FWO DMP Template - Flemish Standard Data Management Plan

Version KU Leuven

Project supervisors (from application round 2018 onwards) and fellows (from application round 2020 onwards) will, upon being awarded their project or fellowship, be invited to develop their answers to the data management related questions into a DMP. The FWO expects a **completed DMP no later than 6 months after the official start date** of the project or fellowship. The DMP should not be submitted to FWO but to the research co-ordination office of the host institute; FWO may request the DMP in a random check.

At the end of the project, the **final version of the DMP** has to be added to the final report of the project; this should be submitted to FWO by the supervisor-spokesperson through FWO's e-portal. This DMP may of course have been updated since its first version. The DMP is an element in the final evaluation of the project by the relevant expert panel. Both the DMP submitted within the first 6 months after the start date and the final DMP may use this template.

The DMP template used by the Research Foundation Flanders (FWO) corresponds with the Flemish Standard Data Management Plan. This Flemish Standard DMP was developed by the Flemish Research Data Network (FRDN) Task Force DMP which comprises representatives of all Flemish funders and research institutions. This is a standardized DMP template based on the previous FWO template that contains the core requirements for data management planning. To increase understanding and facilitate completion of the DMP, a standardized **glossary** of definitions and abbreviations is available via the following link.

1. General Project Information	
Name Grant Holder & ORCID	**Aya Takeoka,** 0000-0003-0322-677X
Contributor name(s) (+ ORCID) & roles	
Project number [1] & title	**G074823N** Spinal circuit mechanisms of motor adaptation using a complex locomotor sequence task.
Funder(s) GrantID [2]	**G074823N**
Affiliation(s)	☐ KU Leuven ☐ Universiteit Antwerpen ☐ Universiteit Gent ☐ Universiteit Hasselt ☐ Vrije Universiteit Brussel ☐ Other: ROR identifier KU Leuven: 05f950310
Please provide a short project description	Spinal circuits are at the heart of sensorimotor transformation to generate movements. However, it is challenging to disentangle how spinal circuits might contribute to motor skill acquisition and retention, due to the physical continuum to the brain that also participates in those processes. As such, we know little about the identities of spinal neurons that underlie the mechanisms of motor skill learning and retention. Leveraging a unique approach of recording nerve cell activities while mice are performing a motor task, my lab identified mechanisms in which spinal circuits in the absence of brain input learn to adapt motor outputs within minutes. Our data, using this simplified spinal learning test, suggest the exciting possibility that mechanisms regulating spinal learning and memory recall are driven by specific nerve cell types. Here, we will use a skilled locomotor paradigm to study which type of nerve cells are responsible for learning, and retaining learned motor memory. This work will reveal how the spinal cord contributes to movement automaticity in health and future developments in facilitating recovery after spinal cord injury.

[1] "Project number" refers to the institutional project number. This question is optional. Applicants can only provide one project number.

[2] Funder(s) GrantID refers to the number of the DMP at the funder(s), here one can specify multiple GrantIDs if multiple funding sources were used.

2. 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 [3].

				Only for digital data	*Only for digital data*	*Only for digital data*	*Only for physical data*
Dataset Name	Description	New or Reused	Digital or Physical	Digital Data Type	Digital Data Format	Digital Data Volume (MB, GB, TB)	Physical Volume
Observational data	Tissue samples	☒ Generate new data ☐ Reuse existing data	☒ Digital ☒ Physical	☐ Audiovisual ☒ Images ☐ Sound ☒ Numerical ☒ Textual ☐ Model ☐ Software ☐ Other:	To investigate neurocircuit composition of different cell-types and connec vity, we will collect fresh/frozen/fixed brain and spinal cord tissue sample from mice. Collected data will be stored as: Text files: Rich Text Format (.rti), plain text data (Unicode, .txt), MS Word (.doc/.docx), eXtensible Mark-	☐ < 1 GB ☐ < 100 GB ☐ < 1 TB ☐ < 5 TB ☒ > 5 TB ☐ NA	Biological and chemical samples: live animals, frozen samples in cryovials, samples stored at 4°C. < 5kg

