Salmonella is a gram-negative bacterium comprised of two species and 2,500 serotypes. The World Health Organization estimates that each year, there are 78.8 million cases of non-typhoidal salmonellosis caused by contaminated food and water. Currently, several antibiotics are used to treat salmonellosis. However, due to the overuse of antibiotics in human medicine and animal husbandry, and horizontal transfer of antibiotic resistance genes from closely related enteric bacteria, resistance in *Salmonella* has become an emerging public health concern. Extended spectrum beta lactamase is an enzyme that bacteria use to garner resistance to extended spectrum beta-lactam (ESBL) antibiotics, a last resort antibiotic class with high medical value. In MU's Food Science Program, Dr. Mustapha's research group is developing a technique that uses a high resolution melting (HRM) multiplex real-time (RT)-PCR assay to detect ESBL resistance genes in *Salmonella* from contaminated food. HRM RT-PCR is suitable for virulent ESBL-resistant *Salmonella* detection because results can be obtained faster than is achievable by conventional PCR, multiple target genes can be detected in one assay, and there is a low occurrence of false positive results. The HRM RT-PCR assay in development uses nine different target genes that includes the virulence genes associated with *Salmonella* infections and ESBL resistance genes. The assay is being applied to detect these genes in a variety of food samples that have been associated with foodborne salmonellosis.