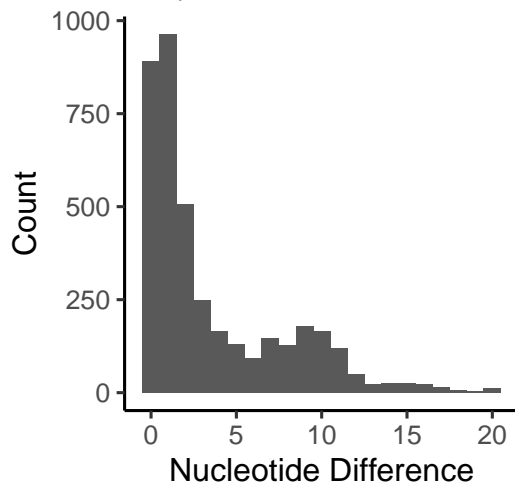


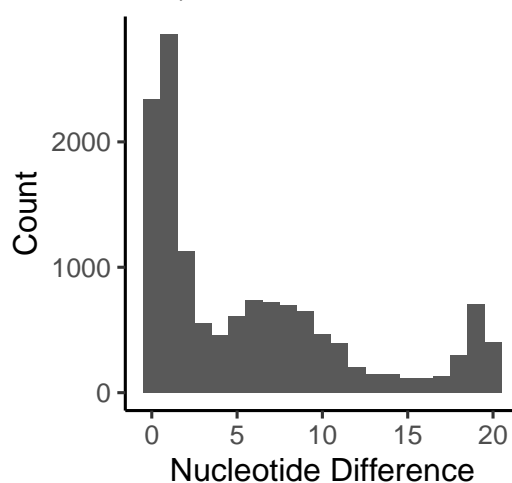
### IGHV1-2\*04

4009 sequences assigned  
892 (22.2%) exact matches, in which:  
729 unique CDR3  
6 unique J



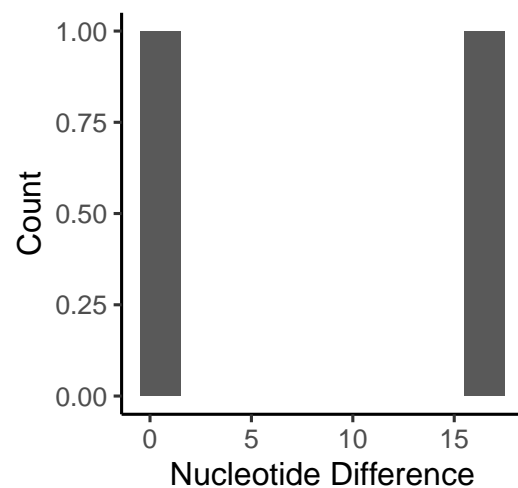
### IGHV1-8\*01

14713 sequences assigned  
2339 (15.9%) exact matches, in which:  
1881 unique CDR3  
6 unique J



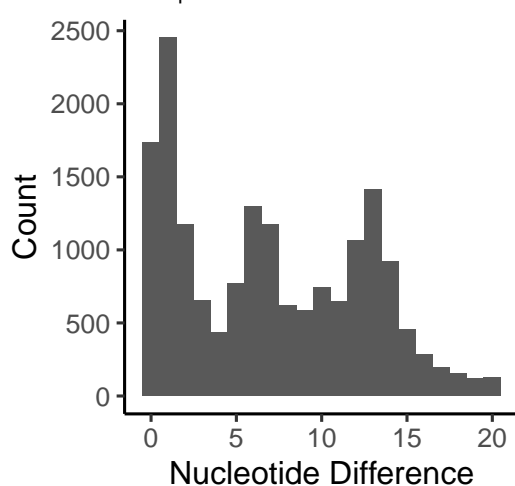
### IGHV1-45\*02

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



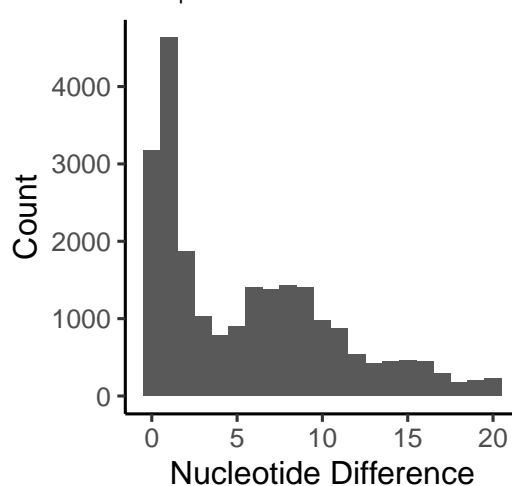
### IGHV1-2\*06

17594 sequences assigned  
1738 (9.9%) exact matches, in which:  
1383 unique CDR3  
6 unique J



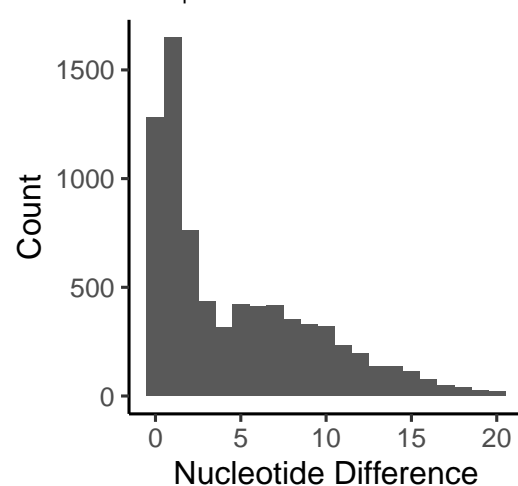
### IGHV1-18\*01

27026 sequences assigned  
3175 (11.7%) exact matches, in which:  
2435 unique CDR3  
6 unique J



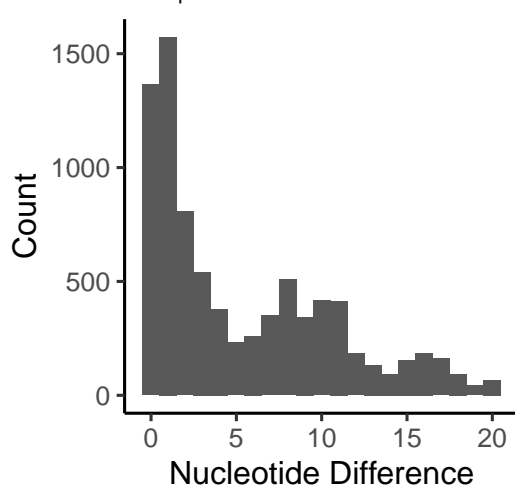
### IGHV1-46\*01

8271 sequences assigned  
1283 (15.5%) exact matches, in which:  
1079 unique CDR3  
6 unique J



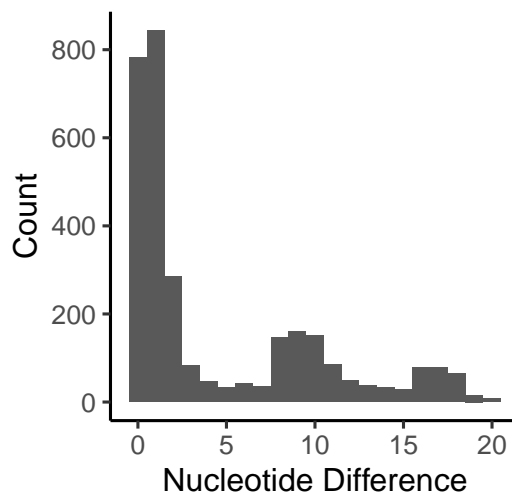
### IGHV1-3\*01\_05

8706 sequences assigned  
1364 (15.7%) exact matches, in which:  
1067 unique CDR3  
6 unique J



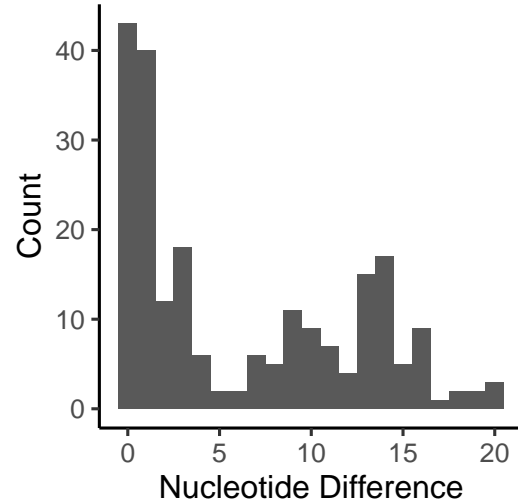
### IGHV1-24\*01

4466 sequences assigned  
783 (17.5%) exact matches, in which:  
636 unique CDR3  
6 unique J



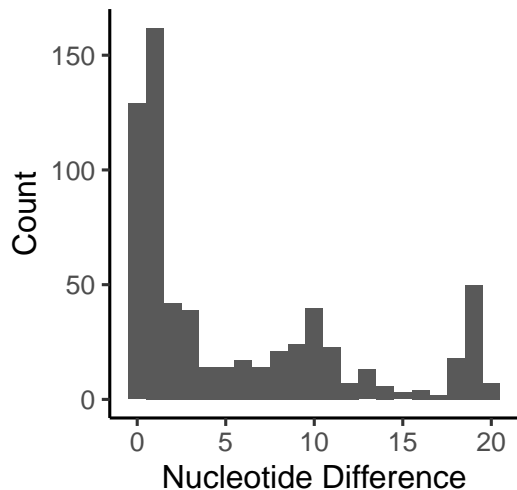
### IGHV1-58\*02

222 sequences assigned  
43 (19.4%) exact matches, in which:  
42 unique CDR3  
4 unique J



