

SUMMARY

rhPDV-LG3 has demonstrated significant therapeutic efficacy in multiple stroke models. Here we investigated its potential as a post-therapy for moderate to severe CCI-TBI, and as a prophylactic for mild blast TBI. **LG3 treatment greatly improved post-TBI functional and physiologic outcomes in a mouse CCI-TBI model, and restored instinctive explorative performance in a novel environment following repeat mild blast TBI in rats.**

Our Mission

Stream Biomedical was founded to address unmet therapeutic needs for individuals suffering as a result of neurological trauma and/or degeneration. The mission is to save brain and associated function from potentially debilitating outcomes... to best preserve what makes us who we are. Through rigorous translational research we are actively pursuing development of effective therapies for a range of neurotraumatic & neurodegenerative conditions.

METHODS and DESIGN

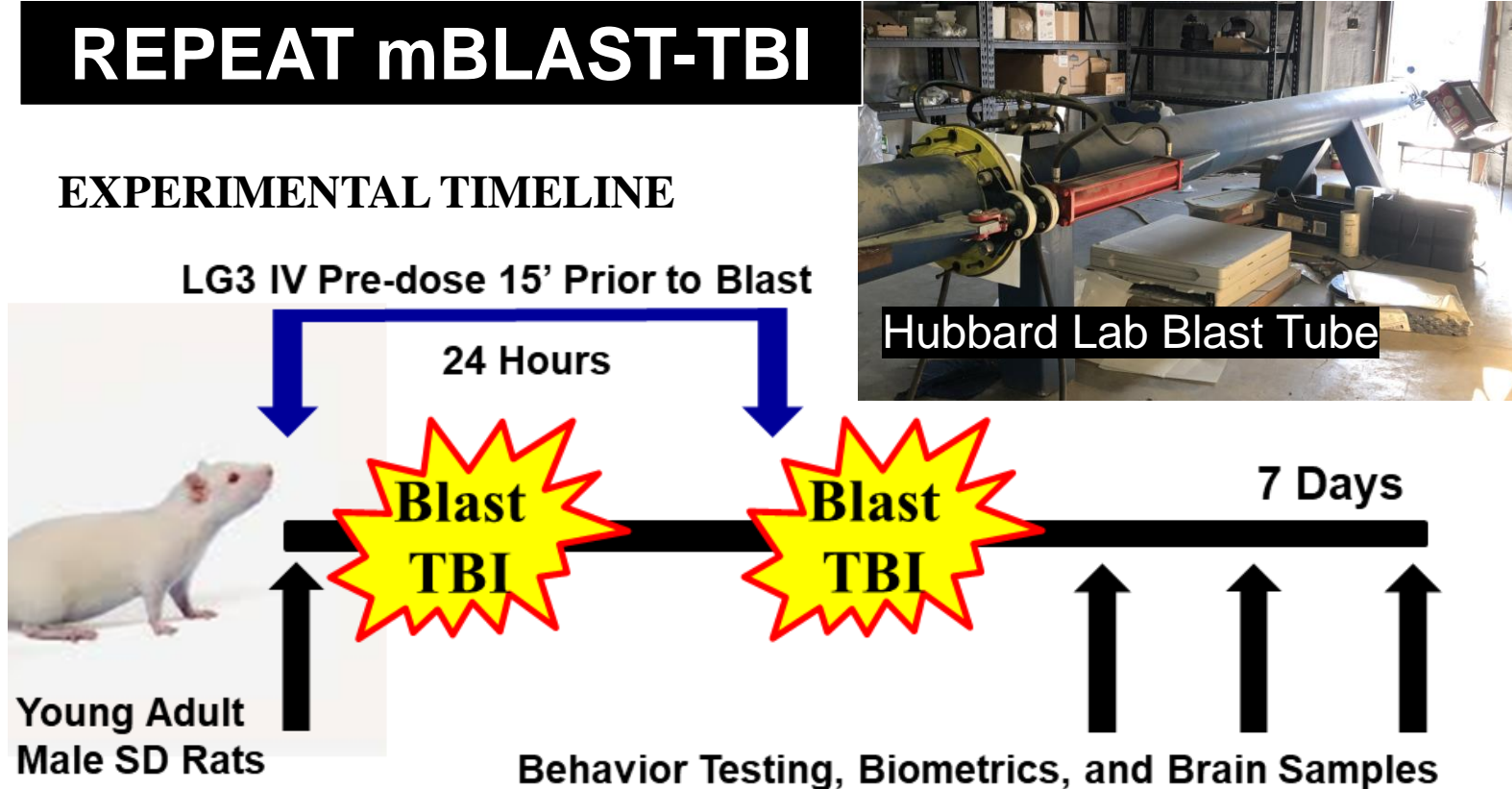
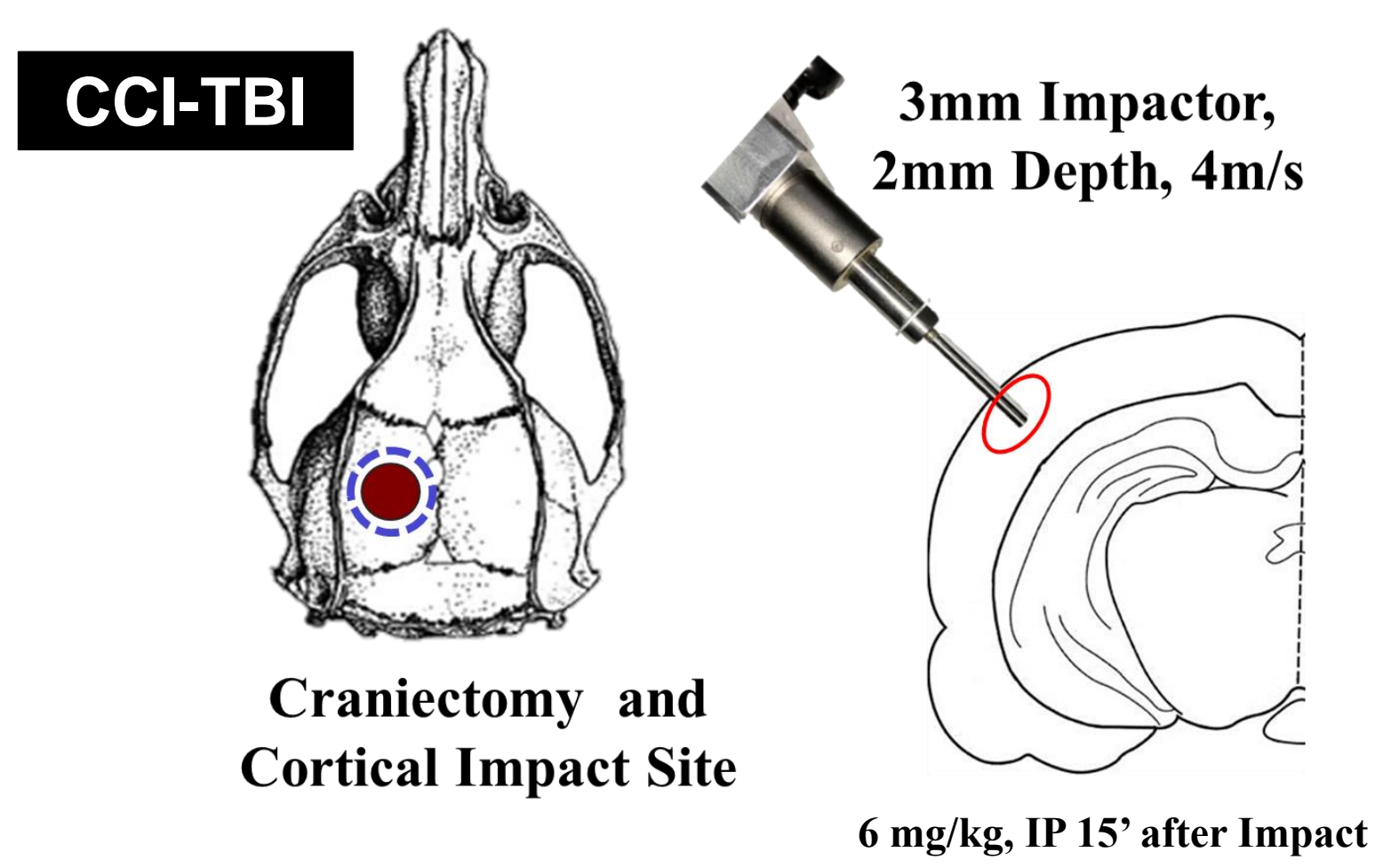


Figure 1. Details and Structure of CCI-TBI and mBlast TBI Studies.

RESULTS

LG3 IMPROVES POST CCI-TBI FUNCTIONAL OUTCOMES

Post-TBI IP administration of LG3 at 30 minutes dramatically improves functional outcomes in moderate-to-severe impact CCI-TBI model in WT mice.

