

1 **Table S4. Table showing the 50 most abundant OTUs, the number of sequences, their**
2 **relative abundance and their respective best NCBI BLASTn hit including the habitat of**
3 **the best uncultured NCBI BLASTn hit.**

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OTU	No. of sequences	Relative abundance median [%]	Taxonomy NCBI BLAST cultured	Similarity [%]	Taxonomy NCBI BLAST uncultured	Similarity [%]	Habitat of best uncultured NCBI BLAST hit
1	175683	16.49	<i>Campylobacter fetus</i> ; KF052122.1	98	Uncultured rumen bacterium; LN613062.1	97	goat rumen mucosa
2	75116	7.05	<i>Kingella oralis</i> ; KM225757.1	95	Uncultured rumen bacterium clone; HQ400365.1	99	rumen tissue from HEAN (Hereford x Angus) crossbred beef cattle
3	48922	4.59	<i>Brachymonas denitrificans</i> ; EU434449.1	96	Uncultured rumen bacterium clone; LN613041.1	99	goat rumen mucosa
4	30179	2.83	<i>Desulfohalobus</i> sp. oral taxon; GU398208.1	96	Uncultured rumen bacterium clone; GU304430.1	99	rumen epithelium Bos taurus Hereford x Angus hybrid (HEAN)
5	17000	1.60	<i>Azoarcus</i> sp.; AP012304.1	94	Uncultured bacterium; AB456263.1	95	activated sludge
6	13579	1.27	<i>Bacteroidetes</i> bacterium; AY548787.1	90	Uncultured <i>Bacteroidetes/Chlorobi</i> group bacterium clone; EU266837.1	93	tar-oil contaminated aquifer sediments
7	17416	1.63	<i>Desulfohalobus</i> sp. oral taxon; GU398207.1	97	Uncultured bacterium clone; EU844167.1	99	bovine rumen fluid fiber adherent microbiome from steer 64; 6 week sample; 1 hour after feeding
8	17786	1.67	<i>Bacteroidia</i> bacterium feline oral taxon; KM462114.1	90	Uncultured bacterium clone; EU773657.1	99	Capybara feces
9	17000	1.60	<i>Ruminobacter</i> sp.; AB730720.1	96	Uncultured rumen bacterium; AB615192.1	100	cattle rumen
10	9875	0.93	<i>Clostridium oceanicum</i> ; LC007108.1	90	Uncultured rumen bacterium; LN612980.1	99	goat rumen mucosa
11	11045	1.04	<i>Desulfovibrio</i> sp. feline oral taxon; KM461955.1	97	Uncultured bacterium; HE681397.1	97	human subgingival plaque
12	10107	0.95	<i>Desulfohalobus</i> sp. oral taxon; GU398208.1	96	Uncultured rumen bacterium; LN612946.1	98	goat rumen mucosa
13	9159	0.86	Methanogenic prokaryote enrichment culture; KC821455.1	91	Uncultured rumen bacterium clone; GU303307.1	99	rumen epithelium Bos taurus Hereford x Angus hybrid (HEAN)
14	7634	0.72	<i>Cardiobacterium</i> sp. canine oral taxon; JN713405.1	91	uncultured rumen bacterium; AM884040.1	99	rumen epithelium of wethers

15	5870	0.55	<i>Bacteroidetes</i> bacterium; AY548787.1	90	Uncultured bacterium isolate; HQ222748.1	93	hybrid wastewater stabilization pond treating domestic wastewater
16	8021	0.75	<i>Bacteroidia</i> bacterium feline oral taxon; KM462114.1	91	Uncultured rumen bacterium clone; EU719248.1	98	rumen Bos taurus breed Holstein
17	7903	0.74	<i>Succiniclasicum ruminis</i> ; NR_026205.1	96	Uncultured rumen bacterium; AB612616.1	99	cattle rumen
18	8838	0.83	<i>Gilliamella apicola</i> ; KF600145.1	85	Uncultured rumen bacterium clone; GU303441.1	99	rumen epithelium Bos taurus Hereford x Angus hybrid (HEAN)
19	7936	0.74	<i>Enterobacteriaceae</i> bacterium; KF600324.1	86	Uncultured bacterium; AB506532.1	100	sheep rumen
20	5027	0.47	GN02 bacterium canine oral taxon; JN713535.1	93	Uncultured rumen bacterium; LN612908.1	99	goat rumen mucosa
21	6172	0.58	<i>Bacteroidia</i> bacterium feline oral taxon; KM462114.1	90	Uncultured rumen bacterium clone; GQ326919.1	98	rumen of cows
22	6439	0.60	<i>Synergistales</i> bacterium canine oral taxon; JN713408.1	96	uncultured rumen bacterium clone; GU304562.1	99	rumen epithelium Bos taurus Hereford x Angus hybrid (HEAN)
23	6774	0.64	<i>Ruminobacter</i> sp.; AB730720.1	98	Uncultured rumen bacterium; AB555288.1	98	cattle rumen
24	4532	0.43	<i>Endomicrobium proavitum</i> ; CP009498.1	93	Uncultured rumen bacterium; AB614890.1	99	cattle rumen
25	5950	0.56	Rumen bacterium; GU324404.1	99	Uncultured rumen bacterium; LN612775.1	99	goat rumen mucosa
26	4926	0.46	<i>Desulfovibrio</i> sp. oral taxon; GU398181.1	96	Uncultured organism clone; HQ787847.1	96	gastrointestinal specimens Homo sapiens
27	5562	0.52	<i>Ruminobacter</i> sp.; AB730720.1	98	Uncultured rumen bacterium; AB614659.1	99	cattle rumen
28	3807	0.36	<i>Clostridium oceanicum</i> ; LC007108.1	91	uncultured rumen bacterium clone; GQ327200.1	99	rumen of cows
29	3996	0.38	<i>Pyramidobacter piscolens</i> ; NR_113185.1	94	uncultured rumen bacterium clone; JF797534.1	99	rumen dairy cattle (Holstein)
30	4884	0.46	<i>Bacteroidetes</i> bacterium oral taxon; GU413618.1	88	Uncultured bacterium; AB507597.1	98	sheep rumen
31	2280	0.21	<i>Saccharofermentans</i> sp.; AB730782.1	99	Uncultured bacterium clone; EU844212.1	99	rumen fluid fiber adherent microbiome from steer 64; 6 week sample; 1 hour after feeding