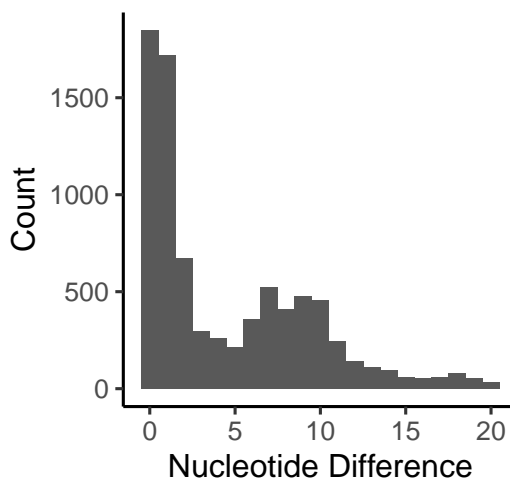
### IGHV1-58\*01\_03

675 sequences assigned  
129 (19.1%) exact matches, in which:  
105 unique CDR3  
5 unique J



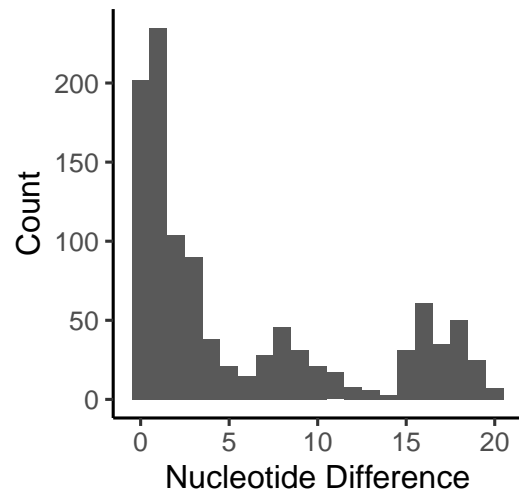
### IGHV1-69\*06\_14

8564 sequences assigned  
1847 (21.6%) exact matches, in which:  
1576 unique CDR3  
6 unique J



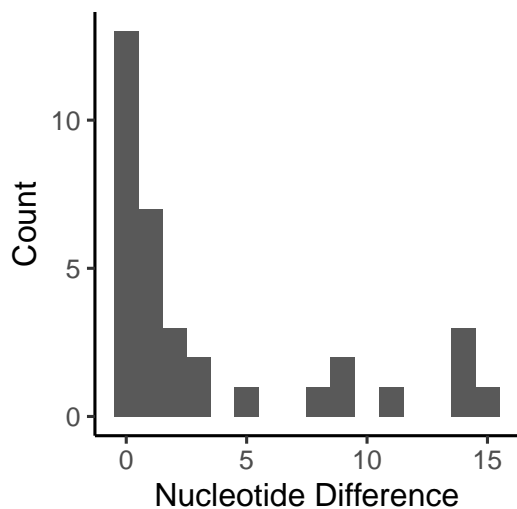
### IGHV2-26\*01

1124 sequences assigned  
202 (18%) exact matches, in which:  
162 unique CDR3  
5 unique J



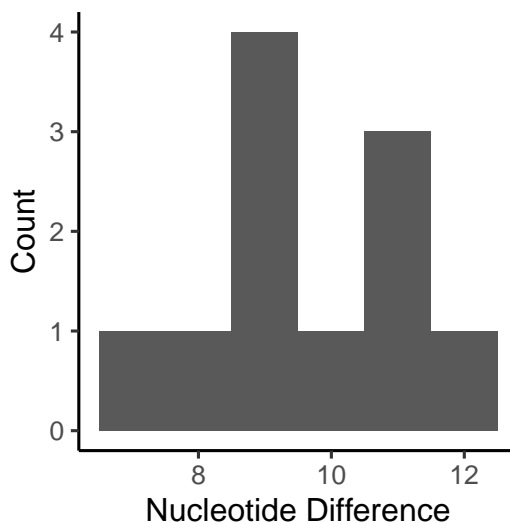
### IGHV1-68\*02

34 sequences assigned  
13 (38.2%) exact matches, in which:  
10 unique CDR3  
3 unique J



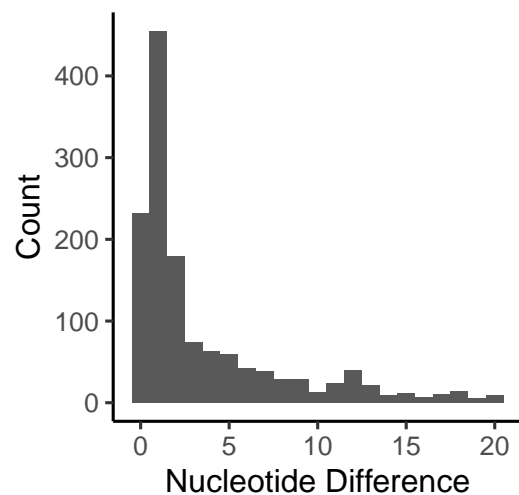
### IGHV1-NL1\*01

11 sequences assigned  
No exact matches.



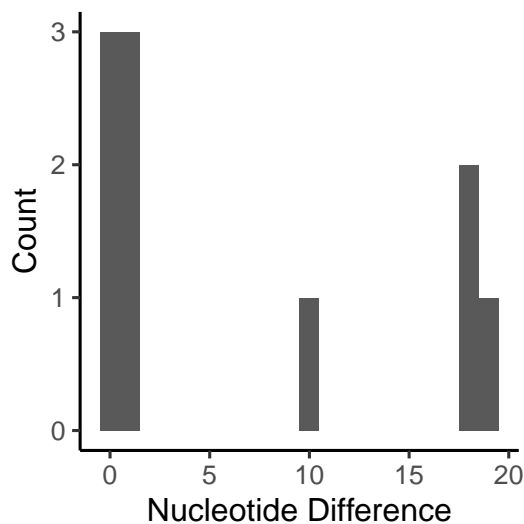
### IGHV2-70\*01

1468 sequences assigned  
232 (15.8%) exact matches, in which:  
163 unique CDR3  
5 unique J



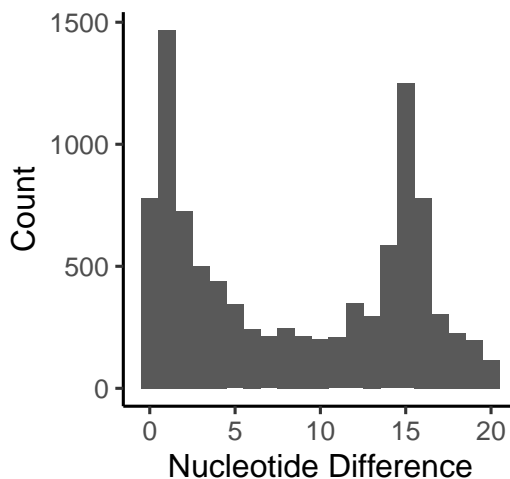
### IGHV1-69-2\*01

28 sequences assigned  
3 (10.7%) exact matches, in which:  
3 unique CDR3  
2 unique J



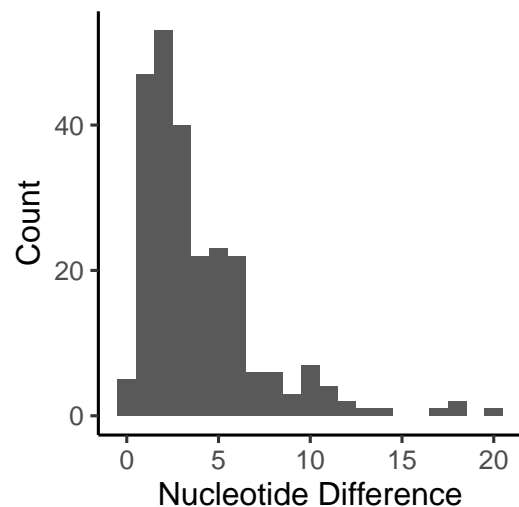
### IGHV2-5\*02

10520 sequences assigned  
779 (7.4%) exact matches, in which:  
577 unique CDR3  
6 unique J



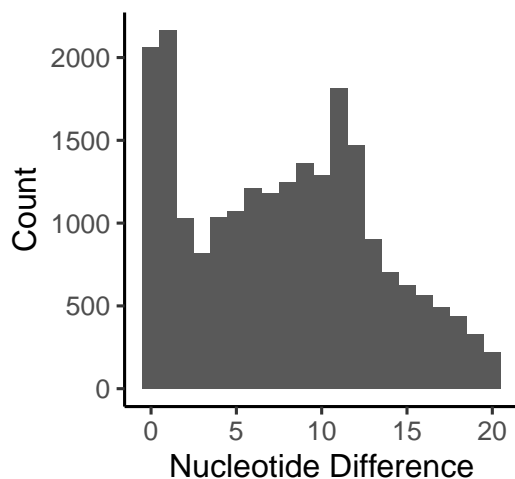
### IGHV2-70\*12

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



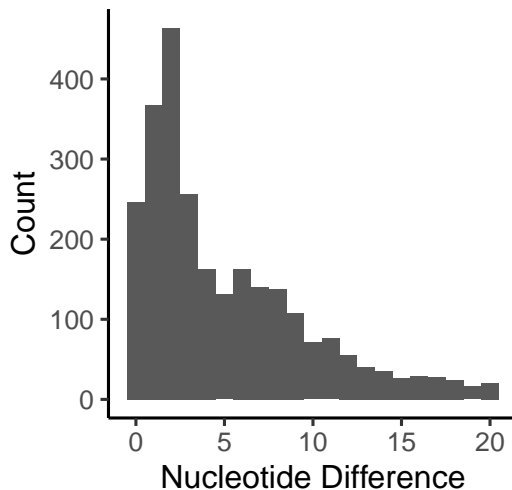
### IGHV3-7\*01

24309 sequences assigned  
2065 (8.5%) exact matches, in which:  
1352 unique CDR3  
6 unique J



