SCHEDULING AND SAFE USE OF SHARED AMCF EQUIPMENT

1. Hours of operation are typically 8am to 7pm with opportunities to book staff available time in advance, 5 pm to 7 pm on Tuesdays and Thursdays.
2. Researchers may schedule an appointment by phone (402-559-6659) or email to <u>facility staff</u>.
3. Researchers that are fully trained and capable of displaying safe system operations are permitted to schedule independent reservations after hours (6p – 7a) and on weekends.
   - Contact core staff to request scheduling permissions in RSS and after-hours card access.
   - The core submits requests for card access. We highly recommend confirming card access is functional prior to arriving for afterhours imaging.
   - Researchers are expected to schedule times and instruments appropriately. Usage will be checked regularly, anyone using systems without permissions and/or reservations will lose access.
4. All UNMC researchers are welcome to independently schedule (RSS) and use the image analysis workstation in the data analysis workroom (DRC I Rm 1036).
   - Contact core staff to request RSS scheduling permission and card access to this area.
   - Usage will be checked regularly, anyone using systems without permissions and/or reservations will lose access.
5. When COVID/infection risk is high.
   - Saran wrap with a clean rubber band will be placed on each eyepiece by core personnel, to be removed and replaced after each user leaves.
   - After each use, microscope eyepieces and all touch surfaces will be disinfected with 70% ethanol.
   - All users entering the facility must don masks or face coverings over their mouth and nose.

BILLING POLICIES

- All users must have a cost center number in the system *prior* to each period of use. This is required for automated billing.
- A minimum charge of 30 minutes will be billed for extended use and charged to the nearest 1/4 hour thereafter.
- Billing statements are issued monthly.
- New users and/or those who have not used the facility in 6-12 months must accumulate at least 20 hours of daytime use, display proficient and safe operation, and receive permission from AMCF staff to be approved for independent access on nights and weekends.
- If you cancel with less than 24-hours' notice, you will be charged a fee of $30 to recover instrument set-up costs.
- If you arrive more than 15 minutes after your planned arrival, your first hour will be charged from the time scheduled, *not* the time of arrival. If you are more than 30 minutes late during high use periods, your time slot may be assigned to another user.
- If you overbook time (i.e., book three hours and use one hour), you will be charged for the full use period unless another user is available on short notice.

INSTRUMENT POLICIES: ALL INSTRUMENTS

1. <u>No hazardous materials</u> (biological or chemical) may be brought to the imaging core. If your samples are classified as anything other than Biological Safety Level 1 (BSL1), researchers must discuss potential imaging strategies with AMCF staff and/or Director prior to brings samples for imaging.
2. <u>No Protected Health Information (PHI)</u> may be collected or shared with or within the AMCF. Researchers are responsible for ensuring no PHI is contained in data collected and/or analyzed in the AMCF.
3. <u>AMCF users are obligated to fully acknowledge the facility and its funding sources</u> in formal publications and presentations containing any data generated in the facility. See acknowledgement section below.
4. <u>Researchers are responsible for their data</u> once it is collected (i.e. data should be immediately transferred to another location). Please use the OMERO server to safely transfer and store your imaging data. Everything that happens to your data after collection (i.e., analyses) is the researcher's responsibility. Data temporarily stored on AMCF acquisition workstations must be organized in folders labeled as last name, first name.
5. <u>Researchers must remove oil, return the turret to the 10x objective, and lower the objective to the lowest position</u> at the end of their imaging session to prevent damage to objectives between researchers.
6. New users and/or those who have not used the facility in 6-12 months must accumulate at least 20 hours of daytime use, <u>display proficient and safe operation, and receive permission from AMCF staff to be approved for independent access</u> on nights and weekends.
7. See data management and sharing plan for more information about data types, handling, transfer, and storage.

INSTRUMENT POLICY: SUPER RESOLUTION IMAGING (ELYRA PS.1)

Structured Illumination Microscopy (SIM), Photoactivated Localization Microscopy (PALM), and Stochastic Optical Reconstruction Microscopy (STORM) are specialized techniques using delicate instrumentation requiring extended technical support from AMCF core staff. PALM and STORM require additional specialized sample preparations (see AMCF Imaging Resources).

1. Most users will bring SIM samples to core facility personnel for acquisition of images and basic processing. Core personnel can acquire images and process them (including dual/multi-channel alignments). Users will be able to view and choose the regions of interest that they wish to acquire.
2. The core facility will provide basic processing and channel alignment and will allow users to choose how they would like data rendered and saved. Among these options are TIF images of a composite 3D SIM, individual TIFs of various z-sections, altered angles, planes, etc. as TIF images, 3D movies, etc. Please note: these image processing manipulations are complex and take time, yet they are an essential part of the SIM analysis thus are part of the core service (and charge).
3. With additional training, researchers can achieve independent imaging permission.
4. First-time users may contact the core director for initial consultation/advise prior to using the facility. For each laboratory, this consultation will be free for the initial hour, but will be subject to the time and availability of the director.
5. This system is always billed at $40/h.

