

DMP

Project Name A sensory pathway for signaling novel stimuli to dopamine neurons

Project Identifier FWOKondrakiewicz

Grant Title 1276122N

Principal Investigator / Researcher Kacper Kondrakiewicz

Project Data Contact kacper.kondrakiewicz@nerf.be

Description This fundamental research project is focused on how brain processes information about novel sensory stimuli. More specifically, my goal is to describe the neural pathway that conveys information about novelty to midbrain dopaminergic system. To do so, I use mice as an animal model and collect data on their response to novel stimuli: at the behavioral level (videos) and on the neural level (electrophysiological or fiber photometry recordings). I also keep brain slices to ensure proper localization of the electrodes and/or expression of viral vectors.

Institution KU Leuven

1. General Information

Name applicant

Kacper Kondrakiewicz

FWO Project Number & Title

1276122N & A sensory pathway for signaling novel stimuli to dopamine neurons

Affiliation

NeuroElectronics Research Flanders

KU Leuven, VIB, IMEC

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).

The research will generate

- Anatomical data: Microscopy images and anatomical reconstructions (.tif,jpeg,digital).

Physical originals (brain sections) are

saved as well. 100 GB maximum.

- Behavioral data (digital) including videos of breathing rate, pupil dilation, stimulus delivery times and choices. We will save raw data together with their extracted information (.mov, .mat, tdms). 1TB.

- Electrophysiological data (digital): raw recording data will be saved together with processed, spike-sorted data.

(.ap,tdms,.mat,.npy) 20 TB.

- Fiber photometry data (digital): fluorescence traces across all recording channels will be saved (.csv). 100GB maximum.

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

Privacy Registry Reference:

Short description of the kind of personal data that will be used:

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 – animal research

Ethical approval no. 161/2021

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?

1. The behavioral and neural preprocessed data will be made available on a python (numpy) format with an explicit name for each variable and a readme for a good comprehension of the dataset.
2. The raw data will be available on request and will be given with a readme ensuring a good understanding of the dataset.
3. The image of the brain will be upload with the metadata of the microscope, reusable using the free software ImageJ.
4. The code of the analysis will be put online on github as soon as the results will be made public. This code will be commented and a readme will guarantee the good understanding for the users.

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.

Yes. The data will be made available on a python (numpy) format with an explicit name for each variable and a readme for a good comprehension of the dataset. The image of the brain will be upload with the metadata of the confocal microscope, reusable using the free software ImageJ.

5. Data storage and backup during the FWO project

Where will the data be stored?

1. The brain slices will be stored in the fridge of the laboratory.

2. The behavioral and neural data will be stored on the server sysfs01. A back-up is used on another server, and the investigator will keep another copy of the data on a hard-disk at his place.

How is backup of the data provided?

The data will be stored on two different servers at the institute, and a third back-up will be kept at the investigator place on a hard disk to avoid losing the data in case of natural disaster.

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.

Yes.

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

The servers are already there, so only the costs of energetic consumptions are taken into account. It should not be more than 1000 euros per year depending on the electricity price and those costs will be covered by the VIB grant of my principal investigator Sebastian Haesler.

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

An engineer in computer science is paid by the institute to ensure the security of the servers.

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, ...).

- Anatomical data: Microscopy images and anatomical reconstructions (digital). Physical originals (brain sections) are saved as well, however, the physical original might not hold for 5 years because of physical preservation issues.
- Behavioral data (digital) including videos of breathing rate, pupil dilation, stimulus delivery times and choices. We will save raw data together with their extracted information.
- Electrophysiological data (digital).
- Raw recording data will be saved together with processed, spike-sorted data

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

1. in the **laboratory fridge** for the **brain sections**;
2. on the **server** sysneuro for the **microscopy image** and reconstruction;
3. on the **servers** syskrunch and sysfs01 for the **behavioral data**, the **electrophysiological data** and the raw and processed recording data.

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

1. The global costs of the servers in term of electricity is estimated to 5000 euros on 5 years. Those costs will be covered using the VIB grant of Sebastian Haesler.
2. The cost of the fridge for 5 years is less than 500 euros and is shared among different grant including the VIB one of Sebastian Haesler.

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?

1. The code and the preprocessed data will be made available on the github of the investigator and HAL.
2. The raw data will be available on demand to Kacper Kondrakiewicz.

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

In an Open Access repository

Upon request by mail

1. The source code will be released on github.
2. The dataset will be uploaded on HAL.
3. Raw data will be available on mail request.

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?

1. The source code will be released on github. Therefore, it will be available to anyone for any purpose, provided that they give appropriate credit to the creators.
2. The dataset will be uploaded on HAL. Therefore, it will be available to anyone for any purpose, provided that they give appropriate credit to the creators.
3. Raw data will be available on mail request. Therefore, it will be available to anyone for any purpose, provided that they give appropriate credit to the creators and that they contact Kacper Kondrakiewicz by mail to have access to them.

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

No costs are expected for data sharing.

8. Responsibilities

Who will be responsible for data documentation & metadata?

Kacper Kondrakiewicz

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

Kacper Kondrakiewicz

Who will be responsible for ensuring data preservation and reuse ?

Kacper Kondrakiewicz and Sebastian Haesler

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

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