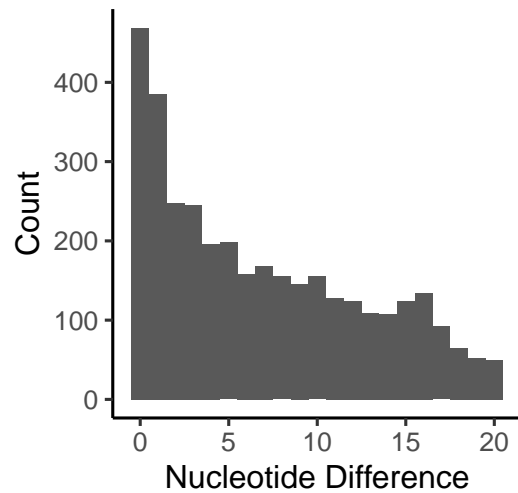


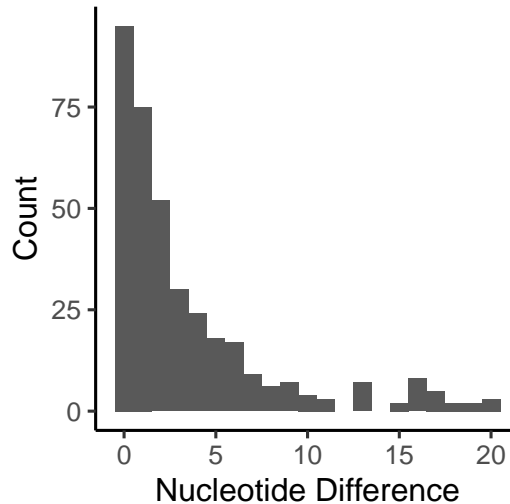
IGHV1-60*01_S7772

3613 sequences assigned
469 (13%) exact matches, in which:
314 unique CDR3
8 unique J



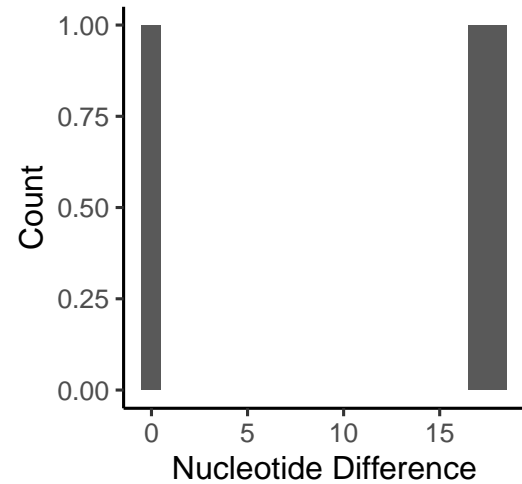
IGHV1-138*01_S2054

436 sequences assigned
95 (21.8%) exact matches, in which:
75 unique CDR3
7 unique J



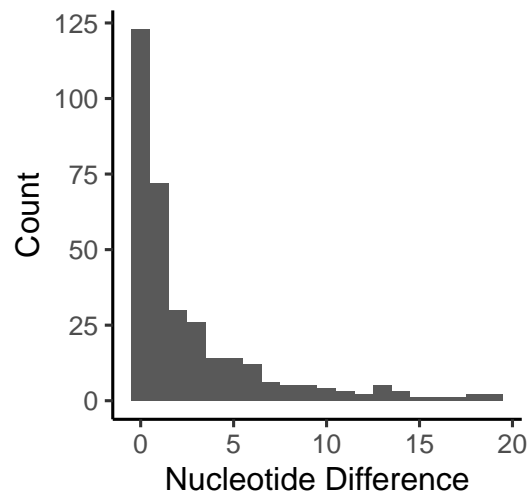
IGHV1-NL_1*01_S2052

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



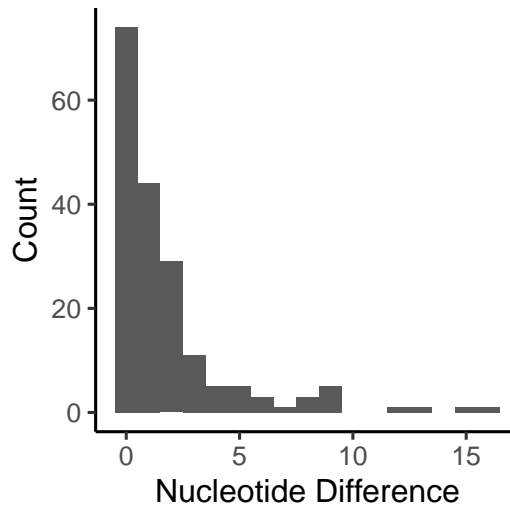
IGHV1-84*01_S2078

342 sequences assigned
123 (36%) exact matches, in which:
72 unique CDR3
7 unique J



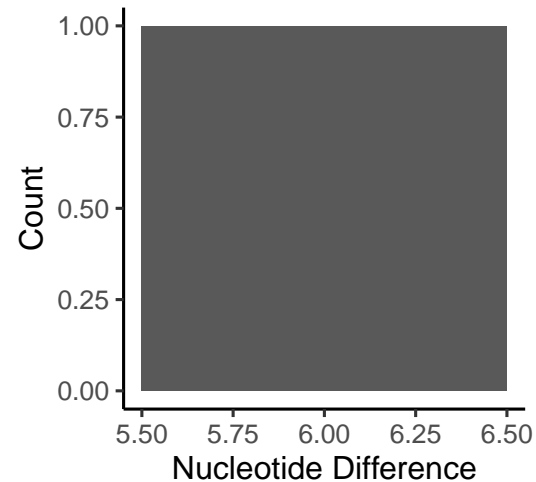
IGHV1-138*01_S6073

184 sequences assigned
74 (40.2%) exact matches, in which:
61 unique CDR3
7 unique J



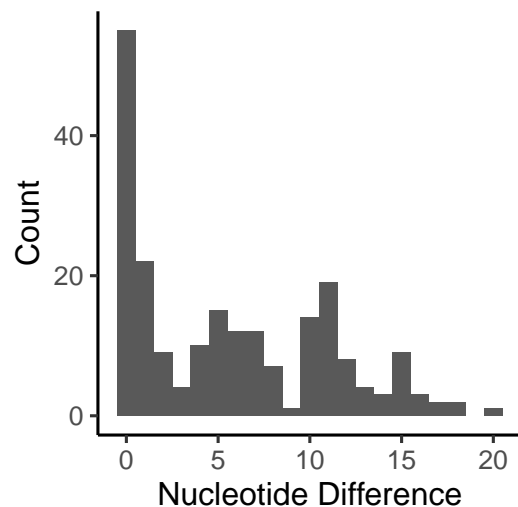
IGHV1-NL_1*01_S5433

1 sequences assigned
No exact matches.



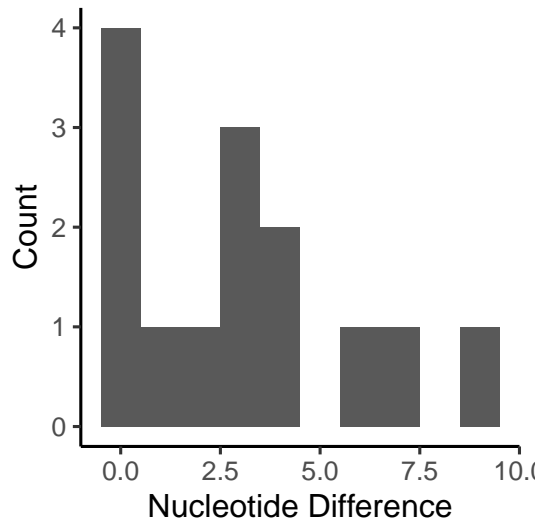
IGHV1-124*01_S6748

216 sequences assigned
55 (25.5%) exact matches, in which:
42 unique CDR3
7 unique J



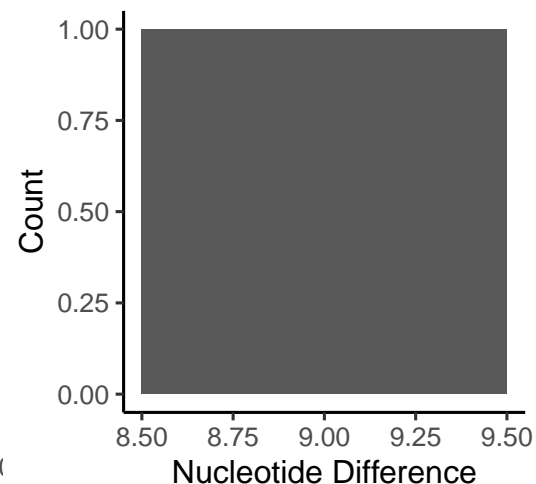
IGHV1-170*01_S3055

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



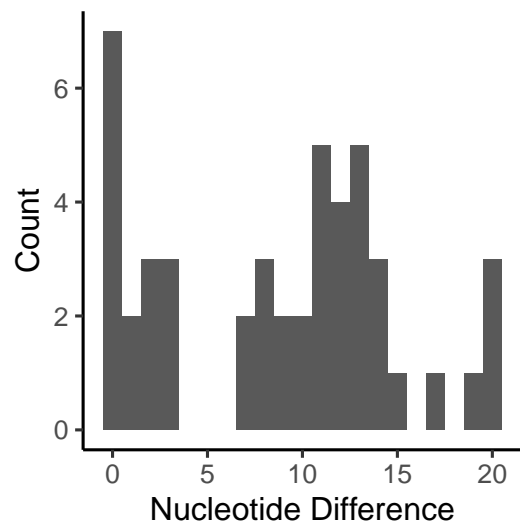
IGHV1-NL_1*01_S8523

1 sequences assigned
No exact matches.



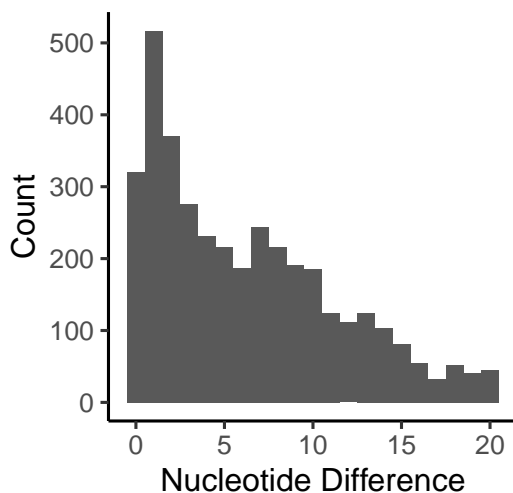
IGHV1–NL_2*01_S2245

54 sequences assigned
7 (13%) exact matches, in which:
4 unique CDR3
3 unique J



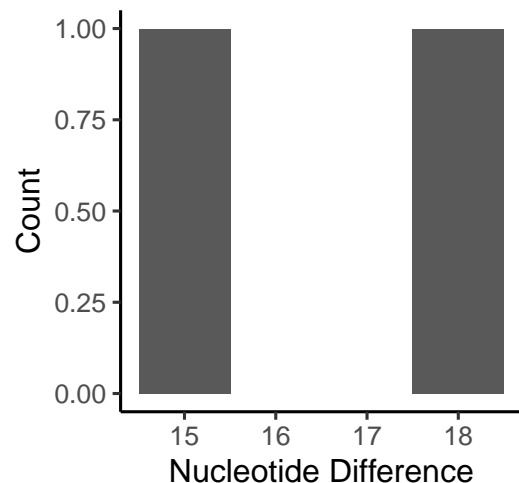
IGHV2–69*01_S0230

4105 sequences assigned
321 (7.8%) exact matches, in which:
189 unique CDR3
7 unique J



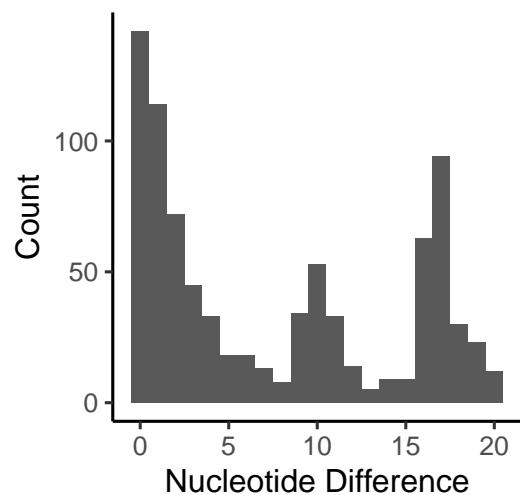
IGHV2–173*01_S2781

58 sequences assigned
No exact matches.



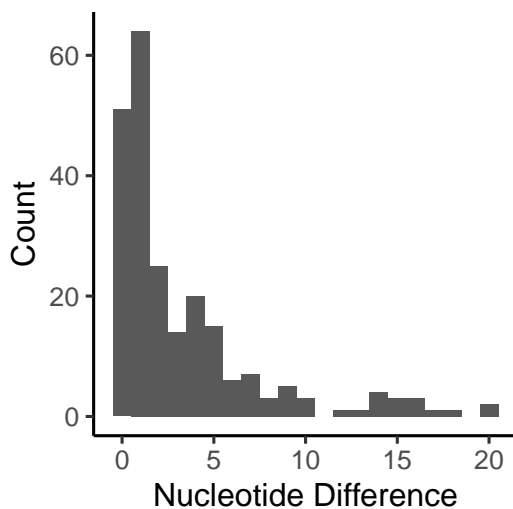
IGHV2–7*02_S3534

874 sequences assigned
142 (16.2%) exact matches, in which:
81 unique CDR3
6 unique J



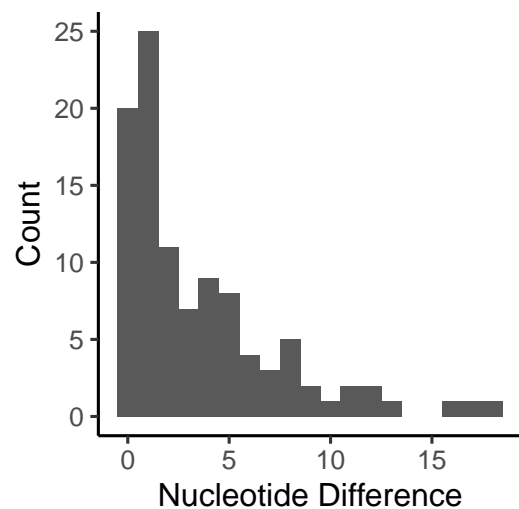
IGHV2–118*01_S1355

231 sequences assigned
51 (22.1%) exact matches, in which:
33 unique CDR3
4 unique J



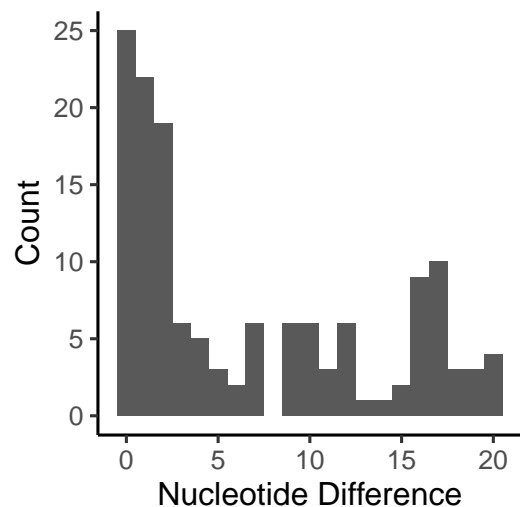
IGHV2–NL_1*01_S3259

104 sequences assigned
20 (19.2%) exact matches, in which:
12 unique CDR3
2 unique J



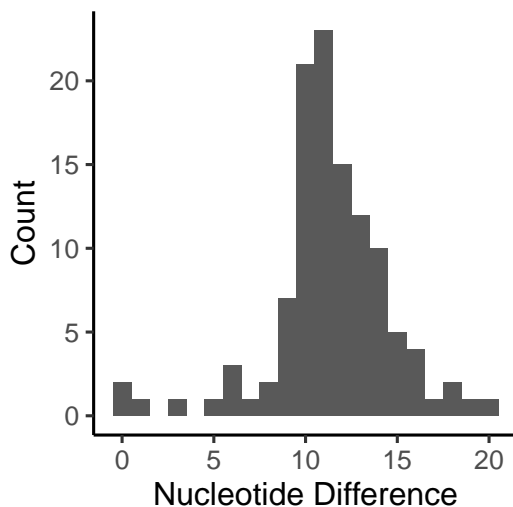
IGHV2–7*02_S3534_G297

149 sequences assigned
25 (16.8%) exact matches, in which:
24 unique CDR3
6 unique J



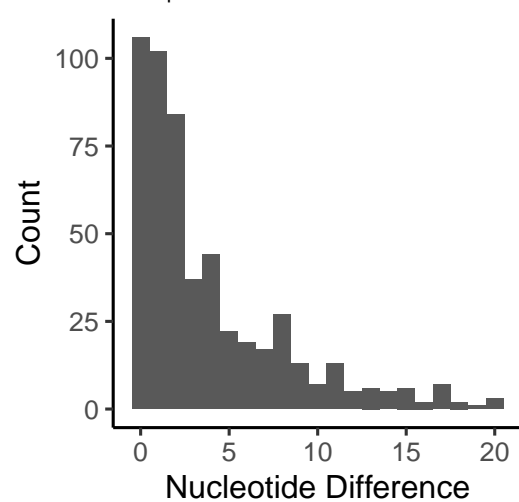
IGHV2–118*01_S2278

132 sequences assigned
2 (1.5%) exact matches, in which:
2 unique CDR3
2 unique J



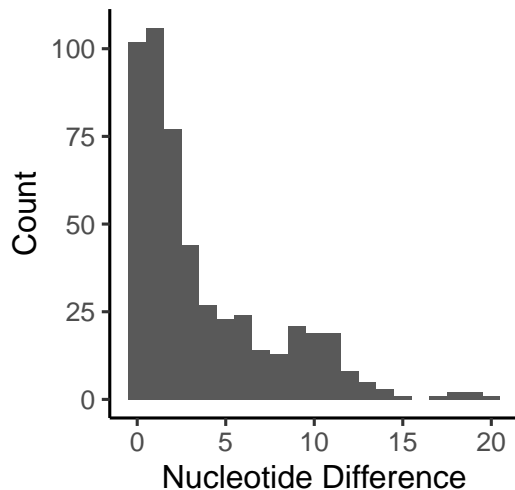
IGHV2–NL_2*01_S2193

536 sequences assigned
106 (19.8%) exact matches, in which:
56 unique CDR3
6 unique J



