

# Evaluate testing data (multi-class) - xgboost

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Labels: 0: Basal 1: LumA 2: LumB 3: Her2

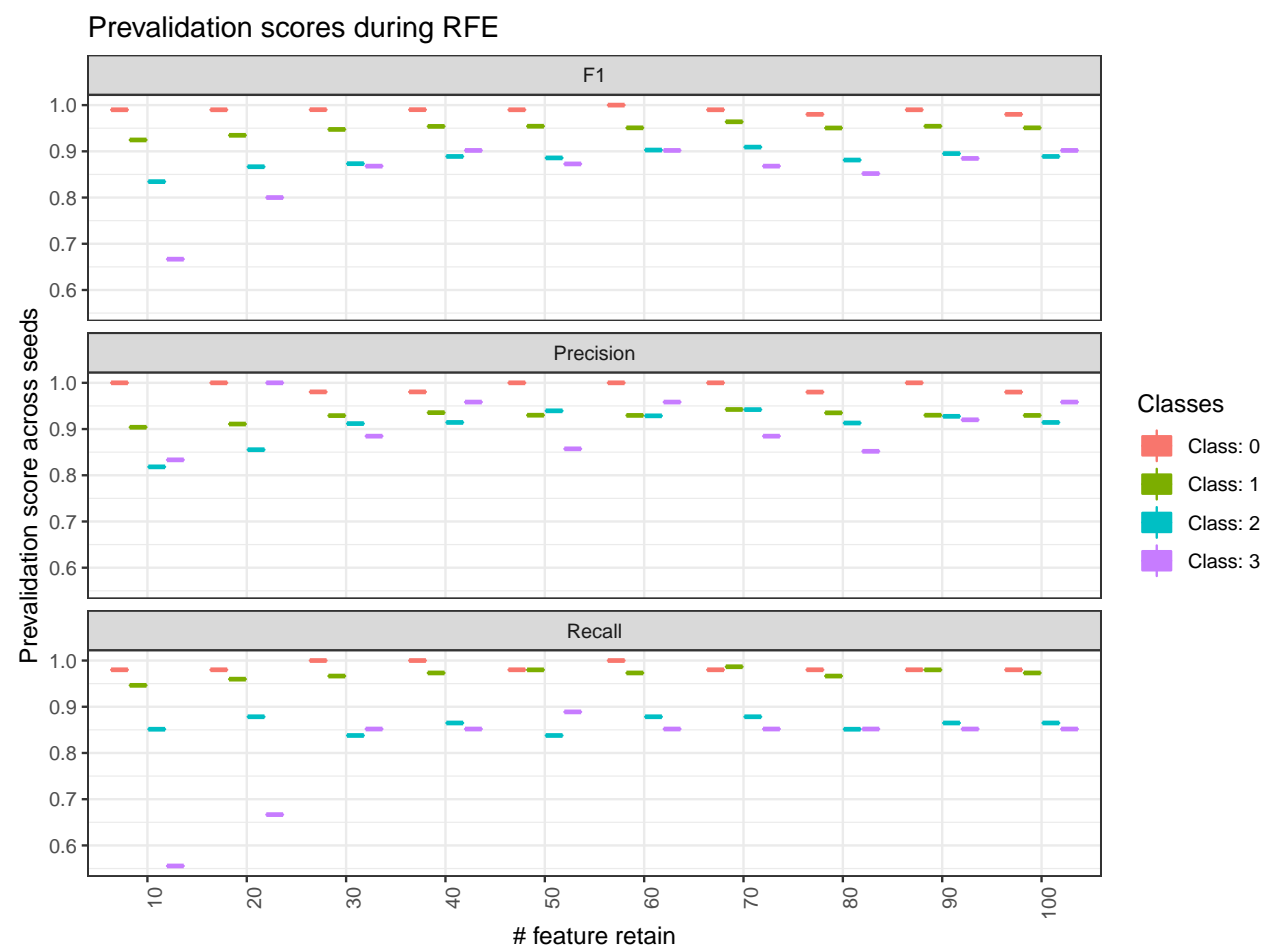
```
## user input
project_home <- "~/EVE/examples"
project_name <- "xgboost_multi_outCV_test_L00CV"
```

