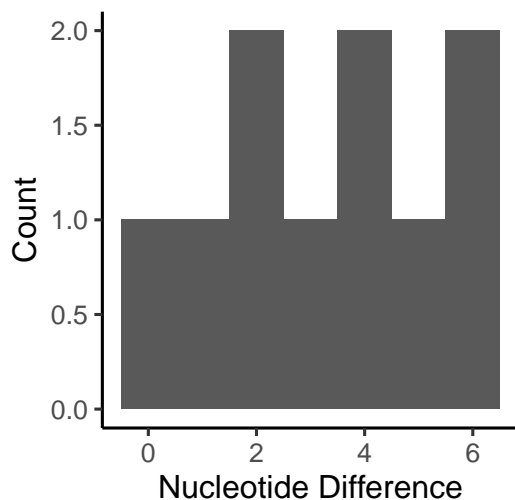
### IGHV3-66\*01

587 sequences assigned  
211 (35.9%) exact matches, in which:  
174 unique CDR3  
5 unique J



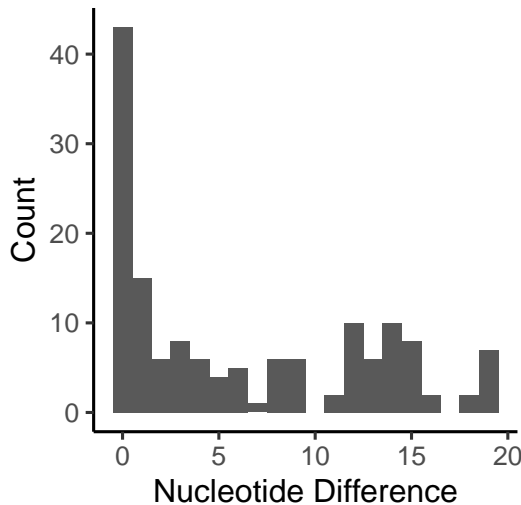
### IGHV3-52\*01\_03

10 sequences assigned  
1 (10%) exact matches, in which:  
1 unique CDR3  
1 unique J



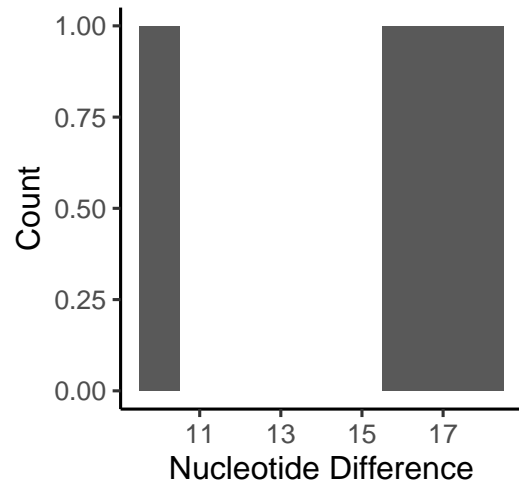
### IGHV3-64\*01

156 sequences assigned  
43 (27.6%) exact matches, in which:  
36 unique CDR3  
5 unique J



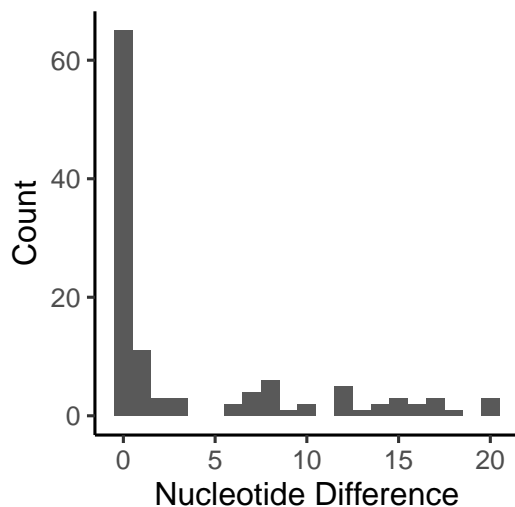
### IGHV3-69-1\*01

16 sequences assigned  
No exact matches.



