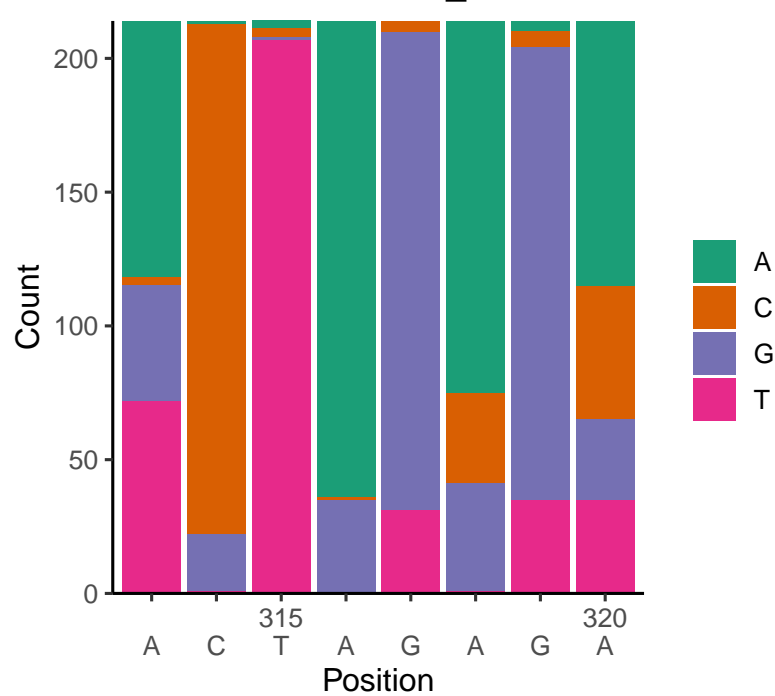
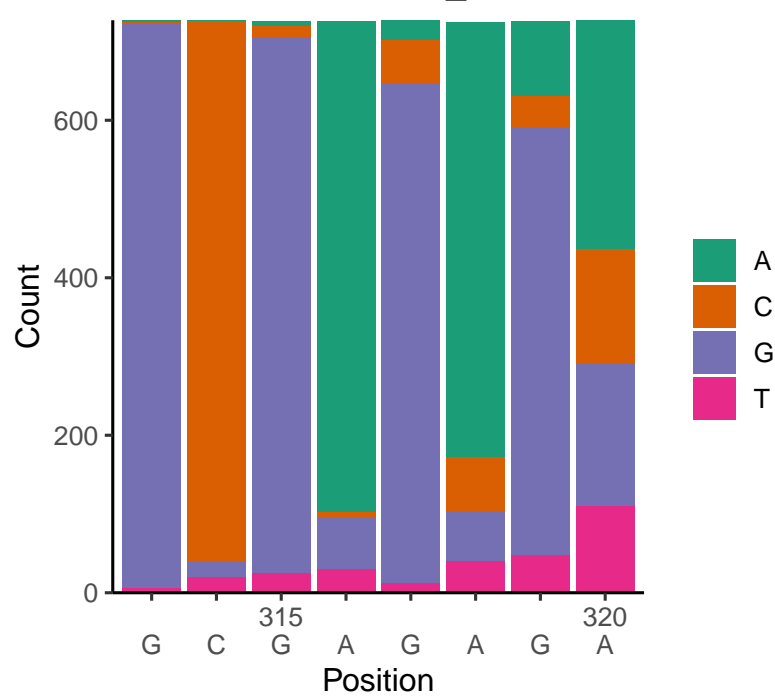


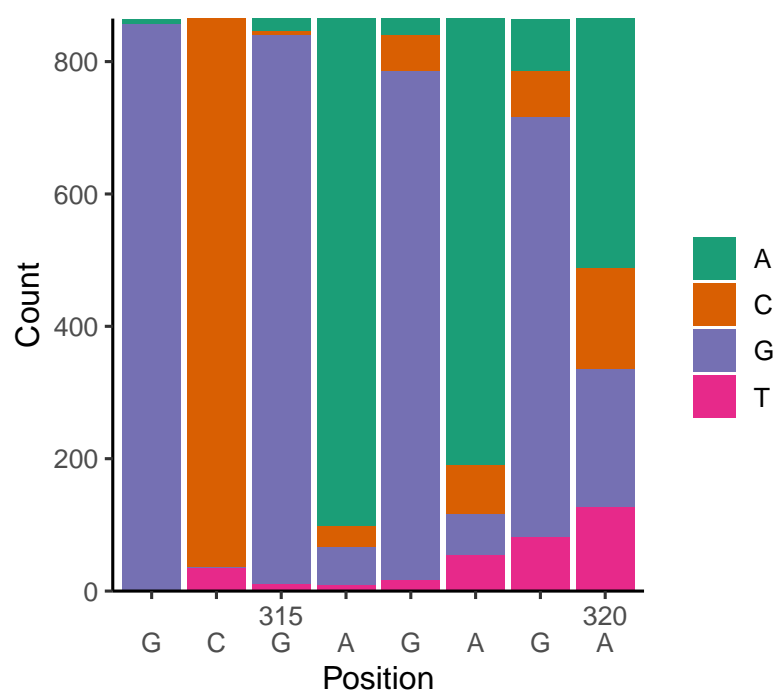
Gene IGHV3-49\*03\_T262C



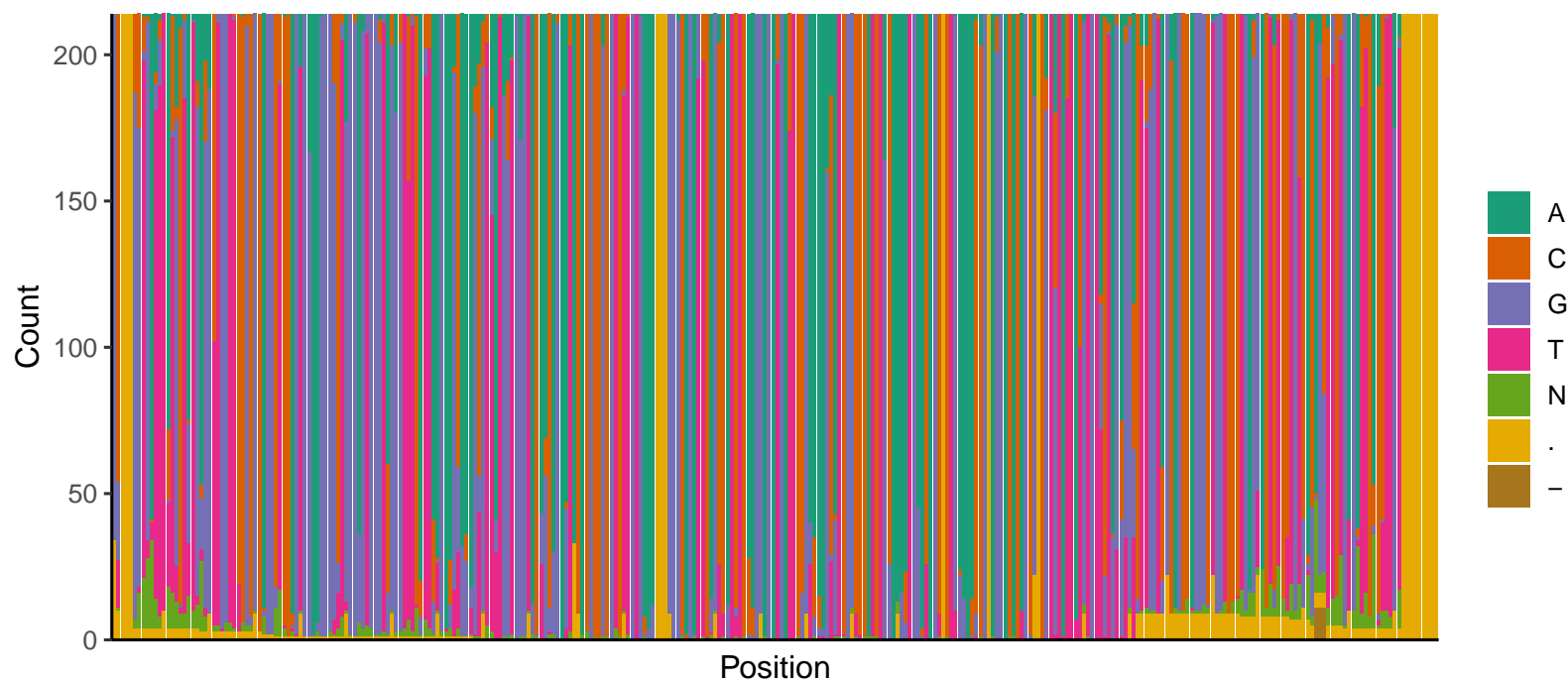
Gene IGHV1-69\*08\_C191T



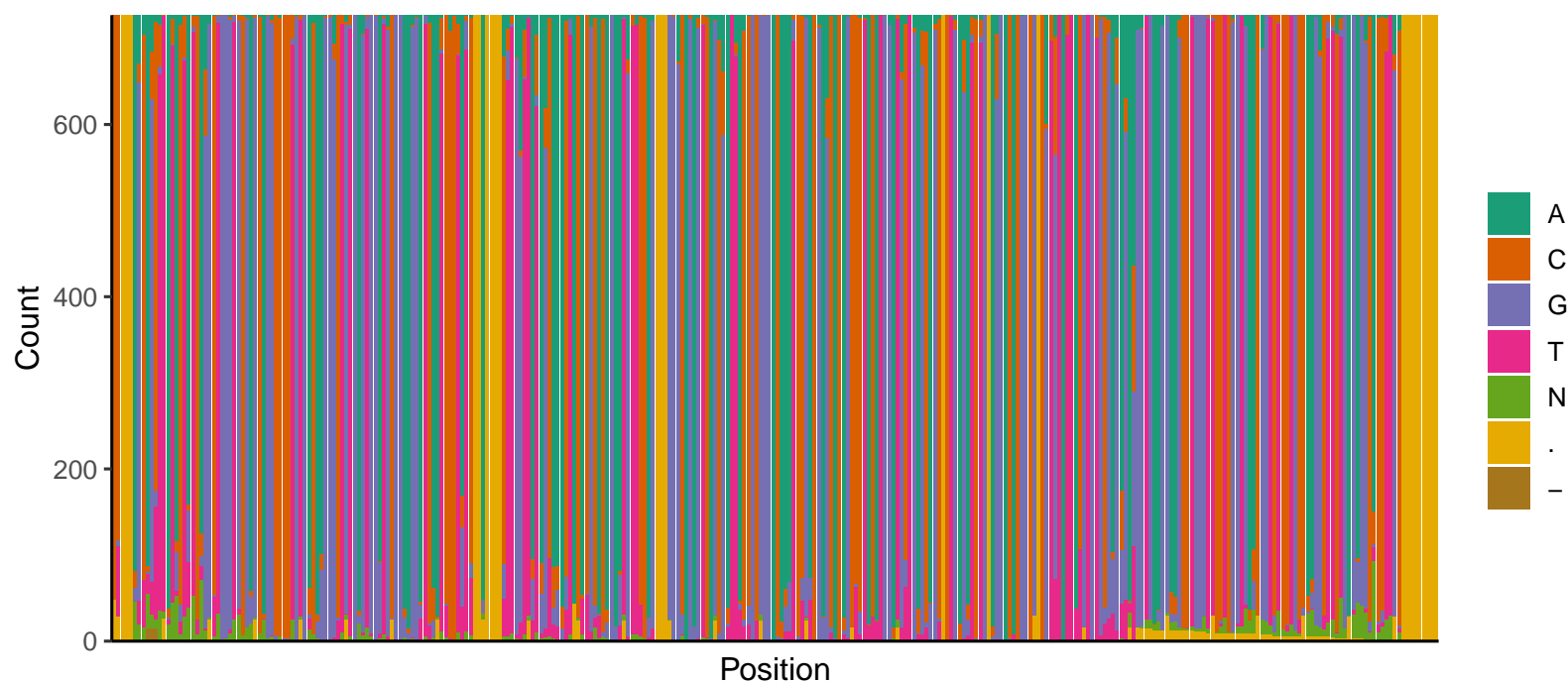
Gene IGHV3-21\*01\_C34T\_A40C\_C90T\_A112T\_C114G\_A119G\_A210C



