Plasminogen Activator Urokinase Receptor

- Novel Urokinase-Type Plasminogen Activator Receptor-Targeting Optical Imaging Agent ICG-Glu-Glu-AE105 for Visualization of Malignant Glioma During Surgery: First-in-Human Study in 35 Patients with Brain Cancer
- Serum biomarkers as early indicators of outcomes in spontaneous subarachnoid hemorrhage
- Soluble Urokinase-Type Plasminogen Activator Receptor and Inflammatory Biomarker Response with Prognostic Significance after Acute Neuronal Injury - a Prospective Cohort Study
- Prospective phase II trial of [⁶⁸Ga]Ga-NOTA-AE105 uPAR-PET/MRI in patients with primary gliomas: Prognostic value and Implications for uPAR-targeted Radionuclide Therapy
- Immunoprofile of Radiologic Chronic Subdural Hematoma Subtypes
- Urokinase-Type Plasminogen Activator Receptor (uPAR) in Inflammation and Disease: A Unique Inflammatory Pathway Activator
- Identifying PLAUR as a Pivotal Gene of Tumor Microenvironment and Regulating Mesenchymal Phenotype of Glioblastoma
- Urokinase Plasminogen Activator Receptor: An Important Focal Player in Chronic Subdural Hematoma?

PLAUR, also known as Plasminogen Activator Urokinase Receptor, is a protein that plays a role in the regulation of the plasminogen activation system. The plasminogen activation system is an important component of the body's fibrinolytic system, which is responsible for breaking down blood clots.

PLAUR is a cell surface receptor that binds to urokinase-type plasminogen activator (uPA), a serine protease. This binding facilitates the conversion of plasminogen into plasmin, an enzyme that degrades fibrin and other extracellular matrix proteins. The activation of plasmin is a critical step in the dissolution of blood clots and the remodeling of tissues. PLAUR is involved in the regulation of this process and is essential for cell migration, tissue remodeling, and wound healing.

In addition to its role in the fibrinolytic system, PLAUR has been implicated in various other cellular processes, including cell adhesion, migration, and signal transduction. Aberrant expression or regulation of PLAUR has been associated with cancer progression and metastasis, as it can promote the invasion of cancer cells by facilitating their movement through the extracellular matrix.

PLAUR is the gene that encodes the PLAUR protein, and its expression and activity are tightly regulated in normal physiological conditions. Researchers have studied PLAUR and its functions in various contexts, particularly in cancer biology and tissue remodeling, to better understand its role in health and disease.

A study aimed to screen for key genes related to the prognosis of patients with glioblastoma (GBM). First, bioinformatics analysis was performed based on databases such as TCGA and MSigDB. Inflammatory-related genes were obtained from the MSigDB database. The TCGA-tumor samples were divided into clusters A and B groups based on consensus clustering. Multivariate Cox regression was applied to construct the risk score model of inflammatory-related genes based on the TCGA database. Second, to understand the effects of model characteristic genes on GBM cells, U-87 MG cells were used for knockdown experiments, which are important means for studying gene function. PLAUR is an unfavorable prognostic biomarker for patients with glioma. Therefore, the model characteristic gene PLAUR was selected for knockdown experiments. The prognosis of cluster A was significantly better than that of cluster B. The verification results also demonstrate that the risk score could predict

overall survival. Although the immune cells in cluster B and high-risk groups increased, no matching survival advantage was observed. It may be that stromal activation inhibits the antitumor effect of immune cells. PLAUR knockdown inhibits tumor cell proliferation, migration, and invasion, and promotes tumor cell apoptosis. In conclusion, a prognostic prediction model for GBM composed of inflammatory-related genes was successfully constructed. Increased immune cell expression may be linked to a poor prognosis for GBM, as stromal activation decreased the antitumor activity of immune cells in cluster B and high-risk groups. PLAUR may play an important role in tumor cell proliferation, migration, invasion, and apoptosis [1)].

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Cheng M, Liu L, Zeng Y, Li Z, Zhang T, Xu R, Wang Q, Wu Y. An inflammatory gene-related prognostic risk score model for prognosis and immune infiltration in glioblastoma. Mol Carcinog. 2023 Nov 10. doi: 10.1002/mc.23655. Epub ahead of print. PMID: 37947182.