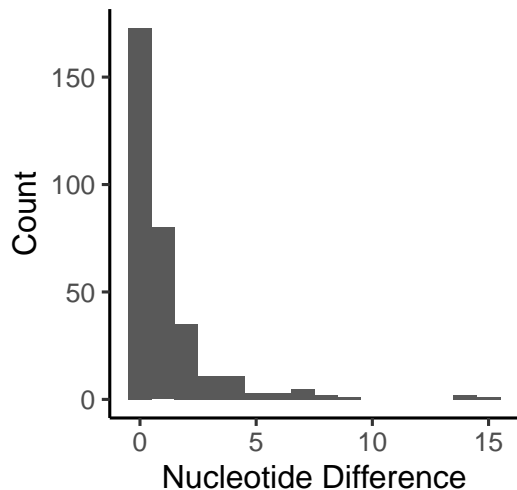


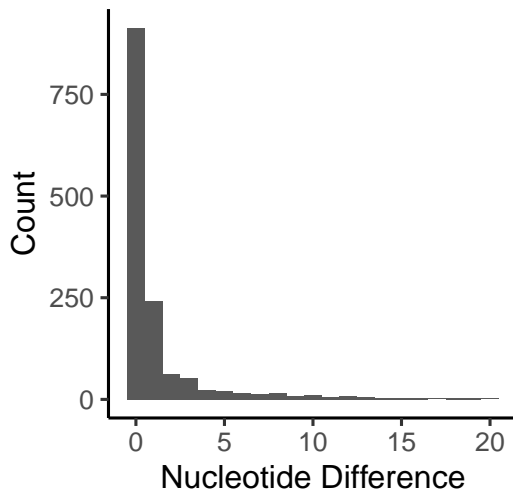
### IGHV1-2\*04

327 sequences assigned  
173 (52.9%) exact matches, in which:  
162 unique CDR3  
5 unique J



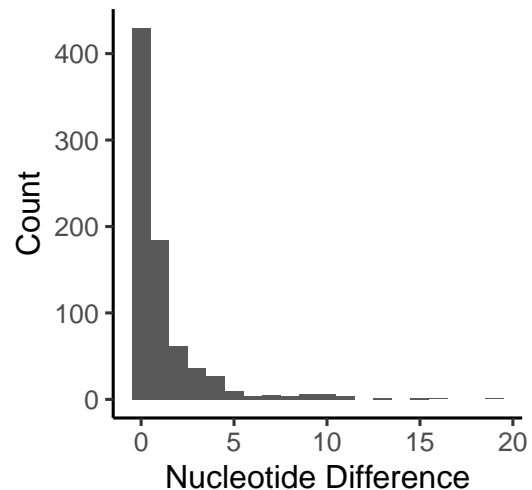
### IGHV1-18\*01

1426 sequences assigned  
914 (64.1%) exact matches, in which:  
871 unique CDR3  
6 unique J



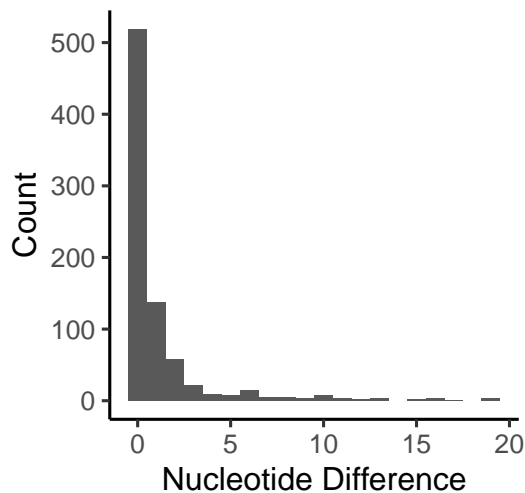
### IGHV1-46\*01

787 sequences assigned  
430 (54.6%) exact matches, in which:  
404 unique CDR3  
6 unique J



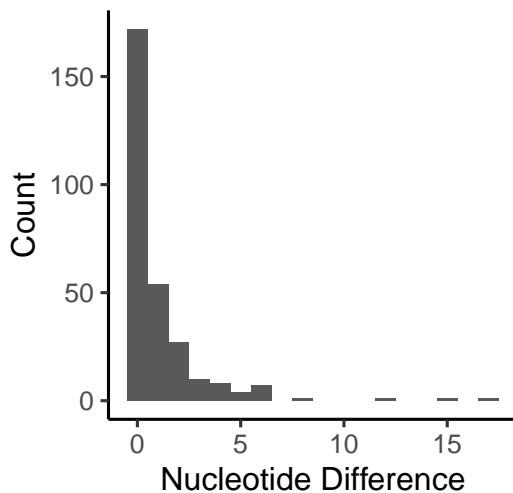
### IGHV1-3\*01

807 sequences assigned  
519 (64.3%) exact matches, in which:  
499 unique CDR3  
6 unique J



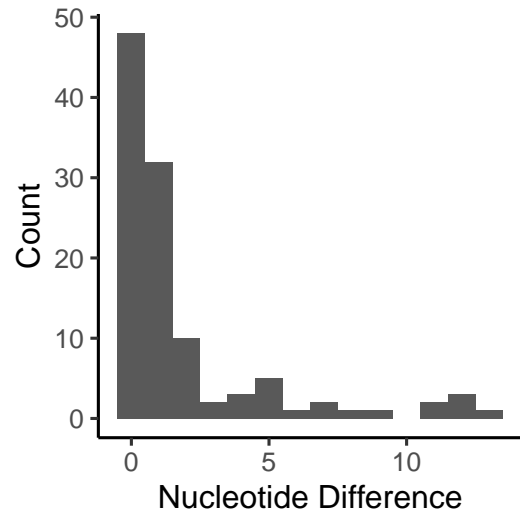
### IGHV1-24\*01

286 sequences assigned  
172 (60.1%) exact matches, in which:  
164 unique CDR3  
6 unique J



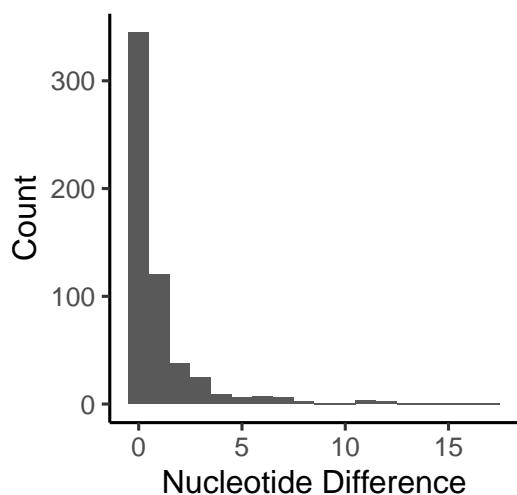
### IGHV1-58\*01

111 sequences assigned  
48 (43.2%) exact matches, in which:  
45 unique CDR3  
6 unique J



