

## NEW SPECIES

# '*Halomonas massiliensis*' sp. nov., a new halotolerant bacterium isolated from the human gut

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## Abstract

We report here the main characteristics of '*Halomonas massiliensis*' strain Marseille-P2426<sup>T</sup> (CSUR P2426), a new species of the *Halomonas* genus that was isolated from the stool sample of a healthy 24-year-old Senegalese man.

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**Keywords:** Culturomics, genomics, '*Halomonas massiliensis*', halotolerant, taxonomy

**Original Submission:** 18 July 2016; **Accepted:** 25 July 2016

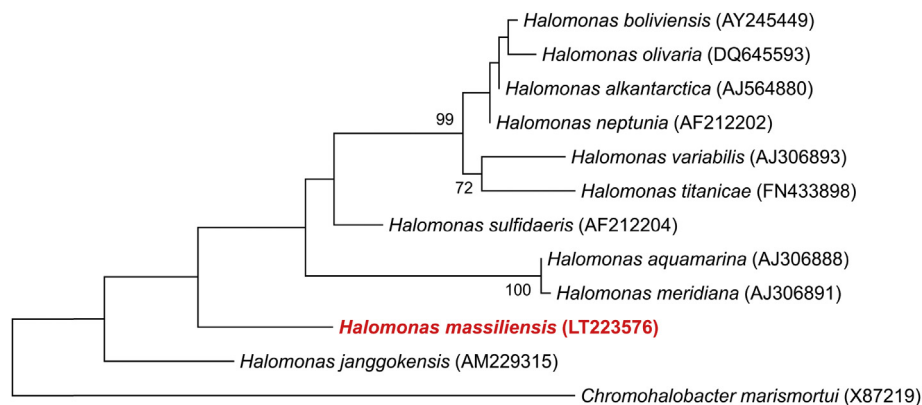
**Article published online:** 29 July 2016

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A new bacterium named strain Marseille-P2426, was isolated from a stool sample of a healthy Senegalese man in May 2016. This isolate is part of a wider culturomics study aiming to cultivate bacterial diversity colonizing the human gut [1]. The study was approved by the Institut Fédératif de Recherche 48 (Faculty of Medicine, Marseille, France), under agreement number 09-022 and the patient gave an informed consent. No identification was obtained for the strain Marseille-P2426 using our systematic matrix-assisted laser desorption–ionization time-of-flight mass spectrometry (MALDI-TOF-MS) screening on a MicroFlex spectrometer (Bruker Daltonics, Bremen, Germany) [2]. The strain Marseille-P2426 was cultured in a homemade liquid medium [3] incubated for 2 days in an aerobic atmosphere at 37°C. Optimal growth for the strain Marseille-P2426 was obtained at 37°C at pH 7; strain Marseille-P2426 is halotolerant and tolerates NaCl concentration up to 20%. Strain Marseille-P2426 is a Gram-negative

bacterium, motile non-spore-forming and does not exhibit catalase or oxidase activities. The growing colonies on our homemade culture medium were orange, circular, entire, smooth, convex, with a diameter of 1.0–2.0 mm. Individual cells have a slightly curved form with a flagellum and exhibited 2 µm in length and 0.6 µm in diameter under electron microscopy. We sequenced the complete 16S rRNA gene using universal primers FDI and RP2 (Eurogentec, Angers, France) as previously described [4], using a 3130-XL sequencer (Applied Biosciences, Saint Aubin, France). Strain Marseille-P2426 exhibited a 16S rRNA gene sequence identity of 97.5% with *Halomonas alkaliantarctica* strain CRSS<sup>T</sup> (GenBank Accession number, NR\_114902), the phylogenetically closest species with standing in nomenclature (Fig. 1), which classifies it as a member of a new species within the *Halomonas* genus in the family *Halomonadaceae* [5]. So far, the genus *Halomonas* includes more than 80 species with validly published names [6]. *Halomonas* species are described as halotolerant or halophilic, Gram-negative, aerobic and rod-shaped bacteria [7]. Strain Marseille-P2426 exhibited a 16S rRNA sequence divergence >1.3% with *Halomonas alkaliantarctica*, the closest related species with standing in nomenclature [8], which classifies it as a new representative of the *Halomonas* genus isolated from human gut. Based on the information reported here, we



**FIG. 1.** Phylogenetic tree highlighting the position of ‘*Halomonas massiliensis*’ strain Marseille-P2426<sup>T</sup> (in red) relative to other phylogenetically closest members of the *Halomonas* genus. 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 a 2% nucleotide sequence divergence.

propose the creation of ‘*Halomonas massiliensis*’ sp. nov., (mas.si.li.en’sis. L. masc. adj. *massiliensis* of Massilia, the old Roman name for Marseille, where the strain was isolated) and the strain Marseille-P2426<sup>T</sup> is the type strain.

### MALDI-TOF-MS spectrum accession number

The MALDI-TOF-MS spectrum of “*H. 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 of the strain Marseille-P2426<sup>T</sup> was deposited in GenBank under Accession number LT223576.

### Deposit in a culture collection

Strain Marseille-P2426<sup>T</sup> was deposited in the Collection de Souches de l’Unité des Rickettsies (CSUR, WDCM 875) under number P2426.

### Conflict of Interest

None declared.

### Acknowledgments

This research was funded by the Mediterranean-Infection Foundation.

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