INSTRUMENT POLICY: ULTRAMICROSCOPE II LIGHT SHEET FLUORESCENCE MICROSCOPE, CELL DISCOVERER 7

These systems are primarily operated by AMCF core staff. AMCF core users requiring extensive use are eligible for extended training to obtain independent operator status. Researchers must complete extended training and display safe and proficient instrument operation before permission will be granted.

INSTRUMENT POLICY: AXIOSCAN 7, X-CLARITY TISSUE CLEARING

The instruments are only operated by AMCF staff.

DATA MANAGEMENT & SHARING POLICY

Additional details may be found on the [AMCF Data Management and Sharing Plan](#).

Researchers are responsible for their data once it is collected (i.e. data should be immediately transferred to another location). Everything that happens to your data after collection (i.e., analyses) is the researcher's responsibility. Starting January 2024, all AMCF facilitated data transfers will be to the AMCF OMERO server. Data temporarily transferred using SharePoint is subject to automatic removal after 1 year. Data temporarily stored/transferred using BOX may remain there, it is the responsibility of the researcher to establish long-term data storage for these files. The AMCF recommends researchers move images collected prior to 2024 to the AMCF OMERO server.

Research data is stored in the file types described above (*.czi, *.ome tiff, *.ims).

Due to IT restrictions, temporary data storage on individual workstations is limited and variable across systems. As of January 2024, the following data storage and handling capabilities are available.

Zeiss 710, 800, Elyra, CD7 acquisition workstations: Data may be temporarily (≤ 3 months) stored on the acquisition computer data storage drive (not desktop). Data drives will be backed-up to the OMERO server once a month. ***No data left on these systems is guaranteed to be safe from loss, researchers are encouraged to backup data at time of acquisition and/or upload their data to the OMERO server as soon as it is generated.*** The AMCF will allow data to remain (only in the appropriate 'data drive' location) on individual acquisition workstations for up to 3 months. After this time (or improperly stored data) will be removed from the acquisition workstations without prior notification. Data not stored in the designated data drive location will not be backed up. This is not a guarantee of data safety nor security on these workstations.

Axioscan 7 Whole Slide Scanning, UltraMicroscope II Light Sheet Microscope acquisition workstations: These systems are currently connected to the internet. Data may be temporarily (≤ 3 months) stored on the acquisition computer data storage drive (not desktop). Data drives will be backed-up to the OMERO server once a month. ***No data left on these systems is guaranteed to be safe from loss, researchers are encouraged to backup data at time of acquisition and/or upload their data to the OMERO server as soon as it is generated.*** The AMCF will allow data to remain (only in the appropriate 'data drive' location) on individual acquisition workstations for up to 3 months. After this time (or improperly stored data) will be removed from the acquisition workstations without prior notification. Data not stored in the designated data drive location will not be backed up. This is not a guarantee of data safety nor security on these workstations.

Image Analysis Workstations (HALO, IMARIS): These systems are currently connected to the network. IMARIS rendered images (*.ims) are new images that may be stored on the OMERO server. Researchers may upload their own *.ims images to the OMERO server for back-up, storage, and sharing. HALO analyses do not modify initial images, instead a relational database (folders) store analysis parameters. HALO analyses are not compatible with the OMERO server architecture and should be stored elsewhere by the researcher. ***No data left on these systems is guaranteed to be safe from loss, researchers are encouraged to backup data at time of acquisition.*** *Data may reside on the acquisition workstation for 6 months. After this time (or data not stored on the designated 'data' drive) will be removed from the acquisition workstations without prior notification.* This is not a guarantee of data safety nor security on these workstations.

Long-Term Data Transfer and Storage Plans (underway, NOT currently implemented): The AMCF worked with RITO to establish long-term biomedical image storage, management, and universal data sharing server using the OMERO platform, see below. ***OMERO is a critical organizational infrastructure for managing imaging data, is internationally accepted for publication-ready datasets, recognized by existing NIH data repositories, will allow us to eventually offer our own shareable data repository, directly reads/interfaces/integrates all raw imaging data collected on our imaging Shared Research Resource acquisition workstations, and can organize curated datasets with meta data meeting community standards for biomedical imagery.*** The OMERO server will read and organize meta data contained within biomedical images from hundreds of different systems (both inside and outside the imaging Shared Research Resource). More information about OMERO can be found at https://www.openmicroscopy.org/omero/

ACKNOWLEDGEMENT STATEMENT

Services and equipment in the AMCF are provided with support from multiple funding agencies and MUST be appropriately cited for sustained operation of these shared resources. AMCF users are obligated to fully acknowledge the facility and its funding sources in formal publications and presentations containing any data generated with support from the facility (instrumentation and/or staff).

