

New insights into the ecology of the globally significant uncultured nitrogen-fixing symbiont UCYN-A

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Supplement 1. Table S1: Compilation of all qPCR studies (Taqman® chemistry) used to synthesize global distributions of UCYN-A in Figure 1.

reference	Region	reference for qPCR assay(s) used	data included in Fig. 1	comments
Bentzon-Tilia et al. (2015)	Great Belt Strait	Bentzon-Tilia et al. (2015)	yes	
Bombar et al. (2011)	South China Sea	Church et al. (2005)	yes	
Bonnet et al. (2008)	Southeast Pacific Ocean	Church et al. (2005)	yes	
Bonnet et al. (2015)	Southwest Pacific Ocean	Church et al. (2005), Thompson et al. (2014)	yes	
Church et al. (2005)	Subtropical North Pacific (ALOHA)	Church et al. (2005)	yes	
Church et al. (2008)	North Pacific Ocean	Church et al. (2005)	yes	
Church et al. (2009)	North Pacific Ocean	Church et al. (2005)	yes	
Fong et al. (2008)	North Pacific Ocean	Church et al. (2005)	yes	
Foster et al. (2007)	Western Tropical North Atlantic Ocean	Church et al. (2005)	yes	
Foster et al. (2009a)	Red Sea	Church et al. (2005)	yes	
Foster et al. (2009b)	Eastern Tropical Atlantic Ocean	Church et al. (2005)	yes	
Goebel et al. (2010)	Tropical North Atlantic Ocean	Church et al. (2005)	yes	
Halm et al. (2012)	South Pacific Gyre	Halm et al. (2012)	yes	
Hamersley et al. (2011)	Eastern North Pacific Ocean (SPOTS)	Church et al. (2005)	yes	
Hewson et al. (2007)	Southwest Pacific Ocean (Heron Reef)	Church et al. (2005)	yes	
Krupke et al.	Tropical North	Church et al. (2005)	yes	

(2013)	Atlantic Ocean (Cape Verde)			
Langlois et al. (2008)	Tropical North Atlantic Ocean	Langlois et al. (2008)	yes	
Moisander et al. (2010)	South Pacific Ocean	Church et al. (2005)	yes	
Moisander et al. (2008)	South China Sea	Church et al. (2005)	yes	
Mulholland et al. (2012)	Subtropical North West Atlantic Ocean	Church et al. (2005)	yes	
Ratten et al. (2015)	Subtropical North Atlantic Ocean	Langlois et al. (2008)	yes	
Scavotto et al. (2015)	North Atlantic Ocean	Church et al. (2005)	yes	
Shilova et al. unpublished	Pacific Ocean (California Current System)	Church et al. (2005), Thompson et al. (2014)	yes	
Shiozaki et al. (2014a)	South China Sea	Shiozaki et al. (2014a)	yes	
Shiozaki et al. (2014b)	Indian Ocean	Shiozaki et al. (2014a)	yes	
Sohm et al. (2011)	Subtropical North Atlantic, Benguela upwelling	Church et al. (2005)	yes	
Thompson et al. (2014)	North Pacific Ocean	Thompson et al. (2014)	yes	
Turk-Kubo et al. (2014)	Eastern Tropical South Pacific Ocean	Church et al. (2005)	yes	
Turk-Kubo et al. (2015)	Western South Pacific Ocean	Church et al. (2005), Thompson et al. 2014	yes	
Turk-Kubo, unpublished	North and South Atlantic Ocean	Church et al. (2005), Thompson et al. (2014)	yes	
Turk-Kubo, unpublished	North Pacific Subtropical Gyre	Church et al. (2005), Thompson et al. (2014)	yes	
Turk-Kubo, unpublished	Gulf of Mexico	Church et al. (2005)	yes	
Watkins-Brandt et al. (2011)	Subtropical North Pacific	Church et al. (2005)	yes	
Bonnet et al. (2015)	Western South Pacific Ocean		no	not included; samples from sediment traps
Brown and Jenkins (2014)	Rhode Island Sound		no	not included; samples from sediment
Grosskopf et al. (2012)	Atlantic Ocean		no	not included; cannot determine abundance of UCYN-A alone from data presented
Hewson et al.	Tropical North		no	not included; UCYN-

(2007)	Atlantic Ocean			A assumed to be undetected
Hewson et al. (2009)	Southwest Pacific, North Pacific Subtropical Gyre, Equatorial Atlantic		no	not included; only RT-qPCR UCYN-A data
Kong et al. (2011)	South China Sea		no	not included; SYBR assay
Konno et al. (2010)	Northwest Pacific Ocean		no	not included; cannot determine abundance of UCYN-A alone from data presented
Krupke et al. (2015)	Tropical North Atlantic Ocean (Cape Verde)		no	not included; experimental manipulation
Langlois et al. (2012)	Tropical North Atlantic Ocean		no	not included; experimental manipulation
Law et al. (2012)	Southwest Pacific Ocean		no	not included; experimental manipulation
Moisander et al. (2012)	South Pacific Ocean		no	not included; experimental manipulation
Rijkenberg et al. (2011)	Tropical/Subtropical North Atlantic Ocean		no	not included; cannot determine abundance of UCYN-A alone from data presented
Robidart et al. (2014)	North Pacific Subtropical Gyre		no	not included; cannot determine abundance of UCYN-A alone from data presented
Short et al. (2007)	Chesapeake Bay		no	not included; only RT-qPCR UCYN-A data
Turk-Kubo et al. (2012)	Tropical East Atlantic		no	not included; experimental manipulation, only RT-qPCR data UCYN-A
White et al. (2013)	Gulf of California & Tropical Pacific Ocean		no	not included; only RT-qPCR UCYN-A data
Zehr et al. (2007)	North Pacific Ocean		no	not included; experimental manipulation

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Table S2. Metadata for sequence counts used in the maximum likelihood tree presented in Fig. 2, including raw read counts as well as relative abundances of all sequences associated with each UCYN-A OTU (clustered at 97% nucleotide identity). (in Supplement 2 at www.int-res.com/articles/suppl/a077p125_supp.xlsx)