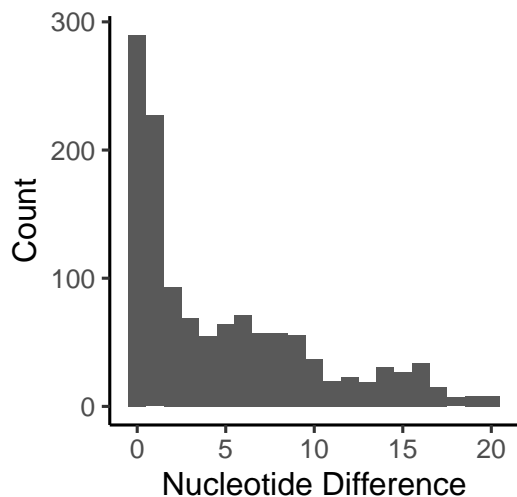


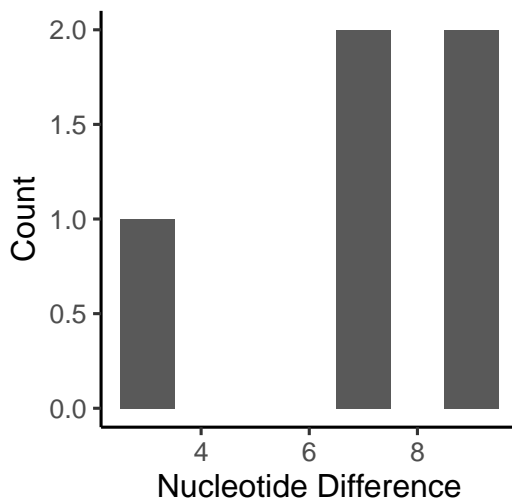
IGHV1-60*01_S7772

1338 sequences assigned
290 (21.7%) exact matches, in which:
172 unique CDR3
7 unique J



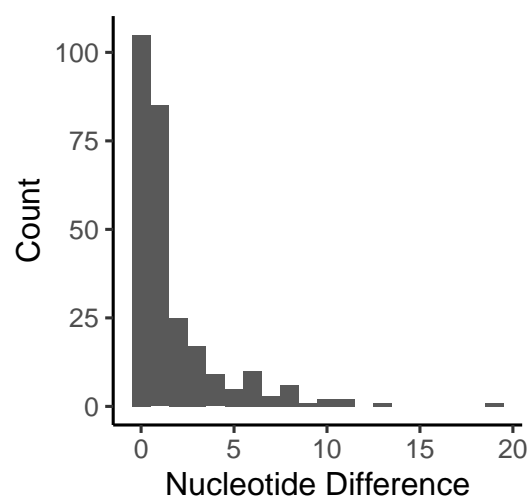
IGHV1-105*01_S1228

5 sequences assigned
No exact matches.



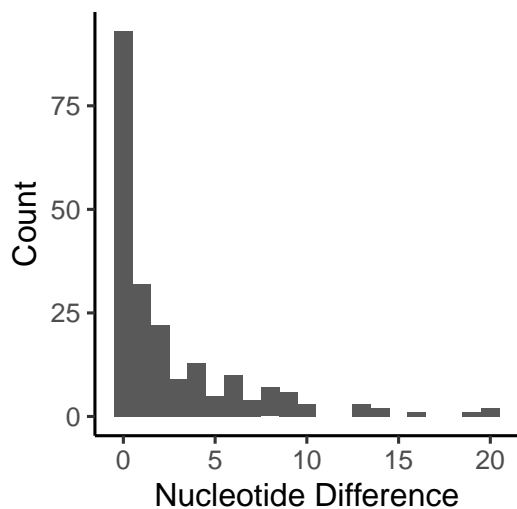
IGHV1-138*01_S0032

272 sequences assigned
105 (38.6%) exact matches, in which:
85 unique CDR3
6 unique J



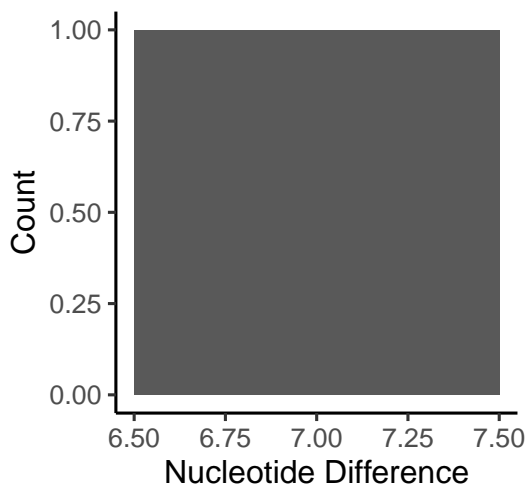
IGHV1-84*01_S2078

272 sequences assigned
93 (34.2%) exact matches, in which:
47 unique CDR3
7 unique J



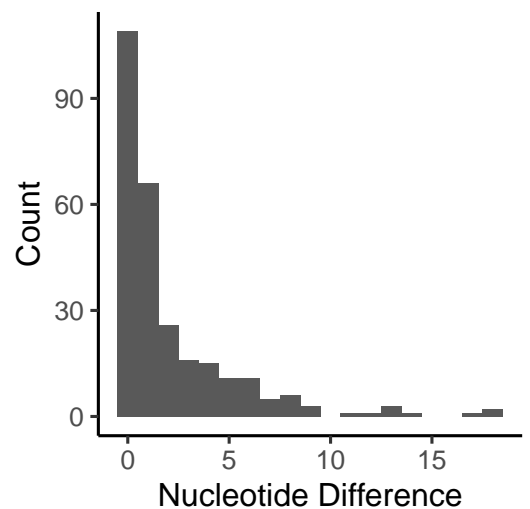
IGHV1-105*01_S9006

1 sequences assigned
No exact matches.



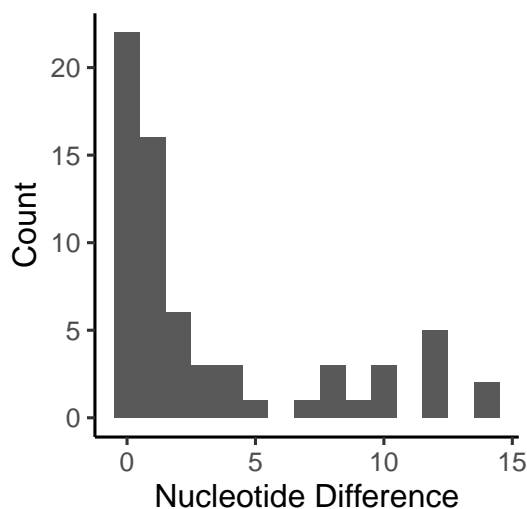
IGHV1-138*01_S2054

277 sequences assigned
109 (39.4%) exact matches, in which:
82 unique CDR3
6 unique J



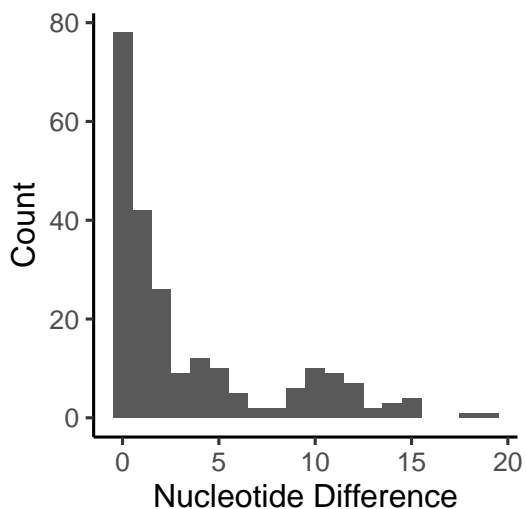
IGHV1-84*01_S4048

68 sequences assigned
22 (32.4%) exact matches, in which:
11 unique CDR3
4 unique J



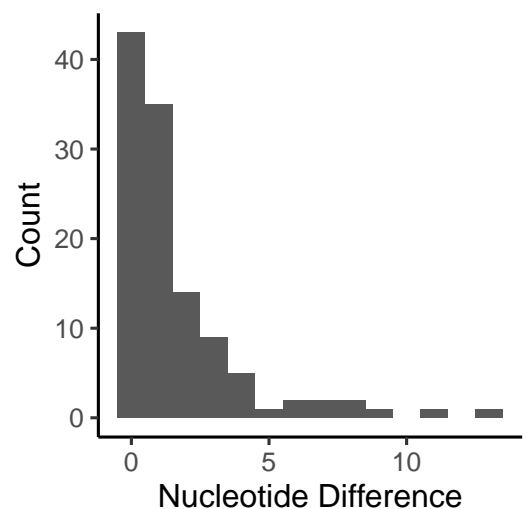
IGHV1-124*01_S6748

235 sequences assigned
78 (33.2%) exact matches, in which:
49 unique CDR3
6 unique J



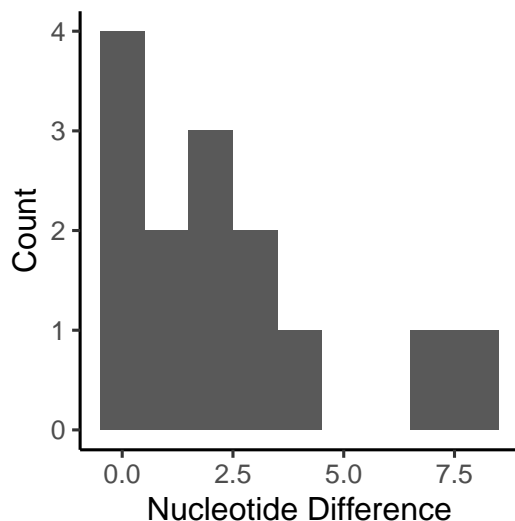
IGHV1-138*01_S6073

116 sequences assigned
43 (37.1%) exact matches, in which:
37 unique CDR3
6 unique J



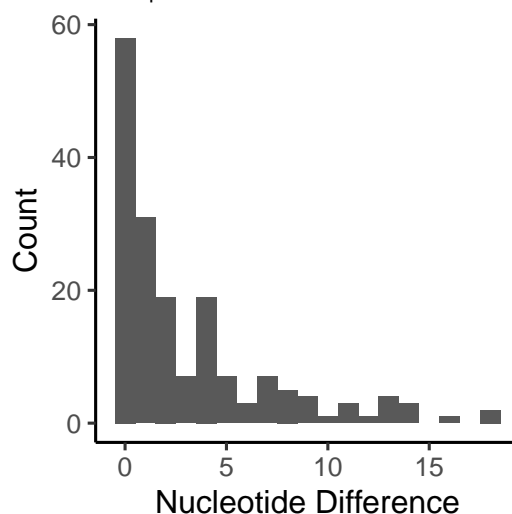
IGHV1-170*01_S3055

14 sequences assigned
4 (28.6%) exact matches, in which:
3 unique CDR3
1 unique J



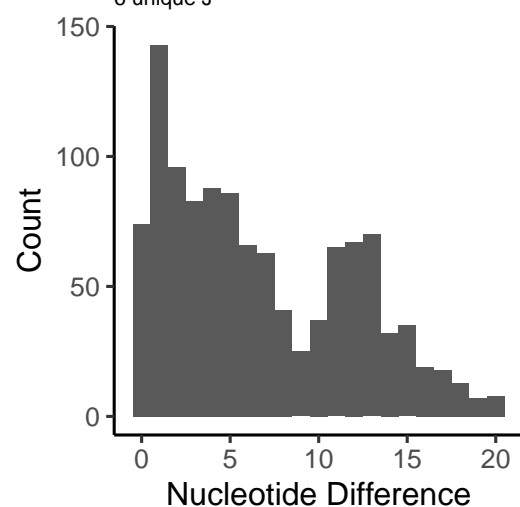
IGHV2-7*02_S3534_G292

178 sequences assigned
58 (32.6%) exact matches, in which:
55 unique CDR3
7 unique J



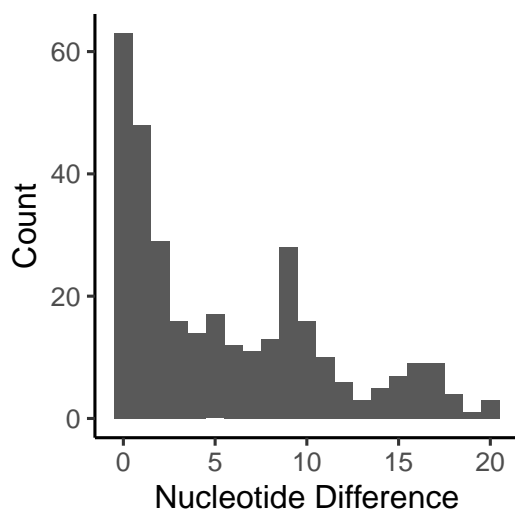
IGHV2-118*01_S2278

1632 sequences assigned
74 (4.5%) exact matches, in which:
40 unique CDR3
6 unique J



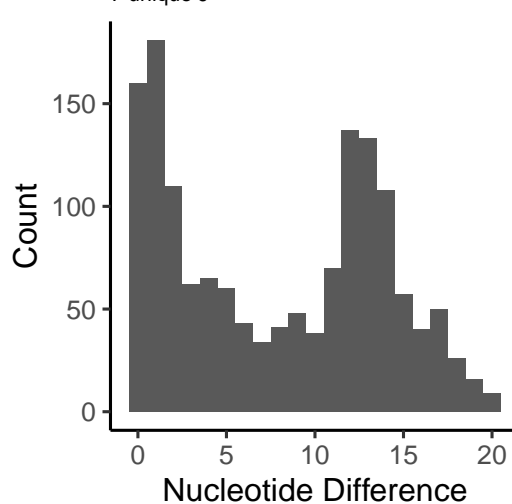
IGHV1-NL_2*01_S8362

328 sequences assigned
63 (19.2%) exact matches, in which:
33 unique CDR3
6 unique J



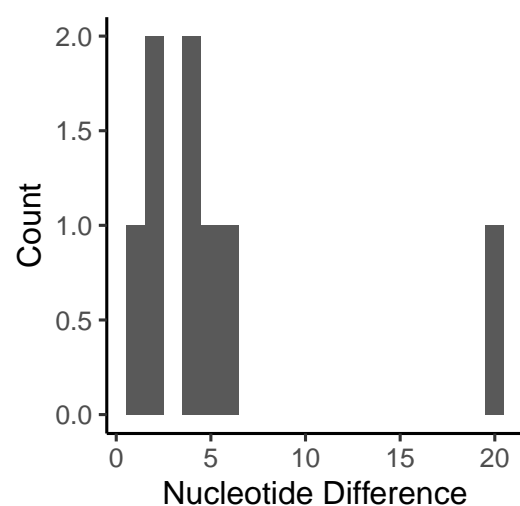
IGHV2-69*01_S0230

1533 sequences assigned
160 (10.4%) exact matches, in which:
78 unique CDR3
7 unique J



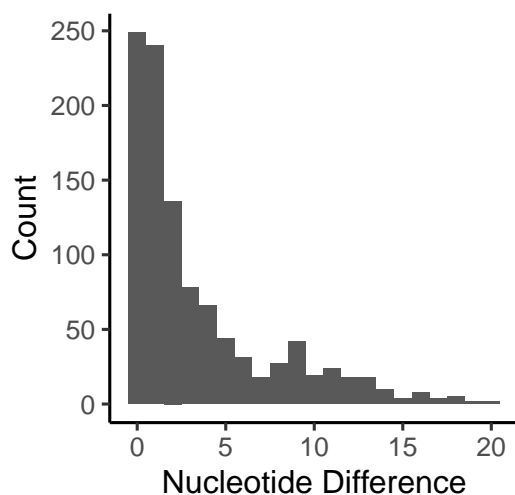
IGHV2-173*01_S2781

9 sequences assigned
No exact matches.



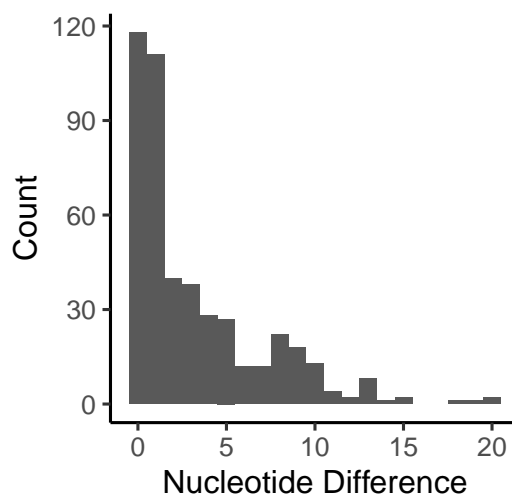
IGHV2-7*02_S3534

1054 sequences assigned
249 (23.6%) exact matches, in which:
138 unique CDR3
7 unique J



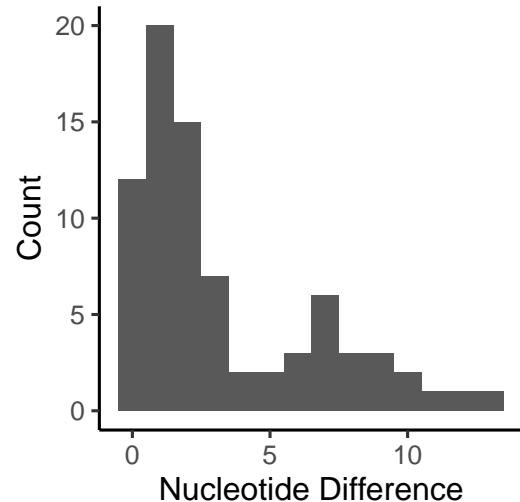
IGHV2-69*01_S1113

464 sequences assigned
118 (25.4%) exact matches, in which:
63 unique CDR3
7 unique J



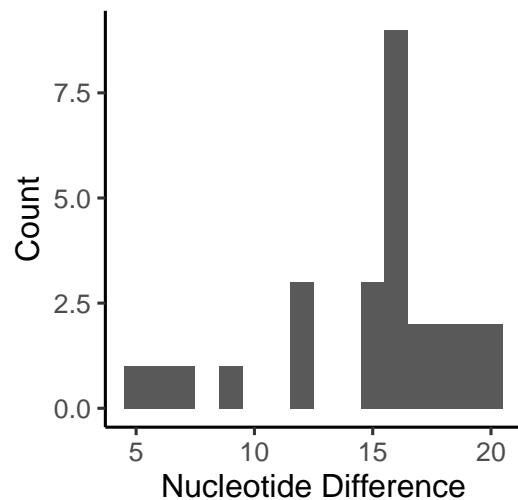
IGHV2-NL_1*01_S3259

78 sequences assigned
12 (15.4%) exact matches, in which:
9 unique CDR3
2 unique J



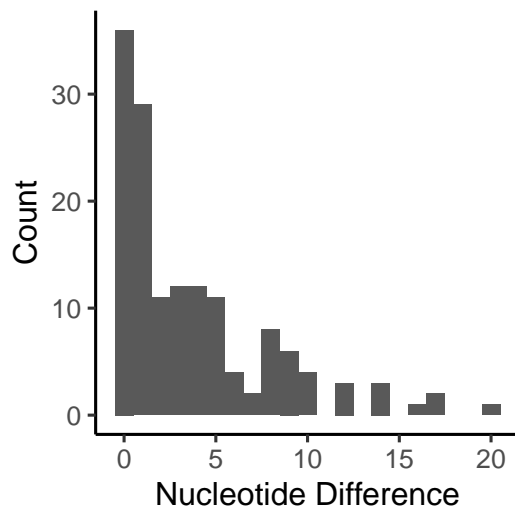
IGHV2-NL_1*01_S5779

28 sequences assigned
No exact matches.



