

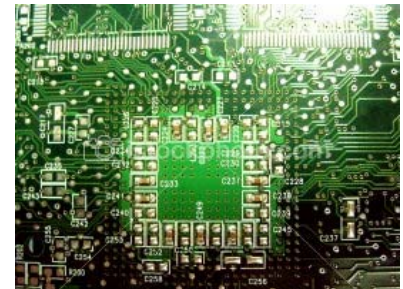
Engineering Nanomaterials with a Combined Electrochemical and Molecular Biomimetic Approach

Haixia Dai
UIF Fellow
Chemical Engineering
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Research Objective

Using a **DNA binding protein** engineered to contain a Cu_2O binding motif to **mimic** two key properties of **natural mineralizing proteins**:

- **growth** of a solid phase in a sub-saturated solution (thermodynamically unfavorable)
- **organization** of the protein/inorganic hybrid into a predicted geometry

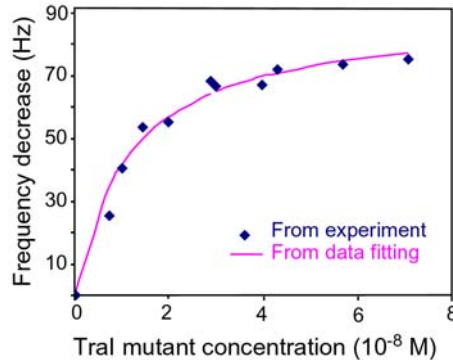
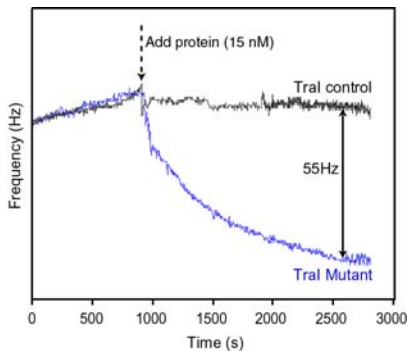
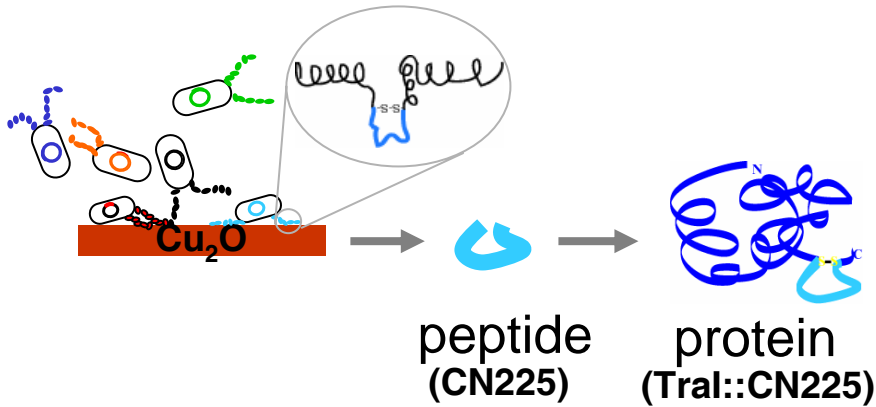


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Research Approaches

• Protein engineering and characterization

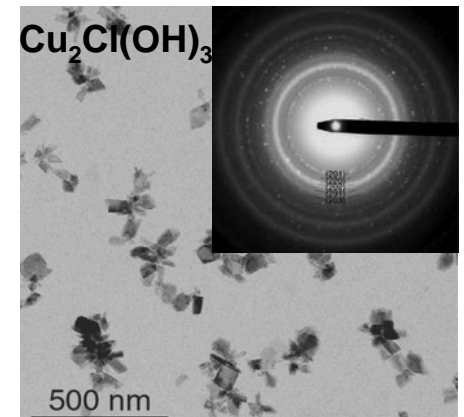
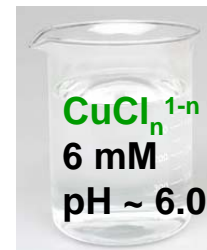
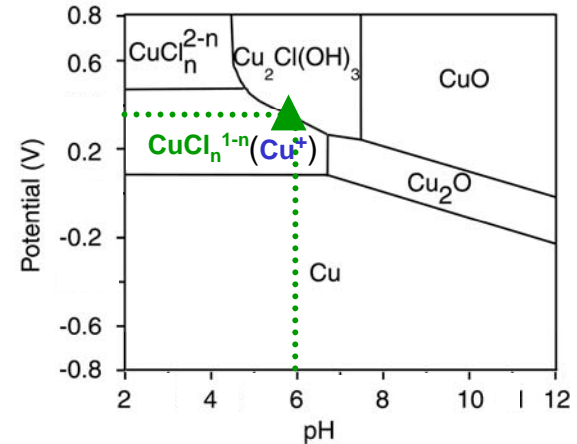


