DMP title

Project Name FWO DMP_Eliane Vanhoffelen - DMP title

Project Identifier u0122977

Grant Title 1SF2222N

Principal Investigator / Researcher Eliane Vanhoffelen

Project Data Contact +32493707045 / eliane.vanhoffelen@kuleuven.be

Description Project title: Multimodal imaging of pulmonary mycoses: preclinical investigation of pathogenesis and treatment response. For aspergillosis we will focus on improving preclinical treatment testing and in cryptococcosis we will mainly investigate the interaction between macrophages and cryptococci in the pathogenesis. It is a preclinical project consisting of in vivo experiments in mice and in Galleria mellonella larvae, using imaging. Imaging techniques that will be used are bioluminescent imaging (BLI), ÂµCT, intravital fibered confocal fluorescence microscopy (FCFM) and OPTiSPIM.

Institution KU Leuven

1. General Information

Name applicant

Eliane Vanhoffelen

FWO Project Number & Title

1SF2222N / Multimodal imaging of pulmonary mycoses: preclinical investigation of pathogenesis and treatment response

Affiliation

- KU Leuven

2. Data description

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

- Generate new data

Describe in detail the origin, type and format of the data (per dataset) and its (estimated) volume. This may be easiest in a table (see example) or as a data flow and per WP or objective of the project. If you reuse existing data, specify the source of these data. Distinguish data types (the kind of content) from data formats (the technical format).

Type of data	Species	Content	Format	Volume	Data storage
General health data	Mice + Galleria	Health index score Galleria, descriptive health assessment, body weights	written data, transfered to and archived in Excel/GraphPad Prism	range of KB-MB	Onedrive, L-drive
Standard laboratory tests	Mice + Galleria	Colony forming unit (CFU) counts, Advia Cell Counter 2120i on organ homogenates	written data, transfered to and archived on paper (lab book) and in Excel/GraphPad Prism	range of KB-MB	Onedrive, L-drive
Imaging data	Mice	µCT images (lung)	Data acquired on SkyScan 1278 (TIF files), reconstructed in Nrecon (BMP and text files), and delineated in CTan (ROI files). Analyzed data transfered to Excel & GraphPad Prism	around 1 GB per mouse (raw + reconstructed data)	Onedrive, L-drive (raw + reconstructed), external hard drive
Imaging data	Mice + Galleria	BLI images (lung & brain + Galleria + ex vivo)	Data acquired on IVIS & analyzed in Living Image software (TIF, text, PNG files). Analyzed data transfered to Excel & GraphPad Prism	around 4-10 MB per mouse in vivo + 15 MB per well plate ex vivo + around 160 MB per Galleria experiment	Ondrive, L-drive, external hard drive
Immunological data	Mice	Flow cytometry (lung & brain)	Data acquired on BD FACS Symphony & BD FACS Canto II (FCS files). Analysis in FlowJo (WSP files). Analyzed data transfered to Excel & GraphPad Prism	around 5 GB per dataset of 12 mice (raw + processed data)	Onedrive, L-drive
Microscopy data	Mice	Microscopical BAL cell count	Data on paper, transfered to Excel & GraphPad Prism	range of KB	Onedrive, L-drive
Manuscripts, presentations, posters etc	/	/	Word, PDF, Powerpoint	range of KB-MB	Onedrive

3. Legal and 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 KU Leuven's Register of Data Processing for Research and Public Service Purposes (PRET application). Be aware that registering the fact that you process personal data is a legal obligation.

- No

Privacy Registry Reference: /
Short description of the kind of personal data that will be used: /

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

Animal experiments are approved by the KU Leuven Ethical Committee for animal research (license: P180/2020).

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?

- Yes

WP1 has potential for valorization in the form of contract research. We are in contact with an IOF manager at KU Leuven to guide us with this. There are no IP restrictions for the development of the testing platform itself, only in the case that a new antifungal drug (synergy) would come out of the screening process.

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 and metadata

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

For all experiments, the same type of documentation structure will be used:

- In the written lab book, every experimental set-up and methods are summarized. Experiments follow each other in chronological order, with clear indications of dates. Remarks during experiments are also written here. Results are also added if possible (e.g. CFU counts) but are not complete in the lab book. The lab book mainly aims to provide a chronological overview of experiments and the used methods for data-interpretation or -analysis (e.g. the volumes and labeling of wells in a 96-well plate used for BLI).

- On the computer (One drive/L-drive), every experiment will be categorized into folders following the structure of the workpackages and tasks, and a number & name will be provided for every experiment. Per experiment folder, I will provide:

  - a Word or Excel file with the experimental set-up and practical preparation (e.g. calculations on how many animals needed, drug concentrations, sacrifice planning etc).
  - a results section with sub-folders ordened per type (e.g. BLI, µCT, body weights, cell counts etc). These sub-folders will also include the files used for data-analysis (everything from raw data analysis in e.g. Excel to visual representation in e.g. GraphPad or Powerpoint).

