

Supplemental information 1.

Known or putative virulence factors for *E. coli* O157:H7 separated into categories with a description of each type

Adhesion: The genes that produce these proteins produced by the bacteria are involved in the ability to attach to the epithelial tissue in the intestine. Loss of these virulence factors decreases the organism's ability to attach and cause severe disease in the host.

Antigen: The proteins produced from these genes are located on the outside of the bacterial surface of cell, and are important for the human hosts immune system to recognize the foreign bacteria.

Up regulated in clinical isolates: These genes were found to be up regulated in strains that caused foodborne outbreaks and were isolated from sick patients, compared to strains that were isolated from a bovine host and have not caused human foodborne outbreaks.

Effacing: The proteins produced from these genes are involved in causing lesions to the epithelial tissue, resulting in hemorrhaging and the production of bloody diarrhea in the host.

Effector: The proteins produced from these genes are secreted into host cells, often causing damage and degradation of components of the host cell.

Hemolysin: The proteins produced from these genes can breakdown hemoglobin, a common component of human blood.

Host Barriers: These genes produce proteins that are involved in protecting the bacteria from host defenses such as the acidity in the stomach to survive gastric passage to reach the intestines where the organisms attach and promote disease.

Iron acquisition: The proteins produced from these genes are involved in scavenging iron from the host in various mechanisms.

Genomic island: These genes are located on a genomic island, that is unique to human pathogen strains of *E. coli* and not found in non-pathogenic strains.

Regulator: These genes produce proteins that regulate the expression of other genes, some of which are virulence factors.

Secretion: The proteins produced from these genes comprise the bacterial machinery that secretes proteins, such as effectors, which once secreted into host cells can cause damage and degradation of the host cell.

Toxins: The proteins produced from these genes are toxins, which are responsible for causing severe disease such as kidney failure and in some cases death in humans.

Up regulated in the presence of human epithelial cells: These genes were found to be up regulated in the presence of human epithelial cells (intestinal cells), which is

important since *E. coli* O157:H7 must attach to the human intestinal region to enable other virulence mechanisms with the human host such as toxin secretion, effacement, secretion of effector proteins, etc.

Up regulated in the presence of norepinephrine: Our bodies produce the compound norepinephrine during stressful conditions such as bacterial infection. These genes were up regulated in the presence of norepinephrine, which indicates that they may be involved in protecting the bacteria from the host's immune system, since the bacteria has sensed that the human host is responding to its presence.