



Michael Daniele



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Biosensors / Organ-On-Chip Models (Functional Tissue Engineering)

Research emphasis:

Our primary area of interest is the broad application of soft nanomaterials to engineer devices which monitor, mimic or augment biological function. Specific topics of research include wearable and implantable biosensors, organ-on-chip models, and human-machine interfaces. Examples of our work can be explored on our website, biointerface.ece.ncsu.edu

Application:

- Tissue microfabrication
- *In vitro* tissue models
- Pathology
- Wearable Sensors
- Biochemical Sensing

Collaboration potential:

- Translation from animal to human by developing *in vitro* models of human vascularized tissue
- Real-time tracking of biometrics with implantable sensors
- Engineering of cellularized constructs for regenerative medicine applications

Selected publications:

Steven A. Roberts, Kyle A. DiVito, Frances S. Ligler, Andre A. Adams and M.A. Daniele* "Microvessel manifold for perfusion and media exchange in three-dimensional cell cultures." *Biomicrofluidics*, (in press)

Daniele, M., Adams, A.A., Naciri, J., North, S.H., Ligler, F.S. 2014. *Interpenetrating Networks Based on Gelatin Methacrylamide and PEG Formed Using Concurrent Thiol Click Chemistries for Hydrogel Tissue Engineering Scaffolds*. *Biomaterials* 35: 1845-1856.

Frances S Ligler, André A Adams and M.A. Daniele 2016. *Micro blood vessels and tissue ducts*. US Patent 9157060.

Sidhartha Jandhyala, Scott A. Walper, Allison A. Cargill, Abigail Ozual and M.A. Daniele. *Integration of biochemical sensors into wearable biomaterial platforms*. *Proc. SPIE* 9863, Smart Biomedical and Physiological Sensor Technology XIII, 98630Q (May 13, 2016)