



# Renal and CVRM Biomarkers: No longer just scientific tools, but strategic accelerators

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Jan 2026

## Renal and CVRM Biomarkers: No longer just scientific tools, but strategic accelerators

Renal and CVRM Biomarkers are no longer just scientific tools. They are strategic accelerators. Over the past several years, renal and cardiovascular-renal-metabolic (CVRM) drug development has undergone a quiet but profound shift. Biomarkers, principally renal and cardiorenal biomarkers — are no longer simply supportive or exploratory scientific readouts. When used deliberately, they have become strategic instruments that can:

- Materially change how we accelerate and intensify our understanding of mechanism of action
- Hasten clear clinical signaling
- Enable more confident safety management
- Empower forecasts of market opportunity and label and indication expansion
- Empower efficient and effective capital deployment
- De-risk clinical development

The difference is not simply the biomarker itself. It's how, when, and why it is used strategically and tactically, the execution, the vision, and the high-level interpretation of the signal.

### When used deliberately, biomarkers move from 'interesting data' to decision-shaping insights.

The difference is not simply the biomarker itself. It's how, when, and why it is used strategically and tactically, the execution, the vision, and the high-level interpretation of the signal. The evolution and revolution from these biomarkers serving as "interesting data" to "decision shaping insights" is best described as a harbinger. It both foreshadows and directly leads to major subsequent events, while delivering a value proposition that is expressed in terms of better-informed clinical development, earlier and more revealing insights clinical and safety perspectives and empowered strategic planning.

Traditional renal endpoints — eGFR slope, creatinine, proteinuria — remain essential. But anyone who has led a renal or CVRM program knows, understands, and is constrained by their limitations:

- They move slowly
- They integrate multiple processes into a single signal
- They rarely tell us what kind of kidney injury or benefit is occurring

Mechanistic biomarkers — podocyte, tubular, vascular/endothelial, complement-mediated, fibrotic, immune — allow us to disaggregate kidney biology in real time.

That matters because early development decisions are not binary “works/doesn’t work” questions. They are nuanced questions such as:

- Is there confirmation that your drug hits its intended molecular target early in development?
- Are there salutatory or unforeseen clinical effects?
- Are we seeing early on-target benefit before functional change?
- Is a creatinine signal hemodynamic, adaptive, or structural?
- Is there subclinical renal injury we should address now — not in Phase III?
- Is there a signal that lends support for broader application of your therapy?

If your biomarker strategy is aligned with mechanism, these questions can be answered months to years earlier than with traditional endpoints alone.

Speed is not the only advantage — clarity is.



## **Biomarkers do not just accelerate timelines — they reduce ambiguity.**

What is often underappreciated is that biomarkers do not just accelerate timelines — they reduce ambiguity.

In renal and CVRM programs, ambiguity is expensive:

- it leads to over-enrollment
- it drives conservative dose selection
- it delays go/no-go decisions
- it creates regulatory uncertainty
- it clouds commercial forecasting

A well-constructed biomarker framework can:

- clarify why a program is succeeding or struggling
- help distinguish and discern a true clinical signal from noise such as from transient hemodynamic effects
- support smarter adaptive designs
- support and empower your regulatory strategy.
- support and empower your narrative
- and prevent late-stage surprises, particularly around renal safety

This is especially relevant in:

- APOL1-mediated kidney disease
- IgA nephropathy and other immune-mediated GNs
- complement-driven diseases
- resistant hypertension and cardiorenal syndrome
- Heart failure and cardiorenal syndrome studies with MACE endpoints
- gene and cell therapy programs with renal exposure
- non-renal assets where kidney safety may limit label breadth

One of the most underutilized aspects of biomarker strategy is its role in commercial and label forecasting.

Mechanistic biomarkers can help answer questions that matter deeply to investors, BD teams, and commercial leadership:

- Is this effect likely to generalize beyond a narrow population?
- Which subgroups are demonstrating a robust and durable response — and why?
- Is the mechanism compatible with combination therapy?
- Could this asset move earlier in disease, or into adjacent indications?

When biomarkers illuminate mechanism and durability, they improve not only clinical confidence, but strategic optionality.

That optionality — additional labels, expanded populations, differentiated positioning — is often where long-term value resides.

## The real risk lies with collecting biomarkers without a strategy.

Undeniably, the real risk lies with collecting biomarkers without a strategy. The cost and opportunity cost can be profound.

The cautionary note is this:

Collecting biomarkers without a clear strategy often adds cost without adding value.

I see programs where:

- biomarker panels are overly broad and under-interpreted
- biomarker panels without a strategic imperative to best understand both MOA and putative benefits
- assays are chosen without regulatory dialogue or operational foresight
- signals emerge but are not integrated into strategic decision-making
- global variability undermines confidence in the data

In these cases, the biomarkers become noise rather than a leverageable signal.

The value proposition derives not from the biomarker itself, but from expert interpretation at the intersection of nephrology, mechanism of action, clinical development, and regulatory context.

**The value proposition lies at the intersection of nephrology, mechanism of action, clinical development, and regulatory context.**

Over the next 6–12 months, we will see a wave of Phase I, II, and III initiations across renal and CVRM development — particularly among small and mid-sized biotech enterprises pursuing:

- precision renal genetics
- immune-modulating therapies
- complement inhibition
- regenerative and cell-based approaches
- cardiorenal risk modification

The programs that succeed will not simply be those with the best molecules.

They will be the ones that:

- learn faster
- de-risk earlier
- make clearer decisions
- and align science, regulation, and strategy from the outset

When applied thoughtfully and correctly, biomarkers stand among our most powerful tools for delivering exactly that. Nonetheless, strategic utilization of cutting-edge renal biomarkers in 2026 clinical trials is often limited by perceived and genuine risks to the overall drug development timeline and the commercial viability of the resulting product. Sponsors face significant hurdles when a biomarker's technical promise does not translate into a clear regulatory or business advantage. Ultimately, biomarkers work best when chosen to support decisions, not just understanding; and we should perceive and apply them as strategic accelerators and amplifiers in concert with a well-designed and executed clinical development program.

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### A Closing Thought (and Invitation)

Biomarkers in drug development offer several crucial secondary benefits. They enable [personalized medicine](#), and improve [clinical trial efficiency](#) (smaller trials, faster results), allowing [earlier safety assessment](#), to guide [dose optimization](#), and facilitate [regulatory approval](#) via surrogate endpoints. These benefits ultimately lead to faster, more targeted therapies with better patient outcomes by identifying responders and predicting drug success or failure - even for challenging rare diseases, their strategic yield is maximizing ROI by reducing attrition and bringing effective treatments to market quicker. Renal biomarkers are no longer just about *measuring kidney injury or function*.

They are about accelerating understanding, reducing uncertainty, and creating strategic leverage in some of the most complex and capital-intensive areas of drug development.

If you are launching — or planning — a Renal or CVRM program and are thinking about how to:

- sharpen early signal
- mitigate renal safety risk
- improve regulatory confidence
- or better forecast downstream opportunity

Recognize and embrace that regulatory efficiency is paramount.

- Benefit: Researchers can use well-qualified biomarkers (e.g., via [FDA's Biomarker Qualification Program](#)) across multiple programs, streamlining regulatory review.
- Yield: Consistency, reduced duplication, faster pathway to market.

Biomarkers transform drug development from broad, slow, high-risk processes to targeted, efficient, data-driven strategies, maximizing the chances of delivering safe, effective, and personalized medicines

The earlier these conversations happen, the more value they tend to unlock.

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