D0 n= 23-24
D1 n=23-24
D3 n= 13-14
D7 n= 6-7

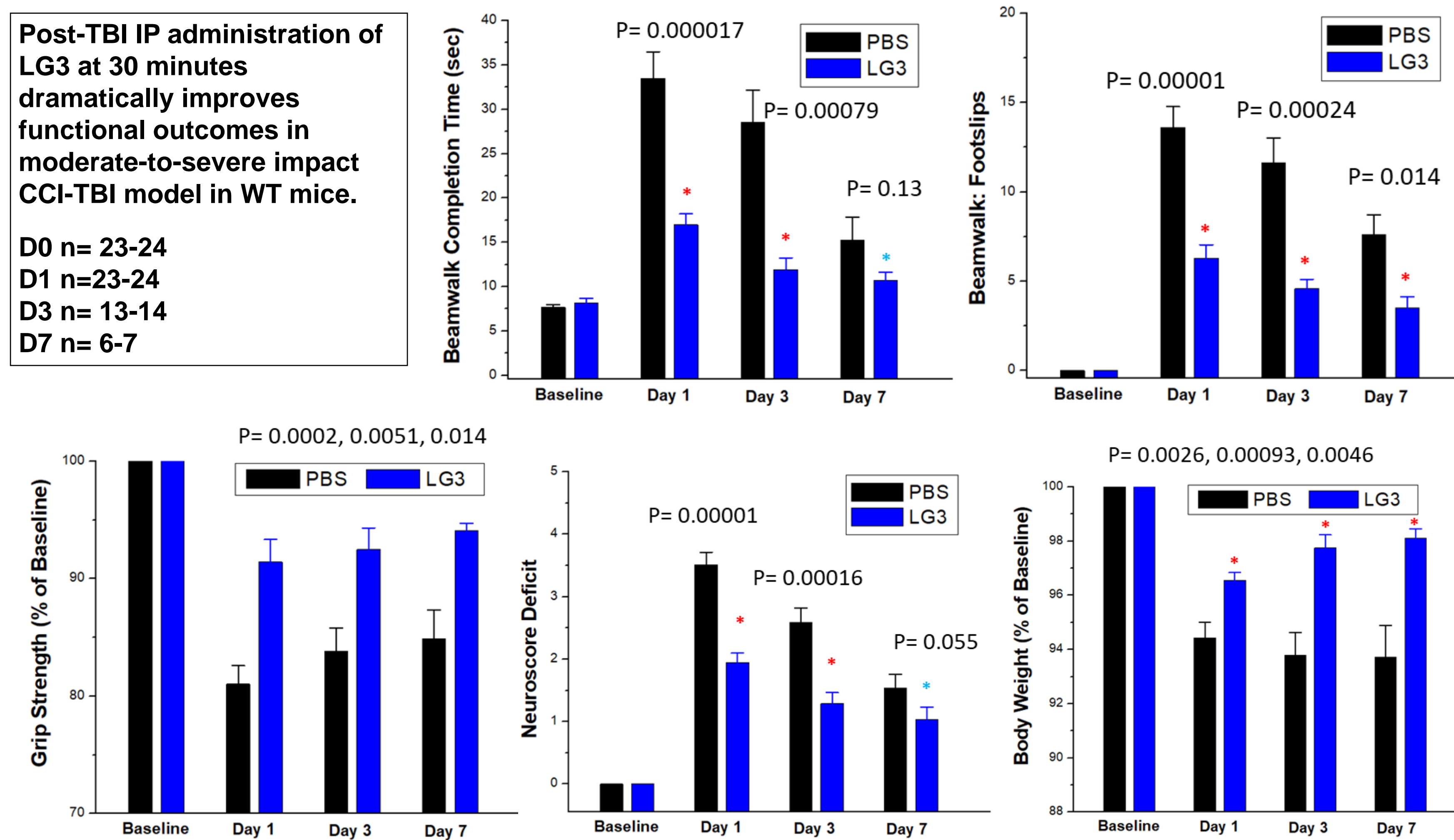


Figure 2. 7 Day Time-course of Functional Recovery Following TBI. LG3 treatment ameliorated acute functional deficits and improved physiologic outcomes following severe CCI-TBI in Mice. Beamwalk, 4-limb Grip Strength, Neuroscore, and Body Weight outcomes were all significantly improved with a single dose of LG3 (6 mg/kg, IP) 15' following impact.

