"*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.

Keywords: *Africanella massiliensis*, culturomics, emerging bacteria, gut microbiota, taxonomy
Original Submission: 2 May 2016; **Revised Submission:** 9 May 2016; **Accepted:** 10 May 2016
Article published online: 15 May 2016

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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.

http://dx.doi.org/10.1016/j.nmni.2016.05.008

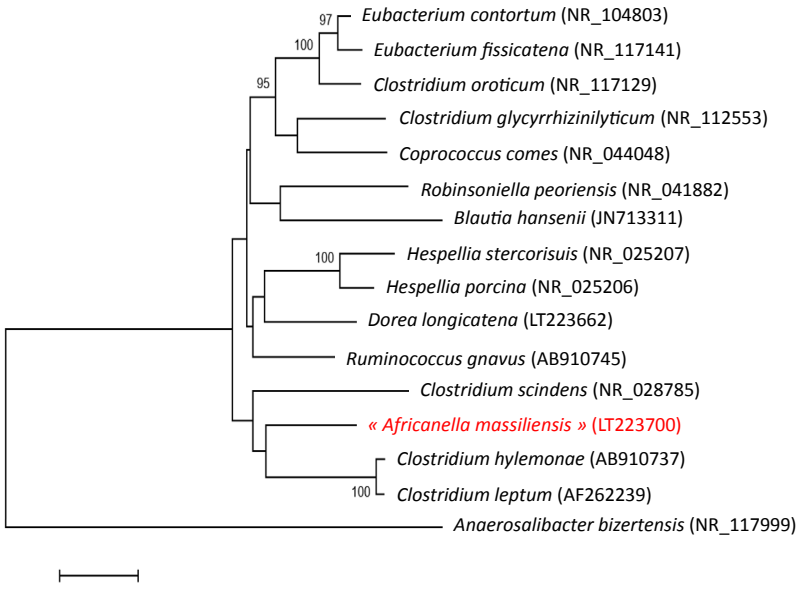

FIG. 1. Phylogenetic tree showing position of *"Africanella massiliensis"* strain Marseille-P2538^T relative to other phylogenetically close species with validly published name. Sequences were aligned using CLUSTALW, and phylogenetic inferences were obtained using maximum-likelihood method within MEGA software. Numbers at nodes are percentages of bootstrap values (≥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.

Acknowledgement

This study was funded by the Fondation Méditerranée Infection.

Conflict of Interest

None declared.

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