

The Discovery of Competitive GlcA Inhibitors That Inhibits the Human Pathogenic Fungi *Aspergillus Fumigatus* and *Candida Albicans*

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Abstract : Invasive fungal diseases are an increasing global health concern that contributes to the high mortality rates in immunocompromised patients. The rising of antifungal resistance severely lowers the efficacy of the limited antifungal agents available. New antifungal drugs that target new mechanisms are necessary to tackle the current shortfalls. Amongst post-modifications, phosphorylation is a predominant and an outstanding protein alteration in all eukaryotes. In fungi, protein phosphorylation plays a vital role in many signal transduction pathways, including cell cycle, cell growth, metabolism, transcription, differentiation, proliferation, and virulence. The investigation of *Aspergillus fumigatus* phosphatases revealed seven genes essential for viability. Inhibiting one of these phosphatases is a new interesting route to develop novel antifungal drugs. In this study, we carried out an early drug discovery process targeting one essential phosphatase, GlcA. Here, we report the identification of new GlcA inhibitors that show antifungal activity. These important finding open a new avenue to the development of novel antifungals to expand the current narrow arsenal of clinical candidates.

Keywords : invasive fungal diseases, phosphatases, GlcA, competitive inhibitors

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