Researchers may now use a simplified core acknowledgement statement referencing our Research Resource ID (RRID),

"We acknowledge use of the University of Nebraska Medical Center - UNMC Advanced Microscopy Core Facility, RRID:SCR_022467, P20 GM103427 (NIGMS, NE-INEBRE), P30 GM106397 (NIGMS, NCS), P20GM130447 (NIGMS, CoNDA), P30 CA036727 (NCI, Buffett Cancer Center), S10RR02730 (NIH), S10OD030486 (NIH), Nebraska Research Initiative, UNMC Vice Chancellor for Research Office."

"We additionally thank [INSERT APPLICABLE NAMES] of the UNMC AMCF for their assistance."
James R. Talaska, B.S., Camille Hennerberg, B.S., Janice A. Taylor, B.S., Heather Jensen-Smith, Ph.D.

Reprints and/or PDFs of publications are greatly appreciated. These are critically important for our annual reports to internal and external funding agencies. Researchers proactively reporting current and past publications to the AMCF significantly reduce our burden to report all core-associated publications, allowing our staff to devote more time to supporting your research and imaging needs.

For all new publications, please use the RRID statement above. In addition to <u>our RRID listing/funding acknowledgement on the CoreMarketplace</u>, the AMCF acknowledges support from the following

- Zeiss 710 CLSM (NIH S10 RR027301)
- Zeiss 800 CLSM with Airyscan (NIH P30 GM106397)
- Zeiss Cell Discoverer 7 live cell imaging system (NIH P30 GM106397)
- Zeiss Axioscan 7 whole slide scanner (NIH P20 GM103427)
- UltraMicroscope II Light Sheet Microscope (NIH S10 OD030486)
- HALO-equipped workstation (NIH P20 GM103427)
- IMARIS-equipped workstation (NIH S10 OD030486)
- Additional Facility Support
  - NIGMS Nebraska INBRE P20 GM103427
  - NIGMS Center for Cellular Signaling CoBRE P30 GM106397
  - NCI Fred & Pamela Buffett Cancer Center support grant P30 CA036727
  - Nebraska Research Initiative
  - UNMC Office of the Vice Chancellor for Research

AUTHORSHIP GUIDELINES

The following guidelines should be used to ensure shared research resources, including staff scientists, are appropriately recognized, and cited for their scientific contributions. These guidelines are aligned with recommendations from the <u>International Committee of Medical Journal Editors</u> describing what merits authorship in publications. Adapted from Hockberger et al 2018.

Guideline 1: The following activities should be acknowledged on manuscripts and grants, but they do not by themselves meet the criteria for authorship.

- Core scientist provided routine training or services for the user.
- Core scientist collected data for users requiring technical skill but did not involve interpretation of data.
- Core scientist reviewed the manuscript or grant for intellectual content or advised on a revision of it.
- A technical question from a referee about data presented in the manuscript required a response from the core scientist with technical expertise relevant to the project.
- Lab head or PI provided general supervision of the research project without significant intellectual input.
- Lab head or PI provided funding for the project without significant intellectual input.

Guideline 2: If all of the following conditions are met, then a core scientist should be invited to be a coauthor on the manuscript. If a core scientist contributed 1 or more of these, but not all, then it is up to the discretion of the PI whether authorship is warranted.

- Core scientist contributed significantly to the conception or design of the project.
- Core scientist provided "nonroutine" training and services for a user. This includes development of novel procedures for data acquisition or data analyses.
- Core scientist wrote a portion of the manuscript (including Materials and Methods, figure legends, or technical details).

- Core scientist approved and took responsibility for the intellectual content of her/his contribution to the manuscript.
- Core scientist produced a figure for the manuscript using data collected by the core scientist.

Guideline 3: If any of the following conditions are met, then the core scientist should be invited to be a coauthor on the manuscript.

- Core scientist acquired, analyzed, and interpreted data for the project that required unique expertise and skills.

INSTRUCTIONS FOR ADDING/LINKING GRANTS TO PUBLICATIONS (when not cited in the original manuscript)

1. Go into MyNCBI: https://www.ncbi.nlm.nih.gov/account/. Your login will be the same one that you used to create your "My Bibliography" for NIH Biosketch purposes.
2. After login, click on your login name in the top right corner to check your Account settings to make sure that MyNCBI is linked to NIH and the eRA Commons. If it already is, you will see the words "eRA Login" under "Linked Accounts". Otherwise, click "Change" and add NIH and eRA Commons from the dropdown menu. (Important: You will not be able to add the link to our grant unless you have linked MyNCBI and the eRA Commons)
3. Go back to "MyNCBI" homepage.
4. Choose the article to which you want to add the grant citation.
5. Click on "Manage Citations" on the top left and choose "Manage Awards".
6. Select the "Search/Add other awards" tab. Select the appropriate grants (see below) and close.
7. All publications supported by NIH money must comply with NIH's Open Access Policy (https://publicaccess.nih.gov/policy.htm) and must have a PMCID (Different than an automatically assigned PMID). To get the PMCID, follow the directions under "Public Access Compliance" to the right of each article listed in your MyNCBI.