

Table S1. Summary statistics for slopes from multiple linear regressions of carbon translocation as a function of photosynthesis or symbiont density.

Carbon translocation ($\mu\text{g C cell}^{-1} \text{h}^{-1}$)			Total carbon translocation ($\mu\text{g C host protein}^{-1} \text{h}^{-1}$)		
	<i>F</i> value	<i>P</i> value		<i>F</i> value	<i>P</i> value
Photosynthesis ($\mu\text{C cell}^{-1} \text{hour}^{-1}$)	388.89	< 0.001	Cell density (cells μg^{-1} protein)	35.93	< 0.001
Symbiont genotype	6.81	< 0.01	Symbiont genotype	1.48	0.26
Interaction	12.77	< 0.001	Interaction	1.76	0.19
Residual d.f.	15		Residual d.f.	15	
	Slope (β)	<i>P</i> value		Slope (β)	<i>P</i> value
(Intercept)	3.01×10^{-8}	0.71	(Intercept)	-2.29×10^{-4}	0.57
Cell density	2.76×10^{-1}	< 0.05	Cell density	3.02×10^{-7}	< 0.05
Strain 2	-7.12×10^{-8}	0.41	Strain 2	1.79×10^{-4}	0.87
Strain 3	-4.89×10^{-8}	0.58	Strain 3	7.57×10^{-4}	0.41
Mixture	3.15×10^{-8}	0.72	Mixture	4.37×10^{-4}	0.49
D4-5	2.73×10^{-7}	< 0.01	D4-5	-3.13×10^{-4}	0.53
Cell density * Strain 2	3.57×10^{-1}	< 0.05	Cell density * Strain 2	-1.44×10^{-7}	0.74
Cell density * Strain 3	9.39×10^{-2}	0.42	Cell density * Strain 3	-1.93×10^{-7}	0.37
Cell density * Mixture	1.28×10^{-2}	0.92	Cell density * Mixture	-2.39×10^{-7}	0.42
Cell density * D4-5	-2.36×10^{-1}	< 0.05	Cell density * D4-5	2.71×10^{-7}	0.16

Table S2. Prey digestion of individuals hosting a single unique genotype of *Symbiodinium minutum* (strain 1, 2 and 3), a mixture of one genotype of *S. minutum* and *S. psygmophilum* (mixture) or *Symbiodinium* D4-5, and aposymbiotic anemones.

Prey digestion	Strain 1	Strain 2	Strain 3	Mixture	D4-5	Aposymbiotic
<i>Artemia</i> DNA present 24h after ingestion (%)	0.6	0.2	3.7	0.8	2.4	8.0

Prey digestion is estimated as the ratio between prey DNA content 24 h after ingestion and immediately after ingestion ($n = 5$; 100% denotes no prey digestion and 0% total prey digestion).

Table S3. Culture name, cnidarian host from which the symbionts were obtained and corresponding ITS2 Genbank numbers for the different symbiont strains.

Symbiont	Culture name	Host	Corresponding ITS2 Genbank #
<i>Symbiodinium minutum</i> strain 1	FLAp2	<i>Aiptasia pallida</i>	AF333511
<i>Symbiodinium minutum</i> strain 2	Unknown	Unknown	AF333511
<i>Symbiodinium minutum</i> strain 3	N/A	<i>Aiptasia pallida</i>	AF333511
<i>Symbiodinium psygmophilum</i>	Unknown	Unknown	AF333512
<i>Symbiodinium</i> clade D4-5	Ap31	Unknown anemone	AF499802 (4) EU812743 (5)

Table S4. Alleles for the five *Symbiodinium* clade B microsatellites used to resolve strain diversity.

Strain or MLG	Microsatellite Loci				
	B7Sym15	B7Sym34	BySym36	CA4.86	CA6.38
<i>Symbiodinium minutum</i> strain 1	263	281	196	182	101
<i>Symbiodinium minutum</i> strain 2	263	267	163	199	103
<i>Symbiodinium minutum</i> strain 3	259	271	169	182	101
<i>Symbiodinium minutum</i> + <i>S. psygmophilum</i> ^a	263	267	163	199	103

^a Microsatellites loci for the *S. minutum* strain present in the mixture with *S. psygmophilum*.

Table S5. Alleles for the six *Aiptasia* microsatellites used to resolve clone diversity.

<i>Aiptasia</i> clone	Microsatellite Loci					
	AIPT6	AIPT8	AIPT14	AIPT15	AIPT17	AIPT20
CC7	302	293	188	319	292	334
	302	295	191	322	292	334
Bermudas	302	293	188	319	294	339
	318	293	191	319	296	341