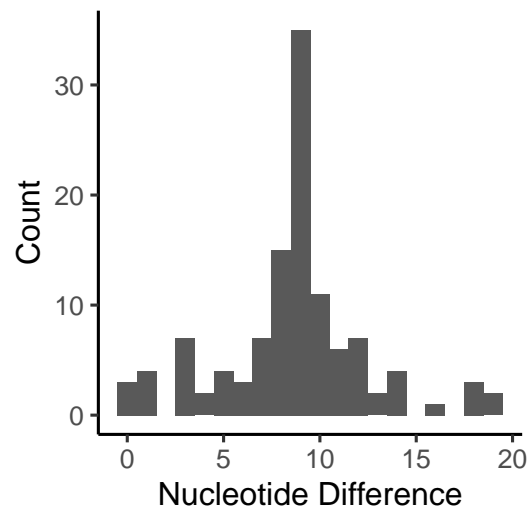
IGHV3-5*01_S4034

151 sequences assigned
36 (23.8%) exact matches, in which:
22 unique CDR3
5 unique J



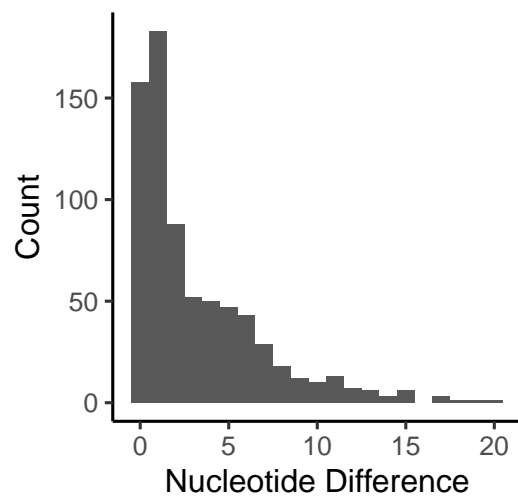
IGHV3-28*01_S4621

138 sequences assigned
3 (2.2%) exact matches, in which:
3 unique CDR3
2 unique J



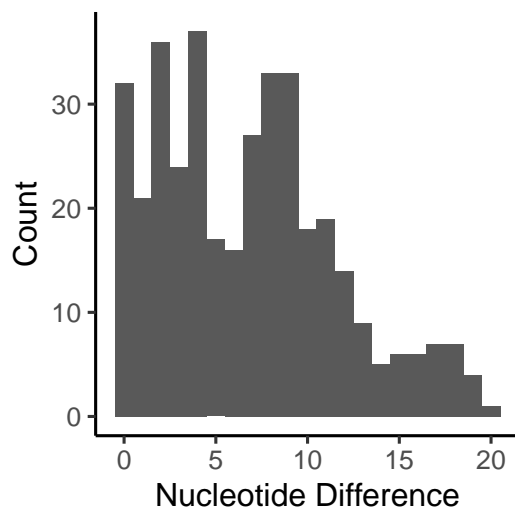
IGHV2-NL_2*01_S2193

748 sequences assigned
158 (21.1%) exact matches, in which:
89 unique CDR3
6 unique J



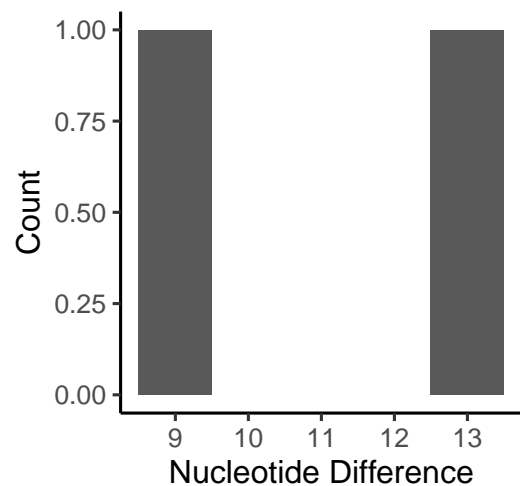
IGHV3-9*01_S0778

384 sequences assigned
32 (8.3%) exact matches, in which:
25 unique CDR3
5 unique J



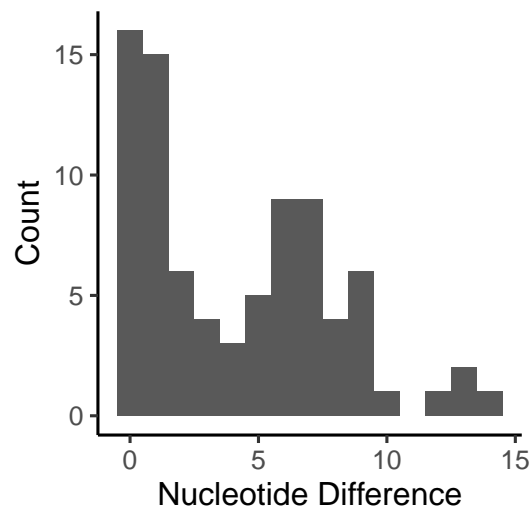
IGHV3-34*01_S1309

2 sequences assigned
No exact matches.



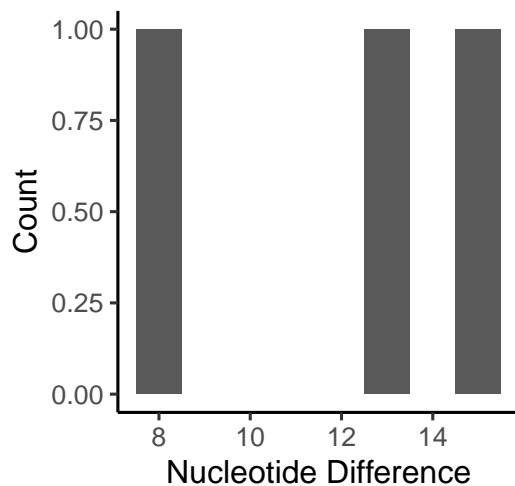
IGHV3-5*01_S1720

85 sequences assigned
16 (18.8%) exact matches, in which:
13 unique CDR3
5 unique J



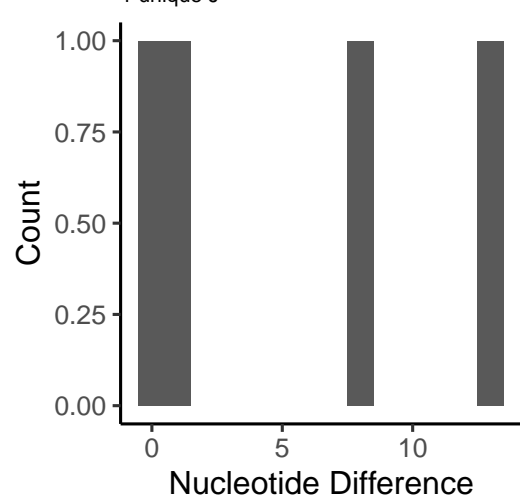
IGHV3-28*01_S3617

5 sequences assigned
No exact matches.



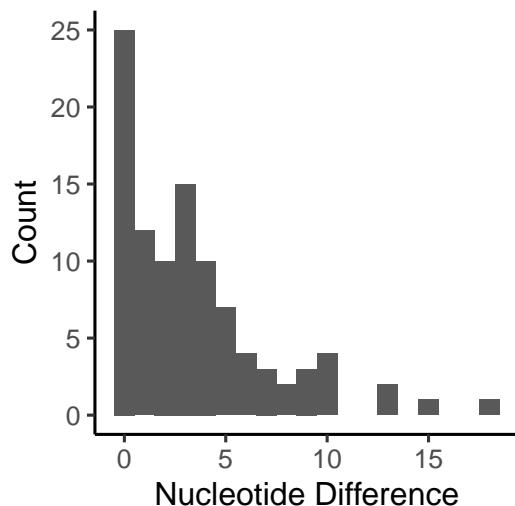
IGHV3-34*02_S0799

5 sequences assigned
1 (20%) exact matches, in which:
1 unique CDR3
1 unique J



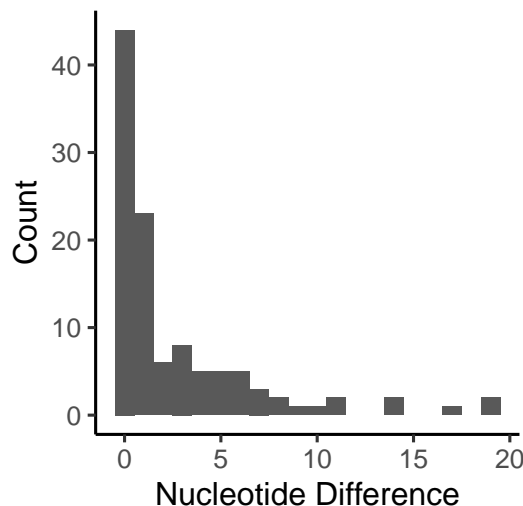
IGHV3-36*01_S1803

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



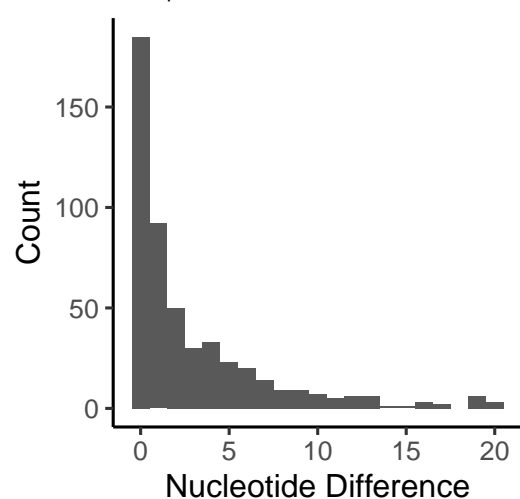
IGHV3-52*02_S6213

110 sequences assigned
44 (40%) exact matches, in which:
28 unique CDR3
5 unique J



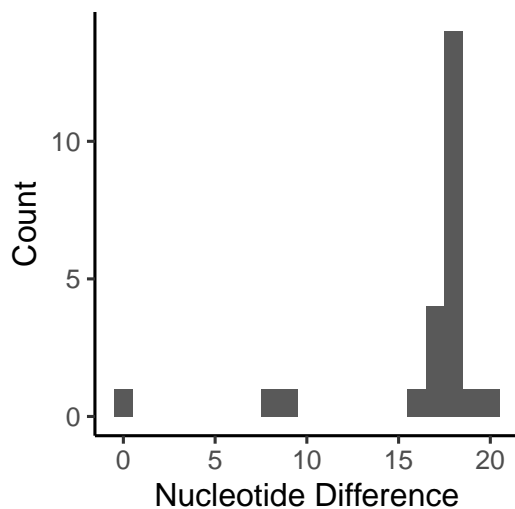
IGHV3-73*02_S4889

508 sequences assigned
185 (36.4%) exact matches, in which:
120 unique CDR3
7 unique J



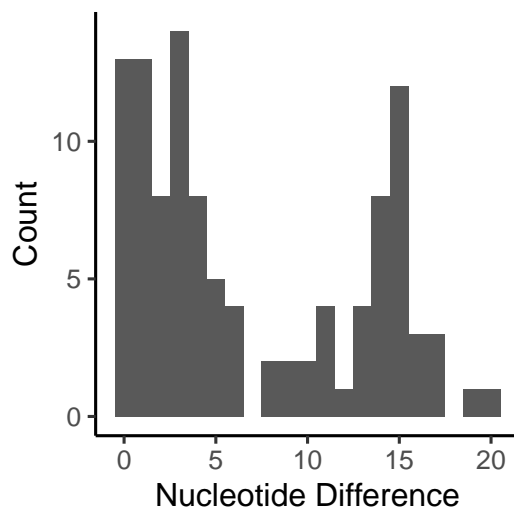
IGHV3-37*01_S0586

35 sequences assigned
1 (2.9%) exact matches, in which:
1 unique CDR3
1 unique J



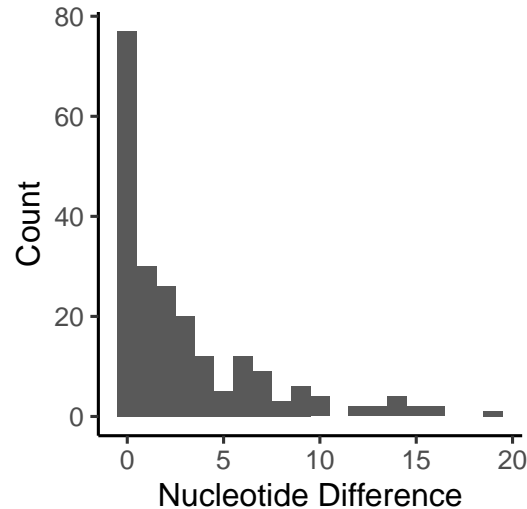
IGHV3-53*01_S2905

117 sequences assigned
13 (11.1%) exact matches, in which:
9 unique CDR3
4 unique J



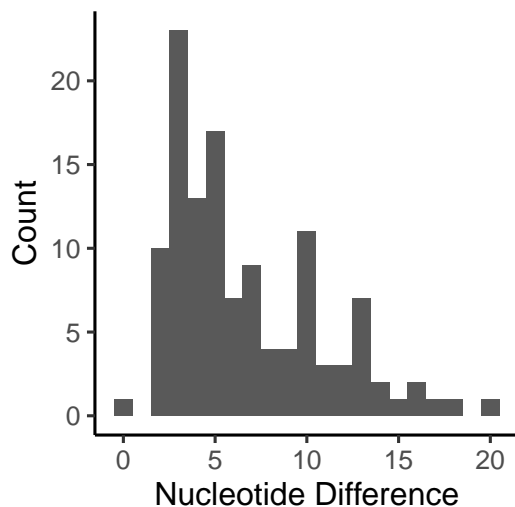
IGHV3-73*02_S7500

217 sequences assigned
77 (35.5%) exact matches, in which:
57 unique CDR3
7 unique J



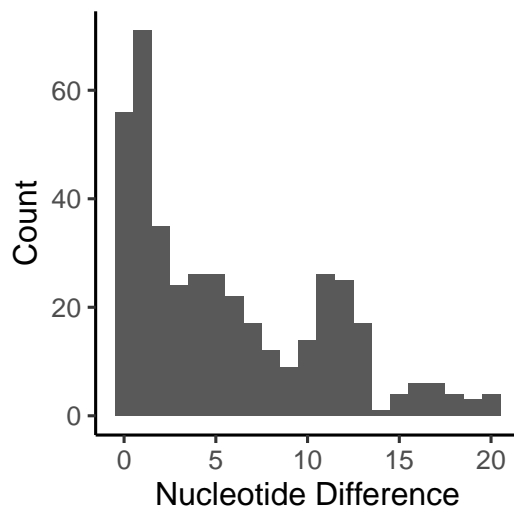
IGHV3-50*01_S8530

126 sequences assigned
1 (0.8%) exact matches, in which:
1 unique CDR3
1 unique J



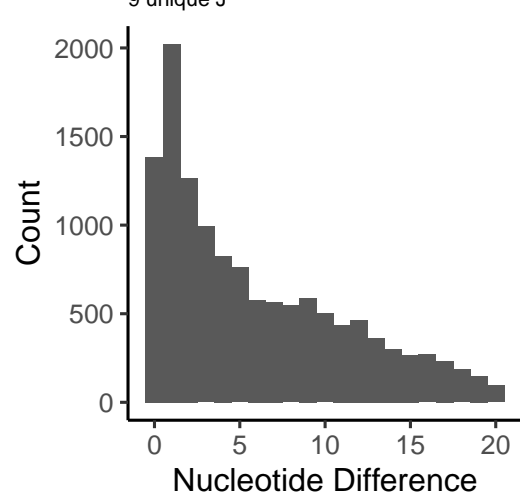
IGHV3-53*01_S3647

428 sequences assigned
56 (13.1%) exact matches, in which:
43 unique CDR3
5 unique J



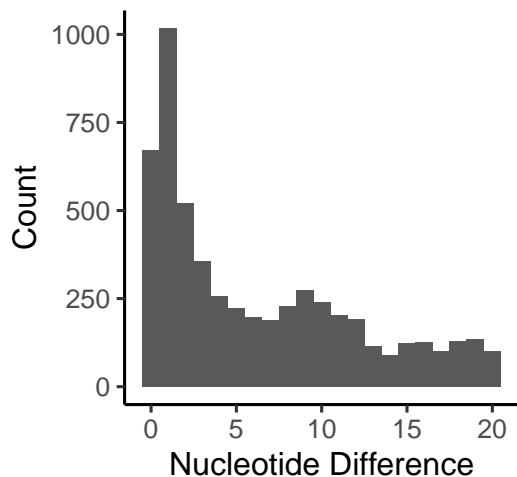
IGHV3-76*01_S9591

13429 sequences assigned
1383 (10.3%) exact matches, in which:
968 unique CDR3
9 unique J



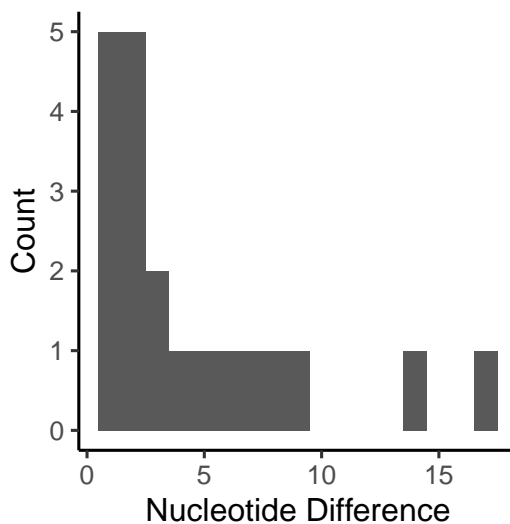
IGHV3-76*02_S4190

5949 sequences assigned
672 (11.3%) exact matches, in which:
486 unique CDR3
8 unique J



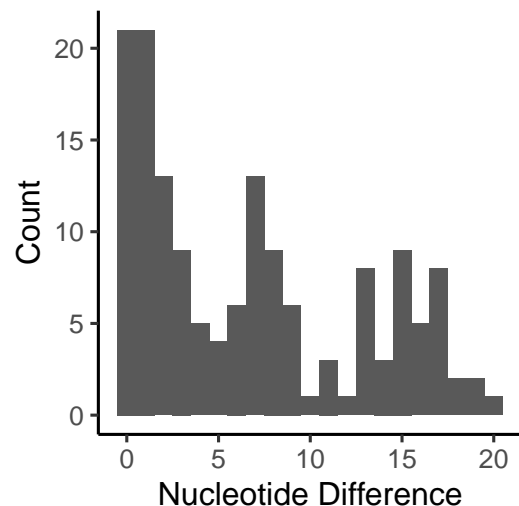
IGHV3-87*01_S5669

20 sequences assigned
No exact matches.



