Protein points way to fixing “leaky” channels linked to chronic kidney disease

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Video Byte

Keywords: connexin, gap junction, cell-cell communication, chronic kidney disease, hemichannels, ATP, cell adhesion, tubular injury, Cell Communication and Signaling

Posted Date: October 28th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-99185/v1>

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Abstract

Chronic kidney disease is a growing health crisis currently affecting about 10% of the global population. Recent studies have linked certain forms of this disease to proteins called connexins. Connexins create portals between cells to facilitate communication and signaling. When connexins fail, signaling molecules normally shuttled between cells spill into the local surroundings. That spillage sets off a chain of events that can ultimately lead to kidney failure. Worse yet, studies suggest that some connexins, such as Cx43, can actually aggravate the leak. In search of a possible fix, researchers examined what happens when Cx43 is blocked with a similar protein called Peptide 5. Test-tube experiments showed that Peptide 5 improved human kidney cells exhibiting signs of disease, reducing the molecular “leakiness” of those cells caused by Cx43, and restoring their function to some degree. The full extent of Cx43’s damaging effects remains to be explored, but these preliminary findings at least point to one druggable target for patients with chronic kidney disease.