UNIVERSITY of WASHINGTON
PSYCHIATRY & BEHAVIORAL SCIENCES
School of Medicine

Nephi Stella, PhD

Lab Website

Faculty Profile

Summary of Research Program:

My laboratory studies the therapeutic value and molecular mechanism of action of drugs targeting the cannabinoid signaling system. Our goal is to develop novel treatments for brain deficits and cognitive impairment linked to neurodegeneration (Huntington's disease) and drug addiction. We are particularly interested in the cannabinoid signaling system expressed by medium spiny neurons (MSN), a neuronal cell population affected in both diseases.

To understand how cannabinoid receptors and their endogenous ligands, the endocannabinoids, control fundamental functions of MSN under healthy and disease states, we leverages a broad array of analytical approaches and molecular technics. Thus, over the years, my laboratory has acquired expertise in analytical chemistry (especially measuring drugs and lipids by GC-MS and LC-MS, and more recently proteins by SILAC), pharmacology (especially the pharmacodynamics characteristics of compounds acting at GPCR), biochemistry (second messengers and enzymatic activities), molecular biology (subcloning and genetic manipulations of protein expression), cell phenotype (gene arrays and qPCR), cell viability (both using metabolism and cell integrity-based assays), semi-quantitative immunocytochemistry and immunohistochemistry, pharmacokinetics, safety and toxicology and animal behavior (motor and motivated: e.g. drug sensitization and CPP).