Escherichia coli affects expression of circadian clock genes in human hepatoma cells

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The mammalian circadian clock is important for homeostasis, as is the intestinal microbiota. Recent research indicated that dysbiosis can lead to an altered circadian clock. However, the role of *Escherichia coli*, the important facultative anaerobe in the gut, in influencing the host's circadian clock has yet to be defined. Therefore, we investigated the effect of *E. coli* on the host circadian rhythm in an established stable co-culture with human liver cells HepG2. Two genotypically different E. coli strains from the collection of faecal *E. coli*. strains from healthy individuals were selected for the assays. The obtained results showed that the bacterial strains had different impacts on the HepG2 cells circadian clock genes. The performed study hence revealed that the *E. coli* genetic background is important for the bacterial effect on the circadian clock genes indicating possible future use of different probiotic *E. coli* strains to influence the host circadian clock.