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	**Karel Talavera** (https://orcid.org/0000-0002-3124-138X)
Contributor name(s) (+ ORCID) & roles	**Justyna Startek** - postdoctoral fellow (http://orcid.org/0000-0003-1131-1149)
Project number & title	Transient Receptor Potential and Piezo channels as molecular sensors of extracellular lipid vesicles (G0AAL24N)
Funder(s) GrantID [2]	Fonds voor Wetenschappelijk Onderzoek - Research Foundation Flanders (FWO)
Affiliation(s)	☒ KU Leuven ☐ Universiteit Antwerpen ☐ Universiteit Gent ☐ Universiteit Hasselt ☐ Vrije Universiteit Brussel ☐ Other: ROR identifier KU Leuven: 05f950310

Add rows for each dataset you want to describe.
See Glossary Flemish Standard Data Management Plan
[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.

Please provide a short project description	Transient receptor potential (TRP) and Piezo channels are ubiquitous mechanosensory proteins and are thereby involved in numerous physiological and pathophysiological processes and proposed as targets to treat multiple human diseases. These channels are activated by mechanical stimuli inducing shear stress and changes in membrane curvature and tension, and by the perturbations produced by insertion of chemicals in cell membranes. Based on previous studies by our group and solid preliminary data, we here hypothesize that TRPs and Piezos can sense the extracellular lipid vesicles upon their interaction with the plasma membrane of target cells. We will test this hypothesis by using a wide variety of up-to-date experimental techniques to: 1) screen the effects of natural and artificial lipid vesicles on TRP and Piezo channels, 2) determine the mechanism whereby lipid vesicles activate these channels and 3) determine the pathophysiological relevance of vesicle-channel interactions in somatosensory nerves and epithelial cells. Because TRP and Piezo channels are ubiquitously expressed, the confirmation of our hypothesis will indicate that these channels are universal mediators of the effects of lipid vesicles on target cells, via their key regulatory roles of cellular signaling. Our findings will shed light on the mechanisms underlying the role of extracellular vesicles in intercellular communication and of artificial lipid vesicles used as drug and vaccine vector delivery agents.

1. 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 [1].

				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
Ca^{2+} imaging	*In vitro* and *ex vivo* measurements	☒ Generate new data ☐ Reuse existing data	☒ Digital ☐ Physical	☒ Audiovisual ☒ Images ☐ Sound ☒ Numerical ☒ Textual ☐ Model ☐ Software ☒ Other:	.avi .tiff, .pdf, .opj .csv, .xlsx .txt .py, .html	☐ < 1 GB ☐ < 100 GB ☒ < 1 TB ☐ < 5 TB ☐ > 5 TB ☐ NA	
Patch-clamp	Whole-cell and cell-attached	☒ Generate new data ☐ Reuse existing data	☒ Digital ☐ Physical	☐ Audiovisual ☒ Images ☐ Sound ☒ Numerical ☐ Textual ☐ Model ☐ Software ☐ Other:	.pdf, .opj .csv, .xlsx	☐ < 1 GB ☒ < 100 GB ☐ < 1 TB ☐ < 5 TB ☐ > 5 TB ☐ NA	
Subcellular mechanisms	Membrane and cytoskeleton	☒ Generate new data ☐ Reuse existing data	☒ Digital ☐ Physical	☐ Audiovisual ☒ Images ☐ Sound ☒ Numerical ☐ Textual ☐ Model ☐ Software	.tiff, .pdf, .opj .csv, .xlsx	☐ < 1 GB ☒ < 100 GB ☐ < 1 TB ☐ < 5 TB ☐ > 5 TB ☐ NA	

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

				☐ Other:			
In vivo measurements	Injections + behavioral experiments	☒ Generate new data ☐ Reuse existing data	☒ Digital ☒ Physical	☒ Audiovisual ☒ Images ☐ Sound ☒ Numerical ☐ Textual ☐ Model ☐ Software ☐ Other:	.mp4 .pdf, .opj .xlsx	☐ < 1 GB ☐ < 100 GB ☒ < 1 TB ☐ < 5 TB ☐ > 5 TB ☐ NA	1 file folder

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.	None of the data will be reused. All data will be newly generated.
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: ☐ Yes, dual use; provide approval number: ☒ No
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) ☒ No

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
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
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

2. 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*.	Each experiment performed is documented in an electronic lab notebook (eLabFTW), and contains all the necessary information to replicate the experiment: setup settings, materials used, protocol, parameters used for data analysis, storage location of raw data, and useful comments regarding the experimental process. Part of the data collected within this project will be analyzed with a custom-developed Python code, available online (GitHub). The parameters used for each analysis are stored in a description.txt file, automatically generated for each analysis run via the script.
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 All information pertaining to the experiments will be stored in our electronic lab notebook system (eLabFTW), and can be easily exported as the publicly documented .eln format from the ELN consortium (https://github.com/TheELNConsortium). Specifically, metadata will include: - for imaging data: microscope, magnification, camera, exposure, illumination (excitation & filter) - for isolated cells: cell line, passage - for electrophysiology: protocol, cell parameters - for *ex vivo* and *in vivo*: mouse strain, age, gender

3. 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: Data from the experiments will be stored on the active data management platform ManGO (MANagement van Gegevens voor Onderwoek). For all experiments as well as scanned documents the time-stamped main file with the data will be kept in our research unit central storage facility with automatic backup. Besides the internal server available in the research group, raw, processed and analyzed data, together with scanned documents will be stored on personal computers and external hard drives.
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) The data will be stored on the university's central servers with automatic daily backup procedures. The internal laboratory server executes periodic ? back-ups of stored data. Additionally, personal back-ups of raw, processed and analyzed data will be performed periodically (once a month) on external hard drives.
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 ☐ No ICTS storage KU Leuven is provided with standard user capacity: large volume storage up to 100 TB, desktop file storage up to 1 TB, server backend storage up to 100 TB, OneDrive 2 TB that could be extended to 5 TB.

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*	All data will be stored in the university's secure environment with specific KU Leuven ICT security standards.
What are the expected costs for data storage and backup during the research project? How will these costs be covered?	Costs are coved by the host laboratory.

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) All data will be retained for a period of 10 years, including the relevant data such as the basis of publications, data that can only be generated or collected once or data likely to be reused within the research unit or in wider contexts.

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): The data will be stored on the university's central servers (with automatic backup procedures) for at least 10 years, conform the KU Leuven RDM policy.
What are the expected costs for data preservation during the expected retention period? How will these costs be covered?	The costs are covered by the host laboratory.

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: All digital data will be made available in a restricted access repository.

If access is restricted, please specify who will be able to access the data and under what conditions.	Scientific researchers will have to motivate why they want access to the data: - Studied topic - How is the data linked to the research domain? - Why is the data needed? - Which question/problem will the data help with? The other researchers will be asked to give credit to the original creators of the data.
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
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: in an Open Access repository (GitHub) ☒ Other: upon request by email
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) Data from the project that can be shared will be made available under a Creative Commons attribution license (cc-by 4.0), so that users have to give credit to the original data creators.

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 DOI 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?	If any additional costs arise, they will be covered by the host lab.

7. Responsibilities	
Who will manage data documentation and metadata during the research project?	Principle investigator
Who will manage data storage and backup during the research project?	Principle investigator and ICTS KU Leuven
Who will manage data preservation and sharing?	Principle investigator and supervisor
Who will update and implement this DMP?	The principle investigator bears the end responsibility of updating & implementing this DMP under the supervisor's supervision.