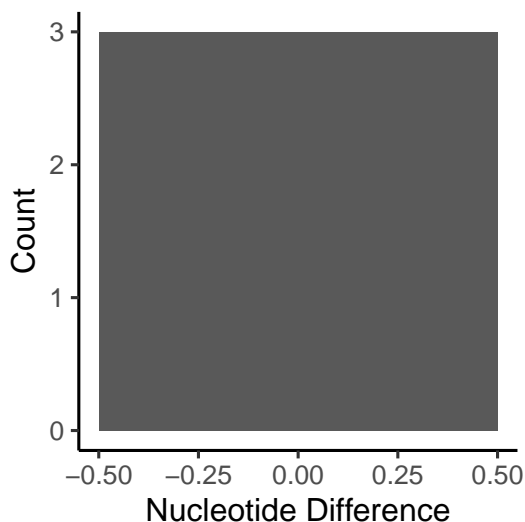
### IGHV1-8\*01

570 sequences assigned  
345 (60.5%) exact matches, in which:  
314 unique CDR3  
6 unique J



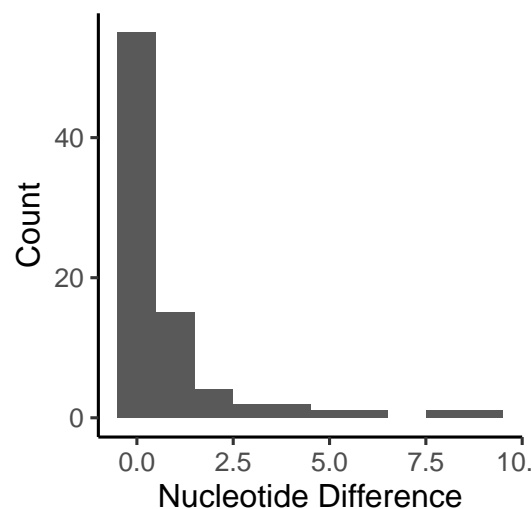
### IGHV1-45\*02

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



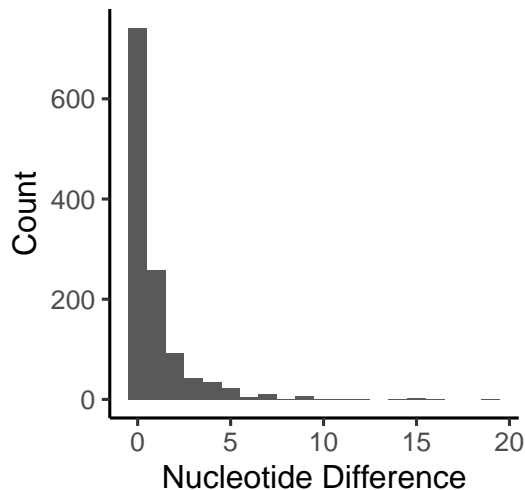
### IGHV1-69-2\*01

82 sequences assigned  
55 (67.1%) exact matches, in which:  
53 unique CDR3  
5 unique J



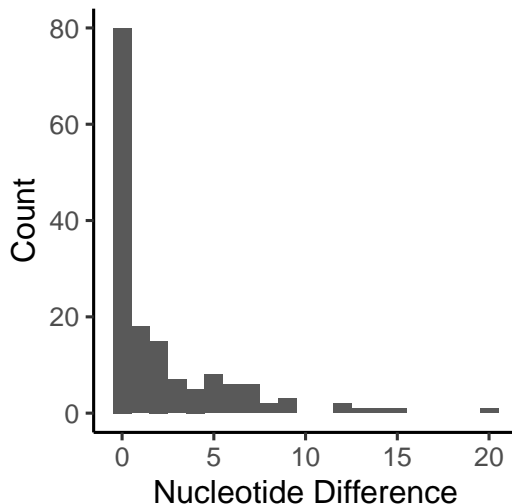
### IGHV1–69\*06

1224 sequences assigned  
742 (60.6%) exact matches, in which:  
673 unique CDR3  
6 unique J



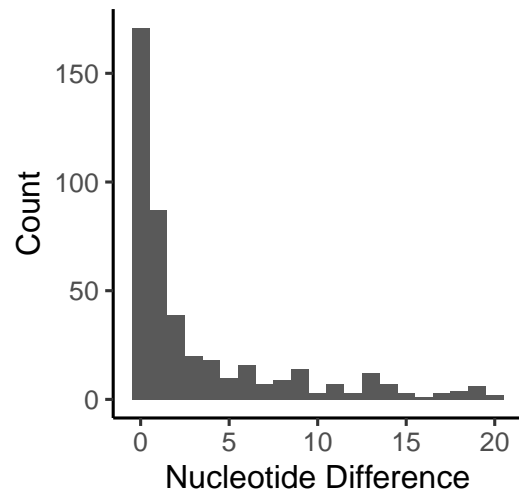
### IGHV2–5\*02

157 sequences assigned  
80 (51%) exact matches, in which:  
79 unique CDR3  
5 unique J



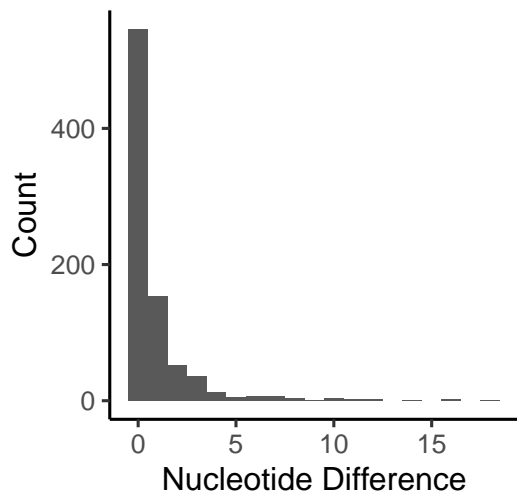
### IGHV3–7\*01

448 sequences assigned  
171 (38.2%) exact matches, in which:  
158 unique CDR3  
6 unique J



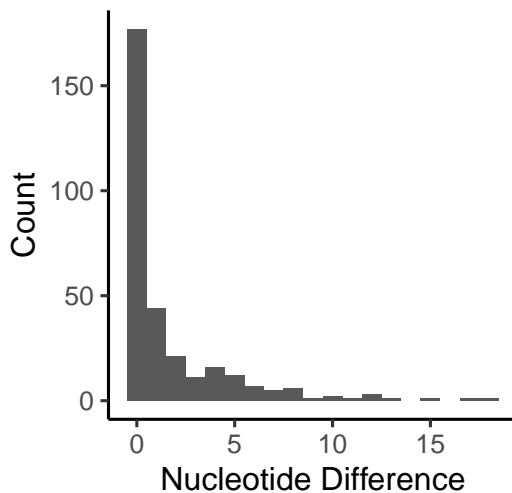
### IGHV1–69\*09

834 sequences assigned  
546 (65.5%) exact matches, in which:  
487 unique CDR3  
6 unique J



