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Author

Butcher, Suzanne, Hitchens, Kelly, Vijayan, Dipti, St John, James, Ashman, Robert, Wells, Christine

Published

2008

Conference Title

Brisbane Immunology Group Ninth Annual Retreat

Innate Immune Recognition of *Candida albicans* by the c-type lectin, Mincle

Suzanne Butcher1, Kelly Hitchens1, Dipti Vijayan1,2, James St John1, Robert Ashman2, and Christine Wells1

1. National Centre for Adult Stem Cell Research, Eskitis Institute for Cell and Molecular Therapies, Griffith University; 2. Oral Biology, University of QLD

Complex pathogens such as the yeast *Candida albicans* are recognised by large pattern-recognition receptor groups on the surface of immune cells. We have recently described the role of a novel C-type lectin, Mincle, in the macrophage response to *Candida albicans,* and hypothesised that Mincle was a novel innate immune receptor for fungal pathogens. In this study we demonstrate a direct interaction between Mincle and *C. albicans, and* further demonstrate a role in the initial recognition of *Candida* at the nascent phagocytic cup. A direct interaction of Mincle with yeast was demonstrated with a recombinant, bacterially expressed extracellular portion of mouse Mincle. The recombinant protein bound to soluble yeast extract from three strains of *C. albicans* and one strain of *Saccharomyces cerevisiae.* This interaction occurred in a titratable manner. Trafficking of Mincle in response to yeast was studied in RAW 264.7 cells stably transfected with recombinant human Mincle. Colocalisation of the epitope-labelled protein with a series of phagocytic markers was analysed using immunofluorescence microscopy. Mincle was found to accumulate at the nascent phagocytic cup of macrophages exposed to yeast and zymosan, and was present on actin-rich filopodial structures. Preliminary studies suggest Mincle is retained in the phagosomal membane during phagosome closure, but is lost from this organelle prior to phagolysosome formation. These findings suggest Mincle may participate in early induction or regulation of immune signalling pathways from early phagocytic structures, particularly in the response to a yeast specific ligand.