

OPTICAL COHERENCE TOMOGRAPHY PROVIDES TISSUE VISUALIZATION DURING LITT

BACKGROUND

Laser Interstitial Thermal Therapy is the minimally invasive surgical standard for treating mesial temporal lobe epilepsy. The procedure is safer than its alternative surgeries, but has a **decreased success rate**. Without **tissue visualization**, a pathological diagnosis is never made, it is **uncertain** if all the damaging tissue has been ablated, the root cause is **never determined**, and the course of a patient's treatment is therefore **unclear** if seizures return.

>2
million

People in the US suffer from mTLE

40%

Have drug resistant epilepsy and require surgery

50%

Have seizures 10 years post LITT surgery

<https://www.aheroeforepileptics.org/>

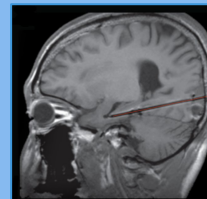
NEED STATEMENT

Epilepsy surgeons need a detailed **tissue diagnosis** around the ablation zone **before and after surgery** to increase ablation accuracy and efficacy of post surgery epilepsy management.

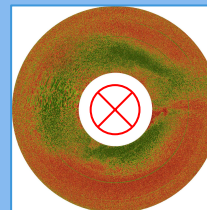
NEED CRITERIA OCT

1	Minimally Invasive	✓
2	Integratable with LITT	✓
3	Developed in Real Time	✓
4	Cost effective	✓

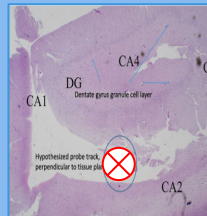
TESTING & RESULTS



Location of LITT catheter allows for minimally invasive access to hippocampus



Coronal attenuation map of human hippocampus created by imaging along the catheter track



Histology confirms location of OCT probe during imaging and validates characteristics identified in attenuation map



JOHNS HOPKINS
BIOMEDICAL ENGINEERING

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