Spontaneous excision of the Salmonella enterica serovar enteritidis-specific defective prophage-like element ?SE14

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Salmonella enterica serovar Enteritidis has emerged as a major health problem worldwide in the last few decades. DNA loci unique to S. Enteritidis can provide markers for detection of this pathogen and may reveal pathogenic mechanisms restricted to this serovar. An in silico comparison of 16 Salmonella genomic sequences revealed the presence of an ?12.5-kb genomic island (GEI) specific to the sequenced S. Enteritidis strain NCTC13349. The GEI is inserted at the 5? end of gene ydaO (SEN1377), is flanked by 308-bp imperfect direct repeats (attL and attR), and includes 21 open reading frames (SEN1378 to SEN1398), encoding primarily phage-related proteins. Accordingly, this GEI has been annotated as the defective prophage SE14 in the genome of strain NCTC13349. The genetic structure and location of ?SE14 are conserved in 99 of 103 wild-type strains of S. Enteritidis studied here, including reference strains NCTC13349 and LK5. Notably, an extra-chromosomal circular form of ?SE14 was detecte