[3] Add rows for each dataset you want to describe.

					up Language (.xml), Adobe Portable Document Format (.pdf) Quantitative tabular data: comma-separated value files (.csv), tab-delimited file (.tab), delimited text (.txt), MS Excel (.xls/.xlsx), MS Access (.mdb/.accdb) Digital images in raster formats: uncompressed TIFF (.tif/.tiff), JPEG (.jpg), JPEG 2000 (.jp2), Adobe Portable Document Format (.pdf), bitmap (.bmp) Digital images in vector formats: scalable vector graphics (.svg), encapsulated postscript (.eps),		

					Scalable Vector Graphics (.svg), Adobe Illustrator (.ai) Digital video data: MPEG-4 High Profile (.mp4), Audio Video Interleave (.avi) Digital video container: MPEG-4 High Profile (.mp4), Audio Video Interleave (.avi)		
Experimental data	Digital images	☒ Generate new data ☐ Reuse existing data	☒ Digital ☐ Physical	☒ Audiovisual ☒ Images ☐ Sound ☒ Numerical ☒ Textual ☐ Model ☐ Software ☐ Other:	To investigate neurocircuit composition of different cell-types and connectivity, we will subject collected samples from mice for high resolution microscopy images. Collected data/analyses will be stored as: Text files: Rich Text Format (.rti), plain text data	☐ < 1 GB ☐ < 100 GB ☐ < 1 TB ☐ < 5 TB ☒ > 5 TB ☐ NA	

					(.jp2), Adobe Portable Document Format (.pdf), bitmap (.bmp) 2019-10-01 | FWO DMP Template 5 Digital images in vector formats: scalable vector graphics (.svg), encapsulated postscript (.eps), Scalable Vector Graphics (.svg), Adobe Illustrator (.ai)		
Experimental data	Digital images	☒ Generate new data ☐ Reuse existing data	☒ Digital ☐ Physical	☒ Audiovisual ☒ Images ☐ Sound ☒ Numerical ☒ Textual ☐ Model ☐ Software ☐ Other:	Video and audio files To characterize behavior of mice, we collect motion capture videos. Collected data/analyses will be stored as: Text files: Rich Text Format (.rti), plain text data (Unicode, .txt), MS Word (.doc/.docx), eXtensible Mark-	☐ < 1 GB ☐ < 100 GB ☐ < 1 TB ☐ < 5 TB ☒ > 5 TB ☐ NA	

					up Language (.xml), Adobe Portable Document Format (.pdf) Quantitative tabular data: comma-separated value files (.csv), tab-delimited file (.tab), delimited text (.txt), MS Excel (.xls/.xlsx) Digital images in raster formats: uncompressed TIFF (.tif/.tiff), JPEG (.jpg), JPEG 2000 (.jp2), Adobe Portable Document Format (.pdf), bitmap (.bmp) Digital images in vector formats: encapsulated postscript (.eps), Adobe Illustrator (.ai) Digital video data: MPEG-4		

					High Profile (.mp4), Audio Video Interleave (.avi); Digital video container: MPEG-4 High Profile (.mp4), Matroska Video Container (.mkv), Audio Video Interleave (.avi)		
Experimental data	Electrophysiological data	☐ Generate new data ☐ Reuse existing data	☒ Digital ☐ Physical	☒ Audiovisual ☒ Images ☐ Sound ☒ Numerical ☒ Textual ☐ Model ☐ Software ☐ Other:	High density neuronal activity data/analyses collected from mice will be stored as: Text files: Rich Text Format (.rti), plain text data (Unicode, .txt), MS Word (.doc/.docx), eXtensible Mark-up Language (.xml), Adobe Portable Document Format (.pdf) Quantitative tabular data: comma-separated	☐ < 1 GB ☐ < 100 GB ☐ < 1 TB ☐ < 5 TB ☒ > 5 TB ☐ NA	

					value files (.csv), tab-delimited file (.tab), delimited text (.txt), MS Excel (.xls/.xlsx) Digital images in raster formats: uncompressed TIFF (.tif/.tiff), JPEG (.jpg), JPEG 2000 (.jp2), Adobe Portable Document Format (.pdf), bitmap (.bmp) Digital images in vector formats: encapsulated postscript (.eps), Adobe Illustrator (.ai) Digital video data: MPEG-4 High Profile (.mp4), Audio Video Interleave (.avi); Digital video container: MPEG-4 High Profile (.mp4),		

