

***Peloplasma aerotolerans* gen. nov., sp. nov., a novel anaerobic free-living mollicute isolated from a terrestrial mud volcano**

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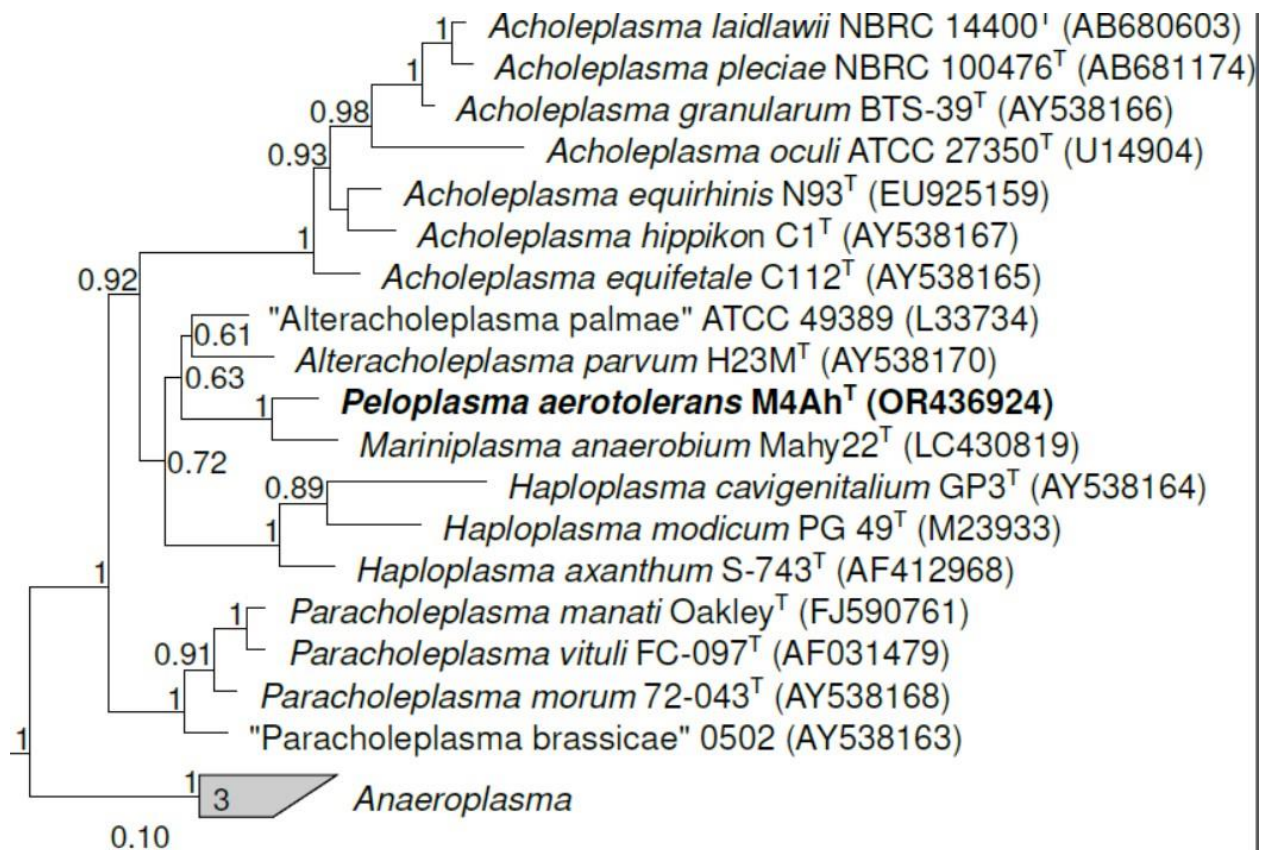
Supplementary Table S1. The cellular fatty acid profile of M4Ah^T strain.

Name	ECL (HP-5MS)	Strain M4Ah
i-C _{14:0}	13.647	1.7
C _{14:0}	14.000	2.7
i-C _{15:0}	14.635	5.1
ai-C _{15:0}	14.692	4.5
i-C _{16:0}	15.632	1.9
C _{16:0}	16.000	35.1
ai-C _{17:0}	16.718	ND
C _{17:0}	17.000	0.8
3-OH C _{16:0}	17.508	1.8
C _{18:1} ω9c	17.762	6.9
C _{18:1} ω7c	17.816	2.3
C _{18:0}	18.000	29.1
3-OH C _{18:0}	19.538	4.1
C _{22:1}	21.778	4.0

Supplementary Table S2. Distribution of bacterial clones species-related to M4Ah^T isolate in environmental and artificial habitats. Blastn with the identity>94.5% and alignment length ≥1 300 bp, was used in order to align the metagenomic quality-filtered shotgun reads against strain M4Ah^T genome.

Database name	GenBank accession number	Source	16S rRNA sequence similarity, %	Reference
Stn1_Nov_17	KX014197.1	Surface water of mangrove creek, India	96.26	44
EMIRGE_OTU_s3t2d_423	JX222651.1	Subsurface aquifer sediment, USA	96.12	Unpublished
EV818CFSSAHH219	DQ337019.1	Subsurface water, South Africa	95.99	45
B98	AB874577.1	Anaerobic reactor treating corn straw, China	96.47	46
FGL12_B14	FJ437874.1	Lake sediment, USA	95.58	47
MZ-XQ	CP017950.1	Deep seafloor coal bed, Japan	95.58	Unpublished
Ach1	MW599757.1	Cold seep sediment, China	95.51	Unpublished
TANB25	AY667255.1	TCE-dechlorinating groundwater, USA	95.77	48
zrk7	OP108612.1	Cold seep, China	95.24	Unpublished
XX0065	FJ820457.1	Hypertrophic freshwater lake, China	95.04	Unpublished
CK06-06_Mud_MAS1B-28	AB369171.1	Riser drilling mud fluid, Japan	95.50	49
e871f63d-8a2d-4cdd-b754-05539c673417*	OY764060.1	Ciliate metagenome, UK	94.76	Unpublished

SAW1_B33	FJ716289.1	Water column, at 10.3 m water depth, USA	94.64	Unpublished
B-6	HQ703858.1	Lake sediment, China	95.01	50
HJ1A286	KC852988.1	Soda lake sediment, Mongolia	96.18	51
BF65B_B15	HM141299.1	Supraglacial spring outflow, USA	96.54	52
2P9SHNG554	FJ469288.1	Oil well, USA	95.95	53



Supplementary Figure 1. Phylogenetic placement of *Peloplasma aerotolerans* M4Ah^T based on 16S rRNA gene sequence. The tree was built using the IQ-TREE program [28] and the ultrafast approximation for phylogenetic bootstrap [30]. Bootstrap values above 70% are shown at the nodes. Bar, 0.10 changes per position.