



Intellectual Property Office

MAMMALIAN STEROL SYNTHESIS AS A TARGET FOR BACTERIAL THERAPEUTICS

Technology Reference

R030

Keyword

Drug Discovery
Infectious Disease

Contact

Lauren Rhone
Technology Transfer
1725 West Harrison, #439
Chicago, IL 60612
P: 312.942.5150
F: 312.942.2874
E: Lauren_rhone@rush.edu

Inventor

Yvonne Lange, PhD.

Field

Pathology

PATENT

US Patent Pending
20030087430

AREAS OF APPLICATION

Antibiotic therapy:

- Target enzymes for the development of antibiotic compounds
- Combination therapy targeting resistant bacteria

ADVANTAGES

- Multiple enzymatic steps can be targeted
- Certain existing compounds such as statins can be used
- Suitable for combination therapy
- Suitable for systemic infections
- Example bacteria include species of *Salmonella*, *Legionella*, *Mycobacterium*, *Coxiella*, *Chlamydia* and *Campylobacter*

THE TECHNOLOGY

Bacterial infections are one of the most common and deadly causes of disease in humans and animals. The problem is exacerbated by the development of microorganisms resistant to antibiotics. Drug resistant strains of bacteria are increasing with the overuse of antibiotics in animal feed and as therapy for virus causing diseases in humans. Another common problem leading to resistance is the failure of patients to comply with the full dosing regimen with a goal of keeping some drug "in reserve" for future infections. Because of these serious concerns, there is a need for new methods for treating bacterial infections.

Our invention provides methods for treating bacterial infections that are at least partially due to intracellular, vacuolar bacteria. The invention has a goal of treating such infection by inhibiting host sterol biosynthesis. Certain enzymatic targets in the sterol biosynthetic pathway are targeted as candidates for drug development. Ideally a small molecule inhibitor of these enzymes would be used, including but not limited to statins.

Since many intracellular, vacuolar bacteria depend on one or more steps of the host's sterol synthesis pathway, these bacterial infections can be treated by reducing their access to the end products of these pathways. This target represents a unique approach to treating bacterial infections.

Rush Medical Center University
www.rush.edu/research
Intellectual Property Office