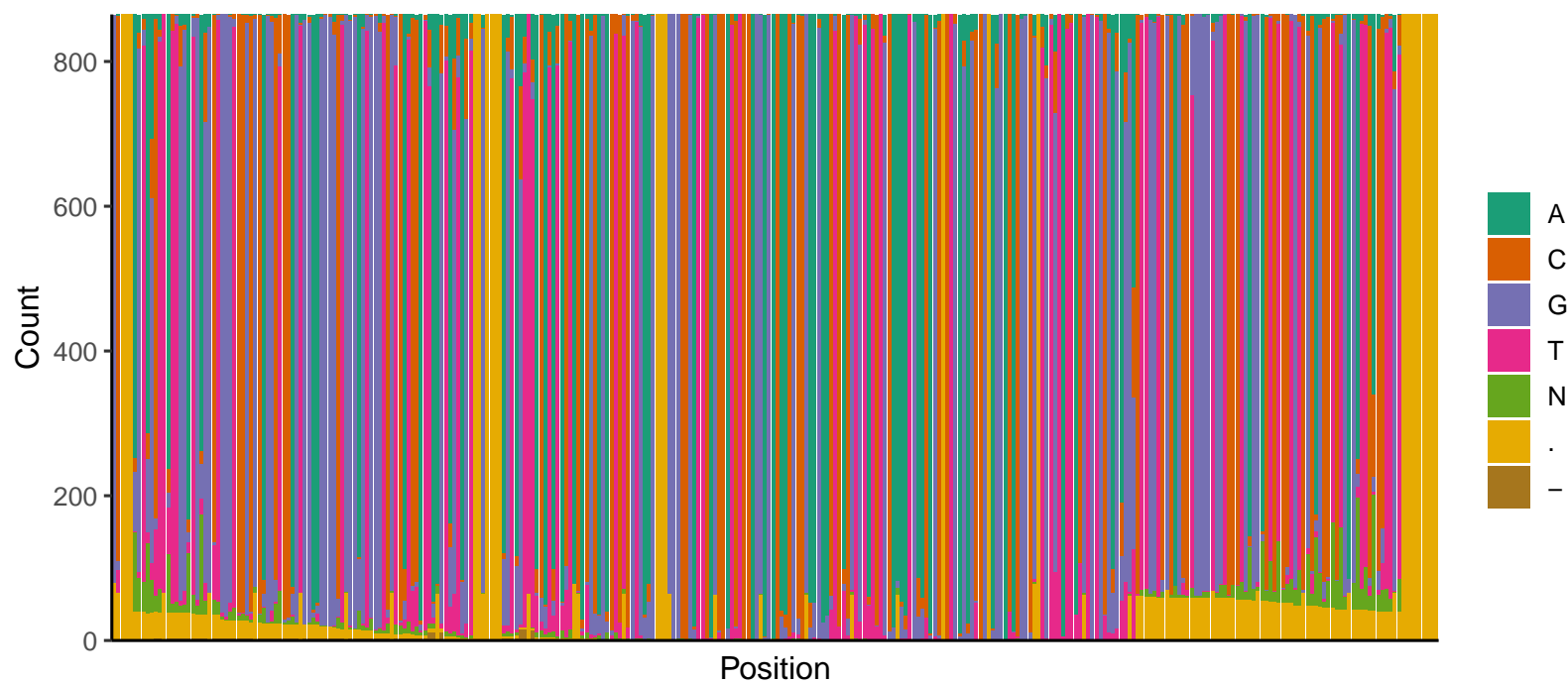
Gene IGHV3-49\*03\_T262C



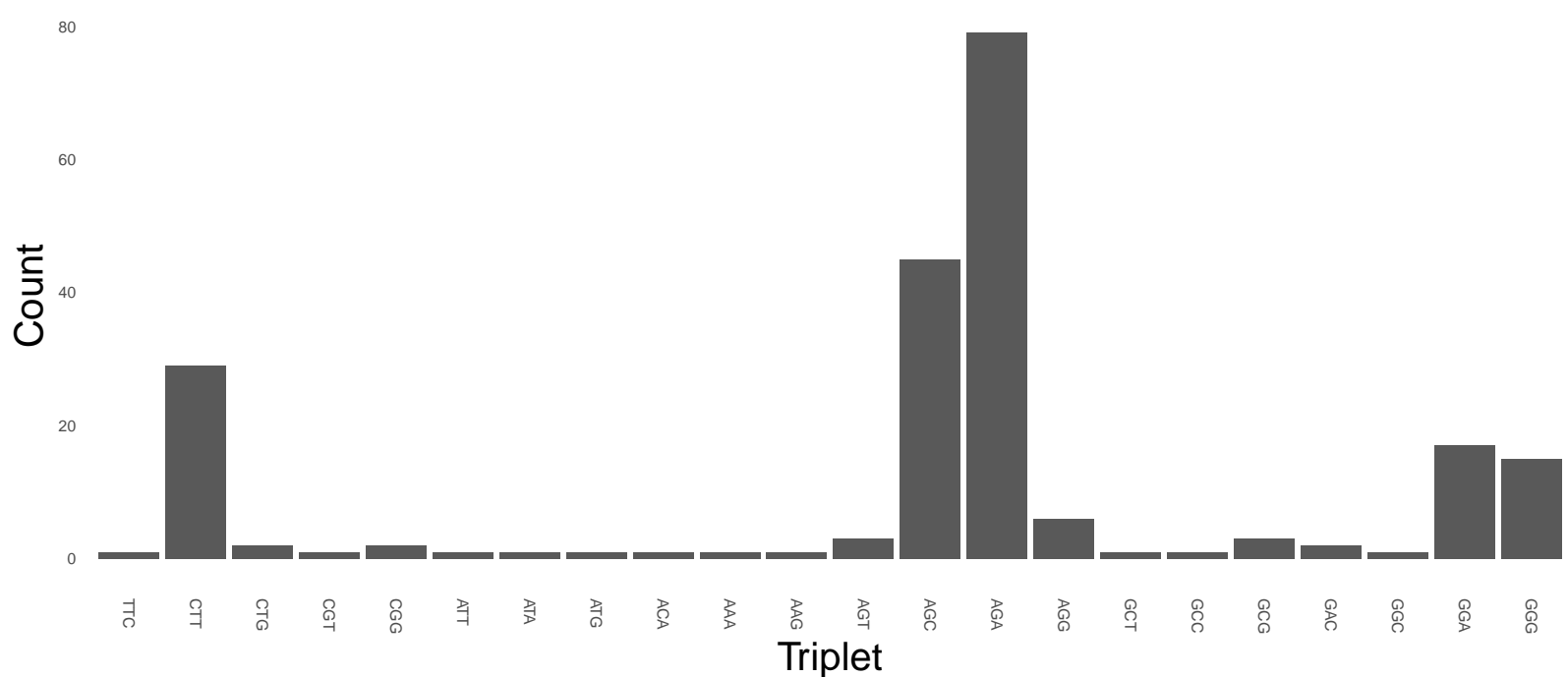
Gene IGHV1-69\*08\_C191T



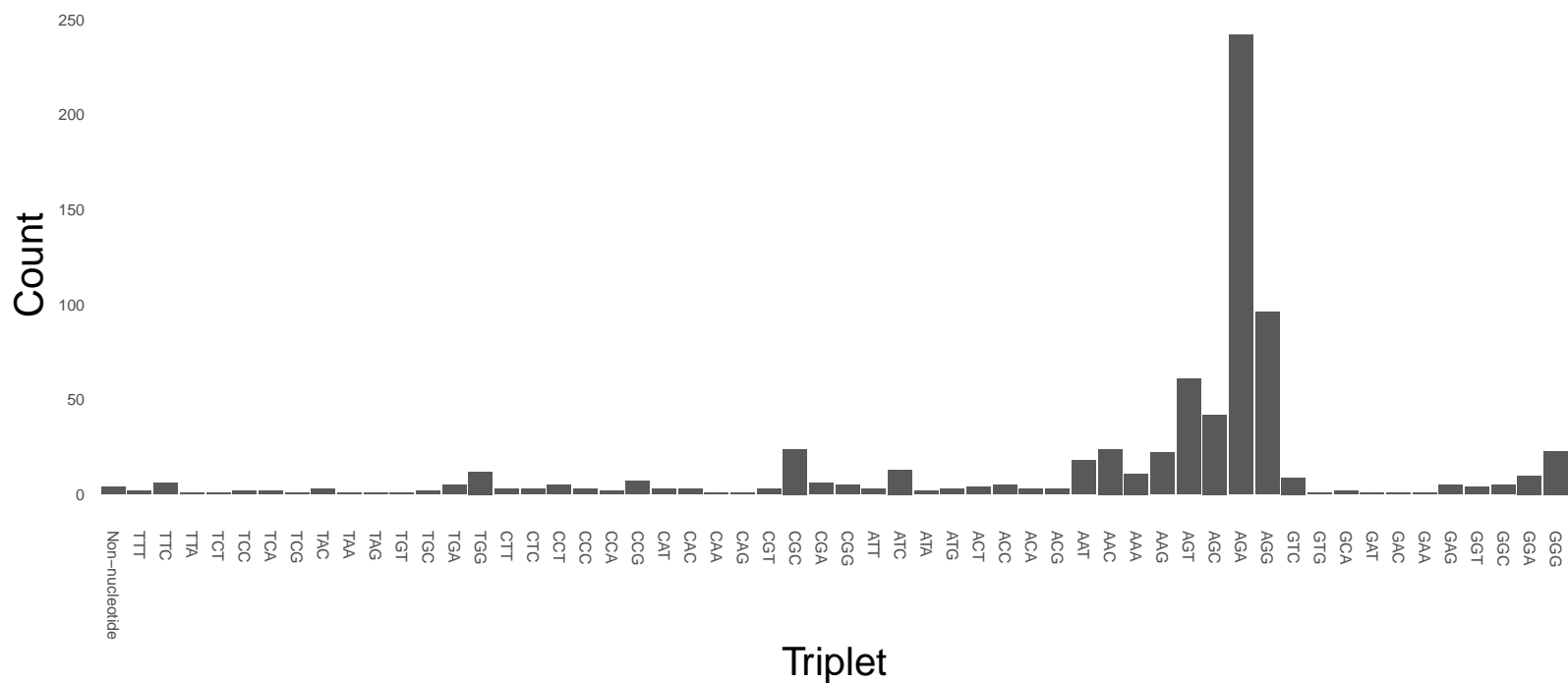
Gene IGHV3-21\*01\_C34T\_A40C\_C90T\_A112T\_C114G\_A119G\_A210C



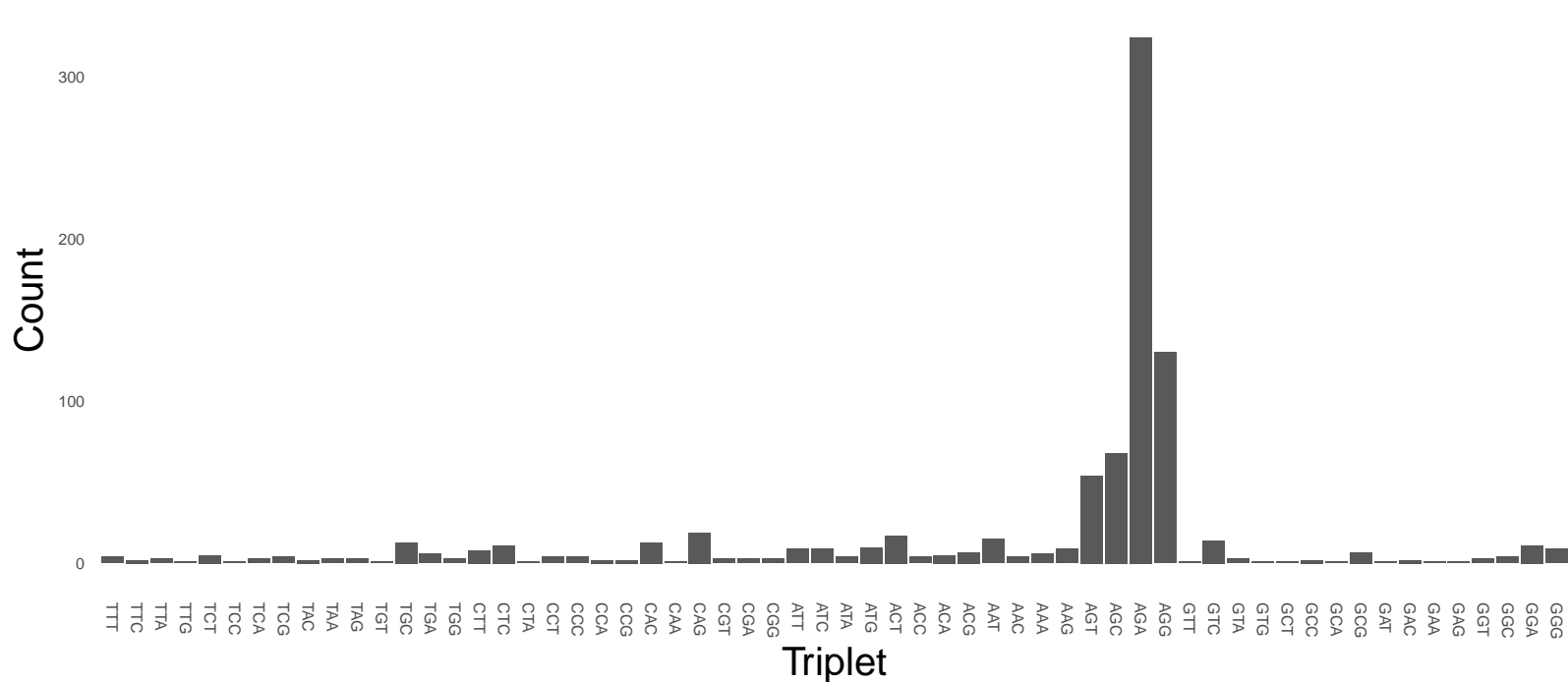
IGHV3-49\*03\_T262C- Final 3 nucleotides as a triplet



