



PCI-04

The roles of Dectin-1/2 in the host defense against fungal infection

Shinobu Saijo^{1,2} and Yoichiro Iwakura³

1. Division of Molecular Immunology, Medical Mycology Research Center, Chiba University, Chiba, Japan
2. PREST, JST, Japan
3. Research Institute for Biological Science, Tokyo University of Science, Noda, Japan

Abstract

Dectin-1 and Dectin-2 are type II transmembrane proteins of the C-type lectin family with single carbohydrate recognition domains (CRDs) in their extracellular region. To elucidate their function, we produced Dectin-1- and Dectin-2-deficient mice and determined the roles of these molecules in the host defense against pathogenic fungi. *In vivo*, while Dectin-2-deficient mice were more susceptible to NBRC1385 strain of *Candida albicans* (*C. albicans*), Dectin-1-deficient mice showed normal response to this fungus. Th17 cell differentiation was markedly decreased when naïve T cells were cultured with culture supernatant obtained from Dectin-2-deficient DCs with *C. albicans* stimulation, it was indicated that Dectin-2 is mainly involved in the Th17 cell differentiation by candida infection. *In vitro*, cytokine production was partially suppressed in Dectin-2 deficient mice when stimulated with hyphae form of *C. albicans*, cytokine secretion was significantly suppressed in Dectin-1/Dectin-2 double deficient mice. Thus, Dectin-1 and Dectin-2 are required for the immune responses to some fungal infections as a protective immunity and these molecules may synergistically contribute to this host innate immune response.