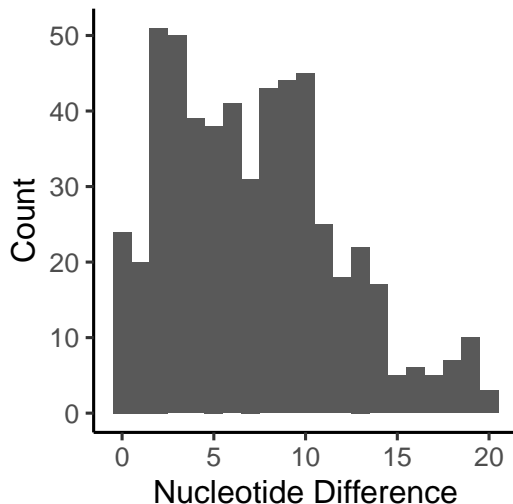
IGHV2–NL_2*01_S6246

517 sequences assigned
102 (19.7%) exact matches, in which:
49 unique CDR3
6 unique J



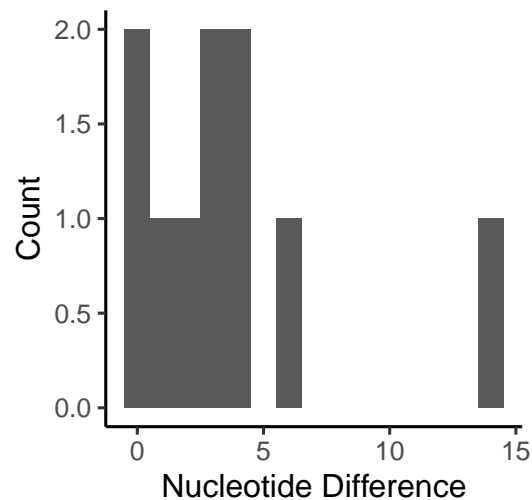
IGHV3–9*01_S0778

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



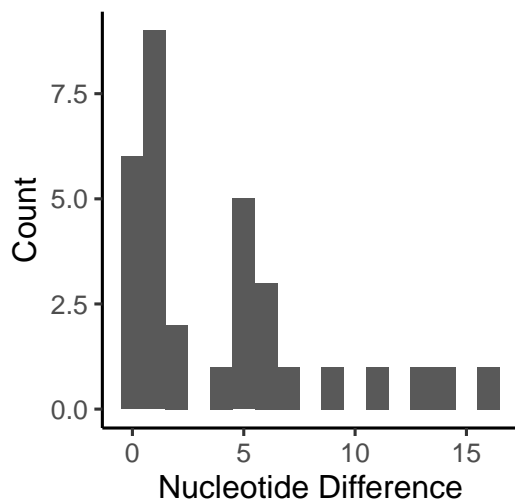
IGHV3–34*01_S1123

11 sequences assigned
2 (18.2%) exact matches, in which:
2 unique CDR3
1 unique J



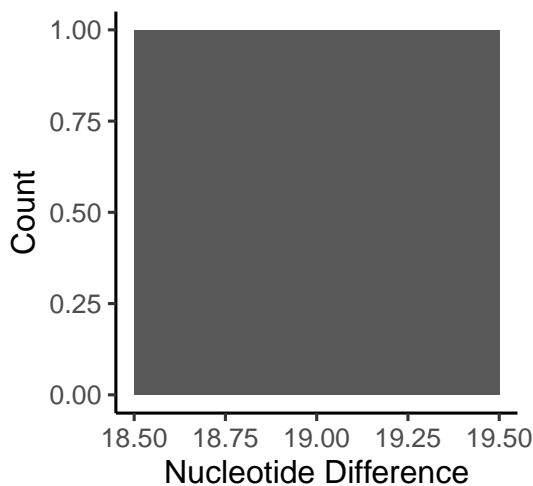
IGHV3–5*01_S1720

33 sequences assigned
6 (18.2%) exact matches, in which:
4 unique CDR3
3 unique J



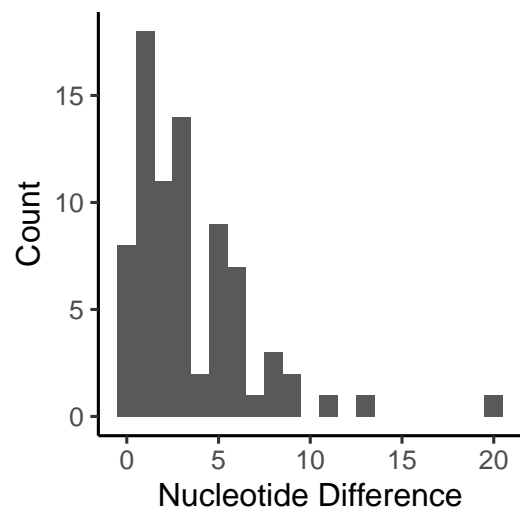
IGHV3–28*01_S3617

4 sequences assigned
No exact matches.



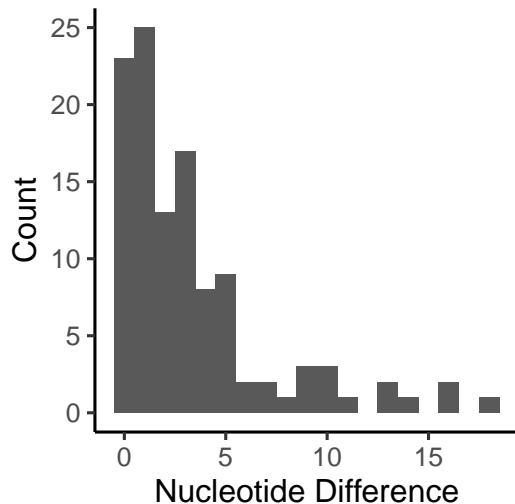
IGHV3–36*01_S1803

83 sequences assigned
8 (9.6%) exact matches, in which:
7 unique CDR3
2 unique J



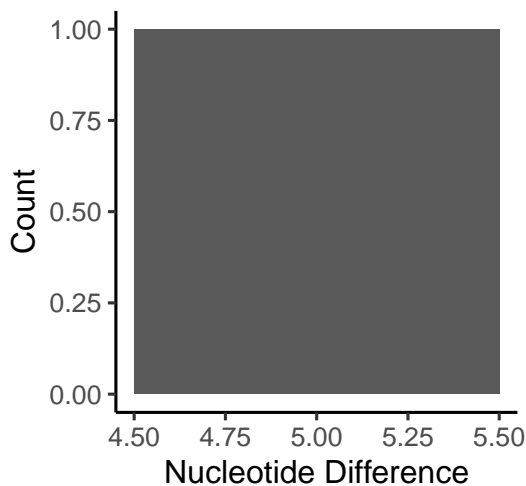
IGHV3–5*01_S7285

113 sequences assigned
23 (20.4%) exact matches, in which:
19 unique CDR3
4 unique J



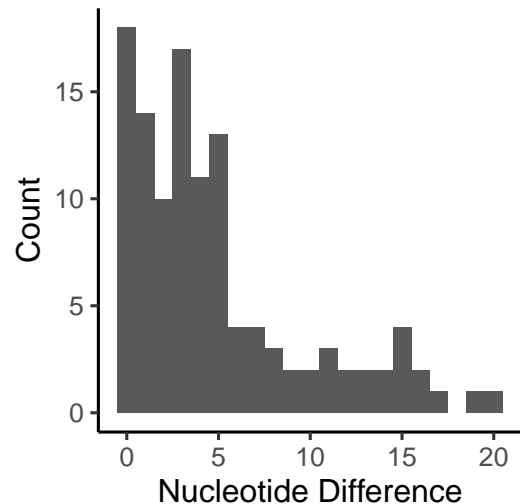
IGHV3–28*01_S7540

1 sequences assigned
No exact matches.



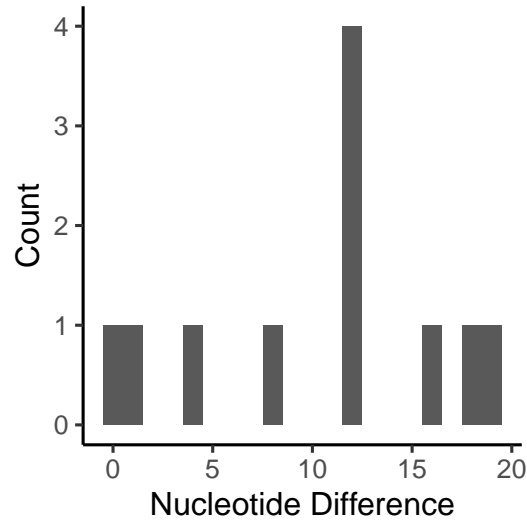
IGHV3–36*01_S6650

119 sequences assigned
18 (15.1%) exact matches, in which:
17 unique CDR3
5 unique J



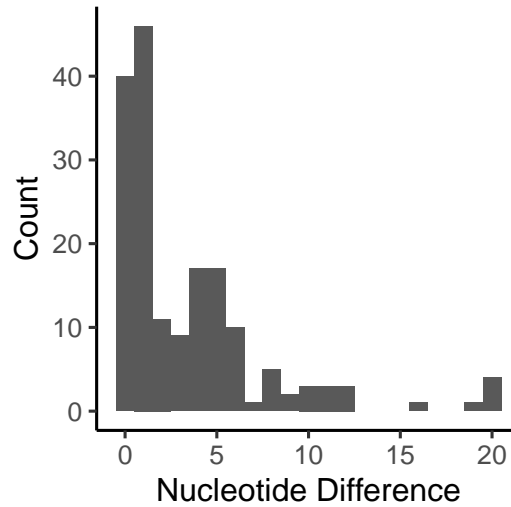
IGHV3-37*01_S0586

15 sequences assigned
1 (6.7%) exact matches, in which:
1 unique CDR3
1 unique J



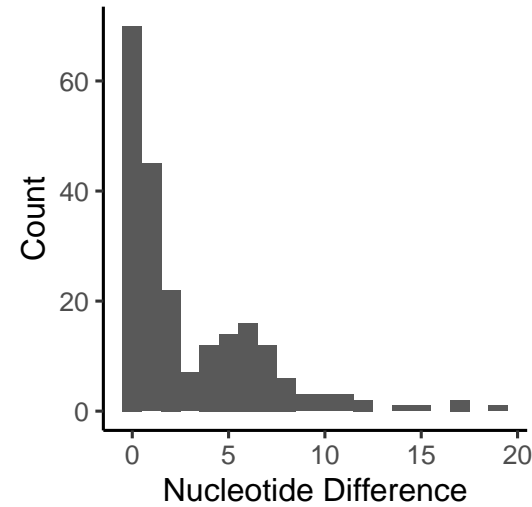
IGHV3-52*02_S6213

176 sequences assigned
40 (22.7%) exact matches, in which:
25 unique CDR3
5 unique J



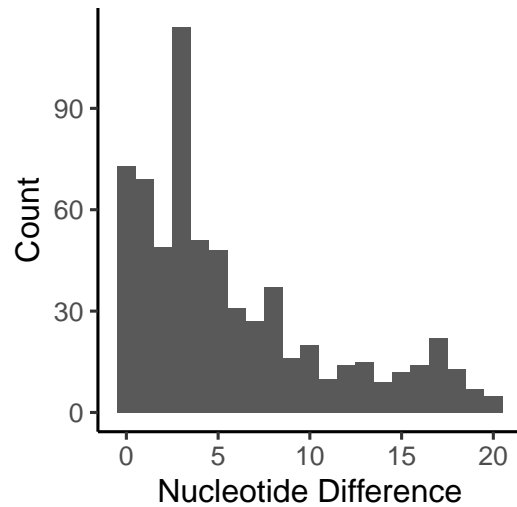
IGHV3-73*02_S0606

226 sequences assigned
70 (31%) exact matches, in which:
53 unique CDR3
6 unique J



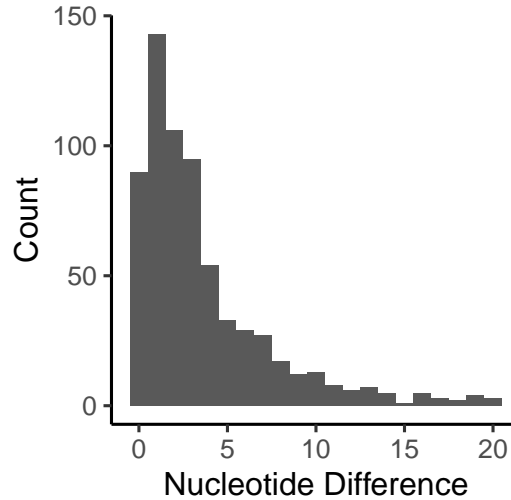
IGHV3-50*01_S9862

695 sequences assigned
73 (10.5%) exact matches, in which:
41 unique CDR3
6 unique J



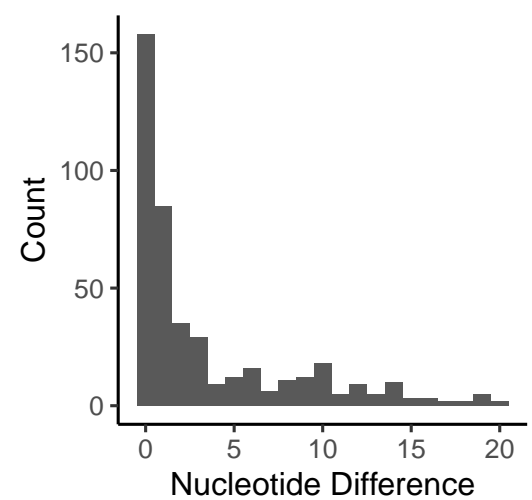
IGHV3-53*01_S3647

668 sequences assigned
90 (13.5%) exact matches, in which:
57 unique CDR3
5 unique J



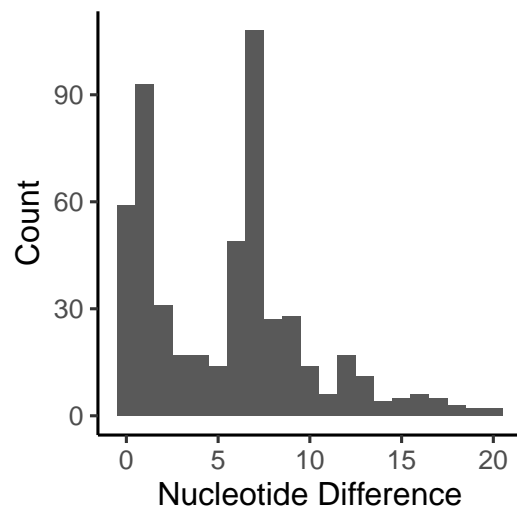
IGHV3-73*02_S4889

444 sequences assigned
158 (35.6%) exact matches, in which:
114 unique CDR3
7 unique J



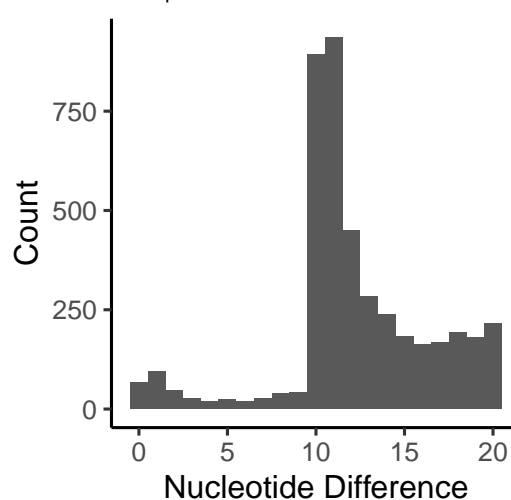
IGHV3-52*01_S8160

531 sequences assigned
59 (11.1%) exact matches, in which:
34 unique CDR3
7 unique J



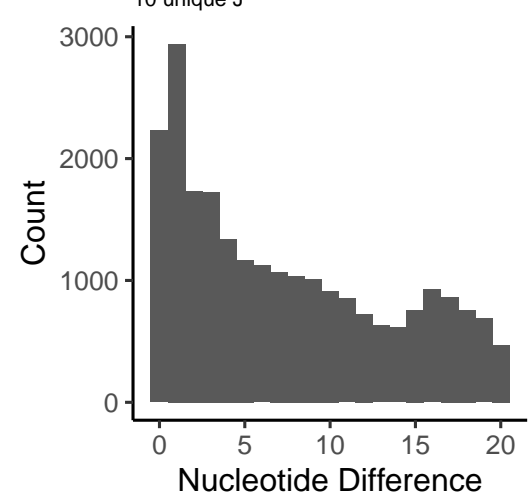
IGHV3-53*01_S8913

5028 sequences assigned
67 (1.3%) exact matches, in which:
49 unique CDR3
7 unique J



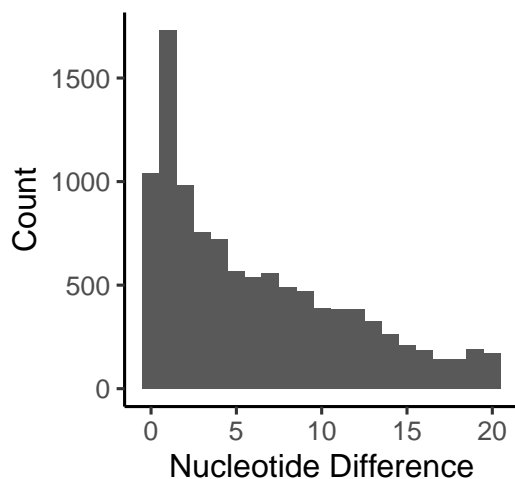
IGHV3-76*01_S9591

26049 sequences assigned
2232 (8.6%) exact matches, in which:
1602 unique CDR3
10 unique J



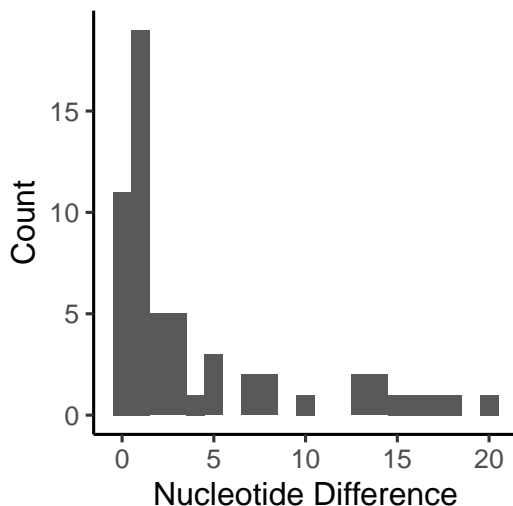
IGHV3-76*02_S4190

11667 sequences assigned
1041 (8.9%) exact matches, in which:
737 unique CDR3
10 unique J



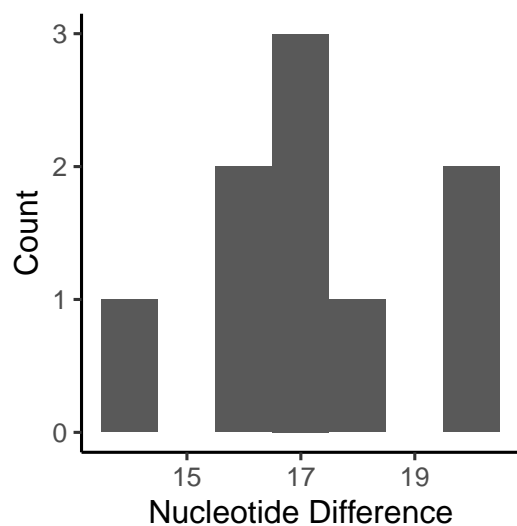
IGHV3-87*01_S2131

59 sequences assigned
11 (18.6%) exact matches, in which:
7 unique CDR3
5 unique J



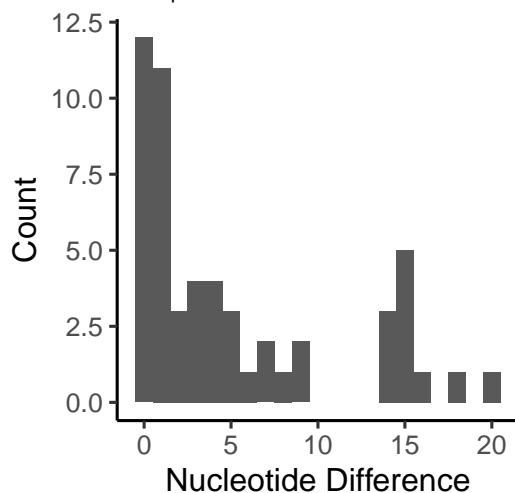
IGHV3-103*01_S1165

20 sequences assigned
No exact matches.