IGHV1-69\*08\_C191T- Final 3 nucleotides as a triplet

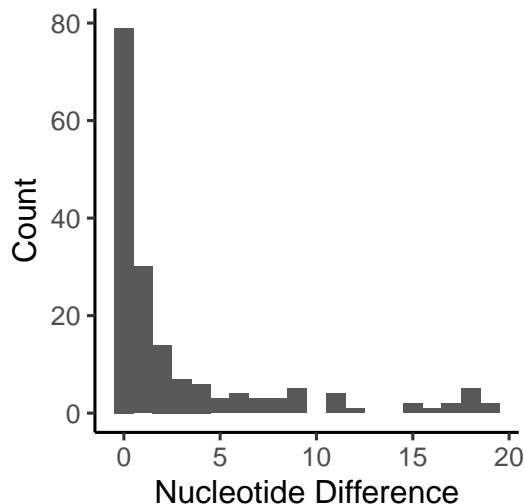


IGHV3-21\*01\_C34T\_A40C\_C90T\_A112T\_C114G\_A119G\_A210C- Final 3 nucleotides as a triplet



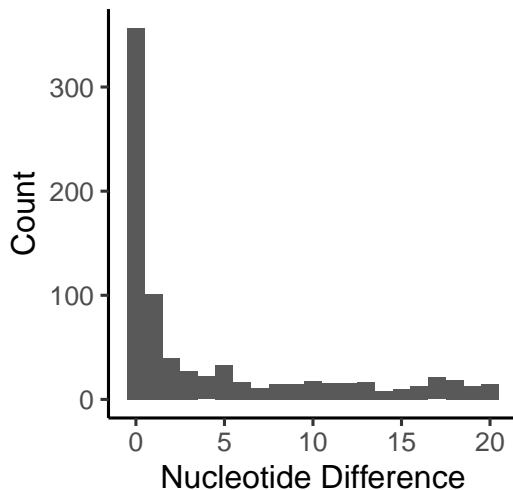
### IGHV1-2\*04

205 sequences assigned  
79 (38.5%) exact matches, in which:  
77 unique CDR3  
6 unique J



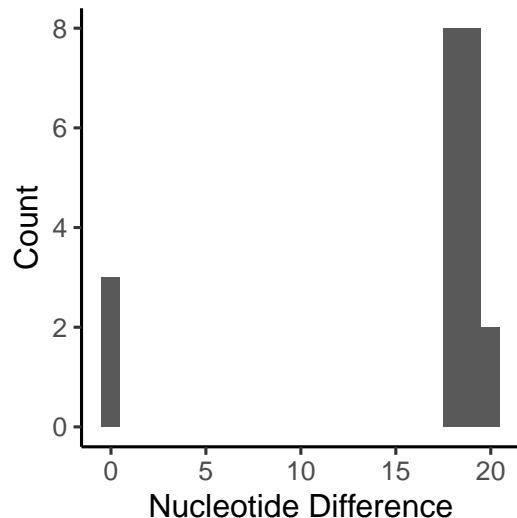
### IGHV1-8\*01

960 sequences assigned  
357 (37.2%) exact matches, in which:  
342 unique CDR3  
7 unique J



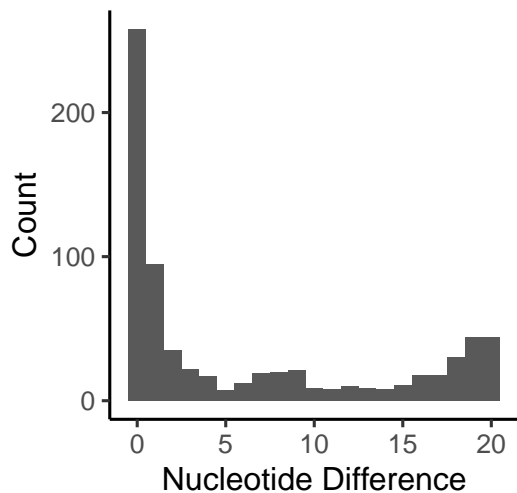
### IGHV1-45\*02

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



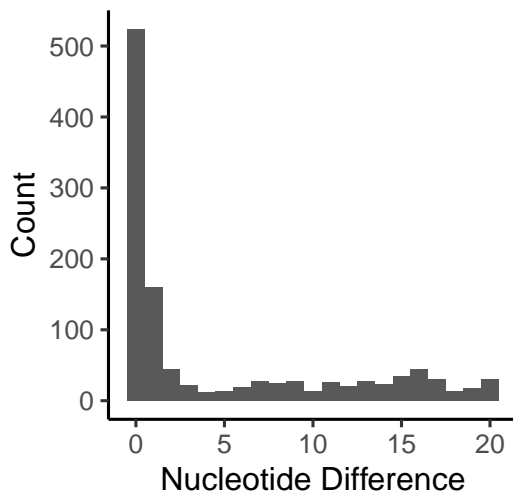
### IGHV1-2\*06

1016 sequences assigned  
258 (25.4%) exact matches, in which:  
245 unique CDR3  
7 unique J



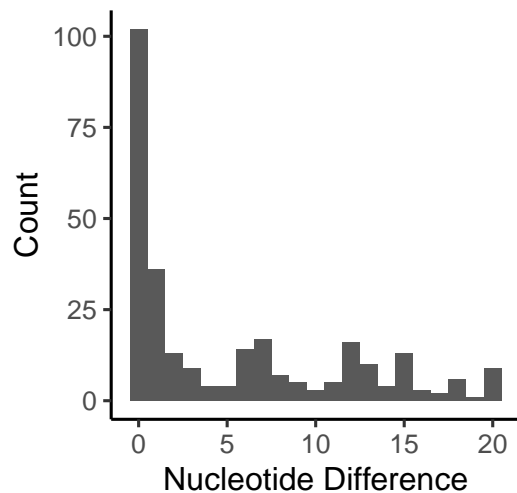
### IGHV1-18\*01

1645 sequences assigned  
524 (31.9%) exact matches, in which:  
505 unique CDR3  
7 unique J



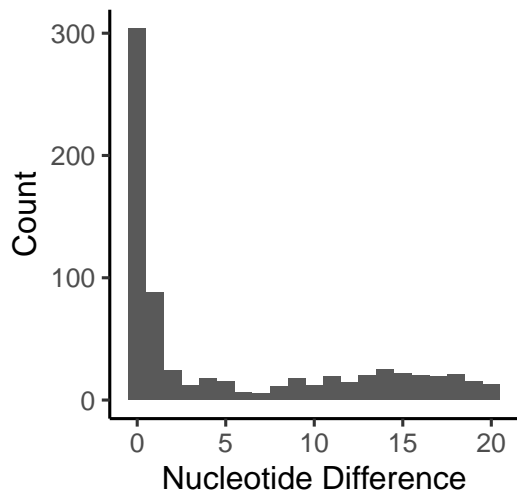
### IGHV1-46\*01

477 sequences assigned  
102 (21.4%) exact matches, in which:  
98 unique CDR3  
6 unique J



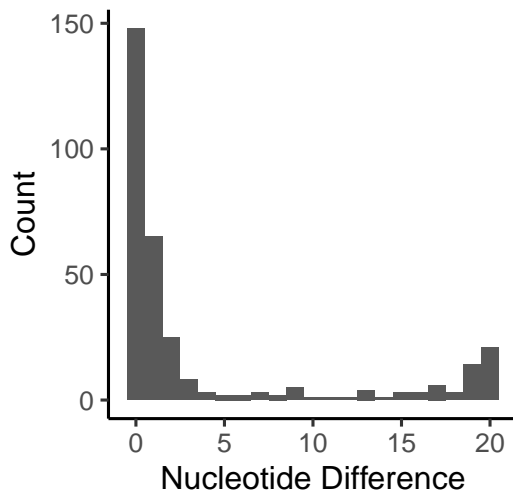
### IGHV1-3\*01

1020 sequences assigned  
304 (29.8%) exact matches, in which:  
295 unique CDR3  
7 unique J



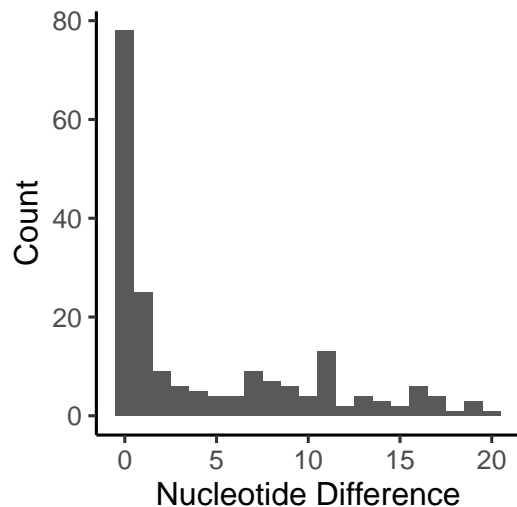
### IGHV1-24\*01

391 sequences assigned  
148 (37.9%) exact matches, in which:  
144 unique CDR3  
7 unique J



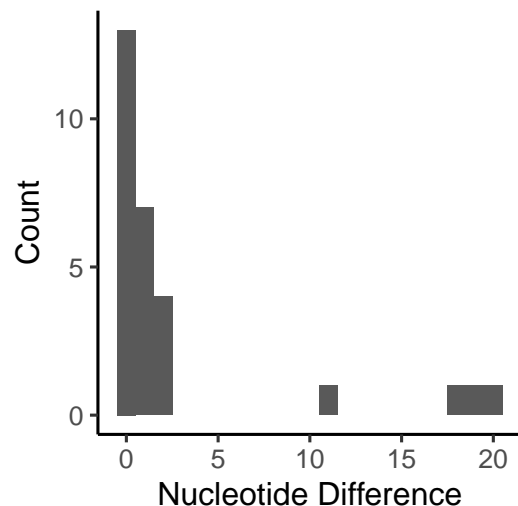
### IGHV1-46\*03

294 sequences assigned  
78 (26.5%) exact matches, in which:  
75 unique CDR3  
5 unique J



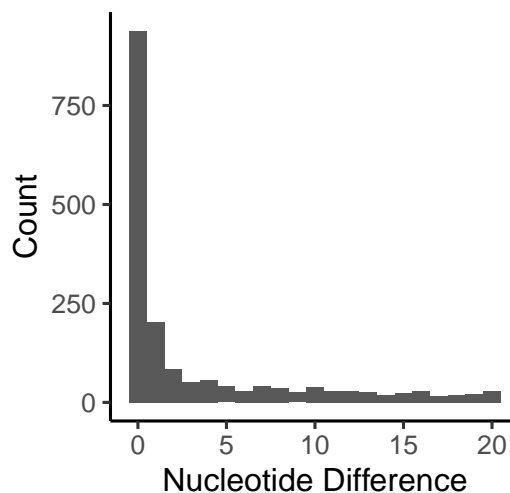
### IGHV1–58\*02

32 sequences assigned  
13 (40.6%) exact matches, in which:  
11 unique CDR3  
3 unique J



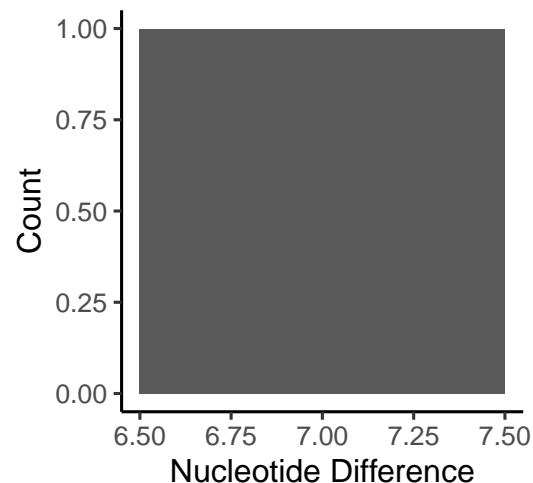
### IGHV2–5\*02

2014 sequences assigned  
939 (46.6%) exact matches, in which:  
893 unique CDR3  
7 unique J



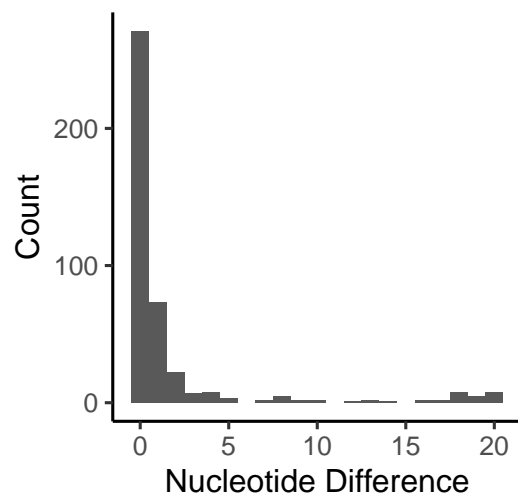
### IGHV2–70D\*04

1 sequences assigned  
No exact matches.



