

Recent insights and therapeutic perspectives of angiotensin-(1-9) in the cardiovascular system

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Chronic RAS (renin-angiotensin system) activation by both AngII (angiotensin II) and aldosterone leads to hypertension and perpetuates a cascade of pro-hypertrophic, pro-inflammatory, pro-thrombotic and atherogenic effects associated with cardiovascular damage. In 2000, a new pathway consisting of ACE2 (angiotensin-converting enzyme2), Ang-(1-9) [angiotensin-(1-9)], Ang-(1-7) [angiotensin-(1-7)] and the Mas receptor was discovered. Activation of this novel pathway stimulates vasodilation, anti-hypertrophy and anti-hyperplasia. For some time, studies have focused mainly on ACE2, Ang-(1-7) and the Mas receptor, and their biological properties that counterbalance the ACE/AngII/AT1R (angiotensin type 1 receptor) axis. No previous information about Ang-(1-9) suggested that this peptide had biological properties. However, recent data suggest that Ang-(1-9) protects the heart and blood vessels (and possibly the kidney) from adverse cardiovascular remodelling in patients with hypertension and/