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Drug Resistant Tuberculosis Treatment

IP Status: Issued US Patent; **Application #:** 12/096,463

Iron Chelators are Active against Multidrug Resistant Extensively Resistant Tuberculosis

Compounds have been proven to inhibit a unique enzyme in mycobacterium tuberculosis not found in humans and is not required by the host flora. This mechanism disrupts the activity of the bacteria's iron chelators known as siderophores. The bacteria that cause TB lose their virulence without the ability to extract iron from the surrounding environment. Since the iron chelators target is unique, it is expected to be active against multidrug resistant tuberculosis and extensively drug resistant tuberculosis (MDR and XDR).

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Drug Resistance in Mycobacterium Tuberculosis

Tuberculosis (TB) infects approximately one-third of the world's population and ranks as the second most infectious killer (with AIDS ranking as the first). However, nearly one-third of the deaths associated with AIDS are caused by TB due to incomplete or inadequate treatment. Drug resistant mycobacterium tuberculosis strains have emerged and are compounded by the fact that no new drugs to fight TB have been introduced in the past 30 years. Much of this drug resistance is caused by failure to complete a full course of tuberculosis treatment, improper dosing, or shortages of quality drugs. Drugs developed with unique mechanisms have the best chance of combating these cases of TB.

BENEFITS OF TUBERCULOSIS TREATMENT WITH UNIQUE MECHANISM OF ACTION

- Orally bioavailable
- Selected in top 10 of 80,000 compounds by NIH/TACCF program for in vitro testing underway now
- Mechanism of action disrupts virulence by targeting iron chelators
- May work for other infectious diseases; very potent
- Anticipated activity against MDR TB and XDR TB

Technology ID
z06066

Category
Life Sciences/Pharmaceuticals

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Phase of Development Compounds described have been tested against whole-cell Mycobacterium tuberculosis h27Rv and found to be extremely active. MDR and XDR testing is planned. Pre-clinical animal efficacy and pharmacokinetic studies (PK) are currently underway.