ACE2 and vasoactive peptides: Novel players in cardiovascular/renal remodeling and hypertension

Mendoza Torres, Evelyn

Oyarzún, Alejandra

Mondaca Ruff, David

Azocar, Andrés

Chiong, Mario

Castro, Pablo F.

Jalil, Jorge E.

Lavandero, Sergio

Ocaranza, María Paz

The renin?angiotensin system (RAS) is a key component of cardiovascular physiology and homeostasis due to its influence on the regulation of electrolyte balance, blood pressure, vascular tone and cardiovascular remodeling. Deregulation of this system contributes significantly to the pathophysiology of cardiovascular and renal diseases. Numerous studies have generated new perspectives about a noncanonical and protective RAS pathway that counteracts the proliferative and hypertensive effects of the classical angiotensin-converting enzyme (ACE)/angiotensin (Ang) II/angiotensin type 1 receptor (AT1R) axis. The key components of this pathway are ACE2 and its products, Ang-(1-7) and Ang-(1-9). These two vasoactive peptides act through the Mas receptor (MasR) and AT2R, respectively. The ACE2/Ang-(1-7)/MasR and ACE2/Ang-(1-9)/AT2R axes have opposite effects to those of the ACE/Ang II/AT1R axis, such as decreased proliferation and cardiovascular remodeling, increased production of nitric oxide