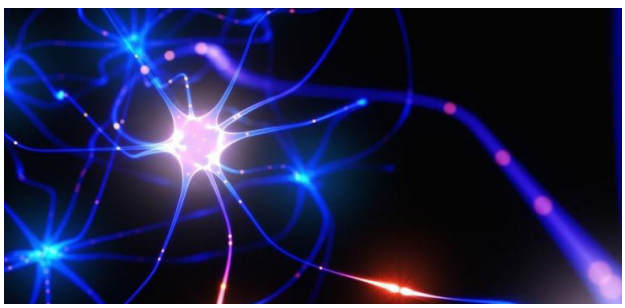
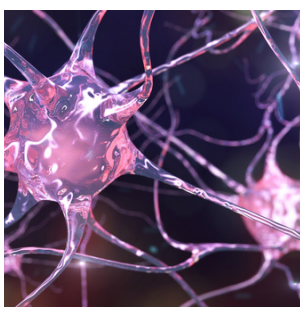
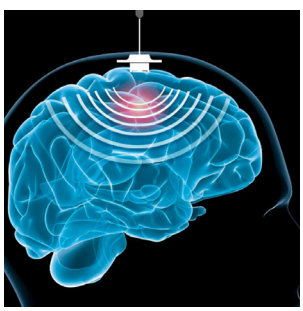
Accepted Abstract

Parkinson's 2021

3rd International conference on

Parkinson's, Huntington's and Movement Disorders

September 27, 2021 | Webinar

Pregnancy in Parkinson's disease with PARK2 mutations

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Parkinson's disease (PD), first described by James Parkinson in 1817, is the second most common neurodegenerative disease, affecting approximately 1% of the population over age 60 worldwide. Generally speaking, Parkinson's disease is an old-age disease. Therefore, it is uncommon to find literature on pregnancy in PD, with only 53 pregnancies reported until now. PD is more common in men than women with a ratio up to 2:1 reported in the literature. PD is mainly characterized by resting tremor, bradykinesia, rigidity, and gait impairment. It is well-known that antiparkinsonian medications are based on symptomatic relief only, neuroprotective and disease modifying therapies are not available yet. Here we describe a patient diagnosed as Parkinson's disease at the age of 34 with three silent and two missense mutations in the PARK2 gene (GenBank accession number EF375726). Three silent mutations were identified at bases 429 (C > T), 513 (G > A) and 667 (C > T). Two missense mutations were identified at basses 932 (A > G) and 1111 (G > A), and replaced Gln311 with Arg and Ala371 with Thr respectively. She was diagnosed as pregnant on 2 March 2009. Her neurological evaluation did not reveal any abnormality. Three weeks later, she informed her neurologist that she had miscarriage in the first trimester in 2009. We report a pregnancy in a patient with Parkinson' disease with PARK2 mutations. In this presentation, we present her Parkinson's disease first. Subsequently, we discuss the effect of the disease on pregnancy and vice versa, the effect of the disease and its treatment on the fetus. The study was approved by the ethics committee of the Kocaeli University and informed consent was obtained from the patient.

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Whole-brain modeling of basal-ganglia thalamocortical system function and α-synuclein spreading, aggregation, and degeneration dynamics

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Parkinson's disease's hallmark feature includes dysfunction of the basal-ganglia thalamocortical system and a-syn pathology. To understand Parkinson's disease, it is therefore, critical to both understand how the circuit function is disrupted as well as its relationship to underlying pathology. In this work, we sought to model the whole brain scale brain function at a single cell level with cell type specificity based on whole brain imaging data obtained using optogenetic fMRI and electrophysiology. We were able to accurately predict in vivo neuromodulation results based on our model of whole brain function. To elucidate associated pathological mechanisms, we injected a-syn fibrils and imaged its spreading across 18 months using 3D brain clearing technologies (iDISCO). Utilizing 3D pathology across time, we segmented, quantified pathology and utilized it to model a-syn spread, aggregation, and degeneration. We were able to accurately reproduce the pathology changes across time and also predict the a-syn injection sites based on the model fit. Gene expression levels were also utilized to test which genes impact the a-syn pathology spread and degeneration. The ability to model both the brain function dynamics and pathology opens a new possibility of obtaining a comprehensive system level understanding of Parkinson's disease and can enable new therapeutics.

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Glial cells and their importance in healthy brain

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Glial cells have been considered nutritive cells for many years, but in the last decade manyscientists have published other functions for astrocytes, oligodendroglia, microglia, andendothelial cells. The main of this summary is to show the importance of the glia in neurological diseases. For moments, astrocytes play an important role as a protector of neurons against oxidative stress, controlling inflammation and regenerating the intake of damage. In addition, they play an important role in the architecture of sleep, producing the elimination of toxic elements during sleep processes (REM and non-REM). On the other hand, the glia is involved in numerous diseases, both neurodegenerative and developmental. Such as Parkinson's disease (PD) and Alzheimer's disease (AD) to schizophrenia or bipolar disorder. In conclusion, inflammation will be one of the first problems that appear in many neurological diseases with probably a chronic situation. Many of these diseases could develop due to decompensation between inflammatory mediators (pro and anti-inflammatory) that lead to cell death. In the future, the study of communication between brain cells will be necessary to understand many neurodegenerative diseases. Perhaps producing protection and increasing the health of brain cellswill be the next frontier.

