Case # 176

Inhibitors of Transitions & Biofilms Cause Yeast Cells to Lose Virulence

Competitive Advantages

- ☑ Modulators of phenotypic transitions may be used to treat fungal infections.
- ☑ Treatment blocks yeast transitions, causing cells to lose virulence.
- ☑ Compounds may be added to indwelling medical devices during manufacture to block biofilm formation.

Diseases caused by *Candida albicans* and other fungi are often major threats to human health, especially in patients with chronic illnesses and compromised immune systems. The fungi are highly adaptive organisms, able to survive by switching their own phenotypes. This strategy allows them to resist environmental challenges such as drug treatments and the patient's immune response.

The fungi can also form biofilms that attach to indwelling medical devices such as catheters. These biofilms may then introduce the disease-causing fungi into patients.

A Targeted Approach

Now a new screening method can identify small molecule drugs that inhibit yeast transitions in *C. albicans* and other fungi. This inhibition causes the cells to lose virulence.

Preventing Infections

The drugs identified through this method can also be incorporated into medical devices during manufacture. This may prevent fungal infections in healthcare settings by inhibiting the formation of biofilms on the surfaces of supplies such as catheters.

Current Status

Over 500 small molecules have already been screened. Twenty-one of these have shown the ability to block phenotypic transitions in yeast cells.

Commercialization

Compounds that include transition-inhibiting small molecules can be sold by a pharmaceutical company. In addition, medical supply manufacturers can add biofilm-blocking compounds during production of their indwelling devices.

Patent / Licensing Status

U.S. Patent 7,763,660. Exclusive rights available.

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U.S. Patent with illustrations (PDF)
www.uvminnovations.com/graphics/PDF/candida176.pdf

Primary Investigator

Douglas I. Johnson
www.uvm.edu/microbiology/johnsonlab.html

Case Manager

Kerry Swift
802/656-9964 (tel) 802/656-8782 (fax)
kswift@uvm.edu
Given Building E201, Burlington, VT 05405