
THE USE OF TRICHOSTATIN A TO RESCUE TRKA+ NEURONS IN A MOUSE MODEL OF FAMILIAL DYSAUTONOMIA (POSTER)

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Familial dysautonomia is a severe, recessive disease that devastates the peripheral nervous system, culminating in death of most patients by age 40. Studies have shown that there is a reduced number of both TrkA+ neurons and acetylation in familial dysautonomia patients and our mouse model of familial dysautonomia. Another feature of familial dysautonomia is a decrease in histone acetylation. This study evaluated the ability of the histone deacetylase inhibitor, Trichostatin A, to rescue the reduced number of TrkA+ neurons in the dorsal root ganglia in our mouse model of familial dysautonomia. Pregnant dams were treated with either 1mg/kg of Trichostatin A (experimental) or vehicle alone (control), at E8.5, E10.5, and E12.5, a time frame corresponding to neurogenesis in the mouse dorsal root ganglia. Immunohistochemistry was used to quantify the number of TrkA+ neurons at E17.5. Trichostatin A-treated knockout embryos (n=3) showed a significant increase in the number of TrkA+ neurons over vehicle only knockout embryos (n=3) (132.9% increase; $p < .00001$). Trichostatin A (1mg/kg) effectively rescues the number of TrkA+ neurons in our mouse model. Further studies will explore the cellular mechanisms via which histone deacetylase inhibition prevents neuronal cell death as well as the possible benefits of using these therapeutics for familial dysautonomia symptom management.