**Fig. S1.** Representative reduced CO-difference spectra of *E. coli* JM109 cells transformed with plasmids encoding modified CYP53A15 with various N-terminal amino acids of mammalian P450 and human CPR: pCWRm1A2N-53A15, -rab2C3N-53A15, -r2C11N-53A15, -m2C29N-53A15, and -h2E1N-53A15. Underlining corresponds to the labels in the chart.

**Fig. S2.** Representative HPLC chromatograms of benzoate metabolites produced by the reaction of *E. coli* JM109 cells transformed with plasmids encoding modified CYP53A15 with various N-terminal amino acids of mammalian P450 and human CPR: pCWRm1A2N-53A15, -rab2C3N-53A15, -r2C11N-53A15, -m2C29N-53A15, and -h2E1N-53A15. Underlining corresponds to the labels in the chart.

PHBA, *p*-hydroxybenzoate; IS, internal standard (8-MOP); BA, benzoate.
Fig. S3. Representative reduced CO-difference spectra of *E. coli* JM109 cells transformed with pCWRab2C3N-53A15. CYP53A15 expression was induced in TB medium at 15°C, 20°C, 25°C, and 30°C for 24 h.