

FWO DMP Template - Flemish Standard Data Management Plan

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	Grant Holder: Maxime Logist ORCID: 0000-0002-1935-316X
Contributor name(s) (+ ORCID) & roles	Promotor: Guy Boeckstaens, 0000-0001-8267-5797 Co-promotor: Nathalie Stakenborg, 0000-0002-6229-0045
Project number ¹ & title	Project title: Bacterial infection-induced protection against colitis: role of blood vessel-associated resident macrophages. Project number: 11A1223N
Funder(s) GrantID ²	SAP project code: 3M210456
Affiliation(s)	<input checked="" type="checkbox"/> KU Leuven <input type="checkbox"/> Universiteit Antwerpen <input type="checkbox"/> Universiteit Gent <input type="checkbox"/> Universiteit Hasselt <input type="checkbox"/> Vrije Universiteit Brussel <input type="checkbox"/> Other: Provide ROR ³ identifier when possible:

¹ "Project number" refers to the institutional project number. This question is optional since not every institution has an internal project number different from the GrantID. 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.

³ Research Organization Registry Community. <https://ror.org/>

Please provide a short project description	<p>Resident macrophages (ResMacs) fulfill diverse functions in tissue homeostasis. ResMacs originate from embryonic progenitors and mainly self-maintain within tissues but may be replaced by monocyte-derived macrophages following depletion or inflammation. The function of ResMacs is tissue-dependent and their phenotype is largely determined by cues and signals from surrounding cells, a concept known as the macrophage niche. Diverse ResMacs are located in distinct layers of the intestine including close to (sub)mucosal blood vessels (BVA-ResMacs). We have collected preliminary evidence that BVA-ResMacs are involved in limiting bacterial translocation to the portal circulation. Furthermore, following bacterial infection, BVA-ResMacs are replaced by monocytes (BVAinfResMacs). I hypothesize that BVA-ResMacs are crucial for the integrity of the gut-vascular barrier and that upon inflammation, these cells are replaced BVA-infResMacs with a distinct, protective phenotype improving the gut-vascular barrier during a subsequent inflammatory event. To unravel the underlying mechanism, I will investigate and compare the function, transcriptome and the niche of embryonic BVA-ResMacs and their inflammatory counterparts, BVA-infResMacs. The outcome of this project will provide crucial insights in the role of BVA-(inf)ResMacs in intestinal vascular integrity and inflammation, and lead to the identification of novel targets to treat immune-mediated diseases such as inflammatory bowel disease.</p>
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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 data⁴.

				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
RNA sequencing, flow cytometry, qPCR, ELISA	Observational numeric data on murine samples	Generate new data	Digital	Observational	.sav, .csv, .mdb , .xlsx	10GB	/
RNA sequencing, qPCR, ELISA	Graphical data	Generate new data	Digital	Observational	.pzfx, .pdf, .jpe g	200 MB	/
Immunofluorescence	High resolution images	Generate new data	Digital	Observational	.gif, .jpeg, .tiff, .json	200 GB	/
Experimental protocols, quantitative observations	Text notes	Generate new data	Digital	Observational	.doc, .sav, .pdf	1GB	/
RNA sequencing data	Omics datasets	Generate new data	Digital	Observational	.loom, .h5ad	100GB	/
Physical murine tissues	Samples of Liver, colon, spleen, lung, skin	Generate new data	Physical	Experimental	/	/	-80°C freezer specifically used for this project
RNA / cDNA samples	Extracted RNA, cDNA of liver, colon, spleen , lung , skin.	Generate new data	Physical	Experimental	/	/	-80°C freezer specifically used for this project

⁴ Add rows for each dataset you want to describe.

<p>GUIDANCE:</p> <p>DATA CAN BE DIGITAL OR PHYSICAL (FOR EXAMPLE BIOBANK, BIOLOGICAL SAMPLES, ...). DATA TYPE: DATA ARE OFTEN GROUPED BY TYPE (OBSERVATIONAL, EXPERIMENTAL ETC.), FORMAT AND/OR COLLECTION/GENERATION METHOD.</p> <p>EXAMPLES OF DATA TYPES: OBSERVATIONAL (E.G. SURVEY RESULTS, SENSOR READINGS, SENSORY OBSERVATIONS); EXPERIMENTAL (E.G. MICROSCOPY, SPECTROSCOPY, CHROMATOGRAMS, GENE SEQUENCES); COMPILED/AGGREGATED DATA⁵ (E.G. TEXT & DATA MINING, DERIVED VARIABLES, 3D MODELLING); SIMULATION DATA (E.G. CLIMATE MODELS); SOFTWARE, ETC.</p> <p>EXAMPLES OF DATA FORMATS: TABULAR DATA (.POR, .SPSS, STRUCTURED TEXT OR MARK-UP FILE XML, .TAB, .CSV), TEXTUAL DATA (.RTF, .XML, .TXT), GEOSPATIAL DATA (.DWG, .GML, ..), IMAGE DATA, AUDIO DATA, VIDEO DATA, DOCUMENTATION & COMPUTATIONAL SCRIPT.</p> <p>DIGITAL DATA VOLUME: PLEASE ESTIMATE THE UPPER LIMIT OF THE VOLUME OF THE DATA PER DATASET OR DATA TYPE.</p> <p>PHYSICAL VOLUME: PLEASE ESTIMATE THE PHYSICAL VOLUME OF THE RESEARCH MATERIALS (FOR EXAMPLE THE NUMBER OF RELEVANT BIOLOGICAL SAMPLES THAT NEED TO BE STORED AND PRESERVED DURING THE PROJECT AND/OR AFTER).</p>	
<p>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.</p>	<p>I will be generating new data. No reuse of existing data.</p>
<p>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, please describe these issues further and refer to specific datasets or data types when appropriate.</p>	<p> <input type="checkbox"/> Yes, human subject data <input checked="" type="checkbox"/> Yes, animal data <input type="checkbox"/> Yes, dual use <input type="checkbox"/> No If yes, please describe: I will collect data and perform experiments in laboratory animals (mice). Ethical approval for this FWO project has been obtained on January 19th, 2022, reference number P174/2021 of the Ethical committee for Animal Experimentation of KU Leuven. </p>