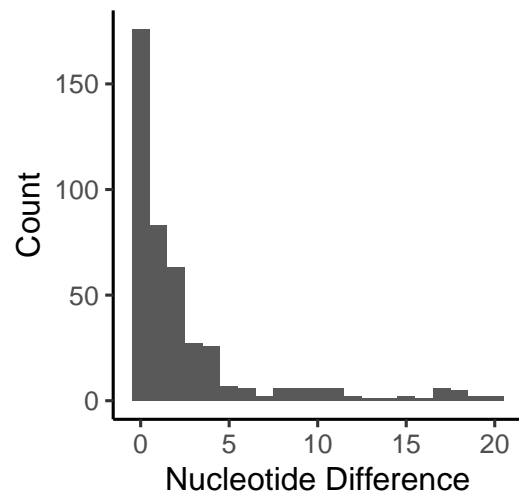
### IGHV2–26\*01

310 sequences assigned  
177 (57.1%) exact matches, in which:  
173 unique CDR3  
5 unique J



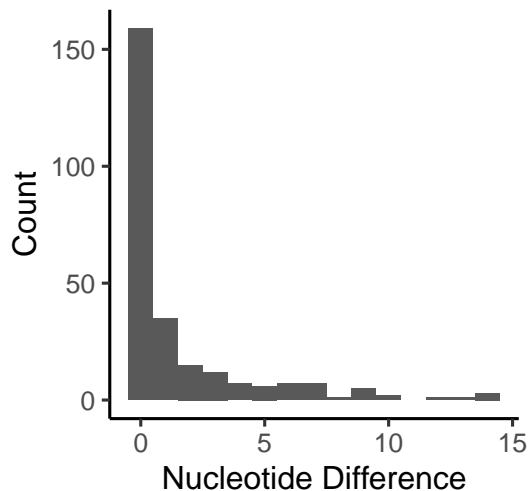
### IGHV3–7\*03

443 sequences assigned  
176 (39.7%) exact matches, in which:  
170 unique CDR3  
6 unique J



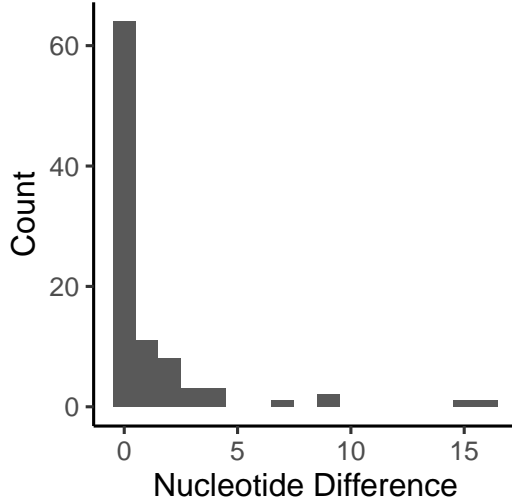
### IGHV2–5\*01

261 sequences assigned  
159 (60.9%) exact matches, in which:  
153 unique CDR3  
6 unique J



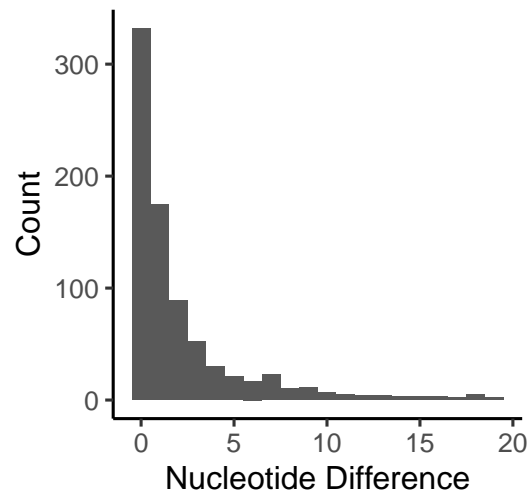
### IGHV2–70\*01

94 sequences assigned  
64 (68.1%) exact matches, in which:  
62 unique CDR3  
6 unique J



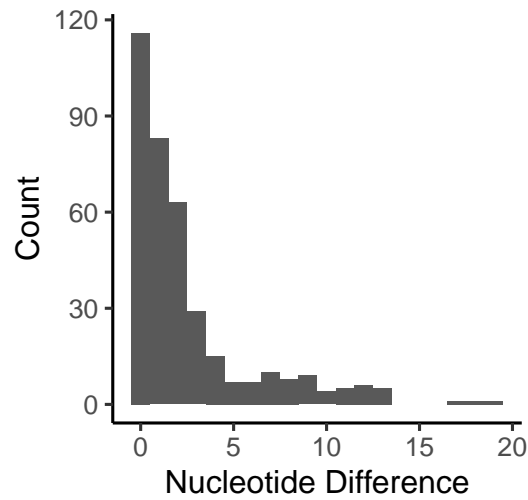
### IGHV3–9\*01

799 sequences assigned  
332 (41.6%) exact matches, in which:  
301 unique CDR3  
6 unique J



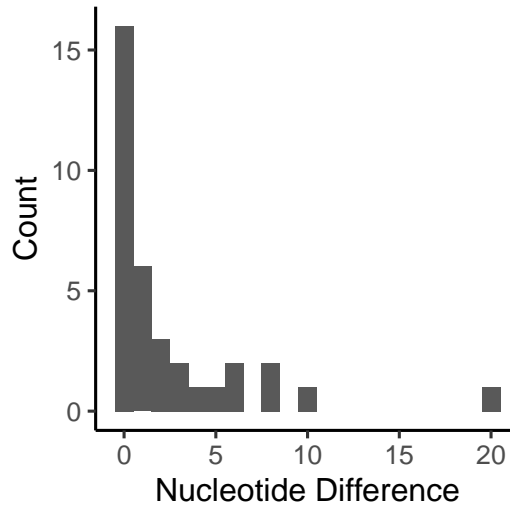
### IGHV3-11\*01

372 sequences assigned  
116 (31.2%) exact matches, in which:  
112 unique CDR3  
6 unique J



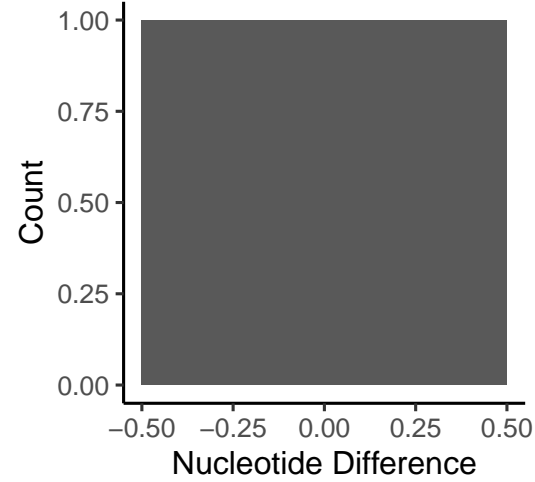
### IGHV3-13\*05

35 sequences assigned  
16 (45.7%) exact matches, in which:  
16 unique CDR3  
4 unique J



