

DMP title

Project Name C1 DMP_P. Vangheluwe_2022-2025 - DMP title

Project Identifier InterAction

Grant Title C14/21/095

Principal Investigator / Researcher Peter Vangheluwe

Description Inter-organelle communication through membrane contact sites In Oncology and Neurodegenerative diseases (InterAction)

Institution KU Leuven

1. General Information

Name of the project lead (PI)

Peter Vangheluwe

Internal Funds Project number & title

C14/21/095: Inter-organelle communication through membrane contact sites In Oncology and Neurodegenerative diseases (InterAction)

2. Data description

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

- Generate new data
- Reuse existing data

2.2. What data will you collect, generate or reuse? Describe the origin, type and format of the data (per dataset) and its (estimated) volume. This may be easiest in a numbered list or table and per objective of the project.

Type of data	Format of data	Volume	How created
Scan of gels	Tiff, jpeg files	3 GB	Scanner
Scan of a western blot	Scn files	5 GB	ChemiDoc, Typhoon
Flow cytometry	Fcs files	4 GB	Facq scan
Sequencing	Txt files and api files	1 GB	Data Origin: secondary
Mass spectrometry	Bmp, jpg files, csv files	500 MB	Data Origin: secondary
Experimental read outs	sda or pda files	1 GB	Flex station, plate reader
Uptake experiments	Excell files	500 MB	Computer
VNTI: vector data	DNA files or GB files	5 GB	Computer
Statistics	Pzfx or opj files	2 GB	GraphPad or origin
Analyzed data	Excell files	1 GB	Imported raw data
Microscopy images	Czi, tiff, LSM files	5 TB	All kinds of microscopes
Existing data	All kinds of files	1 TB	On j- and k-drive
Cell lines	Doc and excel files	3 GB	On j- drive
Plasmids	Doc file	1 GB	On j-drive
Electronic lab note book	One note file	2 GB	On j-drive
Proteomics	Excell	1 GB	On- j-drive
Text files	.txt, .docx, .pdf files	10 GB	On- j-drive
Presentations	.ppt files	10 GB	On- j-drive
Mice	/	/	LAIS system
Cell lines	.xls, .ppt, .doc, .SCN files	3 GB	On- j-drive
Bacterial and yeast strains	.xls files, .ppt, .doc files	1 GB	On- j-drive
SnapGene	.DNA	5 GB	On pc
Digital images	.tiff, .jpeg, .bmp, .gif files	2 TB	On J- and L-drive
Statistical data	.pzfx	3 GB	On J-drive

3. Ethical and legal issues

3.1. Will you use personal data? If so, shortly describe the kind of personal data you will use. Add the reference to the file in KU Leuven's Record of Processing Activities. Be aware that registering the fact that you process personal data is a legal obligation.

No personal data will be used. All data from patient samples given by our collaborators are completely anonymized data.

3.2. 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. The following ethical files partly cover this and all experimental approaches are approved by the ethical committee:

For cell lines: S63808, S58477, S58320

The mice work: P069-2021 for the ATP13A2 mice. For the ATP10B mice the ECD file can only be submitted after finding out if they have a harmful phenotype. For the lyso-IP mice the ECD file will be submitted when these experiments will start.

The ethical approval for the work with human fibroblast, organoids, neurons and prostate cancer derived xenografts will be provided by our collaborators who will provide us with this biological material. All human biomaterial will be obtained following the three ethical principles (voluntary donation, informed consent and protection of privacy). This material will be used following our Center's Standard Operating Procedure for the handling of human biomaterial, and in accordance with European and national regulations and guidelines.

From all well-known and established cell lines that are commercially available and used in this study, the MSDS sheets can be consulted online and have been published.

3.3. Does your research 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?

When a researcher starts at the KU Leuven he/she signs a contract and the intellectual rights and property information are implemented in the employment contract. This is an agreement concerning the proprietary information and intellectual property rights on research results and the researcher hereby declares to maintain adequate written records of all research results.

We do not exclude that the proposed work could result in research data with potential for tech transfer and valorization. Ownership of the data generated belongs to KU Leuven and VIB in accordance with the framework agreement of both institutes. VIB has a policy to actively monitor research data for such potential. If there is substantial potential, the invention will be thoroughly assessed, and in a number of cases the invention will be IP protected (mostly patent protection or copyright protection). As such the IP protection does not withhold the research data from being made public. In the case a decision is taken to file a patent application it will be planned so that publications need not be delayed.

