On-line Table 1: Main MR imaging protocols used in the study across hospitals

MR Imaging Sequence	Data-Acquisition Parameters
Xiangya Hospital/Second Xiangya Hospital	
3T Trio	
T2-weighted TSE	TR/TE = 6400/100 ms, section thickness = 5 mm, matrix size = $128 \times 128$
T1-weighted SE with gadolinium contrast	TR/TE = 700/10 ms, section thickness = 5 mm, matrix size = $128 \times 128$
DWI	TR/TE = 5780/60 ms, section thickness = 5 mm, matrix size = 128 $ imes$ 128
1.5T Avanto	
T2-weighted TSE	TR/TE = 6800/100 ms, section thickness = 5 mm, matrix size = $128 \times 128$
T1-weighted SE with gadolinium contrast	TR/TE = 683/15 ms, section thickness = 5 mm, matrix size = $128 \times 128$
DWI	TR/TE = 8000/95 ms, section thickness = 5 mm, matrix size = $128 \times 128$
Hunan Children's Hospital	
3T Achieva	
T2-weighted TSE	TR/TE = 5260/110 ms, section thickness = 5 mm, matrix size = $256 \times 256$
T1-weighted SE with gadolinium contrast	TR/TE = 650/10 ms, section thickness = 5 mm, matrix size = $256 \times 256$
DWI	TR/TE = 8100/92 ms, section thickness = 5 mm, matrix size = $256 \times 256$
Hunan Provincial People's Hospital	
1.5T Avanto	
T2-weighted TSE	TR/TE = 5540/110 ms, section thickness = 5 mm, matrix size = $128 \times 128$
T1-weighted SE with gadolinium contrast	TR/TE = 650/15 ms, section thickness = 5 mm, matrix size = $128 \times 128$
DWI	TR/TE = 8200/94 ms, section thickness = 5 mm, matrix size = $128 \times 128$

Note:-SE indicates spin-echo.

On-line Table 2: Abbreviations and names of classifiers and feature selection meth
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Classifier Acronym	Classifier Name	Feature-Selection Method Acronym	Feature-Selection Method Name
Nnet	Neural network	CHSQ	$\chi^2$ score
DT	Decision tree	ANOVA	Analysis of variance
BST	Boosting	TSCR	T test score
BY	Bayesian	FSCR	Fisher score
BAG	Bagging	RELF	Relief
RF	Random forest	WLCX	Wilcoxon
SVM	Support vector machine	MIFS	Mutual information feature selection
LDA	Linear discriminant analysis	MRMR	Minimum redundancy/Maximum relevance
KNN	k-nearest neighbors	CIFE	Conditional infomax feature selection
GLM	Generalized Linear Model	JMI	Joint mutual information
		CMIM	Conditional mutual information maximization
		ICAP	Interaction capping
		DISR	Double input symmetric relevance
		MIM	Mutual information maximization

On-line Table 3: Stability	v of classifiers	using RSD% of AUC <sup>a</sup>
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Classifiers	RSD%
GLM	2.22
LDA	2.91
KNN	3.92
DT	6.25
BY	3.30
SVM	9.57
BAG	3.99
Nnet	5.64
RF	3.68
BST	6.29

Note:—RSD% indicates relative SD percentage

 $^{\rm a}\,{\rm Each}$  classifier was trained and tested on different subsamples of the data 100 times, and RSD% was calculated by the SD of AUC divided by the mean of AUC times 100.

## On-line Table 4: Comparison of 10 TPOT models for multiclass classification on the training set

		Mirco-
Model Index	Parameters	Averaged AUC
1	LogisticRegression(LogisticRegression(Normalizer(Binarizer(input_matrix, threshold =1.0), norm=max), C = 5.0, dual=False, penalty=11), C = 20.0, dual=True, penalty=12)	0.92
2	LogisticRegression(RobustScaler(input matrix), $C = 20.0$ , dual=False, penalty=12)	0.92
3	KNeighborsClassifier(SelectPercentile(MaxAbsScaler(input_matrix), percentile =3), n_neighbors = 7, P = 1, weights=uniform)	0.90
4	LogisticRegression(input_matrix, C = 10.0, dual=False, penalty=11)	0.88
5	KNeighborsClassifier(MaxAbsScaler(DecisionTreeClassifier(GaussianNB(input_matrix), criterion=gini, max_depth = 10, min_samples_leaf = 13, min_samples_split = 7)), n_neighbors = 11, P = 1, weights=distance)	0.91
6	BernoulliNB(ZeroCount(input_matrix), alpha =0.1, fit_prior=True)	0.87
7	LogisticRegression(DecisionTreeClassifier(input_matrix, criterio <i>n</i> =gini, max_depth = 3, min_samples_leaf = 20, min_samples_split = 6), C = 15.0, dual=False, penalty=l1)	0.88
8	LogisticRegression(BernoulliNB(MinMaxScaler(input_matrix),alpha =1.0, fit_prior=False), C = 10.0, dual=False, penalty=l2)	0.93
9	LogisticRegression(MaxAbsScaler(input_matrix), $C = 5.0$ , dual=False, penalty=l2)	0.92
10	BernoulliNB(input matrix, $alpha = 0.1$ , fit prior=True)	0.87

On-line Table 5: Top 20 radiomics features for models by TPOT for multiclass classification

Selected Feature No.	Feature Description	Technique of Feature
31	locInt_3DFloc_peak_globalscale3	ADC
34	stats_3DFstat_skewscale3	ADC
37	stats_3DFstat_minscale3	ADC
3095	morph_3DFmorph_sphericityscale3	ADC
3098	morph_3DFmorph_diamscale3	TIC
3101	morph_3DFmorph_pca_leastscale3	TIC
5201	gldzm_3DFdzm_lgzescale2_algoFBNequal64_bin16	TIC
5265	gldzm_3DFdzm_lgzescale3_algoFBN_bin16	TIC
5278	gldzm_3DFdzm_zd_entrscale3_algoFBN_bin16	TIC
5329	gldzm_3DFdzm_lgzescale3_algoFBNequal64_bin16	TIC
5342	gldzm_3DFdzm_zd_entrscale3_algoFBNequal64_bin16	TIC
5345	gldzm_3DFdzm_lgzescale3_algoFBNequal64_bin32	TIC
5361	gldzm_3DFdzm_lgzescale3_algoFBNequal64_bin64	TIC
5393	gldzm_3DFdzm_lgzescale4_algoFBN_bin16	TIC
5406	gldzm_3DFdzm_zd_entrscale4_algoFBN_bin16	TIC
5409	gldzm_3DFdzm_lgzescale4_algoFBN_bin32	TIC
6159	ngldm_3DFngl_ldescale4_algoFBNequal64_bin64	TIC
6162	ngldm_3DFngl_hgcescale4_algoFBNequal64_bin64	TIC
6165	ngldm_3DFngl_hdlgescale4_algoFBNequal64_bin64	TIC
9193	ngldm_3DFngl_dcnu_normscale4_algoFBN_bin64	T2WI

Note:-TIC indicates TIWI contrast-enhanced sequence.

On-line Table 6: Top 20 radiomics features for models b	y CHSQ and GLM for multiclass classification
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Selected Feature No.	Feature Description	Technique of Feature
839	glcm_3DmrgFcm_sum_entrscale4_algoFBNequal64_bin32	ADC
1373	glrlm_3DmrgFrlm_gl_varscale4_algoFBNequal64_bin32	ADC
1389	glrlm_3DmrgFrlm_gl_varscale4_algoFBNequal64_bin64	ADC
1885	glszm_3DFszm_gl_varscale4_algoFBNequal64_bin32	ADC
1901	glszm_3DFszm_gl_varscale4_algoFBNequal64_bin64	ADC
1981	gldzm_3DFdzm_gl_varscale1_algoFBNequal64_bin8	ADC
2013	gldzm_3DFdzm_gl_varscale1_algoFBNequal64_bin32	ADC
2109	gldzm_3DFdzm_gl_varscale2_algoFBNequal64_bin8	ADC
2125	gldzm_3DFdzm_gl_varscale2_algoFBNequal64_bin16	ADC
2127	gldzm_3DFdzm_zd_entrscale2_algoFBNequal64_bin16	ADC
7264	glrlm_3DmrgFrlm_lgrescale2_algoFBNequal64_bin16	T2WI
8704	ngtdm_3DFngt_strengthscale3_algoFBNequal64_bin32	T2WI
8720	ngtdm_3DFngt_coarsenessscale4_algoFBN_bin32	T2WI
8816	ngldm_3DFngl_lgcescale1_algoFBNequal64_bin8	T2WI
8832	ngldm_3DFngl_lgcescale1_algoFBNequal64_bin16	T2WI
8848	ngldm_3DFngl_lgcescale1_algoFBNequal64_bin32	T2WI
8864	ngldm_3DFngl_lgcescale1_algoFBNequal64_bin64	T2WI
8960	ngldm_3DFngl_lgcescale2_algoFBNequal64_bin16	T2WI
8976	ngldm_3DFngl_lgcescale2_algoFBNequal64_bin32	T2WI
8992	ngldm_3DFngl_lgcescale2_algoFBNequal64_bin64	T2WI

