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induced rat model of Alzheimer's disease

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Alzheimer's disease (AD) featuring dementia, cognitive de cits and behavioral alterations is one of the most common prevalent neurodegenerative diseases a ecting majorly elderly people termed as sporadic AD. Global prevalence of AD is sharply increasing, expected to a ect almost 115 million people by 2050. Down regulation of insulin signaling pathway of PI3K-AKT plays a signi cant role in the pathophysiology of AD. Intracerebroventricular streptozocin as a model of sporadic Alzheimer's disease is being established. Animals are divided into various groups comprising normal control, sham control, diseased and drug treated groups. Protocol lasts for 21 days, sacri cing animals on the 22nd day followed by isolation o serum and dissection of cortex and hippocampus, preserving the same for further analysis. Behavioral studies, biochemica estimations and molecular techniques are done for evaluating several parameters of control, diseased and treated groups animals. Behavioral studies like Morris water maze, novel object recognition and actophotometer are performed for cognition, memory and locomotor activity. Biochemical estimations for antioxidant activity are performed by glutathione reductase assay, catalase assay, glutathione S-transferase assay, lipid peroxidation assay, superoxide dismutase assay and protein carbonyla assay. Protein concentrations are determined by biuret method. Cholinergic activity is determined by acetylcholinesterase assay. In ammatory cytokines like TNF- and IL-6 are determined by ELISA method. Mitochondrial dysfunction is evaluated by estimating mitochondrial enzyme complex I, II, III and IV. Histopathology is done. Molecular techniques like western blotting for Akt protein and RT-PCR for PI3-K, AKT, p-AKT, NF- and GSK 3- is performed for gene expression analysis.