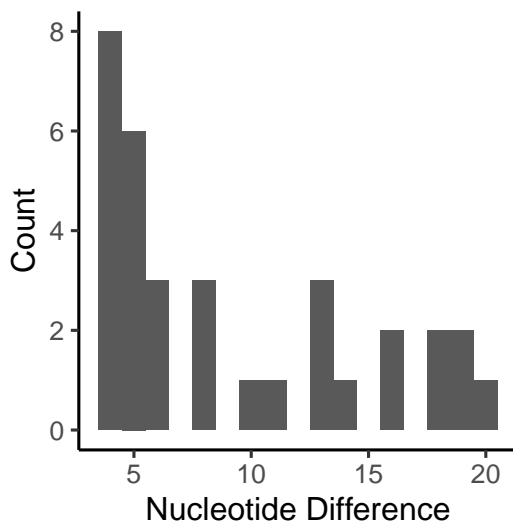
### IGHV3-53\*04

131 sequences assigned  
65 (49.6%) exact matches, in which:  
57 unique CDR3  
5 unique J



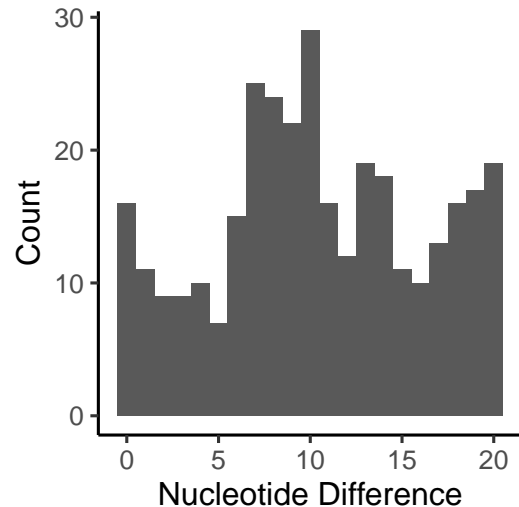
### IGHV3-64\*02\_07

43 sequences assigned  
No exact matches.



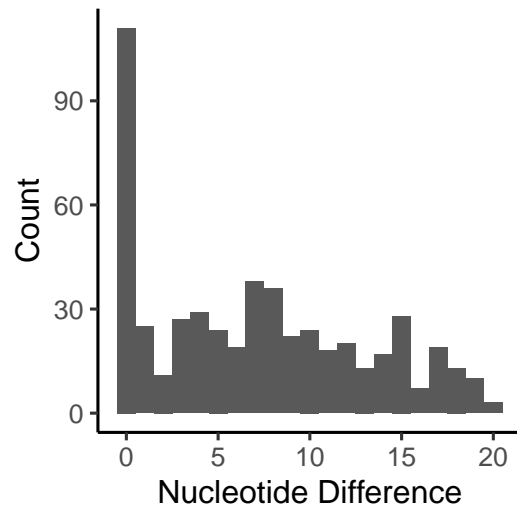
### IGHV3-72\*01

390 sequences assigned  
16 (4.1%) exact matches, in which:  
12 unique CDR3  
4 unique J



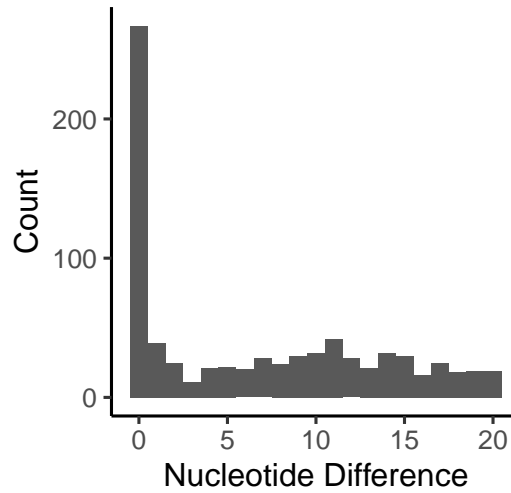
### IGHV3-73\*01\_02

572 sequences assigned  
111 (19.4%) exact matches, in which:  
63 unique CDR3  
4 unique J



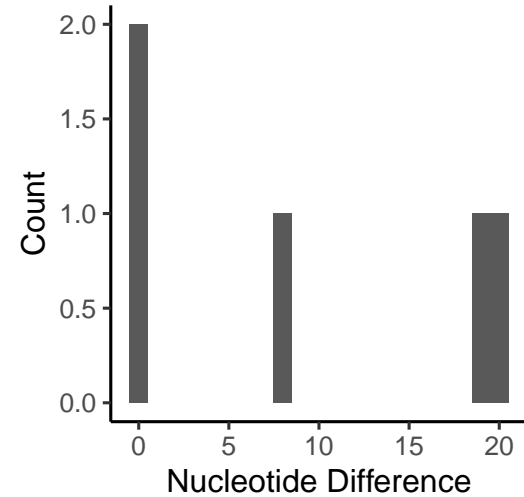
### IGHV3-64D\*06

878 sequences assigned  
267 (30.4%) exact matches, in which:  
239 unique CDR3  
6 unique J