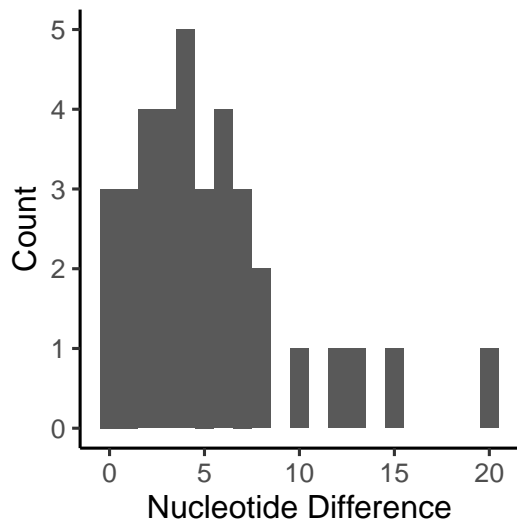
IGHV3-100*01_S2773

161 sequences assigned
21 (13%) exact matches, in which:
13 unique CDR3
3 unique J



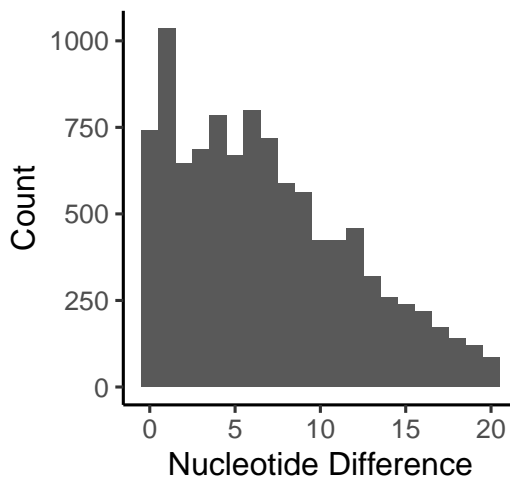
IGHV3-83*02_S1476

37 sequences assigned
3 (8.1%) exact matches, in which:
3 unique CDR3
2 unique J



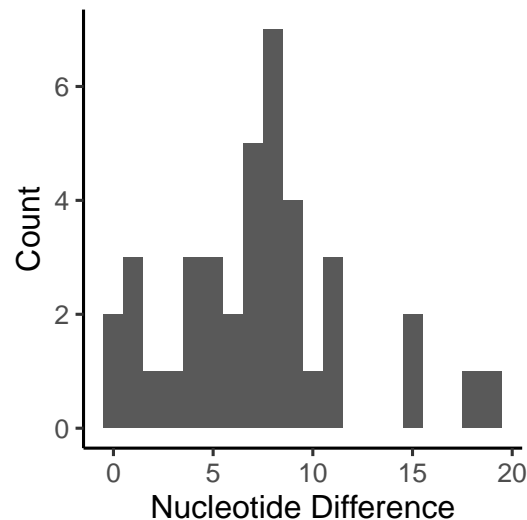
IGHV3-88*01_S3027

10715 sequences assigned
740 (6.9%) exact matches, in which:
426 unique CDR3
7 unique J



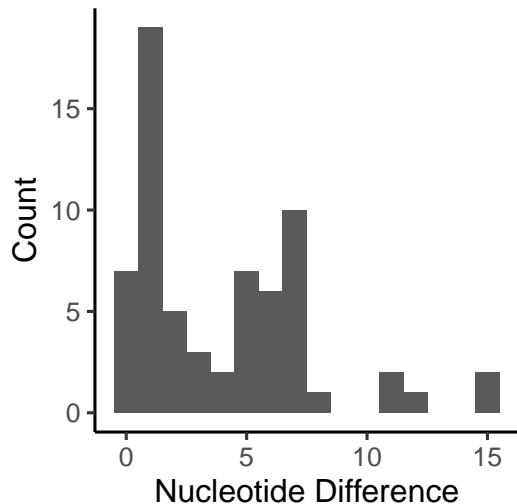
IGHV3-100*01_S5468

39 sequences assigned
2 (5.1%) exact matches, in which:
2 unique CDR3
1 unique J



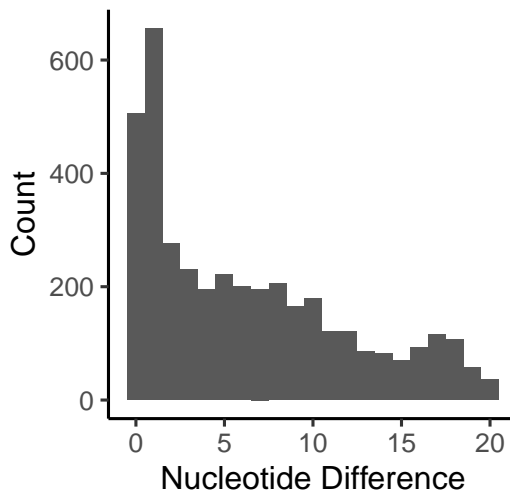
IGHV3-87*01_S2131

70 sequences assigned
7 (10%) exact matches, in which:
7 unique CDR3
3 unique J



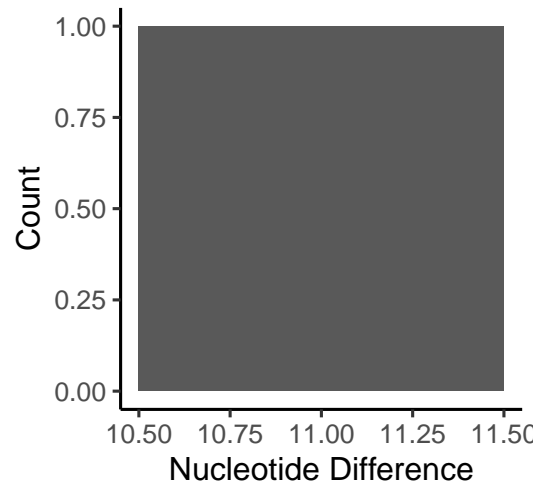
IGHV3-88*02_S1054

4122 sequences assigned
506 (12.3%) exact matches, in which:
324 unique CDR3
8 unique J



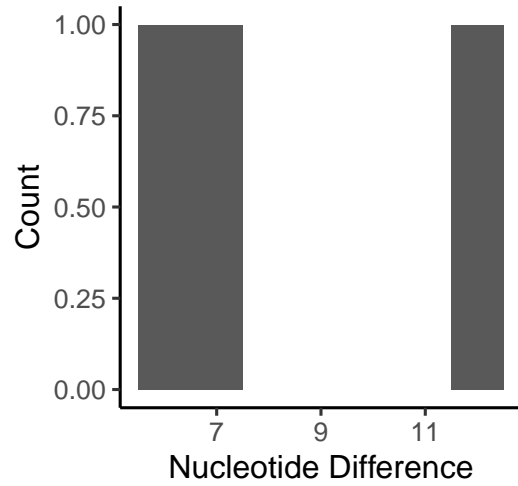
IGHV3-103*01_S0760

1 sequences assigned
No exact matches.



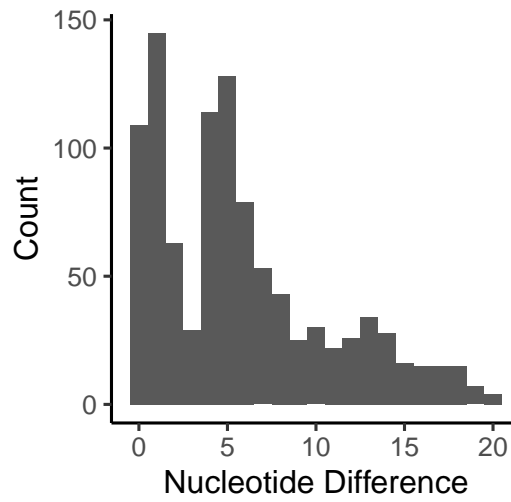
IGHV3-103*01_S6076

3 sequences assigned
No exact matches.



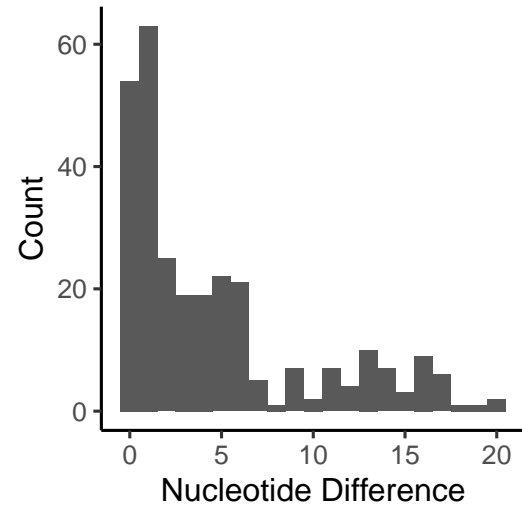
IGHV3-127*01_S2385

1025 sequences assigned
109 (10.6%) exact matches, in which:
71 unique CDR3
7 unique J



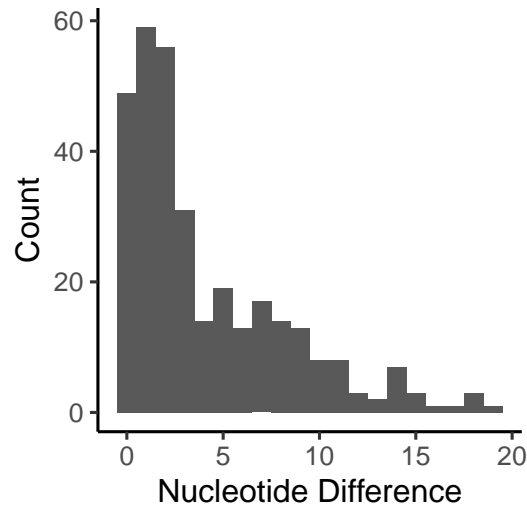
IGHV3-141*02_S4330

294 sequences assigned
54 (18.4%) exact matches, in which:
41 unique CDR3
5 unique J



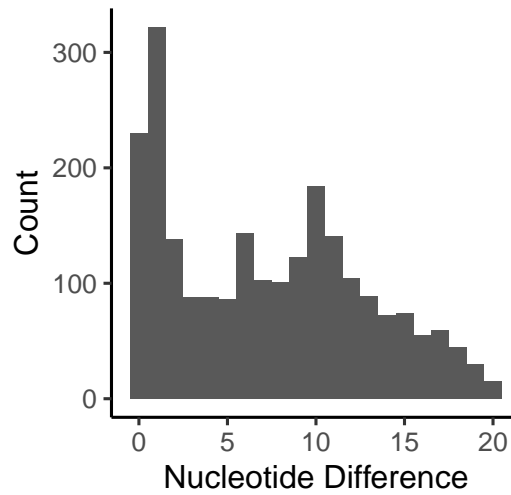
IGHV3-120*01_S7674

327 sequences assigned
49 (15%) exact matches, in which:
34 unique CDR3
5 unique J



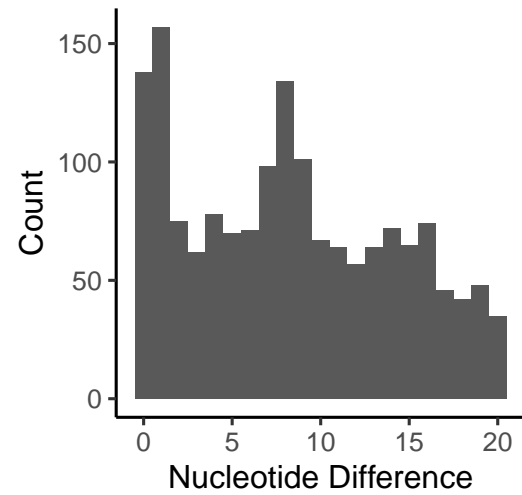
IGHV3-128*01_S3124

2387 sequences assigned
230 (9.6%) exact matches, in which:
143 unique CDR3
6 unique J



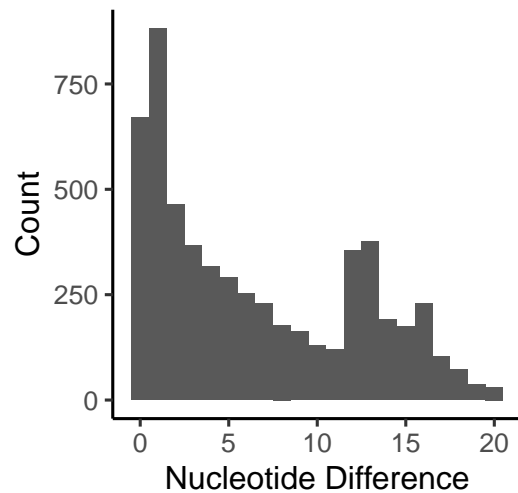
IGHV3-152*01_S7388

2040 sequences assigned
138 (6.8%) exact matches, in which:
96 unique CDR3
6 unique J



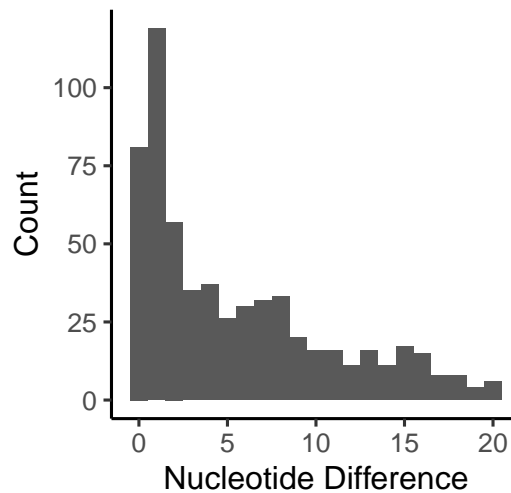
IGHV3-122*01_S8388

5797 sequences assigned
671 (11.6%) exact matches, in which:
469 unique CDR3
9 unique J



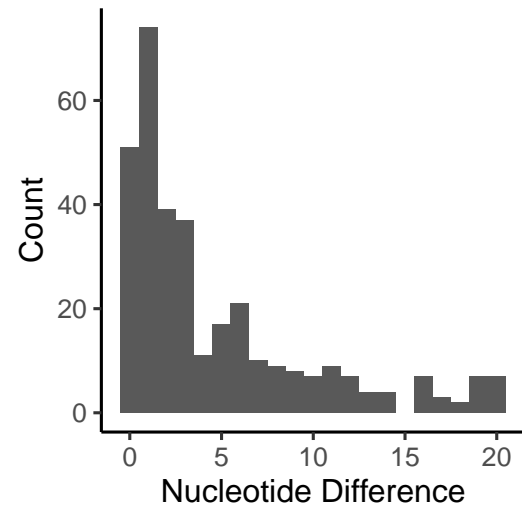
IGHV3-128*02_S0577

623 sequences assigned
81 (13%) exact matches, in which:
59 unique CDR3
7 unique J



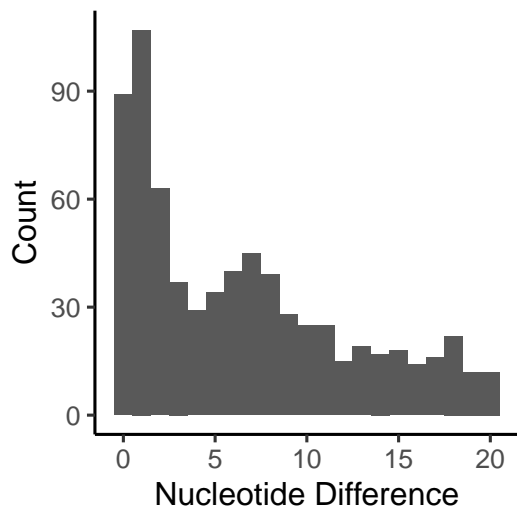
IGHV3-172*01_S1597

338 sequences assigned
51 (15.1%) exact matches, in which:
32 unique CDR3
5 unique J



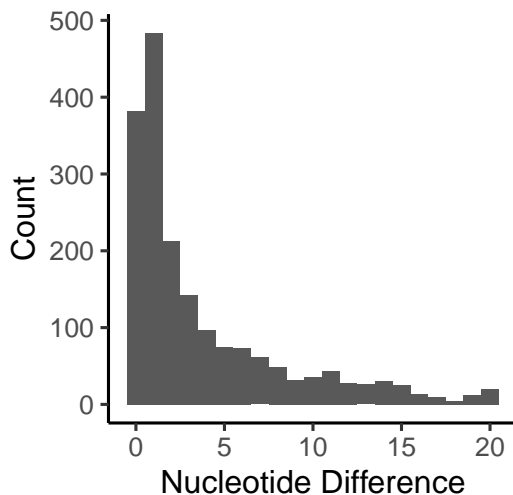
IGHV3-177*01_S8409

748 sequences assigned
89 (11.9%) exact matches, in which:
64 unique CDR3
6 unique J



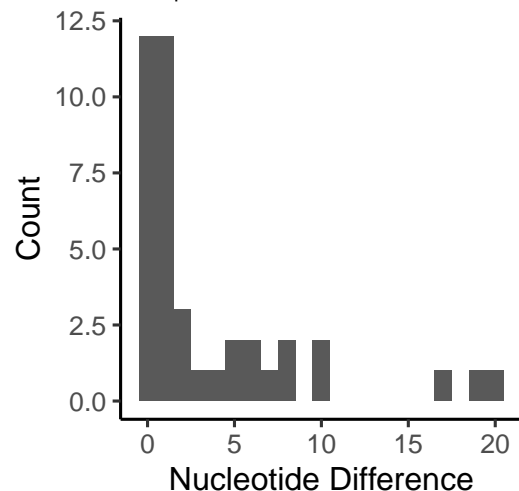
IGHV3-NL_1*01_S6560

1910 sequences assigned
382 (20%) exact matches, in which:
250 unique CDR3
8 unique J



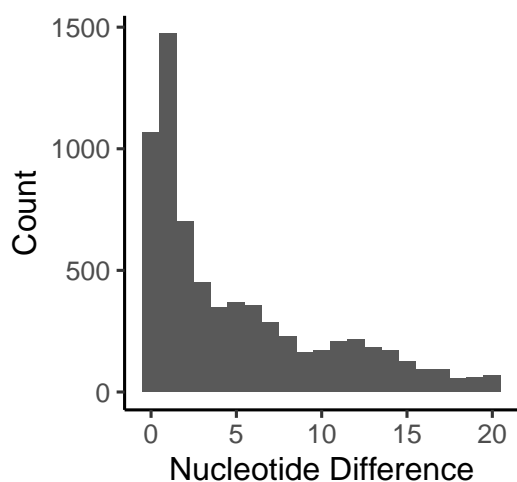
IGHV3-NL_12*02_S6383

41 sequences assigned
12 (29.3%) exact matches, in which:
6 unique CDR3
3 unique J



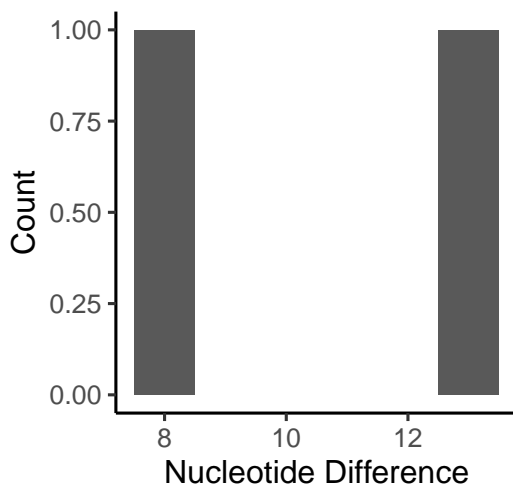
IGHV3-NL_1*01_S4850

7144 sequences assigned
1068 (14.9%) exact matches, in which:
684 unique CDR3
10 unique J



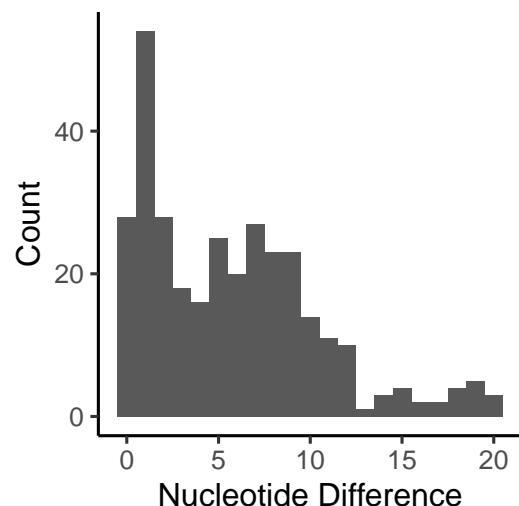
IGHV3-NL_10*02_S3155

2 sequences assigned
No exact matches.