3.4. 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 regarding reuse and sharing are in place?

No agreements are made yet, but we do not exclude that the proposed work could result in research data with potential for tech transfer and valorization. This will be evaluated case by case together with KU Leuven and VIB.

4. Documentation and metadata

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

Results are preserved in hard copy note books or electronically on the KU Leuven servers. It is the responsibility of the researcher and his/her supervisor to make use of the IT infrastructure.

Digital files will be named following a standard procedure, so that all the name of all files in a given dataset will be in the same format: All names will start with the date (and time if applicable), followed by the project acronym, a short but specific descriptive name and a version number (containing leading zeros as needed) if applicable. Whenever possible names will be kept under 32 characters. Names will only contain letters, numbers and underscores. Dots will only be used for version control indicators (minor revisions indicated by decimal numbers, and major revisions by whole numbers): YYYYMMDD_HHmm_Project_Experiment_version.format

All protocols, list of materials, list of human and murine cell lines (commercially available or generated/isolated) will be stored in both J and K drives of the KU Leuven servers. A shared j-drive folder will be made where data files and information can be shared in a protected way. We will make any data generated during this study available to the wider scientific communities upon publication. The experimental data will be created manually by the researcher him/herself and stored in a searchable format described above.

All biological material is stored according to good scientific practices. For the data concerning the mice we use the LAIS software system provided by the KU Leuven.

4.2. Will a metadata standard be used? If so, describe in detail which standard will be

used. If not, state in detail which metadata will be created to make the data easy/easier to find and reuse.

No metadata standard will be used.

5. Data storage and backup during the project

5.1. Where will the data be stored?

Each researcher will store his/her data on their personal folder on the j-drive. This is the data repository for short term storage which is expandable, fast and the data can be modified by the researcher itself. Only the PI's and the lab managers have access to all the folders of the j-drive of this consortium. When data is published, the data will be moved to the k-drive. This is our repository for data archiving, for long term storage. Only the PI and the lab manager can move the data to this drive, but data on this drive cannot be modified or deleted. Only the ICT service can do this. The data storage concerning cell lines is in a folder under the j-drive of each group and is under restricted authorization. Only the lab managers of the lab, the PI's and the lab technicians who are working on cell culture are able to make changes to that folder. All other persons have read rights. The plasmid list is on the j-drive of the lab and the excel fill is accessible for everybody, but changes can only be made by the persons with authorization. All biological material is stored according to good scientific practices:

- Tissue samples will be stored locally in the laboratory
- Vectors will be preserved under the form of purified DNA (in -20°C freezer) and as a bacteria glycerol stock (-80°C).
- Cell lines will be stored locally in the laboratory in liquid nitrogen storage and will be deposited in the UZ Leuven-KU Leuven Biobank. Other human cell lines will be stored locally in liquid nitrogen cryostorage of the laboratory when actively used for experiments. Animal cell lines will be stored in liquid nitrogen cryostorage of the laboratory.
- Bacterial and yeast strains will be stored in a -80°C freezer in the laboratory.
- 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.
- Omics data generated during the project will be stored on KU Leuven servers.
- Nucleic acid and protein sequences: All nucleic acid and protein sequences generated during the project will be stored on KU Leuven servers. Upon publication, all sequences supporting a manuscript will be made publicly available via repositories such as VectorNTi or SnapGene or GenBank database or the European Nucleotide Archive (nucleotide sequences from primers / new genes / new genomes), NCBI Gene Expression Omnibus (microarray data / RNA-seq data / CHIPseq data), the Protein Database (for protein sequences), the EBI European Genome-phenome Archive (EGA) for personally identifiable (epi)genome and transcriptome sequences.

Within the consortium a dedicated j-drive will be created where data files and information can be shared in a protected way.

5.2. How will the data be backed up?

An automatic back-up service is provided by our KU Leuven ICT service and the KU Leuven drives are backed-up according to the following scheme:

- data stored on the "L-drive" 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.
- data stored on the "J-drive" is backed up hourly, daily (every day at midnight) and weekly (at midnight between Saturday and Sunday); in each case the last 6 backups are kept.

5.3. 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.

There is sufficient storage and back-up capacity on all KU Leuven servers:

- The "L-drive" is an easily scalable system and is expandable in blocks of 5TB.
- The "J-drive" is expandable in blocks of 100 GB.

- The archive storage is done on the “K-drive” and this drive is expandable in blocks of 100 GB.

