

Validation of the Counsyl Family Prep Screen



Validation Samples

Validation studies of the Counsyl Family Prep Screen were performed solely at Counsyl and were designed to determine accuracy, sensitivity, and specificity. Data to calculate the validation metrics was compiled by testing two classes of samples: genomic DNA reference materials obtained from Coriell (N=3), and anonymized residual patient samples (N=246), selected to be enriched for positive mutations. The genotypes of Coriell and residual patient samples at specific positions were previously determined by a clinically validated laboratory developed test. Sufficient quantities of each sample type were plated into test panels. Testing was then performed on each test plate.

Accuracy Study

The accuracy, sensitivity, and specificity of the Counsyl Family Prep Screen were determined by comparison to previous test results. Matches were considered a correct call, mismatches were considered an incorrect call. Data was analyzed according to the formulas presented in the table below.

Validation Study Results and Interpretation

The results of the validation studies for the Counsyl Family Prep Screen are presented below. In the accuracy study, 271 true positive calls, 87970 true negative calls, 2 false positive calls and 2 false negative calls were observed. The accuracy is >0.99995. The sensitivity is >0.997 and the specificity is >0.99997. These study results are interpreted as confirming that the Family Prep Screen is highly accurate and specific.

Comparison against Counsyl targeted genotyping assay

| | FORMULA | VALUE | 95% CONFIDENCE INTERVAL |
|---------------------------|-----------------------------------|-----------|-------------------------|
| True Positive Calls | TP | 993 | n/a |
| True Negative Calls | TN | 87970 | n/a |
| False Positive Calls | FP | 2 | n/a |
| False Negative Calls | FN | 2 | n/a |
| Accuracy | $(TP + TN) / (TP + FP + TN + FN)$ | 0.999955 | 0.9998844 - 0.9999825 |
| Sensitivity | $TP / (TP + FN)$ | 0.9979899 | 0.9927008 - 0.9994486 |
| Specificity | $TN / (TN + FP)$ | 0.9999773 | 0.9999171 - 0.9999938 |
| Positive predictive Value | $TP / (TP + FP)$ | 0.997989 | 0.9927008 - 0.9994486 |
| Negative Predictive Value | $TN / (TN + FN)$ | 0.9999773 | 0.9999171 - 0.9999938 |