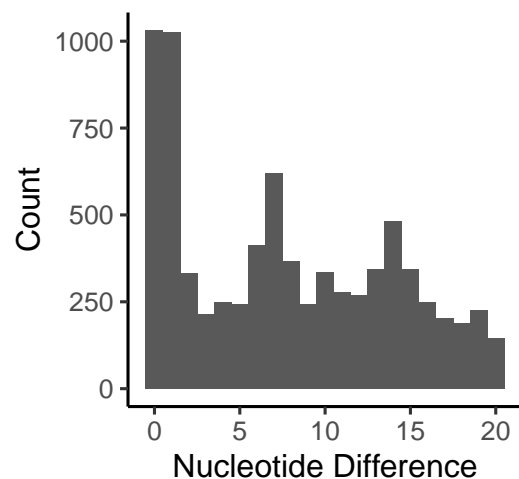
### IGHV3-11\*04

2770 sequences assigned  
246 (8.9%) exact matches, in which:  
225 unique CDR3  
6 unique J



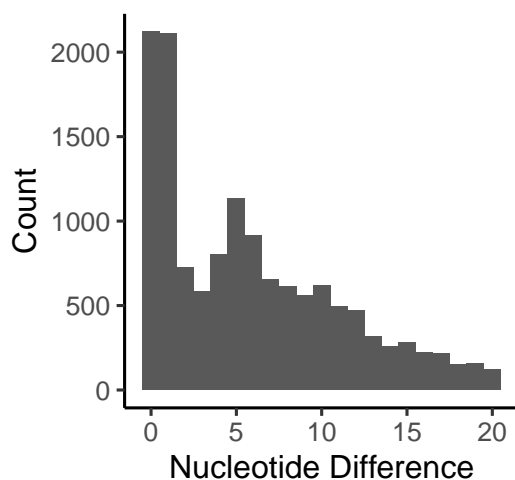
### IGHV3-15\*01\_02

8410 sequences assigned  
1031 (12.3%) exact matches, in which:  
589 unique CDR3  
6 unique J



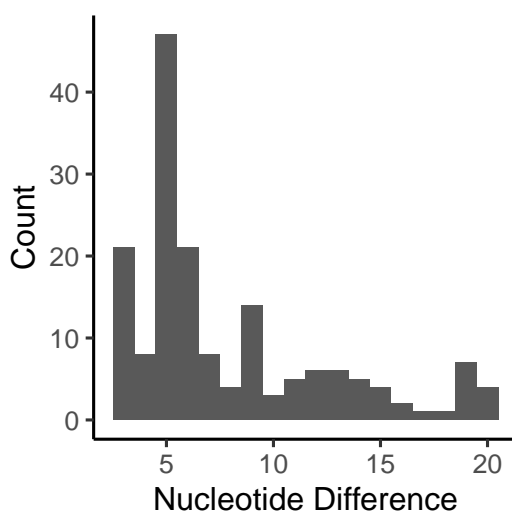
### IGHV3-9\*01

15559 sequences assigned  
2121 (13.6%) exact matches, in which:  
1194 unique CDR3  
6 unique J



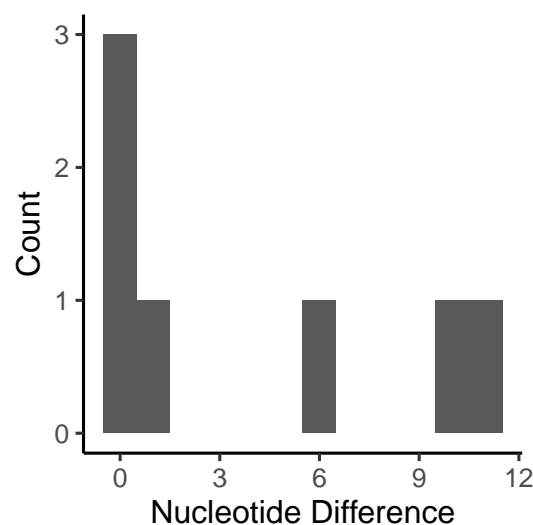
### IGHV3-11\*06

192 sequences assigned  
No exact matches.



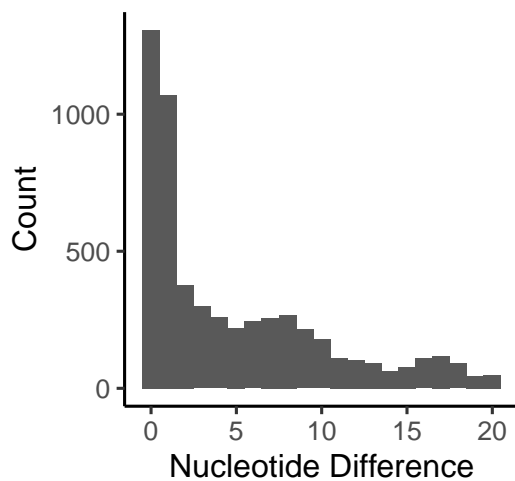
### IGHV3-19\*01

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



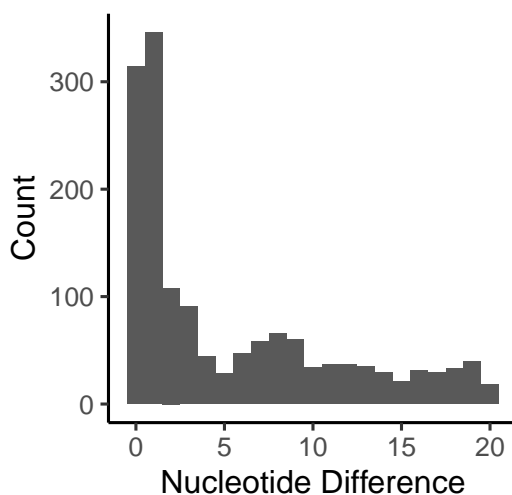
### IGHV3-11\*01

8696 sequences assigned  
1307 (15%) exact matches, in which:  
859 unique CDR3  
6 unique J



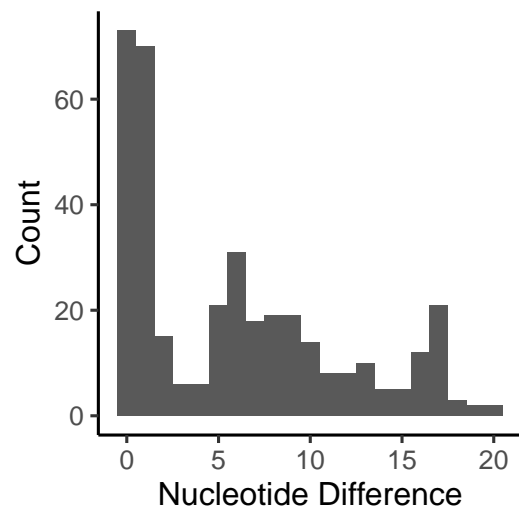
### IGHV3-13\*01

1608 sequences assigned  
314 (19.5%) exact matches, in which:  
210 unique CDR3  
6 unique J



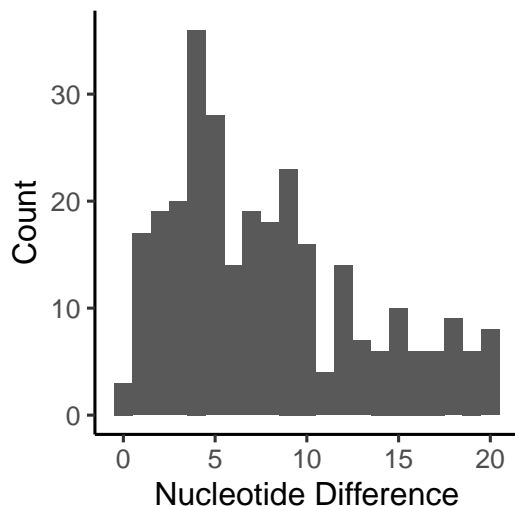
### IGHV3-20\*01\_02

518 sequences assigned  
73 (14.1%) exact matches, in which:  
38 unique CDR3  
5 unique J



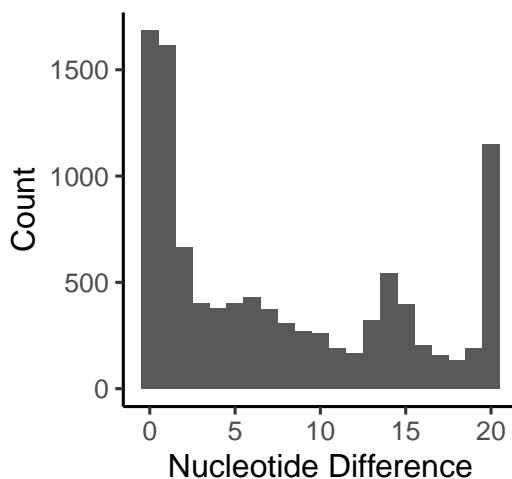
### IGHV3-20\*03\_04

637 sequences assigned  
3 (0.5%) exact matches, in which:  
3 unique CDR3  
3 unique J



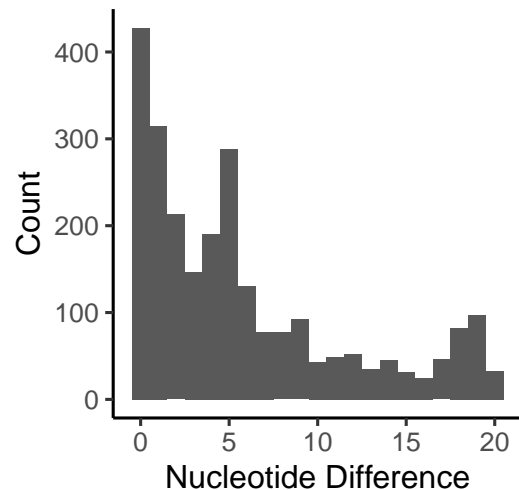
### IGHV3-30-3\*01

16674 sequences assigned  
1685 (10.1%) exact matches, in which:  
1065 unique CDR3  
6 unique J



