

Novel PCR Target for the Detection of Salmonella Species

Researchers at the University of South Florida have developed a novel target for the detection of Salmonella species by real time PCR. Outer membrane porin F gene was tested as a potential target and it was successfully detected in all the Salmonella species tested in the study. Our inventors were also able to identify both the species and all the subspecies of Salmonella using this target.

Salmonella is an important food borne pathogen that infects a wide range of hosts. Rapid identification of the organism is essential for efficient diagnosis and treatment. Conventional methods require up to three days for Salmonella identification. Real-time PCR offers a rapid, sensitive and specific detection of the target organism. Our inventors have studied the potential use of outer membrane porin F gene (ompF) as a target for the detection of Salmonella species.

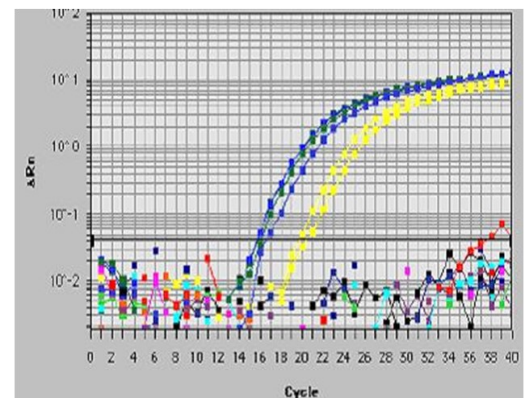
The primers and probe directed against the OmpF gene were demonstrated to be 100% inclusive to Salmonella. The target was present in all the Salmonella isolates tested including the major serotypes S. Typhimurium, S. Enteritidis, S. Newport, S. Typhi, S. Javiana, S. Heidelberg, and S. Paratyphi A. OmpF gene was absent in the non-Salmonella isolates tested including E. coli, Staphylococcus aureus, Bacillus cereus, Vibrio species, Shigella species, Listeria monocytogenes, Proteus mirabilis and Citrobacter freundii. The test is highly sensitive and the detection limit was found to be 3 Colony Forming Units/reaction.

This invention will benefit the food and healthcare industries as it provides a rapid and efficient method for the detection of Salmonella in food and clinical samples. This ultimately helps prevent food borne diseases and works toward the betterment of public health and food safety.

ADVANTAGES:

- **Rapid identification of various Salmonella species implicated in food borne diseases**
- **High sensitivity (detects 3 Colony Forming Units/PCR reaction)**
- **Prevents false positives as the target examined is absent in the non-Salmonella organisms**

Highly Specific and Sensitive Outer Membrane Porin F Gene as a PCR Target for Salmonella Detection



Graph showing the presence or absence of OmpF gene in a real-time PCR platform

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