

# **The Effect of Iron Binding on the Function of NUP475, a Non-Classical Zinc Finger Protein Involved in Inflammatory Response**

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Zinc finger proteins mediate a wide range of macromolecular interactions including the regulation of gene expression. NUP475 (also named Tristetraprolin and Tis11) belongs to a new class of zinc binding domains characterized by tandem CCCH repeats. NUP475 regulates the expression of a number of cytokines (proteins involved in inflammatory response) at the mRNA level. NUP475 binds to AU-rich sequence elements (AREs) at the 3'untranslated region (3'UTR) of cytokine mRNA molecules forming a complex that is degraded by the exosome. As part of an effort to understand the macromolecular implications of sequence and the role of these novel zinc binding domains in RNA regulation, we have prepared peptides that correspond to the zinc binding domains of NUP475. Under *in vitro* expression conditions, the NUP475 peptides acquire iron from the Luria Broth media, a phenomenon that we do not observe for other CCCH zinc binding protein family members. Using a combination of optical and fluorescence spectroscopies, we have begun to assess the role of iron in the folding and function of NUP475 in comparison to the role of zinc. These results as well as the peptides' metal binding affinities will be presented.