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

Each year €11.38 will be charged from our ICT service for the use of 1 TB on the k-drive (long term storage) and €519 will be charged each year for the use of 1 TB of the j-drive (short term storage). The L-drive costs €569.20 for 5 TB/year. Back-up service is included in the price. The expected storage costs for this project is estimated at €1000/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 500 to 700 euro per genotype, plus a minimal annual storage fee (25 euro per strain for 250 to 500 embryos). Frozen specimens 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.

These costs will be covered by the C1 project and if more the lab budget will be used to cover these expenses

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

Data are not saved locally on laptop/desktop but are stored in the KU Leuven secure data center. The “L-drive”, “J-drive” and “K-drive” servers are 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.

Access to the digital vault is possible only through using a KU Leuven user-id and password, and user rights only grant access to the data in their own vault. KU Leuven works with a multi-factor authentication mechanism to increase the security. Non-authorized persons can't access or modify the data.

6. Data preservation after the end of the project

6.1. Which data will be retained for the expected 10 year period after the end of the project? If only a selection of the data can/will be preserved, clearly state why this is the case (legal or contractual restrictions, physical preservation issues, ...).

Once the research is completed and processed for publication, all original data and summary/report files will be grouped and collected at the k-drive and will stay there for at least 10 years after the project. Unpublished data that are still used in experiments and will be stored on the j-drive under the folder of the researcher, unless the researcher will leave the lab. Then the data will be moved to the k-drive.

We aim at communicating our results in top journals that require full disclosure of all included data. Biological material will be shared upon simple request following publication, unless we identify valuable IP, in which case we will first protect commercial exploitation, either through patenting or via an MTA that restricts the material from commercial use.

6.2. Where will these data be archived (= stored for the long term)?

When data is published or people are leaving the group, the data will be moved to the k-drive. This is our repository for data archiving, for long term storage. Only the PI's and the lab manager can move the data to this drive, but data on this drive cannot be modified or deleted. Only the ICT service can do this.

6.3. What are the expected costs for data preservation during these 10 years? How will the costs be covered?

The costs of digital data storage are as follows:

- 173,78€/TB/Year for the “L-drive” (large volume storage)
- 519€/TB/Year for the “J-drive” (short term storage)
- 9€/TB/Year for the “k-drive” (long term storage)

€ 56.9 x 10 years: €569 for storing the data on the k-drive for 10 years. Back-up service is

included in the price. These costs will be covered by the C1 budget and if more the lab budget will be used to cover these expenses.

7. Data sharing and re-use

7.1. 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 or because of IP potential)?

We aim at communicating our results in top journals that require full disclosure of all included data. Biological material will be shared upon simple request following publication, unless we identify valuable IP, in which case we will first protect commercial exploitation, either through patenting or via an MTA that restricts the material from commercial use.

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

All the data on which publications were based on will be made publicly available. All data will be moved to our long-term storage (=data archive) where the data is available under a read only modus for everybody within the lab and only the PI's and the lab managers have access to that drive. Data that are important for future applications and publications will not be made available.

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

- In an Open Access repository
- Upon request by mail

All data is available within our research group and the consortium under read only rights on the k-drive (long storage drive). All data, unless not allowed due to restrictions of other parties, will be published in academic peer reviewed journals.

7.4. When will the data be made available?

- Upon publication of the research results

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

Only the researchers participating in the project, the lab managers and the PI's will be able to access the data before publishing. After publishing the data will be moved to our long-term data archive (k-drive) and will be available for everybody in our research group and consortium under a read only modus. All data will be available to the broad audience as publications in peer reviewed journals.

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

A shared j-drive folder will be made where data files and information can be shared in a protected way.

The costs of digital data storage are as follows:

- 519€/TB/Year for the "J-drive" (short term storage)
- 56.9€/TB/Year for the "k-drive" (long term storage)

These costs will be covered by the C1 budget and if more the lab budget will be used to cover these expenses.

8. Responsibilities

8.1. Who will be responsible for the data documentation & metadata?

All researchers involved in this consortium and their PI's:

Peter Vangheluwe (project lead)

Patrizia Agostinis

Wim Annaert

Johan Swinnen

Joris Winderickx

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

The responsible PI's will ensure data storage and back up, with support from the ICT service at KULeuven.

8.3. Who will be responsible for ensuring data preservation and sharing?

The PI's are responsible for data preservation and sharing, with support from the research and

technical staff involved in the project.

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

The end responsibility for updating and implementing the DMP is with the project lead, Peter Vangheluwe.