

# Machine Learning Prediction Report

## Glioma IDH Classification

Patient ID:	UCSF-PDGM-0536	Patient Age:	58.0
Report Date:	2026-01-05 23:08:56	Model Used:	GradientBoosting

## Final Prediction: IDH-wildtype

### Clinical Interpretation

**Patient age** which is very high (relative value : 4) compared to the training dataset moved the prediction toward IDH-Wildtype; Higher age at diagnosis is consistently observed in gliomas classified as IDH-wildtype compared with those bearing IDH-mutation.

**Original first order maximum** which is very high (relative value : 4) compared to the training dataset moved the prediction toward IDH-Wildtype; The first-order maximum reflects the highest voxel intensity within a tumor ROI, often associated with areas of hypercellularity or contrast enhancement. Higher values are more common in aggressive IDH-wildtype gliomas compared to IDH-mutant tumors.

**original\_glcM\_SumSquares** which is very high (relative value : 4) compared to the training dataset moved the prediction toward IDH-Wildtype. This feature reflects the variance in gray-level intensities and is calculated from the gray-level co-occurrence matrix; higher values indicate greater heterogeneity within the tumor. Increased heterogeneity, represented by higher SumSquares, is more frequently observed in aggressive IDH-wildtype gliomas.

### Prediction Explanation (SHAP Analysis) & Tumor Segmentation Slices

Features pushing the prediction higher (towards IDH-wildtype) are red; lower (towards IDH-mutant) are blue.



### References:

Characteristics and prognostic factors of age-stratified high-grade intracranial glioma patients: A population-based analysis.

Current Advances and Challenges in Radiomics of Brain Tumors.

Multiparametric MR radiomics in brain glioma: models comparison to predict biomarker status.