<b>On-line</b> 1	Table 7: Comparison of TPOT models for binary c	assifica	tion of MB versus non-MB, EP versus non-EP, and PA	<b>A versus</b>	non-PA on the training set	
Model	MB vs Non-MB		EP vs Non-EP		PA vs Non-PA	
Index	Parameters	AUC	Parameters	AUC	Parameters	AUC
-	BernoulliNB(GaussianNB(MaxAbsScaler	0.917	LogisticRegression(MaxAbsScaler(input_matrix),	0.730	BernoulliNB(LogisticRegression(input_matrix, C = 0.5,	0.933
2	ווחטינ_matrix)), מוסחמ =ט.ו, חנ_מרוסר=רמוגפן BernoulliNB(GaussianNB(Binarizer(input_matrix,	0.936	С = u.u, auat=Faise, penatry=L/ DecisionTreeClassifier(input_matrix,	0.697	duat=ratse, penatty=u), atpna =טיטטו, חנ_prior=1rue) KNeighborsClassifier(SelectFwe(MaxAbsScaler	0.955
	threshold =0.2)), alpha =1.0, fit_prior=True)		criterion=entropy, max_depth = 10,		(input_matrix), alpha =0.032), n_neighbors = 29, $P = 2$ ,	
ŝ	BernoulliNB (Decision Tree Classifier (in put_matrix,	0.916	min_samples_leat = 18, min_samples_split = 14) LogisticRegression(MinMaxScaler(input_matrix),	0.789	weights=distance) BernoulliNB(input_matrix, alpha=1.0, fit_prior=True)	0.914
	criterio $n$ =entropy, max_depth = 7,		C = 10.0, dual=False, penalty=12)		i	
	min_samples_leaf = 9, min_samples_split = 6), alpha =0.001, fit_prior=False)					
4	KNeighborsClassifier(Binarizer(StandardScaler	0.931	DecisionTreeClassifier(PCA(input_matrix,	0.698	MultinomialNB(SelectPercentile(BernoulliNB	0.921
	(input_matrix),		iterated_power = 8, svd_solver=randomized),		(MinMaxScaler(input_matrix), alpha=0.01,	
	threshold =0.15000000000000000),		criterion=gini, max_depth = 4,		fit_prior=True), percentile =31), alpha =100.0,	
	n_neighbors = 4, $P = 1$ , weights=uniform)		min_samples_leaf = 19, min_samples_split = 4)		fit_prior=True)	
5	KNeighborsClassifier(MinMaxScaler(input_matrix),	0.945	BernoulliNB(VarianceThreshold(input_matrix,	0.698	KNeighborsClassifier (MaxAbsScaler (input_matrix),	0.952
	n_neighbors = 26, $P = 1$ , weights=distance)		threshold =0.05), alpha =0.01, fit_prior=True)		n_neighbors = 21, $P = 2$ , weights=distance)	
9	BernoulliNB(LogisticRegression(input_matrix,	0.923	LogisticRegression(MinMaxScaler(BernoulliNB	0.830	BernoulliNB(SelectFwe(input_matrix, alpha = 0.045),	0.915
	C = 0.01, dual=False, penalty=l2), alpha =0.001,		(input_matrix, alpha=1.0, fit_prior=False)),		alpha =0.1, fit_prior=False)	
	fit_prior=True)		C = 20.0, dual=False, penalty=I1)			
7	BernoulliNB(VarianceThreshold(input_matrix,	0.904	KNeighborsClassifier(Binarizer(input_matrix,	0.765	LogisticRegression(StandardScaler(MaxAbsScaler	0.963
	threshold =0.0001), alpha =1.0, fit_prior=False)		threshold =1.0), n_neighbors = 40, $P = 1$ , weighter-distance)		(input_matrix)), C = 0.5, dual=False, penalty=l2)	
Ø	LogisticRegression(MinMaxScaler(input matrix),	0.972	weignes-usence) LogisticRegression(MinMaxScaler(input matrix),	0.839	BernoulliNB(LogisticRegression(input matrix, $C=20.0,$	0.936
	Č = 10.0, dual=False, penalty=[1)		Č = 20.0, dual=False, penalty=[1]		dual=False, penalty=I1), alpha =0.001, fit_prior=True)	
6	Logistic Regression (KNeighbors Classifier (Binarizer	0.974	Decision Tree Classifier (input_matrix,	0.697	BernoulliNB(DecisionTreeClassifier(DecisionTreeClassifier	0.933
	(input_matrix, threshold =1.0),		criterion=entropy, max_depth = 9,		(input_matrix, criterion=gini, max_depth = 7,	
	n_neighbors = 46, $P = 2$ , weights=uniform),		min_samples_leaf = 18, min_samples_split = 9)		min_samples_leaf = 12, min_samples_split = 14),	
	C == 1.0, dual=False, penalty=11)				criterion=gini, max_depth = 8, min_samples_leaf = 12,	
Ģ					min_samples_split = 14), alpha =0.1, fit_prior=True)	
2	bernoullinb(Logistickegression(Input_matrix, С = 15.0 dual=False nenaltv=11) alnha =0.001	0.924	KINelgnborsclassifier(binarizer(input_matrix, threshold =0.0) n_neighbors = 77 P = 1	067.0	KINeignoorsClassifier(binarizer(input_matrix, threshold ==0 15000000000000000000000000000000000	0.754
	fit prior=False)		weights=distance)		P = 1, weights=uniform)	

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ON-LINE FIG 1. An example of ROI delineation in a posterior fossa tumor on TIWI contrast-enhanced sequence (A), T2WI (B), and ADC (C).

	GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST
CHSQ	0.93	0.79	0.90	0.80	0.90	0.92	0.91	0.92	0.90	0.85
ANOVA	0.92	0.87	0.87	0.83	0.90	0.91	0.89	0.92	0.89	0.86
FSCR	0.92	0.87	0.87	0.82	0.90	0.91	0.91	0.92	0.89	0.86
RELF	0.92	0.85	0.89	0.80	0.90	0.92	0.90	0.92	0.89	0.88
WLCX	0.79	0.59	0.67	0.66	0.67	0.71	0.74	0.80	0.69	0.72
MIM	0.84	0.72	0.81	0.69	0.78	0.82	0.82	0.86	0.82	0.78
MIFS	0.88	0.66	0.83	0.73	0.81	0.87	0.84	0.87	0.86	0.81
MRMR	0.88	0.63	0.84	0.71	0.82	0.88	0.87	0.88	0.83	0.84
CIFE	0.87	0.68	0.83	0.77	0.83	0.88	0.85	0.87	0.87	0.81
JMI	0.90	0.74	0.85	0.73	0.78	0.86	0.83	0.91	0.79	0.81
CMIM	0.85	0.75	0.83	0.74	0.80	0.83	0.85	0.86	0.87	0.82
ICAP	0.85	0.75	0.83	0.74	0.80	0.83	0.84	0.86	0.85	0.82
DISR	0.74	0.60	0.63	0.60	0.61	0.60	0.69	0.74	0.73	0.64
A										
							-			-
	GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST
CHSQ	GLM 0.92	LDA 0.90	KNN 0.88	DT 0.79	BY 0.89	SVM 0.91	BAG 0.89	Nnet 0.92	RF 0.90	BST 0.81
CHSQ ANOVA	GLM 0.92 0.89	LDA 0.90 0.86	KNN 0.88 0.85	DT 0.79 0.75	BY 0.89 0.89	SVM 0.91 0.89	BAG 0.89 0.85	Nnet 0.92 0.88	RF 0.90 0.86	BST 0.81 0.81
CHSQ ANOVA FSCR	GLM 0.92 0.89 0.89	LDA 0.90 0.86 0.86	KNN 0.88 0.85 0.85	DT 0.79 0.75 0.74	BY 0.89 0.89 0.89	SVM 0.91 0.89 0.89	BAG 0.89 0.85 0.85	Nnet 0.92 0.88 0.88	RF 0.90 0.86 0.86	BST 0.81 0.81 0.80
CHSQ ANOVA FSCR RELF	GLM 0.92 0.89 0.89 0.91	LDA 0.90 0.86 0.86 0.91	KNN 0.88 0.85 0.85 0.91	DT 0.79 0.75 0.74 0.75	BY 0.89 0.89 0.89 0.90	SVM 0.91 0.89 0.89 0.91	BAG 0.89 0.85 0.85 0.85	Nnet 0.92 0.88 0.88 0.90	RF 0.90 0.86 0.86 0.90	BST 0.81 0.81 0.80 0.81
CHSQ ANOVA FSCR RELF WLCX	GLM 0.92 0.89 0.89 0.91 0.62	LDA 0.90 0.86 0.86 0.91 0.56	KNN 0.88 0.85 0.85 0.91 0.56	DT 0.79 0.75 0.74 0.75 0.60	BY 0.89 0.89 0.90 0.58	SVM 0.91 0.89 0.89 0.91 0.58	BAG 0.89 0.85 0.85 0.88 0.63	Nnet 0.92 0.88 0.88 0.90 0.59	RF 0.90 0.86 0.86 0.90 0.58	BST 0.81 0.80 0.81 0.81 0.61
CHSQ ANOVA FSCR RELF WLCX MIM	GLM 0.92 0.89 0.89 0.91 0.62 0.66	LDA 0.90 0.86 0.86 0.91 0.56 0.66	KNN 0.88 0.85 0.85 0.91 0.56 0.64	DT 0.79 0.75 0.74 0.75 0.60 0.56	BY 0.89 0.89 0.90 0.58 0.63	SVM 0.91 0.89 0.89 0.91 0.58 0.64	BAG 0.89 0.85 0.85 0.88 0.63 0.63	Nnet 0.92 0.88 0.88 0.90 0.59 0.68	RF 0.90 0.86 0.86 0.90 0.58 0.64	BST 0.81 0.81 0.80 0.81 0.61 0.60
CHSQ ANOVA FSCR RELF WLCX MIM MIFS	GLM 0.92 0.89 0.89 0.91 0.62 0.66 0.84	LDA 0.90 0.86 0.86 0.91 0.56 0.66 0.85	KNN 0.88 0.85 0.91 0.56 0.64 0.81	DT 0.79 0.75 0.74 0.75 0.60 0.56 0.70	BY 0.89 0.89 0.90 0.58 0.63 0.84	SVM 0.91 0.89 0.89 0.91 0.58 0.64 0.78	BAG 0.89 0.85 0.85 0.88 0.63 0.63 0.65	Nnet 0.92 0.88 0.88 0.90 0.59 0.68 0.85	RF 0.90 0.86 0.86 0.90 0.58 0.64 0.84	BST 0.81 0.81 0.80 0.81 0.61 0.60 0.81
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR	GLM 0.92 0.89 0.89 0.91 0.62 0.66 0.84 0.83	LDA 0.90 0.86 0.86 0.91 0.56 0.66 0.85 0.83	KNN 0.88 0.85 0.85 0.91 0.56 0.64 0.81 0.80	DT 0.79 0.75 0.74 0.75 0.60 0.56 0.70 0.70	BY 0.89 0.89 0.90 0.58 0.63 0.84 0.78	SVM 0.91 0.89 0.91 0.58 0.64 0.78 0.81	BAG 0.89 0.85 0.85 0.88 0.63 0.65 0.85 0.85	Nnet 0.92 0.88 0.88 0.90 0.59 0.68 0.85 0.84	RF 0.90 0.86 0.90 0.58 0.64 0.84 0.82	BST 0.81 0.80 0.81 0.61 0.60 0.81 0.79
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE	GLM 0.92 0.89 0.91 0.62 0.66 0.84 0.83 0.87	LDA 0.90 0.86 0.86 0.91 0.56 0.66 0.85 0.83 0.84	KNN 0.88 0.85 0.91 0.56 0.64 0.81 0.80 0.84	DT 0.79 0.75 0.74 0.75 0.60 0.56 0.70 0.70 0.70	BY 0.89 0.89 0.90 0.58 0.63 0.84 0.78 0.88	SVM 0.91 0.89 0.91 0.58 0.64 0.78 0.81 0.87	BAG 0.89 0.85 0.85 0.88 0.63 0.65 0.85 0.85 0.83 0.84	Nnet 0.92 0.88 0.88 0.90 0.59 0.68 0.85 0.84 0.86	RF 0.90 0.86 0.90 0.58 0.64 0.84 0.82 0.87	BST 0.81 0.80 0.81 0.61 0.60 0.81 0.79 0.84
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI	GLM 0.92 0.89 0.89 0.62 0.66 0.84 0.83 0.87 0.85	LDA 0.90 0.86 0.86 0.91 0.56 0.66 0.85 0.83 0.84 0.84	KNN 0.88 0.85 0.85 0.91 0.56 0.64 0.81 0.80 0.84 0.77	DT 0.79 0.75 0.74 0.75 0.60 0.56 0.70 0.70 0.70 0.75 0.68	BY 0.89 0.89 0.90 0.58 0.63 0.84 0.78 0.88 0.72	SVM 0.91 0.89 0.89 0.91 0.58 0.64 0.78 0.81 0.87 0.83	BAG 0.89 0.85 0.85 0.88 0.63 0.65 0.85 0.85 0.83 0.84 0.84	Nnet 0.92 0.88 0.88 0.90 0.59 0.68 0.85 0.84 0.86 0.87	RF 0.90 0.86 0.90 0.58 0.64 0.84 0.82 0.87 0.82	BST 0.81 0.80 0.81 0.61 0.60 0.81 0.79 0.84 0.77
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI CMIM	GLM 0.92 0.89 0.91 0.62 0.66 0.84 0.83 0.87 0.85 0.85	LDA 0.90 0.86 0.86 0.91 0.56 0.66 0.85 0.83 0.84 0.84 0.84	KNN 0.88 0.85 0.91 0.56 0.64 0.81 0.80 0.84 0.77 0.85	DT 0.79 0.75 0.74 0.60 0.56 0.70 0.70 0.75 0.68 0.68	BY 0.89 0.89 0.90 0.58 0.63 0.84 0.78 0.88 0.72 0.82	SVM 0.91 0.89 0.91 0.58 0.64 0.78 0.81 0.87 0.83 0.83	BAG 0.89 0.85 0.85 0.63 0.65 0.85 0.85 0.83 0.84 0.82 0.82	Nnet 0.92 0.88 0.88 0.90 0.59 0.68 0.85 0.84 0.86 0.87 0.84	RF 0.90 0.86 0.90 0.58 0.64 0.84 0.82 0.87 0.82 0.85 0.85	BST 0.81 0.80 0.81 0.61 0.60 0.81 0.79 0.84 0.77 0.78
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI CMIM ICAP	GLM 0.92 0.89 0.91 0.62 0.66 0.84 0.83 0.87 0.85 0.84 0.84	LDA 0.90 0.86 0.91 0.56 0.66 0.85 0.83 0.84 0.84 0.84 0.80 0.80	KNN 0.88 0.85 0.91 0.56 0.64 0.81 0.80 0.84 0.77 0.85 0.85	DT 0.79 0.75 0.74 0.75 0.60 0.56 0.70 0.70 0.75 0.68 0.68 0.68	BY 0.89 0.89 0.90 0.58 0.63 0.84 0.78 0.88 0.72 0.82 0.82	SVM 0.91 0.89 0.91 0.58 0.64 0.78 0.81 0.87 0.83 0.83 0.83 0.83	BAG 0.89 0.85 0.85 0.88 0.63 0.65 0.85 0.83 0.84 0.82 0.82 0.82 0.84	Nnet 0.92 0.88 0.90 0.59 0.68 0.85 0.84 0.86 0.87 0.84 0.84	RF 0.90 0.86 0.90 0.58 0.64 0.84 0.82 0.87 0.82 0.85 0.85 0.85	BST 0.81 0.80 0.81 0.61 0.60 0.81 0.79 0.84 0.77 0.78 0.78 0.78
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI CMIM ICAP DISR	GLM 0.92 0.89 0.91 0.62 0.66 0.84 0.83 0.87 0.85 0.84 0.84 0.70	LDA 0.90 0.86 0.91 0.56 0.66 0.85 0.83 0.84 0.84 0.84 0.80 0.80 0.71	KNN 0.88 0.85 0.91 0.56 0.64 0.81 0.80 0.84 0.77 0.85 0.85 0.64	DT 0.79 0.75 0.74 0.75 0.60 0.56 0.70 0.70 0.75 0.68 0.68 0.68 0.68	BY 0.89 0.89 0.90 0.58 0.63 0.84 0.78 0.88 0.72 0.82 0.82 0.82 0.63	SVM 0.91 0.89 0.91 0.58 0.64 0.78 0.81 0.87 0.83 0.83 0.83 0.83	BAG 0.89 0.85 0.85 0.88 0.63 0.65 0.85 0.83 0.84 0.82 0.82 0.84 0.64	Nnet 0.92 0.88 0.90 0.59 0.68 0.85 0.84 0.86 0.87 0.84 0.84 0.84 0.72	RF 0.90 0.86 0.90 0.58 0.64 0.84 0.82 0.87 0.82 0.85 0.85 0.86 0.65	BST 0.81 0.80 0.81 0.61 0.60 0.81 0.79 0.84 0.77 0.78 0.78 0.78 0.68

	GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST
CHSQ	0.92	0.86	0.90	0.83	0.90	0.92	0.88	0.91	0.90	0.86
ANOVA	0.92	0.88	0.88	0.77	0.90	0.91	0.89	0.91	0.89	0.85
FSCR	0.92	0.88	0.88	0.75	0.90	0.90	0.88	0.91	0.90	0.85
RELF	0.92	0.87	0.89	0.76	0.90	0.92	0.88	0.91	0.90	0.84
WLCX	0.70	0.67	0.59	0.58	0.56	0.62	0.70	0.68	0.68	0.63
MIM	0.85	0.81	0.82	0.72	0.81	0.82	0.84	0.85	0.86	0.77
MIFS	0.88	0.79	0.87	0.72	0.85	0.88	0.86	0.88	0.84	0.84
MRMR	0.87	0.79	0.87	0.71	0.87	0.87	0.85	0.87	0.88	0.84
CIFE	0.87	0.81	0.87	0.75	0.85	0.86	0.86	0.87	0.86	0.83
JMI	0.87	0.81	0.78	0.66	0.72	0.80	0.83	0.87	0.84	0.81
CMIM	0.86	0.83	0.85	0.74	0.84	0.85	0.84	0.87	0.86	0.80
ICAP	0.86	0.83	0.85	0.73	0.84	0.84	0.86	0.87	0.85	0.80
DISR	0.75	0.64	0.64	0.61	0.63	0.67	0.72	0.74	0.70	0.68
В										

	GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST
CHSQ	0.92	0.92	0.90	0.81	0.90	0.91	0.92	0.92	0.90	0.84
ANOVA	0.88	0.88	0.86	0.79	0.88	0.88	0.84	0.88	0.85	0.82
FSCR	0.88	0.88	0.86	0.75	0.88	0.88	0.83	0.88	0.86	0.82
RELF	0.91	0.90	0.89	0.79	0.91	0.90	0.90	0.90	0.89	0.86
WLCX	0.62	0.62	0.56	0.60	0.61	0.60	0.60	0.61	0.61	0.59
MIM	0.67	0.63	0.62	0.58	0.63	0.59	0.63	0.68	0.66	0.66
MIFS	0.62	0.61	0.60	0.54	0.66	0.57	0.58	0.63	0.56	0.59
MRMR	0.64	0.63	0.60	0.52	0.65	0.60	0.58	0.65	0.59	0.61
CIFE	0.80	0.79	0.80	0.68	0.81	0.79	0.82	0.82	0.77	0.78
JMI	0.81	0.82	0.75	0.69	0.72	0.82	0.81	0.81	0.79	0.79
CMIM	0.81	0.78	0.85	0.71	0.80	0.81	0.79	0.81	0.82	0.73
ICAP	0.81	0.78	0.85	0.73	0.80	0.80	0.79	0.81	0.80	0.73
DISR	0.65	0.65	0.67	0.58	0.64	0.64	0.62	0.66	0.65	0.58
D										

**ON-LINE FIG 2.** Heatmap (micro-averaged AUC) of multiclass classification on the training set when 100 (*A*), 50 (*B*), 20 (*C*), and 10 (*D*) features are selected. WLCX, Wilcoxon. See On-line Table 2 for expansion of other acronyms.

	GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST		GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST
CHSQ	0.96	0.83	0.92	0.83	0.91	0.97	0.95	0.96	0.94	0.96	CHSQ	0.96	0.92	0.93	0.84	0.94	0.97	0.94	0.95	0.93	0.94
ANOVA	0.97	0.88	0.92	0.82	0.94	0.97	0.93	0.97	0.94	0.93	ANOVA	0.96	0.94	0.93	0.82	0.94	0.96	0.93	0.96	0.93	0.92
FSCR	0.97	0.88	0.92	0.81	0.94	0.97	0.93	0.97	0.95	0.93	FSCR	0.96	0.94	0.93	0.83	0.94	0.96	0.94	0.96	0.94	0.92
RELF	0.96	0.86	0.92	0.81	0.94	0.96	0.94	0.95	0.95	0.91	RELF	0.96	0.94	0.94	0.86	0.95	0.97	0.94	0.95	0.94	0.92
WLCX	0.91	0.72	0.84	0.72	0.83	0.88	0.86	0.90	0.87	0.86	WLCX	0.87	0.83	0.78	0.69	0.80	0.83	0.80	0.85	0.86	0.85
MIM	0.90	0.73	0.86	0.74	0.88	0.87	0.87	0.91	0.85	0.88	MIM	0.90	0.85	0.87	0.72	0.87	0.88	0.85	0.90	0.87	0.91
MIFS	0.89	0.65	0.84	0.75	0.86	0.89	0.88	0.89	0.86	0.78	MIFS	0.90	0.79	0.88	0.65	0.89	0.90	0.86	0.89	0.88	0.81
MRMR	0.89	0.64	0.86	0.73	0.85	0.90	0.88	0.88	0.87	0.81	MRMR	0.89	0.79	0.87	0.69	0.90	0.90	0.86	0.87	0.85	0.84
CIFE	0.89	0.68	0.84	0.79	0.87	0.89	0.87	0.89	0.90	0.85	CIFE	0.90	0.79	0.88	0.70	0.90	0.91	0.86	0.90	0.85	0.81
JMI	0.91	0.75	0.77	0.70	0.77	0.89	0.84	0.89	0.82	0.87	JMI	0.90	0.85	0.83	0.80	0.78	0.90	0.86	0.90	0.85	0.86
CMIM	0.90	0.74	0.86	0.72	0.87	0.88	0.88	0.90	0.88	0.91	CMIM	0.90	0.86	0.88	0.73	0.89	0.89	0.84	0.92	0.83	0.89
ICAP	0.90	0.74	0.86	0.74	0.87	0.88	0.85	0.90	0.89	0.91	ICAP	0.90	0.86	0.88	0.73	0.89	0.89	0.85	0.92	0.87	0.89
DISR	0.67	0.56	0.61	0.58	0.57	0.66	0.59	0.69	0.62	0.64	DISR	0.67	0.63	0.56	0.54	0.55	0.69	0.62	0.69	0.58	0.64
А											В										
	GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST		GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST
CHSQ	GLM 0.96	LDA 0.95	KNN 0.95	DT 0.82	BY 0.95	SVM 0.97	BAG 0.92	Nnet 0.96	RF 0.93	BST 0.93	CHSQ	GLM 0.96	LDA 0.96	KNN 0.91	DT 0.87	BY 0.96	SVM 0.96	BAG 0.93	Nnet 0.96	RF 0.92	BST 0.94
CHSQ ANOVA	GLM 0.96 0.96	LDA 0.95 0.96	KNN 0.95 0.90	DT 0.82 0.81	BY 0.95 0.95	SVM 0.97 0.96	BAG 0.92 0.89	Nnet 0.96 0.96	RF 0.93 0.90	BST 0.93 0.93	CHSQ ANOVA	GLM 0.96 0.96	LDA 0.96 0.96	KNN 0.91 0.92	DT 0.87 0.79	BY 0.96 0.96	SVM 0.96 0.96	BAG 0.93 0.91	Nnet 0.96 0.96	RF 0.92 0.92	BST 0.94 0.92
CHSQ ANOVA FSCR	GLM 0.96 0.96 0.96	LDA 0.95 0.96 0.96	KNN 0.95 0.90 0.90	DT 0.82 0.81 0.81	BY 0.95 0.95 0.95	SVM 0.97 0.96 0.96	BAG 0.92 0.89 0.90	Nnet 0.96 0.96 0.96	RF 0.93 0.90 0.91	BST 0.93 0.93 0.93	CHSQ ANOVA FSCR	GLM 0.96 0.96 0.96	LDA 0.96 0.96 0.96	KNN 0.91 0.92 0.92	DT 0.87 0.79 0.80	BY 0.96 0.96 0.96	SVM 0.96 0.96 0.96	BAG 0.93 0.91 0.92	Nnet 0.96 0.96 0.96	RF 0.92 0.92 0.91	BST 0.94 0.92 0.92
CHSQ ANOVA FSCR RELF	GLM 0.96 0.96 0.96 0.97	LDA 0.95 0.96 0.96 0.95	KNN 0.95 0.90 0.90 0.91	DT 0.82 0.81 0.81 0.83	BY 0.95 0.95 0.95 0.96	SVM 0.97 0.96 0.96 0.97	BAG 0.92 0.89 0.90 0.92	Nnet 0.96 0.96 0.96 0.97	RF 0.93 0.90 0.91 0.91	BST 0.93 0.93 0.93 0.92	CHSQ ANOVA FSCR RELF	GLM 0.96 0.96 0.96 0.96	LDA 0.96 0.96 0.96 0.96	KNN 0.91 0.92 0.92 0.91	DT 0.87 0.79 0.80 0.84	BY 0.96 0.96 0.96 0.96	SVM 0.96 0.96 0.96 0.96	BAG 0.93 0.91 0.92 0.89	Nnet 0.96 0.96 0.96 0.96	RF 0.92 0.92 0.91 0.92	BST 0.94 0.92 0.92 0.94
CHSQ ANOVA FSCR RELF WLCX	GLM 0.96 0.96 0.96 0.97 0.73	LDA 0.95 0.96 0.96 0.95 0.77	KNN 0.95 0.90 0.90 0.91 0.67	DT 0.82 0.81 0.81 0.83 0.64	BY 0.95 0.95 0.95 0.96 0.73	SVM 0.97 0.96 0.96 0.97 0.69	BAG 0.92 0.89 0.90 0.92 0.78	Nnet 0.96 0.96 0.96 0.97 0.70	RF 0.93 0.90 0.91 0.91 0.79	BST 0.93 0.93 0.93 0.92 0.74	CHSQ ANOVA FSCR RELF WLCX	GLM 0.96 0.96 0.96 0.96 0.59	LDA 0.96 0.96 0.96 0.96 0.59	KNN 0.91 0.92 0.92 0.91 0.54	DT 0.87 0.79 0.80 0.84 0.55	BY 0.96 0.96 0.96 0.96 0.61	SVM 0.96 0.96 0.96 0.96 0.59	BAG 0.93 0.91 0.92 0.89 0.63	Nnet 0.96 0.96 0.96 0.96 0.57	RF 0.92 0.92 0.91 0.92 0.62	BST 0.94 0.92 0.92 0.94 0.61
CHSQ ANOVA FSCR RELF WLCX MIM	GLM 0.96 0.96 0.97 0.73 0.67	LDA 0.95 0.96 0.96 0.95 0.77 0.71	KNN 0.95 0.90 0.90 0.91 0.67 0.64	DT 0.82 0.81 0.81 0.83 0.64 0.55	BY 0.95 0.95 0.95 0.96 0.73 0.67	SVM 0.97 0.96 0.96 0.97 0.69 0.66	BAG 0.92 0.89 0.90 0.92 0.78 0.65	Nnet 0.96 0.96 0.96 0.97 0.70 0.68	RF 0.93 0.90 0.91 0.91 0.79 0.61	BST 0.93 0.93 0.93 0.92 0.74 0.56	CHSQ ANOVA FSCR RELF WLCX MIM	GLM 0.96 0.96 0.96 0.96 0.59 0.67	LDA 0.96 0.96 0.96 0.96 0.59 0.64	KNN 0.91 0.92 0.92 0.91 0.54 0.63	DT 0.87 0.79 0.80 0.84 0.55 0.59	BY 0.96 0.96 0.96 0.96 0.61 0.64	SVM 0.96 0.96 0.96 0.96 0.59 0.64	BAG 0.93 0.91 0.92 0.89 0.63 0.63	Nnet 0.96 0.96 0.96 0.96 0.57 0.66	RF 0.92 0.92 0.91 0.92 0.62 0.61	BST 0.94 0.92 0.92 0.94 0.61 0.62
CHSQ ANOVA FSCR RELF WLCX MIM MIFS	GLM 0.96 0.96 0.97 0.73 0.67 0.88	LDA 0.95 0.96 0.96 0.95 0.77 0.71 0.87	KNN 0.95 0.90 0.90 0.91 0.67 0.64 0.84	DT 0.82 0.81 0.83 0.64 0.55 0.68	BY 0.95 0.95 0.96 0.73 0.67 0.84	SVM 0.97 0.96 0.96 0.97 0.69 0.66 0.88	BAG 0.92 0.89 0.90 0.92 0.78 0.65 0.84	Nnet 0.96 0.96 0.97 0.70 0.68 0.88	RF 0.93 0.90 0.91 0.91 0.79 0.61 0.88	BST 0.93 0.93 0.92 0.74 0.56 0.75	CHSQ ANOVA FSCR RELF WLCX MIM MIFS	GLM 0.96 0.96 0.96 0.96 0.59 0.67 0.59	LDA 0.96 0.96 0.96 0.59 0.64 0.59	KNN 0.91 0.92 0.92 0.91 0.54 0.63 0.57	DT 0.87 0.79 0.80 0.84 0.55 0.59 0.52	BY 0.96 0.96 0.96 0.61 0.64 0.60	SVM 0.96 0.96 0.96 0.59 0.64 0.45	BAG 0.93 0.91 0.92 0.89 0.63 0.63 0.53	Nnet 0.96 0.96 0.96 0.96 0.57 0.66 0.59	RF 0.92 0.92 0.91 0.92 0.62 0.61 0.54	BST 0.94 0.92 0.92 0.94 0.61 0.62 0.53
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR	GLM 0.96 0.96 0.97 0.73 0.67 0.88 0.88	LDA 0.95 0.96 0.95 0.75 0.77 0.71 0.87 0.88	KNN 0.95 0.90 0.91 0.67 0.64 0.84 0.89	DT 0.82 0.81 0.83 0.64 0.55 0.68 0.75	BY 0.95 0.95 0.96 0.73 0.67 0.84 0.87	SVM 0.97 0.96 0.97 0.69 0.66 0.88 0.88	BAG 0.92 0.89 0.90 0.92 0.78 0.65 0.84 0.86	Nnet 0.96 0.96 0.97 0.70 0.68 0.88 0.89	RF 0.93 0.90 0.91 0.91 0.79 0.61 0.88 0.91	BST 0.93 0.93 0.93 0.92 0.74 0.56 0.75 0.86	CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR	GLM 0.96 0.96 0.96 0.59 0.67 0.59 0.54	LDA 0.96 0.96 0.96 0.59 0.64 0.59 0.55	KNN 0.91 0.92 0.92 0.91 0.54 0.63 0.57 0.41	DT 0.87 0.79 0.80 0.84 0.55 0.59 0.52 0.51	BY 0.96 0.96 0.96 0.96 0.61 0.64 0.60 0.56	SVM 0.96 0.96 0.96 0.59 0.64 0.45 0.53	BAG 0.93 0.91 0.92 0.89 0.63 0.63 0.53 0.54	Nnet 0.96 0.96 0.96 0.57 0.66 0.59 0.53	RF 0.92 0.92 0.91 0.92 0.62 0.61 0.54 0.49	BST 0.94 0.92 0.92 0.94 0.61 0.62 0.53 0.59
