

Plan Overview

A Data Management Plan created using DMP Tool

DMP ID: <https://doi.org/10.48321/D1D88F67DE>

Title: The pulmonary immune response induced by single and multiple exposures to combustion products of burn pit constituents

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Project abstract:

Exposure to burn pits are a public health threat to those in the Armed Forces who are serving or have served in the Middle East. Our studies investigate the acute and chronic effects of exposure on lung health in studies of a mouse model that closely mimics the human exposure to burn pit toxicants, particularly the immune responses and the changes in the lung microenvironment that impact on the response. Our goal is to understand the critical pathways of the immune response that regulate the changes that occur during chronic compared to acute exposure, with the expectation that a therapeutically targetable pathway will emerge and will prove useful in modulating lung disease due to this exposure and to other environmental exposures.

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The pulmonary immune response induced by single and multiple exposures to combustion products of burn pit constituents

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: flow cytometry, ELISA, real-time quantitative polymerase chain reaction (PCR) and single cell RNAseq. This data will be collected from a minimum of 3 independent experiments. 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: tabular (.CSV).

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.

In this proposed project, the cleaned, item-level spreadsheet data for all variables will be shared openly, along with example quantifications and transformations from initial raw data. Final files used to generate specific analyses to answer the Specific Aims and related results will also be shared. The rationale for sharing only cleaned data is to foster ease of data reuse.

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.

To facilitate the interpretation and reuse of the data, a README file and data dictionary will be generated and deposited into a repository along with all shared datasets. The README file will include method description, instrument settings, RRIDs of resources such as antibodies, model organisms, and other tools. The data dictionary will define and describe all variables in the dataset.

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.

Not applicable.

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 and persistent unique identifiers (PIDs) such as RRIDs for resources.

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](#))

The Genomic Data Sharing (GDS) Policy applies, because genomic data in the form of mRNA sequencing will be acquired. mRNA sequences and metadata will be archived at GEO. All basic science and imaging data and associated metadata will be archived at University of North Carolina Dataverse, a fully NIH-compliant data repository in which the PI has an account. These data will be shared from this repository.

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.

These repositories (GEO and UNC Dataverse) provide searchable study-level metadata, persistent identifiers, and long-term access for dataset discovery. GEO assigns accession numbers. UNC Dataverse assigns DOIs as persistent identifiers and has a robust preservation plan to ensure long-term access. Data will be discoverable online through standard web search of the study-level metadata as well as the persistent pointer from the DOI to the dataset.

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 are 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).

Not applicable.

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 Claire M. Doerschke, ORCID: 0000-0003-2638-3321, will be responsible for the day-to-day oversight of lab/team data management activities and data sharing. Broader issues of DMS Plan compliance oversight and reporting will be handled by the PI and Co-I team as part of campus stewardship, reporting, and compliance processes.

Planned Research Outputs

Data paper - "The pulmonary immune response induced by single and multiple exposures to combustion products of burn pit constituents"

Planned research output details

Title	Type	Anticipated release date	Initial access level	Intended repository(ies)	Anticipated file size	License	Metadata standard(s)	May contain sensitive data?	May contain PII?
The pulmonary immune response induced by single an ...	Data paper	Unspecified	Open	None specified	1 MB	None specified	None specified	No	No