Plan Overview

A Data Management Plan created using DMP Tool

Title: The role of the apical sodium-dependent bile acid transporter (ASBT) in facilitating norovirus infection

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Template: NIH-Default DMSP

Project abstract:

Based on the cell tropism of diarrheagenic murine noroviruses for immune cells, the well-established affinity of the norovirus VP1 capsid protein to bind bile acids, and our preliminary data demonstrating reduced MNV infection and disease in *Asbt-/-* mice, we hypothesize that ingested MNV virions bind bile acids in the gut lumen, the virion-bile acid complexes bind ASBT and trigger receptor-mediated endocytosis, vesicular transport shuttles the complexes across the epithelial cell to be released basally, and the complexes then encounter target immune cells. This model will be rigorously tested using a combination of in vivo and ex vivo model systems.

Start date: 06-01-2023

End date: 05-31-2025

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Copyright information:

The role of the apical sodium-dependent bile acid transporter (ASBT) in facilitating norovirus infection

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 majority of data generated in this proposal will be virus titer data, fecal scores, and real-time quantitative polymerase chain reaction (PCR) values. Due to the nature of our in vivo studies using neonatal mice, we infect total litters per condition regardless of litter size. A minimum of 3 litters totaling at least 10 pups is analyzed for each condition. In general, 4 conditions will be compared: wild-type mock-inoculated, wild-type MNV-infected, Asbt-/-, mock-inoculated, and Asbt-/-, MNV-infected. In subaim 2a, images will be acquired using a slide scanner and analyzed for the presence of viral and host mRNAs and protein.

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.

RNAscope ISH probes and methods used to identify viral genome-positive cells in tissue sections and individual cell types of organoids will be shared in the methods sections of peer-reviewed publications.

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.

Tissue sections will be imaged using a Aperio Scanscope CS and Leica's Aperio ImageScope 12.4.3 slide scan software. No other specialized tools, software, or code are needed.

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

No consensus standards exist.

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 data sets generated in this study will be small and do not require repositories for storage. The data will be provided in the results and supplemental sections of peer reviewed manuscripts.

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.

All data are stored in standard lab notebooks and in a university-level OneDrive storage cloud.

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.

Data will be made available as pre-prints or at the time of publication. Raw data sets will be stored in the lab for a minimum of 10 years after publication.

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).

No data from humans will be collected in this study.

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, Stephanie Karst, 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 general University of Floirda stewardship, reporting, and compliance processes.