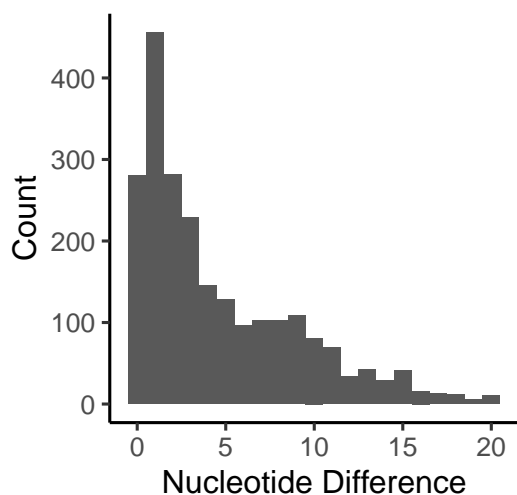
IGHV3-NL_13*01_S3277

333 sequences assigned
28 (8.4%) exact matches, in which:
21 unique CDR3
5 unique J



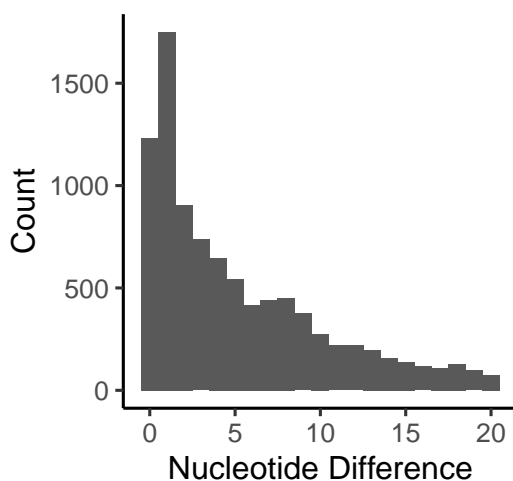
IGHV3-NL_1*01_S4906

2331 sequences assigned
280 (12%) exact matches, in which:
175 unique CDR3
7 unique J



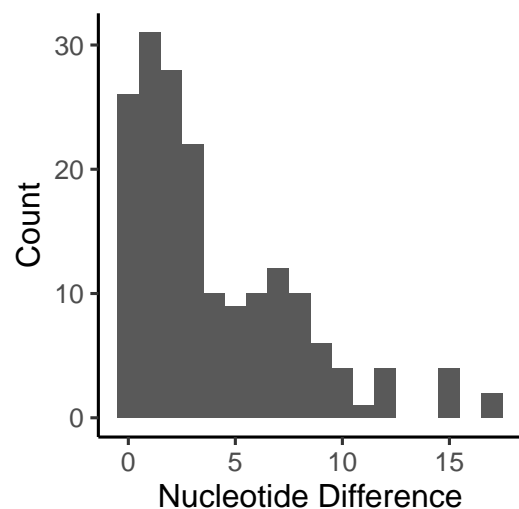
IGHV3-NL_11*01_S300

9484 sequences assigned
1233 (13%) exact matches, in which:
848 unique CDR3
8 unique J



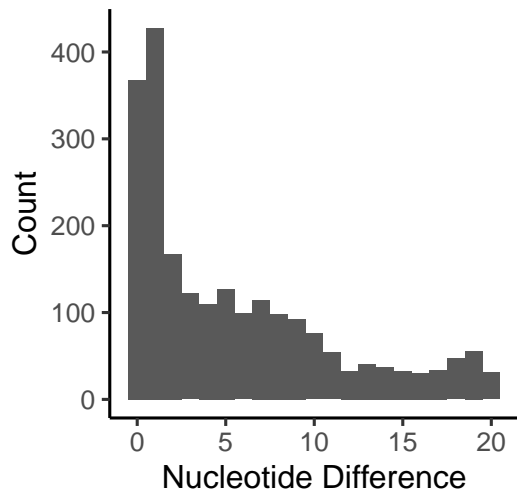
IGHV3-NL_16*01_S7825

183 sequences assigned
26 (14.2%) exact matches, in which:
16 unique CDR3
6 unique J



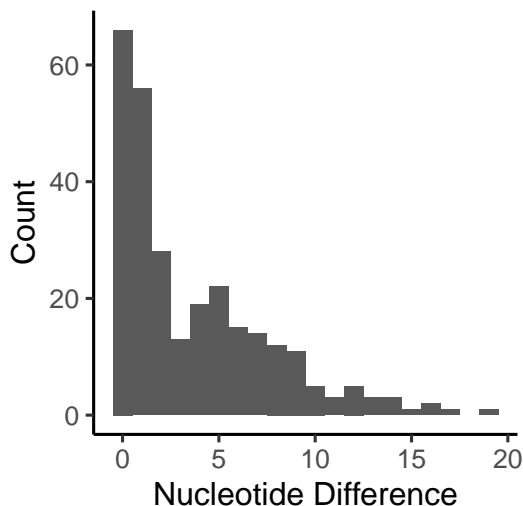
IGHV3–NL_17*01_S0238

2350 sequences assigned
368 (15.7%) exact matches, in which:
229 unique CDR3
8 unique J



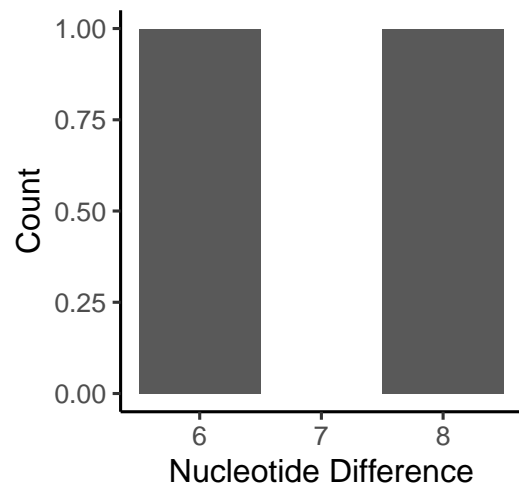
IGHV3–NL_18*01_S7220

313 sequences assigned
66 (21.1%) exact matches, in which:
51 unique CDR3
6 unique J



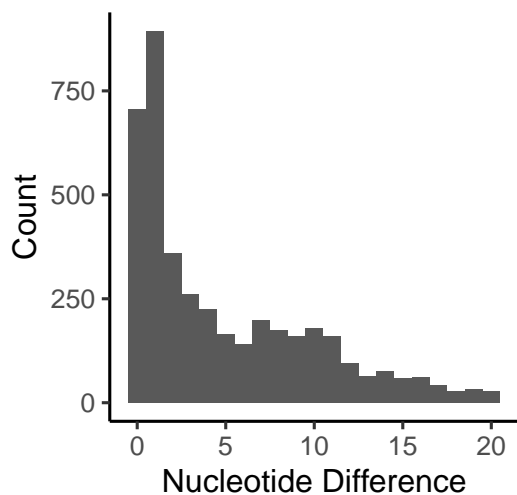
IGHV3–NL_19*01_S4090

2 sequences assigned
No exact matches.



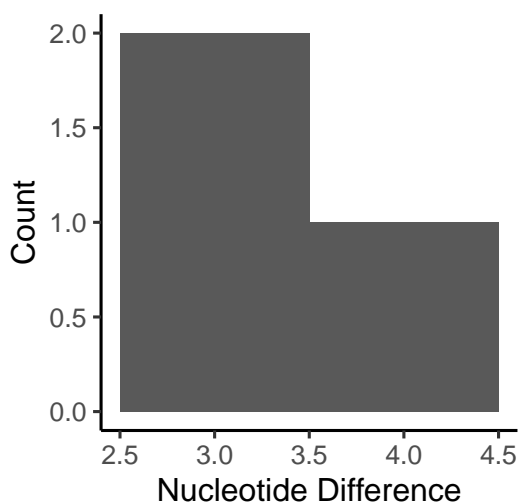
IGHV3–NL_17*01_S4250

4317 sequences assigned
707 (16.4%) exact matches, in which:
459 unique CDR3
8 unique J



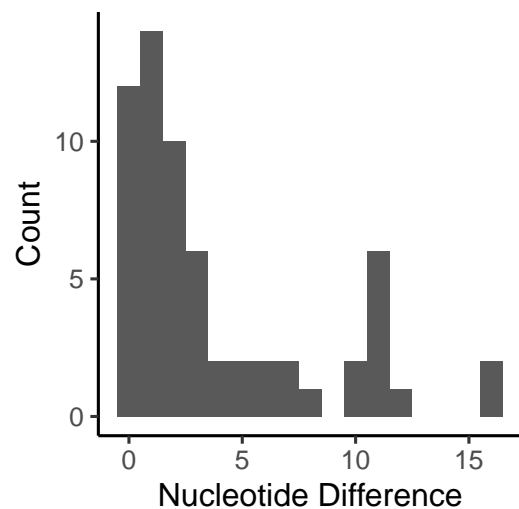
IGHV3–NL_19*01_S1690

3 sequences assigned
No exact matches.



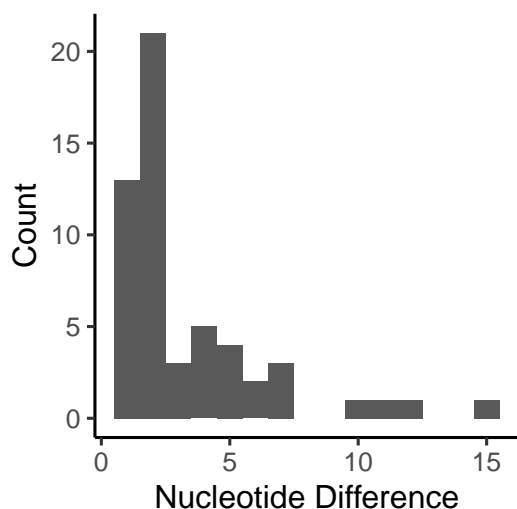
IGHV3–NL_2*01_S0144

62 sequences assigned
12 (19.4%) exact matches, in which:
10 unique CDR3
3 unique J



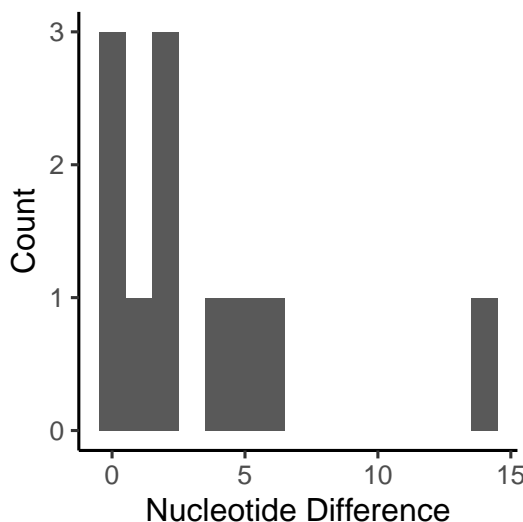
IGHV3–NL_18*01_S6383

56 sequences assigned
No exact matches.



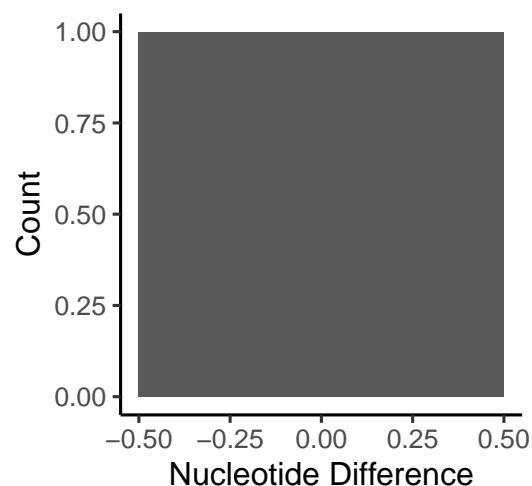
IGHV3–NL_19*01_S2166

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



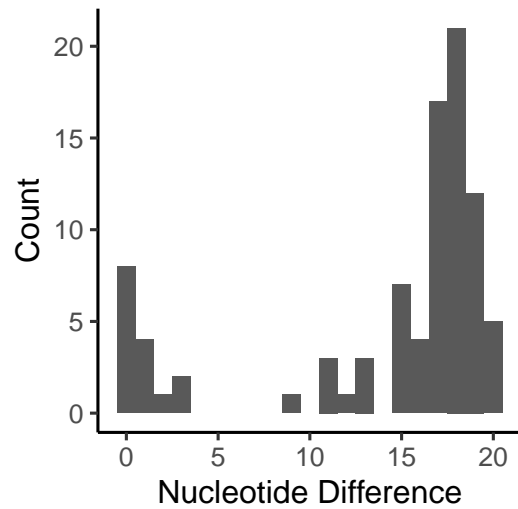
IGHV3–NL_3*02_S6269

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



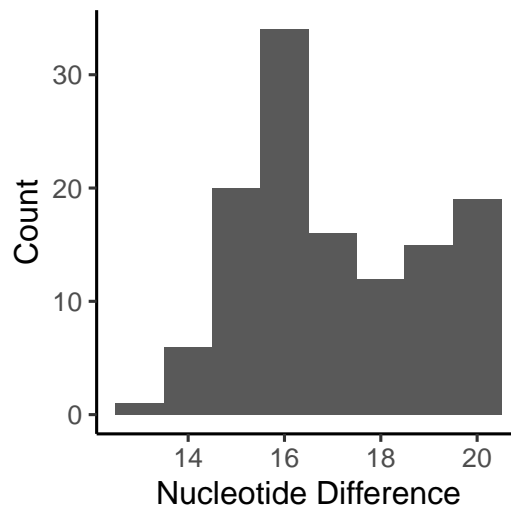
IGHV3–NL_4*01_S6875

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



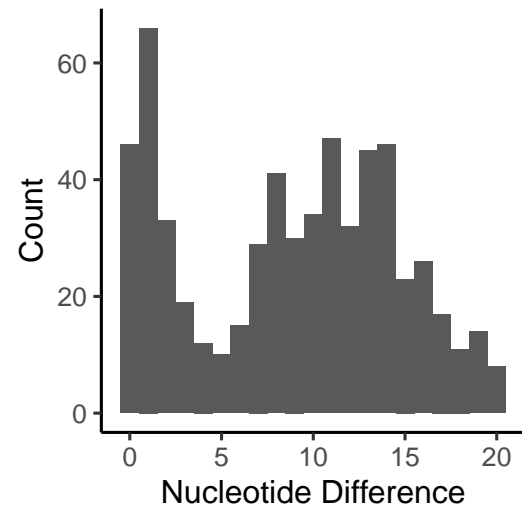
IGHV3–NL_5*01_S7761

464 sequences assigned
No exact matches.



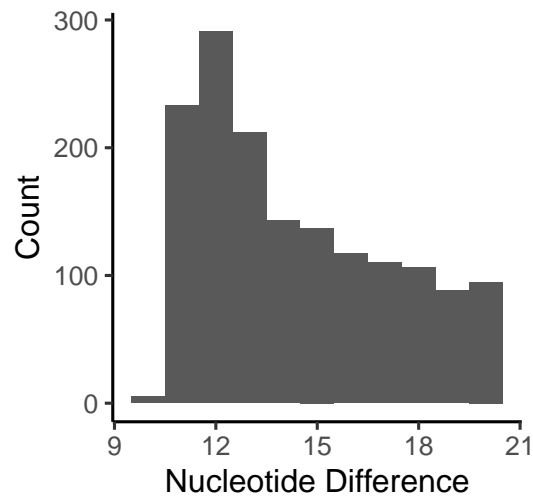
IGHV3–NL_8*01_S7415

666 sequences assigned
46 (6.9%) exact matches, in which:
33 unique CDR3
4 unique J



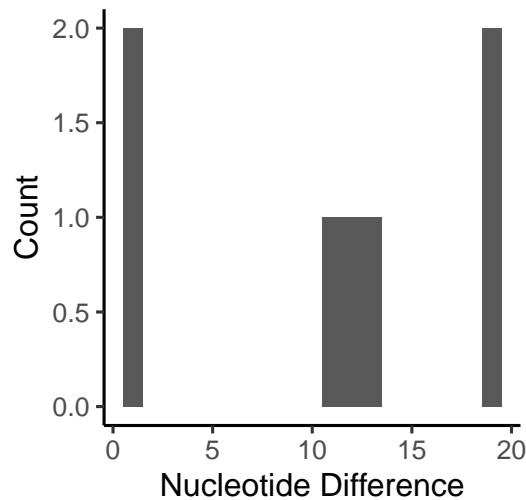
IGHV3–NL_5*01_S3315

2070 sequences assigned
No exact matches.



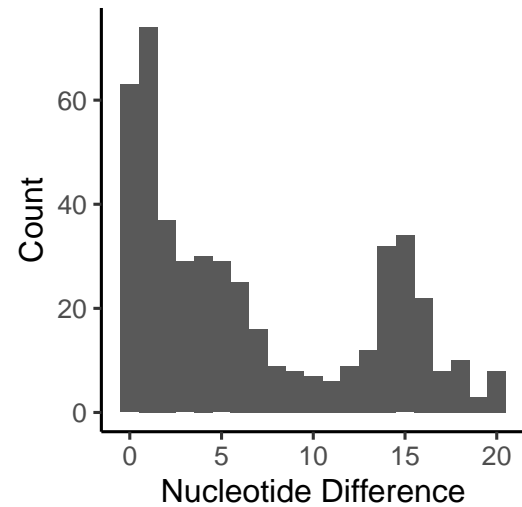
IGHV3–NL_5*01_S8361

13 sequences assigned
No exact matches.



