

# THEMATIC ISSUE ON

## *C<sub>1</sub> metabolism: methylotrophy, methanotrophy, autotrophy and methanogenesis.*

MICROBIOLOGY  
LETTERS

FEMS

Editors: **Dr Rich Boden and Dr Kathleen M Scott**

One-carbon or “C<sub>1</sub>” metabolism has been studied for over 100 years in many forms. In this thematic issue, we consider “C<sub>1</sub> metabolism *sensu lato*”, that is to say that we include methylotrophy (in the *Bacteria* and in the methylotrophic yeasts of the *Eukarya*), methanotrophy (*Bacteria*), methanogenesis (*Archaea*) and all forms of autotrophy. We include therein photolithoautotrophy (“*Cyanobacteria*”, *Chlorobea* [“green sulfur bacteria”], the *Chromatiales* of the *Gammaproteobacteria* [“purple sulfur bacteria”], *Chloroflexia* [“green non-sulfur bacteria”]), chemolithoautotrophy (various functional guilds including those that use sulfur, arsenic, antimony, molecular hydrogen, ammonia, nitrite, ferrous iron *etc*) and chemoorganolithoautotrophy (so-called “C<sub>1</sub> autotrophy” – methanol and formate autotrophy in e.g. *Paracoccus* or *Xanthobacter* spp.).

As well as core carbon-uptake pathways (e.g. the serine cycle, the Quayle pathway [ribulose 5′-monophosphate pathway], the xylulose monophosphate cycle [dihydroxyacetone cycle], the Calvin-Benson-Bassham cycle, the Arnon-Buchanan cycle *etc*), we are also interested in studies on substrate dissimilation pathways and enzymes, energy metabolism, substrate transport and capture, light harvesting *etc*. Studies on the core workhorse organisms such as *Methylococcus capsulatus* Bath, *Methylorubrum extorquens* AM1, *Thiobacillus thioparus* DSM 505<sup>T</sup>, *Acidithiobacillus thiooxidans* ATCC 19377<sup>T</sup>, *Chlorobaculum tepidum*, *Allochromatium vinosum* *etc* are obviously welcome, but we are also very interested in work on the more obscure and less-well-understood taxa.

Publications for this Thematic Issue will fit with all Sections of the journal and here we give examples of the types of content each section could take: *Physiology, Biochemistry and Genetics* (which includes \*omic studies); *Taxonomy, Systematics and Evolutionary Microbiology* (for novel taxa or studies on the evolution of enzymes, pathways *etc*); *Virology* (for phages of C<sub>1</sub> organisms); *Pathogens and Pathogenicity* (many C<sub>1</sub> organisms have been associated with human infection and cancer); *Ecology and Environmental Microbiology* (meta\*omic studies and human or plant-associated C<sub>1</sub> organism studies should go in this Section, not *Pathogens and Pathogenicity* unless actually pathogens); *Food Microbiology* (use of C<sub>1</sub> organisms in food production e.g. carotenoid production); *Biotechnology and Synthetic Microbiology* (use of C<sub>1</sub> organisms for industrial applications).

Please note that the journal also takes articles on history of microbiology, which should be submitted to the *Professional Development* Section. Articles on educational aspects of C<sub>1</sub> metabolism and so on should also be submitted to this Section.

In addition to Research Letters, we are also interested in Mini-Reviews, Commentaries and Perspectives: full details of the sizes and scopes of these articles can be found on the journal’s website. For Mini-Reviews, we strongly recommend authors submit an outline to the Editors prior to submission such that we can make recommendations before submission.

All submitted papers will undergo the standard independent peer-review process. Authors should specify “C<sub>1</sub> metabolism” in the cover letter.

For instructions for authors please see the *FEMS Microbiology Letters* journal page [academic.oup.com/femsle](http://academic.oup.com/femsle)

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