					Matroska Video Container (.mkv), Audio Video Interleave (.avi)		
Derived and compiled data	Research documentation	☒ Generate new data ☐ Reuse existing data	☒ Digital ☐ Physical	☒ Audiovisual ☒ Images ☐ Sound ☒ Numerical ☒ Textual ☐ Model ☐ Software ☐ Other:	Our experiments will be generated and documented the research and technical staff. This includes experimental documentation ethical approval documents, laboratory notes, protocols, animal husbandry data. Text files: Rich Text Format (.rti), plain text data (Unicode, .txt), MS Word (.doc/.docx), eXtensible Mark-up Language (.xml), Adobe Portable Document Format (.pdf) Quantitative tabular data: comma-separated value files (.csv),	☐ < 1 GB ☐ < 100 GB ☐ < 1 TB ☐ < 5 TB ☒ > 5 TB ☐ NA	

					tab-delimited file (.tab), delimited text (.txt), MS Excel (.xls/.xlsx) Digital images in raster formats: uncompressed TIFF (.tif/.tiff), JPEG (.jpg), JPEG 2000 (.jp2), Adobe Portable Document Format (.pdf), bitmap (.bmp) Digital images in vector formats: scalable vector graphics (.svg), encapsulated postscript (.eps), Scalable Vector Graphics (.svg), Adobe Illustrator (.ai) Digital video data: MPEG-4 High Profile (.mp4), motion JPEG 2000 (.mjp2), Audio Video Interleave		

					(.avi) Digital video container: MPEG-4 High Profile (.mp4), Matroska Video Container (.mkv), Audio Video Interleave (.avi) Manuscripts We plan to publish 2-3 manuscripts with this funding. the data format will include: Text files: MS Word (.doc/.docx), Adobe Portable Document Format (.pdf) Quantitative tabular data: MS Excel (.xls/.xlsx) Digital images in vector formats: Adobe Illustrator (.ai); Digital video data: MPEG-4 High Profile		

					(.mp4) Algorithms and scripts Algorithms and scripts will be generated by scientists in the group to analyze collected data using softwares such as MATLAB, R, and Python.		

GUIDANCE:
The data description forms the basis of your entire DMP, so make sure it is detailed and complete. It includes digital and physical data and encompasses the whole spectrum ranging from raw data to processed and analysed data including analysis scripts and code. Physical data are all materials that need proper management because they are valuable, difficult to replace and/or ethical issues are associated. Materials that are not considered data in an RDM context include your own manuscripts, theses and presentations; documentation is an integral part of your datasets and should described under documentation/metadata.
RDM Guidance on data

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: ☒ Yes, animal data; provide ECD reference number: P122-2021 ☐ Yes, dual use; provide approval number: ☐ No Additional information:
Will you process personal data[4]? 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) ☒ No Additional information:
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.	☐ Yes ☒ No If yes, please comment:
Do existing 3rd party agreements restrict exploitation or dissemination of the data you (re)use (e.g. Material/Data transfer agreements, research collaboration agreements)? If so, please explain to what data they relate and what restrictions are in place.	☐ Yes ☒ No If yes, please explain:
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 to what data they relate and which restrictions will be asserted.	☐ Yes ☒ No If yes, please explain:

[4] See Glossary Flemish Standard Data Management Plan

3. 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). *RDM guidance on documentation and metadata*.	Metadata will be documented by the research and technical staff at the time of data collection and analysis, by taking careful notes in the electronic laboratory notebook (E-notebook) and/or in hard copy lab notebooks that refer to specific datasets. All datasets will be accompanied by a README.txt file containing all the associated metadata (see more details below). The data will be generated following standardized protocols. Clear and detailed descriptions of these protocols will be stored in our lab protocol database, and published along with the results.