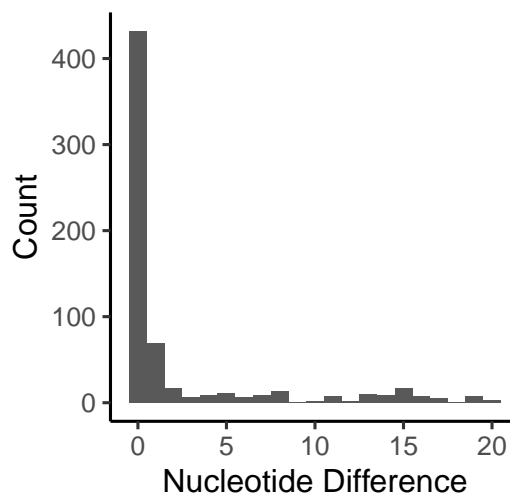
### IGHV1–69\*09

491 sequences assigned  
271 (55.2%) exact matches, in which:  
265 unique CDR3  
6 unique J



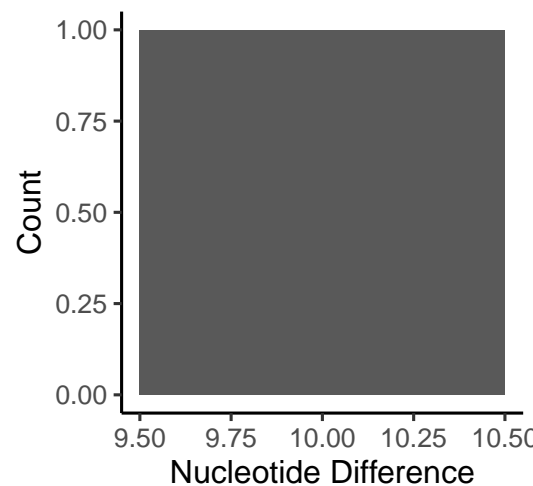
### IGHV2–26\*01

712 sequences assigned  
432 (60.7%) exact matches, in which:  
410 unique CDR3  
6 unique J



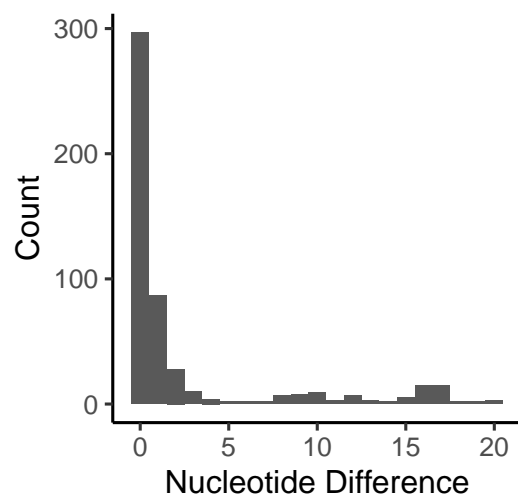
### IGHV2–70D\*14

1 sequences assigned  
No exact matches.



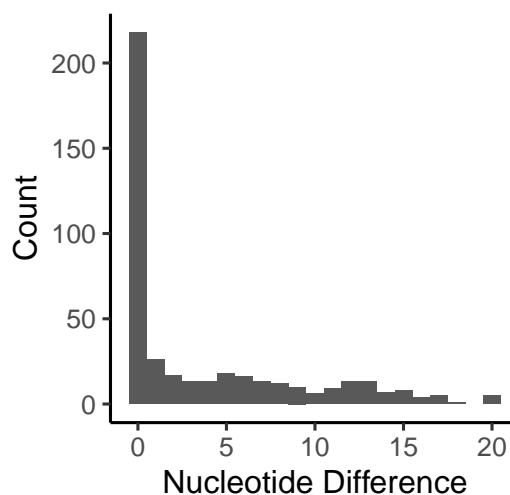
### IGHV1–69\*08\_C191T

727 sequences assigned  
297 (40.9%) exact matches, in which:  
286 unique CDR3  
6 unique J



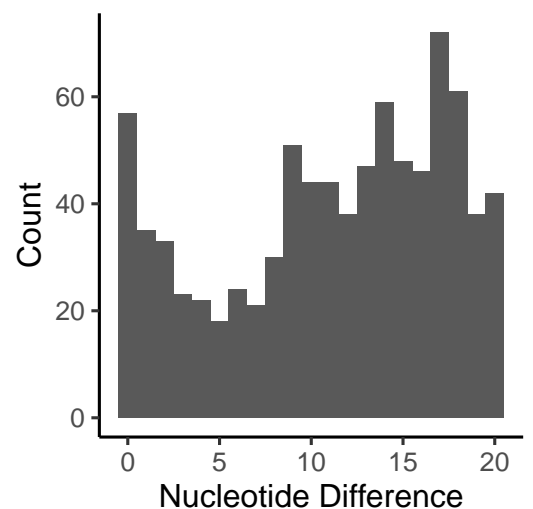
### IGHV2–70\*15

473 sequences assigned  
218 (46.1%) exact matches, in which:  
214 unique CDR3  
7 unique J



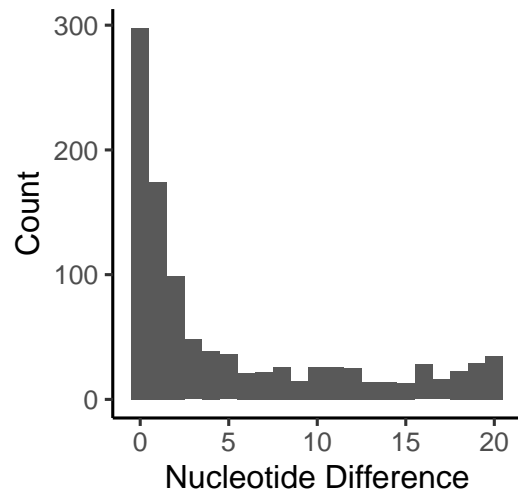
### IGHV3–7\*01

1051 sequences assigned  
57 (5.4%) exact matches, in which:  
55 unique CDR3  
6 unique J



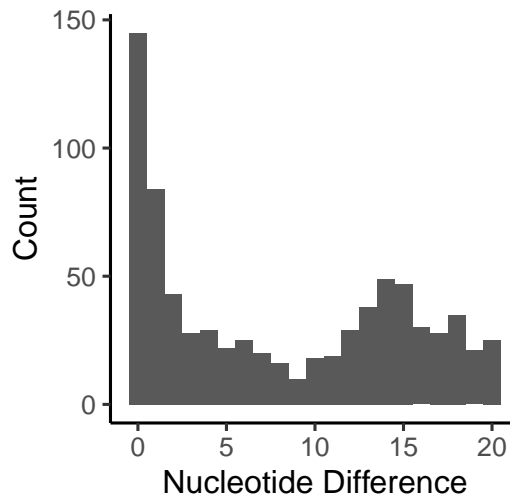
### IGHV3-9\*01

1505 sequences assigned  
298 (19.8%) exact matches, in which:  
280 unique CDR3  
7 unique J



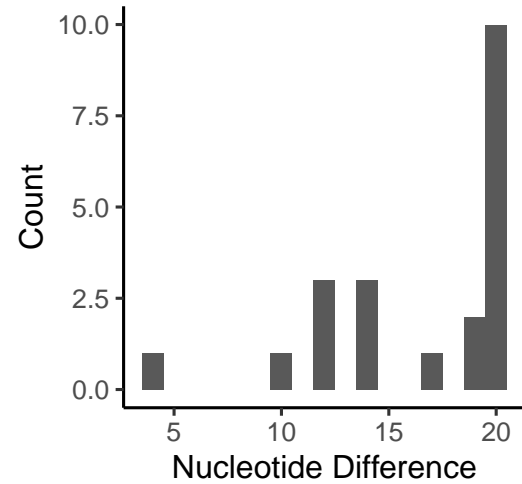
### IGHV3-15\*01

1126 sequences assigned  
145 (12.9%) exact matches, in which:  
138 unique CDR3  
7 unique J



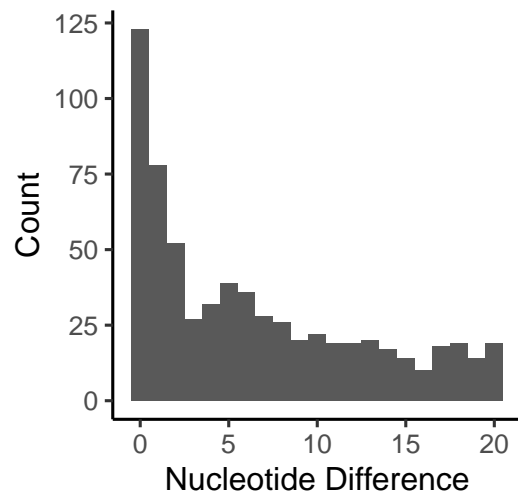
### IGHV3-20\*04

47 sequences assigned  
No exact matches.



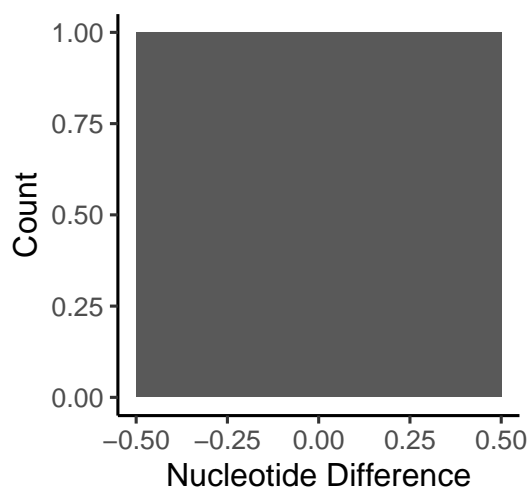
### IGHV3-11\*01

970 sequences assigned  
123 (12.7%) exact matches, in which:  
118 unique CDR3  
7 unique J



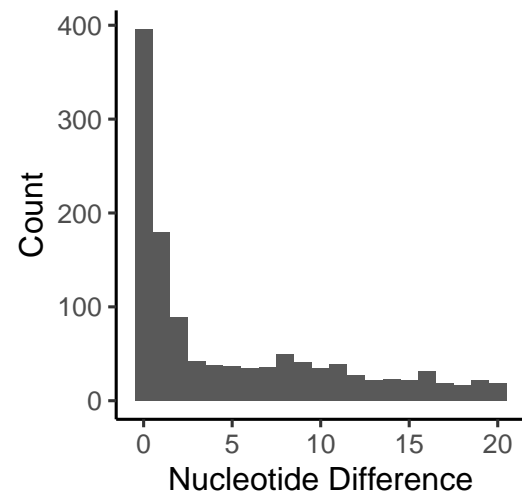
### IGHV3-19\*01

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



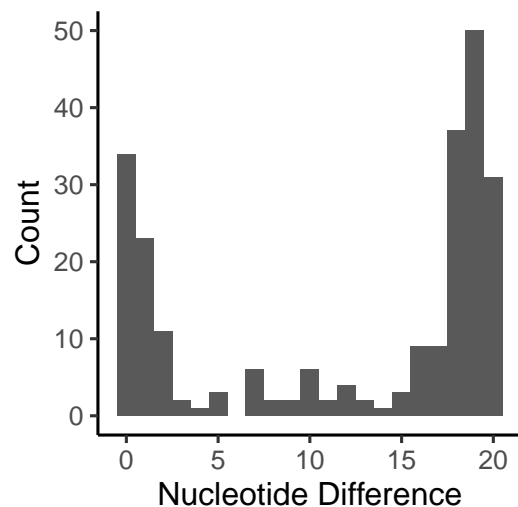
### IGHV3-21\*01

1616 sequences assigned  
396 (24.5%) exact matches, in which:  
387 unique CDR3  
7 unique J



