

COMPOUNDS FOR TARGETING MIXED LINEAGE KINASE DOMAIN-LIKE PROTEIN EXPRESSIONS IN THE BRAIN

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Value Proposition: This new composition of matter uses a series of new compounds to trace mixed lineage kinase domain like proteins (MLKL) and treat neurological diseases.

Technology Description

Researchers at Washington University in St. Louis have developed a series of new compounds that can be used as radiotracers for the quantification of mixed lineage kinase domain like protein (MLKL) expressions in the brain. MLKL is a key mediator of necrosis signaling and is associated with several human diseases, including nerve system diseases, cardiovascular diseases, pulmonary diseases, enteric diseases, cancers, and skin diseases. However, imaging of MLKL with positron emission tomography (PET) has been limited due to lack of suitable radiotracers. These compounds allow for successful imaging of MLKL in the brain, significantly suppressing the oligomerization and translocation of MLKL to the cell membrane.

In addition to the imaging capabilities, these compounds can be used as therapeutic drugs designed to treat neurological diseases, cancer, or other diseases.

Stage of Research

Selected two promising compounds for F-18 labeling to validate their suitability to be PET radiotracers for imaging MLKL in vivo. With the success of F-18 radiochemistry of making [18F]7a and [18F]7b, performed initial PET evaluations in the brain of nonhuman primates, indicating that [18F]7b has higher brain uptake and good brain washout pharmacokinetics compared to [18F]7a. Working to further evaluate radiotracer [18F]7b worth in vivo in animal models of disease for imaging MLKL in diseases.

Applications

- Treatment of neurological diseases and other diseases
- Predict and diagnose disease in early stages
- Monitoring of therapeutic efficacy targeting on MLKL

Key Advantages

- Improved the feasibility of PET imaging of MLKL in the brain
- Significantly suppresses the oligomerization and translocation of MLKL to the cell membrane
- Can be used as therapeutic drugs for treating neurological diseases

Patents

Patent application filed

Related Web Links - [Zhude “Will” Tu Profile](#); [Tu Lab](#)