Reply to “Letter to the editor: ‘Concern regarding quantification of urinary nephrin by commercially available ELISA’”

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REPLY: There is great interest in establishing novel biomarkers for the early detection of renal disease. Although albuminuria is a common biomarker that can be easily measured, evidence suggests that albumin excretion can change independently of glomerular barrier function, and increases in albumin excretion may occur after the damage has occurred or may not be present in all types of kidney damage (3). This has led to the search for new biomarkers that are noninvasive and better correlate with the etiology of kidney disease.

Nephrin is a key structural molecule of the slit diaphragm and critical to maintaining the integrity of the glomerular filtration barrier. As a result, urinary nephrin excretion measurements are thought to be a biomarker to detect early glomerular injury (2), and interest in measuring nephrin levels continues to increase. Urinary nephrin levels have been measured by Western blot analysis and RT-PCR; however, the most common method of assessing nephrin excretion has been by ELISA, and the Exocell kit has been widely used in the literature in both clinical and basic science studies to quantitate nephrin levels in urine. As a result, we would like to express our appreciation for the efforts of Janech et al. (1) for thoroughly testing the selectivity of the Exocell Nephrin ELISA kit for nephrin vs. albumin. As scientists, our conclusions can only be as good as the tools that we have available to us to test our hypotheses. If the tools that we are using are flawed, it is critically important to know that.

Janech et al. (1) noted in their Letter to the Editor that there is a direct correlation between nephrin and albumin excretion, which would likely be expected as the presence of both nephrin and albumin in the urine reflect a breakdown in the filtration barrier of the glomerulus. However, Janech et al. further demonstrate that murine albumin elicited a positive “nephrin” signal in the Exocell Nephrin ELISA. Based on their presented data, we share the authors’ words of caution regarding interpretation of data based on results using this kit alone for mouse samples and concur with the need for individual laboratories to validate the tools that we are using to avoid potential false-positive findings.

Finally, we would like to take the opportunity to note that the conclusions of the referenced papers in the Letter to the Editor by Janech et al. (1) were not contingent solely on the use of the Exocell kit. In many instances, renal nephrin expression was also assessed by a secondary method (Western blot/immunocytochemistry), and glomerular barrier function was also assessed (desmin, EM, etc.).

DISCLOSURES

No conflicts of interest, financial or otherwise, are declared by the authors.

AUTHOR CONTRIBUTIONS

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REFERENCES


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