Table S2. DMSP lyase sequences used in this study as BLAST queries for retrieving homologs in the Organic Lake metagenomes. (%ID) is the minimum amino acid sequence identity threshold applied to matches to that DMSP lyase to be considered homologous.

|  |  |  |  |
| --- | --- | --- | --- |
| DMSP lyase (% ID) | Organism | accession | reference |
| DddD (60) | *Marinomonas* sp.MWYL1 | ABR72937.1 | Todd *et al*., 2007 |
|  | *Pseudomonas* sp.J465 | ACY01992.1 | Curson *et al.*, 2010 |
|  | *Psychrobacter* sp.J466 | ACY02894.1 | Curson *et al*., 2010 |
|  | *Halomonas* sp. HTNK1 | ACV84065.1 | Todd *et al*., 2010 |
| DddL (45) | *Sulfitobacter* sp. EE36 | ADK55772.1 | Curson *et al.*, 2008 |
|  | *Rhodobacter sphaeroides* 2.4.1 | ABA77574.1 | Curson *et al.*, 2008 |
| DddP (45) | *Roseovarius nubinhibens* ISM | EAP77700.1 | Todd *et al.*, 2009 |
| DddQ | *Ruegeria pomeroyi* DSS-3 | AAV94883.1 | Todd *et al.*, 2011 |
|  | *Roseovarius nubinhibens* ISM | EAP76001.1,  EAP76002.1 | Todd *et al.*, 2011 |
|  | marine metagenome | GOS\_7860946,  GOS\_2632696,  GOS\_2469775 | Todd *et al.*, 2011 |
| DddW | *Ruegeria pomeroyi* DSS-3 | AAV93771.1 | Todd *et al*., 2012 |
| DddY | *Alcaligenes faecalis* | ADT64689.1 | Curson *et al.*, 2011a |