



Turbinmicin Compounds, Compositions And Uses Thereof

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Inventors: Timothy Bugni, Fan Zhang, Douglas Braun, David Andes, Miao Zhao

The Invention

The present invention from UW-Madison researchers is a small molecule antifungal agent isolated from a bacterial species found in the sea squirt *Ecteinascidia turbinata*. The inventors collected the specimen in the Florida Keys and have worked to culture a variety of microbes from the organism. They then tested the cultures for interesting pharmaceutical activity isolating a bacterial strain that displayed strong antifungal activity. After some purification work, they isolated a molecule from that bacterial strain they named turbinmicin:

Picture1.jpg

Turbinmicin demonstrates broad *in vitro* antifungal activity against several *Candida* isolates as well as *Aspergillus fumigatus* with minimum inhibitory concentrations (MIC) of 0.06–2 µg/mL. A number of the *Candida* isolates tested are resistant to three different classes of antifungal agents. As this chemical scaffold has never been shown to have antifungal activity, the inventors believe that this could be an important molecule for fighting drug resistant fungi.

Additionally, the inventors also tested the compound in *in vivo* studies with immunocompromised mouse models of disseminated *C. auris* and *C. albicans* infections. The inventors conducted a multi-dose experiment using four doses (1, 2, 4, and 8 mg/kg) of turbinmicin administered to mice infected with *C. auris* every eight hours over a 24 h period. The inventors noted significant efficacy, > 3-log₁₀ CFU/kidney reduction in fungal concentration, at all doses. They saw similar results against the multi-drug resistant *C. albicans* isolate using 2x the dose against this organism based on the MIC values they observed against the isolate in culture. There were no overt signs of toxicity in either studies.

Additional Information

For More Information About the Inventors

- [Timothy Bugni](#)
- [David Andes](#)

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