PTRF in glioma

- EPIC-1042 as a potent PTRF/Cavin1-caveolin-1 interaction inhibitor to induce PARP1 autophagic degradation and suppress temozolomide efflux for glioblastoma
- Molecular and clinical characterization of PTRF in glioma via 1,022 samples
- UBE2O ubiquitinates PTRF/CAVIN1 and inhibits the secretion of exosome-related PTRF/CAVIN1
- PTRF/Cavin-1 enhances chemo-resistance and promotes temozolomide efflux through extracellular vesicles in glioblastoma
- Blood exosomes-based targeted delivery of cPLA2 siRNA and metformin to modulate glioblastoma energy metabolism for tailoring personalized therapy
- PTRF/Cavin-1 as a Novel RNA-Binding Protein Expedites the NF-kappaB/PD-L1 Axis by Stabilizing lncRNA NEAT1, Contributing to Tumorigenesis and Immune Evasion in Glioblastoma
- PTRF/cavin-1 remodels phospholipid metabolism to promote tumor proliferation and suppress immune responses in glioblastoma by stabilizing cPLA2
- Integrated Analysis of RNA-Binding Proteins in Glioma

Polymerase I and transcript release factor (PTRF) plays a role in the regulation of gene expression and the release of RNA transcripts during transcription, which have been associated with various human diseases. However, the role of PTRF in glioma remains unclear.

Sun et al. in a study, RNA sequencing (RNA-seq) data (n = 1022 cases) and whole-exome sequencing (WES) data (n = 286 cases) were used to characterize the PTRF expression features. Gene ontology (GO) functional enrichment analysis was used to assess the biological implication of changes in PTRF expression. As a result, the expression of PTRF was associated with malignant progression in gliomas. Meanwhile, somatic mutational profiles and copy number variations (CNV) revealed the glioma subtypes classified by PTRF expression showed distinct genomic alteration. Furthermore, GO functional enrichment analysis suggested that PTRF expression was associated with cell migration and angiogenesis, particularly during an immune response. Survival analysis confirmed that a high expression of PTRF is associated with a poor prognosis. In summary, PTRF may be a valuable factor for the glioma diagnosis and treatment target of glioma [1)]

A study highlights that PTRF can act as an independent biomarker to predict the prognosis of GBM patients after TMZ treatment and describes a new mechanism contributing to TMZ-resistance. In addition, this study may provide a novel idea for GBM therapy [2)]

1)
Sun S, Yang C, Wang K, Huang R, Zhang KN, Liu Y, Cao Z, Zhao Z, Jiang T. Molecular and clinical characterization of PTRF in glioma via 1,022 samples. BMC Cancer. 2023 Jun 16;23(1):551. doi: 10.1186/s12885-023-11001-2. PMID: 37322408.
2)
Yang E, Wang L, Jin W, Liu X, Wang Q, Wu Y, Tan Y, Wang Y, Cui X, Zhao J, Tong F, Hong B, Xiao M, Liu X, Fang C, Kang C. PTRF/Cavin-1 enhances chemo-resistance and promotes temozolomide efflux through extracellular vesicles in glioblastoma. Theranostics. 2022 May 16;12(9):4330-4347. doi: 10.7150/thno.71763. PMID: 35673568; PMCID: PMC9169358.