LG3 RESTORES FUNCTION FOLLOWING REPEAT mBLAST TBI

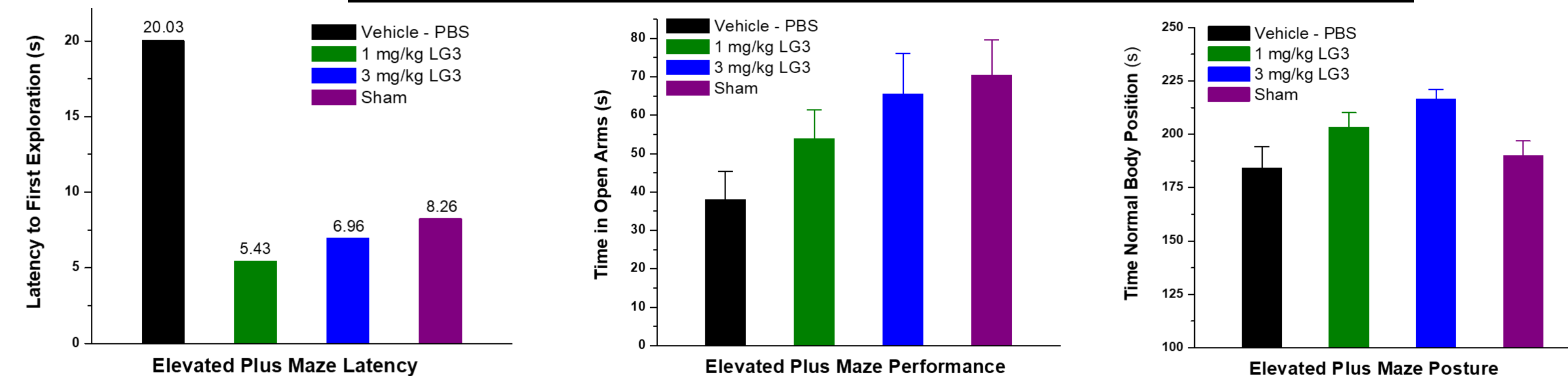
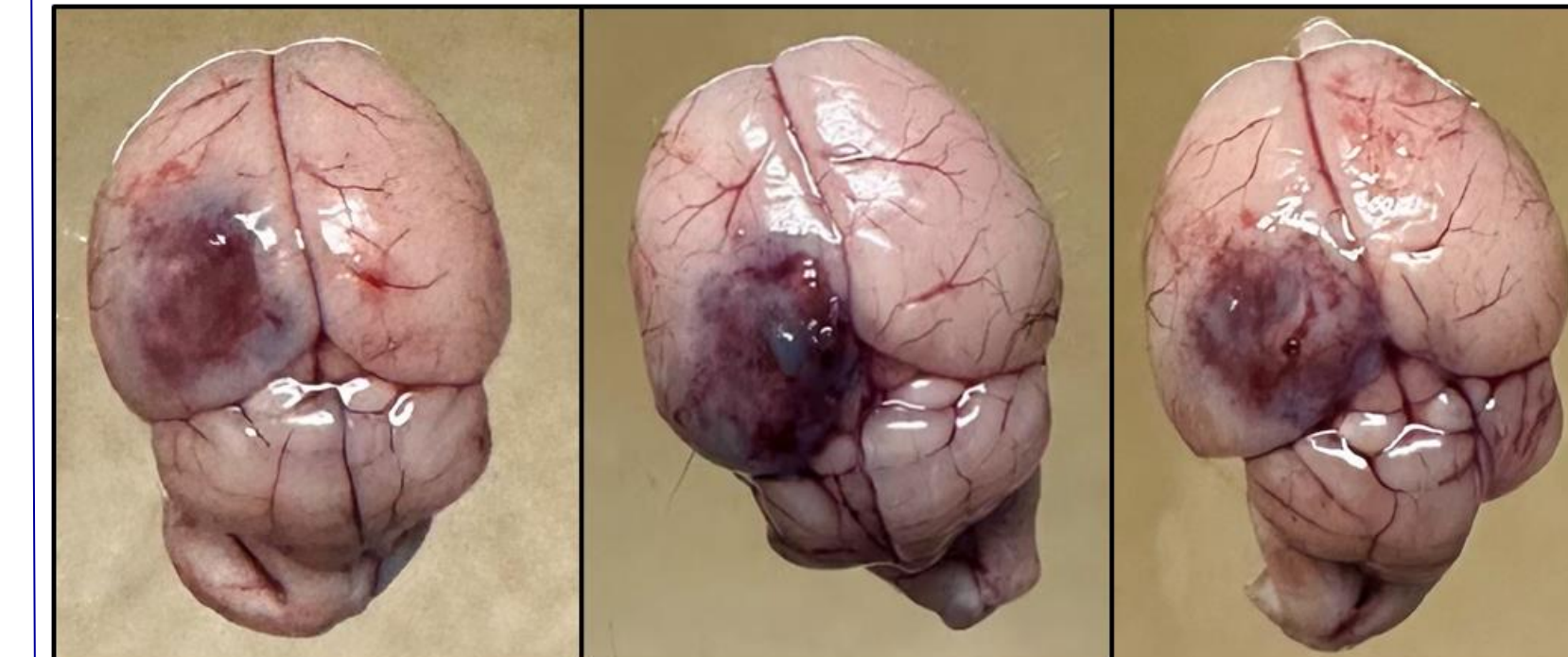


