

## Supplementary material

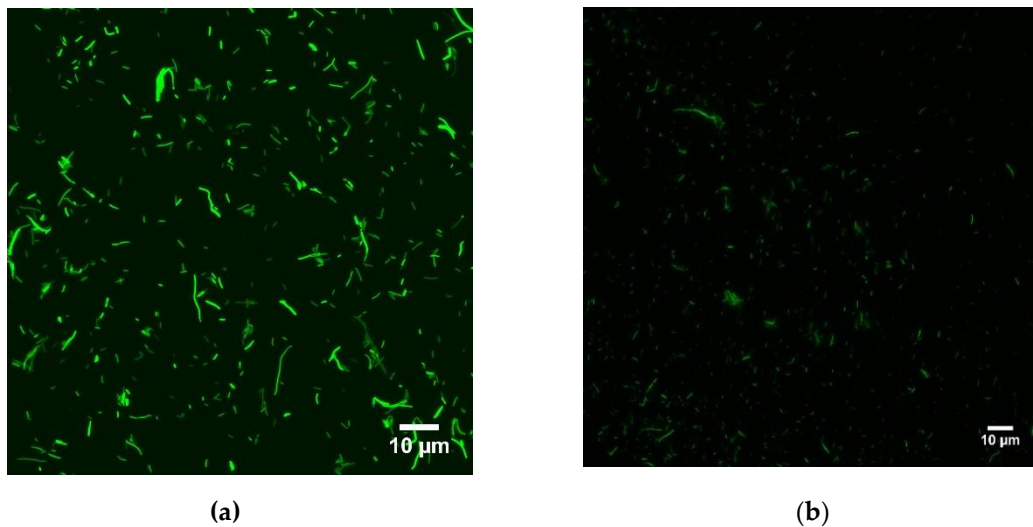


Figure S1. Fluorescence microscope images of *E. coli* CLD1301 cells grown on glucose (a) and glycerol (b) induced with 1 mM IPTG and stained with propidium iodide (PI). The samples correspond to the third chemostat data point in Figure 6(e) and 6(f), respectively. The images were acquired with an Nikon TI-SH-W inverted fluorescence microscope (Nikon GmbH, Dusseldorf, Germany) equipped with Andor Zyla 5.5 Mpixel camera (Andor Technology Ltd., Belfast, UK) and saved as standard Nikon nd.2 files, using the NIS Elements imaging software (Nikon, version 4.51).

