Fungal zinc homeostasis - a tug of war between the pathogen and host.

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Rok wydania

2016

Czasopismo

Current Medicinal Chemistry

Numer woluminu

23

Strony

3717-3729

DOI

10.2174/092986732366616081716383 4

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

In the last decade, drug resistant invasive mycoses have become significantly more common and new antifungal drugs and ways to specifically deliver them to the fungal cell are being looked for. One of the biggest obstacles in finding such comes from the fact that fungi share essential metabolic pathways with humans. One significant difference in the metabolism of those two cells that can be challenged when looking for possible selective therapeutics is the uptake of zinc, a nutrient crucial for the fungal survival and virulence. This work summarizes the recent advances in the biological inorganic chemistry of zinc metabolism in fungi. The regulation of zinc uptake, various types of its transmembrane transport, storage and the maintenance of intracellular zinc homeostasis is discussed in detail, with a special focus on the concept of a constant 'tug of war' over zinc between the fungus and its host, with the host trying to withhold essential Zn(II), and the fungus counteracting by producing high-affinity zinc binding molecules.

Słowa kluczowe

Zinc homeostasis in fungi, zinc transmembrane transport, zinc storage, zincophores

Adres publiczny

http://benthamscience.com/journals/current-medicinal-chemistry/volume/23/issue/32/page/3717/