# 'Pygmaiobacter massiliensis' sp. nov., a new bacterium isolated from the human gut of a Pygmy woman

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### **Abstract**

This study supports the main characteristics of a new genus 'Pygmaiobacter' and a new species 'Pygmaiobacter massiliensis' strain Marseille-P3336 (CSUR P3336); that was isolated from a stool sample of a healthy 47-year-old Pygmy woman.

The Institut Fédératif de Recherche ethics committee, gave approval for this study under the number 09-022. Samples were collected for microbial content description as part of the human microbiome description by culturomics.

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Keywords: Culturomics, emerging bacteria, gut microbiota, human microbiota, Pygmaiobacter massiliensis

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A stool sample, obtained from a healthy 47-year old Pygmy woman, was cultured in a blood culture bottle at 37°C after being diluted with phosphate-buffered saline. The culture bottle was supplemented with 5% sheep blood and 5% filtered rumen. The strain Marseille-P3336 colony was isolated at day 10 on 5% bloodenriched Columbia agar (bioMérieux, Marcy l'Etoile, France). The first identification trial of strain Marseille-P3336 by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF-MS) using a Microflex spectrometer (Bruker Daltonics, Leipzig, Germany) failed [1,2]. Hence, a 16S rRNA gene sequencing was performed to identify our strain based on sequence similarities. A 3130-XL sequencer (Applied Biosciences, Saint Aubin, France) was used along with fD1-rP2 primers (Eurogentec, Seraing, Belgium) as previously reported [3]. Strain Marseille-P3336 exhibited a 92.38% sequence identity

with Anaerofilum pentosovorans (NR\_029313.1), the phylogenetically closest species with standing nomenclature (Fig. 1). Colonies were smooth with a mean diameter of 0.1–0.5 mm. Bacterial cells were Gram positive bacilli, catalase and oxidase negative with a mean diameter of 1.8 µm.

As the strain Marseille-P3336 16S rRNA gene sequence diverges by >5% from the closest species with standing in nomenclature, we propose the creation of the new genus named 'Pygmaiobacter' (Pyg. maio.bac'ter N.L. masc. gen. n, 'Pygmaiobacter', for Pygmy, the population from which the samples were collected [4]). Marseille-P3336 is the type strain of the new species 'Pygmaiobacter massiliensis' gen. nov., sp. nov. (mas.il.i.en'sis. L. gen. masc. adj. massiliensis pertaining to Massilia, the name of the city of Marseille from antiquity, where this bacteria has been discovered).

**MALDI-TOF MS** spectrum accession number. The MALDI-TOF-MS spectrum of *P. massiliensis* 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 LT631513.

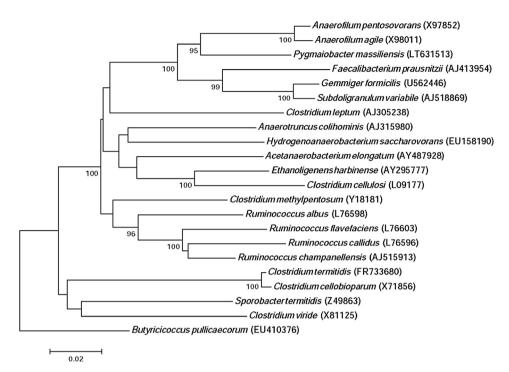


FIG. 1. Phylogenetic tree showing the position of 'P. massiliensis' strain Marseille-P3336 within the phylogenetically closest species. CLUSTALW tool was used for sequence alignment and phylogenetic inferences were generated using the MEGA software by the maximum-likelihood method. Bootstrap values obtained after 500 repeats are shown on the nodes. Bootstrap scores of at least 90% were kept. The scale bar indicates a 2% nucleotide sequence divergence.

**Deposit in a culture collection.** Strain Marseille-P3336 was deposited in the Collection de Souches de l'Unité des Rickettsies (CSUR, WDCM 875) under number P3336.

## **Transparency declaration**

No conflicts of interest to declare.

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