Figure 3. Day 7 Post-Blast Elevated Plus Maze. LG3 treated rats displayed fewer fear and anxiety-like behaviors and resumed normal explorative activities. N=6/group

LG3 REDUCES ACUTE BBB DISRUPTION

PBS Treated – 24hr Post-Impact



LG3 Treated – 24hr Post-Impact



Figure 4. Evan's Blue Permeation at 24hr following severe CCI-TBI Impact.

LG3 REDUCES POST-TBI NEURONAL INJURY

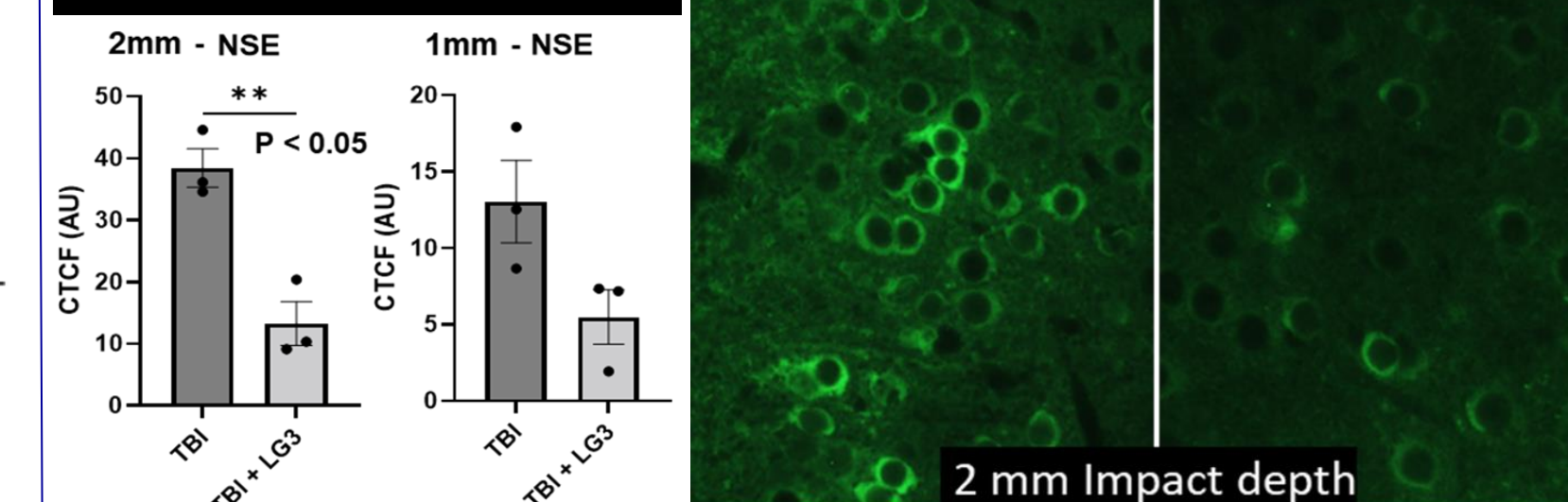


Figure 5. NSE Quantification in Control and LG3 treat subjects 7 Days post-Impact

CONCLUSIONS

These results provide emerging evidence supporting recombinant human Perlecan Domain V - LG3 as a potent neuroprotective and functionally-restorative therapy following mild repeat blast TBI and moderate-to-severe CCI-TBI. LG3 treatment (and prophylaxis) rapidly and profoundly improved acute functional recovery following TBI, with striking results observed in BBB permeability as early as 24hr post-impact. LG3 could provide ground-breaking therapy for unmet need in a wide range of TBI conditions, including military and civilian (falls/sports/auto) applications.

REFERENCES

Biöse et al., Recombinant Human Perlecan DV and Its LG3 Subdomain Are Neuroprotective and Acutely Functionally Restorative in Severe Experimental Ischemic Stroke. Transl Stroke Res. 2022 Dec 12:10