



## (Endo)symbiotic methanogenic archaea /

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Monografía

Methanogens are prokaryotic microorganisms that produce methane as an end-product of a complex biochemical pathway. They are strictly anaerobic archaea and occupy a wide variety of anoxic environments. Methanogens also thrive in the cytoplasm of anaerobic unicellular eukaryotes and in the gastrointestinal tracts of animals and humans. The symbiotic methanogens in the gastrointestinal tracts of ruminants and other "methanogenic" mammals contribute significantly to the global methane budget; especially the rumen hosts an impressive diversity of methanogens. This monograph deals with methanogenic endosymbionts of anaerobic protists, in particular ciliates and termite flagellates, and with methanogens in the gastrointestinal tracts of vertebrates and arthropods. Further reviews discuss the genomic consequences of living together in symbiotic associations, the role of methanogens in syntrophic degradation, and the function and evolution of hydrogenosomes, hydrogen-producing organelles of certain anaerobic protists

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**Contenido:** Tom Fenchel and Bland J. Finlay: Free-living protozoa with endosymbiotic methanogens -- Johannes H.P. Hackstein: Anaerobic ciliates and their methanogenic endosymbionts -- Kazunari Ushida: Symbiotic methanogens and rumen ciliates -- Naoya Shinzato and Yoichi Kamagata: The methanogenic and eubacterial endosymbionts of Trimyema -- Yuichi Hongoh and Moriya Ohkuma: Termite Gut Flagellates and Their Methanogenic and Eubacterial Symbionts -- Andreas Brune: Methanogens in the digestive tract of termites -- Everly Conway de Macario and Alberto J.L. Macario: Methanogenic archaea in humans and other vertebrates -- Johannes H.P. Hackstein and Theo A. van Alen: Methanogens in the gastro-intestinal tract of animals -- Petra Worm, Nicolai Müller, Caroline M. Plugge, Alfons J.M. Stams, Bernhard Schink: Syntrophy in methanogenic degradation -- Johannes H.P. Hackstein and Aloysius G.M. Tielens: Hydrogenosomes -- Rosario Gil, Amparo Latorre, and Andrés Moya: Evolution of prokaryote-animal symbiosis from a genomics perspective

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