SULT1E1, also known as estrogen sulfotransferase, is an enzyme that catalyzes the sulfonation of estrogens, converting them into inactive forms that can be excreted from the body. SULT1E1 is mainly expressed in the liver, but it is also found in other tissues, including the breast, uterus, and ovary.

SULT1E1 plays an important role in regulating estrogen levels in the body, particularly during menopause when the ovaries stop producing estrogen. SULT1E1 helps to maintain estrogen homeostasis by reducing the levels of active estrogens that can stimulate the growth of estrogen-dependent tumors. In breast cancer, SULT1E1 expression has been associated with a better prognosis, possibly due to its ability to reduce estrogen levels.

In addition to its role in estrogen metabolism, SULT1E1 has been implicated in other biological processes, such as the metabolism of drugs, xenobiotics, and neurotransmitters. Understanding the expression and regulation of SULT1E1 in different tissues and contexts is important for understanding its physiological functions and potential clinical applications.

In a study, by Huang et al. scRNA-Seq is used to identify a unique initiating cell subpopulation (SULT1E1+) in high-grade meningiomas. This subpopulation modulates the polarization of M2 macrophages and promotes meningioma progression and meningioma recurrence. A novel patient-derived meningioma organoid (MO) model is established to characterize this unique subpopulation. The resulting MOs fully retain the aggressiveness of SULT1E1+ and exhibit invasiveness in the brain after orthotopic transplantation. By targeting SULT1E1+ in MOs, the synthetic compound SRT1720 is identified as a potential agent for systemic treatment and radiation sensitization. These findings shed light on the mechanism underlying the malignancy of high-grade meningiomas and provide a novel therapeutic target for refractory high-grade meningioma<sup>1)</sup>.

## 1)

Huang M, Xu S, Li Y, Shang L, Zhan X, Qin C, Su J, Zhao Z, He Y, Qin L, Zhao W, Long W, Liu Q. Novel Human Meningioma Organoids Recapitulate the Aggressiveness of the Initiating Cell Subpopulations Identified by ScRNA-Seq. Adv Sci (Weinh). 2023 Mar 30:e2205525. doi: 10.1002/advs.202205525. Epub ahead of print. PMID: 36994665.

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