DMP title

Project Name FWO SENIOR PROJECT (FWO DMP) - DMP title

Grant Title G0C0522N

Principal Investigator / Researcher Markus WÃ¶hr

Description Deciphering Socio-affective Communication through Ultrasonic Vocalizations in Rodents: Improving Translational Research Models for Neuropsychiatric Dysfunctions

Institution KU Leuven

1. General Information

Name applicant

Markus Wöhr

FWO Project Number & Title

G0C0522N; Deciphering Socio-affective Communication through Ultrasonic Vocalizations in Rodents: Improving Translational Research Models for Neuropsychiatric Dysfunctions

Affiliation

- KU Leuven

2. Data description

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).

Research activities in G0C0522N will result in a variety of data types. Data types include primarily: (1) video files (rat behavior, avi-files or mp4-files, circa 4-5 TB, recorded with video cameras connected to a computer) and (2) audio files (rat ultrasonic vocalizations, wav-files, circa 4-5 TB, recorded with ultrasound microphones connected to a computer). Additionally, (3) automated behavioral measurements (e.g. locomotor activity, nose-poking) will be recorded in Excel (xlsx-files, circa 2-3 MB, recorded with infrared light sensors connected to a computer). Of note, recordings of rat ultrasonic vocalizations are relatively large in size, with one hour of recording resulting in about 2 GB. Video files will likewise result in a significant amount of data.

Other datatypes will include electrophysiological recordings, images from fluorescence microscopy of rat brain sections (e.g. for neuromorphological analyses) as well as biochemical and molecular biology data (e.g. western blot, agarose gels, qRT-PCR, varia, not expected to exceed 400 GB over the course of the project, details still need to be determined as ordering of relevant equipment is still ongoing).

All data will be stored in digital form (e.g. AVI or MP4 files for video recordings, WAV files for audio recordings, TIFF files for gel images, BAM files for RNA sequencing data). Measurements derived from video and audio files, microscopy images, sequencing datasets, etc. will be recorded in Excel (for long-term preservation, converted into CSV files) and SPSS for statistical analyses. Manuscripts will be written in Word. Biomaterials include rat brain and tail samples.

3. Legal and ethical issues

Will you use personal data? If so, shortly describe the kind of personal data you will use. Add the reference to your file in KU Leuven's Register of Data Processing for Research and Public Service Purposes (PRET application). Be aware that registering the fact that you process personal data is a legal obligation.

- No

Are there any ethical issues concerning the creation and/or use of the data (e.g. experiments on humans or animals, dual use)? If so, add the reference to the formal approval by the relevant ethical review committee(s)

- Yes

ECD, formal approval by the relevant ethical review committee was obtained for parts of the project (P017_2022 and P179_2021) but not other parts of the project (pending).

Does your work possibly result in research data with potential for tech transfer and valorisation? Will IP restrictions be claimed for the data you created? If so, for what data and which restrictions will be asserted?

- No

Do existing 3rd party agreements restrict dissemination or exploitation of the data you (re)use? If so, to what data do they relate and what restrictions are in place?

- No

4. Documentation and metadata

What documentation will be provided to enable reuse of the data collected/generated in this project?

Standardized protocols (SOPs, including all relevant details of experimental setup and procedures) will be applied and enforced by the head lab manager/ lab technician.

For video files (rat behavior) the following information will be noted: rat ID(s), date, time, protocol (i.e. SOP), and experimenter. The methodology and protocol will be described in detail in the lab book.

For audio files (rat ultrasonic vocalizations) the following information will be noted: rat ID(s), date, time, protocol (i.e. SOP), and experimenter. The methodology and protocol will be described in detail in the lab book.

For automated behavioral measurements (e.g. locomotor activity, nose-poking) the following information will be noted: rat ID(s), date, time, protocol (i.e. SOP), and experimenter. The methodology and protocol will be described in detail in the lab book.

For other datatypes the following information will be noted: rat ID(s), date, time, protocol (i.e. SOP), and experimenter. The methodology and protocol will be described in detail in the lab book.

Will a metadata standard be used? If so, describe in detail which standard will be used. If no, state in detail which metadata will be created to make the data easy/easier to find and reuse.

- No

Metadata include a unique rat ID, together with its birth date, genotype, sex, and experimental condition. All other data are linked to the individual animal through the unique rat ID only (but not birth date, genotype, sex, and experimental condition) to avoid a bias during data acquisition and analysis. After completing relevant parts of the data acquisition process, data will be merged in SPSS linking all relevant data through the unique rat ID.

