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TITLE: THE RENIN-ANGIOTENSIN SYSTEM IN THE PATHOPHYSIOLOGY OF HUNTINGTON'S DISEASE

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ABSTRACT (upto 300 words)

The renin-angiotensin system (RAS) has physiological and pathophysiological influence. The RAS has two main axes: I) angiotensin-converting enzyme (ACE)-Angiotensin II (Ang II)-Angiotensin II type I receptor (AT_1) that has been associated with neurodegeneration and ACE2-Angiotensin-(1-7) [Ang-(1-7)]-Mas receptor that induces neuroprotective effects. It has been described that RAS is involved in neurodegenerative disorders like Huntington's Disease (HD). Although it has already been demonstrated, there is still much to discover about the role of the brain components of the RAS in HD. The aim of this study was to evaluate the role of brain RAS in transgenic BACHD mouse model for HD. Methods and results: We assessed the gene expression of receptors AT1 and Mas in brain using RT-PCR. BACHD animals exhibited an increased expression of AT1 receptor in the brain compared to wild type (WT) mice. A decreased expression of Mas was observed in the striatum of BACHD. Immunoenzymatic assay (ELISA) revealed that the levels of ACE2 were decreased in the cortex of BACHD. There was no difference in ACE2 in the striatum and hippocampus, as well as in the levels of ACE in all the brain regions. It was observed a reduction of Ang-(1-7) in the striatum and hippocampus of the BACHD group. There was no difference on the Ang II levels in the three brain regions. Conclusion: These results suggest an imbalance of the RAS components on the brain of BACHD mice. This characterization of the RAS components could help understand the development of new drugs and therapeutical strategies to HD.

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BIOGRAPHY (upto 200 words)

Kivia Santos has a bachelor's degree in Biological Sciences from the Federal University of Minas Gerais. She is currently in the final phase of her master's in which it is studied β2-adrenoceptor activation, its effects on cholinergic exocytosis in skeletal muscle, and the molecular mechanism for these effects. She has been working in the Cellular Biology department since the second half of 2016. She is part of a research group on neurodegenerative diseases focused on neuronal loss, cognitive behavior, motor behavior, inflammatory responses, and possible therapeutic strategies.