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Cover photograph (Copyright © 2012, American Society for Microbiology. All Rights Reserved.): Scanning electron micrograph of the chlorophyll (Chl) *d*-containing cyanobacterium *Acaryochloris marina* growing in dense biofilm aggregates inside alginate beads. This unique cyanobacterium is the only known phototroph that has exchanged its Chl *a* for Chl *d*, allowing it to perform oxygenic photosynthesis using near-infrared radiation (NIR). In nature, *Acaryochloris* thrives in biofilms colonizing microniches experiencing strong depletion of visible light, while sufficient NIR prevails. In the laboratory, it grows relatively fast in both planktonic and biofilm growth modes when kept under NIR light. Photo by Klaus Qvortrup and Lars Behrendt, University of Copenhagen. (See related article on page 3896.)