

## Genus *Endonucleibacter*

### Etymology

[En.do.nu.cle.i.bac'ter] **Gr. pref.** *endo-*, within; **L. masc. n.** *nucleus*, a little nut and in biology, a nucleus; **N.L. masc. n.** *bacter*, a rod; **N.L. masc. n.** *Endonucleibacter*, a rod inside the nucleus

### Nomenclatural type

Species *Endonucleibacter puteoserpentis*<sup>Ts</sup>

### Description

A bacterial genus known to invade the nuclei of deep-sea bathymodiolin mussels from hydrothermal vents and cold seeps. This clade was first discovered infecting *Bathymodiolus puteoserpentis* from the Logatchev hydrothermal vent field on the Mid-Atlantic Ridge. Fluorescence *in situ* hybridization and transmission electron microscopy analyses of the developmental cycle of *Endonucleibacter* showed that the infection of a nucleus begins with a single rod-shaped bacterium which grows to an unseptated filament of up to 20 µm length and then divides repeatedly until the nucleus is filled with up to 80 000 bacteria. The greatly swollen nucleus destroys its host cell and the bacteria are released after the nuclear membrane bursts. Intriguingly, the only nuclei that were never infected by *Endonucleibacter* were those of the gill bacteriocytes. These cells contain the symbiotic sulfur- and methane-oxidizing bacteria, suggesting that the mussel symbionts can protect their host nuclei against the parasite. *Endonucleibacter* belongs to a monophyletic clade of *Gammaproteobacteria* associated with marine metazoans as diverse as sponges, corals, bivalves, gastropods, echinoderms, ascidians and fish.

### Classification

*Bacteria* » *Pseudomonadota* » *Gammaproteobacteria* » *Oceanospirillales* »  
*Endozoicomonadaceae* » *Endonucleibacter*

### References

Effective publication: Porras et al., 2024 [1]  
Original (not valid) publication: Zielinski et al., 2009 [2]  
*Corrigendum*: Oren et al., 2020 [3] (from “Endonucleobacter”)

### Registry URL

<https://seqco.de/i:32149>

## References

1. Porras et al. (2024). An intranuclear bacterial parasite of deep-sea mussels expresses apoptosis inhibitors acquired from its host. *Nature Microbiology*. DOI:10.1038/s41564-024-01808-5
2. Zielinski et al. (2009). Widespread occurrence of an intranuclear bacterial parasite in vent and seep bathymodiolin mussels. *Environmental Microbiology*. DOI:10.1111/j.1462-2920.2008.01847.x
3. Oren et al. (2020). Lists of names of prokaryotic Candidatus taxa. *International Journal of Systematic and Evolutionary Microbiology*. DOI:10.1099/ijsem.0.003789