

Synthetic Glycans as Vaccine Candidates and Diagnostic Tool for *Candida* Infections

Emelie Ellen REUBER [1,2], Rajat Kumar SINGH [1,2], Peter H. SEEBERGER [1,2]

[1] Department of Biomolecular Systems, Max-Planck-Institute of Colloids and Interfaces, Potsdam, Germany. [2] Institute of Chemistry and Biochemistry, Freie Universität Berlin, Berlin, Germany.

emelie.reuber@mpikg.mpg.de

Fungal diseases affect more than one billion people and claim around 1.5 million lives worldwide every year - more than prostate or breast cancer. The fungal species *Candida* is responsible for the majority of cases. The World Health Organization (WHO) classifies *Candida albicans* and *Candida auris* as pathogens of the "critical priority group" because they show increasing resistance to antifungal drugs. Therefore, the development of an effective vaccine against and an early diagnostic tool for *Candida* infections is highly desirable. We synthesized a series of beta-glucans and mannans, which are essential components of the cell wall of *Candida*, with diagnostic and preventive potential for *Candida* infections.

We screened sera from infected patients and mice for antibodies to these structures on glycan arrays and used the structures against which the strongest immune response occurred to produce different conjugate vaccines. We immunized mice with the alum adjuvanted conjugate vaccines, and they developed robust serum levels of specific IgG and showed efficient killing of the fungus in *in vitro* experiments.

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