# CPOP results
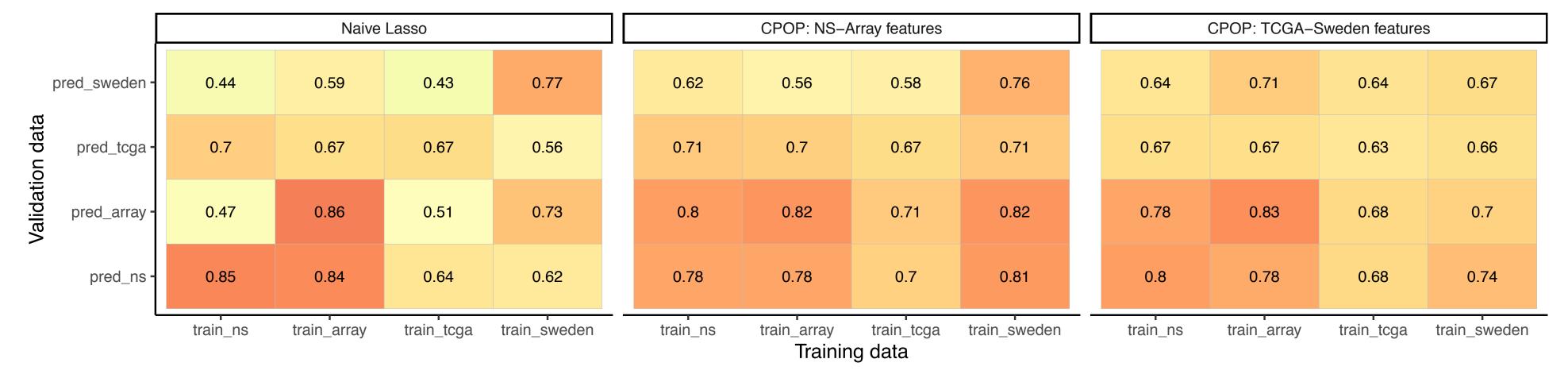
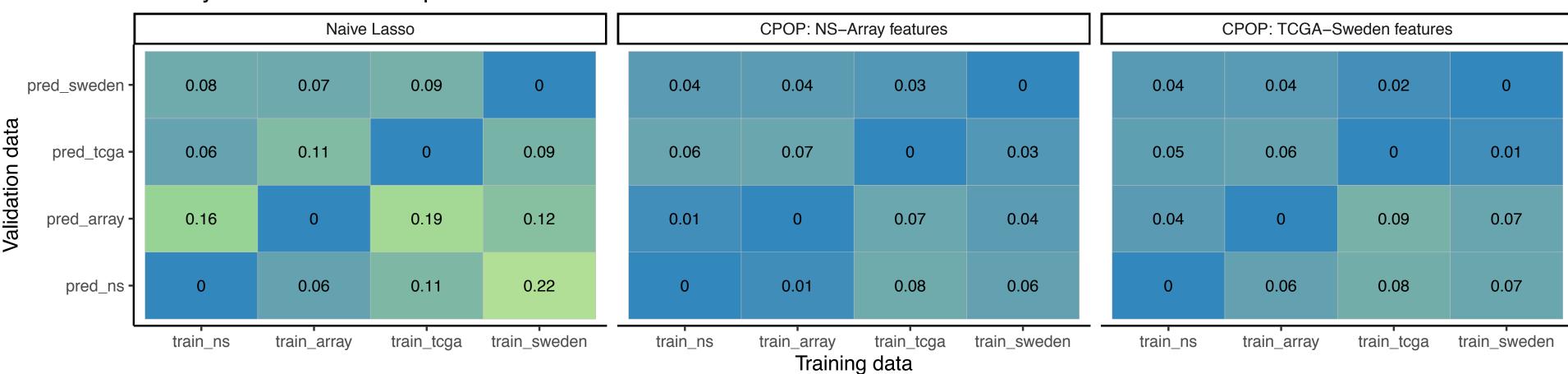1. Predictive performance of CPOP matches that of re-substitution.

2. Smaller identity distance between predicted values

**F1 classification statistic under various models**

| Validation data | Naive Lasso | | | | CPOP: NS–Array features | | | | CPOP: TCGA–Sweden features | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | train_ns | train_array | train_tcga | train_sweden | train_ns | train_array | train_tcga | train_sweden | train_ns | train_array | train_tcga | train_sweden |
| pred_sweden | 0.44 | 0.59 | 0.43 | 0.77 | 0.62 | 0.56 | 0.58 | 0.76 | 0.64 | 0.71 | 0.64 | 0.67 |
| pred_tcga | 0.7 | 0.67 | 0.67 | 0.56 | 0.71 | 0.7 | 0.67 | 0.71 | 0.67 | 0.67 | 0.63 | 0.66 |
| pred_array | 0.47 | 0.86 | 0.51 | 0.73 | 0.8 | 0.82 | 0.71 | 0.82 | 0.78 | 0.83 | 0.68 | 0.7 |
| pred_ns | 0.85 | 0.84 | 0.64 | 0.62 | 0.78 | 0.78 | 0.7 | 0.81 | 0.8 | 0.78 | 0.68 | 0.74 |

Training data

**Identity distance between predicted values under various models**

| Validation data | Naive Lasso | | | | CPOP: NS–Array features | | | | CPOP: TCGA–Sweden features | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | train_ns | train_array | train_tcga | train_sweden | train_ns | train_array | train_tcga | train_sweden | train_ns | train_array | train_tcga | train_sweden |
| pred_sweden | 0.08 | 0.07 | 0.09 | 0 | 0.04 | 0.04 | 0.03 | 0 | 0.04 | 0.04 | 0.02 | 0 |
| pred_tcga | 0.06 | 0.11 | 0 | 0.09 | 0.06 | 0.07 | 0 | 0.03 | 0.05 | 0.06 | 0 | 0.01 |
| pred_array | 0.16 | 0 | 0.19 | 0.12 | 0.01 | 0 | 0.07 | 0.04 | 0.04 | 0 | 0.09 | 0.07 |
| pred_ns | 0 | 0.06 | 0.11 | 0.22 | 0 | 0.01 | 0.08 | 0.06 | 0 | 0.06 | 0.08 | 0.07 |

Training data

# CPOP results

▸ We also applied the data to a large NanoString data cohort with great improvements on stability

▸ We are exploring other data of higher relevance to precision medicine (e.g. drug sensitivity)



**A** Naive Lasso model

**B** CPOP method: NS – Array features