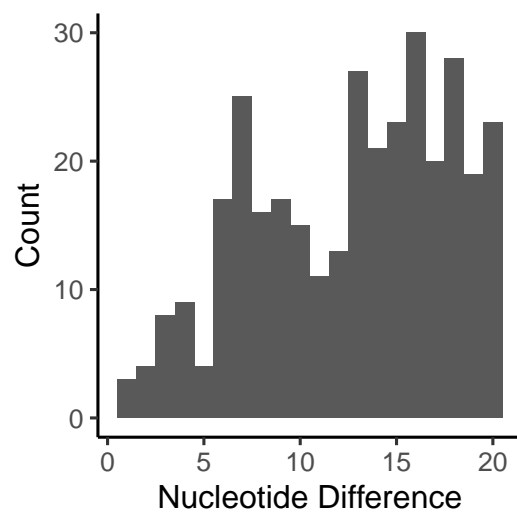
### IGHV4-28\*03

5 sequences assigned  
2 (40%) exact matches, in which:  
1 unique CDR3  
1 unique J



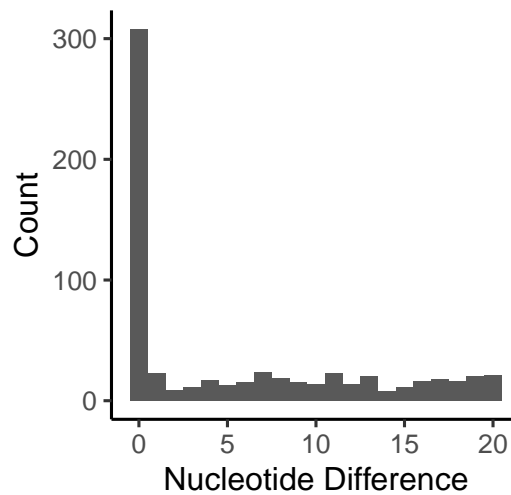
### IGHV3-74\*03

461 sequences assigned  
No exact matches.



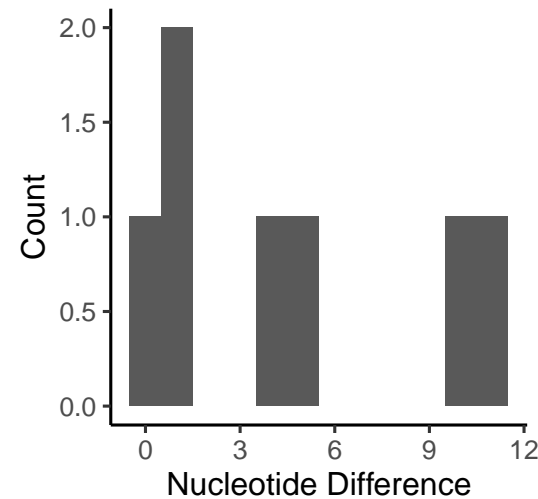
### IGHV4-4\*07

732 sequences assigned  
308 (42.1%) exact matches, in which:  
291 unique CDR3  
6 unique J



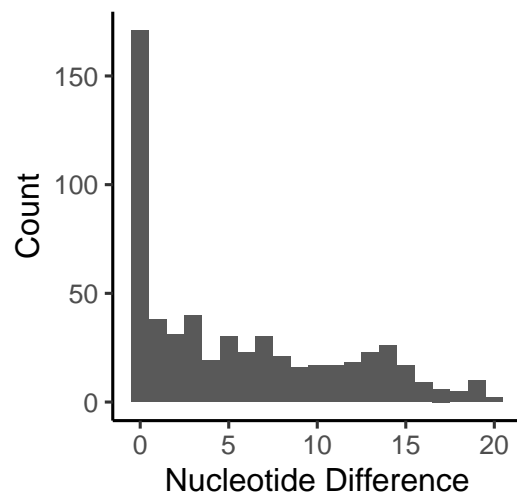
### IGHV4-28\*01\_07

9 sequences assigned  
1 (11.1%) exact matches, in which:  
1 unique CDR3  
1 unique J