strong Cu_2O binding protein Tral::CN225



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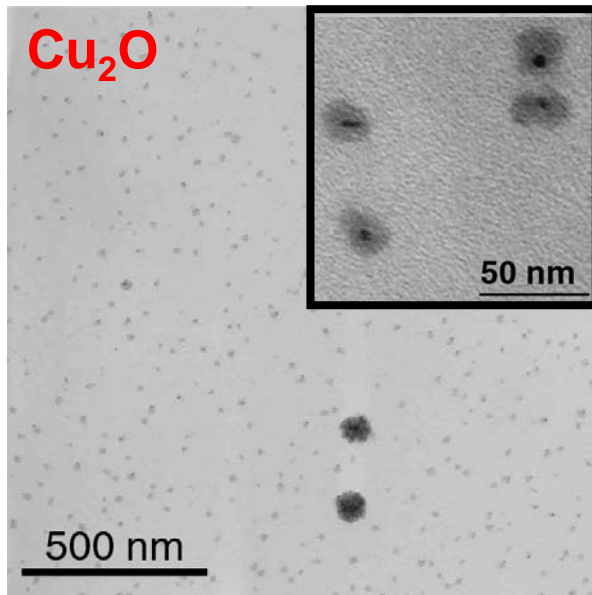
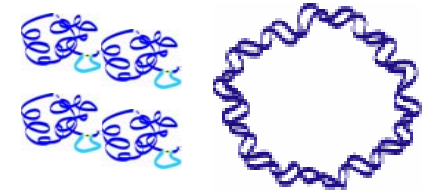
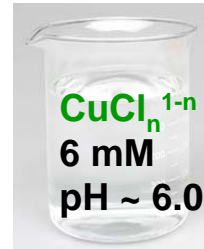
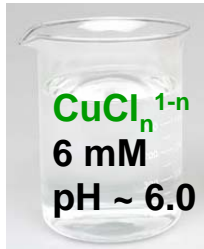
• Electrolyte engineering and characterization



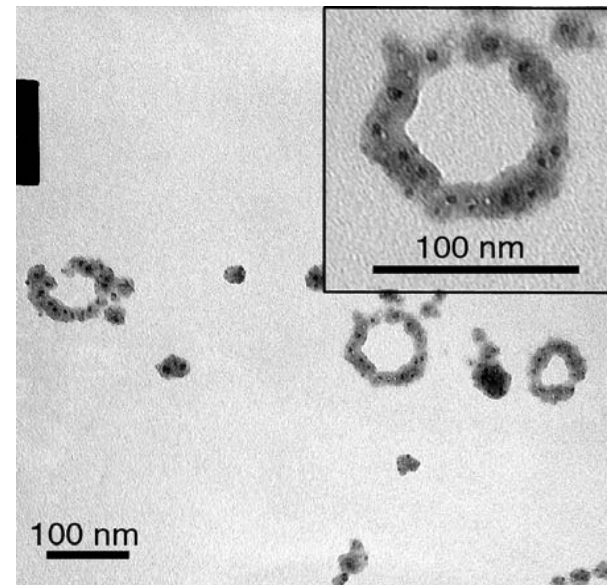
sub-saturated electrolyte for Cu_2O formation



Accomplishments



growth of Cu_2O in a sub-saturated solution



organization of the protein/ Cu_2O hybrid into a predicted geometry



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