

Review of: "Three-dimensional structure of the single domain cupredoxin AcoP"

Gloria Levican¹

¹ Universidad de Santiago de Chile

Potential competing interests: The author(s) declared that no potential competing interests exist.

I have received the manuscript "Three-dimensional structure of the single domain cupredoxin AcoP" for peer review. The text describes the physiological and structural characterization of AcoP, a copper protein from acidophilic bacterium *Acidithiobacillus ferrooxidans*. Using X-ray diffraction and EXAFS, and comparative analysis of the structures, the researcher studied wild type and two Cu-ligand mutants. The main conclusions are that AcoP has a typical cupredoxin fold, but with extended loops, which is a unique attribute of this protein not previously described in other similar ones. The Cu-S bond is particularly longer and can explain the typical green coloration of the proteins. Also the active center was shown to be constrained and rigid. The authors also discuss how the structural findings constitute adaptations to the acidic environment of the protein. The Material and Methods are well described. Also the results are well presented and discussed. In my opinion this manuscript is suitable for publication after some minor issues have been addressed.

Minor issues:

- Please provide a brief description about methodological strategy used to generate mutants and their verification.
- Please provides the corresponding reference for "purity and proteins concentration were determined with a theoretical molar extinction coefficient (ϵ_{280}) of 25,440 M⁻¹ cm⁻¹"
- Please be consistent with the format of the references. For example, sometimes the full names of the journals are given, while other times they are abbreviated. Review the format in general.