Design of stimuli-responsive affinity membranes for antibody purification

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 **O**ther (specify)		Indicate: <1GB <100GB <1TB <5TB >5TB NA	
SEM	Scanning Electron Microscopy data	N	D	I	.tif	<100 GB	
TEM	Transmission electron microscopy data	N	D	I	.tif	<100GB	
NMR	Nuclear magnetic resonance data	N	D	N	.fid	<1GB	
XPS	X-ray photoelectron spectroscopy data	N	D	N	.opj .txt	<1GB	
FTIR	Fourier-transform infrared spectroscopy data	N	D	N	.txt	<1GB	
membrane-related samples	polymers and membranes	N	P	physical samples			
membrane performance data	membrane performance evaluation	N	D	N	.xlsx	<1GB	
Device-related data	chromatography operation	N	D	I&N	.tif .txt	<100 GB	
MD	Molecular dynamics (MD) simulations	N	D	N	.pdb.gro .top .itp .mdp .ff	<100 GB	

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:

NA

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

NA

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

NA

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

NA

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

NA

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).

To ensure that all collected and stored data are reliable and reproducible, a text document will be created detailing the exact experimental conditions. This document will include the date, time, measurement location, instruments used, sample preparation protocol, and measurement parameters. It will be stored in the same folder as the corresponding data.
For materials, a record of all samples and their storage locations will be maintained in the researcher's logbook. Additionally, a description of each sample's characteristics—such as name, solvent, quantity, date, and concentration—will be provided to facilitate quick identification and future reuse.

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

Since the data generated by various experimental instruments lack a standardized metadata format, a universal data format cannot be applied.
We will supplement it with a detailed Excel document containing essential information for locating, understanding, and reusing the data. This file will be included in every folder containing raw or processed data.

For processed or analyzed data, the document will also provide a step-by-step description of the analysis procedures. Both the Excel file and the folder structure used for data storage will follow a standardized format, ensuring that other users can easily retrieve data and replicate the experiments.

Data Storage & Back-up during the Research Project

Where will the data be stored?

- Large Volume Storage
- Other (specify below)
- Shared network drive (J-drive)

OneDrive (KU Leuven)

How will the data be backed up?

- Standard back-up provided by KU Leuven ICTS for my storage solution
- Personal back-ups I make (specify below)

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

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

The data will be securely stored in KU Leuven OneDrive, KU Leuven network drives, and RDR. Data on KU Leuven servers are restricted to authorized users. OneDrive folders are shared only with relevant personnel, and J-Drive folders are password-protected.

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

Every user has a standard 2 TB capacity on the University's central network drive (OneDrive). This capacity can be extended to 5 TB without costs.

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)?

- Large Volume Storage (longterm for large volumes)
- KU Leuven RDR
- Other (specify below)

The data will be archived in the K-drive volume offered by KU Leuven.

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

Costs are expected to be moderate and will be covered by other running projects from the involved groups (in case of no running projects, accumulated reserves will be used).

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.

- Yes, as restricted data (upon approval, or institutional access only)

KUL: Data that are published will be made available via the KU Leuven Research Data Repository.

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

NA

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.

- CC-BY 4.0 (data)

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.

- Yes, a PID will be added upon deposit in a data repository

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

The deposition of smaller datasets in data repositories is typically covered by the repository itself. However, for sharing physical data, the associated costs are generally borne by the researcher requesting the materials.

Responsibilities

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

Each PI is responsible for the data documentation & metadata.

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

Each PI is responsible for data storage & backup.

Who will manage data preservation and sharing?

Each PI is responsible for data preservation and sharing.

Who will update and implement this DMP?

Each PI is responsible updating & implementing this DMP.