The renin-angiotensin system (RAS), or renin-angiotensin-aldosterone system (RAAS), is a hormone system that regulates blood pressure and fluid and electrolyte balance, as well as systemic vascular resistance.

When renal blood flow is reduced, juxtaglomerular cells in the kidneys convert the precursor prorenin (already present in the blood) into renin and secrete it directly into circulation. Plasma renin then carries out the conversion of angiotensinogen, released by the liver, to angiotensin I.

Angiotensin I is subsequently converted to angiotensin II by the angiotensin-converting enzyme (ACE) found on the surface of vascular endothelial cells, predominantly those of the lungs.

Angiotensin II is a potent vasoconstrictive peptide that causes blood vessels to narrow, resulting in increased blood pressure.

Angiotensin II also stimulates the secretion of the hormone aldosterone from the adrenal cortex. Aldosterone causes the renal tubules to increase the reabsorption of sodium and water into the blood, while at the same time causing the excretion of potassium (to maintain electrolyte balance). This increases the volume of extracellular fluid in the body, which also increases blood pressure.