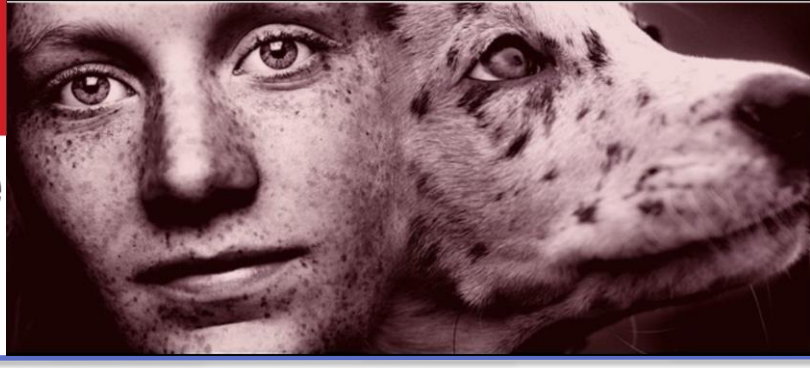
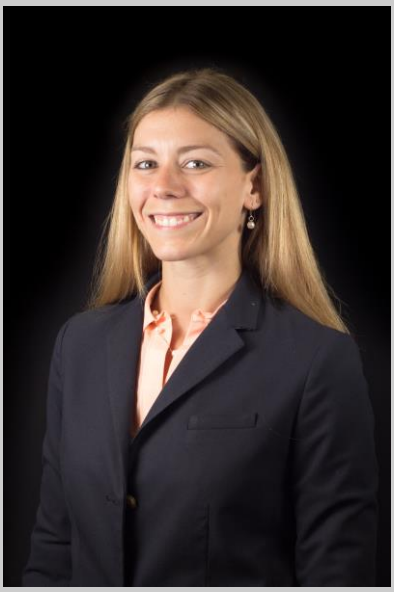
NC STATE UNIVERSITY

Comparative Medicine Institute



Ashley C. Brown, PhD



Assistant Professor
Department of Biomedical Engineering
CMI Member

Postdoc, Chemistry and Biochemistry/Biomedical Engineering, Georgia Institute of Technology, Atlanta, GA

PhD Bioengineering, Georgia Institute of Technology, Atlanta, GA

B.S. Biosystems Engineering, Clemson University, Clemson, SC

Address: Joint Department of Biomedical Engineering at NCSU and UNC-Chapel Hill
911 Oval Drive
4204B Engineering Building III
Raleigh, NC 27606

Phone: 919-513-8231
Email: aecarso2@ncsu.edu

http://www.bme.unc.edu/labs/awrl/wordpress/

Microgels for Advanced Wound Repair

Research emphasis:

Dr. Brown's research centers on developing novel microgel-based materials for a variety of biomedical applications including augmentation of hemostasis, enhanced wound healing, evaluation and modulation of cellular mechanotransduction and development of biosynthetic constructs for regenerative medicine. Current projects include development of microgel-based platelet-like particles (PLPs) and other microgel assemblies for augmentation of hemostasis and regenerative medicine.

Application:

- Hemostatic Materials
- Mechanotransduction Mechanisms
- Regenerative Medicine
- Engineering Cellular Microenvironments

Collaboration potential:

- Biomaterials for hemostasis and wound healing
- 2D and 3D platforms for regenerative medicine and understanding cell/ECM interactions
- Small animal models of trauma

Selected publications:

- **Brown, A.C.***, Stabenfeldt, S.E.*, Ahn, B., Hannan, R., Dhada, K., Herman, E., Stefanelli, V., Guzzetta, N., Alexeev, A., Lam, W.A., Lyon, L.A., Barker, T.H. Ultrasoft microgels displaying emergent platelet-like behaviours. *Nature Materials,* 2014, **12**, 1108-14. doi:10.1038/nmat4066
- Qui, Y.*, **Brown, A.C.***, Myers, D.R., Sakurai, Y., Mannino, R., Tran, R., Ahn, B., Hardy, E., Kee, M., Kumar, S., Bao, G., Barker, T.H., Lam, W.A. Platelet mechanosensing of substrate stiffness during clot formation mediates adhesion, spreading and activation. *PNAS*, 2014, doi: 10.1073/pnas.1322917111
- **Brown, A.C.**, Fiore, V.F., Sulchek, T.A., Barker, T.H. Physical and chemical microenvironmental cues orthogonally control the degree and duration of fibrosis associated epithelial to mesenchymal transitions. *J Pathol*. 229, 25-35, 2013
- **Brown, A.C.**, Baker, S., Douglas, A., Keating, M., Alvarez, M., Botvinick, E., Guthold, M., Barker, T.H. Molecular interference of fibrin's divalent polymerization mechanism enables modulation of multi-scale material properties. *Biomaterials*, 2015, **9**, 27-36. doi: 10.1016/j.biomaterials.2015.01.010