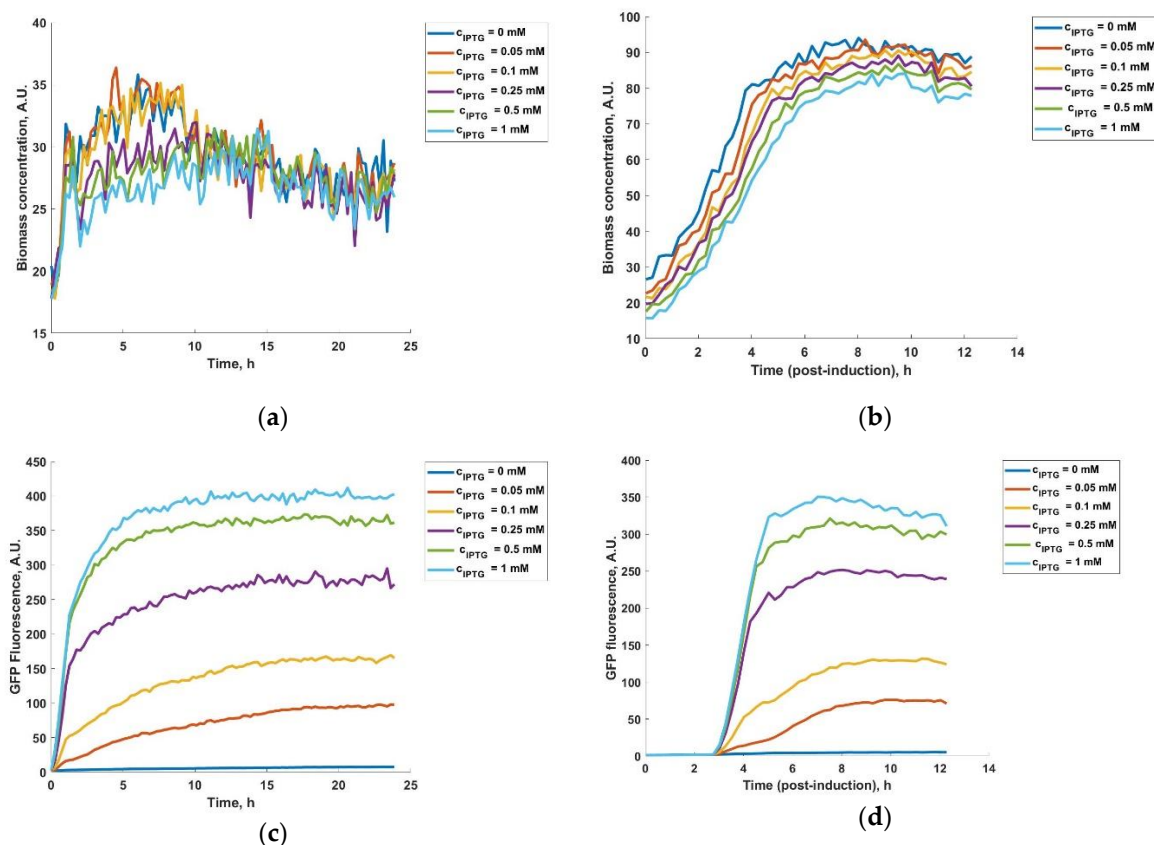
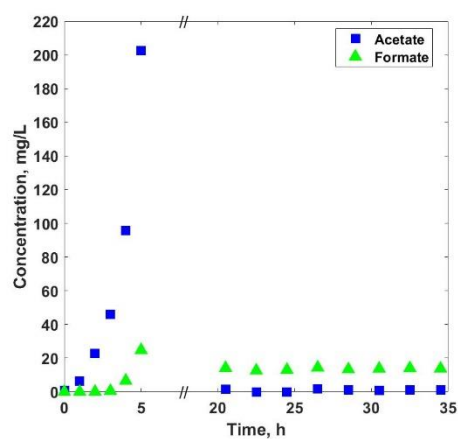
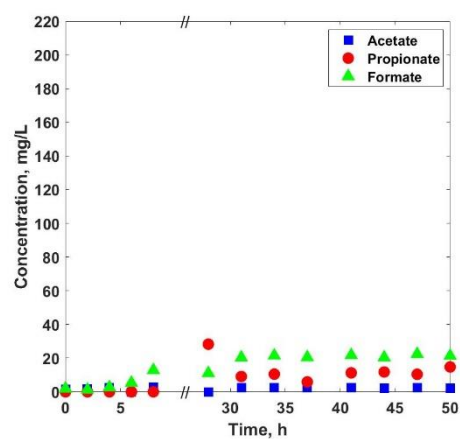


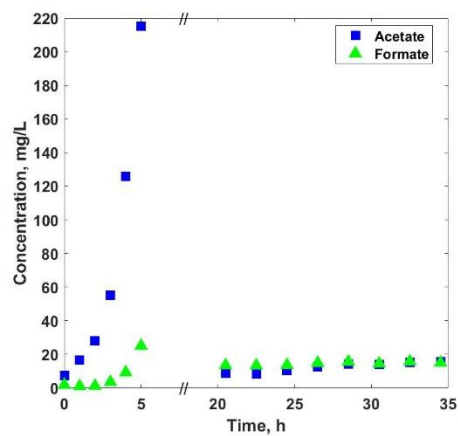
Figure S2. The influence of IPTG concentration on biomass and GFP fluorescence for *E. coli* CLD1301 grown on (a) glucose and (b) glycerol. The biomass concentration decreases slightly when IPTG concentration is increasing but the significant influence is in GFP fluorescence, which increases significantly as IPTG increases.