## 0. Load Data

```
## 300 of samples were used
## 100 of full features
## 1 runs, each run contains 300 CVs.
## Labels:
##
##    0    1    2    3
## 50 149  74  27
```

# 1. Scores

## 1.1 Scores per Class



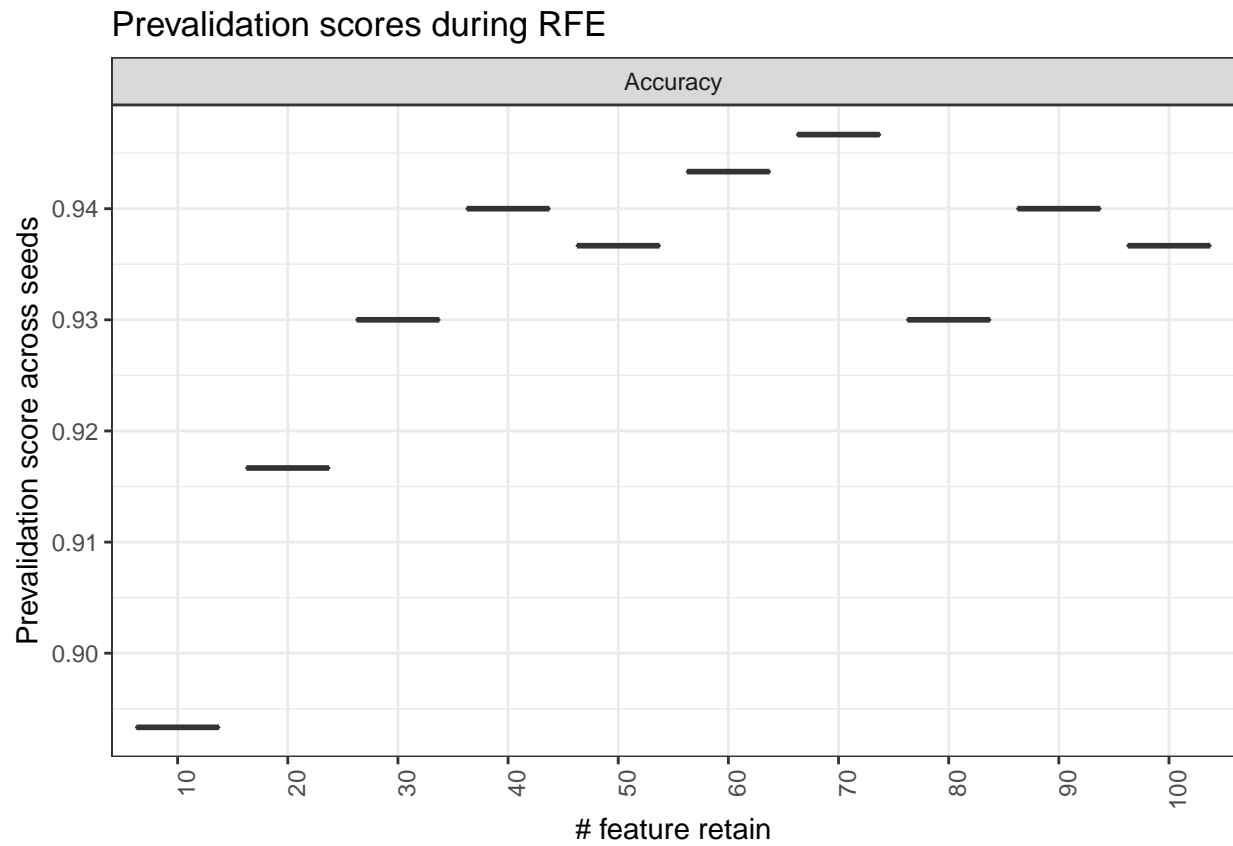
## Confusion Matrix

## confusion matrix at feature size = 100

## sum across 1 seeds

```
##           Reference
## Prediction  0   1   2   3
##           0  49   1   0   0
##           1   0 145   9   2
##           2   1   3  64   2
##           3   0   0   1  23
```