⁵ These data are generated by combining multiple existing datasets.

<p>Will you process personal data⁶? If so, briefly describe the kind of personal data you will use. Please refer to specific datasets or data types when appropriate. If available, add the reference to your file in your host institution's privacy register.</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes:</p> <ul style="list-style-type: none"> - Short description of the kind of personal data that will be used: - Privacy Registry Reference:
<p>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.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, please comment: This project can result in the discovery of novel pathways / targets / molecules involved in colitis. We will contact the IP cell of KU Leuven at LRD once this info is collected and prior to publication to patent discoveries in order to valorize this know how.</p>
<p>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.</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, please explain:</p>
<p>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.</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, please explain:</p>

⁶ See Glossary Flemish Standard Data Management Plan

3. Documentation and Metadata

<p>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).</p>	<p>Each experiment is registered in the lab journal of the scientist performing the respective experiment. Standard operation procedures (SOPs) have been written for all the techniques used in the lab. Data obtained from a study protocol / series of experiments will be stored in a folder that also contains a readme.txt file explaining the design/protocol, results and labels used in the data analysis file, and a reference to the lab journal of that particular experiment. Also the method of analysis will be described. The information provided will allow another researcher to follow all steps in the data processing.</p>
<p>Will a metadata standard be used to make it easier to find and reuse the data?</p> <p>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.</p> <p><i>REPOSITORIES COULD ASK TO DELIVER METADATA IN A CERTAIN FORMAT, WITH SPECIFIED ONTOLOGIES AND VOCABULARIES, I.E. STANDARD LISTS WITH UNIQUE IDENTIFIERS.</i></p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If yes, please specify (where appropriate per dataset or data type) which metadata standard will be used:</p> <p>Metadata will be created for the transcriptomics using the Dublin core (http://www.dcc.ac.uk/resources/metadata-standards/dublin-core). Flow cytometry metadata will be generated as part of the Flow Cytometry Standard data file, according to the ISAC standards (https://isac-net.org/page/Data-Standards). Microscopic metadata will be generated using the OME-TIFF or OXE-XML standard (www.fairsharing.org). Other metastandard are not available yet (http://www.dcc.ac.uk/resources/metadatastandardsOR http://rd-alliance.github.io/metadata/metadata/metadatastandardsOR https://fairsharing.org/). In these cases, metadata will be included in the read-me file, including description of equipment and settings used and experimental conditions.</p> <p>If no, please specify (where appropriate per dataset or data type) which metadata will be created:</p>

4. Data Storage & Back-up during the Research Project

Where will the data be stored?	<p>Data will be stored on servers centrally managed by ICTS KU Leuven and with back-up capacities (KU Leuven enterprise box, Largevolume-storage).</p> <p>The scRNAseq data are stored by the lab of Prof. Thierry Voet at the VSC (Flemish Supercomputer Centre) and the server of UZ Leuven.</p> <p>Physical (tissue) samples will be stored at -20 or -80°C in freezers purchased by the PIs.</p>
<p>How will the data be backed up?</p> <p><i>WHAT STORAGE AND BACKUP PROCEDURES WILL BE IN PLACE TO PREVENT DATA LOSS? DESCRIBE THE LOCATIONS, STORAGE MEDIA AND PROCEDURES THAT WILL BE USED FOR STORING AND BACKING UP DIGITAL AND NON-DIGITAL DATA DURING RESEARCH.⁷</i></p> <p><i>REFER TO INSTITUTION-SPECIFIC POLICIES REGARDING BACKUP PROCEDURES WHEN APPROPRIATE.</i></p>	<p>We will use the back-up facilities of the KU Leuven ICTS with automatic daily back-up procedures.</p>
<p>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.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If yes, please specify concisely: So far, there is enough storage room. If the capacity foreseen by KU Leuven is exceeded, extra storage capacity will be requested at the ICT department of KU Leuven. Expected maximum volume: 5 TB. If needed, extra freezers will be purchased.</p> <p>If no, please specify:</p>

