OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference and Exhibition on
Pathology

August 05-06, 2013 Embassy Suites Las Vegas, NV, USA

Escherichia coli O157:H7 infection in dutch belted and New Zealand white rabbits

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Enterohemorrhagic *Escherichia coli* (EHEC) produce one or more types of Shiga toxins and are foodborne causes of bloody diarrhea. The prototype EHEC strain, *Escherichia coli (E. coli)* O157:H7, is responsible for both sporadic cases and serious outbreaks worldwide. Infection with E. coli that produce Shiga toxins may lead to diarrhea, hemorrhagic colitis, or (less frequently) hemolytic uremic syndrome, which can cause acute kidney failure. The exact mechanism by which EHEC evokes intestinal and renal disease has not yet been determined. The development of a readily reproducible animal oral-infection model with which to evaluate the full pathogenic potential of *E. coli* O157:H7 and assess the efficacy of therapeutics and vaccines remains a research priority. Dutch belted (DB) rabbits are reported to be susceptible to both natural and experimental EHEC-induced disease, and New Zealand White (NZW) rabbits are a model for the intestinal manifestations of EHEC infection. In the current study, we compared the pathology caused by *E. coli* O157:H7 infection in DB and NZW rabbits. Both breeds of rabbits developed clinical signs of disease and intestinal lesions after experimental infection. In addition, one of the infected DB rabbits developed renal lesions. Our findings provide evidence that both breeds are susceptible to *E. coli* O157:H7 infection and that both may be useful models for investigating EHEC infections of humans.

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