JOURNAL OF BACTERIOLOGY

Volume 188 October 2006 **No. 19**

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PHYSIOLOGY AND METABOLISM

Cover photograph : The archaeon *Pyrococcus furiosus* ("rushing fireball") was named for its ability to swim very rapidly at temperatures above 80°C. Up to 70 flagella per cell have been observed on its surface. These flagella are multifunctional structures; they are used not only for swimming but also for adhesion to various surfaces to establish biofilms. Cells shown here adhere to sand grains from the natural habitat, the coast of Vulcano Island, Italy. In addition, flagella can aggregate into compact cables, establishing cell-cell connections. The image is a scanning electron micrograph of superimposed back-scattered and secondary electron signals. (*See related article on page 6915.*)