



**Veterinary  
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# **USE OF THE MICROARRAY TO INVESTIGATE A SUSPECT ESBL**

Christopher Teale.

## *E. coli* Isolate from a Calf Resistant to Cefotaxime.

- Phenotype
  - Resistant to ciprofloxacin, nalidixic acid, tetracyclines, ampicillin, furadolizone, trimethoprim/ sulphonamide, chloramphenicol, gentamicin and streptomycin.
  - Susceptible to apramycin, amikacin, amoxicillin/ clavulanate and neomycin
- The *E. coli* carrying the ESBL was untypable serologically.

## ESBL.

- The isolate was examined using the microarray and other tests and found to possess AAC6'lb as well as the ESBL CTX-M-15, together with a number of other resistance genes.
- Searched the literature and found that CTX-M-15 had been associated with AAC6'lb-cr in human medicine in the UK.
- Subsequently, the AAC6'lb gene was sequenced and found to have the mutation associated with low-level fluoroquinolone resistance AAC6'lb-cr.
- Plasmid transfer – CTX-M-15, OXA-1 and AAC6'lb-cr all co-transferred.

## Similar to plasmids detected in Human Medicine

- OXA-1, CTX-M-15 and AAC6'-Ib-cr also detected in on the same plasmid in human medicine in the UK (JAC, 58, 665-668).
- Conclusion
  - The plasmid appeared to have originated from a human source, because it would seem highly unlikely for such a similar plasmid to evolve independently.
  - Farm investigations have been completed and there are epidemiological links to human waste as the possible source.