



Peptoniphilus duodeni sp. nov., a new bacterial species identified in human duodenum



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ABSTRACT

We present here the main characteristics of *Peptoniphilus duodeni* strain Marseille-P2932 (= CSUR P2932, = DSM 103346) that was isolated from the duodenum of a 60-year-old male.

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As a part of a culturomics study of the human microbiome [1], a bacterial strain that could not be identified using our systematic matrix-assisted laser desorption-ionization time-of-flight screening (MALDI-TOF MS) (Bruker Daltonics, Wissembourg, France) [2], was isolated from a liquid sample collected in the duodenum from a 60-year-old male. The patient had a history of ischemic heart disease and a digestive endoscopy was performed to investigate an iron deficiency anemia. The patient gave a signed informed consent and the ethics committee of the Institut Fédératif de Recherche IFR48 validated the study under number 2016-010.

The sample was pre-incubated for 21 days in an anaerobic blood culture bottle (BD BACTEC[®], Plus Anaerobic/F Media, Le Pont de Claix, France) enriched with 0.2 μm filtered rumen and 5% sheep blood as previously described [3]. Subsequently, the blood culture liquid was subcultured on a 5% sheep blood-enriched Columbia agar (bioMérieux, Marcy l'Etoile, France) in anaerobic atmosphere (AnaeroGenTM Compact, OXOID Ltd, Thermo Scientific[®], Dardilly, France) at 37 °C. Strain Marseille-P2932 grew after 24 h of subculture. The strain was also able to grow in an anaerobic atmosphere at 45 °C. Agar-grown colonies were white and circular with a mean diameter of 0.4 mm. Bacterial cells were Gram-negative cocci of

800–900 nm in diameter and formed diplococci. Strain Marseille-P2932 was negative for catalase and oxidase activities, was not motile and did not form endospores.

The 16S rDNA gene was sequenced using the fD1-rP2 primers as previously described [4], using a 3130-XL sequencer (Applied Biosciences, Saint Aubin, France). As the similarity percentages observed between *Peptoniphilus* species ranged from 86.8% to 97.9% [5], we believe that strain Marseille-P2932, which exhibited a maximal sequence similarity of 92.5% with *Peptoniphilus asaccharolyticus* strain ATCC 14963^T (Accession number AF542228), the phylogenetically closest species with standing in nomenclature (Fig. 1), is the representative strain of a new species within the genus *Peptoniphilus*.

We propose the creation of the new species *Peptoniphilus duodeni* sp. nov., (duo.de'ni; N.L. gen. n. from *duodenum*, the anatomical part of the digestive tract in which this species was collected for the first time). Strain Marseille-P2932^T is the type strain of the new species *Peptoniphilus duodeni* sp. nov.

MALDI-TOF spectrum of *Peptoniphilus duodeni* sp. nov. strain Marseille-P2932^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 LT576413.

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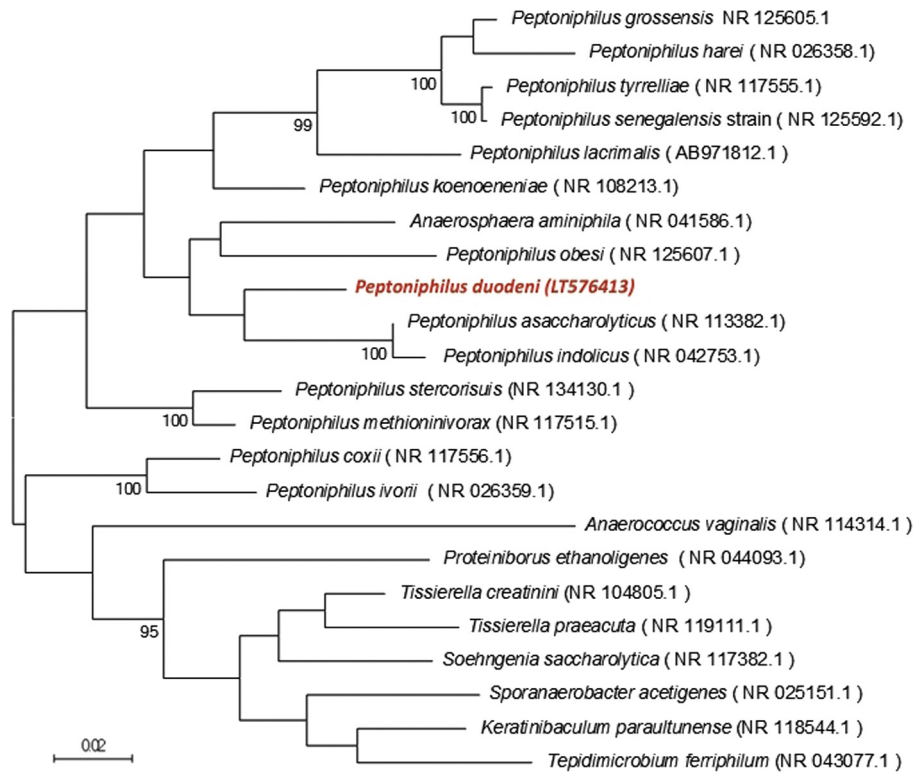


Fig. 1. Phylogenetic tree showing the position of *Peptoniphilus duodeni* sp. nov., strain Marseille-P2932^T relative to other phylogenetically-close neighbors. Sequences were aligned using Muscle v3.8.31 with default parameters and phylogenetic inferences were obtained using the neighbor-joining method with 500 bootstrap replicates, within the MEGA6 software. Only bootstrap values greater than 95% are displayed. The scale bar represents a 2% nucleotide sequence divergence.

Deposit in culture collections. Strain Marseille-P2932^T was deposited in the Collection de Souches de l'Unité des Rickettsies (CSUR, WDCM 875) under number P2932 and in the Deutsche Sammlung von Mikroorganismen und Zellkulturen (DSMZ) under number DSM 103346.

Conflict of interest

None to declare.

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