

DMP prof dr Benoit Beuselinck FWO mandate 2024-2029

Title: Translational biomarker research in metastatic renal cell carcinoma treated with immune checkpoint inhibitors and/or angiogenesis inhibitors

Creator: prof dr Benoit Beuselinck

Affiliation: KU Leuven (KUL)

Template: KU Leuven BOF-IOF

Project abstract: Our research project aims to discover predictive biomarkers for immune therapy and/or angiogenesis-inhibitors in metastatic kidney cancer, and to discover new targets in order to overcome resistance. We will build further on our molecular classification of kidney tumors (ccrcc1-4), correlated to angiogenesis-inhibitor efficacy, validated recently by other research teams. More recently, we developed a novel tumoral expression profile based on low HLA promiscuity correlated to positive outcome on immune therapy and associated with cross-talk between CD8+ T cells and macrophages. We will extend our multi-omics approach with analysis of mRNA sequencing performed on primary kidney tumors and metastases, germline HLA genotyping, spatial proteomics, T-cell receptor sequencing and immunopeptidomics. We will include additional patients. The molecular ccrcc1-4 subgroups will be integrated in a combined model with the new biomarkers for immune therapy efficacy. Molecular data and clinical data will be analyzed with state-of-the-art software such as R/ Python work-flows, CellChat and CibersortX. If new factors of resistance would be discovered, and antagonists for these mechanisms are available, we will test these antagonists on murine kidney tumor models. Hence, we expect to reinforce the predictive value of the molecular ccrcc1-4 classification for immune therapy and to find reliable biomarkers for angiogenesis-inhibitor and immune therapy combinations.

ID: KUL_1801525N

Start date: 01-10-2024

End date: 30-09-2029

Last modified: 31-03-2025

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: Audiovisual Images Sound Numerical Textual Model Software Other (specify)		Indicate: <1GB <100GB <1TB <5TB >5TB NA	
Clinical database	Excel sheet with all clinical data of patients with mRCC	E	D	Excel file	1.4Mb	<1GB	
Molecular database	Excel sheet with all molecular data of mRCC patients	E	D	Excel file	100Mb	<1GB	
Molecular database	Raw RNAseq data	E	D	Excel file	100Mb	<1GB	
Spatial proteomics	Digital slides	E	D	Numerical	50GB	<100GB	
Sequential RECIST response	Paper sheet for each treatment line in each patient	E	D	Textual			4 binders

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:

We build further on the existing database which started as a retrospective database, but since 2010 includes all patients who start with systemic therapy for metastatic RCC. We will continue to extend these data compilations, without modifying the format.

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).

Yes, patient data, but anonymized, as allowed by S63833 by the EC of UZLeuven.

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).

The clinical database is self-explanatory and only uses well known abbreviations. The molecular database is generated by standard software packages.

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. The databases are self-explanatory.

Data Storage & Back-up during the Research Project

Where will the data be stored?

On a computer and server offered by UZLeuven.

How will the data be backed up?

Standard back-up provided by UZ Leuven for my storage solution

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

Yes

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

Not applicable.

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

The data are only available in my digital work space. Collaborators will receive if necessary a copy of the data they need, but without the possibility to change the main database.

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

There are no costs, all is offered by UZ Leuven.

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?

All data. In ten years, I will still be working on 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...).

Not applicable.

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

On servers provided by UZ Leuven.

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

No costs foreseen.

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.

We foresee several publications. In case of publication of one work package, the data of this work package will be accessible for readers, as asked by the journals. The data can then be accessed and used by other research teams.

The data will also remain available for new projects in the same research line from 2029 on.

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

Not applicable

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.

On dedicated web sites.

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.

None, it is part of open access.

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?

No costs are expected

Responsibilities

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

Since 2009, I'm managing the clinical and molecular database (data and metadata). I personally take care of the day-by-day update of the clinical data. The PhD students working on the project will have access to the data they need for their subproject.

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

I will manage data storage and backup during the project.

Who will manage data preservation and sharing?

I will manage data preservation. I will manage data sharing with support from the PhD student.

Who will update and implement this DMP?

I will be responsible for updating and implementing this DMP.