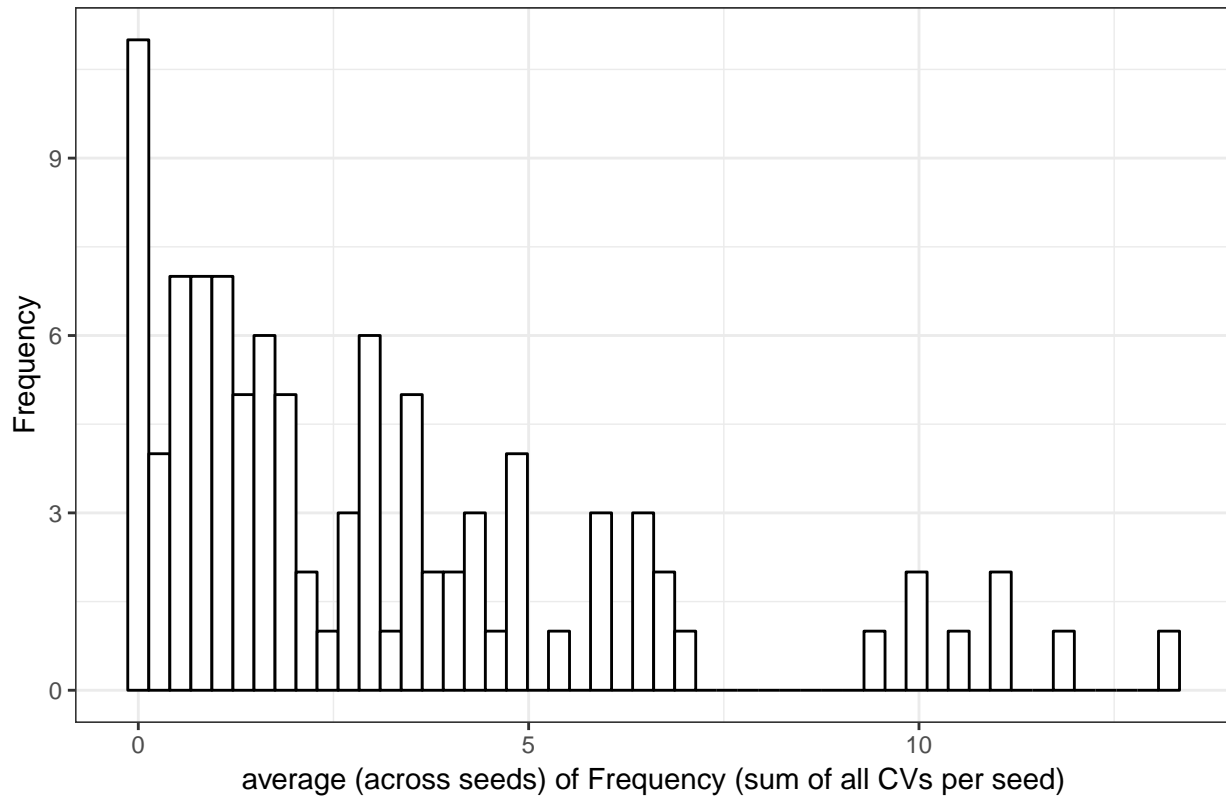
## 1.2 Average score



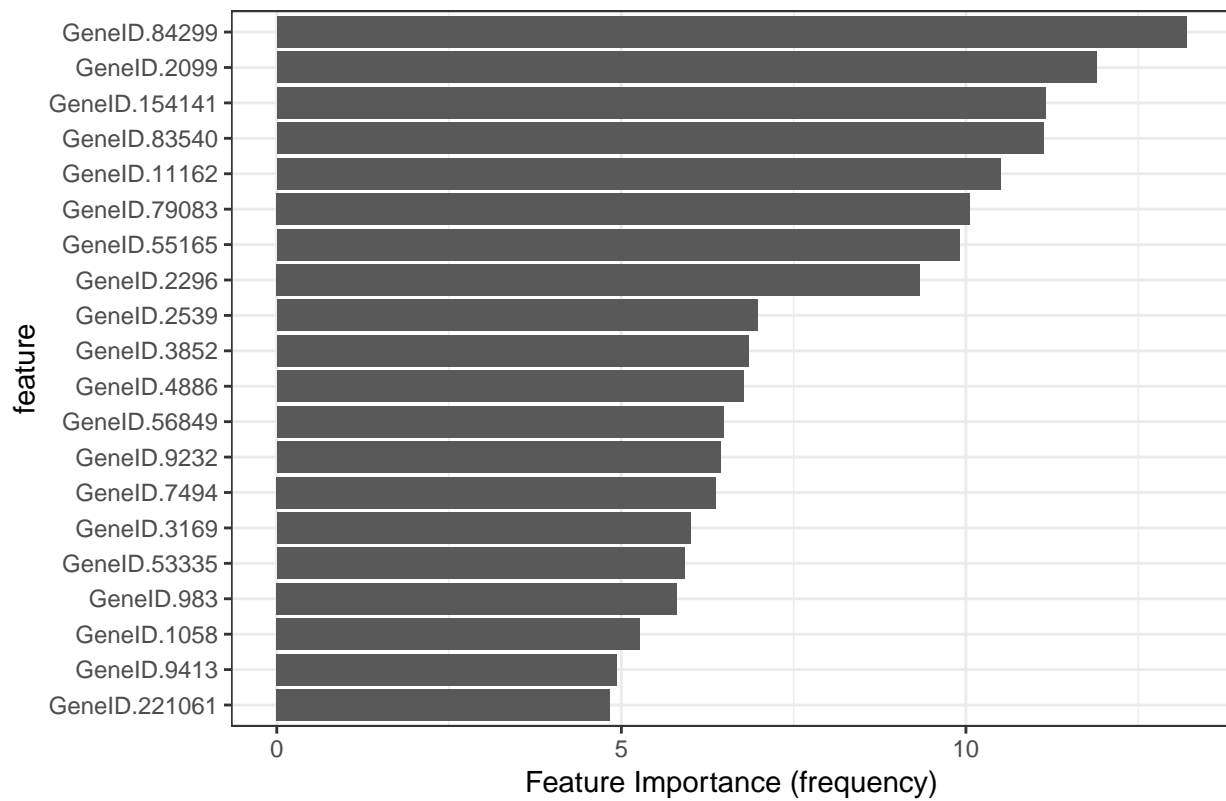
metrics	size.max	median.max	size.min	median.min
Accuracy	70	0.947	10	0.893
F1	60	0.939	10	0.854
Precision	60	0.954	10	0.889
Recall	60	0.926	10	0.833
average scores across classes				