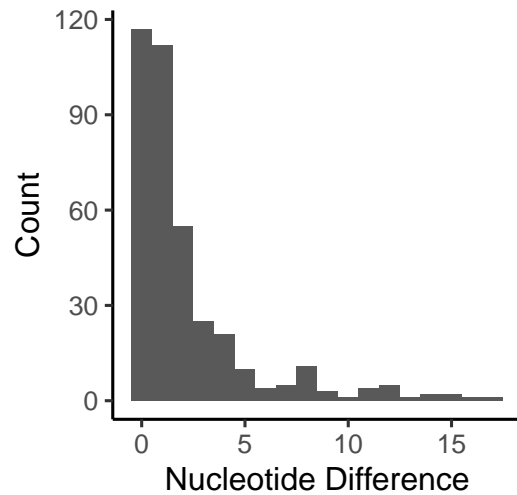
### IGHV3-19\*01

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



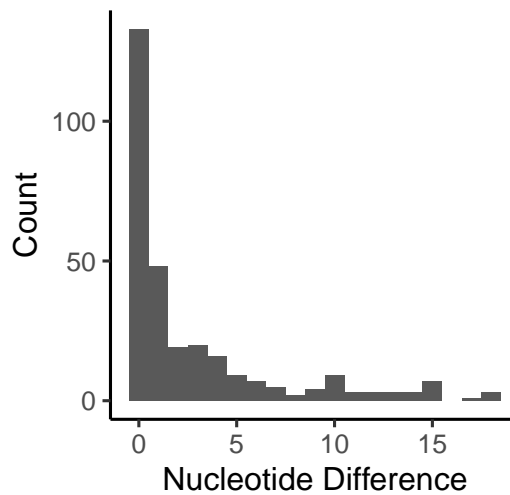
### IGHV3-11\*06

380 sequences assigned  
117 (30.8%) exact matches, in which:  
114 unique CDR3  
6 unique J



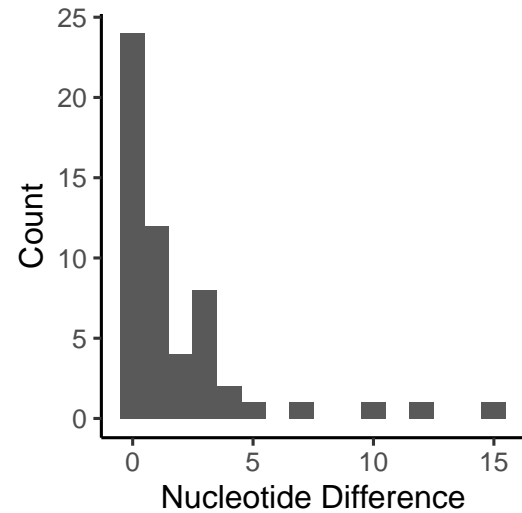
### IGHV3-15\*01

299 sequences assigned  
133 (44.5%) exact matches, in which:  
130 unique CDR3  
6 unique J



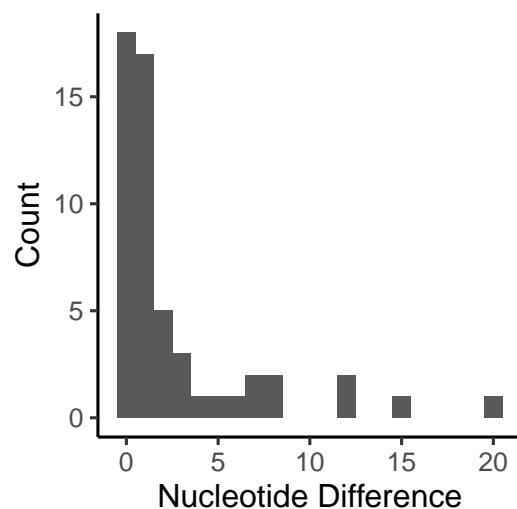
### IGHV3-20\*01

55 sequences assigned  
24 (43.6%) exact matches, in which:  
23 unique CDR3  
5 unique J



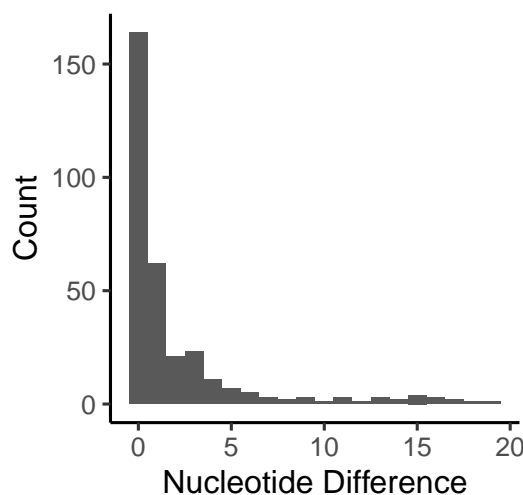
### IGHV3-13\*01

56 sequences assigned  
18 (32.1%) exact matches, in which:  
18 unique CDR3  
5 unique J



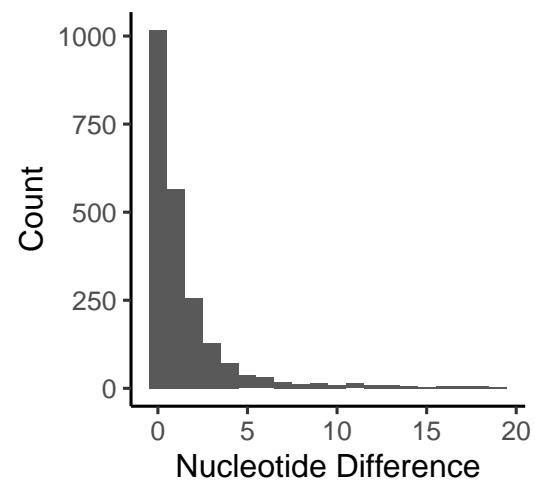
### IGHV3-15\*07

323 sequences assigned  
164 (50.8%) exact matches, in which:  
161 unique CDR3  
5 unique J



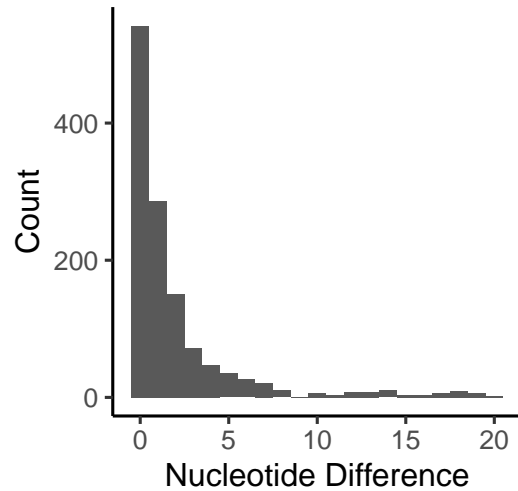
### IGHV3-21\*01

2232 sequences assigned  
1017 (45.6%) exact matches, in which:  
941 unique CDR3  
6 unique J



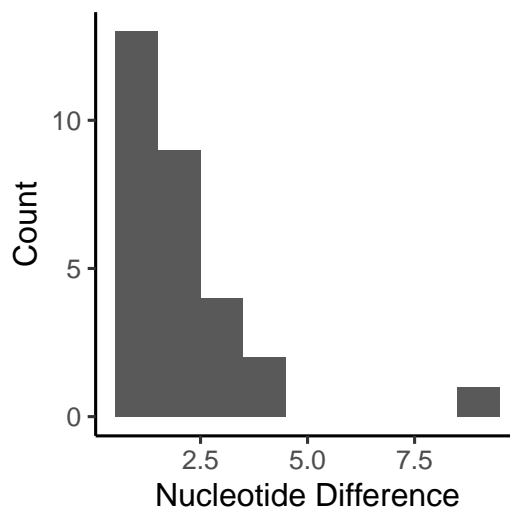
### IGHV3–23\*04

1268 sequences assigned  
542 (42.7%) exact matches, in which:  
514 unique CDR3  
6 unique J