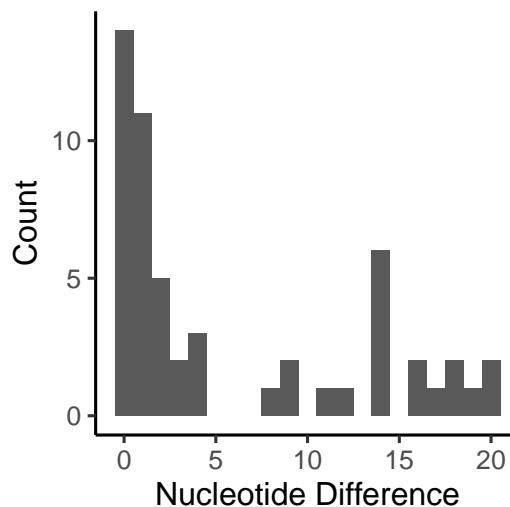
### IGHV3-13\*01

292 sequences assigned  
34 (11.6%) exact matches, in which:  
34 unique CDR3  
5 unique J



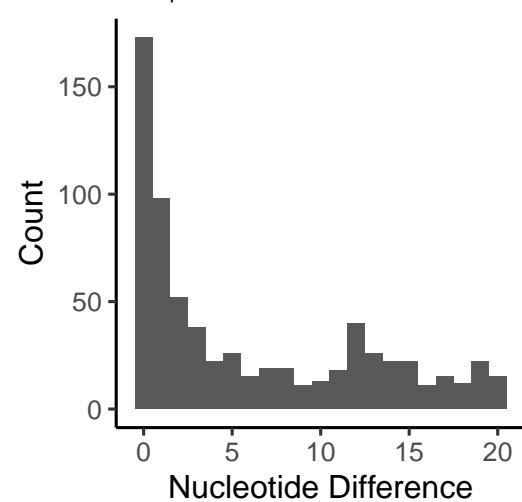
### IGHV3-20\*01

65 sequences assigned  
14 (21.5%) exact matches, in which:  
14 unique CDR3  
4 unique J



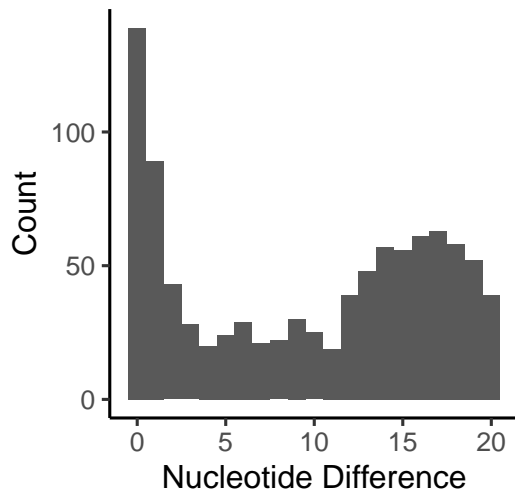
### IGHV3-21\*01\_C34T\_A40G

865 sequences assigned  
173 (20%) exact matches, in which:  
169 unique CDR3  
6 unique J



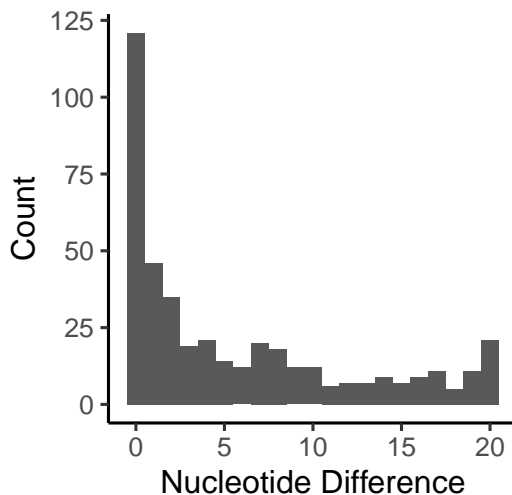
### IGHV3-23\*04

1369 sequences assigned  
139 (10.2%) exact matches, in which:  
138 unique CDR3  
6 unique J



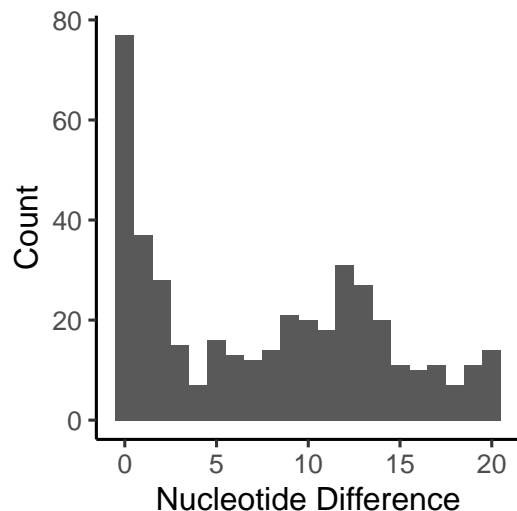
### IGHV3-33\*01

656 sequences assigned  
121 (18.4%) exact matches, in which:  
120 unique CDR3  
6 unique J



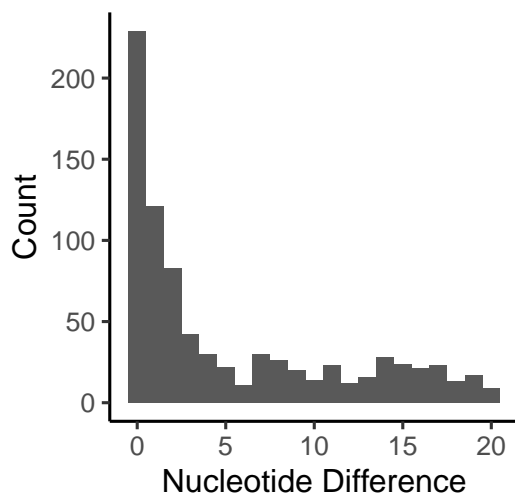
### IGHV3-48\*02

599 sequences assigned  
77 (12.9%) exact matches, in which:  
75 unique CDR3  
5 unique J



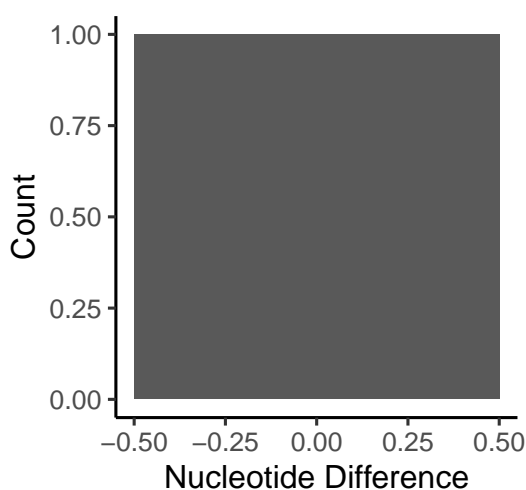
### IGHV3-30-3\*01

1176 sequences assigned  
229 (19.5%) exact matches, in which:  
227 unique CDR3  
6 unique J



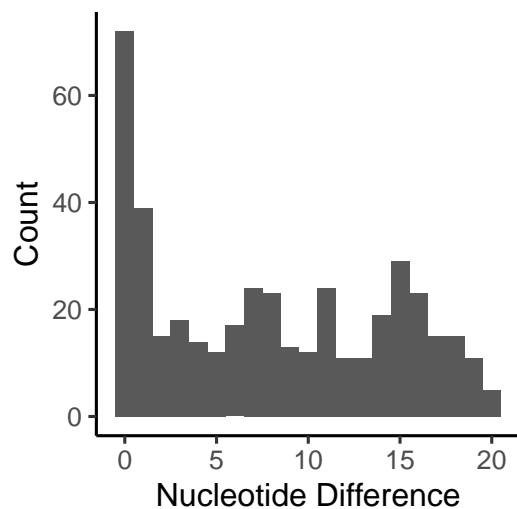
### IGHV3-38-3\*01

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



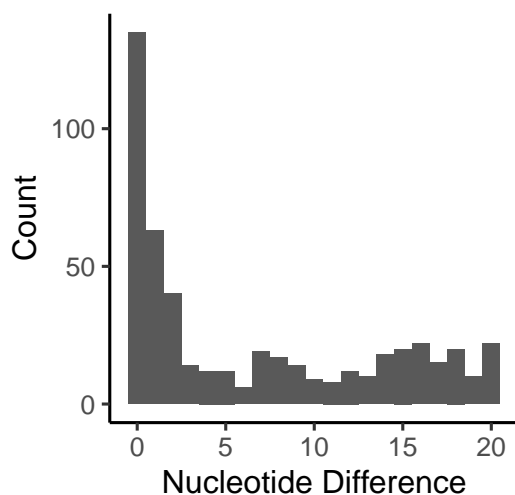
### IGHV3-48\*04

526 sequences assigned  
72 (13.7%) exact matches, in which:  
67 unique CDR3  
5 unique J



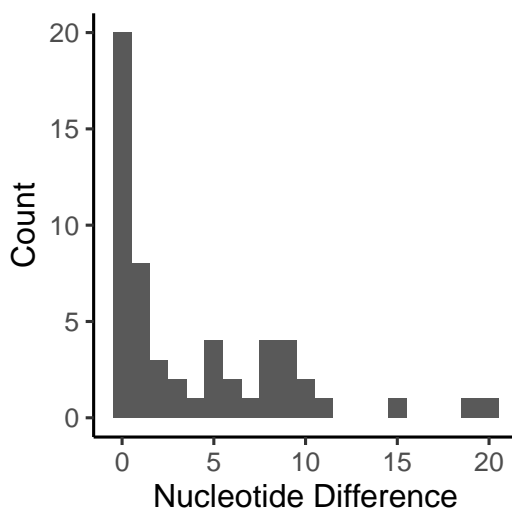
### IGHV3-30\*01

710 sequences assigned  
135 (19%) exact matches, in which:  
135 unique CDR3  
5 unique J



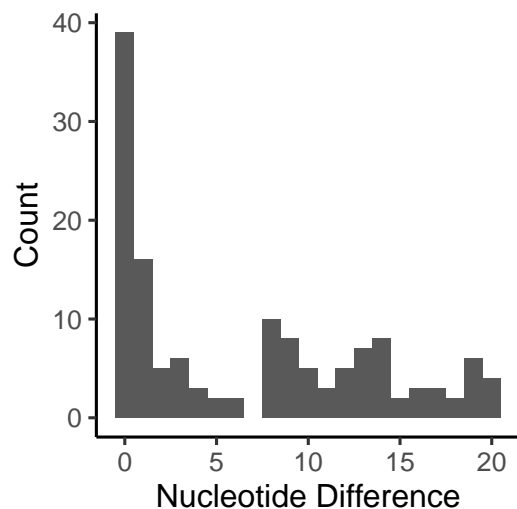
### IGHV3-43\*01

108 sequences assigned  
20 (18.5%) exact matches, in which:  
20 unique CDR3  
3 unique J



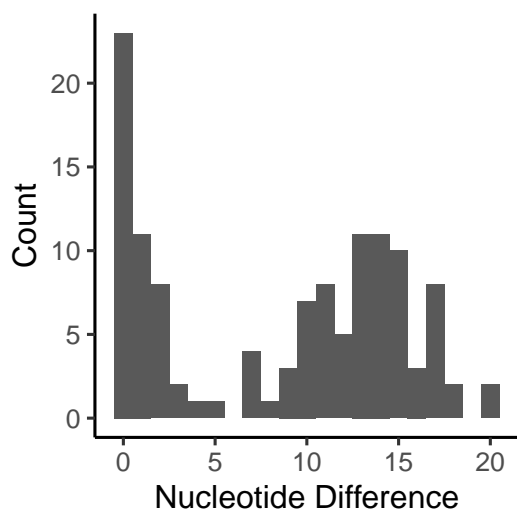
### IGHV3-49\*04

203 sequences assigned  
39 (19.2%) exact matches, in which:  
36 unique CDR3  
4 unique J



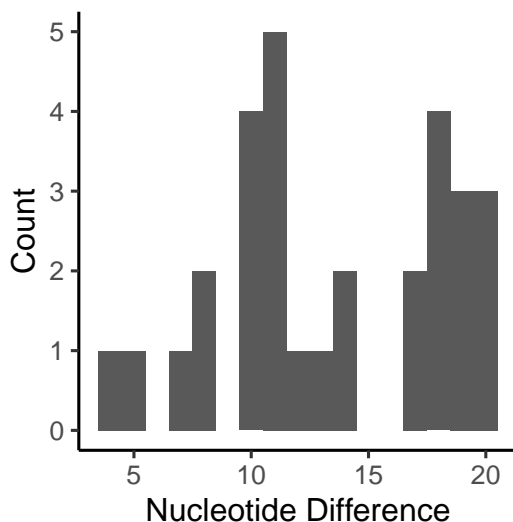
### IGHV3-49\*03\_T262C

214 sequences assigned  
23 (10.7%) exact matches, in which:  
21 unique CDR3  
4 unique J



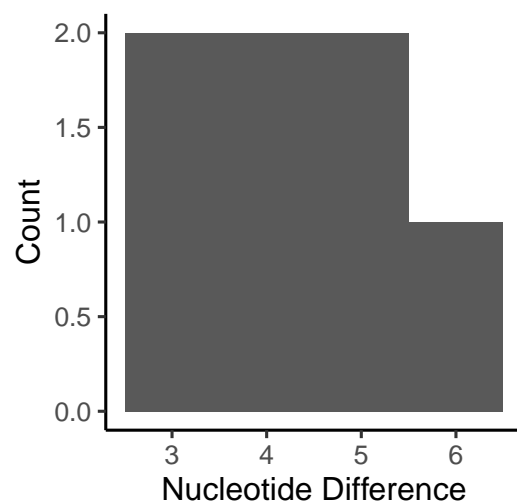
### IGHV3-64\*07

51 sequences assigned  
No exact matches.



