

## Supp Table 1:

Tumor location	Mean Gamma Threshold
Pelvis	$0.37 \pm 0.044$
Breast	$0.44 \pm 0.055$
H&N	$0.43 \pm 0.053$
Brain	$0.42 \pm 0.061$
Thorax	$0.41 \pm 0.051$
Digestive	$0.36 \pm 0.040$
Rachis	$0.38 \pm 0.043$
Other	$0.41 \pm 0.061$
Member	$0.43 \pm 0.052$
Skin	$0.46 \pm 0.065$
All	$0.42 \pm 0.056$

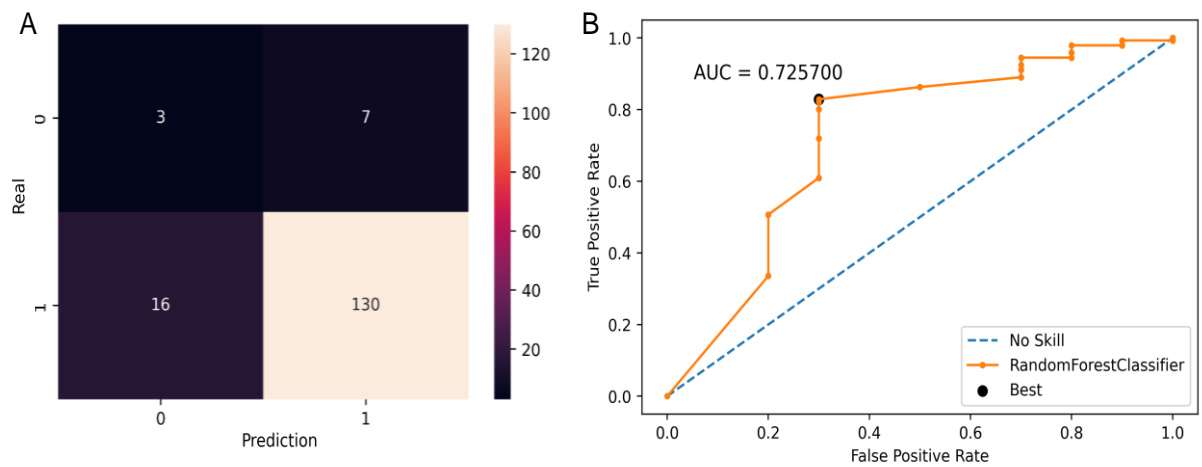
Gamma mean threshold for each tumor location

## Supp Table 2:

Machine learning models	Training score	Validation score
LinearDiscriminant	0.73	0.59
Ridge	0.73	0.59
Kneighbors	0.94	0.82
GaussianNB	0.68	0.64
DecisionTree	0.83	0.76
SVC	0.87	0.75
SGD	0.73	0.60
LinearRegression	0.24	0
RandomForestClassifier	1	0.90

ML classifier models training and validation score (for “all tumor location”)

## Supp FIGURE 1:



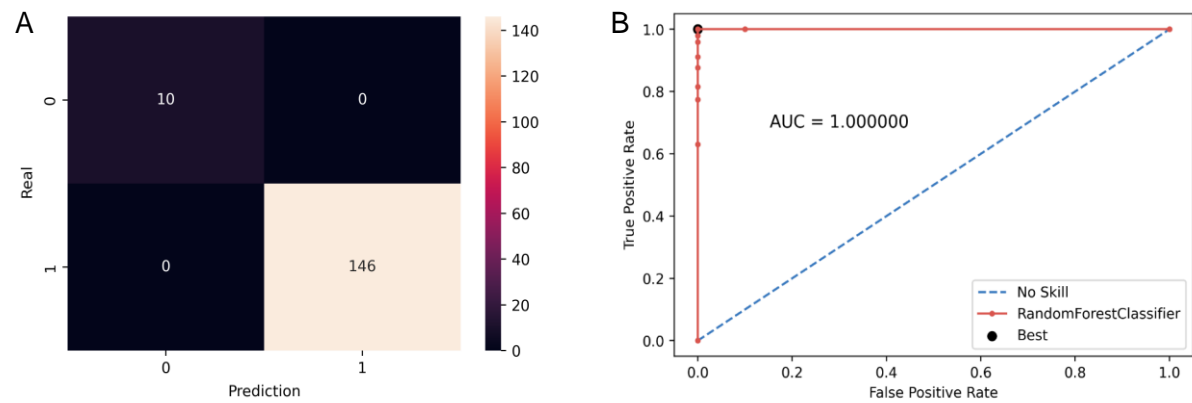
Confusion matrix (A) and ROC curve (B) for the global ML model applied to the Brain tumor RT plans

