The parameters of the proposed method in DREAM4 InSilico Size10

Network 1

> **xgboost parameters:** 'n_estimators': 398, 'learning_rate': 0.0133, 'importance_type': 'weight', 'max_depth': 5, 'n_jobs': -1
>
> **alpha:** 0.0214

Network 2

> **xgboost parameters:** 'n_estimators': 400, 'learning_rate': 0.0148, 'importance_type': 'weight', 'max_depth': 5, 'n_jobs': -1
>
> **alpha:** 0.0137

Network 3

> **xgboost parameters:** 'n_estimators': 120, 'learning_rate': 0.281, 'max_depth': 5, 'n_jobs': -1
>
> **alpha:** 0.0123

Network 4

> **xgboost parameters:** 'n_estimators': 100, 'learning_rate': 0.1648, 'max_depth': 5, 'n_jobs': -1
>
> **alpha:** 0.0123

Network 5

> **xgboost parameters:** 'n_estimators': 100, 'learning_rate': 0.1654, 'max_depth': 5, 'n_jobs': -1
>
> **alpha:** 0.0122

The parameters of the proposed method in DREAM4 InSilico Size100

Network 1

> **xgboost parameters:** 'n_estimators': 500, 'learning_rate': 0.0122, 'importance_type': 'weight', 'max_depth': 4, 'n_jobs': -1
>
> **alpha:** 0.0142

Network 2

> **xgboost parameters:** 'n_estimators': 500, 'learning_rate': 0.0111, 'importance_type': 'weight', 'max_depth': 4, 'n_jobs': -1
>
> **alpha:** 0.0122

Network 3

> **xgboost parameters:** 'n_estimators': 500, 'learning_rate': 0.012, 'max_depth': 4, 'n_jobs': -1,
>
> 'importance_type': 'weight'
>
> **alpha:** 0.0147

Network 4

> **xgboost parameters:** 'n_estimators': 500, 'learning_rate': 0.0121, 'importance_type': 'weight', 'max_depth': 4, 'n_jobs': -1
>
> **alpha:** 0.012

Network 5

> **xgboost parameters:** 'n_estimators': 500, 'learning_rate': 0.01, 'importance_type': 'weight', 'max_depth': 5, 'n_jobs': -1
>
> **alpha:** 0.0192

The parameters of the proposed method in yeast

> **xgboost parameters:** max_depth=5, subsample=0.86, n_jobs=-1, n_estimators=500,'learning_rate': 0.1207
>
> alpha: 0.627

The parameters of the proposed method in Escherichia coli

Cold

> **xgboost parameters:** max_depth=4, subsample=0.86, n_jobs=-1, n_estimators=120

Heat

> **xgboost parameters:** max_depth=4, subsample=0.86, n_jobs=-1, n_estimators=120, learning_rate=0.008

Oxidative

> **xgboost parameters:** max_depth=4, subsample=0.86, n_jobs=-1, n_estimators=120, learning_rate=0.01

Lactose

> **xgboost parameters:** max_depth=5, subsample=0.86, n_jobs=-1, n_estimators=140, learning_rate=0.02, reg_alpha=0.01