

Symbiosis of the yeast *Pichia capsulata* in *Paramecium bursaria*

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SUMMARY

Chlorella-free *Paramecium bursaria* can be infected with various species of yeasts and bacteria, which are usually eventually ejected from the host cell when it is re-infected with the original symbiotic *Chlorella*. We have recently found that the yeast *Pichia capsulata* DSMZ 70269 is able to infect *Chlorella*-bearing *P. bursaria*, resulting in a stable double symbiosis. It can also infect *Chlorella*-free *P. bursaria*, but unlike other yeast species, it was not excluded on further introduction of the original symbiotic *Chlorella*. When infected with this yeast, *Chlorella*-free *P. bursaria* was able to withstand higher temperature, more ultraviolet irradiation, and stronger physical compression, showing that the symbiosis with *P. capsulata* is beneficial to the host *P. bursaria*.