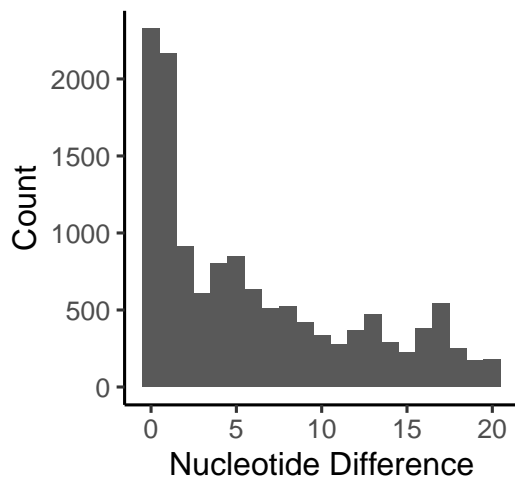
### IGHV3-30\*03

2769 sequences assigned  
428 (15.5%) exact matches, in which:  
377 unique CDR3  
6 unique J



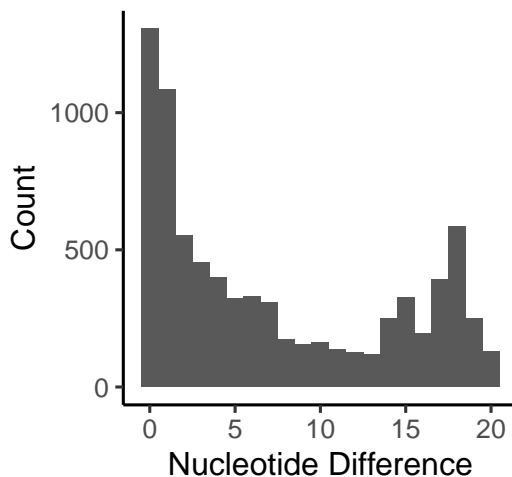
### IGHV3-21\*01\_02

17580 sequences assigned  
2326 (13.2%) exact matches, in which:  
1465 unique CDR3  
6 unique J



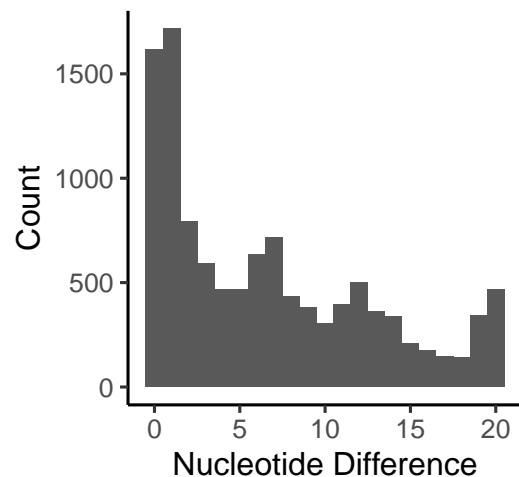
### IGHV3-30\*01

8467 sequences assigned  
1306 (15.4%) exact matches, in which:  
894 unique CDR3  
6 unique J



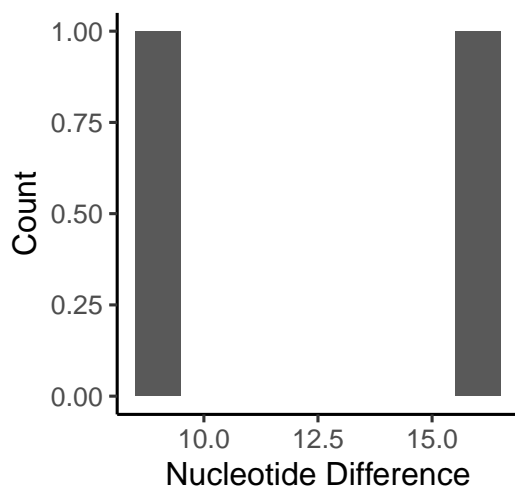
### IGHV3-33\*01

12672 sequences assigned  
1617 (12.8%) exact matches, in which:  
1059 unique CDR3  
6 unique J



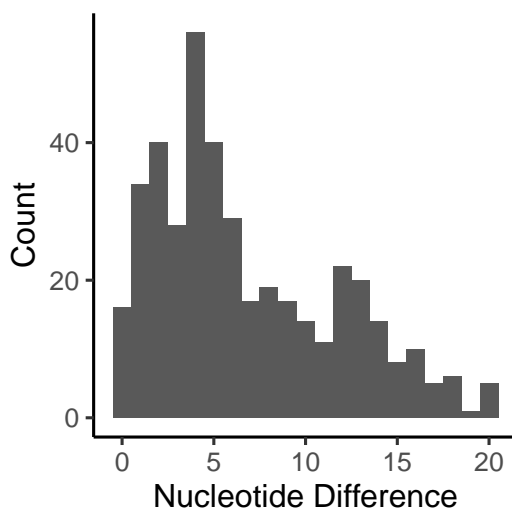
### IGHV3-22\*01\_02

2 sequences assigned  
No exact matches.



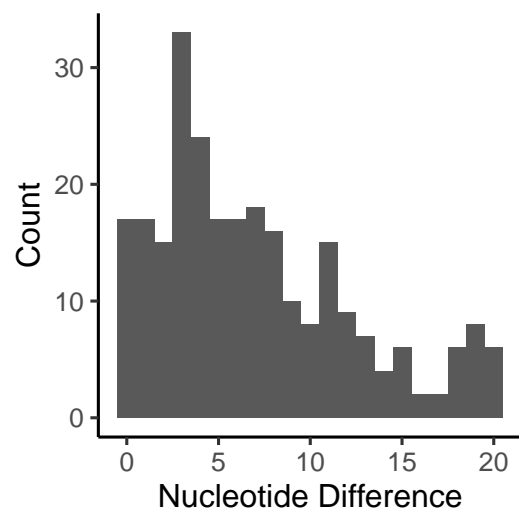
### IGHV3-30-3\*02

467 sequences assigned  
16 (3.4%) exact matches, in which:  
14 unique CDR3  
4 unique J



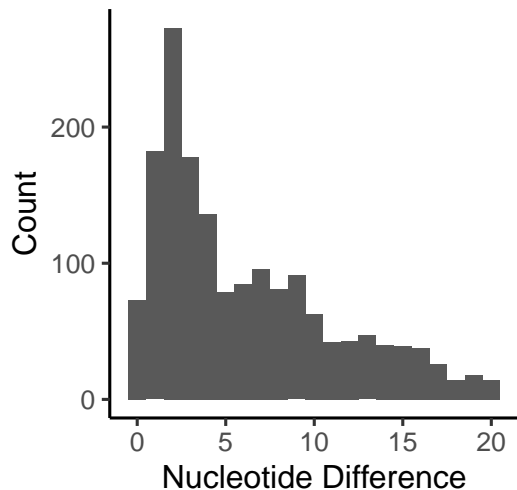
### IGHV3-33\*05

289 sequences assigned  
17 (5.9%) exact matches, in which:  
17 unique CDR3  
5 unique J



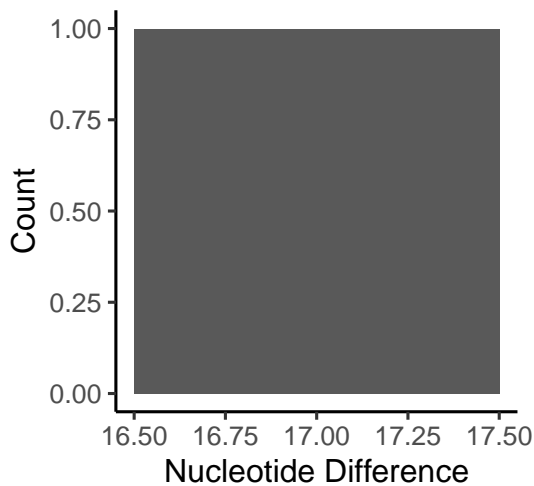
### IGHV3-33\*06

1729 sequences assigned  
73 (4.2%) exact matches, in which:  
72 unique CDR3  
6 unique J



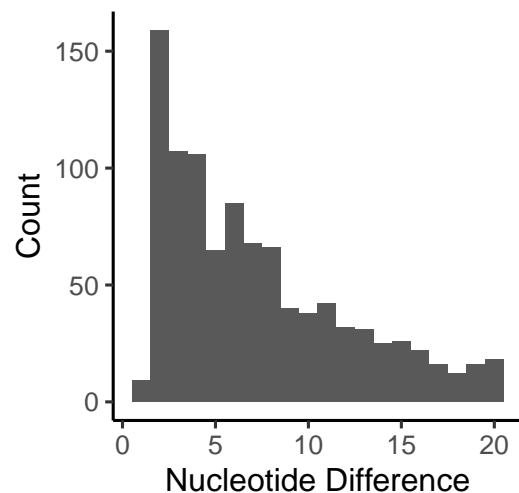
### IGHV3-43\*02

2 sequences assigned  
No exact matches.



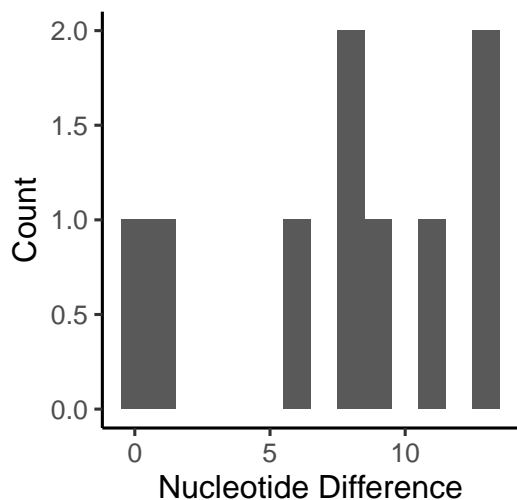
### IGHV3-48\*04

1149 sequences assigned  
No exact matches.



