

Study provides insights on enzyme that helps direct the immune response to kidney injury

February 12 2015

An enzyme known to be important in the body's response to kidney injury exerts its protective effects, in part, by affecting the immune system, according to a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology* (JASN). The findings could lead to new treatments for patients with acute kidney injury (AKI).

AKI is an abrupt decline in [kidney function](#) that often arises after major surgeries or severe infections. An enzyme called heme oxygenase-1 (HO-1) is known to be important in the body's protective response to AKI. In their efforts to uncover the specific effects of HO-1 in this response, a team of researchers led by Anupam Agarwal, MD, James F. George, PhD, Travis Hull, BS, and Ahmed Kamal, MD (University of Alabama at Birmingham) found that HO-1 helps to direct a specific subset of immune cells, called [myeloid cells](#), as they traffic to and from the kidney after it is injured.

"This pre-clinical study more completely defines the cellular compartments through which HO-1 exerts its protective effects in AKI, thus paving the way for the development of targeted novel therapeutic strategies aimed at preventing the significant morbidity and mortality caused by AKI in patients," said Dr. Agarwal. "More importantly, our studies discovered that the absence of HO-1 in myeloid cells had a dramatic effect on recovery after AKI, suggesting that HO-1 could be an important target in preventing the transition of AKI to chronic kidney disease."

In an accompanying editorial, Gilbert Kinsey, PharmD, PhD (University of Virginia) noted that the findings significantly advance researchers' understanding of the role of HO-1 following [kidney injury](#). "Given the human relevance of HO-1 in AKI and the growing understanding of the myeloid cells in renal health and disease, these studies by Hull et al. provide the foundation for a whole new area of AKI research," he wrote.

More information: The article, entitled "Heme Oxygenase-1 Regulates Myeloid Cell Trafficking in AKI," will appear online at jasn.asnjournals.org/ on February 12, 2015.

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Provided by American Society of Nephrology

Citation: Study provides insights on enzyme that helps direct the immune response to kidney injury (2015, February 12) retrieved 22 February 2023 from <https://medicalxpress.com/news/2015-02-insights-enzyme-immune-response-kidney.html>

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