Scientists create test to track global spread of antibiotic resistance

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(PhysOrg.com) -- Scientists at the University of Birmingham have developed a molecular test that has tracked the global spread of a carrier of antibiotic resistance, according to a paper published online today by a leading medical journal.

Researchers led by Professor Laura Piddock in the School of Immunity and Infection devised a specific test that can identify the carrier, known as a plasmid, and track its progress around the world in both humans and animals in various strains of E. coli.

Collaborating with the Wellcome Trust Sanger Institute and the Veterinary Laboratory Agency, the scientists decoded the entire DNA sequence of the plasmid including the ESBL resistance gene it carries. The University of Birmingham team then used this sequence to design a set of specific molecular tests to identify this plasmid from strains of E. coli isolated from animals and people.

The breakthrough is reported in a paper by Laura Piddock and her colleagues in today's online issue of the journal *Emerging Infectious Diseases.*

Antibiotic resistance is one of the great global medical challenges of the 21st century. The number of multi-drug resistant infections is rising in both clinical and community settings, meaning the drive to find effective new antimicrobial treatments has never been greater.

The University of Birmingham is at the forefront of collaborative efforts to not just explore how bacteria become antibiotic resistant but to identify potential new drug compounds and combinations to combat resistance.

‘One of the interesting aspects of this plasmid is its broad global presence; we have now identified it in human strains from Europe, Asia and Australia as well as in animal isolates from the UK and Spain,’ says Professor Piddock.

‘This work provides a paradigm for using a complete DNA sequence as a platform to develop rapid epidemiological tools to identify and trace the spread of plasmids in clinically relevant pathogens, allowing a better understanding of their distribution and ability to transfer between bacteria from people and animals.’

Provided by University of Birmingham