

The novel, extremely acidophilic, cell wall-deficient archaea *Cuniculiplasma divulgatum* gen. nov., sp. nov. represent a new Family of *Cuniculiplasmataceae* fam. nov., order *Thermoplasmatales*.

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Supplementary materials:

Table S1: Relative abundances of major lipid groups and individual structures contributing to these lipid groups in the strains S5 and PM4. (abbreviations: intact polar- (IP-), archaeol (AR), glycerol-dibiphytanyl-diether (GDD), monoglycosidic-phosphatidylglycerol- (1G-PG-), phosphatidylglycerol- (PG-), monoglycosidic- (1G-), diglycosidic- (2G-), triglycosidic- (3G-) tetraglycosidic- (4G-) glycerol-dibiphytanyl-glycerol-tetraether (GDGT), glycerol-trialkyl-glycerol-tetraether (GTGT), GDGT with zero to four cyclopentane moieties (GDGT 0 - 4), H-shaped (H-) GDGT, methylated (Me-) GDGT, menaquinone (MK), thermoplasmaquinone (TPQ), glycosidic- (G-), glycosidic-hydroxylated (G-OH-), phospho- (P-) AR, core hydroxylated- (OH-), unsaturated (uns) AR).

Major lipid groups	Strain S5	Strain PM4	Individual lipid structures within major lipid groups	Strain S5	Strain PM4
C-AR	5.1%	3.9%	AR	63.3%	66.1%
			unsAR	32.5%	32.4%
			OH-AR	4.1%	1.5%
core GDGT	14.8%	25.1%	GDGT-0	13.7%	14.1%
			GDGT-1	4.8%	8.2%
			GDGT-2	25.3%	26.7%
			GDGT-3	10.3%	12.4%
			GDGT-4	30.1%	25.5%
			GTGT	6.0%	4.5%
			H-GDGT	9.9%	5.1%
			Me-GDGT	0.0%	3.4%

GDD	0.1%	0.1%	C-GDD	27.7%	58.1%
			IP-GDD	72.3%	41.9%
IP-AR	3.3%	2.4%	G-AR	25.6%	34.9%
			G-OH-AR	71.9%	36.7%
			P-AR	2.4%	28.4%
1G-GDGT	56.1%	32.9%	1G-GDGT-0	8.5%	13.4%
			1G-GDGT-1	6.3%	9.5%
			1G-GDGT-2	28.3%	26.9%
			1G-GDGT-3	20.8%	15.8%
			1G-GDGT-4	32.7%	32.0%
			1G-H-GDGT	3.4%	2.4%
2G-GDGT	2.4%	0.4%	2G-GDGT-0	7.6%	9.0%
			2G-GDGT-1	5.7%	9.5%
			2G-GDGT-2	40.6%	46.6%
			2G-GDGT-3	15.9%	7.9%
			2G-GDGT-4	30.3%	27.1%
3G-GDGT	0.5%	1.0%	3G-GDGT-0	9.6%	5.2%
			3G-GDGT-1	7.4%	5.4%
			3G-GDGT-2	42.4%	38.1%
			3G-GDGT-3	17.8%	20.8%
			3G-GDGT-4	22.8%	30.6%
4G-GDGT	0.0%	3.2%	4G-GDGT-0	0.0%	8.9%
			4G-GDGT-1	0.0%	12.0%
			4G-GDGT-2	0.0%	52.2%
			4G-GDGT-3	0.0%	13.7%
			4G-GDGT-4	0.0%	13.1%
PG-GDGT	8.3%	19.9%	PG-GDGT-0	31.1%	3.0%
			PG-GDGT-1	14.0%	2.8%
			PG-GDGT-2	46.5%	18.5%
			PG-GDGT-3	8.3%	14.0%
			PG-GDGT-4	0.0%	61.7%
1G-PG-GDGT	1.1%	2.2%	1G-PG-GDGT-0	17.9%	0.0%
			1G-PG-GDGT-1	11.0%	0.0%
			1G-PG-GDGT-2	43.3%	7.1%
			1G-PG-GDGT-3	12.4%	7.5%
			1G-PG-GDGT-4	15.3%	85.4%
Quinones	8.3%	9.0%	MK	84.3%	94.5%
			TPQ	15.7%	5.5%