

'*Mediterranea massiliensis*' gen. nov., sp. nov., a new human-associated bacterium isolated from the right and left colon lavage of a 58-year-old patient

M. Mailhe¹, D. Ricaboni^{1,2}, A. Benezech³, S. Khelaifia¹, P.-E. Fournier¹ and D. Raoult¹

1) Aix-Marseille Université, URMITE, UM63, CNRS7278, IRD198, Inserm 1095, Institut Hospitalo-Universitaire Méditerranée-Infection, Faculté de médecine, Marseille, France, 2) Department of Clinical and Biomedical Sciences Luigi Sacco, III Division of Infectious Diseases, University of Milano, Milan, Italy and 3) Service de Gastroentérologie, Hôpital Nord, Assistance Publique-Hôpitaux de Marseille, Marseille, France

Abstract

We report here the main characteristics of '*Mediterranea massiliensis*' strain Marseille-P2645^T (CSURP2645) that was isolated from stored samples of gut.

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Keywords: Culturomics, genomics, *Mediterranea massiliensis*, taxonogenomics, taxonomy

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Corresponding author: D. Raoult, Aix-Marseille Université, URMITE, UM63, CNRS7278, IRD198, Inserm 1095, Institut Hospitalo-Universitaire Méditerranée-Infection, Faculté de médecine, 27 Boulevard Jean Moulin, 13385, Marseille cedex 05, France
E-mail: didier.raoult@gmail.com

In the context of a human microbiome study using culturomics [1,2], in April 2016, we isolated a strain from a right and left colon lavage [3] of a 58-year-old woman without medical history, who underwent a colonoscopy due to a positive screening test for a colorectal cancer. This bacterial strain could not be identified by our systematic matrix-assisted laser desorption-ionization time-of-flight screening on a Microflex spectrometer (MALDI-TOF MS) (Bruker Daltonics, Bremen, Germany) [4]. Signed and informed consent was collected from the patient and the study obtained approval from the ethics committee of the Institut Fédératif de Recherche IFR48 under number 09-022.

Samples were transported in an antioxidant-enriched liquid medium (unpublished data) before being seeded on a solid medium composed of 5% sheep blood-enriched Columbia agar (bioMérieux, Marcy l'Etoile, France). The initial growth was obtained after 1 day of culture at 37°C in anaerobic conditions (anaeroGEN, Oxoid Ltd, Dardilly, France). Colonies grown on 5% sheep blood-enriched Columbia agar medium were

translucent and slightly haemolytic, with a diameter of 0.5 mm. Bacterial cells were Gram-negative bacilli, 1 µm in length and 0.6 µm in diameter. Strain Marseille-P2645' catalase and oxidase reactions were negative.

The 16S rRNA gene sequence was obtained using fD1-rP2 primers as previously described [5], using a 3130-XL sequencer (Applied Biosciences, Saint Aubin, France). Strain Marseille-P2645 exhibited a 92.9% sequence identity [6] with *Bacteroides helcogenes* strain P36-108^T (GenBank Accession no. CP002352), which is the phylogenetically closest species with standing in nomenclature (Fig. 1). *Bacteroides helcogenes* strain P36-108^T is an obligately anaerobic and a Gram-negative bacterium that was identified for the first time from abscesses and faeces of pigs in 1983 [7]. *Bacteroides coprophilus* strain CB42^T (AB260026) was also a close validated species of strain Marseille-P2645; this strain is a Gram-negative anaerobic bacterium isolated from human faeces in 2007 [8].

Because of a 16S rRNA gene sequence divergence >5% from its phylogenetically closest species with standing in nomenclature [9], we suggest the creation of the new genus *Mediterranea* gen. nov. (me.di.ter.ra.nea' N. L. fem. n., from *Mare* '*Mediterraneum*', the Latin name of the Mediterranean sea) as this strain was first isolated in Marseille, located by the Mediterranean sea. '*Mediterranea massiliensis*' gen. nov., sp. nov. (ma.si.li.en'sis. L. fem. adj., from *massiliensis*, of Massilia, the Latin

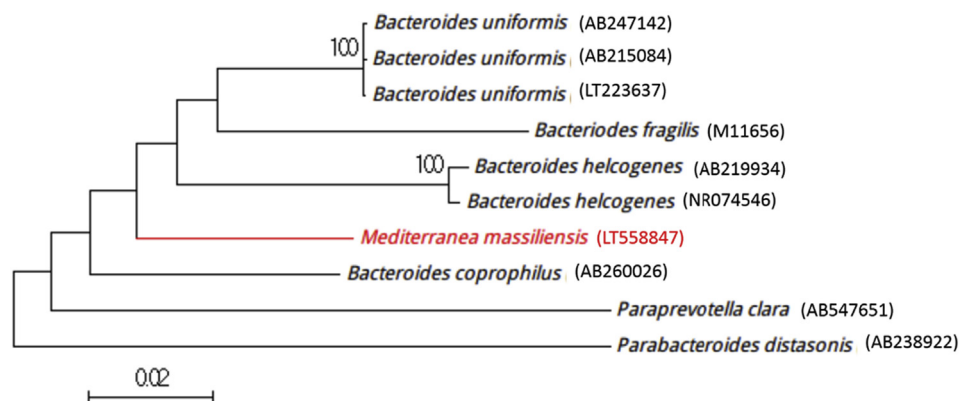


FIG. 1. Phylogenetic tree showing the position of 'Mediterranea massiliensis' strain Marseille-P2645^T relative to other phylogenetically close members of the family Bacteroidaceae. GenBank accession numbers are indicated in parentheses. Sequences were aligned using CLUSTALW, and phylogenetic inferences were obtained using the maximum likelihood method within the MEGA software. Numbers at the nodes are percentages of bootstrap values obtained by repeating the analysis 500 times to generate a majority consensus tree. Only the bootstraps score $\geq 95\%$ were retained. The scale bar indicates a 2% nucleotide sequence divergence.

name of Marseille where the strain was first cultivated) is classified as a member of the family Bacteroidaceae in the phylum Bacteroidetes.

Strain Marseille-P2645^T is the type strain of the new species 'Mediterranea massiliensis' gen. nov., sp. nov.

MALDI-TOF Spectrum

The MALDI-TOF spectrum of 'Mediterranea massiliensis' strain Marseille-P2645^T is available at <http://www.mediterranee-infection.com/article.php?laref=256&titre=urms-database>.

Nucleotide Sequence Accession Number

The 16S rRNA gene sequence was deposited in GenBank under Accession number LT558847.

Deposit in a Culture Collection

Strain Marseille-P2645^T was deposited in the collection de Souches de l'Unités des Rickettsies (CSUR, WDCM 875) under number P2645.

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Conflict of Interest

The authors have no conflicts of interest to declare.

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