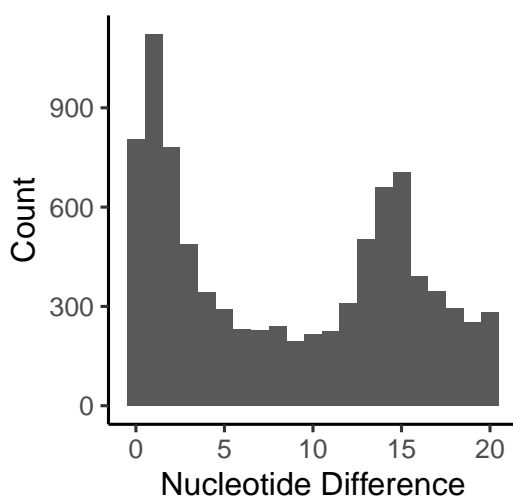
IGHV3-83*01_S5932

55 sequences assigned
12 (21.8%) exact matches, in which:
11 unique CDR3
5 unique J



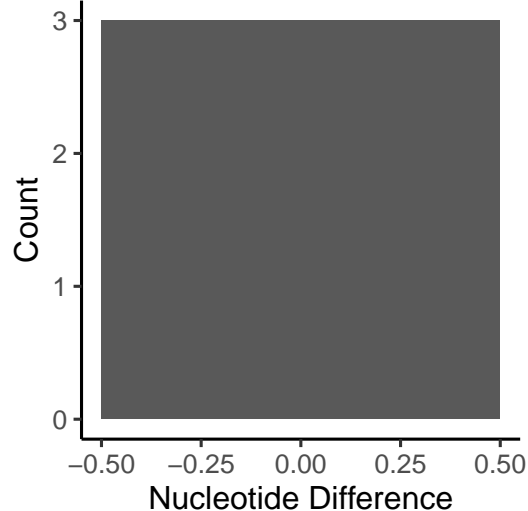
IGHV3-88*02_S1054

10207 sequences assigned
806 (7.9%) exact matches, in which:
531 unique CDR3
9 unique J



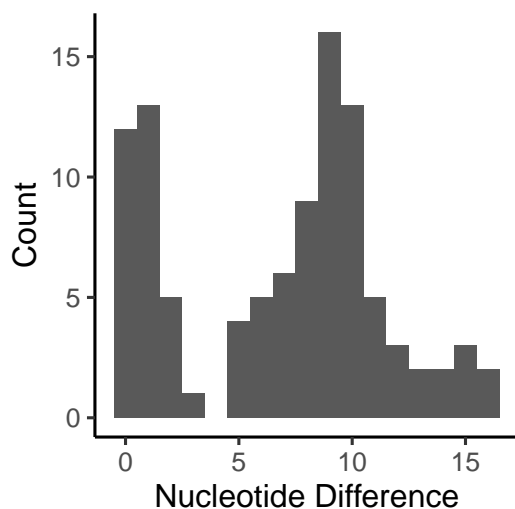
IGHV3-119*01_S5944

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



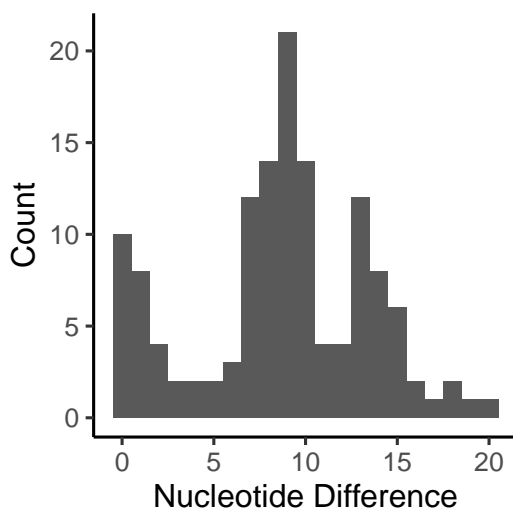
IGHV3-83*02_S1476

103 sequences assigned
12 (11.7%) exact matches, in which:
10 unique CDR3
5 unique J



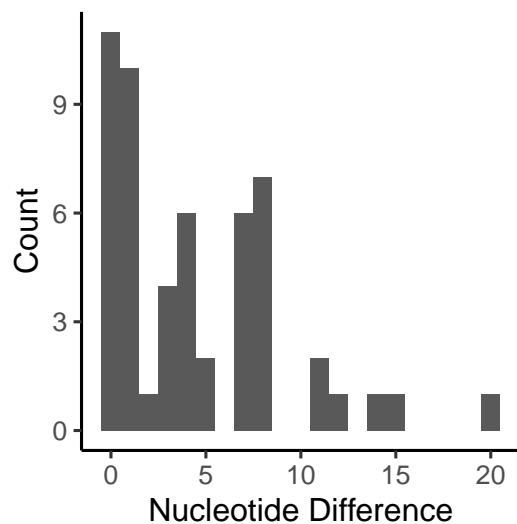
IGHV3-100*01_S5468

141 sequences assigned
10 (7.1%) exact matches, in which:
6 unique CDR3
1 unique J



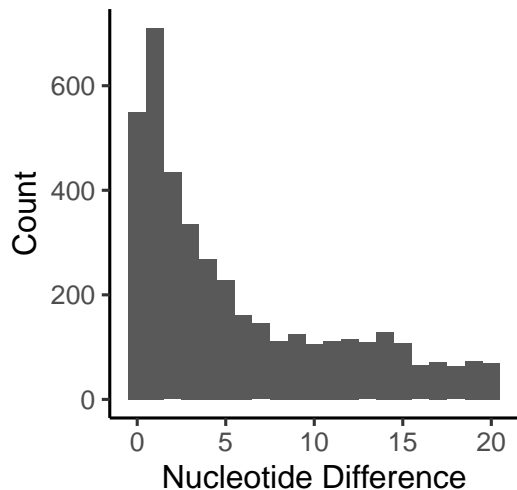
IGHV3-120*01_S7674

56 sequences assigned
11 (19.6%) exact matches, in which:
10 unique CDR3
5 unique J



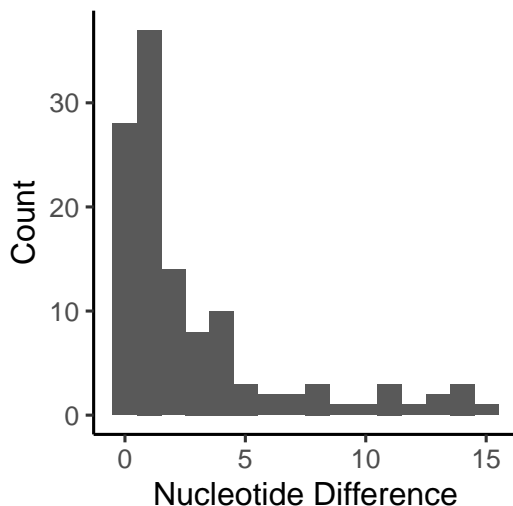
IGHV3-122*01_S8388

4324 sequences assigned
549 (12.7%) exact matches, in which:
385 unique CDR3
8 unique J



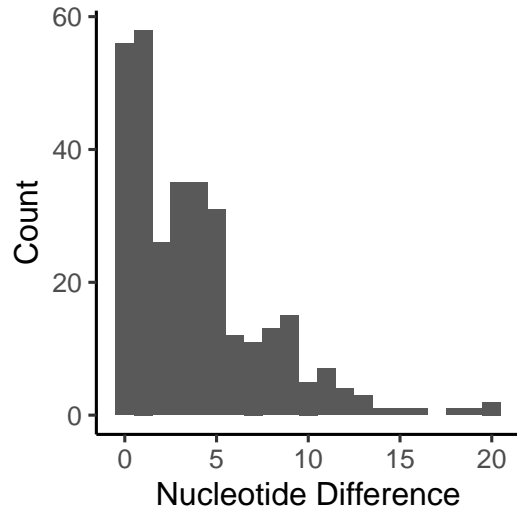
IGHV3-141*02_S4949

121 sequences assigned
28 (23.1%) exact matches, in which:
24 unique CDR3
7 unique J



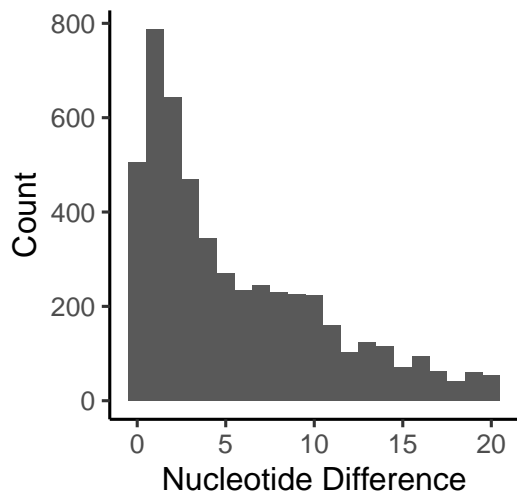
IGHV3-172*01_S1597

324 sequences assigned
56 (17.3%) exact matches, in which:
37 unique CDR3
7 unique J



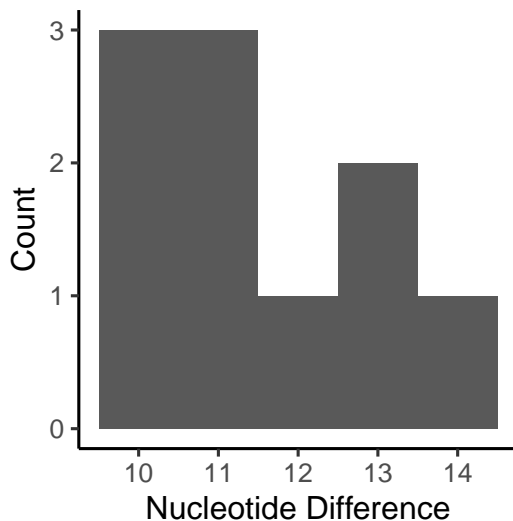
IGHV3-128*01_S3124

5332 sequences assigned
506 (9.5%) exact matches, in which:
277 unique CDR3
8 unique J



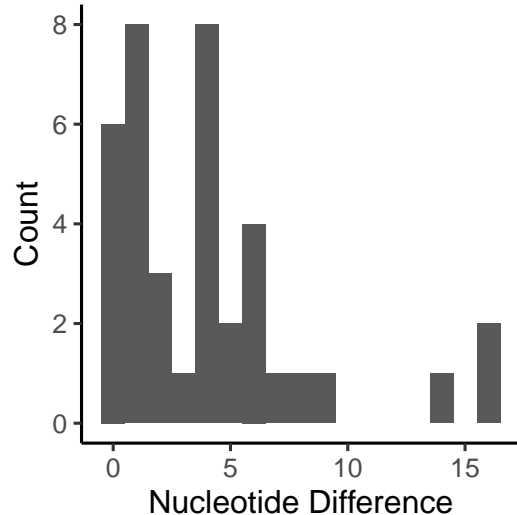
IGHV3-143*01_S1591

12 sequences assigned
No exact matches.



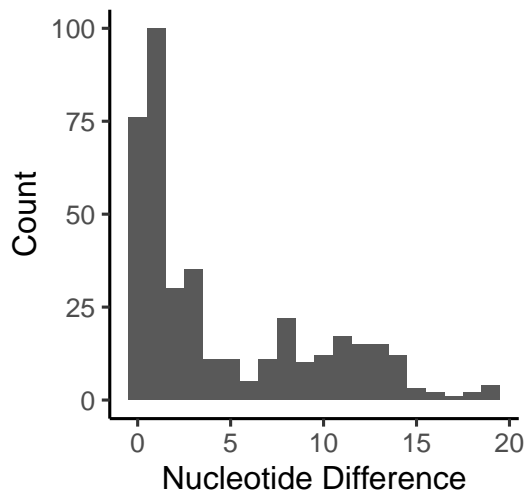
IGHV3-172*01_S8488

41 sequences assigned
6 (14.6%) exact matches, in which:
5 unique CDR3
3 unique J



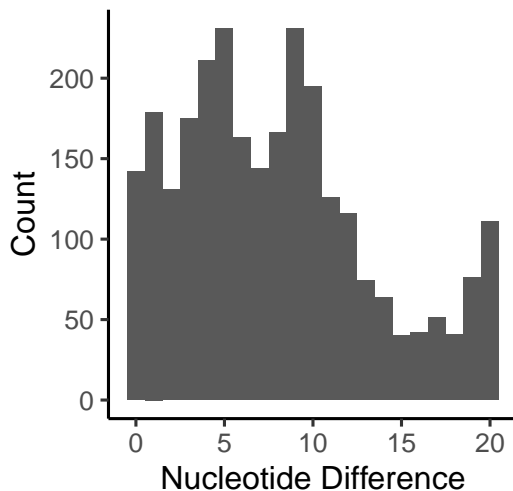
IGHV3-141*02_S4330

408 sequences assigned
76 (18.6%) exact matches, in which:
61 unique CDR3
5 unique J



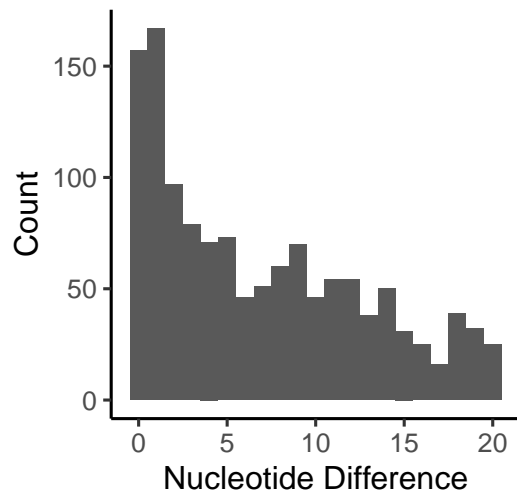
IGHV3-152*01_S7388

3366 sequences assigned
142 (4.2%) exact matches, in which:
97 unique CDR3
7 unique J



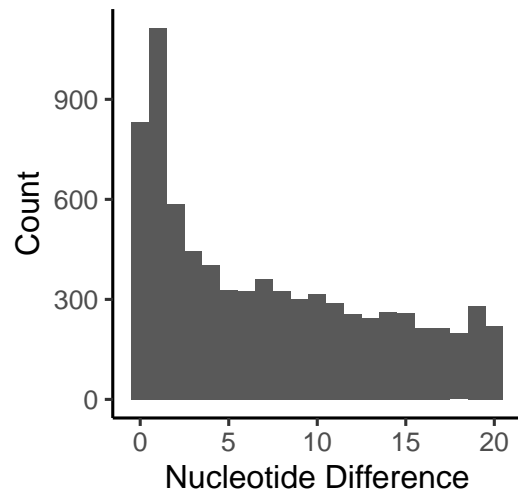
IGHV3-177*01_S8409

1347 sequences assigned
157 (11.7%) exact matches, in which:
113 unique CDR3
7 unique J



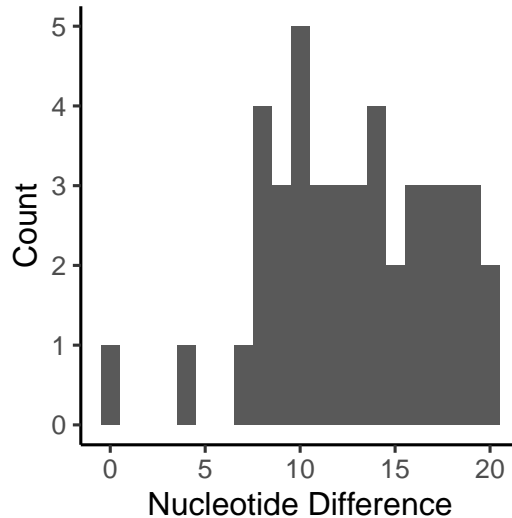
IGHV3-187*01_S1387

9182 sequences assigned
833 (9.1%) exact matches, in which:
512 unique CDR3
8 unique J



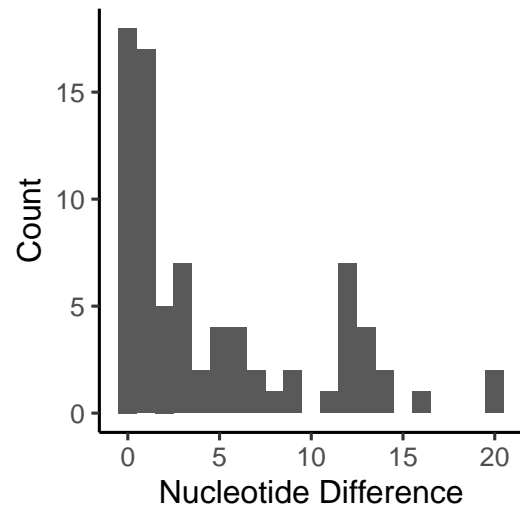
IGHV3-NL_11*01_S4102

53 sequences assigned
1 (1.9%) exact matches, in which:
1 unique CDR3
1 unique J



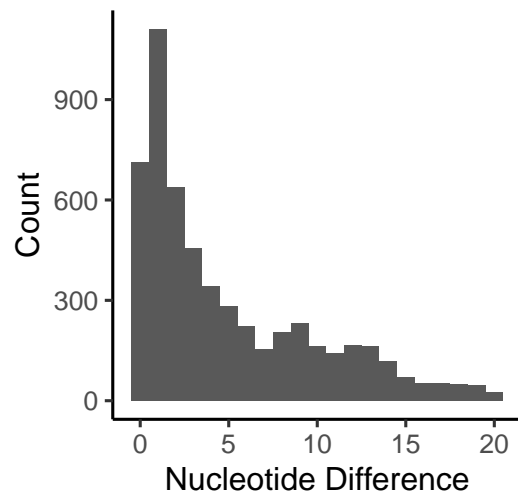
IGHV3-NL_12*02_S3129

80 sequences assigned
18 (22.5%) exact matches, in which:
13 unique CDR3
5 unique J