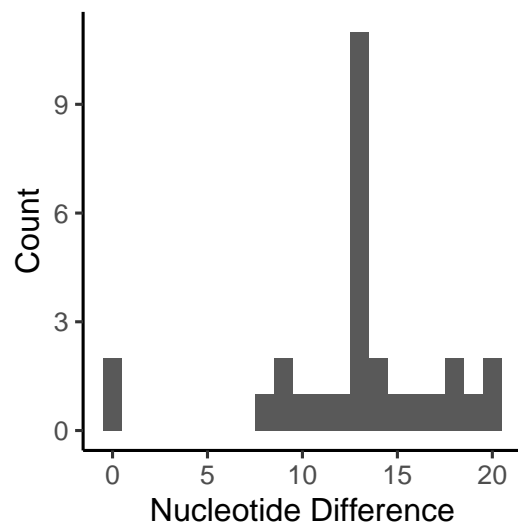
IGHV3–NL_8*01_S9584

498 sequences assigned
63 (12.7%) exact matches, in which:
43 unique CDR3
7 unique J



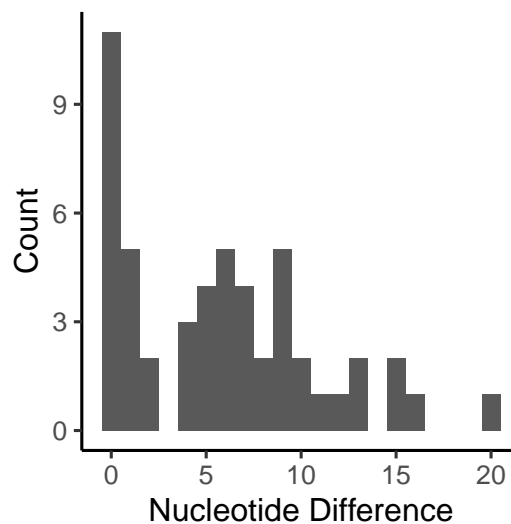
IGHV3–NL_5*01_S4429

32 sequences assigned
2 (6.2%) exact matches, in which:
2 unique CDR3
1 unique J



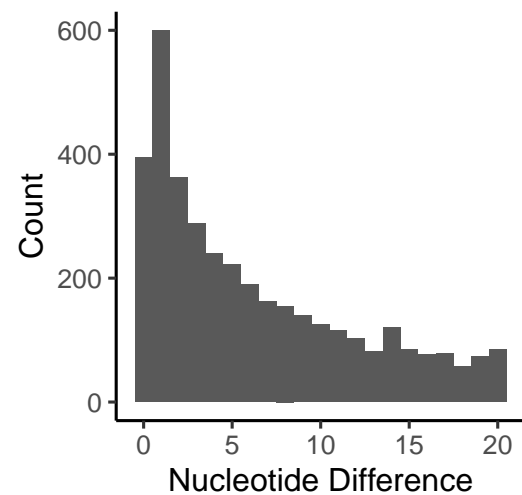
IGHV3–NL_6*02_S6474

53 sequences assigned
11 (20.8%) exact matches, in which:
11 unique CDR3
4 unique J



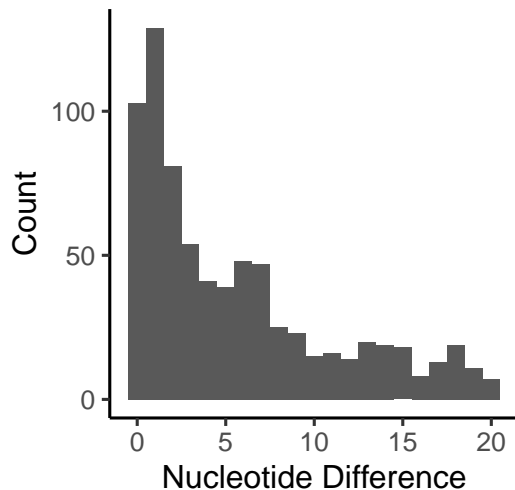
IGHV3–NL_9*01_S6098

4738 sequences assigned
394 (8.3%) exact matches, in which:
276 unique CDR3
8 unique J



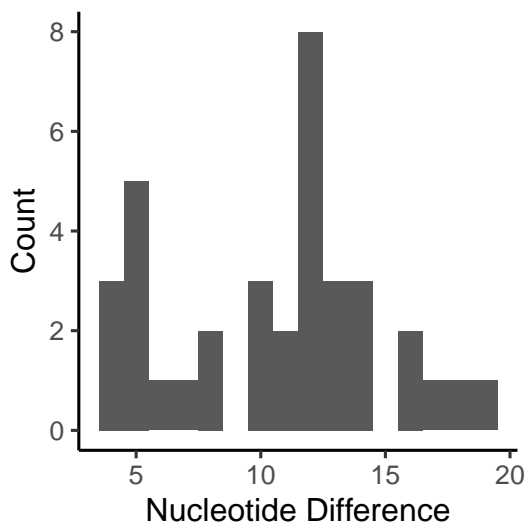
IGHV4-67*02_S4494

804 sequences assigned
103 (12.8%) exact matches, in which:
85 unique CDR3
7 unique J



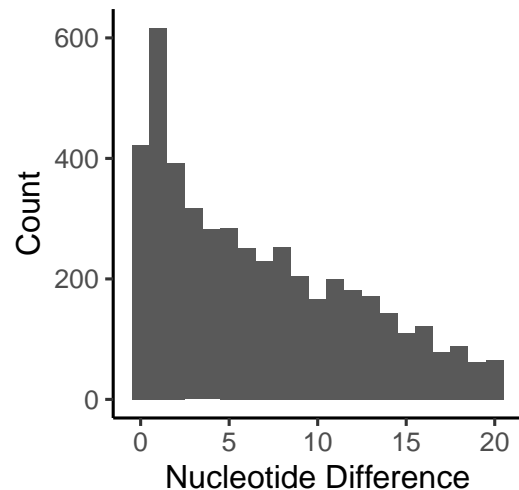
IGHV4-93*01_S5203

37 sequences assigned
No exact matches.



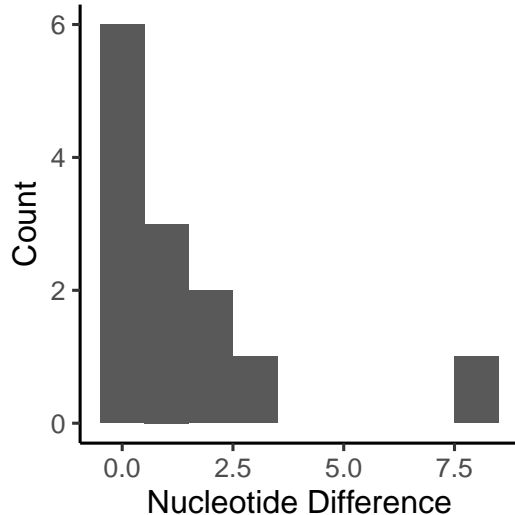
IGHV4-144*01_S6192

5089 sequences assigned
422 (8.3%) exact matches, in which:
347 unique CDR3
7 unique J



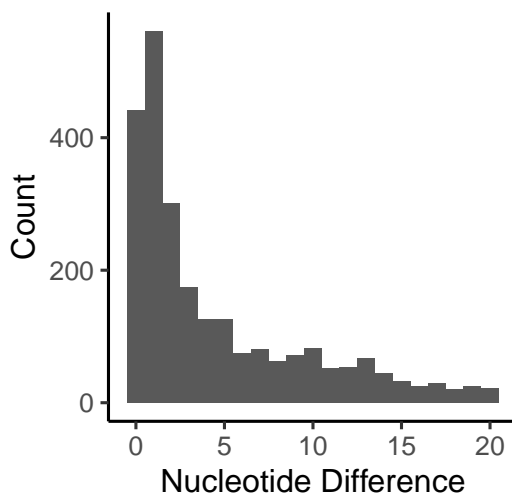
IGHV4-93*01_S0054

14 sequences assigned
6 (42.9%) exact matches, in which:
3 unique CDR3
2 unique J



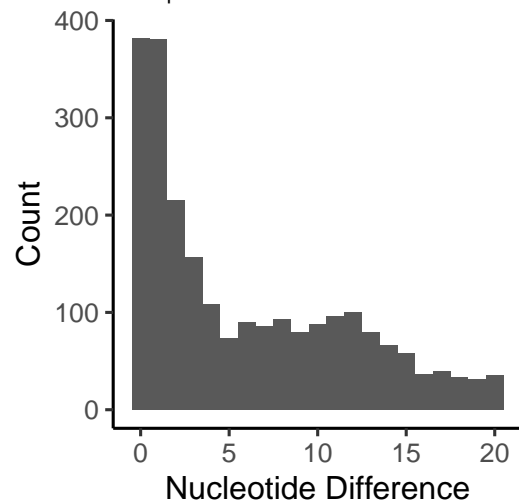
IGHV4-117*01_S2181

2583 sequences assigned
441 (17.1%) exact matches, in which:
363 unique CDR3
8 unique J



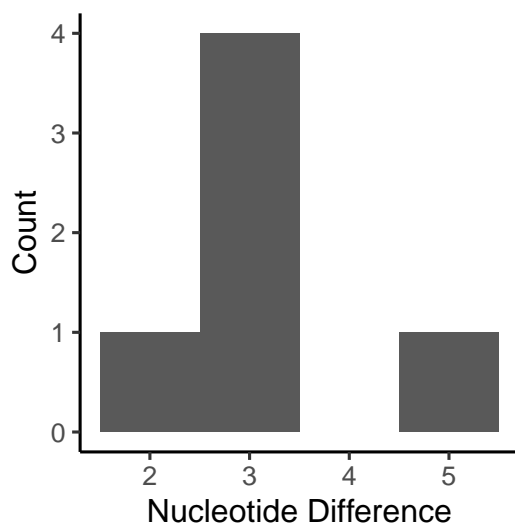
IGHV4-149*01_S4098

2440 sequences assigned
382 (15.7%) exact matches, in which:
309 unique CDR3
7 unique J



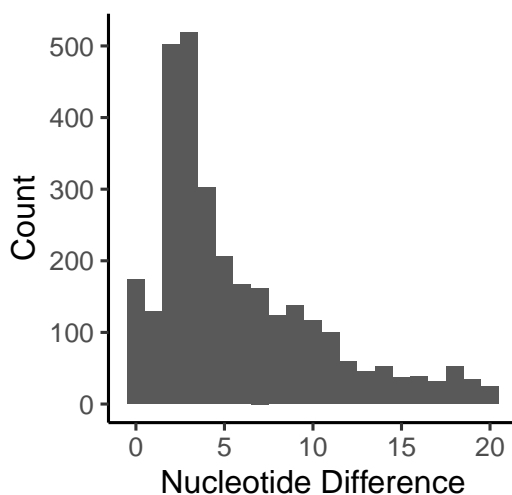
IGHV4-93*01_S1164

6 sequences assigned
No exact matches.



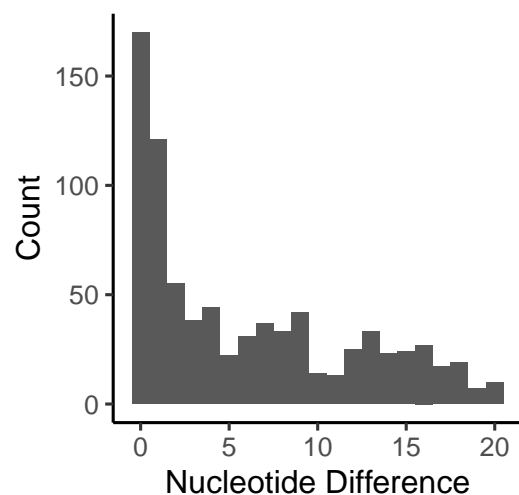
IGHV4-117*01_S6852

3134 sequences assigned
174 (5.6%) exact matches, in which:
146 unique CDR3
8 unique J



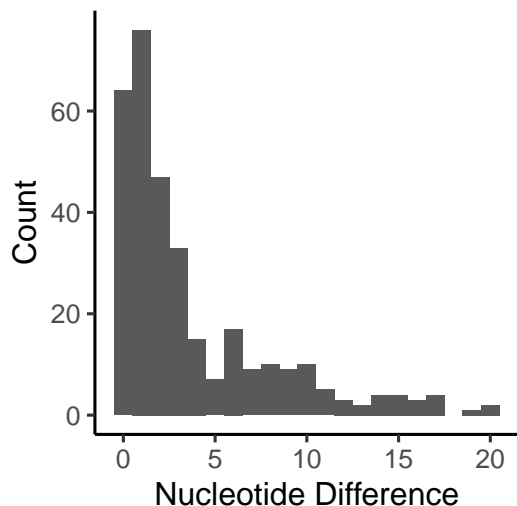
IGHV4-149*01_S5969

855 sequences assigned
170 (19.9%) exact matches, in which:
152 unique CDR3
7 unique J



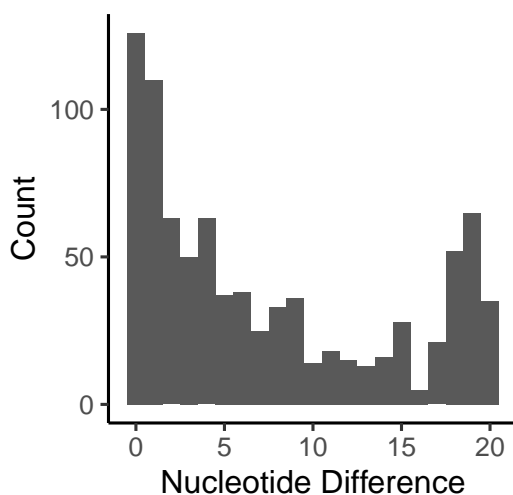
IGHV4-149*02_S6878

344 sequences assigned
64 (18.6%) exact matches, in which:
47 unique CDR3
7 unique J



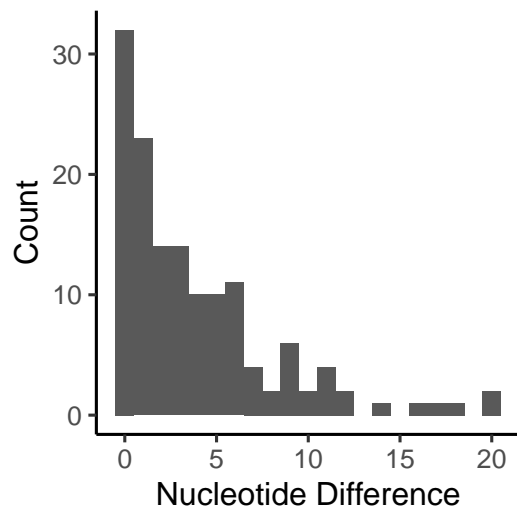
IGHV4-NL_1*01_S8520

957 sequences assigned
126 (13.2%) exact matches, in which:
110 unique CDR3
6 unique J



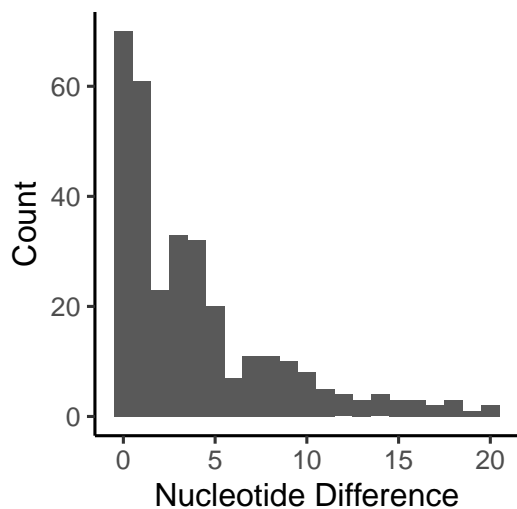
IGHV4-NL_1*02_S9550

143 sequences assigned
32 (22.4%) exact matches, in which:
29 unique CDR3
6 unique J



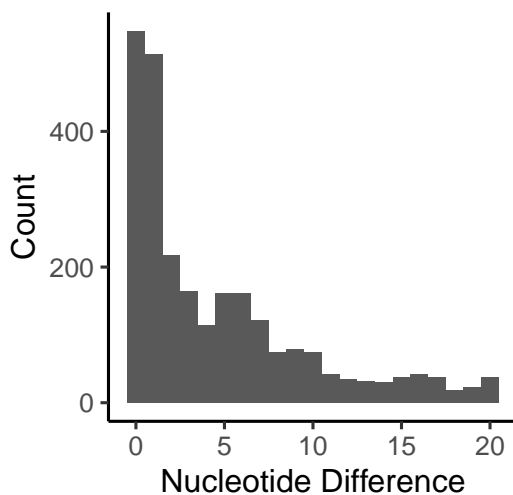
IGHV4-150*01_S5230

323 sequences assigned
70 (21.7%) exact matches, in which:
57 unique CDR3
6 unique J



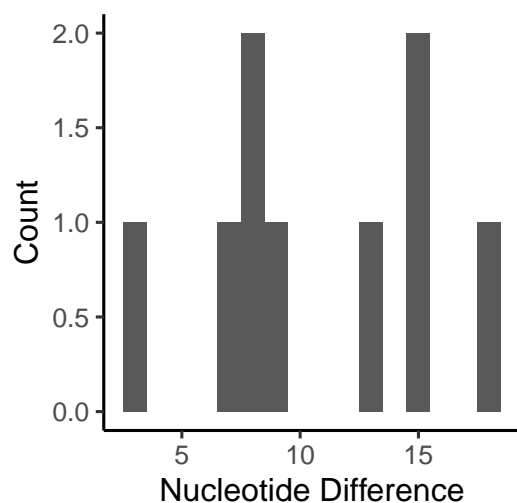
IGHV4-NL_1*01_S9508

2898 sequences assigned
548 (18.9%) exact matches, in which:
433 unique CDR3
7 unique J



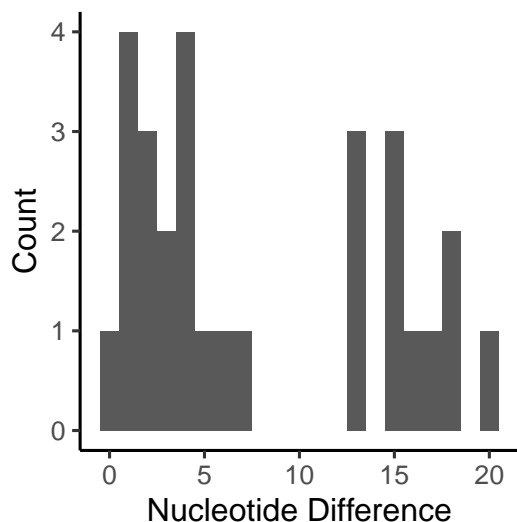
IGHV4-NL_10*01_S4164

9 sequences assigned
No exact matches.



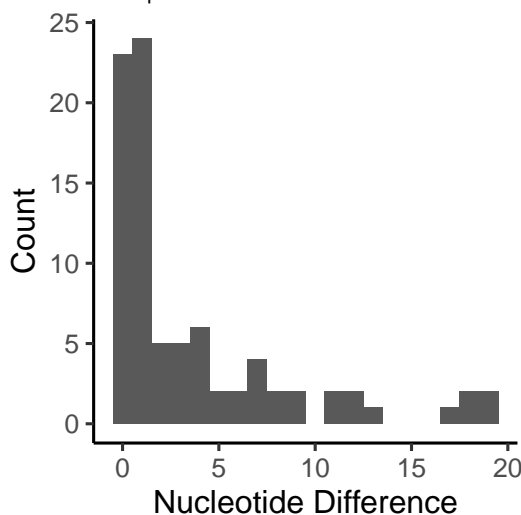
IGHV4-174*02_S7573

34 sequences assigned
1 (2.9%) exact matches, in which:
1 unique CDR3
1 unique J



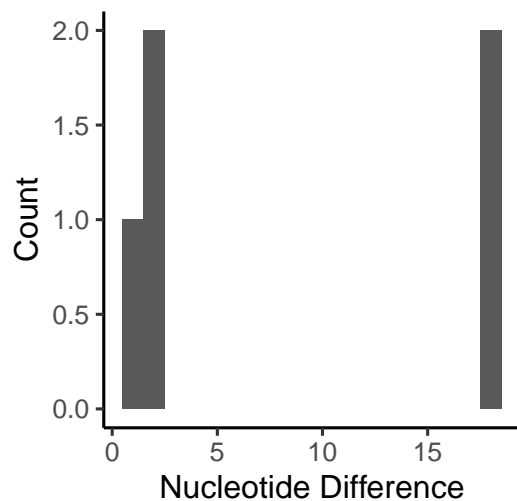
IGHV4-NL_1*02_S2201

87 sequences assigned
23 (26.4%) exact matches, in which:
22 unique CDR3
5 unique J



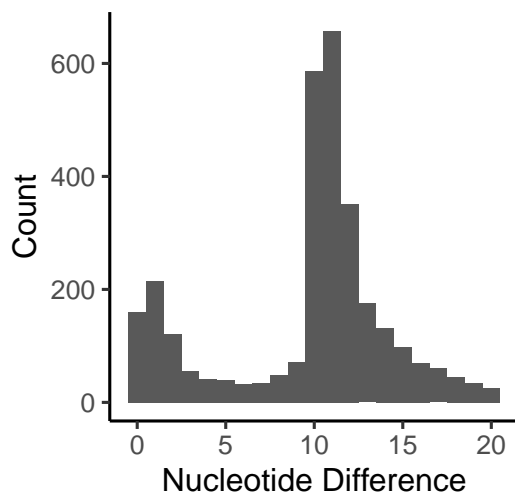
IGHV4-NL_10*01_S7118

5 sequences assigned
No exact matches.



