

**Visual Abstract. Neural stem cell extracellular vesicle treatment was neuroprotective in the gyrencephalic pig brain.** NSC EV treatment resulted in significant improvements in the brain including decreased cerebral infarct volumes and less swelling in the brain relative to control animals, as well as preserved white matter integrity in the brain. These structural benefits were paralleled by functional improvements, including increased exploratory behavior and faster restoration of spatiotemporal gait parameters. Collectively these data support the further development of NSC EVs as biologic thereapeutics for the potential treatment of stroke.