THE UNIVERSITY of ADELAIDE

NOVEL ANTIBIOTICS

A new antibiotic that successfully targets infections based on Biotin Protein Ligase inhibition

Benefits

- Demonstrated mechanism of action through inhibition of BPL
- Low rates of resistance (<1 x 10^9)
- No cytotoxicity against two cell lines at 100x MIC
- Tolerated in mice and rats (26 mg/kg).

Background

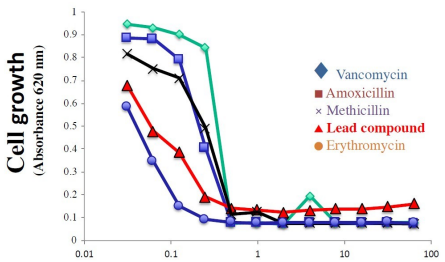
For more than half a century we have relied on a limited number of antibiotics to combat infections. However, the emergence of bacteria that are resistant to chemotherapy is rendering our current arsenal of antibiotics less effective and in some cases totally ineffectual. One well-accepted approach to address drug resistance is to develop new antibiotic classes that work through novel modes of action and that are not subject to existing resistance mechanisms.

Chemotherapeutics that target biotin protein ligase (BPL) represent a novel class of antibiotic.

Technology overview

We have successfully developed lead BPL antagonist BPL199, which is active against Staphylococcus aureus BPL and Mycobacterium tuberculosis with > 44 million-fold less selectivity for human BPL.

- S.aureus BPL Ki = 0.72 nM
- M. tuberculosis BPL Ki = 0.74 nM
- Human BPL Ki > 33 mM
- Bacteriostatic activity against S. aureus is comparable to other antibiotics (MIC = 0.25 µg/ml) shown in the table below.



Development Status

- In vitro models demonstrating bacteriostatic efficacy.
- In vivo models in development to monitor bacteriostatic efficacy with subcutaneous delivery.
- Medicinal chemistry effort underway - assisted by x-ray crystallography improving drug like properties.

Opportunity

We are seeking partners in drug development.

IP status

Australian Patent Application No. 2018904112 'NOVEL ANTIBIOTIC COMPOUNDS'.

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FURTHER ENQUIRIES

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