



**Supplementary Fig.1** Cell morphology (phase contrast microphotographs) of natronophilic anaerobic syntrophic acetate-oxidizing cultures enriched from soda lakes. **a**, low-salt culture (0.6 M  $\text{Na}^+$ ) from Cock Soda Lake (3KL-010); **b**, moderately saline culture (1 M  $\text{Na}^+$ ) from Tanatar-5 lake; **c-d**, high salt cultures (2 and 3 M  $\text{Na}^+$ ) enriched from hypersaline Bitter-1 lake in 2010 (5KL-010) and 2011 (3KL-011), respectively