

**Figure S3:** The proposed functional indicator based on total short chain fatty acids and dissolved ammonia. **(a)** The overall patterns of the proposed indicator along 205-hour experiment with "loess" best fit line from the 13 prebiotic candidates; **(b)** total short chain fatty acids, SCFAs, at 24- and 48-hour of the 13 prebiotic candidates; **(c)** dissolved ammonia,  $\text{NH}_3$ , at 24- and 48-hour of the 13 prebiotic candidates; **(d)** functional indicator, SCFAs/ $\text{NH}_3$  ratio, at 24- and 48-hour of the 13 prebiotic candidates.

