

The absence of TLR3 controls *Paracoccidioides brasiliensis* pulmonary infection

Grasielle Pereira Jannuzzi¹; José Roberto Fogaça de Almeida¹; Gustavo Pessini Amarante-Mendes²; Lavínia Maria Dal'Mas Romera¹; Gilberto Hideo Kaihama³; Sandro Rogério de Almeida¹ and Karen Spadari Ferreira^{*}

¹ Departamento de Análises Clínicas, Faculdade de Ciências Farmacêuticas da Universidade de São Paulo, São Paulo, Brazil; ² Departamento de Imunologia do Instituto de Ciências Biomédicas da Universidade de São Paulo ³ Departamento de Química, Instituto de Química, Universidade de São Paulo, São Paulo, Brazil; ^{*} Departamento de Ciências Biológicas do Instituto de Ciências Ambientais, Químicas e Farmacêuticas, Universidade Federal de São Paulo, Diadema, Brazil.

Abstract

Toll-like receptors (TLRs) comprise the best-characterized pattern-recognition receptor (PRR) family that can activate different immune responses, depending on which receptor and adaptor set are utilized. TLRs, such as TLR2, TLR4 and TLR9, and their signaling are important in *Paracoccidioides brasiliensis* infections. Thus, understanding the endosomal function of TLR3 in experimental paracoccidioidomycosis is crucial; however, the role of TLR3 remains unclear. Our results suggested that TLR3 controls infection against this fungus with a pro-inflammatory response, NO production, IFN⁺CD8⁺T and IL-17⁺CD8⁺T cells activation, cytotoxic action and higher *tlr9* gene expression. An effective immune response to systemic mycosis due to the absence of TLR3 is a potential role for this receptor in the host response against *Paracoccidioides brasiliensis* pulmonary infection. In conclusion, we suggest that TLR3 could be used as an escape mechanism of the fungus in an experimental paracoccidioidomycosis.

Keywords: TLR3, PCM, *Paracoccidioides brasiliensis*

Development Agency: UNIFESP