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Supplemental Information

**Anti-cancer Drug Response Prediction Using
Neighbor-Based Collaborative Filtering
with Global Effect Removal**

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Supplemental Figures

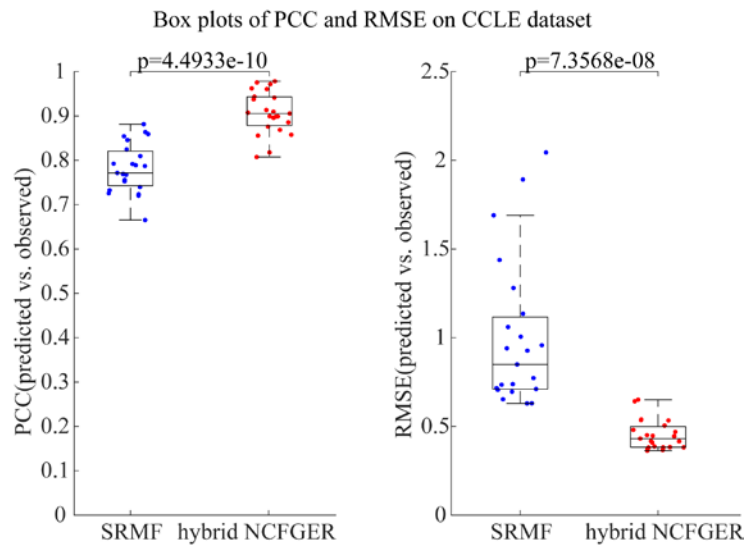


Fig. S1. Box plots of SRMF and our proposed method on CCLE dataset with respect to different evaluation metrics.

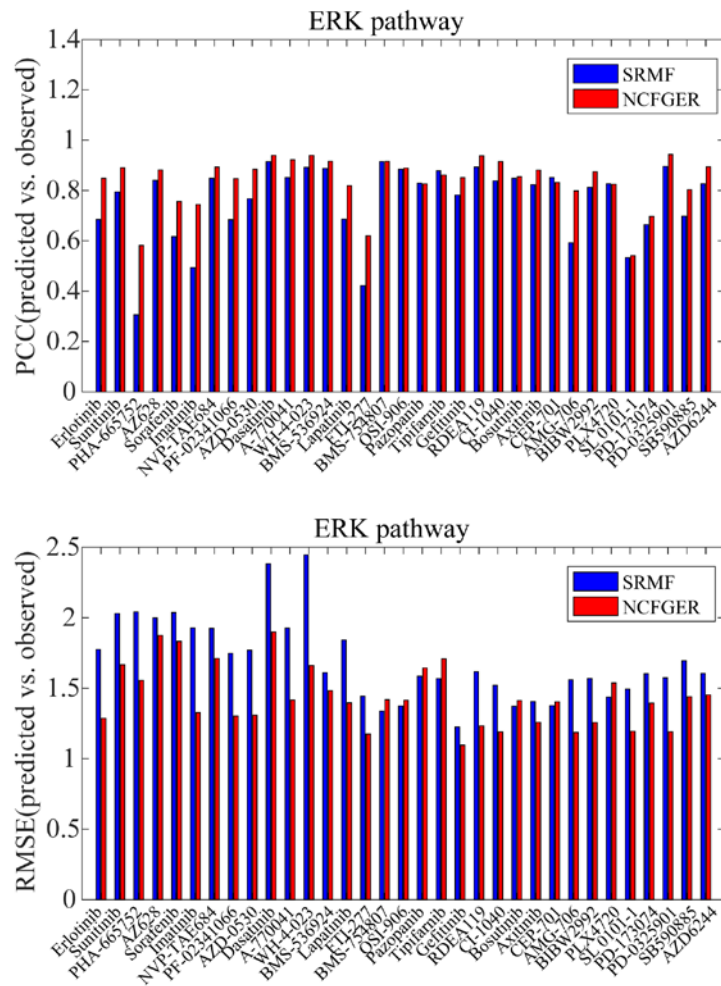


Fig.S2. Prediction performance comparisons of SRMF and NCFGER for the drug targeting genes in ERK pathway with respect to PCC as well as RMSE in CCLE dataset.

Supplemental Tables

Table S1. The comparison results between hybrid NCFGGER with different similarity definition and SRMF obtained under 10-fold cross validation on GDSC dataset

Methods		Drug-averaged PCC_S/R	Drug-averaged RMSE_S/R	Drug-averaged PCC	Drug-averaged RMSE
NCFGGER	<i>COEF</i>	0.78(\pm 0.13)	1.58(\pm 0.34)	0.70(\pm 0.14)	1.27(\pm 0.26)
	<i>RPCC</i>	0.81(\pm 0.11)	1.42(\pm 0.29)	0.73(\pm 0.13)	1.18(\pm 0.24)
	<i>MRPCC</i>	0.81(\pm 0.11)	1.42(\pm 0.29)	0.73(\pm 0.13)	1.18(\pm 0.24)
SRMF		0.71(\pm 0.15)	1.73(\pm 0.46)	0.62(\pm 0.16)	1.43(\pm 0.36)

Table S2. The comparison results between hybrid NCFGGER with different similarity definition and SRMF obtained under 10-fold cross validation on CCLE dataset

Methods		Drug-averaged PCC_S/R	Drug-averaged RMSE_S/R	Drug-averaged PCC	Drug-averaged RMSE
NCFGGER	<i>COEF</i>	0.89(\pm 0.05)	0.47(\pm 0.09)	0.85(\pm 0.07)	0.39(\pm 0.07)
	<i>RPCC</i>	0.91(\pm 0.05)	0.45(\pm 0.08)	0.86(\pm 0.06)	0.38(\pm 0.06)
	<i>MRPCC</i>	0.91(\pm 0.05)	0.45(\pm 0.08)	0.86(\pm 0.06)	0.38(\pm 0.06)
SRMF		0.78(\pm 0.07)	0.74(\pm 0.23)	0.71(\pm 0.09)	0.57(\pm 0.18)

Table S3. The comparison results of both methods obtained under 10-fold cross validation on CCLE dataset

Methods		Drug-averaged PCC_S/R	Drug-averaged RMSE_S/R	Drug-averaged PCC	Drug-averaged RMSE
NCFGGER	Hybrid	0.91(\pm 0.05)	0.45(\pm 0.08)	0.86(\pm 0.06)	0.38(\pm 0.06)
	cellline-based	0.85(\pm 0.08)	0.51(\pm 0.06)	0.78(\pm 0.09)	0.47(\pm 0.08)
	Drug-based	0.80(\pm 0.07)	0.63(\pm 0.20)	0.73(\pm 0.09)	0.52(\pm 0.16)
SRMF		0.78(\pm 0.07)	0.74(\pm 0.23)	0.71(\pm 0.09)	0.57(\pm 0.18)