

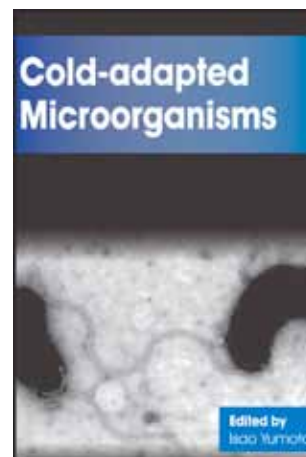
# Cold-Adapted Microorganisms

**Edited by: Isao Yumoto**

**Available now!**

*National Institute of Advanced Industrial Science and Technology, Sapporo, Japan*

x + 226 (plus colour plates) pp, September 2013 ISBN: 978-1-908230-26-3, \$319/£159



The earth is dominated by low-temperature environments including 90% of oceans and 26% of terrestrial soil ecosystems. Once thought too cold for life these environments have been shown to support diverse microbial communities. Psychrophiles use a wide variety of metabolic pathways, including photosynthesis, chemoautotrophy and heterotrophy and form robust, diverse communities. Cold-adapted microorganisms play a major role in nutrient turnover and primary biomass production in cold ecosystems and have important applications in biotechnology and in the study of food spoilage microorganisms.

In this up-to-date book, prominent authors present cutting-edge knowledge and current concepts on cold-adapted microorganisms. Divided into three main sections the book covers the major aspects of biodiversity in cold ecosystems, the physiology and molecular adaptation mechanisms, and the various biomolecules related to cold adaptation. Individual chapters cover the various habitats and the diverse strategies employed to cope with the cold. This major new work represents a valuable source of information to all those scientists interested in cold-adapted microorganisms, extremophiles, microbial ecology and environmental microbiology.

- Chapter 1: Diversity of Bacteria in Permafrost. *Shannon Hinsä-Leasure and Corien Bakermans*
- Chapter 2: Ecology and Taxonomy of Psychrotolerant Bacteria in Artificial Cold Environments. *Isao Yumoto and Koji Yamazaki*
- Chapter 3: Psychrophilic Microorganisms in Marine Environments. *Yuichi Nogi*
- Chapter 4: Fungi in Cryosphere: Their Adaptation to Environments. *Tamotsu Hoshino, Nan Xiao, Yuka Yajima and Oleg B. Tkachenko*
- Chapter 5: Energy Metabolism in Low-temperature and Frozen Conditions in Cold-adapted Microorganisms. *Pierre Amato*
- Chapter 6: Proteins Involved in Cold-adaptation. *Kazuaki Yoshimune, Jun Kawamoto and Tatsuo Kurihara*
- Chapter 7: Heat Shock Response in Psychrophilic Microorganisms. *Seiji Yamauchi, Shinsuke Fukuda and Hidenori Hayashi*
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- Chapter 9: Cold-adapted H<sub>2</sub>O<sub>2</sub> Tolerant Bacteria and their Catalases. *Isao Yumoto and Isao Hara*
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