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. *REPOSITORIES COULD ASK TO DELIVER METADATA IN A CERTAIN FORMAT, WITH SPECIFIED ONTOLOGIES AND VOCABULARIES, I.E. STANDARD LISTS WITH UNIQUE IDENTIFIERS.*	☒ Yes ☐ No If yes, please specify (where appropriate per dataset or data type) which metadata standard will be used: While specific data types might require particular metadata, as a general rule the metadata will be basedon a generalized metadata schema such as Dublin Core or DataCite. We will closely monitor MIBBI (Minimum Informa on for Biological and Biomedical Investigations) for metadata standards that are more specific to our data. Metadata will include the following elements: • Title: free text • Creator: Last name, first name, organization • Date and time reference • Subject: Choice of keywords and classifications • Description: Text explaining the content of the data set and other contextual information needed for the correct interpretation of the data, the software(s) (including version number) used to produce and to read the data, the purpose of the experiment, etc. • Format: Details of the file format, • Resource Type: data set, image, audio, etc. • Identifier: DOI (when applicable) • Access rights: closed access, embargoed access, restricted access, open access. For specific datasets, additional metadata will be associated with the data file as appropriate. Give details as needed for the project. The final dataset will be accompanied by this information under the form of a README.txt document. This file will be located in the top level directory of the dataset and will also list the contents of the other files and outline the file-naming convention used. This will allow the data to be understood by other members of the laboratory and add contextual value to the dataset for future reuse.

4. Data Storage & Back-up during the Research Project

Where will the data be stored? *Consult the interactive KU Leuven storage guide to find the most suitable storage solution for your data.*	☐ Shared network drive (J-drive) ☐ Personal network drive (I-drive) ☒ OneDrive (KU Leuven) ☒ Sharepoint online ☐ Sharepoint on-premis ☐ Large Volume Storage ☐ Digital Vault ☒ Other: Digital files will be stored on NERF servers. - Tissue samples: Tissues will be stored locally in the laboratory. - Omics data: omics data generated during the project will either be stored on KU Leuven servers or on The Flemish Supercomputer Centre (VSC), initially in the staging area and later in the archive area. - Vectors: As a general rule at least two independently obtained clones will be preserved for each vector, both under the form of purified DNA (in -20°C freezer) and as a bacteria glycerol stock (-80°C). All published vectors and the associated sequences will be sent to the non-profit plasmid repository Addgene, which will take care of vector storage and shipping upon request. - Genetically modified organisms: Mice will be maintained in facilities of the Laboratory Animal Center of KU Leuven, which applies Standard Operation Procedures concerning housing, feeding, health monitoring to assure consistent care in accordance with European and national regulations and guidelines. All animals will be registered in the Leuven Animal Information System (LAIS) database, along with corresponding genotyping information, ethical approval documents and animal provider receipts. Drosophila lines will be stored in a dedicated room and managed using a specific database for storage of the corresponding information (including genotype, origin, number of vials and date of transfer, crossing schemes) and vial tracking via unique QR codes. Other biological and chemical samples: storage at 4°C and/or as frozen samples in cryovials as appropriate. - Algorithms, scripts and softwares: All the relevant algorithms, scripts and so ware code driving the project will be stored in a private online git repository from the GitHub account of the department (https://github.com/nerf).

How will the data be backed up? *WHAT STORAGE AND BACKUP PROCEDURES WILL BE IN PLACE TO PREVENT DATA LOSS?*	☐ Standard back-up provided by KU Leuven ICTS for my storage solution ☐ Personal back-ups I make (specify) ☒ Other (specify) NERF drives are backed-up according to the following scheme: - data stored on the "NERFfs01" is backed up daily using snapshot technology, where all incremental changes in respect of the previous version are kept online; the last 14 backups are kept. Incremental backups are done daily from one 20 TB QNAP NAS to a second 20 TB QNAP NAS.
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 There is sufficient storage and back-up capacity on the NERF server: The server is an easily scalable system, built from General Parallel File System (GPFS) cluster with NetApp eseries storage systems, and a CTDB samba cluster in the front-end.
How will you ensure that the data are securely stored and not accessed or modified by unauthorized persons? *CLEARLY DESCRIBE THE MEASURES (IN TERMS OF PHYSICAL SECURITY, NETWORK SECURITY, AND SECURITY OF COMPUTER SYSTEMS AND FILES) THAT WILL BE TAKEN TO ENSURE THAT STORED AND TRANSFERRED DATA ARE SAFE.* *Guidance on security for research data*	NERF server is accessible only by laboratory members, and are mirrored in the second ICTS datacenter for business continuity and disaster recovery so that a copy of the data can be recovered within an hour.

