

How salt increases blood pressure

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Salt-sensitive hypertension affects about half of people with high blood pressure, but the precise mechanism of how dietary salt contributes to blood pressure elevation, kidney injury and cardiovascular disease remains unclear.

Annet Kirabo, DVM, MSc, Ph.D., and colleagues recently found that sodium enters immune system antigen-presenting cells (APCs) and

promotes formation of IsoLG (isolevuglandin)-protein adducts, leading to inflammation and hypertension. They have now discovered that the salt-sensing kinase SGK1 plays a key role in this pathway.

They found that in response to excessive salt, SGK1 increases expression and assembly of epithelial sodium channels on APCs. This increases activation of NADPH oxidase, an enzyme that participates in IsoLG formation. Mice lacking SGK1 in APCs were protected from kidney inflammation and vascular dysfunction, and had less hypertension associated with a high-salt diet.

The findings, reported in the September issue of *Hypertension*, define a novel pathway for salt-sensitive hypertension and suggest that SGK1 may be an important therapeutic target for this condition.

More information: Justin P. Van Beusecum et al. High Salt Activates CD11c + Antigen-Presenting Cells via SGK (Serum Glucocorticoid Kinase) 1 to Promote Renal Inflammation and Salt-Sensitive Hypertension, *Hypertension* (2019). [DOI: 10.1161/HYPERTENSIONAHA.119.12761](https://doi.org/10.1161/HYPERTENSIONAHA.119.12761)

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