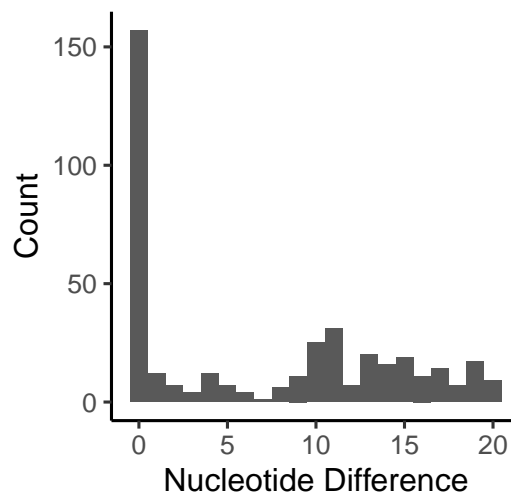
### IGHV3-74\*01\_02

636 sequences assigned  
171 (26.9%) exact matches, in which:  
132 unique CDR3  
6 unique J



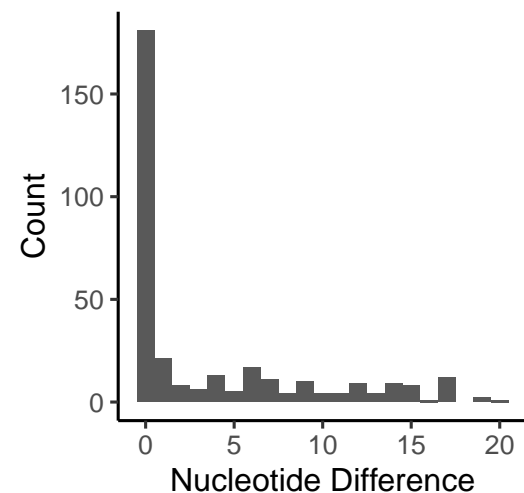
### IGHV4-4\*02\_03

438 sequences assigned  
157 (35.8%) exact matches, in which:  
146 unique CDR3  
6 unique J



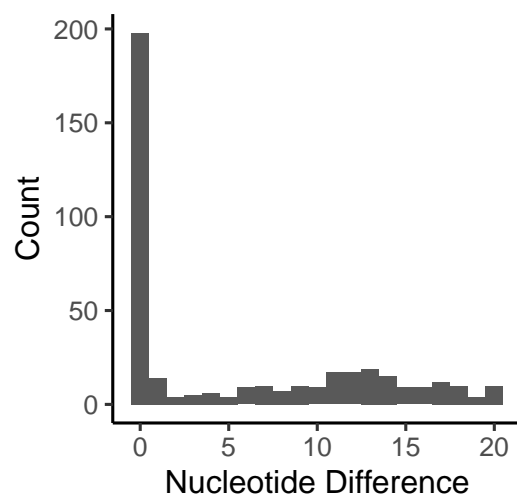
### IGHV4-30-2\*01

368 sequences assigned  
181 (49.2%) exact matches, in which:  
167 unique CDR3  
6 unique J



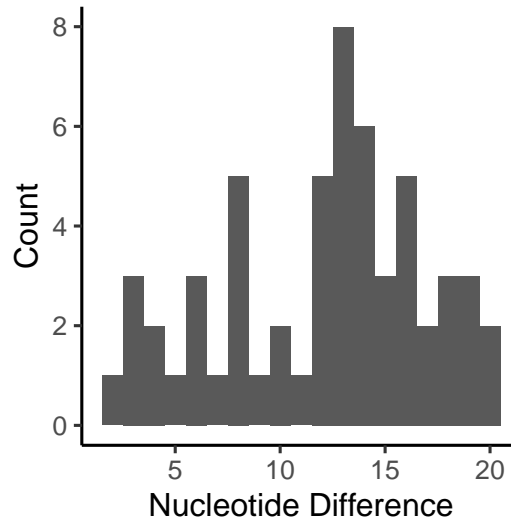
### IGHV4-30-4\*01

493 sequences assigned  
198 (40.2%) exact matches, in which:  
184 unique CDR3  
6 unique J



