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Innate immune response to Herpes simplex virus 1 in experimental mice infection

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Herpes simplex virus 1 (HSV-1) is a DNA virus, causing several clinical manifestations in humans, including encephalitis. HSV-1 triggers toll-like receptors, which elicit cytokine production. Viral multiplication and cytokine expression in C57BL/6 wild type (WT) mice infected with HSV-1 was evaluated. Virus was found in the trigeminal ganglia (TG), but not in the brains of the animals without encephalitis signs, between the 2nd and 6th days post-infection (d.p.i.). Cytokine expression in TG peaked on the 5th d.p.i. TLR9$^{-/-}$ and TLR2/9$^{-/-}$ mice were more susceptible to the virus, with 60% and 100% mortality, respectively, as opposed to 10% in the WT and TLR2$^{-/-}$mice. Increased levels of CXCL10/IP-10 and CCL2/MCP-1 and reduced levels of IFN-gamma and IL1-beta transcripts, measured in TG and brains on the 5th d.p.i., in addition to the virus presence in the brain, were correlated with total mortality in TLR2/9$^{-/-}$. Cytokine alterations in TLR2/9$^{-/-}$ mice coincided with histopathological changes in their brains, which did not occur in WT and TLR2$^{-/-}$ mouse brain. Increased cellularity, macrophages, CD8 T cells producing IFN gamma and expression of TLR2 and TLR9 were detected in TG of WT infected mice. We hypothesize that HSV-1 infection is upon control of TLR-dependent immune responses in the TG

Biography

Marco Antonio Campos did his Ph.D. in Science (1998) at Federal University of Minas Gerais (UFMG) and post-doctorate at UFMG (2000-2001) and at Oswaldo Cruz Foundation, Brazil (2001-2002). He is the leader of the group "Immunology of viral diseases", René Rachou Research Center, Oswaldo Cruz Foundation (2006). He has experience in innate immunity and host defense against infection by microorganisms. He is a Fellow from CNPq (Research National Council of Brazil), since 2002. He has published over 25 papers in renowned journals and is serving as associate member of the editorial boards of Virology Journal (2012).

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