

The Cell Wall Integrity Signaling Pathway and Its Involvement in Secondary Metabolite Production.

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Abstract

The fungal cell wall is the external and first layer that fungi use to interact with the environment. Every stress signal, before being translated into an appropriate stress response, needs to overtake this layer. Many signaling pathways are involved in translating stress signals, but the cell wall integrity (CWI) signaling pathway is the one responsible for the maintenance and biosynthesis of the fungal cell wall. In fungi, the CWI signal is composed of a mitogen-activated protein kinase (MAPK) module. After the start of the phosphorylation cascade, the CWI signal induces the expression of cell-wall-related genes. However, the function of the CWI signal is not merely the activation of cell wall biosynthesis, but also the regulation of expression and production of specific molecules that are used by fungi to better compete in the environment. These molecules are normally defined as secondary metabolites or natural products. This review is focused on secondary metabolites affected by the CWI signal pathway with a special focus on relevant natural products such as melanins, mycotoxins, and antibacterial compounds.

Involved units

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