# BACKGROUND

- Chronic pain is estimated to affect 1.5 billion people worldwide.
- CD44 functions as a receptor, and has been implicated in inflammation associated with neuronal injuries.
- VCAM-1 helps regulate inflammation-associated vascular adhesion.
- An increase of proinflammatory factors and a reduction of neurotrophic factors have been reported to modulate the hippocampal neurogenesis and neuroplasticity in chronic pain.
- The spared nerve injury (SNI) model induces symptoms of neuropathic pain.

# METHODS

- On day 0, the SNI surgery is performed; half of the mice get the surgery, the other half get the sham surgery.
- On day 1, the mice get injected intraperitoneally with 0.1 mL of buprenorphine.
- On day 1, 7, 28, the mice get behavior testing. They go through the Y maze, open field, zero maze and von Frey analysis.
- Five of the sham mice and five of the injured mice are perfused with PBS solution, while the other ten are perfused with the microphil solution.
- The mice are then sacrificed and the sectioning of their brains takes place later on.
- Using IHC, the brain sections are stained and then using the Keyence are imaged.
- The images will be further processed and then quantified by cell count and intensity using ImageJ.

# RESULTS

The above images are brain sections stained blue with DAPI, red with VCAM, green with CD44 and the overlap.

# CONCLUSION

This study will allow for a better understanding of how chronic pain affects the microvasculature of the brain.

# REFERENCES


# ACKNOWLEDGEMENTS

- Dr. Tajerian and the members of the Tajerian-Alvarado lab.
- This work was supported by the Undergraduate Summer Research program (USRP) and the National Institute of Health (NIH).