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE	GLM 0.96 0.96 0.97 0.73 0.67 0.88 0.88 0.90	LDA 0.95 0.96 0.95 0.77 0.71 0.87 0.88 0.87	KNN 0.95 0.90 0.91 0.67 0.64 0.84 0.89 0.88	DT 0.82 0.81 0.81 0.63 0.64 0.55 0.68 0.75 0.72	BY 0.95 0.95 0.96 0.73 0.67 0.84 0.87 0.87	SVM 0.97 0.96 0.96 0.97 0.69 0.66 0.88 0.88 0.90	BAG 0.92 0.89 0.90 0.92 0.78 0.65 0.84 0.86 0.89	Nnet 0.96 0.96 0.97 0.70 0.68 0.88 0.89 0.90	RF 0.93 0.90 0.91 0.91 0.79 0.61 0.88 0.91 0.90	BST 0.93 0.93 0.92 0.74 0.56 0.75 0.86 0.86	CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE	GLM 0.96 0.96 0.96 0.59 0.67 0.59 0.54 0.54	LDA 0.96 0.96 0.96 0.59 0.64 0.59 0.55 0.84	KNN 0.91 0.92 0.92 0.91 0.54 0.63 0.57 0.41 0.82	DT 0.87 0.79 0.80 0.84 0.55 0.59 0.52 0.51 0.67	BY 0.96 0.96 0.96 0.61 0.64 0.60 0.56 0.79	SVM 0.96 0.96 0.96 0.59 0.64 0.45 0.53 0.85	BAG 0.93 0.91 0.92 0.89 0.63 0.63 0.53 0.54 0.79	Nnet 0.96 0.96 0.96 0.57 0.66 0.59 0.53 0.85	RF 0.92 0.91 0.92 0.62 0.61 0.54 0.49 0.79	BST 0.94 0.92 0.94 0.61 0.62 0.53 0.59 0.79
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE IMI	GLM 0.96 0.96 0.97 0.73 0.67 0.88 0.88 0.90 0.89	LDA 0.95 0.96 0.95 0.77 0.71 0.87 0.88 0.87 0.90	KNN 0.95 0.90 0.91 0.67 0.64 0.84 0.89 0.88 0.85	DT 0.82 0.81 0.83 0.64 0.55 0.68 0.75 0.72 0.75	BY 0.95 0.95 0.96 0.73 0.67 0.84 0.87 0.87 0.82	SVM 0.97 0.96 0.97 0.69 0.66 0.88 0.88 0.90 0.90	BAG 0.92 0.89 0.90 0.92 0.78 0.65 0.84 0.86 0.89 0.84	Nnet 0.96 0.96 0.97 0.70 0.68 0.88 0.89 0.90 0.88	RF 0.93 0.90 0.91 0.91 0.79 0.61 0.88 0.91 0.90 0.88	BST 0.93 0.93 0.92 0.74 0.56 0.75 0.86 0.86 0.86	CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI	GLM 0.96 0.96 0.96 0.59 0.67 0.59 0.54 0.84 0.83	LDA 0.96 0.96 0.96 0.59 0.64 0.59 0.55 0.84 0.84	KNN 0.91 0.92 0.91 0.54 0.63 0.57 0.41 0.82 0.78	DT 0.87 0.79 0.80 0.84 0.55 0.59 0.52 0.51 0.67 0.70	BY 0.96 0.96 0.96 0.61 0.64 0.60 0.56 0.79 0.76	SVM 0.96 0.96 0.96 0.59 0.64 0.45 0.53 0.85 0.85	BAG 0.93 0.91 0.92 0.89 0.63 0.63 0.53 0.54 0.79 0.76	Nnet 0.96 0.96 0.96 0.57 0.66 0.59 0.53 0.85 0.84	RF 0.92 0.91 0.92 0.62 0.61 0.54 0.49 0.79 0.77	BST 0.94 0.92 0.94 0.61 0.62 0.53 0.59 0.79 0.68
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE IMI CMIM	GLM 0.96 0.96 0.97 0.73 0.67 0.88 0.88 0.90 0.89 0.77	LDA 0.95 0.96 0.95 0.77 0.71 0.87 0.88 0.87 0.90 0.79	KNN 0.95 0.90 0.91 0.67 0.64 0.84 0.89 0.88 0.85 0.74	DT 0.82 0.81 0.83 0.64 0.55 0.68 0.75 0.72 0.75 0.70	BY 0.95 0.95 0.96 0.73 0.67 0.84 0.87 0.87 0.82 0.70	SVM 0.97 0.96 0.97 0.69 0.66 0.88 0.88 0.90 0.90 0.77	BAG 0.92 0.89 0.90 0.92 0.78 0.65 0.84 0.86 0.89 0.84 0.79	Nnet 0.96 0.96 0.97 0.70 0.68 0.88 0.89 0.90 0.88 0.90	RF 0.93 0.90 0.91 0.91 0.91 0.91 0.88 0.91 0.90 0.88 0.74	BST 0.93 0.93 0.92 0.74 0.56 0.75 0.86 0.86 0.86 0.86 0.86	CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI CMIM	GLM 0.96 0.96 0.96 0.59 0.59 0.59 0.54 0.84 0.83 0.77	LDA 0.96 0.96 0.96 0.59 0.64 0.59 0.55 0.84 0.84 0.84	KNN 0.91 0.92 0.92 0.91 0.54 0.63 0.57 0.41 0.82 0.78 0.80	DT 0.87 0.79 0.80 0.84 0.55 0.59 0.52 0.51 0.67 0.70 0.67	BY 0.96 0.96 0.96 0.61 0.64 0.60 0.56 0.79 0.76 0.72	SVM 0.96 0.96 0.96 0.59 0.64 0.45 0.53 0.85 0.85 0.78	BAG 0.93 0.91 0.92 0.89 0.63 0.53 0.54 0.79 0.76 0.80	Nnet 0.96 0.96 0.96 0.57 0.66 0.59 0.53 0.85 0.84 0.78	RF 0.92 0.92 0.91 0.92 0.62 0.61 0.54 0.49 0.79 0.77 0.75	BST 0.94 0.92 0.94 0.61 0.62 0.53 0.59 0.79 0.68 0.63
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE IMI CMIM ICAP	GLM 0.96 0.96 0.97 0.73 0.67 0.88 0.88 0.90 0.89 0.77 0.77	LDA 0.95 0.96 0.95 0.77 0.71 0.87 0.88 0.87 0.90 0.79 0.79	KNN 0.95 0.90 0.91 0.67 0.64 0.84 0.89 0.88 0.85 0.74 0.74	DT 0.82 0.81 0.83 0.64 0.55 0.68 0.75 0.72 0.75 0.70 0.71	BY 0.95 0.95 0.96 0.73 0.67 0.84 0.87 0.87 0.82 0.70 0.70	SVM 0.97 0.96 0.97 0.69 0.66 0.88 0.88 0.90 0.90 0.77 0.77	BAG 0.92 0.89 0.90 0.92 0.78 0.65 0.84 0.86 0.89 0.84 0.79 0.82	Nnet 0.96 0.96 0.97 0.70 0.68 0.88 0.89 0.90 0.88 0.77 0.76	RF 0.93 0.90 0.91 0.91 0.79 0.61 0.88 0.91 0.90 0.88 0.74 0.73	BST 0.93 0.93 0.93 0.92 0.74 0.56 0.75 0.86 0.86 0.86 0.86 0.86 0.66	CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI CMIM ICAP	GLM 0.96 0.96 0.96 0.59 0.59 0.54 0.84 0.83 0.77 0.77	LDA 0.96 0.96 0.96 0.59 0.64 0.55 0.84 0.84 0.84 0.79 0.79	KNN 0.91 0.92 0.92 0.91 0.54 0.63 0.57 0.41 0.82 0.78 0.80 0.80	DT 0.87 0.79 0.80 0.84 0.55 0.59 0.52 0.51 0.67 0.70 0.67 0.70	BY 0.96 0.96 0.96 0.96 0.61 0.64 0.60 0.56 0.79 0.76 0.72 0.72	SVM 0.96 0.96 0.96 0.59 0.64 0.45 0.53 0.85 0.85 0.78 0.78	BAG 0.93 0.91 0.92 0.89 0.63 0.63 0.53 0.54 0.79 0.76 0.80 0.77	Nnet 0.96 0.96 0.96 0.57 0.66 0.59 0.53 0.85 0.84 0.78 0.77	RF 0.92 0.92 0.91 0.92 0.62 0.61 0.54 0.49 0.79 0.77 0.75 0.80	BST 0.94 0.92 0.92 0.94 0.61 0.62 0.53 0.59 0.79 0.68 0.63 0.63
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE IMI CMIM ICAP DISR	GLM 0.96 0.96 0.97 0.73 0.67 0.88 0.90 0.89 0.77 0.77 0.56	LDA 0.95 0.96 0.95 0.77 0.71 0.87 0.88 0.87 0.90 0.79 0.79 0.63	KNN 0.95 0.90 0.91 0.67 0.64 0.84 0.89 0.88 0.85 0.74 0.74 0.74 0.51	DT 0.82 0.81 0.83 0.64 0.55 0.68 0.75 0.72 0.75 0.70 0.71 0.50	BY 0.95 0.95 0.95 0.96 0.73 0.67 0.84 0.87 0.87 0.82 0.70 0.70 0.70 0.52	SVM 0.97 0.96 0.97 0.69 0.66 0.88 0.88 0.90 0.90 0.77 0.77 0.60	BAG 0.92 0.89 0.90 0.92 0.78 0.65 0.84 0.89 0.84 0.79 0.82 0.57	Nnet 0.96 0.96 0.97 0.70 0.68 0.88 0.89 0.90 0.88 0.77 0.76 0.62	RF 0.93 0.90 0.91 0.91 0.79 0.61 0.88 0.91 0.90 0.88 0.74 0.73 0.61	BST 0.93 0.93 0.93 0.92 0.74 0.56 0.75 0.86 0.86 0.86 0.86 0.66 0.66 0.63	CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI CMIM ICAP DISR	GLM 0.96 0.96 0.96 0.59 0.59 0.54 0.84 0.83 0.77 0.77 0.51	LDA 0.96 0.96 0.96 0.59 0.64 0.55 0.84 0.84 0.79 0.79 0.79	KNN 0.91 0.92 0.92 0.91 0.54 0.63 0.57 0.41 0.82 0.78 0.80 0.80 0.80 0.43	DT 0.87 0.79 0.80 0.84 0.55 0.59 0.52 0.51 0.67 0.70 0.67 0.70 0.50	BY 0.96 0.96 0.96 0.96 0.61 0.64 0.60 0.56 0.79 0.76 0.72 0.72 0.72	SVM 0.96 0.96 0.96 0.59 0.64 0.45 0.53 0.85 0.85 0.78 0.78 0.50	BAG 0.93 0.91 0.92 0.89 0.63 0.53 0.54 0.79 0.76 0.80 0.77 0.58	Nnet 0.96 0.96 0.96 0.57 0.66 0.59 0.53 0.85 0.84 0.78 0.77 0.51	RF 0.92 0.92 0.91 0.92 0.62 0.61 0.54 0.49 0.79 0.75 0.80 0.51	BST 0.94 0.92 0.92 0.94 0.61 0.62 0.53 0.59 0.79 0.68 0.63 0.63 0.63 0.64