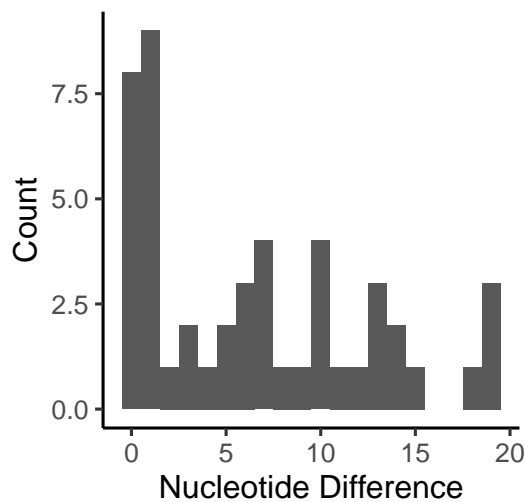
IGHV3-NL_1*01_S4906

5549 sequences assigned
712 (12.8%) exact matches, in which:
449 unique CDR3
9 unique J



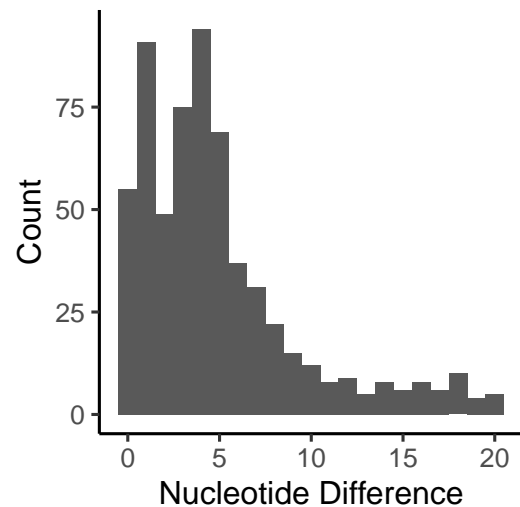
IGHV3-NL_11*01_S4380

53 sequences assigned
8 (15.1%) exact matches, in which:
8 unique CDR3
4 unique J



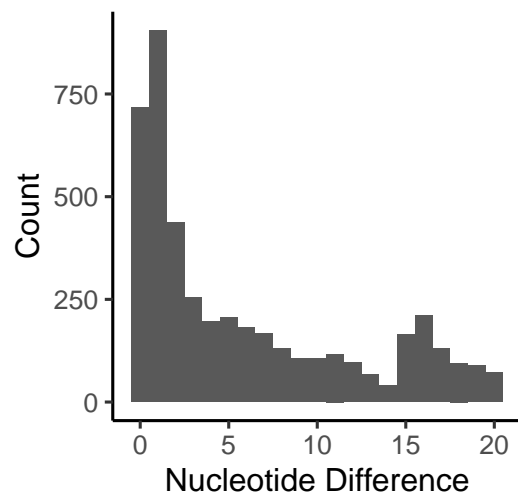
IGHV3-NL_13*01_S3277

775 sequences assigned
55 (7.1%) exact matches, in which:
40 unique CDR3
4 unique J



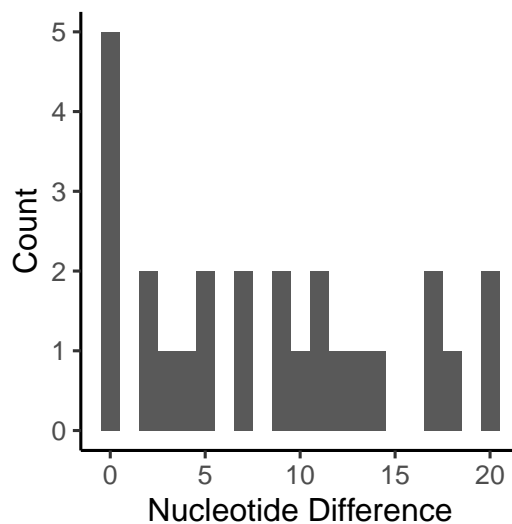
IGHV3-NL_1*01_S6560

4722 sequences assigned
716 (15.2%) exact matches, in which:
500 unique CDR3
8 unique J



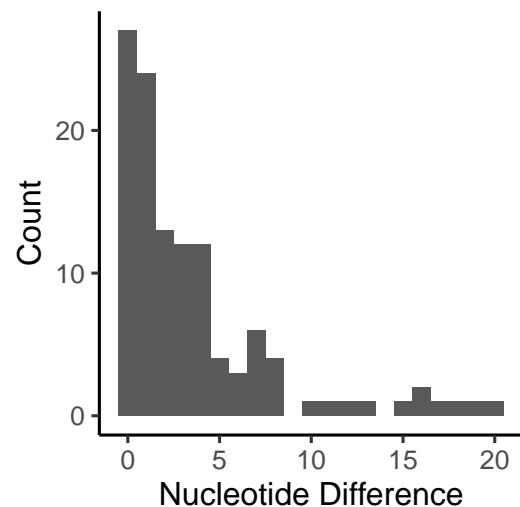
IGHV3-NL_11*01_S4619

30 sequences assigned
5 (16.7%) exact matches, in which:
5 unique CDR3
3 unique J



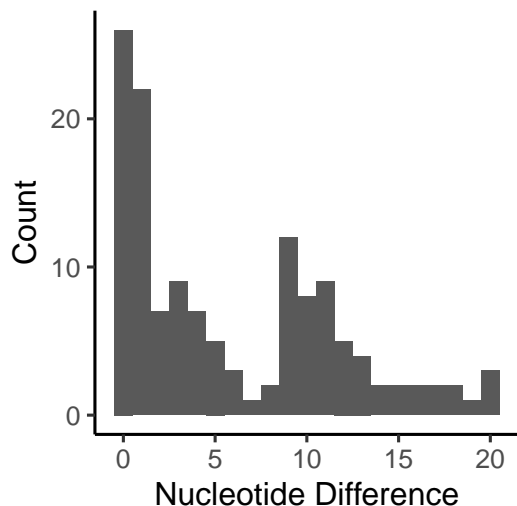
IGHV3-NL_16*01_S7722

116 sequences assigned
27 (23.3%) exact matches, in which:
22 unique CDR3
5 unique J



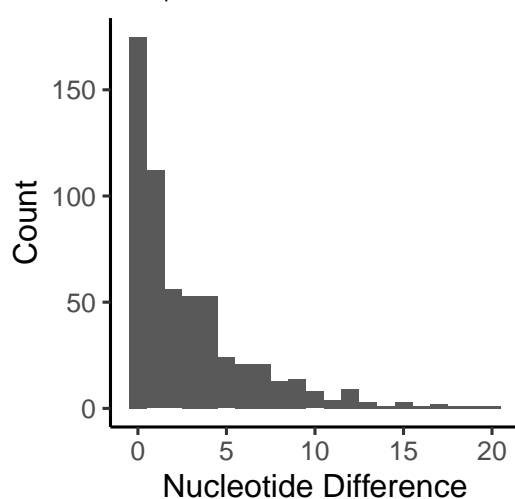
IGHV3–NL_16*01_S7825

136 sequences assigned
26 (19.1%) exact matches, in which:
21 unique CDR3
4 unique J



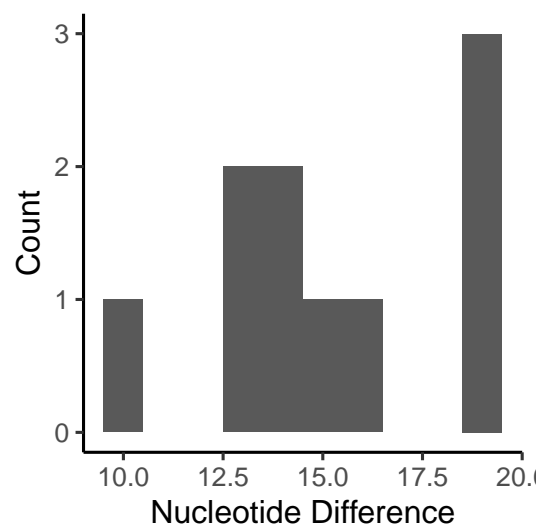
IGHV3–NL_18*01_S7220

578 sequences assigned
175 (30.3%) exact matches, in which:
119 unique CDR3
7 unique J



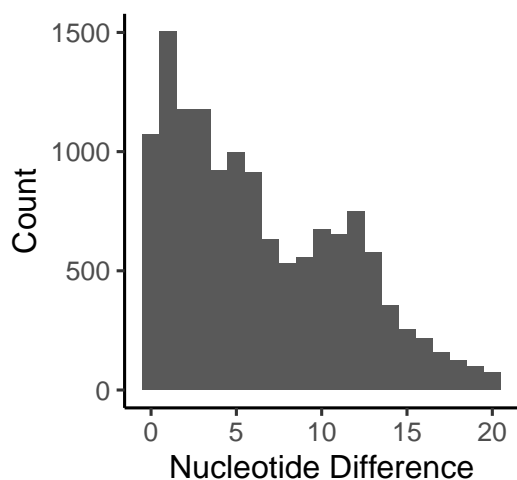
IGHV3–NL_4*01_S9635

17 sequences assigned
No exact matches.



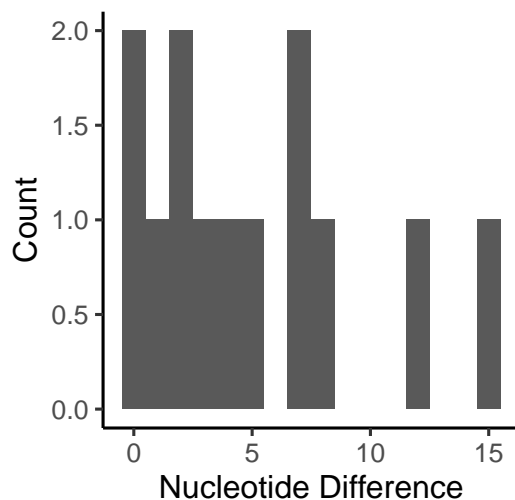
IGHV3–NL_17*01_S012

13721 sequences assigned
1072 (7.8%) exact matches, in which:
649 unique CDR3
7 unique J



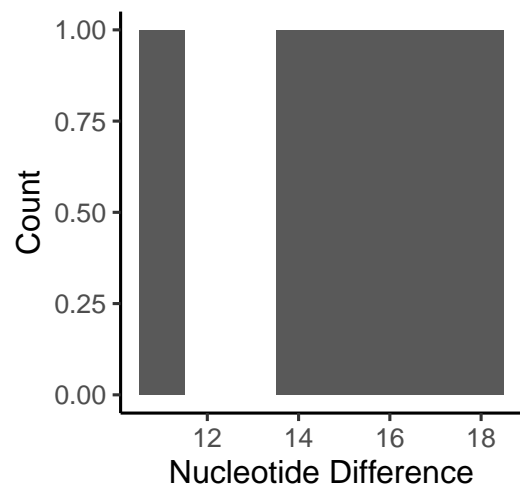
IGHV3–NL_19*01_S2166

14 sequences assigned
2 (14.3%) exact matches, in which:
2 unique CDR3
2 unique J



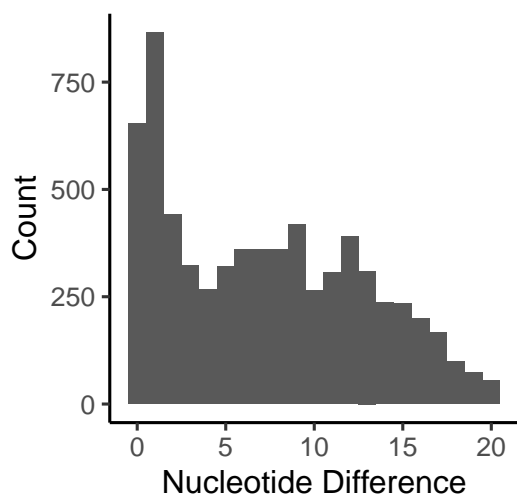
IGHV3–NL_5*01_S3315

6 sequences assigned
No exact matches.



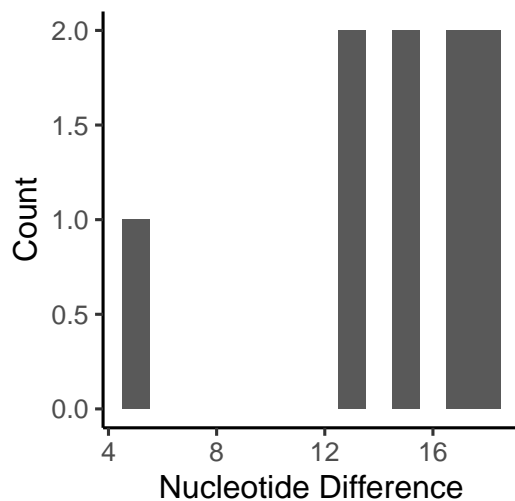
IGHV3–NL_17*01_S4250

7413 sequences assigned
653 (8.8%) exact matches, in which:
443 unique CDR3
7 unique J



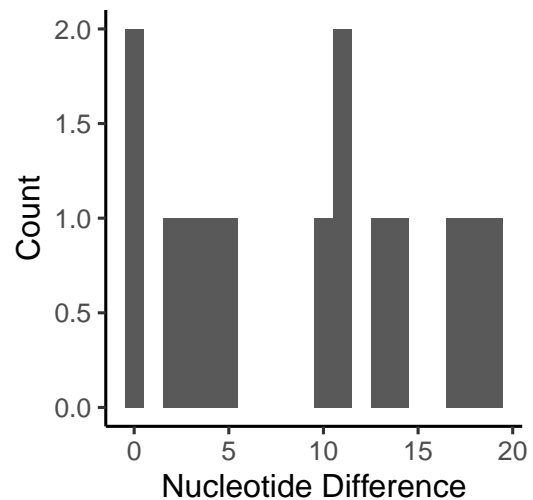
IGHV3–NL_4*01_S6875

12 sequences assigned
No exact matches.



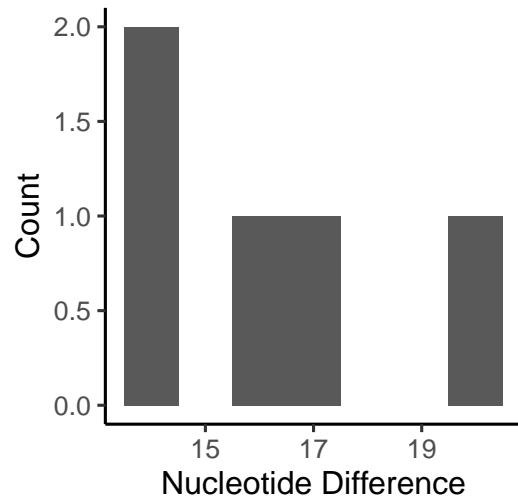
IGHV3–NL_5*01_S4429

15 sequences assigned
2 (13.3%) exact matches, in which:
2 unique CDR3
2 unique J



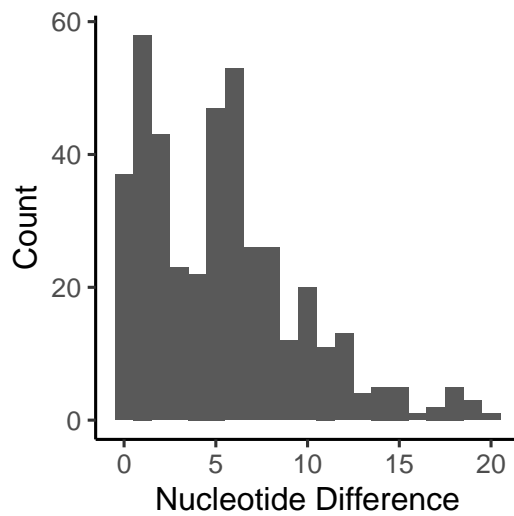
IGHV3–NL_5*01_S7761

12 sequences assigned
No exact matches.



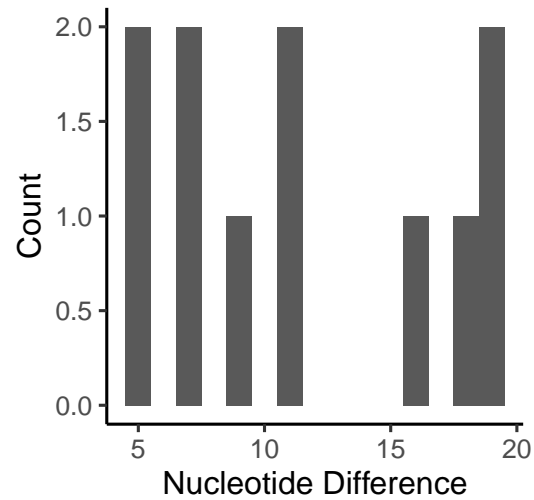
IGHV3–NL_8*01_S7415

427 sequences assigned
37 (8.7%) exact matches, in which:
30 unique CDR3
5 unique J



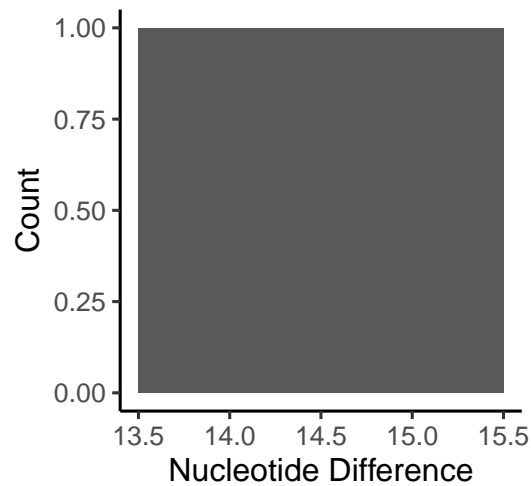
IGHV4–67*02_S1312

15 sequences assigned
No exact matches.