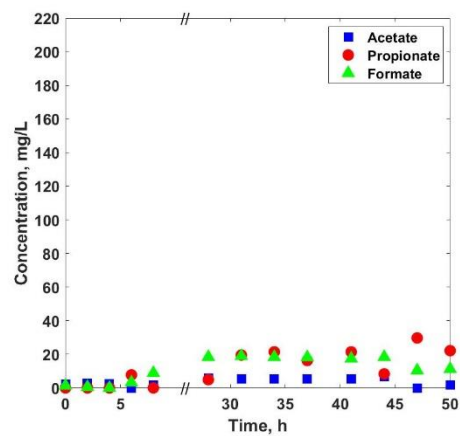
(a)



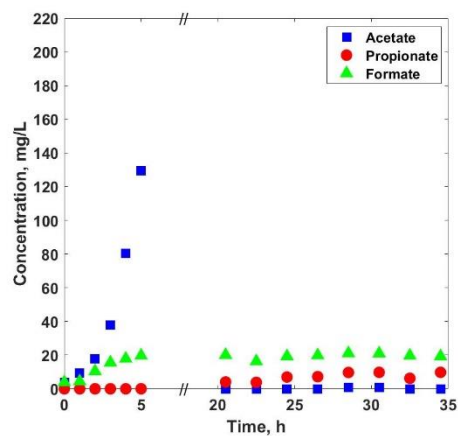
(b)



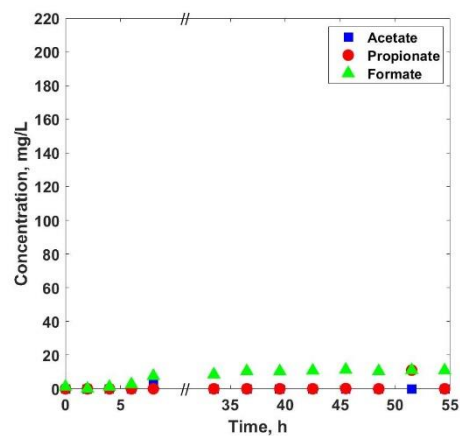
(c)



(d)



(e)



(f)

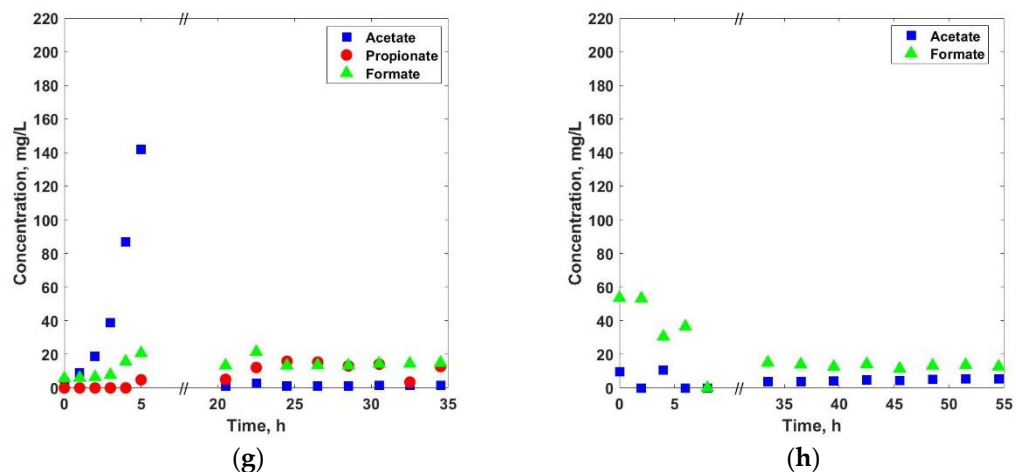


Figure S3. Volatile fatty acids concentrations during culture of *E. coli* W3110 with no IPTG addition on (a) glucose and (b) glycerol; *E. coli* W3110 with 1mM IPTG grown on (c) glucose and (d) glycerol; *E. coli* CLD1301 with no IPTG addition grown on (e) glucose and (f) glycerol; *E. coli* CLD1301 with 1mM IPTG grown on (g) glucose and (h) glycerol. In the cultures on glucose, the VFAs concentrations increase in batch phase and stabilize to a small concentration in the continuous phase. For some of the cultures, the propionate concentration was below the detection limit.