**ON-LINE FIG 3.** Heatmap (AUC) of binary classification of MB versus non-MB on the training set when 100 (A), 50 (B), 20 (C), and 10 (D) features are selected. WLCX, Wilcoxon. See On-line Table 22 for expansion of other acronyms.

	GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST
CHSQ	0.71	0.56	0.68	0.58	0.60	0.63	0.72	0.70	0.62	0.71
ANOVA	0.71	0.62	0.61	0.64	0.60	0.64	0.67	0.72	0.66	0.71
FSCR	0.71	0.62	0.61	0.63	0.60	0.64	0.72	0.73	0.68	0.71
RELF	0.78	0.65	0.76	0.64	0.74	0.76	0.68	0.78	0.73	0.70
WLCX	0.691	0.523	0.699	0.502	0.58	0.706	0.594	0.635	0.675	0.614
MIM	0.659	0.55	0.629	0.533	0.581	0.61	0.575	0.617	0.681	0.557
MIFS	0.646	0.458	0.641	0.536	0.621	0.572	0.609	0.657	0.659	0.606
MRMR	0.647	0.499	0.655	0.558	0.616	0.57	0.65	0.641	0.595	0.622
CIFE	0.635	0.511	0.652	0.555	0.583	0.596	0.61	0.645	0.677	0.588
JMI	0.726	0.567	0.704	0.498	0.6	0.731	0.668	0.723	0.755	0.643
CMIM	0.658	0.571	0.631	0.533	0.58	0.575	0.58	0.626	0.648	0.63
ICAP	0.658	0.571	0.631	0.533	0.58	0.575	0.625	0.582	0.633	0.664
DISR	0.656	0.494	0.474	0.556	0.606	0.594	0.619	0.612	0.653	0.578

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	GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST
CHSQ	0.532	0.524	0.569	0.481	0.51	0.492	0.607	0.55	0.623	0.622
ANOVA	0.624	0.621	0.65	0.68	0.584	0.594	0.674	0.628	0.654	0.697
FSCR	0.624	0.621	0.65	0.587	0.584	0.594	0.692	0.621	0.678	0.697
RELF	0.704	0.665	0.699	0.61	0.744	0.711	0.658	0.715	0.686	0.633
WLCX	0.673	0.607	0.568	0.533	0.532	0.69	0.655	0.49	0.631	0.578
MIM	0.71	0.628	0.587	0.543	0.636	0.592	0.583	0.704	0.7	0.581
MIFS	0.628	0.62	0.621	0.626	0.646	0.57	0.716	0.632	0.637	0.715
MRMR	0.588	0.529	0.491	0.559	0.611	0.49	0.625	0.578	0.612	0.631
CIFE	0.63	0.532	0.715	0.519	0.728	0.54	0.718	0.669	0.644	0.648
JMI	0.696	0.635	0.626	0.586	0.589	0.668	0.683	0.711	0.653	0.584
CMIM	0.651	0.63	0.666	0.577	0.571	0.602	0.673	0.659	0.705	0.685
ICAP	0.651	0.63	0.666	0.567	0.571	0.602	0.717	0.645	0.731	0.685
DISR	0.568	0.577	0.523	0.476	0.575	0.67	0.562	0.614	0.562	0.613
С										

	GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST
CHSQ	0.633	0.55	0.609	0.562	0.528	0.562	0.588	0.666	0.58	0.689
ANOVA	0.621	0.638	0.554	0.593	0.573	0.588	0.659	0.646	0.618	0.671
FSCR	0.621	0.638	0.554	0.596	0.573	0.588	0.639	0.671	0.583	0.671
RELF	0.72	0.654	0.729	0.569	0.742	0.716	0.62	0.747	0.724	0.664
WLCX	0.66	0.662	0.59	0.512	0.568	0.728	0.604	0.598	0.574	0.583
MIM	0.667	0.619	0.675	0.568	0.599	0.634	0.677	0.603	0.74	0.577
MIFS	0.609	0.568	0.686	0.539	0.654	0.572	0.726	0.607	0.65	0.635
MRMR	0.617	0.556	0.712	0.614	0.678	0.576	0.57	0.578	0.663	0.671
CIFE	0.606	0.547	0.652	0.593	0.632	0.563	0.702	0.596	0.722	0.621
JMI	0.776	0.605	0.756	0.635	0.642	0.741	0.638	0.793	0.683	0.672
CMIM	0.678	0.573	0.692	0.533	0.609	0.661	0.594	0.709	0.705	0.643
ICAP	0.678	0.573	0.692	0.54	0.609	0.661	0.615	0.648	0.699	0.617
DISR	0.644	0.582	0.515	0.537	0.609	0.592	0.503	0.62	0.563	0.566



	GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST
CHSQ	0.49	0.52	0.59	0.47	0.49	0.49	0.63	0.55	0.64	0.62
ANOVA	0.63	0.63	0.66	0.64	0.59	0.61	0.69	0.65	0.73	0.71
FSCR	0.63	0.63	0.66	0.66	0.59	0.61	0.68	0.64	0.69	0.68
RELF	0.68	0.68	0.68	0.61	0.70	0.68	0.66	0.68	0.67	0.62
WLCX	0.63	0.623	0.621	0.576	0.529	0.586	0.639	0.378	0.606	0.545
MIM	0.666	0.592	0.652	0.642	0.636	0.528	0.69	0.674	0.689	0.632
MIFS	0.407	0.407	0.488	0.496	0.538	0.427	0.528	0.445	0.526	0.502
MRMR	0.407	0.407	0.488	0.496	0.538	0.427	0.527	0.415	0.481	0.502
CIFE	0.611	0.621	0.683	0.597	0.696	0.67	0.659	0.635	0.677	0.627
JMI	0.612	0.679	0.573	0.557	0.604	0.664	0.573	0.629	0.661	0.558
CMIM	0.475	0.561	0.592	0.592	0.462	0.599	0.721	0.52	0.64	0.463
ICAP	0.475	0.561	0.592	0.585	0.462	0.599	0.647	0.541	0.638	0.542
DISR	0.512	0.561	0.653	0.53	0.548	0.672	0.575	0.653	0.609	0.635
D										

**ON-LINE FIG 4.** Heatmap (AUC) of binary classification of EP versus non-EP on the training set when 100 (A), 50 (B), 20 (C), and 10 (D) features are selected. WLCX, Wilcoxon. See On-line Table 2 for expansion of other acronyms.

	GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST		GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST
CHSQ	0.95	0.87	0.93	0.83	0.94	0.95	0.94	0.94	0.94	0.95	CHSQ	0.96	0.86	0.93	0.82	0.94	0.95	0.93	0.96	0.93	0.92
ANOVA	0.93	0.91	0.90	0.86	0.91	0.92	0.93	0.92	0.93	0.92	ANOVA	0.93	0.91	0.90	0.86	0.89	0.92	0.92	0.94	0.92	0.91
FSCR	0.93	0.91	0.90	0.83	0.91	0.92	0.91	0.93	0.93	0.91	FSCR	0.93	0.91	0.90	0.87	0.89	0.92	0.94	0.94	0.93	0.91
RELF	0.94	0.84	0.90	0.88	0.92	0.94	0.95	0.94	0.93	0.90	RELF	0.93	0.89	0.91	0.83	0.92	0.94	0.93	0.92	0.92	0.90
WLCX	0.90	0.79	0.82	0.74	0.72	0.86	0.89	0.90	0.87	0.88	WLCX	0.67	0.69	0.64	0.66	0.63	0.74	0.74	0.68	0.70	0.77
MIM	0.87	0.74	0.84	0.75	0.81	0.83	0.85	0.88	0.88	0.87	MIM	0.87	0.85	0.85	0.78	0.86	0.85	0.87	0.88	0.87	0.90
MIFS	0.91	0.75	0.90	0.77	0.89	0.92	0.90	0.91	0.91	0.90	MIFS	0.91	0.88	0.93	0.78	0.90	0.92	0.90	0.90	0.93	0.90
MRMR	0.91	0.78	0.89	0.77	0.90	0.92	0.92	0.92	0.90	0.92	MRMR	0.90	0.85	0.95	0.78	0.90	0.92	0.90	0.91	0.92	0.93
CIFE	0.91	0.76	0.89	0.77	0.90	0.92	0.91	0.91	0.91	0.91	CIFE	0.91	0.87	0.92	0.78	0.91	0.92	0.91	0.91	0.92	0.89
JMI	0.93	0.77	0.85	0.68	0.84	0.87	0.85	0.92	0.91	0.89	JMI	0.87	0.83	0.78	0.69	0.80	0.81	0.79	0.89	0.78	0.77
CMIM	0.86	0.78	0.84	0.76	0.82	0.84	0.88	0.87	0.88	0.88	CMIM	0.87	0.83	0.87	0.75	0.84	0.87	0.88	0.89	0.88	0.88
ICAP	0.86	0.78	0.84	0.75	0.82	0.84	0.87	0.88	0.85	0.88	ICAP	0.87	0.83	0.87	0.77	0.84	0.87	0.88	0.89	0.88	0.88
DISR	0.79	0.67	0.72	0.70	0.70	0.70	0.74	0.80	0.75	0.74	DISR	0.73	0.72	0.68	0.61	0.69	0.69	0.72	0.74	0.70	0.72
А											В										
	GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST		GLM	LDA	KNN	DT	BY	SVM	BAG	Nnet	RF	BST
CHSQ	GLM 0.96	LDA 0.94	KNN 0.92	DT 0.86	BY 0.94	SVM 0.95	BAG 0.93	Nnet 0.96	RF 0.94	BST 0.93	CHSQ	GLM 0.96	LDA 0.95	KNN 0.92	DT 0.88	BY 0.95	SVM 0.95	BAG 0.92	Nnet 0.96	RF 0.93	BST 0.94
CHSQ ANOVA	GLM 0.96 0.93	LDA 0.94 0.91	KNN 0.92 0.91	DT 0.86 0.81	BY 0.94 0.91	SVM 0.95 0.92	BAG 0.93 0.93	Nnet 0.96 0.94	RF 0.94 0.92	BST 0.93 0.92	CHSQ ANOVA	GLM 0.96 0.94	LDA 0.95 0.92	KNN 0.92 0.92	DT 0.88 0.80	BY 0.95 0.93	SVM 0.95 0.94	BAG 0.92 0.92	Nnet 0.96 0.94	RF 0.93 0.92	BST 0.94 0.93
CHSQ ANOVA FSCR	GLM 0.96 0.93 0.93	LDA 0.94 0.91 0.91	KNN 0.92 0.91 0.91	DT 0.86 0.81 0.82	BY 0.94 0.91 0.91	SVM 0.95 0.92 0.92	BAG 0.93 0.93 0.93	Nnet 0.96 0.94 0.94	RF 0.94 0.92 0.92	BST 0.93 0.92 0.92	CHSQ ANOVA FSCR	GLM 0.96 0.94 0.94	LDA 0.95 0.92 0.92	KNN 0.92 0.92 0.92	DT 0.88 0.80 0.82	BY 0.95 0.93 0.93	SVM 0.95 0.94 0.94	BAG 0.92 0.92 0.93	Nnet 0.96 0.94 0.94	RF 0.93 0.92 0.94	BST 0.94 0.93 0.93
CHSQ ANOVA FSCR RELF	GLM 0.96 0.93 0.93 0.93	LDA 0.94 0.91 0.91 0.91	KNN 0.92 0.91 0.91 0.92	DT 0.86 0.81 0.82 0.88	BY 0.94 0.91 0.91 0.92	SVM 0.95 0.92 0.92 0.94	BAG 0.93 0.93 0.93 0.94	Nnet 0.96 0.94 0.94 0.92	RF 0.94 0.92 0.92 0.92	BST 0.93 0.92 0.92 0.92	CHSQ ANOVA FSCR RELF	GLM 0.96 0.94 0.94 0.94	LDA 0.95 0.92 0.92 0.93	KNN 0.92 0.92 0.92 0.89	DT 0.88 0.80 0.82 0.83	BY 0.95 0.93 0.93 0.93	SVM 0.95 0.94 0.94 0.94	BAG 0.92 0.93 0.93	Nnet 0.96 0.94 0.94 0.93	RF 0.93 0.92 0.94 0.91	BST 0.94 0.93 0.93 0.91
CHSQ ANOVA FSCR RELF WLCX	GLM 0.96 0.93 0.93 0.93 0.52	LDA 0.94 0.91 0.91 0.91 0.54	KNN 0.92 0.91 0.91 0.92 0.50	DT 0.86 0.81 0.82 0.88 0.58	BY 0.94 0.91 0.91 0.92 0.55	SVM 0.95 0.92 0.92 0.94 0.58	BAG 0.93 0.93 0.93 0.94 0.53	Nnet 0.96 0.94 0.94 0.92 0.53	RF 0.94 0.92 0.92 0.92 0.59	BST 0.93 0.92 0.92 0.92 0.61	CHSQ ANOVA FSCR RELF WLCX	GLM 0.96 0.94 0.94 0.94 0.42	LDA 0.95 0.92 0.92 0.93 0.44	KNN 0.92 0.92 0.92 0.89 0.43	DT 0.88 0.80 0.82 0.83 0.49	BY 0.95 0.93 0.93 0.93 0.52	SVM 0.95 0.94 0.94 0.94 0.51	BAG 0.92 0.92 0.93 0.93 0.45	Nnet 0.96 0.94 0.94 0.93 0.48	RF 0.93 0.92 0.94 0.91 0.47	BST 0.94 0.93 0.93 0.91 0.43
CHSQ ANOVA FSCR RELF WLCX MIM	GLM 0.96 0.93 0.93 0.93 0.52 0.48	LDA 0.94 0.91 0.91 0.91 0.54 0.60	KNN 0.92 0.91 0.91 0.92 0.50 0.58	DT 0.86 0.81 0.82 0.88 0.58 0.53	BY 0.94 0.91 0.92 0.55 0.50	SVM 0.95 0.92 0.92 0.94 0.58 0.54	BAG 0.93 0.93 0.94 0.53 0.58	Nnet 0.96 0.94 0.94 0.92 0.53 0.61	RF 0.94 0.92 0.92 0.92 0.59 0.57	BST 0.93 0.92 0.92 0.92 0.61 0.52	CHSQ ANOVA FSCR RELF WLCX MIM	GLM 0.96 0.94 0.94 0.94 0.42 0.49	LDA 0.95 0.92 0.92 0.93 0.44 0.52	KNN 0.92 0.92 0.92 0.89 0.43 0.50	DT 0.88 0.80 0.82 0.83 0.49 0.53	BY 0.95 0.93 0.93 0.93 0.52 0.52	SVM 0.95 0.94 0.94 0.94 0.51 0.59	BAG 0.92 0.93 0.93 0.93 0.45 0.58	Nnet 0.96 0.94 0.93 0.48 0.62	RF 0.93 0.92 0.94 0.91 0.47 0.56	BST 0.94 0.93 0.93 0.91 0.43 0.55
CHSQ ANOVA FSCR RELF WLCX MIM MIFS	GLM 0.96 0.93 0.93 0.52 0.48 0.87	LDA 0.94 0.91 0.91 0.54 0.60 0.88	KNN 0.92 0.91 0.92 0.50 0.58 0.87	DT 0.86 0.81 0.82 0.88 0.58 0.53 0.81	BY 0.94 0.91 0.92 0.55 0.50 0.88	SVM 0.95 0.92 0.92 0.94 0.58 0.54 0.88	BAG 0.93 0.93 0.93 0.94 0.53 0.58 0.90	Nnet 0.96 0.94 0.92 0.53 0.61 0.88	RF 0.94 0.92 0.92 0.59 0.59 0.57 0.86	BST 0.93 0.92 0.92 0.92 0.61 0.52 0.89	CHSQ ANOVA FSCR RELF WLCX MIM MIFS	GLM 0.96 0.94 0.94 0.94 0.42 0.49 0.41	LDA 0.95 0.92 0.92 0.93 0.44 0.52 0.50	KNN 0.92 0.92 0.92 0.89 0.43 0.50 0.52	DT 0.88 0.80 0.82 0.83 0.49 0.53 0.52	BY 0.95 0.93 0.93 0.52 0.52 0.52	SVM 0.95 0.94 0.94 0.51 0.59 0.59	BAG 0.92 0.93 0.93 0.45 0.58 0.54	Nnet 0.96 0.94 0.93 0.48 0.62 0.48	RF 0.93 0.92 0.94 0.91 0.47 0.56 0.55	BST 0.94 0.93 0.93 0.91 0.43 0.55 0.51
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR	GLM 0.96 0.93 0.93 0.52 0.48 0.87 0.91	LDA 0.94 0.91 0.91 0.54 0.60 0.88 0.90	KNN 0.92 0.91 0.92 0.50 0.58 0.87 0.90	DT 0.86 0.81 0.82 0.88 0.58 0.53 0.81 0.77	BY 0.94 0.91 0.92 0.55 0.50 0.88 0.92	SVM 0.95 0.92 0.94 0.58 0.54 0.88 0.91	BAG 0.93 0.93 0.94 0.53 0.58 0.90 0.89	Nnet 0.96 0.94 0.92 0.53 0.61 0.88 0.90	RF 0.94 0.92 0.92 0.92 0.59 0.57 0.86 0.93	BST 0.93 0.92 0.92 0.92 0.61 0.52 0.89 0.85	CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR	GLM 0.96 0.94 0.94 0.94 0.42 0.49 0.41 0.58	LDA 0.95 0.92 0.93 0.44 0.52 0.50 0.58	KNN 0.92 0.92 0.89 0.43 0.50 0.52 0.68	DT 0.88 0.80 0.82 0.83 0.49 0.53 0.52 0.57	BY 0.95 0.93 0.93 0.52 0.52 0.52 0.56 0.57	SVM 0.95 0.94 0.94 0.94 0.51 0.59 0.59 0.62	BAG 0.92 0.93 0.93 0.45 0.58 0.54 0.70	Nnet 0.96 0.94 0.93 0.48 0.62 0.48 0.60	RF 0.93 0.92 0.94 0.91 0.47 0.56 0.55 0.72	BST 0.94 0.93 0.93 0.91 0.43 0.55 0.51 0.60
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE	GLM 0.96 0.93 0.93 0.52 0.48 0.87 0.91 0.90	LDA 0.94 0.91 0.91 0.54 0.60 0.88 0.90 0.90	KNN 0.92 0.91 0.92 0.50 0.58 0.87 0.90 0.87	DT 0.86 0.81 0.82 0.58 0.53 0.53 0.81 0.77 0.73	BY 0.94 0.91 0.92 0.55 0.50 0.88 0.92 0.90	SVM 0.95 0.92 0.94 0.58 0.54 0.88 0.91 0.88	BAG 0.93 0.93 0.94 0.53 0.58 0.90 0.89 0.88	Nnet 0.96 0.94 0.92 0.53 0.61 0.88 0.90 0.91	RF 0.94 0.92 0.92 0.59 0.57 0.86 0.93 0.91	BST 0.93 0.92 0.92 0.61 0.52 0.89 0.85 0.88	CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE	GLM 0.96 0.94 0.94 0.42 0.49 0.41 0.58 0.73	LDA 0.95 0.92 0.93 0.44 0.52 0.50 0.58 0.79	KNN 0.92 0.92 0.89 0.43 0.50 0.52 0.68 0.71	DT 0.88 0.80 0.82 0.83 0.49 0.53 0.52 0.57 0.67	BY 0.95 0.93 0.93 0.52 0.52 0.52 0.56 0.57 0.76	SVM 0.95 0.94 0.94 0.51 0.59 0.59 0.62 0.72	BAG 0.92 0.93 0.93 0.45 0.58 0.54 0.70 0.78	Nnet 0.96 0.94 0.93 0.48 0.62 0.48 0.60 0.76	RF 0.93 0.92 0.94 0.91 0.47 0.56 0.55 0.72 0.80	BST 0.94 0.93 0.93 0.91 0.43 0.55 0.51 0.60 0.83
