



RESEARCH BRIEF BEEF SAFETY

BEEF RESEARCH

A Syst-OMICS Approach to Ensuring Food Safety and Reducing the Economic Burden of Salmonellosis

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Abstract

The *Salmonella* Syst-OMICS consortium is sequencing 4,500 *Salmonella* genomes and building an analysis pipeline for the study of *Salmonella* genome evolution, antibiotic resistance and virulence genes. Metadata, including phenotypic as well as genomic data, for isolates of the collection are provided through the *Salmonella* Foodborne Syst-OMICS database (SalFoS), at <https://salfos.ibis.ulaval.ca/>. Here, we present our strategy and the analysis of the first 3,377 genomes. Our data will be used to draw potential links between strains found in fresh produce, humans, animals and the environment. The ultimate goals are to understand how *Salmonella* evolves over time, improve the accuracy of diagnostic methods, develop control methods in the field, and identify prognostic markers for evidence-based decisions in epidemiology and surveillance.

[Front. Microbiol., 02 June 2017 | https://doi.org/10.3389/fmicb.2017.00996](https://doi.org/10.3389/fmicb.2017.00996)

The study reported here in this Research Brief was not funded by the beef checkoff, but is made available to expand the usefulness of this checkoff-funded website for those interested in beef safety.