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	**Djalila Mekahli 0000-0003-0954-6088**
Contributor name(s) (+ ORCID) & roles	**Peter Janssens 0000-0002-0981-8621 (co-promoter)** **Jean-Paul Decuypere 0000-0001-6050-599X (co-promoter)**
Project number [1] & title	Exploring the apelinergic system in autosomal dominant polycystic kidney disease
Funder(s) GrantID [2]	G060623N
Affiliation(s)	☐ KU Leuven (DM & JPD) ☐ Vrije Universiteit Brussel (PJ) ROR identifier KU Leuven: 05f950310
Please provide a short project description	Autosomal dominant polycystic kidney disease (ADPKD), characterized by the development of renal cysts, represents the 4th common cause of end-stage kidney disease worldwide. The sole disease-modifying drug is the vasopressin (AVP) receptor 2 antagonist tolvaptan, but its limited therapeutic effect and significant side effects warrant novel drugs. The antidiuretic effect of AVP is counteracted by apelin. Together with apela and the apelin receptor (APLNR), it forms the apelinergic system (AS). Although the AVP system has been extensively studied in ADPKD, and despite its potential as a new treatment target in kidney and cardiovascular diseases, the AS remains to be explored in ADPKD. Our preliminary research shows that the AS is altered in ADPKD. Although apelin expression is reduced in the hypothalamus, apelin and APLNR expression is enhanced locally in kidney cells of ADPKD research models. Moreover, we found that patients with normal kidney function have increased circulating apelin. We therefore hypothesize that altered AS function influences the cellular and molecular ADPKD phenotype. Therefore, we will investigate in depth the dynamics, mechanisms and contribution of the AS in cyst formation and its interaction with the AVP system in patients and in several ADPKD models (unique patient-derived kidney cell and mouse model). We aim to gain crucial knowledge on kidney AS physiology, the role of the AS in ADPKD pathophysiology and its therapeutic potential in ADPKD.

[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
Leuven ADPKD biobank	Biological samples (blood and urine) of cohort	☐ Generate new data ☒ Reuse existing data	☐ Digital ☒ Physical	☐ Audiovisual ☐ Images ☐ Sound ☐ Numerical ☐ Textual ☐ Model ☐ Software ☐ Other:		☐ < 1 GB ☐ < 100 GB ☐ < 1 TB ☐ < 5 TB ☐ > 5 TB ☐ NA	Ca. 3x 3x 500µl blood Ca. 3x 2ml urine
Apelin/ copeptin and other biomarkers in Leuven ADPKD biobank	Levels of apelin, copeptin and other biomarkers in blood and urine	☒ Generate new data ☒ Reuse existing data	☒ Digital	☒ Numerical	☒ .csv	☒ < 100 GB	
ADPKD cell lines	Kidney cell lines derived from urine or tissue from ADPKD	☒ Reuse existing data	☒ Physical				At least 3 vials (1ml) with approx. $1.*10^6$ cells per cell line

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

	patients and healthy controls						
Derivates of ADPKD cell lines	Supernatans, pellet, protein lysates of ADPKD cell lines	☒ Generate new data ☒ Reuse existing data	☒ Physical				Supernatans: 1ml per experiment per cell line; protein lysate: 100µl per experiment per cell line
Tissue of ADPKD kidneys	Cystic tissue from neprhectomized ADPKD tissue	☒ Generate new data ☒ Reuse existing data	☒ Physical				Paraffin blocks or snap-frozen tissue
Kidney tissue of $PKD1^{RC/RC}$ mice	Kidney tissue of ADPKD mouse model	☒ Generate new data	☒ Physical				Paraffin blocks or snap-frozen tissue
RNA expression data	RNA expression levels of apelinergic and vasopressin system players in human and mouse tissue and cell lines	☒ Generate new data	☒ Digital	☒ Numerical	☒ .csv	☒ < 1 GB	
RNA scope on tissue	RNA-scope on human and mouse tissue to identify the cells expressing the genes of interest	☒ Generate new data	☒ Digital	☒ Images	☒ .tiff	☒ < 5 TB	
Ca2+	Ca2+ traces	☒ Generate new	☒ Digital	☒ Numerical	☒ .csv	☒ < 100 GB	

signaling in human cell lines	following modulation of the apelinergic or vasopressin system	data					
cAMP in human cell lines	cAMP levels following modulation of the apelinergic or vasopressin system	☒ Generate new data	☒ Digital	☒ Numerical	☒ .csv	☒ < 1 GB	
Cell proliferation and migration	Cell proliferation and migration following modulation of the apelinergic or vasopressin system	☒ Generate new data	☒ Digital	☒ Numerical	☒ .csv	☒ < 1 GB	
Western blot analysis of underlying pathways	Analysis of underlying pathways (PKA, Ras, ERK, AMPK and mTOR) following modulation of the apelinergic or vasopressin system	☒ Generate new data	☒ Digital	☒ Numerical ☒ Images	☒ .csv ☒ .tiff	☒ < 100 GB	
Cytokine analysis	Cytokine levels (ELISA: MCP-1,	☒ Generate new data	☒ Digital	☒ Numerical	☒ .csv	☒ < 1 GB	