5. Data storage and backup during the FWO project

Where will the data be stored?

There are several provisions in place in order to preserve the data during and after the end of the research. According to the Research Data Management policy at KU Leuven, all relevant research data will be kept for at least 10 years after the end of the research. Data will be stored on hard drives during experiments. After the experiments, data will be transferred to two external hard drives (two copies; one working copy and one backup copy) and metadata will additionally be transferred to the large, safe, and automatically backed up central network device of KU Leuven, OneDrive. In addition, it is planned to make exemplary audio files, i.e. recordings of ultrasonic vocalizations, available to the scientific community through an online platform similar to mouseTube. Furthermore, it is planned to upload metadata of key confirmatory studies to a general repository (e.g. Open Science Framework). For optimal storage of biomaterials, fridges, -20°C freezers, and -80°C freezers will be used.

How is backup of the data provided?

The data will be stored on external hard drives (two copies; one working copy and one backup copy) and metadata will be additionally transferred to the university's central servers with

automatic daily backup procedures, for at least 10 years, conform the KU Leuven RDM policy.

Is there currently sufficient storage & backup capacity during the project? If yes, specify concisely. If no or insufficient storage or backup capacities are available then explain how this will be taken care of.

- No

External hard drives (with a capacity of several TB) will be ordered before the start of data acquisition.

What are the expected costs for data storage and back up during the project? How will these costs be covered?

Circa 2000 € for external hard drives, covered through FWO funding during the project period.

Data security: how will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?

Data acquisition is performed in an animal laboratory with limited access. External hard drives and computers are bitlocker/ password protected and PhD and postdoctoral researchers will keep the external hard drives in a cabinet that can be locked.

6. Data preservation after the FWO project

Which data will be retained for the expected 5 year period after the end of the project? In case only a selection of the data can/will be preserved, clearly state the reasons for this (legal or contractual restrictions, physical preservation issues, ...).

According to the Research Data Management policy at KU Leuven, all relevant research data will be kept for at least 10 years after the end of the research. No selection is made.

Where will the data be archived (= stored for the longer term)?

The data will be stored on external hard drives (two copies; one working copy and one backup copy) and metadata will be additionally transferred to the university's central servers with automatic daily backup procedures, for at least 10 years, conform the KU Leuven RDM policy.

What are the expected costs for data preservation during the retention period of 5 years? How will the costs be covered?

Circa 2000 € for external hard drives, covered through FWO funding during the project period.

7. Data sharing and reuse

Are there any factors restricting or preventing the sharing of (some of) the data (e.g. as defined in an agreement with a 3rd party, legal restrictions)?

- No

Which data will be made available after the end of the project?

It is planned to make exemplary audio files, i.e. recordings of ultrasonic vocalizations, available to the scientific community through an online platform similar to mouseTube. Furthermore, it is planned to upload metadata of key confirmatory studies to a general repository (e.g. Open Science Framework).

Where/how will the data be made available for reuse?

- In an Open Access repository
- In a restricted access repository

It is planned to make exemplary audio files, i.e. recordings of ultrasonic vocalizations, available to the scientific community through an online platform similar to mouseTube. Furthermore, it is planned to upload metadata of key confirmatory studies to a general repository (e.g. Open Science Framework).

When will the data be made available?

- Upon publication of the research results

Who will be able to access the data and under what conditions?

The exemplary audio files, i.e. recordings of ultrasonic vocalizations, will be available to the scientific community through an online platform similar to mouseTube (with restricted access). Metadata of key confirmatory studies will be available through a general repository (e.g. Open Science Framework).

What are the expected costs for data sharing? How will the costs be covered?

Still needs to be determined.

8. Responsibilities

Who will be responsible for data documentation & metadata?

PhD and postdoctoral researchers are responsible for day-to-day data management, including data documentation and metadata. Data management is enforced by the head lab manager/ lab technician.

Who will be responsible for data storage & back up during the project?

PhD and postdoctoral researchers are responsible for day-to-day data management, including data storage and backup during the project. Data management is enforced by the head lab manager/ lab technician.

Who will be responsible for ensuring data preservation and reuse ?

PhD and postdoctoral researchers are responsible for day-to-day data management, including data preservation and reuse. Data management is enforced by the head lab manager/ lab technician.

Who bears the end responsibility for updating & implementing this DMP?

PhD and postdoctoral researchers are responsible for day-to-day data management. Data management is enforced by the head lab manager/ lab technician. The PI bears the end responsibility of updating & implementing this DMP.