"*Intestinimonas massiliensis*" sp. nov, a new bacterium isolated from human gut

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Abstract

Here we report the main features of the proposed new bacterial species "*Intestinimonas massiliensis*" sp. nov. The type strain GD2^T (CSUR = P1930) was isolated from the gut microbiota of a healthy patient using a culturomics approach combined with taxonogenomics.

Keywords: Anaerobe, culturomics, gut microbiota, "*Intestinimonas massiliensis*" sp. nov., taxonogenomics
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As a part of our study of the human microbiome by culturomics [1], we isolated in the stool of a healthy 28-year-old French donor the Gram-negative rod and strictly anaerobe strain GD2^T. The written consent of the donor was obtained, and the study was validated by the ethics committee of the Federative Research Institute IFR48 under number 09-022. The stool was stored at −20°C for 10 days, then inoculated on agar enriched with sheep's blood (5%) and rumen fluid (5%) previously filter sterilized through a 0.2 µm pore filter (Thermo Fisher Scientific, Villebon sur Yvette, France). The plates were then incubated under anaerobic condition into an anaerobic cabinet for 72 hours. The subculture of colonies using the same protocol allowed the isolation of the GD2^T strain. The strain GD2^T could not be identified by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS) screening (score <1.7) using a Microflex spectrometer (Bruker Daltonics, Bremen, Germany) [1–3].

Colonies appeared white and regular with a mean diameter of 1 to 2 mm on blood agar–enriched Colombia. "*Intestinimonas massiliensis*" is a nonmotile, Gram-negative rod with a mean diameter of 0.5 µm and 1.8 µm in length, without spore-forming activity. Catalase and oxidase were also negative. The 16S rRNA gene was completely sequenced as previously described [4]. It shared 94.4% sequence identity with *Intestinimonas butyriciproducens* DSM 26588^T (NR_118554). The bacterium was therefore putatively classified as a new species belonging to the *Intestinimonas* genus.

Because of the 16S identity percentage was lower than 98.65% to the species closest with a validly published name standing in nomenclature [5], we propose the new strain "*Intestinimonas massiliensis*" GD2^T (mas.il.i.en'sis, L. gen. masc. n. *massiliensis,* "of Massilia," the Latin name for Marseille, where the strain GD2^T was first isolated) belonging to the genus *Intestinimonas* (Fig. 1).

MALDI-TOF MS spectrum accession number

The MALDI-TOF MS spectrum of "*Intestinimonas massiliensis*" is available at http://mediterranee-infection.com/article.php?laref=256&titre=urms-database.

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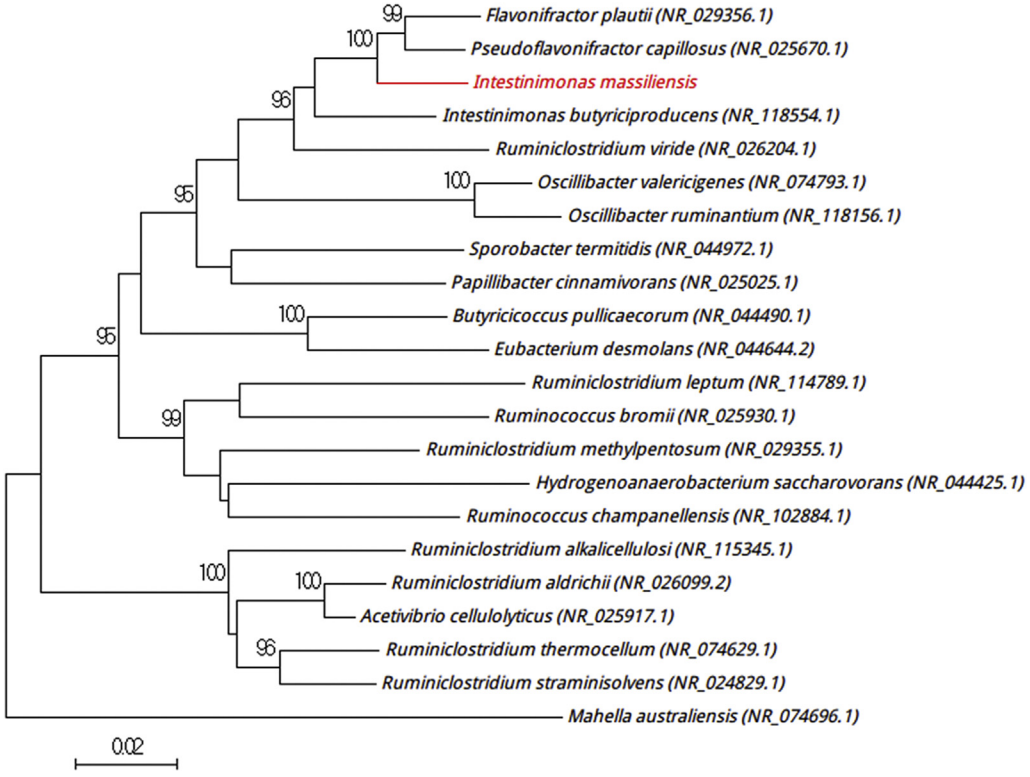

FIG. 1. Phylogenetic tree based on 16S rRNA gene sequence showing position of "*Intestinimonas massiliensis*" sp. nov., strain GD2^T with other close relative species among *Firmicutes* phylum. European Molecular Biology Laboratory (EMBL) database accession numbers are indicated in parentheses. Sequences were aligned using CLUSTALW, and phylogenetic inferences were obtained with Kimura two-parameter model using neighbour-joining method with 1000 bootstrap replicates within MEGA6 software. Scale bar represents 1% nucleotide sequence divergence.

Nucleotide sequence accession number

The 16S rRNA gene sequence was deposited in GenBank under accession number LN866996.

Deposit in a culture collection

Strain GD2^T was deposited in the collection de Souches de l'Unités des Rickettsies (CSUR, WDCM 875) under number P1930.

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Conflict of Interest

None declared.

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