- General protocol files of every technique used, are kept in a separate folder. They are written in a dummy-proof way with step-by-step instructions, and are adapted to the way I am performing it.

- For Galleria mellonella and mouse experiments, an overview document is kept with all the ordered larvae/mice and for mice also their age, sex, company and other relevant details.

In this way, anyone can find back specific experimental setups and the respective results easily on computer and in the lab-book.

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

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

Per workpackage task, an Excel document will be added to the respective folder with an overview of all experiments performed within this task. A description is added of the experimental purpose.

Our imaging modalities, e.g. SkyScan 1278 and IVIS Spectrum, keep track of the date and time of every scan, and the used scanning settings can be found in a txt file that is automatically generated with each scan. Extra remarks can be added during the scanning if necessary. Before scanning on the IVIS Spectrum, one needs to log-in on a personal account, of which the initials are added as a prefix to the scan name.

5. Data storage and backup during the FWO project

Where will the data be stored?

- Raw data is stored on the protected L-drive data servers with an unlimited storage capacity managed by KU Leuven ICT (MoSAIC/GBioMed) with a foreseen storage of 10 years.

- Data analysis documents and resulting analyzed data are stored on the KU Leuven OneDrive cloud during the project. At the end of the project, all OneDrive content will be mirrored on external storage devices.

- Physical data will be kept in our office and stored for five years after publication (or longer if necessary).

How is backup of the data provided?

All data will be stored on the KU Leuven OneDrive data storage service, where automatic backups are taken. In addition, all raw data on the protected L-drive data server is automatically mirrored (centrally managed by KU Leuven ICT department for storage of large datasets - MoSAIC/GBioMed).

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

Yes, 2 TB personal OneDrive cloud storage is available for KU Leuven employees. In addition, sufficient external hard drives will be available for personal back-ups.

For raw data, there is unlimited storage capacity on the L-drive.

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

Data server storage costs (569.2 euro per 5 TB yearly) and external hard drive costs will be covered by the bench fee and additional project funding acquired by the PI(s).

Physical sample storage (cold room, freezer etc) are covered by project funding and overhead.

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

Although we are not working with sensitive and/or personal data, data security at a standard level is considered sufficient:

- The L-drive is suitable for strictly confidential, confidential or non-confidential data if necessary. Access to read and/or write data is strictly regulated by password control.

- All computers are password secured, managed by the KU Leuven ICT department. Access to intranet is additionally secured by two-factor authentication.

- All physical data is kept in labs and offices, secured by badge-controlled access to the building (and labs).

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, ...).

In agreement with the KU Leuven data management policy and European Regulation 2016/679 (General Data Protection Regulation), we will preserve data crucial for verification of research results, data that cannot be reproduced, data obtained at large cost of time and money and data of scientific value to ourselves and others. Reasons my (co-)promotors cannot or wish not to preserve the data beyond the specified term might be: restrictions imposed by 3rd parties when offering access to their data, data that can be easily reproduced and therefore the cost of its prolonged storage is not justified, e.g. reconstructions from raw imaging data. Redundant data will be removed after peerreviewed publication.

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

- Raw data will be stored on the protected L-drive data servers (managed by KU Leuven ICT - MoSAIC/GBioMed) with a foreseen storage of 10 years.

- Data analysis documents and resulting analyzed data are stored on the KU Leuven OneDrive cloud during the project. At the end of the project, these data will be mirrored on external storage devices for long term storage).

- Physical data will be kept in our office and stored for five years after publication (or longer if necessary for future research).

This is valid for the all data that was described in the previous question.

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

Data preservation on the L-drive costs 569.2 euro per 5 TB per year. Since the expected size of the complete project dataset is estimated to be less than 2 TB, the estimated cost for data preservation for 5 years will be less than 1138.4 euro in total. This cost will be covered by project funding acquired by the PIs.

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?

All datasets can be shared after publication, upon reasonable request with the PI.

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

- Other (specify):

Upon reasonable request with the PI in an Open Access repository.

When will the data be made available?

- Upon publication of the research results

& upon reasonable request to the corresponding author/PI

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

Data will be released under a CC-BY-NC reuse licence. Team members can request access as long as they are affiliated to KU Leuven. Upon request of published results, all files can be used to generate new results, provided that reference is made to the original publication and that data is not used for commercial purposes.

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

Costs will be considered ad hoc with the requester, depending on the requested data, data format and amount.

8. Responsibilities

Who will be responsible for data documentation & metadata?

Prof. Greetje Vande Velde (promotor)

Prof. Jeroen Vanoirbeek & Prof. Katrien Lagrou (co-promotors)

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

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Prof. Jeroen Vanoirbeek & Prof. Katrien Lagrou (co-promotors)

Who will be responsible for ensuring data preservation and reuse ?

Prof. Greetje Vande Velde (promotor)

Prof. Jeroen Vanoirbeek & Prof. Katrien Lagrou (co-promotors)

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

The PI bears the end responsibility of updating & implementing this DMP: Prof. Greetje Vande Velde