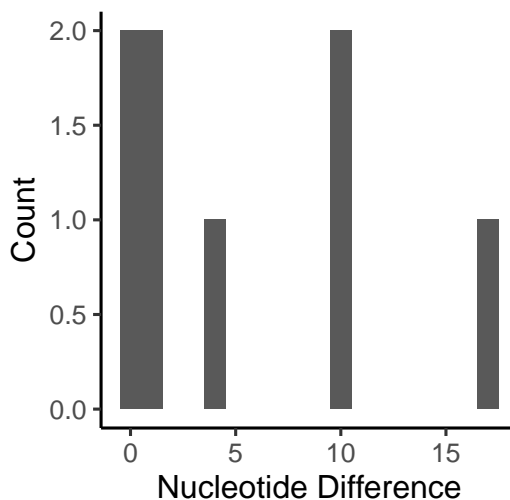
### IGHV3-35\*01

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



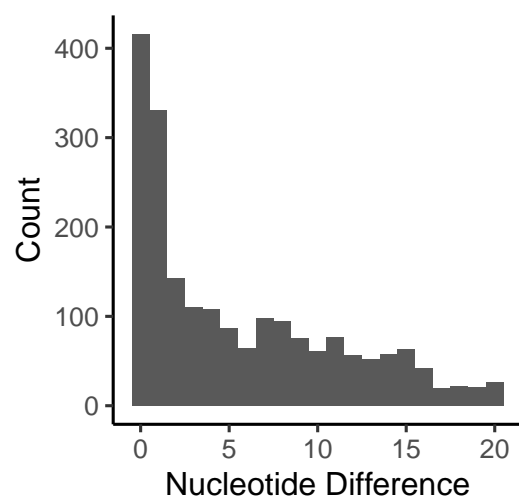
### IGHV3-47\*01

8 sequences assigned  
2 (25%) exact matches, in which:  
1 unique CDR3  
0 unique J



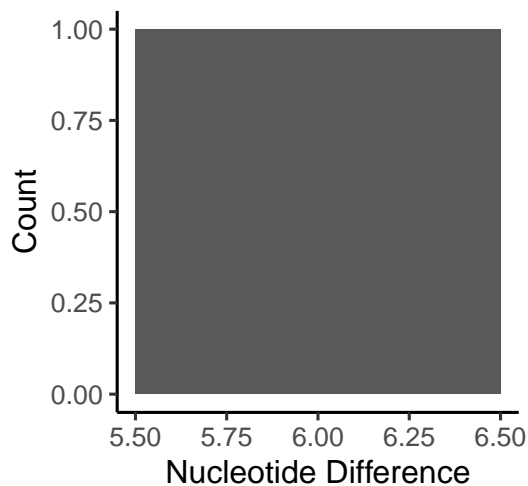
### IGHV3-49\*04

2728 sequences assigned  
416 (15.2%) exact matches, in which:  
256 unique CDR3  
6 unique J



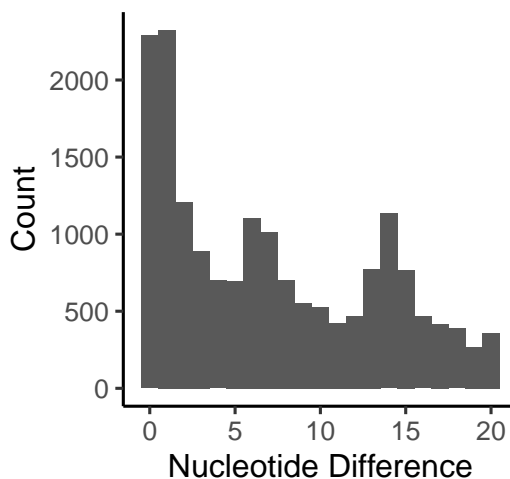
### IGHV3-43\*01

1 sequences assigned  
No exact matches.



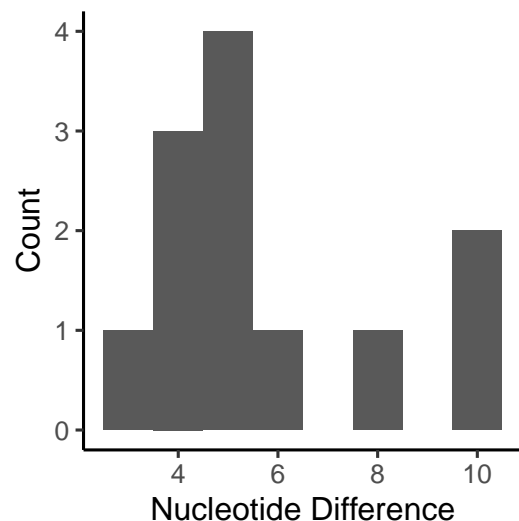
### IGHV3-48\*03

20811 sequences assigned  
2288 (11%) exact matches, in which:  
1357 unique CDR3  
6 unique J



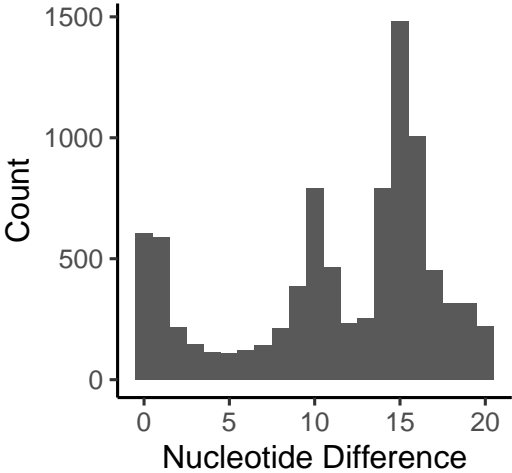
### IGHV3-52\*01\_03

12 sequences assigned  
No exact matches.



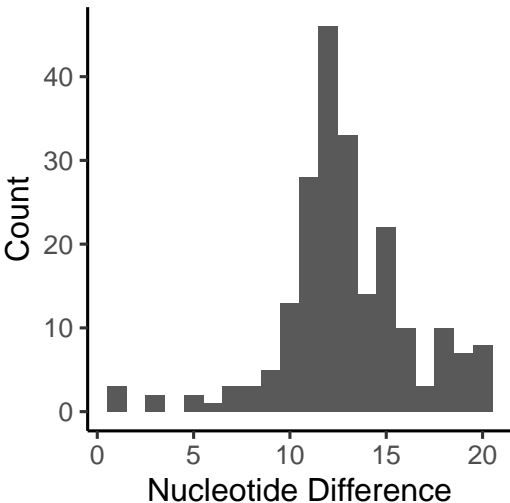
IGHV3-53\*01\_02

9499 sequences assigned  
607 (6.4%) exact matches, in which:  
398 unique CDR3  
6 unique J



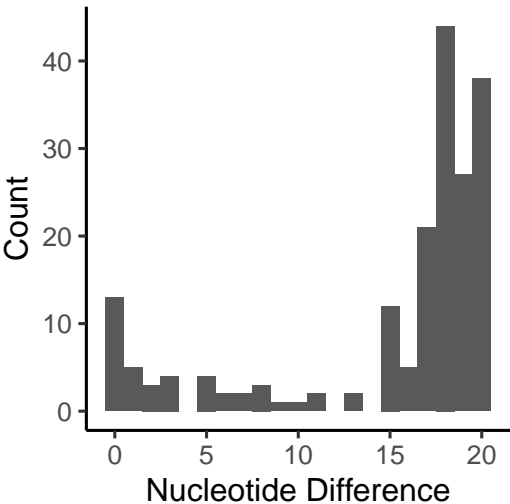
IGHV3-66\*02

248 sequences assigned  
No exact matches.



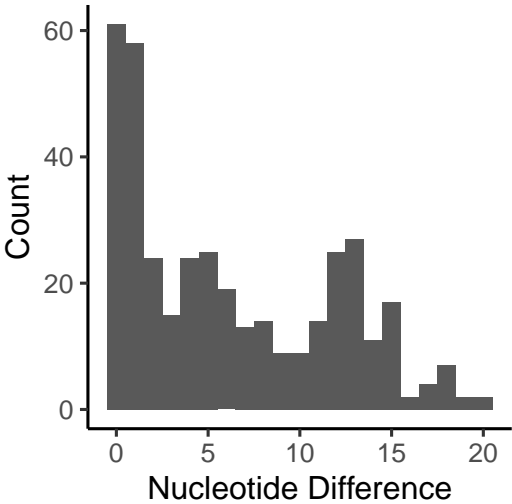
IGHV3-69-1\*02

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



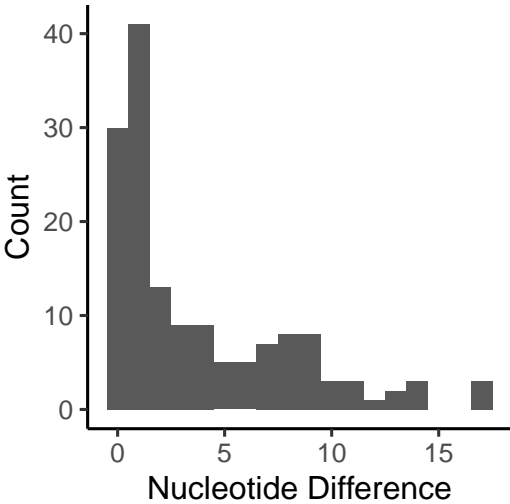
IGHV3-64\*01

415 sequences assigned  
61 (14.7%) exact matches, in which:  
42 unique CDR3  
5 unique J



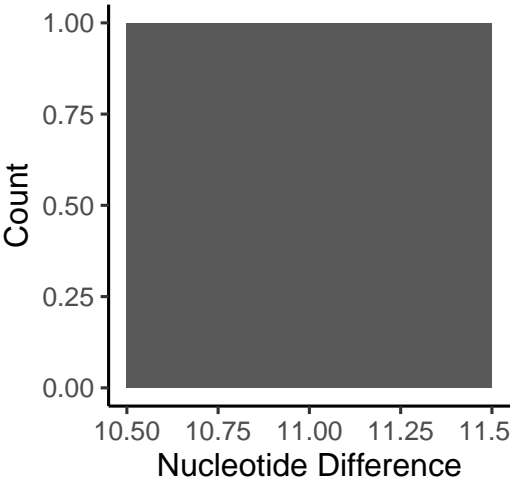
IGHV3-66\*03

152 sequences assigned  
30 (19.7%) exact matches, in which:  
27 unique CDR3  
3 unique J



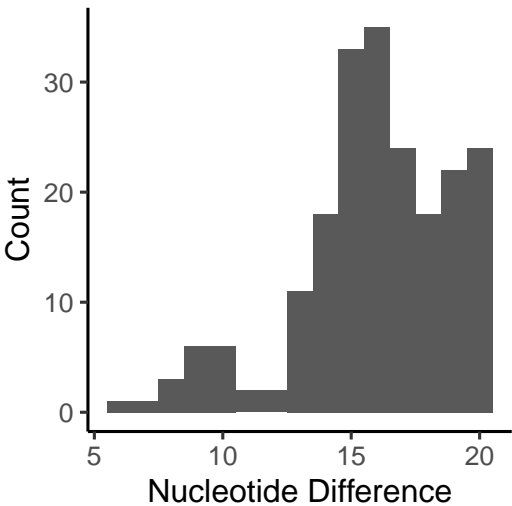
IGHV3-71\*01\_04

1 sequences assigned  
No exact matches.



