Can we create a novel endosymbiosis from arbitrary pair of model organisms by experimental evolution?

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SUMMARY

Endosymbiosis is ubiquitous in nature. The establishment of endosymbiosis must be an important step of evolution in which either one gets various abilities. However, it is not likely to be easy in terms of structural property to establish an endosymbiosis for organisms even when the endosymbiosis is beneficial in terms of natural selection. Our goal is to elucidate the establishment process, *i.e.*, from free living to endosymbiosis, at the molecular level. For the goal we are trying to construct a novel endosymbiosis by experimental evolution using two model organisms, both of which independently live in nature. Here we show the progress of the experimental evolution using *Tetrahymena thermophila* as a future host and *Escherichia coli* as a future symbiont.