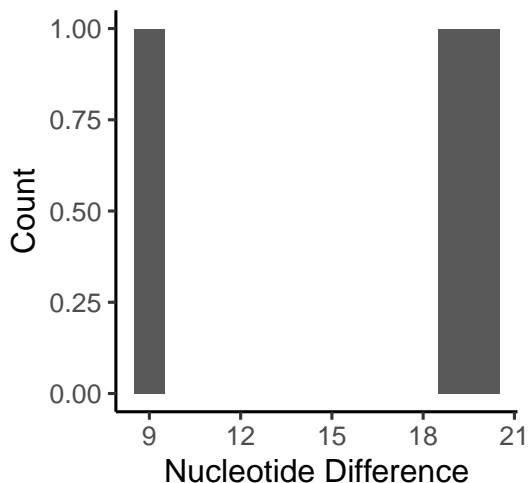
IGHV4–NL_12*01_S6471

3176 sequences assigned
160 (5%) exact matches, in which:
129 unique CDR3
6 unique J



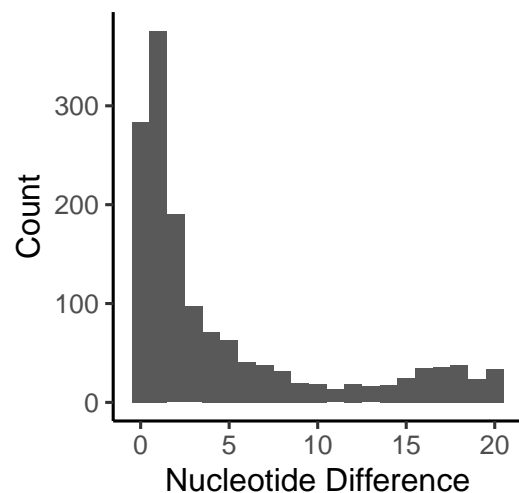
IGHV4–NL_14*01_S3055

3 sequences assigned
No exact matches.



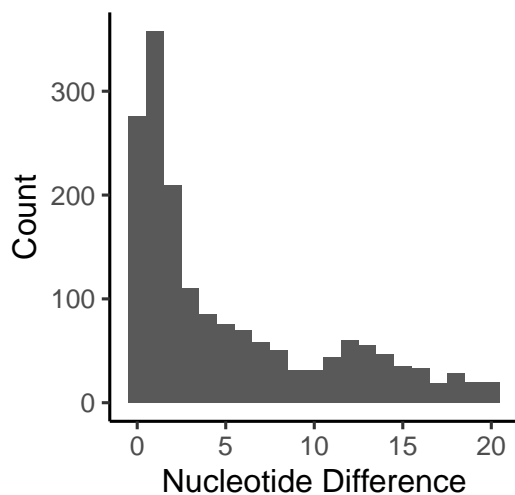
IGHV4–NL_17*01_S6249

1603 sequences assigned
284 (17.7%) exact matches, in which:
229 unique CDR3
7 unique J



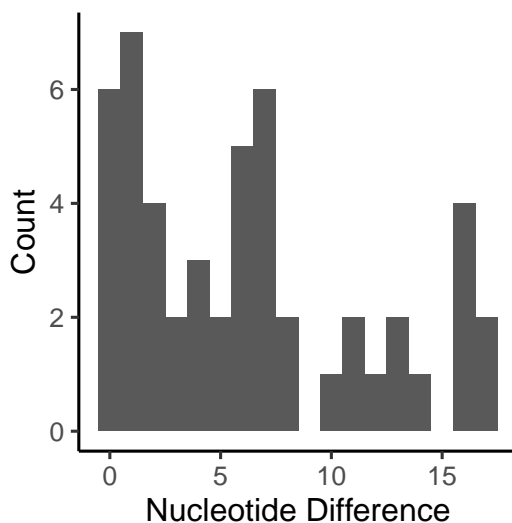
IGHV4–NL_13*01_S1361

1810 sequences assigned
276 (15.2%) exact matches, in which:
231 unique CDR3
8 unique J



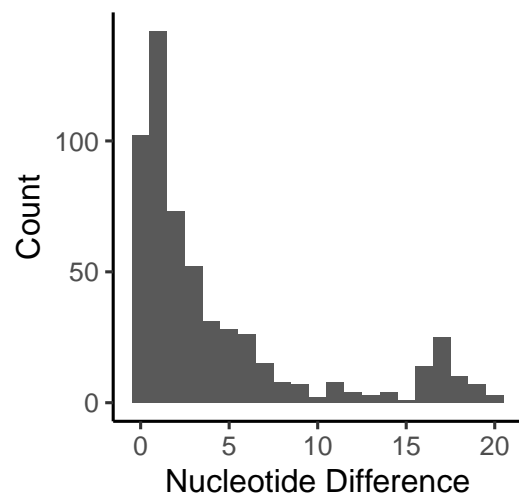
IGHV4–NL_16*01_S2138

55 sequences assigned
6 (10.9%) exact matches, in which:
6 unique CDR3
3 unique J



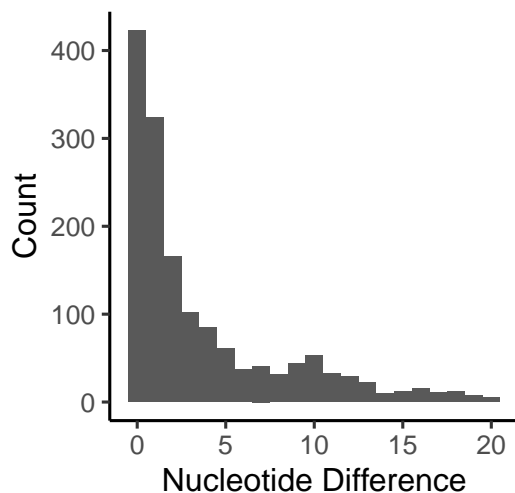
IGHV4–NL_17*01_S8189

587 sequences assigned
102 (17.4%) exact matches, in which:
86 unique CDR3
8 unique J



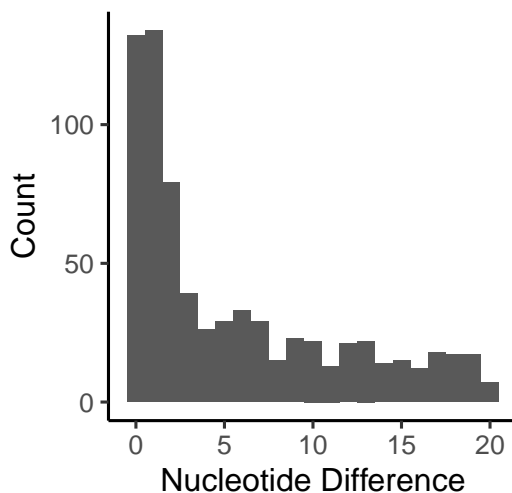
IGHV4–NL_13*01_S9273

1548 sequences assigned
423 (27.3%) exact matches, in which:
360 unique CDR3
9 unique J



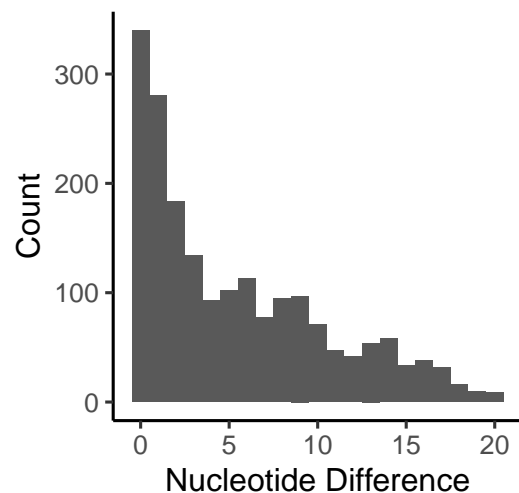
IGHV4–NL_17*01_S5431

743 sequences assigned
132 (17.8%) exact matches, in which:
110 unique CDR3
7 unique J



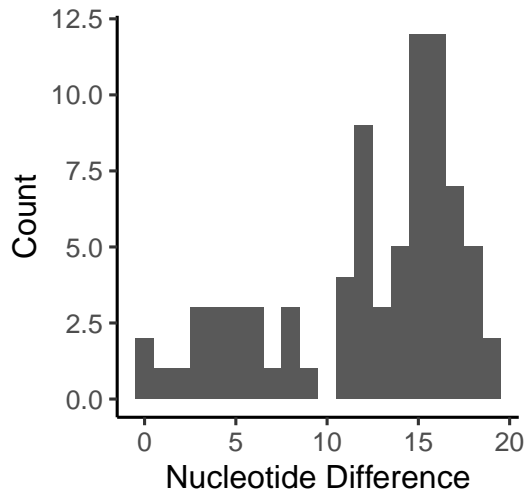
IGHV4–NL_18*01_S3907

2034 sequences assigned
340 (16.7%) exact matches, in which:
278 unique CDR3
10 unique J



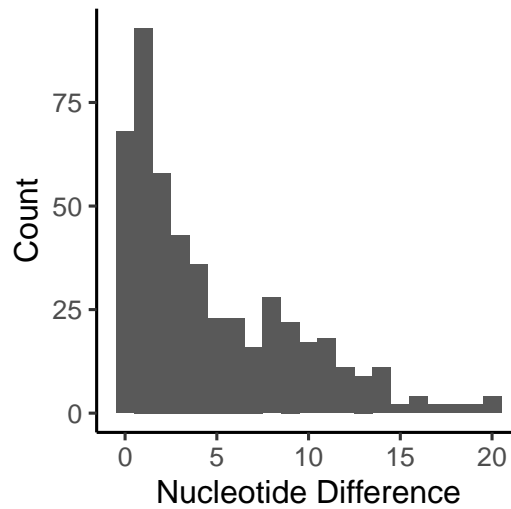
IGHV4–NL_21*01_S0138

95 sequences assigned
2 (2.1%) exact matches, in which:
2 unique CDR3
2 unique J



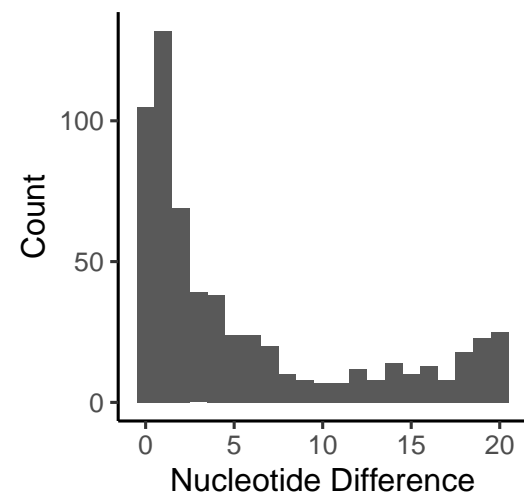
IGHV4–NL_22*01_S4706

528 sequences assigned
68 (12.9%) exact matches, in which:
64 unique CDR3
4 unique J



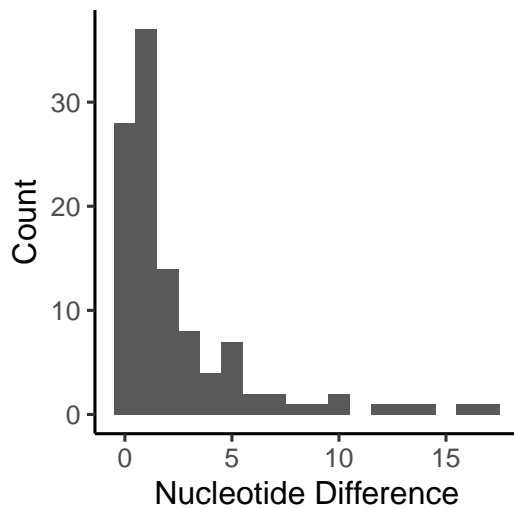
IGHV4–NL_25*01_S1514

692 sequences assigned
105 (15.2%) exact matches, in which:
84 unique CDR3
6 unique J



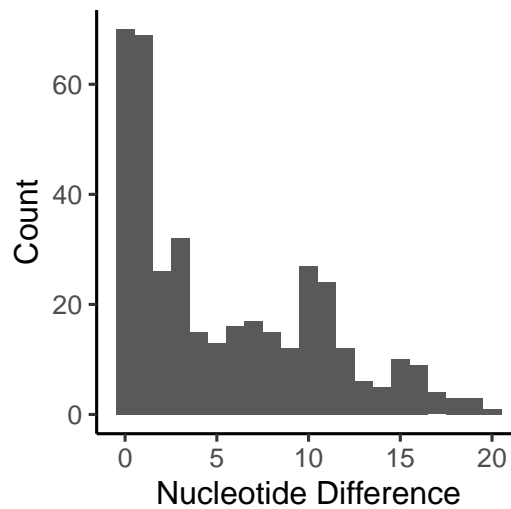
IGHV4–NL_21*01_S5257

111 sequences assigned
28 (25.2%) exact matches, in which:
23 unique CDR3
6 unique J



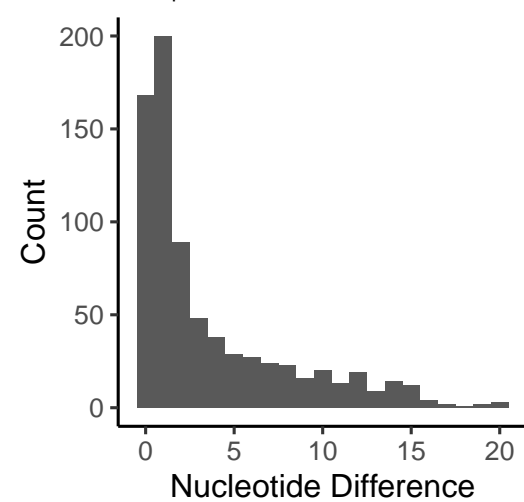
IGHV4–NL_22*01_S9775

404 sequences assigned
70 (17.3%) exact matches, in which:
58 unique CDR3
7 unique J



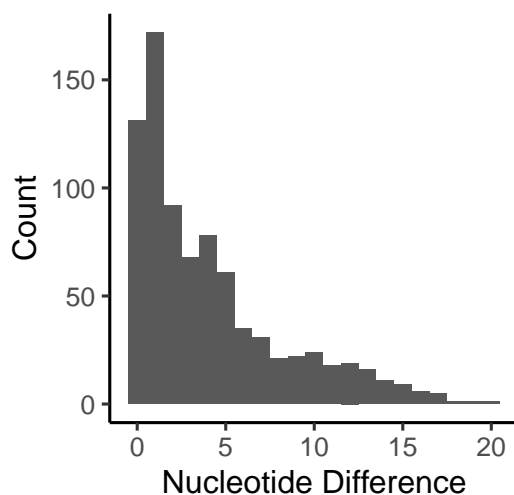
IGHV4–NL_27*01_S0482

764 sequences assigned
168 (22%) exact matches, in which:
138 unique CDR3
6 unique J



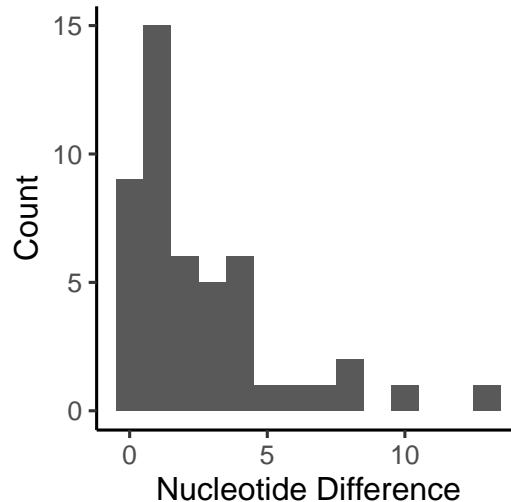
IGHV4–NL_22*01_S2393

841 sequences assigned
131 (15.6%) exact matches, in which:
108 unique CDR3
7 unique J



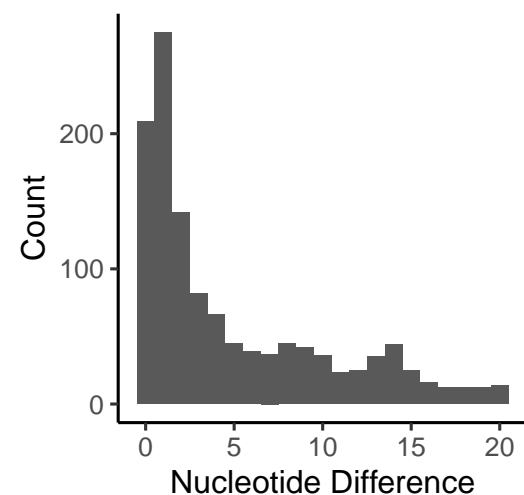
IGHV4–NL_24*01_S3447

49 sequences assigned
9 (18.4%) exact matches, in which:
8 unique CDR3
4 unique J



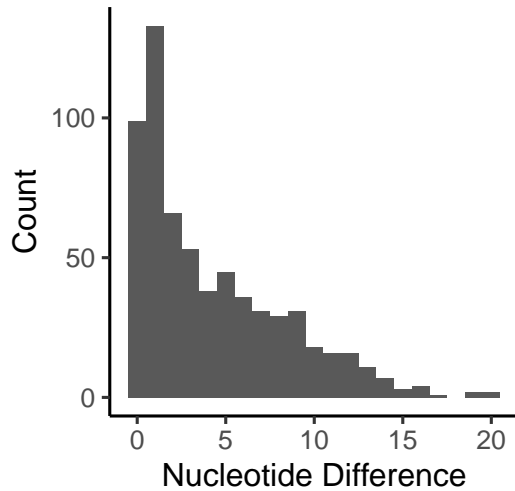
IGHV4–NL_27*01_S1515

1272 sequences assigned
209 (16.4%) exact matches, in which:
164 unique CDR3
7 unique J



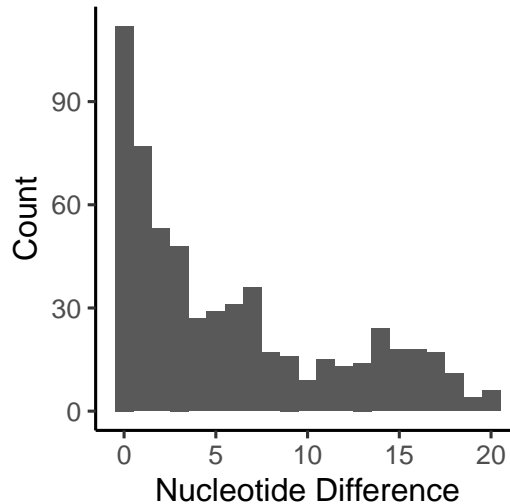
IGHV4–NL_27*01_S5217

656 sequences assigned
99 (15.1%) exact matches, in which:
81 unique CDR3
7 unique J