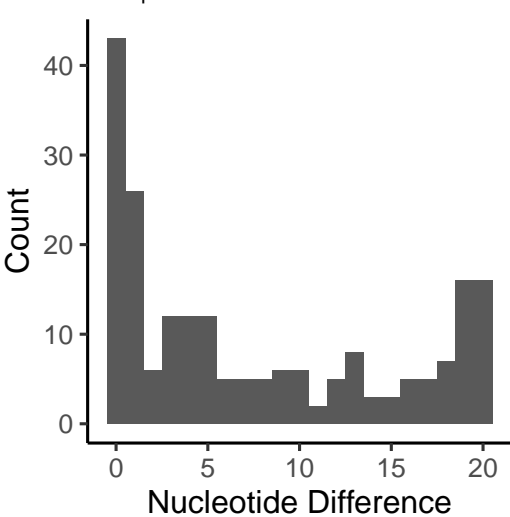
IGHV3-66\*01

263 sequences assigned  
No exact matches.



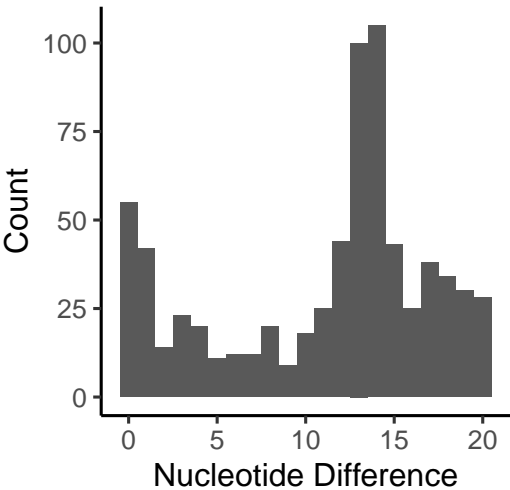
IGHV3-69-1\*01

252 sequences assigned  
43 (17.1%) exact matches, in which:  
42 unique CDR3  
4 unique J



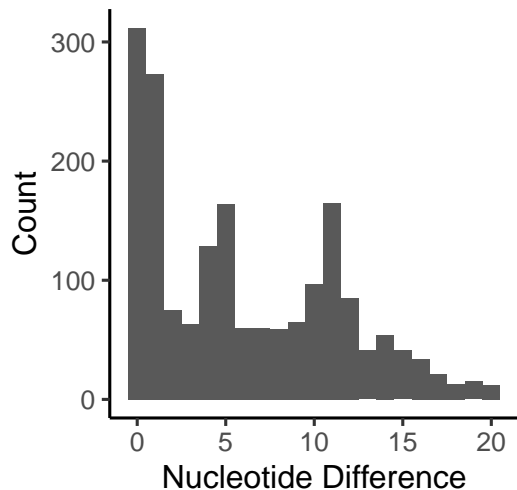
IGHV3-72\*01

889 sequences assigned  
55 (6.2%) exact matches, in which:  
32 unique CDR3  
4 unique J



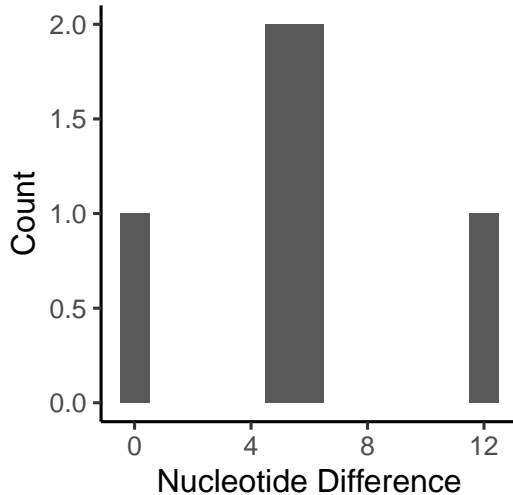
### IGHV3-73\*01\_02

1961 sequences assigned  
312 (15.9%) exact matches, in which:  
187 unique CDR3  
5 unique J



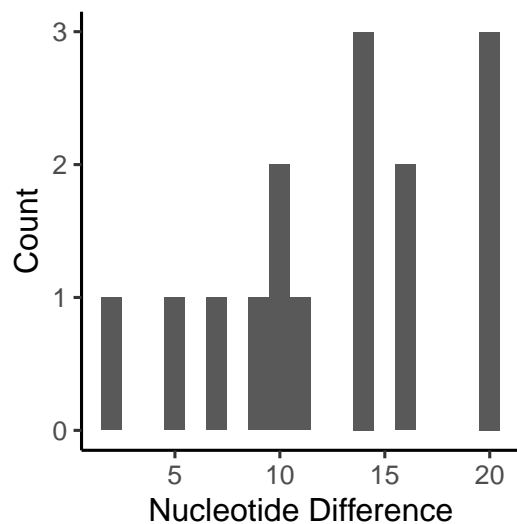
### IGHV3-64D\*06

7 sequences assigned  
1 (14.3%) exact matches, in which:  
1 unique CDR3  
1 unique J



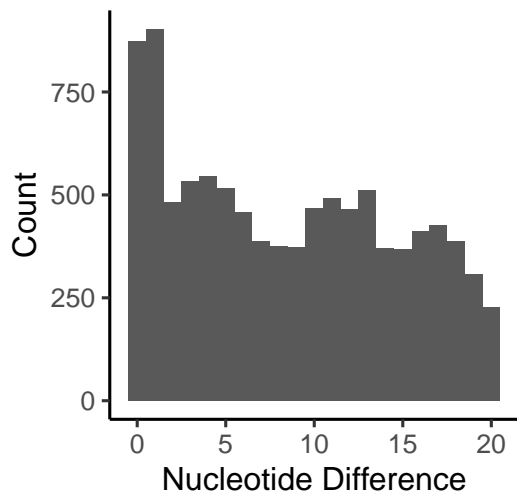
### IGHV4-28\*03

28 sequences assigned  
No exact matches.



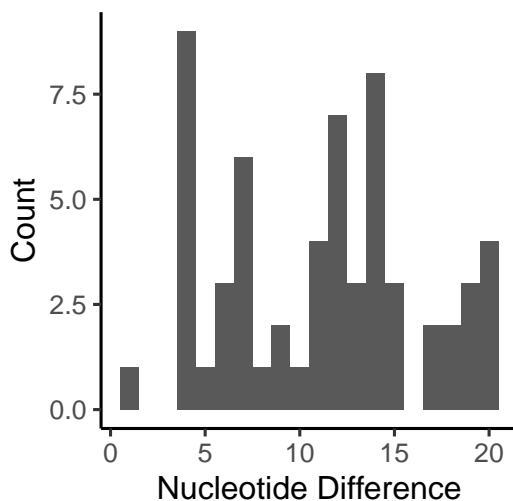
### IGHV3-74\*01\_02

13376 sequences assigned  
873 (6.5%) exact matches, in which:  
580 unique CDR3  
6 unique J



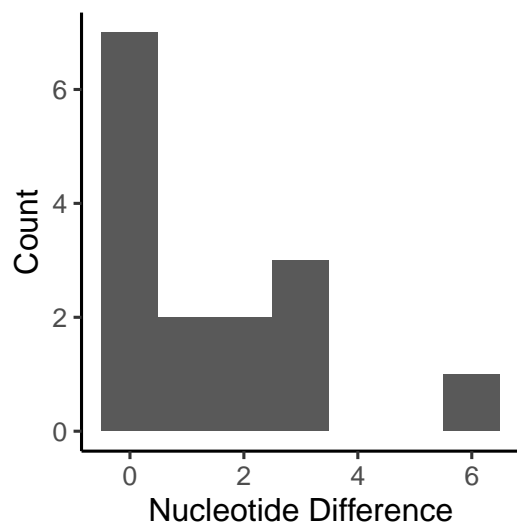
### IGHV3-NL1\*01

70 sequences assigned  
No exact matches.



