

## '*Culturomica massiliensis*', a new bacterium isolated from the human gut

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### Abstract

We report here the main characteristics of '*Culturomica massiliensis*', strain Marseille-P2698<sup>T</sup> (CSUR P2698) a new genus isolated from the stool specimen in a 66-year-old man.

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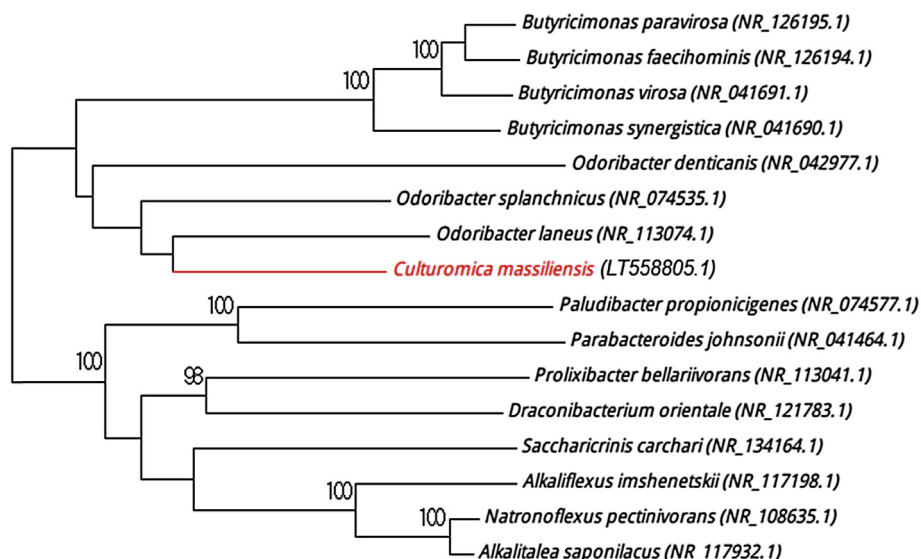
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We present an early description of a new bacterium isolated from a stool of a 66-year-old man with diabetes mellitus who was hospitalized in November 2015 at the Timone Hospital in Marseilles, France. This study was approved by the ethics committee of the IFR48 (Marseille, France) under number 09-022 and we obtained the signed consent of the patient. Our systematic matrix-assisted laser desorption-ionization time-of-flight mass spectrometry (MALDI-TOF-MS) screening on a MicroFlex spectrometer (Bruker Daltonics, Bremen, Germany) [1] could not identify this isolate. As part of a culturomics study of the human microbiome [2], the stool specimen was pre-incubated at 37°C in an anaerobic blood culture bottle (Becton-Dickinson, Pont de Claix, France) enriched with 5% sheep blood and 5% sterile rumen. After 7 days of pre-incubation, the sample was seeded on 5% sheep blood agar (bioMérieux, Marcy l'Étoile, France) and the initial growth was obtained after 4 days under anaerobic conditions generated by AnaeroGen<sup>TM</sup> (bioMérieux). The strain Marseille-P2698 was a Gram-negative

bacillus, strictly anaerobic, motile and non-spore-forming (0.3–0.4 × 1.5–3 µm). It presents a positive catalase activity but no activity for oxidase. The colonies are circular, beige and from 0.7 to 1.2 mm in diameter after a 3-day incubation on 5% sheep blood agar. Optimal growth occurs at 37°C. Using a 3130-XL sequencer (Applied Biosciences, Saint Aubin, France), the 16S rRNA gene was sequenced using the fD1-rP2 primers as previously described [3]. We observed a 91.5% sequence similarity between strain Marseille-P2698 and *Odoribacter laneus* JCM 16069<sup>T</sup> (GenBank accession number NR\_113074), the phylogenetically closest species with standing in nomenclature. This similarity was <95%, classifying this strain as a putative new genus within the family *Porphyromonadaceae* in the *Bacteroidetes* phylum [4]. Isolated from the human faeces and first described in 2010 [5], *Odoribacter laneus* is a Gram-negative and obligatory anaerobic bacterium. Cells are pleomorphic rods (0.4–1.9 × 1.4–19.1 µm), non-motile, non-spore-forming and present no activity for catalase and oxidase. Another closely related species, belonging to the genus *Butyricimonas*, was *Butyricimonas virosa* a bacterial species first isolated from rat faeces [6].

As the 16S rRNA gene sequence divergence with the closest phylogenetic species with a validly published name is >5% [7], we propose that strain Marseille-P2698 is the representative strain of a new genus for which we propose the name '*Culturomica*' gen. nov., (culturo'mic'a N.L. fem. n.



**FIG. 1.** Phylogenetic tree highlighting the position of 'Culturomica massiliensis' strain Marseille-P2698<sup>T</sup> (red) relative to other phylogenetically close members of the family Porphyromonadaceae. Numbers at the nodes are percentages of bootstrap values obtained by repeating 500 times the analysis to generate a majority consensus tree. Only values >95% were displayed. The scale bar represents 2% nucleotide sequence divergence.

for. culturomics. in reference to the method proposed to study comprehensively the gut repertoire). Strain Marseille-P2698<sup>T</sup> is the type strain of 'Culturomica massiliensis' gen. nov., sp. nov., (ma.si.li.en'sis. L. masc. adj. massiliensis, of Massilia, the Latin name of Marseille where 'C. massiliensis' was isolated) (Fig. 1).

### MALDI-TOF-MS spectrum accession number

The MALDI-TOF-MS spectrum of 'C. massiliensis' is available at <http://www.mediterranee-infection.com/article.php?laref=256&titre=urms-database>

### Nucleotide sequence accession number

The 16S rRNA gene sequence was deposited in GenBank under accession number LT558805.

### Deposit in a culture collection

Strain Marseille-P2698<sup>T</sup> was deposited in the Collection de Souches de l'Unité des Rickettsies (CSUR) under number P2698.

### Acknowledgements

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