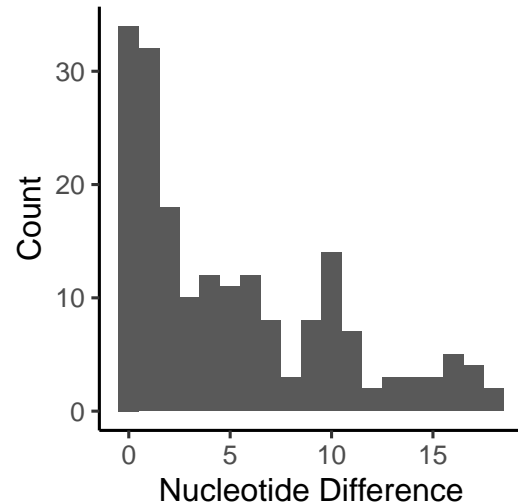
IGHV4–NL_28*01_S1005_

628 sequences assigned
112 (17.8%) exact matches, in which:
103 unique CDR3
6 unique J



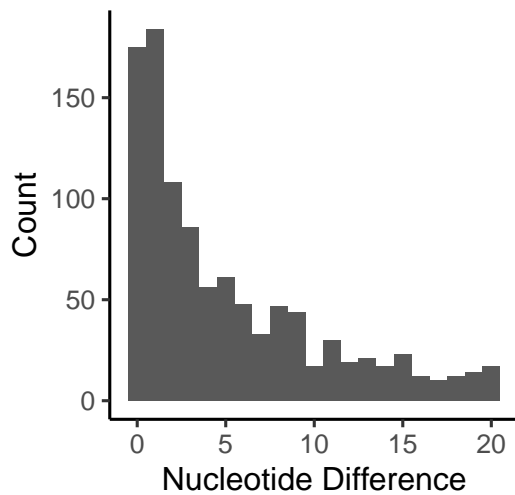
IGHV4–NL_29*01_S7498

194 sequences assigned
34 (17.5%) exact matches, in which:
28 unique CDR3
5 unique J



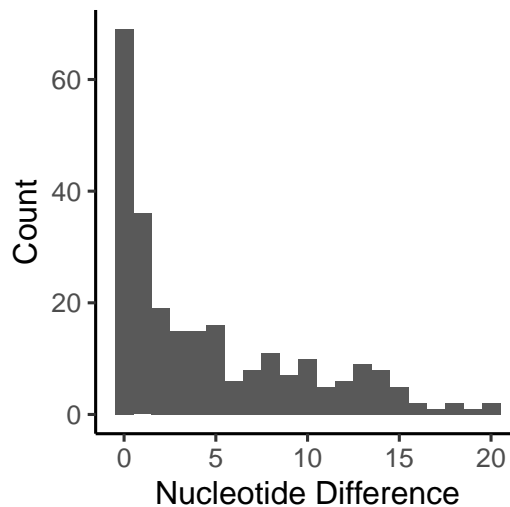
IGHV4–NL_27*01_S6960

1081 sequences assigned
175 (16.2%) exact matches, in which:
138 unique CDR3
7 unique J



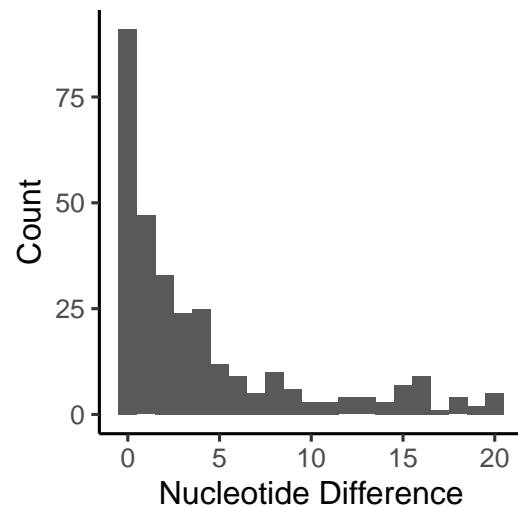
IGHV4–NL_28*01_S8886

257 sequences assigned
69 (26.8%) exact matches, in which:
61 unique CDR3
7 unique J



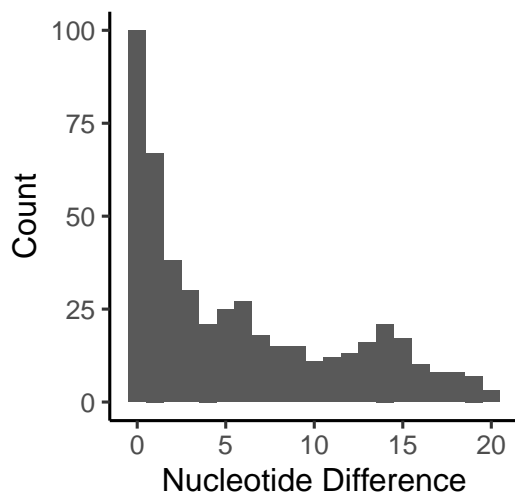
IGHV4–NL_30*01_S1240

318 sequences assigned
91 (28.6%) exact matches, in which:
77 unique CDR3
7 unique J



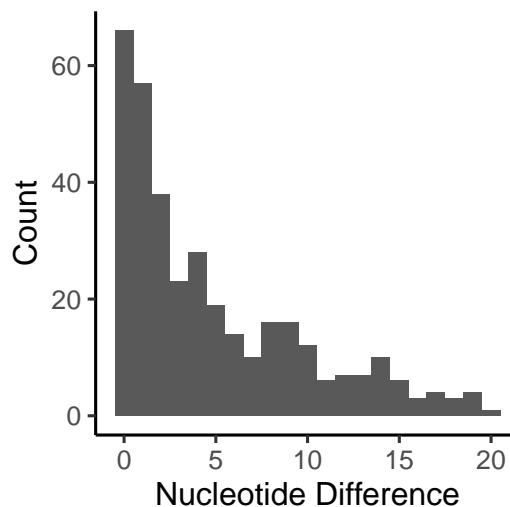
IGHV4–NL_28*01_S1005

505 sequences assigned
100 (19.8%) exact matches, in which:
87 unique CDR3
5 unique J



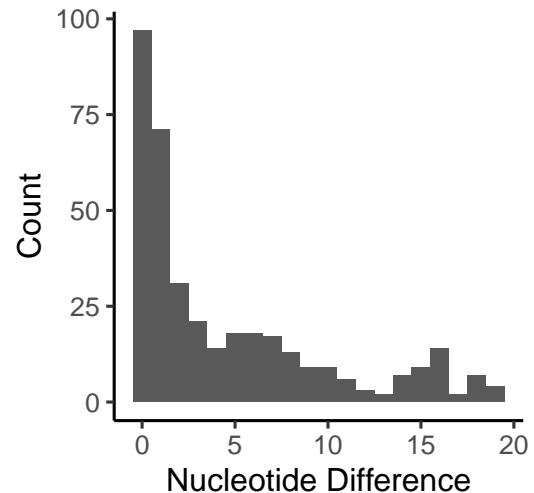
IGHV4–NL_28*01_S8886_

364 sequences assigned
66 (18.1%) exact matches, in which:
64 unique CDR3
7 unique J



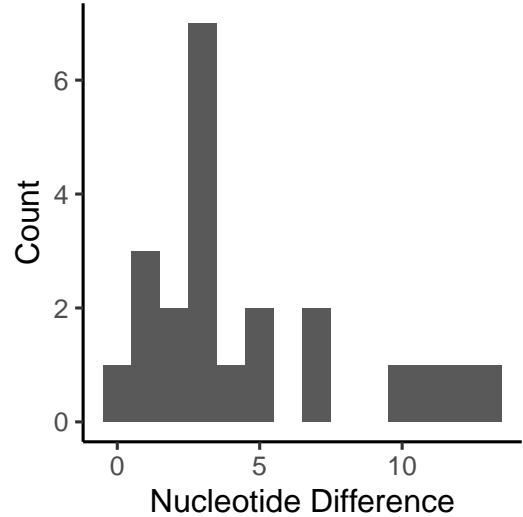
IGHV4–NL_30*01_S1240

388 sequences assigned
97 (25%) exact matches, in which:
84 unique CDR3
7 unique J



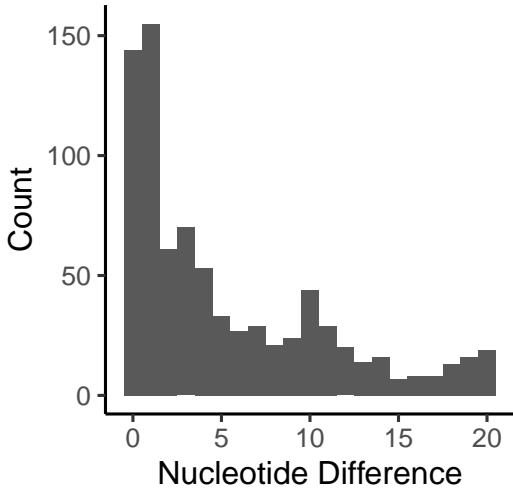
IGHV4–NL_31*01_S7693

24 sequences assigned
1 (4.2%) exact matches, in which:
1 unique CDR3
1 unique J



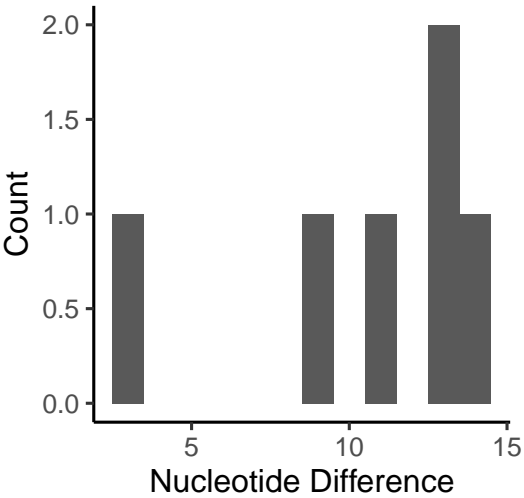
IGHV4–NL_36*01_S5766

863 sequences assigned
144 (16.7%) exact matches, in which:
115 unique CDR3
7 unique J



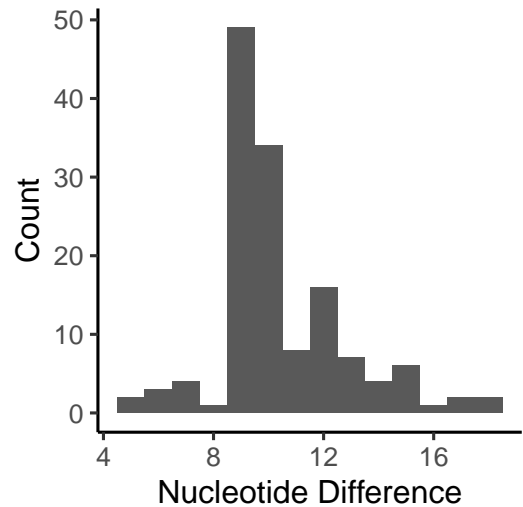
IGHV4–NL_4*01_S5211

7 sequences assigned
No exact matches.



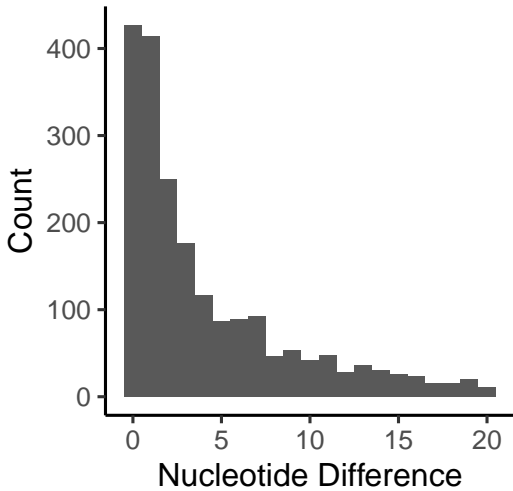
IGHV4–NL_32*01_S1450

143 sequences assigned
No exact matches.



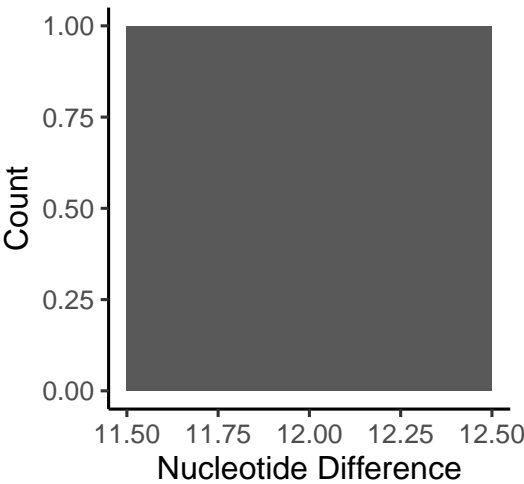
IGHV4–NL_37*01_S0825

2080 sequences assigned
427 (20.5%) exact matches, in which:
340 unique CDR3
8 unique J



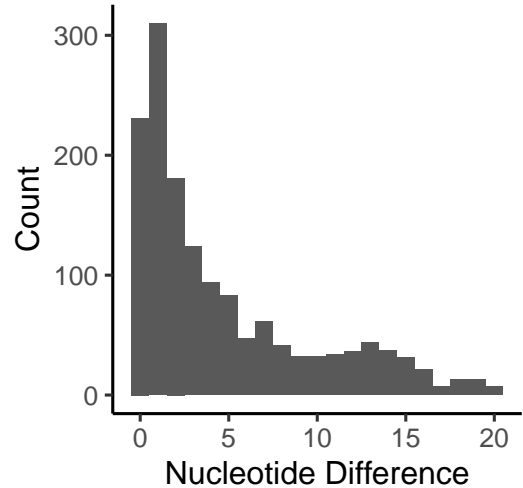
IGHV4–NL_4*01_S8866

2 sequences assigned
No exact matches.



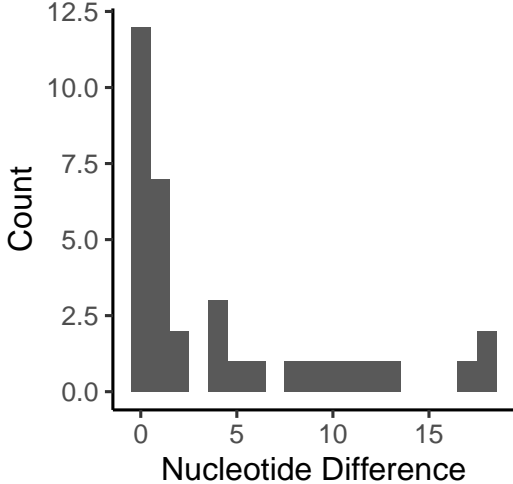
IGHV4–NL_33*01_S9333

1558 sequences assigned
231 (14.8%) exact matches, in which:
185 unique CDR3
7 unique J



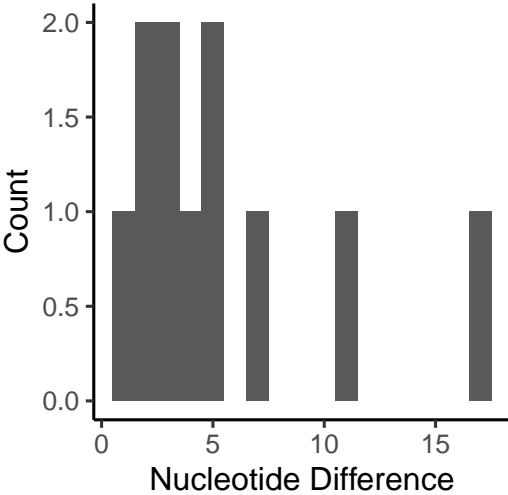
IGHV4–NL_38*01_S8437

37 sequences assigned
12 (32.4%) exact matches, in which:
9 unique CDR3
4 unique J



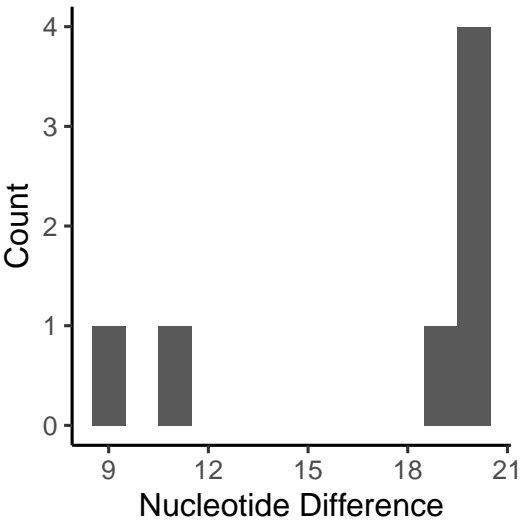
IGHV4–NL_40*01_S9020

14 sequences assigned
No exact matches.



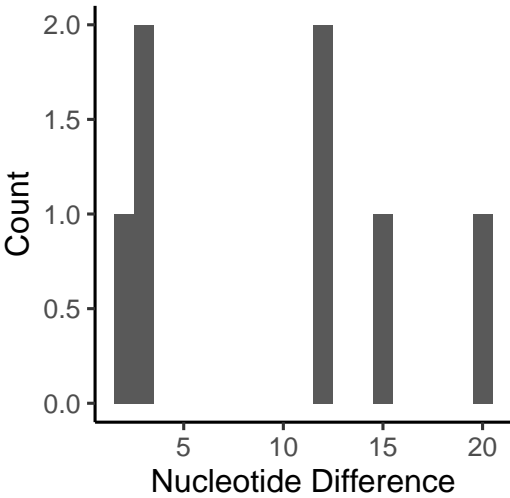
IGHV4–NL_41*01_S6928

18 sequences assigned
No exact matches.



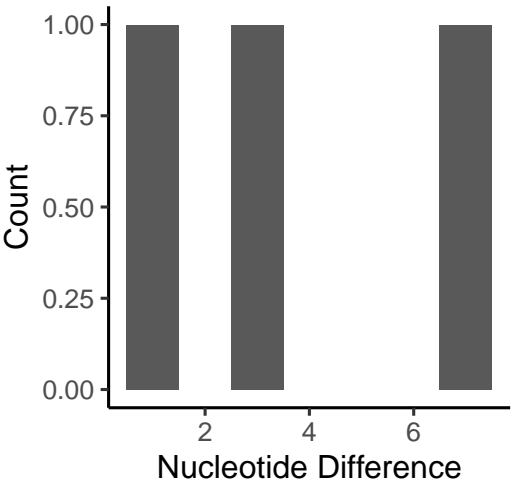
IGHV4–NL_43*01_S3820

18 sequences assigned
No exact matches.



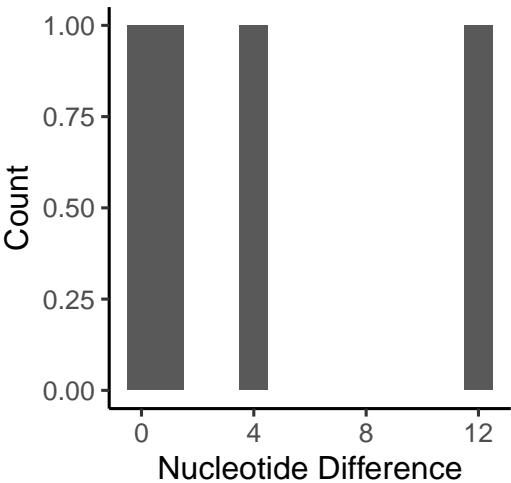
IGHV4–NL_6*01_S6860

4 sequences assigned
No exact matches.



