



Figure S1 Loss and acc curve of different model training processes.

Appendix 1

Statistic metric

The following 6 measurements including area under the receiver operating characteristic curve (AUC), accuracy, sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) were calculated to evaluate the model performance.

1、 $AUC = \frac{\sum_{i \in \text{positiveclass}} \text{rank}_i - M \times (M + 1) / 2}{M \times N}$ Where M, N are the number of positive samples and negative samples respectively. rank_i is the serial number of sample i . $\sum_{i \in \text{positiveclass}}$ means add up the serial numbers of the positive samples.

2、 $\text{accuracy} = \frac{TP + TN}{TP + TN + FP + FN}$

3、 $\text{sensitivity} = \frac{TP}{TP + FN}$

4、 $\text{specificity} = \frac{TN}{TN + FP}$

5、 $\text{PPV} = \frac{TP}{TP + FP}$

6、 $\text{NPV} = \frac{TN}{TN + FN}$ Where TP is true positive, TN is true negative, FP is false positive and FN is false negative