**Background**

With the increasing number of immunodeficient subjects and the increase of the lifespan of these subjects due to the advance in medicine there has been a concomitant rise in the number of cases of life-threatening fungal infections. Current antifungals are either static, toxic or/and with a too narrow spectrum of activity and increased use have led to increased drug resistance. Therefore, there is a need for new, safer and more effective compounds. Studies have shown that a fungal sphingolipid, glucosylceramide (GlcCer), is critical in promoting fungal virulence and is involved in the infectious processes of a variety of human pathogenic fungi.

**Technology**

Dr. DelPoeta, Professor in the Department of Molecular Genetics and Microbiology from Stony Brook University identified compounds that significantly decrease the synthesis of GlcCer in *C. neoformans* but not in mammalian cells. These compounds are effective *in vitro* against a series of pathogenic fungi, protect mice from cryptococcal meningitis, invasive candidiasis and significantly decrease lung burden of *P. murina*, the murine model of human pneumocystosis.

**Advantages**

- Safe and well tolerated in animals
- Good pharmacokinetic properties
- Easily amenable to structural modification for the synthesis of new derivatives.
- Synergistic with existing antifungals

**Applications**

- Fungal Infections, including *C. neoformans*, *P. murina*, *P. jiroveci*, *R. oryzae* and dimorphic fungi
- Active *in vivo* against cryptococcosis, candidiasis, and pneumocystosis

**Patent number/Publication:**

- Patent pending