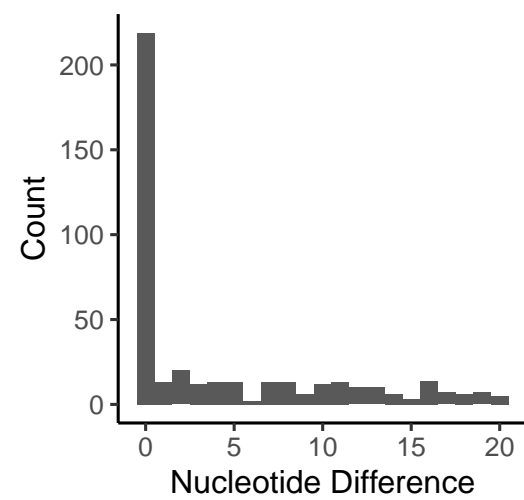
### IGHV4-39\*02

81 sequences assigned  
No exact matches.



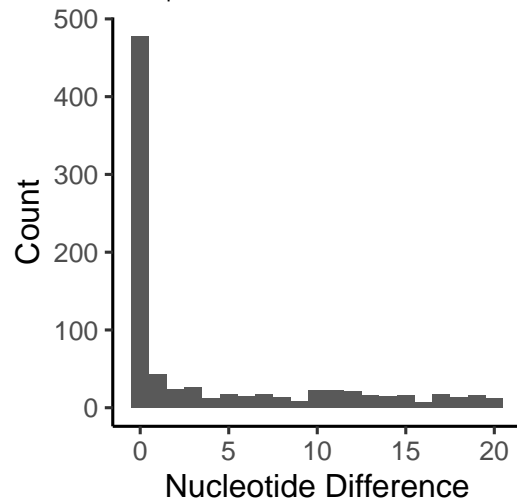
### IGHV4-61\*01

472 sequences assigned  
219 (46.4%) exact matches, in which:  
201 unique CDR3  
6 unique J



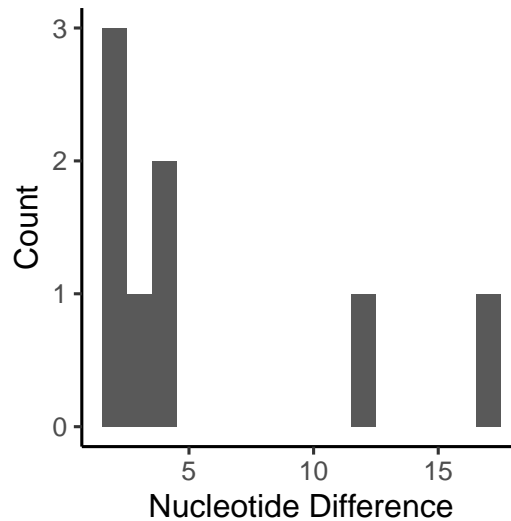
### IGHV4-31\*02

927 sequences assigned  
478 (51.6%) exact matches, in which:  
442 unique CDR3  
6 unique J



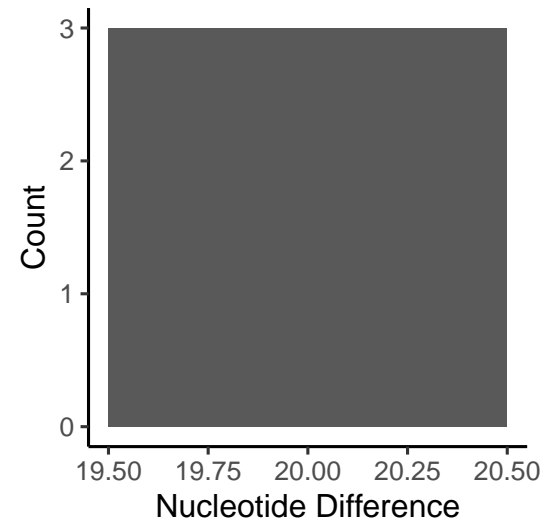
### IGHV4-39\*07

12 sequences assigned  
No exact matches.



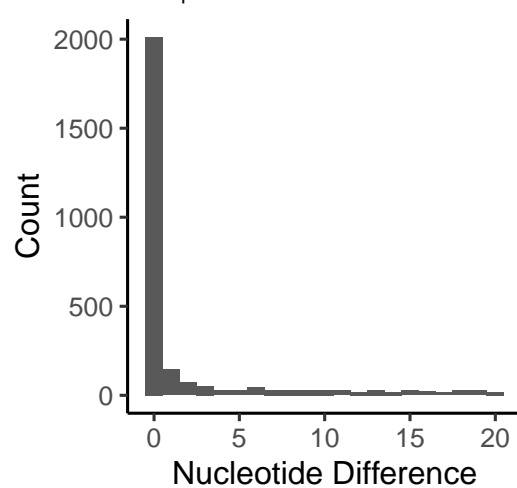
### IGHV4/OR15-8\*01

5 sequences assigned  
No exact matches.



