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Point-Projection Imaging of Individual Ferritin Molecules on Metallic Substrates

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Abstract

Point-projection microscopy has been used to obtain the first images of closely spaced (but isolated) ferritin molecules deposited onto metallic substrates. The microscopy, in conjunction with a digital processing algorithm, produces images which display a striking three-dimensional quality usually associated with scanning electron micrographs. From these images, an apoferritin diameter of 13 nm has been deduced. This is identical to the diameter of apoferritin obtained from a reconstruction of the molecule using x-ray coordinate data, but almost 70% larger than that deduced from TEM images of ferritin in which only its iron rich core can be seen. We suggest that radiation damage from the probing electron beam could account for the smaller apoferritin diameter deduced from TEM images.

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