

**EV0562**

**ePoster Viewing**

**Molecular bacterial typing methods**

**Molecular characterization of a virulent uropathogenic *Escherichia coli* from a patient with recurrent urinary tract infections**

Qinglan Guo\*<sup>1</sup>, Mingguì Wang<sup>2</sup>

<sup>1</sup>*Institute of Antibiotics, Huashan Hospital, Fudan University, Shanghai, China*

<sup>2</sup>*Institute of Antibiotics, Huashan Hospital, Fudan University, Shanghai, China*

**Background:** *Escherichia coli* is the leading causative organism of urinary tract infection (UTI). The aim of this study is to characterize a uropathogenic *E. coli* (UPEC) strain from a patient with recurrent urinary tract infections.

**Material/methods:** *E. coli* GU140823 was isolated from urine of a female outpatient with recurrent lower urinary tract infections. She had frequent urination, bloody urine and severe pain and burning sensation when urinating. She had clinical and microbiological response to amoxicillin therapy, resulting in clearance of the organisms in the urine. The genome of *E. coli* GU140823 was sequenced on a PacBio RSII single-molecule real-time (SMRT) sequencing instrument (Pacific Biosciences) and assembled using SMRT Analysis 2.1. Serotype, MLST, virulence and resistance genes were identified by CGE services (<https://cge.cbs.dtu.dk>). The major *E. coli* phylogenetic group (A, B1, B2, or D) was determined by the Clermont phylo-typing method.

**Results:** Assembly of the PacBio sequencing reads yielded 12 contigs. *E. coli* GU140823 derived from phylogroup B2 and belonged to ST73 of the ST73 Clpx (clonal complex) with predicted serotype O6:H1. GU140823 contained *pap*, *fim*, *sfa* and *foc* gene clusters, encoding various types of fimbriae. GU140823 also encoded hemolysin (*hlyCABD*), cytotoxic necrotizing factor 1 (*cnf1*) and siderophore receptors which helped GU140823 survive and invade in the host. However, GU140823 was susceptible to many classes of antibiotics such as ampicillin, gentamicin, ciprofloxacin, trimethoprim/sulfamethoxazole, and fosfomycin which was consistent with the absence of resistance genes in the genome.

**Conclusions:** *E. coli* GU140823 was a virulent uropathogenic *E. coli* strain encoding multiple virulence-associated factors, but highly susceptible to the antibiotics used to treat a urinary tract infection.