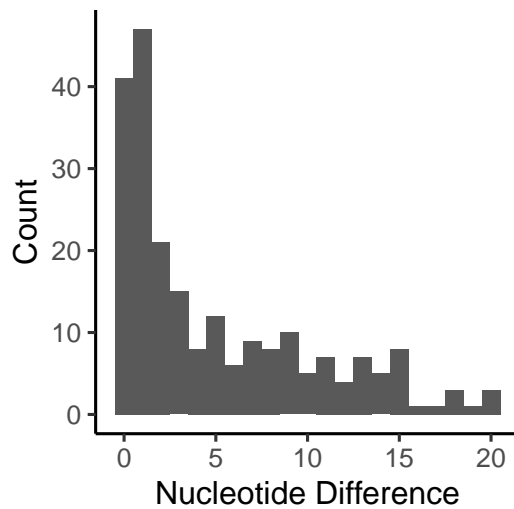
IGHV3–NL_5*01_S8361

3 sequences assigned
No exact matches.



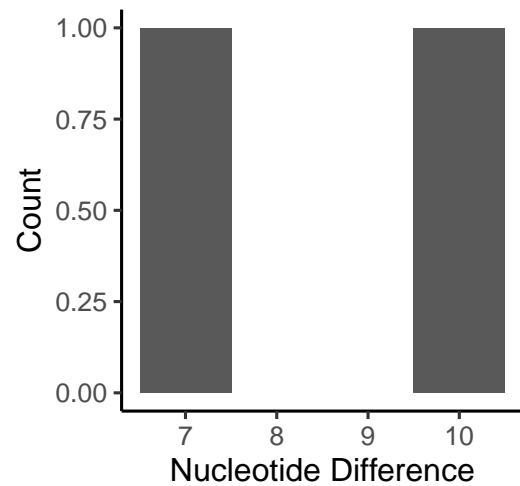
IGHV3–NL_8*01_S7474

234 sequences assigned
41 (17.5%) exact matches, in which:
29 unique CDR3
7 unique J



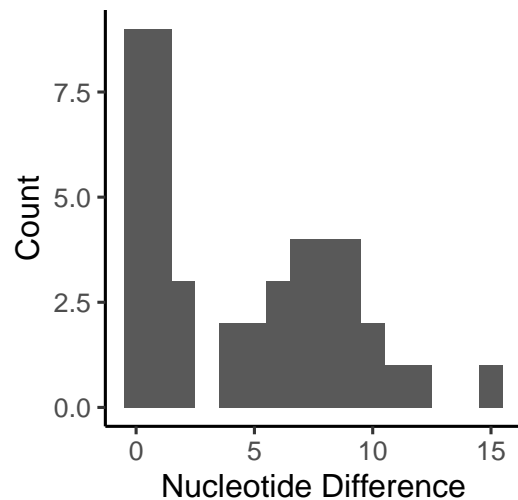
IGHV4–72*01_S8261

2 sequences assigned
No exact matches.



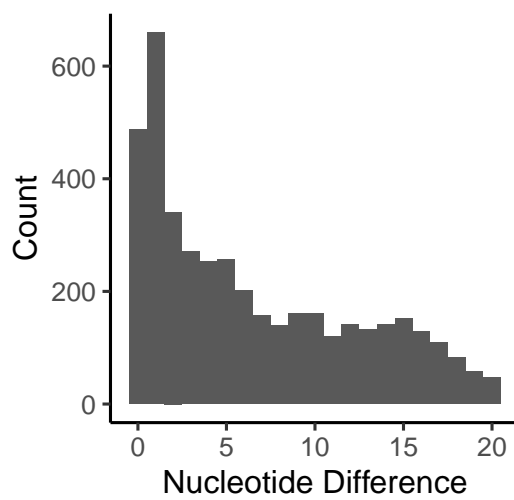
IGHV3–NL_6*02_S6474

47 sequences assigned
9 (19.1%) exact matches, in which:
9 unique CDR3
3 unique J



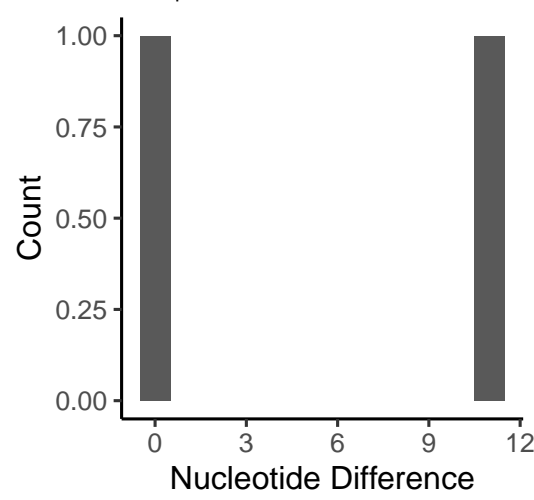
IGHV3–NL_9*01_S6098

4813 sequences assigned
487 (10.1%) exact matches, in which:
353 unique CDR3
9 unique J



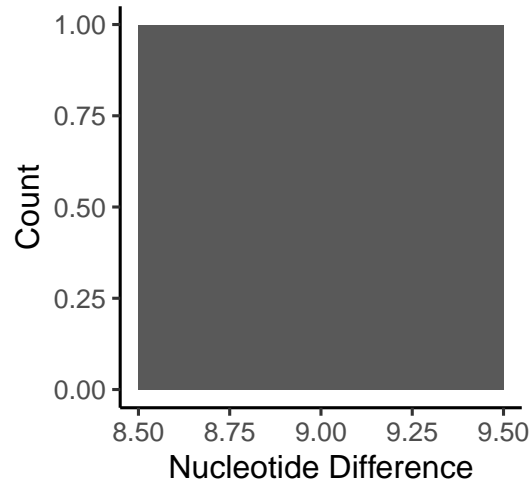
IGHV4–93*01_S0054

2 sequences assigned
1 (50%) exact matches, in which:
1 unique CDR3
1 unique J



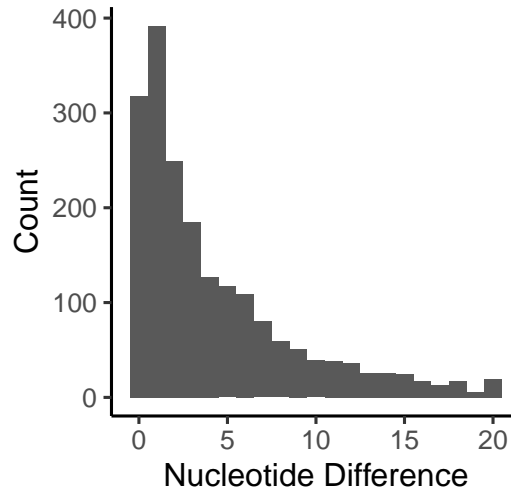
IGHV4-93*01_S1164

1 sequences assigned
No exact matches.



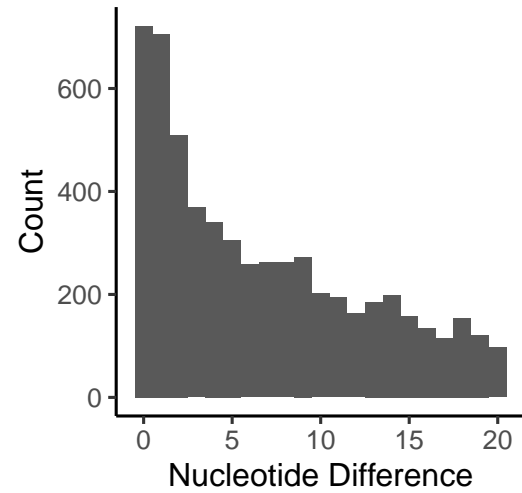
IGHV4-117*01_S7493

2064 sequences assigned
318 (15.4%) exact matches, in which:
257 unique CDR3
8 unique J



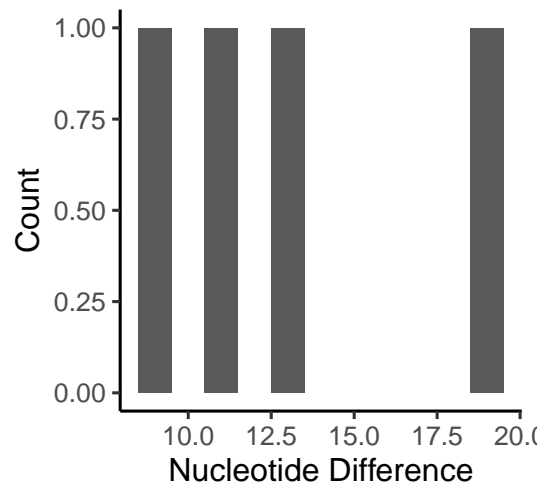
IGHV4-149*01_S4098

6762 sequences assigned
722 (10.7%) exact matches, in which:
606 unique CDR3
9 unique J



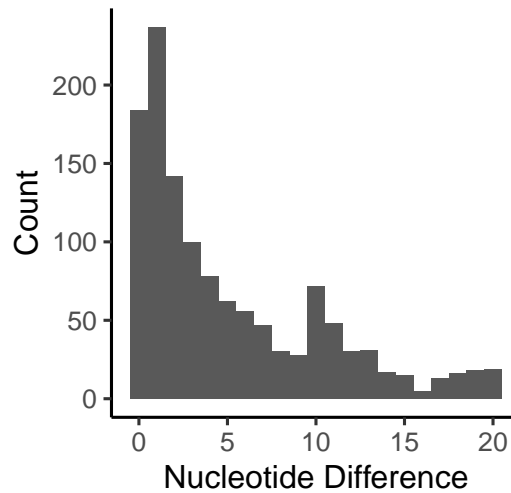
IGHV4-93*01_S5203

7 sequences assigned
No exact matches.



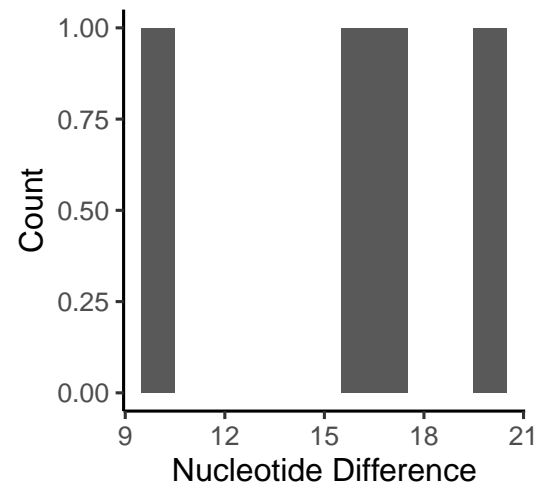
IGHV4-144*01_S0885

1399 sequences assigned
184 (13.2%) exact matches, in which:
146 unique CDR3
7 unique J



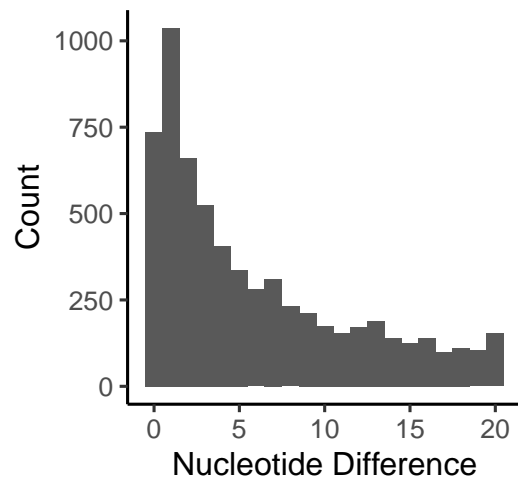
IGHV4-150*01_S0971

4 sequences assigned
No exact matches.



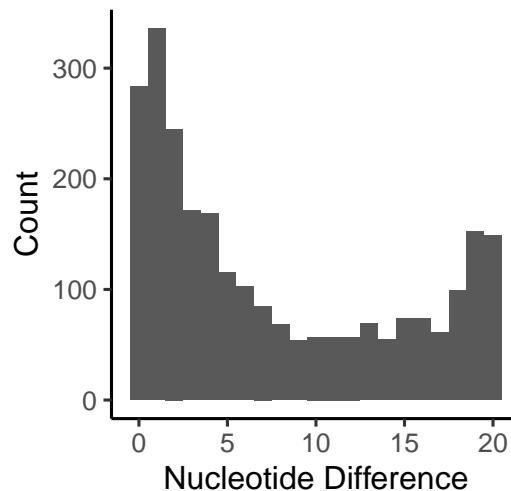
IGHV4-117*01_S2181

7195 sequences assigned
736 (10.2%) exact matches, in which:
619 unique CDR3
8 unique J



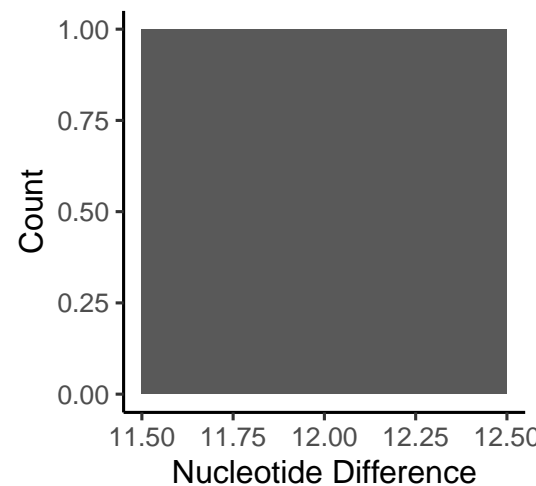
IGHV4-144*01_S6192

3258 sequences assigned
283 (8.7%) exact matches, in which:
227 unique CDR3
7 unique J



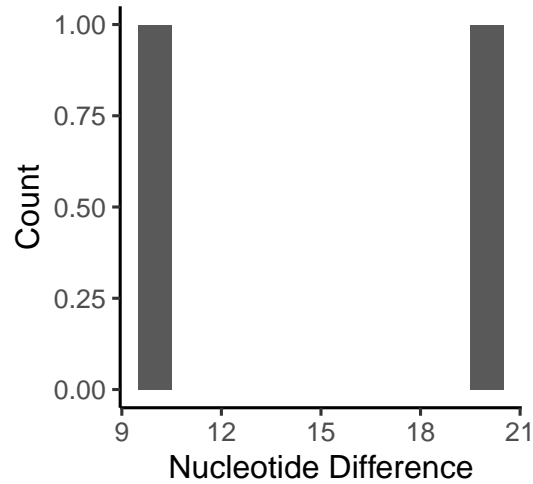
IGHV4-150*01_S1575

2 sequences assigned
No exact matches.



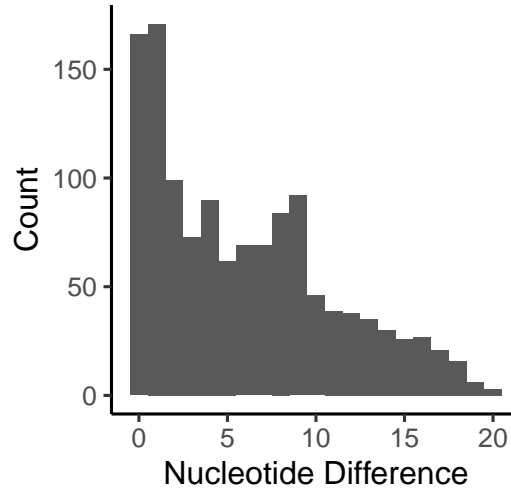
IGHV4-150*01_S5380

3 sequences assigned
No exact matches.



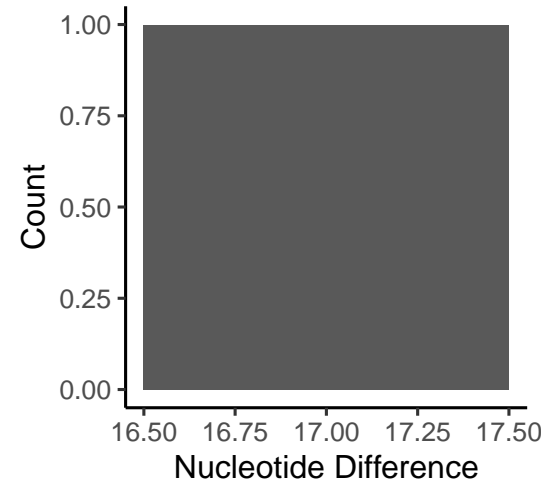
IGHV4-NL_1*01_S8520

1318 sequences assigned
166 (12.6%) exact matches, in which:
125 unique CDR3
8 unique J



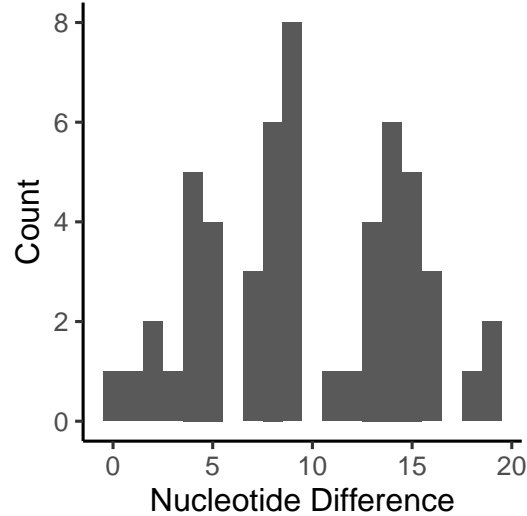
IGHV4-NL_10*01_S4164

1 sequences assigned
No exact matches.



