

Human Salmonella Differs From Animal Salmonella

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US - A recent study that analysed the strains of human salmonella strains and those of animal origin has come to the surprising conclusion that they are distinct. Now scientists are hoping that this discovery could open doors to new treatments for foodborne illnesses.

Salmonella enterica, one of the most infectious foodborne pathogens inflicting humans today, is commonly transmitted through consumption of meat and food products that have been contaminated with animal waste. Currently over 2,300 types of *S. enterica* have been identified, and although useful epidemiologically, they provide limited information concerning bacterial diversity, evolutionary relatedness and pathogenicity. Virulence determinants and degree of pathogenicity in a particular animal host are not yet well understood.

The research, which was reported in the March 2008 journal *Applied and Environmental Microbiology* tested the virulence capacities of 184 human and animal *S. enterica* isolates in mice. Results showed that all 21 serovar typhimurium isolates derived from animals were virulent in mice, while only 16 of 41 serovar typhimurium isolates collected from human salmonellosis patients were virulent. In contrast to all animal and human bacteremia samples tested, only 10 of 29 serovar typhimurium isolates from gastroenteritis patients were virulent. Lastly, among the serovar typhimurium isolates harboring virulent Salmonella, 6 of 31 from human salmonellosis patients were avirulent in mice, in direct contrast to the virulence exhibited by all the animal isolates studied.

These studies suggest that Salmonella isolates derived from human salmonellosis patients are distinct from those of animal origin, say the researchers. The characterization of these bacterial strain variants may provide insight into their relative pathogenicities as well as into the development of treatment and prophylactic strategies for salmonellosis.