**Table S3.** Characteristics of false positive *o*PIAs.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Case | SNPs | A-STRs | | | X-STRs | | | Y-STRs | | |
| N − 1 stutter | N + 1 stutter | Others1 | N − 1 stutter | N + 1 stutter | Others 1 | N − 1 stutter | N + 1 stutter | Others 1 |
| 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | - | - | - |
| 2 | 0 | 1 | 1 | 0 | - | - | - | 0 | 0 | 0 |
| 3 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | - | - | - |
| 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | - | - | - |
| 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - |
| 6 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | - | - | - |
| 7 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | - | - | - |
| 8 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | - | - | - |
| 9 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | - | - | - |
| 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | - | - | - |
| 11 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | - | - | - |
| 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - |
| 13 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | - | - | - |
| 14 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | - | - | - |
| 15 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | - | - | - |
| 16 | 0 | 1 | 0 | 0 | - | - | - | 0 | 0 | 0 |
| 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - |

1 Represents variants including stutters at other positions except N − 1 and N + 1, microvariant allele, etc.