32	4225	0.40	<i>Bacteroidales</i> bacterium; AB730712.1	87	Uncultured rumen bacterium; AB555059.1	99	cattle rumen
33	3723	0.35	<i>Endomicrobium</i> <i>proavitum</i> ; CP009498.1	94	Uncultured rumen bacterium; AB612798.1	99	cattle rumen
34	2634	0.25	<i>Bacteroidetes</i> bacterium; AB849455.1	97	uncultured rumen bacterium clone; GQ327735.1	99	rumen of cows
35	2911	0.27	<i>Clostridium</i> <i>oceanicum</i> ; LC007108.1	91	Uncultured rumen bacterium clone; GQ327200.1	99	rumen of cows
36	3307	0.31	<i>Clostridiales</i> bacterium; AB730671.1	94	Uncultured rumen bacterium clone; GU303900.1	99	rumen contents Bos taurus Hereford x Angus hybrid (HEAN)
37	3650	0.34	<i>Fretibacterium</i> sp. feline oral taxon; KM462182.1	95	Uncultured rumen bacterium clone; GU304528.1	99	rumen epithelium Bos taurus Hereford x Angus hybrid (HEAN)
38	3137	0.29	<i>Christensenella</i> <i>minuta</i> ; NR_112900.1	90	Uncultured rumen bacterium clone; GU303307.1	99	rumen epithelium Bos taurus Hereford x Angus hybrid (HEAN)
39	3113	0.29	<i>Deltaproteobacterium</i> ; AY771935.1	95	Uncultured bacterium clone; JX097311.1	95	German Wadden Sea tidal flat sediments
40	3028	0.28	<i>Bacteroidia</i> bacterium feline oral taxon; KM462114.1	91	Uncultured rumen bacterium; AB616493.1	95	cattle rumen
41	2877	0.27	<i>Elusimicrobium</i> <i>minutum</i> ; NR_074114.1	96	Uncultured <i>Termite</i> group 1 bacterium; AM491075.1	99	Cow Rumen
42	2259	0.21	<i>Clostridiales</i> bacterium canine oral taxon; JN713385.1	94	Uncultured rumen bacterium; AB185640.1	99	PCR-derived sequence from cattle rumen
43	3561	0.33	<i>Clostridiales</i> bacterium; AB730671.1	94	uncultured rumen bacterium clone; GU303900.1	99	sheep rumen
44	3302	0.31	<i>Succinivibrio</i> <i>dextrinosolvens</i> ; AB849337.1	99	Uncultured <i>Succinivibrio</i> sp. clone; KM073420.1	99	rumen Budorcas taxicolor bedfordi
45	3434	0.32	<i>Succinivibrio</i> <i>dextrinosolvens</i> ; AB849337.1	96	uncultured bacterium; AB821776.1	99	cattle rumen
46	2827	0.27	<i>Bacteroidia</i> bacterium feline oral taxon; KM462114.1	90	uncultured bacterium; AB746546.1	96	cattle rumen
47	2867	0.27	<i>Clostridiales</i> bacterium feline oral taxon; KM462113.1	95	uncultured bacterium; KM073392.1	98	rumen Budorcas taxicolor bedfordi
48	2934	0.28	<i>Clostridium</i> from anoxic bulk soil; AJ229251.1	100	uncultured rumen bacterium clone; JX218666.1	99	cattle rumen

49	3141	0.29	<i>Selenomonas ruminantium</i> subsp. <i>lactilytica</i> ; NR_075026.1	99	uncultured rumen bacterium clone; AB555463.1	99	cattle rumen
50	3132	0.29	<i>Bacteroidia</i> bacterium feline oral taxon; KM462114.1	91	Uncultured rumen bacterium; AB612732.1	96	cattle rumen

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