

'*Actinotignum timonense*' sp. nov., a new bacterial species isolated from a human urine sample

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Abstract

We report here the main characteristics of '*Actinotignum timonense*' strain Marseille-P2803^T (= CSUR P2803) that was isolated from the urine sample of a 59-year-old man with end-stage renal disease.

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Keywords: '*Actinotignum timonense*', culturomics, kidney disease, taxonomy, urine

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As part of the study of the urinary microbiota [1] by culturomics [2], we investigated urine samples of adult kidney transplant recipients. The bacterial strain Marseille-P2803, 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 by chronic haemodialysis for diabetic nephropathy. The patient provided informed, signed consent, and the agreement of the local ethics committee of the IFR48 (Marseille, France) was obtained under the number 09-022. The strain Marseille-P2803 was isolated after 7 days of direct seeding culture of the urine sample on a 5% sheep blood Columbia agar medium (bioMérieux, Marcy l'Étoile, France) incubated at 37°C in aerobic atmosphere. Agar-grown colonies were grey with a diameter <1 mm. Strain Marseille-P2803 cells were non-motile, Gram-positive bacilli, small rod-shaped, with a diameter from

400 nm to 500 nm. The strain Marseille-P2803 does 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-P2803 exhibited a 98.45% sequence similarity with *Actinotignum schaalii* (synonym *Actinobaculum schaalii*) strain CCUG 27420 (GenBank Accession number NR_116869), which is the phylogenetically closest species with standing nomenclature (Fig. 1). Consequently, it putatively classifies the strain Marseille-P2803 as a new member of the genus *Actinotignum* within the family *Actinomycetaceae* in the phylum *Actinobacteria*. *Actinotignum schaalii*, previously named *Actinobaculum schaalii* by Lawson *et al.* in 1997 [5], was isolated from human blood; cells were straight to slightly curved rods, Gram-positive and non-motile. The genus *Actinobaculum* was introduced to accommodate bacterial strains previously named *Actinomyces suis* and some *Actinomyces*-like organisms isolated from human clinical specimens. In 2015, *Actinobaculum schaalii* was reclassified as *Actinotignum schaalii* by Yassin *et al.* [6].

The strain Marseille-P2803 showing a 16S rRNA gene sequence divergence >1.3% with its phylogenetically closest species with standing in nomenclature [7,8], we propose the creation of the new species '*Actinotignum timonense*' sp. nov., (ti.mo.nen'se N.L. neut. adj. *timonense*, pertaining to La Timone,

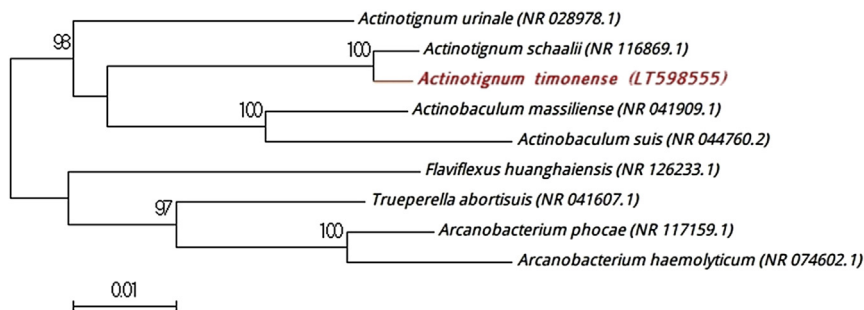


FIG. 1. Phylogenetic tree showing the position of ‘*Actinotignum timonense*’ strain Marseille-P2803^T relative to other phylogenetically close neighbours. GenBank Accession numbers are indicated in parentheses. Sequences were aligned using CLUSTALW, and phylogenetic inferences were obtained using the 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 bootstrap scores $\geq 90\%$ were retained. The scale bar indicates a 1% nucleotide sequence divergence.

the name of the hospital in Marseille, France, where the first strains were isolated). Strain Marseille-P2803^T is the type strain of ‘*Actinotignum timonense*’ sp. nov.

MALDI-TOF MS spectrum accession number. The MALDI-TOF MS spectrum of ‘*Actinotignum timonense*’ strain Marseille-P2803^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 LT598555.

Deposit in a culture collection. Strain Marseille-P2803^T was deposited in the Collection de Souches de l’Unité des Rickettsies (CSUR, WDCM 875) under number P2803.

Transparency declaration

The authors have no conflicts of interest to declare.

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