

## **Metal-Binding Domains: Designing Specific Single-Stranded Nucleic Acid- and Peptide-Binding Proteins**

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Cys<sub>2</sub>His<sub>2</sub> zinc finger domains have proven to be extremely powerful modules for the design of proteins capable of recognizing specific double-stranded DNA sequences. Given that many other classes of zinc-binding domain are present in Nature that mediate protein-single-stranded RNA/DNA and protein-protein interactions, opportunities are evident to expand the modular design approach to other classes of molecules. Tandem arrays of CCHC domains, first characterized in retroviral nucleocapsid proteins, have been prepared and examined for their abilities to recognize specific single stranded DNA molecules with appropriately spaced guanosine residues. Metal-mediated interactions between pairs of peptides each containing a Cys-X<sub>n</sub>-Cys sequence have been documented in several biological systems. Progress controlling hetero-oligomerization versus homo-oligomerization for such Cys-X<sub>n</sub>-Cys peptides will be described.