

Biomarkers linking kidney biology to CV risk

How would you propose to identify and validate novel non-invasive, mechanism-anchored biomarkers linking kidney biology to cardiovascular risk in CM-CKD beyond eGFR and UACR?

Answers to this [question](#) including a proposal for collaboration can only be considered if they arrive no later than December 9, 2026, 11:59 pm PST.

Table of contents

What is the context of the problem that we would like to solve?.....	2
What potential solutions could be in scope?.....	3
What potential solutions would be out of scope?	3
What benefits do we offer to you in exchange for having submitted a solution?	4
What are the key success criteria on which we base our selection for the best answer?.....	4
What information should be included in your answer submission?	5
Anticipated Project Phases or Project Plan.....	5
Submitting a collaboration proposal	6

What is the context of the problem that we would like to solve?

Cardiometabolic chronic kidney disease (CM-CKD) is the largest and fastest-growing segment of chronic kidney disease worldwide, driven by the increasing prevalence of obesity, type 2 diabetes, hypertension, and associated cardiovascular disease. Patients with CM-CKD are at substantially increased risk of kidney failure, cardiovascular events, hospitalization, and premature death. Despite major therapeutic advances, disease progression remains highly heterogeneous, and cardiovascular complications account for a large proportion of morbidity and mortality.

Clinical decision making and drug development in CKD continue to rely predominantly on estimated glomerular filtration rate (eGFR) and urinary albumin-to-creatinine ratio (UACR). While these measures provide important information on kidney function and injury, they incompletely capture the biological processes driving disease progression and cardiovascular risk. Increasing evidence suggests that CM-CKD comprises a spectrum of biologically distinct disease mechanisms, including inflammation, fibrosis, endothelial dysfunction, vascular calcification, glomerular and tubular injury, and metabolic dysregulation, which may converge into similar clinical phenotypes despite markedly different cardiovascular risk profiles and treatment responses.

To enable the development and efficient evaluation of mechanism-targeted therapies, it is highly desirable to identify non-invasive biomarkers that connect kidney biology with cardiovascular disease processes. Such biomarkers could support patient stratification and provide mechanism-based translational readouts beyond conventional measures such as eGFR and UACR.

Recent advances in proteomics, extracellular vesicle biology, multi-omics technologies, and vascular phenotyping have created unprecedented opportunities to identify biomarkers reflecting key disease mechanisms across the kidney-cardiovascular axis. Yet, no broadly accepted framework currently exists that integrates kidney-specific pathophysiology with cardiovascular risk and is readily applicable in early clinical development.

We therefore invite proposals focused on the discovery, validation, or application of non-invasive biomarkers linking kidney biology to cardiovascular risk in CM-CKD. Of particular interest are approaches that enable biologically informed patient stratification or combine molecular biomarkers with non-invasive cardiovascular phenotyping such as pulse wave velocity (PWV) or coronary artery calcification (CAC). Both hypothesis-driven and data-driven approaches are within scope.

What potential solutions could be in scope?

Submissions should focus on identifying biomarkers or biomarker signatures that reflect biologically relevant disease mechanisms in CM-CKD and have the potential to support patient stratification, cardiovascular risk assessment, and/or early evaluation of therapeutic response. Proposed approaches should demonstrate a clear translational path across preclinical and clinical settings.

Innovative solutions and approaches should meet all of the following criteria:

1. **Relevance to CM-CKD**
Biomarkers must be relevant for patients with CM-CKD, particularly in early to moderate disease stages.
2. **Non-invasive accessibility**
The approach should utilize non-invasive or minimally invasive human samples (e.g., plasma, serum, urine, urinary extracellular vesicles, or other accessible biofluids).
3. **Mechanistic linkage to the kidney-cardiovascular axis**
Biomarkers should reflect biologically relevant mechanisms linking kidney disease with cardiovascular risk and outcomes in CM-CKD.
4. **Quantitative measurement and monitoring**
Biomarkers must support robust quantitative assessment and longitudinal monitoring.

The following aspects are considered advantageous but are not mandatory:

- Multi-marker signatures or biomarker panels rather than single biomarkers.
- Integration of molecular biomarkers with vascular phenotyping.
- Integration of biological biomarkers with non-invasive cardiovascular phenotyping (e.g., PWW, CAC, or imaging-based approaches), supported by a clear mechanistic rationale.
- Back-translation of biopsy-derived molecular signatures into accessible non-invasive biomarkers.

What potential solutions would be out of scope?

