

The International Debate on Filamentous Fungi as L-Asparaginase Producers

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Patients with acute lymphocytic leukemia (ALL), acute myeloid leukemia (AML), some types of non-Hodgkin's lymphoma (nHL) and breast carcinoma can be treated with L-asparaginase (L-ASNase; EC 3.5.1.1), an enzyme of microbial origin that efficiently reduces the availability of L-asparagine to cancer cells, unable to synthesize the amino acid. The commercial production of L-ASNase via bioprocesses involves the Gram-negative bacillus *Erwinia chrysanthemi* and other Enterobacteriaceae. However, bacterial enzymes can provoke hypersensitiv-

ity reactions. Also, their L-glutaminase-like activity can drive to neuronal disorders. These unfavorable characteristics have led to the prospection of new L-ASNases in eukaryotic microorganisms and an international effort has been made to seek such enzymes, especially in filamentous fungi from different sources. This presentation reviews the potential of many L-ASNase-producing fungi for the obtaining of an effective and low-cost medicament for the above-mentioned cancers.