

“*Emergencia timonensis*,” a new bacterium isolated from the stool of a healthy patient

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Abstract

We present the essential characteristics of “*Emergencia timonensis*” strain SN18 (= CSUR P2260), a new member of the order Clostridiales that was isolated from the stool of healthy patient.

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In 2015, we isolated strain SN18 (= CSUR P2260) from the faeces of a healthy patient with an unremarkable medical history. This strain could not accurately be identified by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS) using a MicroFlex spectrometer (Bruker Daltonics, Leipzig, Germany) (score <1.7) [1]. This study was part of a culturomics analysis aiming at identifying all bacterial species present in the human gastrointestinal tract [2,3]. The patient provided informed signed consent, and the study was approved by the ethics committee of IFR48 (Marseille, France) under agreement 09-022.

The initial growth was obtained after 3 days of culture in anaerobic atmosphere at 37°C in 5% sheep’s blood-enriched Columbia agar (bioMérieux, Marcy l’Etoile, France). Agar-grown colonies are white with a diameter of 0.5 to 1 mm. Strain SN18 cells are Gram-positive, rod-shaped bacilli ranging in length from 1 µm to 1.5 µm. Strain SN18 is strictly anaerobic and has no catalase and oxidase activity.

The 16S rRNA gene was sequenced using a 3130-XL sequencer (Applied Biosciences, Saint Aubin, France) as

previously described [4]. Strain SN 18 exhibited a 16S rRNA gene sequence identity of 91% with *Anaerovorax odorimutans* strain NorPut1^T (GenBank accession no. NR_028911), the phylogenetically closest species with standing in nomenclature. (Fig. 1)

Anaerovorax odorimutans strain NorPut1^T was initially isolated in 2000 by Matthies *et al.* [5] from sediment sampled in brackish waters. *A. odorimutans* is also a strictly anaerobic, Gram-positive, non-spore-forming bacterium. Other phylogenetically closely related bacteria are members of the *Mogibacterium* genus [6]. These strictly anaerobic, Gram-positive and rod-shaped bacteria were isolated from the human oral flora, notably in periodontal pockets of adult patients with periodontal disease and infected root canals [6]. These bacteria appear to be associated to the pathogenesis of periodontitis, especially in smokers [7].

Because the 16S rRNA gene sequence divergence with the closest phylogenetic species with a validly published name is >5% [8], we propose that strain SN18 is the representative strain of a new genus within the order Clostridiales, for which we propose the name “*Emergencia*” gen. nov. (i.mer.gen’sia N.L. fem. n., for emergence, in reference to the discovery of emerging human bacteria). Strain SN18^T is the type strain of “*Emergencia timonensis*” gen. nov., sp. nov. (ti.mo.nen’sis. L. masc. adj. timonensis pertaining to Timone, the name of the main university hospital in Marseille, France, where the strain was isolated).

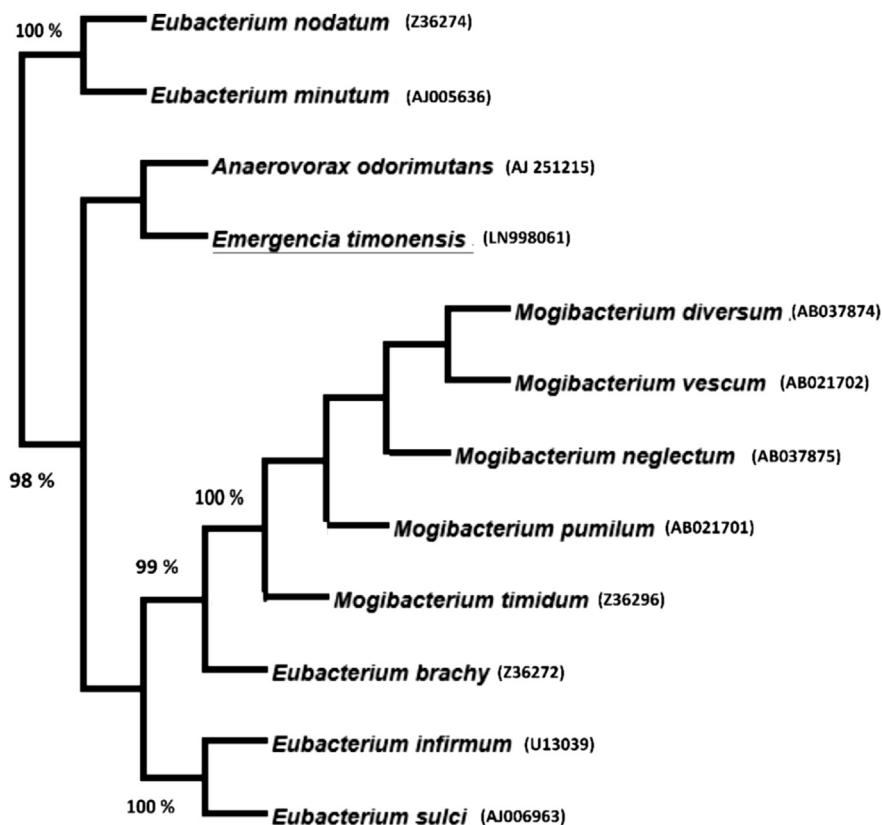


FIG. 1. Phylogenetic tree showing position of *Emergencia timonensis* strain SN18 (underlined) relative to other phylogenetically close members of order Clostridiales. GenBank accession numbers are indicated in parentheses. Sequences were aligned using CLUSTALW, and phylogenetic inferences were obtained 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 values >95% are displayed.

MALDI-TOF MS spectrum accession number

The MALDI-TOF MS spectrum of *E. timonensis* is available online (<http://www.mediterraneeinfection.com/article.php?leref=256&titre=urms-database>).

Nucleotide sequence accession number

The 16S rRNA gene sequence was deposited in GenBank under accession number LN998061.

Deposit in a culture collection

Strain SN18 was deposited in the collection de Souches de l'Unité des Rickettsies (CSUR, WDCM 875) under number P2260.

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Conflict of Interest

None declared.

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