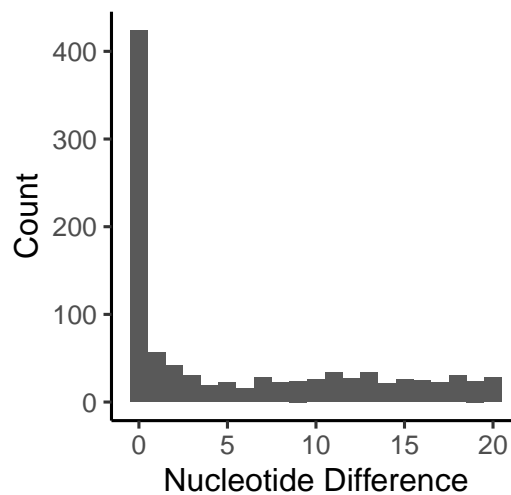
### IGHV4-34\*01\_02

2907 sequences assigned  
2012 (69.2%) exact matches, in which:  
1909 unique CDR3  
6 unique J



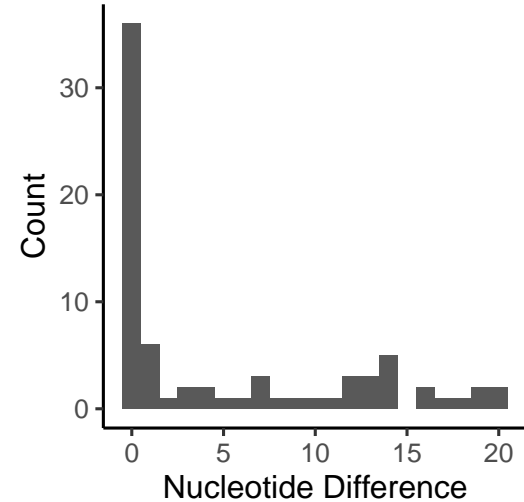
### IGHV4-59\*08

1376 sequences assigned  
424 (30.8%) exact matches, in which:  
398 unique CDR3  
6 unique J



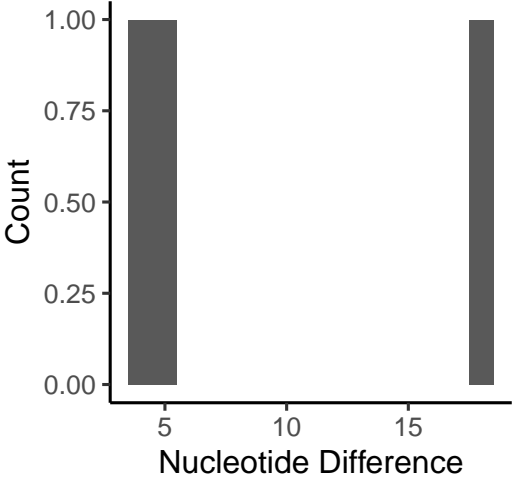
### IGHV5-10-1\*01\_03

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



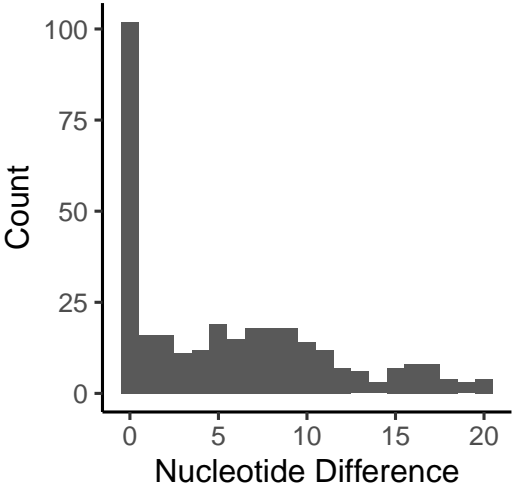
IGHV5-51\*06

3 sequences assigned  
No exact matches.



