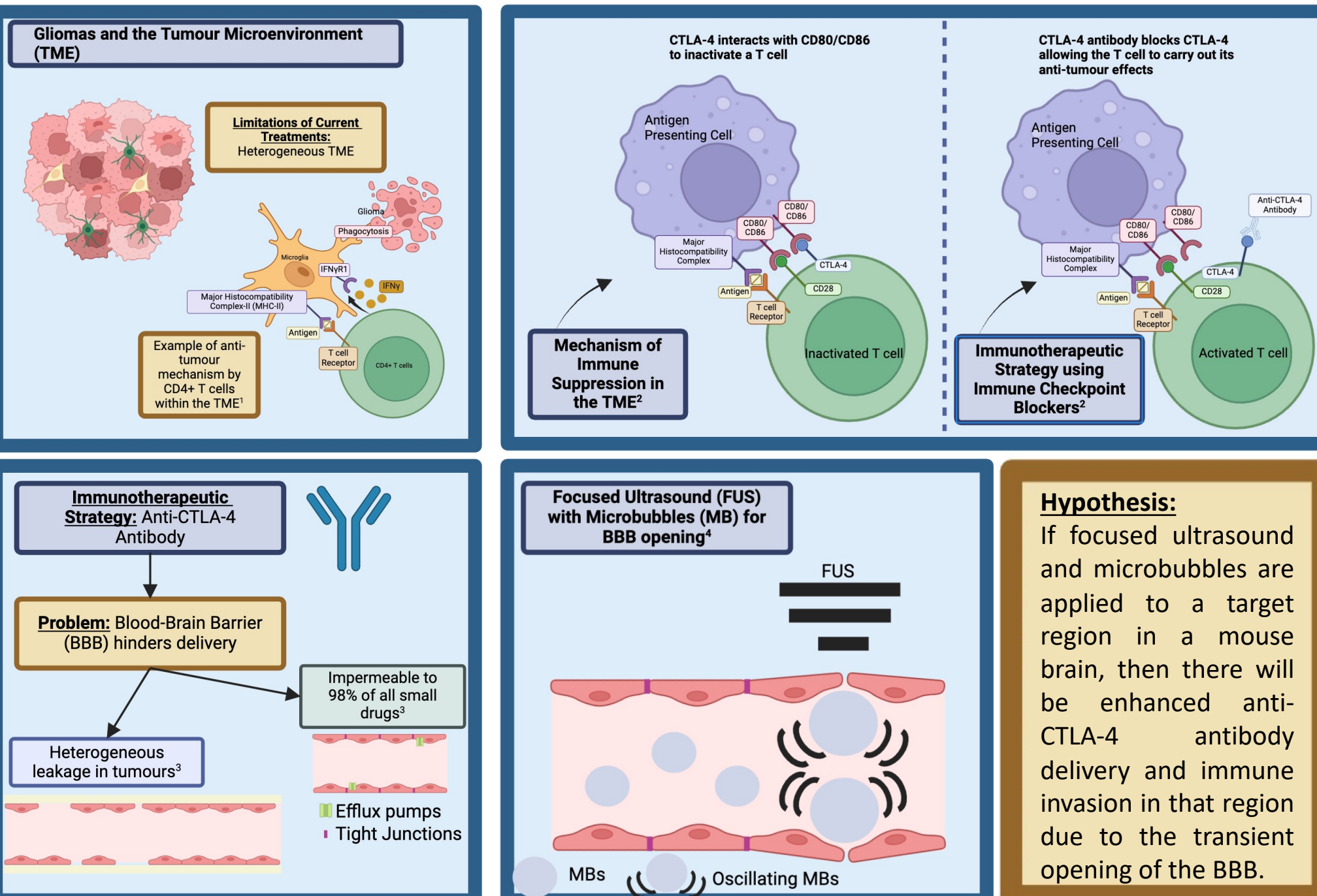


Focused Ultrasound with Microbubbles as a Glioma Therapeutic Strategy to Improve the Delivery of Immune Checkpoint Blockers to the Brain

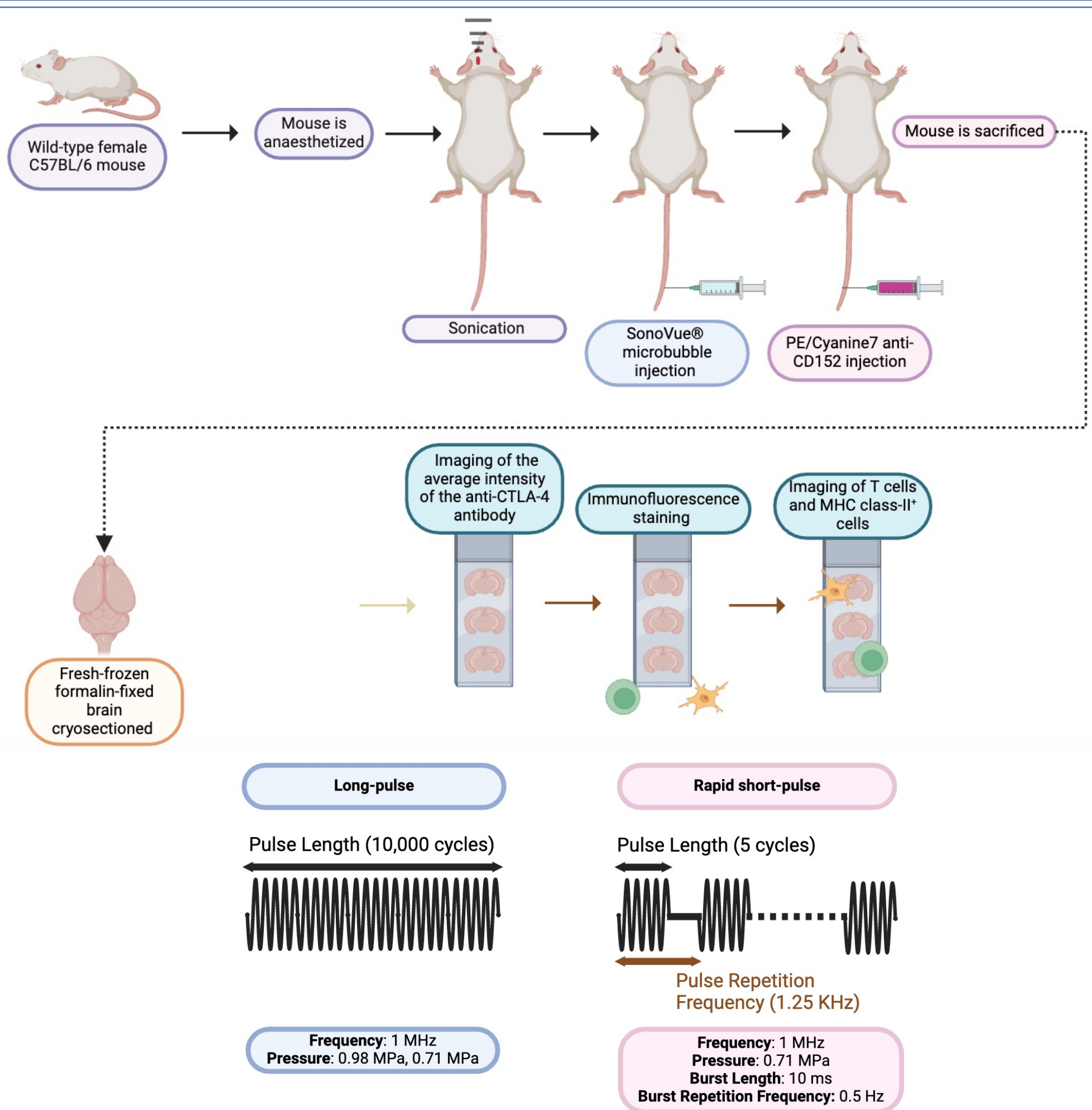