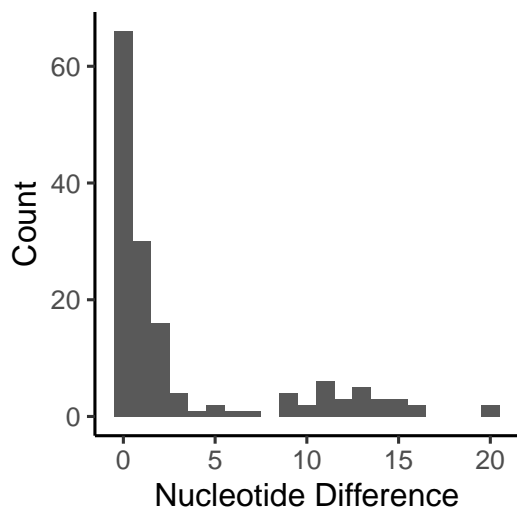
### IGHV3-69-1\*02

7 sequences assigned  
No exact matches.



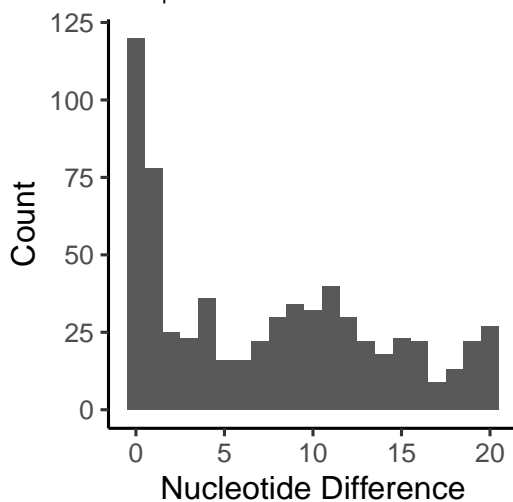
### IGHV3-53\*04

199 sequences assigned  
66 (33.2%) exact matches, in which:  
62 unique CDR3  
6 unique J



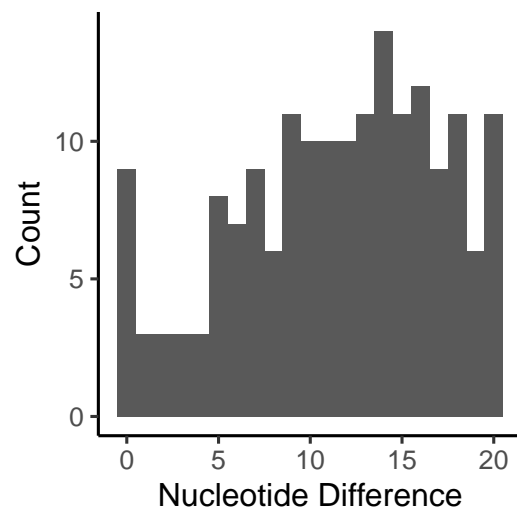
### IGHV3-66\*01

955 sequences assigned  
120 (12.6%) exact matches, in which:  
116 unique CDR3  
7 unique J



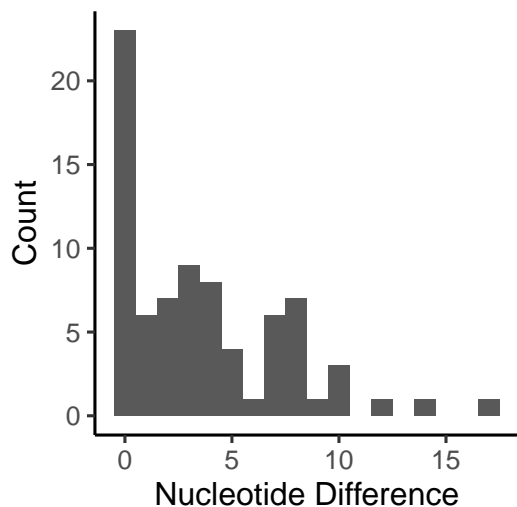
### IGHV3-72\*01

252 sequences assigned  
9 (3.6%) exact matches, in which:  
9 unique CDR3  
4 unique J



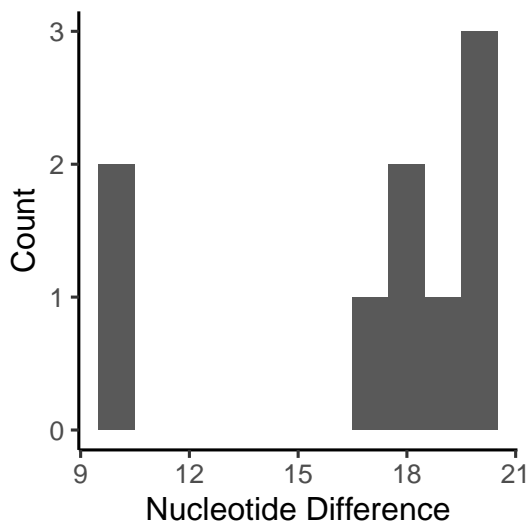
### IGHV3-64\*01

130 sequences assigned  
23 (17.7%) exact matches, in which:  
23 unique CDR3  
5 unique J



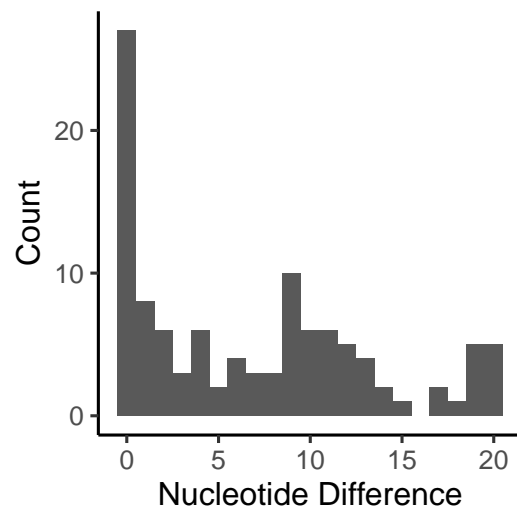
### IGHV3-69-1\*01

16 sequences assigned  
No exact matches.



### IGHV3-73\*01

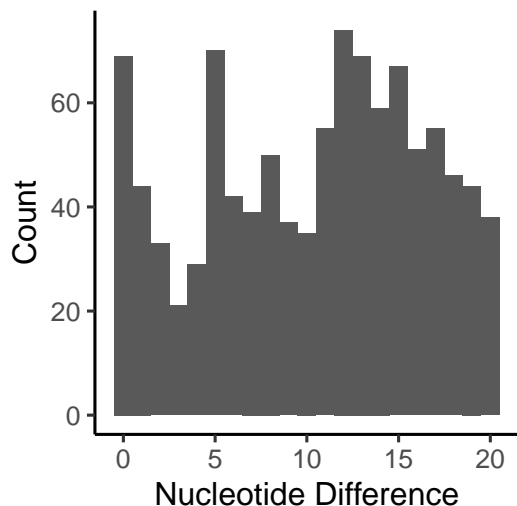
125 sequences assigned  
27 (21.6%) exact matches, in which:  
24 unique CDR3  
6 unique J





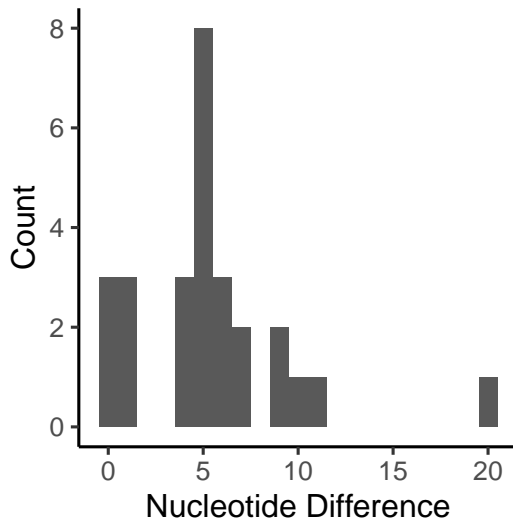
### IGHV3-74\*01

1301 sequences assigned  
69 (5.3%) exact matches, in which:  
61 unique CDR3  
6 unique J



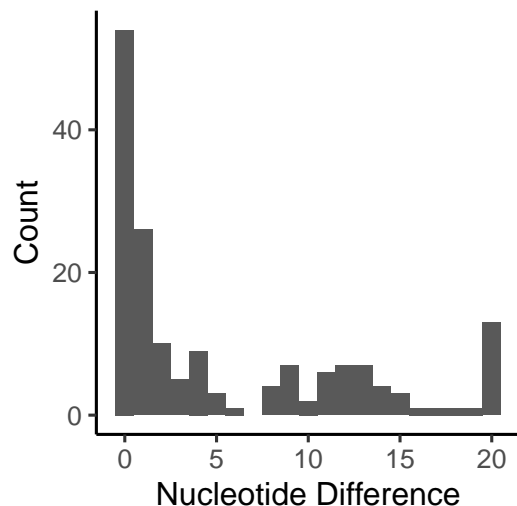
### IGHV4-28\*02

31 sequences assigned  
3 (9.7%) exact matches, in which:  
3 unique CDR3  
2 unique J



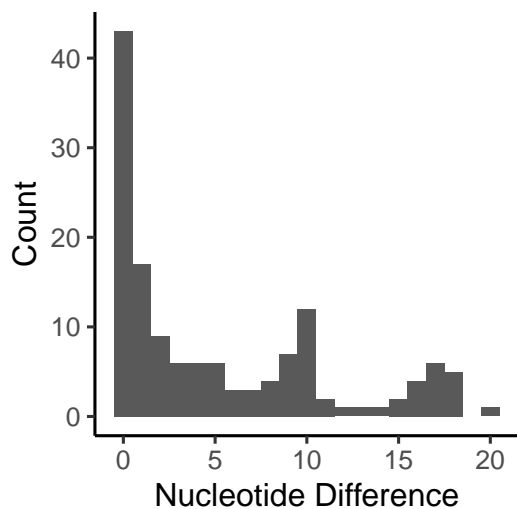
### IGHV4-31\*01

217 sequences assigned  
54 (24.9%) exact matches, in which:  
51 unique CDR3  
6 unique J



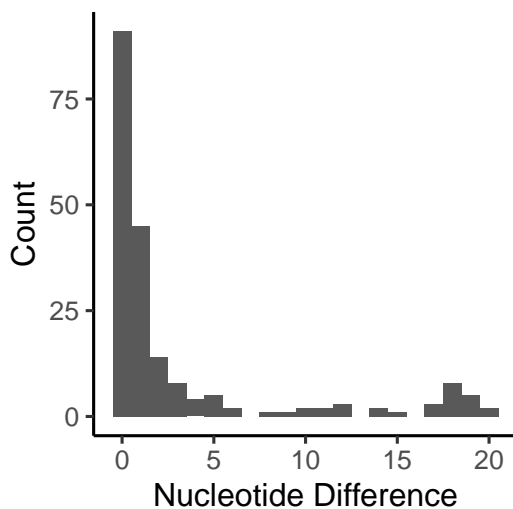
### IGHV3-43D\*03

205 sequences assigned  
43 (21%) exact matches, in which:  
41 unique CDR3  
5 unique J



