An Integrative Approach of Utilizing Antipsychotic Supplements Designated for Schizophrenia and Endogenous Firing Rate Differential Equation Models To Induce Neuronal Synaptic Activity in PINK-1 Gene Mutated C. elegans With Parkinson's Disease

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Parkinson’s disease is characterized by the irreversible decline of dopamine, a neurotransmitter that regulates the nigrostriatal neuromodulatory system, which results in the rise of dysfunctionalities in motor cortical activity due to a series of kinematic changes. Another neurological disease is Schizophrenia, which is associated with serotonergic and dopaminergic deviations, contributing to a multitude of cognitive deficits in conjunction with a dramatic decline of activity in the frontal cortex. Although there is no cure for schizophrenia, antipsychotics are provided for patients to ease the symptoms, in which two predominant supplements include Sarcosine and Tyrosine, amino acids that stimulate the release of vital neurotransmitters, including dopamine. Furthermore, research conducted in the past has suggested that probiotics, gut bacteria, can possibly lead to the enhancement of chemical messengers in the brain, however the research has not been solidified yet. Therefore, an experimentation was conducted that investigated the potential usage of the antipsychotic supplements designated for Schizophrenics for the treatment of Parkinson’s disease in order to elevate the production of dopamine; the experimentation consisted of a C.elegan model wherein the three viable treatment supplements were tested on wildtype and PINK-1 mutated worms to test the effects of antipsychotic supplements meant for Schizophrenics on those suffering with Parkinson’s. Through the utilization of endogenous firing rate differential equations, the findings suggested that though all three supplements were effective, Sarcosine displayed the most promising result due to increased reproduction rates and improved gait movement as well as increased synaptic activity in the PINK-1 mutated C.elegans.

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Third Award of $1,000