

Plan Overview

A Data Management Plan created using DMPTool

Title: A non-canonical IRAK1 signaling pathway triggered by ionizing radiation

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Funder: National Institutes of Health (nih.gov)

Template: NIH-Default DMSP

Last modified: 02-27-2023

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A non-canonical IRAK1 signaling pathway triggered by ionizing radiation

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)

In this proposed project, data will be generated via the following methods: state-of-the-art cell culture genetics (CRISPR/Cas9-generation of stable KO lines, siRNA-mediated gene knockdowns), state-of-the-art genetic techniques in zebrafish embryos (CRISPR/Cas9-generation of stable KO lines, morpholino antisense oligonucleotide-mediated gene knockdowns), state-of-the-art genetic techniques in *Drosophila* (Gal4-UAS-driven RNAi, mitotic mutant clones), light microscopy, confocal microscopy (cell culture-fixed and live, whole mount zebrafish immunofluorescence, fluorescence imaging of live zebrafish embryos and dissected fly imaginal discs), protein co-immunoprecipitation, size exclusion chromatography (gel filtration) and mass spectrometry. This data will be collected from a minimum of 3 independent experiments, with each independent experiment consisting of negative control, positive control and test groups in the absence of presence of ionizing radiation and/or interleukin-beta. The total size of the data collected is projected to be 300 GB.

We expect to generate the following data file types and formats during this project: Carl Zeiss microscopic image file (.CZI), images (.TIFF, .JPEG, .PNG), and tabular (.CSV, .XLS, .PZFX).

Raw data files will be analyzed to generate CSV, XLS and PZFX files to enable statistical analysis.

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.*

All data produced in the course of the project will be preserved and shared.

All reagents resulting from this grant will be available to academic investigators based on requests for published materials. Nonpublished reagents will be provided via collaboration or freely

distributed based on their scientific value. Material transfers will be made in accordance with the Mount Sinai School of Medicine Office of Industrial Liaisons.

All zebrafish mutant lines used in this study have either been published and are available to the scientific community through the Zebrafish International Resource Center, or will be generated and made available through the same resource center.

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.

N/A

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.

Image and tabular data will be made available in .TIF, .JPEG, .CSV, .XLS and .PZF format and will not require the use of specialized tools to be accessed or manipulated.

The raw data generated via the confocal microscope is in the Carl Zeiss (.czi) file format. Zeiss software or Fiji ImageJ is required to access the raw data.

Fiji ImageJ is open-source software that can be downloaded freely online. Links to this or other open-source viewers will be included with the documentation for the shared dataset.

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

In accordance with FAIR Principles for data, we will use open file formats (e.g. JPEG, CSV, TXT,

PDF, HTML, etc.) and persistent unique identifiers (PIDs) such as RRIDs for resources (e.g., organisms, plasmids, antibodies, cell lines, software tools, and databases) and DOIs for protocols using protocols.io.

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; see [Selecting a Data Repository](#))

All dataset(s) that can be shared will be deposited in the Zebrafish Information Network (ZFIN) and Zebrafish International Resource Center (ZIRC), FlyBase and NCI's Imaging Data Commons.

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.

We will use Persistent Unique Identifiers (PIDs) to improve data findability across all dissemination outputs. PIDs used will include ORCID iDs for people, DOIs for outputs (e.g., datasets, protocols), Research Resource Identifiers (RRIDs) for resources, and Research Organization Registry (ROR) IDs and funder IDs for places, as much as possible to make data identifiable and findable.

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.

All scientific data generated from this project will be made available as soon as possible, and no later than the time of publication or the end of the funding period, whichever comes first. The duration of preservation and sharing of the data will be a minimum of 10 years after the funding period.

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. See [Frequently Asked Questions](#) for examples of justifiable reasons for limiting sharing of data.

There are no anticipated factors or limitations that will affect the access, distribution or reuse of the scientific data generated by the proposal.

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).

Controlled access will not be used. The data that is shared will be shared by unrestricted download.

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).

N/A

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).

Lead PI Samuel Sidi, ORCID: 0000-0001-7649-067, will be responsible for the day-to-day oversight of lab/team data management activities and data sharing.