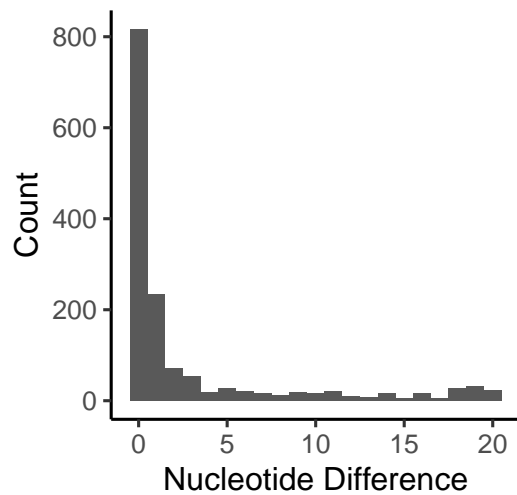
### IGHV4-30-2\*01

239 sequences assigned  
91 (38.1%) exact matches, in which:  
87 unique CDR3  
7 unique J



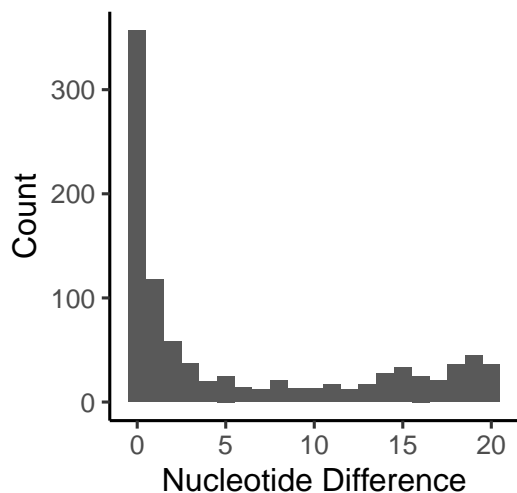
### IGHV4-34\*01

1747 sequences assigned  
817 (46.8%) exact matches, in which:  
784 unique CDR3  
7 unique J



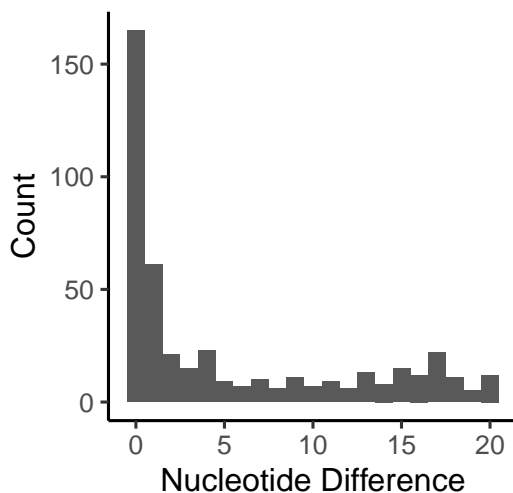
### IGHV4-4\*02

1241 sequences assigned  
357 (28.8%) exact matches, in which:  
347 unique CDR3  
7 unique J



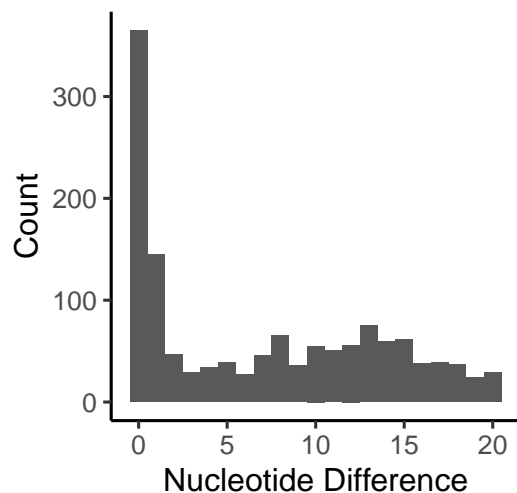
### IGHV4-30-4\*01

659 sequences assigned  
165 (25%) exact matches, in which:  
158 unique CDR3  
6 unique J



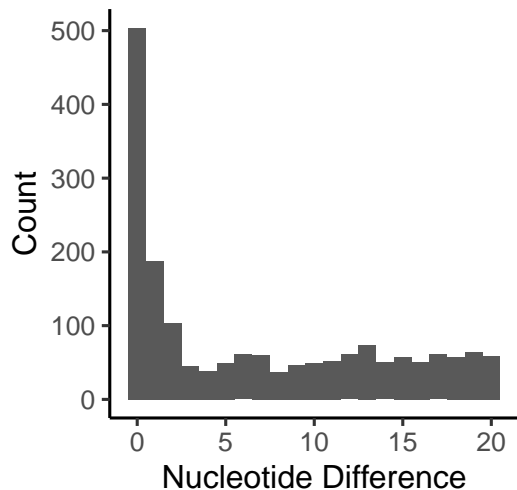
### IGHV4-38-2\*02

1715 sequences assigned  
365 (21.3%) exact matches, in which:  
348 unique CDR3  
6 unique J



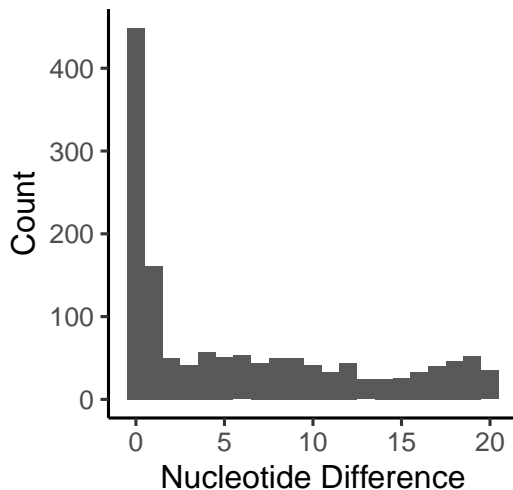
### IGHV4–39\*01

2454 sequences assigned  
504 (20.5%) exact matches, in which:  
490 unique CDR3  
6 unique J



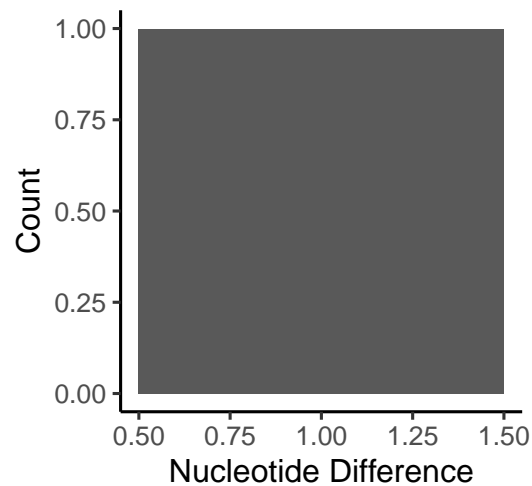
### IGHV4–59\*01

1786 sequences assigned  
449 (25.1%) exact matches, in which:  
434 unique CDR3  
7 unique J



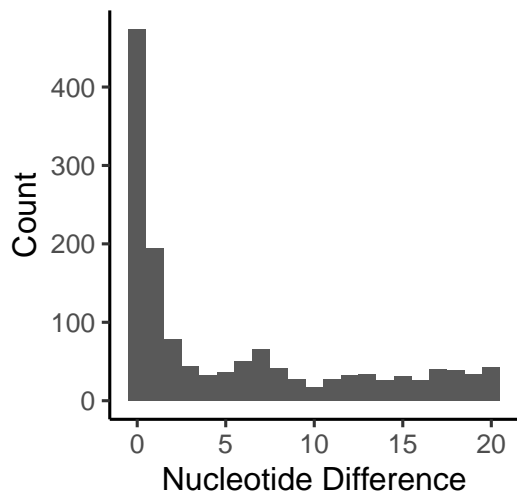
### IGHV4–61\*03

1 sequences assigned  
No exact matches.



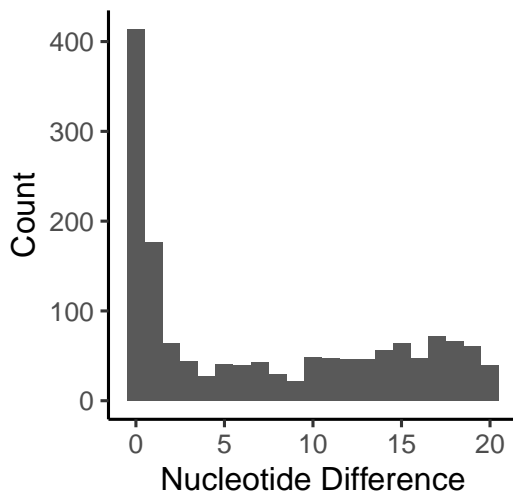
### IGHV4–39\*07

1967 sequences assigned  
474 (24.1%) exact matches, in which:  
455 unique CDR3  
6 unique J



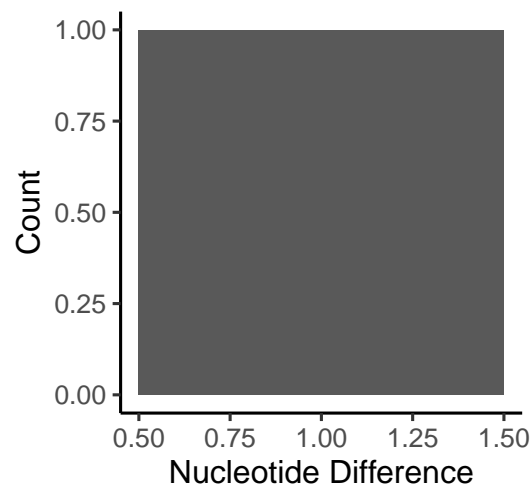
### IGHV4–59\*08

1920 sequences assigned  
414 (21.6%) exact matches, in which:  
397 unique CDR3  
7 unique J



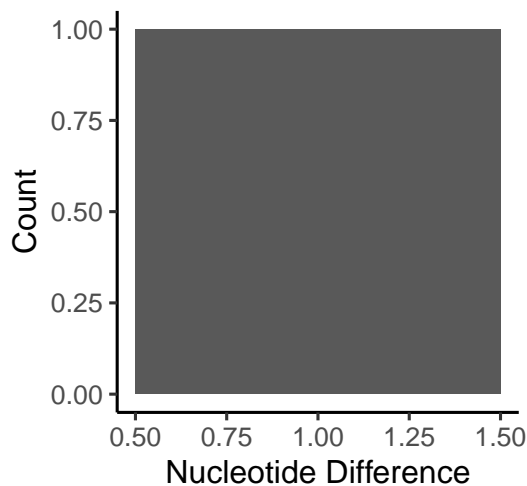
### IGHV4–61\*08

1 sequences assigned  
No exact matches.



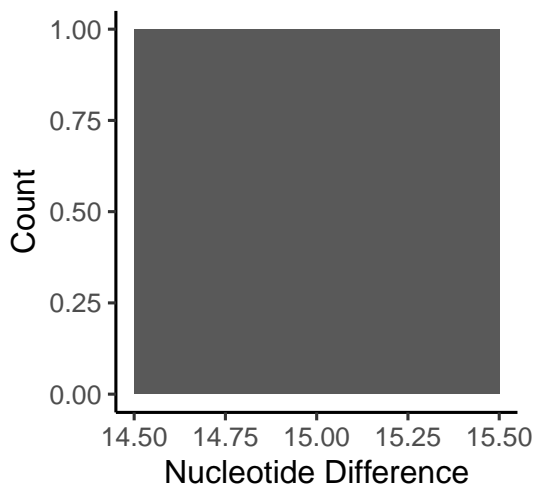
### IGHV4–55\*02

1 sequences assigned  
No exact matches.



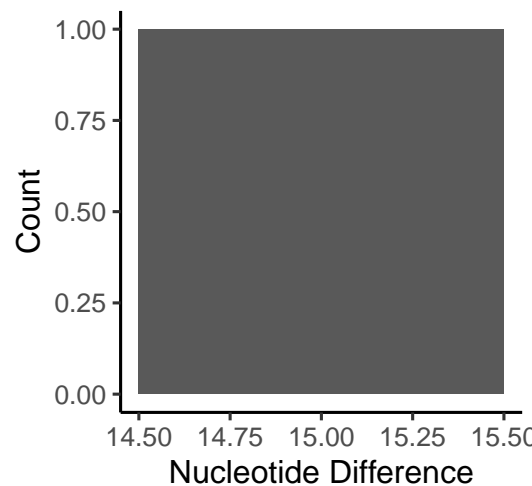
### IGHV4–61\*01

1 sequences assigned  
No exact matches.