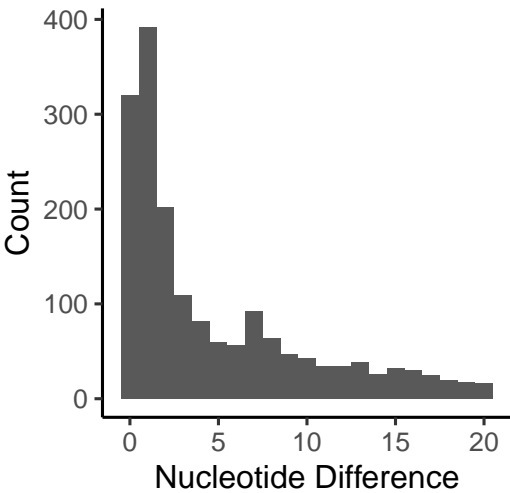
IGHV4–NL_41*01_S9253

4 sequences assigned
1 (25%) exact matches, in which:
1 unique CDR3
1 unique J



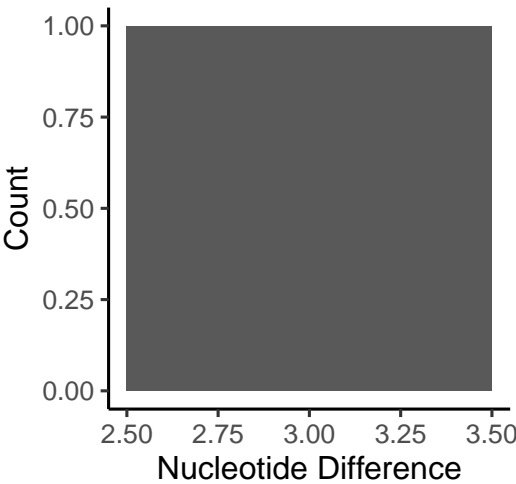
IGHV4–NL_5*01_S0908

1896 sequences assigned
320 (16.9%) exact matches, in which:
269 unique CDR3
8 unique J



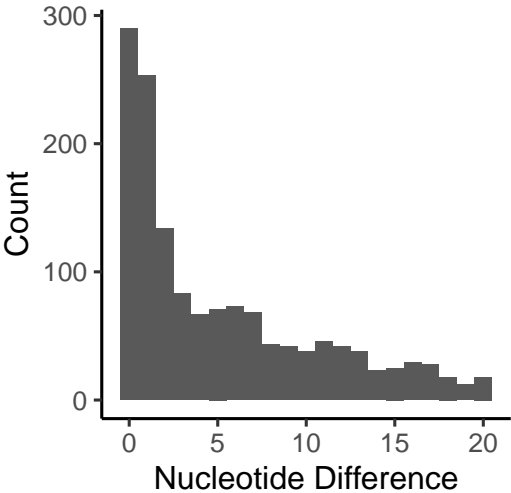
IGHV4–NL_7*02_S0143

1 sequences assigned
No exact matches.



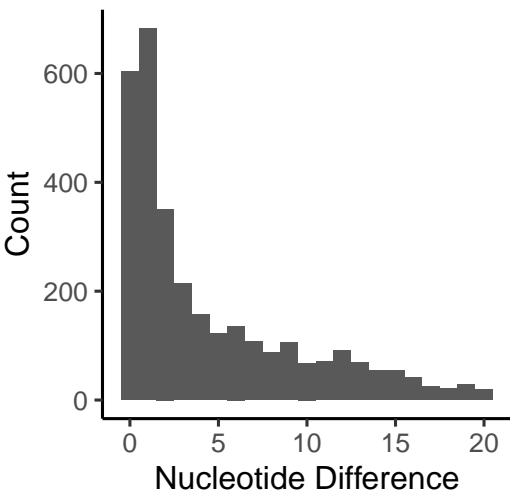
IGHV4–NL_42*01_S8550

1573 sequences assigned
290 (18.4%) exact matches, in which:
234 unique CDR3
7 unique J



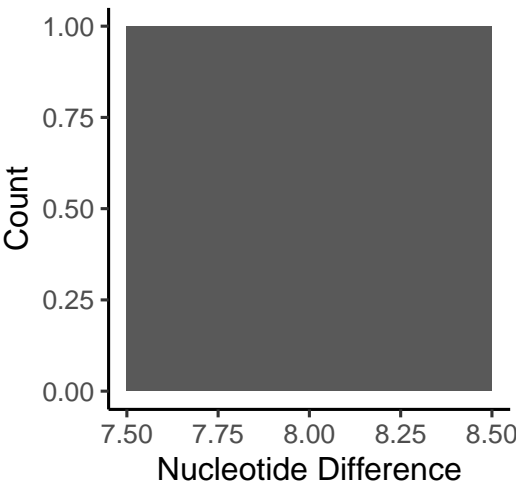
IGHV4–NL_5*01_S6960

3238 sequences assigned
603 (18.6%) exact matches, in which:
503 unique CDR3
8 unique J



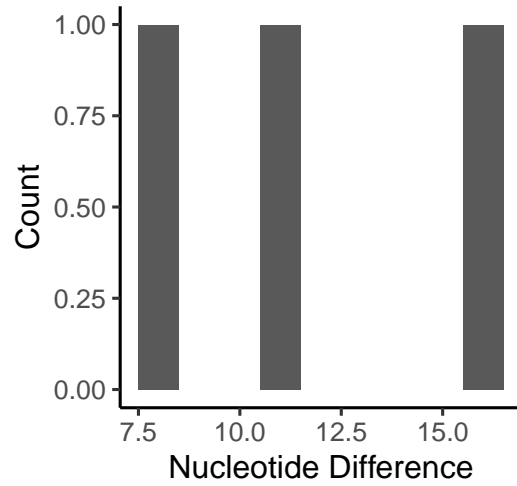
IGHV4–NL_9*01_S6608

2 sequences assigned
No exact matches.



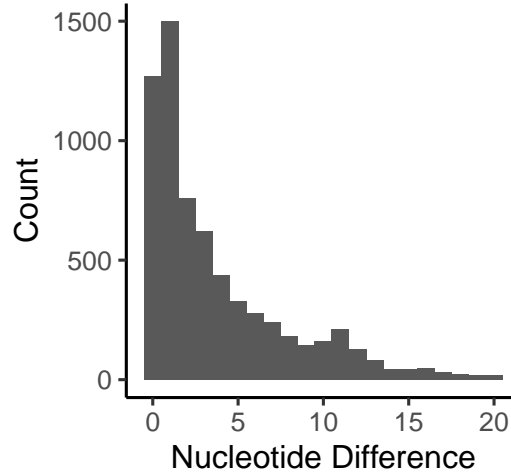
IGHV4–NL_9*02_S2874

4 sequences assigned
No exact matches.



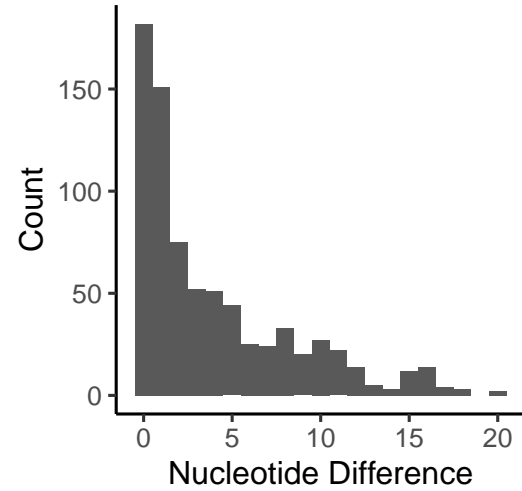
IGHV5–157*02_S3096

6629 sequences assigned
1271 (19.2%) exact matches, in which:
661 unique CDR3
10 unique J



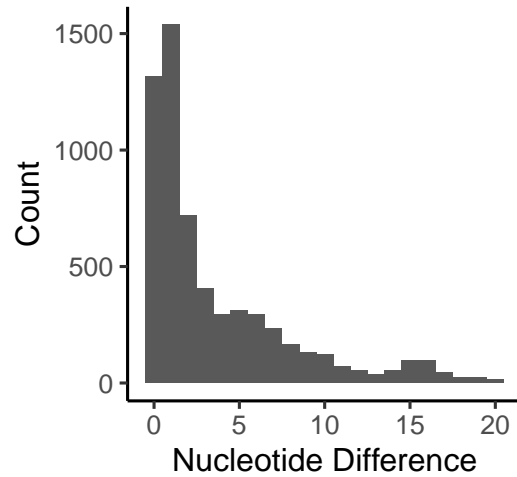
IGHV7–86*01_S6667

832 sequences assigned
182 (21.9%) exact matches, in which:
112 unique CDR3
7 unique J



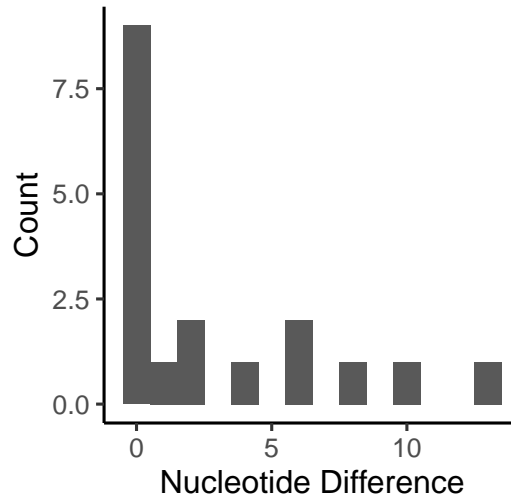
IGHV5–15*01_S8661

6120 sequences assigned
1315 (21.5%) exact matches, in which:
693 unique CDR3
9 unique J



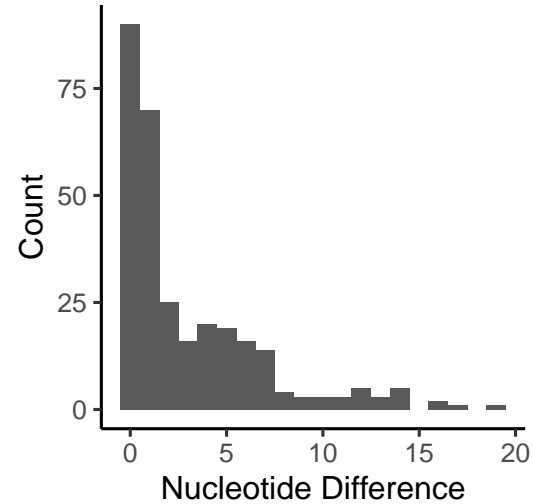
IGHV5–NL_1*02_S5699

18 sequences assigned
9 (50%) exact matches, in which:
9 unique CDR3
4 unique J



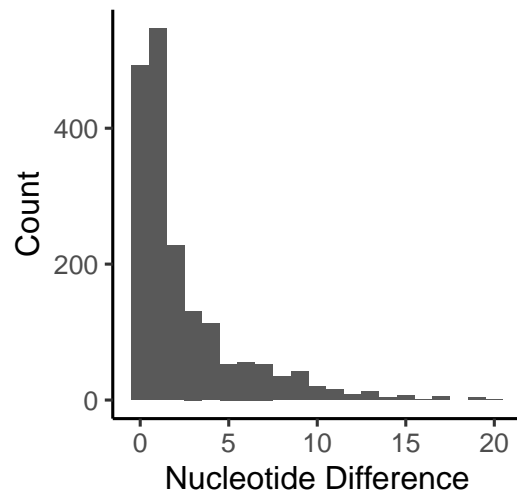
IGHV7–86*02_S1706

419 sequences assigned
90 (21.5%) exact matches, in which:
57 unique CDR3
4 unique J



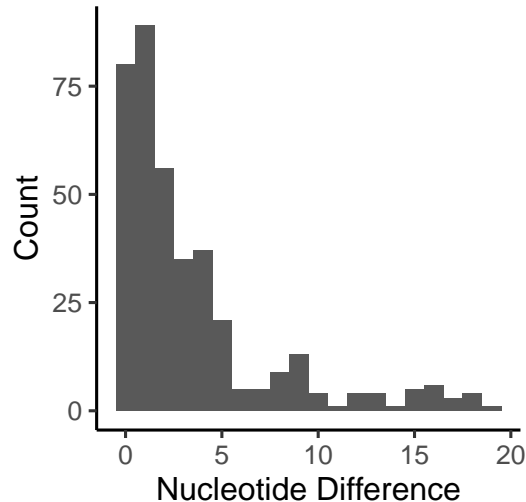
IGHV5–157*01_S5960

1831 sequences assigned
492 (26.9%) exact matches, in which:
217 unique CDR3
9 unique J

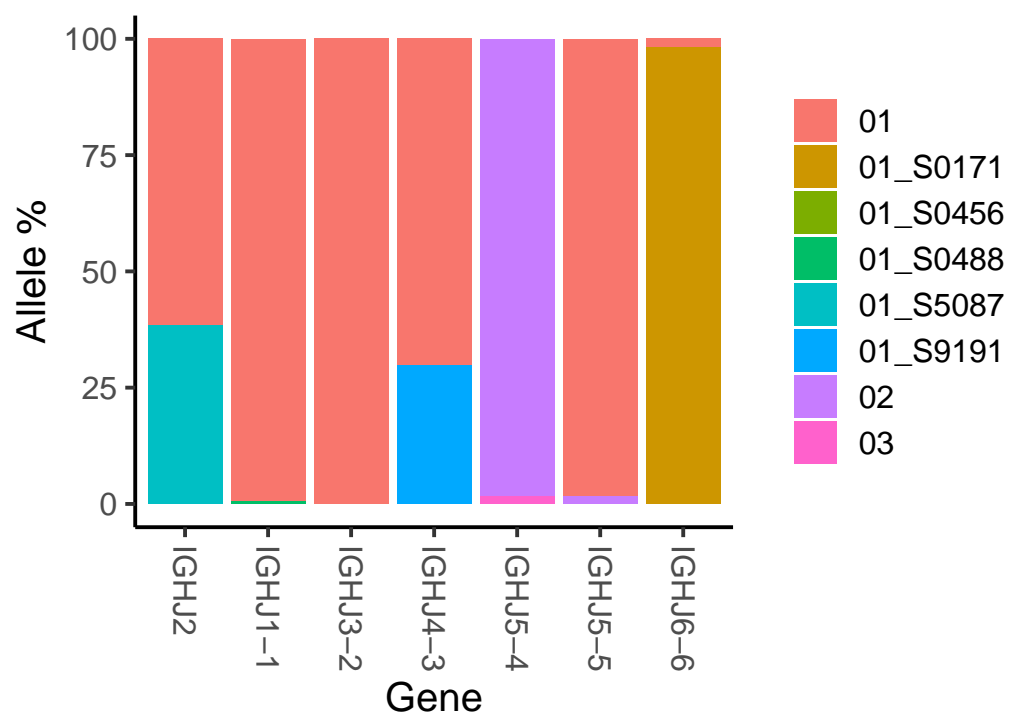


IGHV6–1*02_S6792

460 sequences assigned
80 (17.4%) exact matches, in which:
35 unique CDR3
6 unique J



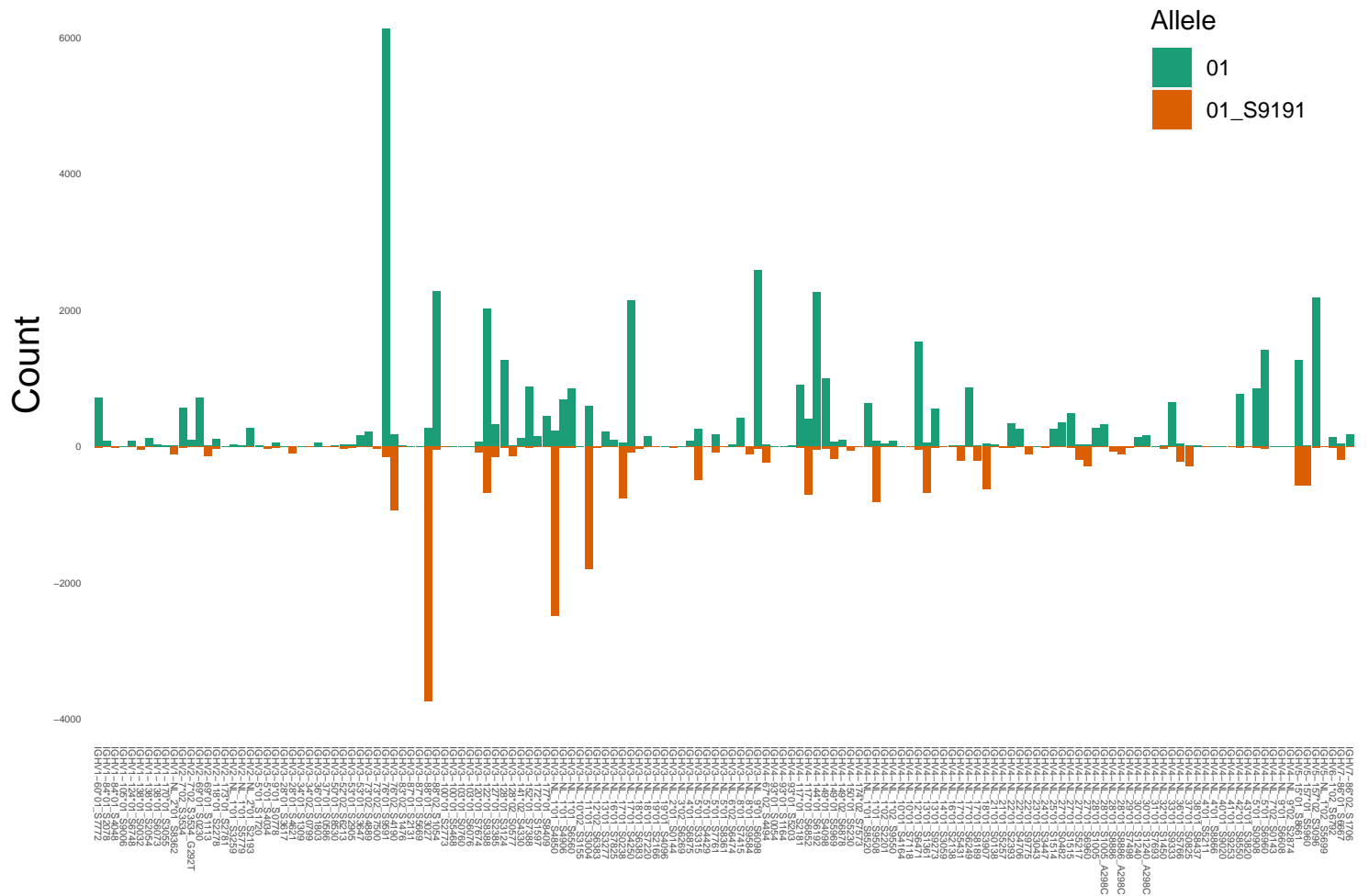
Allele Usage



Sequence Count by IGHJ2 allele usage



Sequence Count by IGHJ4-3 allele usage



Warning – no inferred sequences found.