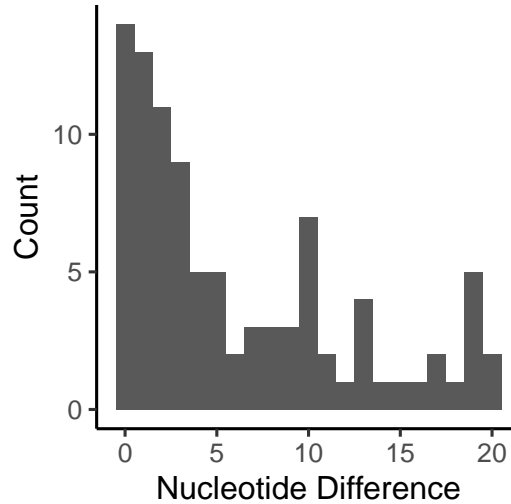
IGHV4-174*02_S7573

55 sequences assigned
1 (1.8%) exact matches, in which:
1 unique CDR3
1 unique J



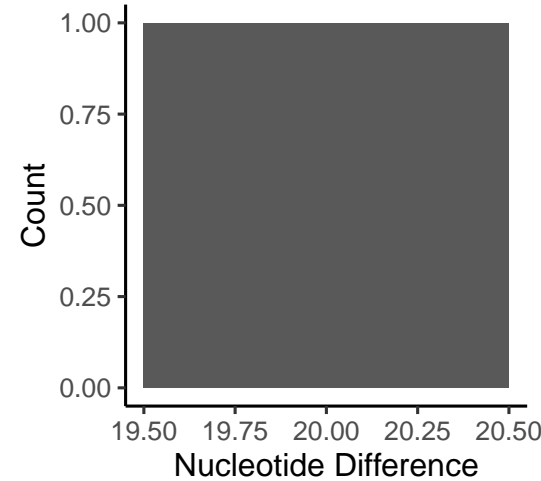
IGHV4-NL_1*02_S2201

98 sequences assigned
14 (14.3%) exact matches, in which:
11 unique CDR3
4 unique J



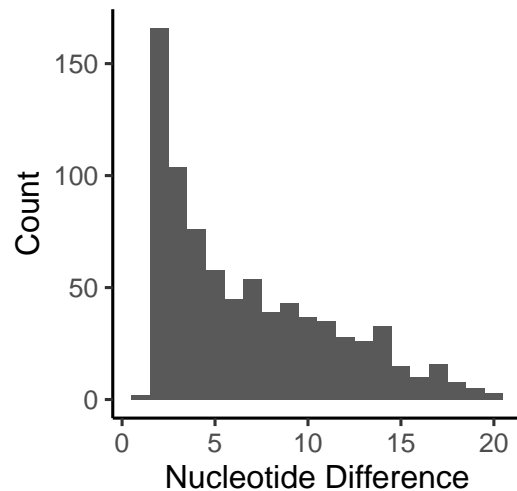
IGHV4-NL_10*01_S7118

1 sequences assigned
No exact matches.



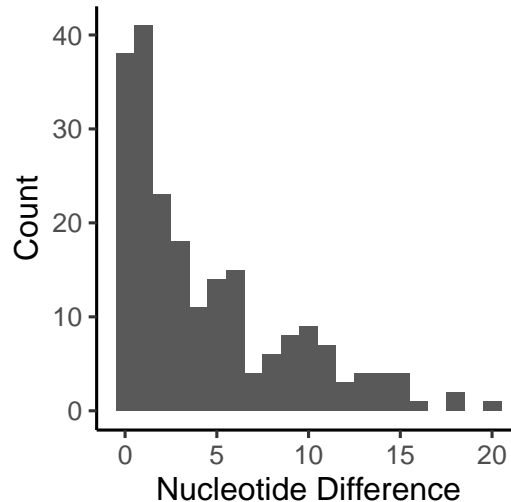
IGHV4-174*02_S9172

823 sequences assigned
No exact matches.



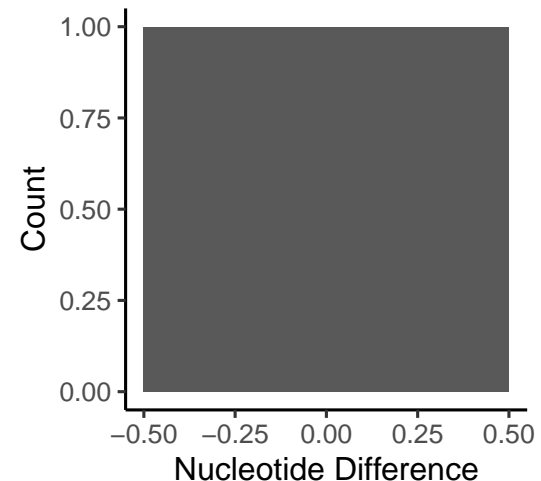
IGHV4-NL_1*02_S9550

261 sequences assigned
38 (14.6%) exact matches, in which:
30 unique CDR3
7 unique J



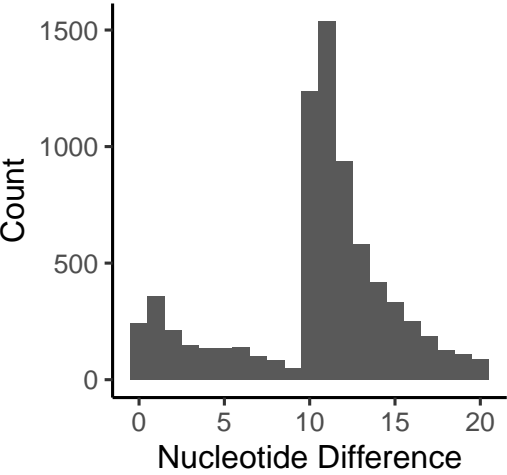
IGHV4-NL_10*01_S7523

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



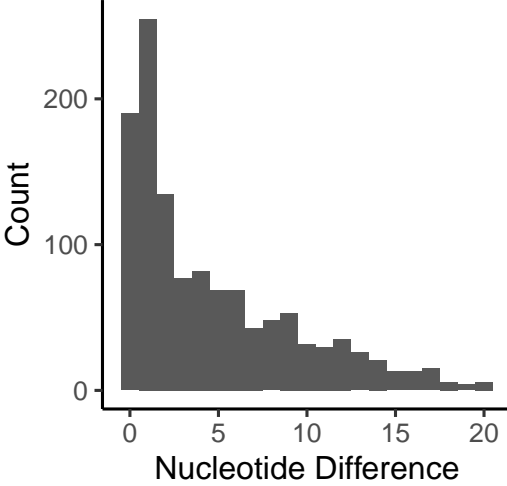
IGHV4–NL_12*01_S647

7721 sequences assigned
244 (3.2%) exact matches, in which:
201 unique CDR3
7 unique J



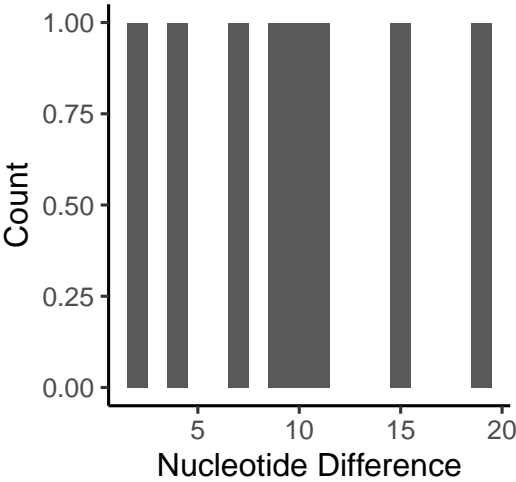
IGHV4–NL_17*01_S6249

1261 sequences assigned
190 (15.1%) exact matches, in which:
168 unique CDR3
8 unique J



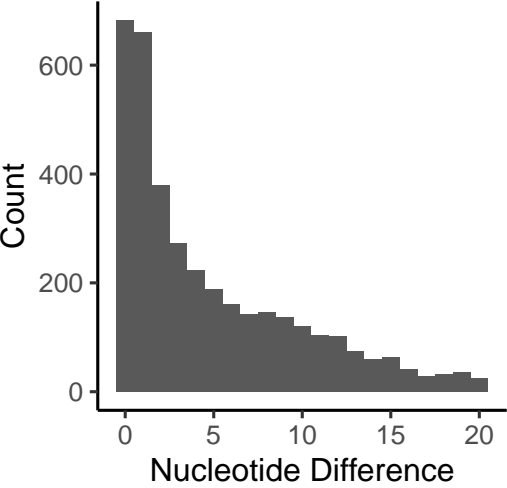
IGHV4–NL_21*01_S0138

13 sequences assigned
No exact matches.



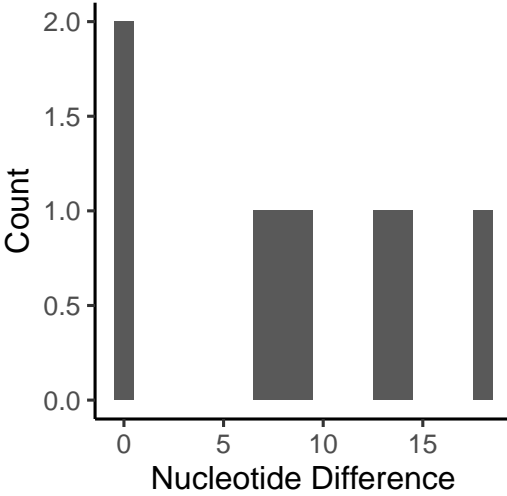
IGHV4–NL_13*01_S9273

3947 sequences assigned
683 (17.3%) exact matches, in which:
586 unique CDR3
8 unique J



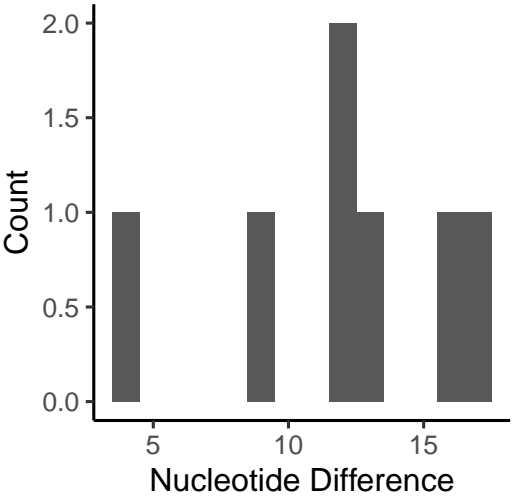
IGHV4–NL_18*01_S3907

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



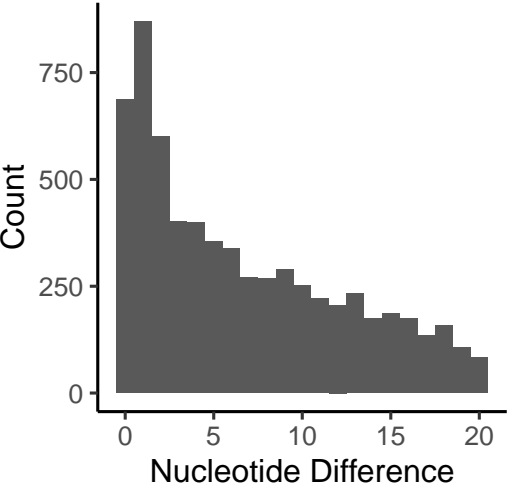
IGHV4–NL_21*01_S3442

10 sequences assigned
No exact matches.



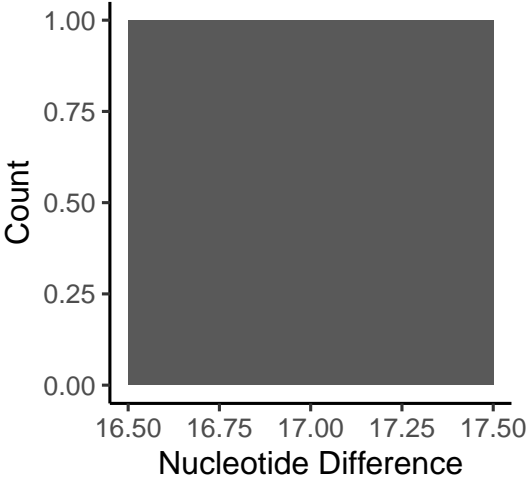
IGHV4–NL_16*01_S2138

6968 sequences assigned
686 (9.8%) exact matches, in which:
556 unique CDR3
8 unique J



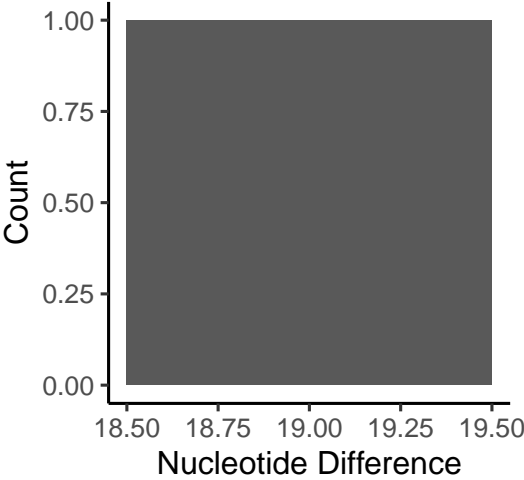
IGHV4–NL_19*01_S4445

1 sequences assigned
No exact matches.



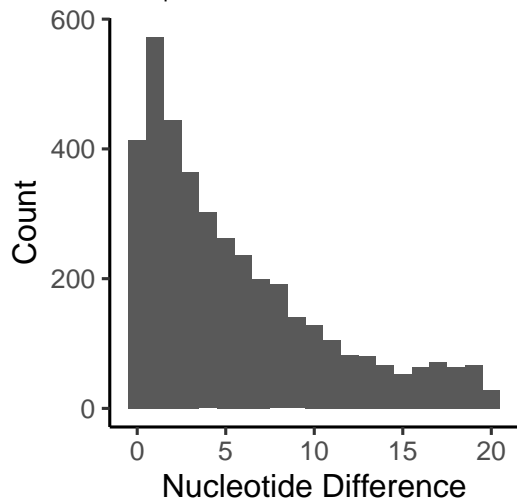
IGHV4–NL_21*01_S3940

1 sequences assigned
No exact matches.



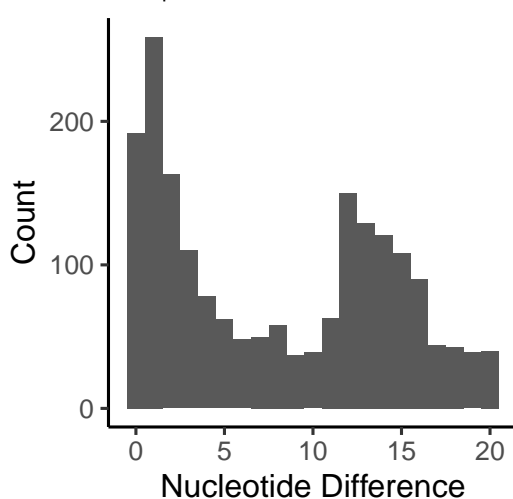
IGHV4–NL_22*01_S2393

4115 sequences assigned
414 (10.1%) exact matches, in which:
346 unique CDR3
7 unique J



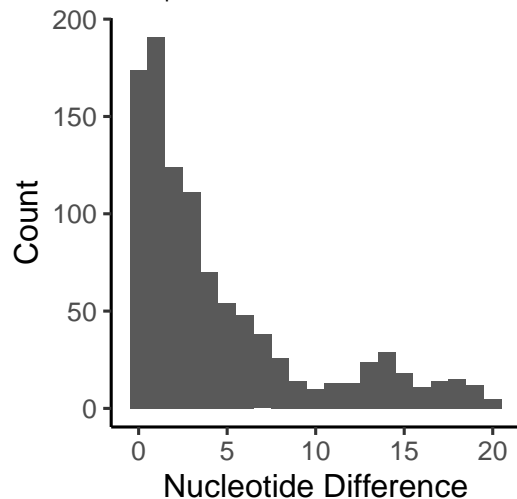
IGHV4–NL_25*01_S1514

2077 sequences assigned
192 (9.2%) exact matches, in which:
164 unique CDR3
7 unique J



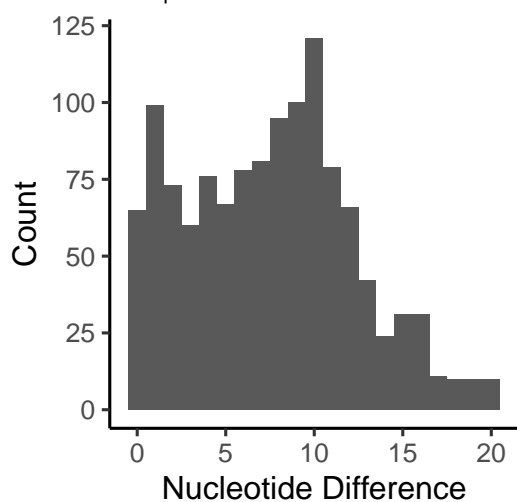
IGHV4–NL_27*01_S5720

1043 sequences assigned
174 (16.7%) exact matches, in which:
148 unique CDR3
7 unique J



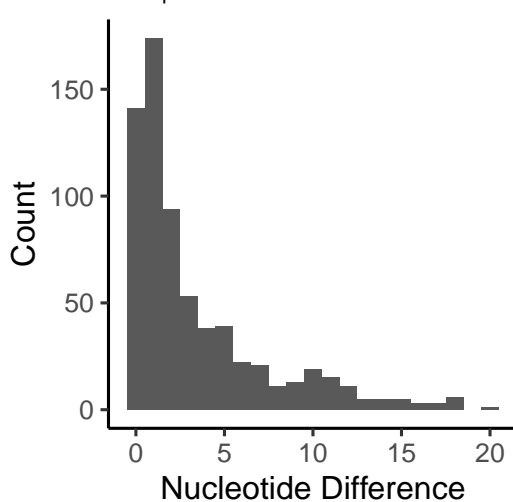
IGHV4–NL_22*01_S4706

1282 sequences assigned
65 (5.1%) exact matches, in which:
59 unique CDR3
7 unique J



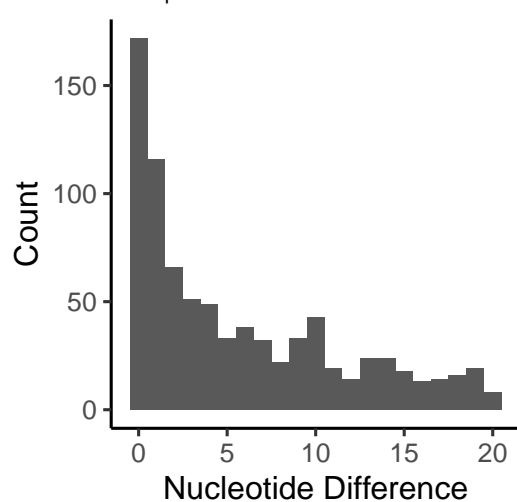
IGHV4–NL_27*01_S0482

680 sequences assigned
141 (20.7%) exact matches, in which:
117 unique CDR3
6 unique J



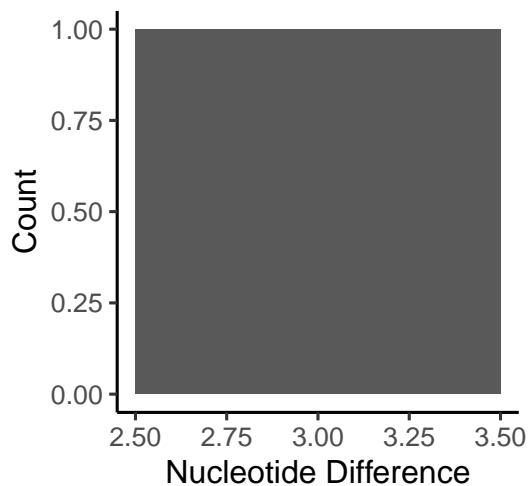
IGHV4–NL_28*01_S1005

867 sequences assigned
172 (19.8%) exact matches, in which:
153 unique CDR3
7 unique J



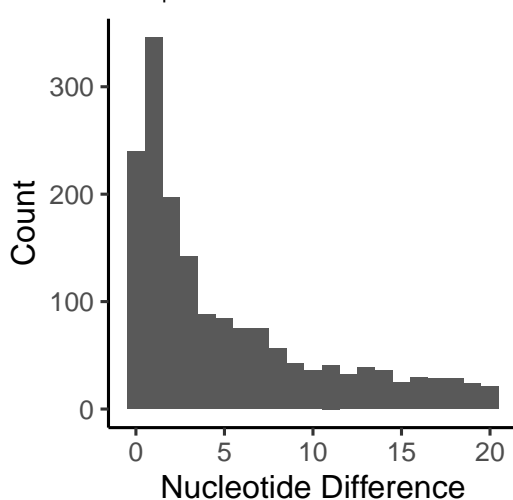
IGHV4–NL_24*01_S5697

1 sequences assigned
No exact matches.



