

Flavonoids as modulators of glia/glioma interaction: Role of inflammatory cytokines and MEC/MMP expression

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Studies have been described glioma/microglia interaction involving regulation of MEC expression and immunologic responsiveness as responsible for their aggression and tumor invasion. Our previous study have been suggested that rutin, a flavonoids extracted from seeds of the Brazilian plant *Dimorphandra mollis*, act as inhibitor of growth of human glioblastoma cell lines and modulator of immunomodulatory agents as TNF α and NO in glial cells. Hence we have been evaluated the effect of flavonoids rutin, and its derived aglycone quercetin, on growth and migration of isolated human (GL-15) and rat glioblastoma cells (C6), and in interaction microglial/macrophages. Phase contrast microscopy in a monolayer wound assay of synchronized glioma cells treated with flavonoids (50 μ M) showed that the closure of the wounded area was significantly slower indicating inhibition on glioblastoma cells migration. Flavonoids induced reduction of MMP-2 activity an expression, and an increase on production and secretion of fibronectin, proteins related to glioma migration and adhesion. Moreover, OX-42 positive cells in rat microglia cultures were elevated after flavonoids exposure, indicating activation. It reflected in changes in cellularity and morphology of C6 glioma cultures interacting indirectly with these phagocytes, through conditioned medium derived from microglial cultures treated with flavonoids, or directly in a model of co-cultures of C6/microglia cells. ELISA performed with the medium of microglia cultures showed that levels of TNF- α were increased in cultures treated with 100 μ M rutin or 50-100 μ M quercetin, suggesting change on regulatory profile of glial response in presence of the flavonoids. Supported by CNPq, CAPES and FAPESB.

Biography

Silvia Lima Costa, female, PhD in Neuroscience, Université de Paris XII, in 2000, Master in Science (Immunology), Universidade Federal da Bahia (*Federal University from Bahia*), in 1996, Veterinary Medical Doctor, Universidade Federal da Bahia, in 1990. Since 1993 she works for Universidade Federal da Bahia, Department of Biochemistry at Instituto de Ciências da Saúde, and in 2001 she founded with collaborators the Laboratory of Neurochemistry and Cellular Biology (*Laboratory of Neurochemistry and Cellular Biology*), and has been focused her researches on neurochemistry, neurotoxicology, neuron-glia interactions, and drug discover for CNS diseases as cancer. Since 2007, she became Research Fellow of CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico do Brasil - *Brazilian Council for Scientific and Technical Development*). From 2007-2008 she collaborated for Université de Paris V INSERM U-894 *Equipe Plasticité Gliale* as a visiting scientist from one year, with the support of CNPq-BR, and in 2011 she collaborated for Laboratory of Neuroimmunology *Instituto Cajal de Madrid* as a visiting scientist from three mouths, with the support of *Fundación Carolina* - ES. She has published more than 35 papers in reputed journals and serving as consultant of international journals.

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