

# Human dendritic cell subsets display distinct interactions with the pathogenic mould *Aspergillus fumigatus*.

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## Abstract

The mould *Aspergillus fumigatus* is primarily an opportunistic pathogen of immunocompromised patients. Once fungal spores have been inhaled they encounter cells of the innate immune system, which include dendritic cells (DCs). DCs are the key antigen-presenting cells of the immune system and distinct subtypes, which differ in terms of origin, morphology and function. This study has systematically compared the interactions between *A. fumigatus* and myeloid DCs (mDCs), plasmacytoid DCs (pDCs) and monocyte-derived DCs (moDCs). Analyses were performed by time-lapse video microscopy, scanning electron microscopy, plating assays, flow cytometry, 25-plex ELISA and transwell assays. The three subsets of DCs displayed distinct responses to the fungus with mDCs and moDCs showing the greatest similarities. mDCs and moDCs both produced rough convolutions and occasionally phagocytic cups upon exposure to *A. fumigatus* whereas pDCs maintained a smooth appearance. Both mDCs and moDCs phagocytosed conidia and germ tubes, while pDCs did not phagocytose any fungi. Analysis of cytokine release and maturation markers revealed specific differences in pro- and anti-inflammatory patterns between the different DC

subsets. These distinct characteristics between the DC subsets highlight their differences and suggest specific roles of moDCs, mDCs and pDCs during their interaction with *A. fumigatus* in vivo.

## Involved units

[Fungal Septomics](#) [Oliver Kurzai](#) [Read more](#)

## Leibniz-HKI-Authors



Oliver Kurzai

[Details](#)

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