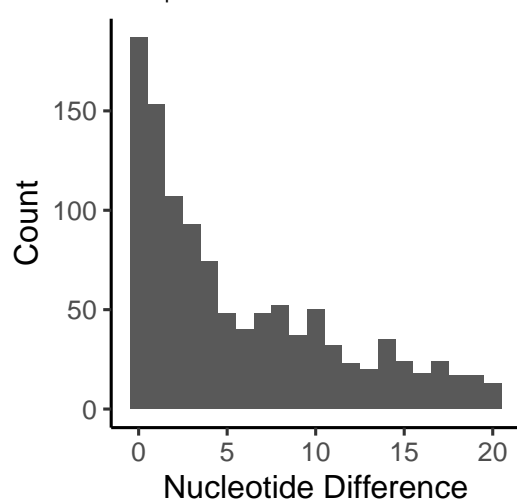
IGHV4–NL_27*01_S1515

1881 sequences assigned
240 (12.8%) exact matches, in which:
206 unique CDR3
7 unique J



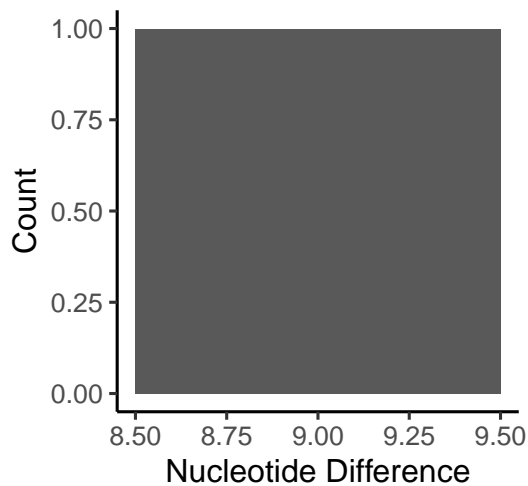
IGHV4–NL_28*01_S1005

1173 sequences assigned
187 (15.9%) exact matches, in which:
166 unique CDR3
7 unique J



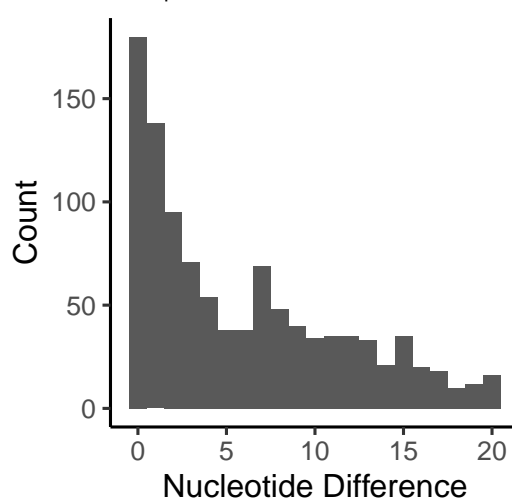
IGHV4–NL_29*01_S7498

1 sequences assigned
No exact matches.



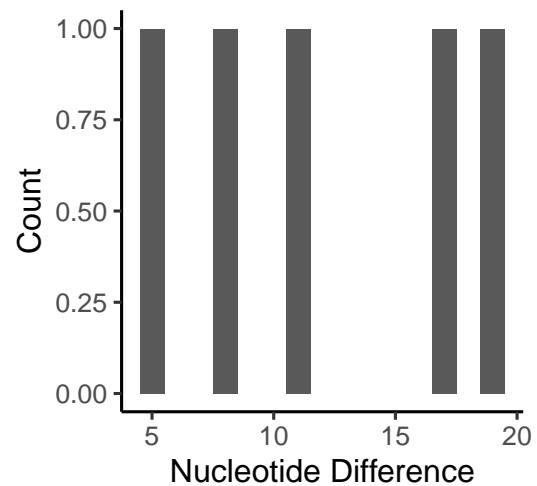
IGHV4–NL_30*01_S1240

1182 sequences assigned
180 (15.2%) exact matches, in which:
153 unique CDR3
7 unique J



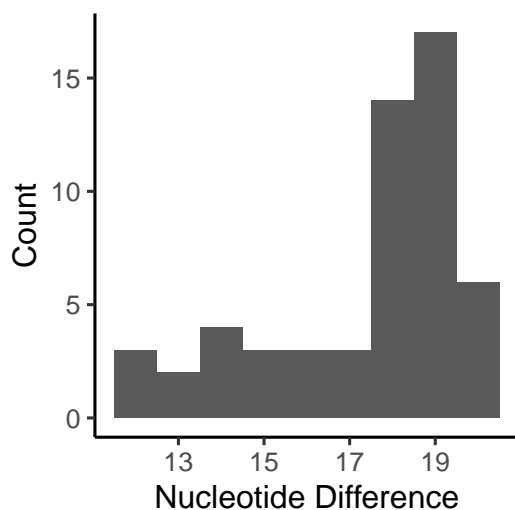
IGHV4–NL_36*01_S1694

7 sequences assigned
No exact matches.



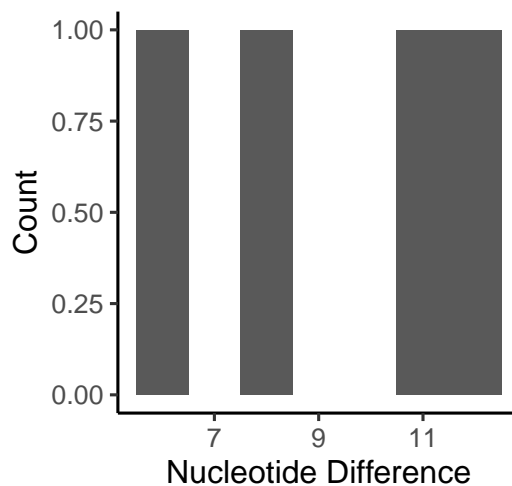
IGHV4–NL_3*01_S5200

132 sequences assigned
No exact matches.



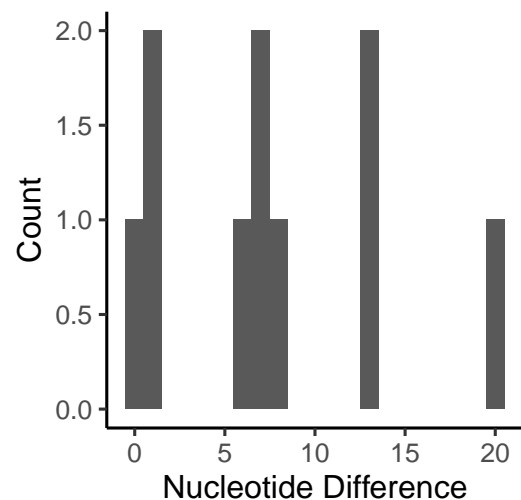
IGHV4–NL_32*01_S1450

4 sequences assigned
No exact matches.



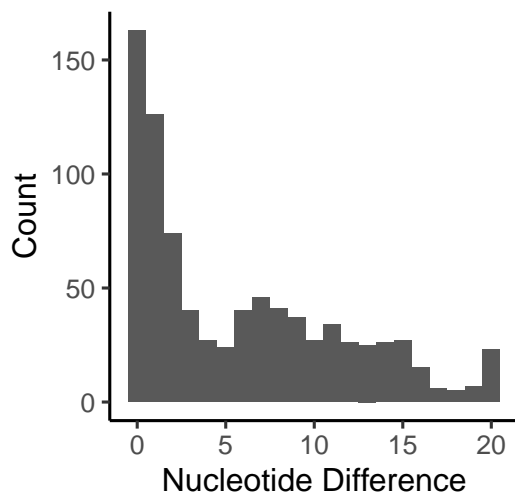
IGHV4–NL_36*01_S9644

14 sequences assigned
1 (7.1%) exact matches, in which:
1 unique CDR3
1 unique J



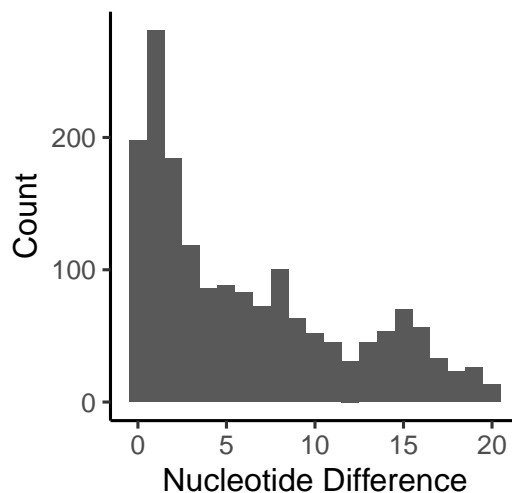
IGHV4–NL_30*01_S1240

992 sequences assigned
163 (16.4%) exact matches, in which:
138 unique CDR3
6 unique J



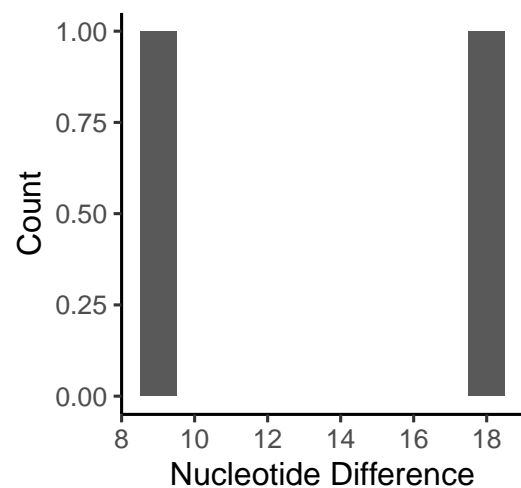
IGHV4–NL_33*01_S9333

1970 sequences assigned
198 (10.1%) exact matches, in which:
157 unique CDR3
6 unique J



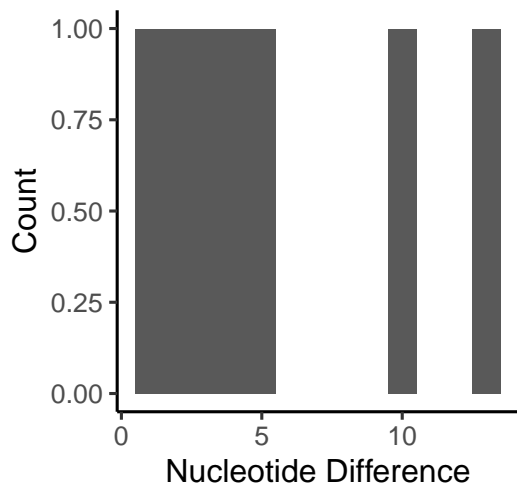
IGHV4–NL_36*01_S9894

4 sequences assigned
No exact matches.



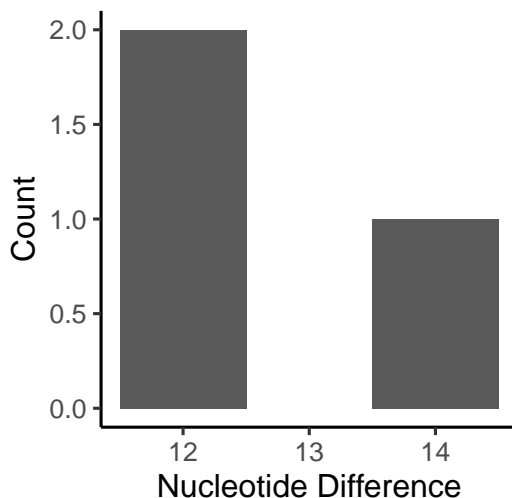
IGHV4-NL_37*01_S0997

7 sequences assigned
No exact matches.



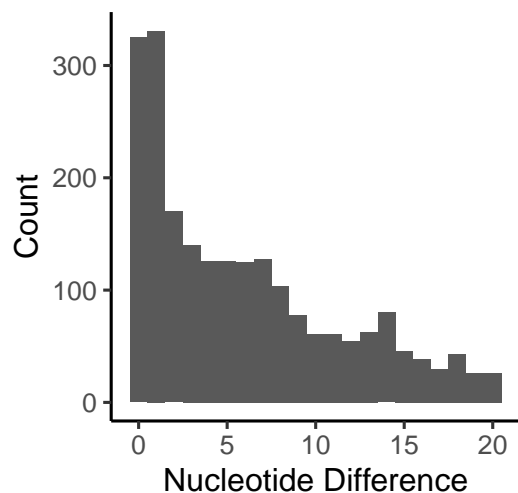
IGHV4-NL_4*01_S5211

6 sequences assigned
No exact matches.



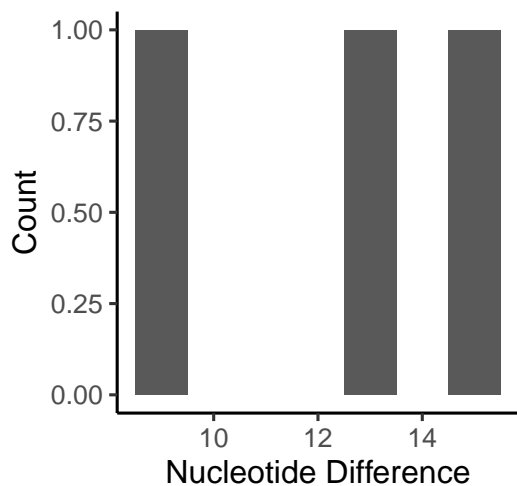
IGHV4-NL_42*01_S8550

2397 sequences assigned
325 (13.6%) exact matches, in which:
269 unique CDR3
8 unique J



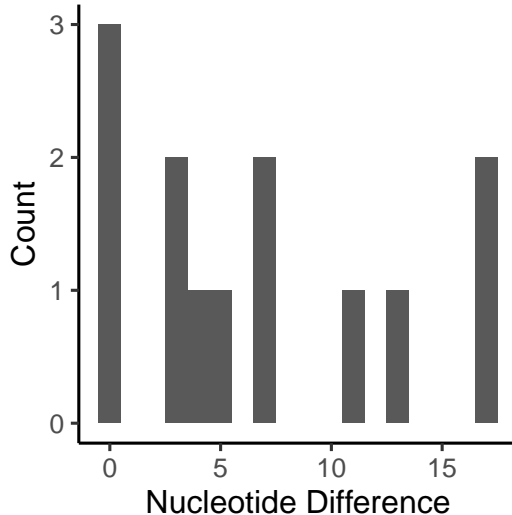
IGHV4-NL_38*01_S8437

5 sequences assigned
No exact matches.



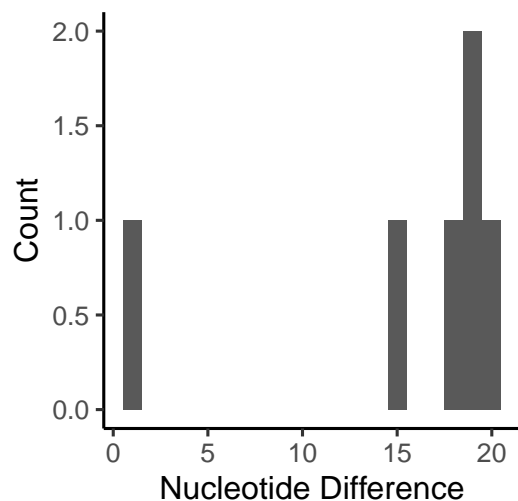
IGHV4-NL_40*01_S9020

13 sequences assigned
3 (23.1%) exact matches, in which:
3 unique CDR3
2 unique J



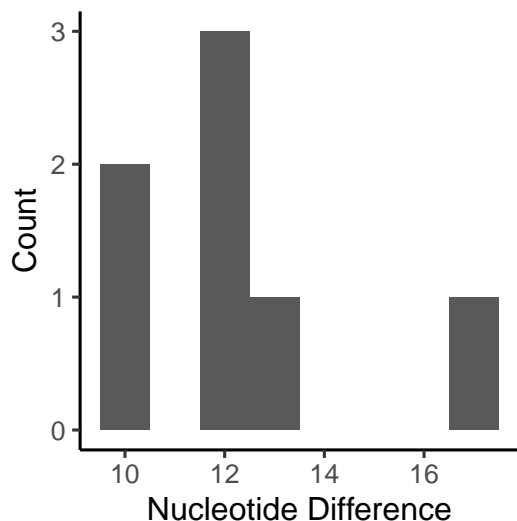
IGHV4-NL_43*01_S3820

13 sequences assigned
No exact matches.



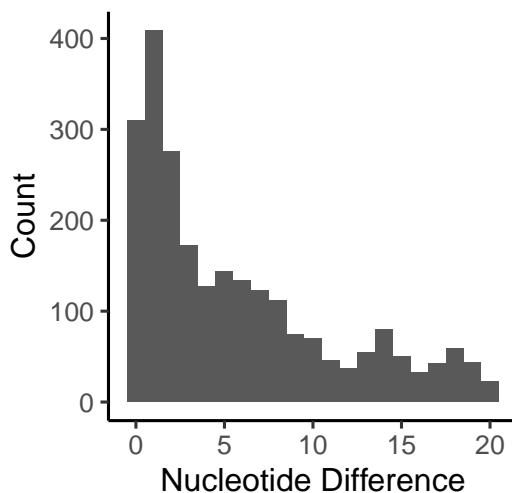
IGHV4-NL_38*01_S9225

17 sequences assigned
No exact matches.



