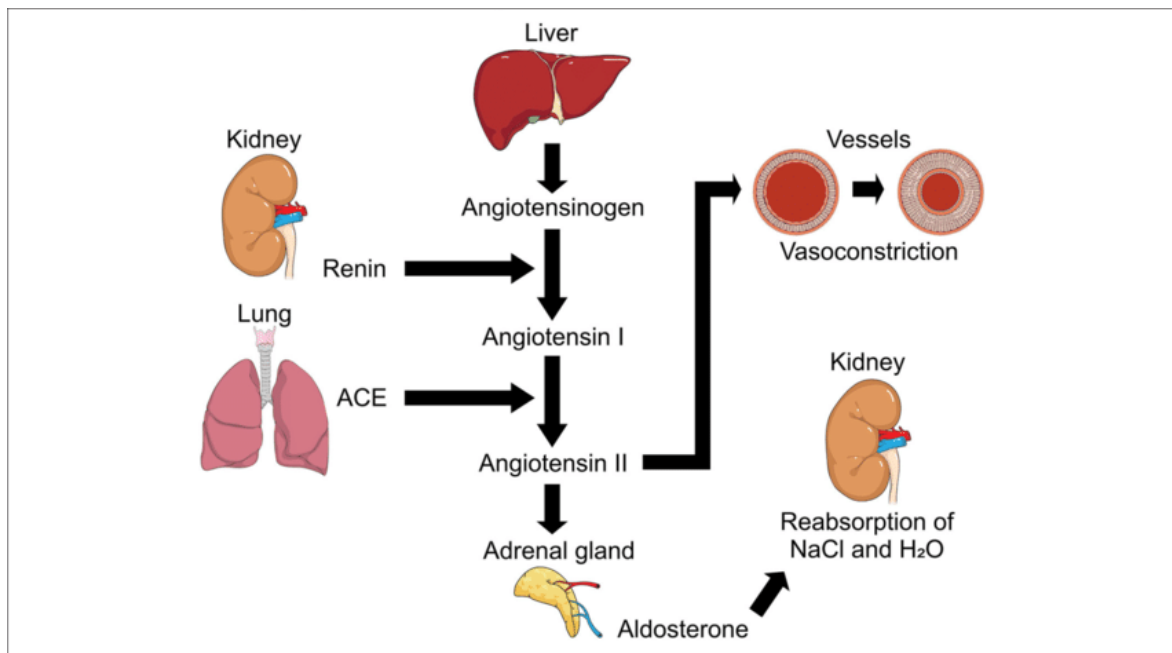
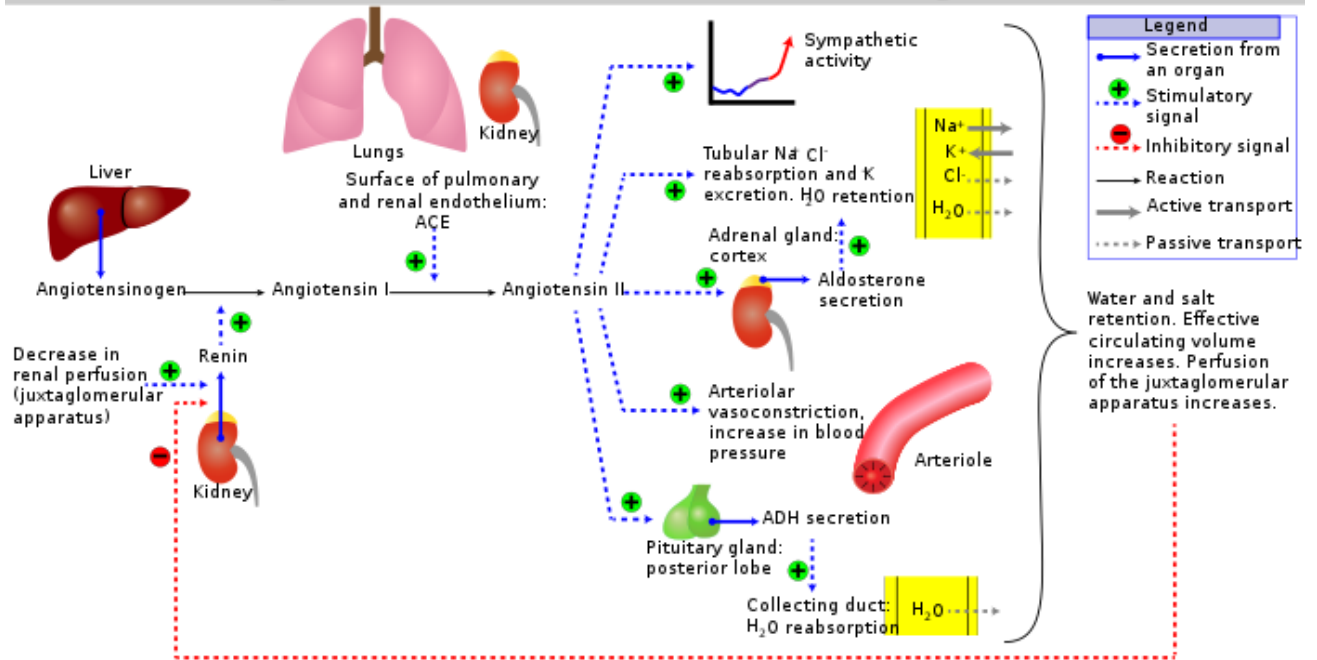


