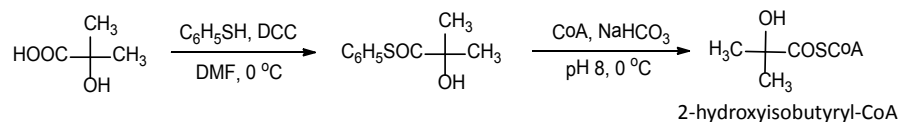
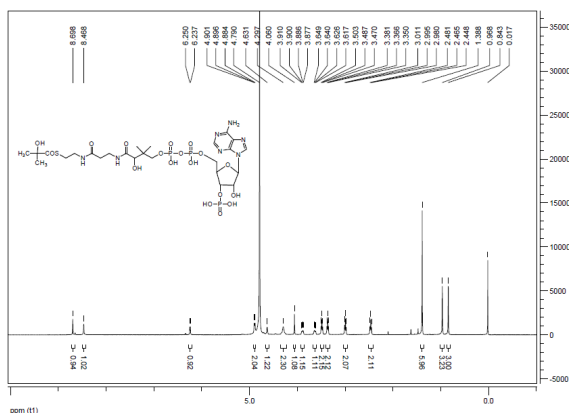
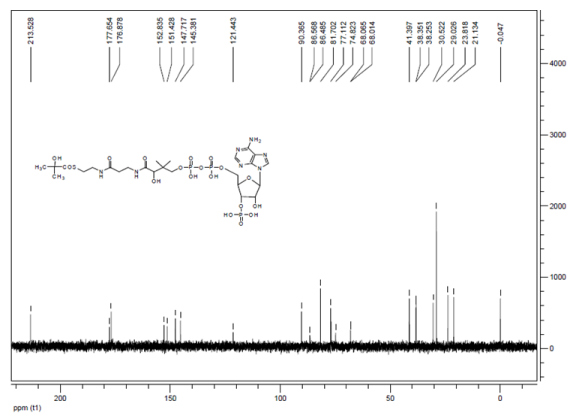


**A****B****C**

### Supplementary information, Figure S1 Synthesis of 2-hydroxyisobutyryl-CoA.

**(A)** Scheme for the synthesis pathway. **(B)**  $^1\text{H}$  NMR spectrum for synthesized 2-hydroxyisobutyryl-CoA.  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ):  $\delta$  (ppm): 8.70 (s, 1 H), 8.47 (s, 1 H), 6.24 (d,  $J = 5.2$  Hz, 1 H), 4.90 – 4.88 (m, 2 H), 4.63 (brs, 1 H), 4.36 – 4.21 (m, 2 H), 4.06 (s, 1H), 3.91 – 3.88 (m, 1 H), 3.65 – 3.62 (m, 1 H), 3.49 (t,  $J = 6.4$  Hz, 2 H), 3.37 (t,  $J = 6.4$  Hz, 2 H), 3.00 (t,  $J = 6.4$  Hz, 2 H), 2.47 (t,  $J = 6.4$  Hz, 2 H), 1.39 (s, 6 H), 0.97 (s, 3 H), 0.84 (s, 1 H). **(C)**  $^{13}\text{C}$  NMR spectrum for synthesized 2-hydroxyisobutyryl-CoA.  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ):  $\delta$  (ppm): 213.5, 177.7, 176.9, 152.8, 151.4, 147.7, 145.4, 121.4, 90.4, 86.6, 86.5, 81.7, 77.1, 74.8, 68.1, 68.0, 41.4, 41.3, 41.2, 38.4, 38.3, 30.5, 29.0, 23.8, 21.1.