What are the expected costs for data storage and backup during the research project? How will these costs be covered?	estimation is based on the following costs: -The costs of digital data storage are as follows: 173,78 €/TB/Year. -Maintaining a mouse colony alive costs about 1,200 euro per year (for 6 cages), excluding the costs of genotyping. When no experiment is planned with a particular mouse strain, and in compliance with the 3R's rule (https://www.nc3rs.org.uk), cryopreservation will thus be used to safeguard the strain, prevent genetic drift, loss of transgene and potential infections or breeding problems. Cryopreservation of sperm/embryos costs about 900 to 1300 euro per genotype, plus a minimal annual storage fee (25 euro per strain for 250 to 500 embryos). Frozen specimen are kept in two separate liquid nitrogen tanks at two different sites on campus. When necessary, the costs of revitalization from cryopreserved sperm/embryos are about 1,100/600 euro. Electricity costs for the -80° freezers present in the labs are included in the central budget for NERF. Data storage and backup costs are covered by the central budget for NERF and by individual lab.

5. Data Preservation after the end of the Research Project	
Which data will be retained for at least five 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...). *Guidance on data preservation*	☐ All data will be preserved for 10 years according to KU Leuven RDM policy ☐ All data will be preserved for 25 years according to CTC recommendations for clinical trials with medicinal products for human use and for clinical experiments on humans ☒ Certain data cannot be kept for 10 years (explain) The minimum preservation term of 5 years after the end of the project will be applied to all datasets. Beyond the 5 years, some data cannot be preserved for storage and budget reasons due to high cost.

Where will these data be archived (stored and curated for the long-term)? *Dedicated data repositories are often the best place to preserve your data. Data not suitable for preservation in a repository can be stored using a KU Leuven storage solution, consult the interactive KU Leuven storage guide.*	☐ KU Leuven RDR ☐ Large Volume Storage (longterm for large volumes) ☐ Shared network drive (J-drive) ☒ Other (specifiy): As a general rule, datasets will be made openly accessible, whenever possible via existing platforms that support FAIR data sharing (www.fairsharing.org), at the latest at the time of publication. For all other datasets, long term storage will be ensured as follows: -Digital datasets: files will be stored on the NERF server. -Tissue samples: Tissues will be stored locally in the laboratory. -Vectors: As a general rule at least two independently obtained clones will be preserved for each vector, both under the form of purified DNA (in -20°C freezer) and as a bacteria glycerol stock (-80°C). -Genetically modified organisms: Actively used mouse lines will be housed locally. All other lines that are not actively used for experiments will be cryopreserved. -Other biological and chemical samples: storage at 4°C and/or as frozen samples in cryovials as appropriate.
What are the expected costs for data preservation during the expected retention period? How will these costs be covered?	The total estimated cost of data storage during 5 years after the end of the project is 420,000 euro (ca.105,000 euro per year), and will be covered by FWO grant and other budgets. This estimation is based on the following costs: -The costs of digital data storage are as follows: 173,78€/TB/Year for the NERF server. -Maintaining a mouse colony alive costs about 1,200 euro per year (for 6 cages), excluding the costs of genotyping. When no experiment is planned with a particular mouse strain, and in compliance with the 3R's rule (h ps://www.nc3rs.org.uk), cryopreservation will thus be used to safeguard the strain, prevent gene c dri , loss of transgene and potential infections or breeding problems. Cryopreservation of sperm/embryos costs about 900 to 1300 euro per genotype, plus a minimal annual storage fee (25 euro per strain for 250 to 500 embryos). Frozen specimen are kept in two separate liquid nitrogen tanks at two different sites on campus. When necessary, the costs of revitalization from cryopreserved sperm/embryos are about 1,100/600 euro. Electricity costs for the -80° freezers present in the labs are included in NERF central budget. Data storage and backup costs are par ally included in NERF central budget.

