Structural insights into iron(III) reduction by human STEAP4

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Enzymes of the six-transmembrane epithelial antigen of the prostate (STEAP) family reduce Fe(III) and Cu(II) ions to facilitate metal-ion uptake by mammalian cells. STEAPs are upregulated in several human cancers, making them potential therapeutic targets[1]. However, the structural basis for STEAP-catalyzed electron transfer through an array of cofactors to metals at the membrane luminal side remains elusive. We present a single-particle cryo-EM study which provides structural insights into transmembrane electron transport and iron(III) reduction by human STEAP4 .

[1]Hubert, R. S. et al. (1999), STEAP: a prostate-specific cell-surface antigen highly expressed in human prostate tumors. Proc. Natl Acad. Sci. USA 96, 14523–14528.