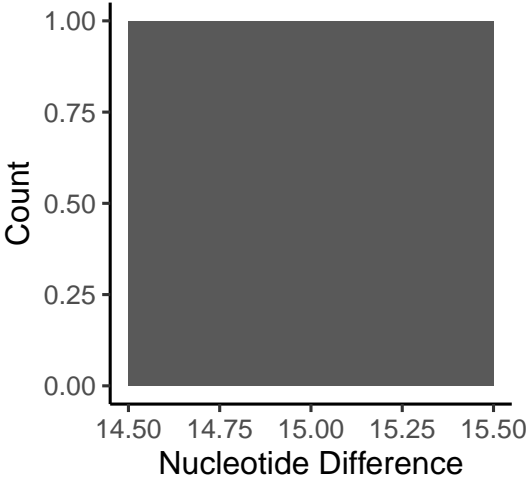
IGHV7-4-1\*02

329 sequences assigned  
102 (31%) exact matches, in which:  
100 unique CDR3  
5 unique J



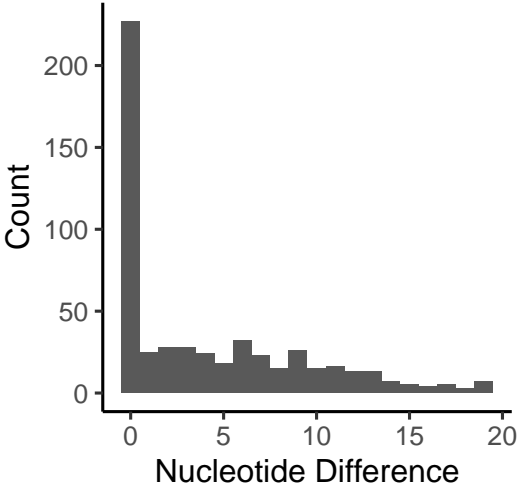
IGHV5-51\*07

1 sequences assigned  
No exact matches.



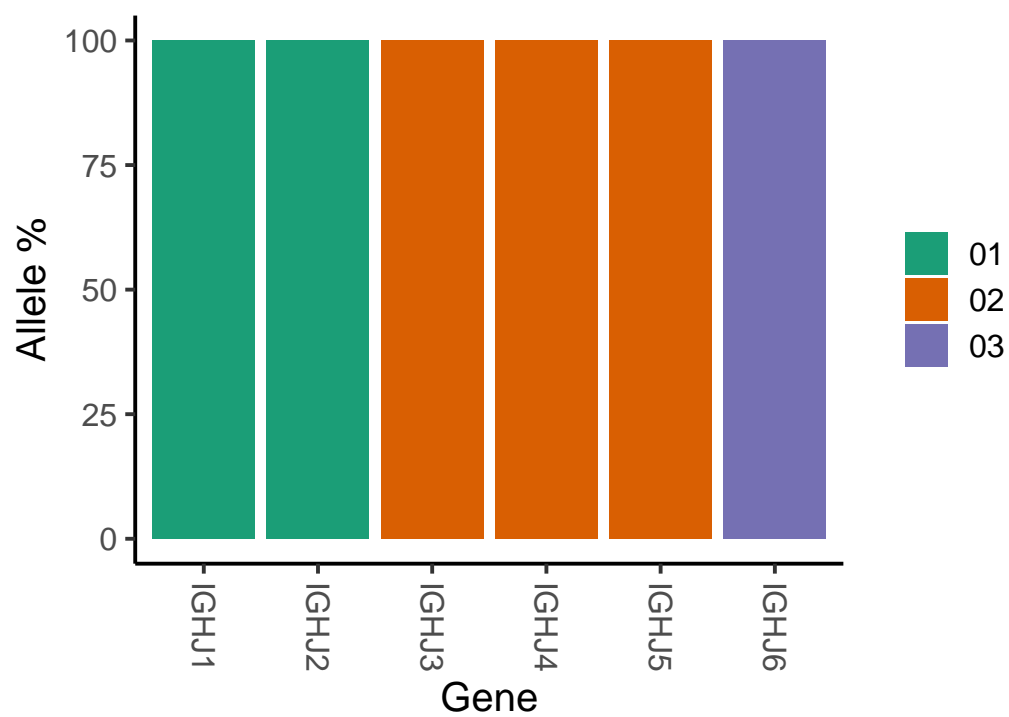
IGHV6-1\*01\_02

561 sequences assigned  
227 (40.5%) exact matches, in which:  
221 unique CDR3  
6 unique J





Allele Usage



warning – no inferred sequences found.