

Supplementary Table S1 Sampling sites of *A. coerulea* and other information

Region	Geographical Coordinate	Sample	Abbreviation
Caofeidian	118.506E, 39.106N	medusae	M-CFD
Laoting	118.686E, 39.143N	ephyrae	E-LT
Qingdao	120.259E, 36.202N	medusae	M-QD
	120.219E, 36.211N	ephyrae	E-QD
Rongcheng	122.410E, 36.918N	medusae	M-RC
	122.510E, 36.924N	ephyrae	E-RC
Weifang	119.182E, 37.221N	medusae	M-WF
Dongying	119.002E, 37.960N	ephyrae	E-DY

Supplementary Table S2. Related sequences from GenBank

Sample Code	Sample Site	Geographical Coordinate	Haplotype No.	GenBank No.
M-CFD04; M-CFD06; M-CFD29	Caofeidian, Bohai Sea	118.506E, 39.106N	Hap1	MF981165
E-DY04; E-DY10; E-DY17; E-DY18; E-DY33; E-DY38; E-DY39	Dongying, Bohai Sea	119.002E, 37.960N		
E-LT 32; E-LT 39	Laoting, Bohai Sea	118.686E, 39.143N		
E-QD44; E-QD45; E-QD48	Qingdao, Yellow Sea	120.219E, 36.221N		
M-RC14; M-RC32	Rongcheng, Yellow Sea	122.410E, 36.918N		
M-QD01; M-QD14; M-QD15; M-QD18; M-QD25	Qingdao, Yellow sea	120.322E, 36.112N		
M-CFD07;M-CFD08; M-CFD09;M-CFD10; M-CFD12;M-CFD13; M-CFD18;M-CFD22; M-CFD23; M-CFD27	Caofeidian, Bohai Sea	118.506E, 39.106N		
E-DY01; E-DY03; E-DY05; E-DY07; E-DY08; E-DY16; E-DY34; E-DY35; E-DY36	Dongying, Bohai Sea	119.002E, 37.960N		
E-LT01; E-LT02; E-LT03; E-LT04; E-LT05; E-LT33; E-LT34; E-LT35; E-LT36; E-LT37; E-LT39; E-LT40; E-LT41; E-LT50	Laoting, Bohai Sea	118.686E, 39.143N		
E-QD03; E-QD04; E-QD05; E-QD06; E-QD07; E-QD23; E-QD24; E-QD26;	Qingdao, Yellow Sea	120.219E, 36.221N		

E-QD41; E-QD42; E-QD47; E-QD49; E-QD50				
E-RC02; E-RC05; E-RC06; E-RC09; E-RC17; E-RC19; E-RC23; E-RC28; E-RC29	Rongcheng, Yellow Sea	122.510E, 36.924N		
M-RC01; M-RC02; M-RC04; M-RC05; M-RC08; M-RC12; M-RC18; M-RC19; M-RC20; M-RC22; M-RC26; M-RC34	Rongcheng, Yellow Sea	122.410E, 36.918N		
M-QD02; M-QD03; M-QD04; M-QD06; M-QD07; M-QD08; M-QD09; M-QD11; M-QD12; M-QD13; M-QD16; M-QD17; M-QD20; M-QD23	Qingdao, Yellow sea	120.322E, 36.112N		
M-WF03; M-WF11; M-WF13	Weifang, Bohai Sea	119.182E, 37.221N		
M-CFD21; M-CFD28	Caofeidian, Bohai Sea	118.506E, 39.106N	Hap3	MF981167
E-DY02; E-DY06; E-DY15	Dongying, Bohai Sea	119.002E, 37.960N		
E-LT14; E-LT44	Laoting, Bohai Sea	118.686E, 39.143N		
E-QD08; E-QD43	Qingdao, Yellow Sea	120.219E, 36.221N		
M-RC31	Rongcheng, Yellow Sea	122.410E, 36.918N		
M-QD05	Qingdao, Yellow sea	120.322E, 36.112N		
E-RC01; E-RC14; E-RC15; E-RC18; E-RC25	Rongcheng, Yellow Sea	122.510E, 36.924N		
M-CFD05; M-CFD19; M-CFD30	Caofeidian, Bohai Sea	118.506E, 39.106N	Hap4	MF981168
E-LT13; E-LT31; E-LT45	Laoting, Bohai Sea	118.686E, 39.143N		
E-RC12; E-RC13; E-RC16; E-RC22; E-RC24	Rongcheng, Yellow Sea	122.510E, 36.924N		
M-RC03; M-RC06; M-RC07; M-RC13; M-RC21; M-RC25	Rongcheng, Yellow Sea	122.410E, 36.918N		
M-WF01; M-WF04; M-WF05; M-WF06; M-WF07; M-WF08; M-WF09; M-WF10; M-WF12; M-WF14; M-WF15	Weifang, Bohai Sea	119.182E, 37.221N		
M-CFD20	Caofeidian, Bohai Sea	118.506E, 39.106N	Hap5	MF981169
M-CFD26	Caofeidian, Bohai Sea	118.506E, 39.106N	Hap6	MF981170
M-CFD25	Caofeidian, Bohai Sea	118.506E, 39.106N	Hap7	MF981171
M-CFD16	Caofeidian, Bohai Sea	118.506E, 39.106N	Hap8	MF981172
E-DY	Dongying, Bohai Sea	119.002E, 37.960N	Hap9	MF981173

E-LT42	Laoting, Bohai Sea	118.686E, 39.143N	Hap10	MF981174
E-LT46	Laoting, Bohai Sea	118.686E, 39.143N	Hap11	MF981175
M-QD22	Qingdao, Yellow sea	120.322E, 36.112N		
M-RC09	Rongcheng, Yellow Sea	122.410E, 36.918N		
E-RC08	Rongcheng, Yellow Sea	122.510E, 36.924N	Hap12	MF981176
M-RC17	Rongcheng, Yellow Sea	122.410E, 36.918N	Hap13	MF981177
M-RC23	Rongcheng, Yellow Sea	122.410E, 36.918N	Hap14	MF981178
M-RC28	Rongcheng, Yellow Sea	122.410E, 36.918N	Hap15	MF981179
M-QD21	Qingdao, Yellow sea	120.322E, 36.112N	Hap16	MF981180
M-WF02	Weifang, Bohai Sea	119.182E, 37.221N	Hap17	MF981181