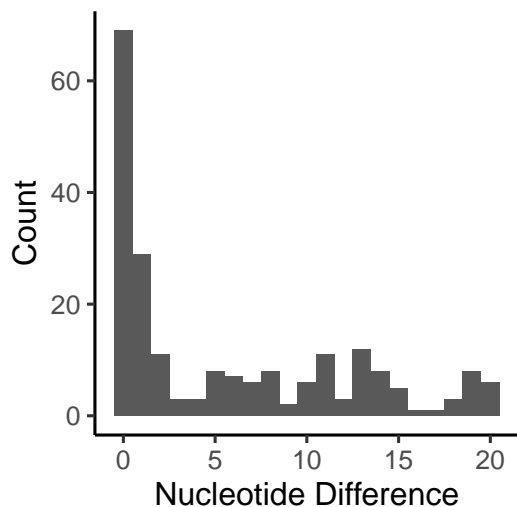
### IGHV4-28\*02\_05

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



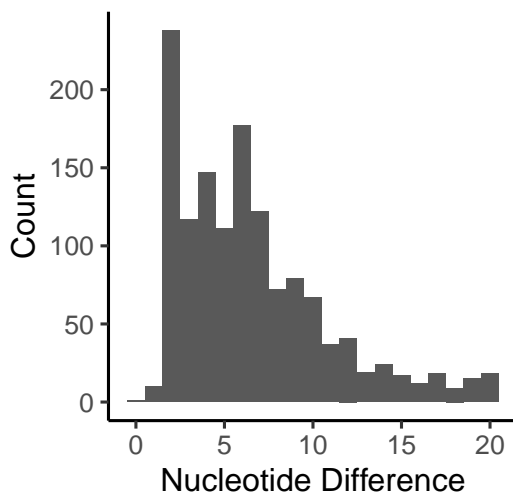
### IGHV3-43D\*04

571 sequences assigned  
69 (12.1%) exact matches, in which:  
42 unique CDR3  
5 unique J



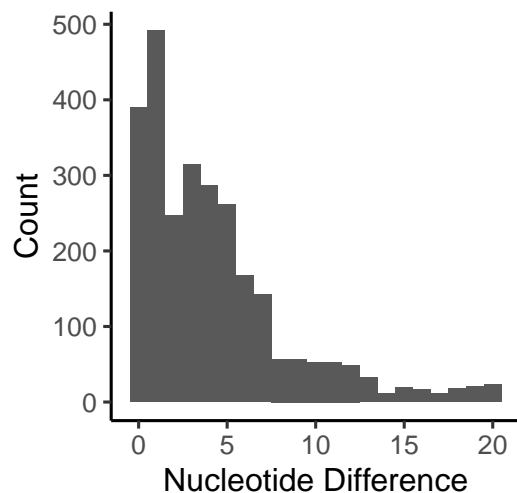
### IGHV4-4\*07

1422 sequences assigned  
1 (0.1%) exact matches, in which:  
1 unique CDR3  
1 unique J



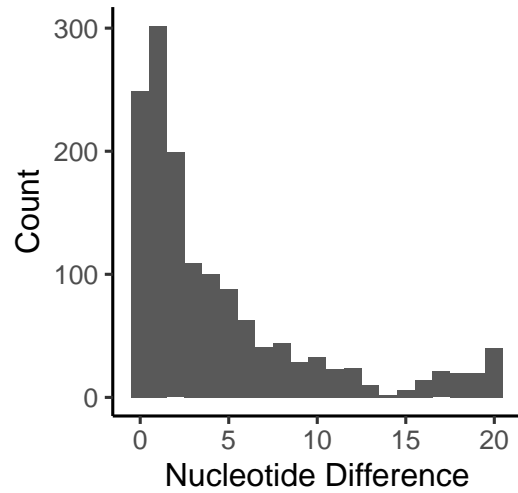
### IGHV4-30-4\*01

4750 sequences assigned  
390 (8.2%) exact matches, in which:  
310 unique CDR3  
5 unique J



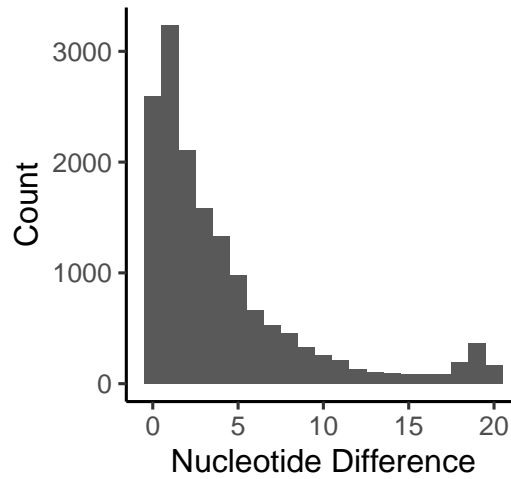
### IGHV4-30-2\*01

1771 sequences assigned  
249 (14.1%) exact matches, in which:  
179 unique CDR3  
6 unique J



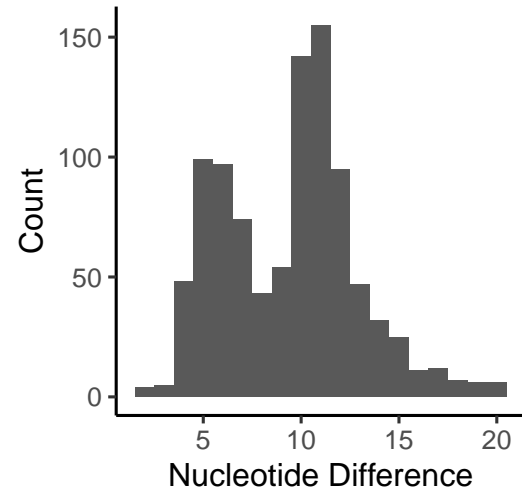
### IGHV4-34\*01\_02

16547 sequences assigned  
2595 (15.7%) exact matches, in which:  
1757 unique CDR3  
6 unique J



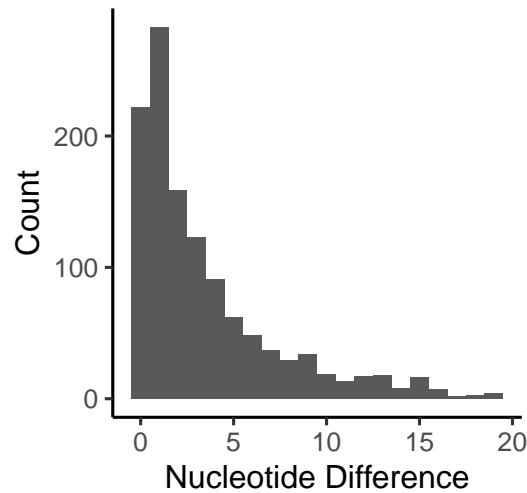
### IGHV4-39\*07

1105 sequences assigned  
No exact matches.



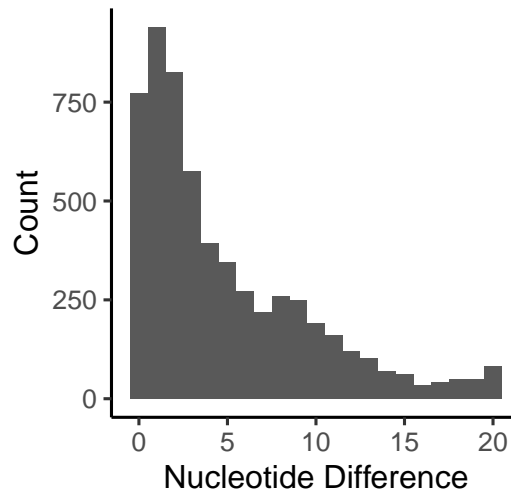
### IGHV4-31\*01

1615 sequences assigned  
222 (13.7%) exact matches, in which:  
180 unique CDR3  
5 unique J



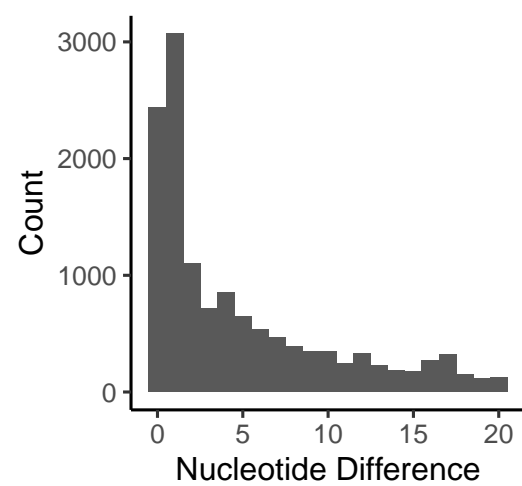
### IGHV4-38-2\*01

8762 sequences assigned  
773 (8.8%) exact matches, in which:  
647 unique CDR3  
6 unique J



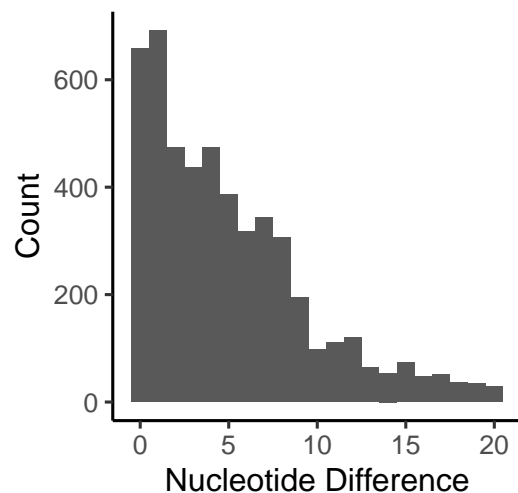
### IGHV4-59\*01\_07

13918 sequences assigned  
2439 (17.5%) exact matches, in which:  
1862 unique CDR3  
6 unique J



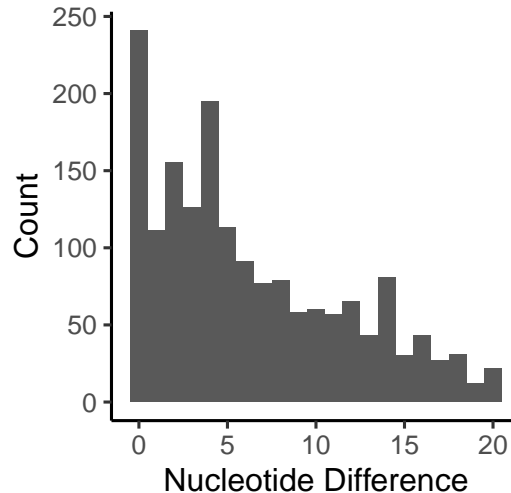
### IGHV4-31\*03\_04

5295 sequences assigned  
658 (12.4%) exact matches, in which:  
530 unique CDR3  
6 unique J