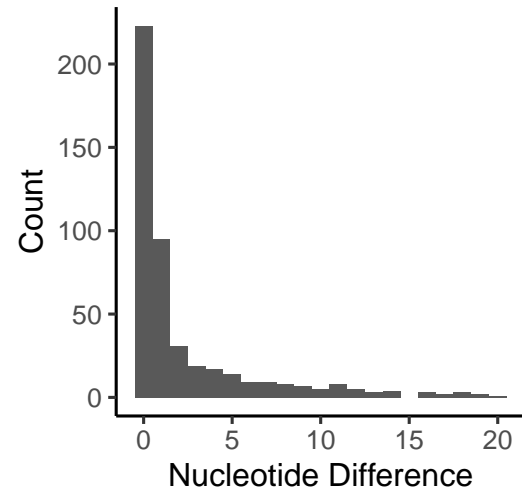
### IGHV3–43\*01

29 sequences assigned  
No exact matches.



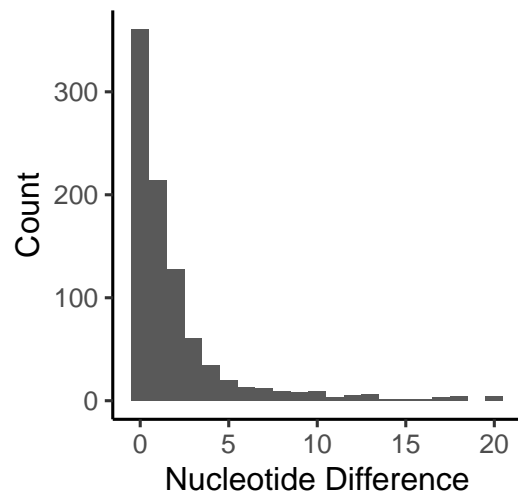
### IGHV3–48\*03

470 sequences assigned  
223 (47.4%) exact matches, in which:  
210 unique CDR3  
6 unique J



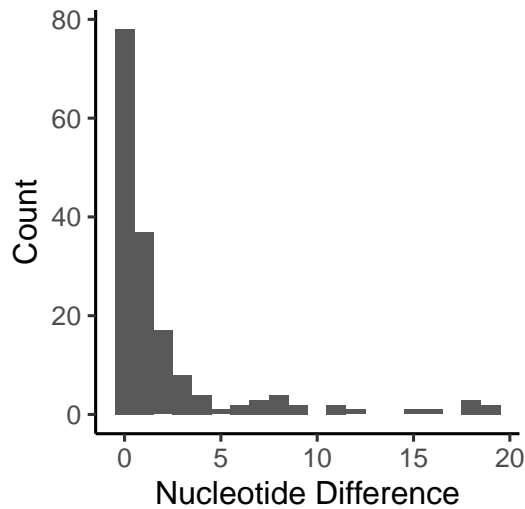
### IGHV3–30–3\*01

899 sequences assigned  
361 (40.2%) exact matches, in which:  
346 unique CDR3  
6 unique J



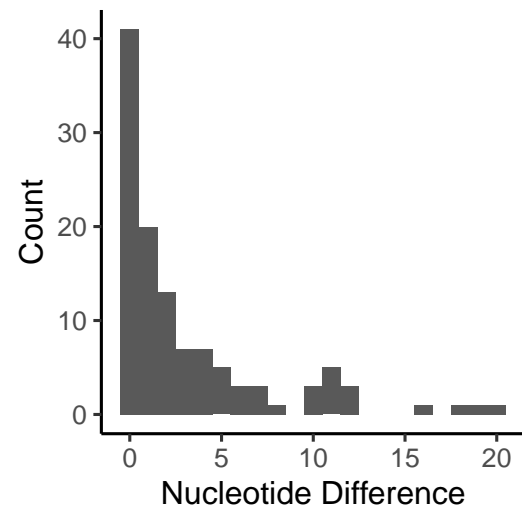
### IGHV3–43\*02

166 sequences assigned  
78 (47%) exact matches, in which:  
73 unique CDR3  
5 unique J



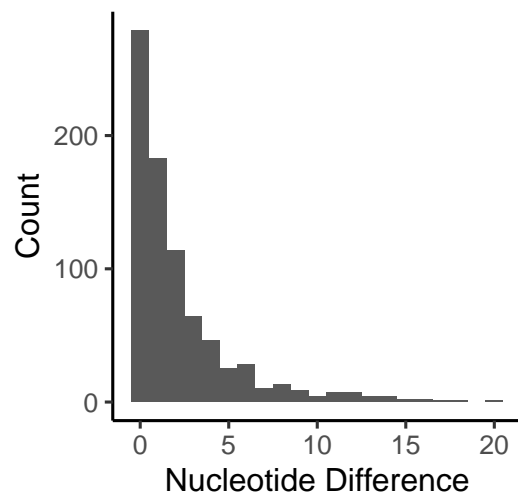
### IGHV3–49\*04

117 sequences assigned  
41 (35%) exact matches, in which:  
37 unique CDR3  
4 unique J



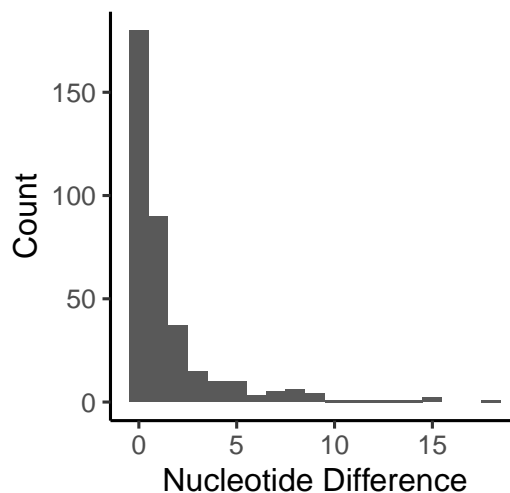
### IGHV3–33\*01

806 sequences assigned  
279 (34.6%) exact matches, in which:  
264 unique CDR3  
6 unique J



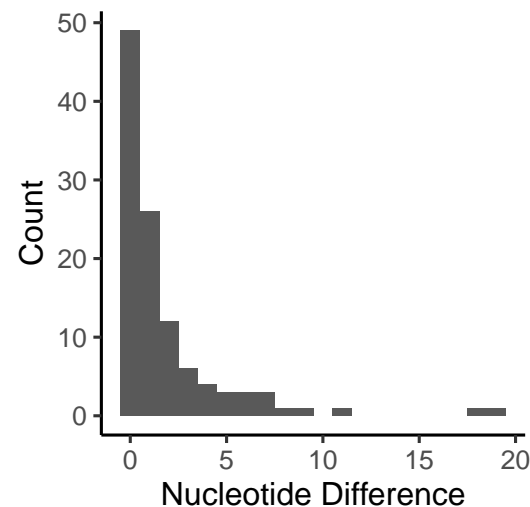
### IGHV3–48\*02

372 sequences assigned  
180 (48.4%) exact matches, in which:  
173 unique CDR3  
5 unique J