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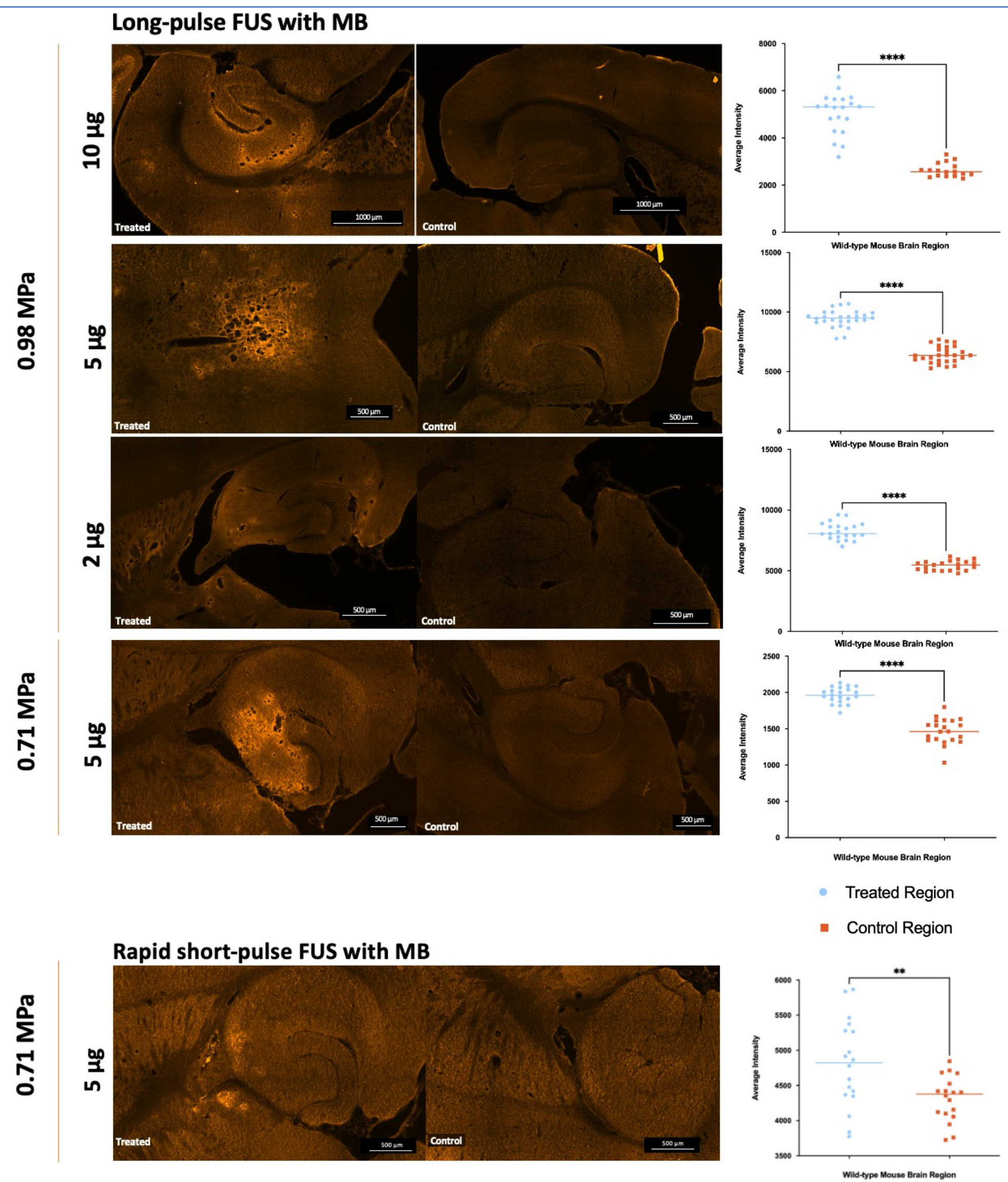
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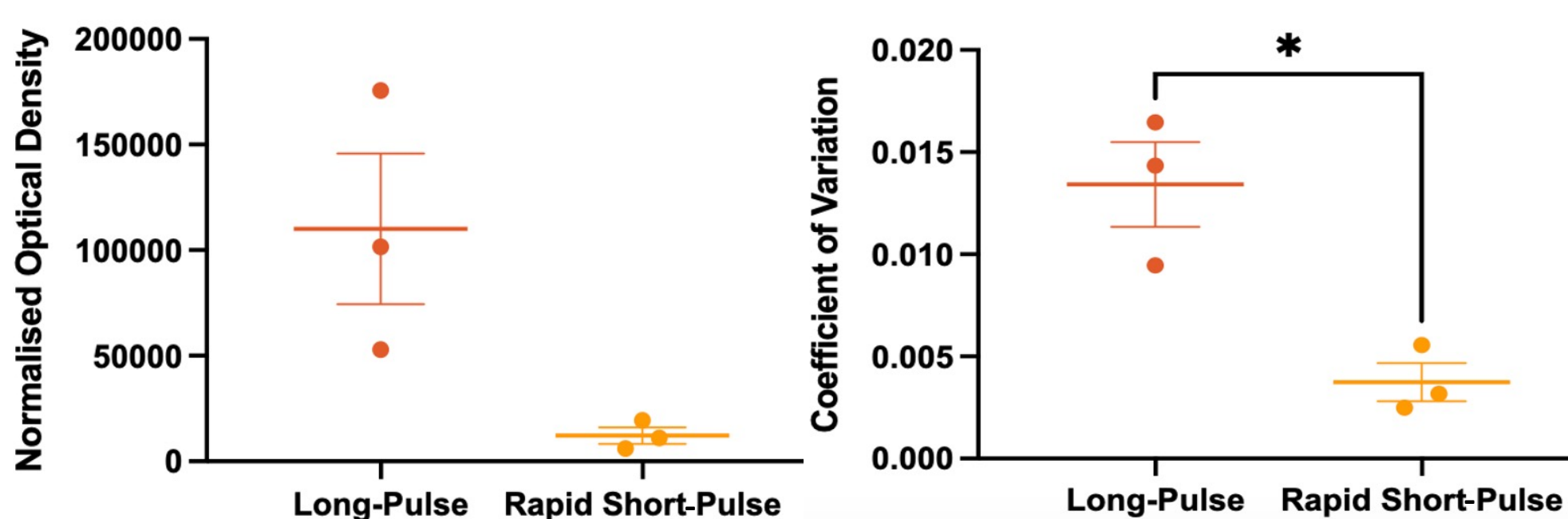
Methods



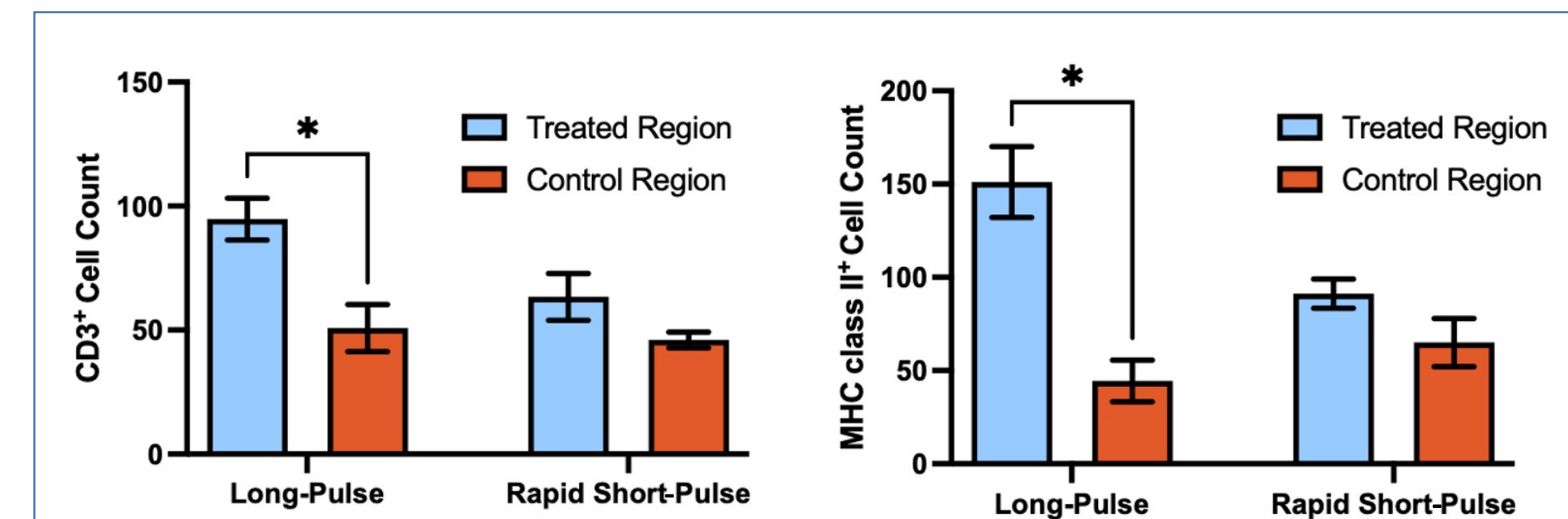
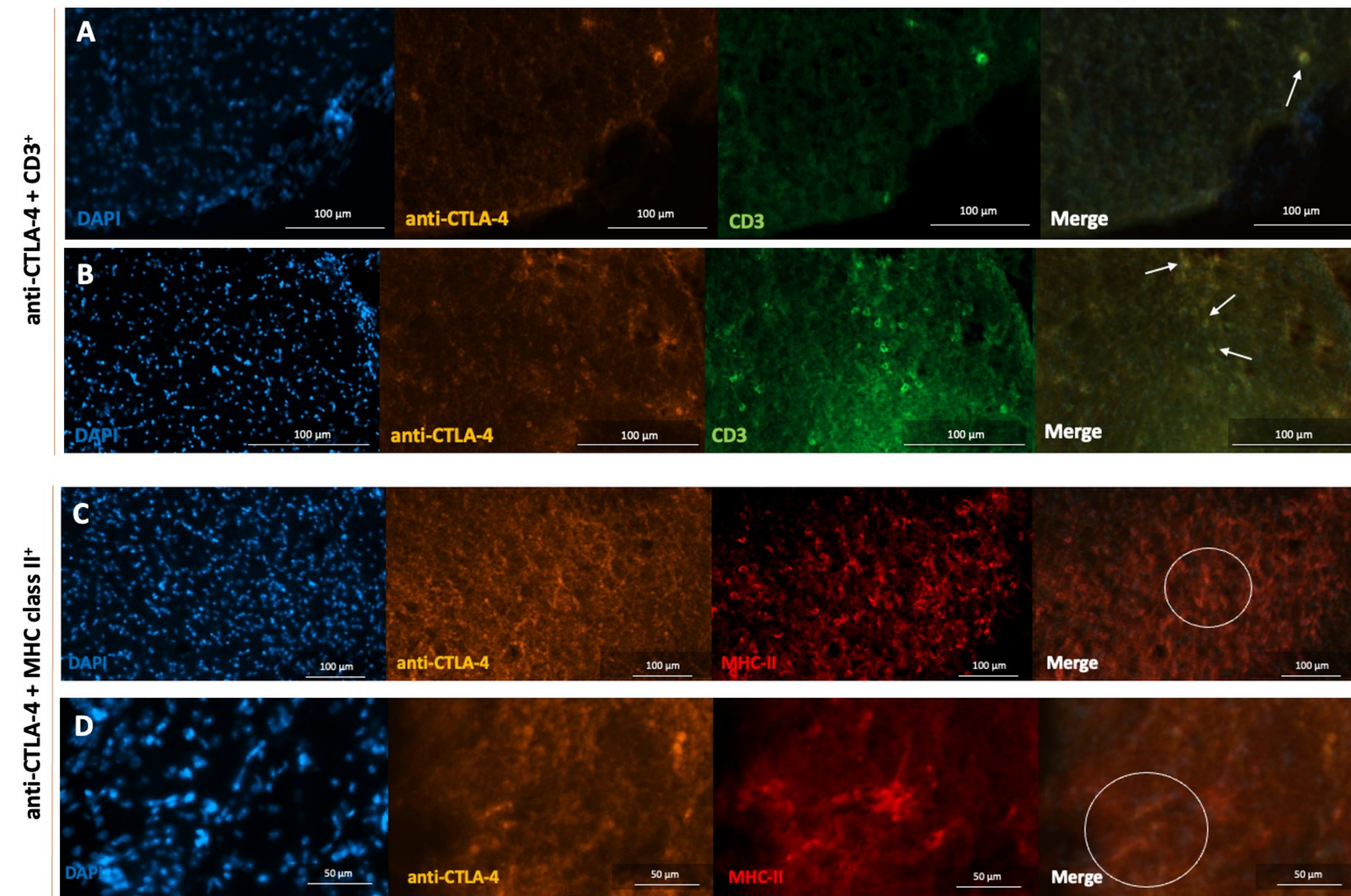
Focused ultrasound with microbubbles improves anti-CTLA-4 antibody delivery to the brain



Long-pulse vs Rapid short-pulse delivery



Focused ultrasound with microbubbles modulates the immune microenvironment



Conclusions and Future Work

- Focused ultrasound with microbubbles significantly increased the delivery of anti-CTLA-4 antibody across the blood-brain barrier.
- Rapid short-pulse focused ultrasound promoted a uniform immune checkpoint delivery but only long-pulse focused ultrasound enhanced immune invasion.
- Future work:** Treat an LPS-induced neuroinflammatory mouse model with the same parameters of focused ultrasound to test if there is still improved delivery and immune invasion in an inflamed environment.

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