Fungi-Flow offers powerful method for probing gut fungi

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Abstract

Growing scientific evidence suggests that gut fungi play a prominent role in the development of disease. To understand how the body mounts an immune response to certain fungi during disease, researchers developed a flow cytometry method called Fungi-Flow, which measures immune responses according to levels of IgG antibodies. The team measured the immune responses of various individuals to 17 commensal and environmental fungi. IgG responses to different fungi varied strongly between healthy individuals, and Fungi-Flow proved sensitive enough to differentiate immune responses between the sporulated and budding forms of fungi. Experiments probing the composition of fungal communities revealed the presence of two distinct clusters, or ecosystems. Differences between the ecosystems were mainly driven by highly abundant fungi of the genus *Saccharomyces* but also by less abundant fungi such as *Cyberlindnera*. Separate experiments showed that the intensity of immune responses tended to scale with the diversity of fungi present in the gut. The findings suggest that the gut is colonized by distinct fungal ecosystems, each associated with a distinct immunological fingerprint. Further refinements to the Fungi-Flow system could offer better ways of pinpointing fungal infections that are currently hard to diagnose.