



# Alvinella pompejana

# POMPEII WORM

## Brachial Crown

These function as gills. The feathery appearance means increased surface area for oxygen to diffuse across. These structures are the first to show when the worm partially emerges from its tube.



## The Tube

Pompeii worms live in tubes made from a mucus they produce and the minerals at the hydrothermal vents they occupy. Their tubes are constructed in a manner that protects against exposure to damaging water temperatures.

## The Trunk

The main body or trunk is covered in hair-like mats of Campylobacteria. These worms and bacteria have a symbiotic relationship where the bacteria provide nutrients, while the worms provide a safer living space than the surrounding water.



## fun fact

Pompeii worms produce an antibiotic to limit the amount of bacteria living on them so that the relationship doesn't become parasitic.

## references and image attributions

Chen, C., Jamieson, J.W. & Tunnicliffe, V. Hydrothermal vent fauna of the Galápagos Rift: updated species list with new records. Mar. Biodivers. 54, 16 (2024). <https://doi.org/10.1007/s12526-024-01408-w>

Gaudron, S. M., S. Lefebvre, A. N. Jorge, F. Gaill, F. Pradillon, 2012. Spatial and temporal variations in food web structure from newly-opened habitat at hydrothermal vents. Marine Environmental Research 77:129-140.

Grzyski, J. J., A. E. Murray, B. J. Campbell, M. Kaplarevic, G. R. Gao, C. Lee, R. Daniel, A. Ghadiri, R. A. Feldman, S. C. Cary. 2008. Metagenome analysis of an extreme microbial symbiosis reveals eurythermal adaptation and metabolic flexibility. Proceedings of the National Academy of Sciences of the United States of America 105:17516-17521.

Jollivet D., D. Desbruyères, C. Ladrat, L. Laubier. 1995. Evidence for differences in the allozyme thermo- stability of deep-sea hydrothermal vent polychaetes (Alvinellidae): a possible selection by habitat. Marine Ecology Progress Series 123:125-136.

Ifremer. 2009. Communautés microbiennes de la cavité céphalothoracique de Rimicaris exoculata. <https://image.ifremer.fr/data/00703/81547/>

Tasiemski, A., S. Jung, C. Boidin-Wichlacz, D. Jollivet, V. Cuvillier-Hot, F. Pradillon, C. Vetriani, O. Hecht, F. D. Sönnichsen, C. Gelhaus, C. Hung, A. Tholex, M. Leippe, J. Grötzinger, F. Gaill. 2014. Characterization and Function of the First Antibiotic Isolated from a Vent Organism: The Extremophile Metazoan Alvinella pompejana. PLoS ONE 9:95737.

Zbinden, M., N. L. Bris, P. Compère, I. Martinez, F. Guyot, F. Gaill. 2003. Mineralogical gradients associated with alvinellids at deep-sea hydrothermal vents. Deep-Sea Research Part 1 50:269-280.