

# Genetic and phenotypic evidence of the *Salmonella enterica* serotype Enteritidis human-animal interface in Chile

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*Salmonella enterica* serotype Enteritidis is a worldwide zoonotic agent that has been recognized as a very important food-borne bacterial pathogen, mainly associated with consumption of poultry products. The aim of this work was to determine genotypic and phenotypic evidence of *S. Enteritidis* transmission among seabirds, poultry and humans in Chile. Genotyping was performed using PCR-based virulotyping, pulse-field gel electrophoresis (PFGE) and multi-locus sequence typing (MLST). Pathogenicity-associated phenotypes were determined with survival to free radicals, acidic pH, starvation, antimicrobial resistance, and survival within human dendritic cells. As result of PCR and PFGE assays, some isolates from the three hosts showed identical genotypic patterns, and through MLST it was determined that all of them belong to sequence type 11. Phenotypic assays show diversity of bacterial responses among isolates. When results were analyzed according to bacterial host, statistical differences were identified in starvation and dendritic cells survival assays. In addition, isolates from seabirds showed the highest rates of resistance to gentamycin, tetracycline, and ampicillin. Overall, the very close genetic and phenotypic traits shown by isolates

from humans, poultry, and seabirds suggest the inter-species transmission of *S. Enteritidis* bacteria between hosts, likely through anthropogenic environmental contamination that determines infection of seabirds with bacteria that are potentially pathogenic for other susceptible organism, including humans. © 2015 Retamal, Fresno, Dougnac, Gutierrez, Gornall, Vidal, Vernal, Pujol, Barreto, González-Acuña and Abalos.

Chile

Enteritidis

Humans

Poultry

*Salmonella enterica*

Seabirds

amoxicillin plus clavulanic acid

ampicillin

cefotaxime

cefradine

ceftiofur

ciprofloxacin

cotrimoxazole

enrofloxacin

free radical

gentamicin

tetracycline

antibiotic resistance

antibiotic sensitivity

Article

Chile

colony forming unit

controlled study

dendritic cell

genotype phenotype correlation

genotyping technique

human

human cell

multilocus sequence typing

nonhuman

polymerase chain reaction

poultry

pulsed field gel electrophoresis

*Salmonella enterica* serovar Enteritidis

seabird

starvation

Animalia

Bacteria (microorganisms)

*Salmonella enterica*

*Salmonella enteritidis*