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Copper Homeostasis and Multicopper Oxidases: Linking Metal Regulation to Bioelectrocatalysis

Bacterial copper homeostasis relies on multicopper oxidases such as CueO, which oxidize toxic Cu^+ to the less reactive Cu^{2+} . CueO enzymes contain a flexible His/Met-rich insertion of debated function. We showed that it is dispensable under high copper availability but acts as a transient copper-binding platform when Cu^+ is strongly chelated. Comparative analyses of CueO homologs revealed that larger insertions enhance activity under copper limitation. Electrochemical and biochemical studies quantified the interplay between chelation strength and turnover. We also identified a transient copper-binding site involved in enzyme metalation. Together, these sites tune copper trafficking.



Thursday
October 22, 2026



U3 building
room 10



4.30 pm
to 5.30 pm

Host:
Arrigoni, Fasano



The certificates of attendance for the seminar are also valid for the acquisition of CFU credits
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