Screening for novel modulators that restore synaptic signaling in human iPSC-derived neurons from SYNGAP syndrome patients

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SUMMARY

SYNGAP syndrome is a rare congenital disorder caused by mutations in the SYNGAP1 gene. The main feature is intellectual disability; patients also suffer from up to 140 seizures per day, and to date, there is no efficient therapy for the disorder.
Studies in animal disease models have highlighted that SYNGAP1 loss of function results in defective synaptic signaling. The goal of this project is to identify a novel drug therapy by screening for molecules that restore defective signaling cascades. The team has therefore designed an assay that will be adapted for high-throughput screening of an FDA-approved drug library. This may pave the way for a unique and novel therapy for this rare and severe disease.

PROJECT GOALS

- Develop stable assay
- Identify FDA-approved drugs that rebalance the altered synaptic function in rodent neurons

LONG-TERM GOALS

- Use patient-derived iPS cells to validate hit compounds
- Repurposing of identified drug(s)