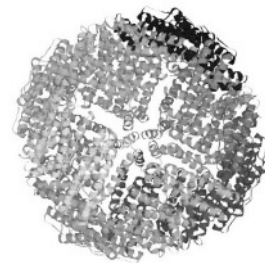


W0041

**Three-dimensional Structure of a Ferritin from the Hyperthermophilic Archaeon and Anaerobe *Pyrococcus furiosus*.** P.M.Matias<sup>a</sup>, J.Tatur<sup>b</sup>, M.A. Carrondo<sup>a</sup>, W.R. Hagen<sup>b</sup>, <sup>a</sup>Inst. de Tecnologia Química e Biológica, Av. República, EAN, 2784-505 OEIRAS, Portugal, <sup>b</sup>Dept. of Biotechnology, Delft Univ. of Technology, Julianalaan 67, 2628 BC Delft, The Netherlands.

*P. furiosus* is a marine, strictly anaerobic, fermentative, hyperthermophilic archaeon with an optimal growth temperature of 100°C. A putative ferritin gene was cloned and overexpressed in *E. coli*, and the purified protein was identified as an active ferritin, forming a 24-meric structure that can incorporate up to 2700 iron ions into a superparamagnetic core when incubated with Fe(II) under air. This protein exhibits the highest thermostability known among ferritins: its activity is fully retained after incubation at 100°C for 8 hours or autoclaving at 120°C for 20 minutes. Orthorhombic crystals of PfFtn were obtained in space group C222<sub>1</sub>, with cell dimensions a=258.1, b=340.1 and c=266.5 Å, and 1 1/2 24-meric clusters in the asymmetric unit. Diffraction data to 2.75 Å resolution from a flash frozen crystal was collected at ESRF beamline BM14. The structure was solved by the molecular replacement method and refined to R=0.209 and R<sub>free</sub>=0.258.



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