

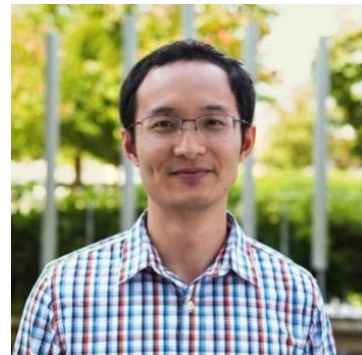
## HSC Imaging Core Newsletter May 2023

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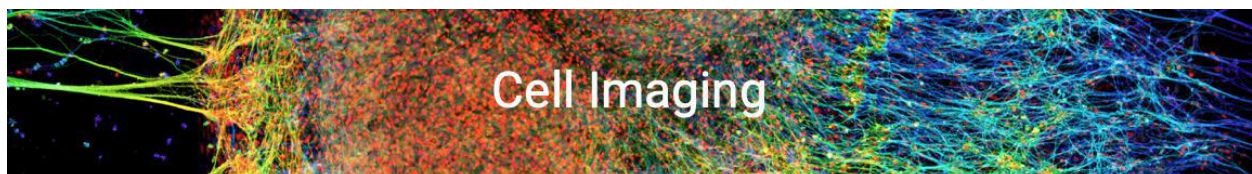
### **1. New Nikon Ring-TIRF/ Spinning Disk Confocal Microscope With Additional Photo-Stimulation Capability**

We are grateful that Dr. Yang Liu, a new Assistant Professor from the Department of Biochemistry, would like to share his brand-new dual Nikon Ring-TIRF/Spinning Disk Confocal microscope to benefit our core users and research community.



Dr. Yang Liu joined the Department of Biochemistry in the summer of 2022. Prior to this, Dr. Liu served as a Cottrell Postdoctoral Fellow at Johns Hopkins University School of Medicine. Dr. Liu's research expertise lies in the fields of Nucleic Acids, Gene Editing, Biotechnologies, Single-molecule Biophysics, Cell Dynamics, and Immunity studies. Dr. Liu has achieved significant recognition for his research, with publications in high-impact journals such as Science, Nature Communications, and Nature Cell Biology. Currently, Dr. Liu's laboratory focuses on investigating how cellular machinery detects, signals, and repairs DNA damage by employing cutting-edge techniques in chemical biology, biophysics, and genetics.

To learn more about Dr. Liu's accomplishments and ongoing research interests, please visit his official website at <https://liu.biochem.utah.edu/>. There, you can explore potential opportunities for collaboration and dig deeper into the fascinating work being conducted in Dr. Liu's lab.



## Nikon Ring-TIRF/ Spinning Disk Confocal Microscope

### Excitation (9 lasers):

4-line Spinning Disk Confocal (405, 488, 561, 640 nm excitation lines)

Spot-, Arc-, and Ring-TIRF (488, 561, 640 nm excitation lines)

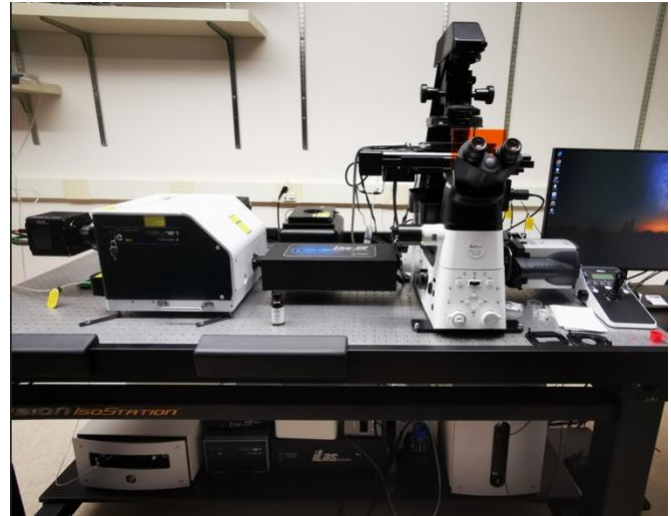
Simultaneous photomanipulation (405, 473 nm lines)

### Lens:

10X, 20X regular lens,

60X, 1.49 NA, 0.12 mm Working Distance, TIRF lens

100X, 1.49 NA, 0.12 mm Working Distance, TIRF lens



### Accessories:

Live-cell Incubator including temperature, CO<sub>2</sub>, humidity control, and lens warmer.

