



# Brandeis University

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## **Blazeman Foundation for ALS Research**

### **Research Progress Report Summary 5/1/2017 – 5/30/2018**

#### **Brandeis University**

This year, the Blazeman Foundation for ALS Research supported work in our lab that led to the following achievements:

- We published an article in *Scientific Reports* entitled “[TDP-43 misexpression causes defects in dendritic growth](#)”, in which we described a primary mammalian neuron model of TDP-43-linked ALS, and observed neuronal growth defects that may be important in early stages of disease. The article is summarized [here](#). We are now defining the specific cellular pathways that cause these growth defects.
- We found that signaling defects in fruit fly models of ALS may relate to cross-talk between the presynaptic neuron and the postsynaptic muscle cell, which occurs through neurotransmitter receptors. These experiments allowed us to trace the source of motor neuron signaling defects.
- We used a cutting-edge technique to test how our previous findings in animal models of ALS relate to patients, by reprogramming stem cells derived from ALS patients (harboring mutations in TDP-43) to generate neuronal cell lines. Thanks to our preliminary data and support from the Blazeman Foundation for ALS, Dr. Deshpande obtained a grant from the Brandeis [Provost's Innovation Fund](#) to test our hypotheses in neurons differentiated from ALS patient cells.