TABLE S1 Relative abundances of ciliate genera in fraction 1 of the rumen samples obtained from sheep S4 and cow C1 as observed by microscopic counts and 454-based pyrosequencing.

	Relative abundance in sample from sheep S4		Relative abundance in sample from cow C1	
Ciliate genus	Microscopy	Pyrosequencing	Microscopy	Pyrosequencing
Anoplodinium-Diplodinium	11.9%	18.6%	7.5%	7.1%
Charonina	_a	-	2.0%	0.8%
Dasytricha	11.4%	5.3%	-	-
Entodinium	38.9%	8.7%	88.0%	35.2%
Epidinium	24.6%	58.1%	-	0.5%
Eudiplodinium	10.1%	5.4%	-	-
Isotricha	3.1%	3.8%	0.5%	1.5%
Metadinium	-	-	-	24.9%
Ostracodinium	-	-	1.5%	25.0%
Polyplastron	-	-	0.5%	5.1%

^{*a*}Not detected.

FIG S1



FIG S1 Bright field and single fluorescence *in situ* hybridization microscopic images from Fig. 2. Ciliates were simultaneously hybridized with the universal Eukarya probe EUKb1193 (Cy5) and the *Charonina ventriculi*-specific probe CHA1350 (Cy3). The images were taken from the same field of fraction 3 of a rumen sample collected from cow C1. (a) Bright field image. The scale bar represents 10 μ m. Color replacement was used to show cells stained with CHA1350 in blue (b) and those stained with EUKb1193 in green (c) in the same field as shown in panel (a).

FIG S2



FIG S2 Bright field and fluorescence *in situ* hybridization microscopic images. Ciliates were simultaneously hybridized with the universal Eukarya probe EUKb1193 (Cy5) and the *Charonina ventriculi*-specific probe CHA1350 (Cy3). Images were obtained from two different fields (panels a-c and d-f) of fraction 3 of a rumen sample collected from cow C1. For each field, a bright field image (a, d) was collected together with one image using the Cy3 filter (b, e) and one image using the Cy5 filter (c, f). The scale bar represents 10 μm. Color replacement was used to show cells stained with EUKb1193 in blue, and those stained with CHA1350 in green.

FIG S3

	Genus/Clade
Entodinium (13; U57765, AB481099, AM158442-450 Faiduin AM158466, AM158471)	Entodinium
(3; U57763, AM158465, AM158474)	Epidinium
AM158467 Ophryoscolex caudatus	Ophryoscolex
Metadinium medium (2; AB535215, AM158464)	Metadinium
Eudiplodinium (3: U57766, AM158451-452)	Eudiplodinium
Polyplastron (4; U27815, U57767, AM158458-459)	Polyplastron
Ostracodinium (5; AB535662, AB536717-718, AM158460, AM158468)	Ostracodinium
	Diploplastron-Eremoplastron
	Apoplodinium-Diplodinium
(3; U57764, AM158440, AM158470)	Enoploplastron
AB536716 Eudiplodinium rostratum	
AM158469 Eremoplastron rostratum	
Cycloposthium	
(4; EF632076-077,AB530165, AB795031)	Cycloposinium
AB793777-778, AB793781-782, AB793744-745)	Bozasella-Triplumaria
Charonina ventriculi (3; KJ870172-174)	Charonina
	Kaabena Tetratovum
AR794091 Ditoxum (J; AB794969-971)	Ditoxum
EF632078 Cochliatoxum periachtum	Cochliatoxum
Triadinium caudatum (2; AB530163, AB794968)	Triadinium
EF632074 Tripalmaria dogieli	Tripalmaria Spirodinium
▲B555710 Polydiniella mysorea	Polvdiniella
AB793783 Gassovskiella galea	Gassovskiella
Biepharocorys (5; AB534184, AB794976-978, FM201780)	Blepharocorys b
AB794973 Ochoterenaia appendiculata	Ochoterenaia Circodinium
AB530162 Blepharocorys uncinata	Blepharocorys a
AB530164 Parentodinium sp. YM2009	Parentodinium
	Pseudoentoamam
(4; APU29/62, AM158454-456) <i>Isotricha intestinalis</i> (3; U57770, AM158441, AM158453)	Isotricha
Dasytricha ruminantium (3; U27814, U57769, AM158463)	Dasytricha
Bandia (3; AF298822-823, AY380823)	Bandia a
	Bandia b
AF298821 Bitricha tasmaniensis	Bitricha
AF298817 Amylovorax´dehorityi AF042486 Macropodinium valabense	Mooropodinium
AF298820 Macropodinium enhuensis	Nacropoullium
AF298819 Polycosta roundi	Polycosta Balantidium h
GU480804 Balantidium clenopharyngodoni 	Neobalantidium
AB794982 Latteuria polyfaria	Latteuria
AB794983 Latteuria media	Helicozoster
EF632075 Paraisotricha colpoidea	Paraisotricha
AB786848 Buxtonella sulcata (AB786848. AB794979)	Buxtonella
AB555709 Bundleia postciliata	Bundleia a
AB795025 Didesmis ovalis	Didesmis
AB555712 Bundleia nana	Bundleia b Sulcoarcus
AB795026 Alloiozona trizona	Alloiozona
AB795029 Prorodon gymnoprosthium	Hemiprorodon-Prorodonopsis
AB795027 Blepharoconus hemiciliatus	Blepharoconus-Triadinium
EU581716 Balantidium entozoon	Balantidium_a
0.10	

FIG S3 Randomized Accelerated Maximum Likelihood tree as shown in Fig. 4. This tree provides the genus/clade level designations used in File S1.

FILE S1 Accession numbers, taxonomic classifications and 18S rRNA gene sequences of all 168 almost full-length (≥1,500 bp) intestinal ciliate 18S rRNA gene sequences used in this study. All sequences contained *S. cerevisiae* positions 83-1,727, except for the sequences from a previous study, which were slightly shorter and contained positions 317-1,727 (1). Column A ("Cluster in tree") represents the cluster that each sequence belongs when clusters in the tree are numbered from top to bottom, and allows sorting of sequences according to the phylogenetic tree. A taxonomy file and a sequence file (requires conversion into .fasta format) are provided in tabs "tax_file" and "seq_file", respectively. This database is compatible with software such as QIIME (2) and may be used for BLAST-based taxonomic assignment of environmental sequences collected, for example, by using high-throughput next-generation sequencing technologies.

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