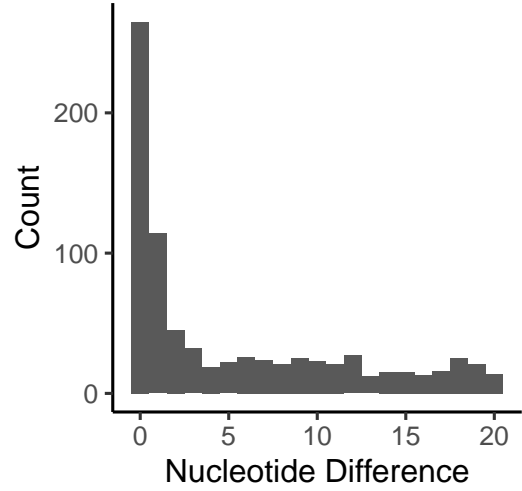
### IGHV4/OR15–8\*01

1 sequences assigned  
No exact matches.



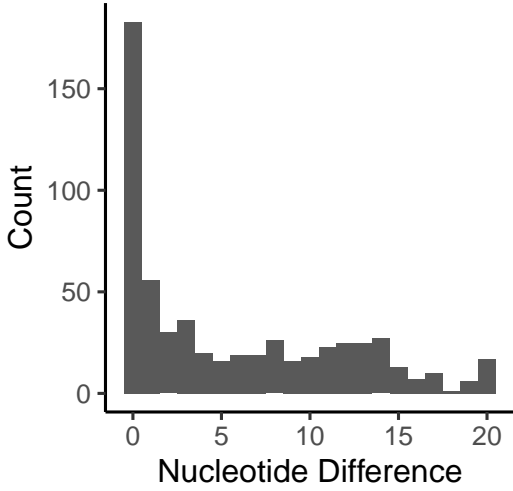
IGHV5–51\*01

974 sequences assigned  
265 (27.2%) exact matches, in which:  
257 unique CDR3  
7 unique J



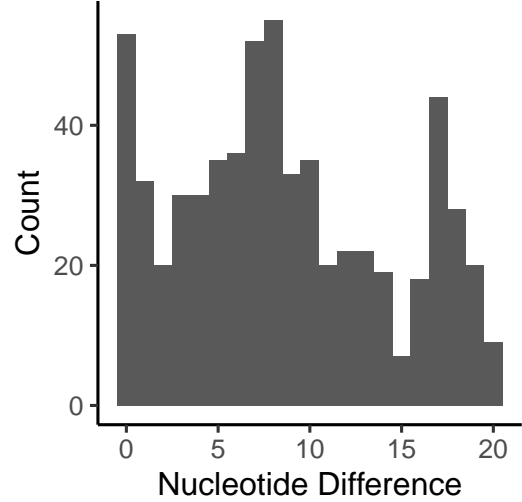
IGHV7–4–1\*02

728 sequences assigned  
183 (25.1%) exact matches, in which:  
179 unique CDR3  
6 unique J



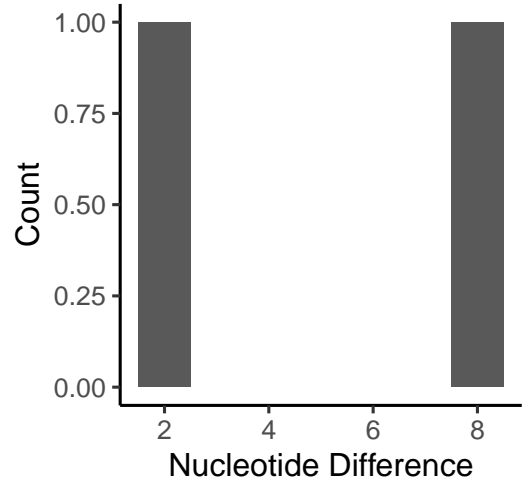
IGHV6–1\*01

715 sequences assigned  
53 (7.4%) exact matches, in which:  
50 unique CDR3  
5 unique J

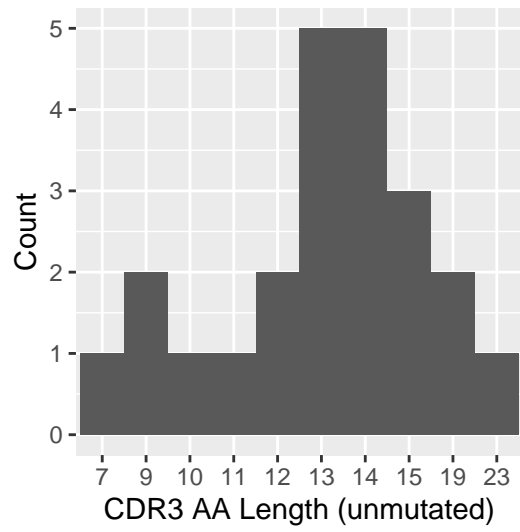


IGHV3/OR16–9\*01

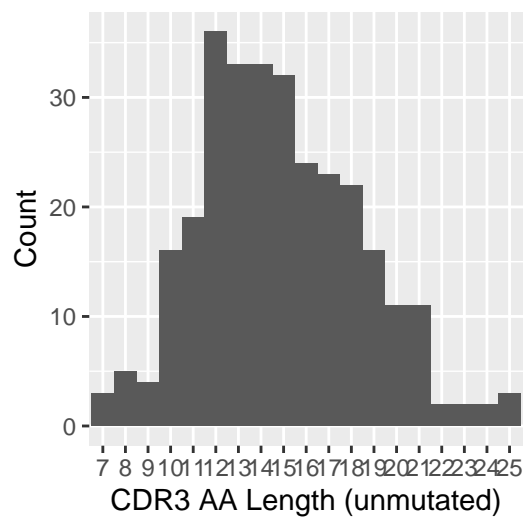
2 sequences assigned  
No exact matches.



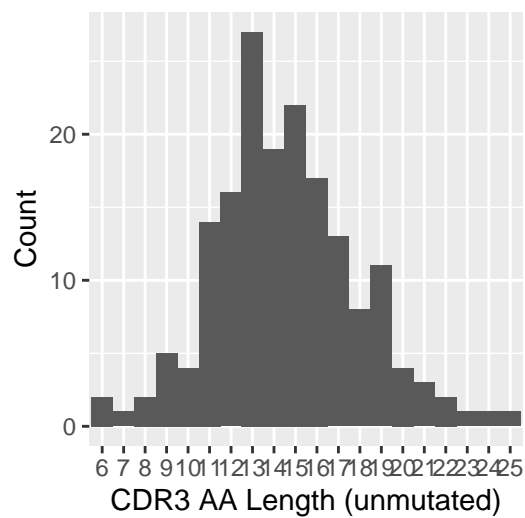
IGHV3-49\*03\_T262C



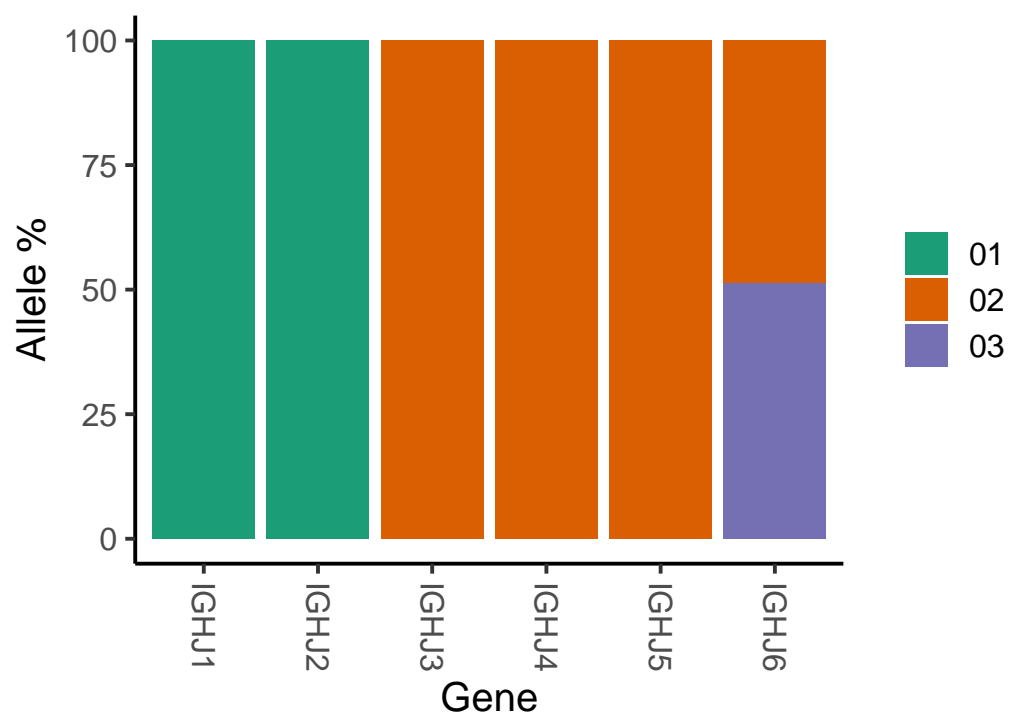
IGHV1-69\*08\_C191T



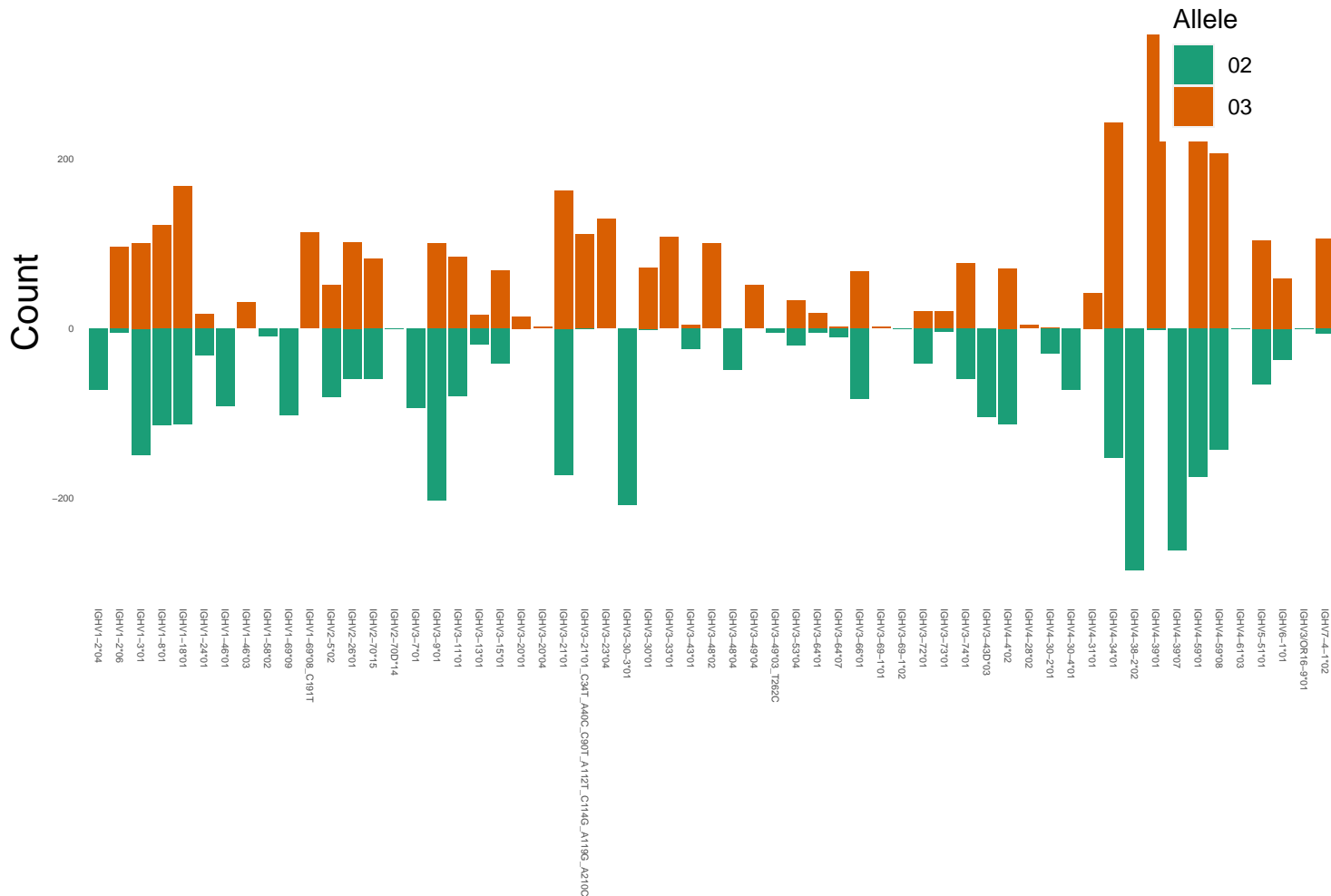
IGHV3-21\*01\_C34T\_A40C\_C90T\_A112T\_C114G\_A119G\_A210C



Allele Usage



Sequence Count by IGHJ6 allele usage



[illegible]