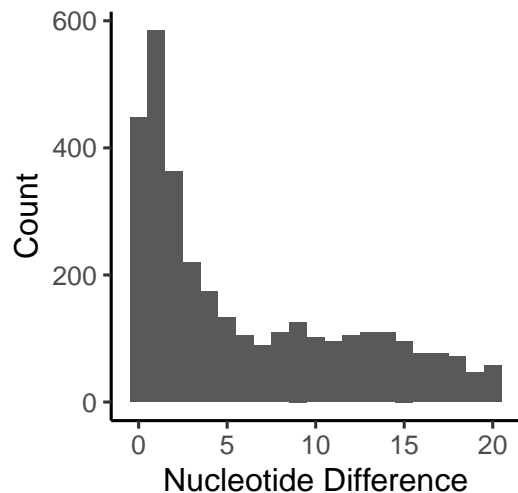
IGHV4-NL_41*01_S9253

2516 sequences assigned
310 (12.3%) exact matches, in which:
249 unique CDR3
8 unique J



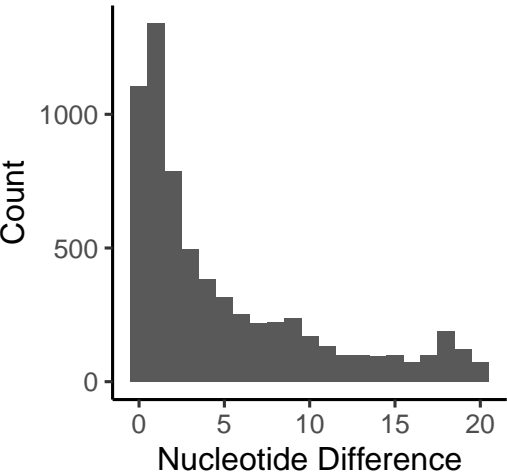
IGHV4-NL_5*01_S0908

3616 sequences assigned
448 (12.4%) exact matches, in which:
385 unique CDR3
7 unique J



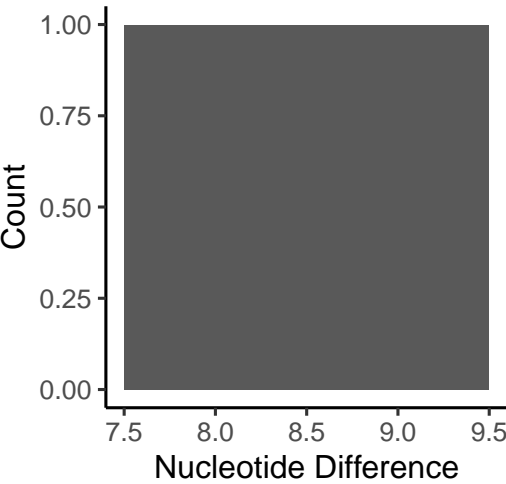
IGHV4–NL_5*01_S6960

7158 sequences assigned
1107 (15.5%) exact matches, in which:
922 unique CDR3
8 unique J



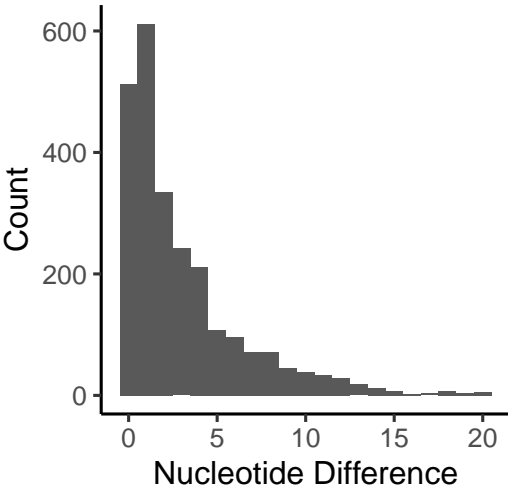
IGHV4–NL_9*01_S6608

2 sequences assigned
No exact matches.



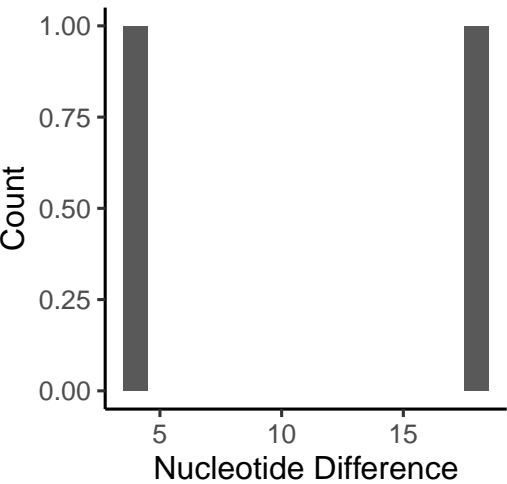
IGHV5–157*01_S8626

2479 sequences assigned
513 (20.7%) exact matches, in which:
268 unique CDR3
9 unique J



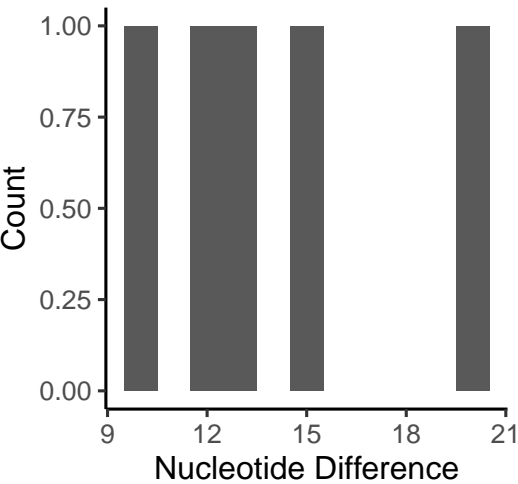
IGHV4–NL_6*01_S3002

2 sequences assigned
No exact matches.



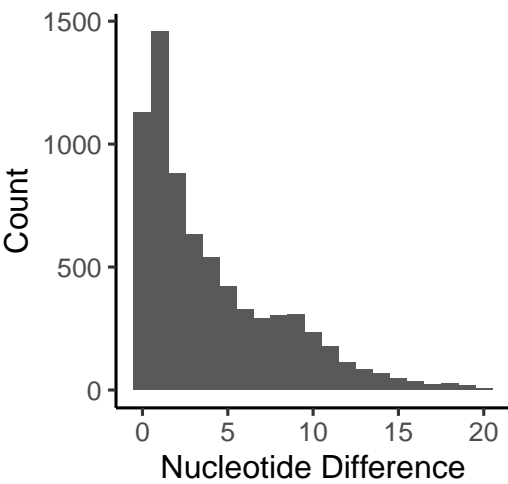
IGHV4–NL_9*02_S2874

5 sequences assigned
No exact matches.



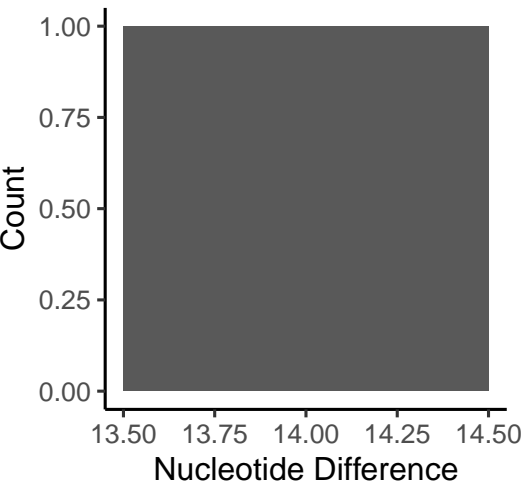
IGHV5–157*02_S3096

7167 sequences assigned
1129 (15.8%) exact matches, in which:
645 unique CDR3
8 unique J



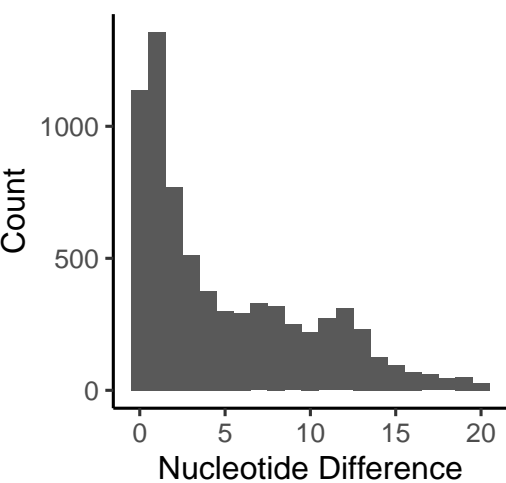
IGHV4–NL_7*02_S0143

1 sequences assigned
No exact matches.



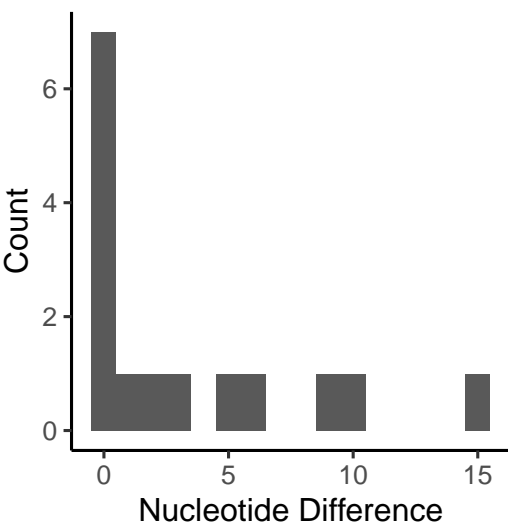
IGHV5–15*01_S8661

7241 sequences assigned
1138 (15.7%) exact matches, in which:
658 unique CDR3
10 unique J



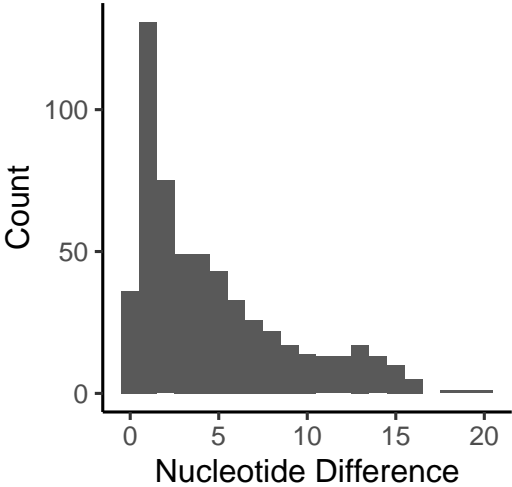
IGHV5–NL_1*02_S5699

15 sequences assigned
7 (46.7%) exact matches, in which:
7 unique CDR3
4 unique J



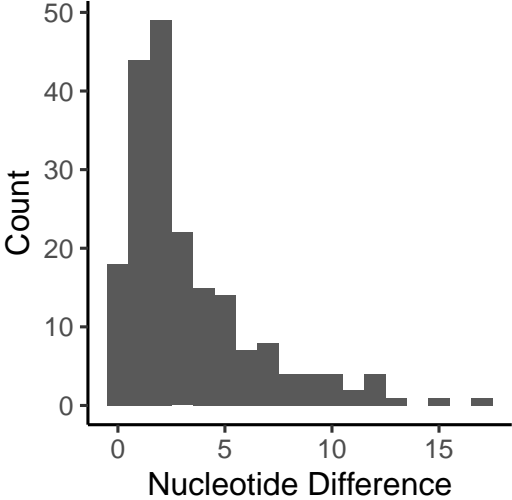
IGHV6-1*01_G283T

578 sequences assigned
36 (6.2%) exact matches, in which:
32 unique CDR3
7 unique J



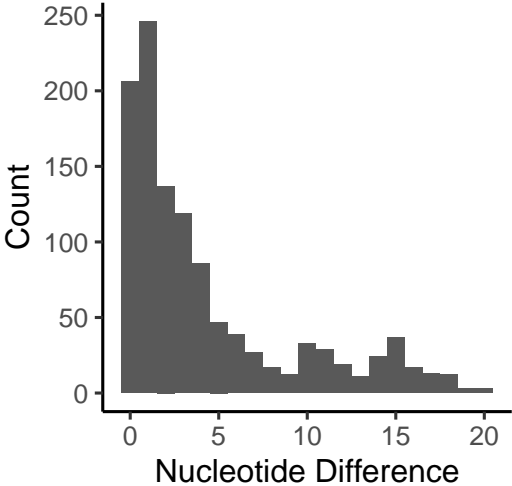
IGHV6-1*02_S6792

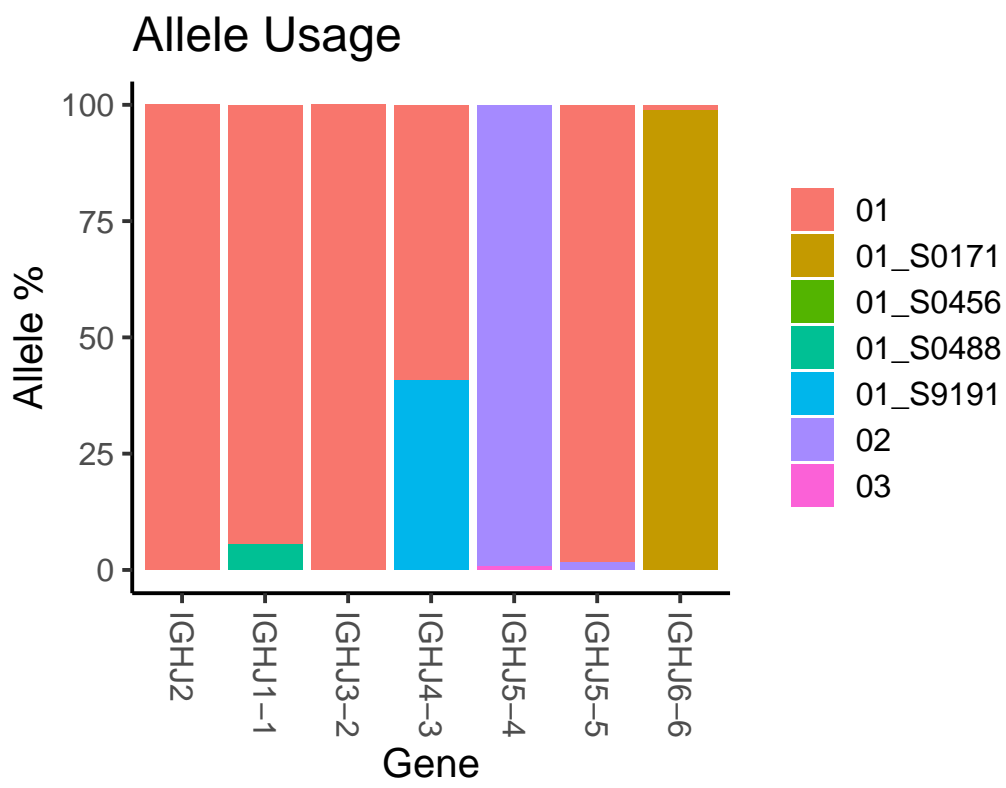
198 sequences assigned
18 (9.1%) exact matches, in which:
7 unique CDR3
3 unique J



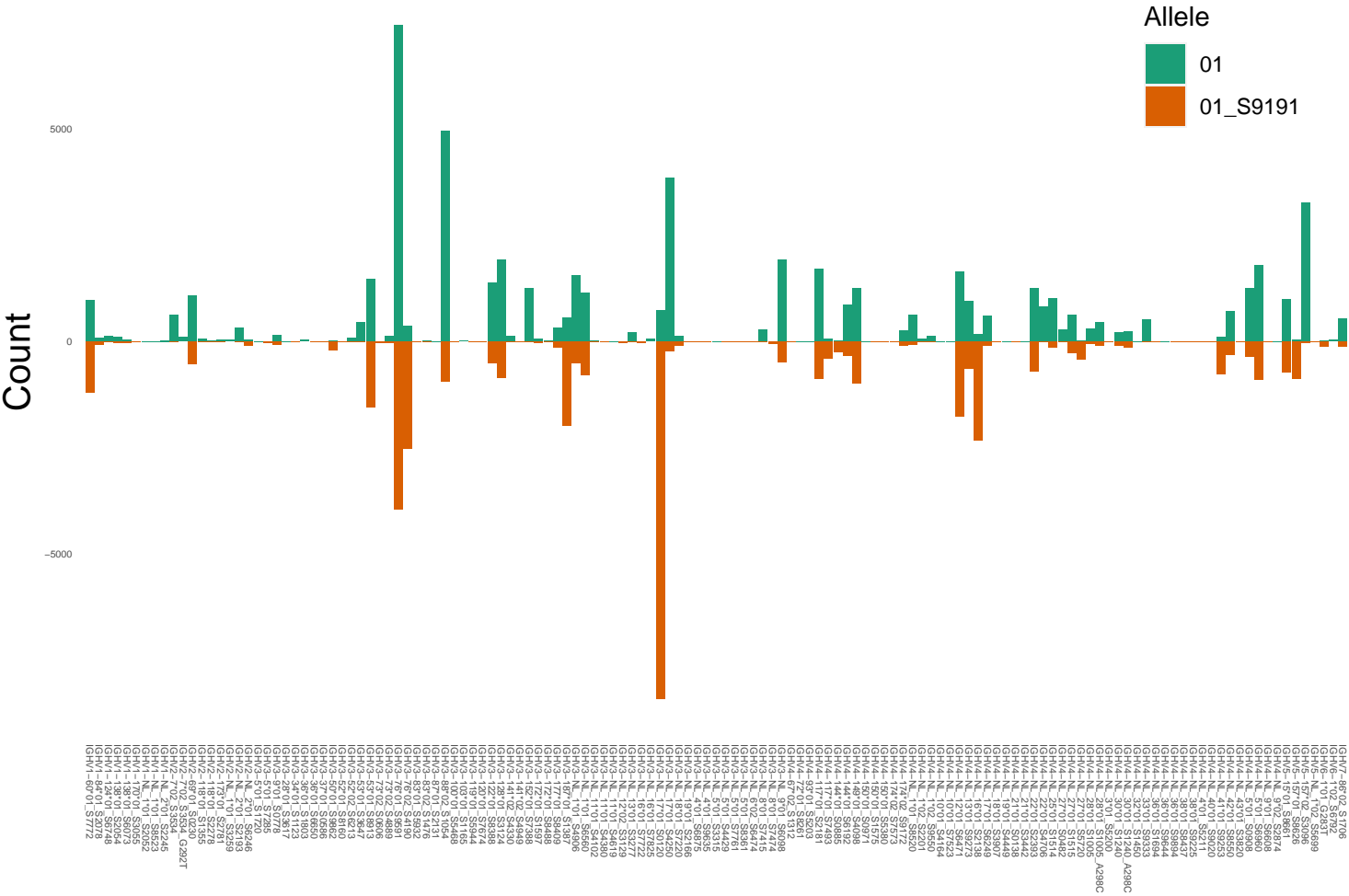
IGHV7-86*02_S1706

1217 sequences assigned
206 (16.9%) exact matches, in which:
112 unique CDR3
7 unique J





Sequence Count by IGHJ4-3 allele usage



Warning – no inferred sequences found.