Plan Overview

A Data Management Plan created using DMPonline.be

Title: In-dept characterization of cryptic ADAMTS13 epitopes: hidden witnesses of structural autoinhibition to elucidate the allosteric ADAMTS13 activation.

Creator: Quintijn Bonnez

Affiliation: KU Leuven (KUL)

Funder: KU Leuven (KUL)

Template: KU Leuven BOF-IOF

Project abstract:

Hidden cryptic ADAMTS13 epitopes hold essential insights to better understand the structural autoinhibition and allosteric activation of the ADAMTS13 enzyme. The cryptic epitopes recognized by our 1C4 and 6A6 mAbs, reflect the structural features of the global and local latency in ADAMTS13 autoinhibition and represent a conclusive biomarker for acute iTTP and subclinical disease onset. To date, the molecular mechanism for allosteric ADAMTS13 activation remains incomplete and as a novel hypothesis, we suggested potential long-range structural crosstalk between the proximal ADAMTS13 domains. Therefore, I aim to further elucidate the molecular mechanisms for structural ADAMTS13 autoinhibition by identifying novel cryptic ADAMTS13 epitopes, and for allosteric ADAMTS13 activation by characterizing the structural dynamics that enable cryptic epitope access.

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In-dept characterization of cryptic ADAMTS13 epitopes: hidden witnesses of structural autoinhibition to elucidate the allosteric ADAMTS13 activation.

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.

Dataset name / ID	Description	New or reuse	Digital or Physical data	Data Type	File format	Data volume	Physical volume
		*Indicate: **N**(ew data) or **E**(xisting data)*	Indicate: **D**(igital) or **P**(hysical)	Indicate: **A**udiovisual **I**mages **S**ound **N**umerical **T**extual **M**odel **SO**ftware Other (specify)		Indicate: <1GB <100GB <1TB <5TB >5TB NA	
B cell mining	B cells will be fluorescently stained for visualisation. Cells of interest will be selected and lysed to obtain RNA samples for sequencing	N	D and P	I and other: RNA cell samples	.czi; .jpeg; .avi; .ab1	<1 GB/file	1-10 µL/cell
Antibody characterization	B cell-derived antibodies will be developed and characterized for their antigen-specific properties in various ELISA setups	N	P and D	Excel file and other: antibody samples	.xls	<1 GB/file	1-5 mL/antibody
HDX MS mapping	Characterizing the antibody binding epitopes onto small antigen protein fragments	N	D	I and M	.jpeg; .pdb	<1 GB/file	
molecular dynamics	Structural autoinhibition of proteins will be studied using replica-exchange computational simulation	N	D	I and M	.pdb; .vmd	<100 GB/file	
Plasmids, cell lines and proteins	different cell lines from mammalian origin (mouse, hamster and human), used for expression of ADAMTS13 and its fragments, and for expression of antibodies	N and E	P	N/A	N/A	N/A	100 vials of 1.5/2 mL in liquid nitrogen
Physical samples for/from in vitro experiments	Physical samples for/from in vitro experiments (medium after cell harvesting)	N and E	P	N/A	N/A	N/A	up to 300 vials of 1.5 mL in -20°C freezer

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:

Existing data that will be reused are: protocols, DNA sequences of plasmids and transgenes, and plasmid DNA (physical samples). All of these were previously generated in the lab of the principle investigator (prof. dr. K. Vanhoorelbeke) and are therefore available from this source (no external source).

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.

- 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).

- 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.

- No

Do existing 3rd party agreements restrict exploitation or dissemination of the data you (re)use (e.g. Material or Data transfer agreements, Research collaboration agreements)? If so, please explain in the comment section to what data they relate and what restrictions are in place.

- 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 in the comment section to what data they relate and which restrictions will be asserted.

- No

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).

Using my personal folder on the shared KU Leuven drive (J-drive), all data will be stored per experiment type as listed in section 1. All data files will be named with the date, subject and clearly indicate the responsible person. With each data file, experimental/procedural information will be provided in the form of a standard operating protocol (SOP) and approved risk assessments. Unique experimental conditions will be specified (e.g. goal of experiment, protocol, raw data) within all files accompanied by data analysis (e.g. calculations and conclusions). For each experiment type, summary files will document on individual experiments and combine all analysed data.

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.

- No

Data Storage & Back-up during the Research Project

Where will the data be stored?

- Shared network drive (J-drive)

How will the data be backed up?

- Standard back-up provided by KU Leuven ICTS for my storage solution

A copy of all the data on the J-drive is stored on a second location, which guarantees their availability even in the event of problems with the hardware.

Is there currently sufficient storage & backup capacity during the project?

If no or insufficient storage or backup capacities are available, explain how this will be taken care of.

- Yes

Currently, 50 GB is available for data storage on the KU Leuven J-drive. It is not expected to exceed this amount of research data. A copy of all data on this J-drive is stored on a second location, which guarantees their availability even in the event of problems with the hardware.

How will you ensure that the data are securely stored and not accessed or modified by unauthorized persons?

All data will be saved on the J-drive secured by KU Leuven ICTS. In addition, access to these personal data folders will only be granted to Quintijn Bonnez (Main researcher) and data folders will be shared with Karen Vanhoorelbeke (Promotor), Inge Pareyn and Anne-Sophie Delmote (Lab technicians).

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

Data storage on the KU Leuven J-drive is expected to cost €450.76/TB/year. This includes both data storage and backup on a second location.

Data Preservation after the end of the Research Project

Which data will be retained for 10 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...).

- All data will be preserved for 10 years according to KU Leuven RDM policy

Where will these data be archived (stored and curated for the long-term)?

- Shared network drive (J-drive)

After the research, all data will remain stored onto the shared J-drive and preserved for long-term according to KU Leuven RDM Policy.

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

For data preservation on the J-drive, a cost of €450.76/TB/year is anticipated.

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.

- Other (specify below)

The key findings and interpretation of the project will be made available through publication of journal articles in established, peer-reviewed journals. Data will be made available after publication upon reasonable request by email. These published data contain the results of analysed data presented in tables and figures. Unpublished data will be used for future grant applications/publications and will thus only be communicated privately to collaborators.

If access is restricted, please specify who will be able to access the data and under what conditions.

Data accessibility will be restricted to the researchers participating in this specific project. Following publication, data will be accessible to all through paper access or upon reasonable request to the authors.

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.

- No

Where will the data be made available?

If already known, please provide a repository per dataset or data type.

- KU Leuven RDR (Research Data Repository)

When will the data be made available?

- Upon publication of research results

Which data usage licenses are you going to provide?

If none, please explain why.

- Other (specify below)

If needed, a material/data transfer agreement will be concluded in order to clearly describe the types of reuse that are permitted.

Do you intend to add a persistent identifier (PID) to your dataset(s), e.g. a DOI or accession number? If already available, please provide it here.

- No

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

Open access publication costs will be covered by the consumable budget costs of the PIs projects.

Responsibilities

Who will manage data documentation and metadata during the research project?

Quintijn Bonnez will collect data and manage (meta)data documentation during the research project.

Who will manage data storage and backup during the research project?

Quintijn Bonnez will manage data storage and backup during the research project.

Who will manage data preservation and sharing?

During the research project, Quintijn Bonnez will manage data preservation and sharing. After the research, promotor prof. dr. Karen Vanhoorelbeke will manage data preservation and sharing.

Who will update and implement this DMP?

During the research, Quintijn Bonnez will update and implement this DMP. After the research, promotor prof. dr. Karen Vanhoorelbeke will implement this DMP.