

		HELIX N					LOOP
		1	10	20	30	40	
Ca. <i>N. alkalit.</i>	N-type c	...MDSMTLIAVASIVTAGITTTGVGTIGPALG	E	GRAVSTALTSLAQQPD			
<i>B. pseu.</i>	N-type cMNNLIEVVSIAAAALAVSFGAIGPALA	E	GRAVGAAMDIAIARQPD			
<i>M. barkeri</i>	N-type c	MALDTYITTTIIVASIIATAGITIGIGVIGPAIG	E	GRAVATALLSSLAQQPD			
<i>D. baculatum</i>	N-type c	...MDSMTIIIVASIIIIAGITTTGFGTMGPALA	E	GKAVATALTSLAQQPD			
<i>N. sp. Is79A3</i>	N-type c	...MDSMTIIIVASIIITAGMTIGIGVIGPSLG	E	GKAVATALTSLAQQPD			
<i>F. nuc. nuc.</i>	V-type c	MDLLTAKTIVLGC SAVGAGL.AMIAGLGP GIG	E	G YAAGKAVESVARQPE			
<i>I. polyt.</i>	V-type c	MDMLLAKTVVLAASAVGAGT.AMIAGIGPGVGV	Q	G YAAGKAVESVARQPE			
<i>E. coli</i>	F-type c	ME.....NLMNDLLYMAAAVMMGLAAIGAAIG	I	G I LGGKFLEGAARQPD			
<i>N. def.</i>	F-type c	MD.....AAAAALVGMGL.AAAGFAGAGVGI	G	Y I F GKMI EAVARQPE			
Ca. <i>N. alkalit.</i>	F-type c	MD.....SAAAALLGMGL.AAAGFAGAGIGI	G	Y I F GKMI EAVARQPE			

		HELIX C					
		50	60	70	80	90	
Ca. <i>N. alkalit.</i>	N-type c	AANTITRTLFLVGLAMI	ESTAIY	CFVVSMLIFANPFWNHVLAQAAGK			H+/Na+
<i>B. pseu.</i>	N-type c	ASGTVSRTLFLVGLAMI	ETMAIY	CLVVALLLL FANPFVK.....			H+
<i>M. barkeri</i>	N-type c	ASATITRTLFLVGLAMI	ESLAIY	CFVVSMLIFANPFWN RALT.....			H+/Na+
<i>D. baculatum</i>	N-type c	ASATITRTLFLVGLAMI	ESTAIY	CFVVSMLIFANPFWN Y AIAQMAGK			H+/Na+
<i>N. sp. Is79A3</i>	N-type c	ASATITRTLFLVGLAMI	ESTAIY	CFVVSMLIFANPFWN QVITQAAGK			H+/Na+
<i>F. nuc. nuc.</i>	V-type c	ARGSIIISTMILGQAVA	ESTGIY	SLVIALILLYANPFLSKLG.....			Na+
<i>I. polyt.</i>	V-type c	AKGDIISTMVLGQAVA	ESTGIY	SLVIALILLYANPFLVGLLG.....			Na+
<i>E. coli</i>	F-type c	LIPLLRTQFFIVMGLVDAIPMIAVGLGLYVMFAVA.....					H+
<i>N. def.</i>	F-type c	AEGRVGKYMWIGFALV	EAIALY	GLVIAFIIMGLRK.....			H+
Ca. <i>N. alkalit.</i>	F-type c	AEGRVGKYMWIGFALV	EAIALY	GLVIAFIIMGK.....			H+

Figure S10 Amino acid alignment of selected c subunits of N-, F-, and V-type ATPases including the N- and F-type c subunits identified in “*Ca. Nitrospira alkalitolerans*”. The type of ATPase and the transported cations are indicated at the beginning and end of each sequence, respectively. ATPases that have not yet been specifically characterized with respect to cations transported are tagged with H⁺/Na⁺. The glutamic acid and glutamine residues in the N-terminal helix putatively serving as Na⁺ ligands and the typical ESTxxY Na⁺-binding motif in the C-terminal helix are highlighted in orange. Conserved regions are highlighted in grey. Included species are: “*Ca. Nitrospira alkalitolerans*” (numbering), *Burkholderia pseudomallei* 668, *Methanosarcina barkeri* Fusaro, *Desulfomicrobium baculatum* DSM 4028, *Nitrosomonas* sp. Is79A3, *Fusobacterium nucleatum* subsp. nucleatum ATCC 25586, *Ilyobacter polytropus* DSM 2926, *Escherichia coli* O42, and *Nitrospira defluvi*.