Docket #: S22-498

A Machine Learning–Based Immune Profiling Panel to Predict Cerebral Bleeding Risk

Stanford scientists developed an integrated risk score to predict hemorrhagic transformation (HT) following an acute ischemic stroke (AIS).

Many stroke patients receive endovascular treatment to restore blood flow with 90% success rate; however, over 50% of patients with acute ischemic stroke suffer HT, which is the major modifiable factor driving poor functional recovery after AIS. Currently there's no predictive score that can accurately estimate the risk of HT after endovascular treatment for early prevention.

This invention combines immune profiling with machine learning to predict the risk of HT in stroke patients following endovascular treatment. By analyzing a patient's blood sample, this invention identifies specific immune cell behaviors and signaling patterns that are associated with increased risk of bleeding in the brain. By integrating this immune data with clinical information from the patient's medical record, the model will generate a personalized risk score for HT for preventative treatment.

Applications

- Risk stratification for hemorrhagic transformation
- Personalized post-treatment monitoring
- Patient selection tool for neuroprotective or anti-inflammatory drug trials
- Informed clinical decisions on treatment decision making

Advantages

- Enables proactive management of high-risk patients before HT occurs
- May reveal novel therapeutic targets for intervention
- Combines multi-omic data with EMR data for a comprehensive view
- Can be integrated into clinical workflows for decision support

Patents

- Published Application: WO2024138067
- Published Application: 20260210974

Innovators

- Brice Gaudilliere
- Amy Tsai
- Julien Hedou
- Mikael Mazighi
- Jean-Marc Olivot

Licensing Contact

David Mallin

Licensing Manager, Physical Sciences

Email