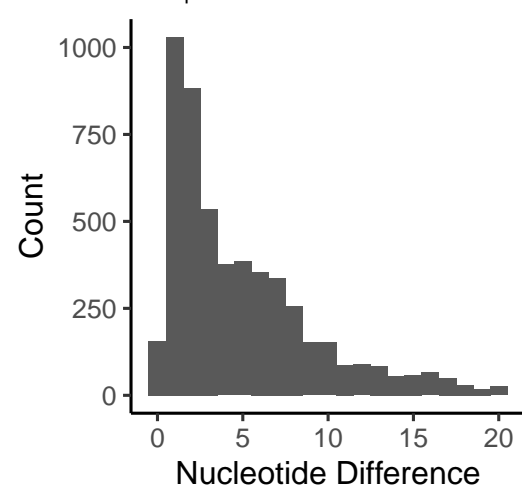
### IGHV4-38-2\*02

2085 sequences assigned  
241 (11.6%) exact matches, in which:  
199 unique CDR3  
5 unique J



### IGHV4-59\*12

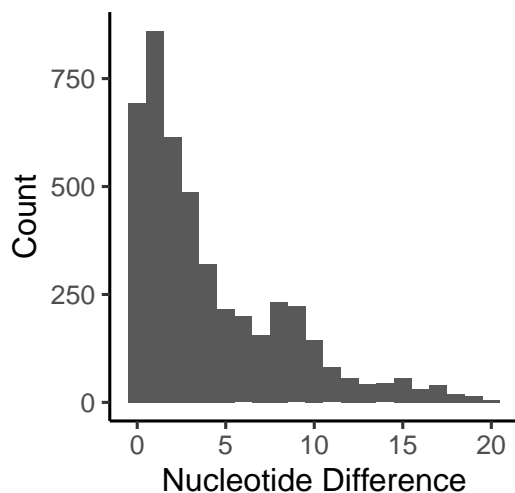
6597 sequences assigned  
156 (2.4%) exact matches, in which:  
152 unique CDR3  
6 unique J





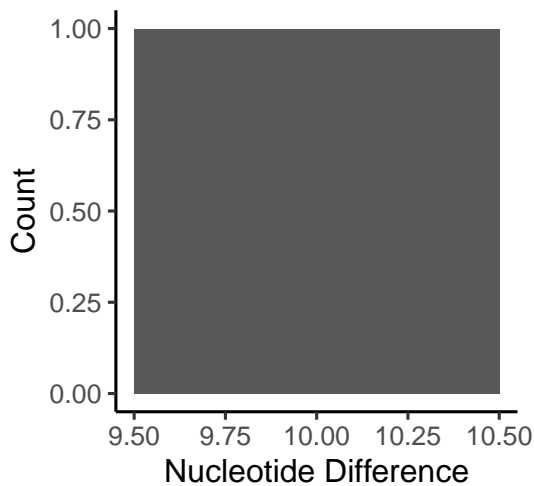
### IGHV4-61\*01

4834 sequences assigned  
693 (14.3%) exact matches, in which:  
595 unique CDR3  
6 unique J



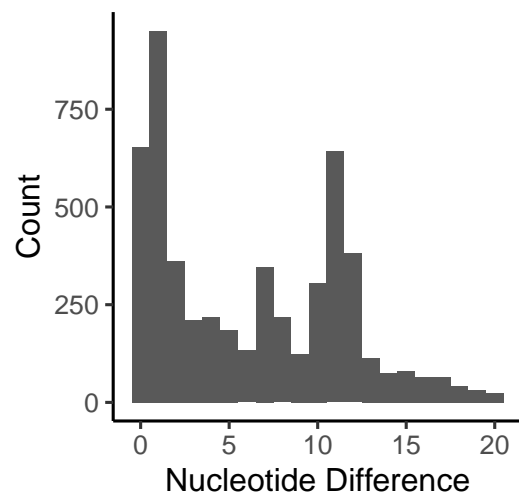
### IGHV5-10-1\*01\_03

1 sequences assigned  
No exact matches.



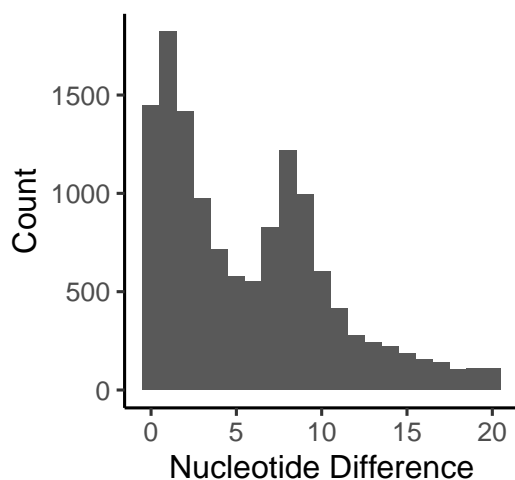
### IGHV7-4-1\*02

5279 sequences assigned  
653 (12.4%) exact matches, in which:  
489 unique CDR3  
6 unique J



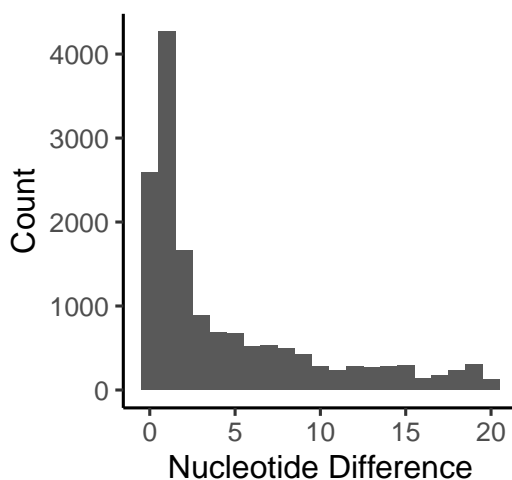
### IGHV4-61\*02

15806 sequences assigned  
1449 (9.2%) exact matches, in which:  
1163 unique CDR3  
6 unique J



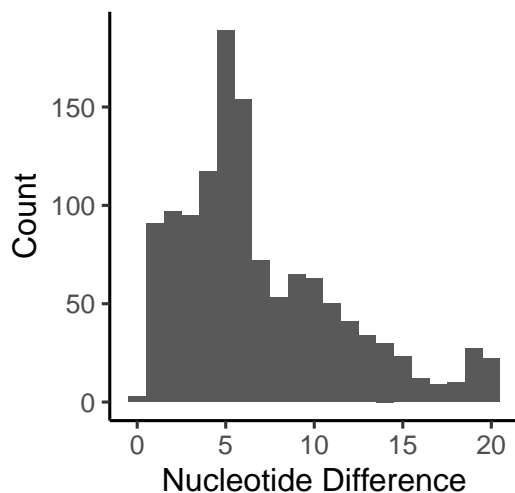
### IGHV5-51\*01\_03

18787 sequences assigned  
2589 (13.8%) exact matches, in which:  
1277 unique CDR3  
6 unique J



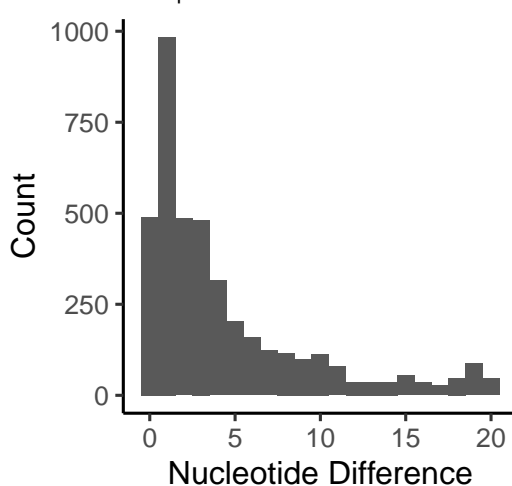
### IGHV4-61\*08

1334 sequences assigned  
3 (0.2%) exact matches, in which:  
3 unique CDR3  
1 unique J



### IGHV6-1\*01\_02

4284 sequences assigned  
490 (11.4%) exact matches, in which:  
348 unique CDR3  
6 unique J





Warning – no inferred sequences found.

Novel sequence(s) IGHV3–30\*03\_T288C IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Warning: IGHV4–31\*02, IGHV4–31\*03\_04 have identical germline sequences.

Novel sequence(s) IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV1–69\*04\_09\_G112A are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Warning – no inferred sequences found.

Novel sequence(s) IGHV1–69\*08\_C191T IGHV3–30\*03\_T288C IGHV3–30–3\*02\_G75C IGHV4–59\*02\_G88A IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV4–59\*02\_G88A IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV4–4\*02\_03\_C300T IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Warning – no inferred sequences found.

Novel sequence(s) IGHV4–59\*02\_G88A are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV1–69\*08\_C191T IGHV3–11\*06\_T300C IGHV3–30\*03\_T288C IGHV4–59\*02\_G88A IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV4–59\*02\_G88A IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Warning – no inferred sequences found.

Warning – no inferred sequences found.

Novel sequence(s) IGHV3–30\*03\_T288C IGHV3–30–3\*01\_T288C IGHV4–59\*02\_G88A IGHV5–10–1\*01\_03\_T258C IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Warning – no inferred sequences found.

Novel sequence(s) IGHV3–48\*04\_A193T\_C198T\_A200C\_C201T\_T210A are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV4–59\*02\_G88A are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV3–33\*01\_C288T IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV4–59\*02\_G88A IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV3–33\*01\_T105C\_A173T\_T192G\_C288T are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV3–30\*04\_T288C IGHV3–33\*01\_G75C IGHV4–30–2\*03\_T288C IGHV4–59\*02\_G88A are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV3–11\*06\_T300C are not listed in the genotype and will be ignored.

Novel sequence(s) IGHV5–51\*07\_A128G are not listed in the genotype and will be ignored.