



Technology Overview



New Use for FDA Approved Drug-Treatment of Microbial Infections

OTT #1133

APPLICATIONS

In preliminary data, results have shown support for the potential use of NTBC in the treatment of microbial infections.

TARGET PROBLEM

Many infectious bacteria and fungi alter their metabolism in response to the elevated temperature of the host. One way in which some of these pathogens act is through the HPPD pathway. They produce a pigment known as pyomelanin. It is thought that pathogenic bacteria and fungi use pyomelanin and other melanins to suppress the efficiency of the host's initial immune response. Thus, inhibition of these pigments may aid in fighting infection.

KEY BENEFITS

- **Safer**- Excellent toxicity profile in humans
- **More stable**- Longer half-life in humans after oral ingestion
- **Less time to market**- FDA approved; original composition and use patents have expired
- **Easier to use**- Can be taken orally as opposed to creams and suppositories
- **Combination therapy**- Potential to be used in combination with currently used commercial antifungals and anti-bacterials

TECHNOLOGY

This technology has shown that 2-(2-nitro-4-trifluoromethylbenzoyl)-1,3-cyclohexanedione (NTBC) decreases pigment production in the bacterium *B. cenocepacia* and aids in phagolysosomal fusion in macrophages infected with these bacteria *in vitro*. The researchers have shown that treatment of a pigmented strain of *Pseudomonas aeruginosa* with NTBC decreases the resistance of both planktonic cells and biofilms to oxidative stress. Originally developed for herbicide use, NTBC is approved by the FDA for the treatment of specific rare inherited metabolic defects.

INTELLECTUAL PROPERTY

U.S. Patent [8,354,451](#)

We are seeking partners for support of combination therapy testing in animals with antibiotics or antifungals.

INVENTOR(S)

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