Dartmouth Cancer Center - Imaging, Irradiation, Microscopy and Animal Cancer Models Shared Resource

Data Type

Types and amount of scientific data expected to be generated in the project: *Summarize the types and estimated amount of scientific data expected to be generated in the project.*

Describe data in general terms that address the type and amount/size of scientific data expected to be collected and used in the project (e.g., 256-channel EEG data and fMRI images from ~50 research participants). Descriptions may indicate the data modality (e.g., imaging, genomic, mobile, survey), level of aggregation (e.g., individual, aggregated, summarized), and/or the degree of data processing that has occurred (i.e., how raw or processed the data will be)

The DCC Imaging, Irradiation, Microscopy and Animal Cancer Models (I2M-ACM) Shared Resource provides and maintains instrumentation for light microscopy imaging and software for image analysis. I2M-ACM maintains 5Tb of data stored on Dartmouth's DartFS secure, redundant and networked storage system.

Data types include image, video and report files produced by several imaging platforms: Cytation 5 (TIFF), Olympus IX73 and Zeiss LSM800 (.czi, .tif; .tiff; .tif(OME); .png; .jpg; .jpeg; .bmp; .gif; .wmp; .wdp)and Vectra 3 (.qptiff, im3, .tif, .jpg). Olympus IX73 and Zeiss LSM800 systems also produce video file formats: .avi; .avi(JPEG); .avi(DV); .wmf; .mov(H.264) ; .mov(MPEG4). The Cytation 5 system also produces session files (.imm), Gen5 protocols (.prt) and Gen 5 experiment files (.xpt).

Scientific data that will be preserved and shared, and the rationale for doing so: *Describe which scientific data from the project will be preserved and shared and provide the rationale for this decision.*

Imaging data is generated by the shared resource users. Data may be archived for a period of three months on the acquisition / analysis computers. Space on the DartFS networked storage system may be used to facilitate the transfer of data to the user controlled storage systems. As a shared resource, we will defer to the individual Data Management Plans of the individual investigators for disseminating the data to their appropriate fields via appropriate image depositories.

Metadata, other relevant data, and associated documentation: Briefly list the metadata, other relevant data, and any associated documentation (e.g., study protocols and data

collection instruments) that will be made accessible to facilitate interpretation of the scientific data.

Metadata covering acquisition parameters is embedded in the collected native file types. Experimental design and sample information will be uploaded by individual investigators upon sharing image data via image repositories.

Related Tools, Software and/or Code

State whether specialized tools, software, and/or code are needed to access or manipulate shared scientific data, and if so, provide the name(s) of the needed tool(s) and software and specify how they can be accessed.

The DartFS file system can be directly mounted onto PC, Mac or Linux machines. Instructions for accessing DartFS by these means are available here:

https://rc.dartmouth.edu/index.php/dartfs-access-guide/

Standards

State what common data standards will be applied to the scientific data and associated metadata to enable interoperability of datasets and resources, and provide the name(s) of the data standards that will be applied and describe how these data standards will be applied to the scientific data generated by the research proposed in this project. If applicable, indicate that no consensus standards exist

All data generated in I2M-ACM uses file formats established by the instrument vendor and/or are considered standards in the field.

Data Preservation, Access, and Associated Timelines

Repository where scientific data and metadata will be archived: Provide the name of the repository(ies) where scientific data and metadata arising from the project will be archived.

Data are placed in PI-specific directories on DartFS by the users, protected and credentialed using

Dartmouth assigned NetIDs with access determined by the PI sponsoring the project. The investigators will transfer their data to the PI-controlled repositories within three months from data acquisition.

How scientific data will be findable and identifiable: Describe how the scientific data will be findable and identifiable, i.e., via a persistent unique identifier or other standard indexing tools.

Data is stored in a directory with the naming convention "[PI-Last-Name, First-Name]". In the case that two PIs have the same first and last name, the naming convention "[PI-Last-Name, First-Name] [Number]" is used. Additional naming conventions are used according to the DMP of the individual investigator.

When and how long the scientific data will be made available: Describe when the scientific data will be made available to other users (i.e., no later than time of an associated publication or end of the performance period, whichever comes first) and for how long data will be available.

Scientific data will be made available according to the DMP of the individual investigator.

Access, Distribution, or Reuse Considerations

Factors affecting subsequent access, distribution, or reuse of scientific data: NIH expects that in drafting Plans, researchers maximize the appropriate sharing of scientific data. Describe and justify any applicable factors or data use limitations affecting subsequent access, distribution, or reuse of scientific data related to informed consent, privacy and confidentiality protections, and any other considerations that may limit the extent of data sharing.

Data will be shared according to the users DMP. We encourage PIs to use image repositories appropriate to their fields.

Whether access to scientific data will be controlled: State whether access to the scientific data will be controlled (i.e., made available by a data repository only after approval).

Data generated in the facility will be stored in a folder on DartFS with access restricted to the individual users generating the data. The sponsoring PIs will be responsible for data sharing.

Protections for privacy, rights, and confidentiality of human research participants:

If generating scientific data derived from humans, describe how the privacy, rights, and confidentiality of human research participants will be protected (e.g., through de-identification, Certificates of Confidentiality, and other protective measures).

The facility does not conduct Human Subjects research.

Oversight of Data Management and Sharing

Describe how compliance with this Plan will be monitored and managed, frequency of oversight, and by whom at your institution (e.g., titles, roles).

Radu V Stan, M.D., Ph.D., ORCID: 0000-0003-2969-1725, serves as the director of I2M-ACM and is ultimately responsible for monitoring the compliance with this plan. Patrick G. Robison, Ph.D., serves as a manager for I2M-ACM, and oversees the migration of data to appropriate locations within DartFS by users. When requested by sponsoring PIs, Dr. Robison also performs data generation and will be responsible of transferring data thus generated into the PI specific folder on DartFS. Drs. Stan and Robison have weekly meetings during which aspects of the data management plan will be discussed.

Dr. Stan is listed as the owner of the "DCCMicroscopy" storage partition on DartFS. At Dr. Stan's request, staff from Dartmouth IT Services that maintains DartFS, create and credential user specific directories within the "DCCMicroscopy" directory. Using their Dartmouth NetId and password combinations, specific users are able to access and transfer data to and from their user specific directory.

Additional oversight of the DMS plan is provided by Dartmouth Cancer Center's Associate Director for Shared Resources, Dr. Kolling.