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(71) Applicant *(for all designated States except US)*: **NOVARTIS AG** [CH/CH]; Lichtstrasse 35, CH-4056 Basel (CH).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **SERINO, Laura** [IT/IT]; Novartis Vaccines and Diagnostics SrL., Via Fiorentina 1, I-53100 Siena (IT). **FONTANA, Maria, Rita** [IT/IT]; Novartis Vaccines and Diagnostics SrL., Via Fiorentina 1, I-53100 Siena (IT). **MORIEL, Danilo, Gomes** [IT/IT]; Novartis Vaccines and Diagnostics SrL., Via Fiorentina 1, I-53100 Siena (IT).

(74) Agents: **MARSHALL, Cameron, John** et al.; Carpmaels & Ransford, 43-45 Bloomsbury Square, London, WC1A 2RA (GB).

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(54) **Title**: CONSERVED ESCHERICHIA COLI IMMUNOGENS

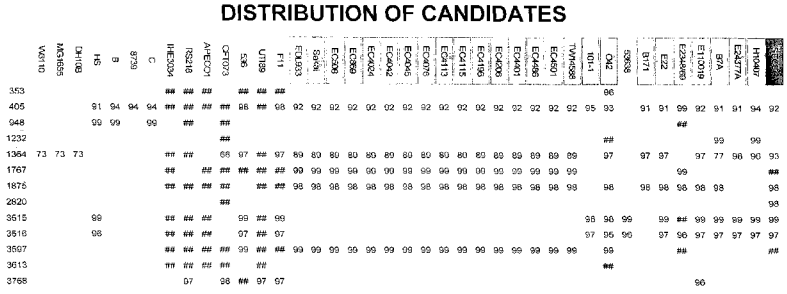


FIGURE 14

(57) **Abstract**: Homologs of the E. coli proteins orf353, bacterial lg-like domain (group 1) protein (orf405), flu antigen 43 (orfl 364), NodT-family outer-membrane-factor-lipoprotein efflux transporter (orfl 767), gspK (orf3515), gspJ (orf3516), toriB-dependent siderophore receptor (orO597), fibrial protein (orf3613), upec-948, upec- 1232. A chain precursor of the type- 1 fimbria! protein (upec- 1875), yapH homolog (upec-2820), hemolysin A (recp-3768), and Sel 1 repeat-containing protein (upec-521 1) from several pathogenic strains of E. coli have been identified with regions within the proteins that are conserved across all E. coli. Fragments corresponding to the conserved regions, especially immunogenic fragments such a linear B-epitopes, are provided. In addition, variants of the bacterial lg-l ike domain (group 1) protein (orf405), yapH homolog (upec2820) and two different fragments of hemolysin A (recp3768) are provided herein that have increased solubility as compared to the native protein where the variants still raise a substantially similar immune response in a subject as the corresponding native protein.

WO 2011/004263 A2