⁷ Source: Ghent University Generic DMP Evaluation Rubric: <https://osf.io/2z5g3/>

<p>How will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?</p> <p><i>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. ⁷</i></p>	<p>Data files are stored on the J drive of KU Leuven which is protected via a central login for KUL personnel. In case data are stored on managed laptops, the hard drive is encrypted.</p>
<p>What are the expected costs for data storage and backup during the research project? How will these costs be covered?</p>	<p>The estimated amount of data (scRNAseq data excluded) can be stored on the K drive, KU Leuven ICTS. If needed, an upgrade will be requested at 156,60 euro/TB/year. The expected maximum data volume of 5 TB will cost a total of 4000€ for 5 years (5 x160 euro/yr x 5 years). The costs will be paid from the current project.</p>

5. Data Preservation after the end of the Research Project

<p>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...).</p>	<p>All data will be retained during 5 years following the end of the project. This includes all physical and non physical data.</p>
<p>Where will these data be archived (stored and curated for the long-term)?</p>	<p>Server of KU Leuven (see above) Data will be archived after 5 years on the K drive of KU Leuven devoted for longterm storage. Permission to access the K drive is limited to the PI and only for read-only use. Archived data may no longer be modified.</p>

<p>What are the expected costs for data preservation during the expected retention period? How will these costs be covered?</p>	<p>The estimated amount of data (scRNAseq data excluded) can be stored on the K drive, KU Leuven ICTS. If needed, an upgrade will be requested at 156,60 euro/TB/year. The expected maximum data volume of 5 TB will cost a total of 4000€ for 5 years (5 x160 euro/yr x 5 years). The costs will be paid from the current project.</p>
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6. Data Sharing and Reuse

<p>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.</p> <p><i>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/#INFOEU-REPO-ACCESSRIGHTS</i></p>	<p><input checked="" type="checkbox"/> Yes, in an Open Access repository</p> <p><input type="checkbox"/> Yes, in a restricted access repository (after approval, institutional access only, ...)</p> <p><input type="checkbox"/> No (closed access)</p> <p><input type="checkbox"/> Other, please specify:</p>
<p>If access is restricted, please specify who will be able to access the data and under what conditions.</p>	<p>Data will be shared within the research unit.</p> <p>Data under IP will not be shared with peers. Sequencing data will be uploaded in an open access repository and shared upon request. The data will be protected by creative commons.</p> <p>Data without sharing restrictions will be shared through peer reviewed publications.</p>
<p>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.</p>	<p><input type="checkbox"/> Yes, privacy aspects</p> <p><input type="checkbox"/> Yes, intellectual property rights</p> <p><input type="checkbox"/> Yes, ethical aspects</p> <p><input type="checkbox"/> Yes, aspects of dual use</p> <p><input type="checkbox"/> Yes, other</p> <p><input checked="" type="checkbox"/> No</p> <p>If yes, please specify:</p>
<p>Where will the data be made available? If already known, please provide a repository per dataset or data type.</p>	<p>The data will be made available after publication via the required link in the publication or upon request.</p>

<p>When will the data be made available?</p> <p><i>THIS COULD BE A SPECIFIC DATE (DD/MM/YYYY) OR AN INDICATION SUCH AS 'UPON PUBLICATION OF RESEARCH RESULTS'.</i></p>	<p>Upon publication of the research results</p> <p>The data will be made available after publications via the required link in the publication or upon request</p>
<p>Which data usage licenses are you going to provide? If none, please explain why.</p> <p><i>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.</i></p> <p><i>EXAMPLE ANSWER: E.G. "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." ⁸</i></p>	<p>The data will be made available after publications via the required link in the publication or upon request.</p>
<p>Do you intend to add a PID/DOI/accession number to your dataset(s)? If already available, please provide it here.</p> <p><i>INDICATE WHETHER YOU INTEND TO ADD A PERSISTENT AND UNIQUE IDENTIFIER IN ORDER TO IDENTIFY AND RETRIEVE THE DATA.</i></p>	<p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p> <p>If yes:</p>
<p>What are the expected costs for data sharing? How will these costs be covered?</p>	<p>Peers can use the data at no cost under the condition of co-authorship. Commercial organizations will have to pay a fee that will be determined by LRD-KU Leuven.</p>

⁸ Source: Ghent University Generic DMP Evaluation Rubric: <https://osf.io/2z5g3/>

7. Responsibilities

Who will manage data documentation and metadata during the research project?	G. Boeckxstaens
Who will manage data storage and backup during the research project?	A person within the lab will be responsible for the data storage.
Who will manage data preservation and sharing?	G. Boeckxstaens
Who will update and implement this DMP?	The PI bears the end responsibility of updating & implementing this DMP.