



US009410212B1

(12) **United States Patent**
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(10) **Patent No.:** **US 9,410,212 B1**
(45) **Date of Patent:** **Aug. 9, 2016**

(54) **KIT FOR DETECTING *SALMONELLA* SPECIES BY ASSAYING OUTER MEMBRANE PORIN F (OMP F)**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 42 days.

(21) Appl. No.: **14/535,376**

(22) Filed: **Nov. 7, 2014**

Related U.S. Application Data

(62) Division of application No. 13/309,063, filed on Dec. 1, 2011, now Pat. No. 8,895,248.

(60) Provisional application No. 61/418,601, filed on Dec. 1, 2010.

(51) **Int. Cl.**
C07H 21/04 (2006.01)
C12Q 1/68 (2006.01)

(52) **U.S. Cl.**
CPC **C12Q 1/689** (2013.01); **C12Q 2600/158** (2013.01)

(58) **Field of Classification Search**
None
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2011/0189231 A1* 8/2011 Leclerc A61K 39/0275
424/209.1

OTHER PUBLICATIONS

Chen et al. A real-time PCR method for the detection of *Salmonella enterica* from food using a target sequence identified by comparative genomic analysis. (Inter. J. Food Microbiology (2010) 137:168-174).*

Sun et al. Contribution of Gene Amplification to evolution of increased antibiotic resistance in *Salmonella typhimurium*. Genetics (2009) 182:1183-1195).*

* cited by examiner

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(57) **ABSTRACT**

The invention relates to a method of detecting the presence of *Salmonella* in a sample using novel oligonucleotide sequences. Also presented is a kit for putting the method into practice and novel nucleic acid sequences for ompF. The ompF gene was found to be 100% inclusive for *Salmonella* species and 100% exclusive for non-*Salmonella* species for the strains tested thus making it an excellent marker for identification of both the species of *Salmonella*: *S. enterica* and *S. bongori*. Two hundred and eighteen isolates belonging to *Salmonella enterica* (subspecies I-VI) and *Salmonella bongori* were examined using novel primers designed to detect the ompF gene. The target was present in all the 218 *Salmonella* isolates including all the subspecies of *Salm. enterica* and *Salm. bongori*. The ompF gene was absent in 180 non-*Salmonella* strains tested.

3 Claims, 10 Drawing Sheets