200 nm Piezo Z

Encoded motorized XY Stage

Perfect Focus 4 focus stabilization system

EMCCD Andor iXon Camera

Dual Kinetix Back Thinned sCMOS Cameras

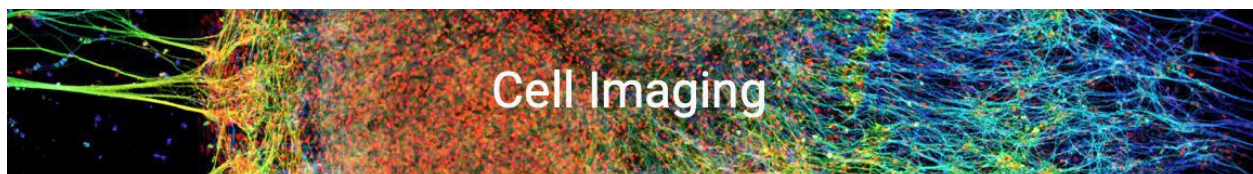
Anti-vibration table

### Nikon Elements Analysis software:

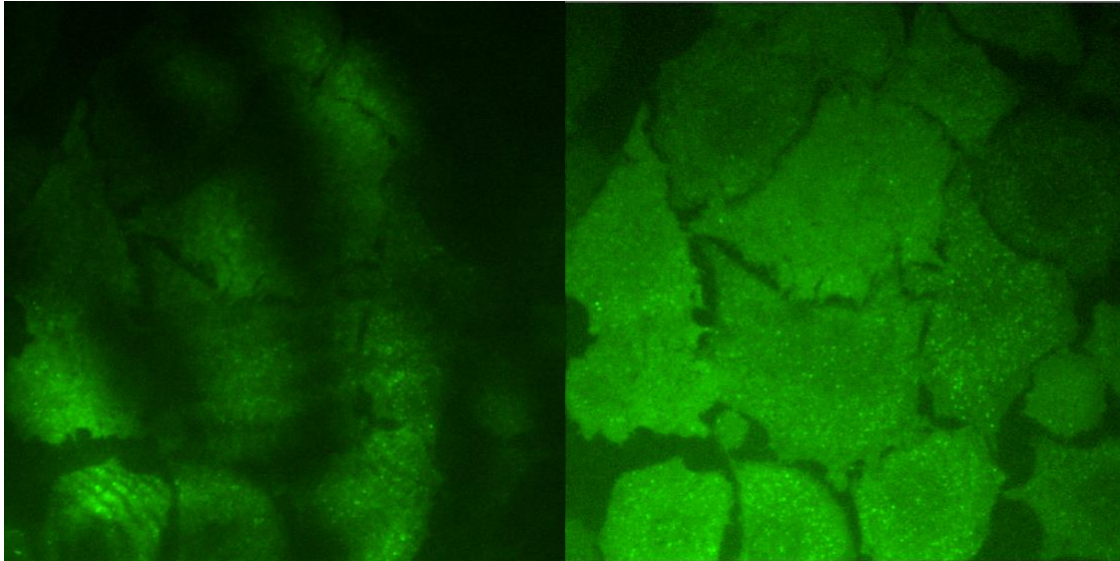
Deconvolution; JOBS custom experiment builder; GA3 analysis software

### Applications include (but are not limited to!):

Regular Spinning Disk Confocal and widefield measurements, high-speed live cell imaging, TIRF (traditional or HiLo), photostimulation (photo bleaching, uncaging, photo activation).



**Sample TIRF Images (side-by-side comparison without Ring function (Left)  
and with Ring function (Right))**



## **2. Sorenson Molecular Biotechnology Building (SMBB) Location is Closed**

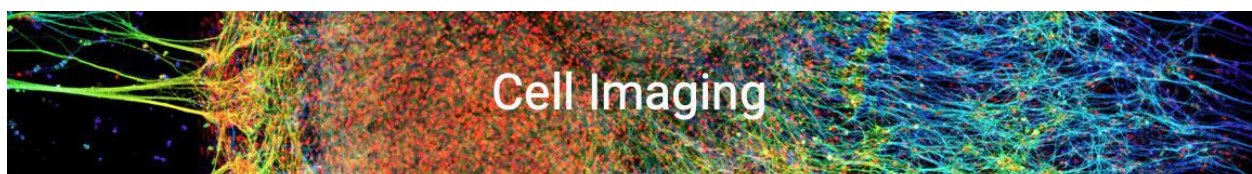
Unfortunately, due to the expansion of other labs in SMBB, we have lost the space and have had to remove our microscope from SMBB. As a result, all SMBB users will have to switch to other locations to use the confocal microscope. If any of the PIs around SMBB are interested in providing space for us, our Imaging Core would be more than happy to move back and continue supporting the research community in the area.

## **3. Acknowledgment and Publication Collection**

If your publication includes data generated by any instrument from HSC Cell Imaging Core, we kindly ask users to acknowledge us.

Last year, the HSC Cell Imaging Core was cited by our valued users **44** times. We appreciate your cooperation and encourage you to continue acknowledging our facility in your future publications.

We are currently collecting publication information for the previous year (June 2022-June 2023), so if you are ready, please send an email to [support.cellimaging@cores.utah.edu](mailto:support.cellimaging@cores.utah.edu). We will also send out a reminder notification at the end of May. Thank you for your continued support





#### 4. Survey to New Instrument Acquisition

We plan to conduct a survey to gather feedback from our users regarding the instrument that they need the most in our core. Once we have a clear idea of the demand and the budget required, we can collaborate with our users to write grant proposals to acquire the necessary instrument, similar to how we secured the funding for the new Slide Scanner.

#### 5. Integrate the Instrument Into the Core

Our imaging core plays a vital role in serving our research community by providing access to shared instruments. Our ultimate objective is to offer state-of-the-art instruments to benefit the community. One approach to acquiring cutting-edge instruments is through the involvement of our Principal Investigators (PIs). New PIs have the opportunity to discuss potential support from our Imaging Core for instrument acquisition even before joining the University of Utah. Additionally, we can collaborate with internal researchers to procure instruments through mechanisms such as Research Instrumentation Fund (RIF) or S10 grants. We strongly believe that integrating new microscopes into our imaging core is a mutually beneficial arrangement for both the PIs and the research society at the University of Utah.

#### 6. Free Laser Table in SMBB

We appreciate Casia Wardzala from Dr. Jessica Kramer's group in SMBB sharing this information with us. There is a free laser table (see the below pictures, the dimension is about 3 ft by 5 ft) available in SMBB before the end of May. If you are interested in this table, please contact Casia Wardzala ([Casia.Wardzala@utah.edu](mailto:Casia.Wardzala@utah.edu)) to arrange the pickup (you haul!).



#### 7. More New instruments are Coming.....

