

## PUBLICATIONS

### Articles in Refereed Journals:

1. Watt, R. K., Frankel, R. B., Watt, G. D., Redox Reactions of Apo Mammalian Ferritin, (1992) *Biochemistry* 31, 9673-9679.
2. Heqing, H., Watt, R. K., Frankel, R. B., Watt, G. D., Role of Phosphate in Fe<sup>2+</sup> Binding to Horse Spleen Holo ferritin, (1993) *Biochemistry* 32, 1681-1687.
3. Watt, R. K., Ludden, P. W., The Identification, Purification and Characterization of CooJ: A Nickel-Binding Protein that is Co-Regulated with the Nickel-Containing CO-Dehydrogenase from *Rhodospirillum rubrum*, (1998) *J. Biol. Chem.* 273, 10010-10025.
4. Johnson, J. L., Cannon, M., Watt, R. K., Frankel, R. B., Watt, G. D., Forming the phosphate layer in reconstituted horse spleen ferritin and the role of phosphate in promoting core surface redox reactions, (1999) *Biochemistry*, 38, 6706-6713.
5. Watt, R. K., Ludden, P. W., Nickel Transport in *Rhodospirillum rubrum* (1999) *The Journal of Bacteriology* 181, 4554-4560.
6. Büchel, C., Barber, J., Ananyev, G., Eshaghi, S., Watt, R., Dismukes, C., Photoassembly of the manganese cluster and oxygen evolution from monomeric and dimeric CP47-reaction centre photosystem II complexes, (1999) *Proc. Natl. Acad. Sci.* 96, 14288-14293.
7. Watt, R. K., Ludden, P. W., Nickel Binding Proteins. *Cellular and Molecular Life Sciences* (1999) 56, 604-625.
8. Song, Y. J., Challa, S. R., Medforth, C. J., Qiu, Y., Watt, R.K., Pena, D., Miller, J.E., van Swol, F. Shelnutt, J.A., Synthesis of peptide-nanotube platinum-nanoparticle composites. *Chemical Communications*; (2004), no.9, p.1044-1045.
9. Polanams, J., Ray, A. D., Watt R. K., Nanophase Iron Phosphate, Iron Arsenate, Iron Vanadate and Iron Molybdate Minerals Synthesized within the Protein Cage of Ferritin, *Inorganic Chemistry*, (2005) 44, 3204-3209.
10. Cutler, C., Bravo, A., Ray, A. D., Watt, R. K., Iron Loading into Ferritin can be Stimulated or Inhibited by the Presence of Cations and Anions: A Specific Role for Phosphate. *Journal of Inorganic Biochemistry*, (2005) 99, 2270-2275.
11. Zhang, B., Watt, R. K., Galvez, N., Dominguez-Vera, J. M., Watt, G. D., Rate of Iron Transfer through the Horse Spleen Ferritin Shell Determined by Formation of Prussian Blue and Fe-Desferrioxamine in the Ferritin Cavity. *Biophysical Chemistry* (2006) 120, (2) 96-105.
12. Tyryshkin, A. M., Watt, R. K., Baranov, S. V., Dasgupta, J., Hendrich, M. P., Dismukes, G. C., Spectroscopic evidence for Ca<sup>2+</sup> involvement in the assembly of the Mn<sub>4</sub>Ca cluster in the photosynthetic water-oxidizing complex. *Biochemistry* (2006) 45, (43) 12876-12889.