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI	GLM 0.96 0.93 0.93 0.52 0.48 0.87 0.91 0.90 0.77	LDA 0.94 0.91 0.91 0.54 0.60 0.88 0.90 0.90 0.76	KNN 0.92 0.91 0.92 0.50 0.58 0.87 0.90 0.87 0.71	DT 0.86 0.81 0.82 0.58 0.53 0.81 0.77 0.73 0.61	BY 0.94 0.91 0.92 0.55 0.50 0.88 0.92 0.90 0.72	SVM 0.95 0.92 0.92 0.94 0.58 0.54 0.88 0.91 0.88 0.72	BAG 0.93 0.93 0.94 0.53 0.58 0.90 0.89 0.88 0.75	Nnet 0.96 0.94 0.92 0.53 0.61 0.88 0.90 0.91 0.79	RF 0.94 0.92 0.92 0.59 0.57 0.86 0.93 0.91 0.69	BST 0.93 0.92 0.92 0.92 0.61 0.52 0.89 0.85 0.88 0.68	CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI	GLM 0.96 0.94 0.94 0.42 0.49 0.41 0.58 0.73 0.70	LDA 0.95 0.92 0.93 0.44 0.52 0.50 0.58 0.79 0.67	KNN 0.92 0.92 0.89 0.43 0.50 0.52 0.68 0.71 0.63	DT 0.88 0.80 0.82 0.83 0.49 0.53 0.52 0.57 0.67 0.58	BY 0.95 0.93 0.93 0.52 0.52 0.56 0.57 0.76 0.76	SVM 0.95 0.94 0.94 0.51 0.59 0.59 0.62 0.72 0.68	BAG 0.92 0.93 0.93 0.45 0.58 0.54 0.70 0.78 0.69	Nnet 0.96 0.94 0.93 0.48 0.62 0.48 0.60 0.76 0.73	RF 0.93 0.92 0.94 0.91 0.47 0.56 0.55 0.72 0.80 0.65	BST 0.94 0.93 0.91 0.43 0.55 0.51 0.60 0.83 0.71
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI CMIM	GLM 0.96 0.93 0.93 0.52 0.48 0.87 0.91 0.90 0.77 0.79	LDA 0.94 0.91 0.91 0.54 0.60 0.88 0.90 0.90 0.76 0.82	KNN 0.92 0.91 0.92 0.50 0.58 0.87 0.90 0.87 0.71 0.71	DT 0.86 0.81 0.82 0.58 0.53 0.81 0.77 0.73 0.61 0.67	BY 0.94 0.91 0.92 0.55 0.50 0.88 0.92 0.90 0.72 0.70	SVM 0.95 0.92 0.94 0.58 0.54 0.88 0.91 0.88 0.72 0.77	BAG 0.93 0.93 0.94 0.53 0.58 0.90 0.89 0.88 0.75 0.83	Nnet 0.96 0.94 0.92 0.53 0.61 0.88 0.90 0.91 0.79 0.84	RF 0.94 0.92 0.92 0.59 0.57 0.86 0.93 0.91 0.69 0.79	BST 0.93 0.92 0.92 0.61 0.52 0.89 0.85 0.88 0.68 0.77	CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI CMIM	GLM 0.96 0.94 0.94 0.42 0.49 0.41 0.58 0.73 0.70 0.75	LDA 0.95 0.92 0.93 0.44 0.52 0.50 0.58 0.79 0.67	KNN 0.92 0.92 0.89 0.43 0.50 0.52 0.68 0.71 0.63 0.72	DT 0.88 0.80 0.82 0.83 0.49 0.53 0.52 0.57 0.67 0.58 0.63	BY 0.95 0.93 0.93 0.52 0.52 0.56 0.57 0.76 0.69 0.74	SVM 0.95 0.94 0.94 0.51 0.59 0.59 0.62 0.72 0.68 0.74	BAG 0.92 0.93 0.93 0.45 0.58 0.54 0.70 0.78 0.69	Nnet 0.96 0.94 0.93 0.48 0.62 0.48 0.60 0.76 0.73 0.78	RF 0.93 0.92 0.94 0.91 0.47 0.56 0.55 0.72 0.80 0.65 0.76	BST 0.94 0.93 0.91 0.43 0.55 0.51 0.60 0.83 0.71 0.67
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI CMIM ICAP	GLM 0.96 0.93 0.93 0.52 0.48 0.87 0.91 0.90 0.77 0.79 0.79	LDA 0.94 0.91 0.91 0.54 0.60 0.88 0.90 0.90 0.76 0.82 0.82 0.82	KNN 0.92 0.91 0.92 0.50 0.58 0.87 0.90 0.87 0.71 0.76 0.76 0.76	DT 0.86 0.81 0.82 0.58 0.53 0.81 0.77 0.73 0.61 0.67 0.72	BY 0.94 0.91 0.92 0.55 0.50 0.88 0.92 0.90 0.72 0.70 0.70	SVM 0.95 0.92 0.94 0.58 0.54 0.88 0.91 0.88 0.72 0.77 0.77	BAG 0.93 0.93 0.94 0.53 0.58 0.90 0.89 0.88 0.75 0.83 0.75	Nnet 0.96 0.94 0.92 0.53 0.61 0.88 0.90 0.91 0.79 0.84 0.83	RF 0.94 0.92 0.92 0.59 0.57 0.86 0.93 0.91 0.69 0.79 0.74	BST 0.93 0.92 0.92 0.92 0.61 0.52 0.89 0.85 0.88 0.68 0.77 0.77	CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI CMIM ICAP	GLM 0.96 0.94 0.94 0.42 0.49 0.41 0.58 0.73 0.70 0.75 0.75	LDA 0.95 0.92 0.93 0.44 0.52 0.50 0.58 0.79 0.67 0.77	KNN 0.92 0.92 0.89 0.43 0.50 0.52 0.68 0.71 0.63 0.72 0.72	DT 0.88 0.80 0.82 0.83 0.49 0.53 0.52 0.57 0.67 0.58 0.63 0.63	BY 0.95 0.93 0.93 0.52 0.52 0.56 0.57 0.76 0.69 0.74 0.74	SVM 0.95 0.94 0.94 0.51 0.59 0.59 0.62 0.72 0.68 0.74 0.74	BAG 0.92 0.93 0.93 0.45 0.58 0.54 0.70 0.78 0.69 0.77 0.77	Nnet 0.96 0.94 0.93 0.48 0.62 0.48 0.60 0.76 0.73 0.78 0.78	RF 0.93 0.92 0.94 0.91 0.47 0.56 0.55 0.72 0.80 0.65 0.76 0.73	BST 0.94 0.93 0.91 0.43 0.55 0.51 0.60 0.83 0.71 0.67 0.67
CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI CMIM ICAP DISR	GLM 0.96 0.93 0.93 0.52 0.48 0.87 0.91 0.90 0.77 0.79 0.79 0.70	LDA 0.94 0.91 0.91 0.54 0.60 0.88 0.90 0.90 0.76 0.82 0.82 0.82 0.67	KNN 0.92 0.91 0.92 0.50 0.58 0.87 0.90 0.87 0.71 0.76 0.76 0.76 0.60	DT 0.86 0.81 0.82 0.58 0.53 0.81 0.77 0.73 0.61 0.67 0.72 0.66	BY 0.94 0.91 0.92 0.55 0.50 0.88 0.92 0.90 0.72 0.70 0.70 0.70 0.67	SVM 0.95 0.92 0.94 0.58 0.54 0.88 0.71 0.88 0.72 0.77 0.77 0.67	BAG 0.93 0.93 0.94 0.53 0.58 0.90 0.89 0.88 0.75 0.83 0.78 0.71	Nnet 0.96 0.94 0.92 0.53 0.61 0.88 0.90 0.91 0.79 0.84 0.83 0.71	RF 0.94 0.92 0.92 0.59 0.57 0.86 0.93 0.91 0.69 0.79 0.74 0.68	BST 0.93 0.92 0.92 0.92 0.61 0.52 0.89 0.85 0.88 0.68 0.77 0.77 0.69	CHSQ ANOVA FSCR RELF WLCX MIM MIFS MRMR CIFE JMI CMIM ICAP DISR	GLM 0.96 0.94 0.94 0.42 0.49 0.41 0.58 0.73 0.70 0.75 0.75 0.70	LDA 0.95 0.92 0.93 0.44 0.52 0.50 0.58 0.79 0.67 0.77 0.77 0.69	KNN 0.92 0.92 0.89 0.43 0.50 0.52 0.68 0.71 0.63 0.72 0.72 0.66	DT 0.88 0.80 0.82 0.83 0.49 0.53 0.52 0.57 0.57 0.58 0.63 0.63 0.63	BY 0.95 0.93 0.93 0.52 0.52 0.56 0.57 0.76 0.69 0.74 0.74 0.64	SVM 0.95 0.94 0.94 0.94 0.51 0.59 0.59 0.62 0.72 0.68 0.74 0.74 0.68	BAG 0.92 0.93 0.93 0.45 0.58 0.54 0.70 0.78 0.69 0.77 0.77 0.70	Nnet 0.96 0.94 0.93 0.48 0.62 0.48 0.60 0.76 0.73 0.78 0.78 0.71	RF 0.93 0.92 0.94 0.91 0.47 0.56 0.55 0.72 0.80 0.65 0.76 0.73 0.69	BST 0.94 0.93 0.93 0.91 0.43 0.55 0.51 0.60 0.83 0.71 0.67 0.68 0.69

**ON-LINE FIG 5.** Heatmap (AUC) of binary classification of PA versus non-PA on the training set when (A), 50 (B), 20 (C), and 10 (D) features are selected. WLCX, Wilcoxon. See On-line Table 2 for expansion of other acronyms.



**ON-LINE FIG 6.** Examples of agreement or disagreement between the automatic machine learning TPOT model and expert review in the multiclass classification of posterior fossa tumors. *A*, An example of a posterior fossa tumor that was correctly predicted by both the automatic TPOT model and 2 experts. The example presented is a pilocytic astrocytoma showing a characteristic appearance of a cystic cerebellar lesion with a thick enhanced wall. *B*, An example of a posterior fossa tumor that was correctly predicted by the automatic TPOT model, but incorrectly by 2 experts. The example presented is a medulloblastoma showing a mixed cystic/solid enhancing mass in the cerebellum; the solid part is hypointense on ADC. *C*, An example of a posterior fossa tumor that was incorrectly predicted by an automatic TPOT model, but correctly predicted by 2 experts. The example presented is an ependymoma with a heterogeneously enhancing mass in the inferior fourth ventricle. Note extension toward the right cerebellopontine angle cistern.