



New System for Producing Fungal Secondary Metabolites

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WARF: P150029US02

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a genetic expression system that enables researchers to control the production of novel secondary metabolites in fungus.

Overview

Fungi produce a variety of chemical compounds called secondary metabolites that possess useful pharmaceutical properties. These compounds are invaluable platforms for developing front-line drugs. They have been harnessed to fight bacterial infections, cancer and lipid disorders among other applications (e.g., the antibiotic penicillin and the cholesterol drug lovastatin are types of secondary metabolites).

Their therapeutic potential is truly outstanding – more than half of the 1,500 fungal secondary metabolites analyzed between 1993 and 2001 have shown antibacterial, antifungal or antitumor activity. However, a majority of fungal species may have untapped potential. This is because some fungi cannot be cultured under laboratory conditions or their secondary metabolites are chemically complicated, hindering traditional synthesis methods.

The Invention

UW–Madison researchers have developed a new system for producing fungal secondary metabolites using test plasmids and a genetically modified strain of *Aspergillus nidulans* (TPMW2.3). The strain begins producing secondary metabolites when a gene promoter in the plasmid is triggered by culture conditions. This allows researchers to induce or repress production.

Applications

- Production of secondary metabolites, fungal toxins

Key Benefits

- Easy genetic solution to control the production of novel secondary metabolites
- Could produce higher yields of antifungal metabolites (by delaying gene expression until late in the growth cycle of cultured fungi)
- *A. nidulans* is well known, easy to manipulate and non-pathogenic.

Stage of Development

The researchers have used the new system to produce a secondary metabolite found naturally in a different *Aspergillus* strain, *A. terreus*.

Additional Information

For More Information About the Inventors

- [Nancy Keller](#)

Related Technologies

- [WARF reference number P130203US01 describes a set of genetically modified *Aspergillus nidulans* strains with increased secondary metabolite production.](#)

Tech Fields

- [Drug Discovery & Development : Drug production & design](#)
- [Research Tools : Microbial technologies](#)

For current licensing status, please contact Mark Staudt at mstaudt@warf.org or 608-960-9845