## 2. Important Features

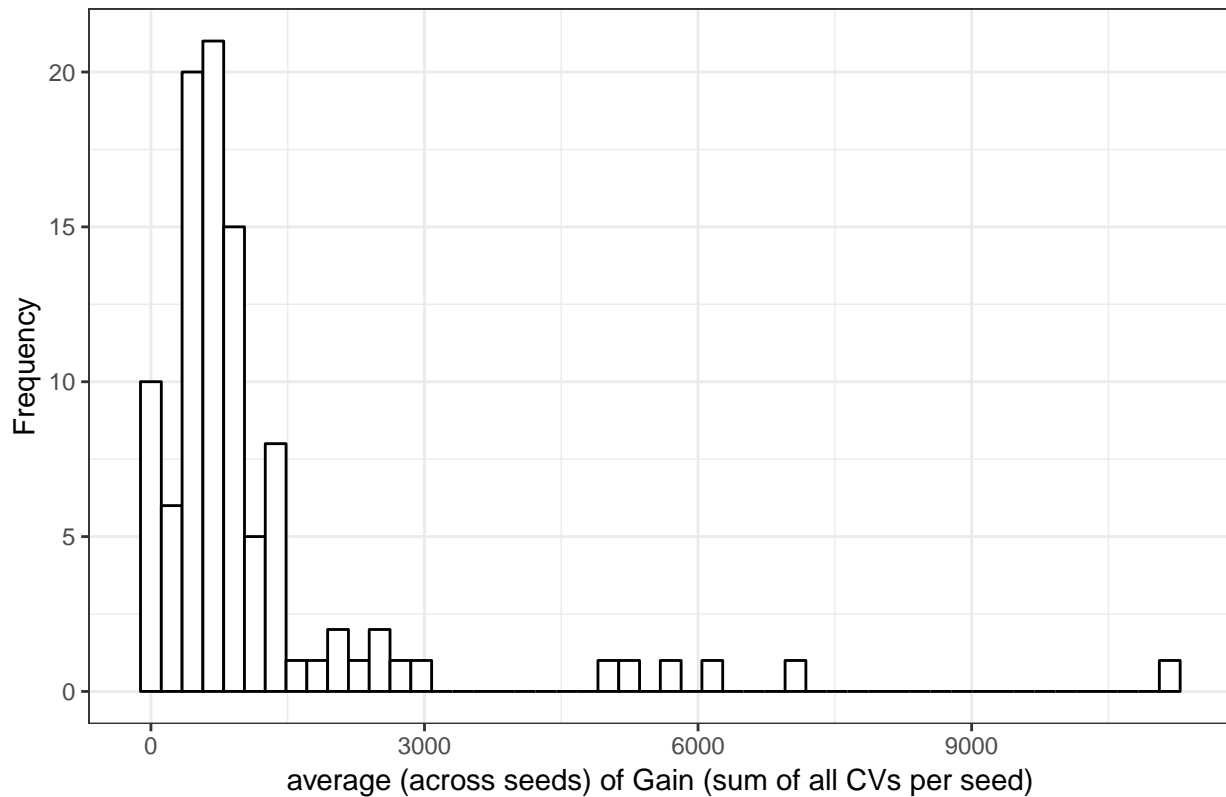
with 100 features based on Frequency



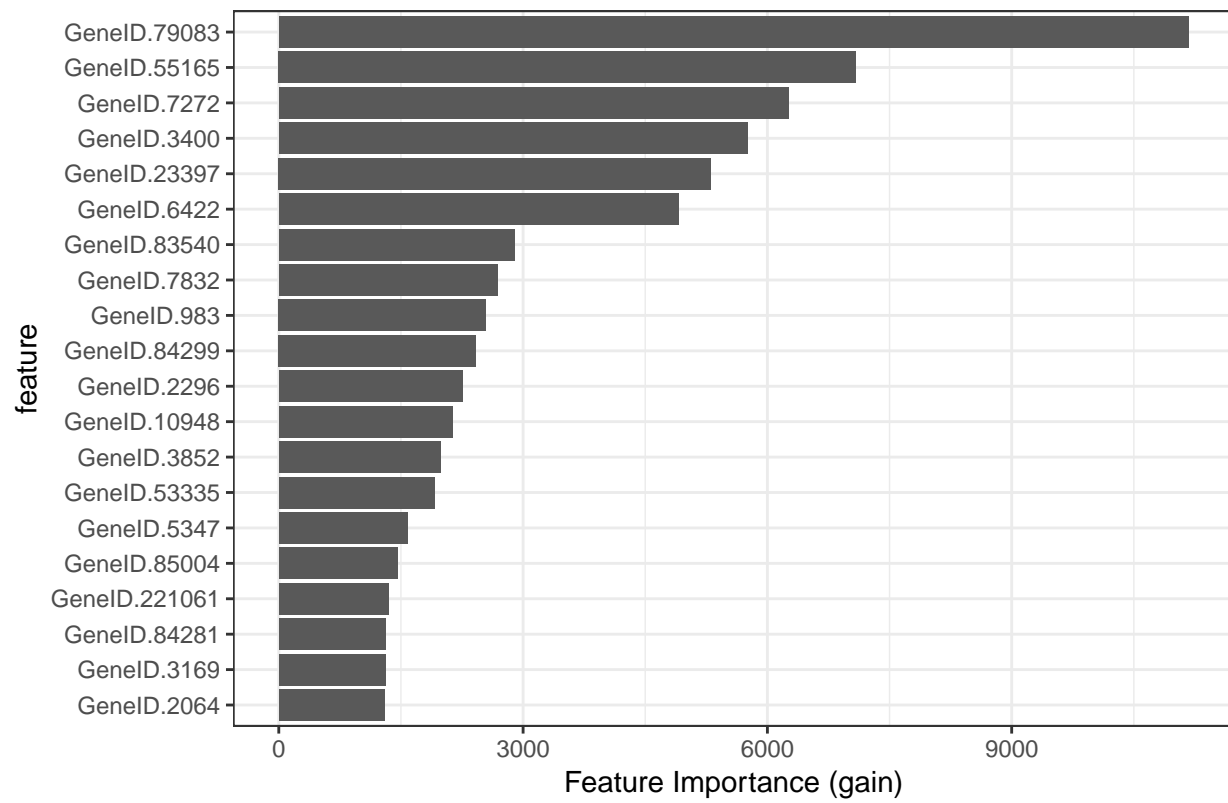
Top 20 features at 100 feature set based on Frequency



