Angiotensin-(1-9) regulates cardiac hypertrophy in vivo and in vitro

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Background: Angiotensin-(1-9) is present in human and rat plasma and its circulating levels increased early after myocardial infarction or in animals treated with angiotensin-converting enzyme inhibitor. However, the cardiovascular effects of this peptide are unknown. Objective: To determine whether angiotensin-(1-9) is a novel anti-cardiac hypertrophy factor in vitro and in vivo and whether this peptide is involved in the pharmacological effects of cardiovascular drugs acting on the renin-angiotensin system. Methods and Results: The administration of angiotensin-(1-9) to myocardial infarcted rats by osmotic minipumps (450 ng/kg per min, n = 6) vs. vehicle (n = 8) for 2 weeks decreased plasma angiotensin II levels, inhibited angiotensin-converting enzyme activity and also prevented cardiac myocyte hypertrophy. However, cardiac myocyte hypertrophy attenuation triggered by angiotensin-(1-9) was not modified with the simultaneous administration of the angiotensin-(1-7) receptor antagonist