

Plan Overview

A Data Management Plan created using DMPTool

Title: DMP for ExpPath Shared Research Resource

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Project abstract:

The mission of the Experimental Pathology Shared Resource (ExpPath) is to provide quality-controlled, consistent, reliable, and state of the art services for the histopathologic analysis of biological samples.

Services and Expertise:

- 1) The Histopathology Unit offers routine, as well as highly customized, histopathologic services, including tissue preparation, processing, embedding, sectioning and histochemical staining of paraffin and cryo-embedded tissues of non-human samples. Physical formalin embedded paraffin blocks and/or slide mounted sections are provided to researchers for use in their local laboratory or are used for services provided in (2)
- 2) The Biomarker Staining and Imaging Unit offers standard immunohistochemical antibody validation and RNA in situ hybridization. High quality, standardization and reproducibility of these assays are significantly increased by automation on two Leica BondRX immunostainers,

which allow for rapid turnaround and error reduction. High throughput downstream imaging is performed on whole slide brightfield, widefield fluorescence and multispectral fluorescence scanners (Leica AT2, Hamamatsu Nanozoomer and Vectra Polaris, respectively). We also offer several state-of-the-art technologies for profiling multiple molecular targets in intact tissue sections: a) We provide antibody and RNA ISH multiplex panels customized to researcher's requirements using Akoya Opal and RNAscope technologies. b) We provide institution-wide access to emerging high parameter spatial interrogation technologies by setting up and testing new platforms. Specifically, we provide access and operate an Akoya CODEX immunofluorescence system and a Fluidigm Hyperion imaging system, which will operate in conjunction with the NYU Flow [cytometry?] Core. In addition, in collaboration with the NYU Genomics Technology Center (GTC), we provide 10X Genomics' Visium spatial transcriptomics and Nanostring's GeoMx Digital Spatial Profiling (DSP) services, for spatial assessment of high parameter protein and/or whole transcriptome data. Downstream image data analysis support is provided by rental access and training on image analysis software InForm and Visiopharm. Image Data Management support and infrastructure is provided by ExpPath institution-wide and free of charge in collaboration with the Medical Center Information and Technology department (MCIT) through OMEROPlus.

Start date: 04-28-2022

End date: 12-31-2038

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DMP for ExpPath Shared Research Resource

Data Collection

What data will you collect or create?

Data type: Image data Formats: .svs .scn .qptiff .ndpi .tiff .nd2 .lif .png Volume of Data:

How will the data be collected or created?

Image data will be generated by imaging platforms: 1. Hamamatsu Nanozoomer 2. Leica AT2 whole slide scanning microscope 3. Leica M205 FA fluorescence stereo (dissecting) scope 4. Akoya Vectra-Polaris Multispectral Imaging System in any of the following formats : svs .scn .qptiff .ndpi .tiff .nd2 .lif .png All of these file formats are readable with the open source tool Bioformats. Image data is stored and accessible through OMERO Plus and will be made publicly available through NYUGSM public OMERO interface and cataloged at NYULMC data catalog.

Documentation and Metadata

What documentation and metadata will accompany the data?

Accompanying metadata:

Microscope Acquisition metadata: is available through OMEROPlus interface and stored within each image file.

If Experimental Pathology performed tissue staining (in any form, immunohistochemistry, histochemistry, multiplex immunofluorescence, etc), RNAscope, Spatial transcriptomics and / or image analysis: descriptions of detailed experimental conditions, reagents and/or code are provided via .txt, excel, pdf or r code.

Ethics and Legal Compliance

How will you manage any ethical issues?

Experimental Pathology images contain no personal health information and no personal identifiers.

How will you manage copyright and Intellectual Property Rights (IP/IPR) issues?

NYUGSM will manage those issues.(?)

Creative Commons license?

Storage and Backup

How will the data be stored and backed up during the research?

Storage of digital images is provided by NYUGSM through a research isilon that is backed up [X] times a month and replicated at 3 different sites (?).

All Experimental Pathology images are stored within the research isilon at a directory linked to OMEROPlus image data management server. Researchers can access data that was generated for their lab by directly downloading raw files or through OMEROwebclient (a browser based interface).

Metadata: most image acquisition metadata is provided by acquisition software and available through OMEROPlus. As such it is backed up together with the image data

Metadata pertaining to custom staining protocols are stored in Benchling eLab Notebook and on Excel files saved to NYULMC's dropbox storage.

How will you manage access and security?

Access and security is managed through LDAP by the Medical Center Information Technology (MCIT) department.

An NYU Langone Medical Center ID and password are required to access OMEROwebclient, onsite access to the Research isilon image directory (OMEROSTORAGE) is granted through LDAP credentialing. Advanced vpn permissions are necessary for OMEROSTORAGE access offsite.

Access to stored images in the database is granted after a online request to MCIT and is granted per lab who requested imaging services. Collaborators who request access go through MCIT and must be approved by the lab principal investigator to access their files.

Selection and Preservation

Which data are of long-term value and should be retained, shared, and/or preserved?

We preserve every image acquired by our systems and do not delete data once it is distributed to the research lab through OMEROwebclient.

Public sharing of image data is the responsibility of each principal investigator who 'owns' the data in OMEROPlus.

What is the long-term preservation plan for the dataset?

? Under MCIT procedures data that hasn't been accessed for 3 years goes to long term storage (details...).

Data Sharing

How will you share the data?

Image data can be shared publicly through OMEROwebclient public user when requested by the principal investigator. accompanying metadata/descriptions will be made available by the investigator through NYU Health Sciences Data Catalog which will provide links to OMEROwebclient records and DOIs.

Are any restrictions on data sharing required?

no

Responsibilities and Resources

Who will be responsible for data management?

ExpPath is responsible for data generation and provenance of any image produced by ExpPath.

Individual principal investigators are responsible for downstream annotations of data and public sharing.

What resources will you require to deliver your plan?

OMERO server access, OMEROstorage access.

Data repository resources [?] Librarians? DART personnel?

MCIT dedicated personnel

Up to date service contract agreement with GlencoeSoftware (publishers of OMERO).
