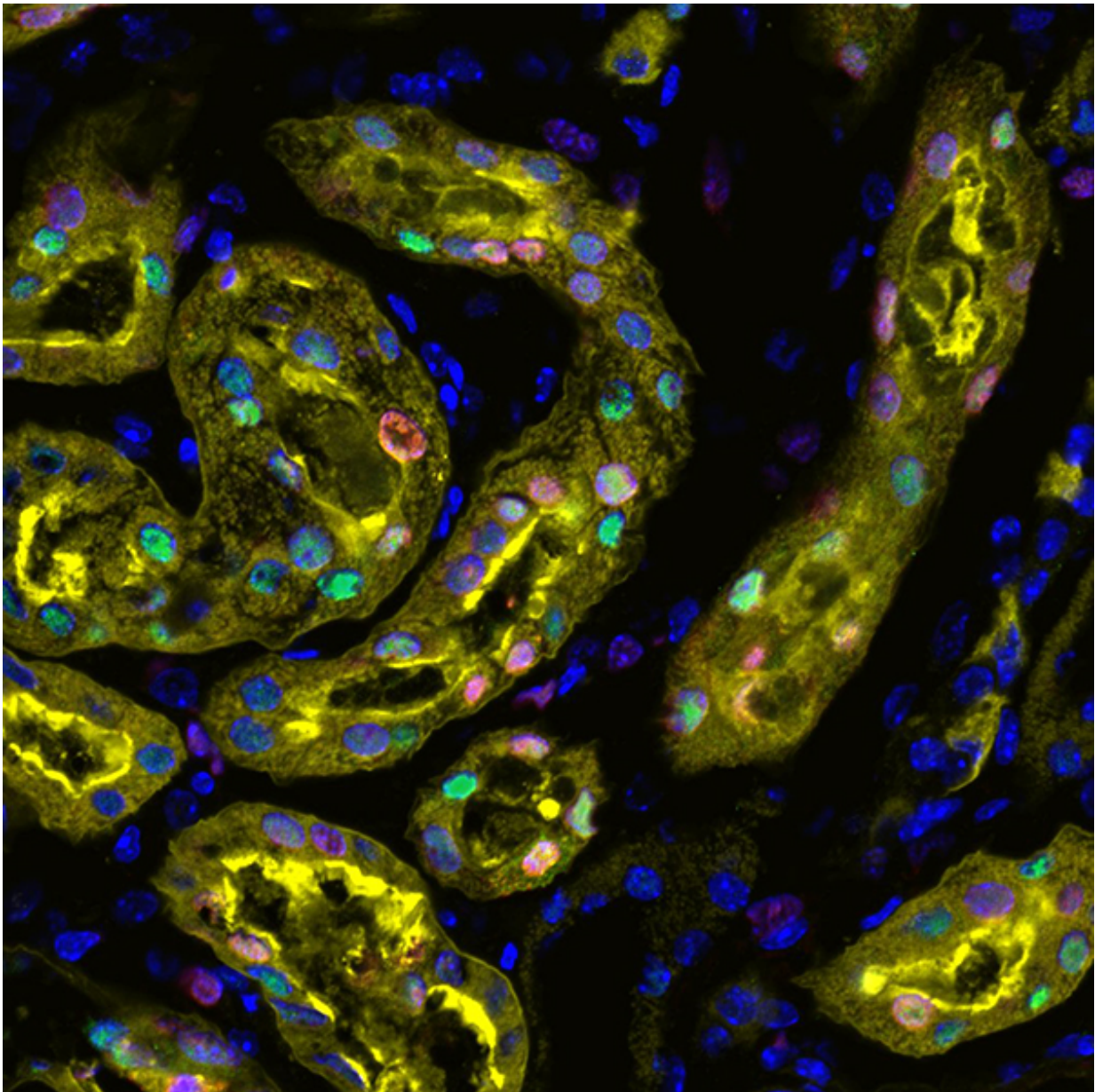


Researchers find gene facilitating repair of acutely injured kidney

October 14 2015, by Cristy Lytal



Activation of Sox9 (green) in nuclei (blue) of cellular lining (yellow) following acute nephron injury. Surviving SOX9+ cells proliferate (red) to repair the damaged nephron, restoring kidney function. Credit: the McMahon Lab

In the kidney, injured cells can be kicked into reparative mode by a gene called Sox9, according to a new paper published in *Cell Reports*.

First author Sanjeev Kumar, M.D., Ph.D., a Keck School of Medicine of USC postdoctoral research associate in the laboratory of Andy McMahon, Ph.D., provost professor and W. M. Keck Professor of Stem Cell Biology and Regenerative Medicine at the Keck School, found that surviving injured cells switch on the Sox9 gene as a response to [kidney damage](#). This regenerates the injured cellular lining of the nephron, the functional unit of the [kidney](#), and repairs the kidney after [acute kidney injury](#) (AKI).

By recruiting the majority of the surviving cells of the epithelium to aid in the timely repair of a severely injured organ, the kidney's Sox9 strategy contrasts with the stem cell-based repair strategy of many other organ systems.

"Currently, no treatment exists to treat AKI per se. Identifying the kidney's intrinsic mechanisms of repair is critical for developing treatments to kickstart the kidneys after AKI, a serious condition with an in-hospital mortality rate exceeding 50 percent," said Kumar.

In sections of the kidney that fail to repair, Sox9 remains activated thereby, demarcating regions of inefficient repair responses. Further interrogation of such regions could provide a crucial link between AKI and its transition to chronic and end-stage kidney disease.

Sox9 also plays a key role in the normal development of the kidney.

More information: Sox9 Activation Highlights a Cellular Pathway of Renal Repair in the Acutely Injured Mammalian Kidney,
[dx.doi.org/10.1016/j.celrep.2015.07.034](https://doi.org/10.1016/j.celrep.2015.07.034)

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