**Supplementary material**

****

**Supplementary Fig. S1.** Flow diagram of patients included and excluded in the final analysis.



**Supplementary Fig. S2.** Estimated values derived from the SVM classifier for each patient in training **(A)**, validation **(B)** and external-validation **(C)** sets. The cutoff value was determined as the point when the sensitivity plus specificity was maximal in the ROC curve analysis. The ATRX mutation status is illustrated via different colors.

**Supplementary Table S1** Four groups of texture features

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Groups** | **Group 1. First order statistics** | **Group 2. Shape and size based features** | **Group 3. Textural features** | **Group 4. Wavelet features** |
| **Number** | 14 | 8 | 33 | (14+33) × 8 = 376 |
| **Radiomic Features** | Energy; Entropy; Kurtosis; Maximum; Mean; Mean absolute deviation; Median; Minimum; Range; Root mean square; Skewness; Standard deviation; Uniformity; Variance | Compactness 1; Compactness 2; Maximum 3D Diameter; Spherical Disproportion; Sphericity; Surface Area; Surface to Volume ratio; Volume | Autocorrelation; Cluster Prominence; Cluster Shade; Cluster Tendency; Contrast; Correlation; Difference Entropy; Dissimilarity; Energy; Entropy; Homogeneity 1; Homogeneity 2; Informational Measure of Correlation 1; Informational Measure of Correlation 2; Inverse Difference Moment Normalized; Inverse Difference Normalized; Inverse Variance; Maximum Probability; Sum Average; Sum Entropy; Sum Variance; Variance; Short Run Emphasis; Long Run Emphasis; Gray Level Non-Uniformity; Run Length Non-Uniformity; Run Percentage; Low Gray Level Run Emphasis; High Gray Level Run Emphasis; Short Run Low Gray Level Emphasis; Short Run High Gray Level Emphasis; Long Run Low Gray Level Emphasis; Long Run High Gray Level Emphasis | Energy\_LLL; Energy\_LLH; Energy\_LHL; Energy\_LHH; Energy\_HLL; Energy\_HLH; Energy\_HHL; Energy\_HHH; …; Long Run High Gray Level Emphasis\_LLL; Long Run High Gray Level Emphasis\_LLH; Long Run High Gray Level Emphasis\_LHL; Long Run High Gray Level Emphasis\_LHH; Long Run High Gray Level Emphasis\_HLL; Long Run High Gray Level Emphasis\_HLH; Long Run High Gray Level Emphasis\_HHL; Long Run High Gray Level Emphasis\_HHH |