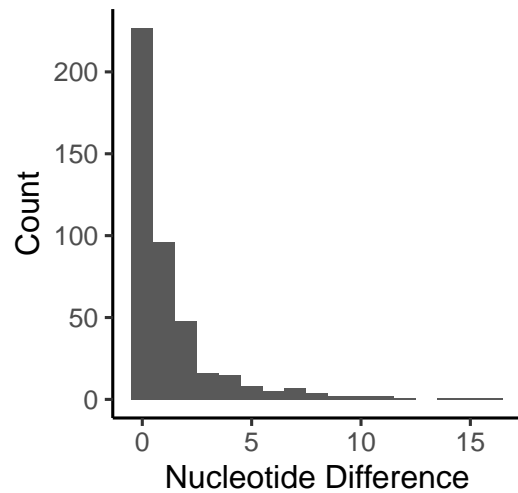
### IGHV3–49\*05

111 sequences assigned  
49 (44.1%) exact matches, in which:  
48 unique CDR3  
5 unique J



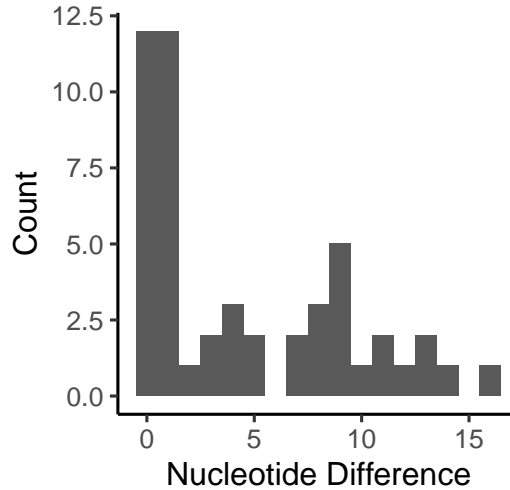
### IGHV3-53\*01

436 sequences assigned  
227 (52.1%) exact matches, in which:  
211 unique CDR3  
5 unique J



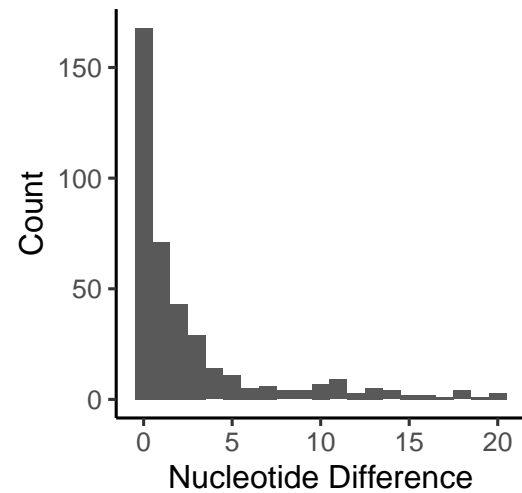
### IGHV3-72\*01

50 sequences assigned  
12 (24%) exact matches, in which:  
12 unique CDR3  
3 unique J



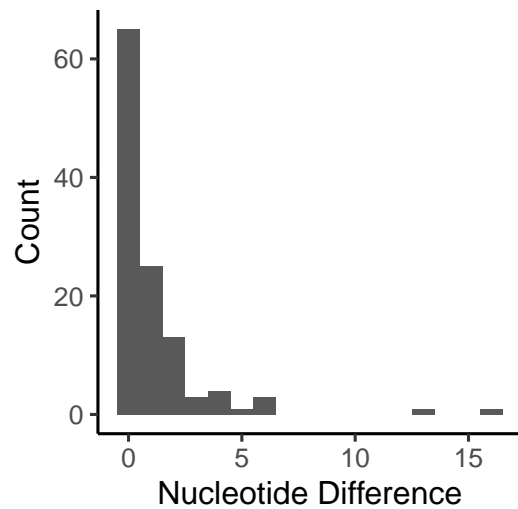
### IGHV3-64D\*06

401 sequences assigned  
168 (41.9%) exact matches, in which:  
158 unique CDR3  
6 unique J



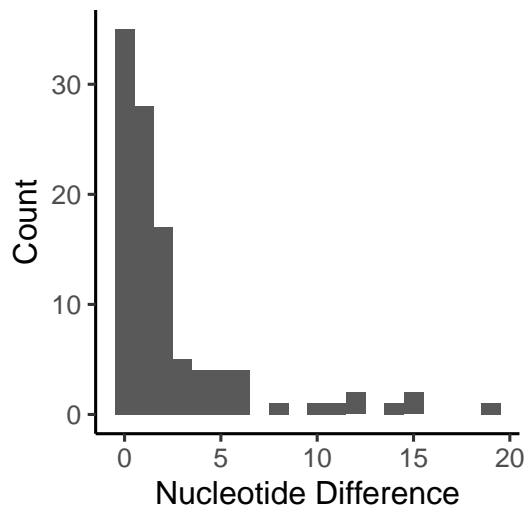
### IGHV3-53\*04

116 sequences assigned  
65 (56%) exact matches, in which:  
59 unique CDR3  
5 unique J



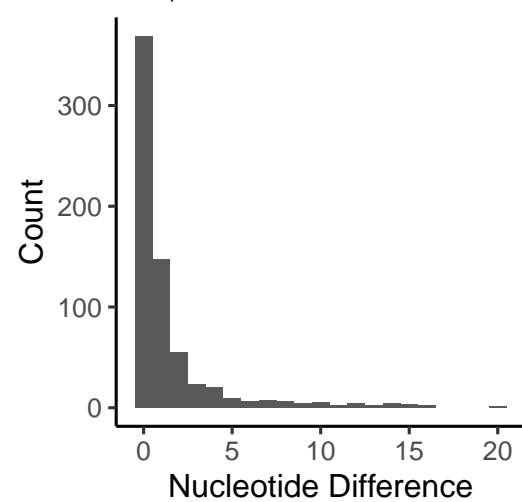
### IGHV3-73\*02

106 sequences assigned  
35 (33%) exact matches, in which:  
34 unique CDR3  
4 unique J



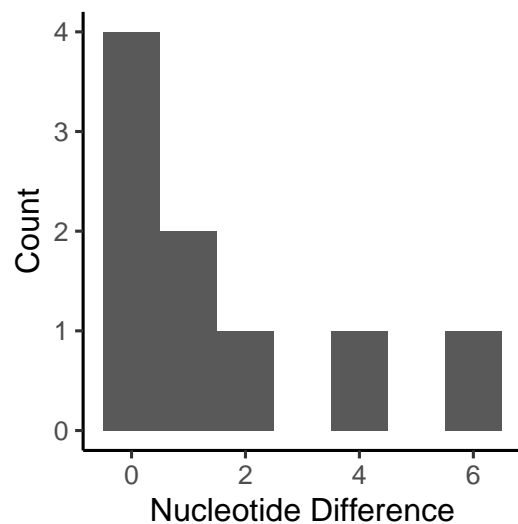
### IGHV4-4\*02

671 sequences assigned  
369 (55%) exact matches, in which:  
358 unique CDR3  
6 unique J