### Supp Table 3 :

TP	TN	FP	FN	Sensitivity	Specificity
83.33 %	1.92 %	4.49 %	10.26 %	89.04 %	30 %

Performance for the global ML model applied to the Brain tumor RT plans

## Supp FIGURE 2:



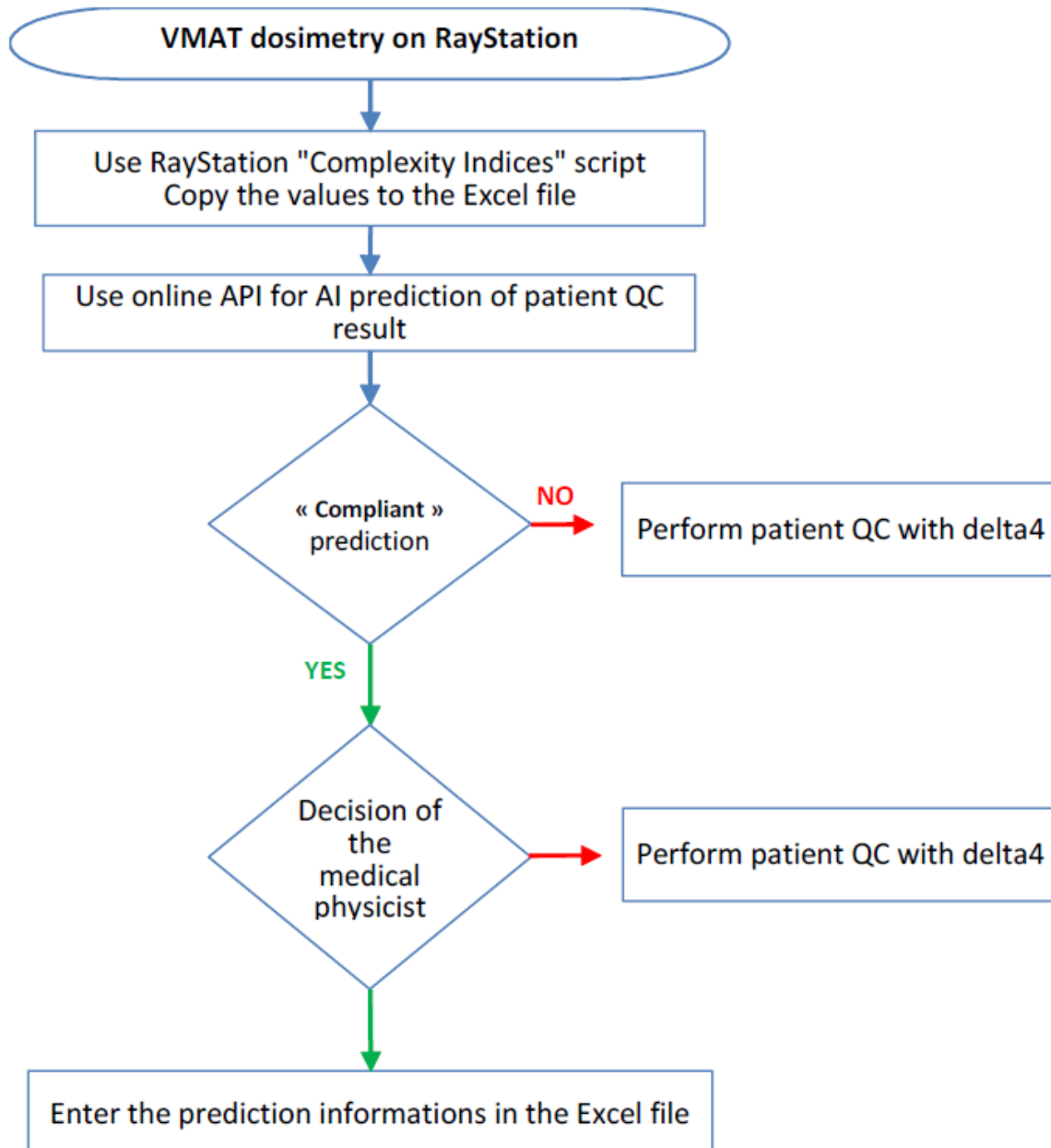
Confusion matrix (A) and ROC curve (B) the brain specific ML model

