

Understanding basic mechanisms behind low-intensity transcranial focused ultrasound stimulation

Research Data Summary

List and describe all datasets or research materials that you plan to generate/collect or reuse during your research project. For each dataset or data type (observational, experimental etc.), provide a short name & description (sufficient for yourself to know what data it is about), indicate whether the data are newly generated/collected or reused, digital or physical, also indicate the type of the data (the kind of content), its technical format (file extension), and an estimate of the upper limit of the volume of the data.

Dataset name / ID	Description	New or reuse	Digital or Physical data	Data Type	File format	Data volume	Physical volume
		Indicate: <i>N</i> (ew data) or <i>E</i> (xisting data)	Indicate: D(igital) or P(hysical)	Indicate: Audiovisual Images Sound Numerical Textual Model SOftware Other (specify)		Indicate: <1GB <100GB <1TB <5TB >5TB NA	
NePo	32channel neural recording probe	New data	Digital	Experimental	.dat	<1TB	
NeuroPixels	Neuropixels recording probe	New data	Digital	Experimental	.dat	<5TB	
Matlab scripts	Matlab scripts to analyses data	New Data	Digital	Software	.m, .mat	<1GB	
Histology	Safety staining and channel blocker	New Data	Digital and physical	Experimental	.img	<100GB	Slides from 100 rats
Cones	Cones made for transducer	New data	Digital and physical	Experimental	.csv	<1GB	Phyiscal cones
siRNS	siRNA sequences	New Data	Digital	Experimental	.txt	<1GB	
Genomics	Data from RNA sequence	New Data	Digital	Experimental	fastq	<100GB	
EEG	EEG data from healthy volunteers	New Data	Digital	Experimental	.biosemi	<1TB	
MRI	MRI scan of healthy volunteers heads	New Data	Digital	Experimental	.img	<1TB	
Models	Acoustic modeling data	New data	Digital	Simulations	.csv	<1TB	

If you reuse existing data, please specify the source, preferably by using a persistent identifier (e.g. DOI, Handle, URL etc.) per dataset or data type:

N/A

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, refer to specific datasets or data types when appropriate and provide the relevant ethical approval number.

- Yes, human subject data (Provide SMEC or EC approval number below)
- Yes, animal data (Provide ECD reference number below)

Ethical approval is necessary for both the animal and healthy volunteer experiments. Ethical approval has been obtained for the animal experiments (P071/2024 and P098/2023). The healthy volunteer experiments are planned to start in 2026. We are currently working on obtaining ethical permission for these experiments and it will be in place before they start.

Will you process personal data? If so, please refer to specific datasets or data types when appropriate and provide the KU Leuven

or UZ Leuven privacy register number (G or S number).

- Yes (Provide PRET G-number or EC S-number below)

Personal data collection will be limited to subject name, age, address and meeting the inclusion criteria. This data will not be used in the experiment but will be stored on a secured document. All healthy volunteer experiment data will be link to an anonymised subject number to make it unidentifiable.

**Does your work have potential for commercial valorization (e.g. tech transfer, for example spin-offs, commercial exploitation, ...)? If so, please comment per dataset or data type where appropriate.**

Question not answered.

**Do existing 3rd party agreements restrict exploitation or dissemination of the data you (re)use (e.g. Material or Data transfer agreements, Research collaboration agreements)? If so, please explain in the comment section to what data they relate and what restrictions are in place.**

- No

**Are there any other legal issues, such as intellectual property rights and ownership, to be managed related to the data you (re)use? If so, please explain in the comment section to what data they relate and which restrictions will be asserted.**

- No

#### **Documentation and Metadata**

**Clearly describe what approach will be followed to capture the accompanying information necessary to keep data understandable and usable, for yourself and others, now and in the future (e.g. in terms of documentation levels and types required, procedures used, Electronic Lab Notebooks, README.txt files, codebook.tsv etc. where this information is recorded).**

All information about the collection of the data will be written down in notebooks, methodology sections in papers, README.txt files and metadata.

**Will a metadata standard be used to make it easier to find and reuse the data?**

**If so, please specify which metadata standard will be used.**

**If not, please specify which metadata will be created to make the data easier to find and reuse.**

- Yes

In the lab there is a structure in place to arrange the data and metadata. For every analysis there is a script that describes the data.

#### **Data Storage & Back-up during the Research Project**

**Where will the data be stored?**

- Large Volume Storage
- Shared network drive (J-drive)

Shared network drives & large volume storage from the KU Leuven will be used.

**How will the data be backed up?**

- Standard back-up provided by KU Leuven ICTS for my storage solution

Every night a back up will be made by the KU Leuven ICT department.

**Is there currently sufficient storage & backup capacity during the project?**

If no or insufficient storage or backup capacities are available, explain how this will be taken care of.

- Yes

There is sufficient storage, 10 TB are still available and there is still the possibility to purchase more storage

**How will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?**

The data is password protected and can only be accessed by people from the lab

**What are the expected costs for data storage and backup during the research project? How will these costs be covered?**

The costs are covered by my PI from project costs and are expected to be around 1500 euro for 4 years.

**Data Preservation after the end of the Research Project**

**Which data will be retained for 10 years (or longer, in agreement with other retention policies that are applicable) after the end of the project?**

**In case some data cannot be preserved, clearly state the reasons for this (e.g. legal or contractual restrictions, storage/budget issues, institutional policies...).**

- All data will be preserved for 10 years according to KU Leuven RDM policy

All digital data will be preserved for at least 10 years after the project end

**Where will these data be archived (stored and curated for the long-term)?**

- Large Volume Storage (longterm for large volumes)

They will be stored at the same place as they are during the project.

**What are the expected costs for data preservation during the expected retention period? How will these costs be covered?**

To store the data on the L-drive, the cost is 500 euro for 5 TB a year. So to store more or less 5 TB for 10 years, 5000 euro costs are expected. The PI (Myles Mc Laughlin) will cover this.

#### Data Sharing and Reuse

**Will the data (or part of the data) be made available for reuse after/during the project?**

**Please explain per dataset or data type which data will be made available.**

- Yes, as embargoed data (temporary restriction)
- Yes, as open data

Data that will be collected with the Neuropixels probe will be made publicly available.

**If access is restricted, please specify who will be able to access the data and under what conditions.**

N/A

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

**Please explain per dataset or data type where appropriate.**

- No

**Where will the data be made available?**

**If already known, please provide a repository per dataset or data type.**

Currently not known

**When will the data be made available?**

- Upon publication of research results

Upon publication

**Which data usage licenses are you going to provide?**

**If none, please explain why.**

- CC-BY 4.0 (data)

**Do you intend to add a persistent identifier (PID) to your dataset(s), e.g. a DOI or accession number? If already available, please provide it here.**

- Yes, a PID will be added upon deposit in a data repository

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

No extra costs are expected as the data will be stored anyway. If others want to access it, a request can be made and access can be provided.

**Responsibilities**

**Who will manage data documentation and metadata during the research project?**

Myles Mc Laughlin

**Who will manage data storage and backup during the research project?**

Myles Mc Laughlin

**Who will manage data preservation and sharing?**

Myles Mc Laughlin

**Who will update and implement this DMP?**

Myles Mc Laughlin