**Supplementary Table 1. Differential Radiomics features (n=146) between IDH mutant and IDH wildtype groups in the training set.**

| Features Type | | | |
|---|---|---|---|
| Shape and size based features | | | |
|     Surface to Volume Ratio | | | |
| First order statistics | | | |
|     Energy | Entropy | Median | |
|     Mean | Root mean square | | |
| Gray Level Co-occurrence Matrix | | | |
|     Contrast | Dissimilarity | | |
|     Energy | Entropy | | |
|     Difference entropy | IMC1 | | |
| Gray Level Run-Length Matrix | | | |
|     Short run emphasis | Run Percentage | | |
| Wavelet features | | | |
| Cluster shade_HLL | Energy_HHL (group 1 derived) | Maximum_LLH | Root mean square_HLL |
| Contrast_LLL | Energy_HHL (group 3 derived) | Maximum_LHL | Root mean square_HLH |
| Contrast_LLH | Energy_HHH (group 1 derived) | Maximum_LHH | Root mean square_HHL |
| Contrast_LHL | Energy_HHH (group 3 derived) | Maximum_HLL | Root mean square_HHH |
| Contrast_HLH | Entropy_LLL (group 1 derived) | Maximum_HLH | Run percentage_LLL |
| Contrast_HHL | Entropy_LLL (group 3 derived) | Maximum_HHL | Run percentage_LHL |
| Contrast_HHH | Entropy_LLH (group 1 derived) | Maximum_HHH | Run percentage_LHH |
| Difference entropy_LLL | Entropy_LLH (group 3 derived) | Mean_LLL | Run percentage_HLL |
| Difference entropy_LLH | Entropy_LHL (group 1 derived) | Mean_LLH | Run percentage_HLH |
| Difference entropy_LHL | Entropy_LHL (group 3 derived) | Mean_LHL | Run percentage_HHH |
| Difference entropy_HLL | Entropy_LHH (group 1 derived) | Mean_LHH | Short run emphasis_LLL |
| Difference entropy_HLH | Entropy_LHH (group 3 derived) | Mean_HLL | Short run emphasis_LLH |
| Difference entropy_HHL | Entropy_HLL (group 1 derived) | Mean_HLH | Short run emphasis_LHL |
| Difference entropy_HHH | Entropy_HLL (group 3 derived) | Mean_HHL | Short run emphasis_LHH |
| Dissimilarity_LLL | Entropy_HLH (group 1 derived) | Mean_HHH | Short run emphasis_HLL |
| Dissimilarity_LLH | Entropy_HLH (group 3 derived) | Median_LLL | Short run emphasis_HLH |
| Dissimilarity_LHL | Entropy_HHL (group 1 derived) | Median_LLH | Short run emphasis_HHL |
| Dissimilarity_HLL | Entropy_HHL (group 3 derived) | Median_LHL | Short run emphasis_HHH |
| Dissimilarity_HLH | Entropy_HHH (group 1 | Median_LHH | Standard deviation_LLH |

## Features Type

| | | | |
|---|---|---|---|
| | derived) | | |
| Dissimilarity_HHL | Entropy_HHH (group 3 derived) | Median_HLH | Standard deviation_LHL |
| Dissimilarity_HHH | IMC1_LLL | Median_HHL | Standard deviation_LHH |
| Energy_LLL (group 1 derived) | IMC1_HLL | Median_HHH | Standard deviation_HLL |
| Energy_LLL (group 3 derived) | IMC1_HLH | Minimum_LLL | Standard deviation_HLH |
| Energy_LLH (group 1 derived) | IMC1_HHL | Range_LLH | Standard deviation_HHL |
| Energy_LLH (group 3 derived) | IMC1_HHH | Range_LHL | Standard deviation_HHH |
| Energy_LHL (group 1 derived) | Mean absolute deviation_LLH | Range_HLL | Sum entropy_HHL |
| Energy_LHL (group 3 derived) | Mean absolute deviation_LHL | Range_HLH | Variance_LLH (group 1 derived) |
| Energy_LHH (group 1 derived) | Mean absolute deviation_LHH | Range_HHL | Variance_LHL (group 1 derived) |
| Energy_LHH (group 3 derived) | Mean absolute deviation_HLL | Range_HHH | Variance_LHH (group 1 derived) |
| Energy_HLL (group 1 derived) | Mean absolute deviation_HLH | Root mean square_LLL | Variance_HLL (group 1 derived) |
| Energy_HLL (group 3 derived) | Mean absolute deviation_HHL | Root mean square_LLH | Variance_HLH (group 1 derived) |
| Energy_HLH (group 1 derived) | Mean absolute deviation_HHH | Root mean square_LHL | Variance_HHL (group 1 derived) |
| Energy_HLH (group 3 derived) | Maximum_LLL | Root mean square_LHH | Variance_HHH (group 1 derived) |

IMC1 = Informational measure of correlation 1.