

Table S1. Metadata of the sampling location, where the SAGs were obtained.

Site description:	Atlantis II Deep (Red Sea), SW Basin
Lat. / Long.	21.20748 / 38.4831
Date of sampling	12/4/10
Sampling depth (m)	1,997
Sample description	Brine-seawater interface
Filter size (μm)	0.1 – 0.8
Temperature ($^{\circ}\text{C}$)	31.8
Salinity (<i>psu</i>)	56
pH	6.5
Dissolved oxygen ($\mu\text{mol kg}^{-1}$)	2.2
Nitrate (μM) ^a	55.3
Ammonia (μM)	2.0
Urea (μM)	1.7
Fe (nM)	0.5
Sulfate (mM) ^b	32.5
Mn (mM)	0.1
Chloride (M)	0.8
Na (M)	0.7
Bromide (mM)	1.0
K (mM)	13.2
Ca (mM)	17.3
Mg (mM)	61.8
B (mM)	0.5
Li (μM)	49.6
Sr (μM)	121.5
Si (mM)	0.1
Ba (μM)	1.7

^a Nitrite was below detection limit (0.1 μM).

^b H_2S was below detection limit ($\sim 1 \mu\text{M}$).