FWO PROJECT 1S18023N

INITIAL DMP

ADMIN DETAILS

Project Name: FWO project 1S18023N - DMP title: Initial DMP plan
Project Identifier: 3M210785
Grant Title: 1S18023N
Principal Investigator / Researcher: Ilse Jonkers
Project Data Contact: ilse.jonkers@kuleuven.be
Description: Osteoarthritis (OA) is the most common chronic joint disease and lacks curative treatment. Current therapy for OA patients is limited to symptom relief, and in advanced stages, joint replacement surgery. In early OA cartilage, mechanoadaptation is challenged. In this project, I aim to address the fundamental knowledge gap on why in early OA the anabolic response to mechanical loading is impaired. Our key hypothesis states that hyper-activation of Wnt signaling impairs the anabolic chondrocyte response upon physiologic, mechanical stimulation via the integrins/cytoskeleton axis.

On a longer time horizon, the insights of this project will be the basis of innovative mechano-therapy concepts to rescue the anabolic responses of early OA cartilage through an optimally-tuned combination of biological and mechanical stimulation. These regenerative interventions have the unique potential to prevent early structural cartilage changes that would otherwise progress to end-stage OA.
Institution: KU Leuven

1. GENERAL INFORMATION

Name applicant
Nuria Viudes-Sarrión

FWO Project Number & Title
1S18023N - Effective mechanotherapy in early osteoarthritis through modulation of Wnt-induced integrin/cytoskeleton axis dysregulation.

Affiliation

- KU Leuven

2. DATA DESCRIPTION

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

- Generate new data
- Reuse existing data

Describe the origin, type and format of the data (per dataset) and its (estimated) volume, ideally

per objective or WP of the project. You might consider using the table in the guidance.

Data used in this project will mostly be **new data**. Existing data of interest are transcriptome datasets from the research team, available from the GEO repository (https://www.ncbi.nlm.nih.gov/gds/), under accession numbers GSE77916 and GSE33656.

New data are **quantitative and qualitative experimental data including raw data, derived and compiled data.** Overall, data will be from biological (molecular, biochemical) experiments and from animal model experiments. Qualitative raw data (photos, images) will be stored in investigator hard-copy notebooks and in digital formats (TIFF, PDF). Original data files outputs from quantitative experiments will be collected in Excel datasheets. For data sharing across platforms, data will be additionally stored in csv and txt formats. Data anaysis files will be pfzx files (Prism), sav files (SPPS) and R-project files with outputs stored as txt and csv files. Animal experiment data are registered into KU Leuven's animal experiment LAIS system and compiled in excel and text files. Data from animal experiments are both qualitative and quantitative as above (tissue sections, images) and processed data such as scoring of cartilage damage. Data will be stored in notebooks and in digital format as above. Masterdata files will be write-protected after entering all data.

Data will be structured per experiment performed (Exp identifier) with structured subsets: 1. raw data (txt - csv) 2. analyses (txt - csv) 3. images (various formats) 4. "readme" txt information files. Additional structured datasets will be stored per derived manuscript.

3. LEGAL & ETHICAL ISSUES

Will you use personal data? If so, shortly describe the kind of personal data you will use (add the reference to your file in your host institution's privacy register - not relevant yet)

- No

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 healthy and early OA chondrocytes used for this project will be harvested from a dedicated rodent model, which is already well established in the host laboratory as a synergy with ongoing project granted to Prof. Jonkers in collaboration with Prof. Lories. The data for the ethical committee approval is:

License number Department: LA1210189

Responsible PI: Rik Lories

Project number: P134/2018

Title of the project: De rol van mechanische belasting in kraakbeen homeostase, degeneratie en herstel: een multi-schaal aanpak

Does your work 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?

- No

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 are in place?