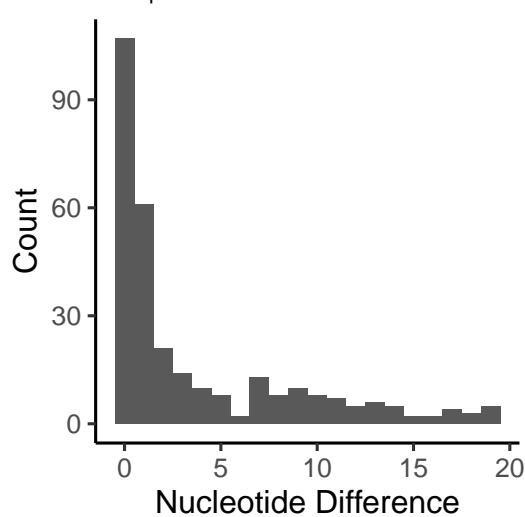
### IGHV3-64\*02

9 sequences assigned  
4 (44.4%) exact matches, in which:  
4 unique CDR3  
3 unique J



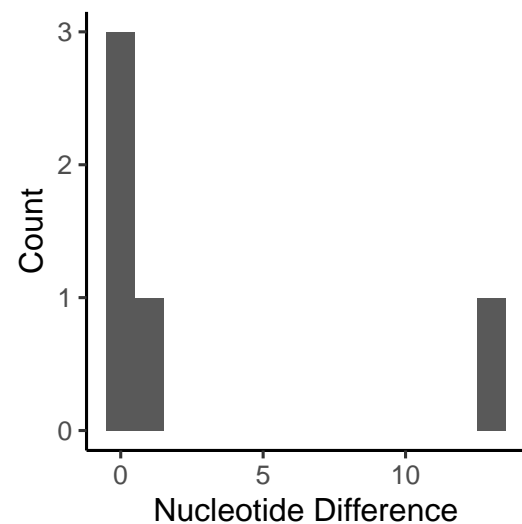
### IGHV3-74\*01

306 sequences assigned  
107 (35%) exact matches, in which:  
104 unique CDR3  
5 unique J



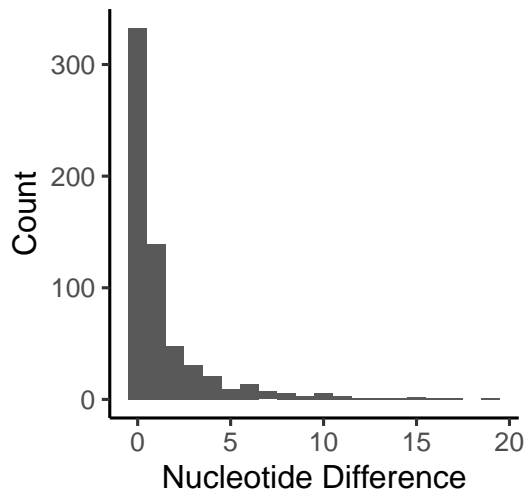
### IGHV4-28\*01

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



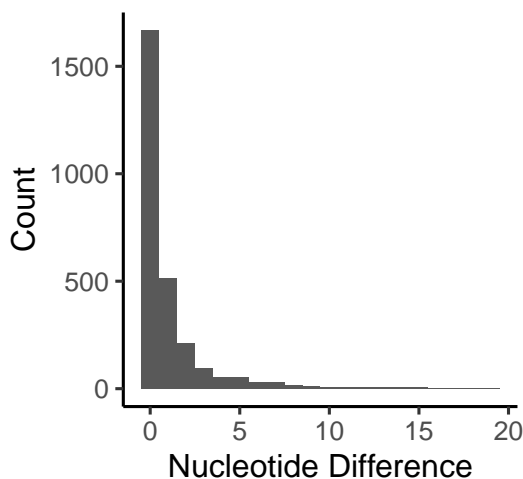
### IGHV4-30-2\*01

628 sequences assigned  
333 (53%) exact matches, in which:  
307 unique CDR3  
6 unique J



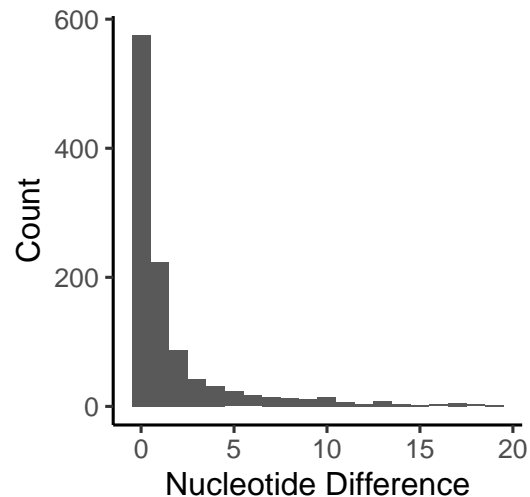
### IGHV4-34\*01

2734 sequences assigned  
1667 (61%) exact matches, in which:  
1491 unique CDR3  
6 unique J



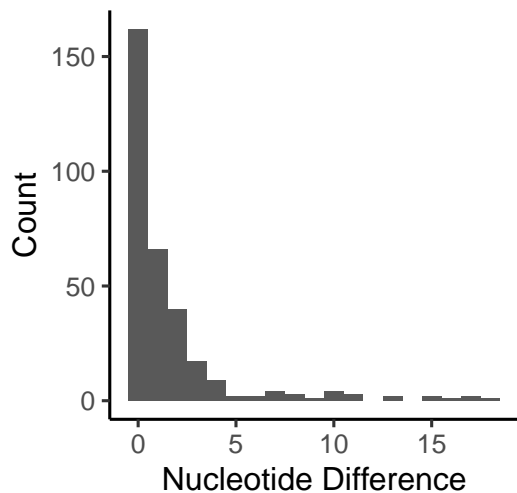
### IGHV4-59\*01

1105 sequences assigned  
576 (52.1%) exact matches, in which:  
543 unique CDR3  
6 unique J



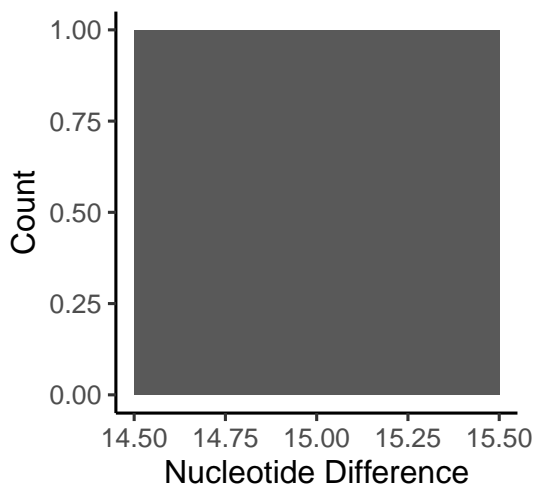
### IGHV4-30-4\*01

323 sequences assigned  
162 (50.2%) exact matches, in which:  
154 unique CDR3  
6 unique J



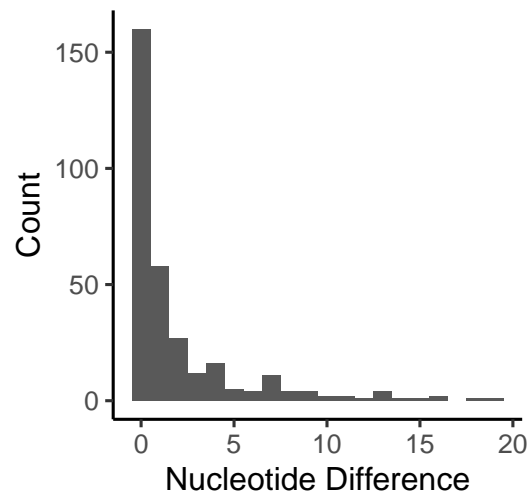
### IGHV4-38-2\*02

1 sequences assigned  
No exact matches.