The following approaches are considered out of scope:

- Biomarkers developed exclusively for primary kidney diseases (e.g., FSGS, membranous nephropathy, Alport syndrome) without a clear applicability to CM-CKD.
- Biomarkers that exclusively reflect kidney function decline without providing insights into underlying disease mechanisms or cardiovascular risk.
- Invasive or biopsy-dependent diagnostic approaches without a realistic path toward non-invasive clinical implementation.
- Stand-alone imaging approaches lacking integration with biological biomarkers or a clear mechanistic link to the kidney-cardiovascular axis.
- Biomarker proposals based exclusively on computational predictions without experimental or clinical validation in human biological samples.

- Genetic association studies, GWAS, polygenic risk scores, or approaches focused solely on germline genetic variation.
- Retrospective association studies without a path toward prospective validation or translational application.
- Digital biomarkers derived exclusively from wearable devices, sensors, smartphones, electronic health records, or behavioral monitoring data without integration of biological biomarkers.
- Established cardiovascular risk biomarkers without a demonstrated mechanistic connection to kidney disease biology in CM-CKD.

What benefits do we offer to you in exchange for having submitted a solution?

If selected, you will have the opportunity to directly collaborate with the Cardio-Renal-Metabolic Experimental Medicines team at Boehringer Ingelheim to further advance and validate your proposed biomarker approach.

Funding will be provided to support the agreed collaborative research plan. Applicants should outline their requested budget within the proposal. As a guideline, funding requests should be milestone-based and generally not exceed EUR 300,000 per project.

Budget scope and project structure may vary depending on the maturity of the proposed biomarker and the level of existing validation.

Beyond funding, selected collaborators may gain access to additional scientific support and translational expertise from Boehringer Ingelheim. Depending on the project, this may include access to relevant patient cohorts, biomarker validation opportunities, disease expertise, and translational research capabilities.

The collaboration agreement will define the respective rights and obligations of each partner, including intellectual property considerations, in a transparent and mutually beneficial manner. Scientific publication of project results is encouraged and will be governed by the terms of the collaboration agreement, to be negotiated in good faith.

What are the key success criteria on which we base our selection for the best answer?

The proposed approach should support biologically informed patient stratification and/or provide earlier and more informative translational readouts than currently achievable with eGFR and UACR alone.

Proposals are expected to present innovative concepts, technologies, or analytical strategies with evidence of biological plausibility, analytical robustness, and potential for clinical translation.

In addition, your submission will be evaluated against the following key success factors:

- **Scientific merit and strategic fit:** The proposal describes a novel biomarker or biomarker signature that aligns with the objectives, scope, and selection criteria of this call and demonstrates potential to improve patient stratification, cardiovascular risk assessment, and/or translational evaluation of therapeutic response in CM-CKD.
- **Supporting evidence:** Evidence supporting biological plausibility, analytical robustness, or preliminary validation will strengthen the proposal.
- **Feasibility and project plan:** The proposal includes a realistic milestone-based development plan with clearly defined decision points and Go/No-Go criteria. Requested funding should be appropriate and justified for the proposed scope of work.
- **Expertise and capabilities:** The applicant team demonstrates relevant scientific expertise, access to the required technologies and laboratory capabilities, and a track record of delivering comparable research projects.
- **Collaborative potential:** The proposed work can be effectively conducted within a scientific collaboration framework with Boehringer Ingelheim.
- **Translational impact:** Priority will be given to proposals with a credible path toward biomarker validation and translational implementation within approximately two years.

What information should be included in your answer submission?

Please use our answer submission template to provide a 3–4 page non-confidential proposal (available for download on the following [site](#)).

If confidential data exists that would strengthen the proposal, please indicate that information is available to share under a Confidential Disclosure Agreement (CDA). If we find the non-confidential concept proposal sufficiently interesting, we will execute a CDA for confidential discussions.

Anticipated Project Phases or Project Plan

Phase 1	Please complete your submission by December 9, 11:59 pm PST at the very latest.
Phase 2	Our review of all proposals will be completed by mid-February 2027 and scientists will be informed after that.
Phase 3	Start of discussions for the collaboration agreement in Q2/2027.

Submitting a collaboration proposal

- Check the outline of the opn2EXPERTS “[Biomarkers linking kidney biology to CV risk](#)” on opnMe.
- Alternatively, you may click the “Get Submission Template” banner to access the material transfer template.
- Follow the instructions to upload your submission document (requires login or registration).
- The upload allows you to attach additional application files if desired.
- You will be able to access your final submitted collaboration proposal in your personal dashboard and follow its review status.
- Please also visit the [FAQ](#) section on opnMe.com to learn more about our opn2EXPERTS program.