## Supp Table 4 :

TP	TN	FP	FN	Sensitivity	Specificity
93.59 %	6.41 %	0 %	0 %	100 %	100 %

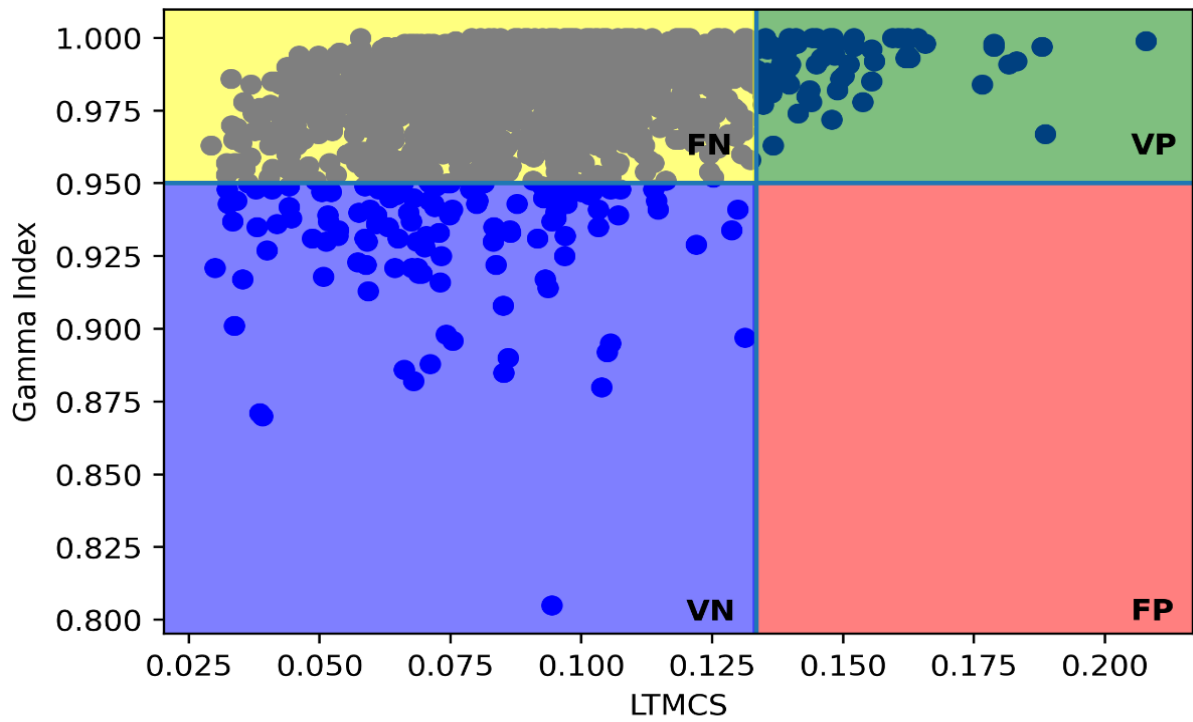
Performance of the brain specific ML model

### Supp FIGURE 3:



Example of workflow in clinical practice

## Supp FIGURE 4:



Example of using LTMCS threshold value to discriminate conformance and non-conformance QC

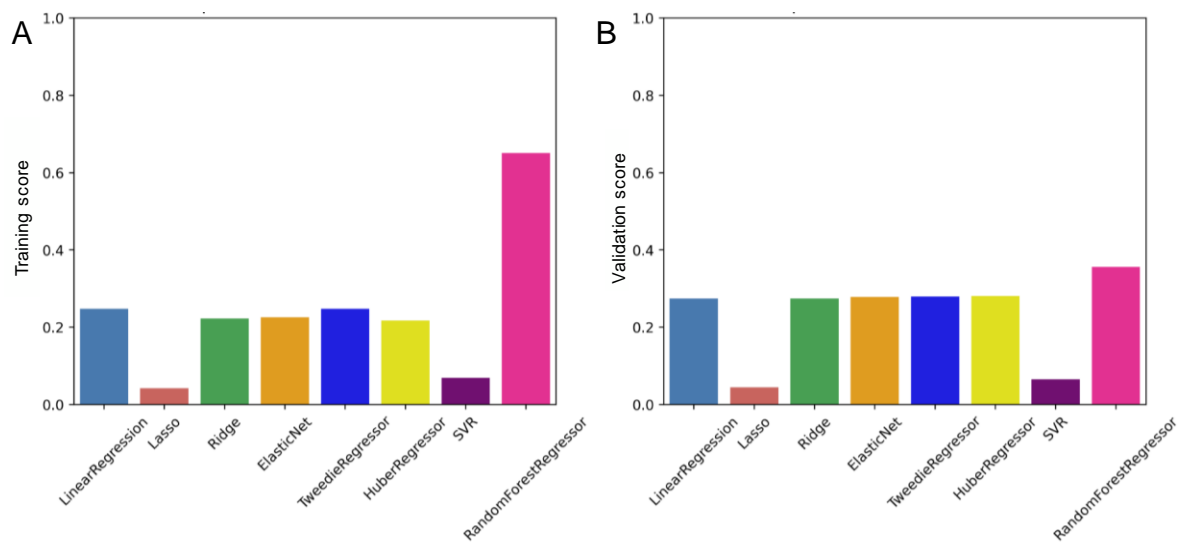


## Supp Table 5 :

TP	TN	FP	FN	Sensitivity	Specificity
3.98 %	7.22 %	0 %	88.81 %	4.28 %	100 %

Performance of the brain specific ML model

## Supp FIGURE 5:



Performance of regression machine learning models, training score (A) and validation score (B)