

'*Colidextribacter massiliensis*' gen. nov., sp. nov., isolated from human right colon

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Abstract

We report here the main characteristics of '*Colidextribacter massiliensis*' strain Marseille-P3083^T (CSURP3083), which was isolated from a human right colon lavage sample.

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Keywords: *Colidextribacter massiliensis*, Culturomics, human gut, microbiota, taxonogenomics

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In 2016, as a part of culturomics study of the human microbiome [1], we isolated from the right colon of a 27-year-old obese patient a bacterial strain that could not be identified by our systematic matrix-assisted desorption ionization–time of flight mass spectrometry (MALDI-TOF MS) screening on a Microflex spectrometer (Bruker Daltonics, Bremen, Germany) [2]. The patient provided signed informed consent, and the study was validated by the ethics committee of the Institut Fédératif de Recherche IFR48 under number 2016-010.

Strain Marseille-P3083^T growth was obtained on 5% sheep's blood–enriched Columbia agar medium (bioMérieux, Marcy l'Étoile, France) in anaerobic atmosphere (anaeroGEN, Oxoid, Dardilly, France) after a 30-day enrichment of the fresh right colon sample in an anaerobic haemoculture bottle (Becton Dickinson, Pont de Claix, France) added with 5 mL of sheep's blood (bioMérieux) and 5 mL of 0.2 µm filtered (Thermo Fisher Scientific, Villebon-sur-Yvette, France) rumen at 37°C.

After 96 hours of anaerobic incubation on 5% sheep's blood–enriched agar (bioMérieux) colonies were punctiform, approximately round and translucent, with a mean diameter of 0.1 to 0.3 mm. Bacterial cells were small Gram-negative cocci ranging in length from 0.4 to 0.6 µm. Strain Marseille-P3083^T tested catalase and oxidase negative. Sporulation test (20 minutes at 80°C) was negative, and no growth was achieved under aerobic or microaerophilic (campyGEN, Oxoid) conditions. The 16S rRNA gene was sequenced using fDI-rP2 primers as previously described [3] using a 3130-XL sequencer (Applied Biosciences, Saint Aubin, France). Strain Marseille-P3083^T exhibited a 93.57% sequence identity with *Pseudoflavonifractor capillosus* strain ATCC 29799^T (GenBank accession no. AY136666), the phylogenetically closest species with standing in nomenclature (Fig. 1). This value putatively classifies strain Marseille-P3083^T as a member of a new genus within the *Clostridiales* cluster IV in the phylum *Firmicutes*. *Clostridiales* cluster IV was created in 1994 and collects microorganisms that exhibit *Clostridium* and non-*Clostridium*-like characteristics [4], including Gram-negative microorganisms [5]. *Intestinimonas butyriciproducens* DSM 26588^T (16S rRNA similarity of 93.42%) is another phylogenetically very close species (Fig. 1) that exhibits the peculiar characteristic of appearing as a

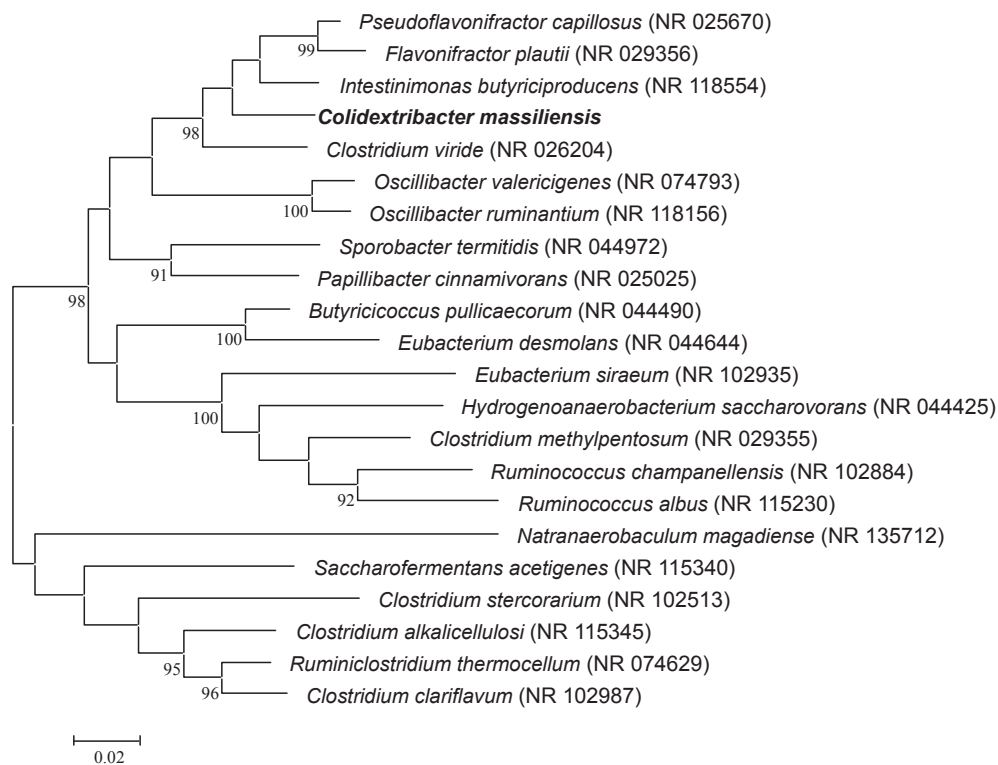


FIG. 1. Phylogenetic tree showing position of '*Colidextribacter massiliensis*' strain Marseille-P3083^T relative to other phylogenetically close neighbours. Sequences were aligned using CLUSTALW, and phylogenetic inferences were obtained using maximum-likelihood method within MEGA software. Numbers 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.

Gram-negative rod while electron microscopy demonstrated Gram-positive cell wall characteristics [6].

On the basis of the morphologic differences (morphology and Gram stain) and the 16S rRNA sequence divergence of strain Marseille-P3083^T with the phylogenetically closest species with standing in nomenclature [7,8] we propose here the creation of the new genus *Colidextribacter* (Co.li.dex.tri.bac.ter, L. neut. n. *colon* or *colum*, 'colon'; L. adj. *dexter*, 'right'; N.L. masc. n. *bacter*, 'a rod'; N.L. masc. n. *Colidextribacter*, 'a rod from the right colon'); and a new species *Colidextribacter massiliensis* for which Marseille-P3083^T (= CSUR P3083) is the type strain.

Strain Marseille-P3083^T is the type strain of *Colidextribacter massiliensis* gen. nov., sp. nov. (mas.si.li.en'sis, L., masc. adj., *massiliensis*, for Massilia, the Roman name of Marseille).

MALDI-TOF MS spectrum

The MALDI-TOF MS spectrum of '*Colidextribacter massiliensis*' strain Marseille-P23083^T is available online (<http://www.mediterranee-infection.com/article.php?laref=256&titre=urms-database>).

[mediterranee-infection.com/article.php?laref=256&titre=urms-database](http://www.mediterranee-infection.com/article.php?laref=256&titre=urms-database)).

Nucleotide sequence accession number

The 16S r RNA gene sequence was deposited in GenBank under accession number LT598546.

Deposit in a culture collection

Strain Marseille-P3083^T was deposited in the Collection de Souches de l'Unité des Rickettsies (CSUR, WDCM 875) under number P3083.

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Conflict of Interest

None declared.

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