
Identification of Glial Contributions to Fragile X Syndrome

A Data Management Plan created using DMPonline.be

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Template: FWO DMP (Flemish Standard DMP)

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Project abstract:

Fragile X Syndrome (FXS) is the most common cause of inherited autism and is caused by loss of function of a single gene: fragile X mental retardation-1 (FMR1). Drosophila models that lack FMR1 recapitulate behavioral and cognitive deficits reminiscent of the human condition and exhibit neuronal development and function defects, including highly branched dendrites and neuronal hyperexcitability. Over the last two decades, increasing evidence has demonstrated that glial cells have essential roles in regulating synaptic and neuronal development and function. However, most research into FXS pathogenesis has focused on neuronal health and function, while potential glial contributions for the pathogenesis of FXS are still mostly unknown. This project aims to determine the morphological and subcellular changes in astrocytes in a Drosophila model of FXS, and to what extent FMR1 functions in astrocytes to regulate neuronal structure and functions in vivo. In addition, we will unbiasedly identify the dysregulated glial proteome in a Drosophila model of FXS. Consider as a whole, and this project will provide the first comprehensive picture of how astrocytes are changed in the FXS and potential therapeutic targets in these glial cells for this disease.

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FWO DMP (Flemish Standard DMP)

1. Research Data Summary

Will you generate/collect new data and/or make use of existing data?

Generate new data

Describe in detail the origin, type and format of the data (per dataset) and its (estimated) volume This may be easiest in a table (see example) or as a data flow and per WP or objective of the project. If you reuse existing data, specify the source of these data. Distinguish data types (the kind of content) from data formats (the technical format).

Dataset 1. - Digital images Microscopy pictures, gel scans, graphs, illustrations, figures.

Dataset 2. - Video files Record of Drosophila behavioral assay

Dataset 3. - Electrophysiology data

Dataset 4. - Omics data transcriptomic

Dataset 5. - Vectors Bacterial vectors, drosophila-bacteria shuttle vectors.

Dataset 6. - Genetically modified organisms Living Drosophila melanogaster

Dataset 7. - Research documentation and Manuscripts

- No

- No

- No

- No

- No

2. Documentation and Metadata

during and at least 5 years after the end of the research.

Designation of responsible person:

PI (Sha Liu), Postdoc (to be recruited).

Storage capacity/repository:

E-Notebook: research documentation and processed data will be deposited in E-Notebook. Daily backups of the whole database are foreseen. All historical data (changes to the documentation) are also stored in the system. The lab have a monthly raw data backup system which will backup all the raw data into hard disk drives.

After the research:

Manuscripts: will be published and archived in public repositories

All materials will be deposited in public repositories such as Addgene, Bloomington Drosophila Stock Center. NCBI

Electrophysiological data: abf or dat format

Microscopic data: nd2, nrdd

Behavioral data: Mp4/Jpeg

- No

3. Data storage & back-up during the research project

All the data will be kept in online storage drive from KU Leuven

The data will be stored on the university's central servers with automatic daily back-up procedures.

- Yes

L drive from KU Leuven.

All our data are not private data and no sensitive data will be used.

In principle, only the people from the lab can have the access to the data collected during the experiment. The data will also be public after the publication of the results.

400 Euros/ TB per year. The cost will be covered by central lab running budget.

4. Data preservation after the end of the research project

The principle of preservation of data and the minimum preservation term of 5 years will be applied.

1. The data will be stored on the university's central servers (with automatic back-up procedures) for at least 10 years, conform the KU Leuven RDM policy.

All data will be stored at the KU Leuven online storage servers for at least 5 years.

We expect the size of the data will be < 1 TB, estimated cost will be 400 euro per year. My lab running budget will cover the costs.

5. Data sharing and reuse

- Yes, in an Open Access repository

All data will be available to the public after publication

N/A

- No

In an Open Access repository: NCBI for omic data

Other (ephys, behavior):

Upon request by email

Upon publication of the research results

The full dataset will be available to the public under no conditions.

- Yes

The publication will have DOI

There is no extra cost for data sharing since the data size will be relatively small.

6. Responsibilities

PI (Sha Liu), Postdoc (to be recruited).

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The PI bears the end responsibility of updating & implementing this DMP.