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N- and O-glycosylation are essential for *Ustilago maydis* virulence

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Cell wall and secreted proteins are the vehicles for the interaction between fungi and their host. Most of these proteins are glycosylated and this post-translational modification is essential for their localization and function. Although the role for glycoproteins in these interactions has been studied in fungal animal pathogens for many years, almost nothing is known for phytopathogens fungi. *Ustilago maydis* has raised as an excellent model for the study of plant-pathogen interactions, and its relation with the maize plant is one of the systems in which studies can be tackled from both plant and pathogen perspective. For the last few years, our group is focused on the study of the role of N- and O-glycosylation during the maize infection for this fungus (*Ustilago maydis*). We have identified that many of the proteins involved in both processes, demonstrate that N- and O-glycosylation are essential for virulence, and identified mutants in different stages across the infection process. So we have shown that mutants for Pmt4 (O-mannosyltransferase) are not able to form appressorium, a structure required for plant penetration; mutants for Gls1 (glucosidase I) cannot progress into the plant once the plant has been penetrated and Gas2 (glucosidase II b-subunit) mutants are unable to induce plant tumor formation after a defective progression into the plant. By applying *in silico* analysis, we have identified Pmt4 targets which are essential to complete plant infection. Now we are using 2-D gel analysis to identify cytoplasmic, secreted and cell wall glycoproteins involved in the infection process.

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