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Designed multi target drugs targeting Neuroprotection, Neurorestoration and Mitochondrial biogenesis via activation of PGC-1a

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Novel therapeutic approaches for the treatment of Parkinson's disease (PD) comprise drug candidates designed specifically to act on multiple CNS targets, rather than a single "receptor' as has been done with cholinesterase inhibitors. Major pathology of AD is the accumulation of iron in nucleus basilus, dentate gyrus, amyloid plaques, and tangles and increase in monoamine oxidase (MAO).The iron contributes to the onset of oxidative stress and glutaminergic excitotoxicity via interaction with hydrogen peroxide generated by the reaction of MAO. We have synthesized several multi target non-toxic, brain permeable iron chelator drugs, M-30 and HLA-20, possessing propargyl MAO inhibitory moiety, with neuroprotective and neurorestorative activities. These drugs possess antiapoptotic, pro-survival neurorescue effects, induction of neuronal They induce the outgrowth of neuritis in neuronal cell cultures, trigger cell cycle arrest in G0/G1 phase and enhance the expression of growth associated protein-43, HIF (Hypoxia Inducing Factor) and increase brain levels BDNF,GDNF, VGEF and erythropoietin. This has been shown to be associated with the inhibition of iron dependent prolyl-4-hydroxylase, which regulates HIF. They possess neurorestorative activity in 4 in vivo models of Parkinson's disease and restore the cognitive deficit in APP/PSI double transgenic mice and the streptozotocin (STZ) models of Alzheimer's disease. Thus they may therapeutic for PD dementia.The dual control of mitochondrial biogenesis and energy metabolism is regulated by silent information regulator-1 and -3 (SIRT1 and SIRT3). The peroxisome proliferator activated receptor γ co-activator 1α (PGC-1α) is a transcriptional co-activator that is a central inducer of mitochondrial biogenesis in cells. SIRT1 is necessary for HIF-1α protein accumulation and activation of HIF-1 target genes and activates PGC-1α-mediated transcription of nuclear factor (Tfam) and mitochondrial genes encoding for proteins promoting mitochondria proliferation, We have shown that M30 and HLA-20 activate SIRT1, PGC-1α, and Tfam in cell cultures and consider them as a novel therapeutic approach for neurodegenerative disorders.

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Taxonomic distribution of medicinal plants for Alzheimer's disease: A Cue to Novel drugs

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Alzheimer's disease (AD) is a neurodegenerative disorder manifested by decline in memory and mild cognitive impairment leading to dementia. Despite global occurrence of AD, the severity and hence onset of dementia vary among different regions, which was correlated with the customary use of medicinal herbs and exposure level to the causatives. In spite of execution of versatile therapeutic strategies to combat AD and other neurodegenerative diseases, success is only limited to symptomatic treatment. The role of natural remedies remained primitive and irreplaceable in all ages. In some examples, the extracted drugs failed to show comparable results due to lack of micro ingredients. Micro ingredients impart a peerless value to natural remedies which are difficult to isolate and/or determine their precise role during treatment. A variety of plants have been used for memory enhancement and other dementia-related complications since ages. Acetyl choline esterase inhibition, antioxidant potential, neuroprotection, mitochondrial energy restoration, and/or precipitated protein clearance put a vast taxonomic variety into a single group of anti-AD plants. Secondary metabolites derived from these medicinal plants have the potential to treat AD and other brain diseases of common pathology. This review summarizes the potential of taxonomically diverse medicinal plants in the treatment of AD serving as a guide to further exploration.

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Quantify diurnal changes of cognitive abilities among 60-70 years old Parkinson's

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Cognitive dysfunctions are commonly present in most of the neurological disorders. Few of them are multiple sclerosis, post stroke cases, Alzheimer's disease, and in geriatric population. The prevalence of cognitive dysfunctions in Parkinson's disease (PD) is also well documented. In majority of the non demented Parkinson's patients cognitive deficits are present. Motor deficits are accompanied by cognitive impairments in PD. Selective cognitive impairments present in PD are attention deficits, impaired concentration, executive functions, learning and memory. These cognitive dysfunctions adversely affect the social and occupational life of the patient. These impairments could be serious problem to plan rehabilitation programme for patients. There are fluctuations in the cognitive abilities in neuro pathological conditions like multiple sclerosis and post stroke cases. These fluctuations could be related to changes in attention and executive functions, which isessential for performing motor task while giving neurological rehabilitation. It is important for us to know that when patient can perform cognitively better over the course of the day as, we need to structure and schedule their rehabilitation programme accordingly. For the successful therapeutic approach and restoration of patient and to improve their quality of life, we should plan the programme according to cognitive functioning of the patient. As learning can occur when, patients are cognitively better. Objectives: To evaluate the diurnal changes in cognitive abilities of patients with PD Over thecourse of the day Methods: Ten PD patients diagnosed confirmed through neuro psychiatrist. The cognitive functions quantified through "Mini mental Scale examination" for screening. Next, the subjects who met inclusion criteria were tested at three different times of the day (morning, noon and in the evening) using PDCRS. Entire scores on the PD-CRS were deliberated by total the subcortical and cortical PD-CRS scores (0-134).Each session lasted for 10-15 minutes Results: There was a significant difference in the cognitive abilities on the total score of PDCRS between morning to afternoon.

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