A Smoking Gun Treatment for Parkinson's Disease?

July 30

Tuesday, 12:30 pm

Billings Building—Rosedale Room

SPEAKER:

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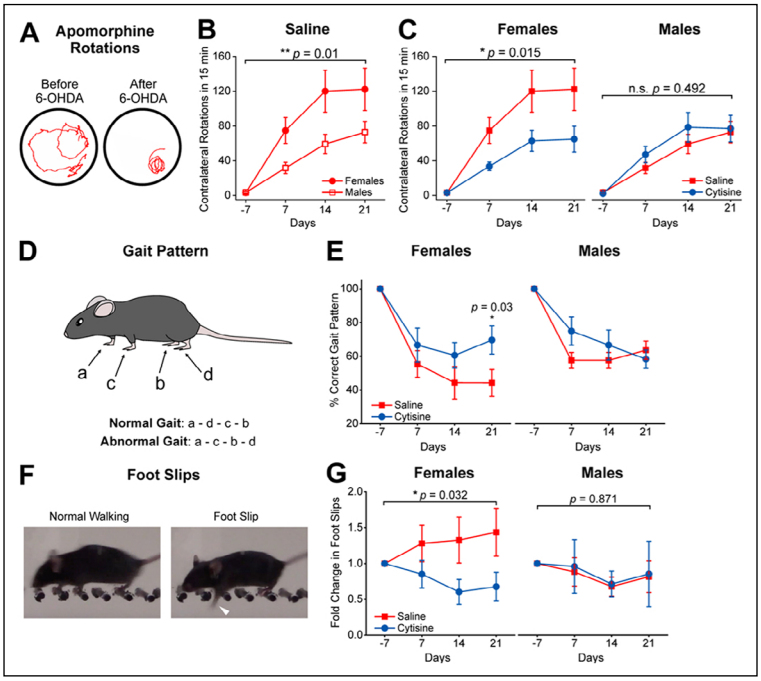
Abstract



Parkinson's disease (PD) is a devastating neurological disorder projected to reach pandemic proportions by 2040. As a result, developing disease modifying treatments for PD has become an urgent and unmet medical need. Interestingly, ~60 years of epidemiological data show that chronic tobacco use is inversely correlated with the risk for PD. Based on this finding, we have focused on understanding mechanisms by which nicotine and nicotinic ligands might mediate this effect. Our research over the past several years has begun to uncover a novel sex-specific intracellular mechanism by which nicotine and nicotinic ligands might mediate neuroprotection of the substantia nigra pars compacta dopaminergic neurons lost in PD. In this talk, I will summarize our past, current and future research in this area, pointing to the potential for developing new and clinically relevant disease modifying therapies for PD.

Publications

1. Srinivasan R#, Henley BM#, Henderson BJ, Indersmitten T, Cohen BN, Kim C, McKinney S, Deshpande P, Xiao C, and Lester HA (2016). *Smoking-relevant nicotine concentration inhibits the unfolded protein response in dopaminergic neurons.* The Journal of Neuroscience 36(1):65-79. PMID:26740650. #co-first authors.

2. Zarate SM, Pandey G, Chilukuri S, Garcia JA, Cude B, Storey S, Salem NA, Bancroft EA, Hook M, Srinivasan R (2021) *Cytisine is neuroprotective in female but not male 6-hydroxydopamine lesioned parkinsonian mice and acts in combination with 17-β-estradiol to inhibit apoptotic endoplasmic reticulum stress in dopaminergic neurons.* Journal of Neurochemistry Dec 23; doi: 10.1111/jnc.15282. PMID: 33354763

3. Zarate SM, Garcia RC, Pandey G, Srinivasan R (2024). *The smoking cessation drug cytisine requires systemically circulating estrogen for sex-specific neuroprotection in female parkinsonian mice.* bioRxiv. doi: https://doi.org/10.1101/2024.03.21.586192