# XX ITALIAN-SPANISH CONGRESS ON THERMODYNAMICS OF METAL COMPLEXES

# XXXVI ANNUAL CONGRESS OF THE "GRUPPO DI TERMODINAMICA DEI COMPLESSI"

Tirrenia (Pisa), 7 -11 June 2009

# SPECTROSCOPIC ASPECTS OF COPPER(II) INTERACTION WITH A CAP43 PROTEIN FRAGMENT

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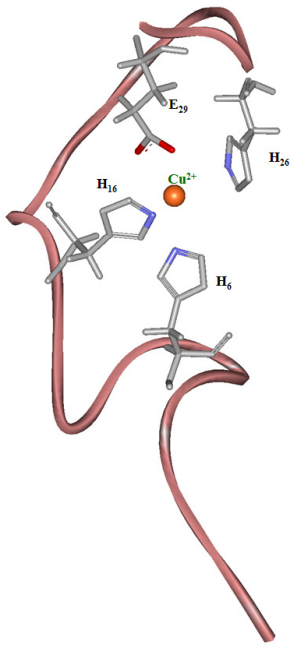
One of our research topics during the past years has been an interesting protein, called Cap43, which seems to be specifically induced by nickel ions [1]. This aspect triggered our attention because some other proteins are expressed after metal exposure, but none of them appeared to be induced by a single metal. Different articles reported about the different processes in which Cap43 protein is involved (hypoxia, cellular growth and differentiation, stress response, regulation of lipids distribution, cancerous states and metastasis suppression just to quote some), but so far no one has been able to cast a light on the effective role of Cap43 inside the cell. Its specificity to nickel, though, appeared to us a good starting point for our investigation [2,3], and in our most recent studies we have proposed a detoxification function for this protein. In fact, we found that a characteristic sequence at its C-terminus, where a mono-histidinic 10 aminoacid fragment is repeated consecutively three times, is able to effectively bind up to three metal ions at certain pH values.




By examining Cap43 for Cu-binding we hoped to get further information to understand the details of metal coordination to this important site within the protein [4]. To accomplish the task we used spectroscopic techniques as 1D, 2D NMR, EPR, CD and UV-Vis, which showed remarkable features about the Cu(II) interaction with a multi-histidinic fragment.

Here we would like to report our latest findings.

[1] D. Zhou et al., Cancer Res., **1998**, *58*, 2182-2189.
[2] M. A. Zoroddu et al., J. Inorg. Biochem., **2001**, *84*, 47-54.
[3] M. A. Zoroddu et al., J. Inorg. Biochem., **2004**, *98*, 931-939.
[4] M. A. Zoroddu et al., Dalton Trans., **2008**, 6127-6134.