	IFNγ, IFNα, IL1, IL6) following modulation of the apelinergic or vasopressin system						
In vitro cyst formation	In vitro (3D cell culture) cyst formation following modulation of the apelinergic or vasopressin system	☒ Generate new data	☒ Digital	☒ Numerical ☒ Images	☒ .csv ☒ .tiff	☒ < 5 TB	
Cyst analysis on mouse kidneys	Cyst analysis on kidneys sections from $PKD1^{RC/RC}$ mice following modulation of the apelinergic or vasopressin system	☒ Generate new data	☒ Digital	☒ Numerical ☒ Images	☒ .csv ☒ .tiff	☒ < 1 TB	

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.	Leuven ADPKD biobank: Biobank stored in lab -80°C Biomarkers of ADPKD biobank: Large-volume storage (LVS) of PKD Research Group ADPKD cell lines: Liquid nitrogen (soon moving to cryotheque) Derivates of ADPKD cell lines: lab -80°C Tissue of ADPKD kidneys: lab -80°C of parrafin block collection PKD Research Group
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: S54970, S60070, S51837, S61154 ☒ Yes, animal data; provide ECD reference number: Currently no reference number, but will be provided once the animal experiments start (ca. 2025-2026). ☐ 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: S54970, S60070, S51837, S61154
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:

[4] See Glossary Flemish Standard Data Management Plan

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:

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*.	Experimental (meta)data is described in electronic lab notebook of the PKD Research group (eLabFTW). Anonymized information on biobank samples are currently stored in a database in a shared password-protected folder. Cell line information will be stored in the registry for the KU Leuven central cryofacility (currently this information is still in a private database in a shared password-protected folder of the PKD Research group (incl. large volume storage)). Anonymized data will also be submitted to the KU Leuven Research Data Repository (RDR).

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: If no, please specify (where appropriate per dataset or data type) which metadata will be created: - Leuven ADPKD biobank: gender, age, age at diagnosis, methods of diagnosis (imaging, genetics, etc.), reason of diagnosis (screening, symptoms, incidental finding) and clinical and therapeutic characteristics of ADPKD children (hypertension, proteinuria, etc.), genotype - Cell lines: age and gender of patient at time of sample collection, genotype

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: Electronic notebook, Registry of central cryofacility, registry of central biobank, Research data repository of KU Leuven, External hard drive of PKD Research Group

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): External hard drive, electronic notebook ☒ Other (specify) Registries related to cryofacility or biobank
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 If no, please specify:
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*	Password-protected folders, only accessible to designated members of the PKD Research group. These folders are maintained by the central ICT team of KU Leuven.
What are the expected costs for data storage and backup during the research project? How will these costs be covered?	Research data repository allows 50GB/year storage per user. Additional storage requires a cost. Large volume storage (5TB) of KU Leuven involves a cost of 569.2 euro per year. Costs will be covered by other grant budgets that also make use of these data storage.

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)
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): External hard disk of PKD Research group
What are the expected costs for data preservation during the expected retention period? How will these costs be covered?	Research data repository allows 50GB/year storage per user. Additional storage requires a cost. Large volume storage (5TB) of KU Leuven involves a cost of 569.2 euro per year. Costs will be covered by other grant budgets that also make use of these data storage.

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: Personal data will be anonymized before submitting to the repository
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)

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?	KU Leuven RDR provides free data repository of 50GB/researcher/year. We do not expect shared data to exceed 50GB.

7. Responsibilities

Who will manage data documentation and metadata during the research project?	Prof. Dr. Djalila Mekahli Clinical data & databases: Lotte Vanmeerbeek Experimental data: Dr. Jean-Paul Decuypere
Who will manage data storage and backup during the research project?	Prof. Dr. Djalila Mekahli Lotte Vanmeerbeek Dr. Jean-Paul Decuypere
Who will manage data preservation and sharing?	Prof. Dr. Djalila Mekahli Lotte Vanmeerbeek Dr. Jean-Paul Decuypere
Who will update and implement this DMP?	Dr. Jean-Paul Decuypere