

Research Topic	Staining for Tissue Damage Assessment	Graduate School of Engineering
Host University	Clemson University / Clemson, South Ca /U.S.A	Applied Chemistry, Environmental and Biomedical Engineering
Duration	From Dec/28/2022 to Jan/31/2023	HIGUCHI Megumi

## Summary of the Research Activities

My research is about developing new medical instruments. Surgical instruments such as electric scalpels and ultrasonic scalpels are used for suturing in surgery. However, those methods have several disadvantages. It takes much time in electric scalpels. Ultrasonic scalpels may cause burn because they are too hot. To solve these problems, I am developing new bioadhesive devices and verify them using animal tissue.

In the BTRL (Biocompatibility and Tissue Regeneration Laboratory), the effects of diabetes to the heart and arteries are studied. Decellularization, cell culture, and bioreactor technologies are used to verify and evaluate the effects.

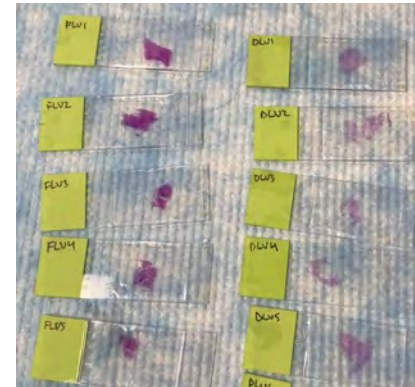
I joined the experiment for evaluating diabetic cardiomyopathy using tissue staining. I used two types of staining of DAPI and H&E. Also, I learned the way of sectioning to make tissue specimens.



Porcine heart



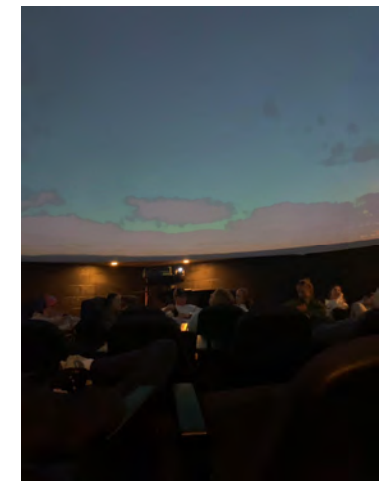
Sectioning



H&E staining

## College Life, Friends and Others

Clemson university has various facilities. I went to the planetarium. It was very interesting experience.



## 指導教員講評

新しい技術や知識が習得でき、楽しい経験もできたようで、とても良かったです。得られた経験を今後活かせるよう期待しています。

指導教員氏名: 藤里俊哉