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Nutrition, sirtuins and renin-angiotensin system: Cross talk in metabolic regulation

Sergio Henrique Sousa Santos
Universidade Federal de Minas Gerais, Brazil

The Renin- Angiotensin System (RAS) is one of the most important biological systems involved in cardiovascular and hydroelectrolytic balance regulation. Classically Angiotensin II acting through AT1 receptor produces vasoconstriction and proliferative effects while Angiotensin-(1-7) [Ang-(1-7)] acting through Mas receptor produces vasodilation and antiproliferative effects. Recently was demonstrated that Ang-(1-7)/Mas axis also can improve lipid and glycemic profile preventing and reversing diabetes and obesity. Sirtuins are the most known enzymes activated by caloric restriction, which also can be activated for natural compounds such as Resveratrol. Recent studies showed that both RAS and Sirtuins could be modulated by diet composition. Our group recently demonstrated that high-fat diet produces RAS unbalance and increases Sirt4 expression in adipose tissue. Furthermore, our recent study showed that high-fat feed mice treated with resveratrol and (or) an oral formulation of Ang-(1-7) associated to the food, present an improved metabolic profile with reduced body-fat and improved glucose metabolism. The same study pointed out for a cross talk between RAS and Sirtuins in adipose tissue, once one system was able to modulate each other in adipocytes. In conclusion we recently demonstrated that RAS and Sirtuins are key biological enzymes modulated by diet-composition and able to improve metabolism when selectively activated.

Biography

Sérgio Henrique Sousa Santos has completed his PhD at the age of 27 years from Federal University of Minas Gerais (Brazil) in collaboration with Max-Delbrück Center in Berlin (Germany) and Postdoctoral studies from Nano-Bio Pharmaceutical Institute of Federal University of Minas Gerais. He is the coordinator of Metabolic Pharmacology Lab, and member of American Obesity Society. He has published more than 30 papers in reputed journals and serving as an Editorial Board Member of Motricidade journal and is the Editor in Chief of the Book: "Hepatic Steatosis: Clinical Risk Factors, Molecular Mechanisms and Treatment Outcomes" that will be published in 2014 by Nova Science. Recently he received the Brazilian government recognition through a production fellowship by CNPq.

sergiosousas@hotmail.com