'*Massilimalia timonensis*' sp. nov., a new bacterium species isolated from human faeces after decontamination with alcohol

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Abstract

We describe the main characteristics of a new bacterial species '*Massilimalia timonensis*' sp. nov. The type strain Marseille-P3753^T (=CSUR P3753) was isolated from the stool of a healthy Senegalese man.

Keywords: Culturomics, Gut microbiota, Human microbiota, Massilimalia, Taxonogenomics
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Thanks to the culturomics approach [1], a new bacterial species was isolated from the stool sample of a healthy 32-year-old Senegalese man in January 2017. Patient consent was obtained, and the study approved by the Institut Fédératif de Recherche 48 (Faculty of Medicine, Marseille, France), under agreement 09-022. For eliminating vegetative forms, stools were decontaminated with 70% alcohol (v/v) as previously described [2]. Strain Marseille-P3753 was isolated for the first time at 37°C in anaerobic conditions on 5% sheep's blood-enriched Columbia agar (bioMérieux, Marcy l'Etoile, France) after 5 days' pre-incubation in an anaerobic bottle of blood culture containing 5% sheep's blood. Strain Marseille-P3753 grows correctly after 72 hours' incubation in microaerophilic and anaerobic conditions at a temperature ranging from 28°C to 45°C, with an optimal growth temperature at 37°C. On sheep's blood-enriched Columbia agar medium, strain Marseille-P3753 formed transparent microcolonies with diameters ranging from 0.2 to 0.7 mm. '*Massilimalia timonensis*' is nonmotile, rod shaped and non-spore forming. Bacterial cells observed under electron microscopy have a length ranging from 0.7 to 2.9 µm, and their growth is observed at a NaCl level below 5 g/L. The catalase and oxidase tests for strain Marseille-P3753 showed no activity.

The 16S rRNA gene was sequenced using universal primers FD1 and RP2 (Eurogentec, Angers, France) as previously described [3] using a 3130-XL sequencer (Applied Biosciences, Saint Aubin, France). Strain Marseille-P3753 showed a 98.05% sequence identity with the strain '*Massilimalia massiliensis*' Marseille-P2963 (GenBank accession no. LT576408), the phylogenetically closest species. Therefore, this bacterium was classified as a new species of the genus *Massilimalia*. Other close species belonging to the same *Firmicutes* phylum are shown in Fig. 1.

Strain Marseille-P3753 shows a 16S rRNA gene sequence divergence of >1.3% with its phylogenetically closest species validated species [4,5]. Accordingly, a new species was proposed, named '*Massilimalia timonensis*' (ti.mo.nen'sis, L. adj. fem., from 'Timone,' the name of the main hospital of Marseille, France, where the strain was first isolated). Strain Marseille-P3753^T is the type strain of the new species '*Massilimalia timonensis*.'

MALDI-TOF MS spectrum

The matrix-assisted desorption ionization–time of flight mass spectrometry (MALDI-TOF MS) spectrum of '*Massilimalia timonensis*' Marseille-P3753^T is available online (http://www.

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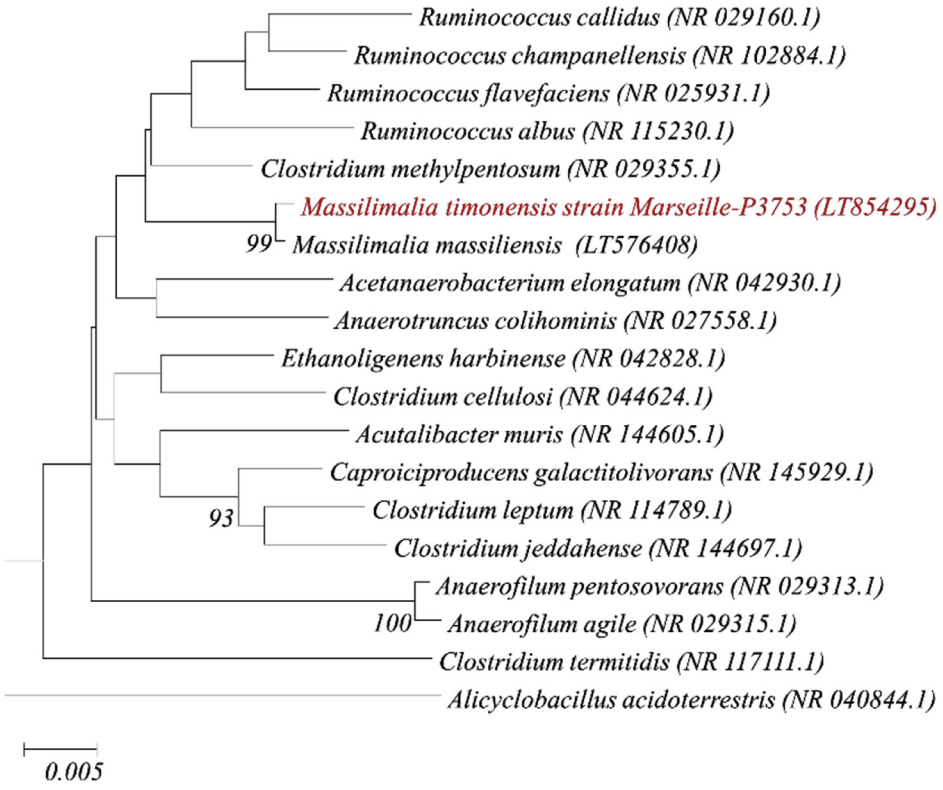

FIG. 1. Phylogenetic tree showing position of '*Massilimalia timonensis*' strain Marseille-P3753 relative to other phylogenetically close neighbours. Sequences were aligned using CLUSTALW, and phylogenetic inferences were obtained using maximum-likelihood method within MEGA software. Numbers at nodes are percentages of bootstrap values obtained by repeating analysis 1000 times to generate majority consensus tree. Only bootstrap scores of at least 90% were retained.

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Nucleotide sequence accession number

The 16S rRNA gene sequence was deposited in GenBank under accession number LT854295.

Deposit in a culture collection

Strain Marseille-P3753^{T} was deposited in the Collection de Souches de l'Unité des Rickettsies (CSUR, WDCM 875) under number P3753.

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Conflict of interest

None declared.

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