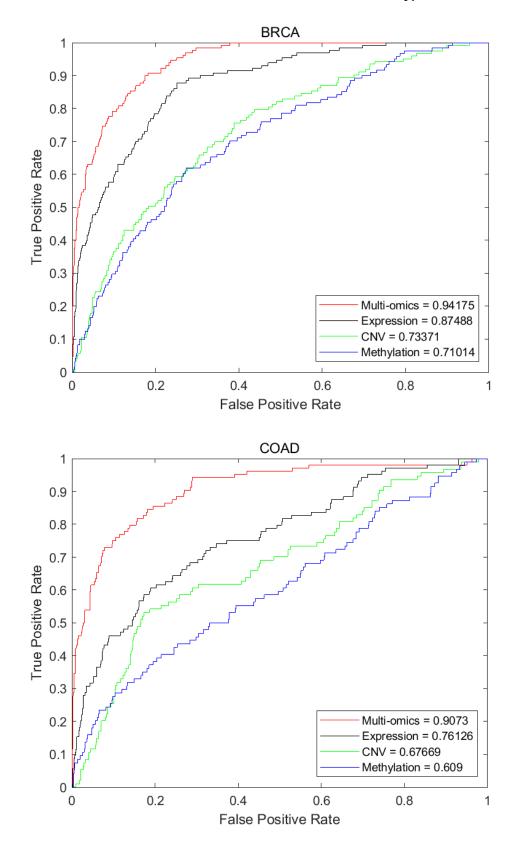**Additional file 4.**

ROC curve and AUC of cancer-relevance score of each cancer type with 0.05 of seed ratio.

HNSC

Multi-omics = 0.92515	
Expression = 0.782	
CNV = 0.6326	
Methylation = 0.64567	

KIPAN

Multi-omics = 0.92067	
Expression = 0.84985	
CNV = 0.65237	
Methylation = 0.72705	

LIHC

Multi-omics = 0.93996	
Expression = 0.87778	
CNV = 0.78579	
Methylation = 0.81705	

LUAD

Multi-omics = 0.89588	
Expression = 0.78343	
CNV = 0.59143	
Methylation = 0.58145	

LUSC

True Positive Rate

False Positive Rate

Multi-omics = 0.94138
Expression = 0.85555
CNV = 0.71053
Methylation = 0.65877