

Supplementary Table 5. Definitions and equations of performance metrics

Metric	Definition	Equation
Accuracy	The proportion of correct predictions among the total number of cases examined	$(TP + TN) / (TP + TN + FP + FN)$
Precision	The proportion of correct positive predictions out of all positive predictions	$TP / (TP + FP)$
Recall (sensitivity)	The proportion of actual positive cases that were correctly identified	$TP / (TP + FN)$
F1 score	The harmonic mean of precision and recall	$2 \times (\text{Precision} \times \text{Recall}) / (\text{Precision} + \text{Recall})$
Specificity	The proportion of actual negative cases that were correctly identified	$TN / (TN + FP)$
NPV	The proportion of correct negative predictions out of all negative predictions	$TN / (TN + FN)$
FPR	The proportion of actual negative cases that were incorrectly identified as positive	$FP / (FP + TN)$
MCC	A balanced measure that can be used even if the classes are of very different sizes	$(TP \times TN - FP \times FN) / \sqrt{((TP+FP)(TP+FN)(TN+FP)(TN+FN))}$
TS	A measure of the fraction of observed and/or forecast events that were correctly predicted	$TP / (TP + FN + FP)$

FN, false negative; FP, false positive; FPR false-positive rate; MCC, Matthews correlation coefficient; NPV, negative predictive value; TN, true negative; TP, true positive; TS, threat score or critical success index.