**Supplementary Tables**

**Table A1.** Feature selectors used for gastric cancer for comparative basis

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Feature Selection** | **Classifier** | **Settings**  **(Top n features)** | **Accuracy** | | | **Kappa** | |
| **RF** | **SVM** | Top 10  features | | 0.8925 | | 0.7852 | |
|  |  | Top 50  features | | 0.914 | | 0.828 | |
|  |  | Top 100 features | 0.9247 | | | 0.8495 | |
|  |  | Top 500 features | 0.9247 | | | 0.8495 | |
|  |  | Top 1000 features | 0.914 | | | 0.8281 | |
| **RF** | **LR** | Top 10  features | 0.892473 | | | 0.78512 | |
|  |  | Top 50  features | 0.946237 | | | 0.892486 | |
|  |  | Top 100 features | 0.935484 | | | 0.871012 | |
|  |  | Top 500 features | 0.935484 | | | 0.871012 | |
|  |  | Top 1000 features | 0.924731 | | | 0.849619 | |
| **RF** | **RF** | Top 10  features | | | 0.946237 | | 0.892486 | |
|  |  | Top 50  features | | | 0.935484 | | 0.870953 | |
|  |  | Top 100  features | | | 0.935484 | | 0.870953 | |
|  |  | Top 500  features | | | 0.956989 | | 0.913969 | |
| **Variance Threshold** | **XGB** | 0.001 | 0.935484 | | | 0.871012 | |
|  |  | 0.005 | 0.935484 | | | 0.871012 | |
|  |  | 0.01 | 0.946237 | | | 0.892486 | |
|  |  | 0.05 | 0.935484 | | | 0.871012 | |
|  |  | 0.1 | 0.946237 | | | 0.892486 | |
| **Variance Threshold** | **SVM** | 0.001 | 0.913978 | | | 0.827937 | |
|  |  | 0.005 | 0.892473 | | | 0.785021 | |
|  |  | 0.01 | 0.88172 | | | 0.763578 | |
|  |  | 0.05 | 0.892473 | | | 0.78512 | |
|  |  | 0.1 | 0.892473 | | | 0.78512 | |
| **Variance Threshold** | **LR** | 0.001 | 0.913978 | | | 0.828176 | |
|  |  | 0.005 | 0.903226 | | | 0.806742 | |
|  |  | 0.01 | 0.913978 | | | 0.828176 | |
|  |  | 0.05 | 0.924731 | | | 0.849549 | |
|  |  | 0.1 | 0.924731 | | | 0.849549 | |
| **Variance Threshold** | **RF** | 0.001 | 0.935484 | | | 0.871012 | |
|  |  | 0.005 | 0.935484 | | | 0.871012 | |
|  |  | 0.01 | 0.913978 | | | 0.828017 | |
|  |  | 0.05 | 0.935484 | | | 0.871012 | |
|  |  | 0.1 | 0.935484 | | | 0.871012 | |
| **Mutual Information** | **SVM** | Top 10  features | 0.903226 | | | 0.806653 | |
|  |  | Top 50  features | 0.913978 | | | 0.828096 | |
|  |  | Top 100 features | 0.913978 | | | 0.828096 | |
|  |  | Top 500 features | 0.913978 | | | 0.828096 | |
|  |  | Top 1000 features | 0.913978 | | | 0.828096 | |
| **Mutual Information** | **LR** | Top 10  features | 0.892473 | | | 0.785219 | |
|  |  | Top 50  features | 0.946237 | | | 0.892486 | |
|  |  | Top 100 features | 0.946237 | | | 0.892486 | |
|  |  | Top 500 features | 0.903226 | | | 0.806653 | |
|  |  | Top 1000 features | 0.946237 | | | 0.892535 | |
| **Mutual Information** | **RF** | Top 10  features | 0.946237 | | | 0.892486 | |
|  |  | Top 50  features | 0.935484 | | | 0.870953 | |
|  |  | Top 100 features | 0.935484 | | | 0.870953 | |
|  |  | Top 500 features | 0.946237 | | | 0.892486 | |
|  |  | Top 1000 features | 0.946237 | | | 0.892486 | |