- No

4. DOCUMENTATION & METADATA

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

The following documentation will be provided:
-A table of content (excel file and csv) with all project- related experiments including experiment number, date of implementation and name of the researcher who stored the experiment,
-Brief description of the goal of the experiment and related work package (word and txt file),
-Detailed protocol or link to an existing standard protocol (SOP)
-All data or link to another file with the (raw) data,

For animal work: a list of the used animals with details such as age, sex, housing and link with LAIS systeminformation, samples that are generated during the experiments will be stored and listed in a Cvs file or txt file, if appropriate, illustrations of the data with legends and statistical analysis.

In case that documentation is written or available in notebooks or stored on other files a link will be provided. Read-me text files providing information about definitions used in the dataset files.

With the help of these documentations every authorized researcher will be able (1) to look up all the information of the performed experiments and (2) to repeat the experiment in exactly the same way.

Will a metadata standard be used? If so, describe in detail which standard will be used. If no, state in detail which metadata will be created to make the data easy/easier to find and reuse.

- No

Our anticipated data collection does not involve setups for which a metadata standard and specific repository exists. Data will therefore maximally be stored in portable formats such as txt, csv and pdf

5. DATA STORAGE & BACK UP DURING THE FWO PROJECT

How is back up of the data provided?

The data will be stored on the university's central servers with automatic daily back-up procedures, including ICTS Luna storage. The KU Leuven servers are secure online servers.

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

Sufficient storage and backup capacity are available at KU Leuven

What are the expected costs for data storage and back up during the project? How will these costs be covered?

Terabyte level storage is anticipated. Although FWO has no earmarked budget at its disposal to support research data management, FWO allows for part of **the allocated project budget** to be used to cover the cost incurred (approx. 520€/terabyte/year).

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

All data will be stored in a protected environment. Research data can only be accessed by a login following KU Leuven's policy for identifier and with password.

6. DATA PRESERVATION AFTER THE FWO PROJECT

Which data will be retained for the expected 5-year period after the end of the project? In case only a selection of the data can/will be preserved, clearly state the reasons for this (legal or contractual restrictions, physical preservation issues, ...).

All research data will be kept at minimum 5 years after the end of the project

Where will the data be archived (= stored for the longer term)?

KU Leuven ICTS data storage center.

1. Digital data will be archived on the secured university's network drive, described in part 5 of this DMP. Additionally, data will be stored offline on two external hard drives when the project is finished.
2. Hard copies (e.g. paper lab notebooks) are kept in locked cabinets in the lab of the PI concerned.
3. The physical cartilage samples will be stored for a long term in freezers (temperature ranging from -20° till -150°, depending on the sample type), at the Laboratory for Tissue Homeostasis and Disease.

What are the expected costs for data preservation during the retention period of 5 years? How will the costs be covered?

For this project data storage of 1Tb is anticipated, resulting in a cost of 520 euro per year, which can be covered by the grant and beyond.

7. DATA SHARING AND REUSE

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)?

- No

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

Upon publication of the research results

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

- In an Open Access repository
- In a restricted access repository
- Upon request by mail

The main output of the project will be original scientific research papers. These will adhere to KU Leuven's and FWO's Open Access policy.
In the context of Open and accessible science, original datasets will be made available with publication, either as supplementary files or using datasharing platforms such as figshare or Zolondo using a CC-BY licence.
Upon reasonable and specific request, any data subset and analysis can be made available.
For data transfer filesharing via KU Leuven Box or Belnet transfer (secure) will be used.

When will the data be made available?

- After an embargo period. Specify the length of the embargo and why this is necessary
- Upon publication of the research results

Data will be made available upon publication unless specific IP protections remain to be set.

Who will be able to access the data and under what conditions?
In principle any researcher upon reasonable request or through the data repositories.
What are the expected costs for data sharing? How will the costs be covered?
No costs are expected. If any occur, they will be covered by the requesting parties.

8. RESPONSIBILITIES

Who will be responsible for data documentation & metadata?
Ilse Jonkers - Rik Lories

Who will be responsible for data storage & back up during the project?
Ilse Jonkers - Rik Lories

Who will be responsible for ensuring data preservation and reuse?
Ilse Jonkers - Rik Lories

Who bears the end responsibility for updating & implementing this DMP?
The PI bears the end responsibility of updating & implementing this DMP.