Renin-angiotensin-aldosterone system



Renin-angiotensin system is a physiological hormone system involved in the regulation of arterial blood pressure and plasma sodium concentration.

When renin is liberated in the blood, it acts on angiotensinogen (a circulating layer), which goes through proteolytic cleavage to make decapeptide angiotensin I. Vascular endothelium has an enzyme called angiotensin transforming enzyme that separates two amino acids and forms angiotensin II (AII), and other tissues in the body, including the brain and heart, also form angiotensin II (AII).

The members of the renin-angiotensin system are:

- Renin
- Angiotensin I
- Angiotensin II
- Angiotensin-Converting Enzyme (ACE)

Functions of the Renin-Angiotensin System

Listed below are the important functions of the Renin-angiotensin system.

- Build resistance vessels, hence increasing arterial pressure and systemic vascular resistance.
- Stimulates delivery of sodium at different renal tubular sites and increases the body's water retention.
- Stimulates the liberation of vasopressin from the posterior pituitary and increases liquid retention by the kidneys.
- Provides release of norepinephrine from sympathetic nerves and prevents norepinephrine uptake, thereby optimizing sympathetic adrenergic function.
- Stimulates vascular hypertrophy and cardiac hypertrophy.
- The renin-angiotensin route is not regulated only by the mechanisms which encourage the release of renin but also regulated by natriuretic peptides that are released by the human heart, and these peptides serve as a critical counter-regulating system.

importance of the Renin-Angiotensin System

- Renin-angiotensin system controls and maintains the blood pressure level in the blood cells. When there is a drop or rise in the blood pressure level of a person, this system functions immediately by releasing renin into the bloodstream.
- Manipulative therapies play a major role in treating heart failure and hypertension. Every receptor blocker and ACE inhibitor are utilized in decreasing arterial blood pressure, blood volume, ventricular afterload, and ventricular preload, along with vascular hypertrophy and reverse cardiac.

- Therapeutic approaches that aim toward a complete inhibition of the Renin-angiotensin system offer more clinical benefits for patients with renal and other [heart diseases](#). These approaches can involve dual blockade by using the combination of Angiotensin II Receptor Blockers and Angiotensin-converting enzyme I or therapeutic modalities like direct renin inhibition with aliskiren which is a recently approved treatment of hypertension