"*Varibaculum massiliense*" sp. nov., a new bacterial species isolated from human urine

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Abstract

We report the main characteristics of "*Varibaculum massiliense*" strain Marseille-P2802^T (=CSUR P2802), which was isolated from urine sample of a 59-year-old man with end-stage renal disease.

Keywords: Culturomics, kidney disease, taxonomy, urine, "*Varibaculum massiliense*"
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As a part of microbial culturomics project [1], we investigated the urinary microbiota [2] in adult kidney transplant recipients. The bacterial strain Marseille-P2802, which could not be identified by our systematic matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS) screening on a Microflex spectrometer (Bruker Daltonics, Bremen, Germany) [3], was isolated from a urine sample of a 59-year-old man treated with chronic hemodialysis for diabetic nephropathy. The patient provided signed informed consent, and the agreement of the local ethics committee of the IFR48 (Marseille, France) was obtained under number 09-022. A pure culture of the strain Marseille-P2802 was initially obtained after 7 days of direct seeding culture of the urine sample on a 5% sheep's blood Columbia agar medium (bioMérieux, Marcy l'Etoile, France) incubated at 37°C in anaerobic atmosphere generated using the GENbag Anaer systems (bioMérieux). Agar grown microcolonies were entire edged, translucent greyish, and glistering with a mean diameter of 0.5 mm. Strain Marseille-P2802 cells were bacilli Gram positive, small rod shaped, and slightly curved, ranging in diameter from 500 to 600 nm. The strain Marseille-P2802 did not exhibit catalase or oxidase activities.

The complete 16S rRNA gene was sequenced using fD1-rP2 primers as previously described [4] and a 3130-XL sequencer (Applied Biosciences, Saint Aubin, France). The strain Marseille-P2802 exhibited a 98.65% sequence similarity with *Varibaculum cambriense* strain CCUG 44998^T (GenBank accession number NR042127) [5,6]. *V. cambriense* is the phylogenetically closest species with standing nomenclature (Figure 1). Consequently, it putatively classifies the strain Marseille-P2802 as a new member of the genus *Varibaculum* within the family *Actinomycetaceae* in the phylum *Actinobacteria. V. cambriense* was first described by Hall *et al.* in 2003 as an anaerobic, Gram-positive, diphtheroid-shaped bacterium [5,6].

For the strain Marseille-P2802, showing a 16S rRNA sequence divergence of >1.3% with its phylogenetically closest species with standing in nomenclature [7,8], we propose the creation of "*Varibaculum massiliense*" sp. nov. (L. neut. adj. *massiliense,* of or pertaining to Massilia, the Latin name of Marseille, France, where the organism was first isolated), and the strain Marseille-P2802^T is the type strain of "*Varibaculum massiliense*" sp. nov.

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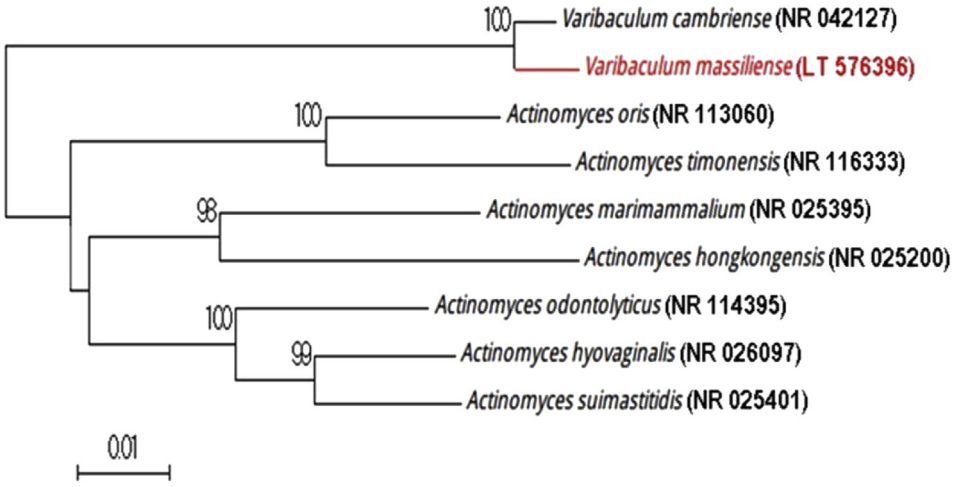

FIG. 1. Phylogenetic tree showing position of "*Varibaculum massiliense*" strain Marseille-P2802^T relative to other phylogenetically close neighbours. GenBank accession numbers are indicated in parentheses. Sequences were aligned using CLUSTALW, and phylogenetic inferences were obtained using maximum-likelihood method within MEGA software. Numbers at nodes are percentages of bootstrap values obtained by repeating analysis 500 times to generate majority consensus tree. Only bootstrap scores of at least 90% were retained. Scale bar indicates 1% nucleotide sequence divergence.

MALDI-TOF MS spectrum accession number

The MALDI-TOF MS spectrum of "*Varibaculum massiliense*" strain Marseille-P2802^T is available online (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 LT576396.

Deposit in a culture collection

Strain Marseille-P2802^T was deposited in the Collection de Souches de l'Unité des Rickettsies (CSUR, WDCM 875) under number P2802.

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Conflict of Interest

None declared.

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