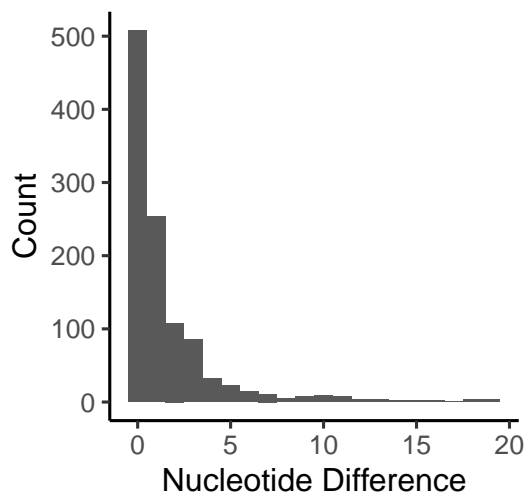
### IGHV4-61\*01

316 sequences assigned  
160 (50.6%) exact matches, in which:  
153 unique CDR3  
6 unique J



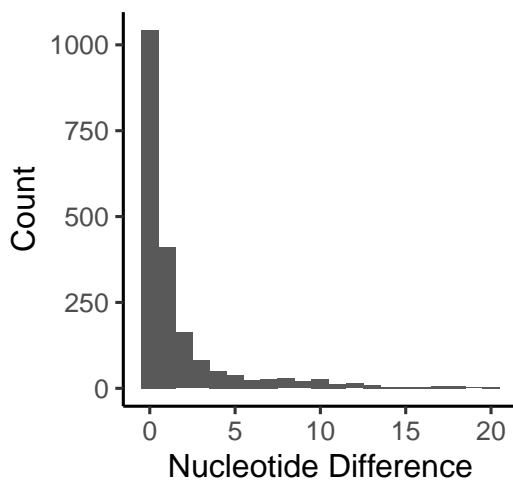
### IGHV4-31\*03

1086 sequences assigned  
508 (46.8%) exact matches, in which:  
477 unique CDR3  
6 unique J



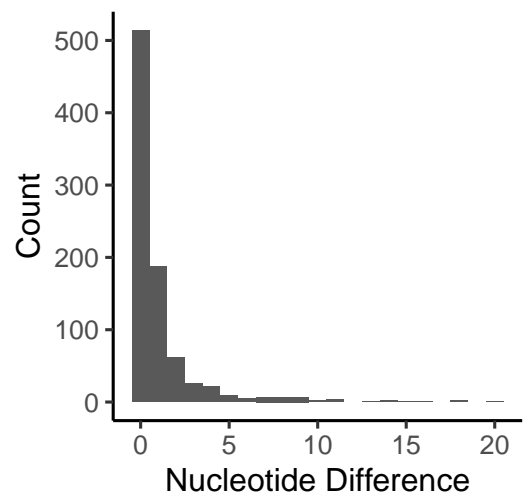
### IGHV4-39\*01

1987 sequences assigned  
1043 (52.5%) exact matches, in which:  
949 unique CDR3  
6 unique J



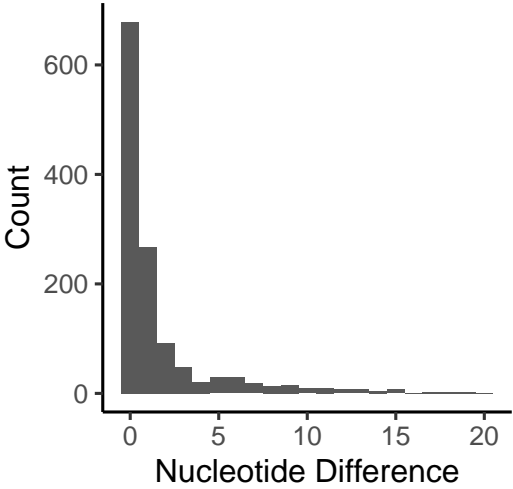
### IGHV5-10-1\*03

858 sequences assigned  
514 (59.9%) exact matches, in which:  
475 unique CDR3  
6 unique J



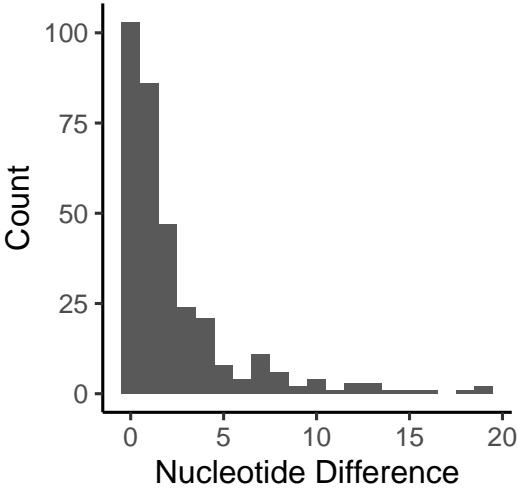
# IGHV5-51\*01

1269 sequences assigned  
679 (53.5%) exact matches, in which:  
611 unique CDR3  
6 unique J



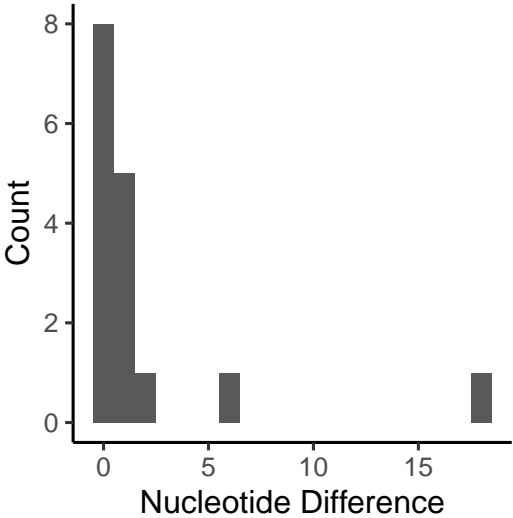
# IGHV6-1\*01

329 sequences assigned  
103 (31.3%) exact matches, in which:  
99 unique CDR3  
5 unique J



# IGHV7-4-1\*01

16 sequences assigned  
8 (50%) exact matches, in which:  
7 unique CDR3  
3 unique J



Allele Usage





Warning – no inferred sequences found.