

“*Lachnoclostridium bouchesdurhonense*,” a new bacterial species isolated from human gut microbiota

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Abstract

We report the main characteristics of “*Lachnoclostridium bouchesdurhonense*” strain AT5^T (=CSUR P2181), a new bacterial species isolated from the gut microbiota of an obese patient from Marseille.

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Keywords: Culturomics, gut microbiota, “*Lachnoclostridium bouchesdurhonense*”, obese, taxonogenomics

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In order to describe the bacterial flora of the gastrointestinal tract, a stool sample was collected from a 38-year-old obese patient from France. The patient, who provided informed oral consent, had a body mass index of 33 kg/m². The study was approved by the ethics committee of the Institut Fédératif de Recherche 48, Marseille. The stool was cultivated using the culturomics approach [1,2]. The culture of strain AT5^T was achieved on 5% sheep’s blood–enriched Columbia agar (bio-Mérieux, Marcy l’Etoile, France). The colonies obtained were small, circular and smooth, with a mean diameter of 0.5 mm. Bacterial cells were Gram negative and rod shaped. Strain AT5^T did not exhibit 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 gene of strain AT5^T using the fD1-rP2 primers as

previously described [5] and a 3130-XL sequencer (Applied Biosciences, Saint Aubin, France). The obtained sequence was 94.79% similar to the 16S rRNA gene sequence of *Lachnoclostridium boltea* strain 16351 (GenBank accession number NR_025567) (Figure 1) [6]. According to the 16S rRNA gene sequence similarity for species demarcation of prokaryotes [7,8], we propose that strain AT5^T is representative of a new species within the recently described *Lachnoclostridium* genus [9] for which we propose the name “*Lachnoclostridium bouchesdurhonense*” sp. nov. (bouch.du.rhon.ense, L. fem. adj. *bouchedurhonense*, for Bouches-du-Rhône, the department where the city of Marseille is located, where strain AT5^T was isolated).

MALDI-TOF MS spectrum

The MALDI-TOF MS spectrum of “*Lachnoclostridium bouchesdurhonense*” 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 LN881614.

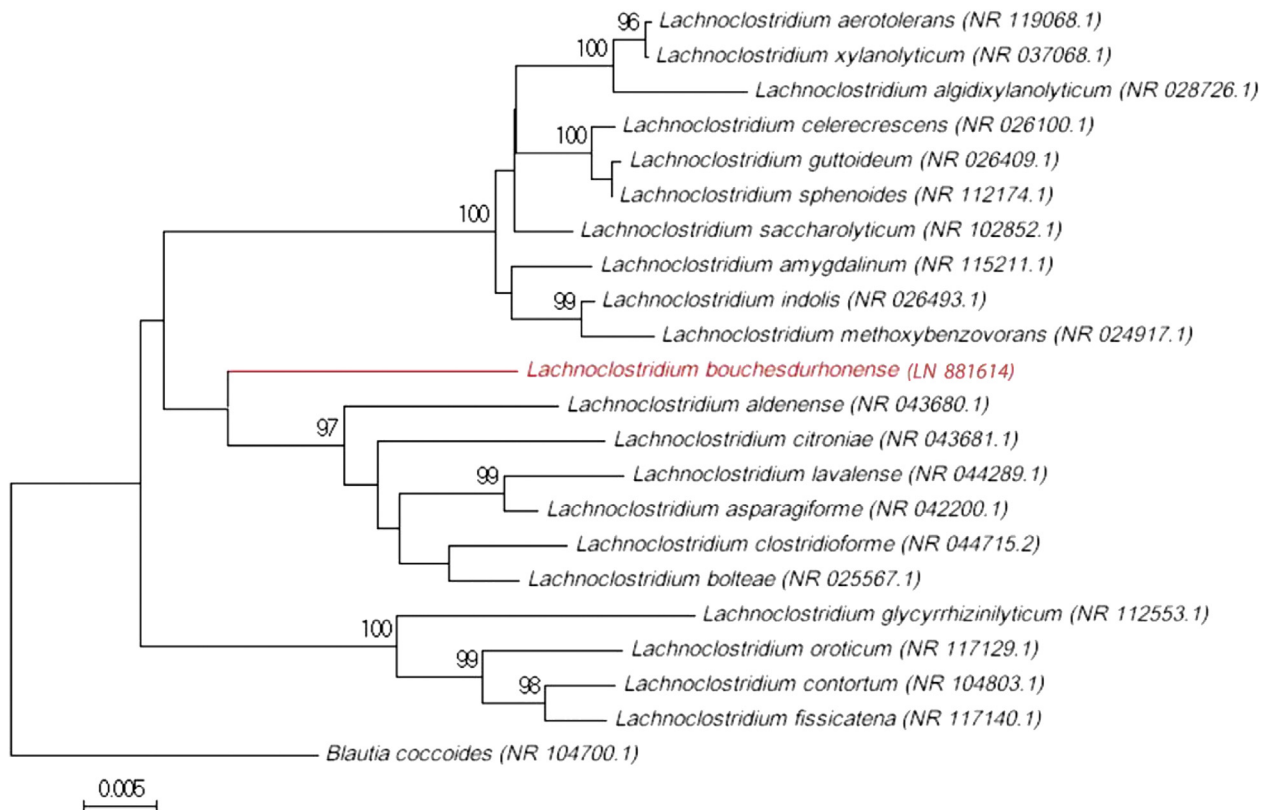


FIG. 1. Phylogenetic tree showing position of “*Lachnoclostridium bouchesdurhonense*” strain AT5^T relative to other phylogenetically close species with validly published name. Sequences were aligned using CLUSTALW, and phylogenetic inferences were obtained using maximum-likelihood method within MEGA software. Numbers at nodes are percentages of bootstrap values (>95%) obtained by repeating analysis 500 times to generate majority consensus tree. *Blautia coccoides* was used as outgroup. Scale bar indicates 5% nucleotide sequence divergence.

Deposit in a culture collection

Strain AT5^T was deposited in the Collection de Souches de l'Unité des Rickettsies (CSUR) under number P2181.

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Conflict of Interest

None declared.

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