Phenol production from glucose via metabolically engineered *Escherichia coli*

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Microbial production of phenol, a commodity petrochemical, from renewable resources has been restricted due to its toxicity to microbes. Herein, we employed the synthetic regulatory sRNA technology to simultaneously engineer 18 *Escherichia coli* strains for the production of phenol. Specifically, sRNA-based knock-down of two regulators and overexpression of the tyrosine biosynthetic pathway genes together with tyrosine phenol-lyase in *E. coli* strains resulted in the production of phenol from glucose. Biphasic fed-batch fermentation using glycerol tributyrate as an extractant of phenol increased the final titer and productivity up to 3.79 g/L and 0.18 g/L/h, respectively. This is the highest titer achieved by microbial fermentation. [This work was supported by the Intelligent Synthetic Biology Center through the Global Frontier Project (2011-0031963) of the Ministry of Science, ICT & Future Planning through the National Research Foundation of Korea.]