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“*Africanella massiliensis*,” a new bacterial genus isolated from human gut microbiota

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Abstract

We report the main characteristics of “*Africanella massiliensis*” strain Marseille-P2538 (= CSUR P2538), isolated from the gut microbiota of a healthy 44-month-old girl from Niger.

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Keywords: *Africanella massiliensis*, culturomics, emerging bacteria, gut microbiota, taxonomy

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In order to describe the bacterial flora of the gastrointestinal tract, a stool sample was collected from a 44-month-old girl from Niger. The patient, for whom her parents gave an informed oral consent, had a weight-for-height z score of -0.65 . The study was approved by the ethics committee of the Institut Federatif de Recherche 48 under number 09-022. The stool was cultivated using the culturomics approach [1,2]. Primoculture of strain Marseille-P2538 was achieved following a 3-day preincubation in a liquid medium containing 37 g of Difco Marine Broth (Becton Dickinson, Le Pont de Claix, France) per litre of sterile water at 37°C in an anaerobic atmosphere. After subculture on 5% sheep’s blood–enriched Columbia agar (bioMérieux, Marcy l’Etoile, France), colonies were white, circular and smooth, with a mean diameter of 1 mm. Bacterial cells were Gram positive and rod shaped with a mean diameter and length of 0.4 µm and 1.5 µm, respectively. Strain Marseille-P2538^T exhibited catalase and oxidase activities.

Colonies were not identified by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS) using a Microflex spectrometer (Bruker

Daltonics, Bremen, Germany) [3,4]. Therefore, we sequenced the 16S rRNA of strain Marseille-P2538 using the fD1-rP2 primers as previously described [5] and a 3130-XL sequencer (Applied Biosciences, Saint Aubin, France). The obtained sequence was 94.6% similar to the 16S rRNA of *Ruminococcus gnavus* (GenBank accession no. AB910745) (Fig. 1) [6]. According to the 95% threshold to define a new genus [7], we propose that strain Marseille-P2538 is representative of a new genus within the family *Lachnospiraceae*, for which we propose the name *Africanella* gen. nov. (af.ri.ca.ne’la N.L. fem. n., africanella, of Africa, where the patient from whom strain Marseille-P2538 was isolated lived). Strain Marseille-P2538^T is the type strain of *Africanella massiliensis* gen. nov., sp. nov. (mas.si.li.en’sis, L., fem. adj., massiliensis, for Massilia, the Roman name of Marseille, where strain Marseille-P2538^T was isolated).

MALDI-TOF MS spectrum

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

Nucleotide sequence accession number

The 16S rRNA sequence was deposited in GenBank under accession number LT223700.

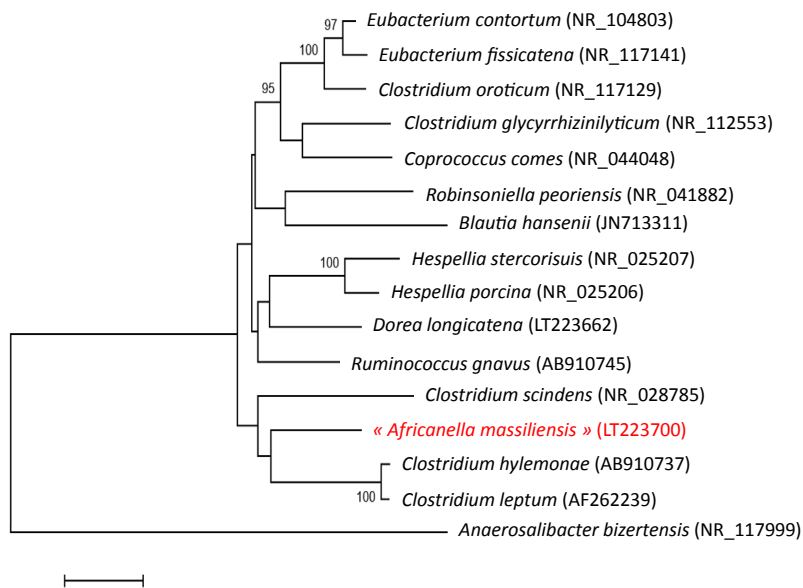


FIG. 1. Phylogenetic tree showing position of “*Africanella massiliensis*” strain Marseille-P2538^T relative to other phylogenetically close species with validly published name. Sequences were aligned using CLUSTALW, and phylogenetic inferences were obtained using maximum-likelihood method within MEGA software. Numbers at nodes are percentages of bootstrap values ($\geq 95\%$) obtained by repeating analysis 500 times to generate majority consensus tree. *Anaerosalibacter bizertensis* was used as outgroup. Scale bar indicates 2% nucleotide sequence divergence.

Deposit in a culture collection

Strain Marseille-P2538^T was deposited in the Collection de Souches de l'Unité des Rickettsies (CSUR, WDCM 875) under number P2538.

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Conflict of Interest

None declared.

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