



An International Antibiotic-Resistance Gene Cassette Database

PROJECT SUMMARY

This project has developed the first computational system that is able to identify gene cassettes (modular DNA sequences encoding one or more genes for a single biochemical function). This allows existing knowledge to be published in new ways, so new knowledge can be captured and published as it is being discovered.

KEY ACHIEVEMENTS

- Publication of a free online repository of known antibiotic resistance gene cassettes
- Establishment of a web service where microbiologists can receive accurate cassette names
- The ability for researchers to submit new cassettes to be reviewed by staff at the Centre for Infectious Diseases and Microbiology
- Within the six months since the launch, the database has attracted users from six countries

PROJECT BACKGROUND

Antibiotic resistance genes are a principle cause of the formation of "super-bugs", strains of bacteria simultaneously resistant to multiple antibiotics. One important mechanism contributing to multi-resistance are integrons that can accumulate

multiple DNA segments called gene cassettes. Gene cassettes generally contain a single gene each. More than 200 different antibiotic resistance genes are currently known to be found on gene cassettes. This database is designed to assist in the capture of current knowledge about these gene cassettes as well as capture new information as it is discovered, which will reduce the risk to duplicating research efforts.

PROJECT CONTACTS

Dr Guy Tsafnat, Dr Sally Partridge: Centre for Health Informatics at UNSW in collaboration with the Centre for Infectious Diseases and Microbiology at Westmead Hospital and Intersect Australia Limited.

Neil Dickson: Australian National Data Service

Database website: <http://research.unsw.edu.au/rac-repository-antibiotic-resistance-cassettes>

Research Data Australia location: <http://services.ands.org.au/home/orca/rda/view.php?key=collection.rac.chi.unsw.edu.au.0>

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