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Noninvasive intranasal stem cells and other therapeutic cells bypass the blood-brain barrier to target the CNS to treat Parkinson's disease, stroke, neonatal ischemia, hemorrhage, multiple sclerosis, brain tumors, TBI, Alzheimer's and other CNS disorders

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Together with my collaborators in Germany, especially Lusine Danielyan MD, we discovered and patented that therapeutic cells, including adult stem cells and genetically-engineered cells, can be non-invasively delivered to the brain using the noninvasive intranasal delivery method that I developed. The first of our scientific papers on this new discovery describes this successful method of delivery and proprietary formulations that enhance the delivery. The second of our papers describes the successful treatment of Parkinson's disease in an animal model with intranasal adult bone marrow derived mesenchymal stem cells. Intranasal stem cells bypass the blood-brain barrier to target the brain by traveling extracellularly along the olfactory neural pathway with minimal delivery to other organs. Once in the brain, adult stem cells target the damaged areas of the brain, specifically to treat the underlying disease. Researchers at University Medical Center Utrecht in the Netherlands have demonstrated the effectiveness of intranasal stem cell treatment technology in an animal model of neonatal cerebral ischemia and also in animals with neonatal brain damage and subarachnoid hemorrhage. Researchers at Emory University have used our intranasal stem cell treatment successfully in an animal model of stroke, and researchers at Uppsala University in Sweden have demonstrated that intranasal T regulatory cell therapy delivered and targeted the cells to the brain and efficiently suppressed ongoing inflammation in an EAE model of multiple sclerosis leading to reduced disease symptoms. Intranasal adult neural stem cells have also been shown to improve the EAE model of MS as having intranasal mesenchymal stromal cells. Other researchers have reported that intranasal stem cells target and treat brain tumors. This intranasal delivery, targeting and treatment technology can make stem cell treatments, practical for CNS disorders by eliminating the need for invasive neurosurgical implantation of cells and by eliminating the need for intravenous delivery that disperses cells throughout the body resulting in an unwanted systemic exposure. This delivery and treatment method can facilitate the development of stem cell and genetically-engineered cell therapies for Parkinson`s, PSP, Huntington's, Alzheimer`s, MS, stroke, neonatal ischemia, brain tumors, Traumatic Brain Injury (TBI), Spinal Cord (SCI) Injury, etc. This non-invasive delivery, targeting and treatment technology is available for licensing worldwide.

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Impact of phycocyanin and SOD loading amongst elderly women: The Philippines experience from December 2014 to January 2015

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This study is a randomized controlled trial with placebo in 55 elderly Filipinas. A baseline study of the subjects' blood chemistry profile such as blood lipid profile, myocardial oxygen and vitamin, mineral and toxins through QMRA was done before embarking on the study. 5 women dropped out from the study due to migration factor while the 50 elderly women were able to finish the 8 weeks study. Inclusion criteria were women 60 year old, symptom-free of any degenerative changes for 6 months and those with no previous surgical history. The 25 subjects were given Phycocyanin with SOD at 3500 to 4000 mg per day for a period of 8 weeks while the remaining 25 subjects were given placebo. This study was conceptualized with intention to treat. Results showed p value of $P<0.5$ which is statistically significant. The 25 elderly women who were given 3500-4000 mg of Phycocyanin with SOD showed remarkable improvement as to their lipid profile, blood glucose and vitamin and mineral content, reduction of toxins and increase in myocardial oxygenation and gained more youthful appearance and stamina.

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