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Title: Effect of Cryptococcus neoformans on the immune system of immunocompetent patients

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Body: On one hand the host immune system regulates the susceptibility and resistance to cryptococcal infection, on the other Cn can also affect T-cell activation and polarization during infection. Cn may potentially interfere with the differentiation of Th1 cells, which may be an escape mechanism of evade host defence and contribute to the cryptococcal infection in immunocompetent paients. However, most of these effects on T-cell biology were only found in cell and animal studies so far. Objectives: to determine the effect of Cn on the immune system of immunocompetent patients. Methods Twenty immunocompetent patients with pulmonary cryptococcal infection were enrolled. Blood plasma concentrations of IFN-γ, IL-4 and IL-12 were measured using Elisa. PBMC were then isolated and incubated with or without IL-12 for 48 hours, followed by the assay of IFN-γ and IL-4 concentration in the supernatant. Results plasma IFN-γ was greatly decreased in the patients when compared to the healthy controls. No significant differences in plasma IL-4 and IL-12 were observed. Although IL-12 treatment can both increase IFN-γ level in PBMC culture supernatant from the two groups, the increment for cryptococcal infection patients was much lower(3.1-fold) compared with that from healthy control(7.4-fold). IL-12 treatment had no observed effect on the IL-4 production of PBMC. Conclusions cryptococcal infection can damage the host immune system, leading to a deficient response to the IL-12 stimulation and an impaired Th1 polarization. This may explain the persistence of Cn in the immunocompetent patients.