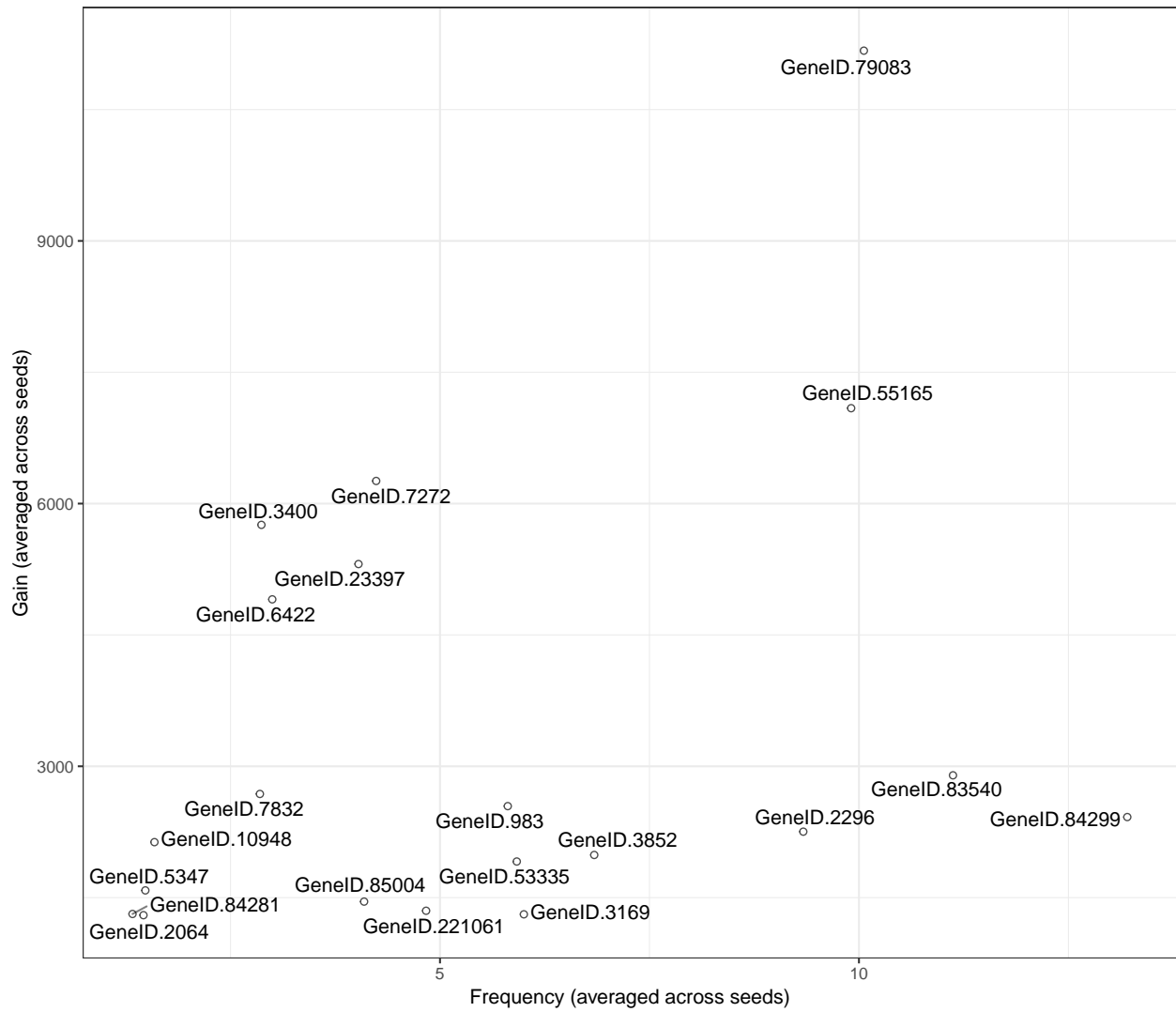
with 100 features based on Gain

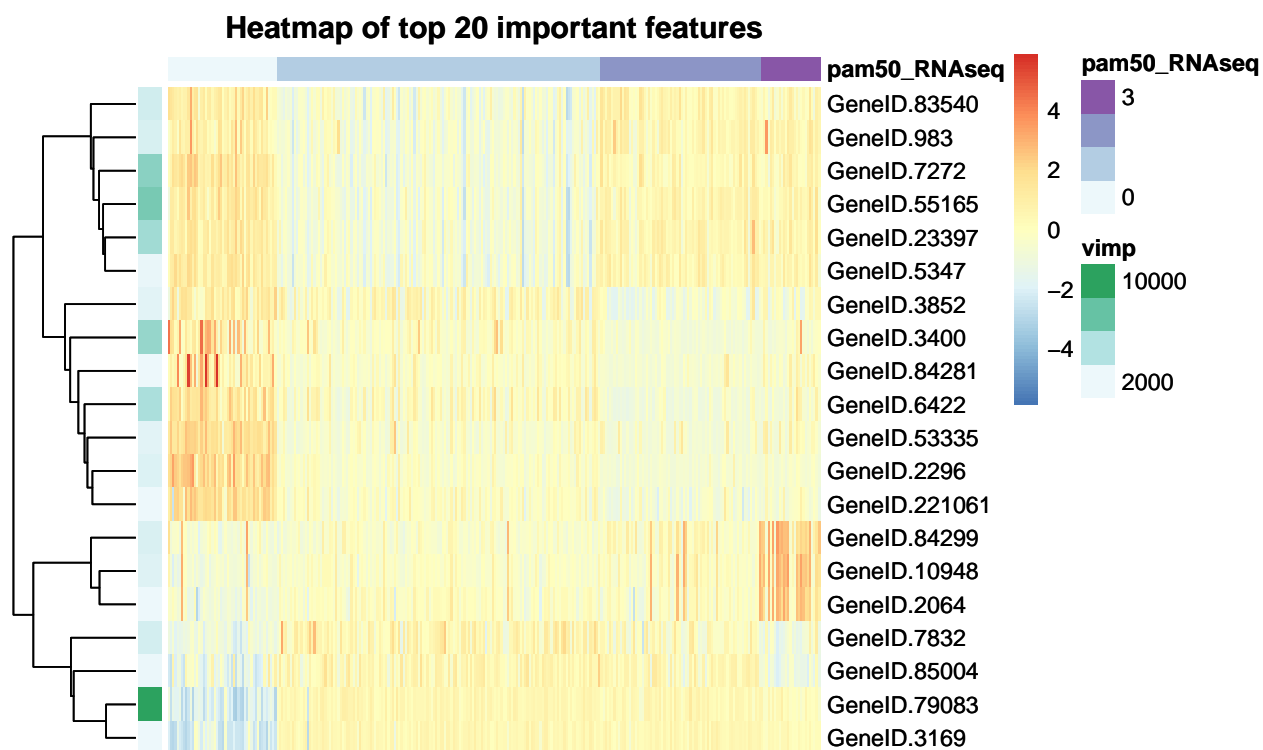


Top 20 features at 100 feature set based on Gain



Top 20 features at 100 feature set





### 3. Hyper-parameters

#### Hyperparameter Tuning in each CV

each box represents different seed (maximum 5 seeds are shown)