**Table A2.** Feature selectors used for breast cancer for comparative basis

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Feature Selection** | **Classifier** | **Settings** | **Accuracy** | **Kappa** |
| **RF** | **SVM** | Top 10 features | 0.8925 | 0.7852 |
|  |  | Top 50 features | 0.914 | 0.828 |
|  |  | Top 100 features | 0.9247 | 0.8495 |
|  |  | Top 500 features | 0.9247 | 0.8495 |
|  |  | Top 1000 features | 0.914 | 0.8281 |
| **RF** | **LR** | Top 10 features | 0.892473 | 0.78512 |
|  |  | Top 50 features | 0.946237 | 0.892486 |
|  |  | Top 100 features | 0.935484 | 0.871012 |
|  |  | Top 500 features | 0.935484 | 0.871012 |
|  |  | Top 1000 features | 0.924731 | 0.849619 |
| **RF** | **RF** | Top 10 features | 0.946237 | 0.892486 |
|  |  | Top 50 features | 0.935484 | 0.870953 |
|  |  | Top 100 features | 0.935484 | 0.870953 |
|  |  | Top 500 features | 0.956989 | 0.913969 |
|  |  | Top 1000 features | 0.946237 | 0.892486 |
| **Variance Threshold** | **SVM** | 0.001 | 0.913978 | 0.827937 |
|  |  | 0.005 | 0.892473 | 0.785021 |
|  |  | 0.01 | 0.88172 | 0.763578 |
|  |  | 0.05 | 0.892473 | 0.78512 |
|  |  | 0.1 | 0.892473 | 0.78512 |
| **Variance Threshold** | **LR** | 0.001 | 0.913978 | 0.828176 |
|  |  | 0.005 | 0.903226 | 0.806742 |
|  |  | 0.01 | 0.913978 | 0.828176 |
|  |  | 0.05 | 0.924731 | 0.849549 |
|  |  | 0.1 | 0.924731 | 0.849549 |
| **Variance Threshold** | **RF** | 0.001 | 0.935484 | 0.871012 |
|  |  | 0.005 | 0.935484 | 0.871012 |
|  |  | 0.01 | 0.913978 | 0.828017 |
|  |  | 0.05 | 0.935484 | 0.871012 |
|  |  | 0.1 | 0.935484 | 0.871012 |
| **Mutual Information** | **SVM** | Top 10 features | 0.903226 | 0.806653 |
|  |  | Top 50 features | 0.913978 | 0.828096 |
|  |  | Top 100 features | 0.913978 | 0.828096 |
|  |  | Top 500 features | 0.913978 | 0.828096 |
|  |  | Top 1000 features | 0.913978 | 0.828096 |
| **Mutual Information** | **LR** | Top 10 features | 0.892473 | 0.785219 |
|  |  | Top 50 features | 0.946237 | 0.892486 |
|  |  | Top 100 features | 0.946237 | 0.892486 |
|  |  | Top 500 features | 0.903226 | 0.806653 |
|  |  | Top 1000 features | 0.946237 | 0.892535 |
| **Mutual Information** | **RF** | Top 10 features | 0.946237 | 0.892486 |
|  |  | Top 50 features | 0.935484 | 0.870953 |
|  |  | Top 100 features | 0.935484 | 0.870953 |
|  |  | Top 500 features | 0.946237 | 0.892486 |
|  |  | Top 1000 features | 0.946237 | 0.892486 |

**Table A3.** Feature selectors used for lung cancer for comparative basis

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Feature Selection** | **Classifier** | **Settings** | **Accuracy** | **Kappa** |
| **RF** | **SVM** | Top 10 features | 0.9882 | 0.9268 |
|  |  | Top 50 features | 0.9841 | 0.9445 |
|  |  | Top 100 features | 0.9841 | 0.9545 |
|  |  | Top 500 features | 0.9841 | 0.9545 |
|  |  |  |  |  |
| **RF** | **LR** | Top 10 features | 0.982249 | 0.893465 |
|  |  | Top 50 features | 0.988166 | 0.930992 |
|  |  | Top 100 features | 0.988166 | 0.930992 |
|  |  | Top 500 features | 0.988166 | 0.930992 |
|  |  | Top 1000 features | 0.982249 | 0.899345 |
| **RF** | **RF** | Top 10 features | 0.96166 | 0.92684 |
|  |  | Top 50 features | 0.96166 | 0.92684 |
|  |  | Top 100 features | 0.96166 | 0.92684 |
|  |  | Top 500 features | 0.96816 | 0.92684 |
| **Variance Threshold** | **SVM** | 0.001 | 0.9984083 | 0.944488 |
|  |  | 0.005 | 0.984083 | 0.944488 |
|  |  | 0.01 | 0.984083 | 0.944488 |
|  |  | 0.05 | 0.974083 | 0.956488 |
|  |  | 0.1 | 0.984083 | 0.956488 |
| **Variance Threshold** | **LR** | 0.001 | 0.934911 | 0.697674 |
|  |  | 0.005 | 0.934911 | 0.697674 |
|  |  | 0.01 | 0.934911 | 0.697674 |
|  |  | 0.05 | 0.934911 | 0.697674 |
|  |  | 0.1 | 0.934911 | 0.697674 |
| **Variance Threshold** | **RF** | 0.001 | 0.974083 | 0.954488 |
|  |  | 0.005 | 0.974083 | 0.954488 |
|  |  | 0.01 | 0.988166 | 0.92684 |
|  |  | 0.05 | 0.974083 | 0.954488 |
|  |  | 0.1 | 0.94083 | 0.954488 |
| **Mutual Information** | **SVM** | Top 10 features | 0.988166 | 0.92684 |
|  |  | Top 50 features | 0.984083 | 0.954488 |
|  |  | Top 100 features | 0.988166 | 0.92684 |
|  |  | Top 500 features | 0.984083 | 0.954488 |
|  |  | Top 1000 features | 0.974083 | 0.943488 |
| **Mutual Information** | **LR** | Top 10 features | 0.977146 | 0.92684 |
|  |  | Top 50 features | 0.977166 | 0.920992 |
|  |  | Top 100 features | 0.977166 | 0.920992 |
|  |  | Top 500 features | 0.987166 | 0.920992 |
|  |  | Top 1000 features | 0.988166 | 0.920992 |
| **Mutual Information** | **RF** | Top 10 features | 0.972249 | 0.886856 |
|  |  | Top 50 features | 0.978166 | 0.91684 |
|  |  | Top 100 features | 0.978166 | 0.91684 |
|  |  | Top 500 features | 0.978166 | 0.91684 |
|  |  | Top 1000 features | 0.978166 | 0.92784 |