6. 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. *NOTE THAT 'AVAILABLE' DOES NOT NECESSARILY MEAN THAT THE DATA SET BECOMES OPENLY AVAILABLE, CONDITIONS FOR ACCESS AND USE MAY APPLY. AVAILABILITY IN THIS QUESTION THUS ENTAILS BOTH OPEN & RESTRICTED ACCESS. FOR MORE INFORMATION: HTTPS://WIKI.SURFNET.NL/DISPLAY/STANDARDS/INFO-EU-REPO/#INFOEUREPO-ACCESSRIGHTS*	☒ Yes, as open data ☐ Yes, as embargoed data (temporary restriction) ☐ Yes, as restricted data (upon approval, or institutional access only) ☐ No (closed access) ☐ Other, please specify:
If access is restricted, please specify who will be able to access the data and under what conditions.	
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.	☐ Yes, privacy aspects ☐ Yes, intellectual property rights ☐ Yes, ethical aspects ☐ Yes, aspects of dual use ☐ Yes, other ☒ No If yes, please specify:

Where will the data be made available? If already known, please provide a repository per dataset or data type.	☐ KU Leuven RDR ☐ Other data repository (specify) ☒ Other (specify) In an Open Access repository, Upon request by mail
When will the data be made available?	☒ Upon publication of research results ☐ Specific date (specify) ☐ Other (specify)
Which data usage licenses are you going to provide? If none, please explain why. *A DATA USAGE LICENSE INDICATES WHETHER THE DATA CAN BE REUSED OR NOT AND UNDER WHAT CONDITIONS. IF NO LICENCE IS GRANTED, THE DATA ARE IN A GREY ZONE AND CANNOT BE LEGALLY REUSED. DO NOTE THAT YOU MAY ONLY RELEASE DATA UNDER A LICENCE CHOSEN BY YOURSELF IF IT DOES NOT ALREADY FALL UNDER ANOTHER LICENCE THAT MIGHT PROHIBIT THAT.* *Check the RDR guidance on licences for data and software sources code or consult the License selector tool to help you choose.*	☒ CC-BY 4.0 (data) ☐ Data Transfer Agreement (restricted data) ☒ MIT licence (code) ☐ GNU GPL-3.0 (code) ☐ Other (specify)
Do you intend to add a PID/DOI/accession number to your dataset(s)? If already available, please provide it here. *INDICATE WHETHER YOU INTEND TO ADD A PERSISTENT AND UNIQUE IDENTIFIER IN ORDER TO IDENTIFY AND RETRIEVE THE DATA.*	☒ Yes, a PID will be added upon deposit in a data repository ☐ My dataset already has a PID ☐ No

What are the expected costs for data sharing? How will these costs be covered?	It is the intention to minimize data management costs by implementing standard procedures e.g. for metadata collection and file storage and organization from the start of the project, and by using free-to use data repositories and dissemination facilities whenever possible. Data management costs will be covered by the laboratory budget.

7. Responsibilities	
Who will manage data documentation and metadata during the research project?	Metadata will be documented by the research and technical staff at the time of data collection and analysis, by taking careful notes in the electronic laboratory notebook (E-notebook) that refer to specific datasets.
Who will manage data storage and backup during the research project?	The research and technical staff will ensure data storage and back up, with support from Giuliano Maggi Olmedo, our NERF IT personnel.
Who will manage data preservation and sharing?	The PI is responsible for data preservation and sharing, with support from the research and technical staff involved in the project, from Giuliano Maggi Olmedo, our NERF IT personnel.
Who will update and implement this DMP?	The PI is ultimately responsible for all data management during and a er data collection, including implementing and updating the DMP.