**(Articles in Refereed Journals while at BYU.)**

13. Zhang, F., Gates, R. J., Smentkowski, V. S., Natarajan, S., Gale, B. K., Watt, R. K., Asplund, M. C., Linfood, M. R., Direct Adsorption and Detection of Proteins, Including Ferritin, onto Microlens Array Patterned Bioarrays, *J. Am. Chem. Soc.* (2007), 129, 9252-9253.
14. Shin, K. M., Watt, R. K., Watt, G. D., Choi, S. H., Kim, H. H., Kim, S. I., Kim, S. J., Characterization of ferritin core on redox reactions as a nanocomposite for electron transfer. *Electrochimica Acta* (2010), 55, (10) 3486-3490.
15. Watt, R.K., Hilton, R. J., Graff, D. M., Oxido-Reduction is not the Only Mechanism Allowing Ions to Traverse The Ferritin Protein Shell (Invited Review), *Biochim. Biophys. Acta* (2010), 1800, 745-759.
16. Johnson J. Kenealey, J., Hilton, R.J., Bronsahan, D., Watt, R.K., Watt, G.D., Non-reductive iron release from horse spleen ferritin using desferoxamine chelation, *J. Inorg. Biochem.* (2011), 105, 202-207.
17. Watt, R.K., The many faces of the octahedral protein ferritin (Invited Review), *BioMetals*, (2011) 24 (3), 489-500.
18. Alejandro E. Yevenes, A. E., Marquez, V., Watt, R. K., Cloning and characterization of *Chlorobium tepidum* Ferritin, *Biochimie* (2011) 93 352-360.
19. Keyes, J. D., Hilton, R. J., Farrer, J., Watt, R. K., Ferritin as a Photocatalyst for Gold Nanoparticle Synthesis, *Journal of Nanoparticle Research* (2011) 13, 2563-2575.
20. Snow, C., Martineau, L. N., Hilton, R. J., Brown, S., Farrer, J., Boerio-Goates, J., Woodfield, B. F., Watt, R. K., Ferritin iron mineralization proceeds by different mechanisms in MOPS and imidazole buffers, *J. Inorg. Biochem.* (2011) 105, 972-977.
21. Orihuela, R., Fernández, B., Atrian, S., Watt, R. K., Domínguez-Vera, J. M., Capdevila, M. Ferritin and Metallothionein: Dangerous Liaisons. *Chem. Comm.* (2011) 28, 47(44). 12155-7.
22. López-Castro, J. D., Delgado, J. J., Perez-Omil, J. A., Gálvez, N., Cuesta, R., Watt R. K., Domínguez-Vera, J. M. A New Approach to the Ferritin Iron Core Growth: The Core Shape is a Fingerprint of the Protein Capsid Composition. *Dalton Trans.* (2012) **41**, 1320–1324.
23. Hilton, R. J., Andros, N. D., Watt, R. K., The Ferroxidase Center is Essential for Ferritin Iron Loading in the Presence of Phosphate and Minimizes Side Reactions that Form Fe(III)-Phosphate Colloids. *BioMetals* (2012) 25 (2), 259-273.
24. Hilton, R. J., Zhang, B., Watt, G. D., L. Naomi Martineau, Watt, R. K., Anion Deposition into Ferritin. *J. Inorg. Biochem.* (2012) 108, 8-14.
25. Hilton, R. J., Seare, M. C., Andros, N. D., Kenealley, Z., Watt, R. K., Phosphate Inhibits In Vitro Fe<sup>3+</sup> Loading into Transferrin by Forming a Soluble Fe(III)-Phosphate Complex: A Potential Non-Transferrin Bound Iron Species. *J. Inorg. Biochem.* (2012) 110, 1-7.
26. Watt, R. K., A Unified Model for Ferritin Iron Loading by the Catalytic Center: Implications for Controlling “Free Iron” during Oxidative Stress. *ChemBioChem* (2013), 14, 415-419.

27. Watt, R. K., Petrucci, O. D., Smith, T., Ferritin as a model for developing 3rd generation nano architecture organic/inorganic hybrid photo catalysts for energy conversion, *Catalysis, Science & Technology* (2013) 3, 3103-3110.
28. Petrucci, O. D., Buck, D. C., Farrer, J. K., Watt, R. K., A ferritin mediated photochemical method to synthesize biocompatible catalytically active gold nanoparticles: size control synthesis for small (similar to 2 nm), medium (similar to 7 nm) or large (similar to 17 nm) nanoparticles. *RSC Advances* (2014) 4, (7) 3472-3481.
29. Colton, J. S., Erickson, S. D., Smith, T. J., Watt, R. K., Sensitive detection of surface- and size-dependent direct and indirect band gap transitions in ferritin. *Nanotechnology* (2014), 25, (13) Article number 135703.
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31. Arenas-Salinas, M., Townsend, P. D., Brito, C., Marquez, V., Marabolli, V., Gonzalez-Nilo, F., Matias, C., Watt, R. K., Lopez-Castro, J. D., Dominguez-Vera, J., Pohl, E., Yevenes, A., The crystal structure of ferritin from *Chlorobium tepidum* reveals a new conformation of the 4-fold channel for this protein family. *Biochimie* (2014), DOI: 10.1016/j.bhichi.2014.07.019.
32. Erickson, S. D., Smith, T. J., Moses, L., Watt, R. K., Colton, J. S., Non-native Co, Mn, and Ti Oxyhydroxide Nanocrystals synthesized within the Protein Ferritin for High Efficiency Solar Energy Conversion. *Nanotechnology* (2015), 26, 015703.
33. Smith, T. J., Erickson, S. D., Matias Orozco, C., Fluckiger, A., Moses, L. M., Colton, J. S., Watt R. K., Tuning the Band Gap of Ferritin Nanoparticles by Co-Depositing Iron with Halides or Oxo-anion. *J. Mater. Chem. A*, (2014), 2 (48) 20782-20788.
34. Swensen, A. C., Finnell, J. G., Matias, C., Gross, A. J., Prince, J. T., Watt, R. K., Price, J. C., Whole blood and urine bioactive Hcpidin-25 determination using liquid chromatography mass spectrometry. *Analytical Biochemistry* (2017), 517, 23-30.
35. Matias, C., Belnap, D. W., Smith, M. T., Stewart, M. G., Torres, I. F., Gross, A. J., Watt, R. K., Citrate and albumin facilitate transferrin iron loading in the presence of phosphate. *J. Inorg. Biochem.*, 168 (2017) 107–113
36. Olsen C. R., Smith, T. J., Embley, J. S., Maxfield, J. H., Hansen, K. R., Peterson, J. R., Henrichsen, A. M., Erickson, S D., Buck, D. C., Colton, J. S., Watt, R. K., Permanganate-based synthesis of manganese oxide nanoparticles in ferritin, *nanotechnology*, 28 (2017), 195601, <https://doi.org/10.1088/1361-6528/aa68ae>.
37. Olsen, C.R., Embley, J. S., Hansen, K. R., Henrichsen, A. M., Peterson, J. R., Colton, J. S., Watt, R. K., Tuning Ferritin's band gap through mixed metal oxide nanoparticle formation, *Nanotechnology*, 28, (2017) 195604, <https://doi.org/10.1088/1361-6528/aa68b0>.