

World Summit on

# CLIMATE CHANGE & GLOBAL WARMING

&amp;

International Conference on

# BRAIN STIMULATION

November 26-27, 2018 | Tokyo, Japan

## TiO<sub>2</sub> nanodelivered cerebrolsytin: A novel therapeutic approach for brain pathology in CNS injuries

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Central nervous system (CNS) injuries either caused by trauma or metabolic insults induces brain pathology involving neuronal damages, astrocytic reaction and myelin vesiculation resulting in serious behavioral, psychological, mental and physical abnormalities. Thus, novel efforts are needed to contain neuronal cell damages and to restore loss of function by reducing agents causing neurotoxicity as well as enhancing endogenous factors helping in neurorepair or neuroregeneration. Thus, no single drug or compounds are capable to induce multifunctional aspects of CNS injuries and accomplishing the goal in patients for neurorehabilitation or neurorecovery. However, presence of the blood-brain barrier (BBB) in the CNS could reduce or prevent access of several drugs and compounds when given through systemic routes. Thus, effective concentration of drugs to reach injured brain tissues under

traumatic, metabolic or ischemic insults is normally not possible for achieving the desired therapeutic goals. Our laboratory is engaged in TiO<sub>2</sub> nanowired delivery of drugs in CNS injury and found great benefit of using this mode of nanodelivery as compared to the parent compounds in high doses. Cerebrolsytin (Ever Neuro Pharma, Austria) is a multimodal drug containing a balanced composition of several neurotrophic factors and active peptide fragments is thus quite suitable for nanodelivery to treat CNS injuries. Our experiments show that trauma either caused by impact injury or lesions of the brain or spinal cord results in exacerbation of pathophysiology and behavioural disturbances in diabetic or hypertensive rats as compared to identical trauma in healthy animals.

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