



Novel Antibacterial Agents

The Technology

Bacteria that are resistant to current antibiotics have evolved to present serious health concerns worldwide. Such bacteria are a major cause of morbidity and mortality in hospitals. To combat multiple-drug resistant bacterial strains, new and novel antimicrobial agents are desperately needed.

Researchers at the University of Tennessee have developed novel tetramic acid analogs with antimicrobial activities. These compounds were tested against a range of microorganisms including *Staphylococcus aureus* (methicillin resistant and sensitive), *Enterococcus faecalis*, *Streptococcus pyogenes*, *Bacillus anthracis*, *Clostridium difficile*, *Mycobacterium tuberculosis*, and *Propionibacterium acnes*. Several of the compounds had activity levels of $<10\mu\text{g/mL}$ and selectivity indices of >10 . These compounds were presented at the 2007 ICAAC meeting and are the subject of a recently filed provisional patent application.

Related Publication:

[J. Med Chem. 2008 March 13; 51\(5\): 1487-91.](#)

Benefits

- Potential antibiotic for treatment of MRSA and other bacterial infections
- Can create both broad and narrow spectrum drug candidates
- Low dosage requirements due to antibacterial activity at concentrations as low as $1\mu\text{g/mL}$
- In cell culture, effective doses are 10-100x less than toxic doses
- Good yields ($>60\%$) from well-characterized synthetic pathways

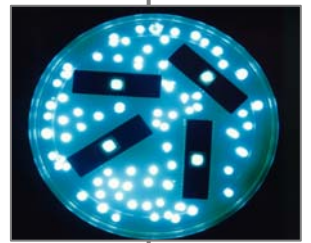
The Inventor

Dr. Richard Lee is an Associate Professor in the College of Pharmacy at the University of Tennessee Health Science Center. His research focuses on the design and synthesis of novel antimicrobial agents for the treatment of serious human infections, using the latest drug discovery techniques such as high throughput parallel synthesis and structure based design. In addition to his work on tetramic acid derivatives, ongoing projects in his lab include the development of novel compounds to block cell wall synthesis in tuberculosis and the development of antibiotics that are able to bypass drug resistance through novel targets and/or mechanisms of action.

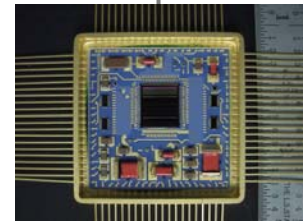
AGRICULTURE



BIOTECHNOLOGY



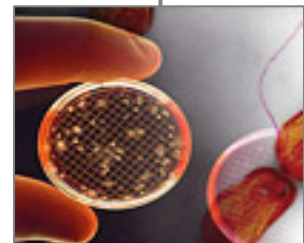
ENGINEERING



MATERIALS



MEDICINE





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Patents

- One US patent application filed.

Contact

The University of Tennessee Research Foundation (UTRF) is a non-profit corporation responsible for commercializing University of Tennessee technologies and for supporting University research. UTRF is seeking parties interested in learning more about this technology and in exploring possible research and/or commercialization arrangements.

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